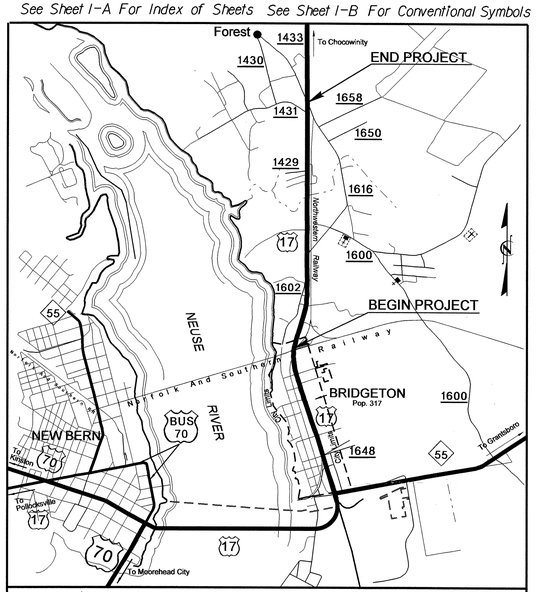
TIP PROJECT: R-3403AB

CONTRACT: C202017

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CRAVEN COUNTY

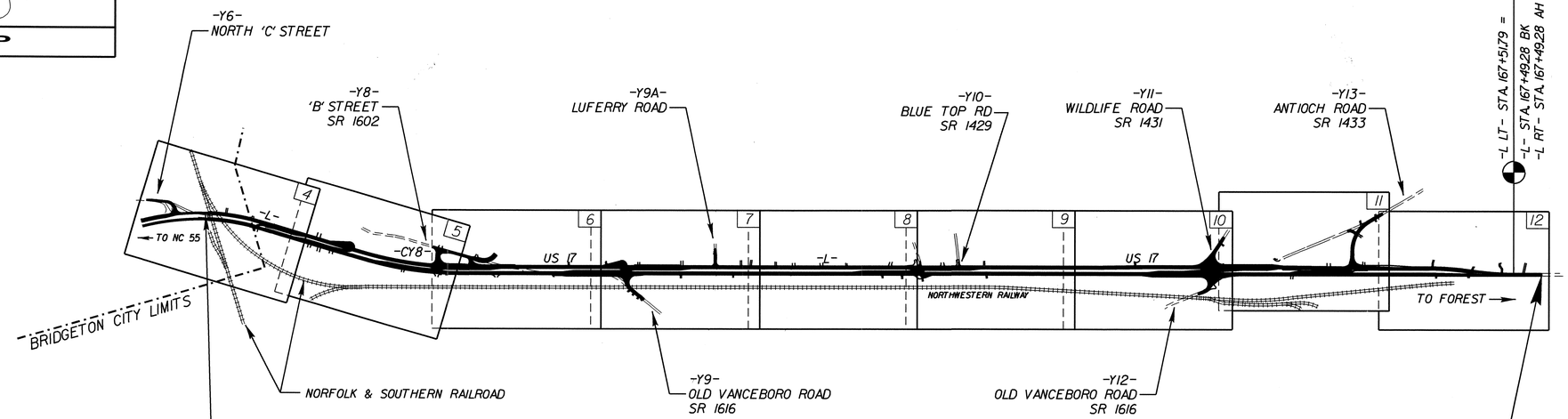
LOCATION: US 17 FROM NORFOLK & SOUTHERN RR TO NORTH OF SR 1433 (ANTIOCH ROAD)

TYPE OF WORK: GRADING, PAVING, CULVERT EXTENSIONS AND DRAINAGE

NAD 83

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3403AB	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34538.1.1	STPNHF-17(24)	PE
34538.2.2	STPNHF-17(47)	R /W, UTIL
34538.3.6	STPNHF-17(75)	CONST.



-L- STA. 50+90.00 BEGIN TIP PROJECT R-3403AB

-L RT- STA. 170+00.00 END TIP PROJECT R-3403AB
-L RT- STA. 170+50.00 END CONSTRUCTION R-3403AB

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS

GRAPHIC SCALES

PLANS: 25 0 50 100

PROFILE (HORIZONTAL): 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2010 = 14,682
ADT 2030 = 27,489
DHV = 11 %
D = 60 %
T = 10 % *
V = 60 MPH
* TTST 5% DUAL 5%
FUNC. CLASS = ARTERIAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-3403AB = 2.256 MILES
TOTAL LENGTH OF TIP PROJECT R-3403AB = 2.256 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: March 22, 2005

LETTING DATE: May 18, 2010

G. E. BREW, PE
PROJECT ENGINEER

E. MORRISON
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.
SIGNATURE: 3/24/10

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16903 ENGINEER GREGORY E. BREW
3-19-10
SIGNATURE: Gregory E. Brew

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
P.E.
STATE HIGHWAY DESIGN ENGINEER

09/08/99
18-MAR-2010 16:09
R:\Roadway\Proj\r3403ab\r3403ab_rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW

3-31-10

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-E	SURVEY CONTROL SHEETS
2 THRU 2-D	PAVEMENT SCHEDULE, TYPICAL SECTIONS, WEDGING DETAILS AND CONCRETE FLUME DETAIL
2-E	CONCRETE FLUME INSTALATION IN 8" X 18" CURB
2-F	SPECIAL CONCRETE MEDIAN DROP INLET
2-G	72" TRAFFIC BEARING JUNCTION BOX
2-H	ANCHORAGE FOR FRAMES-BRICK OR CONCRETE
2-I THRU 2-J	METHOD OF PIPE INSTALLATION
2-K	STOCKPILE DETAIL
3 (2 SHEETS)	SUMMARY OF QUANTITIES
3-A THRU 3-F	SUMMARY OF DRAINAGE QUANTITIES
3-G	SUMMARY OF GUARDRAIL, ASPHALT PAVEMENT REMOVAL SUMMARY
3-H	SUMMARY OF FENCING
3-I	SUMMARY OF EARTHWORK
3-J	PARCEL INDEX SHEET
4 THRU 12	PLAN SHEETS
13 THRU 21	PROFILE SHEETS
TCP-1 THRU TCP-26	TRAFFIC CONTROL PLANS
PM-1 THRU PM-6	PAVEMENT MARKING PLANS
EC-1 THRU EC-23	EROSION CONTROL PLANS
RF-1	REFORESTATION
SIGN-1 THRU SIGN-11	SIGNING PLANS
SD-1	SPECIAL SIGN DESIGN
UC-1 THRU UC-15	UTILITIE CONSTRUCTION PLANS
UO-1 THRU UO-10	UTILITIES PLANS BY OTHERS
X-1A THRU X-1B	CROSS-SECTION SUMMARY SHEETS
X-1 THRU X-71	CROSS-SECTIONS
C-1 THRU C-14	CULVERT PLANS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

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 AND STD. NO. 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

UNDERDRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE PROGRESS ENERGY, SPRINT, MULTIMEDIA CABLEVISION, TOWN OF BRIDGETON AND FIRST CRAVEN SANITARY DISTRICT

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

RIGHT-OF-WAY MARKERS:

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

EFF. 07-18-06
REV. 01-02-07

2006 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 July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
DIVISION 3 - PIPE CULVERTS	
310.02	Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.39	Reinforced Concrete Endwall - for Single 72" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.69	Reinforced Brick Endwall - for Single 72" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
850.01	Concrete Paved Ditches
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
866.01	Chain Link Fence - 4', 5' and 6' High Fence
866.02	Woven Wire Fence - with Wood Post
876.02	Guide for Rip Rap at Pipe Outlets

8/17/99

29-MAR-2010 14:01
R:\Roadway\Proj\r3403ab\r-3403ab_rdy_sht1a.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	1-B

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement
Curb
Prop. Slope Stakes Cut — C
Prop. Slope Stakes Fill — F
Prop. Woven Wire Fence
Prop. Chain Link Fence
Prop. Barbed Wire Fence
Prop. Wheelchair Ramp — WCR
Curb Cut for Future Wheelchair Ramp — CCFR
Exist. Guardrail
Prop. Guardrail
Equality Symbol
Removal of Existing Asphalt Pavement

RIGHT OF WAY

Baseline Control Point
Existing Right of Way Marker
Exist. Right of Way Line w/Marker
Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
Exist. Control of Access Line — CA
Prop. Control of Access Line — CA
Exist. Easement Line — E
Prop. Temp. Construction Easement Line — E
Prop. Temp. Drainage Easement Line — TDE
Prop. Perm. Drainage Easement Line — PDE

HYDROLOGY

Stream or Body of Water
River Basin Buffer — BZ
Flow Arrow
Disappearing Stream
Spring
Swamp Marsh
Shoreline
Falls, Rapids
Prop Lateral, Tail, Head Ditches — FLOW

STRUCTURES

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

MINOR
Head & End Wall — CONC HW
Pipe Culvert
Footbridge
Drainage Boxes — CB
Paved Ditch Gutter

UTILITIES

Exist. Pole
Exist. Power Pole
Prop. Power Pole
Exist. Telephone Pole
Prop. Telephone Pole
Exist. Joint Use Pole
Prop. Joint Use Pole
Telephone Pedestal — T
U/G Telephone Cable Hand Hold — HH
Cable TV Pedestal — C
U/G TV Cable Hand Hold — HH
U/G Power Cable Hand Hold — HH
Hydrant
Satellite Dish
Exist. Water Valve
Sewer Clean Out
Power Manhole — P
Telephone Booth
Cellular Telephone Tower
Water Manhole — W
Light Pole
H-Frame Pole
Power Line Tower
Pole with Base
Gas Valve
Gas Meter
Telephone Manhole — T
Power Transformer
Sanitary Sewer Manhole — S
Storm Sewer Manhole
Tank; Water, Gas, Oil
Water Tank With Legs
Traffic Signal Junction Box — S
Fiber Optic Splice Box — F
Television or Radio Tower
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS TS

Recorded Water Line — W W
Designated Water Line (S.U.E.*) — W W
Sanitary Sewer — SS SS
Recorded Sanitary Sewer Force Main — FSS FSS
Designated Sanitary Sewer Force Main(S.U.E.*) — FSS FSS
Recorded Gas Line — G G
Designated Gas Line (S.U.E.*) — G G
Storm Sewer — S S
Recorded Power Line — P P
Designated Power Line (S.U.E.*) — P P
Recorded Telephone Cable — T T
Designated Telephone Cable (S.U.E.*) — T T
Recorded U/G Telephone Conduit — TC TC
Designated U/G Telephone Conduit (S.U.E.*) — TC TC
Unknown Utility (S.U.E.*) — ?UTL ?UTL
Recorded Television Cable — TV TV
Designated Television Cable (S.U.E.*) — TV TV
Recorded Fiber Optics Cable — FO FO
Designated Fiber Optics Cable (S.U.E.*) — FO FO
Exist. Water Meter
U/G Test Hole (S.U.E.*)
Abandoned According to U/G Record — ATTUR
End of Information — E.O.I.

BOUNDARIES & PROPERTIES

State Line
County Line
Township Line
City Line
Reservation Line
Property Line
Property Line Symbol — PL
Exist. Iron Pin — EIP
Property Corner
Property Monument — ECM
Property Number — 123
Parcel Number — 6
Fence Line
Existing Wetland Boundaries — WW & ISBW
High Quality Wetland Boundary — WLB
Medium Quality Wetland Boundaries — HQ WLB
Low Quality Wetland Boundaries — MQ WLB
Proposed Wetland Boundaries — LQ WLB
Existing Endangered Animal Boundaries — WLB
Existing Endangered Plant Boundaries — EAB
— EPB

BUILDINGS & OTHER CULTURE

Buildings
Foundations
Area Outline
Gate
Gas Pump Vent or U/G Tank Cap
Church
School
Park
Cemetery
Dam
Sign
Well — S
Small Mine — W
Swimming Pool

TOPOGRAPHY

Loose Surface
Hard Surface
Change in Road Surface
Curb
Right of Way Symbol — R/W
Guard Post — GP
Paved Walk
Bridge
Box Culvert or Tunnel
Ferry
Culvert
Footbridge
Trail, Footpath
Light House

VEGETATION

Single Tree
Single Shrub
Hedge
Woods Line
Orchard
Vineyard — VINEYARD

RAILROADS

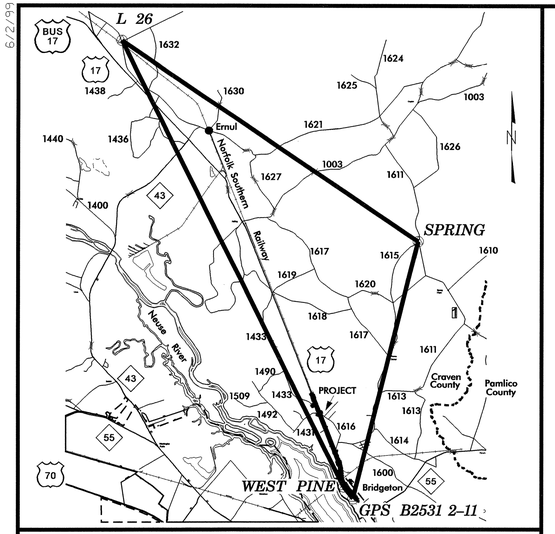
Standard Gauge — CSX TRANSPORTATION
RR Signal Milepost — MILEPOST 35
Switch — SWITCH

revised 02/02/00

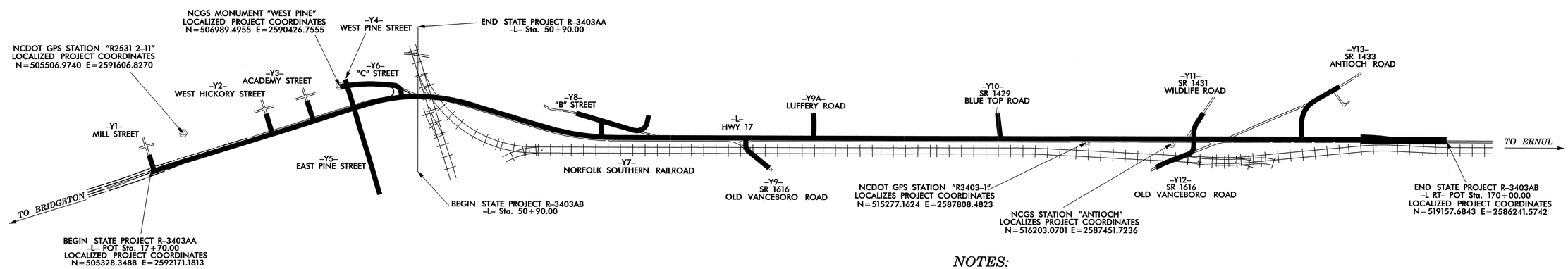
5/28/99
05-MAR-2010 08:37
R:\Roadway\Proj\r3403ab\r3403ab_rdy_tsh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	1-C
Location and Surveys	

SURVEY CONTROL SHEET R-3403AA & R-3403AB



GPS CONTROL NETWORK MAP



NC NAD 83 GRID

NOTES:

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE NAD 83 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.

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

THE FILES TO BE FOUND ARE AS FOLLOWS:
R3403A_LS_GPSCALIB_071017.HTML
R3403A_LS_WGS84_071017.TXT
R3403A_LS_LOCAL_071017.TXT
R3403A_LS_CONTROL_071017.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING NAD 83 MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R3403-4"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 532123.276(ft) EASTING: 2581086.826(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987844
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R3403-4" TO -L- STATION 17+70.00 IS
S 22°28'24.9" E 28997.09 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

NOTE: DRAWING NOT TO SCALE

6/2/99
27-FEB-2009 15:47
r:\proj\3403ab\r3403ab_ls_lc_071017.dgn
$$$$USERNAME$$$$

6/2/99

SURVEY CONTROL SHEET R-3403A

GPS CALIBRATION REPORT

PROJECT : R3403

TIP NUMBER	R-3403		
USER NAME	BREIGNER	DATE & TIME	7:37:08 AM 10/18/2007
COORDINATE SYSTEM	US STATE PLANE 1983(AT GROUND)	ZONE	NORTH CAROLINA 3200
HORIZONTAL DATUM	NAD 1983 (CONUS)		
VERTICAL DATUM	NGVD29	GEOID MODEL	GEOID99 (CONUS) NC SUB GRID
COORDINATE UNITS	US SURVEY FEET		
DISTANCE UNITS	US SURVEY FEET		
HEIGHT UNITS	US SURVEY FEET		

LOCAL SITE INFORMATION

LOCALIZED AROUND	R3403-4
LATITUDE	35°11'47.27071"N
LONGITUDE	77°03'17.23378"W
SITE SCALE FACTOR	1.0001215750
HEIGHT	-97.636SFT

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM
WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT IS DERIVED.
PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS.
THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS

DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER	533655.915SFT
EASTING COORDINATE OF ROTATION CENTER	2579560.924SFT
ROTATION ABOUT THE CENTER POINT	0°00'00"
TRANSLATION NORTH	0.014SFT
TRANSLATION EAST	0.049SFT
SCALE FACTOR	1.00000000

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT	506989.548SFT
EASTING COORDINATE OF ORIGIN POINT	2590426.616SFT
VERTICAL SEPARATION AT ORIGIN	-0.023SFT
SLOPE NORTH	13.087PPM
SLOPE EAST	28.340PPM

GEOID MODEL DEFINITION

GEOID99 (CONUS) NC SUB GRID

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.154SFT	0.017	WEST PINE GPS
VERTICAL	0.077SFT	0.009	WEST PINE GPS
THREE-DIMENSIONAL	0.172SFT	0.020	WEST PINE GPS

POINT RESIDUALS

WGS84 COORDINATES		CALCULATED POINT FOR DISPLAY ONLY		LOCAL COORDINATES	
POINT	WEST PINE GPS	NORTHING	506989.548SFT	POINT	WEST PINE
LATITUDE	35°07'36.90994"N	EASTING	2590426.616SFT	NORTHING	506989.497SFT
LONGITUDE	77°01'30.74675"W	ELEVATION	9.198SFT	EASTING	2590426.762SFT
HEIGHT	-112.829SFT	HORZ ERROR	0.154SFT	ELEVATION	9.275SFT
		VERT ERROR	0.077SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.172SFT	QUALITY	CONTROL QUALITY
POINT	R3403-1 GPS	NORTHING	515277.209SFT	POINT	R3403-1
LATITUDE	35°08'59.37724"N	EASTING	2587808.453SFT	NORTHING	515277.161SFT
LONGITUDE	77°02'00.28312"W	ELEVATION	10.369SFT	EASTING	2587808.479SFT
HEIGHT	-111.537SFT	HORZ ERROR	0.055SFT	ELEVATION	10.387SFT
		VERT ERROR	0.018SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.057SFT	QUALITY	CONTROL QUALITY
POINT	ANTIOCH GPS	NORTHING	516203.132SFT	POINT	ANTIOCH
LATITUDE	35°09'08.60317"N	EASTING	2587451.723SFT	NORTHING	516203.069SFT
LONGITUDE	77°02'04.35727"W	ELEVATION	13.184SFT	EASTING	2587451.721SFT
HEIGHT	-108.706SFT	HORZ ERROR	0.063SFT	ELEVATION	13.166SFT
		VERT ERROR	0.018SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.065SFT	QUALITY	CONTROL QUALITY
POINT	R3403-2 GPS	NORTHING	523237.650SFT	POINT	R3403-2
LATITUDE	35°10'18.71540"N	EASTING	2584632.099SFT	NORTHING	523237.650SFT
LONGITUDE	77°02'36.63611"W	ELEVATION	15.617SFT	EASTING	2584632.043SFT
HEIGHT	-106.145SFT	HORZ ERROR	0.055SFT	ELEVATION	15.581SFT
		VERT ERROR	0.036SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.066SFT	QUALITY	CONTROL QUALITY
POINT	R3403-3 GPS	NORTHING	524155.221SFT	POINT	R3403-3
LATITUDE	35°10'27.86037"N	EASTING	2584265.141SFT	NORTHING	524155.194SFT
LONGITUDE	77°02'40.83766"W	ELEVATION	15.639SFT	EASTING	2584265.077SFT
HEIGHT	-106.106SFT	HORZ ERROR	0.070SFT	ELEVATION	15.633SFT
		VERT ERROR	0.006SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.070SFT	QUALITY	CONTROL QUALITY
POINT	R3403-4 GPS	NORTHING	532123.293SFT	POINT	R3403-4
LATITUDE	35°11'47.27071"N	EASTING	2581086.878SFT	NORTHING	532123.276SFT
LONGITUDE	77°03'17.23378"W	ELEVATION	23.959SFT	EASTING	2581086.826SFT
HEIGHT	-97.636SFT	HORZ ERROR	0.055SFT	ELEVATION	23.917SFT
		VERT ERROR	0.042SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.069SFT	QUALITY	CONTROL QUALITY
POINT	R3403-5 GPS	NORTHING	533230.866SFT	POINT	R3403-5
LATITUDE	35°11'58.30870"N	EASTING	2580644.542SFT	NORTHING	533230.869SFT
LONGITUDE	77°03'22.30111"W	ELEVATION	19.668SFT	EASTING	2580644.526SFT
HEIGHT	-101.906SFT	HORZ ERROR	0.017SFT	ELEVATION	19.610SFT
		VERT ERROR	0.058SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.061SFT	QUALITY	CONTROL QUALITY
POINT	R3403-112 GPS	NORTHING	540559.728SFT	POINT	R3403-112
LATITUDE	35°13'11.36524"N	EASTING	2577617.658SFT	NORTHING	540559.740SFT
LONGITUDE	77°03'57.04562"W	ELEVATION	19.967SFT	EASTING	2577617.640SFT
HEIGHT	-101.460SFT	HORZ ERROR	0.021SFT	ELEVATION	19.933SFT
		VERT ERROR	0.035SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.041SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-6 GPS	NORTHING	541415.612SFT	POINT	R3403-6
LATITUDE	35°13'19.92229"N	EASTING	2577131.772SFT	NORTHING	541415.624SFT
LONGITUDE	77°04'02.69977"W	ELEVATION	13.493SFT	EASTING	2577131.750SFT
HEIGHT	-107.911SFT	HORZ ERROR	0.025SFT	ELEVATION	13.465SFT
		VERT ERROR	0.028SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.038SFT	QUALITY	CONTROL QUALITY
POINT	SNAPPYS GPS	NORTHING	547975.059SFT	POINT	SNAPPYS
LATITUDE	35°14'25.45355"N	EASTING	2573652.757SFT	NORTHING	547975.109SFT
LONGITUDE	77°04'43.09329"W	ELEVATION	15.618SFT	EASTING	2573652.738SFT
HEIGHT	-105.623SFT	HORZ ERROR	0.054SFT	ELEVATION	15.607SFT
		VERT ERROR	0.011SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.055SFT	QUALITY	CONTROL QUALITY
POINT	R3403-7 GPS	NORTHING	548696.228SFT	POINT	R3403-7
LATITUDE	35°14'32.71348"N	EASTING	2572980.434SFT	NORTHING	548696.265SFT
LONGITUDE	77°04'51.02883"W	ELEVATION	17.425SFT	EASTING	2572980.434SFT
HEIGHT	-103.786SFT	HORZ ERROR	0.037SFT	ELEVATION	17.441SFT
		VERT ERROR	0.016SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.040SFT	QUALITY	CONTROL QUALITY
POINT	R3403-8 GPS	NORTHING	553513.367SFT	POINT	R3403-8
LATITUDE	35°15'21.20456"N	EASTING	2568483.187SFT	NORTHING	553513.419SFT
LONGITUDE	77°05'44.12225"W	ELEVATION	18.534SFT	EASTING	2568483.203SFT
HEIGHT	-102.473SFT	HORZ ERROR	0.054SFT	ELEVATION	18.550SFT
		VERT ERROR	0.016SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.057SFT	QUALITY	CONTROL QUALITY
POINT	R3403-9 GPS	NORTHING	554295.335SFT	POINT	R3403-9
LATITUDE	35°15'29.07477"N	EASTING	2567757.123SFT	NORTHING	554295.386SFT
LONGITUDE	77°05'52.69466"W	ELEVATION	19.621SFT	EASTING	2567757.138SFT
HEIGHT	-101.352SFT	HORZ ERROR	0.053SFT	ELEVATION	19.652SFT
		VERT ERROR	0.032SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.062SFT	QUALITY	CONTROL QUALITY
POINT	R3403-101 GPS	NORTHING	498420.009SFT	POINT	R3403-101
LATITUDE	35°06'12.72209"N	EASTING	2587608.803SFT	NORTHING	498419.952SFT
LONGITUDE	77°02'06.70470"W	ELEVATION	3.992SFT	EASTING	2587608.864SFT
HEIGHT	-117.948SFT	HORZ ERROR	0.084SFT	ELEVATION	4.000SFT
		VERT ERROR	0.008SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.084SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-102 GPS	NORTHING	518984.637SFT	POINT	R3403-102
LATITUDE	35°09'34.63128"N	EASTING	2594945.629SFT	NORTHING	518984.598SFT
LONGITUDE	77°00'33.45906"W	ELEVATION	16.936SFT	EASTING	2594945.634SFT
HEIGHT	-105.259SFT	HORZ ERROR	0.039SFT	ELEVATION	16.925SFT
		VERT ERROR	0.011SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.041SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-103 GPS	NORTHING	514597.600SFT	POINT	R3403-103
LATITUDE	35°08'53.28616"N	EASTING	2584587.905SFT	NORTHING	514597.557SFT
LONGITUDE	77°02'39.21875"W	ELEVATION	16.119SFT	EASTING	2584587.912SFT
HEIGHT	-105.656SFT	HORZ ERROR	0.043SFT	ELEVATION	16.117SFT
		VERT ERROR	0.003SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.043SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-104 GPS	NORTHING	535934.243SFT	POINT	R3403-104
LATITUDE	35°12'23.96024"N	EASTING	2586198.825SFT	NORTHING	535934.237SFT
LONGITUDE	77°02'14.74458"W	ELEVATION	23.667SFT	EASTING	2586198.807SFT
HEIGHT	-98.135SFT	HORZ ERROR	0.019SFT	ELEVATION	23.662SFT
		VERT ERROR	0.005SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.020SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-105 GPS	NORTHING	532120.002SFT	POINT	R3403-105
LATITUDE	35°11'48.20854"N	EASTING	2576058.293SFT	NORTHING	532119.991SFT
LONGITUDE	77°04'17.81212"W	ELEVATION	17.264SFT	EASTING	2576058.262SFT
HEIGHT	-104.118SFT	HORZ ERROR	0.032SFT	ELEVATION	17.239SFT
		VERT ERROR	0.025SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.041SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-106 GPS	NORTHING	542968.683SFT	POINT	R3403-106
LATITUDE	35°13'34.49676"N	EASTING	2581184.447SFT	NORTHING	542968.698SFT
LONGITUDE	77°03'13.49638"W	ELEVATION	15.833SFT	EASTING	2581184.439SFT
HEIGHT	-105.740SFT	HORZ ERROR	0.017SFT	ELEVATION	15.844SFT
		VERT ERROR	0.011SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.020SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-107 GPS	NORTHING	537524.765SFT	POINT	R3403-107
LATITUDE	35°12'42.03929"N	EASTING	2574049.539SFT	NORTHING	537524.767SFT
LONGITUDE	77°04'40.75008"W	ELEVATION	10.460SFT	EASTING	2574049.524SFT
HEIGHT	-110.823SFT	HORZ ERROR	0.015SFT	ELEVATION	10.443SFT
		VERT ERROR	0.016SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.022SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-108 GPS	NORTHING	555897.322SFT	POINT	R3403-108
LATITUDE	35°15'43.62018"N	EASTING	2574554.356SFT	NORTHING	555897.366SFT
LONGITUDE	77°04'30.37423"W	ELEVATION	21.265SFT	EASTING	2574554.353SFT
HEIGHT	-99.997SFT	HORZ ERROR	0.044SFT	ELEVATION	21.301SFT
		VERT ERROR	0.036SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.057SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-109 GPS	NORTHING	547279.426SFT	POINT	R3403-109
LATITUDE	35°14'19.81541"N	EASTING	2567134.691SFT	NORTHING	547279.455SFT
LONGITUDE	77°06'01.81738"W	ELEVATION	23.002SFT	EASTING	2567134.681SFT
HEIGHT	-97.961SFT	HORZ ERROR	0.031SFT	ELEVATION	22.999SFT
		VERT ERROR	0.003SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.031SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-110 GPS	NORTHING	560360.456SFT	POINT	R3403-110
LATITUDE	35°16'29.27926"N	EASTING	2566545.647SFT	NORTHING	560360.515SFT
LONGITUDE	77°06'05.90143"W	ELEVATION	27.993SFT	EASTING	2566545.642SFT
HEIGHT	-92.912SFT	HORZ ERROR	0.059SFT	ELEVATION	28.027SFT
		VERT ERROR	0.034SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.068SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-111 GPS	NORTHING	552002.017SFT	POINT	R3403-111
LATITUDE	35°15'07.26639"N	EASTING	2563151.406SFT	NORTHING	552002.061SFT
LONGITUDE	77°06'48.74604"W	ELEVATION	9.110SFT	EASTING	2563151.401SFT
HEIGHT	-111.668SFT	HORZ ERROR	0.044SFT	ELEVATION	9.123SFT
		VERT ERROR	0.013SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.046SFT	QUALITY	ADJUSTED QUALITY
POINT	R3403-100 GPS	NORTHING	507636.817SFT	POINT	R3403-100
LATITUDE	35°07'41.59810"N	EASTING	2599066.414SFT	NORTHING	507636.768SFT
LONGITUDE	76°59'46.59922"W	ELEVATION	17.711SFT	EASTING	2599066.481SFT
HEIGHT	-104.664SFT	HORZ ERROR	0.084SFT	ELEVATION	17.747SFT
		VERT ERROR	0.036SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.091SFT	QUALITY	ADJUSTED QUALITY

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "R3403-4"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 532123.276(ft) EASTING: 2581086.826(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.99987844
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"R3403-4" TO -L- STATION 17+70.00 IS
S 22°28'24.9" E 28997.09 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

27-MAY-2008 10:56
r:\roadway\proj\r3403ab\r3403ab_ls_1d_071017.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	1-E
Location and Surveys	

SURVEY CONTROL SHEET R-3403A

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	504593.0030	2592649.9740	10.23	OUTSIDE PROJECT LIMITS	
2	BL-2	505142.5210	2592402.8180	9.89	14+78.43	53.83 RT
3	BL-3	505704.2960	2591890.4130	8.85	22+38.92	26.83 RT
4	BL-4	506197.9490	2591445.9240	10.19	29+02.34	6.80 LT
5	BL-5	506589.6550	2591126.1700	9.64	34+07.99	7.92 LT
6	BL-6	506999.7290	2590793.3000	9.24	39+36.16	7.64 LT
7	BL-7	507517.0450	2590403.8940	9.55	45+84.13	7.04 RT
8	BL-8	508004.1620	2590193.9150	9.43	51+20.92	33.05 RT
9	BL-9	508620.2880	2590124.3210	7.93	57+52.25	73.03 RT
10	BL-10	509329.8900	2590033.1630	8.26	64+67.14	48.76 RT
11	BL-11	509880.1320	2589937.4660	8.08	70+18.26	48.80 RT
12	BL-12	510482.0460	2589718.5800	8.68	76+53.56	46.93 RT
13	BL-13	511055.3060	2589488.9620	9.02	82+71.10	45.73 RT
14	BL-14	511553.8700	2589291.4000	9.88	88+07.38	46.68 RT
15	BL-15	512132.5920	2589059.1600	10.34	94+30.96	45.07 RT
16	BL-16	512688.2400	2588839.1130	11.09	100+28.59	46.25 RT
17	BL-17	513237.7370	2588576.8700	10.62	106+36.12	5.95 RT
18	BL-18	513817.5560	2588388.5780	10.04	112+44.46	45.58 RT
19	BL-19	514412.4180	2588151.3550	10.24	118+84.88	45.31 RT
20	BL-20	514833.5370	2587983.8170	10.70	123+38.10	45.50 RT
21	NCDOT GPS R3403-1	515277.1624	2587808.4823	10.39	128+15.12	46.76 RT
22	NCGS MONUMENT ANTIOCH	516203.0701	2587451.7236	13.17	138+07.31	57.95 RT
23	BL-23	516759.4290	2587221.4960	15.36	144+09.37	49.93 RT
24	BL-24	517322.7880	2586999.0390	15.91	150+15.06	51.73 RT
25	BL-25	517888.7220	2586766.6160	16.20	156+26.83	45.22 RT
26	BL-26	518432.3680	2586548.5090	16.30	162+12.59	43.76 RT
27	BL-27	519018.7585	2586316.4385	16.00	168+43.23	45.14 RT
28	BL-28	519594.2600	2586084.9223	16.32	OUTSIDE PROJECT LIMITS	

BY-1

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
100	BY1-100	505192.0830	2591906.4570	9.58	OUTSIDE PROJECT LIMITS	
101	BY1-101	505326.1340	2592068.6160	8.14	11+17.80	24.17 LT
102	COMPUTED POINT	505404.7113	2592163.6696	UNKNOWN	OUTSIDE PROJECT LIMITS	

BY-2

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
200	BY2-200	506285.2120	2591029.3540	9.99	OUTSIDE PROJECT LIMITS	
201	BY2-201	506414.0590	2591188.6990	9.33	11+72.82	16.11 RT
202	COMPUTED POINT	506453.4217	2591237.3788	UNKNOWN	12+35.42	16.11 RT

BY-3

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
300	BY3-300	506691.4640	2590685.2250	9.31	OUTSIDE PROJECT LIMITS	
301	BY3-301	506826.3550	2590845.9500	6.87	11+68.79	20.82 LT
302	COMPUTED POINT	506870.3251	2590898.3412	UNKNOWN	12+37.18	20.37 LT

BY-4

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
400	BY4-400	506904.7900	2590215.4690	7.71	OUTSIDE PROJECT LIMITS	
401	BY4-401	507176.4270	2590559.0620	7.02	12+71.31	21.05 RT
402	COMPUTED POINT	507226.5994	2590622.5249	UNKNOWN	OUTSIDE PROJECT LIMITS	

BY-5

POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
499	COMPUTED POINT	507256.7320	2590599.8428	UNKNOWN	10+04.24	15.92 LT
500	BY5-500	507269.8470	2590616.5270	8.97	10+25.46	15.74 LT
501	BY5-501	507589.3130	2591022.9340	7.71	15+42.38	11.45 LT

BY-6

POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
50	NCGS MONUMENT WEST PINE	506989.4955	2590426.7555	9.28	OUTSIDE PROJECT LIMITS	
600	BY6-600	507212.5020	2590300.5840	8.81	12+52.19	16.22 LT
601	BY6-601	507852.7900	2590163.4030	9.14	17+72.58	184.08 LT
602	BL-8	508004.1620	2590193.9150	9.43	OUTSIDE PROJECT LIMITS	

BY-8

POINT	DESC.	NORTH	EAST	ELEVATION	Y8 STATION	OFFSET
800	BY8-800	509585.1400	2589722.2010	5.20	OUTSIDE PROJECT LIMITS	
801	BY8-801	510098.7250	2589666.5790	7.11	14+43.27	12.70 RT
802	BY8-802	510629.3670	2589602.1670	7.47	18+38.42	183.82 RT
803	BL-13	511055.3060	2589488.9620	9.02	18+79.49	594.97 RT

BY-9

POINT	DESC.	NORTH	EAST	ELEVATION	Y9 STATION	OFFSET
900	BL-14	511553.8700	2589291.4000	9.88	14+27.23	57.62 LT
901	BY9-901	512007.4640	2589451.1750	10.12	OUTSIDE PROJECT LIMITS	

BY-9A

POINT	DESC.	NORTH	EAST	ELEVATION	Y9A STATION	OFFSET
950	BY9A-950	512232.3890	2588680.6580	10.03	10+22.02	12.12 LT
951	BY9A-951	512301.1290	2588927.6650	10.37	12+76.74	16.50 RT
952	COMPUTED POINT	512317.3599	2588985.9884	UNKNOWN	OUTSIDE PROJECT LIMITS	

BY-10

POINT	DESC.	NORTH	EAST	ELEVATION	Y10 STATION	OFFSET
1000	BY10-1000	514175.8500	2587814.5240	10.58	OUTSIDE PROJECT LIMITS	
1001	BY10-1001	514336.1020	2588113.4680	9.82	12+72.39	9.85 LT
999	BL-19	514412.4180	2588151.3550	10.24	OUTSIDE PROJECT LIMITS	

BY-11

POINT	DESC.	NORTH	EAST	ELEVATION	Y11 STATION	OFFSET
1100	BY11-1100	516454.7110	2586854.4620	8.86	OUTSIDE PROJECT LIMITS	
1101	BY11-1101	516371.8930	2587270.4650	13.07	12+79.30	33.78 RT
1102	NCGS MONUMENT ANTIOCH	516203.0701	2587451.7236	13.17	OUTSIDE PROJECT LIMITS	

BY-12

POINT	DESC.	NORTH	EAST	ELEVATION	Y12 STATION	OFFSET
1200	BL-23	516759.4290	2587221.4960	15.36	15+64.18	344.37 RT
1201	BY12-1201	516142.2090	2587733.8860	12.32	10+37.60	25.46 LT

BY-13

POINT	DESC.	NORTH	EAST	ELEVATION	Y13 STATION	OFFSET
1301	BY13-1301	517899.7664	2585966.9110	11.19	OUTSIDE PROJECT LIMITS	
1300	BY13-1300	517370.1900	2586543.1170	15.66	15+24.24	124.17 RT
1299	BL-23	516759.4290	2587221.4960	15.36	OUTSIDE PROJECT LIMITS	

****
BM1 ELEVATION = 10.56
N 504898 E 2592845
L STATION 10+09 237 RIGHT
RR SPIKE SET IN BASE OF POWER POLE (NO NUMBER)
****
****
BM2 ELEVATION = 9.75
N 506556 E 2591507
L STATION 31+42 266 RIGHT
RR SPIKE SET IN BASE OF 20' GUM TREE
****
****
BM3 ELEVATION = 11.00
N 507499 E 2590733
L STATION 43+63 260 RIGHT
RR SPIKE SET IN BASE OF CP&L POWER POLE
*NEW50
****
****
BM4 ELEVATION = 9.44
N 509789 E 2590165
L STATION 68+83 248 RIGHT
RR SPIKE SET IN BASE OF 28' GUM TREE
****
****
BM5 ELEVATION = 12.34
N 511860 E 2589331
L STATION 90+77 196 RIGHT
RR SPIKE SET IN BASE OF 30IN PINE TREE
****
****
BM6 ELEVATION = 11.42
N 513601 E 2588592
L STATION 109+68 155 RIGHT
CHISLED SQUARE IN NE COR.OF SOUTH R/R BRIDGE HEADWALL
****
****
BM7 ELEVATION = 13.26
N 514852 E 2588141
L STATION 122+97 198 RIGHT
RR SPIKE SET IN BASE OF 6IN PINE TREE
****
****
BM8 ELEVATION = 15.50
N 516308 E 2587629
L STATION 138+40 262 RIGHT
TOP OF WEST ANCOR BOLT OF EAST R/R SIGNAL LIGHTS
****

****
BM9 ELEVATION = 19.77
N 518568 E 2586611
TRANRT STATION 163+16 125 RIGHT
RR SPIKE SET IN BASE OF CP&L POWER POLE
*NEM31
****

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R3403-4"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 532123.276(ft) EASTING: 2581086.826(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987844
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R3403-4" TO -L- STATION 17+70.00 IS
S 22°28'24.9" E 28997.09 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

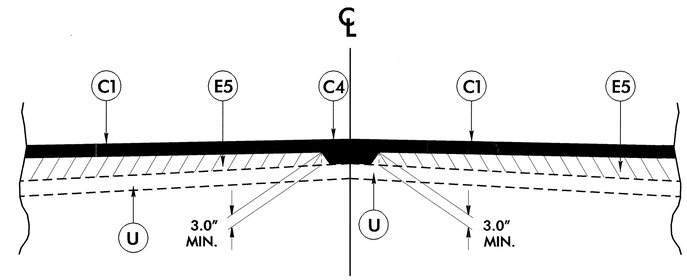
NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW

03/12/09

FINAL PAVEMENT SCHEDULE

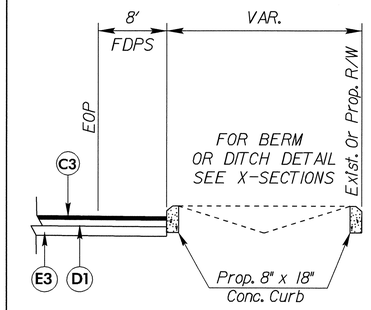
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ.YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT MORE THAN 1.5" IN DEPTH
D1	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E4	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E5	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 3.0" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

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



Detail Showing Method of Wedging

–Y– Lines Only

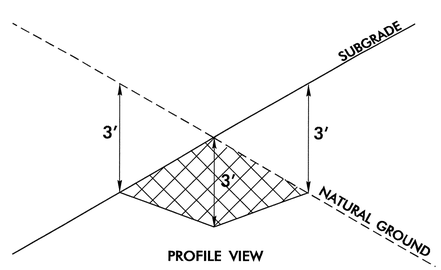


Detail for Business Channelization

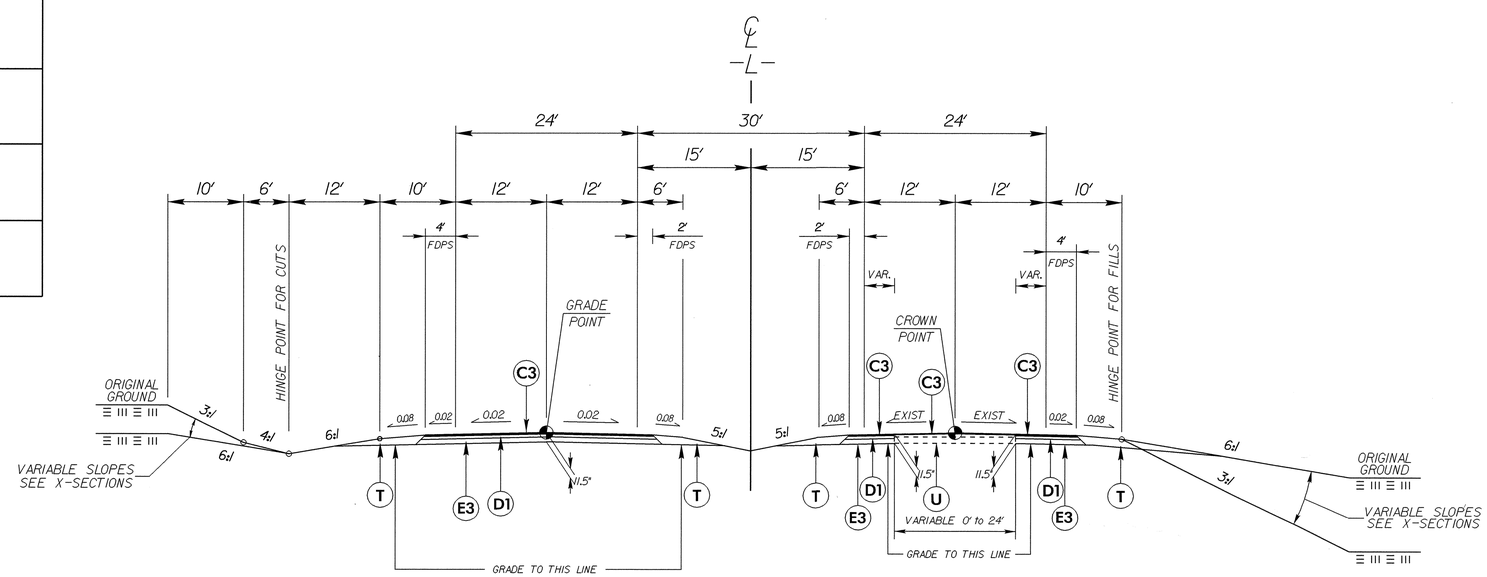
See Plans for Locations

FDPS = FULL DEPTH PAVED SHOULDER

DETAIL OF PROPOSED UNDERCUT AT GRADE POINT



PROFILE VIEW



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

–L– STA. 50+90.00 TO –L– STA. 56+00.00

6/2/99

17-FEB-2009 08:31
r:\roadway\proj\r-3403ab\r-3403ab_rdy_typ.dgn
$$$$USERNAME$$$$

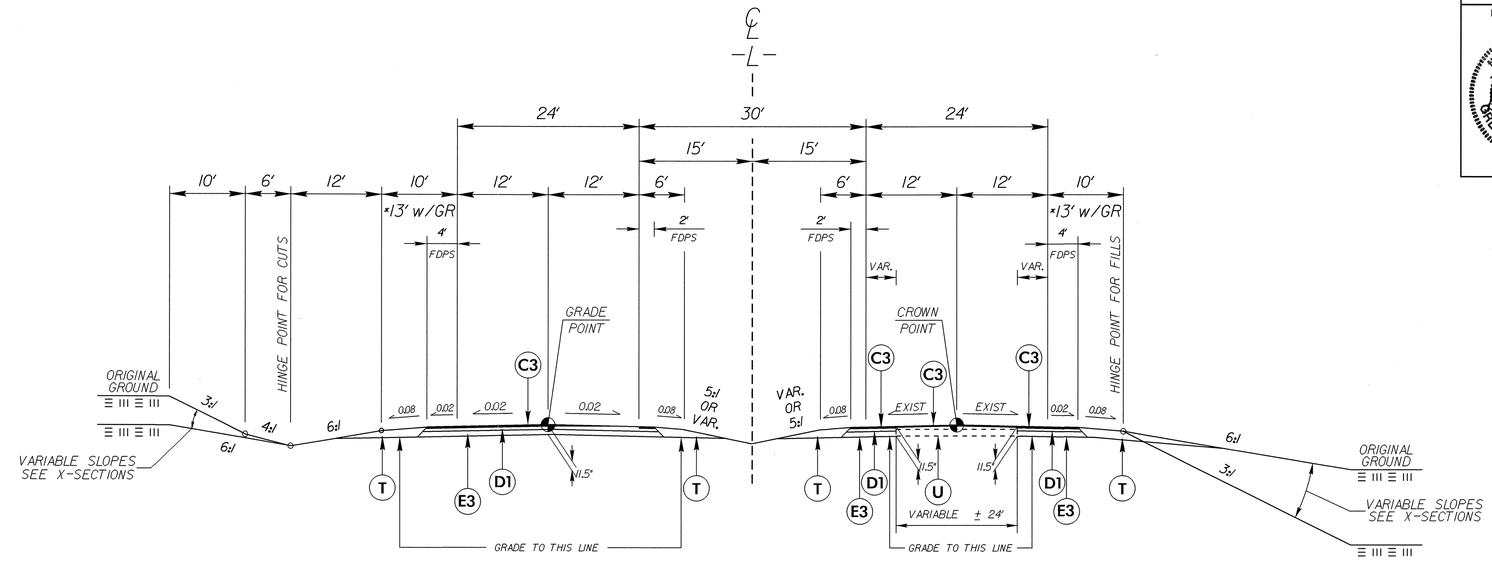
PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW 3-5-10

031484 03/05/10

FINAL PAVEMENT SCHEDULE	
C3	3.0" S9.5C
D1	3.5" I19.0C
E3	5.0" B25.0C
T	EARTH MATERIAL
U	EXISTING PAVEMENT

FDPS = FULL DEPTH PAVED SHOULDER



TYPICAL SECTION NO. 4

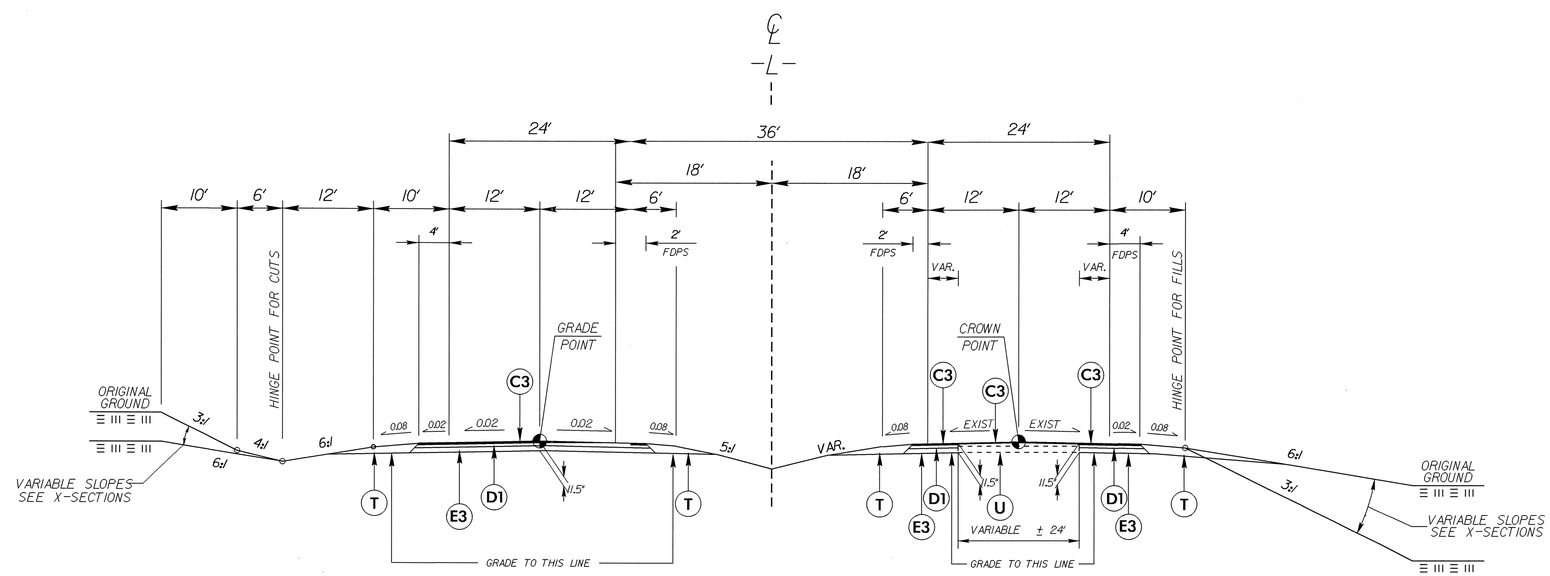
USE TYPICAL SECTION NO. 4

-L- STA. 56+50.00 TO -L- STA. 130+00.00
-L- STA. 151+50.00 TO -L- STA. 160+00.00

NOTE:

TRANSITION FROM TYPICAL SECTION NO. 3 TO TYPICAL SECTION NO. 4
-L- STA. 56+00.00 TO -L- STA. 56+50.00

* TYPICAL COULD CHANGE AS A RESULT OF SUBGRADE IMPROVEMENT FIELD TEST FROM STA. 120+00.00 TO STA. 125+50.00 LEFT OF CENTER LINE



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

-L- STA. 134+50.00 TO -L- STA. 147+00.00

NOTE:

TRANSITION FROM TYPICAL SECTION NO. 4 TO TYPICAL SECTION NO. 5
-L- STA. 130+00.00 TO -L- STA. 134+50.00

TRANSITION FROM TYPICAL SECTION NO. 5 TO TYPICAL SECTION NO. 4
-L- STA. 147+00.00 TO -L- STA. 151+50.00

6/2/99
05-MAR-2010 10:54
R:\Roadway\Proj\r3403ab\r3403ab_rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

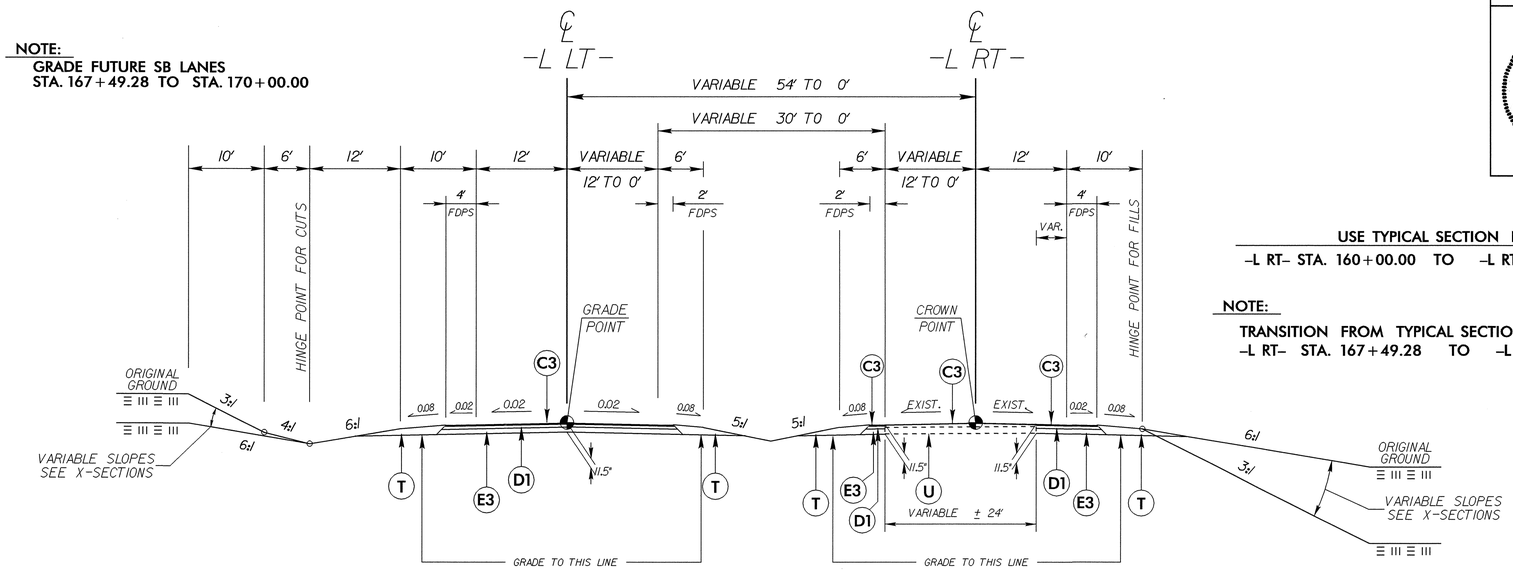
NORTH CAROLINA PROFESSIONAL SEAL 18803 ENGINEER GREGORY E. BRUNE
4-3-09

SEAL 031420 Engineer
03/16/09

FINAL PAVEMENT SCHEDULE	
C1	1.25" SF9.5A
C2	2.5" SF9.5A
C3	3.0" S9.5C
D1	3.5" I19.0C
E1	4.0" B25.0B
E3	5.0" B25.0C
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

FDPS = FULL DEPTH PAVED SHOULDER

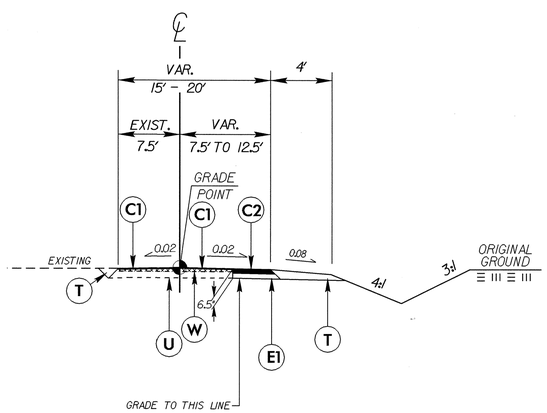
NOTE:
GRADE FUTURE SB LANES
STA. 167+49.28 TO STA. 170+00.00



USE TYPICAL SECTION NO. 6
-L RT- STA. 160+00.00 TO -L RT- STA. 167+49.28

NOTE:
TRANSITION FROM TYPICAL SECTION NO. 6 TO EXISTING
-L RT- STA. 167+49.28 TO -L RT- STA. 170+00.00

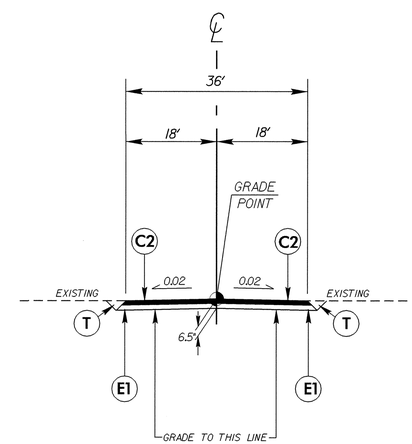
TYPICAL SECTION NO. 6



TYPICAL SECTION NO. 7A

USE TYPICAL SECTION NO. 7A
-Y8- STA. 13+88.00 TO STA. 16+00.00

NOTE:
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 7A
-Y8- STA. 12+60.00 TO STA. 13+88.00



TYPICAL SECTION NO. 7B

TRANSITION FROM TYPICAL SECTION NO. 7A TO TYPICAL SECTION 7B
-Y8- STA. 16+00.00 TO STA. 17+00.00

USE TYPICAL SECTION NO. 7B
-Y8- STA. 17+00.00 TO STA 18+20.55

NOTE:
TRANSITION FROM TYPICAL SECTION NO. 7B TO EXISTING
-Y8- STA. 18+20.55 TO STA. 18+60.00

6/2/99
12-MAR-2009 11:38
r:\roadway\proj\r3403ab\r3403ab_rdy_typ.dgn
$$$$USERNAME$$$$

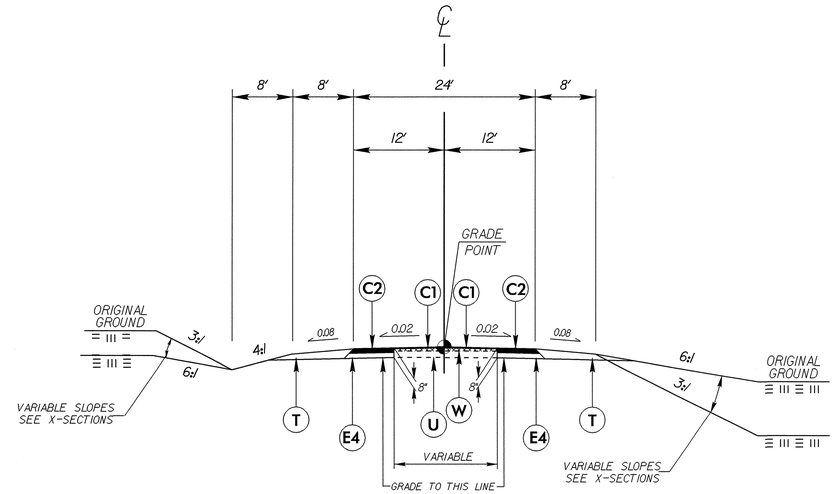
PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREWER
4-3-09

NORTH CAROLINA PROFESSIONAL SEAL 031480 ENGINEER
03/11/09

FINAL PAVEMENT SCHEDULE	
C1	1.25" SF9.5A
C2	2.5" SF9.5A
E1	4.0" B25.0B
E2	4.5" B25.0B
E4	5.5" B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

FDPS = FULL DEPTH PAVED SHOULDER



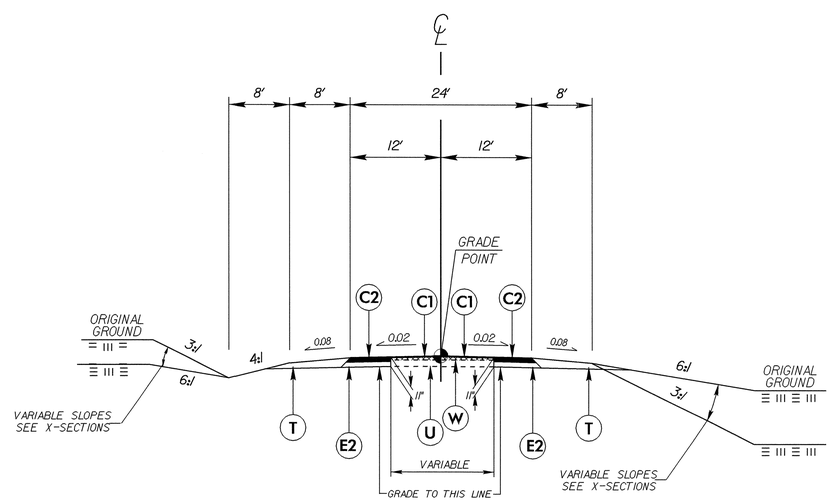
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8

-Y9- STA. 12+00 TO STA. 13+00
-Y11- STA. 10+50 TO STA. 11+43
-Y12- STA. 14+00 TO STA. 14+13

NOTE:
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 8

-Y9- STA. 11+50 TO STA. 12+00
-Y11- STA. 10+00 TO STA. 10+50
-Y12- STA. 13+50 TO STA. 14+00



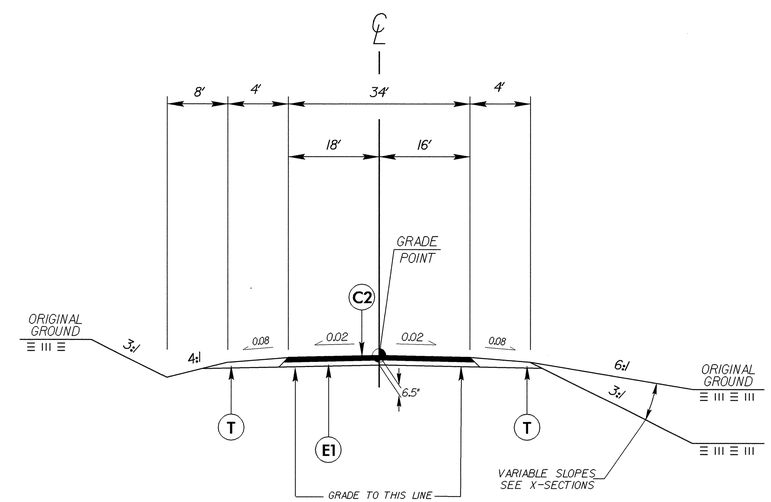
TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9

-Y13- STA. 13+00 TO STA. 14+22

NOTE:
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 9

-Y13- STA. 12+00 TO STA. 13+00



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10

-CY8- STA. 10+37 TO STA. 11+26

6/2/99
27-FEB-2009 15:18
r:\proj\0403\r3403ab\r3403ab_rdy_typ.dgn
$$$$USERNAME$$$$

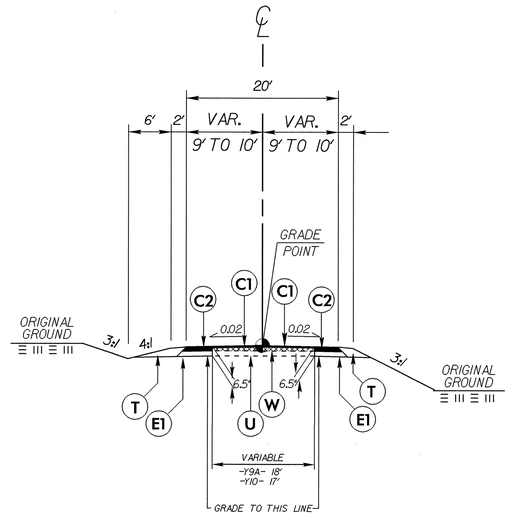
PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18003 ENGINEER GREGORY E. BREW
4-3-09

03/12/09

FINAL PAVEMENT SCHEDULE	
C1	1.25" SF9.5A
C2	2.5" SF9.5A
E1	4.0" B25.0B
E2	4.5" B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

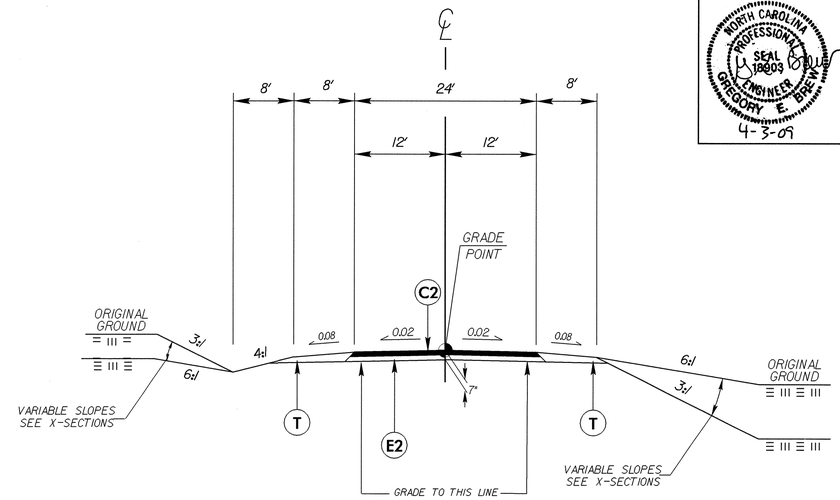
FDPS = FULL DEPTH PAVED SHOULDER



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11

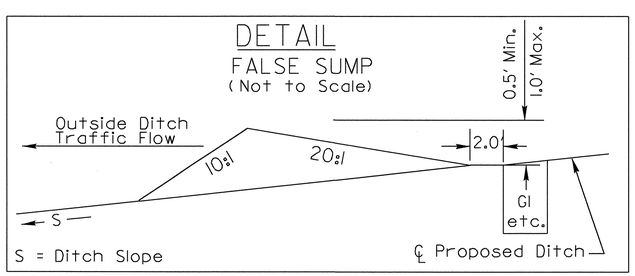
-Y9A- STA. 11+00 TO STA. 12+21



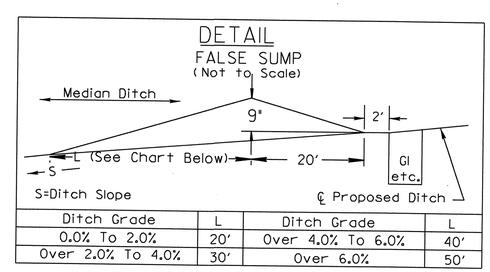
TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12

-Y13- STA. 14+22 TO STA. 16+95



SEE SHEET 5 FOR LOCATION



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

SEE SHEETS 7, 9, 10 AND 12 FOR LOCATION

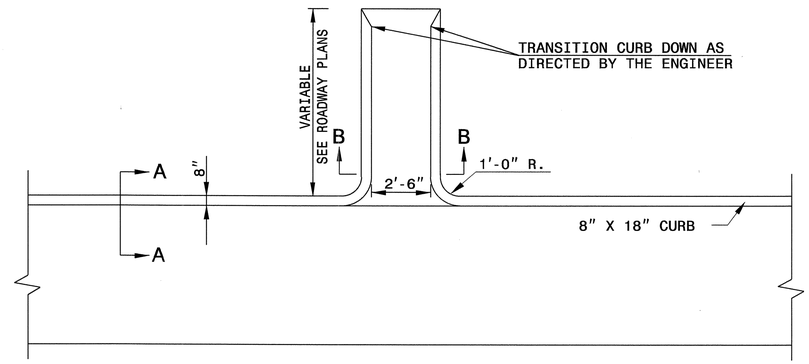
6/2/99
17-FEB-2009 15:28
r:\roadway\proj\r-3403ab\r-3403ab_rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	2-E

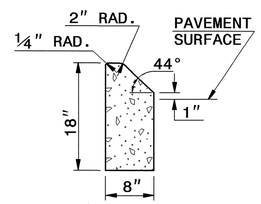
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

CONCRETE FLUME INSTALLATION IN 8″ X 18″ CURB

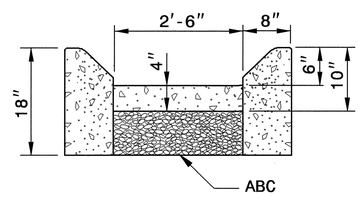


PLAN VIEW



SECTION A-A

8″ X 18″ CONCRETE CURB



SECTION B-B

NOTES:

- THE CONCRETE BASE FOR THE FLUME WILL BE PAID FOR AS 4″ CONCRETE PAVED DITCH.
- THE ABC SHOWN WILL BE INCIDENTAL TO THE 4″ CONCRETE PAVED DITCH.
- EXTEND THE FLUME, IN EACH LOCATION, TO THE DITCH LINE AS SHOWN ON THE ROADWAY PLANS.

SHEET 1 OF 1

MODFLMDTCH

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

ENGLISH DETAIL DRAWING FOR

CONCRETE FLUME INSTALLATION IN 8″ X 18″ CURB

SHEET 1 OF 1

MODFLMDTCH

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOSEPH E. HOWARD
4/26/10

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY:	E.E. Ward	DATE:	3-12-02
MODIFIED BY:	J.S. Spell	DATE:	10-6-04
CHECKED BY:	J.S. Spell	DATE:	4/26/10
FILE SPEC.:	w:\details\stand\modifiedflume.dgn		

26-APR-2010 15:02
S:\Contracts\Contracts\Special Details\jhowerton\concflume.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403 AB	2-F

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

ENGLISH DETAIL DRAWING FOR

SPECIAL CONCRETE MEDIAN DROP INLET

SHEET 1 OF 1

840D19

GENERAL NOTES:

ALL EXPOSED CORNERS TO BE CHAMFERED 1".

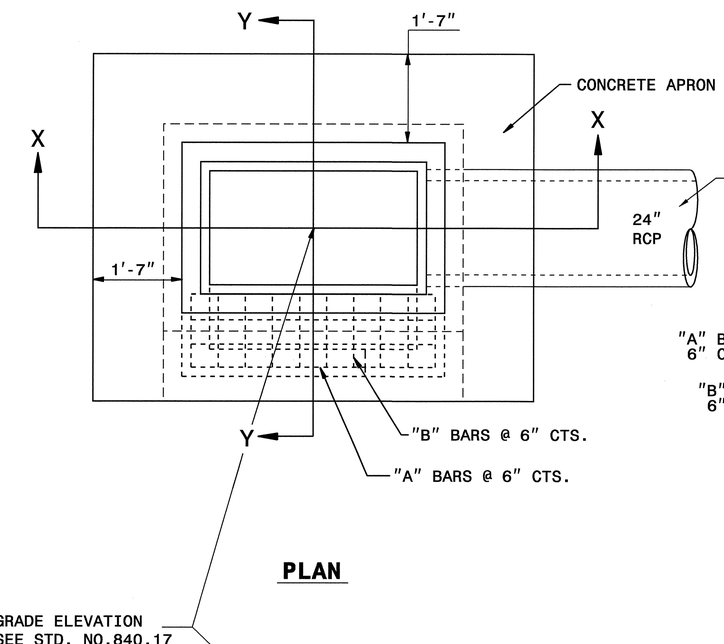
CLASS "B" CONCRETE TO BE USED THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 50mm KEYWAY, OR #4 BAR DOWELS "A" AT 1'-0" CENTERS AS DIRECTED BY THE ENGINEER.

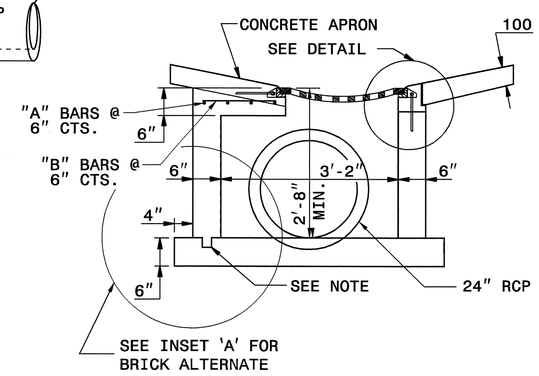
FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.

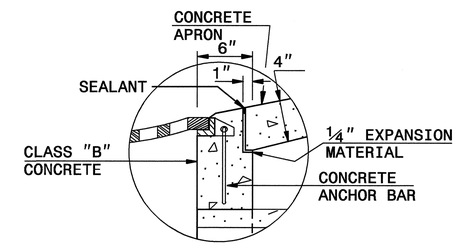
WHEN BRICK ALTERNATE IS USED INTERIOR DIMENSIONS SHALL BE MAINTAINED.



PLAN

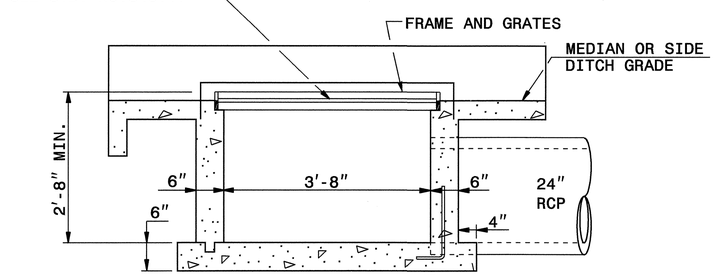


SECTION Y-Y



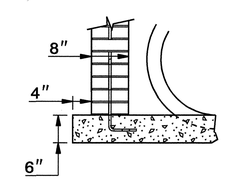
DETAIL

(APRON SUPPORT NOTCH)

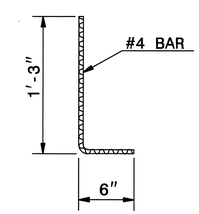


SECTION X-X

BILL OF MATERIAL				
CONCRETE BOX				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	4	5	4'-4"	18
B	10	5	1'-4"	14
C	14	5	1'-9"	26
TOTAL REINF. STEEL (LBS.)				58
CLASS "B" CONC. (CU.YDS.)				1.25
DEDUCT FOR 18" RCP				0.05



INSET 'A'



DOWEL "C"

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

ENGLISH DETAIL DRAWING FOR

SPECIAL CONCRETE MEDIAN DROP INLET

SHEET 1 OF 1

840D19

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWARD
3/10/10

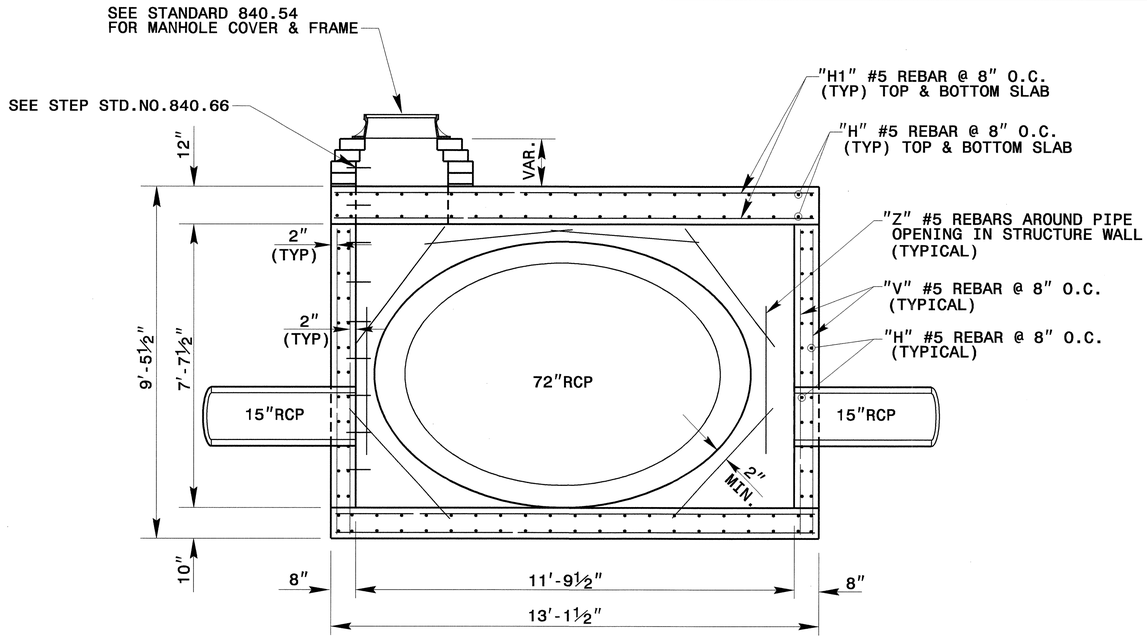
PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

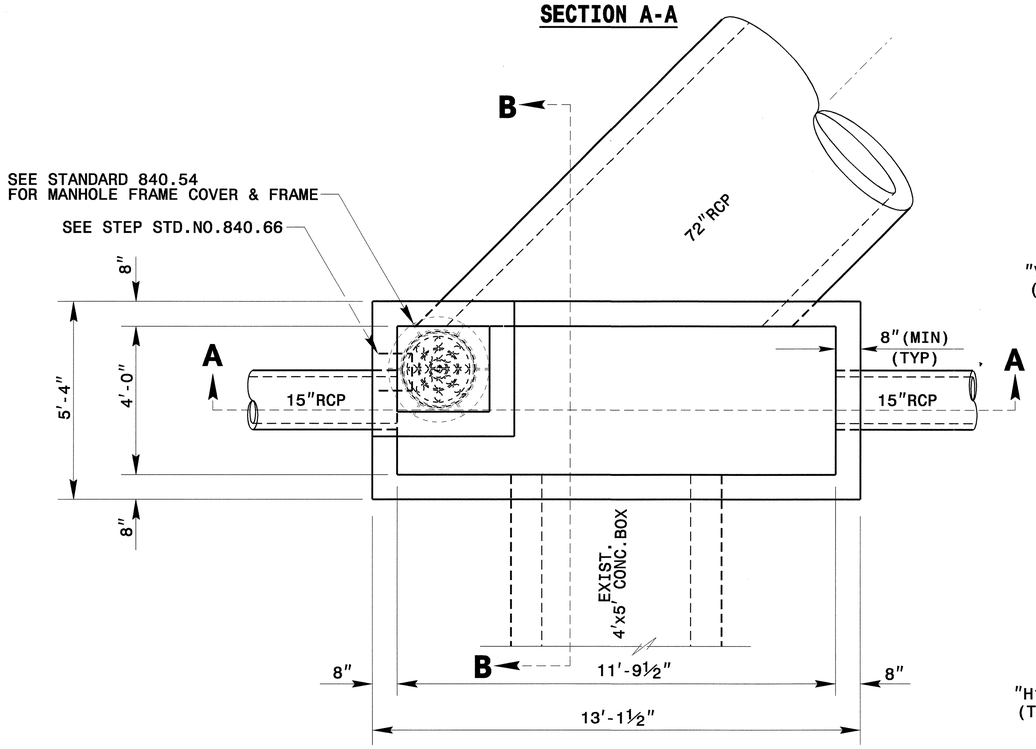
ORIGINAL BY: T.S.Spell DATE: January 2002
MODIFIED BY: T.S.Spell DATE: April 2008
CHECKED BY: DATE: 4/15/08
FILE SPEC.: wrdetails/tspell/stand/840d19e 2.7ht.dgn

14-APR-2008 14:18
s:\contracts\contracts\special details\tspell\tspell12\0840dl9e_2.7ht.dgn
tspell HT P5228332

PROJECT REFERENCE NO.	SHEET NO.
R-3403 AB	2 -G



SECTION A-A



PLAN VIEW

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB, SEE STD. DRAWING 840.00.

INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.

CHAMFER ALL EXPOSED CORNERS 1".

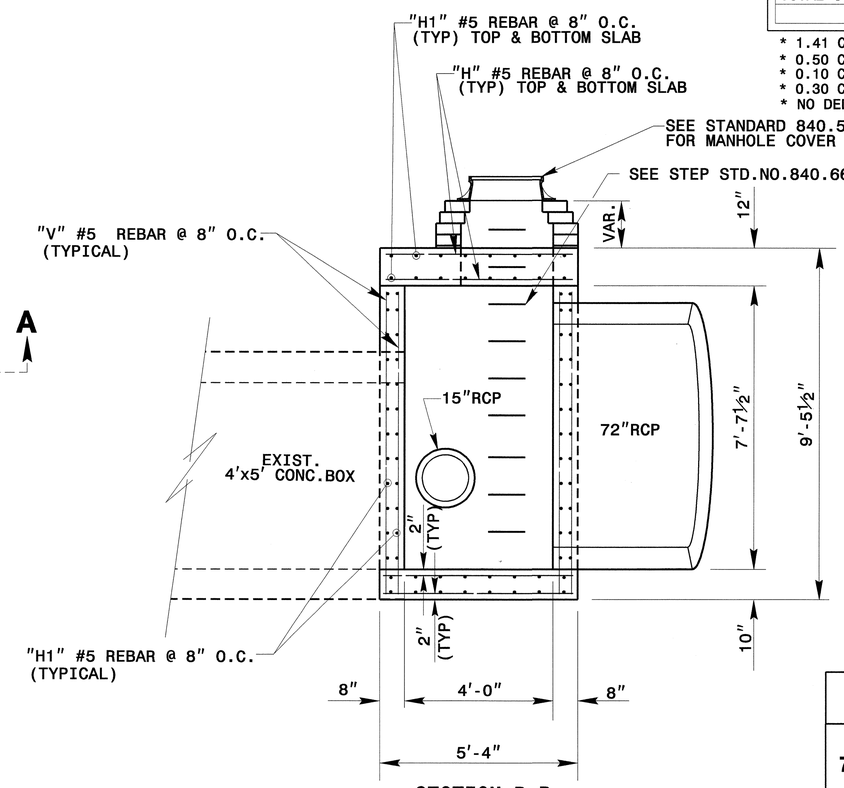
2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.

HEIGHT DIMENSIONS MAY BE ADJUSTED DOWN FOR SMALLER PIPES AS DIRECTED BY THE ENGINEER.

BILL OF MATERIALS

BAR	NO.	SIZE	LENGTH	WEIGHT
H	132	#5	5'-0"	689
H1	80	#5	12'-10"	1071
V	116	#5	8'-2"	989
Z	16	#5	4'-0"	67
TOTAL REINF. STEEL (LBS.)				2816
TOTAL CONC. (CU. YDS.)				11.2

* 1.41 CU. YD. DEDUCTION FOR 72" RC PIPE
* 0.50 CU. YD. DEDUCTION FOR 4'X5' CONC.BOX
* 0.10 CU. YD. DEDUCTION FOR 2-15" RC PIPES
* 0.30 CU. YD. PER FOOT OF RISER HEIGHT
* NO DEDUCTION HAS BEEN MADE FOR PIPES



SECTION B-B

NORTH CAROLINA PROFESSIONAL SEAL 022566 ENGINEER JOHN B. HAYNES III
3/10/10

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

72"TRAFFIC BEARING JUNCTION BOX

STRUCTURE No. 114

ORIGINAL BY:		DATE:	
MODIFIED BY:	nbritt	DATE:	05/07/08
CHECKED BY:	Neil Hart	DATE:	5/8/08
FILE SPEC.:	detail/nbritt/english/hydro/72' tbjb.dgn		

5/14/99

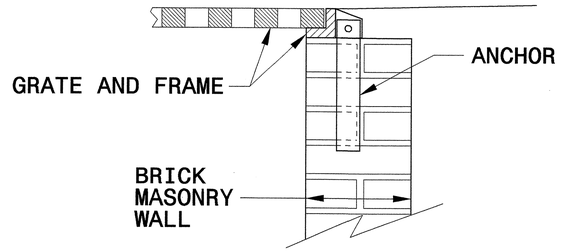
05-MAY-2008 10:25
S:\Contracts\contracts\special details\nbritt\english\hydro\72 tbjb.dgn
nbritt,

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	2-H

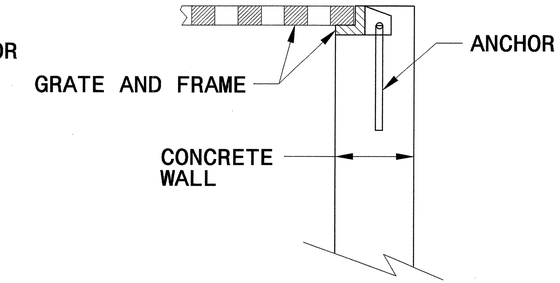
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

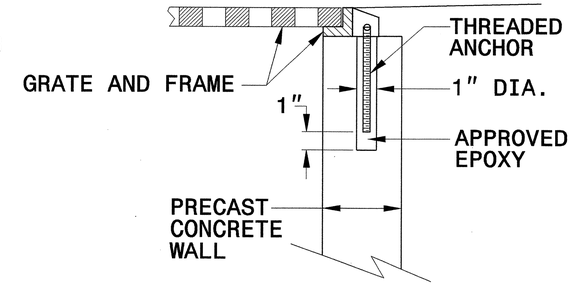
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



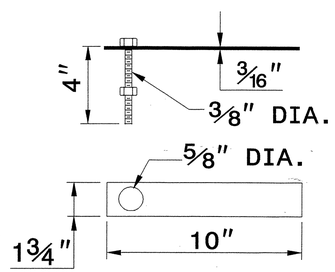
CONCRETE CONSTRUCTION



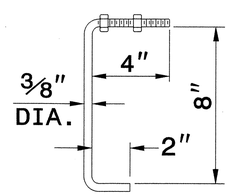
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

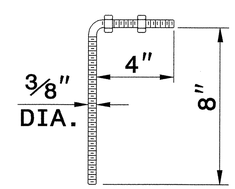
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



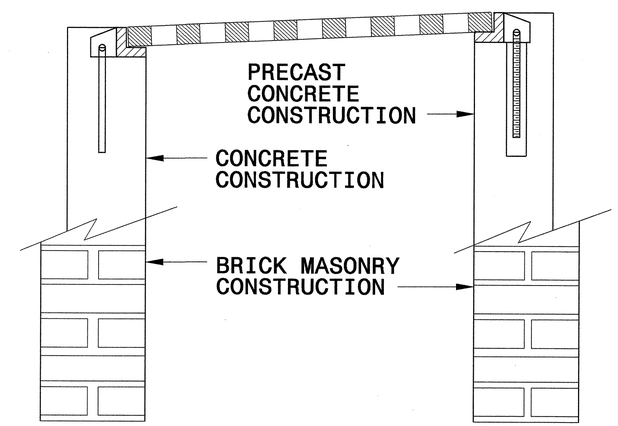
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

NORTH CAROLINA PROFESSIONAL SEAL 022066 ENGINEER JOHN S. HAWKINSON
3/19/10

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

$$$$$$SYSTIME$$$$$
$$$$$$$$$$JON$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

30-JUL-2009 08:48
s:\contracts\contracts\special details\ericward\stds\06' stds to special details\30001\0300d01.dgn
jhowerton AT PS237501

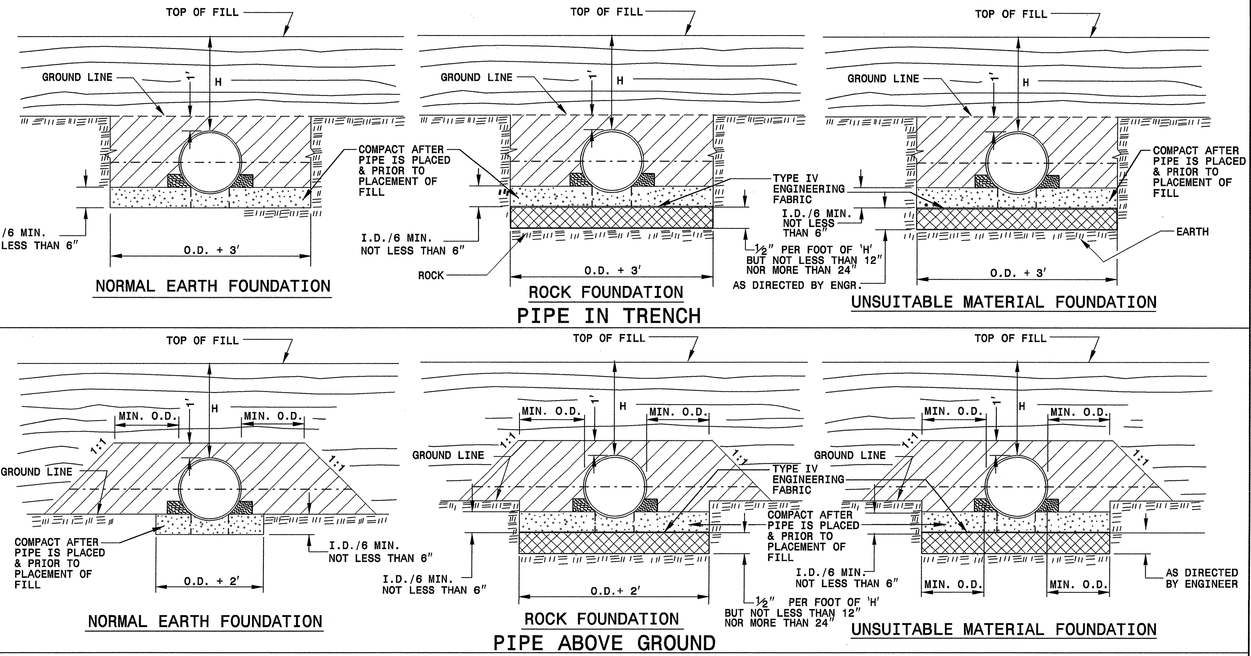
5/14/99

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

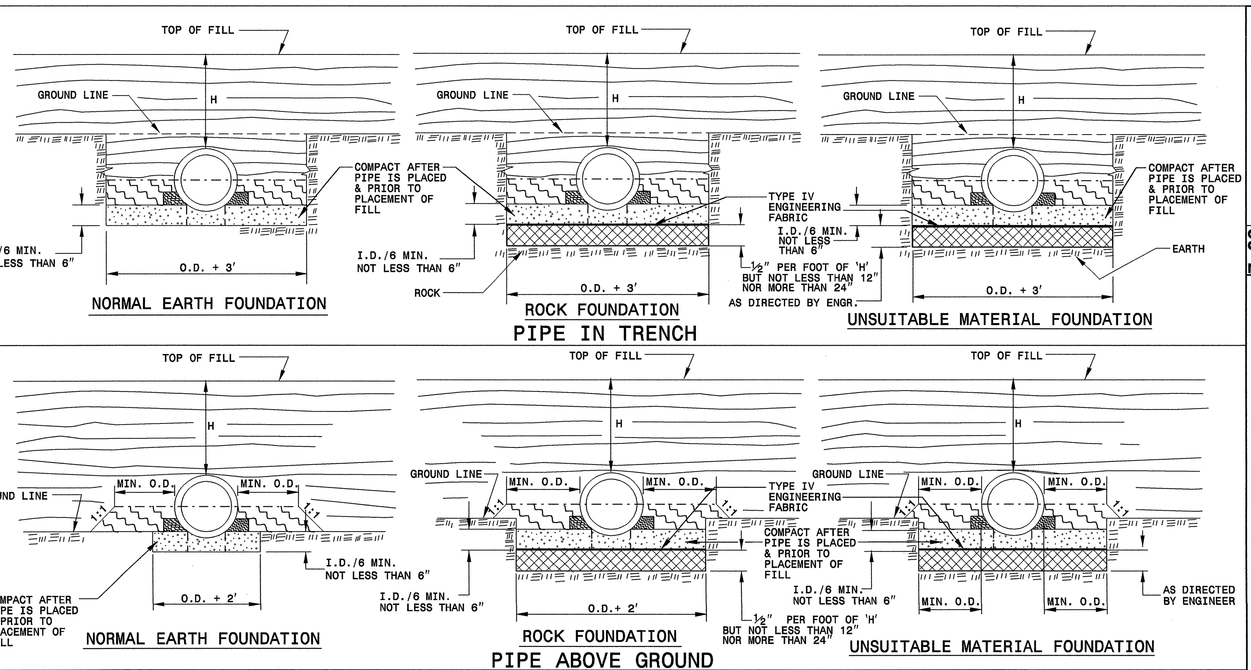
SHEET 1 OF 3
300D01

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 2 OF 3
300D01

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC/d:\dgn\d\s06\s06tcode\s1\s30001\0300d01.dgn

NORTH CAROLINA PROFESSIONAL SEAL 022566 ENGINEER

PROJECT REFERENCE NO. R-3405AB
SHEET NO. 2-I

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 60″
* (Maximum fill) 20′ for pipe diameters ≤ 24″
17′ for pipe diameters ≥ 30″ and ≤ 60″

PVC - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 36″
* (Maximum fill) 30′ for pipe diameters ≥ 12″ and ≤ 36″

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1′ for Class IV & CLASS V
2′ for Class III & Class II

* (Maximum fill) 10′ - Class II pipe
20′ - Class III pipe
30′ - Class IV pipe
40′ - Class V pipe

(For fills > 40′ & < 80′ use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

NORTH CAROLINA PROFESSIONAL SEAL 025866 ENGINEER
JOHN S. HOOPER
10/10/10

SEE PLATE FOR TITLE

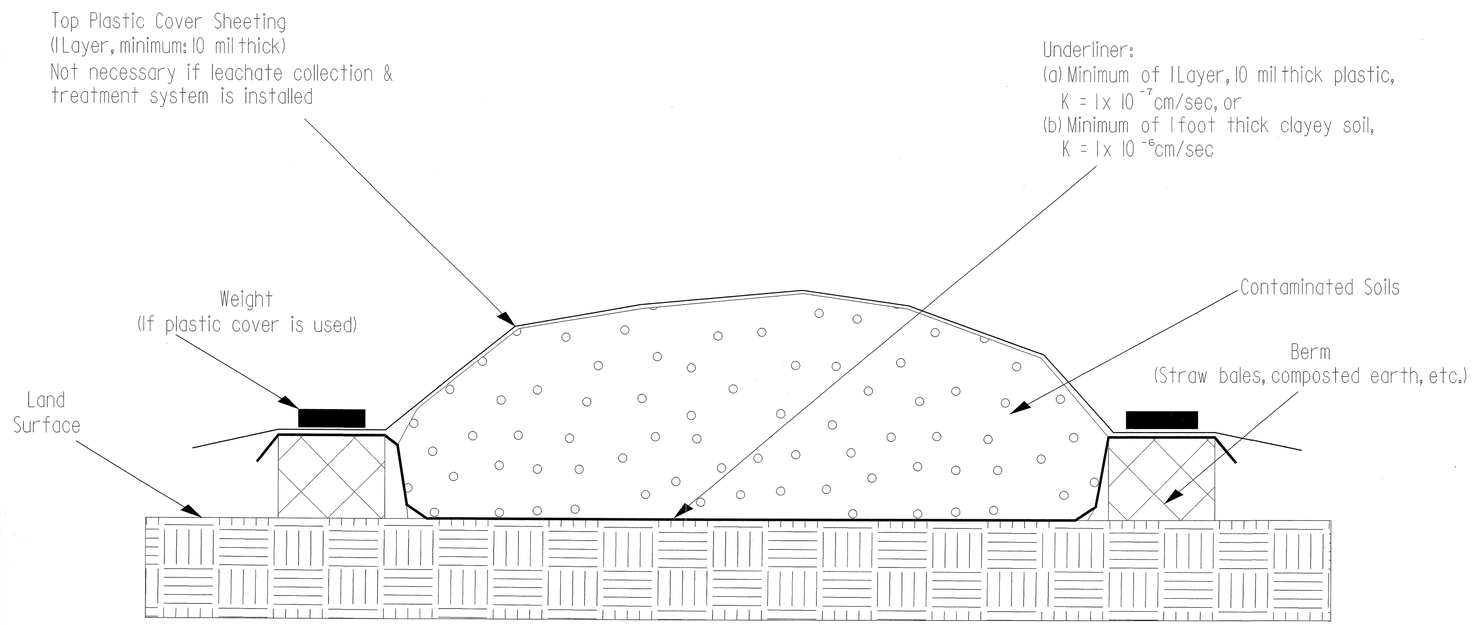
ORIGINAL BY: KKempf
MODIFIED BY: DATE: 5-15-09
CHECKED BY: DATE: 7/29/09
FILE SPEC/ericward/stds/stdstodetails/30001/0300d01.dgn

PROJECT REFERENCE NO. R-3403AB
SHEET NO. 2-3

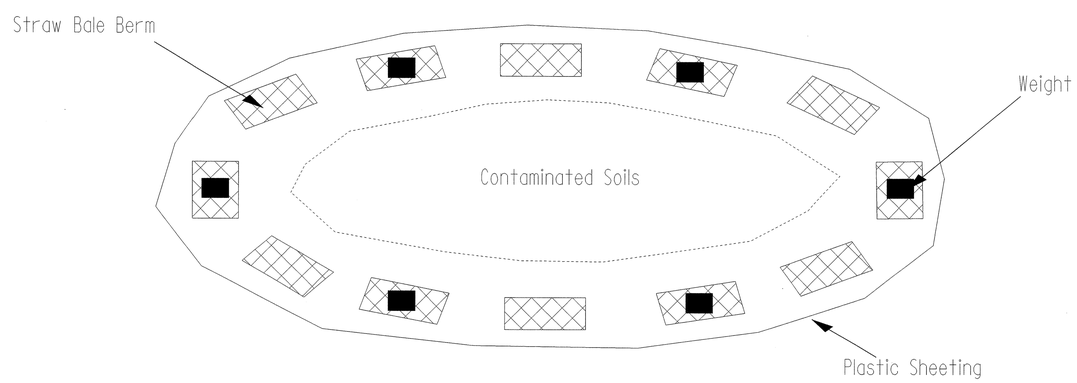
PROJECT REFERENCE NO.	SHEET
R-3404AB	2-K

Detail for Temporary Containment of Contaminated Soil

Cross-Section View



Map View



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202017

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0000700000-N	SP	Lump Sum		FIELD OFFICE
0000820000-N	SP	15	DAY	GENERIC MISCELLANEOUS ITEM CONTAMINATED WATER STORAGE VESSEL
0038000000-E	SP	250	CY	SHALLOW UNDERCUT
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0086 ~~0050~~000000-E	~~226~~ 225	28,505	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0080000000-E	SP	500	TON	CLASS IV SUBGRADE STABILIZATION
0106000000-E	230	40,300	CY	BORROW EXCAVATION
0134000000-E	240	300	CY	DRAINAGE DITCH EXCAVATION
0192000000-N	260	15	HR	PROOF ROLLING
0194000000-E	SP	33,700	CY	SELECT GRANULAR MATERIAL, CLASS III
0196000000-E	270	29,610	SY	FABRIC FOR SOIL STABILIZATION
0199000000-E	SP	4,350	SF	TEMPORARY SHORING
0248000000-N	SP	Lump Sum		GENERIC GRADING ITEM SUBGRADE IMPROVEMENT FIELD TEST
0255000000-E	SP	500	TON	GENERIC GRADING ITEM EXCAVATION AND STOCKPILING CONTAMINATED SOIL
0320000000-E	SP	7,330	SY	FOUNDATION CONDITIONING FABRIC
0330000000-E	SP	1,539	TON	GENERIC DRAINAGE ITEM FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0342000000-E	310	28	LF	** SIDE DRAIN PIPE (30")
0343000000-E	310	902	LF	15" SIDE DRAIN PIPE
0344000000-E	310	298	LF	18" SIDE DRAIN PIPE
0345000000-E	310	244	LF	24" SIDE DRAIN PIPE
0366000000-E	310	4,838	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	310	704	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E	310	1,044	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E	310	212	LF	30" RC PIPE CULVERTS, CLASS III
0426000000-E	310	220	LF	72" RC PIPE CULVERTS, CLASS III
0453000000-E	310	18	EA	** PIPE END SECTION (15")
0453000000-E	310	8	EA	** PIPE END SECTION (18")
0995000000-E	340	1,288	LF	PIPE REMOVAL
1110000000-E	510	1,650	TON	STABILIZER AGGREGATE
1220000000-E	545	700	TON	INCIDENTAL STONE BASE
1489000000-E	610	1,500	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1491000000-E	610	17,400	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1503000000-E	610	12,220	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
1523000000-E	610	15,420	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1525000000-E	610	960	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	1,450	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1565000000-E	620	926	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22
1693000000-E	654	330	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	840	CY	SUBDRAIN EXCAVATION
2033000000-E	815	420	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	2,500	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	75	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	5	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	30	LF	6" OUTLET PIPE (SUBDRAINS)

ItemNumber	Sec #	Quantity	Unit	Description
2209000000-E	838	1.5	CY	ENDWALLS
2220000000-E	838	14.2	CY	REINFORCED ENDWALLS
2253000000-E	840	2.7	CY	PIPE COLLARS
2264000000-E	840	0.23	CY	PIPE PLUGS
2286000000-N	840	42	EA	MASONRY DRAINAGE STRUCTURES
2297000000-E	840	11.2	CY	MASONRY DRAINAGE STRUCTURES
2352000000-N	840	7	EA	FRAME WITH GRATE, STD 840.**** (840.16)
2366000000-N	840	33	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29
2396000000-N	840	1	EA	FRAME WITH COVER, STD 840.54
2535000000-E	846	2,180	LF	**"X **" CONCRETE CURB (8" X 18")
2619000000-E	850	45	SY	4" CONCRETE PAVED DITCH
2655000000-E	852	1,300	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
3030000000-E	862	912.5	LF	STEEL BM GUARDRAIL
3105000000-N	862	2	EA	STEEL BM GUARDRAIL TERMINAL SECTIONS
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	5	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3270000000-N	SP	5	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3380000000-E	862	512.5	LF	TEMPORARY STEEL BM GUARDRAIL
3389100000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY
3503000000-E	866	18,080	LF	WOVEN WIRE FENCE, 47" FABRIC
3509000000-E	866	1,020	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	525	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3536000000-E	866	600	LF	CHAIN LINK FENCE, 48" FABRIC

ItemNumber	Sec #	Quantity	Unit	Description
3542000000-E	866	55	EA	METAL LINE POSTS FOR 48" CHAIN LINK FENCE
3548000000-E	866	15	EA	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE
3557000000-E	866	300	LF	ADDITIONAL BARBED WIRE
3628000000-E	876	135	TON	RIP RAP, CLASS I
3649000000-E	876	65	TON	RIP RAP, CLASS B
3656000000-E	876	3,675	SY	FILTER FABRIC FOR DRAINAGE
4048000000-E	902	1	CY	REINFORCED CONCRETE SIGN FOUNDATIONS
4060000000-E	903	457	LB	SUPPORTS, BREAKAWAY STEEL BEAM
4072000000-E	903	155	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4078000000-E	903	5	EA	SUPPORTS, 2-LB STEEL U-CHANNEL
4082000000-E	903	1,802	LF	SUPPORTS, WOOD
4096000000-N	904	16	EA	SIGN ERECTION, TYPE D
4102000000-N	904	113	EA	SIGN ERECTION, TYPE E
4108000000-N	904	3	EA	SIGN ERECTION, TYPE F
4110000000-N	904	1	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
4116100000-N	904	4	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)
4141000000-N	907	4	EA	DISPOSAL OF SUPPORT, WOOD
4155000000-N	907	2	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4158000000-N	907	60	EA	DISPOSAL OF SIGN SYSTEM, WOOD
4400000000-E	1110	703	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	192	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	176	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	1	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	120	EA	DRUMS
4435000000-N	1135	50	EA	CONES
4445000000-E	1145	550	LF	BARRICADES (TYPE III)
4455000000-N	1150	120	MD	FLAGGER
4480000000-N	1165	1	EA	TMIA
4510000000-N	SP	40	HR	LAW ENFORCEMENT
4650000000-N	1251	897	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	5,070	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	6,616	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4688000000-E	1205	47,200	LF	THERMOPLASTIC PAVEMENT MARKING LINES (6", 90 MILS)
4690000000-E	1205	9,200	LF	THERMOPLASTIC PAVEMENT MARKING LINES (6", 120 MILS)
4695000000-E	1205	830	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4700000000-E	1205	950	LF	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)
4705000000-E	1205	203	LF	THERMOPLASTIC PAVEMENT MARKING LINES (16", 120 MILS)
4710000000-E	1205	720	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	10	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	50	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4810000000-E	1205	199,150	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	1,650	LF	PAINT PAVEMENT MARKING LINES (8")
4830000000-E	1205	406	LF	PAINT PAVEMENT MARKING LINES (16")
4835000000-E	1205	1,430	LF	PAINT PAVEMENT MARKING LINES (24")
4840000000-N	1205	20	EA	PAINT PAVEMENT MARKING CHARACTER
4845000000-N	1205	102	EA	PAINT PAVEMENT MARKING SYMBOL
4905000000-N	1253	750	EA	SNOWPLOWABLE PAVEMENT MARKERS

5/28/99
03-MAR-2010 11:01
R:\Roadway\Proj\r3403ab\r-3403ab_rdy_sumsht3.dgn
$$$$USERNAME$$$$

STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
R-3403AB	3

(2 of 2)

ItemNumber	Sec #	Quantity	Unit	Description
4915000000-E	1264	11	EA	7' U-CHANNEL POSTS
4955000000-N	1264	11	EA	OBJECT MARKERS (END OF ROAD)
5325200000-E	1510	18	LF	2" WATER LINE
5325300000-E	1510	350	LF	3" WATER LINE
5325400000-E	1510	10	LF	4" WATER LINE
5325600000-E	1510	1,795	LF	6" WATER LINE
5325800000-E	1510	656	LF	8" WATER LINE
5326000000-E	1510	12,059	LF	10" WATER LINE
5326200000-E	1510	20	LF	12" WATER LINE
5534000000-E	1515	2	EA	**" VALVE (3")
5536000000-E	1515	3	EA	2" VALVE
5538000000-E	1515	1	EA	4" VALVE
5540000000-E	1515	4	EA	6" VALVE
5546000000-E	1515	3	EA	8" VALVE
5552000000-E	1515	20	EA	10" VALVE
5558000000-E	1515	1	EA	12" VALVE
5643100000-E	1515	1	EA	3/4" WATER METER
5648000000-N	1515	48	EA	RELOCATE WATER METER
5649000000-N	1515	1	EA	RECONNECT WATER METER
5666000000-E	1515	8	EA	FIRE HYDRANT
5709300000-E	1520	1,834	LF	6" FORCE MAIN SEWER
5815500000-N	1530	5	EA	REMOVE FIRE HYDRANT
5835400000-E	1540	131	LF	6" ENCASEMENT PIPE
5836000000-E	1540	331	LF	24" ENCASEMENT PIPE
5871400000-E	1550	115	LF	TRENCHLESS INSTALLATION OF 6" IN SOIL
5871410000-E	1550	115	LF	TRENCHLESS INSTALLATION OF 6" NOT IN SOIL
5871600000-E	1550	813	LF	TRENCHLESS INSTALLATION OF 10" IN SOIL

ItemNumber	Sec #	Quantity	Unit	Description
5871610000-E	1550	813	LF	TRENCHLESS INSTALLATION OF 10" NOT IN SOIL
5872200000-E	1550	165.5	LF	TRENCHLESS INSTALLATION OF 24" IN SOIL
5872210000-E	1550	165.5	LF	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL
6000000000-E	1605	14,100	LF	TEMPORARY SILT FENCE
6006000000-E	1610	2,815	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	1,870	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	1,090	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	24	ACR	TEMPORARY MULCHING
6018000000-E	1620	350	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	2.5	TON	FERTILIZER FOR TEMPORARY SEED-ING
6024000000-E	1622	100	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	4	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	1,863	LF	SAFETY FENCE
6030000000-E	1630	33,100	CY	SILT EXCAVATION
6036000000-E	1631	4,920	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	100	SY	COIR FIBER MAT
6042000000-E	1632	1,200	LF	1/4" HARDWARE CLOTH
6045000000-E	SP	230	LF	**" TEMPORARY PIPE (24")
6069000000-E	1638	176	CY	STILLING BASINS
6071010000-E	SP	110	LF	WATTLE
6071020000-E	SP	68	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	2,015	LF	COIR FIBER BAFFLES
6071050000-E	SP	1	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	15	ACR	SEEDING & MULCHING
6087000000-E	1660	18.5	ACR	MOWING

ItemNumber	Sec #	Quantity	Unit	Description
6090000000-E	1661	300	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	300	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	8.75	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	130	LF	IMPERVIOUS DIKE
6114500000-N	SP	5	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	54	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	1	ACR	REFORESTATION
5798000000-E	1530	180	LF	ABANDON **" UTILITY PIPE (3")
5801000000-E	1530	430	LF	ABANDON 8" UTILITY PIPE

COMPUTED BY: ____________ DATE: ____________
CHECKED BY: ____________ DATE: ____________

4/04/06

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	3-A

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
51+65.00	RT	1			5.07	EXTG					32'				
51+87.00	LT	2			EXTG	3.7					48'				
52+44.00	LT	3													
52+70.00	RT	4			4.4	EXTG					48'				
53+93.00	LT														
54+92.00	LT														
55+15.00	LT														
52+92.00	MED	5		7.80											
55+15.00	LT	5	6		5.70	5.90			68'						
52+92.00	RT	5	7		5.70	5.50			64'						
56+00.00	MED	5	8		5.70	6.50			180'						
56+00.00	MED	8		9.90											
56+00.00	MED	8	9		6.50	6.60			12'						
56+00.00	MED	9		9.80											
55+38.00	MED														
55+38.00	RT	10													
55+77.00	LT	11													
58+70.00	LT	12													
60+86.00	LT	14													
60+50.00	MED	15		8.10											
63+00.00	MED	15	16		5.30	3.70			252'						
63+00.00	MED	16		7.58											
61+20.00	RT	17													
62+34.00	RT	18													
65+50.00	MED	16	19		3.70	2.95			524'						
65+50.00	MED	19		6.44	2.95										
66+10.00	MED	20				2.25			64'						
66+63.00	MED	21		5.6											
66+17.00	MED	22				0.6					48'				
69+50.00	MED	127	23		0.9	4.69			208'						
69+50.00	MED	23		7.44											
71+80.00	RT	24													
71+86.00	LT	25								80'					
72+50.00	MED	26		8.60											
72+50.00	LT	26	27		5.43	4.84			76'						
76+00.00	MED	28		7.99											
77+50.00	MED	28	29		6.07	5.13			152'						
77+50.00	MED	29		7.05											
77+50.00	MED	30				4.57			72'						
76+98.00	LT														
78+00.00	LT														
79+36.00	MED														
80+30.00	MED														
80+30.00	MED	32		7.70											
80+30.00	MED	32	31		5.52	7.00				64'					
SHEET TOTAL									1672	144	176				

BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE): 12" .064, 15" .064, 18" .064, 24" .064, 30" .079, 36" .079, 42" .109, 48" .109

CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D: 12", 15", 18", 24", 30", 36", 42", 48"

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* 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	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.D.I. STD. 840.35	T.B.D.I. FRAME WITH TWO GRATES STD. 840.29	SPECIAL CONCRETE MEDIAN DROP INLET	15" Pipe End Section	18" Pipe End Section	30" SIDE DRAIN PIPE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
51+65.00				1.5																					0.533			
51+87.00																									0.533			
52+44.00	20'																											
52+70.00																									0.533			
53+93.00																											20'	DRIVEWAY
54+92.00																											18'	DRIVEWAY
55+15.00																											18'	DRIVEWAY
52+92.00						1							1				1											
55+15.00																												
52+92.00																												15" CROSS PIPE END SECTION
56+00.00																												
56+00.00						1			1	1																		
56+00.00																												
56+00.00						1			1	1																		
55+38.00																												
55+38.00		44'																										18" PARALLEL PIPE END SECTION
55+77.00	36'																											
58+70.00	32'																											
60+86.00	36'																											
60+50.00						1						1					1											
63+00.00																												
63+00.00						1						1					1											
61+20.00	36'																											
62+34.00	44'																											15" PARALLEL PIPE END SECTION
65+50.00																												18" PARALLEL PIPE END SECTION
65+50.00						1						1					1											
66+10.00																												
66+63.00						1					1						1											
66+17.00																												
69+50.00																												
69+50.00						1						1					1										48'	DRIVEWAY
71+80.00	36'																					1						15" Parallel Pipe End Section
71+86.00																							1					18" Parallel Pipe End Section
72+50.00						1													1	1								
72+50.00																						1						15" Cross Pipe End Section
76+00.00						1							1				1											
77+50.00																												
77+50.00						1							1				1											
77+50.00																												
76+98.00																											72'	DRIVEWAY
78+00.00																											48'	DRIVEWAY
79+36.00																											32'	DRIVEWAY
80+30.00																												
80+30.00						1											1				1							SPECIAL DETAIL SEE SHEET 2F
80+30.00																							1					18" Cross Pipe End Section
SHEET TOTAL	240	44		1.5		12			2	2	1	4	3				9		1	1	1	2	2		1.599		256'	

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.)	GRATED DROP INLET (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

02-MAR-2010 11:01
R:\Roadway\Proj\r3403ab\r-3403ab_rdy_sumold.dgn
$$$$USERNAME$$$$

4/04/06

COMPUTED BY:	MJ	DATE:	3-16-09
CHECKED BY:	DYP	DATE:	3-17-09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	3-B

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE)													CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D							
SIZE								12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"		30"		36"		42"		48"		12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE																.064	.064	.064	.064		.079		.079		.109		.109									
79+96.00	LT	32	33		4.17	3.85					88'																									
82+50.00	LT	32	34		4.17	4.83					220'																									
82+50.00	LT	34		7.50																																
84+00.00	MED	34	35		5.33	6.51				152'																										
84+00.00	LT	35		8.68																																
84+00.00	RT	35	36		6.51	7.25				84'																										
83+53.00	LT	37																																		
86+80.00	LT	38																																		
89+00.00	RT																																			
89+73.00	LT	39																																		
-Y9- 13+00.00	LT	40																																		
-Y9- 12+50.00	LT	41																																		
91+40.00	MED	42		9.30																																
91+40.00	LT	42	43		7.13	6.87				76'																										
91+40.00	RT	42	44		7.13	7.63				60'																										
93+58.00	LT	45																																		
93+50.00	RT	46																																		
94+30.00	MED	47		9.10																																
94+30.00	LT	47	48		7.18	6.42			76'																											
96+54.00	LT	49																																		
97+00.00	MED	50		9.70																																
97+00.00	LT	50	51		6.95	5.88			72'																											
98+94.00	LT	52																																		
99+72.00	LT	53																																		
99+85.00	LT	54			EXTG	5.1					80'																									
99+85.00	RT	55			5.7	EXTG					28'																									
99+85.00	RT																																			
99+60.00	MED																																			
100+45.00	RT																																			
101+47.00	MED																																			
102+17.00	MED																																			
101+91.00	LT	56																																		
104+44.00	MED																																			
105+00.00	MED	57		8.69																																
105+99.00	LT	58																																		
106+00.00	MED																																			
106+50.00	MED																																			
107+16.00	RT																																			
107+70.00	MED																																			
108+50.00	MED	57	59		6.77	4.99			352'																											
108+50.00	MED	59		7.74																																
109+15.00	MED	59	61		4.99	4.40			76'																											
108+20.00	LT	60																																		
109+37.00	LT	63	62		5.82	4.45			64'																											
110+00.00	MED	63		8.96																																
112+50.00	MED	63	64		5.82	6.57			252'																											
112+50.00	MED	64		9.32																																
SHEET TOTAL									892'	372'	416'																									

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.D.I	T.B.D.I. FRAME		SPECIAL CONCRETE MEDIAN DROP INLET				15" Pipe End Section	18" Pipe End Section					30" SIDE DRAIN PIPE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
79+96.00																																				
82+50.00																																				
82+50.00						1											1					1														SPECIAL DITCH SEE SHEET 2F
84+00.00																																				
84+00.00						1							1				1																			
84+00.00																																				
83+53.00	16'																									1										15" Parallel Pipe End Section
86+80.00	16'																									1									20'	DRIVEWAY PIPE END SECTION
89+00.00																																			124'	DRIVEWAY
89+73.00	28'																									1										15" Parallel Pipe End Section
-Y9- 13+00.00	16'																																			
-Y9- 12+50.00	20'																																			
91+40.00						1							1				1																			
91+40.00																											1									18" Cross Pipe End Section
91+40.00																											1									18" Cross Pipe End Section
93+58.00			28'																																	
93+50.00	28'																									1										15" Parallel Pipe End Section
94+30.00						1							1				1																			
94+30.00																																				
96+54.00			48'																																	
97+00.00						1						1					1																			
97+00.00																																				
98+94.00			20'																																	
99+72.00			20'																																	18" CROSS PIPE END SECTION
99+85.00																																	0.55			
99+85.00																																	0.55			
99+85.00																																			8'	DRIVEWAY
99+60.00																																			36'	DRIVEWAY
100+45.00																																			20'	DRIVEWAY
101+47.00																																			28'	DRIVEWAY
102+17.00																																			24'	DRIVEWAY
101+91.00	20'																									1										15" Parallel Pipe End Section
104+44.00																																			40'	DRIVEWAY
105+00.00						1							1				1																			
105+99.00	36'																									1										15" Parallel Pipe End Section
106+00.00																																				
106+50.00																																				
107+16.00																																			24'	DRIVEWAY
107+70.00																																				
108+50.00																																				
108+50.00						1						1					1																			
109+15.00																																				
108+20.00	32'																																			
109+37.00																																				
110+00.00						1						1					1																			
112+50.00																																				
112+50.00						1						1					1																			
SHEET TOTAL	212'		116'			9						4	4				9					1				6	2						1.1		324'	

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.)	GRATED DROP INLET (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

17-MAR-2009 14:49
r:\roadway\proj\r-3403ab\r-3403ab_rdy_sumold.dgn
$$$$USERNAME$$$$

COMPUTED BY:	MJ	DATE:	3-16-09
CHECKED BY:	DYP	DATE:	3-17-09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	3-C

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* 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	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.D.I. STD. 840.35	T.B.D.I. FRAME WITH GRATE STD. 840.29		SPECIAL CONCRETE MEDIAN DROP INLET				15" Pipe End Section	18" Pipe End Section					30" SIDE DRAIN PIPE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
112+12.00	LT	65																															28'																									1									18" Parallel Pipe End Section
111+40.00	RT	66																														20'																									1										15" Parallel Pipe End Section
111+01.00	MED																																																																		
111+40.00	RT																																																																		
113+16.00	RT	67																														20'																									1									28'	18" Parallel Pipe End Section
114+35.00	LT	68																														52'																									1										15" Parallel Pipe End Section
115+00.00	MED	69		9.92																																	1							1				1																			
115+00.00	RT	70																														20'																																			
114+47.00	MED																																																																	48'	DRIVEWAY
114+98.00	RT																																																																	16'	DRIVEWAY
116+97.00	MED																																																																	44'	DRIVEWAY
116+66.00	LT	71																														28'																									1										15" Parallel Pipe End Section
118+18.00	MED																																																																	34'	DRIVEWAY
118+13.00	LT	72																															24'																									1									18" Parallel Pipe End Section
119+00.00	MED	69	73		8.00	6.79			400'																																																									44'	DRIVEWAY
119+00.00	MED	73		9.79																																	1						1					1																			
120+33.00	RT	73	74		6.79	6.40			136'																																																										
120+33.00	MED	74		9.04																																	1							1				1																			
120+42.00	RT	74	76		6.37	7.00					72'																																																								
120+22.00	LT	74	75		6.37	6.09					76'																																																								
120+45.00	LT	77																															20'																																	20'	DRIVEWAY
123+00.00	MED	78		9.64																																	1							1				1																			
123+00.00	LT	78	79		7.72	7.30			76'																																																										
129+00.00	MED	80		9.72																																	1							1				1																			
129+00.00	LT	80	81		7.80	7.59			72'																																																										
132+00.00	MED	82		10.13																																	1							1				1																			
132+00.00	LT	82	83		8.21	7.98			80'																																																											
133+85.00	LT	84																															32'																																		18" PARALLEL PIPE END SECTION
133+97.00	MED																																																																	16'	DRIVEWAY
135+41.00	MED																																																																	20'	DRIVEWAY
136+00.00	MED	85		12.20																																	1							1				1																			
136+00.00	RT	85	86		10.28	9.80			92'																																																1										15" Cross Pipe End Section
140+00.00	RT	87			8.8	8.4																												128'																																	0.23		PLUG 24" CONC. 140+35 -L-
141+30.00	MED	88	90		8.40	8.14						92'																																																							
141+39.00	RT	89																															44'																																	48'	DRIVEWAY
141+30.00	MED	90		15.00																																	1													1	1																
141+30.00	LT	90	91		8.14	7.80						120'																																																							
-Y11- 10+60.00	LT																																																																	20'	DRIVEWAY
-Y11- 10+60.00	LT	92																																																													28'				
-Y11- 11+67.00	LT																																																																	20'	DRIVEWAY
143+50.00	MED	93		14.25																																	1						1					1																			
143+50.00	MED	90	93		9.39	11.50			220'																																																										
146+44.00	RT																																																																		
146+44.00	RT																																																																		
146+36.00	RT	94							24'																																																										
146+41.00	RT	95	96		11.37	11.16			68'																																																										
146+43.00	MED	95		14.04																																	1											1					1														SPECIAL DETAIL SEE SHEET 2F
SHEET TOTAL									1168'		148'	212'																				140'	148'	128'			10						2	6				9		1	1		1				5	2					28'		0.23	358'	

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.)	GRATED DROP INLET (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: MJ	DATE: 3-16-09
CHECKED BY: DYP	DATE: 3-17-09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	3-D

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
148+69.00	MED	95	97		11.37	12.97					228'																				
148+69.00	MED	97		16.87																											
148+67.00	MED	98		17.23																											
148+67.00	LT	97	98		12.97	13.64				12'																					
148+67.00	LT	98	99		13.64	13.80				56'																					
147+79.00	RT	100																													
148+35.00	RT	101																													
150+42.00	MED	97	102		13.22	13.74			176'																						
150+42.00	MED	102		17.28																											
150+42.00	MED	102	103		13.74	14.32			12'																						
150+42.00	MED	103		17.49																											
152+14.00	MED	102	104		13.74	14.25			176'																						
152+14.00	MED	104		17.42																											
151+08.00	MED																														
152+16.00	MED																														
151+05.00	LT	105																													
150+68.00	RT	106																													
-Y13- 14+95.00	RT	107																													
-Y13- 14+95.00	LT	108																													
-Y13- 14+02.00	RT	109																													
-Y13- 13+71.00	RT	111																													
-Y13- 12+80.00	LT	112																													
-Y13- 13+71.00	RT																														
-Y13- 12+80.00	LT																														
154+00.00	MED	113		16.29																											
155+45.00	MED	113	114		13.54	8.51			142'																						
157+85.00	MED	116	117		8.51	10.86			232'																						
157+85.00	MED	117		16.45																											
161+50.00	MED	117	118		10.86	11.95			368'																						
161+50.00	MED	118		14.70																											
160+08.00	MED																														
161+62.00	RT																														
160+32.00	LT	119																													
160+62.00	RT	120																													
163+50.00	RT	121																													
163+90.00	LT	122																													
166+45.00	LT	123																													
168+50.00	LT	124																													
163+50.00	RT																														
163+89.00	LT																														
164+86.00	LT																														
165+87.00	LT																														
168+40.00	LT																														
159+00.00	LT	125		11.55																											
158+50.00	LT	125	126		8.55	8.0				52'																					
SHEET TOTAL									1106'	120'	228'																				

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.D.I. STD. 840.35	T.B.D.I. FRAME WITH GRATE STD. 840.29	15" Pipe End Section	18" Pipe End Section	30" SIDE DRAIN PIPE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
148+69.00																											
148+69.00						1			1	1																	
148+67.00						1			1	1																	
148+67.00																											18" CROSS PIPE END SECTION
148+67.00																						1					18" Cross Pipe End Section
147+79.00	32'																										15" PARALLEL PIPE END SECTION
148+35.00	42'																										15" PARALLEL PIPE END SECTION
150+42.00																											
150+42.00						1			1	1																	
150+42.00																											
150+42.00						1			1	1																	
152+14.00																											
152+14.00						1			1	1																	
151+08.00																											
152+16.00																										40'	DRIVEWAY
151+05.00	48'																				1						15" Parallel Pipe End Section
150+68.00	32'																										
-Y13- 14+95.00		38'																									
-Y13- 14+95.00	32'																										
-Y13- 14+02.00		24'																									
-Y13- 13+71.00	16'																									42'	42" CMP
-Y13- 12+80.00	20'																										
-Y13- 13+71.00																										24'	
-Y13- 12+80.00																										20'	
154+00.00						1							1				1										
155+45.00																											SEE DETAIL SHEET 2-G
157+85.00																											
157+85.00						1						1					1										
161+50.00																											
161+50.00						1						1					1										
160+08.00																										32'	DRIVEWAY
161+62.00																										28'	DRIVEWAY
160+32.00		20'																									
160+62.00	28'																				1						15" Parallel Pipe End Section
163+50.00	20'																				1						15" Parallel Pipe End Section
163+90.00	20'																				1						15" Parallel Pipe End Section
166+45.00	20'																				1						15" Parallel Pipe End Section
168+50.00		24'																				1					18" Parallel Pipe End Section
163+50.00																										28'	DRIVEWAY
163+89.00																										20'	DRIVEWAY
164+86.00																										32'	DRIVEWAY
165+87.00																										40'	DRIVEWAY
168+40.00																										44'	DRIVEWAY
159+00.00						1						1					1										
158+50.00																											
SHEET TOTAL	310'	106'				9			5	5		3	1				4				5	2				350'	

* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')

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.)	GRATED DROP INLET (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

4/04/06
17-MAR-2009 14:49
r:\roadway\proj\r3403ab\r-3403ab_rdy_sumold.dgn
$$$$USERNAME$$$$

4/04/06

COMPUTED BY: MJ	DATE: 3-16-09
CHECKED BY: DYP	DATE: 3-17-09

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	3-E

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
67+40.00	MED	21	127		0.7	0.9					76'				
67+40.00	MED	127		5.7											
67+60.00	LT	127	128		0.9	1.2				68'					
67+60.00	LT	128		3.4											
SHEET TOTAL										68'	76'				
TOTAL									4,838'	704'	1,044'	212'			

STATION	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
67+40.00																					
67+40.00																					
67+60.00																					
67+60.00																					
SHEET TOTAL																					
TOTAL																					

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* 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	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.D.I. STD. 840.35	T.B.D.I. FRAME WITH GRATE STD. 840.29
67+40.00																				
67+40.00						1					1						1			
67+60.00																				
67+60.00						1							1				1			
SHEET TOTAL						2					1		1				2			
TOTAL	902	298'	244'	1.5		42			7	7	2	13	15				33		2	2

STATION			SPECIAL CONCRETE MEDIAN DROP INLET			15" Pipe End Section	18" Pipe End Section					30" SIDE DRAIN PIPE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
67+40.00																
67+40.00																
67+60.00																
67+60.00																
SHEET TOTAL																
TOTAL			3			18	8					28'	2.699	0.23	1,288'	

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.)	GRATED DROP INLET (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

17-MAR-2009 14:49
r:\roadway\proj\r3403ab\r-3403ab_rdy_sumold.dgn
$$$$USERNAME$$$$

6/21/00

COMPUTED BY: MJ DATE: 3-16-09
CHECKED BY: DYP DATE: 3-17-09

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	3-F

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54"	60"	66"	72"	78"	84"
-Y13- 13+48.00	MED	110			3.3	3.0					100'		
155+94.00	LT	114	115		4.3						120'		
SHEET TOTAL											220'		

STATION	BITUMINOUS COATED C.S. PIPE TYPE B 54" .109	54" .138	54" .168	54" SHOP ELON-GATED .138	54" SHOP ELON-GATED .168	60" .138	60" .168	66" .138	66" .168	72" .138	72" .168	STRUCTURAL PLATE PIPE 60" 12	60" 10	66" 12	66" 10	72" 12	72" 10
-Y13- 13+48.00																	
155+94.00																	
SHEET TOTAL																	

STATION	REINFORCED ENDWALLS WITH R.C. – C.Y.	REINFORCED ENDWALLS WITH C.S. – C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS SEE DETAIL SHEET 2-G	M.H. FRAME & COVER STD. 840.54	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & SIZE	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	PIPE REMOVAL LIN.FT.	REMARKS
-Y13- 13+48.00	7.1										
155+94.00	7.1		11.2	1							REMARKS
SHEET TOTAL	14.2		11.2	1							

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.)	GRATED DROP INLET (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

12/06/07

COMPUTED BY: M. JACOBS DATE: 4-9-08
CHECKED BY: D. WILLIAMS DATE: 4-10-08

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	3-G

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	TES	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	65+90.00	68+00.00	LT	210.00'			CULVERT	CULVERT	8'	10'	50'		9'				1			1										
-L-	64+34.00	66+44.00	RT	210.00'			CULVERT	CULVERT	8'	10'	50'		9'				1			1										
-L-	107+55.00	109+75.00	RT	325.00'			CULVERT	CULVERT	8'	10'	50'		9'				1			1										
-L-	108+90.00	110+90.00	LT	200.00'			CULVERT	CULVERT	8'	10'	50'		9'				1			1										
-L-	146+19.61	146+77.19	LT	50.00'												2													Guardrail Barricade
-L-	154+00.00	155+88.00	RT	188.00'			CULVERT	CULVERT	8'	10'	50'		9'				1			1										
			SUBTOTAL	1,183.00'																									
	LESS DEDUCTIONS FOR ANCHOR UNITS		5 GRAU 350 @ 50'	-250.00'																									
			5 CAT 1 @ 6.25'	-31.25'																									
			TOTAL	901.75'												2	5			5									
			SAY	912.50'																									

ADDITIONAL GUARDRAIL POST = 5 EA

"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

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	64+62.50	68+00.00	RT	337.50'			CULVERT	CULVERT	4'	4'	50'	50'	1	1			2													
-L-	107+45.00	111+20.00	RT	375.00'			CULVERT	CULVERT	4'	4'	50'	50'	1	1			2													
			SUBTOTAL	712.50'																									
	LESS DEDUCTIONS FOR ANCHOR UNITS		4 GRAU 350 @ 50'	-200.00'																									
			TOTAL	512.50'													4													
			SAY	512.50'																									

SUMMARY OF REMOVAL EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-Y13-	14+38.00	14+79.00	RT	54
-L-	143+60.00	146+50.00	LT	575
-Y12-	14+28.00	14+83.00	LT	50
-Y9-	13+56.00	13+86.00	LT	42
			TOTAL:	721
			SAY:	730

18-SEP-2008 12:03
r:\roadway\proj\r3403ab\r-3403ab_rdy_sum.dgn
$$$$USERNAME$$$$

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	3-H

FENCE SUMMARY

WOVEN WIRE FENCE

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH	4" POST	5" POST
-L-	120+59.00	133+45.00	LT	1,286.00'	82	19
-L-	134+05.00	139+39.00	LT	531.00'	32	11
-L-	139+39.00	-Y11- 11+70.00	LT	130.00'	7	5
-L-	-Y11- 55+00.00	141+50.00	LT	40.00'	0	5
-L-	141+50.00	145+47.77	LT	397.77'	22	12
-L-	145+47.77	145+85.00	LT	40.23'	0	6
-L-	145+85.00	146+84.90	LT	99.90'	4	6
-L-	146+84.90	148+40.00	LT	155.10'	8	6
-L-	148+40.00	150+75.00	LT	235.00'	14	5
-L-	151+35.00	152+50.00	LT	115.00'	6	5
-L-	152+50.00	-Y13- 17+00.00	LT	60.00'	1	6
-L-	-Y13- 17+00.00	-Y13- 16+50.43	RT	59.57'	2	5
-L-	-Y13- 16+50.43	-Y13- 17+00.00	LT	59.57'	2	5
-L-	-Y13- 17+00.00	153+80.00	LT	60.00'	2	5
-L-	154+40.00	155+47.00	LT	97.00'	4	5
-L-	155+47.00	155+47.00	LT	45.33'	0	6
-L-	155+47.00	156+04.00	LT	57.00'	1	5
-L-	156+04.00	158+84.00	LT	280.00'	17	6
-L-	158+84.00	159+55.00	LT	71.00'	2	6
-L-	159+55.00	160+69.00	LT	114.00'	5	6
-L-	160+69.00	161+96.00	LT	127.00'	6	6
-L-	161+96.00	163+83.00	LT	187.00'	11	5
-L-	164+43.00	165+64.00	LT	121.00'	7	4
			SHEET TOTAL (-L- LT)	4,368.47'	235	150

WOVEN WIRE FENCE

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH	4" POST	5" POST
-L-	61+09.93	63+82.00	LT	272.07'	17	5
-L-	63+82.00	64+45.00	LT	63.00'	1	6
-L-	64+45.00	66+12.19	LT	167.19'	9	6
-L-	66+12.19	69+89.00	LT	376.81'	20	12
-L-	69+89.00	71+37.35	LT	148.35'	7	6
-L-	71+37.35	-Y8- 12+79.00	LT	75.00'	3	5
-L-	77+64.00	80+12.00	LT	248.00'	15	5
-L-	81+15.00	83+37.00	LT	222.00'	13	5
-L-	83+67.00	86+60.00	LT	293.00'	18	5
-L-	86+60.00	87+98.00	LT	138.00'	7	6
-L-	87+98.00	88+53.00	LT	55.00'	1	6
-L-	88+53.00	88+98.00	LT	45.00'	0	6
-L-	88+98.00	89+59.50	LT	61.50'	2	5
-L-	89+59.50	93+38.00	LT	348.50'	19	11
-L-	93+98.00	96+18.00	LT	220.00'	13	5
-L-	96+18.00	-Y9A- 11+60.18	LT	40.00'	0	5
-L-	-Y9A- 11+60.00	97+13.00	LT	52.00'	1	5
-L-	97+13.00	98+50.00	LT	137.00'	7	6
-L-	98+50.00	99+02.00	LT	52.00'	0	6
-L-	99+02.00	99+68.00	LT	66.00'	2	5
-L-	99+68.00	100+35.00	LT	37.00'	0	5
-L-	100+35.00	103+06.00	LT	271.00'	17	5
-L-	103+80.00	105+67.00	LT	187.00'	11	4
-L-	106+27.00	107+86.00	LT	159.00'	9	5
-L-	107+86.00	108+60.00	LT	74.00'	2	6
-L-	108+60.00	108+60.00	LT	18.00'	1	4
-L-	108+60.00	111+87.00	LT	327.00'	19	8
-L-	112+47.00	114+07.00	LT	160.00'	9	4
-L-	114+67.00	116+33.00	LT	166.00'	10	4
-L-	116+93.00	117+60.00	LT	67.00'	2	5
-L-	117+60.00	-Y10- 11+70.00	LT	50.00'	1	5
-L-	118+28.59	120+29.00	LT	200.41'	12	4
			SHEET TOTAL (-L- LT)	4,796.83'	248	180

WOVEN WIRE FENCE

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH	4" POST	5" POST
-L-	54+14.00	55+16.00	RT	102.00'	5	4
-L-	55+76.00	57+60.00	RT	184.00'	11	4
-L-	58+20.00	60+02.00	RT	182.00'	11	4
-L-	60+62.00	61+03.00	RT	41.00'	1	4
-L-	61+63.00	62+02.00	RT	39.00'	1	4
-L-	62+62.00	68+68.00	RT	606.00'	36	13
-L-	68+98.00	71+57.00	RT	259.00'	15	7
-L-	72+17.00	76+79.00	RT	462.00'	28	10
-L-	77+39.00	81+86.50	RT	477.50'	27	10
-L-	82+46.50	88+09.00	RT	562.50'	35	10
-L-	89+10.00	93+34.50	RT	424.50'	25	10
-L-	93+64.50	98+05.00	RT	440.50'	26	10
-L-	98+35.00	104+09.00	RT	574.00'	36	10
-L-	104+39.00	107+07.00	RT	268.00'	17	4
-L-	107+37.00	111+25.00	RT	388.00'	22	10
-L-	111+55.00	113+05.00	RT	150.00'	9	4
-L-	113+35.00	114+86.00	RT	151.00'	9	4
-L-	115+16.00	120+52.00	RT	536.00'	33	10
-L-	120+82.00	122+94.00	RT	212.00'	12	5
-L-	122+94.00	139+04.49	RT	1,610.49'	106	17
-L-	139+04.49	-Y12- 14+00.00	RT	80.00'	3	5
-L-	-Y12- 14+00.00	142+50.00	RT	219.00'	14	4
-L-	142+78.00	143+53.00	RT	72.00'	2	5
-L-	143+53.00	144+37.53	RT	84.53'	3	5
-L-	149+64.00	150+36.00	RT	75.00'	3	4
-L-	150+96.00	152+36.00	RT	140.00'	8	4
-L-	152+96.00	159+00.00	RT	604.00'	38	10
			SHEET THREE TOTAL (-L- RT)	8,914.02'	536	191
			SHEET TWO TOTAL (-L- LT)	4,368.47'	235	150
			SHEET ONE TOTAL (-L- LT)	4,796.83'	248	180
			PROJECT GRAND TOTAL	18,079.32	1,011	521
			SAY	18,080	1,020	525

ADDITIONAL B.W. FENCE = 300 LF

FENCE SUMMARY

CHAIN LINK FENCE

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH	LINE POST	TERMINAL POST
-L-	72+13.50	72+13.50	LT	48.00'	4	2
-L-	72+13.50	75+61.57	LT	348.07'	30	4
-L-	75+61.57	76+47.00	LT	85.43'	8	2
-L-	76+47.00	77+34.00	LT	87.00'	8	2
-L-	77+34.00	77+64.00	LT	30.00'	3	2
			TOTAL	598.50'	53	12
			SAY	600.00'	55	15

5/9/06
16-MAR-2009 14:41
r:\roadway\proj\r3403ab\r-3403ab_rdy_sum01d.dgn
$$$$USERNAME$$$$

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT +%	BORROW	WASTE
SUMMARY 1					
-L- LT STA 52+00 TO STA 82+00	6707	3465	13109	7073	4136
-CY8- 10+40.00 TO 11+20.00	388	0	0	0	388
-Y8- 13+00.00 TO 10+08.35	1,041	0	0	0	1,041
WASTE IN LIEU OF BORROW				- 1,286	- 1,286
SUMMARY 1 TOTAL	8136	3465	13109	5787	4279
SUMMARY 2					
-L- LT STA 82+00 TO STA 112+00	5340	3117	11181	6375	3651
-Y9A- STA. 11+50.00 TO 14+00.00	35	0	0	0	35
WASTE IN LIEU OF BORROW				- 31	- 31
SUMMARY 2 TOTAL	5375	3117	11181	6344	3655
SUMMARY 3					
-L- LT STA 112+00 TO STA 142+00	10646	9143	24948	14995	9836
-Y10- STA 12+00 TO STA 12+00	1	0	1	0	0
-Y11- STA 10+00 TO STA 12+50	219	0	682	485	22
WASTE IN LIEU OF BORROW					
SUMMARY 3 TOTAL	10866	9143	25631	15480	9858
SUMMARY 4					
-L- LT STA 142+00 TO STA 160+00	2011	3406	15910	14101	3,608
-Y13- STA. 14+00.00 TO 15+50.00	357	0	237	0	121
WASTE IN LIEU OF BORROW				-84	-84
SUMMARY 4 TOTAL	2368	3406	16147	14017	3,644
SUMMARY 5					
-L- RT STA 52+00 TO STA 82+00	3401	1652	5089	2029	1993
WASTE IN LIEU OF BORROW				0	
SUMMARY 5 TOTAL	3401	1652	5089	2029	1993
SUMMARY 6					
-L- RT STA 82+00 TO STA 112+00	4198	267	1180	0	3285
-Y9- STA 12+00 TO STA 14+00	93	0	74	0	19
WASTE IN LIEU OF BORROW				-2607	-2607
SUMMARY 6 TOTAL	4291	267	1254	-2607	697
SUMMARY 7					
-L- RT STA 112+00 TO STA 142+00	3853	4155	10809	7287	4,486
-Y12- STA 14+00 TO STA 15+50	255	0	307	78	26
WASTE IN LIEU OF BORROW				0	
SUMMARY 7 TOTAL	4108	4155	11116	7365	4,512
SUMMARY 8					
-L- RT STA 142+00 TO STA 160+00	2145	700	2653	722	914
WASTE IN LIEU OF BORROW				0	
SUMMARY 8 TOTAL	2145	700	2653	722	914
PROJECT SUBTOTAL	40690	25905	86,180	49137	29552
WASTE IN LIEU OF BORROW				0	
ADDITIONAL UNDERCUT		2600	3250	3250	2600
SHOULDER MATERIAL			18,594	18,594	
LOSS DUE TO CLEARING & GRUBBING	-2,900			2,900	
SELECT MATERIAL CLASS III IN LIEU OF BORROW			-35,631	-35,631	
PROJECT TOTAL	37,790	28,505	72,393	38,250	32152
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				1913	
GRAND TOTAL	37,790			40,163	
SAY	37,900			40,300	

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, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

PROJECT REFERENCE NO. R-3403AB
SHEET NO. 3-1

PROJ. REFERENCE NO.	SHEET NO.
R-3403AB	3-J

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
33	4	GEORGEANNAH LOCKLEAR, et vir
34	4	RESSIE LOCKLEAR LEWIS
35	4	ROGER T. NEEDHAM, et ux
36	4	LINDA HINES SAULTER
37	4	ROBERT THOMAS COWARD, et al
38	4	DEWEY R. FRAZIER, et ux
39	4	TWO-TEN INVESTORS, INC.
39	5	TWO-TEN INVESTORS, INC.
40	5	DAVID EARL O'GEARY
41	5	JOHN L. PURYEAR TRUCKING, INC.
42	5	GERALD L. ANDERSON
42A	5	JO M. LEWIS
43	5	JIMMIE R. SAWYER, et ux
44	5	ESTELLE OAOKLEY HOLTON, et vir
45	5	WILLIE E. STILLEY, et ux
46	5	GERALD ANDERSON LOGGING CO.,INC.
47	5	BOBBY LEE DRAKE, et ux
48	5	WEDDELL MIDYETTE, et ux
49	5	L. E. DANIELS, III, et ux
50	6	LARRY L. DAVIS, et ux
51	6	TAHITIA VANDIFORD STEWART
52	6	GEORGE L. SHAFFER, JR., et ux
53	6	DONNA W. HENRIES
54	6	MARRINER D. HARDISON, et ux
55	6	JOSEPH ARTHUR MAYBERRY, et ux
56	6	JOSELYN PAUL IPOCK, et vir
56	7	JOSELYN PAUL IPOCK, et vir
57	7	DANIEL L. MOORING, et ux
58	7	MILTON HUGH ROWE, JR., et ux
59	7	RALPH C. POTTER
60	7	FLORIAN H. PRICE, SR, et ux
61	8	DALLAS D. HOLTON, et ux
62	8	DEWEY R. FRAZIER
63	8	PHILLIPS PLATING COMPANY, INC.
64	8	SHELTON LEE PHILLIPS, et ux
65	8	LEON G. MILLETTE, JR., et ux
66	8	GEORGE E. PHILLIPS
67	8	WILLIAM P. REGISTER, et ux
68	8	H. DONALD EVANS, et ux
68	9	H. DONALD EVANS, et ux
69	9	BOBBY LEE DRAKE, et ux
70	9	MARRINER D. HARDISON, et ux
70	10	MARRINER D. HARDISON, et ux
71	10	LUTHER EARL GASKINS, et ux
72	11	DEWEY R. FRAZIER
73	11	W. J. GASKINS, JR., et ux
73A	11	PHILLIP D. DUNN, et ux
74	11	JOHN WALSH
75	11	WILLIE E. BUNDY, et ux
76	11	WELCOME BAPTIST CHURCH
77	11	E. J. POPE & SON, INC.
78	11	GRAHAM W. DIXON, et ux
79	11	DANIEL EARL & MITZI G GASKINS
81	11	WILLIAM H. CATON, et ux
81	12	WILLIAM H. CATON, et ux
82	11	BRENDA JOYCE CATON, et vir
82	12	BRENDA JOYCE CATON, et vir
82	12	JOHN W. MILLER, et ux
83	12	ELLEN M. FREEMAN
84	12	CECIL JOSEPH FREEMAN

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
85	5	KENNETH G. GARRIS
86	6	HARRY STEWART
86	7	HARRY STEWART
87	8	CHARLES ELSON
87	9	CHARLES R. ELSON
88	9	JAMES A. SKINNER
89	9	MICHAEL D. MILLS, et ux
90	9	THOMAS JAMES
93	5	KATHERINE ANDREWS
94	11	VERNON ELMO GASKINS
39A	4,5	ALLEN THOMAS FRENCH, et ux

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18403 ENGINEER GREGORY E. BREW 4-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR. 3/20/09

FOR -L- PROFILE SEE SHEET 13

-L-

PI Sta 49+97.54
Δ = 27° 59' 44.3" (RT)
D = 2° 51' 53.2"
L = 977.23
T = 498.58'
R = 2,000.00'

PIs Sta 55+42.88
Θs = 2° 51' 53.2"
Ls = 200.00'
LT = 133.35'
ST = 66.68'
SE = SEE PLANS

DETAIL 12
CUT DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Front Ditch Slope
Min. D=1.5 Ft.

-L- LT FROM STA. 48+50 TO STA. 50+60
-L- RT FROM STA. 52+90 TO STA. 60+10

NAD 83

DB 1167 - PG 48
MB 10 - PG 62
PC 'D' - SLIDE 721

-Y6- PC Sta. 16+30.93
-Y6- PT Sta. 17+55.67
N 62° 40' 37.4" E
-L- POC 48+10.00 =
-Y6- POT 18+12.40

S01°10'29"E 502.09'

Monolithic Island will be constructed under Project R-3403 AA

End Construction Project R-3403AA -L- Sta.51+03.50

BL-8
-L- 51+20.92 (33.05 RT)

END STATE PROJECT R-3403AA =
BEGIN STATE PROJECT R-3403AB
-L- Sta. 50+90.00

CLEANOUT TAIL DITCH
EST. DDE +/- 45CY
OUTLET GRADE = 0.15%

GEORGEANNAH LOCKLEAR, et vir
DB 1411 - PG 281

RESSIE LOCKLEAR LEWIS
DB 1186 - PG 834

BRIDGETON TOWN LIMIT

JEAN CAROL JONES
DB 1376 - PG 424

ROGER T. NEEDHAM, et ux
DB 1612 - PG 315

LINDA HINES SAULTER
DB 1055 - PG 157

ROBERT THOMAS COWARD, et al
DB 1159 - PG 443
DB 1495 - PG 366
DB 1420 - PG 790

W.E. BARNETTE
DB 1994 - PG 663
MB 11 - PG 86

TWO-TEN INVESTORS, INC.
DB 1378 - PG 514
DB 1550 - PG 748
PC 'C' - SLIDE 203

ALLEN THOMAS FRENCH, et ux
DB 627 - PG 210
DB 965 - PG 241
PC 'C' - SLIDE 2

EN-CEE CHEMICAL SALES, INC.
DB 648 - PG 35

CALVIN COOLEY, et ux
DB 791 - PG 224

LEON THOMAS SWARINGEN, et ux
DB 840 - PG 114

24' INGRESS & EGRESS

-L- CS Sta. 54+76.19
-L- ST Sta. 56+76.19

SPECIAL LATERAL V-DITCH SEE DETAIL #3
SPECIAL DITCH SEE DETAIL #1
SPECIAL DITCH SEE DETAIL #12
PROP. 8"x18" CONC. CURB
REMOVE HW
RETAIN & EXTEND HW
REMOVE
COLLAR
CLEANOUT HEAD DITCH EST. DDE +/- 12CY
CLEANOUT HEAD DITCH EST. DDE +/- 20CY
-L- 53+03.00 EXIST. R/R R/W, 173.00' RT
-L- 52+68.00 EXIST. R/W, 188.00' RT
-L- 52+82.00 EXIST. R/W, 215.00' RT
-L- 53+33.00 EXIST. R/R R/W, 193.50' RT
-L- 55+76.00 BEG. PROP. WW FENCE BEG. PROP. C/A
-L- 55+16.00 END PROP. WW FENCE END PROP. C/A
-L- 57+52.24 (73.03 RT)
-L- STA. 53+46.40 BEG. PROP. R/W 78.(RT) BEG. PROP. WW FENCE BEG. PROP. C/A
-L- 53+46.40 78.09' RT
-L- 54+69.50 84.76' RT
-L- 54+65.99 152.57' RT
-L- 54+13.75 123.58' RT
-L- 54+13.00 68.00' (LT)
-L- 53+50.00 93.00' (LT)
-L- 52+40.00 99.00' (LT)
-L- 51+82.88 89.00' (LT)
-L- 54+76.19 75.00' (LT) & 68.00' (LT)
-L- 55+16.000 83.000' (LT)
-L- 56+76.19 75.00' (LT)
N 5° 22' 22.9" W -L-
SEE SHEET NO. 5
MATCHLINE STA. 59+00.00

DETAIL 1
SPECIAL DITCH
(Not to Scale)

ROAD, NG, 3:1 MAX, d, 3:1 MAX, TO
Min. d = 1.5 Ft.

-L- (LT) 55+15 TO 56+00
-L- (LT) 57+00 TO 59+65

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Fill Slope
Min. D = 1.0 Ft.

-L- (LT) 51+55 TO 53+90

SPECIAL DITCH GRADE
SEE PROFILE FOR GRADE
-L- (LT) 48+00 TO 49+15
-L- (Median) 50+00 TO 50+68
-Y6- (LT) 15+95 TO 16+87

SCF = SPECIAL CONCRETE FLUME

NOTE: DRIVE PIPES TO BE RAISED 3 INCHES ABOVE DITCH LINE THROUGHOUT PROJECT

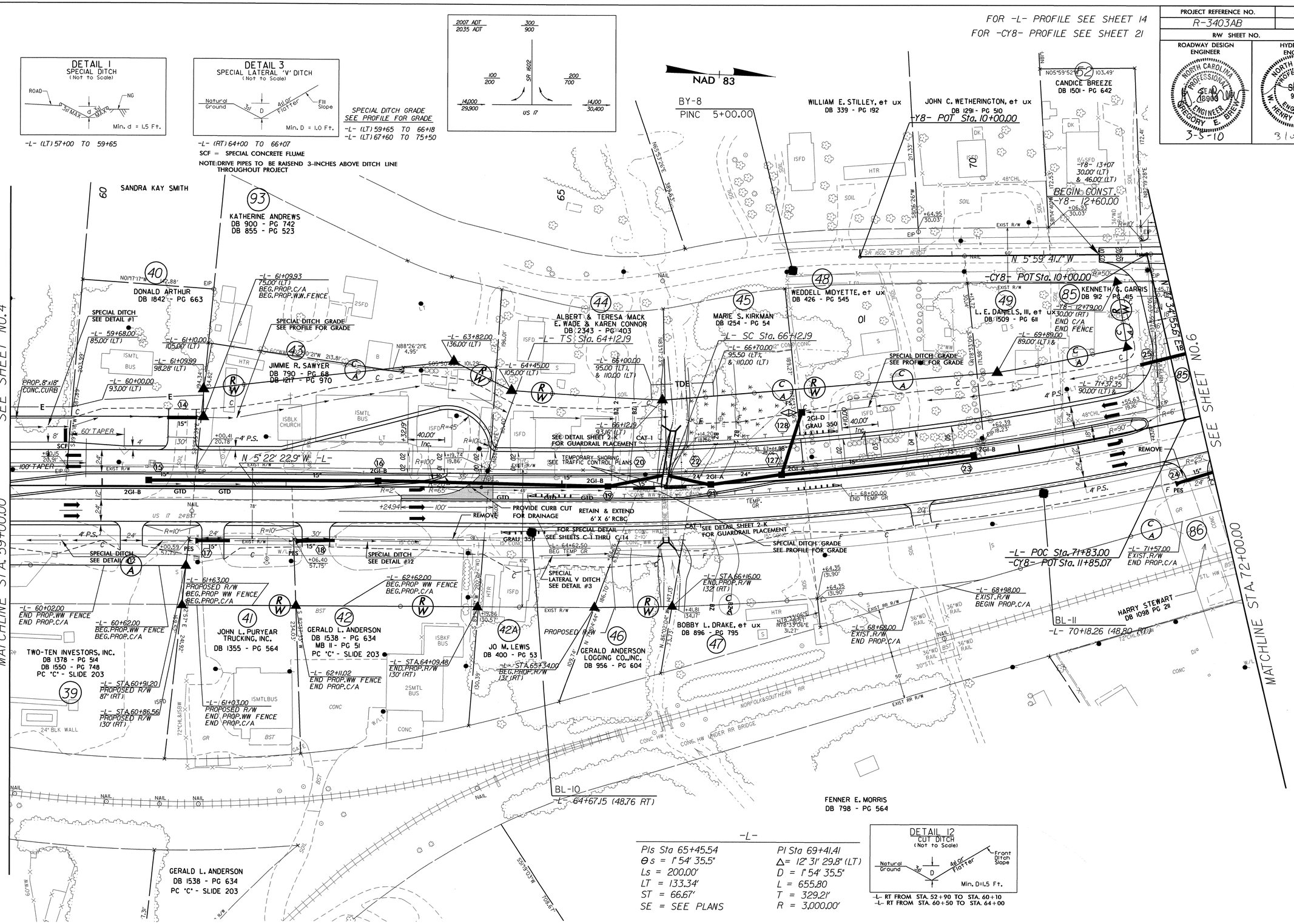
REVISIONS

8/17/99

16-MAR-2009 11:22
r:\roadway\proj\r-3403ab\r-3403ab_r-dly_psh04.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18900 ENGINEER GREGORY E. BREW 3-3-10	NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR. 3/09/10

FOR -L- PROFILE SEE SHEET 14
FOR -CY8- PROFILE SEE SHEET 21



-L-

PIs Sta 65+45.54	PI Sta 69+41.41
Θs = 1° 54' 35.5"	Δ = 12° 31' 29.8" (LT)
Ls = 200.00'	D = 1° 54' 35.5"
LT = 133.34'	L = 655.80
ST = 66.67'	T = 329.21'
SE = SEE PLANS	R = 3,000.00'

REVISIONS

8/17/99

01-MAR-2010 11:01
R:\Roadway\Proj\r3403ab\r3403ab_rdy_psh05.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19003 ENGINEER GREGORY E. BREWER 4-3-09	NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR. 3/20/09

FOR -L- PROFILE SEE SHEET 14
FOR -Y8- PROFILE SEE SHEET 19

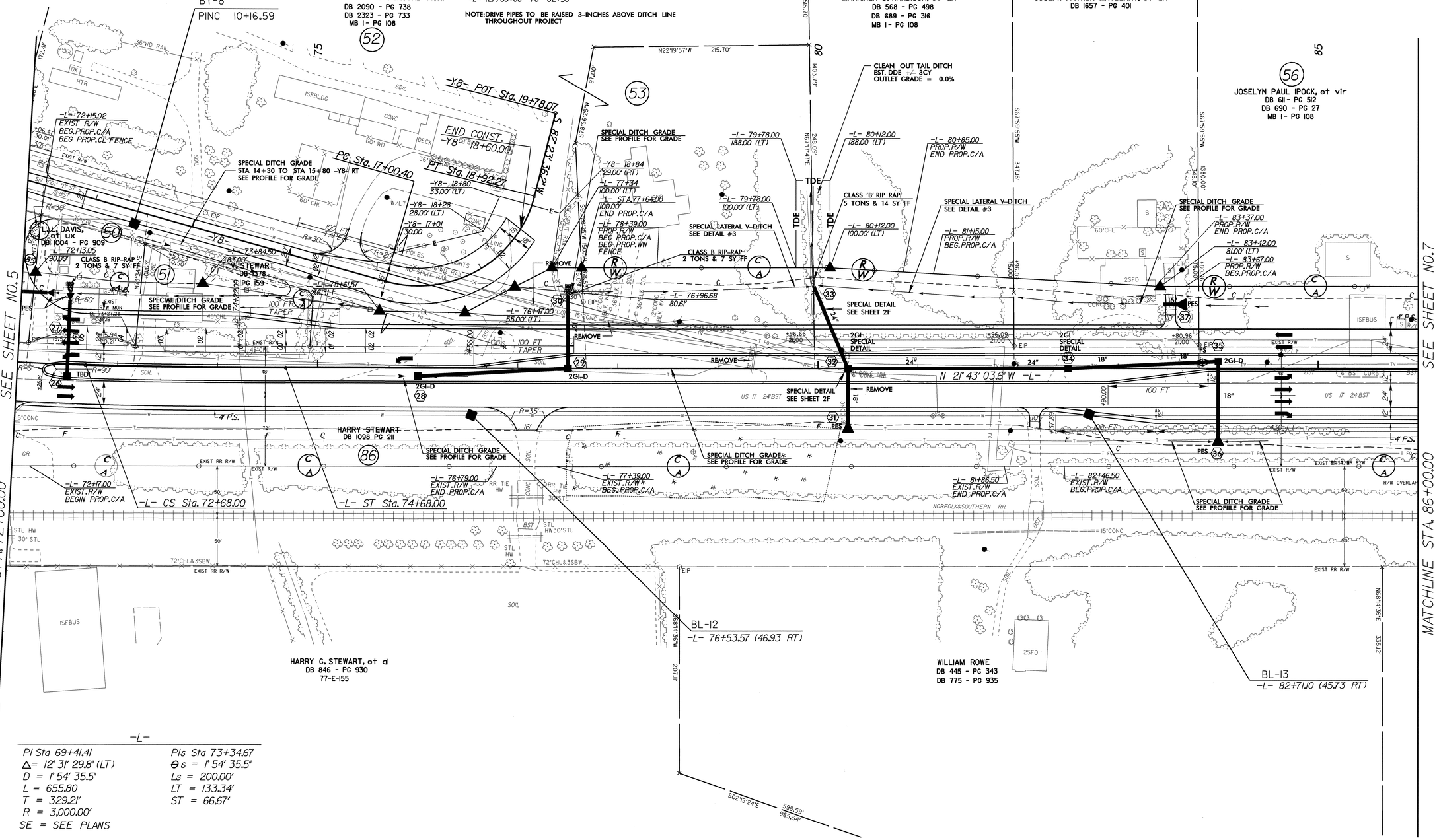
-Y8-
PI Sta 18+23.82
Δ = 91° 36' 42.5" (LT)
D = 47° 44' 47.3"
L = 191.87'
T = 123.42'
R = 120.00'
SE = SEE PLANS

2007 ADT 300
2035 ADT 900
SR 1602
100/200 200/700
14,000/29,900 14,400/30,400
US 17

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 4.0' or Flatter, Fill Slope
Min. D = 1.0 Ft.

SPECIAL DITCH GRADE
SEE PROFILE FOR GRADE
-L- (RT) 83+50 TO 84+50
-L- (LT) 67+25 TO 74+43
-L- (LT) 82+50 TO 83+50
-L- (MED) 75+50 TO 76+50
-L- (MED) 78+50 TO 80+30
-Y8- (RT) 14+30 TO 15+80
-L- (LT) 77+50 TO 79+92
-L- (LT) 80+00 TO 82+50

NOTE: DRIVE PIPES TO BE RAISED 3-INCHES ABOVE DITCH LINE THROUGHOUT PROJECT



-L-

PI Sta 69+41.41	PIs Sta 73+34.67
Δ = 12° 31' 29.8" (LT)	Θs = 1° 54' 35.5"
D = 1° 54' 35.5"	Ls = 200.00'
L = 655.80	LT = 133.34'
T = 329.21'	ST = 66.67'
R = 3,000.00'	
SE = SEE PLANS	

REVISIONS

8/17/99

12-MAR-2009 09:35
f:\roadway\proj\r3403ab\r3403ab_rdy_psh06.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16903 ENGINEER GREGORY E. BROWN 4-3-09

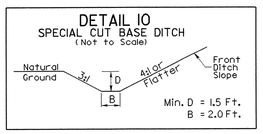
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR. 11/14/08

FOR -L- PROFILE SEE SHEET 15

FOR -Y9- PROFILE SEE SHEET 19

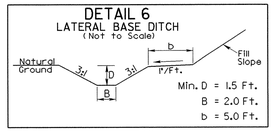
FOR -Y9A- PROFILE SEE SHEET 19

DETAIL 10
SPECIAL CUT BASE DITCH
(Not to Scale)



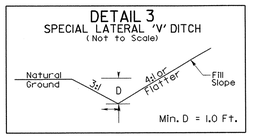
-L- (LT) 94+50 TO 98+50

DETAIL 6
LATERAL BASE DITCH
(Not to Scale)



-L- (LT) 98+50 TO 100+43
-L- (RT) 99+24 TO 99+85

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



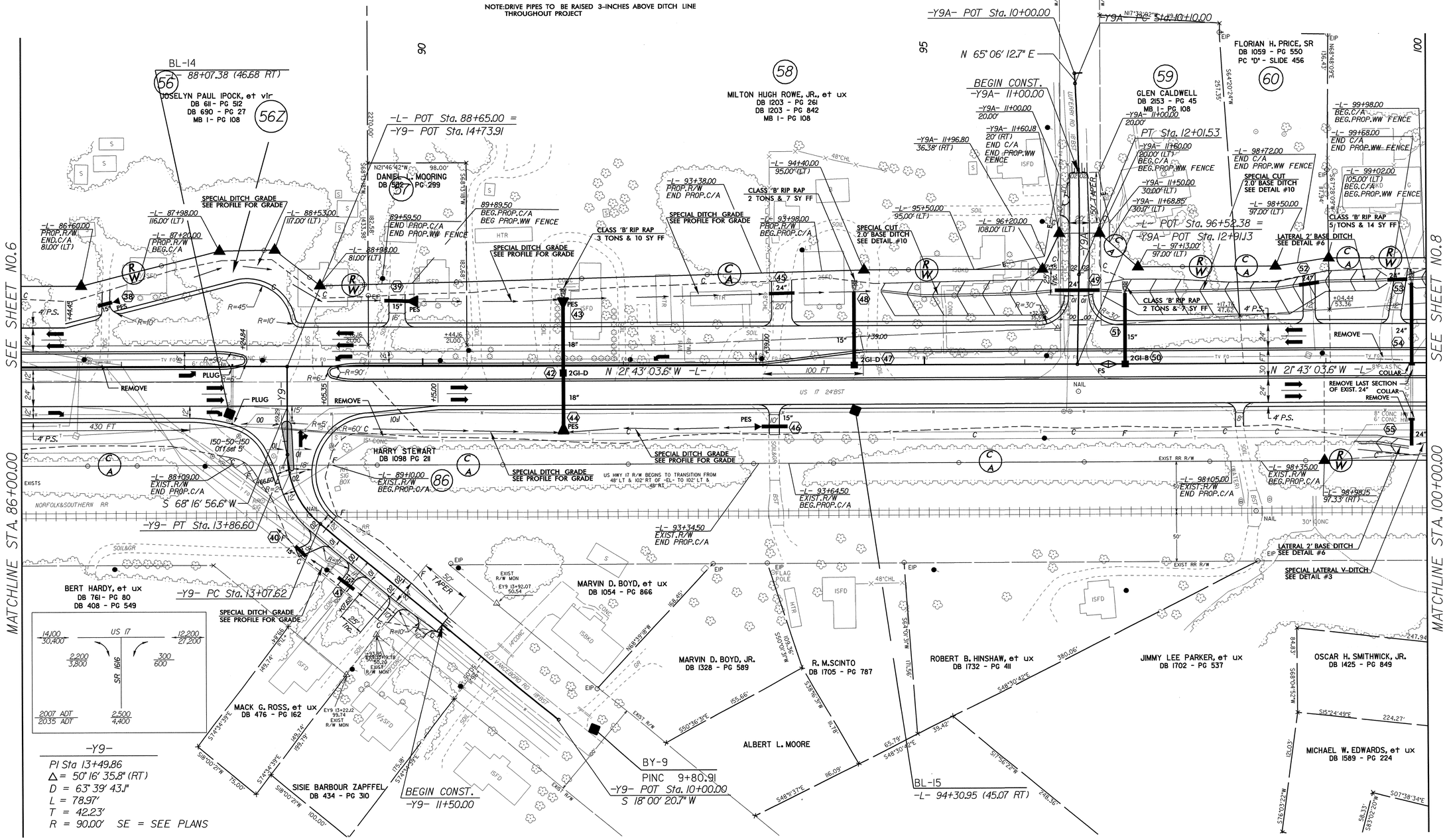
-L- (RT) 99+85 TO 100+50

NOTE:DRIVE PIPES TO BE RAISED 3-INCHES ABOVE DITCH LINE THROUGHOUT PROJECT

SPECIAL DITCH GRADE
SEE PROFILE FOR GRADE
-L- (LT) 88+00 TO 94+50
-L- (RT) 89+50 TO 93+50
-Y9- (LT) 12+05 TO 13+30

NAD 83

-Y9A-
PI Sta 11+05.81
Δ = 4° 23' 22.6" (RT)
D = 2° 17' 30.6"
L = 191.53'
T = 95.81'
R = 2,500.00'
SE = SEE PLANS



REVISIONS

8/17/99

15-OCT-2008 09:39
r:\roadway\proj\r-3403ab\r-3403ab_rdy_psh07.dgn
$$$$USERNAME$$$$

FOR -L- PROFILE SEE SHEET 15

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12903 ENGINEER GREGORY E. BREW 3-5-10

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR. 3/09/10

DETAIL 6
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, B, b, 1'/Ft., Fill Slope

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

-L- (LT) 98+50 TO 100+43

NOTE: DRIVE PIPES TO BE RAISED 3-INCHES ABOVE DITCH LINE THROUGHOUT PROJECT

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Fill Slope

Min. D = 1.0 Ft.

-L- (RT) 99+85 TO 100+43
-L- (LT) 100+45 TO 101+50
-L- (LT) 108+20 TO 108+46

SPECIAL DITCH GRADE
SEE PROFILE FOR GRADE
-L- (RT) 100+50 TO 104+00
-L- (LT) 101+50 TO 103+00
-L- (LT) 109+75 TO 114+00

NAD 83

SEE SHEET NO.7

MATCHLINE STA. 100+00.00

SEE SHEET NO.9

MATCHLINE STA. 114+00.00

61 DALLAS D. HOLTON, et ux
DB 713 - PG 441
DB 1631 - PG 510

63 PHILLIPS PLATING COMPANY, INC.
DB 757 - PG 1
DB 778 - PG 181
DB 1084 - PG 504
DB 1308 - PG 45

64 PHILLIPS PLATING COMPANY, INC.
DB 1809 - PG 804

65 LEON G. MILLETTE, JR., et ux
DB 1607 - PG 287

67 WILLIAM P. REGISTER, et ux
DB 551 - PG 261
DB 791 - PG 79
DB 1103 - PG 817

68 H. DONALD EVANS, et ux
DB 1005 - PG 926

62 DEWEY R. FRAZIER
DB 888 - PG 488
DB 1453 - PG 313

66 GEORGE E. PHILLIPS
DB 492 - PG 166

STATE OF NORTH CAROLINA

87 CHARLES ELSON
DB 989 - PG 245

JIMMY LEE PARKER, et ux
DB 1702 - PG 537

NATHANIEL G. WHITFORD, HEIRS
DB 495 - PG 211
DB 552 - PG 81

DOMINIC CONSTANTINO, et ux
DB 1712 - PG 380
PC 'G' - SLIDE 60F

KENNETH M. WETWISKAS

DALLAS D. HOLTON, et ux
DB 463 - PG 457

CLEANOUT TAIL DITCH
EST. DDE +/- 4.5CY
OUTLET GRADE = 0.43%

SPECIAL LAT 'V' DITCH
SEE DETAIL #3

SPECIAL DITCH GRADE
SEE PROFILE FOR GRADE

CLASS 'B' RIP RAP
2 TONS & 7 SY FF

SEE DETAIL SHEET 2-K
FOR GUARDRAIL PLACEMENT

TEMPORARY SHORING
SEE TRAFFIC CONTROL PLANS

RETAIN & EXTEND
2 @ 6' X 5' RCBC
FOR SPECIAL DETAIL
SEE SHEETS C-1 THRU C-14

GRAU 350
SEE DETAIL SHEET 2-K
FOR GUARDRAIL PLACEMENT

CLASS I RIP RAP
18 TONS & 20 SY FF
28 CY DDE

30' ACCESS

BL-16
-L- 100+28.59 (46.25 RT)

BL-17
-L- 106+36.12 (5.95 RT)

BL-18
-L- 112+44.46 (45.58 RT)

N 21°43'03.6" W -L-

US 17 24'BST

NORFOLK & SOUTHERN RR

CONC HW UNDER RR BRIDGE

EXIST RR R/W

EXIST NORFOLK & SOUTHERN RR R/W

REVISIONS

8/17/99

01-MAR-2010 10:55
R:\Roadway\Proj\r3403ab\r3403ab_rdy_psh08.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

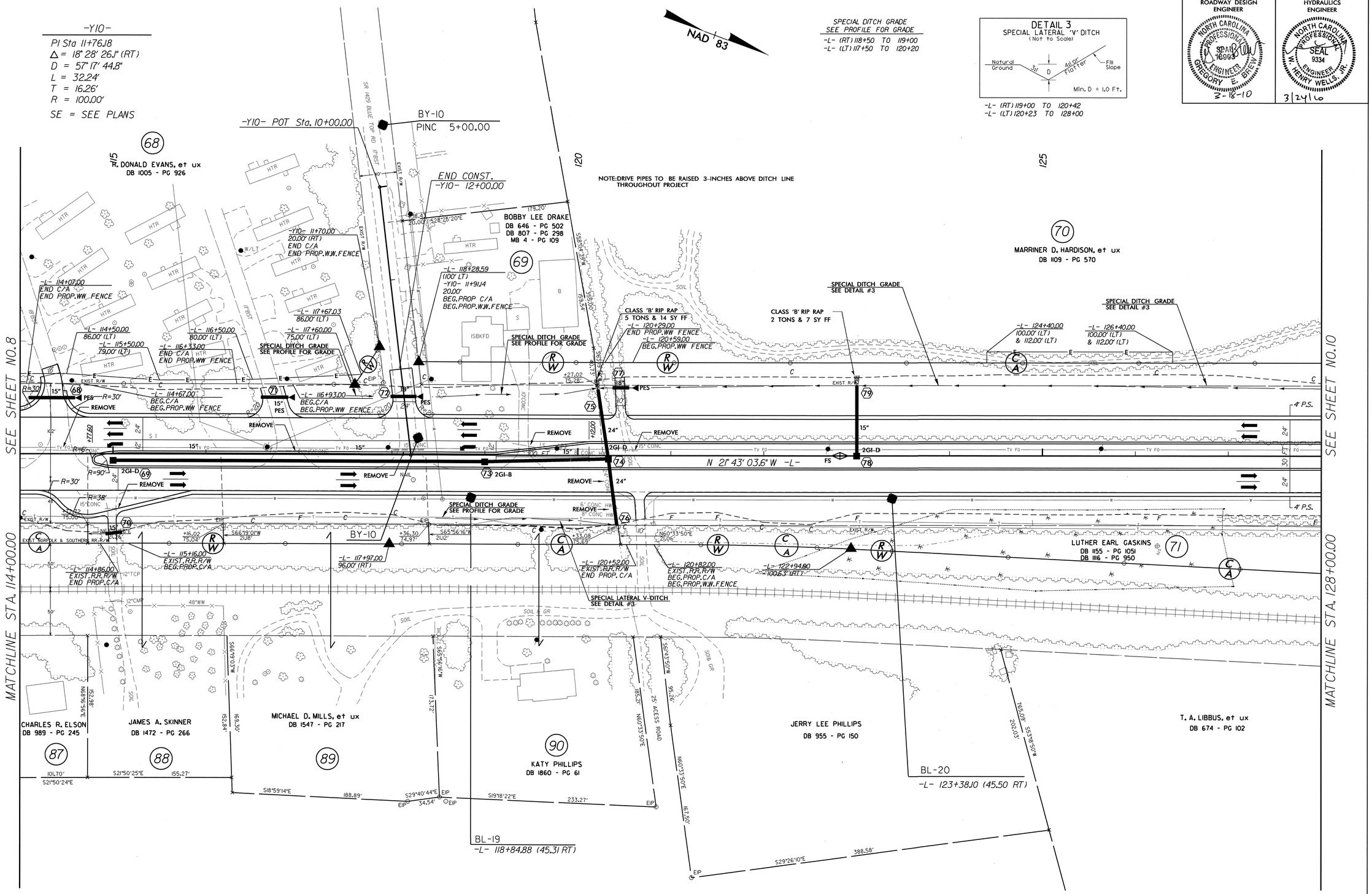
FOR -L- PROFILE SEE SHEET 16

-Y10-
PI Sta 11+76.18
Δ = 18° 28' 26.1" (RT)
D = 57° 17' 44.8"
L = 32.24'
T = 16.26'
R = 100.00'
SE = SEE PLANS

SPECIAL DITCH GRADE
SEE PROFILE FOR GRADE
-L- (RT) 118+50 TO 119+00
-L- (LT) 117+50 TO 120+20

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, Adjust Flatter, Fill Slope
Min. D = 1.0 Ft.

-L- (RT) 119+00 TO 120+42
-L- (LT) 120+23 TO 128+00



REVISIONS

8/17/99

IC MAR 2010 14:56
R:\Roadway\Proj\r3403ab_r_rdy_psh09.dgn
$$$$USERNAME$$$$

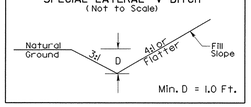
PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16903 ENGINEER GREGORY E. BREW 4-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR. 3/20/09

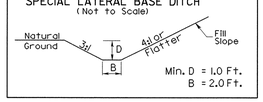
FOR -L- PROFILE SEE SHEET 16
FOR -Y11- PROFILE SEE SHEET 20
FOR -Y12- PROFILE SEE SHEET 20

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



-L- (LT) 128+00 TO 129+50

DETAIL 4
SPECIAL LATERAL BASE DITCH
(Not to Scale)



-Y11- (LT) 10+00 TO 11+95

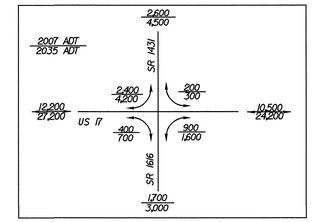
NOTE: DRIVE PIPES TO BE RAISED 3-INCHES ABOVE DITCH LINE THROUGHOUT PROJECT

SPECIAL DITCH GRADE
SEE PROFILE FOR GRADE

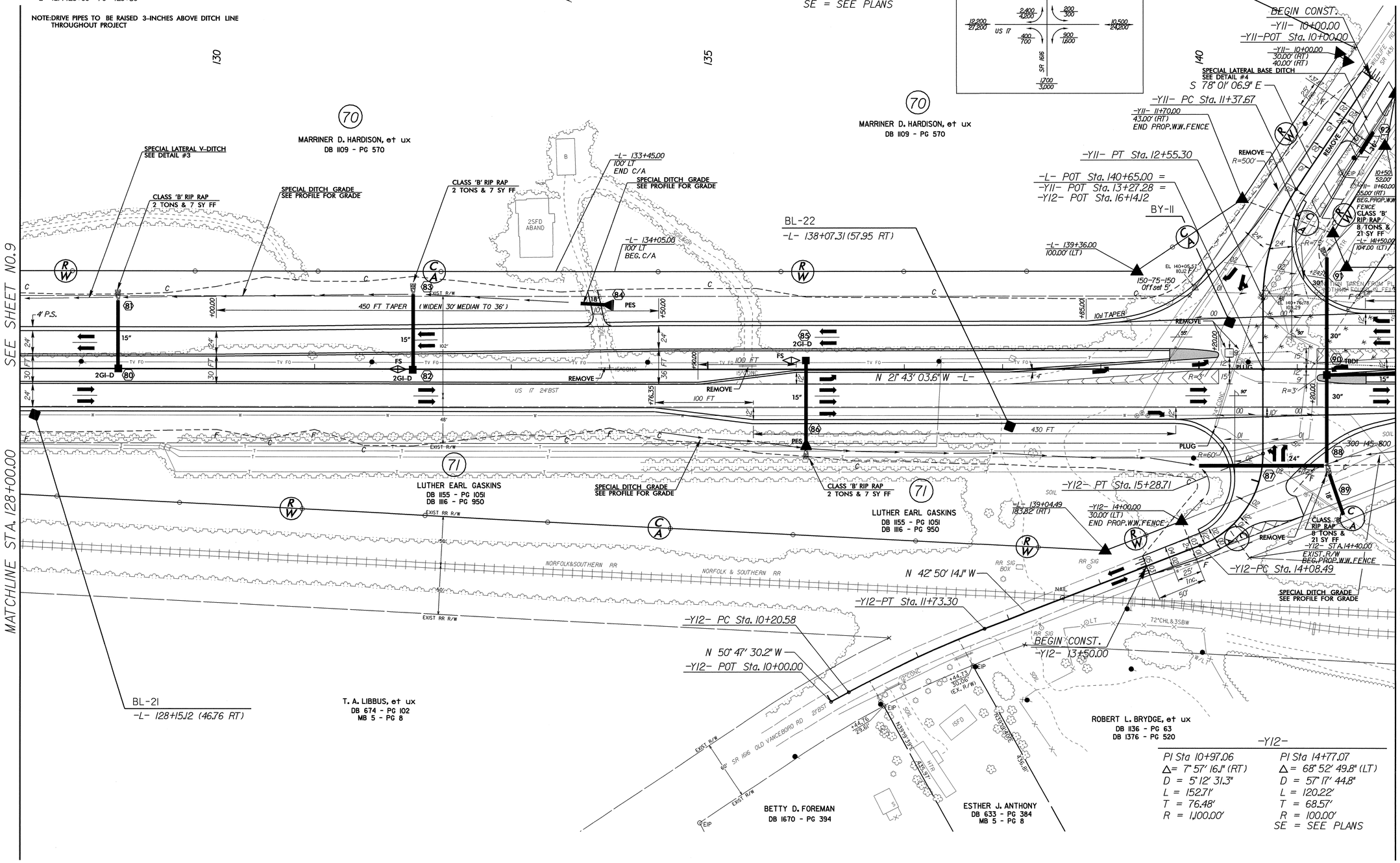
-L- (LT) 129+50 TO 134+00
-L- (RT) 134+00 TO 140+00
-L- (RT) 141+30 TO 143+50
-Y12- (LT) 14+00 TO 14+95

NAD 83

-Y11-
PI Sta 11+98.24
Δ = 33° 41' 56.9" (LT)
D = 28° 38' 52.4"
L = 117.63'
T = 60.57'
R = 200.00'
SE = SEE PLANS



N03°34'36"E



-Y12-

PI Sta 10+97.06	PI Sta 14+77.07
Δ = 7° 57' 16.1" (RT)	Δ = 68° 52' 49.8" (LT)
D = 5° 12' 31.3"	D = 57° 17' 44.8"
L = 152.71'	L = 120.22'
T = 76.48'	T = 68.57'
R = 1,100.00'	R = 100.00'
SE = SEE PLANS	

REVISIONS

8/17/99

12-MAR-2009 09:35
r:\roadway\proj\r-3403ab\r-3403ab_rdy_psh10.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW 3-5-10

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR. 3/31/10

FOR -L- PROFILE SEE SHEET 17
FOR -Y13- PROFILE SEE SHEET 20

-Y13-
PI Sta 15+09.23
Δ= 60° 08' 11.6" (LT)
D = 19° 05' 54.9"
L = 314.87'
T = 173.68'
R = 300.00'
SE = SEE PLANS

DETAIL 1
SPECIAL DITCH
(Not to Scale)
Min. d = 1.5 Ft.
-L- (RT) 148+05 TO 149+05
-L- (RT) 149+60 TO 153+50

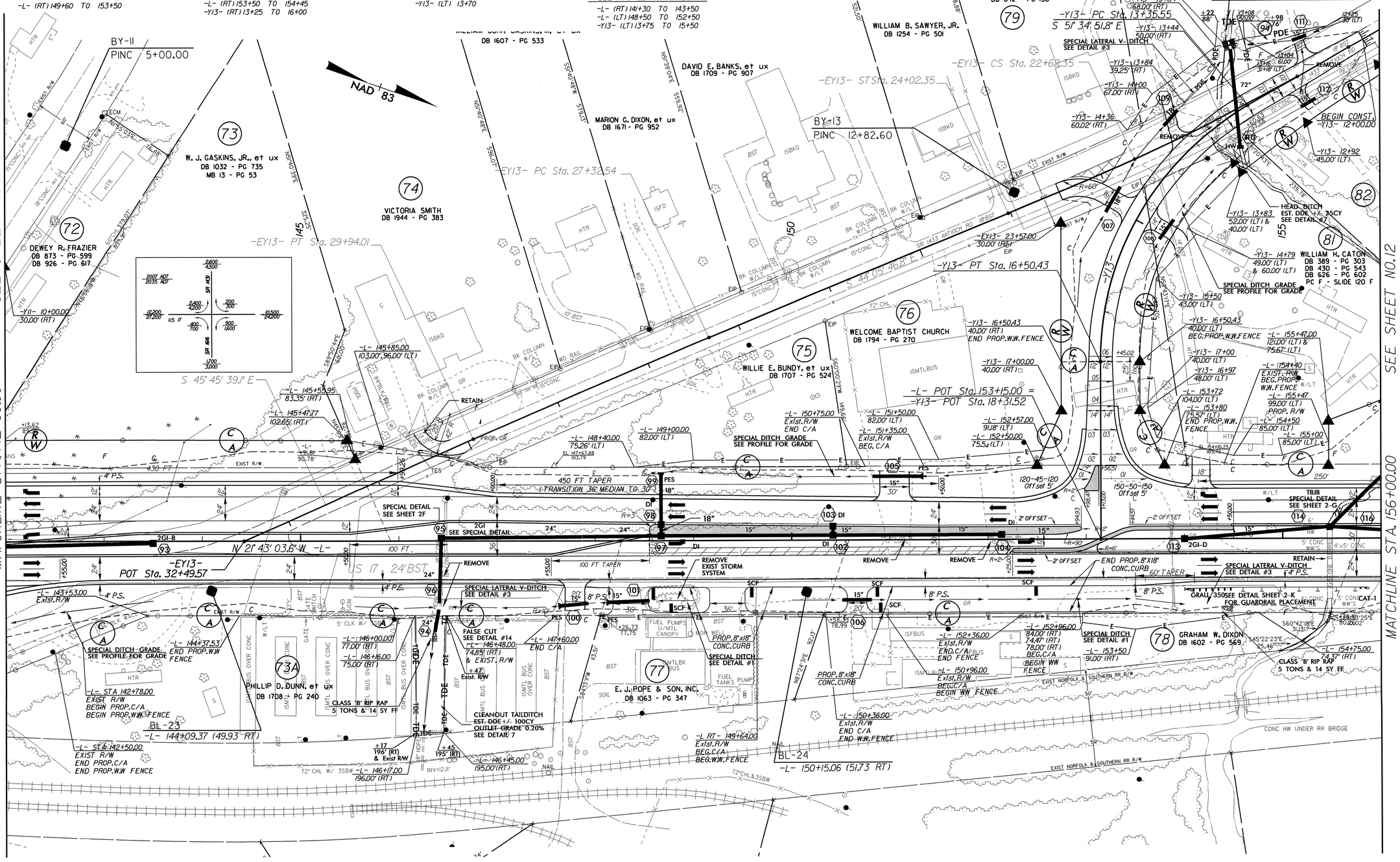
DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Min. D = 1.0 Ft.
-L- (RT) 145+30 TO 147+50
-L- (RT) 153+50 TO 154+45
-Y13- (RT) 13+25 TO 16+00

NOTE:DRIVE PIPES TO BE RAISED 3-INCHES ABOVE DITCH LINE THROUGHOUT PROJECT

DETAIL 7
STANDARD BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
B = Exist Ft.
-Y13- (LT) 13+70

DETAIL 14
FALSE CUT
(Not to Scale)
-L- (RT) 146+33

SPECIAL DITCH GRADE
SEE PROFILE FOR GRADE
-L- (RT) 141+30 TO 143+50
-L- (LT) 148+50 TO 152+50
-Y13- (LT) 13+75 TO 15+50



REVISIONS

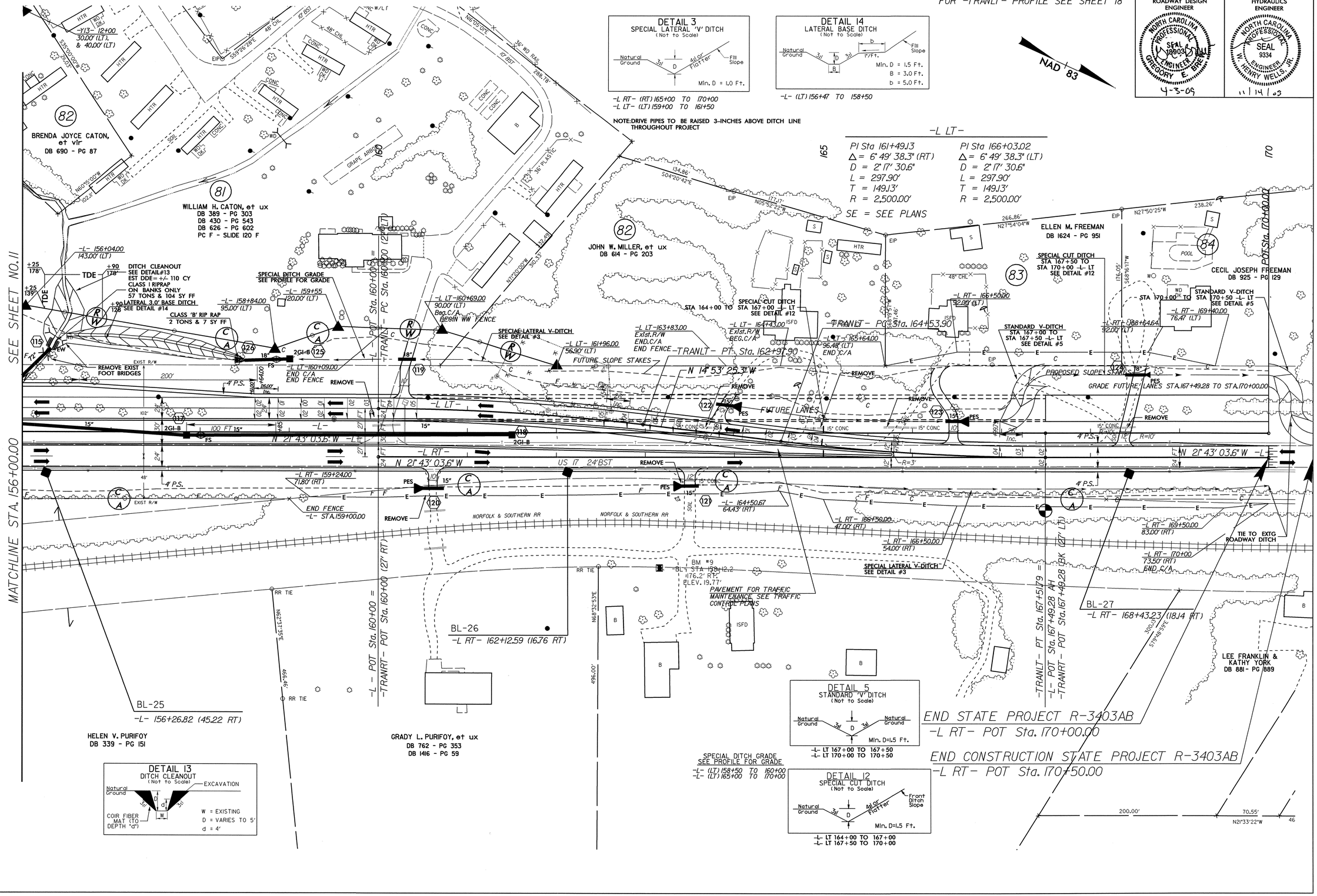
8/17/99

01-MAR-2010 10:55
R:\Roadway\Proj\r-3403ab\r-3403ab_rdy_pshll.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREE 4-3-09	NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR. 11/14/03

FOR -L- PROFILE SEE SHEET 17
FOR -TRANRT- PROFILE SEE SHEET 18
FOR -TRANLT- PROFILE SEE SHEET 18

NAD 83



8/17/99

15-OCT-2008 09:40
r:\roadway\proj\3403ab\r3403ab_rdy_psh12.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	13

ROADWAY DESIGN ENGINEER

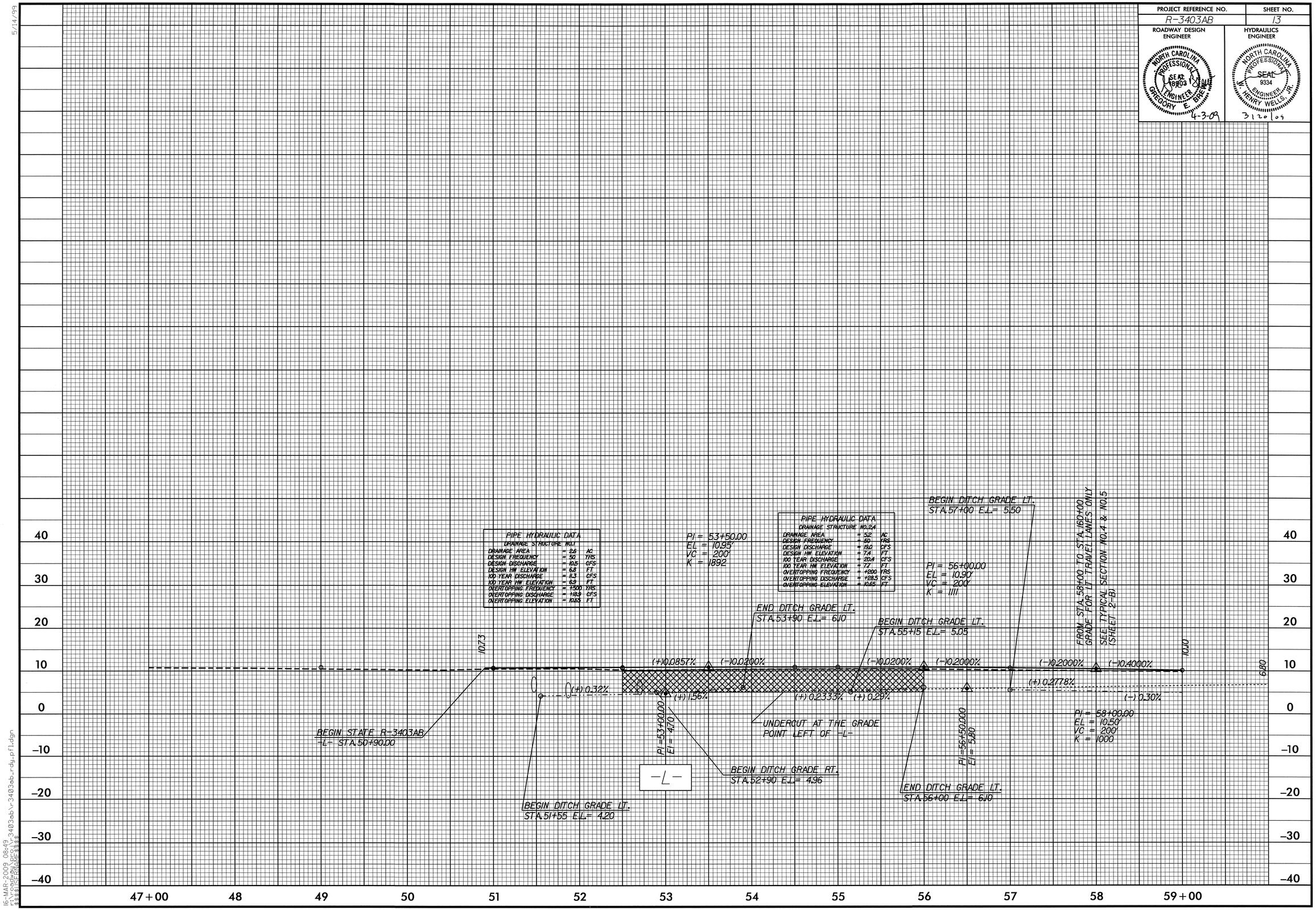
NORTH CAROLINA PROFESSIONAL SEAL 18803 ENGINEER GREGORY E. BRUE

4-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.

3/20/09



5/14/99

16-MAR-2009 08:49
C:\MAP-2009\R-3403ab\r-3403ab_rdy_pfl.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	14

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16904 ENGINEER GREGORY E. BREWER
4-3-09

HYDRAULICS ENGINEER

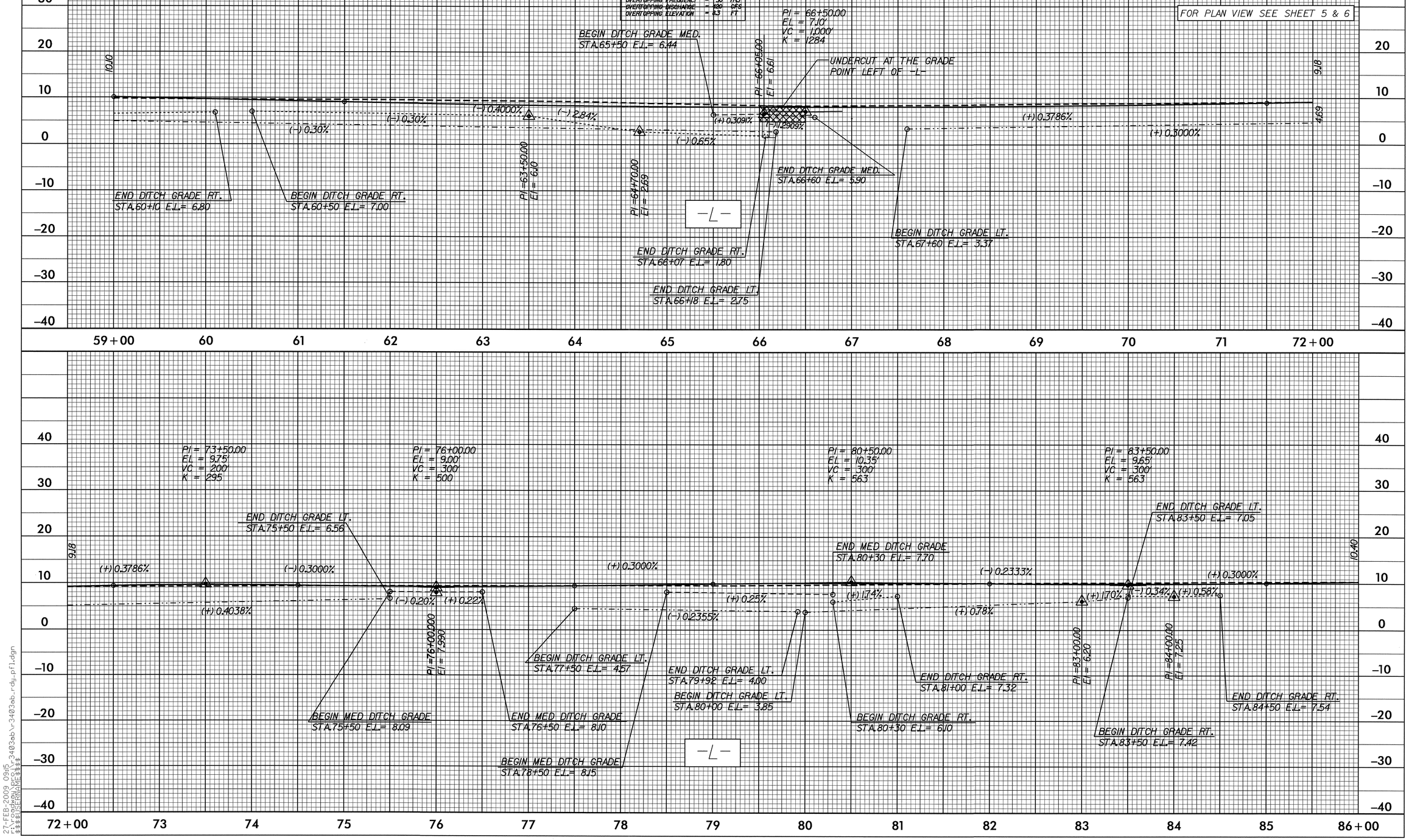
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR.
3/20/09

BM NO.4 - RR SPIKE SET IN BASE OF 28" GUM TREE
-BL- STA. 65+04.40 208.3' RIGHT ELEV.9.44'

FOR PLAN VIEW SEE SHEET 5 & 6

CULVERT HYDRAULIC DATA

DRAINAGE AREA	=	280	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	440	CFS
DESIGN HW ELEVATION	=	8.5	FT
100 YEAR DISCHARGE	=	625	CFS
100 YEAR HW ELEVATION	=	9.7	FT
OVERTOPPING FREQUENCY	=	50	YRS
OVERTOPPING DISCHARGE	=	690	CFS
OVERTOPPING ELEVATION	=	8.9	FT



27-FEB-2009 09:15
R:\Roadway\Proj\r3403ab\r3403ab_rdy_pfl.dgn
$$$$USERNAME$$$$

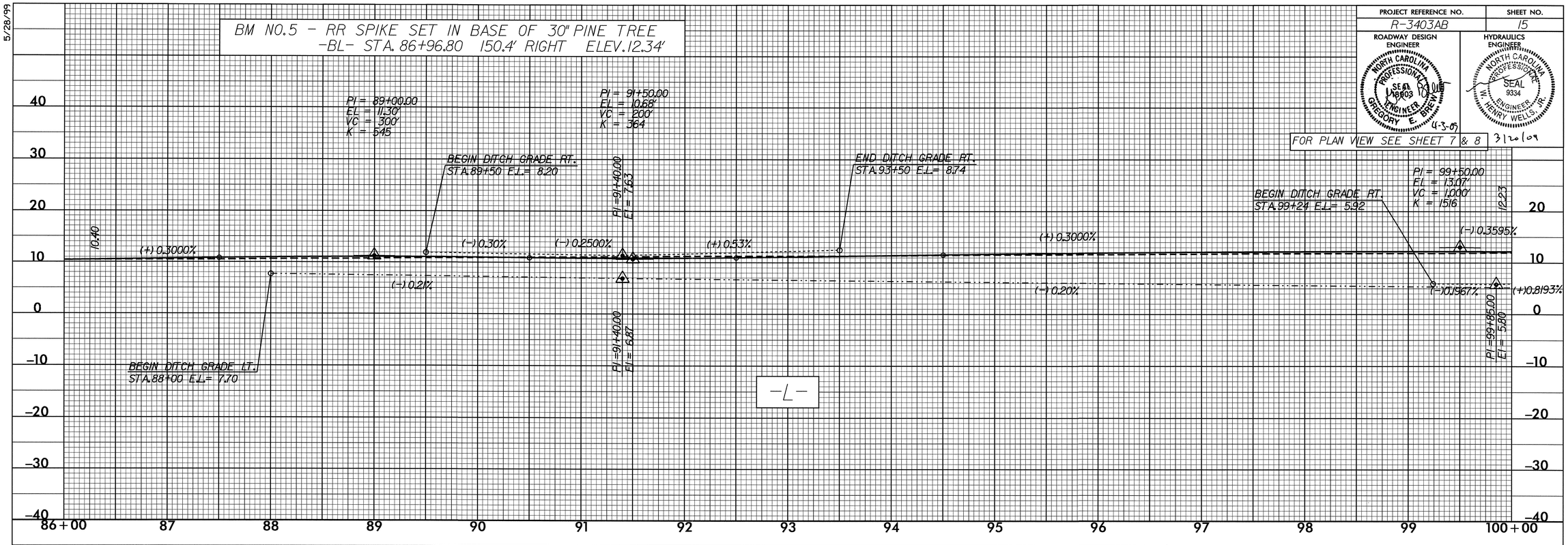
5/28/99

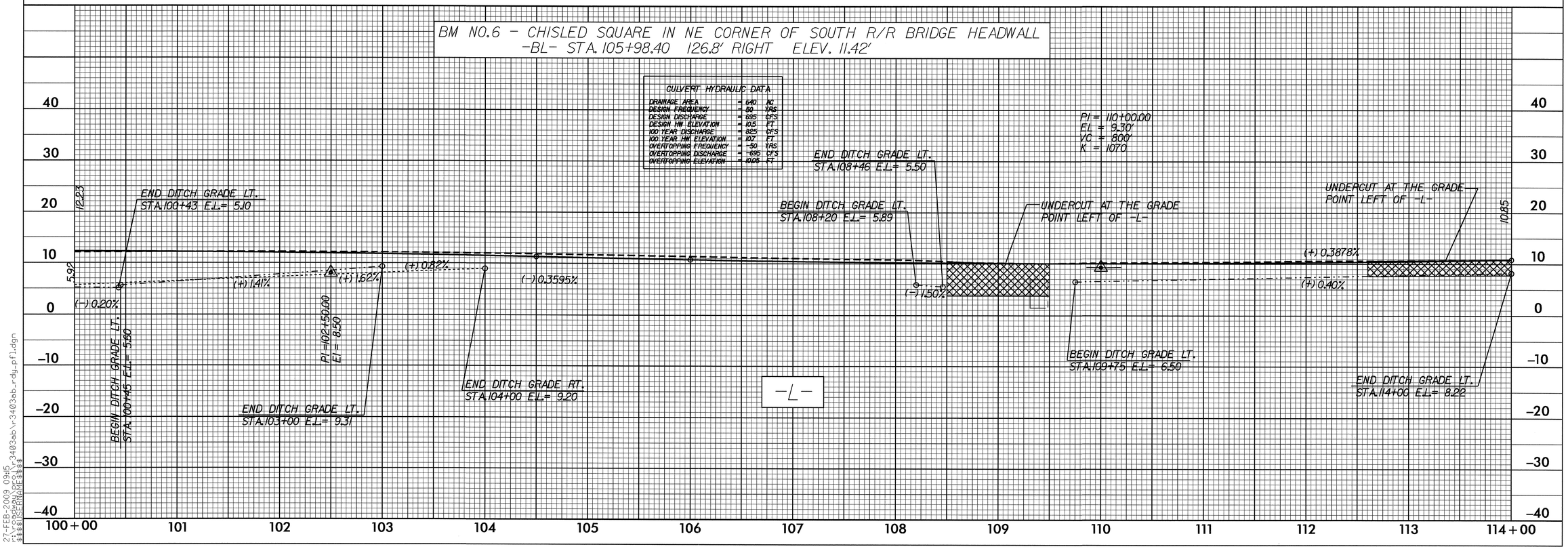
PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	15

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREWER 4-3-09

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR. 3/20/09

FOR PLAN VIEW SEE SHEET 7 & 8





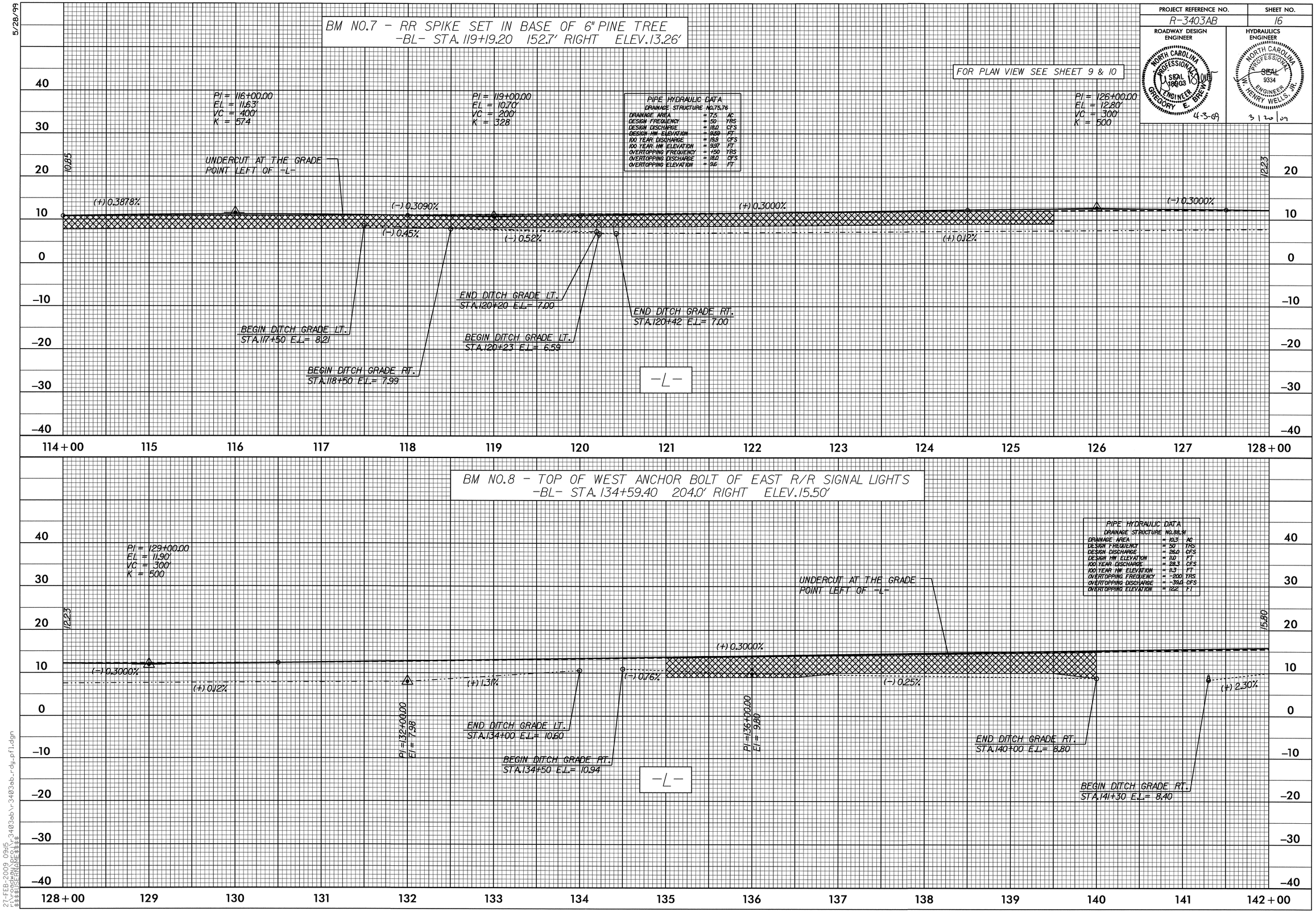
27-FEB-2009 09:15
r:\roadway\proj\r-3403ab\r-3403ab_rdy_pfl.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	16

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREWER — 4-3-09

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR. — 3/20/09



27-FEB-2009 09:15
f:\roadway\dgn\r-3403ab\r-3403ab_rdy-pfl.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	17

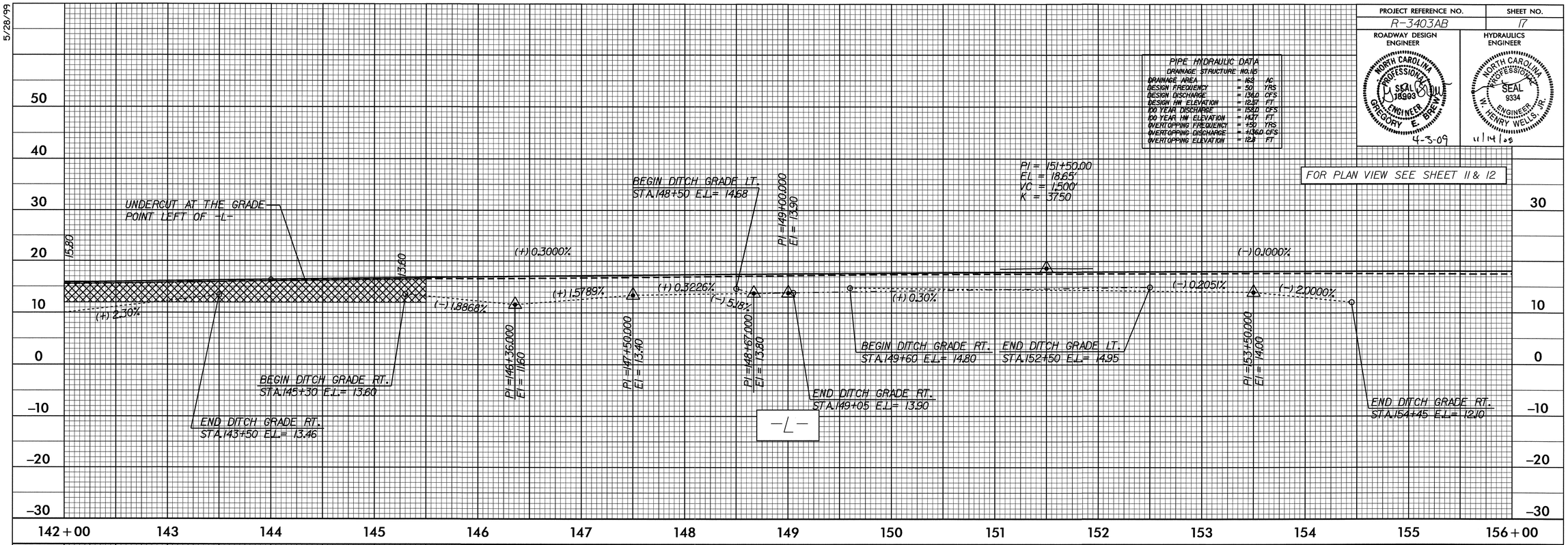
ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREWER — 4-3-09

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR. — 11/14/08

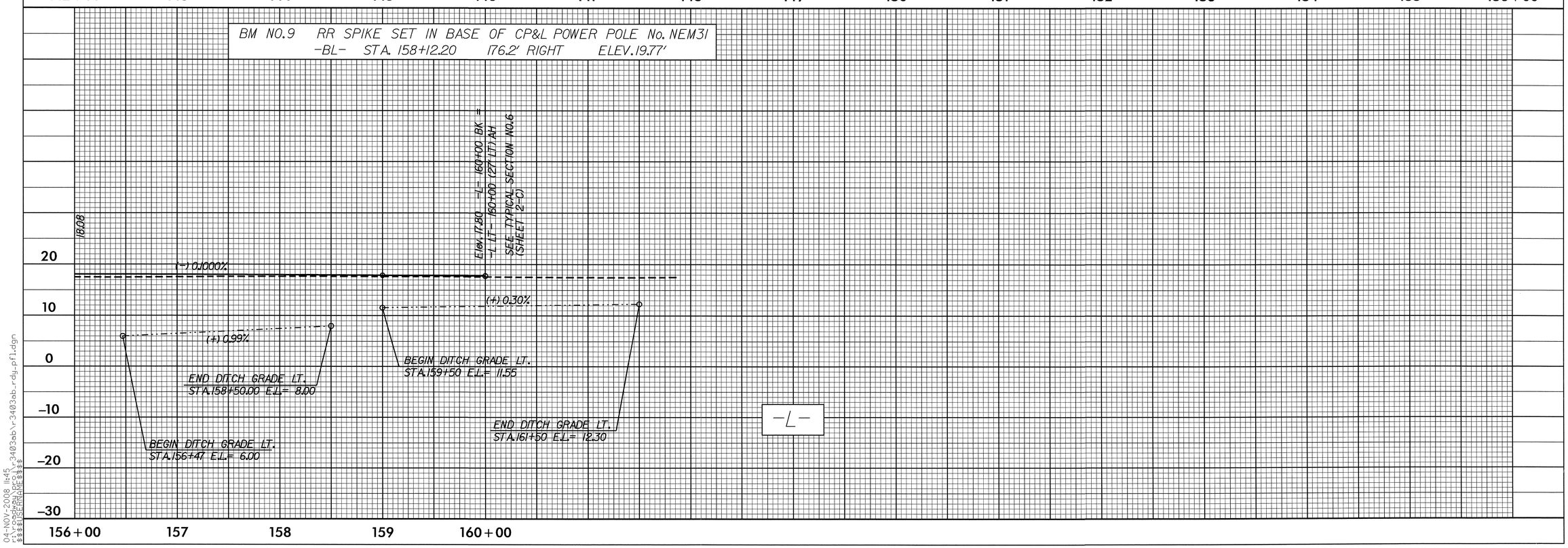
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.115

DRAINAGE AREA	= 168	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 134.0	CFS
DESIGN HW ELEVATION	= 12.37	FT
100 YEAR DISCHARGE	= 158.0	CFS
100 YEAR HW ELEVATION	= 14.37	FT
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING DISCHARGE	= 413.0	CFS
OVERTOPPING ELEVATION	= 12.8	FT

FOR PLAN VIEW SEE SHEET 11 & 12



BM NO.9 RR SPIKE SET IN BASE OF CP&L POWER POLE No. NEM31
-BL- STA. 158+12.20 176.2' RIGHT ELEV. 19.77'



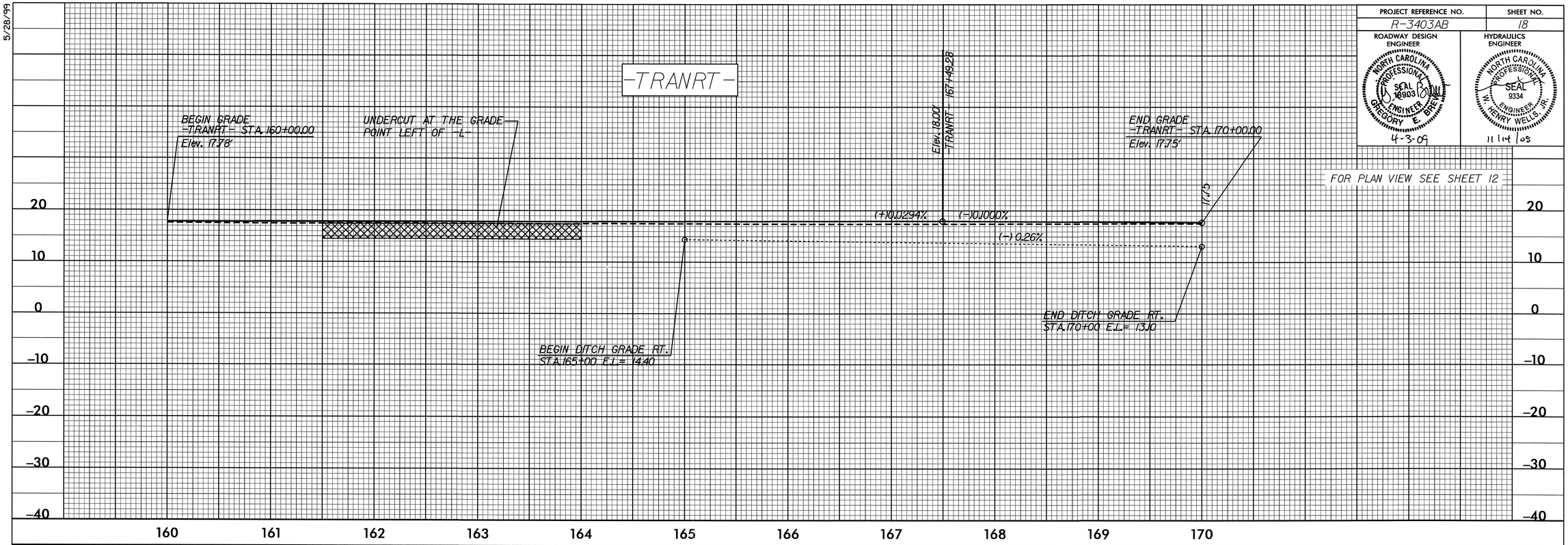
04-NOV-2008 11:45
r:\roadway\proj\r-3403ab\r-3403ab_rdy_pfl.dgn
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	18

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16903 ENGINEER GREGORY E. BREWER
4-3-09

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.
11-14-08



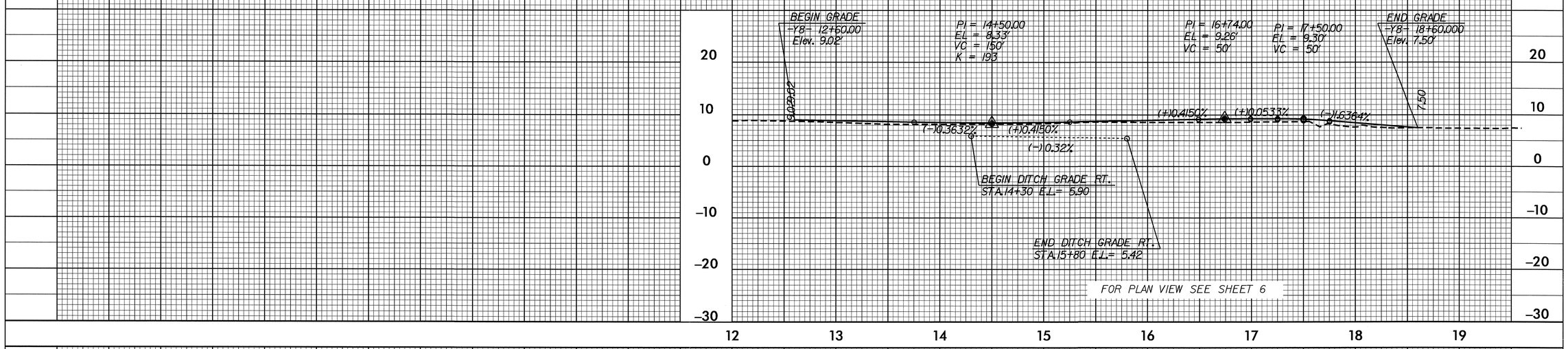
15-OCT-2008 09:39
r:\roadway\proj\r3403ab\r3403ab_rdy_pfl.dgn
es:\roadway\standards\

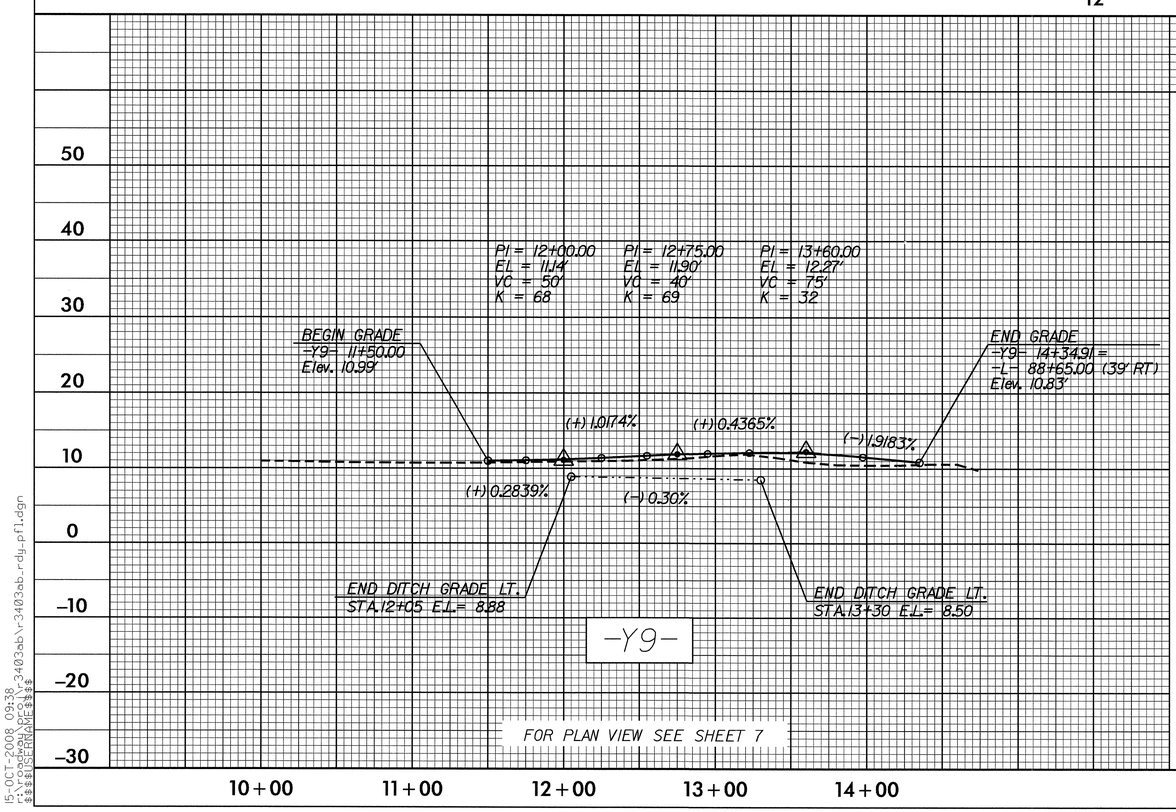
5/28/99

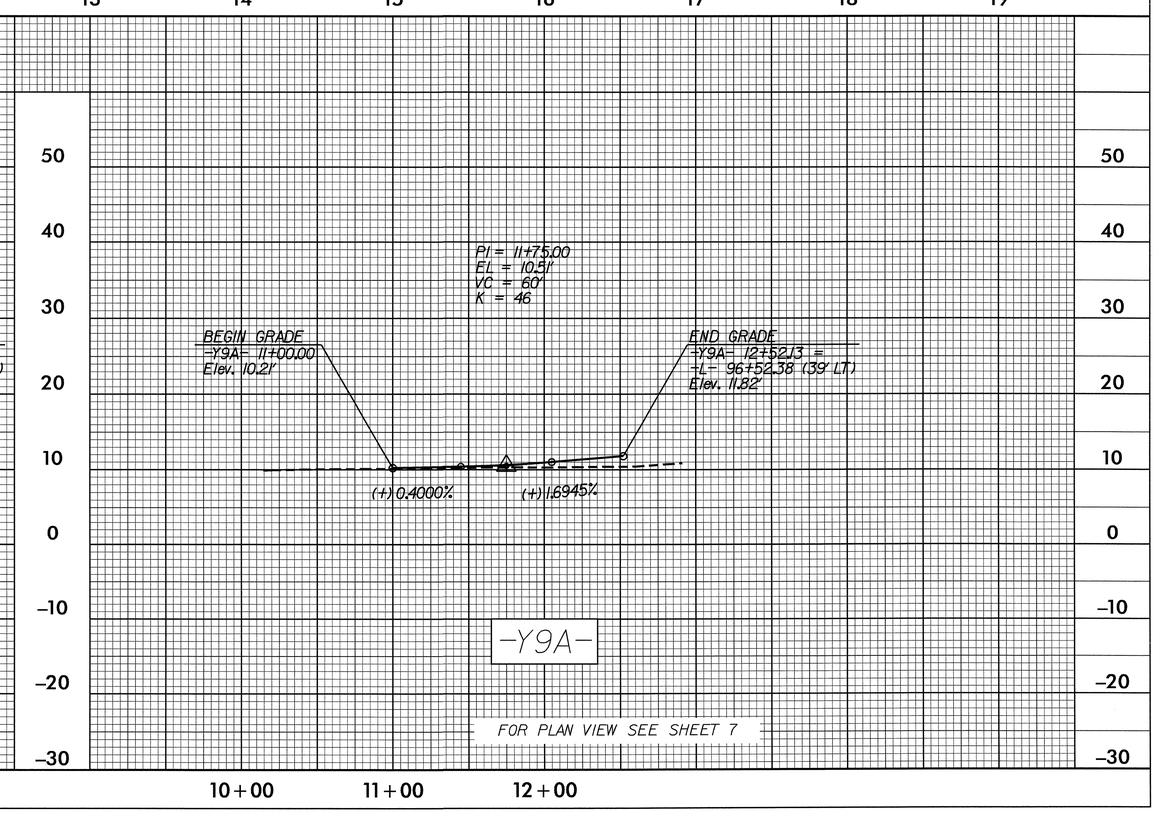
PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREWER
4-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR.
11/14/08







15-OCT-2008 09:38
r:\roadway\proj\3403ab\r3403ab_rdy_pfl.dgn
$$$$USERNAME$$$$

5/28/99

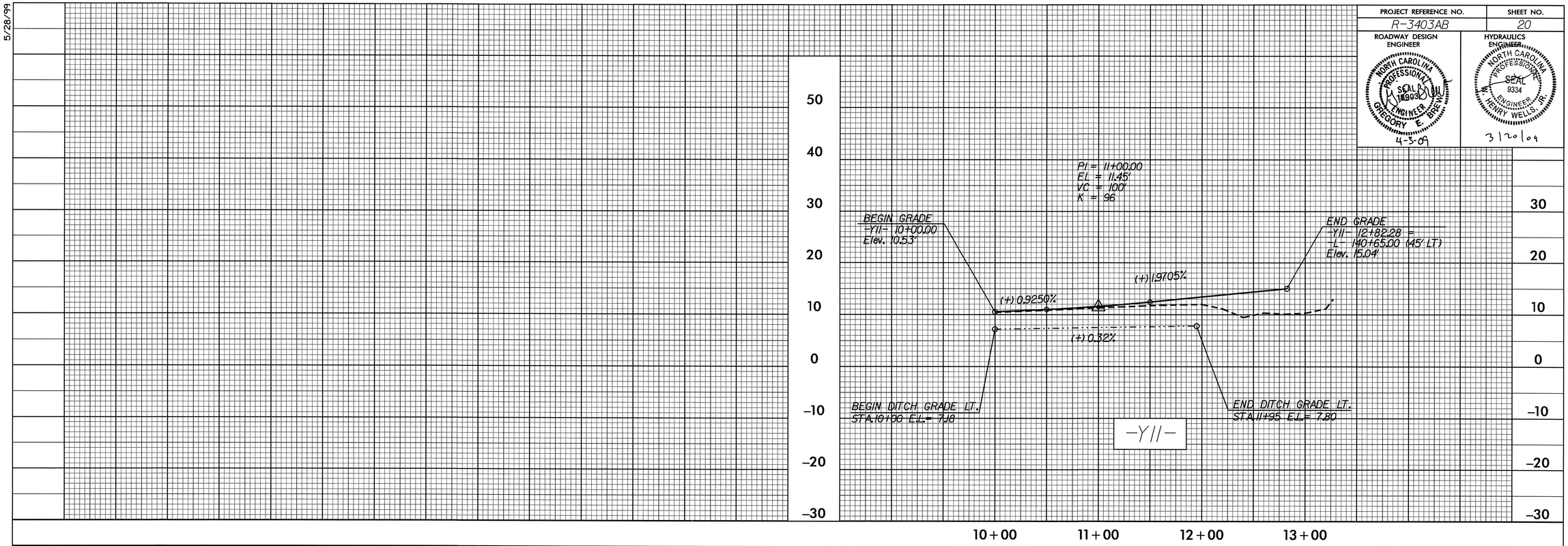
PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	20

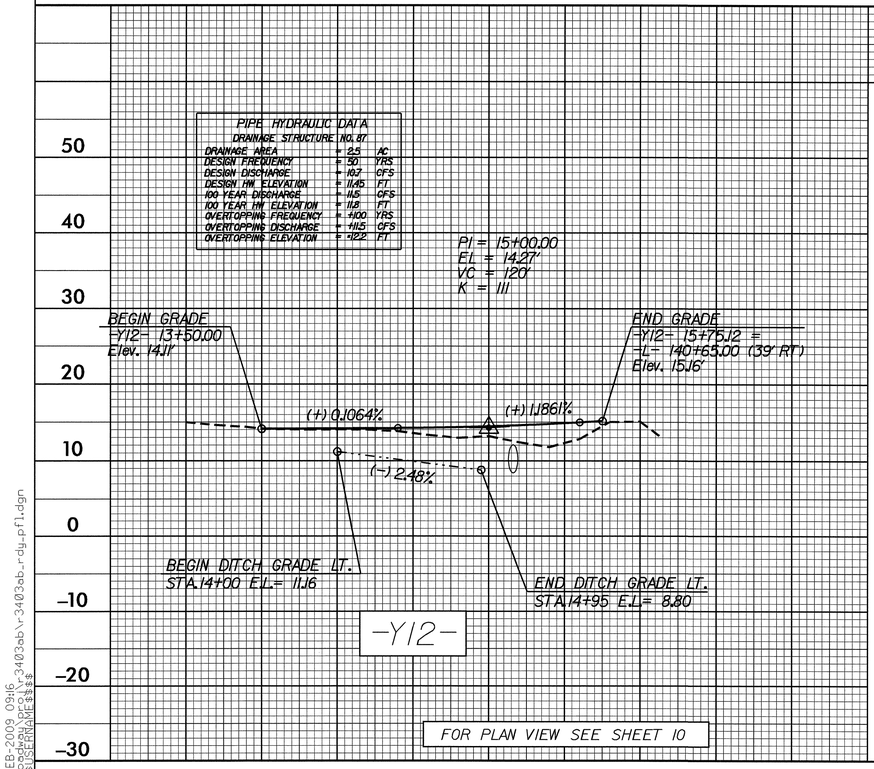
ROADWAY DESIGN ENGINEER

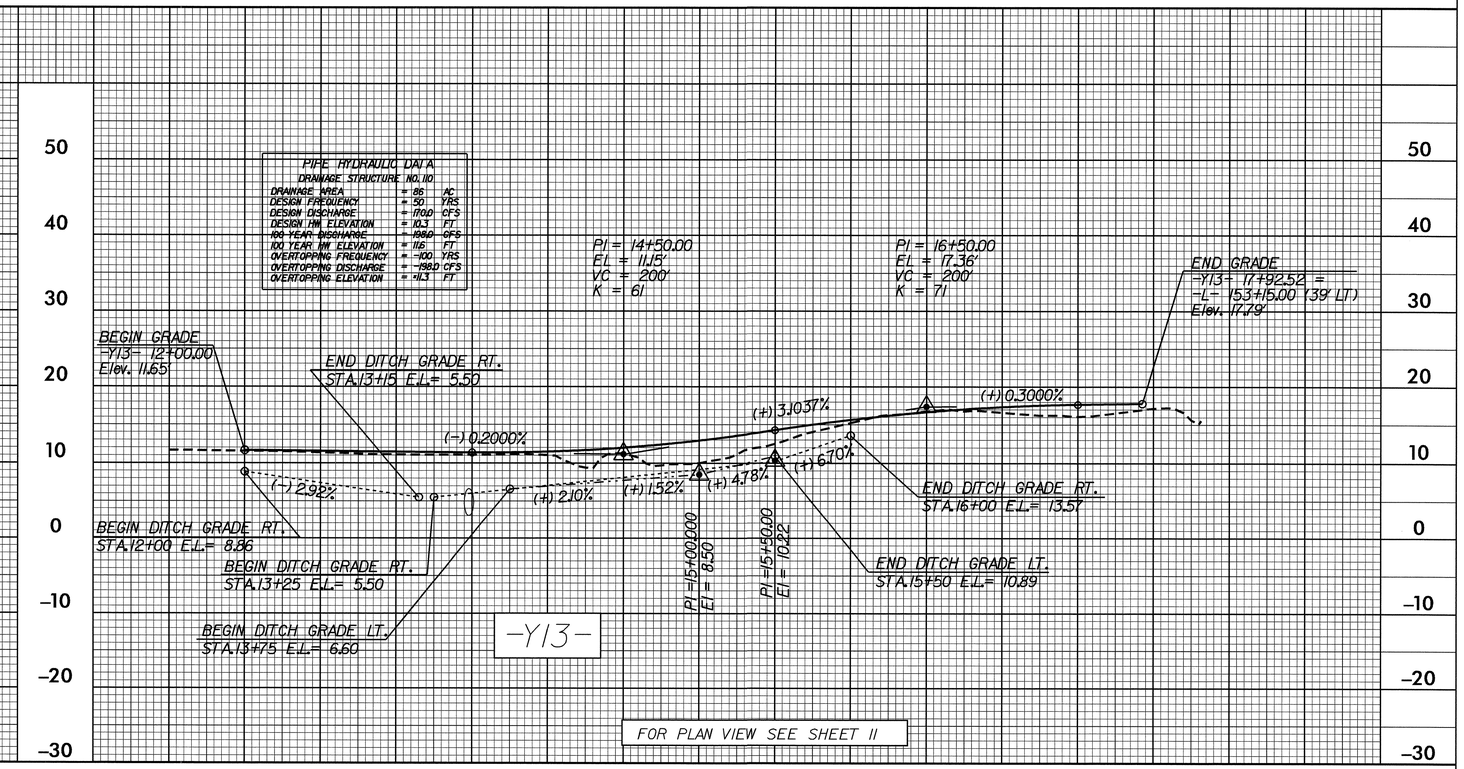
NORTH CAROLINA PROFESSIONAL SEAL 019032 ENGINEER GREGORY E. BREWER
4-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR.
3/20/09







27-FEB-2009 09:16
s:\roadway\proj\r-3403ab\r-3403ab_rdy_pfl.dgn
$$USER$$

PROJECT REFERENCE NO.	SHEET NO.
R-3403AB	21

ROADWAY DESIGN ENGINEER

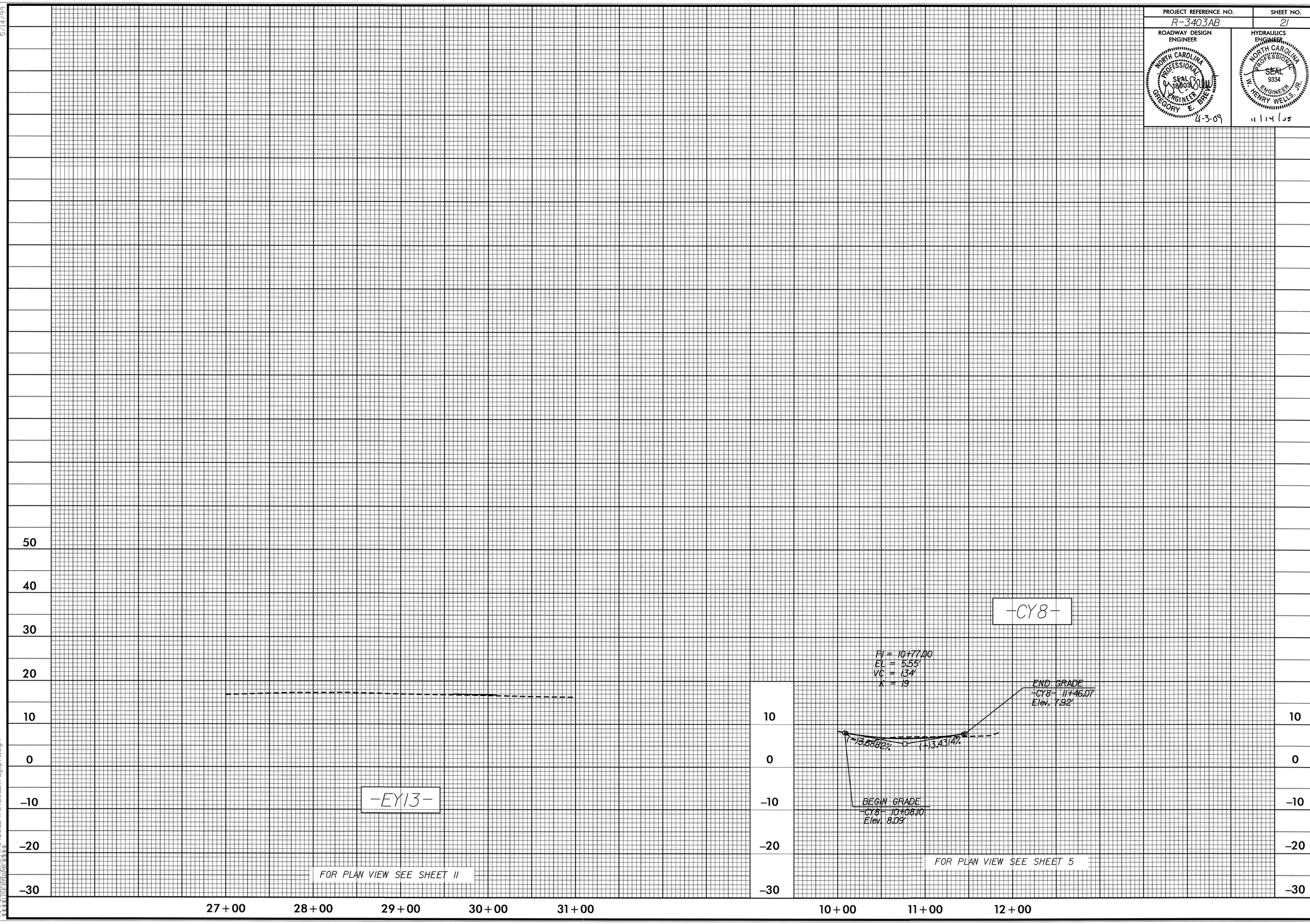
NORTH CAROLINA PROFESSIONAL SEAL 18003 ENGINEER GREGORY E. BRIEN

4-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER J. HENRY WELLS, JR.

11/14/08



5/14/99

15-OCT-2008 09:38
r:\roadway\proj\r3403ab\r3403ab_rdy_pf1.dgn
$$$$USERNAME$$$$