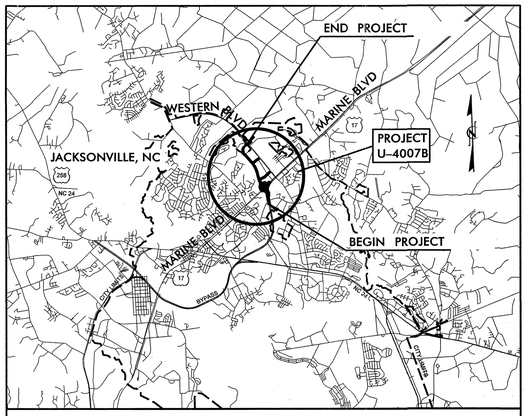
09/08/99

TIP PROJECT: U-4007B

CONTRACT C202558

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4007B	1	

WBS NO.	F. A. PROJ. NO.	DESCRIPTION
35008.1.1	STPNHF-17(31)	PE
35008.3.4	NHF-0017(77)	ROW & UTILS.
35008.2.ST1	STM-0017(111)	CONSTR.

LOCATION: WESTERN PARKWAY, FROM SOUTH OF COUNTRY CLUB RD. TO WESTERN BLVD., IN JACKSONVILLE.

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS STRUCTURES, RETAINING WALLS & CULVERT EXTENSION.

NC GRID NAD 83

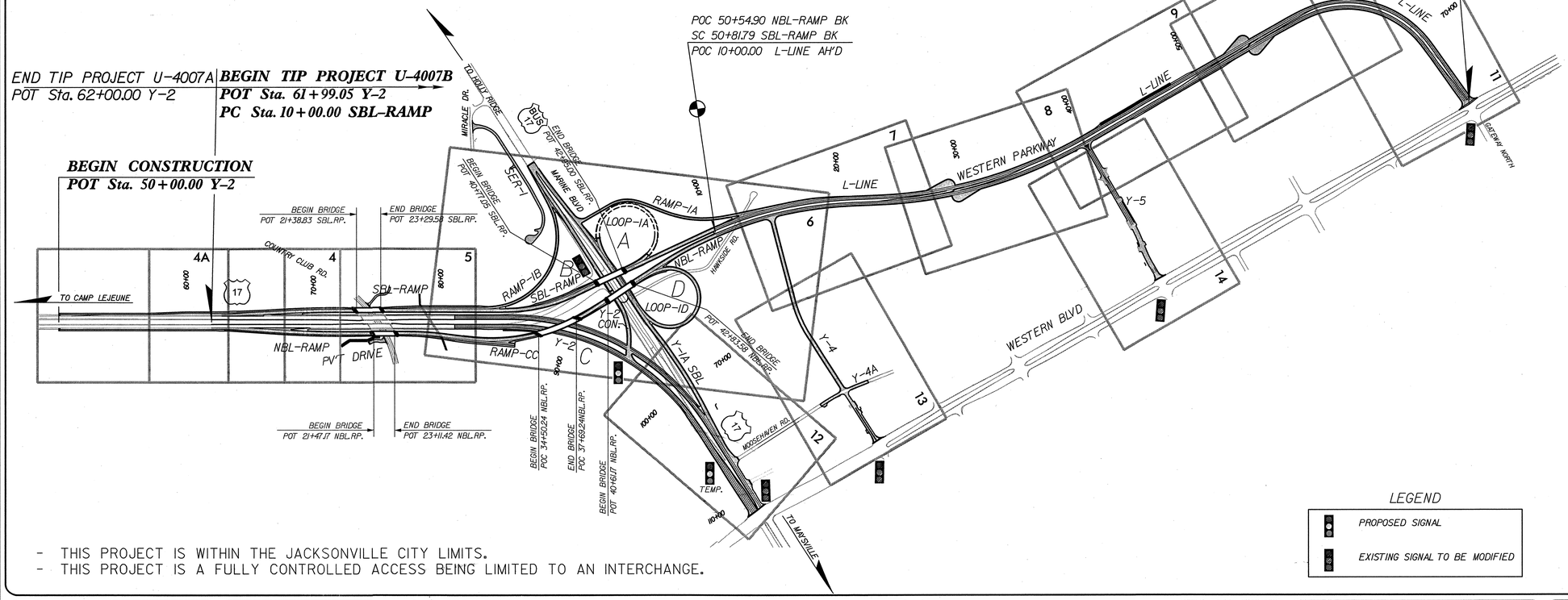
END TIP PROJECT U-4007B
POT Sta. 76+58.49 L-LINE

END TIP PROJECT U-4007A
POT Sta. 62+00.00 Y-2

BEGIN TIP PROJECT U-4007B
POT Sta. 61+99.05 Y-2
PC Sta. 10+00.00 SBL-RAMP

BEGIN CONSTRUCTION
POT Sta. 50+00.00 Y-2

POC 50+54.90 NBL-RAMP BK
SC 50+81.79 SBL-RAMP BK
POC 10+00.00 L-LINE AH'D



LEGEND

PROPOSED SIGNAL

EXISTING SIGNAL TO BE MODIFIED

- THIS PROJECT IS WITHIN THE JACKSONVILLE CITY LIMITS.
- THIS PROJECT IS A FULLY CONTROLLED ACCESS BEING LIMITED TO AN INTERCHANGE.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2011 = 36,300
ADT 2031 = 57,600
DHV = 10 %
D = 60 %
T = 8 % *
V = 50 MPH
(* TTST 3% + DUAL 5%)
FUNC. CLASS: FWY./EXPWY.

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT U-4007B = 1.957 MI.
LENGTH OF STRUCTURE T.I.P. PROJECT U-4007B = 0.077 MI
TOTAL LENGTH OF T.I.P. PROJECT U-4007B = 2.034 MI

STATEWIDE TIER

PREPARED IN THE OFFICE OF:
Stantec
Stantec Consulting Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC U.S.A.
27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEB 20, 2009

LETTING DATE:
OCT. 19, 2010

ROBERT A. WILLIAMS, PE
PROJECT ENGINEER

KEITH F. HUDSON, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: B. DOUG TAYLOR, PE
PROJECT ENGINEER - ROADWAY DESIGN

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR.
SIGNATURE: 9/2/10 *P.E.*

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
SIGNATURE: 9/2/10 *P.E.*

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

9/2/2010
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	1-A

ROADWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-D	SURVEY CONTROL SHEET
1-E THRU 1-F	CENTERLINE COORDINATE LIST
2 THRU 2-E	TYPICAL SECTIONS
2-F	TYPICAL SECTIONS & UNDERCUT DETAILS
2-G	SHEAR POINT LAYOUT
2-H	ROCK EMBANKMENT & ROCK PLATING DETAILS
2-I	Y-4 GEOMETRY (FROM MOOSEHAVEN DR. TO WESTERN BLVD.)
2-J	ANCHORAGE FOR FRAMES DETAILS
2-K	GRADING DETAILS
2-L	TRAFFIC BEARING JUNCTION BOX DETAIL
2-M	PREFORMED SCOUR HOLE DETAILS
2-N THRU 2-O	METHOD OF PIPE INSTALLATION DETAILS
2-P	CONVERT DROP INLET TO JUNCTION BOX
2-Q	EMBANKMENT STABILIZATION FABRIC - PLAN VIEW
2-R	EMBANKMENT STABILIZATION FABRIC AND SECONDARY GEOGRID
2-S	EMBANKMENT MONITORING DETAIL
2-T	EMBANKMENT MONITORING DETAIL - PLAN VIEW
2-U	NOISE WALL ENVELOPE
3	SUMMARY OF QUANTITIES
3-A THRU 3-H	SUMMARY OF DRAINAGE QUANTITIES
3-I	SUMMARY OF EARTHWORK
3-J	SUMMARY OF GUARDRAIL
3-K	SUMMARY OF CHAIN LINK, WOVEN WIRE FENCE, PAVEMENT BREAK-UP & REMOVAL
3-L	PARCEL INDEX SHEET
4A THRU 14	PLAN SHEETS
15 THRU 31	PROFILE SHEETS
TCP-1 THRU TCP-16	TRAFFIC CONTROL PLANS
PMP-1 THRU PMP-12	PAVEMENT MARKING PLANS
EC-1 THRU EC-28	EROSION CONTROL PLANS
RF-1	REFORESTATION DETAILS
SIGN-1 THRU SIGN-24	SIGNING PLANS
SIG. 1 THRU SIG. 51	SIGNAL PLANS
UC-1 THRU UC-10	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-10	UTILITIES BY OTHERS PLANS
X-A	CROSS SECTION INDEX
X-B THRU X-D	CROSS SECTION SUMMARIES
X-1 THRU X-161	CROSS-SECTIONS
C-1 THRU C-10	BOX CULVERT PLANS
S-1 THRU S-142	STRUCTURE PLANS
SW-1 THRU SW-2	NOISEWALL PLANS
RW-1 THRU RW-4	RETAINING WALL PLANS

GENERAL NOTES

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02.

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.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:

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

TEMPORARY SHORING:

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

END BENTS:

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

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 CONTRACT.

ROADWAY STANDARD DRAWINGS

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
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.03	Guide for Paving Shoulders Under Bridges - Method III
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
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
838.27	Reinforced Concrete Endwall - for Single 60" Pipe 90 Skew
838.39	Reinforced Concrete Endwall - for Single 72" Pipe 90 Skew
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
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
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
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
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.51	Brick Manhole - 12" thru 36" Pipe
840.53	Precast Manhole with Masonry Base - 12" thru 42" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.04	Street Turnout
850.01	Concrete Paved Ditches
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
865.01	Cable Guiderail
866.01	Chain Link Fence - 4', 5' and 6' High Fence
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

9/30/2010
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09/08/09

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	1B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

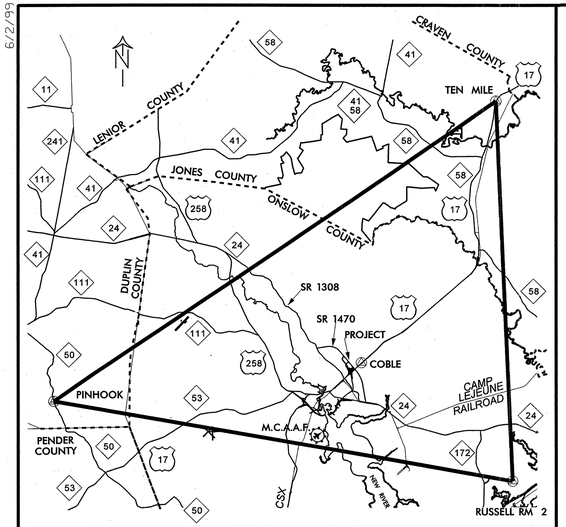
MISCELLANEOUS:

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

6/2/99

SURVEY CONTROL SHEET U–4007–B

PROJECT REFERENCE NO.	SHEET NO.
U–4007–B	1–C
Location and Surveys	



GPS NETWORK MAP

NOTES:

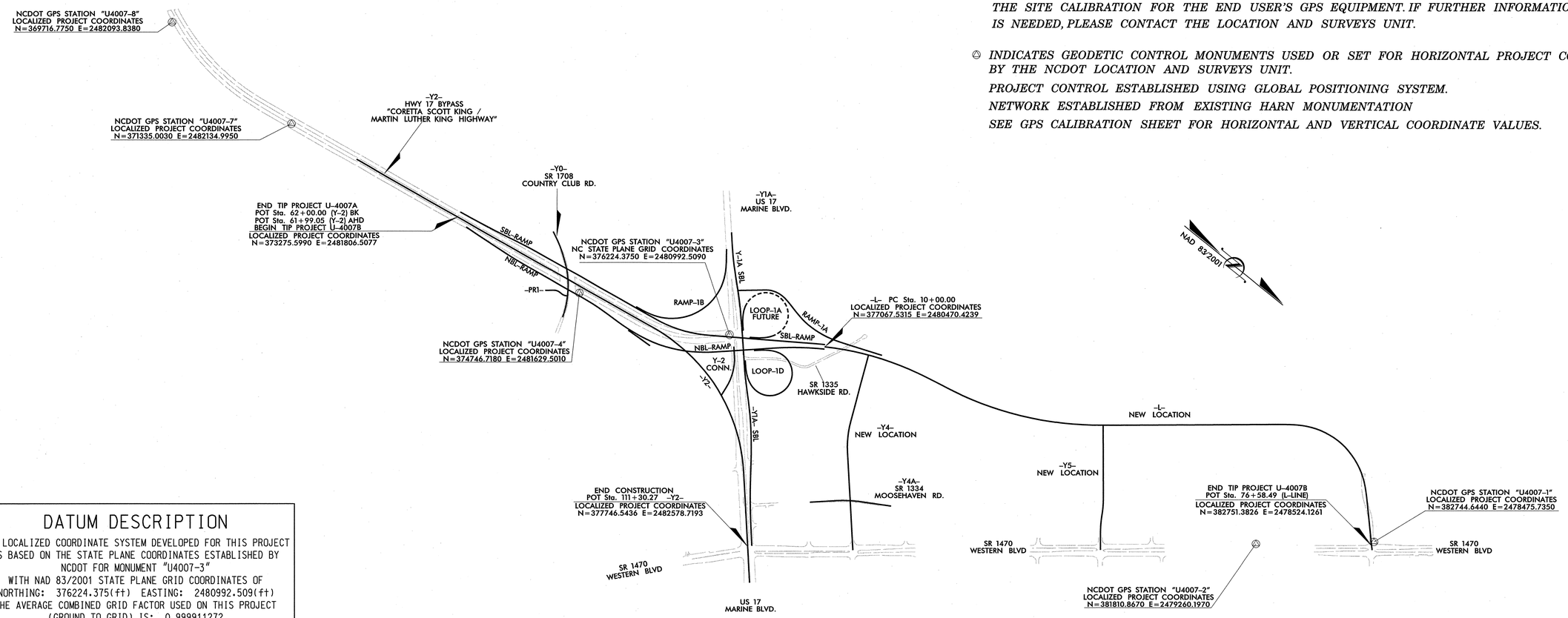
1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/2001 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORKWITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH 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:
U4007B_LS_GPSCALIB_090205.HTML
U4007B_LS_WGS84_090205.TXT
U4007B_LS_LOCAL_090205.TXT
U4007B_LS_CONTROL_090205.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 HARN 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 "U4007-3"
WITH NAD 83/2001 STATE PLANE GRID COORDINATES OF
NORTHING: 376224.375(ft) EASTING: 2480992.509(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999911272
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U4007-3" TO -L- STATION 10+00.00 IS
N 31°45'57.3" W 991.709(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

7/30/2010
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PROJECT REFERENCE NO.	SHEET NO.
U-4007-B	1-D
Location and Surveys	

SURVEY CONTROL SHEET U-4007-B

GPS CALIBRATON REPORT

PROJECT : 35008.1.1

TIP NUMBER	U-4007		
USER NAME	BREIGNER	DATE & TIME	10:28:05 AM 10/26/2006
COORDINATE SYSTEM	US STATE PLANE 1983(AT GROUND)	ZONE	NORTH CAROLINA 3200
HORIZONTAL DATUM	NAD 1983/2001 (CONUS)		
VERTICAL DATUM	NAVD88	GEOID MODEL	GEOID03 (CONUS) NC SUB GRID
COORDINATE UNITS	US SURVEY FEET		
DISTANCE UNITS	US SURVEY FEET		
HEIGHT UNITS	US SURVEY FEET		

LOCAL SITE INFORMATION

LOCALIZED AROUND	U4007-3
LATITUDE	34°46′23.06985"N
LONGITUDE	77°23′53.56573"W
SITE SCALE FACTOR	1.0000887360
HEIGHT	-82.738SFT

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	380114.336SFT
EASTING COORDINATE OF ROTATION CENTER	2482514.103SFT
ROTATION ABOUT THE CENTER POINT	0°00′00"
TRANSLATION NORTH	-0.018SFT
TRANSLATION EAST	-0.008SFT
SCALE FACTOR	1.00000000

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT	382744.641SFT
EASTING COORDINATE OF ORIGIN POINT	2478475.734SFT
VERTICAL SEPARATION AT ORIGIN	0.144SFT
SLOPE NORTH	-1.149PPM
SLOPE EAST	-0.100PPM

GEOID MODEL DEFINITION

GEOID03 (CONUS) NC SUB GRID

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.020SFT	0.002	TEN MILE_GPS
VERTICAL	0.069SFT	0.009	COBLE_GPS
THREE-DIMENSIONAL	0.069SFT	0.009	COBLE_GPS

POINT RESIDUALS

WGS84 COORDINATES		CALCULATED POINT FOR DISPLAY ONLY		LOCAL COORDINATES
POINT	U4007-1_GPS	NORTHING	382744.641SFT	POINT U4007-1
LATITUDE	34°47′27.95510"N	EASTING	2478475.734SFT	NORTHING 382744.644SFT
LONGITUDE	77°24′22.47564"W	ELEVATION	46.845SFT	EASTING 2478475.735SFT
HEIGHT	-74.826SFT	HORZ ERROR	0.003SFT	ELEVATION 46.844SFT
		VERT ERROR	0.000SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.003SFT	QUALITY ADJUSTED QUALITY
POINT	U4007-2_GPS	NORTHING	381810.865SFT	POINT U4007-2
LATITUDE	34°47′18.59553"N	EASTING	2479260.196SFT	NORTHING 381810.867SFT
LONGITUDE	77°24′13.25144"W	ELEVATION	49.142SFT	EASTING 2479260.197SFT
HEIGHT	-72.534SFT	HORZ ERROR	0.002SFT	ELEVATION 49.142SFT
		VERT ERROR	0.000SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.002SFT	QUALITY ADJUSTED QUALITY
POINT	COBLE_GPS	NORTHING	380014.747SFT	POINT COBLE
LATITUDE	34°46′59.86752"N	EASTING	2485287.965SFT	NORTHING 380014.747SFT
LONGITUDE	77°23′01.34295"W	ELEVATION	43.842SFT	EASTING 2485287.965SFT
HEIGHT	-77.859SFT	HORZ ERROR	0.000SFT	ELEVATION 43.911SFT
		VERT ERROR	0.069SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.069SFT	QUALITY ADJUSTED QUALITY
POINT	U4007-3_GPS	NORTHING	376224.375SFT	POINT U4007-3
LATITUDE	34°46′23.07002"N	EASTING	2480992.507SFT	NORTHING 376224.375SFT
LONGITUDE	77°23′53.56565"W	ELEVATION	38.800SFT	EASTING 2480992.509SFT
HEIGHT	-82.894SFT	HORZ ERROR	0.002SFT	ELEVATION 38.806SFT
		VERT ERROR	0.005SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.006SFT	QUALITY ADJUSTED QUALITY
POINT	U4007-4_GPS	NORTHING	374746.719SFT	POINT U4007-4
LATITUDE	34°46′08.35451"N	EASTING	2481629.500SFT	NORTHING 374746.718SFT
LONGITUDE	77°23′46.21715"W	ELEVATION	60.327SFT	EASTING 2481629.501SFT
HEIGHT	-61.374SFT	HORZ ERROR	0.001SFT	ELEVATION 60.334SFT
		VERT ERROR	0.007SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.007SFT	QUALITY ADJUSTED QUALITY
POINT	U4007-5_GPS	NORTHING	371782.960SFT	POINT U4007-5
LATITUDE	34°45′38.35070"N	EASTING	2485945.495SFT	NORTHING 371782.957SFT
LONGITUDE	77°22′55.06964"W	ELEVATION	35.962SFT	EASTING 2485945.494SFT
HEIGHT	-85.759SFT	HORZ ERROR	0.003SFT	ELEVATION 35.970SFT
		VERT ERROR	0.008SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.008SFT	QUALITY ADJUSTED QUALITY
POINT	U4007-6_GPS	NORTHING	371858.652SFT	POINT U4007-6
LATITUDE	34°45′38.91489"N	EASTING	2487087.968SFT	NORTHING 371858.649SFT
LONGITUDE	77°22′41.36386"W	ELEVATION	36.747SFT	EASTING 2487087.965SFT
HEIGHT	-84.977SFT	HORZ ERROR	0.004SFT	ELEVATION 36.754SFT
		VERT ERROR	0.007SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.008SFT	QUALITY ADJUSTED QUALITY
POINT	U4007-7_GPS	NORTHING	371335.005SFT	POINT U4007-7
LATITUDE	34°45′34.53239"N	EASTING	2482134.993SFT	NORTHING 371335.003SFT
LONGITUDE	77°23′40.82016"W	ELEVATION	31.591SFT	EASTING 2482134.995SFT
HEIGHT	-90.123SFT	HORZ ERROR	0.002SFT	ELEVATION 31.602SFT
		VERT ERROR	0.011SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.011SFT	QUALITY ADJUSTED QUALITY
POINT	U4007-8_GPS	NORTHING	369716.778SFT	POINT U4007-8
LATITUDE	34°45′18.53496"N	EASTING	2482093.837SFT	NORTHING 369716.775SFT
LONGITUDE	77°23′41.62694"W	ELEVATION	50.971SFT	EASTING 2482093.838SFT
HEIGHT	-70.750SFT	HORZ ERROR	0.003SFT	ELEVATION 50.983SFT
		VERT ERROR	0.013SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.013SFT	QUALITY ADJUSTED QUALITY
POINT	TEN MILE_GPS	NORTHING	480135.771SFT	POINT TEN MILE
LATITUDE	35°03′21.28051"N	EASTING	2536763.392SFT	NORTHING 480135.789SFT
LONGITUDE	77°12′22.64169"W	ELEVATION	33.927SFT	EASTING 2536763.399SFT
HEIGHT	-87.866SFT	HORZ ERROR	0.020SFT	ELEVATION 33.901SFT
		VERT ERROR	0.026SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.032SFT	QUALITY CONTROL QUALITY
POINT	RUSSELL 2 RM A_G	NORTHING	335222.597SFT	POINT RUSSELL 2 RM A
LATITUDE	34°39′27.06524"N	EASTING	2542912.695SFT	NORTHING 335222.588SFT
LONGITUDE	77°11′40.38696"W	ELEVATION	36.531SFT	EASTING 2542912.692SFT
HEIGHT	-85.452SFT	HORZ ERROR	0.010SFT	ELEVATION 36.476SFT
		VERT ERROR	0.054SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.055SFT	QUALITY CONTROL QUALITY
POINT	PINHOOK_GPS	NORTHING	365778.707SFT	POINT PINHOOK
LATITUDE	34°44′55.72435"N	EASTING	2367584.854SFT	NORTHING 365778.703SFT
LONGITUDE	77°46′34.43032"W	ELEVATION	74.904SFT	EASTING 2367584.848SFT
HEIGHT	-45.345SFT	HORZ ERROR	0.007SFT	ELEVATION 74.865SFT
		VERT ERROR	0.039SFT	UTILIZED HORZ AND VERT
		3D ERROR	0.039SFT	QUALITY CONTROL QUALITY

BASELINE CONTROL

BL

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
GPS8	GPS U4007-8	369716.7750	2482093.8380	50.98	OUTSIDE PROJECT LIMITS	
1	BL-1	370494.4080	2482275.4770	33.78	OUTSIDE PROJECT LIMITS	
GPS7	GPS U4007-7	371335.0030	2482134.9950	31.60	OUTSIDE PROJECT LIMITS	
2	BL-2	371950.0370	2482032.8050	35.22	OUTSIDE PROJECT LIMITS	
3	BL-3	372865.4960	2481882.8780	33.67	57+82.00	9.10 RT
4	BL-4	373962.9920	2481758.5470	53.55	68+85.16	63.75 RT
GPS4	GPS U4007-4	374746.7180	2481629.5010	60.33	76+79.44	63.05 RT
5	BL-5	375824.1850	2481405.0390	41.44	87+79.66	0.15 RT
6	BL-6	376246.4160	2481474.8250	38.92	92+11.43	34.10 RT
7	BL-7	376817.1160	2481640.6150	42.15	98+08.66	18.91 LT
8	BL-8	377219.7500	2482107.5650	42.14	104+27.66	76.98 RT
9	BL-9	377637.5300	2482647.3120	42.09	111+08.44	126.93 RT

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	SBL_RAMP STATION	OFFSET
EQGPS4	GPS U4007-4	374746.7180	2481629.5010	60.33	24+80.11	153.55 RT
GPS3	GPS U4007-3	376224.3750	2480992.5090	38.81	40+89.96	22.54 LT
17	BY4-17	376352.9050	2480929.6200	36.75	42+31.48	1.44 LT
18	BY4-18	376741.4150	2480682.9410	38.49	46+91.37	15.75 RT

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
19	BY4-19	377232.3520	2480390.8210	40.20	11+82.83	16.39 RT
20	BY4-20	377614.4770	2480212.4770	35.15	16+07.24	17.09 RT
21	BY4-21	377809.0810	2480117.4630	39.82	18+22.50	9.39 LT
22	BY4-22	378275.2450	2480020.9390	41.45	22+98.08	3.12 RT
23	BY4-23	378857.8590	2479865.1490	41.86	29+00.12	16.19 RT
24	BY4-24	379418.7930	2479606.6220	41.12	35+14.22	31.17 RT
25	BY4-25	379830.2710	2479324.8530	41.48	40+08.67	37.90 RT
26	BY4-26	380180.1530	2479041.6600	50.62	44+58.53	39.58 RT
27	BY4-27	380823.7290	2478512.9310	45.74	52+91.44	37.05 RT
28	BY4-28	381335.1940	2478112.8940	43.43	59+42.49	49.05 RT
29	BY4-29	381962.3750	2477989.4810	43.43	66+61.09	77.58 RT
30	BY4-30	382266.6300	2478109.3060	43.09	70+17.80	45.91 RT
GPS1	GPS U4007-1	382744.6440	2478475.7350	46.84	76+19.35	29.24 LT

BY11

POINT	DESC.	NORTH	EAST	ELEVATION	Y1ASBL STATION	OFFSET
10	BY11-10	374087.8580	2478663.6220	26.55	OUTSIDE PROJECT LIMITS	
11	BY11-11	374631.1060	2479091.6190	29.69	OUTSIDE PROJECT LIMITS	
12	BY11-12	375134.2160	2479653.8220	33.24	OUTSIDE PROJECT LIMITS	
13	BY11-13	375684.8230	2480262.1660	34.62	50+89.97	9.19 LT
EQ17	BY4-17	376352.9050	2480929.6200	36.75	60+35.01	4.23 LT
14	BY11-14	376682.7460	2481275.7860	38.24	65+13.53	6.47 LT
15	BY11-15	377162.5680	2481844.0980	39.93	72+60.02	28.62 RT
16	BY11-16	377609.2530	2482304.7750	41.42	78+99.76	35.35 LT

BY4REV

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
60	BY4REV-60	377481.5646	2480274.9757	39.28	10+24.04	0.03 LT
61	BY4REV-61	377774.5630	2480935.5395	40.56	17+46.67	0.21 RT
62	BY4REV-62	378038.6428	2481286.5292	41.58	21+87.74	0.46 RT
EQ36	BY5-36	378147.7920	2481357.1250	42.89	23+13.29	33.23 LT

BY5

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
EQ22	BY4-22	378275.2450	2480020.9390	41.45	11+13.09	828.60 LT
33	BY5-33	378357.4160	2480483.7600	42.09	15+69.55	716.35 LT
34	BY5-34	378146.4250	2480831.3780	41.64	18+58.37	375.75 LT
35	BY5-35	378167.5090	2481147.6040	42.08	21+71.02	188.29 LT
36	BY5-36	378147.7920	2481357.1250	42.89	23+13.29	33.23 LT
37	BY5-37	378285.6010	2481569.4170	42.50	25+63.21	6.79 RT
38	BY5-38	378527.2660	2481924.0270	45.22	29+88.35	65.12 RT

BY6

POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
EQ25	BY4-25	379830.2710	2479324.8530	41.48	10+37.88	4.29 RT
31	BY6-31	380139.8490	2479702.0560	48.38	15+25.85	2.11 RT
32	BY6-32	380579.3480	2480232.9750	46.37	22+16.81	34.77 LT

NOTE: THERE WERE NO SUPPLEMENTAL BENCHMARKS SET ON THIS PROJECT.

NOTE: DRAWING NOT TO SCALE

7/28/2010
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PROJ. REFERENCE NO.	SHEET NO.
U-4007B	1E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	L-LINE	10+00.00	377067.5315	2480470.4239
2	L-LINE	11+00.00	377152.6052	2480417.8736
3	L-LINE	12+00.00	377239.3830	2480368.1877
4	L-LINE	13+00.00	377327.7685	2480321.4215
5	L-LINE	14+00.00	377417.6634	2480277.6268
6	L-LINE	15+00.00	377508.9680	2480236.8525
7	L-LINE	16+00.00	377601.5808	2480199.1437
8	L-LINE	17+00.00	377695.3988	2480164.5424
9	L-LINE	18+00.00	377790.3179	2480133.0870
10	L-LINE	19+00.00	377886.2326	2480104.8125
11	L-LINE	20+00.00	377983.0363	2480079.7503
12	L-LINE	21+00.00	378080.5794	2480057.7332
13	L-LINE	22+00.00	378178.5137	2480037.5149
14	L-LINE	23+00.00	378276.4891	2480017.4952
15	L-LINE	24+00.00	378374.1990	2479996.2244
16	L-LINE	25+00.00	378471.3362	2479972.4825
17	L-LINE	26+00.00	378567.7556	2479945.9756
18	L-LINE	27+00.00	378663.3784	2479916.7250
19	L-LINE	28+00.00	378758.1266	2479884.7547
20	L-LINE	29+00.00	378851.9228	2479850.0907
21	L-LINE	30+00.00	378944.6905	2479812.7613
22	L-LINE	31+00.00	379036.3538	2479772.7969
23	L-LINE	32+00.00	379126.8381	2479730.2304
24	L-LINE	33+00.00	379216.0694	2479685.0962
25	L-LINE	34+00.00	379303.9750	2479637.4314
26	L-LINE	35+00.00	379390.4830	2479587.2748
27	L-LINE	36+00.00	379475.5228	2479534.6673
28	L-LINE	37+00.00	379559.0251	2479479.6519
29	L-LINE	38+00.00	379640.9216	2479422.2735
30	L-LINE	39+00.00	379721.1455	2479362.5790
31	L-LINE	40+00.00	379799.7492	2479300.7644
32	L-LINE	41+00.00	379877.3961	2479237.7493
33	L-LINE	42+00.00	379954.8568	2479174.5051
34	L-LINE	43+00.00	380032.3175	2479111.2607
35	L-LINE	44+00.00	380109.7781	2479048.0164
36	L-LINE	45+00.00	380187.2388	2478984.7721
37	L-LINE	46+00.00	380264.6995	2478921.5277
38	L-LINE	47+00.00	380342.1601	2478858.2834
39	L-LINE	48+00.00	380419.6208	2478795.0391
40	L-LINE	49+00.00	380497.0815	2478731.7948
41	L-LINE	50+00.00	380574.5421	2478668.5504
42	L-LINE	51+00.00	380652.0028	2478605.3061
43	L-LINE	52+00.00	380729.4635	2478542.0618
44	L-LINE	53+00.00	380806.9241	2478478.8174
45	L-LINE	54+00.00	380884.3848	2478415.5731
46	L-LINE	55+00.00	380961.8455	2478352.3288
47	L-LINE	56+00.00	381039.3061	2478289.0844
48	L-LINE	57+00.00	381116.7668	2478225.8401
49	L-LINE	58+00.00	381194.2275	2478162.5958
50	L-LINE	59+00.00	381272.0055	2478099.7443
51	L-LINE	60+00.00	381352.1507	2478039.9642
52	L-LINE	61+00.00	381436.9309	2477987.0191
53	L-LINE	62+00.00	381527.4768	2477944.7458
54	L-LINE	63+00.00	381622.7858	2477914.7164
55	L-LINE	64+00.00	381721.2109	2477897.4510
56	L-LINE	65+00.00	381821.0503	2477893.2482
57	L-LINE	66+00.00	381920.5782	2477902.1807
58	L-LINE	67+00.00	382018.0737	2477924.0940
59	L-LINE	68+00.00	382111.8516	2477958.6092
60	L-LINE	69+00.00	382200.2904	2478005.1297
61	L-LINE	70+00.00	382281.9951	2478062.6776
62	L-LINE	71+00.00	382357.4452	2478128.2663
63	L-LINE	72+00.00	382428.9562	2478198.1593
64	L-LINE	73+00.00	382499.2945	2478269.2405
65	L-LINE	74+00.00	382569.6139	2478340.3403
66	L-LINE	75+00.00	382639.9333	2478411.4401
67	L-LINE	76+00.00	382710.2527	2478482.5399
68	L-LINE	77+00.00	382780.5721	2478553.6396
69	NBL-RAMP	10+00.00	373410.2877	2481831.0653
70	NBL-RAMP	11+00.00	373509.8788	2481822.0317
71	NBL-RAMP	12+00.00	373609.4700	2481812.9981
72	NBL-RAMP	13+00.00	373709.0611	2481803.9645
73	NBL-RAMP	14+00.00	373808.6256	2481794.6463
74	NBL-RAMP	15+00.00	373908.0725	2481784.1494
75	NBL-RAMP	16+00.00	374007.3804	2481772.4102
76	NBL-RAMP	17+00.00	374106.5338	2481759.4306
77	NBL-RAMP	18+00.00	374205.5173	2481745.2127
78	NBL-RAMP	19+00.00	374304.3152	2481729.7586
79	NBL-RAMP	20+00.00	374403.0014	2481713.6021
80	NBL-RAMP	21+00.00	374501.6871	2481697.4425
81	NBL-RAMP	22+00.00	374600.3728	2481681.2828

Point #	Chain	Station	Northing (Y)	Easting (X)
82	NBL-RAMP	23+00.00	374699.0585	2481665.1231
83	NBL-RAMP	24+00.00	374797.7650	2481649.0922
84	NBL-RAMP	25+00.00	374896.7279	2481634.7530
85	NBL-RAMP	26+00.00	374996.1856	2481624.4496
86	NBL-RAMP	27+00.00	375096.0071	2481618.5659
87	NBL-RAMP	28+00.00	375195.9407	2481614.9340
88	NBL-RAMP	29+00.00	375295.8547	2481610.8351
89	NBL-RAMP	30+00.00	375395.5256	2481602.8921
90	NBL-RAMP	31+00.00	375494.4499	2481588.4053
91	NBL-RAMP	32+00.00	375592.1151	2481567.0179
92	NBL-RAMP	33+00.00	375688.0401	2481538.8350
93	NBL-RAMP	34+00.00	375781.7530	2481503.9954
94	NBL-RAMP	35+00.00	375872.7923	2481462.6706
95	NBL-RAMP	36+00.00	375960.7100	2481415.0640
96	NBL-RAMP	37+00.00	376045.0732	2481361.4101
97	NBL-RAMP	38+00.00	376125.4666	2481301.9728
98	NBL-RAMP	39+00.00	376201.8210	2481237.4166
99	NBL-RAMP	40+00.00	376275.7440	2481170.0737
100	NBL-RAMP	41+00.00	376349.2053	2481102.2251
101	NBL-RAMP	42+00.00	376422.6665	2481034.3763
102	NBL-RAMP	43+00.00	376496.1277	2480966.5276
103	NBL-RAMP	44+00.00	376569.5889	2480898.6789
104	NBL-RAMP	45+00.00	376643.1099	2480830.8949
105	NBL-RAMP	46+00.00	376717.4055	2480763.9634
106	NBL-RAMP	47+00.00	376793.5011	2480699.0902
107	NBL-RAMP	48+00.00	376871.7271	2480636.8025
108	NBL-RAMP	49+00.00	376952.0012	2480577.1776
109	NBL-RAMP	50+00.00	377034.2328	2480520.2827
110	NBL-RAMP	50+54.94	377080.2129	2480490.2086
111	SBL-RAMP	10+00.00	373267.0670	2481748.5244
112	SBL-RAMP	11+00.00	373365.6491	2481731.7484
113	SBL-RAMP	12+00.00	373464.0138	2481713.7414
114	SBL-RAMP	13+00.00	373562.1458	2481694.5063
115	SBL-RAMP	14+00.00	373660.0296	2481674.0461
116	SBL-RAMP	15+00.00	373757.6501	2481652.3640
117	SBL-RAMP	16+00.00	373855.2428	2481630.5570
118	SBL-RAMP	17+00.00	373953.0997	2481609.9682
119	SBL-RAMP	18+00.00	374051.2063	2481590.6041
120	SBL-RAMP	19+00.00	374149.5472	2481572.4679
121	SBL-RAMP	20+00.00	374248.1072	2481555.5623
122	SBL-RAMP	21+00.00	374346.7918	2481539.3958
123	SBL-RAMP	22+00.00	374445.4775	2481523.2361
124	SBL-RAMP	23+00.00	374544.1632	2481507.0765
125	SBL-RAMP	24+00.00	374642.8488	2481490.9168
126	SBL-RAMP	25+00.00	374741.5345	2481474.7571
127	SBL-RAMP	26+00.00	374840.2202	2481458.5974
128	SBL-RAMP	27+00.00	374938.9059	2481442.4378
129	SBL-RAMP	28+00.00	375037.5916	2481426.2781
130	SBL-RAMP	29+00.00	375136.2773	2481410.1184
131	SBL-RAMP	30+00.00	375234.9630	2481393.9587
132	SBL-RAMP	31+00.00	375333.6487	2481377.7991
133	SBL-RAMP	32+00.00	375432.3343	2481361.6394
134	SBL-RAMP	33+00.00	375530.9699	2481345.1802
135	SBL-RAMP	34+00.00	375629.0230	2481325.6028
136	SBL-RAMP	35+00.00	375725.4435	2481299.1950
137	SBL-RAMP	36+00.00	375819.3343	2481264.8623
138	SBL-RAMP	37+00.00	375910.0415	2481222.8336
139	SBL-RAMP	38+00.00	375996.9731	2481173.4620
140	SBL-RAMP	39+00.00	376080.6549	2481118.7282
141	SBL-RAMP	40+00.00	376163.0729	2481062.0956
142	SBL-RAMP	41+00.00	376245.4324	2481005.3778
143	SBL-RAMP	42+00.00	376327.7919	2480948.6599
144	SBL-RAMP	43+00.00	376410.1514	2480891.9420
145	SBL-RAMP	44+00.00	376492.5108	2480835.2241
146	SBL-RAMP	45+00.00	376574.8703	2480778.5063
147	SBL-RAMP	46+00.00	376657.2298	2480721.7884
148	SBL-RAMP	47+00.00	376739.5893	2480665.0705
149	SBL-RAMP	48+00.00	376821.9487	2480608.3526
150	SBL-RAMP	49+00.00	376904.3092	2480551.6363
151	SBL-RAMP	50+00.00	376986.9279	2480495.2975
152	SBL-RAMP	50+81.29	377054.8501	2480450.6393
153	RAMP-1A	10+00.00	377583.0359	2480168.2665
154	RAMP-1A	10+50.00	377536.4562	2480186.4414
155	RAMP-1A	11+00.00	377489.8764	2480204.6162
156	RAMP-1A	11+50.00	377443.2967	2480222.7911
157	RAMP-1A	12+00.00	377396.7169	2480240.9660
158	RAMP-1A	12+50.00	377350.1371	2480259.1409
159	RAMP-1A	13+00.00	377303.5574	2480277.3157
160	RAMP-1A	13+50.00	377256.9776	2480295.4906
161	RAMP-1A	14+00.00	377210.3979	2480313.6655

Point #	Chain	Station	Northing (Y)	Easting (X)
162	RAMP-1A	14+50.00	377163.7711	2480331.7190
163	RAMP-1A	15+00.00	377116.8688	2480349.0413
164	RAMP-1A	15+50.00	377069.4502	2480364.8892
165	RAMP-1A	16+00.00	377021.3440	2480378.4969
166	RAMP-1A	16+50.00	376972.5113	2480389.2001
167	RAMP-1A	17+00.00	376923.1055	2480396.8323
168	RAMP-1A	17+50.00	376873.3195	2480401.3638
169	RAMP-1A	18+00.00	376823.3476	2480402.7769
170	RAMP-1A	18+50.00	376773.3850	2480401.0660
171	RAMP-1A	19+00.00	376723.6262	2480396.2427
172	RAMP-1A	19+50.00	376674.2161	2480388.6182
173	RAMP-1A	20+00.00	376625.1633	2480378.9445
174	RAMP-1A	20+50.00	376576.3767	2480367.9993
175	RAMP-1A	21+00.00	376527.7030	2480356.5595
176	RAMP-1A	21+50.00	376478.8354	2480345.9949
177	RAMP-1A	22+00.00	376429.3994	2480338.6179
178	RAMP-1A	22+50.00	376379.4692	2480336.8749
179	RAMP-1A	23+00.00	376329.9389	2480343.1730
180	RAMP-1A	23+50.00	376282.5189	2480358.7784
181	RAMP-1A	24+00.00	376238.9920	2480383.2242
182	RAMP-1A	24+50.00	376199.9962	2480414.4888
183	RAMP-1A	25+00.00	376161.5963	2480446.5114
184	RAMP-1A	25+50.00	376123.1964	2480478.5340
185	RAMP-1A	26+00.00	376084.7964	2480510.5566
186	RAMP-1A	26+50.00	376046.3965	2480542.5792
187	RAMP-1A	27+00.00	376007.9966	2480574.6017
188	RAMP-1A	27+07.31	376002.3847	2480579.2816
189	LOOP-1A	10+00.00	376404.2519	2480881.4345
190	LOOP-1A	10+50.00	376445.2590	2480852.8278
191	LOOP-1A	11+00.00	376485.1987	2480822.7578
192	LOOP-1A	11+50.00	376522.8481	2480789.8822
193	LOOP-1A	12+00.00	376556.6979	2480753.1285
194	LOOP-1A	12+50.00	376584.8725	2480711.8895
195	LOOP-1A	13+00.00	376605.1450	2480666.2741
196	LOOP-1A	13+50.00	376615.3937	2480617.4363
197	LOOP-1A	14+00.00	376614.8677	2480567.5375
198	LOOP-1A	14+50.00	376603.5918	2480518.9265
199	LOOP-1A	15+00.00	376582.0967	2480473.8918
200	LOOP-1A	15+50.00	376551.3942	2480434.5531
201	LOOP-1A	16+00.00	376512.9298	2480402.7623
202	LOOP-1A	16+50.00	376468.5139	2480380.0159
203	LOOP-1A	17+00.00	376420.2374	2480367.3846
204	LOOP-1A	17+50.00	376370.3728	2480365.4631
205	LOOP-1A	18+00.00	376321.2674	2480374.3417
206	LOOP-1A	18+50.00	376275.2327	2480393.6025
207	LOOP-1A	19+00.00	376234.4358	2480422.3389
208	LOOP-1A	19+50.00	376200.7971	2480459.1982
209	LOOP-1A	20+00.00	376175.9000	2480502.4452
210	LOOP-1A	20+50.00	376160.9166	2480550.0442
211	LOOP-1A	21+00.00	376156.5521	2480599.7546
212	LOOP-1A	21+50.00	376162.9418	2480649.2507
213	LOOP-1A	22+00.00	376178.7924	2480696.6031
214	LOOP-1A	22+50.00	376201.9394	2480740.8761
215	LOOP-1A	23+00.00	376230.3332	2480782.0041
216	LOOP-1A	23+50.00	376262.1732	2480820.5430
217	LOOP-1A	24+00.00	376295.9058	2480857.4468
218	LOOP-1A	24+19.05	376308.9604	2480871.3139
219	RAMP-1B	10+00.00	375036.3153	2481414.3273
220	RAMP-1B	10+50.00	375085.6581	2481406.2474
221	RAMP-1B	11+00.00	375135.0010	2481398.1676
222	RAMP-1B	11+50.00	375184.3438	2481390.0878
223	RAMP-1B	12+00.00	375233.6866	2481382.0079
224	RAMP-1B	12+50.00	375283.0295	2481373.9281
225	RAMP-1B	13+00.00	375332.3590	2481365.7677
226	RAMP-1B	13+50.00	375381.5409	2481356.7693
227	RAMP-1B	14+00.00	375430.3279	2481345.8470
228	RAMP-1B	14+50.00	375478.3444	2481331.9432
229	RAMP-1B	15+00.00	375525.0503	2481314.1413
230	RAMP-1B	15+50.00	375569.9838	2481292.2481
231	RAMP-1B	16+00.00	375612.7862	2481266.4354
232	RAMP-1B	16+50.00	375653.1165	2481236.9090
233	RAMP-1B	17+00.00	375690.6533	2481203.9040
234	RAMP-1B	17+50.00	375725.0977	2481167.6835
235	RAMP-1B	18+00.00	375756.1752	2481128.5360
236	RAMP-1B	18+50.00	375783.6382	2481086.7733
237	RAMP-1B	19+00.00	375807.2679	2481042.7281
238	RAMP-1B	19+50.00	375826.8762	2480996.7514
239	RAMP-1B	20+00.00	375842.3067	2480949.2095
240	RAMP-1B	20+50.00	375853.4366	2480900.4810
241	RAMP-1B	21+00.00	375860.1772	2480850.9542

Point #	Chain	Station	Northing (Y)	Easting (X)
242	RAMP-1B	21+50.00	375862.4747	2480801.0236
243	RAMP-1B	22+00.00	375860.3110	2480751.0871
244	RAMP-1B	22+50.00	375853.7032	2480701.5424
245	RAMP-1B	23+00.00	375842.7039	2480652.7843
246	RAMP-1B	23+50.00	375827.4008	2480605.2011
247	RAMP-1B	24+00.00	375807.9158	2480559.1721
248	RAMP-1B	24+50.00	375784.4375	2480515.0447
249	RAMP-1B	25+00.00	375757.6798	2480472.8174
250	RAMP-1B	25+50.00	375728.6882	2480432.0852
251	RAMP-1B	26+00.00	375698.4283	2480392.2826
252	RAMP-1B	26+50.00	375667.7755	2480352.7806
253	RAMP-1B	26+92.31	375641.8290	2480319.3612
254	LOOP-1D	10+00.00	376522.7882	2480958.2391
255	LOOP-1D	10+50.00	376559.7225	2480924.5377
256	LOOP-1D	11+00.00	376597.8491	2480892.1998
257	LOOP-1D	11+50.00	376638.2081	2480862.7136
258	LOOP-1D	12+00.00	376681.5134	2480837.7878
259	LOOP-1D	12+50.00	376727.9442	2480819.3855
260	LOOP-1D	13+00.00	376776.9039	2480809.6551
261	LOOP-1D	13+50.00	376826.7998	2480810.4120
262	LOOP-1D	14+00.00	376875.3580	2480821.9127
263	LOOP-1D	14+50.00	376920.2928	2480843.6160
264	LOOP-1D	15+00.00	376959.4890	2480874.5001
265	LOOP-1D	15+50.00	376991.1015	2480913.1113
266	LOOP-1D	16+00.00	377013.6421	2480957.6319
267	LOOP-1D	16+50.00	377026.0499	2481005.9664
268	LOOP-1D	17+00.00	377027.7407	2481055.8393
269	LOOP-1D	17+50.00	377018.6349	2481104.9031
270	LOOP-1D	18+00.00	376999.1613	2481150.8482
271	LOOP-1D	18+50.00	376970.2364	2481191.5117
272	LOOP-1D	19+00.00	376933.2219	2481224.9795
273	LOOP-1D	19+50.00	376889.8601	2481249.6762
274	LOOP-1D	20+00.00	376842.1923	2481264.4392
275	LOOP-1D	20+50.00	376792.4622	2481268.5736
276	LOOP-1D	21+00.00	376743.0091	2481261.8931
277	LOOP-1D	21+50.00	376695.9181	2481245.3081
278	LOOP-1D	22+00.00	376652.2932	2481220.9760
279	LOOP-1D	22+50.00	376612.2915	2481191.0249
280	LOOP-1D	23+00.00	376575.3910	2481157.3051
281	LOOP-1D	23+50.00	376540.6247	2481121.3758
282	LOOP-1D	23+84.81	376517.0375	2481095.7729
283	Y-1ASBL	50+00.00	375617.3836	2480202.0059
284	Y-1ASBL	51+00.00	375684.9180	2480275.7549
285	Y-1ASBL	52+00.00	375754.1873	2480347.8735
286	Y-1ASBL	53+00.00	375825.4886	2480417.9837
287	Y-1ASBL	54+00.00	375898.7482	2480486.0455
288	Y-1ASBL	55+00.00	375973.1518	2480552.8592
289	Y-1ASBL	56+00.00	376046.8693	2480620.4260
290	Y-1ASBL	57+00.00	376118.7108	2480689.9826
291	Y-1ASBL	58+00.00	376188.5942	2480761.5072
292	Y-1ASBL	59+00.00	376257.4094	2480834.0637
293	Y-1ASBL	60+00.00	376325.8989	2480906.9278
294	Y-1ASBL	61+00.00	376394.0829	2480980.0778
295	Y-1ASBL	62+00.00	376461.9602	2481053.5126
296	Y-1ASBL	63+00.00	376529.5791	2481127.1853
297	Y-1ASBL	64+00.00	376598.0565	2481200.0573
298	Y-1ASBL	65+00.00	376668.5439	2481270.9856
299	Y-1ASBL	66+00.00	376740.8679	2481340.0430
300	Y-1ASBL	67+00.00	376813.5351	2481408.7408
301	Y-1ASBL	68+00.00	376884.7438	2481478.9452
302	Y-1ASBL	69+00.00	376953.9194	2481551.1535
303	Y-1ASBL	70+00.00	377021.0041	2481625.3086
304	Y-1ASBL	71+00.00	377085.9429	2481701.3498
305	Y-1ASBL	72+00.00	377148.6829	2481779.2151
306	Y-1ASBL	73+00.00	377209.5063	2481858.5897
307	Y-1ASBL	74+00.00	377269.9007	2481938.2923
308	Y-1ASBL	75+00.00	377330.2996	2482017.9916
309	Y-1ASBL	76+00.00	377391.4639	2482097.1035
310	Y-1ASBL	77+00.00	377453.9382	2482175.1851
311	Y-1ASBL	78+00.00	377517.7051	2482252.2146
312	Y-1ASBL	79+00.00	377582.7469	2482328.1707
313	Y-1ASBL	80+00.00	377648.9618	2482403.1071
314	Y-1ASBL	81+00.00	377715.4269	2482477.8225
315	Y-1ASBL	81+90.95	377775.8815	2482545.7816
316	RAMP-CC	10+00.00	375387.0106	2481615.8744
317	RAMP-CC	10+50.00	375436.8746	2481612.1893
318	RAMP-CC	11+00.00	375486.7386	2481608.5042
319	RAMP-CC	11+50.00	375536.6027	2481604.8191
320	RAMP-CC	12+00.00	375586.4667	2481601.1340

Point #	Chain	Station	Northing (Y)	Easting (X)
321	RAMP-CC	12+50.00	375636.3307	2481597.4488
322	Y-2	82+00.00	375250.2503	2481483.1608
323	Y-2	83+00.00	375348.9360	2481467.0011
324	Y-2	84+00.00	375447.6217	2481450.8414
325	Y-2	85+00.00	375546.3164	2481434.7373
326	Y-2	86+00.00	375645.2290	2481420.0524
327	Y-2	87+00.00	375744.6518	2481409.4327
328	Y-2	88+00.00	375844.5066	2481404.2908
329	Y-2	89+00.00	375944.4929	2481404.7014
330	Y-2	90+00.00	376044.3022	2481410.6634
331	Y-2	91+00.00	376143.6264	2481422.1583
332	Y-2	92+00.00	376242.1591	2481439.1506
333	Y-2	93+00.00	376339.5962	2481461.5879
334	Y-2	94+00.00	376435.6371	2481489.4010
335	Y-2	95+00.00	376529.9855	2481522.5040
336	Y-2	96+00.00	376622.3502	2481560.7948
337	Y-2	97+00.00	376712.4462	2481604.1553
338	Y-2	98+00.00	376799.9956	2481652.4517
339	Y-2	99+00.00	376884.7281	2481705.5349
340	Y-2	100+00.00	376966.3824	2481763.2412
341	Y-2	101+00.00	377044.7064	2481825.3924
342	Y-2	102+00.00	377119.4585	2481891.7968
343	Y-2	103+00.00	377190.4437	2481962.2152
344	Y-2	104+00.00	377258.4374	2482035.5375
345	Y-2	105+00.00	377325.3196	2482109.8797
346	Y-2	106+00.00	377392.1519	2482184.2668
347	Y-2	107+00.00	377458.9842	2482258.6539
348	Y-2	108+00.00	377525.8165	2482333.0410
349	Y-2	109+00.00	377592.6488	2482407.4281
350	Y-2	110+00.00	377659.4811	2482481.8153
351	Y-2	111+00.00	377726.3134	2482556.2024
352	Y-2	112+00.00	377793.1457	2482630.5895
353	Y-2CON	10+00.00	376334.8176	2481057.2190
354	Y-2CON	11+00.00	376401.6556	2481131.6010
355	Y-2CON	12+00.00	376461.3832	2481211.6329
356	Y-2CON	13+00.00	376505.6550	2481301.1454
357	Y-2CON	14+00.00	376533.0116	2481397.1875
358	Y-2CON	15+00.00	376545.9731	2481496.3214
359	Y-2CON	15+34.18	376549.9468	2481530.2731
360	Y-4	10+00.00	377471.8080	2480253.0073
361	Y-4	11+00.00	377512.2955	2480344.4445
362	Y-4	12+00.00	377552.7830	2480435.8817
363	Y-4	13+00.00	377593.2705	2480527.3189
364	Y-4	14+00.00	377633.7580	2480618.7562
365	Y-4	15+00.00	377674.2455	2480710.1934
366	Y-4	16+00.00	377714.7329	2480801.6306
367	Y-4	17+00.00	377755.2204	2480893.0678
368	Y-4	18+00.00	377799.4230	2480982.7237
369	Y-4	19+00.00	377852.3184	2481067.5396
370	Y-4	20+00.00	377913.4170	2481146.6511
371	Y-4	21+00.00	377980.1715	2481221.1046
372	Y-4	22+00.00	378047.1972	2481295.3175
373	Y-4	23+00.00	378114.2229	2481369.5304
374	Y-4	24+00.00	378181.2486	2481443.7433
375	Y-4	25+00.00	378248.2743	2481517.9562
376	Y-4	26+00.00	378315.3001	2481592.1690
377	Y-4	27+00.00	378382.3258	2481666.3819
378	Y-4	28+00.00	378449.3515	2481740.5948
379	Y-4	29+00.00	378516.3772	2481814.8077
380	Y-4	30+00.00	378583.4029	2481889.0206
381	Y-5	10+00.00	379809.6996	2479292.7606
382	Y-5	11+00.00	379872.7953	2479370.3424
383	Y-5	12+00.00	379935.8910	2479447.9241
384	Y-5	13+00.00	379998.9867	2479525.5059
385	Y-5	14+00.00	380062.0824	2479603.0877
386	Y-5	15+00.00	380125.1781	2479680.6695
387	Y-5	16+00.00	380188.2738	2479758.2513
388	Y-5	17+00.00	380251.3695	2479835.8331
389	Y-5	18+00.00	380313.9823	2479913.7983
390	Y-5	19+00.00	380370.2307	2479996.4287
391	Y-5	20+00.00	380421.0414	2480082.5434
392	Y-5	21+00.00	380478.8479	2480164.0915
393	Y-5	22+00.00	380541.7594	2480241.8220
394	Y-5	22+99.88	380604.6790	2480319.3867
395	PR-1	11+00.00	374534.2265	2481765.3331
396	PR-1	12+00.00	374631.1710	2481749.2270
397	PR-1	12+45.47	374672.2212	2481730.4023

PROJ. REFERENCE NO.	SHEET NO.
U-4007B	1F

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
398	PR-2	10+00.00	374460.2382	2481494.7793
399	PR-2	10+50.00	374486.3928	2481452.1654
400	PR-2	11+00.00	374512.5473	2481409.5516
401	PR-2	11+50.00	374551.0292	2481380.4956
402	PR-2	12+00.00	374597.1555	2481362.7851
403	PR-2	12+50.00	374613.2340	2481317.5394
404	PR-2	12+70.83	374611.6025	2481296.7743
405	SER-1	10+00.00	375042.3407	2479959.9718
406	SER-1	10+50.00	375091.2277	2479949.4976
407	SER-1	11+00.00	375141.0554	2479947.8236
408	SER-1	11+50.00	375189.6032	2479959.1690
409	SER-1	12+00.00	375233.5284	2479982.7526
410	SER-1	12+50.00	375269.9545	2480016.8225
411	SER-1	13+00.00	375303.2502	2480054.1239
412	SER-1	13+50.00	375336.5458	2480091.4254
413	SER-1	14+00.00	375369.8415	2480128.7268
414	SER-1	14+50.00	375403.1372	2480166.0283
415	SER-1	15+00.00	375436.4329	2480203.3297
416	SER-1	15+50.00	375469.7285	2480240.6312
417	SER-1	16+00.00	375503.0242	2480277.9326
418	SER-1	16+50.00	375536.3182	2480315.2356
419	SER-1	17+00.00	375568.7534	2480353.2828
420	SER-1	17+50.00	375599.6069	2480392.6245
421	SER-1	18+00.00	375629.9267	2480432.3826
422	SER-1	18+50.00	375660.2465	2480472.1408
423	SER-1	19+00.00	375690.3216	2480512.0783
424	SER-1	19+50.00	375712.6079	2480556.6757
425	SER-1	20+00.00	375722.5258	2480605.5351
426	SER-1	20+50.00	375719.3924	2480655.2924
427	SER-1	21+00.00	375703.4234	2480702.5216
428	SER-1	21+50.00	375678.3671	2480745.7761
429	SER-1	22+00.00	375652.7885	2480788.7381

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Stantec
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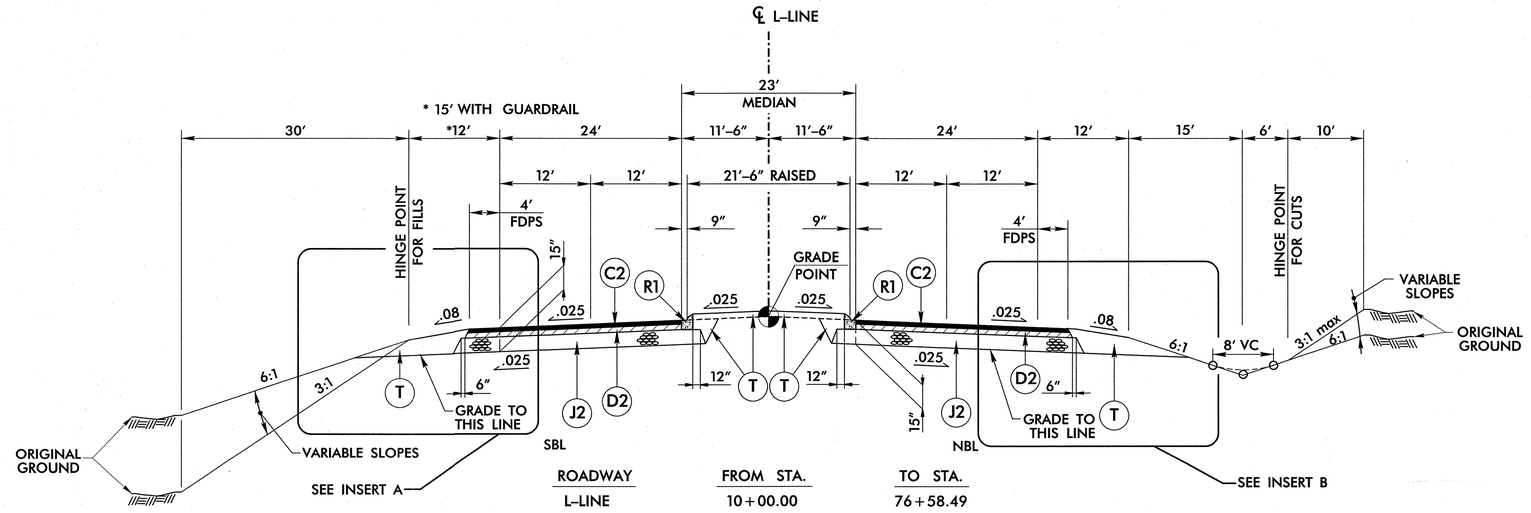
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2

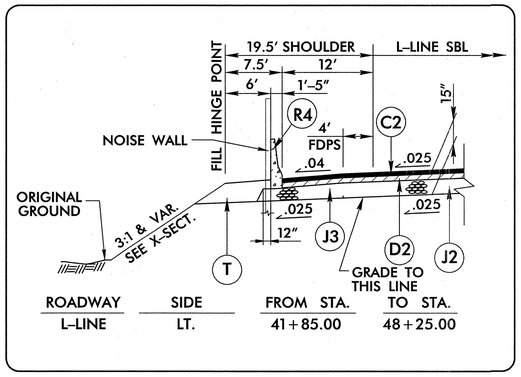
ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30932 ROBERT A. WILLIAMS — 2/3/10

PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034142 JOSHUA T. KUSTER — 08/01/10



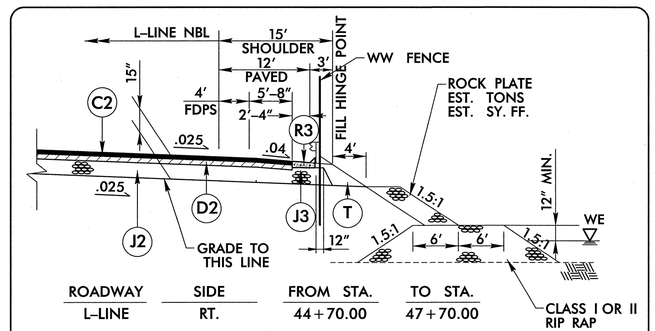
ROADWAY	FROM STA.	TO STA.
L-LINE	10+00.00	76+58.49

TYPICAL SECTION NO 1



ROADWAY	SIDE	FROM STA.	TO STA.
L-LINE	LT.	41+85.00	48+25.00

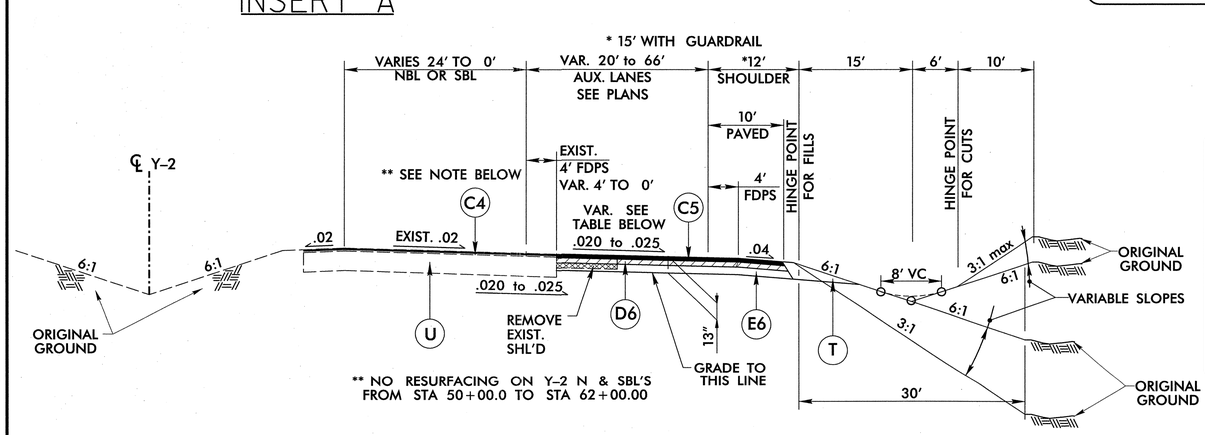
INSERT A



ROADWAY	SIDE	FROM STA.	TO STA.
L-LINE	RT.	44+70.00	47+70.00

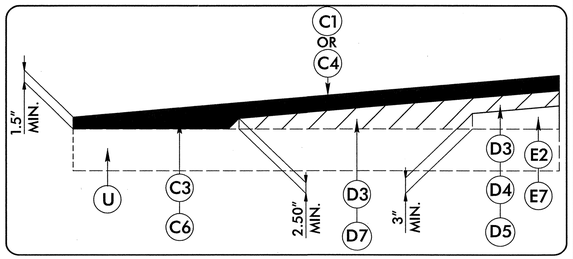
ROCK EMBANKMENT FOR POND PROTECTION

INSERT B



ROADWAY	FROM STA.	TO STA.	CROSS SLOPE	REMARKS
Y-2 N & SBL'S	50+00.00	62+00.00	VARIES (EXIST.)	CONSTR. UP TO FINAL SURFACE COURSE AUX. LANE
Y-2 NBL	61+99.05	63+28.00	.020	
NBL-RAMP	10+00.00	12+21.71	.020	
NBL-RAMP	12+21.71	12+46.78	VAR. .020 to .025	
NBL-RAMP	12+46.78	16+27.75	.025	
SBL-RAMP	10+00.00	12+49.67	.020	MIRROR IMAGE
SBL-RAMP	12+49.67	12+74.64	VAR. .020 to .025	MIRROR IMAGE
SBL-RAMP	12+74.64	17+13.55	.025	MIRROR IMAGE

TYPICAL SECTION NO 2



ROADWAY C D E

Y-4A	C-1 & C3	D-3	E-2
Y-2	C-4 & C6	D-4 & D7	E-7
Y-2 CONN.	C-4 & C6	D-5 & D7	E-7

W = WEDGING DETAIL

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE. TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0"
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C5	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.
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE. TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0"
D1	PROP. APPROX. 3.0" ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER. SQ. YD.
D2	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER. SQ. YD.
D3	PROP. VAR DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4.0"
D4	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER. SQ. YD.
D5	PROP. APPROX. 3.0" ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER. SQ. YD.
D6	PROP. APPROX 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER. SQ. YD.
D7	PROP. VAR DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE. TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4.0"
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE. TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5".
E3	PROP. APPROX. 3.0" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E4	PROP. APPROX. 3.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
E5	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E6	PROP. APPROX. 6.0" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 684 LBS. PER SQ. YD.
E7	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE. TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER. SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5"
J1	PROP. 6" AGGREGATE BASE COURSE
J2	PROP. 8" AGGREGATE BASE COURSE
J3	PROP. VAR DEPTH AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YARD.
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	3'-0" CONCRETE SHOULDER BERM GUTTER
R4	SINGLE FACE CONCRETE BARRIER WALL
R5	5" MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	CONCRETE COPING
W	WEDGING

NOTE:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. FOR UNDERCUT DETAILS, SEE SHEET 2F

TYPICAL SECTIONS & PAVEMENT SCHEDULE

6/2/99

8/3/2010
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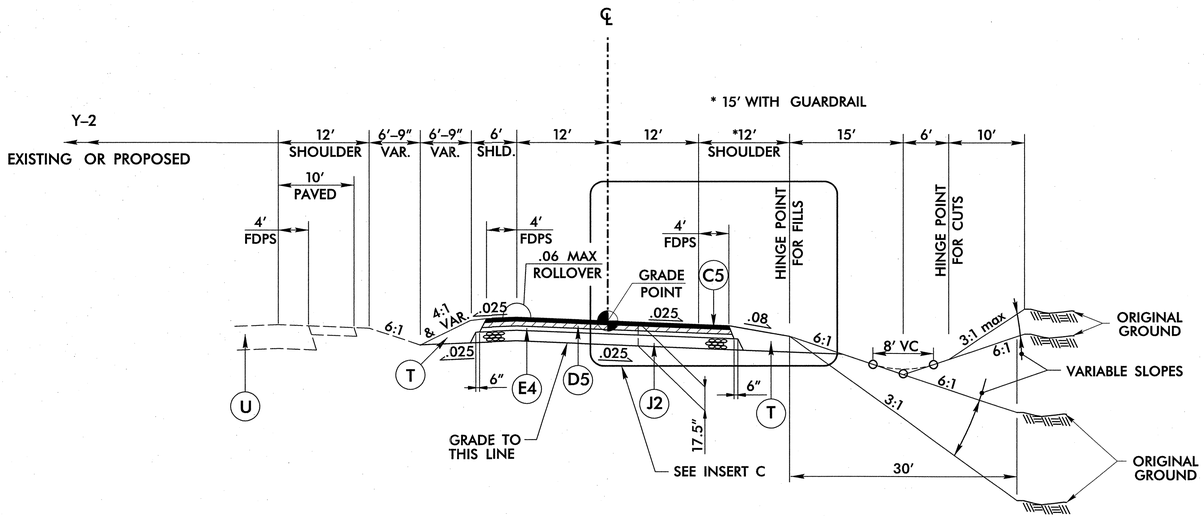
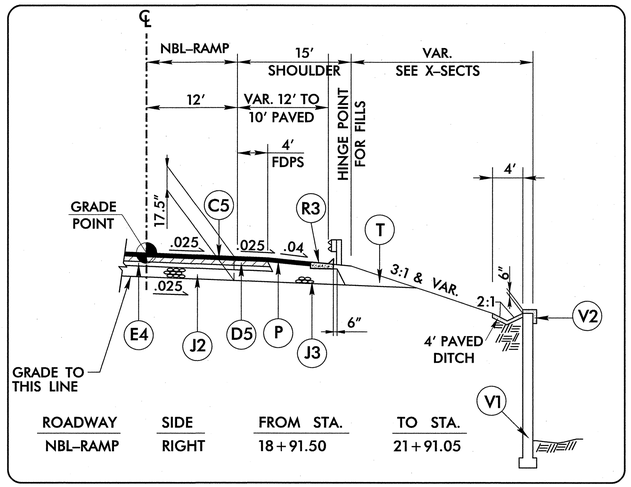
tkuster
Plan Units



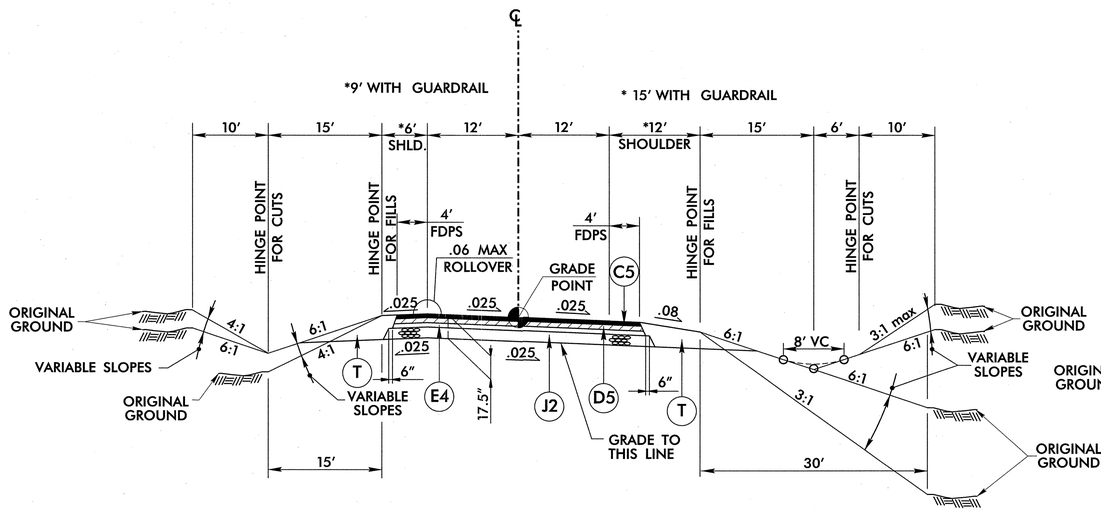
ROADWAY	FROM STA.	TO STA.	REMARKS
NBL–RAMP	16+27.75	21+47.17 BEGIN BR.	SEE INSERT C
NBL–RAMP	23+11.42 END BR.	27+45.00	
SBL–RAMP	17+13.55	21+38.83 BEGIN BR.	MIRROR IMAGE
SBL–RAMP	23+29.58 END BR.	32+24.00	MIRROR IMAGE

TYPICAL SECTION NO 3



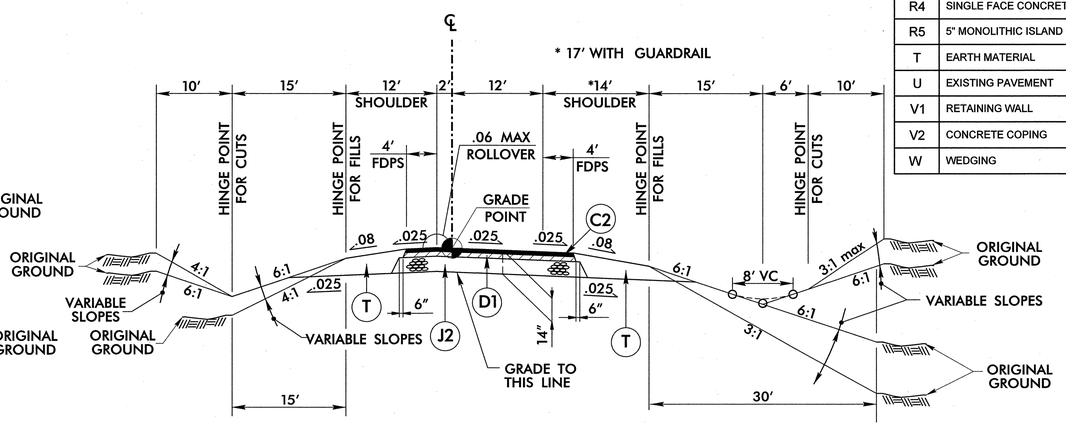
ROADWAY	SIDE	FROM STA.	TO STA.
NBL–RAMP	RIGHT	18+91.50	21+91.05

INSERT C



ROADWAY	FROM STA.	TO STA.	REMARKS
NBL–RAMP	27+45.00	34+50.24 BEGIN BR.	
NBL–RAMP	37+69.24 END BR.	40+61.17 BEGIN BR.	
NBL–RAMP	42+83.58 END BR.	50+54.94	
SBL–RAMP	32+24.00	40+77.05 BEGIN BR.	MIRROR IMAGE
SBL–RAMP	42+95.00 END BR.	50+81.29	MIRROR IMAGE

TYPICAL SECTION NO 4



ROADWAY	FROM STA.	TO STA.	REMARKS
RAMP–1A	14+60.59	26+95.19	SEE TS NO.7, SHT. 2B
RAMP–1B	15+09.29	24+36.38	MIRROR IMAGE

TYPICAL SECTION NO 5

NOTES:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. FOR COMPLETE PAVEMENT SCHEDULE, SEE SHEET NO. 2.
3. FOR UNDERCUT DETAILS, SEE SHEET 2F

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PROJECT REFERENCE NO.	SHEET NO.
U–4007B	2A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
7/30/10

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER
8/10/10

PAVEMENT SCHEDULE

C1	1.5" TYPE S9.5B
C2	3.0" TYPE S9.5B
C3	VARIABLE DEPTH TYPE S9.5B
C4	1.5" TYPE S9.5C
C5	3.0" TYPE S9.5C
C6	VARIABLE DEPTH TYPE S9.5C
D1	3.0" TYPE I19.0B
D2	4.0" TYPE I19.0B
D3	VARIABLE DEPTH TYPE I19.0B
D4	2.5" TYPE I19.0C
D5	3.0" TYPE I19.0C
D6	4.0" TYPE I19.0C
D7	VARIABLE DEPTH TYPE I19.0C
E1	4.0" TYPE B25.0B
E2	VARIABLE DEPTH TYPE B25.0B
E3	3.0" TYPE B25.0C
E4	3.5" TYPE B25.0C
E5	4.5" TYPE B25.0C
E6	6.0" TYPE B25.0C
E7	VARIABLE DEPTH TYPE B25.0C
J1	6" ABC
J2	8" ABC
J3	VAR DEPTH ABC
P	PRIME COAT
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	3'-0" CONCRETE SHOULDER BERM GUTTER
R4	SINGLE FACE CONCRETE BARRIER WALL
R5	5" MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	CONCRETE COPING
W	WEDGING

TYPICAL SECTIONS RAMPS

7/28/2010
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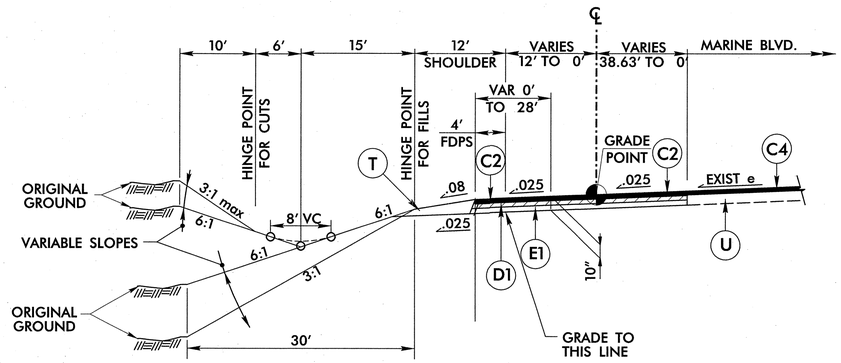
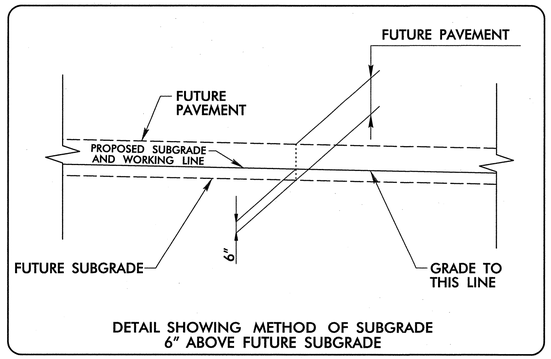
mmembe

6/2/99



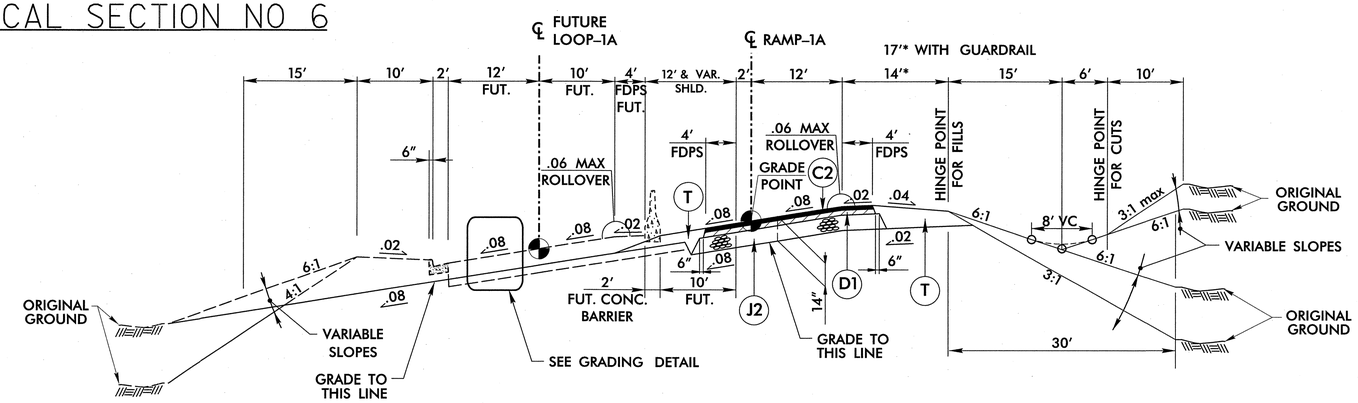
ROADWAY	FROM STA.	TO STA.	REMARKS
RAMP–1B	24+36.38	26+92.31	



DETAIL SHOWING METHOD OF SUBGRADE
6″ ABOVE FUTURE SUBGRADE

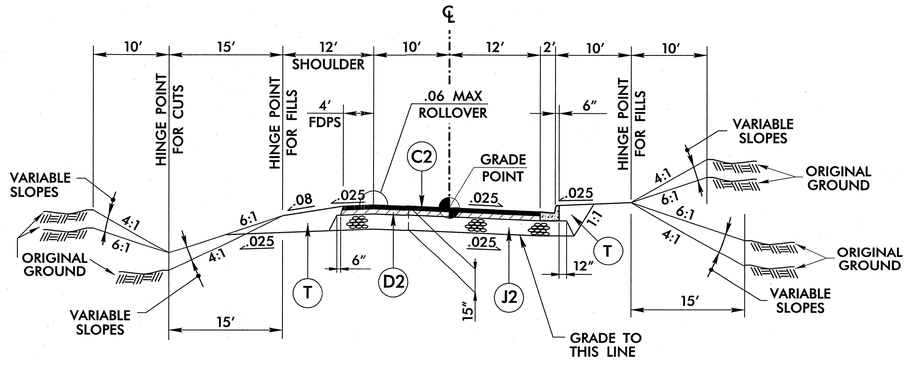
GRADING ONLY DETAIL

TYPICAL SECTION NO 6



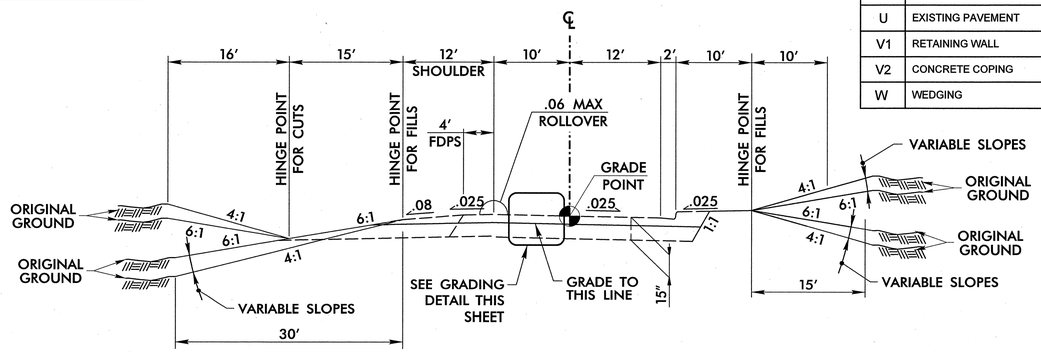
ROADWAY	FROM STA.	TO STA.
RAMP–1A	21+38.50	24+77.00
FUTURE LOOP–1A	16+38.80	19+44.50

TYPICAL SECTION NO 7



ROADWAY	FROM STA.	TO STA.
LOOP–1D	12+62.59	21+38.46

TYPICAL SECTION NO 8



ROADWAY	FROM STA.	TO STA.	REMARKS
LOOP–1A	12+29.75	21+62.50	SEE TS NO.7

TYPICAL SECTION NO 9

NOTES:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. FOR COMPLETE PAVEMENT SCHEDULE, SEE SHEET NO. 2.
3. FOR UNDERCUT DETAILS, SEE SHEET 2F

TYPICAL SECTIONS RAMPS CON'T

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2B

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
7/30/10

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VIJAYAKUMAR VENKATESAN
8/4/10

PAVEMENT SCHEDULE

C1	1.5" TYPE S9.5B
C2	3.0" TYPE S9.5B
C3	VARIABLE DEPTH TYPE S9.5B
C4	1.5" TYPE S9.5C
C5	3.0" TYPE S9.5C
C6	VARIABLE DEPTH TYPE S9.5C
D1	3.0" TYPE I19.0B
D2	4.0" TYPE I19.0B
D3	VARIABLE DEPTH TYPE I19.0B
D4	2.5" TYPE I19.0C
D5	3.0" TYPE I19.0C
D6	4.0" TYPE I19.0C
D7	VARIABLE DEPTH TYPE I19.0C
E1	4.0" TYPE B25.0B
E2	VARIABLE DEPTH TYPE B25.0B
E3	3.0" TYPE B25.0C
E4	3.5" TYPE B25.0C
E5	4.5" TYPE B25.0C
E6	6.0" TYPE B25.0C
E7	VARIABLE DEPTH TYPE B25.0C
J1	6" ABC
J2	8" ABC
J3	VAR DEPTH ABC
P	PRIME COAT
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	3'-0" CONCRETE SHOULDER BERM GUTTER
R4	SINGLE FACE CONCRETE BARRIER WALL
R5	5" MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	CONCRETE COPING
W	WEDGING

7/28/2010
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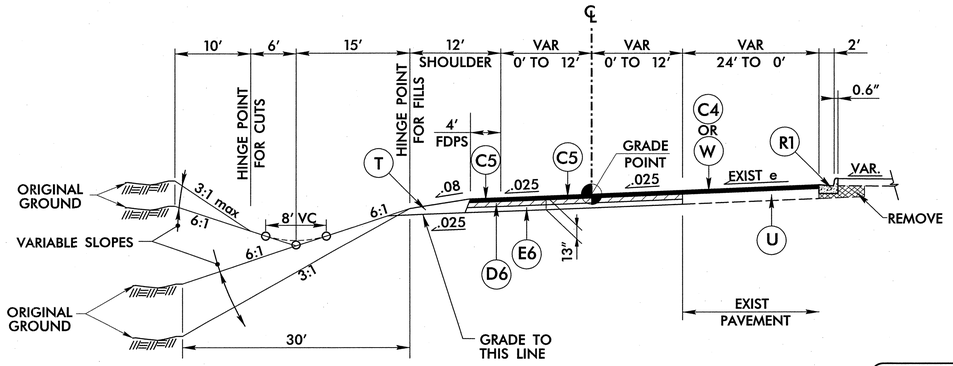
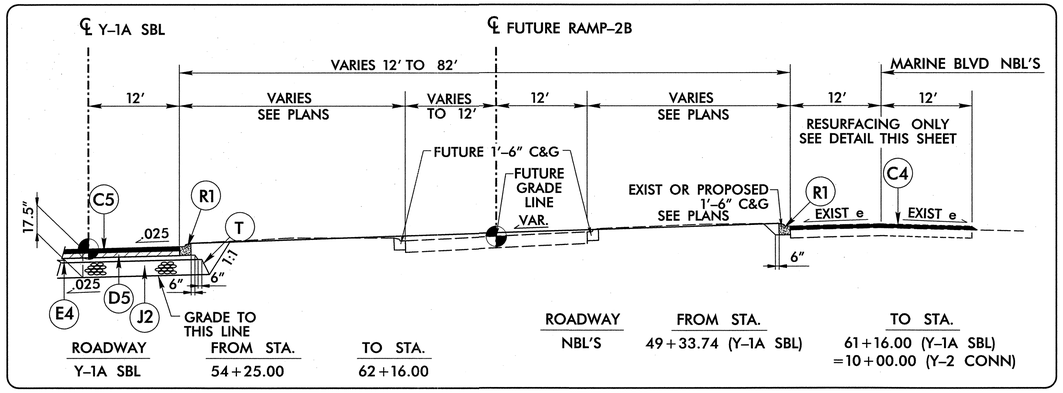
mmuemba



ROADWAY	FROM STA.	TO STA.	REMARKS
Y–1A SBL	49+33.02	50+07.00	RESURFACING ONLY
Y–1A SBL	50+07.00	54+25.00	
Y–1A SBL	54+25.00	62+16.00	SEE INSERT D

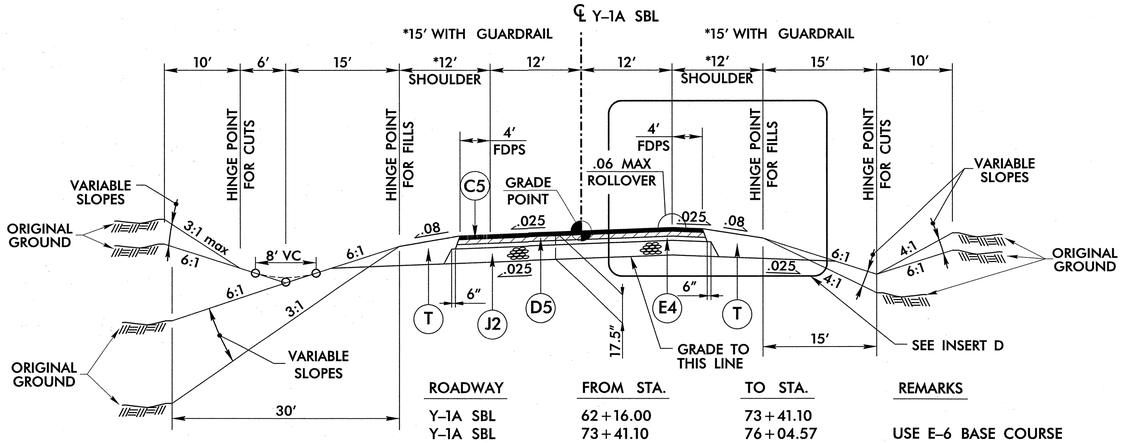
TYPICAL SECTION NO 10



ROADWAY	FROM STA.	TO STA.
Y–1A SBL	54+25.00	62+16.00

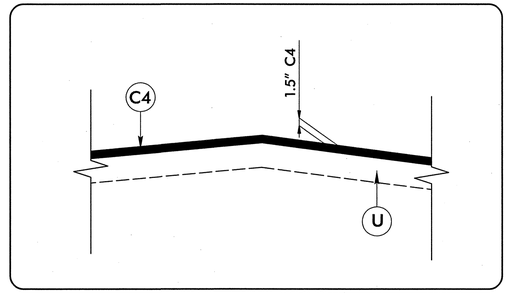
ROADWAY	FROM STA.	TO STA.
NBL'S	49+33.74 (Y–1A SBL)	61+16.00 (Y–1A SBL) =10+00.00 (Y–2 CONN)

INSERT D



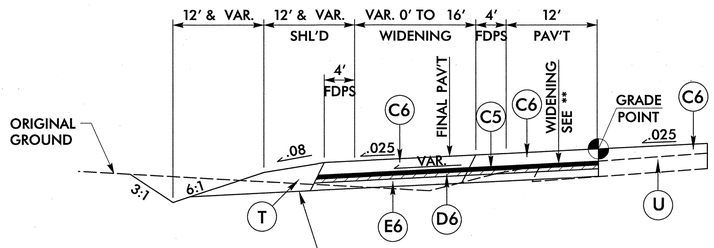
ROADWAY	FROM STA.	TO STA.	REMARKS
Y–1A SBL	62+16.00	73+41.10	
Y–1A SBL	73+41.10	76+04.57	USE E–6 BASE COURSE

TYPICAL SECTION NO 11



RESURFACING ONLY DETAIL

ROADWAY	FROM STA.	TO STA.	REMARKS
Y–2 (SBL)	50+00.00	62+00.00	NO RESURFACING
Y–2 (SBL)	61+99.05	73+63.00±	
Y–2 (SBL)	75+83.00±	81+10.00	
Y–2 (NBL)	61+99.05	74+22.00±	
Y–2 (NBL)	76+29.00±	81+10.00	
Y–2 (NBL)	105+00.00	111+30.27	
Y–2 (SBL)	106+65.00	111+30.27	
Y–1A SBL (NBL)	49+33.74	61+16.00	
Y–1A SBL (SBL)	77+48.00	81+90.95	



** WIDENING TO BE EXTENDED FROM EXISTING PAV'T.
*** FINAL PAV'T TO BE EXTENDED FROM PROPOSED Y–1A SBL. REFER TO TRAFFIC CONTROL PLAN PHASING.

ROADWAY	FROM STA.	TO STA.	SIDE
Y–1A SBL	76+04.57	77+48.00	LT

TYPICAL SECTION NO 12

NOTES:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. FOR COMPLETE PAVEMENT SCHEDULE, SEE SHEET NO. 2.
3. FOR WEDGING DETAIL SEE SHEET NO. 2.
4. FOR UNDERCUT DETAILS, SEE SHEET 2F

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PROJECT REFERENCE NO.	SHEET NO.
U–4007B	2C

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
8/3/10

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR STRIGUL
08/04/10

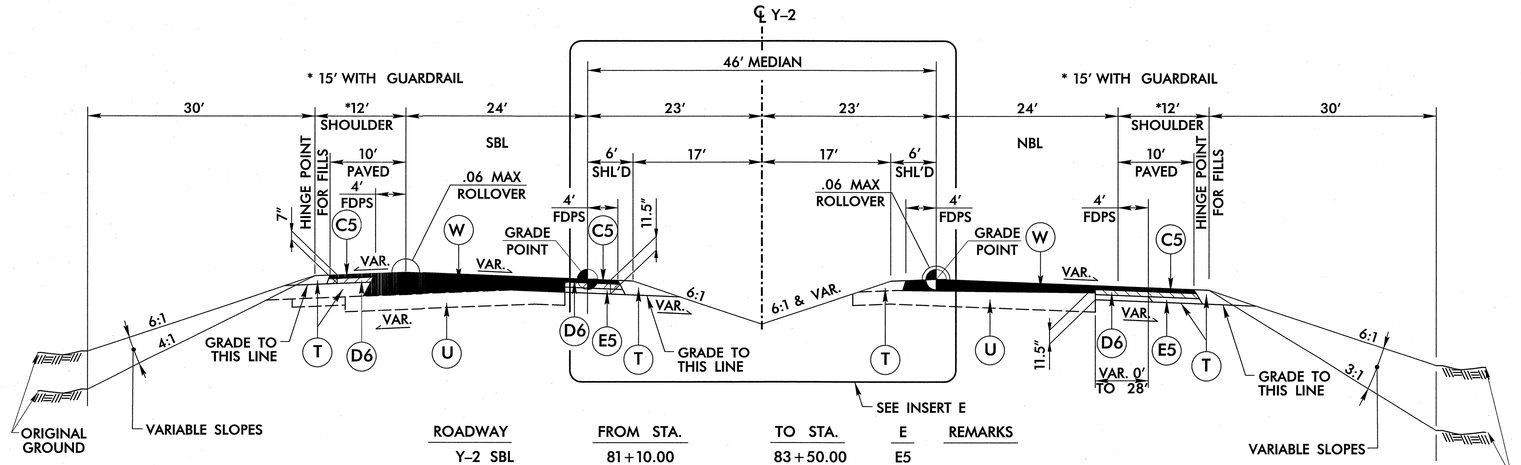
PAVEMENT SCHEDULE

C1	1.5" TYPE S9.5B
C2	3.0" TYPE S9.5B
C3	VARIABLE DEPTH TYPE S9.5B
C4	1.5" TYPE S9.5C
C5	3.0" TYPE S9.5C
C6	VARIABLE DEPTH TYPE S9.5C
D1	3.0" TYPE I19.0B
D2	4.0" TYPE I19.0B
D3	VARIABLE DEPTH TYPE I19.0B
D4	2.5" TYPE I19.0C
D5	3.0" TYPE I19.0C
D6	4.0" TYPE I19.0C
D7	VARIABLE DEPTH TYPE I19.0C
E1	4.0" TYPE B25.0B
E2	VARIABLE DEPTH TYPE B25.0B
E3	3.0" TYPE B25.0C
E4	3.5" TYPE B25.0C
E5	4.5" TYPE B25.0C
E6	6.0" TYPE B25.0C
E7	VARIABLE DEPTH TYPE B25.0C
J1	6" ABC
J2	8" ABC
J3	VAR DEPTH ABC
P	PRIME COAT
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	3'-0" CONCRETE SHOULDER BERM GUTTER
R4	SINGLE FACE CONCRETE BARRIER WALL
R5	5" MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	CONCRETE COPING
W	WEDGING

TYPICAL SECTIONS Y-LINES

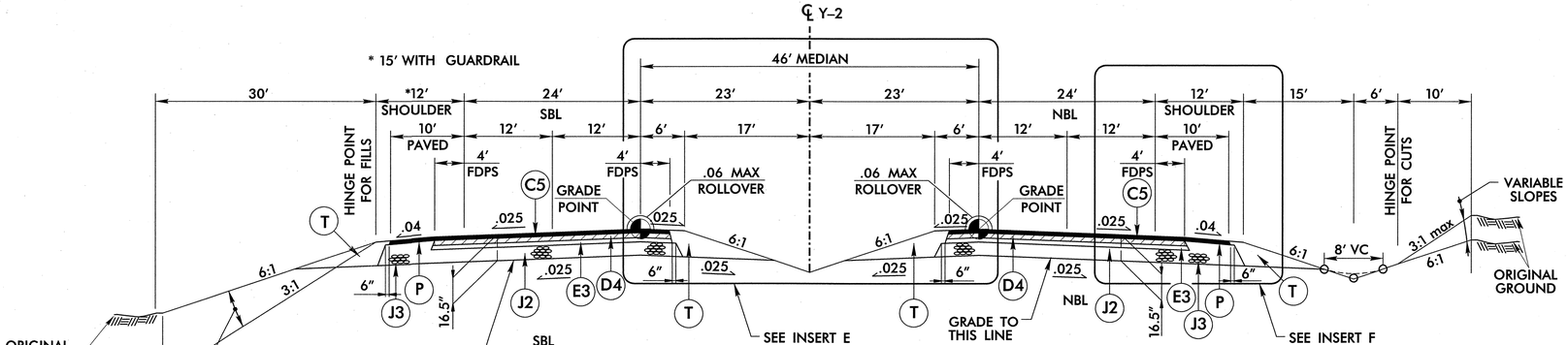
8/3/2010
8:33:06 AM
C:\Documents and Settings\Administrator\Desktop\Roadway Proj\u-4007b_rdy_typ.dgn
Equilibrium

6/2/99



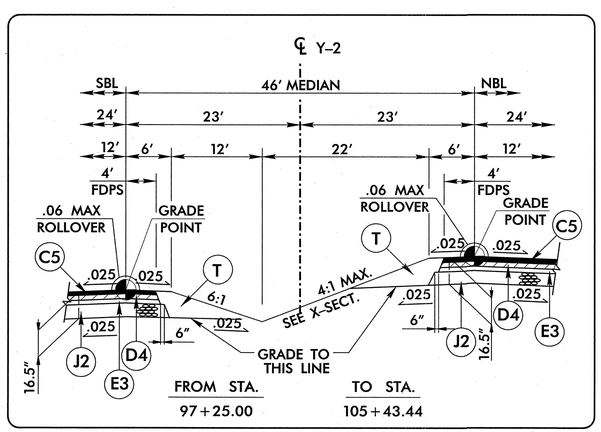
ROADWAY	FROM STA.	TO STA.	E	REMARKS
Y-2 SBL	81+10.00	83+50.00	E5	
Y-2 NBL	81+10.00	86+75.00	E5	SEE INSERT F
Y-2 SBL	103+75.00	105+43.44	E6	SEE INSERT E
Y-2 NBL	99+70.00	104+52.53	E6	SEE INSERT E
Y-2 SBL	105+43.44	111+30.27		RESURFACING ONLY
Y-2 NBL	104+52.53	111+30.27		RESURFACING ONLY

TYPICAL SECTION NO 13



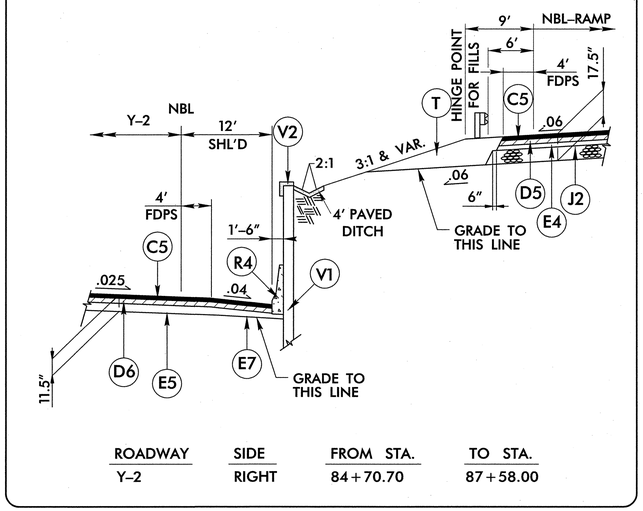
ROADWAY	FROM STA.	TO STA.	REMARKS
Y-2 SBL	83+50.00	103+75.00	
Y-2 NBL	86+75.00	99+70.00	SEE INSERT E

TYPICAL SECTION NO 14



FROM STA.	TO STA.
97+25.00	105+43.44

INSERT E



ROADWAY	SIDE	FROM STA.	TO STA.
Y-2	RIGHT	84+70.70	87+58.00

INSERT F

NOTES:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. FOR COMPLETE PAVEMENT SCHEDULE, SEE SHEET NO. 2.
3. FOR WEDGING DETAIL SEE SHEET NO. 2.
4. FOR UNDERCUT DETAILS, SEE SHEET 2F

TYPICAL SECTIONS Y-LINES CON'T

Stantec
Stantec Consulting Services Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC
27606
Tel. 919.85 1.6866
Fax. 919.85 1.7024
www.stantec.com

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2D

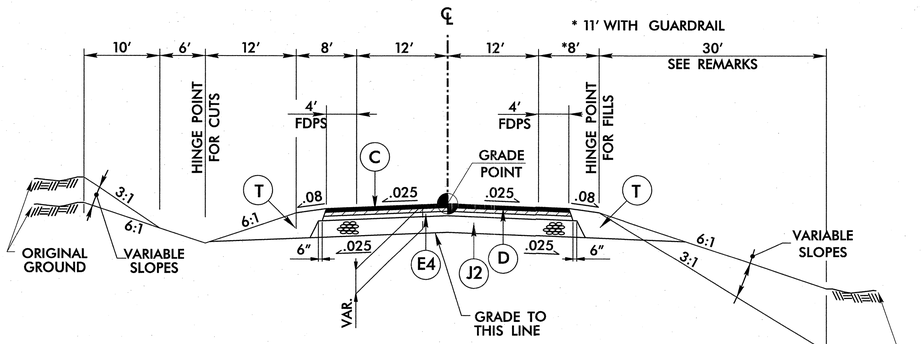
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
8/3/10

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VENKATA C. MEDURI
08/04/10

PAVEMENT SCHEDULE

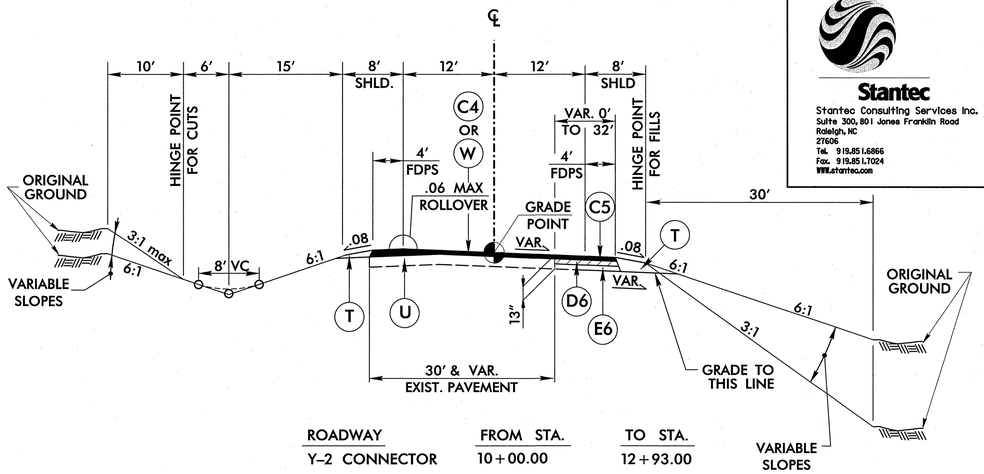
C1	1.5" TYPE S9.5B
C2	3.0" TYPE S9.5B
C3	VARIABLE DEPTH TYPE S9.5B
C4	1.5" TYPE S9.5C
C5	3.0" TYPE S9.5C
C6	VARIABLE DEPTH TYPE S9.5C
D1	3.0" TYPE I19.0B
D2	4.0" TYPE I19.0B
D3	VARIABLE DEPTH TYPE I19.0B
D4	2.5" TYPE I19.0C
D5	3.0" TYPE I19.0C
D6	4.0" TYPE I19.0C
D7	VARIABLE DEPTH TYPE I19.0C
E1	4.0" TYPE B25.0B
E2	VARIABLE DEPTH TYPE B25.0B
E3	3.0" TYPE B25.0C
E4	3.5" TYPE B25.0C
E5	4.5" TYPE B25.0C
E6	6.0" TYPE B25.0C
E7	VARIABLE DEPTH TYPE B25.0C
J1	6" ABC
J2	8" ABC
J3	VAR DEPTH ABC
P	PRIME COAT
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
R3	3'-0" CONCRETE SHOULDER BERM GUTTER
R4	SINGLE FACE CONCRETE BARRIER WALL
R5	5" MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	CONCRETE COPING
W	WEDGING

8/3/2010
U:\Roadway\Proj\u-4007b_rdy_typ.dgn
rdwilliams



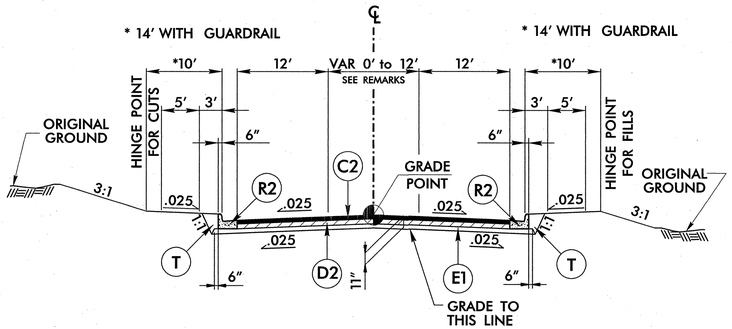
PAVEMENT SCHEDULE								
ROADWAY	FROM STA.	TO STA.	C	D	E	J	DEPTH	REMARKS
Y–2 CONNECTOR	12+93.00	14+53.00±	C5	D5	E4	J2	17.5"	
Y–4	10+85.50	25+32.87	C2	D2	–	J2	15"	HOLD 4:1 FILL SLOPES

TYPICAL SECTION NO 15



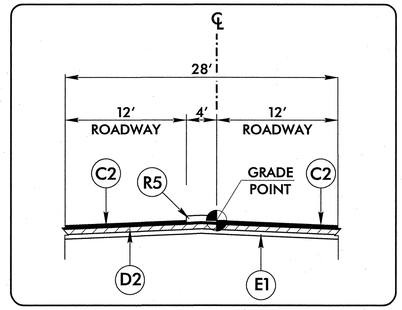
ROADWAY	FROM STA.	TO STA.
Y–2 CONNECTOR	10+00.00	12+93.00

TYPICAL SECTION NO 16

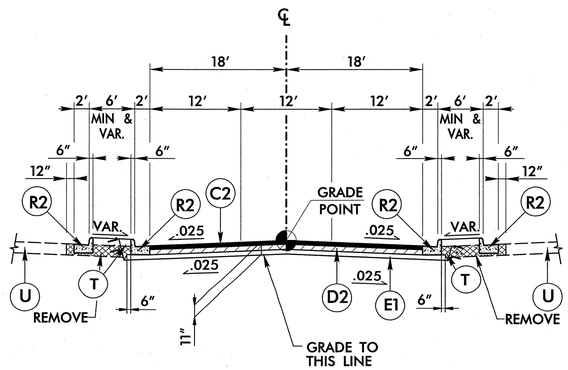


ROADWAY	FROM STA.	TO STA.	REMARKS
Y–4	25+32.87	26+90.42	0'
Y–4	26+90.42	30+00.00	4' (SEE INSERT G)
Y–5	10+85.50	22+41.44	12'

TYPICAL SECTION NO 17



INSERT G
MONOLITHIC ISLAND (KEYED IN)



ROADWAY	FROM STA.	TO STA.	SIDE
Y–5	13+41.21	17+70.00	LEFT
Y–5	13+86.96	19+14.63	RIGHT

TYPICAL SECTION NO 18

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Fax. 919.851.7024
www.stantec.com

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2E

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30932 ROBERT A. WILLIAMS
7/30/10

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VANESSA L. TODD
08/04/10

PAVEMENT SCHEDULE

C1	1.5" TYPE S9.5B
C2	3.0" TYPE S9.5B
C3	VARIABLE DEPTH TYPE S9.5B
C4	1.5" TYPE S9.5C
C5	3.0" TYPE S9.5C
C6	VARIABLE DEPTH TYPE S9.5C
D1	3.0" TYPE I19.0B
D2	4.0" TYPE I19.0B
D3	VARIABLE DEPTH TYPE I19.0B
D4	2.5" TYPE I19.0C
D5	3.0" TYPE I19.0C
D6	4.0" TYPE I19.0C
D7	VARIABLE DEPTH TYPE I19.0C
E1	4.0" TYPE B25.0B
E2	VARIABLE DEPTH TYPE B25.0B
E3	3.0" TYPE B25.0C
E4	3.5" TYPE B25.0C
E5	4.5" TYPE B25.0C
E6	6.0" TYPE B25.0C
E7	VARIABLE DEPTH TYPE B25.0C
J1	6" ABC
J2	8" ABC
J3	VAR DEPTH ABC
P	PRIME COAT
R1	1'-6" CONCRETE CURB AND GUTTER
R2	2'-6" CONCRETE CURB AND GUTTER
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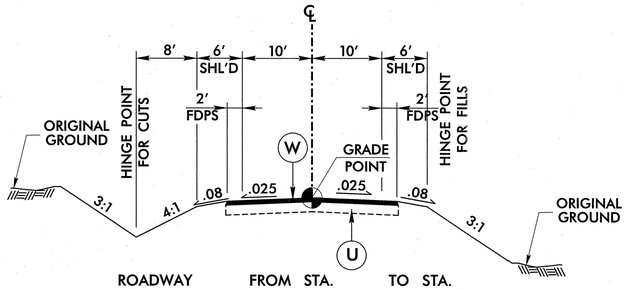
R4	SINGLE FACE CONCRETE BARRIER WALL
R5	5" MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	CONCRETE COPING
W	WEDGING

NOTES:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. FOR COMPLETE PAVEMENT SCHEDULE, SEE SHEET NO. 2.
3. FOR WEDGING DETAIL SEE SHEET NO. 2.
4. FOR UNDERCUT DETAILS, SEE SHEET 2F

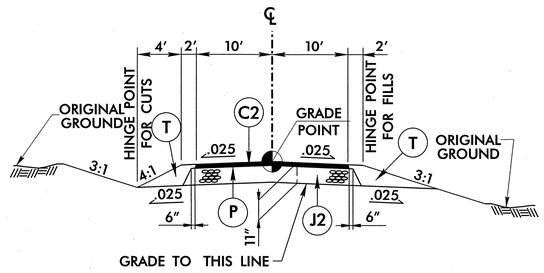
TYPICAL SECTIONS Y-LINES CON'T

6/2/99
7/28/2010
U:\2007\00\U-4007b\Proj\u-4007b_rdy_typ.dgn
mmaynard



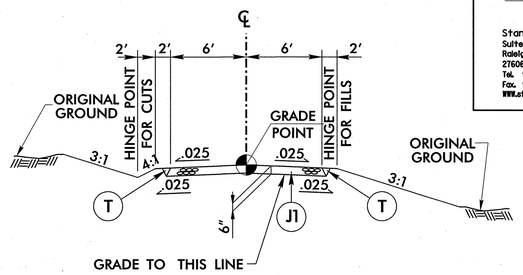
ROADWAY	FROM STA.	TO STA.
Y–4A	12+25.00	13+66.95
Y–4A	14+74.57	16+43.50

TYPICAL SECTION NO 19



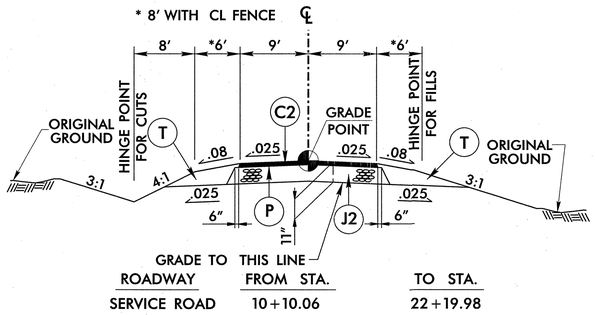
ROADWAY	FROM STA.	TO STA.
PR–1	10+86.84	12+27.20

TYPICAL SECTION NO 20



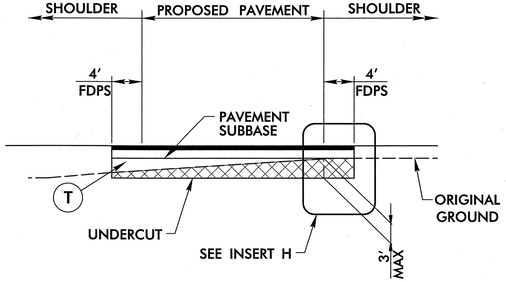
ROADWAY	FROM STA.	TO STA.
PR–2	10+19.55	12+55.00

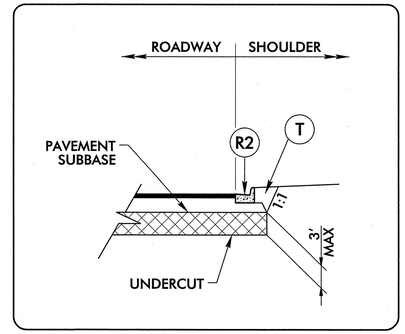
TYPICAL SECTION NO 21



ROADWAY	FROM STA.	TO STA.
SERVICE ROAD	10+10.06	22+19.98

TYPICAL SECTION NO 22





INSERT H
W/CURB & GUTTER

ROADWAY	REMARKS
L–LINE	SEE NOTE BELOW
NBL–RAMP	SEE NOTE BELOW
SBL–RAMP	SEE NOTE BELOW
RAMP–1A	SEE NOTE BELOW
LOOP–1A	SEE NOTE & SEE INSERT H
RAMP–1D	SEE NOTE BELOW
Y–1A SBL	SEE NOTE BELOW
Y–4	SEE NOTE & SEE INSERT H
Y–5	SEE NOTE & SEE INSERT H
SER–1	SEE NOTE BELOW

NOTE:
FOR STATION RANGES OF UNDERCUT, SEE CROSS SECTIONS

TYPICAL UNDERCUT DETAIL

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Suite 300, 801 Jones Franklin Road
Raleigh, NC
27606
Tel. 919.85 1.6866
Fax. 919.85 1.7024
www.stantec.com

PROJECT REFERENCE NO.	SHEET NO.
U–4007B	2F

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
Robert A. Williams 8/3/10

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR ORLOVICH
08/04/10

PAVEMENT SCHEDULE

C1	1.5" TYPE S9.5B
C2	3.0" TYPE S9.5B
C3	VARIABLE DEPTH TYPE S9.5B
C4	1.5" TYPE S9.5C
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R5	5" MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
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V2	CONCRETE COPING
W	WEDGING

NOTES:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. FOR COMPLETE PAVEMENT SCHEDULE, SEE SHEET NO. 2.
3. FOR WEDGING DETAIL SEE SHEET NO. 2.

TYPICAL SECTIONS
Y-LINES CONT'D
UNDERCUT DETAIL

8/3/2010
U:\Raleigh\Proj\u-4007b_rdy_typ.dgn
Dw Williams

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2G

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS

Robert (SEAL) Williams 7/30/10

PAVEMENT DESIGN ENGINEER

Stantec

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Suite 300, 801 Jones Franklin Road
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NAD 83

SERVICE RD.

Y-1A SBL

RAMP-1B

LOOP-1A

RAMP-1A

SBL-RAMP

NBL-RAMP

Y-2 CONN

Y-2

LOOP-1D

L-LINE

Y-4

Y-1A SBL

PT Sta. 50+54.94 NBL-RAMP BK
PT Sta. 50+81.29 SBL-RAMP BK=
PC Sta. 10+00.00 L-LINE AHD

SHEAR POINT LAYOUT
-US 17 BYPASS / -US 17-
INTERCHANGE

7/28/2010
U:\Projects\Proj\u-4007b_rdy_psh 2G.dgn
mpierce

PROJECT REFERENCE NO.	SHEET
U-4007B	2H

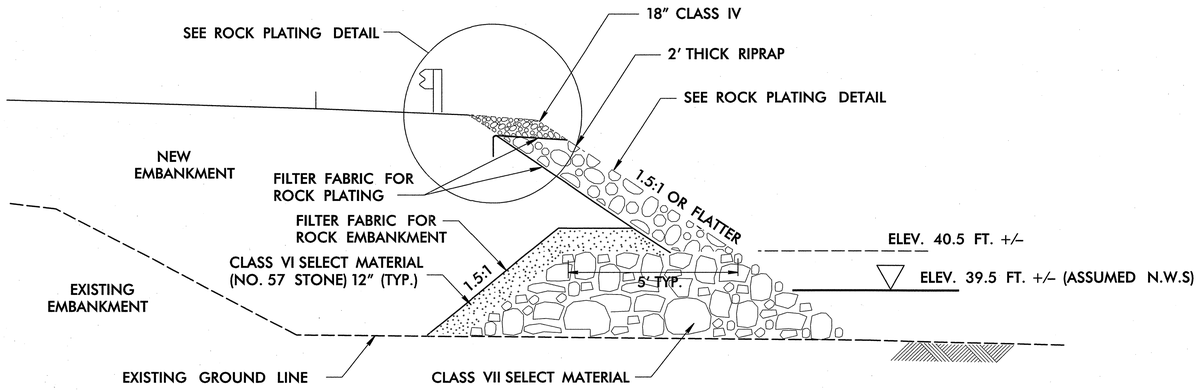
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30943 ENGINEER THEIN TUN ZAN

SIGNATURE DATE

ENGINEER

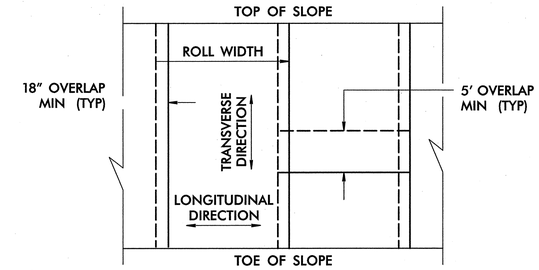
SIGNATURE DATE



ROCK EMBANKMENT/ROCK PLATING DETAIL

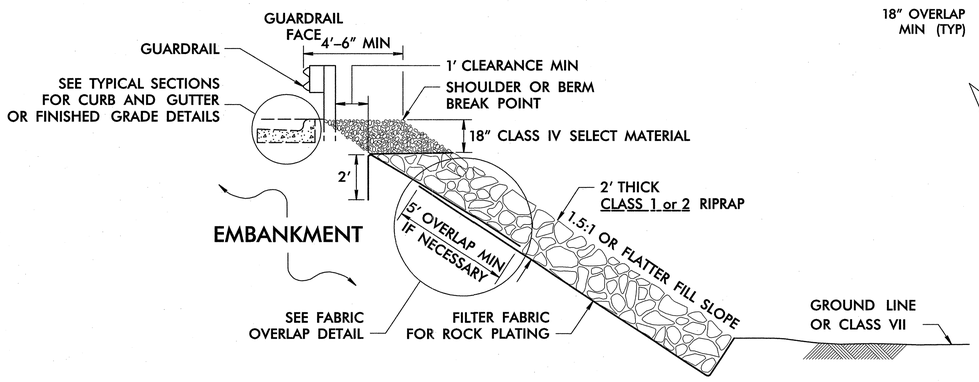
(FROM STA. 44+80 +/- TO 47+70 +/- -L-, RIGHT)

N.T.S



FABRIC OVERLAP DETAIL

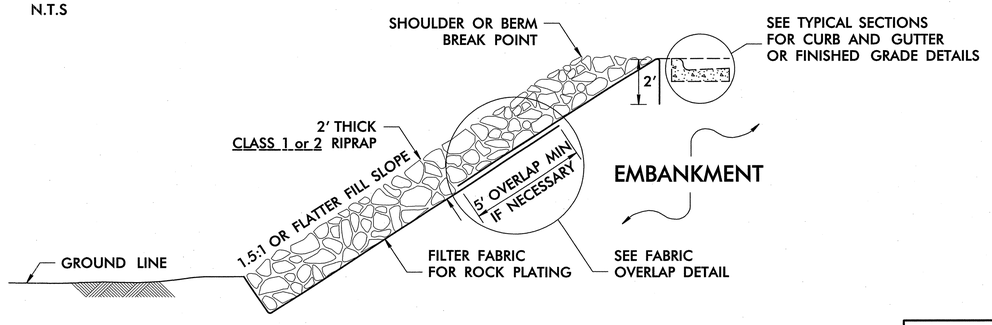
(PLAN VIEW)



ROCK PLATING DETAIL

(FROM STA. 44+80 +/- TO 47+70 +/- -L-, RIGHT)

N.T.S



ROCK PLATING DETAIL

(FROM STA. 25+85 +/- TO 26+25 +/- -Y4-, LEFT)

N.T.S

ROCK EMBANKMENT/ ROCK PLATING

USE ROCK EMBANKMENT/ROCK PLATING AT FOLLOWING LOCATIONS:

LOCATION NO.	APPROX.BEGIN STA.	APPROX.END STA.	OFFSET
1	44+80 +/- -L-	47+70 +/- -L-	RIGHT

USE ROCK PLATING AT FOLLOWING LOCATIONS:

LOCATION NO.	APPROX.BEGIN STA.	APPROX.END STA.	OFFSET
1	25+85 +/- -Y4-	26+25 +/- -Y4-	LEFT

CONSTRUCT ROCK EMBANKMENT TO THE ELEVATION SHOWN IN THE ROCK EMBANKMENT/ROCK PLATING DETAILS OR 1 FT. ABOVE THE NORMAL WATER SURFACE AND ACCORDING TO THE ROCK EMBANKMENT SPECIAL PROVISION.

CLASS VII SELECT MATERIAL SHALL MEET THE GRADATION REQUIREMENTS AS INDICATED IN SECTION 1016 OF THE STANDARD SPECIFICATIONS WITH THE EXCEPTION THAT THE MAXIMUM DIAMETER OF THE ROCK DOES NOT EXCEED TWO FEET.

FOR ROCK EMBANKMENT, SEE ROCK EMBANKMENTS SPECIAL PROVISION.

ESTIMATED MATERIAL QUANTITIES FOR ROCK EMBANKMENT

ROCK EMBANKMENTS (SELECT MATERIAL, CLASS VII) = 900 TONS

#57 STONE (SELECT MATERIAL, CLASS VI) = 280 TONS

FILTER FABRIC FOR ROCK EMBANKMENTS = 300 SY

CONSTRUCT ROCK PLATING ABOVE ROCK EMBANKMENT FROM ELEVATION SHOWN IN THE ROCK EMBANKMENT/ ROCK PLATING DETAIL OR 1 FT. ABOVE THE NORMAL WATER SURFACE TO THE SHOULDER HINGE POINT AND ACCORDING TO THE ROCK PLATING SPECIAL PROVISION.

EXTEND ROCK PLATING TO 2.5:1 (H:V) SLOPE.

FOR ROCK PLATING, SEE ROCK PLATING SPECIAL PROVISION.

ESTIMATED ROCK PLATING QUANTITY = 650 SY

PREPARED BY: THEIN T ZAN, PE	DATE: 07/2010
REVIEWED BY: JAMES R BATTS, PE	DATE: 07/2010

PROJECT NO.: U-4007B

ONSLOW **COUNTY**

STATION: SEE TABLE

SHEET 1 OF 1

GEOTECHNICAL ENGINEERING UNIT

■ *EASTERN REGIONAL OFFICE*

□ *WESTERN REGIONAL OFFICE*

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ROCK EMBANKMENT & ROCK PLATING DETAILS

REVISIONS

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

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30932 ROBERT A. WILLIAMS 7/30/10

20' 0' 20' 40'
10'

Stantec
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Suite 300, 801 Jones Franklin Road
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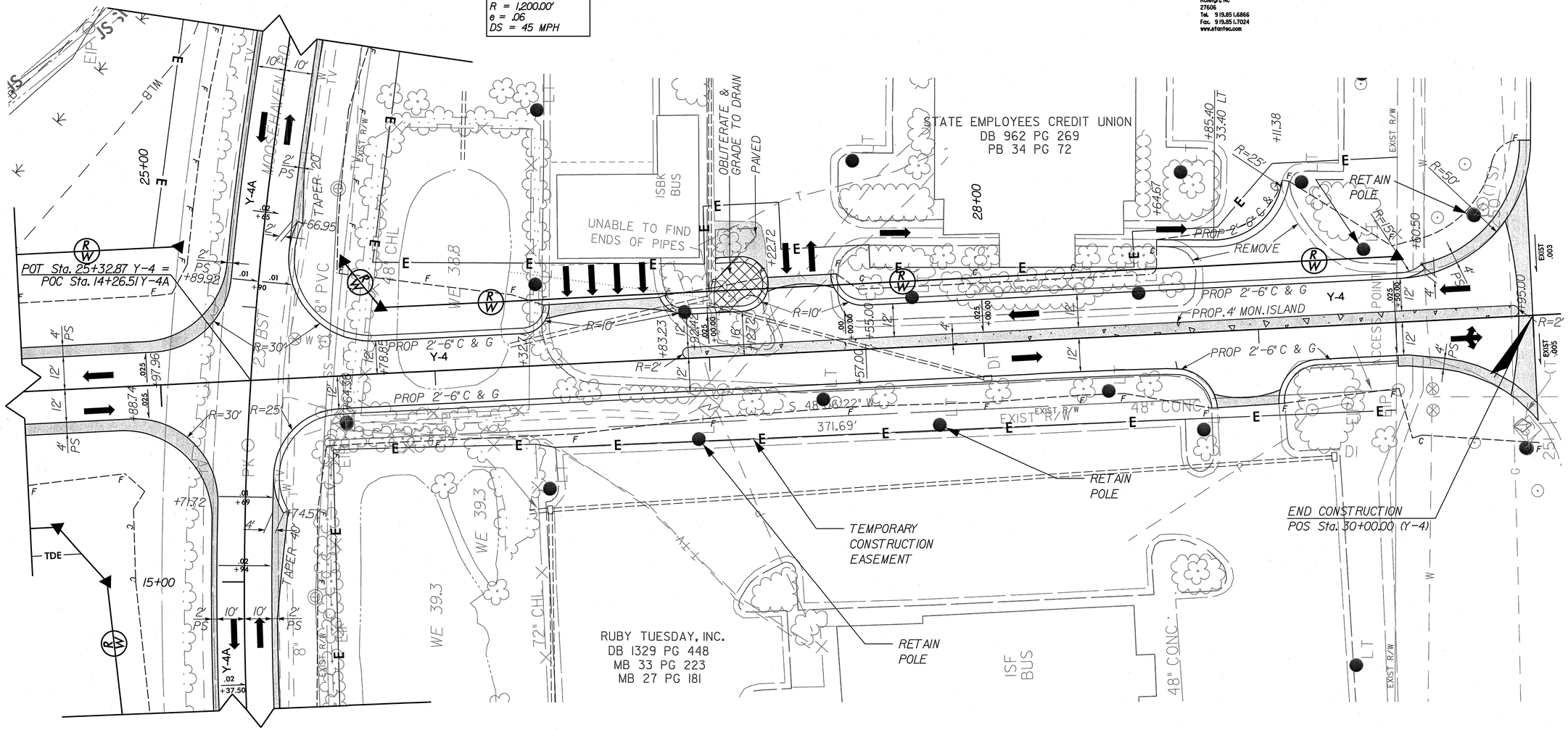
27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com

REVISIONS
8/17/99

Y-4A
PI Sta 14+42.65
△ = 11° 18' 36.3" (LT)
D = 4° 46' 28.7"
L = 236.88'
T = 118.83'
R = 1,200.00'
e = .06
DS = 45 MPH



LEGEND

- PROPOSED PAVED SHOULDER
- OBLITERATE
- CONC. MONO. ISLAND

DETAILS:
Y-4 GEOMETRY FROM MOOSEHAVEN DR TO WESTERN BLVD
REFERENCES:
FOR Y-4 PLAN SEE SHEET 13

7/28/2010
U:\Roadway\Proj\u-4007b_rdy_psh 21.dgn
amaulemba

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2-J

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

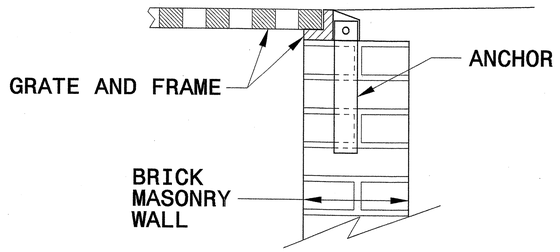
ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

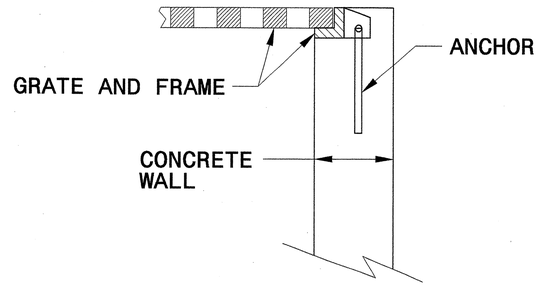
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

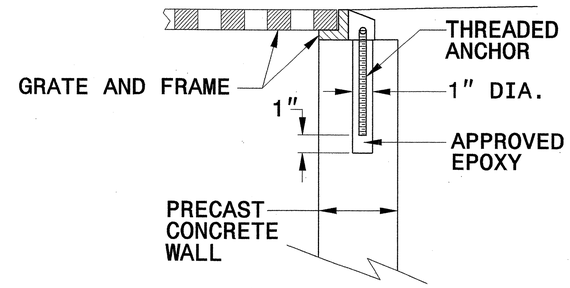
840D25



BRICK MASONRY CONSTRUCTION



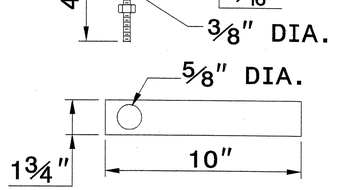
CONCRETE CONSTRUCTION



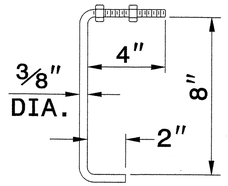
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

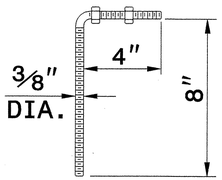
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



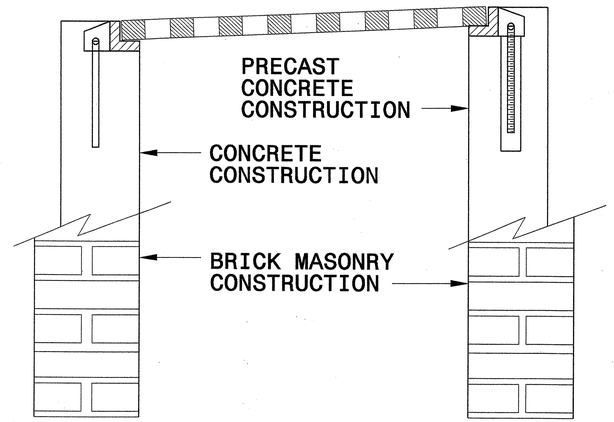
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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 022966 ENGINEER
8/18/10

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: 11/1/06
FILE SPEC.:

$$$$$$SYSTIME$$$$$$
$$$$$$USERNAME$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2K
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
11/30/10

Stantec

Stantec Consulting Services Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC
27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com

REVISIONS

8/17/99

RAMP-1B

18+00

SBL-RAMP

35+00

40+00

NBL-RAMP

87+00

Y-2

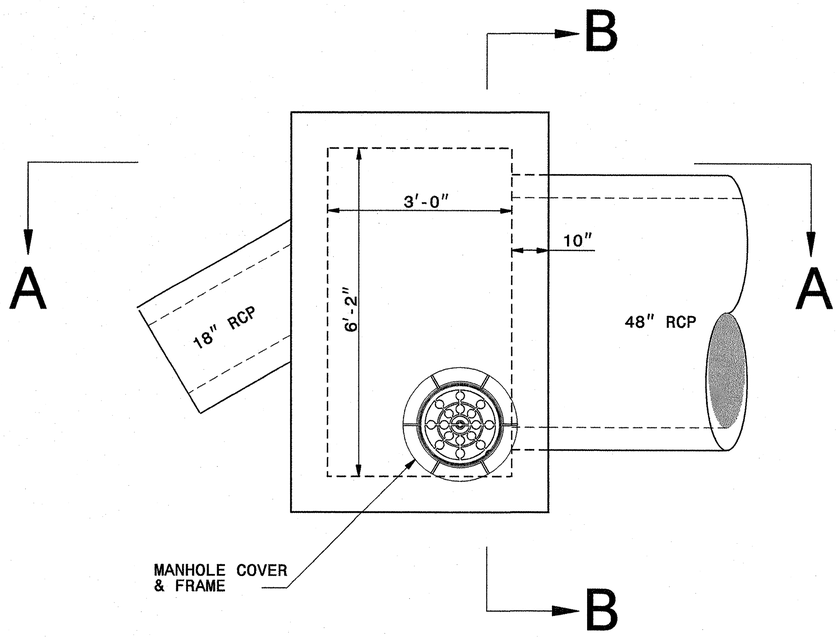
36+00

90+00

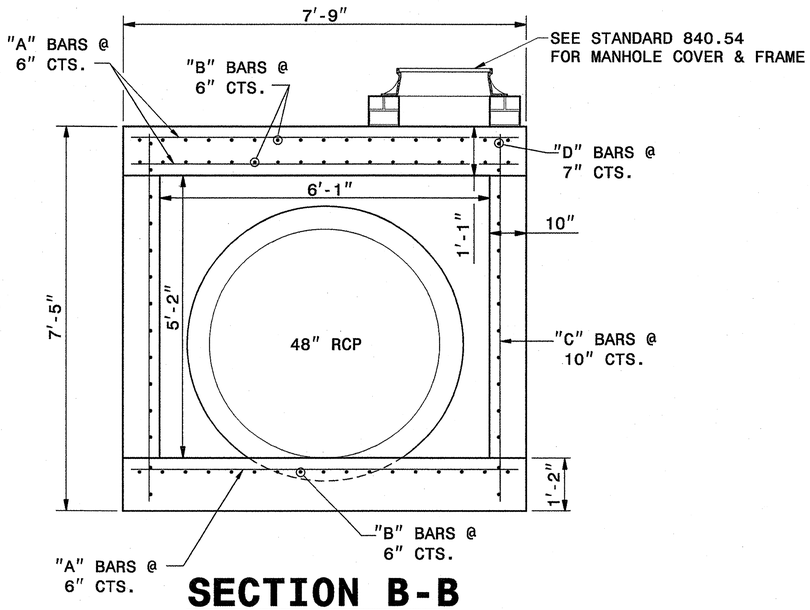
GRAPHIC SCALE
10 5 0 10 20
PLANS

7/28/2010
U:\Roadway\Proj\u-4007b_rdy.psh 2K_gradingdetail.dgn
mpaulemba

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2-L



PLAN



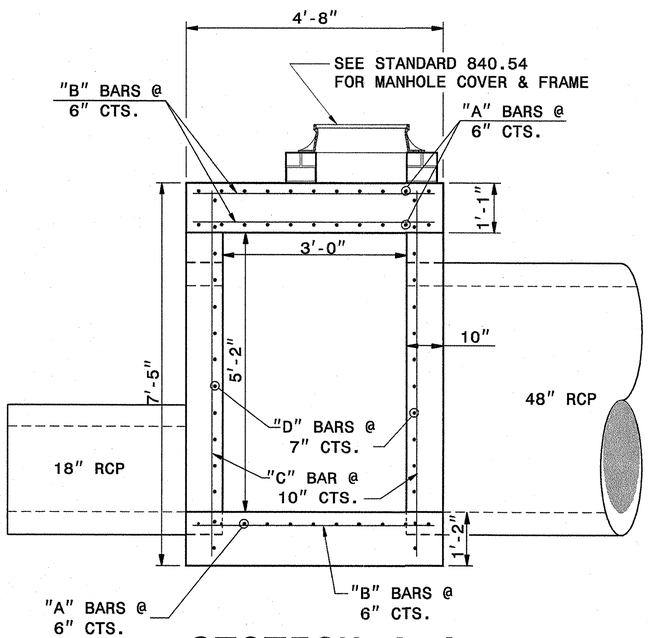
SECTION B-B

BILL OF MATERIALS

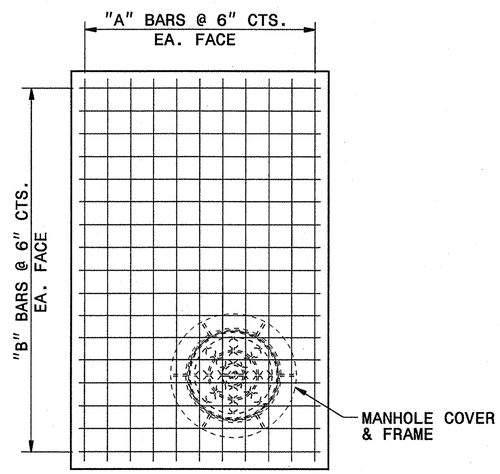
BAR	QTY	SIZE	LENGTH	WEIGHT
A	27	#5	7'-5"	209
B	45	#5	4'-4"	203
C	28	#5	7'-1"	207
D	24	#6	7'-5"	267
D1	24	#6	4'-3"	153
TOTAL REINF. STEEL (LBS.)				6.0
TOTAL CONC. - CU.YDS.				1039

NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES.

NOTES:
1. PAY FOR QUANTITIES AT THE UNIT PRICE BID PER EACH.
2. USE CLASS "B" CONCRETE THROUGHOUT.
3. CONSTRUCT CONCRETE BOX IN ACCORADANCE WITH SECTION 825 OF THE STANDARD SPECIFICATIONS.
4. CONSTRUCT BOTTOM SLAB WITH FORMS.
5. ADJUST LENGTH OF STEEL BARS AS NEEDED TO COMPENSATE FOR PIPES.
6. CONFORM REINFORCING STEEL TO ASTM A 615, GRADE 400.
7. CUT OR BEND STEEL BARS AS NEEDED TO PROVIDE 2" CLEARANCE AROUND PIPES OR AS DIRECTED BY THE ENGINEER.



SECTION A-A



TOP SLAB

Note:
This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEY S. HOWERTON
6/18/10

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

TRAFFIC BEARING JUNCTION BOX

ORIGINAL BY: rnbritt DATE: 10-11-04
MODIFIED BY: T. Spell DATE: 5-9-05
CHECKED BY: DATE: 2/22/10
FILE SPEC.: s:\details\stand\tbjb48rcp.dgn

22-FEB-2010 14:37
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jhowerton
ATT PS23750

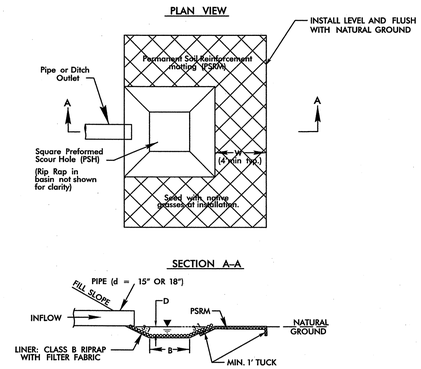
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2M
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Stantec
Stantec Consulting Services Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC
27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
7/30/10

PREFORMED SCOUR HOLE

*NOT TO SCALE



3/08

STATION	B FT.	D FT.
25+46.7 SBL LT	4.0	1.5
25+93 NBL RT	4.5	1.5
12+25.25 LOOP-1A LT	4.0	1.5
14+00 LOOP-1A LT	4.0	1.5
20+50 LOOP-1A LT	4.0	1.5
46+83.2 SBLRAMP LT	4.0	1.5
12+00 RAMP-1A RT	4.0	1.5
16+60 L LT	4.0	1.5
19+00 L RT	4.0	1.5
25+00 L LT	4.0	1.5
27+00 L LT	4.0	1.5
29+55 L LT	4.5	1.5
33+00 L LT	4.0	1.5
11+10 Y-5 LT	4.0	1.5
59+90 L RT	4.0	1.5

REVISIONS

8/17/99

7/28/2010
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amayembo

30-JUL-2009 08:48
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jhowerton AT PS237501

5/14/99

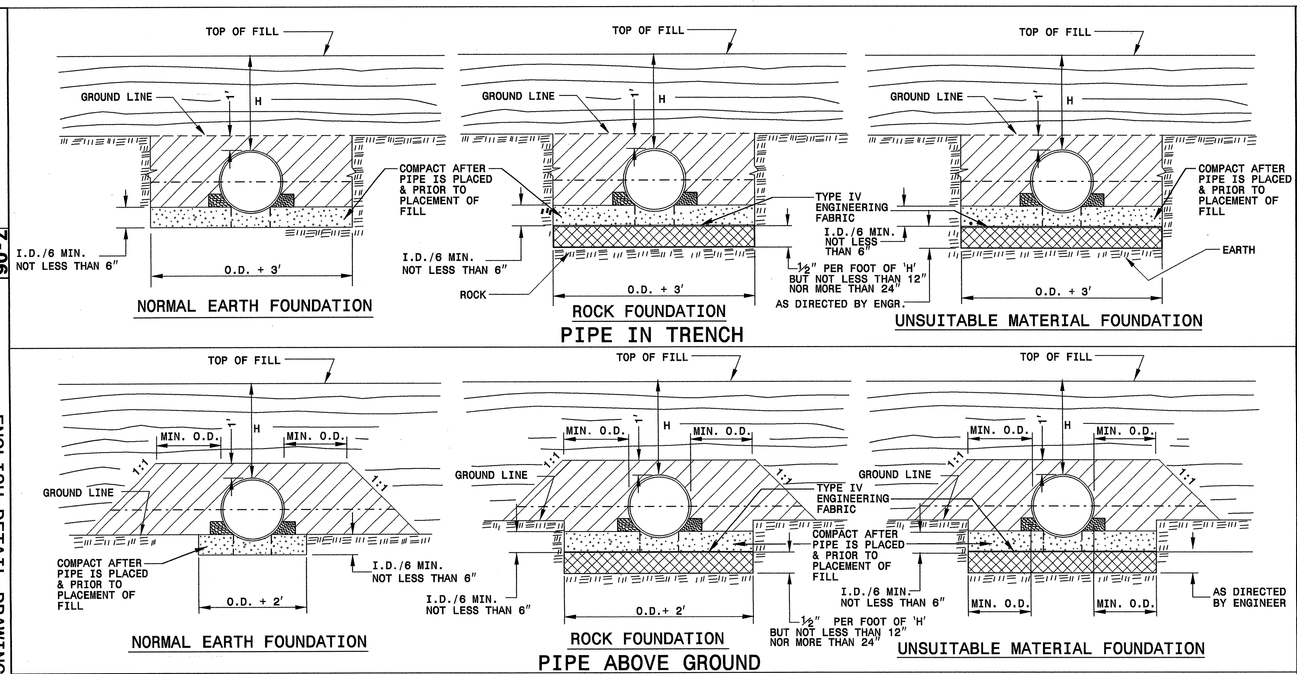
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

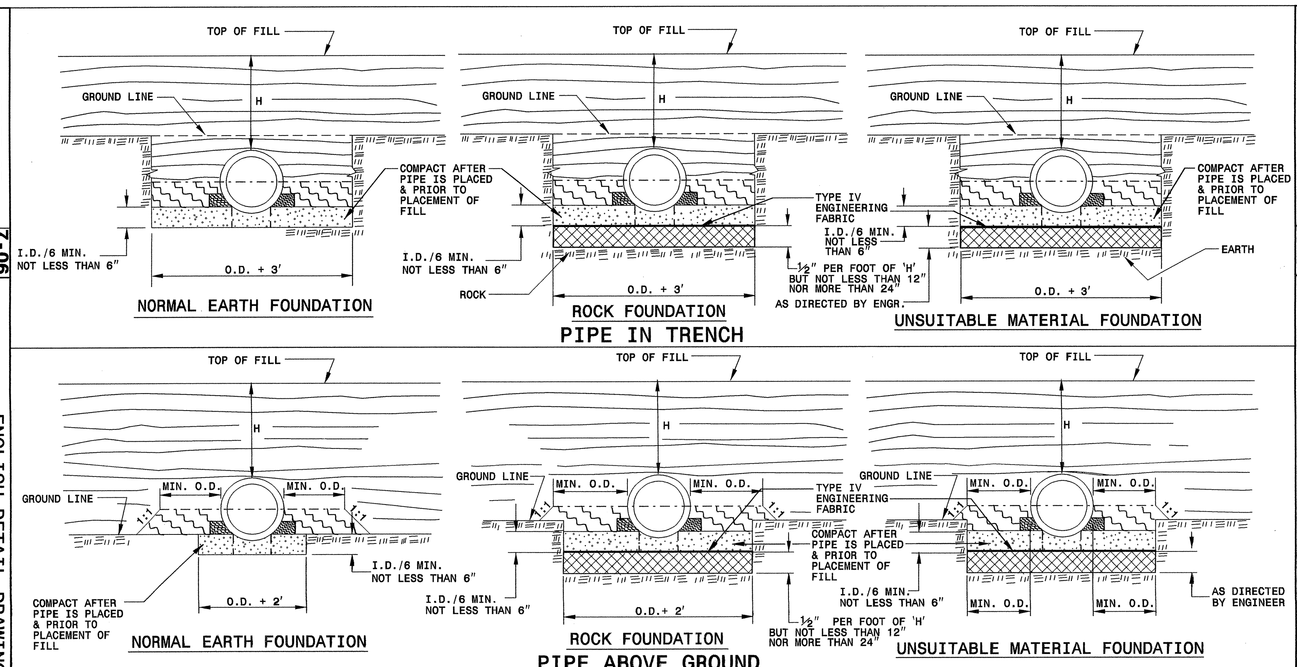
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC'd: s:\contracts\contracts\standards\stds\3000\0300d01.dgn

SEE PLATE FOR TITLE

NORTH CAROLINA PROFESSIONAL SEAL 022986 ENGINEER

PROJECT REFERENCE NO. U-4004B

SHEET NO. 2-N

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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
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

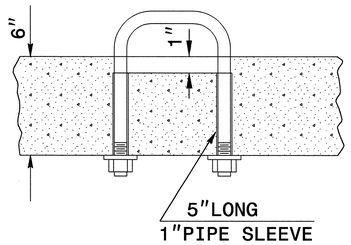
SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/8/09
FILE SPEC: /projects/rdwy/stds/stdstodetails/30001/0300d01.dgn

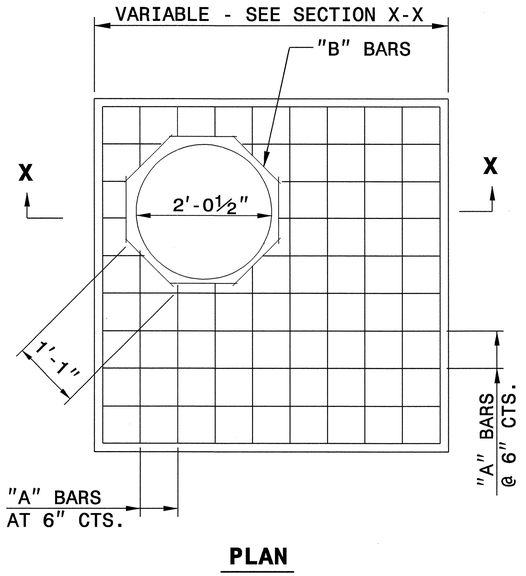
NORTH CAROLINA PROFESSIONAL SEAL 022686 ENGINEER JOHN S. HOWERTON
6/18/10

PROJECT REFERENCE NO. U-4007B
SHEET NO. 2-0

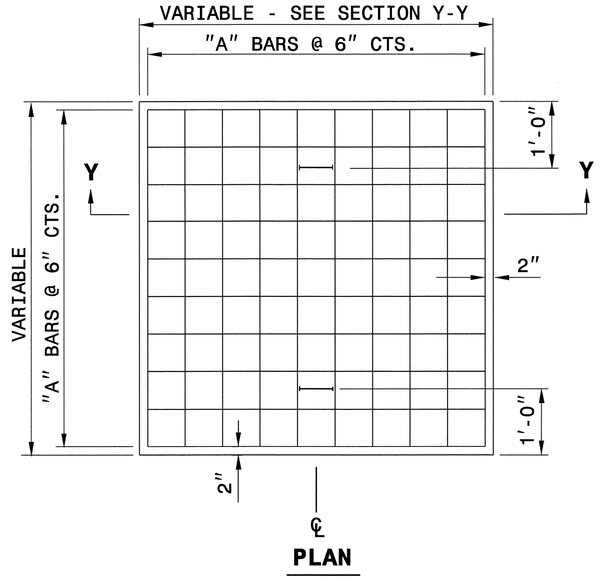
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2P



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

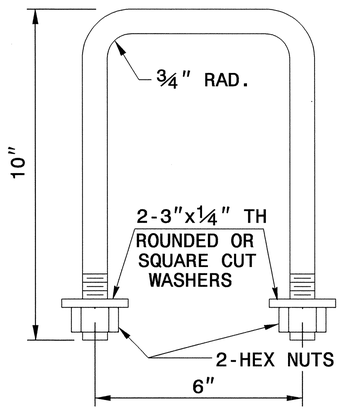
BILL OF MATERIALS

REINFORCING STEEL

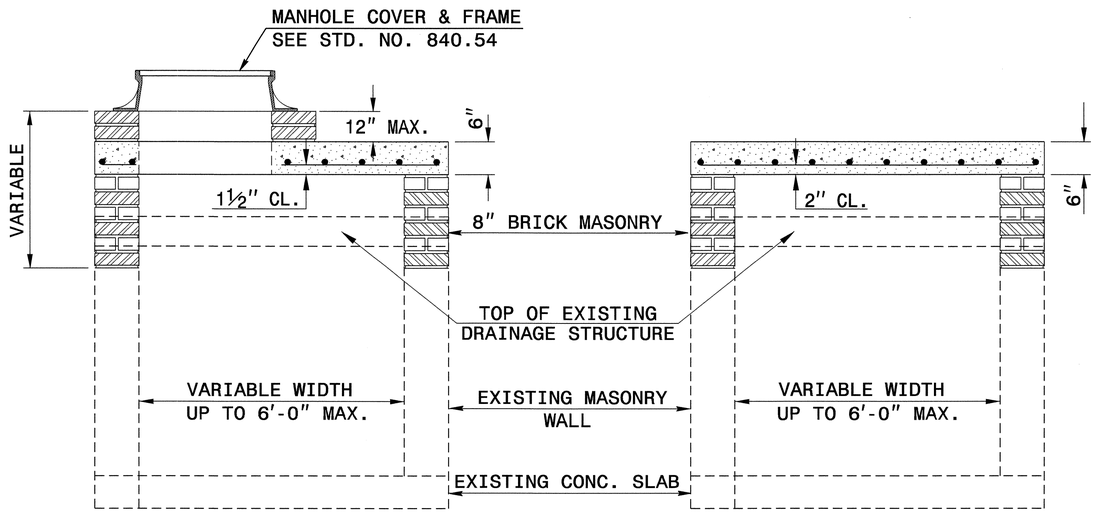
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

MASONRY	CU YDS
TOP SLAB CONCRETE CLASS "B"	.433 *
BRICK MASONRY PER FT HT (MIN)	.4111

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



DETAIL OF HANDLE



SECTION X-X **SECTION Y-Y**

NORTH CAROLINA PROFESSIONAL SEAL 022566 ENGINEER JOHN E. HOWERTON
8/16/10

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

DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: E.E.W DATE: 8-28-02
CHECKED BY: DATE: 7/21/10
FILE SPEC.: usr/details/stand/boxtojbe.dgn

26-AUG-2009 11:28
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jhowerton

PROJECT REFERENCE NO.	SHEET
U-4007B	2Q

GEOTECHNICAL ENGINEER

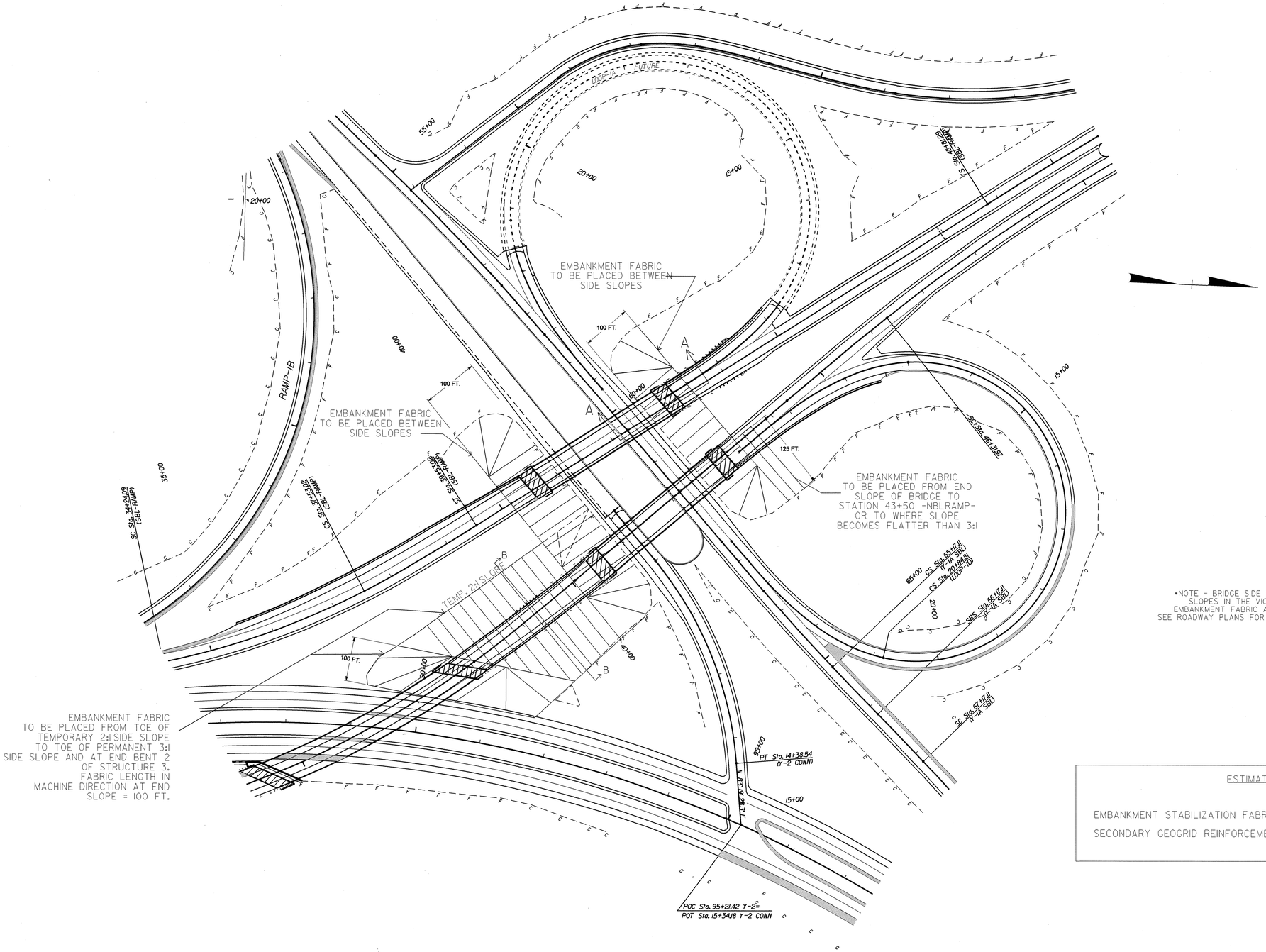
NORTH CAROLINA PROFESSIONAL SEAL 027869 ENGINEER DAVID L. TEAGUE

D.L. Teague 8/12/10

SIGNATURE DATE

ENGINEER

SIGNATURE DATE



*NOTE - BRIDGE SIDE SLOPES AND END SLOPES IN THE VICINITY OF THE EMBANKMENT FABRIC ARE APPROXIMATE. SEE ROADWAY PLANS FOR EXACT LOCATIONS.

ESTIMATED QUANTITIES

EMBANKMENT STABILIZATION FABRIC .....19,000 SQ. YD.

SECONDARY GEOGRID REINFORCEMENT.....6,000 SQ. YD.

PLAN VIEW OF EMBANKMENT STABILIZATION FABRIC LOCATIONS

NOT TO SCALE

PREPARED BY: D. TEAGUE	DATE: 8/10
REVIEWED BY: E. WILLIAMS	DATE: 8/10

GEOTECHNICAL ENGINEERING UNIT

☐ EASTERN REGIONAL OFFICE

☐ WESTERN REGIONAL OFFICE

☒ CONTRACT OFFICE

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

EMBANKMENT STABILIZATION FABRIC - PLAN VIEW

SHEET 1 OF 2

REVISIONS

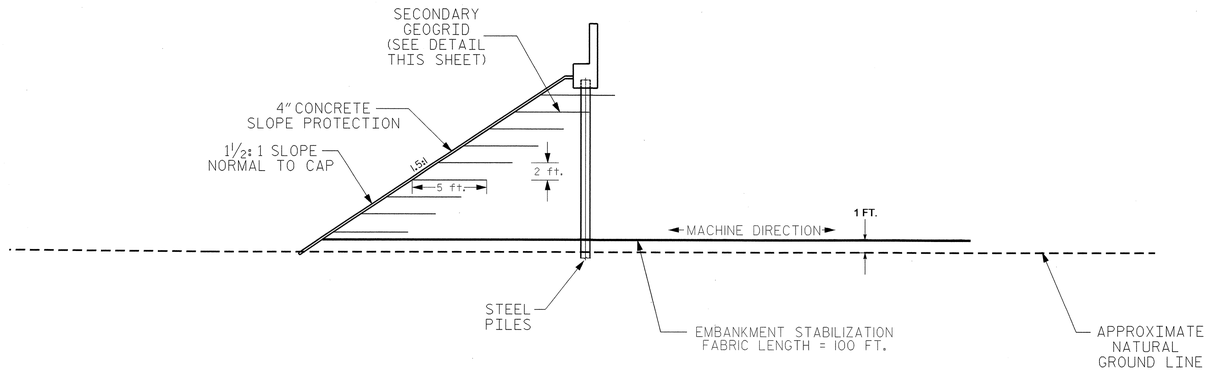
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

GEC248236 8/12/2010 u-4007b_rdy_embankment fabric plans dteague GEC-Oce860-34bond

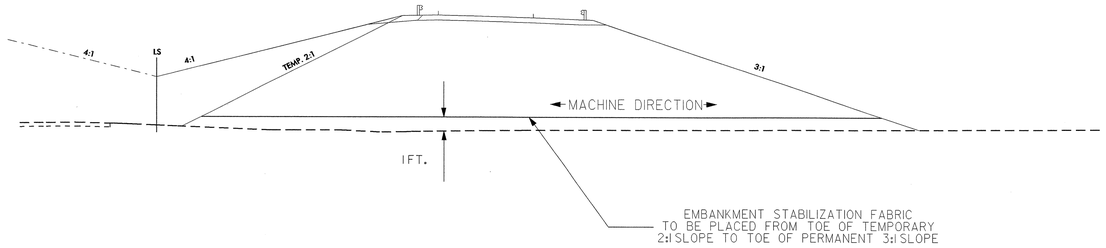
PROJECT REFERENCE NO.	SHEET
U-4007B	2R

GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027869 ENGINEER DAVID L. TEAGUE	
SIGNATURE DATE	SIGNATURE DATE

SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

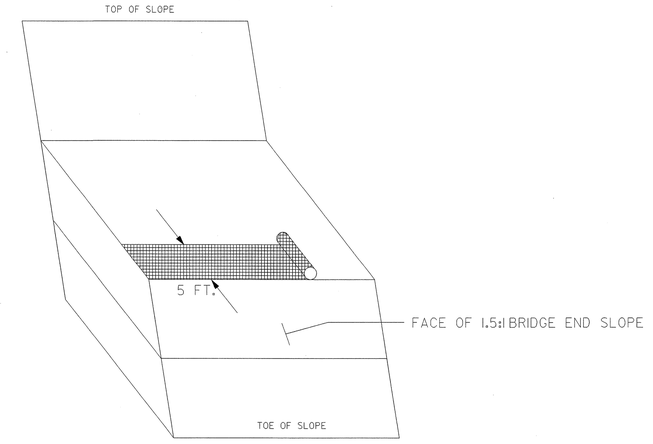


NOTES

1. FOR FABRIC FOR EMBANKMENT STABILIZATION, SEE SPECIAL PROVISION.

2. PLACE ALL FABRIC WITH THE MACHINE DIRECTION PERPENDICULAR TO THE SLOPE FACE.

3. THE CONTRACTOR TO SUBMIT DETAIL OF FABRIC LAYOUT IN TRANSITION ZONES FOR APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION. IT WILL BE NECESSARY TO PROVIDE SIGNIFICANT FABRIC OVERLAP IN TRANSITION ZONES.



DETAIL OF ORIENTATION OF SECONDARY GEOGRID
NOT TO SCALE

PLACE SECONDARY GEOGRID ON FACE OF 1.5:1 BRIDGE END SLOPES STRUCTURES 4 AND 5, END BENTS 1 AND 2 AND STRUCTURE 3, END BENT 2 AND AROUND TO WHERE SIDE SLOPES BECOME 2:1

PREPARED BY: D. TEAGUE	DATE: 8/10
REVIEWED BY: E. WILLIAMS	DATE: 8/10

GEOTECHNICAL ENGINEERING UNIT

☐ *EASTERN REGIONAL OFFICE*
☐ *WESTERN REGIONAL OFFICE*
☒ *CONTRACT OFFICE*

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EMBANKMENT STABILIZATION FABRIC AND SECONDARY GEOGRID

SHEET 2 OF 2

REVISIONS

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

GEC248236 8/12/2010 u-4007b_rdy_embankment fabric plans dteague GEC-Oce860-34bond

PROJECT REFERENCE NO.	SHEET
U-4007B	2-T

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 027869 ENGINEER DAVID L. TEAGUE

David L. Teague 8/12/10

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

PLAN VIEW

N.T.S.

GEOTECHNICAL ENGINEERING UNIT

☐ EASTERN REGIONAL OFFICE

☐ WESTERN REGIONAL OFFICE

☒ CONTRACT OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EMBANKMENT MONITORING DETAIL - PLAN VIEW

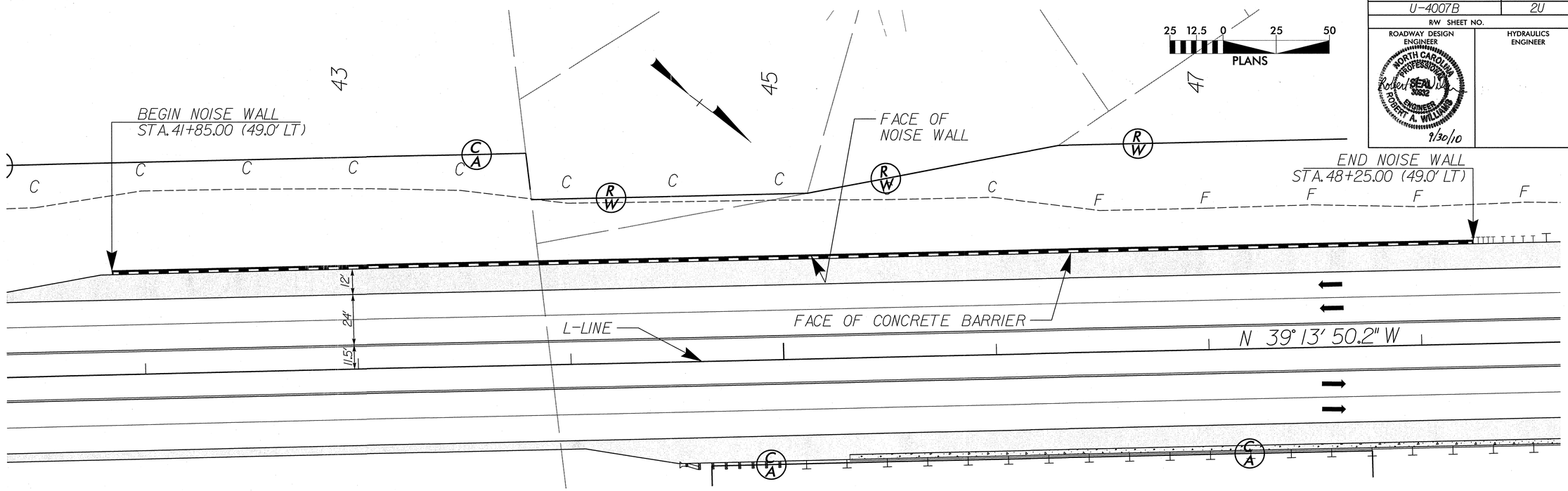
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

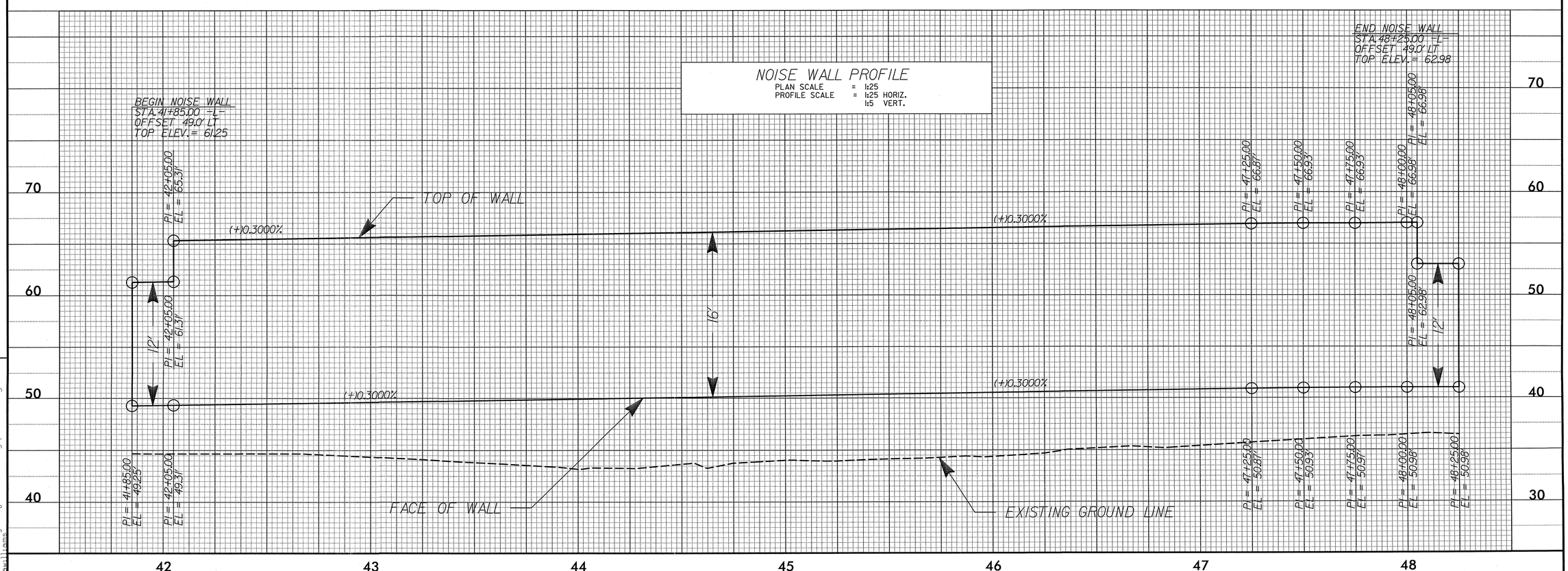
PREPARED BY: D.TEAGUE	DATE: 3/10
REVIEWED BY: E.WILLIAMS	DATE: 3/10

GEC248236 8/12/2010 U4007B_geo_settlement gauge detail dteague GEC-Oce860-34bond

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2U
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
9/30/10





REVISIONS

8/17/99

9/30/2010
U:\Roadway\Proj\u-4007b_rdy_psh VOID.dgn
rawilliams

STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
U-4007B	3 (1 of 2)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202558

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0008000000-E	200	4	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0022000000-E	225	~~31,000~~ 30,500	CY	UNCLASSIFIED EXCAVATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (22+29.30 NBL-RAMP)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (22+34.21 SBL-RAMP)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (36+09.74 NBL-RAMP)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (41+72.38 NBL-RAMP)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (41+86.03 SBL-RAMP)
0036000000-E	225	24,100	CY	UNDERCUT EXCAVATION
0038000000-E	SP	500	CY	SHALLOW UNDERCUT
0080000000-E	SP	1,450	TON	CLASS IV SUBGRADE STABILIZATION
0106000000-E	230	~~791,600~~ 795,000	CY	BORROW EXCAVATION
0127000000-N	SP	5	EA	EMBANKMENT SETTLEMENT GAUGES
0134000000-E	240	5,500	CY	DRAINAGE DITCH EXCAVATION
0156000000-E	250	6,350	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0177000000-E	250	24,340	SY	BREAKING OF EXISTING ASPHALT PAVEMENT
0185000000-E	250	470	SY	BREAKING OF EXISTING CONCRETE PAVEMENT
0192000000-N	260	40	HR	PROOF ROLLING
0194000000-E	SP	68,100	CY	SELECT GRANULAR MATERIAL, CLASS III
0196000000-E	270	65,800	SY	FABRIC FOR SOIL STABILIZATION
0220000000-E	SP	900	TON	ROCK EMBANKMENTS
0223000000-E	SP	650	SY	ROCK PLATING
0241000000-E	SP	19,000	SY	GENERIC GRADING ITEM FABRIC FOR EMBANKMENT STABILIZATION
0241000000-E	SP	300	SY	GENERIC GRADING ITEM FILTER FABRIC FOR ROCK EMBANKMENTS
0241000000-E	SP	6,000	SY	GENERIC GRADING ITEM SECONDARY GEOGRID REINFORCEMENT
0255000000-E	SP	100	TON	GENERIC GRADING ITEM EXCAVATION AND STOCKPILING OF CONTAMINATED SOIL
0318000000-E	SP	2,460	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0320000000-E	SP	12,940	SY	FOUNDATION CONDITIONING FABRIC
0342000000-E	SP	512	LF	**" SIDE DRAIN PIPE (36")
0343000000-E	SP	3,625	LF	15" SIDE DRAIN PIPE
0348000000-E	SP	36	EA	**" SIDE DRAIN PIPE ELBOWS (15")
0354000000-E	SP	428	LF	**** RC PIPE CULVERTS, CLASS ***** (30", V)
0366000000-E	SP	912	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	SP	384	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E	SP	900	LF	24" RC PIPE CULVERTS, CLASS III
0390000000-E	SP	1,320	LF	36" RC PIPE CULVERTS, CLASS III
0396000000-E	SP	520	LF	42" RC PIPE CULVERTS, CLASS III
0402000000-E	SP	56	LF	48" RC PIPE CULVERTS, CLASS III
0414000000-E	SP	244	LF	60" RC PIPE CULVERTS, CLASS III
0426000000-E	SP	224	LF	72" RC PIPE CULVERTS, CLASS III
0448000000-E	SP	648	LF	**** RC PIPE CULVERTS, CLASS IV (48")
0448200000-E	SP	4,606	LF	15" RC PIPE CULVERTS, CLASS IV
0448300000-E	SP	244	LF	18" RC PIPE CULVERTS, CLASS IV
0448400000-E	SP	312	LF	24" RC PIPE CULVERTS, CLASS IV
0448500000-E	SP	452	LF	30" RC PIPE CULVERTS, CLASS IV
0448600000-E	SP	224	LF	36" RC PIPE CULVERTS, CLASS IV
0448700000-E	SP	348	LF	42" RC PIPE CULVERTS, CLASS IV
0995000000-E	340	1,023	LF	PIPE REMOVAL
1000000000-E	462	2,200	SY	6" SLOPE PROTECTION
1011000000-N	500	Lump Sum		FINE GRADING
1077000000-E	SP	315	TON	#57 STONE
1110000000-E	510	8,700	TON	STABILIZER AGGREGATE
1121000000-E	520	56,700	TON	AGGREGATE BASE COURSE
1220000000-E	545	1,000	TON	INCIDENTAL STONE BASE
1275000000-E	600	1,180	GAL	PRIME COAT
1297000000-E	607	935	SY	MILLING ASPHALT PAVEMENT, ***" DEPTH (2-1/4")
1489000000-E	610	2,800	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1491000000-E	610	15,600	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1498000000-E	610	17,000	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1503000000-E	610	11,000	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
1519000000-E	610	11,600	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1523000000-E	610	13,000	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1560000000-E	620	2,805	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1565000000-E	620	780	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22
1693000000-E	654	1,085	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	128	EA	RIGHT OF WAY MARKERS
2022000000-E	SP	403	CY	SUBDRAIN EXCAVATION
2033000000-E	SP	202	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	SP	1,200	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	SP	3	EA	SUBDRAIN PIPE OUTLETS
2077000000-E	SP	18	LF	6" OUTLET PIPE (SUBDRAINS)
2209000000-E	838	55	CY	ENDWALLS
2220000000-E	838	26	CY	REINFORCED ENDWALLS
2253000000-E	840	1	CY	PIPE COLLARS
2275000000-E	SP	250	CY	FLOWABLE FILL
2286000000-N	840	145	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	2.1	LF	MASONRY DRAINAGE STRUCTURES
2354000000-N	840	1	EA	FRAME WITH GRATE, STD 840.22
2364000000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.16
2364200000-N	840	39	EA	FRAME WITH TWO GRATES, STD 840.20
2365000000-N	840	20	EA	FRAME WITH TWO GRATES, STD 840.22
2366000000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.24
2374000000-N	840	18	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	29	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	22	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	15	EA	FRAME WITH COVER, STD 840.54
2440000000-N	852	32	EA	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN
2451000000-N	852	8	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLETS
2542000000-E	846	15,450	LF	1'-6" CONCRETE CURB & GUTTER
2549000000-E	846	5,270	LF	2'-6" CONCRETE CURB & GUTTER
2556000000-E	846	5,426	LF	SHOULDER BERM GUTTER
2612000000-E	848	580	SY	6" CONCRETE DRIVEWAY
2619000000-E	850	125	SY	4" CONCRETE PAVED DITCH
2655000000-E	852	860	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2724000000-E	857	980	LF	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED
2800000000-N	858	2	EA	ADJUSTMENT OF CATCH BASINS
2815000000-N	858	1	EA	ADJUSTMENT OF DROP INLETS
2938000000-N	SP	4	EA	CONVERT EXISTING DROP INLET TO JUNCTION BOX WITH MANHOLE COVER
3030000000-E	862	3,700	LF	STEEL BM GUARDRAIL
3045000000-E	862	112.5	LF	STEEL BM GUARDRAIL, SHOP CURVED
3105000000-N	862	2	EA	STEEL BM GUARDRAIL TERMINAL SECTIONS
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3210000000-N	862	12	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3270000000-N	SP	16	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3285000000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE M-350
3317000000-N	862	16	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3345000000-E	864	3,450	LF	REMOVE & RESET EXISTING GUARDRAIL
3389600000-N	865	1	EA	CABLE GUIDERAIL ANCHOR UNITS
3420000000-E	SP	953	LF	GENERIC GUARDRAIL ITEM REMOVE & STOCKPILE EXISTING GUIDERAIL
3503000000-E	866	17,490	LF	WOVEN WIRE FENCE, 47" FABRIC
3506000000-E	866	1,090	EA	4" TIMBER FENCE POSTS, ***** LONG (8')
3515000000-E	866	300	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3533000000-E	866	7,116	LF	CHAIN LINK FENCE, **" FABRIC (72")
3539000000-E	866	594	EA	METAL LINE POSTS FOR **" CHAIN LINK FENCE (72")
3545000000-E	866	22	EA	METAL TERMINAL POSTS FOR **" CHAIN LINK FENCE (72")
3557000000-E	866	100	LF	ADDITIONAL BARBED WIRE
3628000000-E	876	495	TON	RIP RAP, CLASS I
3635000000-E	876	130	TON	RIP RAP, CLASS II
3649000000-E	876	1,070	TON	RIP RAP, CLASS B
3656000000-E	876	5,400	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	15	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4048000000-E	902	6	CY	REINFORCED CONCRETE SIGN FOUNDATIONS
4054000000-E	902	2	CY	PLAIN CONCRETE SIGN FOUNDATIONS
4057000000-E	SP	110	CY	OVERHEAD FOOTING
4060000000-E	903	5,152	LB	SUPPORTS, BREAKAWAY STEEL BEAM
4072000000-E	903	2,037	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4078000000-E	903	6	EA	SUPPORTS, 2-LB STEEL U-CHANNEL
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (105+00 -Y2-)
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (15+00 -L-)
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (44+50 -NBL RAMP-)
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (51+00 -Y1A SBL-)

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	3 (2 of 2)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ****** (65+00 -Y2-)
4102000000-N	904	107	EA	SIGN ERECTION, TYPE E
4108000000-N	904	2	EA	SIGN ERECTION, TYPE F
4110000000-N	904	5	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
4116100000-N	904	1	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (A)
4116100000-N	904	1	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (B)
4116100000-N	904	1	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (D)
4116100000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)
4138000000-N	907	5	EA	DISPOSAL OF SUPPORT, STEEL BEAM
4142000000-N	907	1	EA	STOCKPILE SUPPORT, OVERHEAD STRUCTURE
4152000000-N	907	2	EA	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
4155000000-N	907	36	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4234000000-N	907	2	EA	DISPOSAL OF SIGN, A OR B (OVERHEAD)
4400000000-E	1110	1,053	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	540	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	462	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	5	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	4	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	1,015	EA	DRUMS
4435000000-N	1135	100	EA	CONES
4445000000-E	1145	1,464	LF	BARRICADES (TYPE III)
4450000000-N	1150	1,344	HR	FLAGGER
4465000000-N	1160	10	EA	TEMPORARY CRASH CUSHIONS
4470000000-N	1160	4	EA	RESET TEMPORARY CRASH CUSHIONS
4480000000-N	1165	4	EA	TMIA
4485000000-E	1170	11,810	LF	PORTABLE CONCRETE BARRIER
4500000000-E	1170	4,770	LF	RESET PORTABLE CONCRETE BARRIER
4507000000-E	SP	960	LF	WATER FILLED BARRIER
4508000000-E	SP	360	LF	RESET WATER FILLED BARRIER
4510000000-N	SP	320	HR	LAW ENFORCEMENT
4650000000-N	1251	75	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	62,884	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	18,189	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	9,856	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	344	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4721000000-E	1205	4	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
4725000000-E	1205	63	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4770000000-E	1205	3,563	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (2)
4770000000-E	1205	531	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)
4780000000-E	1205	109	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (2)
4810000000-E	1205	130,825	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	9,720	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	372	LF	PAINT PAVEMENT MARKING LINES (24")
4840000000-N	1205	16	EA	PAINT PAVEMENT MARKING CHARACTER
4845000000-N	1205	56	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	448	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4870000000-E	1205	12	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4900000000-N	1251	25	EA	PERMANENT RAISED PAVEMENT MARKERS
4905000000-N	1253	1,277	EA	SNOWPLOWABLE PAVEMENT MARKERS
5255000000-N	1413	Lump Sum		PORTABLE LIGHTING
5325600000-E	1510	60	LF	6" WATER LINE
5325800000-E	1510	4,080	LF	8" WATER LINE
5326200000-E	1510	2,415	LF	12" WATER LINE
5540000000-E	1515	1	EA	6" VALVE
5546000000-E	1515	2	EA	8" VALVE
5558000000-E	1515	1	EA	12" VALVE
5571600000-E	1515	1	EA	6" TAPPING VALVE
5571800000-E	1515	2	EA	8" TAPPING VALVE
5648000000-N	1515	12	EA	RELOCATE WATER METER
5672000000-N	1515	11	EA	RELOCATE FIRE HYDRANT
5691300000-E	1520	246	LF	8" SANITARY GRAVITY SEWER
5768000000-N	1520	15	EA	SANITARY SEWER CLEAN-OUT
5775000000-E	1525	2	EA	4' DIA UTILITY MANHOLE
5776000000-E	1525	1	EA	5' DIA UTILITY MANHOLE
5781000000-E	1525	7	LF	UTILITY MANHOLE WALL, 4' DIA
5782000000-E	1525	22	LF	UTILITY MANHOLE WALL, 5' DIA
5800000000-E	1530	75	LF	ABANDON 6" UTILITY PIPE
5801000000-E	1530	6,380	LF	ABANDON 8" UTILITY PIPE
5804000000-E	1530	2,270	LF	ABANDON 12" UTILITY PIPE
5816000000-N	1530	13	EA	ABANDON UTILITY MANHOLE
5828000000-N	1530	1	EA	REMOVE UTILITY MANHOLE
5871500000-E	1550	110	LF	TRENCHLESS INSTALLATION OF 8" IN SOIL
5871510000-E	1550	110	LF	TRENCHLESS INSTALLATION OF 8" NOT IN SOIL
5882000000-N	SP	1	EA	GENERIC UTILITY ITEM BREAKDOWN AND CAP EXISTING MANHOLE
6000000000-E	1605	75,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	1,000	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	10,000	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	6,200	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	150	ACR	TEMPORARY MULCHING
6018000000-E	1620	6,100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	26.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	10,000	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	100	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	15,000	LF	SAFETY FENCE
6030000000-E	1630	8,350	CY	SILT EXCAVATION
6036000000-E	1631	34,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	225	SY	COIR FIBER MAT
6038000000-E	SP	6,100	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	6,900	LF	1/4" HARDWARE CLOTH
6046000000-E	SP	80	LF	TEMPORARY PIPE FOR STREAM CROSSING
6048000000-E	SP	1,700	SY	FLOATING TURBIDITY CURTAIN
6069000000-E	1638	120	CY	STILLING BASINS
6071012000-E	SP	1,600	LF	COIR FIBER WATTLE
6071020000-E	SP	450	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	23,500	LF	COIR FIBER BAFFLES
6071050000-E	SP	11	EA	**" SKIMMER (1-1/2")
6071050000-E	SP	1	EA	**" SKIMMER (2")
6084000000-E	1660	220	ACR	SEEDING & MULCHING
6087000000-E	1660	140	ACR	MOWING
6090000000-E	1661	1,950	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	6.75	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	5,450	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	163.25	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	330	LF	IMPERVIOUS DIKE
6114500000-N	SP	35	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	5	ACR	REFORESTATION
6138000000-E	SP	80,000	CY	GENERIC EROSION CONTROL ITEM BORROW PIT DEWATERING BASIN
7060000000-E	1705	9,780	LF	SIGNAL CABLE
7120000000-E	1705	67	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7132000000-E	1705	7	EA	VEHICLE SIGNAL HEAD (12", 4 SECTION)
7144000000-E	1705	9	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
7264000000-E	1710	4,825	LF	MESSENGER CABLE (3/8")
7279000000-E	1715	1,885	LF	TRACER WIRE
7300000000-E	1715	970	LF	UNPAVED TRENCHING (**********) (1, 2")
7300000000-E	1715	1,500	LF	UNPAVED TRENCHING (**********) (2, 2")
7301000000-E	1715	385	LF	DIRECTIONAL DRILL (**********) (2, 2")
7324000000-N	1716	9	EA	JUNCTION BOX (STANDARD SIZE)
7348000000-N	1716	6	EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)
7360000000-N	1720	14	EA	WOOD POLE
7372000000-N	1721	30	EA	GUY ASSEMBLY
7408000000-E	1722	2	EA	1" RISER WITH WEATHERHEAD
7420000000-E	1722	8	EA	2" RISER WITH WEATHERHEAD
7444000000-E	1725	2,545	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	6,135	LF	LEAD-IN CABLE (**********) (14-2)
7566000000-N	1733	6	EA	DELINEATOR MARKER
7575142000-N	SP	1	EA	900MHZ WIRELESS RADIO SYSTEM
7576000000-N	SP	20	EA	METAL STRAIN SIGNAL POLE
7613000000-N	SP	20	EA	SOIL TEST
7614100000-E	SP	140	CY	DRILLED PIER FOUNDATION
7636000000-N	1745	7	EA	SIGN FOR SIGNALS
7684000000-N	1750	5	EA	SIGNAL CABINET FOUNDATION
7756000000-N	1751	5	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
7780000000-N	1751	5	EA	DETECTOR CARD (TYPE 2070L)
7901000000-N	1753	5	EA	CABINET BASE EXTENDER
7960000000-N	SP	4	EA	METAL POLE FOUNDATION REMOVAL
7972000000-N	SP	4	EA	METAL POLE REMOVAL
7980000000-N	SP	1	EA	GENERIC SIGNAL ITEM WIRELESS MAGNETIC SENSOR VEHICLE DETECTION SYSTEM

7/30/2010
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cmaumba2

COMPUTED BY: FRANK FLEMING DATE: 1/1/2010

CHECKED BY: KEITH HUDSON DATE: 4/15/2010

CSD242776

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4007B	3-A

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

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
63+05.07 (Y2)	RT	1		39.4	36.65		
		1	2		36.65	28.8	
13+00.23 (SBL-RAM	LT	3		43.6	40.85		
		3	4		40.85	38.6	
12+00.02 (SBL-RAM	LT	4		41.35	38.6		
		4	5		38.6	30	
13+49.37 (NBL-RAM	RT	6		47.7	44.95		
		6	7		44.95	29.2	
66+80.35 (Y2)	CL						
68+80.59 (Y2)	CL						
17+50.24 (SBL-RAM	LT	8		53.8	51.05		
		8	9		51.05	50.9	
17+49.63 (SBL-RAM	LT	9		53.8	50.9		
		9	3		50.9	40.85	
16+49.04 (NBL-RAM	RT	11		54.4	51.65		
		11	12		51.65	51.5	
16+48.98 (NBL-RAM	RT	12		54.4	51.5		
		12	13		51.5	30.6	
17+51.56 (NBL-RAM	RT	14		56.3	53.55		
		14	15		53.55	53.4	
17+51.47 (NBL-RAM	RT	15		56.55	53.4		
		15	16		53.4	30.8	
20+00 (SBL-RAMP)	LT	17		58.3	55.55		
		17	18		55.55	55.4	
20+00 (SBL-RAMP)	LT	18		58.9	55.4		
		18	19		55.4	33.2	
22+26.18 (NBL-RAM	RT	20		32.4	Exist		
12+22.31 (PR-1)	RT	21		32	Exist		
		21	22		Exist	Exist	
25+47 (SBL-RAMP)	RT	23		58.4	55.65		
		23	24		55.65	55.5	
25+47 (SBL-RAMP)	LT	24		59	55.5		
		24	25		55.5	29.4	
25+97.95 (NBL-RAM	LT	27		54.9	52.15		
		27	28		52.15	52	
25+95.61 (NBL-RAM	RT	28		55.2	52		
		28	29		52	31.8	
27+28.51 (NBL-RAM	RT	30		54.8	52.05		
		30	31		52.05	51.85	
27+88.23 (NBL-RAM	RT	31		55	51.85		
		31	32		51.85	28.5	
30+00 (SBL-RAMP)	LT	33		47.7	44.95		
		33	34		44.95	41.7	
30+98.15 (SBL-RAM	LT	34		44.45	41.7		
		34	35		41.7	29.9	
28+56.88 (NBL-RAM	LT	36		55.1	52.35		
		36	37		52.35	43.45	
28+69.03 (NBL-RAM	LT	37		46.2	43.45		
		37	41		43.45	39.75	
83+36.52 (Y2)	CL						
SHEET TOTALS							

SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC)

STATION	FROM	TO	##	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
63+05.07 (Y2)	1													
	1	2		36							X	X		
13+00.23 (SBL-RAM	3													
	3	4		100								X		
12+00.02 (SBL-RAM	4													
	4	5		36							X	X		
13+49.37 (NBL-RAM	6													
	6	7		56							X	X		
66+80.35 (Y2)														
68+80.59 (Y2)														
17+50.24 (SBL-RAM	8													
	8	9												
17+49.63 (SBL-RAM	9													
	9	3		450								X		
16+49.04 (NBL-RAM	11													
	11	12												
16+48.98 (NBL-RAM	12													
	12	13		72							X	X		
17+51.56 (NBL-RAM	14													
	14	15												
17+51.47 (NBL-RAM	15													
	15	16		80							X	X		
20+00 (SBL-RAMP)	17													
	17	18												
20+00 (SBL-RAMP)	18													
	18	19		80							X	X		
22+26.18 (NBL-RAM	20													
12+22.31 (PR-1)	21													
	21	22												
25+47 (SBL-RAMP)	23													
	23	24												
25+47 (SBL-RAMP)	24													
	24	25		92							X	X		
25+97.95 (NBL-RAM	27													
	27	28												
25+95.61 (NBL-RAM	28													
	28	29			72						X	X		
27+28.51 (NBL-RAM	30													
	30	31		60								X		
27+88.23 (NBL-RAM	31													
	31	32		92							X	X		
30+00 (SBL-RAMP)	33													
	33	34		100								X		
30+98.15 (SBL-RAM	34													
	34	35		48							X	X		
28+56.88 (NBL-RAM	36													
	36	37		40							X	X		X
28+69.03 (NBL-RAM	37													
	37	41		248								X		
83+36.52 (Y2)														
SHEET TOTALS				1590	0	0	0	0	0	0				

C.S. PIPE / R.C. PIPE CLASS III / R.C. PIPE CLASS IV

STATION	FROM	TO	C.S. 12"	C.S. 15"	C.S. 18"	C.S. 24"	C.S. 30"	C.S. 36"	C.S. 42"	C.S. 48"	CL. III 12"	CL. III 15"	CL. III 18"	CL. III 24"	CL. III 30"	CL. III 36"	CL. III 42"	CL. III 48"	CL. IV 12"	CL. IV	CL. IV 18"	CL. IV 24"	CL. IV 30"	CL. IV 36"	CL. IV 42"	CL. IV 48"
THICKNESS OR GAUGE			.064	.064	.064	.064	.079	.079	.109	.109																
	8	9																		48						
	11	12																		48						
	14	15																		44						
	17	18																		44						
	21	22										16														
	23	24																		60						
	27	28																		56						
SHEET TOTALS			0	0	0	0	0	0	0	0		16	0	0	0	0	0	0		300	0	0	0	0	0	0

(All other rows of this column group are blank.)

STATION	FROM	TO	30" R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	ENDWALLS 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'	LIN. FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CONCRETE TRANSITIONAL SECTION CATCH BASIN
63+05.07 (Y2)	1									1								
13+00.23 (SBL-RAM	3									1								
12+00.02 (SBL-RAM	4									1								
13+49.37 (NBL-RAM	6									1								
17+50.24 (SBL-RAM	8									1								
17+49.63 (SBL-RAM	9									1								
16+49.04 (NBL-RAM	11									1								
16+48.98 (NBL-RAM	12									1								
17+51.56 (NBL-RAM	14									1								
17+51.47 (NBL-RAM	15									1								
20+00 (SBL-RAMP)	17									1								
20+00 (SBL-RAMP)	18									1								
25+47 (SBL-RAMP)	23									1								
25+47 (SBL-RAMP)	24									1								
25+97.95 (NBL-RAM	27									1								
25+95.61 (NBL-RAM	28									1								
27+28.51 (NBL-RAM	30									1								
27+88.23 (NBL-RAM	31									1								
30+00 (SBL-RAMP)	33									1								
30+98.15 (SBL-RAM	34									1								
28+56.88 (NBL-RAM	36									1								
28+69.03 (NBL-RAM	37									1								
SHEET TOTALS										22								

(All other rows of this column group are blank.)

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME W/ GRATE STD. 840.20 FLAT GRATE	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT DI TO JB	SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, C.Y.	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
63+05.07 (Y2)	1					1		1														
	1	2																2 15"	2.5			REMOVE EXIST. CATCH BASIN
13+00.23 (SBL-RAM	3					1		1														
	3	4																				
12+00.02 (SBL-RAM	4					1		1														
	4	5																2 15"				
13+49.37 (NBL-RAM	6					1		1														
	6	7																2 15"				
66+80.35 (Y2)																			5.1			REMOVE EXIST. CATCH BASIN (2)
68+80.59 (Y2)																			5.1			REMOVE EXIST. CATCH BASIN (2)
17+50.24 (SBL-RAM	8					1			1													
	8	9																				
17+49.63 (SBL-RAM	9					1		1														
	9	3																				
16+49.04 (NBL-RAM	11					1			1													
	11	12																				
16+48.98 (NBL-RAM	12					1		1														
	12	13																2 15"				
17+51.56 (NBL-RAM	14					1			1										5.1			REMOVE EXIST. CATCH BASIN (2)
	14	15																				
17+51.47 (NBL-RAM	15					1		1														
	15	16																2 15"				
20+00 (SBL-RAMP)	17					1			1													
	17	18																				
20+00 (SBL-RAMP)	18					1		1														
	18	19																2 15"				
22+26.18 (NBL-RAM	20															1	1					CONVERT DI TO JB W/ MH
12+22.31 (PR-1)	21															1	1					REMOVE EXIST. CATCH BASIN
	21	22																				CONVERT DI TO JB W/ MH
25+47 (SBL-RAMP)	23					1			1													
	23	24																				
25+47 (SBL-RAMP)	24					1		1														
	24	25																2 15"				
25+97.95 (NBL-RAM	27					1			1													
	27	28																	5.1			REMOVE EXIST. CATCH BASIN (2)
25+95.61 (NBL-RAM	28					1		1														
	28	29																2 15"				
27+28.51 (NBL-RAM	30					1		1														
	30	31																				
27+88.23 (NBL-RAM	31					1		1														
	31	32																2 15"				
30+00 (SBL-RAMP)	33					1		1														
	33	34																				
30+98.15 (SBL-RAM	34					1		1														
	34	35																2 15"				
28+56.88 (NBL-RAM	36					1		1														
	36	37																				
28+69.03 (NBL-RAM	37					1			1													
	37	41																				
83+36.52 (Y2)																			5.1			REMOVE EXIST. CATCH BASIN (2)
SHEET TOTALS						22		15	7		0	0				2	2	20 (15")	28			

ABBREVIATIONS

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

CSD242776

COMPUTED BY:	FRANK FLEMING	DATE:	1/1/2010
CHECKED BY:	KEITH HUDSON	DATE:	4/15/2010

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4007B	3-B

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

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) ##	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	30" R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS 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	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME W/GRATE STD. 840.20 FLAT GRATE	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT DI TO JB	SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, C.Y.	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
84+91.52 (Y2)	RT	38		42.3	39.55																																														1												1		1														
		38	41		39.55	39.3			44								X																																																														
33+84.77 (NBL-RAM	LT	39		64.2	61.45																																														1												1		1														
		39	40		61.45	56.8			172								X																																																												
31+76.76 (NBL-RAM	LT	40		59.55	56.8																																														1												1		1														
		40	38		56.8	40.45			72							X	X																																																											
84+48.58 (Y-2)	RT	41		43.1	39.3																																														1												1			1													
		41	42		39.3	38.9																															68																																											ADJUST EX. DI TOP
14+28.24 (RAMPIB)	LT	43			31.55	31.1																									56																																																	0.6		COLLAR AND EXTEND
33+00 (SBL-RAMP)	RT	44		42.4	39.65																																														1												1			1													
		44	45		39.65	30.2																							112																																																			
87+51.4 (Y-2)	RT	46		41	38.25																																														1												1			1													
		46	47		38.25	36.85																															76																																											
88+00 (Y-2)	CL	47		39.6	36.85																																														1												1			1													
		47	49		36.85	Exist																							76																																																			
88+35.02 (Y-2)	LT	48		38	35.25																																														1											1				1	1												3GI
		48	49		35.25	Exist			76							X	X																																																															
87+65.93 (Y-2)	LT	49		42	Exist																																																																					1	1					CONVERT DI TO JBw/MH
35+52.2 (SBL-RAMP	LT	50		43.2	40.45																																														1												1		1														
		50	51		40.45	31.25			48								X																																																												
17+31.81 (RAMPIB)	RT	51		34	31																																														1												1			1													
		51	52		31	30.5																							96																																																			
17+00 (RAMPIB)	LT	52		35.2	30.5																																														1												1			1													
		52	53		30.5	30.2			104								X																																																													
38+90.65 (SBL-RAMI	LT	54		59.35	56.6																																														1												1		1														
		54	55		56.6	46.55			136								X																																																													
37+53.02 (SBL-RAMI	LT	55		49.3	46.55																																														1												1		1														
		55	56		46.55	35			60							X	X																																																								2 15"				
89+75.72 (Y-2)	CL	57		39.2	36.45																																														1												1			1													
		57	58		36.45	35.9			176								X																																																													
91+50 (Y-2)	CL	58		39.6	35.9																																														1												1			1													
		58	59		35.9	35.6																								80																																																	
38+55.12 (NBL-RAM	LT	60		67.8	65.05																																														1												1		1														
		60	61		65.05	64.15																															112																																											
39+67.15 (NBL-RAM	LT	61		66.9	64.15																																														1												1		1														
		61	61A		64.15	63.45																															44																																											
39+65.08 (NBL-RAM	RT	61A		66.2	63.45																																														1												1		1														
		61A	62		63.45	38			88							X	X																																																								2 15"				
93+00 (Y-2)	CL	63			36.8	36.1																									204																																																	
40+19.35 (SBL-RAMI	CL	64			36	34																																						428																																					REMOVE EXIST. CATCH BASIN
40+00(SBL-RAMP)	CL																																																																													128	REMOVE EXIST. CATCH BASIN (2)
56+57(Y1ASBL)	CL																																																																													85	REMOVE EXIST. CATCH BASIN
56+73.73 (YIASBL)	RT	65		36.85	33.85																																														1			1		1			1																				
		65	66		33.65	34.65			264								X																																																														
59+40.5 (YIASBL)	RT	66		37.4	34.65																																														1			1	1				1																				CONVERT CB TO JB W/ MH
14+17.24 (Y2CON)	CL	67			37.5	37																								120																																																	
96+00 (Y-2)	CL	68		40.9	38.15																																														1												1			1													
		68	69		38.15	37.6																								76																																																	
23+40.75 (RAMPIB)	CL	70			32.5	31.3																																		140																																							
		65	78		33.85	32.85																															108																																											REMOVE EXIST. CATCH BASIN (2)
SHEET TOTALS									1240																				284	276	260						408			140				428							21			2	1	1			2			1	18		9	10	1	0				0	1	1	4 (15")		0.6	213	

ABBREVIATIONS

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

COMPUTED BY:	FRANK FLEMING	DATE:	1/1/2010
CHECKED BY:	KEITH HUDSON	DATE:	4/15/2010

CSD242776

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4007B	3-C

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

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) ##	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
52+12.59 (YIASBL)	RT	71		35.4	32.4														
		71	73		32.4	32.25													
54+00 (YIASBL)	RT	72		35.95	32.95														
		72	73		32.95	32.25													
52+60 (YIASBL)	RT	73		35.7	32.25														
		73	74		32.25	31.9													
52+59.48 (YIASBL)	RT	74		34.9	27.8														
		74	75		27.8	28													
52+89.41 (YIASBL)	RT	75			28														
55+07.01 (YIASBL)	RT	76		36.26	33.26														
		76	77		33.26	33													
55+63.55 (YIASBL)	RT	77		36.53	33														
		77	78		33	32.85													
55+63.71 (YIASBL)	RT	78		36.7	32.85														
		78	79		32.85	32.6													
26+27.08 (RAMPIA)	CL	80			31	30.2													
25+04 (RAMPIA)	CL	81			32	31.1													
20+00 (LOOPIA)	LT	82		36.5	33.5														
		82	83		33.5	33.3													
20+51.02(LOOPIA)	LT	83		36.33	33.3														
		83	84		33.3	31			20							X	X		
14+65 (LOOPIA)	CL	85			33.7	33													
14+00 (LOOPIA)	LT	86		44.8	41.8														
		86	87		41.8	35.7			52							X	X		
10+59.52 (LOOPIA)	LT	88		58.75	56														
		88	89		56	50.95													
12+09.79 (LOOPIA)	LT	89		53.7	50.95														
		89	90		50.95	35.8			72							X	X		
43+25 (SBL-RAMP)	CL	91			32.4	31.3													
10+27.35 (LOOPID)	RT	92		60.2	57.45														
		92	93		57.45	38			92							X	X		
42+62.06 (NBL-RAM	RT																		
65+50.07 (YIASBL)	RT	94		36.4	33.65														
		94	95		33.65	32.57			152								X		
63+98.26 (YIASBL)	RT	95		36.38	32.57														
		95	96		32.57	32.4													
20+96.81 (LOOPID)	RT	97		35.97	32.97														
		97	98		32.97	32.85			52								X		
20+76.42 (LOOPID)	CL	99			32.9	32.5													
18+97 (LOOPID)	RT	100		38.09	35.09														
		100	101		35.09	33.13													
20+50 (LOOPID)	RT	101		36.13	33.13														
		101	102		33.13	32.8			15								X		
13+00 (LOOPID)	RT	103		50.29	47.54														
		103	104		47.54	39			64							X	X		
46+68 (SBL-RAMP)	RT	105		48.6	45.85														
61+68(SBL-Y1A) RT																			
SHEET TOTALS									519										

STATION	FROM	TO	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
52+12.59 (YIASBL)	71																									
	71	73																		48						
54+00 (YIASBL)	72																									
	72	73																		144						
52+60 (YIASBL)	73																									
	73	74																			36					
52+59.48 (YIASBL)	74																									
	74	75																56								
52+89.41 (YIASBL)	75																									
55+07.01 (YIASBL)	76																									
	76	77																		56						
55+63.55 (YIASBL)	77																									
	77	78																		48						
55+63.71 (YIASBL)	78																									
	78	79																			76					
26+27.08 (RAMPIA)	80																									244
25+04 (RAMPIA)	81																								348	
20+00 (LOOPIA)	82																									
	82	83																		48						
20+51.02(LOOPIA)	83																									
	83	84																								
14+65 (LOOPIA)	85																368									
14+00 (LOOPIA)	86																									
	86	87																								
10+59.52 (LOOPIA)	88																									
	88	89																		144						
12+09.79 (LOOPIA)	89																									
	89	90																								
43+25 (SBL-RAMP)	91																									404
10+27.35 (LOOPID)	92																									
	92	93																								
42+62.06 (NBL-RAM																										
65+50.07 (YIASBL)	94																									
	94	95																								
63+98.26 (YIASBL)	95																									
	95	96										140														
20+96.81 (LOOPID)	97																									
	97	98																								
20+76.42 (LOOPID)	99																						312			
18+97 (LOOPID)	100																									
	100	101																		144						
20+50 (LOOPID)	101																									
	101	102																								
13+00 (LOOPID)	103																									
	103	104																								
46+68 (SBL-RAMP)	105																									
61+68(SBL-Y1A) RT																										
SHEET TOTALS												140					368	56		632	112		312		348	648

STATION	FROM	TO	30" R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS 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	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
52+12.59 (YIASBL)	71									1			1	1				1
	71	73																
54+00 (YIASBL)	72									1			1			1		1
	72	73																
52+60 (YIASBL)	73									1			1			1		1
	73	74																
52+59.48 (YIASBL)	74									1	2.1							
	74	75																
52+89.41 (YIASBL)	75							6										
55+07.01 (YIASBL)	76									1			1			1		1
	76	77																
55+63.55 (YIASBL)	77									1			1			1		1
	77	78																
55+63.71 (YIASBL)	78									1			1		1			1
	78	79																
26+27.08 (RAMPIA)	80							4.9										
25+04 (RAMPIA)	81							6										
20+00 (LOOPIA)	82									1			1			1		
	82	83																
20+51.02(LOOPIA)	83									1			1			1		
	83	84																
14+65 (LOOPIA)	85							5										
14+00 (LOOPIA)	86									1			1			1		
	86	87																
10+59.52 (LOOPIA)	88									1								
	88	89																
12+09.79 (LOOPIA)	89									1								
	89	90																
43+25 (SBL-RAMP)	91							4.9										
10+27.35 (LOOPID)	92									1								
	92	93																
42+62.06 (NBL-RAM																		
65+50.07 (YIASBL)	94									1								
	94	95																
63+98.26 (YIASBL)	95									1								
	95	96																
20+96.81 (LOOPID)	97									1			1	1				
	97	98																
20+76.42 (LOOPID)	99							3.1										
18+97 (LOOPID)	100									1			1		1			
	100	101																
20+50 (LOOPID)	101									1			1		1			
	101	102																
13+00 (LOOPID)	103									1			1		1			
	103	104																
46+68 (SBL-RAMP)	105									1								
61+68(SBL-Y1A) RT																		
SHEET TOTALS								29.9		20	2.1		13	2	4	7		6

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20 FG	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT DI TO JB	SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, C.Y.	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
52+12.59 (YIASBL)	71																					
	71	73																				
54+00 (YIASBL)	72																					
	72	73																				
52+60 (YIASBL)	73																					
	73	74																			18	
52+59.48 (YIASBL)	74												1			1					44	REMOVE EXIST. CATCH BASIN
	74	75																				
52+89.41 (YIASBL)	75																					HW
55+07.01 (YIASBL)	76																					
	76	77																				
55+63.55 (YIASBL)	77																					
	77	78																				
55+63.71 (YIASBL)	78																					
	78	79																				
26+27.08 (RAMPIA)	80																					HW
25+04 (RAMPIA)	81																					2 HW
20+00 (LOOPIA)	82																					
	82	83																				
20+51.02(LOOPIA)	83																					
	83	84																				
14+65 (LOOPIA)	85																					2 HW
14+00 (LOOPIA)	86																					
	86	87																2-15"				
10+59.52 (LOOPIA)	88					1		1														
	88	89																				
12+09.79 (LOOPIA)	89					1		1														
	89	90																2-15"				
43+25 (SBL-RAMP)	91																					HW
10+27.35 (LOOPID)	92					1		1														
	92	93																2-15"				
42+62.06 (NBL-RAM																					90	
65+50.07 (YIASBL)	94						1				1											
	94	95																				
63+98.26 (YIASBL)	95					1					1											REMOVE EXIST. CATCH BASIN
	95	96																				
20+96.81 (LOOPID)	97																					
	97	98																				
20+76.42 (LOOPID)	99																					HW
18+97 (LOOPID)	100																					
	100	101																				
20+50 (LOOPID)	101																					
	101	102																				
13+00 (LOOPID)	103																					
	103	104																2-15"				
46+68 (SBL-RAMP)	105					1			1													
61+68(SBL-Y1A) RT																					120	REMOVE EX CATCH BASIN(2)
SHEET TOTALS						5	1	3	1		2		1			1		8-15"			272	

ABBREVIATIONS

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

COMPUTED BY:	FRANK FLEMING	DATE:	1/1/2010
CHECKED BY:	KEITH HUDSON	DATE:	4/1/2010

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4007B	3-D

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

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL')	STRUCTURE NO. FROM	TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) ##	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
		105	106		45.85	37.4			92							X	X										
48+20 (SBL-RAMP)	CL	107			35.8	34.4																					
10+08.63 (-L-)	LT	108		44.82	41.82																						
		108	109		41.82	41.6			92								X										
50+00 (SBL-RAMP)	RT	109		44.5	41.6																						
		109	110		41.6	38																					
14+00 (-L-)	LT	111		46.22	43.22																						
		111	112		43.22	36.2																					
12+67.68 (Y4)	CL	113			37.5	37.3																					
16+60 (Y4)	CL	114			40	40																					
15+49.85 (-L-)	LT	115		45.6	42.6																						
		115	117		42.6	42.3																					
17+50 (-L-)	LT	116		45.5	42.5																						
		116	117		42.5	42.3																					
16+60 (-L-)	LT	117		45.4	42.3																						
		117	118		42.3	36.2																					
20+00 (-L-)	LT	120		46.26	43.26																						
		120	121		43.26	42.95																					
19+00 (-L-)	LT	121		45.95	42.95																						
		121	122		42.95	39.1																					
23+14.82 (-L-)	RT	123		46.36	43.36																						
		123	125		43.36	42.42																					
25+99.96 (-L-)	LT	124		45.78	42.78																						
		124	125		42.78	42.42																					
25+00 (-L-)	LT	125		45.92	42.42																						
		125	126		42.42	39.5																					
26+42.83 (-L-)	CL	127			39.8	38.8																					
26+99.94 (-L-)	LT	128		45.92	42.92																						
		128	129		42.92	40.4																					
28+49.98 (-L-)	RT	130		46.15	43.4																						
		130	134		43.4	43.1																					
31+50 (-L-)	RT	131		47.3	44.55																						
		131	132		44.55	44.4																					
30+55 (-L-)	RT	132		47.15	44.4																						
		132	133		44.4	43.8																					
30+00 (-L-)	RT	133		46.85	44.1																						
		133	134		44.1	43.1																					
29+35.87 (-L-)	LT	134		46.2	43.1																						
		134	135		43.1	42																					
31+57 (-L-)	CL	136			41	40.5																					
31+80.40 (-L-)	CL	137			41	40.5																					
33+00 (-L-)	RT	138		47.72	44.72																						
		138	139		44.72	42																					
35+00 (-L-)	RT	140		48.32	45.32																						
		140	141		45.32	40																					
36+35 (-L-)	RT	142			42.5																						
		142	145		42.5	42.25																					
39+00 (-L-)	RT	143		49.52	46.52																						
		143	144		46.52	46.07																					
37+50 (-L-)	RT	144		49.07	46.07																						
SHEET TOTALS									184																		

STATION	FROM	TO	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	30" R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
	105	106																							
48+20 (SBL-RAMP)	107							368																9	
10+08.63 (-L-)	108																								
	108	109																							
50+00 (SBL-RAMP)	109																								
	109	110		84																					
14+00 (-L-)	111																								
	111	112										88													
12+67.68 (Y4)	113					68																			
16+60 (Y4)	114												68												
15+49.85 (-L-)	115																								
	115	117										112													
17+50 (-L-)	116																								
	116	117										92													
16+60 (-L-)	117																								
	117	118										80													
20+00 (-L-)	120																								
	120	121										100													
19+00 (-L-)	121																								
	121	122										84													
23+14.82 (-L-)	123																								
	123	125										100													
25+99.96 (-L-)	124																								
	124	125										100													
25+00 (-L-)	125																								
	125	126										68													
26+42.83 (-L-)	127																							2.8	
26+99.94 (-L-)	128															224									
	128	129										60													
28+49.98 (-L-)	130																								
	130	134										88													
31+50 (-L-)	131																								
	131	132										96													
30+55 (-L-)	132																								
	132	133										56													
30+00 (-L-)	133																								
	133	134										68													
29+35.87 (-L-)	134																								
	134	135											64												
31+57 (-L-)	136													144											
31+80.40 (-L-)	137													144											
33+00 (-L-)	138																								
	138	139										80													
35+00 (-L-)	140																								
	140	141										76													
36+35 (-L-)	142																								
	142	145				76																			
39+00 (-L-)	143																								
	143	144										152													
37+50 (-L-)	144																								
SHEET TOTALS				84		144		368				1500	132	288		224								11.8	

STATION	FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE (*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B'))	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20 FG	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT DI TO JB	SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, C.Y.	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
	105	106																									2 15"				
48+20 (SBL-RAMP)	107																														2 HW
10+08.63 (-L-)	108		1			1		1			1																				
	108	109																													
50+00 (SBL-RAMP)	109		1												1			1													
	109	110																													
14+00 (-L-)	111		1			1		1			1																				
	111	112																													
12+67.68 (Y4)	113																														
16+60 (Y4)	114																														
15+49.85 (-L-)	115		1			1		1			1																				
	115	117																													
17+50 (-L-)	116		1			1			1		1																				
	116	117																													
16+60 (-L-)	117		1			1	1				1																				
	117	118																													
20+00 (-L-)	120		1			1			1		1																				
	120	121																													
19+00 (-L-)	121		1			1			1		1																				
	121	122																													
23+14.82 (-L-)	123		1			1			1		1																				
	123	125																													
25+99.96 (-L-)	124		1			1	1				1																				
	124	125																													
25+00 (-L-)	125		1			1			1		1																				
	125	126																													
26+42.83 (-L-)	127																														
26+99.94 (-L-)	128		1							1					1		1														
	128	129																													
28+49.98 (-L-)	130		1							1					1		1														
	130	134																													
31+50 (-L-)	131		1							1					1		1														
	131	132																													
30+55 (-L-)	132		1							1					1		1														
	132	133																													
30+00 (-L-)	133		1							1					1		1														
	133	134																													
29+35.87 (-L-)	134		1							1					1		1														
	134	135																													
31+57 (-L-)	136																														
31+80.40 (-L-)	137																														
33+00 (-L-)	138		1			1		1			1																				
	138	139																													
35+00 (-L-)	140		1			1		1			1																				
	140	141																													
36+35 (-L-)	142																														Open End pipe
	142	145																													
39+00 (-L-)	143		1			1		1			1																				
	143	144																													
37+50 (-L-)	144		1			1		1			1																				
SHEET TOTALS			21			14	2	7	5	6	14				7		6	1	0								2 15"				

ABBREVIATIONS

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

CSD242776

COMPUTED BY:	FRANK FLEMING	DATE:	1/1/2010
CHECKED BY:	KEITH HUDSON	DATE:	4/15/2010

CSD242776

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4007B	3-E

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

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
		144	145		46.07	45.82													
36+70 (-L-)	RT	145		48.82	42.25														
		145	146		42.25	38													
42+50 (-L-)	LT	148		49.15	46.15														
		148	149		46.15	45.95													
40+25 (-L-)	LT	149		48.95	45.95														
		149	150		45.95	41			48							X	X		
11+50 (-Y5-)	RT	151			40.5														
		151	153		40.5	38.8													
11+68.14 (Y5)	RT	152		48.3	Exist														
		152	153		Exist	39.8													
11+45 (Y5)	RT	153		48.6	39.8														
		153	154		39.8	39.3													
12+00 (Y5)	RT	155		47.3	44.3														
		155	158		44.3	43.7													
12+46 (Y5)	RT	156		47.06	44.06														
		156	157		44.06	43.9													
12+46 (Y5)	LT	157		47.06	43.9														
		157	158		43.9	43.7													
12+00 (Y5)	LT	158		47.3	43.7														
		158	159		43.7	43.4													
11+10 (Y5)	LT	159		48.45	43.4														
		159	160		43.4	41.2													
45+28 (-L-)	RT	161		49.65	46.9														
		161	162		46.9	44.45													
44+01.09 (-L-)	RT	162		47.2	44.45														
		162	163		44.45	38.8													
52+06.44 (-L-)	RT	164		43.5	Exist														
		164	165		Exist	Exist							220						
49+85.30 (-L-)	RT	165		43.5	Exist														
		165	166		Exist	38.7							292						
52+38 (-L-)	RT	167		49.75	47														
		167	168		47	44.8			24							X	X		
11+93.5 (SER-1)	CL	169			27	25.5													
14+38 (SER-1)	CL	170			27.3	27.1													
21+00 (SER-1)	RT	171							20										
57+36.34 (-L-)	CL	172			38.2	36													
59+25.72 (-L-)	CL	173			38.8	36.3													
59+00.04 (-L-)	RT	174		48.58	45.58														
		174	175		45.58	45.39													
59+50.04 (-L-)	RT	175		48.39	45.39														
		175	178		45.39	45.25													
61+11.59 (-L-)	LT	176		50	47														
		176	177		47	46.1													
60+50.16 (-L-)	LT	177		49.1	46.1														
		177	178		46.1	45.25													
59+90.16 (-L-)	RT	178		48.33	45.25														
		178	179		45.25	42.5													
SHEET TOTAL									92				512						

STATION	FROM	TO	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
	144	145																		80						
36+70 (-L-)	145																									
	145	146												100												
42+50 (-L-)	148																									
	148	149										64														
40+25 (-L-)	149																									
	149	150																								
11+50 (-Y5-)	151																									
	151	153											32													
11+68.14 (Y5)	152																									
	152	153												24												
11+45 (Y5)	153																									
	153	154												72												
12+00 (Y5)	155																									
	155	158																		40						
12+46 (Y5)	156																									
	156	157																		40						
12+46 (Y5)	157																									
	157	158																		46						
12+00 (Y5)	158																									
	158	159																		92						
11+10 (Y5)	159																									
	159	160										32														
45+28 (-L-)	161																									
	161	162										128														
44+01.09 (-L-)	162																									
	162	163										140														
52+06.44 (-L-)	164																									
	164	165																								
49+85.30 (-L-)	165																									
	165	166																								
52+38 (-L-)	167																									
	167	168																								
11+93.5 (SER-1)	169													76												
14+38 (SER-1)	170													64												
21+00 (SER-1)	171																									
57+36.34 (-L-)	172																152									
59+25.72 (-L-)	173															316										
59+00.04 (-L-)	174																									
	174	175																		48						
59+50.04 (-L-)	175																									
	175	178																		40						
61+11.59 (-L-)	176																									
	176	177																		64						
60+50.16 (-L-)	177																									
	177	178																		60						
59+90.16 (-L-)	178																									
	178	179																		68						
SHEET TOTAL												364	32	336		316	152			578						

STATION	FROM	TO	30" R.C. PIPE (CLASS V)	****" RC PIPE CULVERTS, CONTRACTOR DESIGN	****" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS 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	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
	144	145																
36+70 (-L-)	145									1			1		1			1
	145	146																
42+50 (-L-)	148									1								
	148	149																
40+25 (-L-)	149									1								
	149	150																
11+50 (-Y5-)	151																	
	151	153																
11+68.14 (Y5)	152									1								
	152	153																
11+45 (Y5)	153									1								
	153	154																
12+00 (Y5)	155									1			1		1			
	155	158																
12+46 (Y5)	156									1			1	1				
	156	157																
12+46 (Y5)	157									1			1	1				
	157	158																
12+00 (Y5)	158									1			1			1		
	158	159																
11+10 (Y5)	159									1			1	1				
	159	160																
45+28 (-L-)	161									1								
	161	162																
44+01.09 (-L-)	162									1								
	162	163																
52+06.44 (-L-)	164									1								
	164	165																
49+85.30 (-L-)	165									1								
	165	166																
52+38 (-L-)	167									1								
	167	168																
11+93.5 (SER-1)	169																	
14+38 (SER-1)	170																	
21+00 (SER-1)	171																	
57+36.34 (-L-)	172																	
59+25.72 (-L-)	173																	
59+00.04 (-L-)	174									1			1		1			1
	174	175																
59+50.04 (-L-)	175									1			1		1			1
	175	178																
61+11.59 (-L-)	176									1			1			1		1
	176	177																
60+50.16 (-L-)	177									1			1	1				1
	177	178																
59+90.16 (-L-)	178									1			1		1			1
	178	179																
SHEET TOTAL										20			11	4	5	2		6

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20 FG	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT DI TO JB	SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, C.Y.	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
	144	145																				
36+70 (-L-)	145																					
	145	146																				
42+50 (-L-)	148					1		1														
	148	149																				
40+25 (-L-)	149					1		1														
	149	150																2 15"				
11+50 (-Y5-)	151																					Open End Pipe
	151	153																				
11+68.14 (Y5)	152											1				1						
	152	153																				
11+45 (Y5)	153											1				1						
	153	154																				
12+00 (Y5)	155																					
	155	158																				
12+46 (Y5)	156																					
	156	157																				
12+46 (Y5)	157																					
	157	158																				
12+00 (Y5)	158																					
	158	159																				
11+10 (Y5)	159																					
	159	160																				
45+28 (-L-)	161					1		1														
	161	162																				
44+01.09 (-L-)	162					1			1													
	162	163																				
52+06.44 (-L-)	164											1				1					24	
	164	165																				
49+85.30 (-L-)	165											1				1					30	
	165	166																				
52+38 (-L-)	167					1		1														
	167	168																				
11+93.5 (SER-1)	169																				32	
14+38 (SER-1)	170																					
21+00 (SER-1)	171																					
57+36.34 (-L-)	172																					
59+25.72 (-L-)	173																					
59+00.04 (-L-)	174																					
	174	175																				
59+50.04 (-L-)	175																					
	175	178																				
61+11.59 (-L-)	176																					
	176	177																				
60+50.16 (-L-)	177																					
	177	178																				
59+90.16 (-L-)	178																					
	178	179																				
SHEET TOTAL						5		4	1			4				4		2 15"			86	

ABBREVIATIONS

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

COMPUTED BY: FRANK FLEMING DATE: 1/1/2010

CHECKED BY: KEITH HUDSON DATE: 4/15/2010

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4007B	3-F

CSD242776

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

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
65+00 (-L-)	LT	180		50	47																						
		180	181		47	43.1																					
68+96.91 (-L-)	CL	182			38	37.5																					
69+08.67 (-L-)	LT																										
69+85.01 (-L-)	CL																										
70+52.95(-L-)	LT	183		50.57	47.57																						
		183	184		47.57	47.35																					
71+08.07 (-L-)	LT	184		50.35	47.35																						
		184	185		47.35	47.09																					
71+57.99 (-L-)	LT	185		50.09	47.09																						
		185	186		47.09	42																					
74+91.55 (-L-)	LT																										
76+19.98 (-L-)	LT	187		48.2	Exist																						
		187	188		Exist	39.75																					
76+12.18 (-L-)	RT	189		48.3	Exist																						
		189	190		Exist	40.8																					
75+42.24 (YIASBL)	LT	191			37.7	36.3																					
105+75 (Y-2)	LT	192		39.3	36.55																						
		192	193		36.55	36.4																					
21+77.34 (Y-4)	CL	194			38.5	38.2																					
23+37.38 (Y-4)	CL	195			37.7	37.4																					
23+44.67 (Y-4)	CL	195A			38.2	37.9																					
27+11.23 (Y-4)	LT	196		44.25	41.25																						
		196	202		41.25	40.78																					
27+00 (Y-4)	RT	197		44.35	41.35																						
		197	202		41.35	40.78																					
28+82.09 (Y-4)	LT	198		44.5	41.5																						
		198	199		41.5	41.42																					
28+81.96 (Y-4)	LT	199		44.75	41.42																						
		199	200		41.42	41.18																					
27+97 (Y-4)	LT	200		44.48	41.18																						
		200	201		41.18	41.07																					
27+97 (Y-4)	RT	201		44.07	41.07																						
		201	202		41.07	40.78																					
27+00 (Y-4)	RT	202		44.35	40.78																						
		202	203		40.78	40.4																					
25+72.35 (Y-4)	RT	203		44.82	40.4																						
		203	204		40.4	40.1																					
27+09.62 (Y-4)	LT	205		43.45	40.4																						
		205	206		40.4	40.2																					
27+00.68 (Y-4)	LT	206		43.5	40.2																						
		206	208		40.2	39																					
13+05 (Y-5)	LT	210		47.15	39.4																						
13+18 (Y-5)	RT	211		46.6	Exist																						
14+43.14 (Y-5)	RT	212		47.65	44.65																						
		212	213		44.65	39.75																					
14+43.14 (Y-5)	RT	213		48.1	39.75																						
15+83.54 (Y-5)	RT	214		47.3	44.3																						
SHEET TOTALS									0																		

STATION	FROM	TO	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	30" R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.
65+00 (-L-)	180																								
	180	181										76													
68+96.91 (-L-)	182							164																2.8	
69+08.67 (-L-)																									
69+85.01 (-L-)																									
70+52.95(-L-)	183																								
	183	184										56													
71+08.07 (-L-)	184																								
	184	185										52													
71+57.99 (-L-)	185																								
	185	186										68													
74+91.55 (-L-)																									
76+19.98 (-L-)	187																								
	187	188				36																			
76+12.18 (-L-)	189																								
	189	190				56																			
75+42.24 (YIASBL)	191							268																3.4	
105+75 (Y-2)	192																								
	192	193										88													
21+77.34 (Y-4)	194					68																			
23+37.38 (Y-4)	195							100																3.4	
23+44.67 (Y-4)	195A							104																3.4	
27+11.23 (Y-4)	196																								
	196	202										32													
27+00 (Y-4)	197																								
	197	202		12																					
28+82.09 (Y-4)	198																								
	198	199										32													
28+81.96 (Y-4)	199																								
	199	200										84													
27+97 (Y-4)	200																								
	200	201										16													
27+97 (Y-4)	201																								
	201	202										96													
27+00 (Y-4)	202																								
	202	203										128													
25+72.35 (Y-4)	203																								
	203	204										80													
27+09.62 (Y-4)	205																								
	205	206		12																					
27+00.68 (Y-4)	206																								
	206	208			76																				
13+05 (Y-5)	210																								
13+18 (Y-5)	211																								
14+43.14 (Y-5)	212																								
	212	213										8													
14+43.14 (Y-5)	213																								
15+83.54 (Y-5)	214																								
SHEET TOTALS				24	76	160		636				816												13	

STATION	FROM	TO	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	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT DI TO JB
65+00 (-L-)	180		1			1			1		1															
	180	181																								
68+96.91 (-L-)	182																									
69+08.67 (-L-)																										
69+85.01 (-L-)																										
70+52.95(-L-)	183		1			1		1			1															
	183	184																								
71+08.07 (-L-)	184		1			1		1			1															
	184	185																								
71+57.99 (-L-)	185		1			1		1			1															
	185	186																								
74+91.55 (-L-)																										
76+19.98 (-L-)	187		1																		1				1	
	187	188																								
76+12.18 (-L-)	189		1																		1				1	
	189	190																								
75+42.24 (YIASBL)	191																									
105+75 (Y-2)	192		1												1					1						
	192	193																								
21+77.34 (Y-4)	194																									
23+37.38 (Y-4)	195																									
23+44.67 (Y-4)	195A																									
27+11.23 (Y-4)	196		1			1	1																			
	196	202																								
27+00 (Y-4)	197		1									1	1													
	197	202																								
28+82.09 (Y-4)	198		1			1	1																			
	198	199																								
28+81.96 (Y-4)	199		1							1					1		1									
	199	200																								
27+97 (Y-4)	200		1							1					1		1									
	200	201																								
27+97 (Y-4)	201		1			1	1																			
	201	202																								
27+00 (Y-4)	202		1			1		1																		
	202	203																								
25+72.35 (Y-4)	203		1			1		1																		
	203	204																								
27+09.62 (Y-4)	205		1			1	1																			
	205	206																								
27+00.68 (Y-4)	206		1									1	1													
	206	208																								
13+05 (Y-5)	210																								1	1
13+18 (Y-5)	211		1			1		1																		
14+43.14 (Y-5)	212		1			1			1																	
	212	213	1			1		1																		
14+43.14 (Y-5)	213		1																			1			1	
15+83.54 (Y-5)	214		1			1	1																			
SHEET TOTALS			22			14	5	7	2	2	4	2	2		3		2			1	2	1			4	1

STATION	FROM	TO	SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, C.Y.	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
65+00 (-L-)	180						
	180	181					
68+96.91 (-L-)	182						
69+08.67 (-L-)						100	
69+85.01 (-L-)						120	REMOVE EXIST. CATCH BASIN (2)
70+52.95(-L-)	183						
	183	184					
71+08.07 (-L-)	184						
	184	185					
71+57.99 (-L-)	185						
	185	186					
74+91.55 (-L-)						36	REMOVE EXIST. CATCH BASIN (2)
76+19.98 (-L-)	187						
	187	188					
76+12.18 (-L-)	189						
	189	190					
75+42.24 (YIASBL)	191						HW
105+75 (Y-2)	192						
	192	193					
21+77.34 (Y-4)	194						
23+37.38 (Y-4)	195						HW
23+44.67 (Y-4)	195A						HW
27+11.23 (Y-4)	196						
	196	202					
27+00 (Y-4)	197						
	197	202					
28+82.09 (Y-4)	198						
	198	199					
28+81.96 (Y-4)	199						
	199	200					
27+97 (Y-4)	200						
	200	201					
27+97 (Y-4)	201						
	201	202					
27+00 (Y-4)	202						
	202	203					
25+72.35 (Y-4)	203						
	203	204					
27+09.62 (Y-4)	205						
	205	206					
27+00.68 (Y-4)	206						
	206	208					
13+05 (Y-5)	210						Conv. DI to JB w/MH
13+18 (Y-5)	211						
14+43.14 (Y-5)	212						
	212	213					
14+43.14 (Y-5)	213						
15+83.54 (Y-5)	214						
SHEET TOTALS						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.)	(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:	FRANK FLEMING	DATE:	1/1/2010
CHECKED BY:	KEITH HUDSON	DATE:	4/1/2010

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4007B	3-G

CSD242776

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

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
		214	215		44.3	44																					
15+83.53 (Y-5)	RT	215		47.9	44																						
		215	216		44	40.7																					
15+83.45 (Y-5)	RT	216		48.4	40.7																						
16+00 (Y-5)	LT	217		46.6	43.6																						
		217	218		43.6	40.4																					
16+00 (Y-5)	LT	218		47.87	40.4																						
17+03.67 (Y-5)	LT	219		47	44																						
		219	222		44	41																					
17+03 (Y-5)	LT	222		47.74	41																						
		222	223		41	40.7																					
16+77.50 (Y-5)	LT	223		47.67	40.7																						
17+47 (Y-5)	RT	226		47.8	40.7																						
17+76.78 (Y-5)	RT	227		46.2	41.28																						
19+04.42 (Y-5)	RT	228		47.05	44.05																						
		228	229		44.05	41.27																					
18+76.08 (Y-5)	RT	229		47	41.27																						
18+74.41 (Y-5)	RT	230		47.64	41.25																						
19+71.65 (Y-5)	LT	231		47.25	44.25																						
		231	232		44.25	44.13																					
20+07 (Y-5)	LT	232		47.18	44.13																						
		232	233		44.13	44																					
20+61.01 (Y-5)	LT	233		47.39	44																						
		233	234		44	43.5																					
21+61.61 (Y-5)	LT	234		47.85	43.5																						
		234	237		43.5	43.2																					
20+62.45 (Y-5)	RT	235		46.81	43.64																						
		235	236		43.64	43.55																					
20+58.21 (Y-5)	RT	236		47.74	43.55																						
		236	237		43.55	43.2																					
21+63.01 (Y-5)	RT	237		47.85	43.2																						
16+75-18+33(Y5)	LT																										
SHEET TOTAL																											
GRAND TOTAL									3625				512														

STATION	STRUCTURE NO. FROM	STRUCTURE NO. TO	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	30" R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE
	214	215		6																			
15+83.53 (Y-5)	215																						
	215	216										12											
15+83.45 (Y-5)	216																						
16+00 (Y-5)	217																						
	217	218		6																			
16+00 (Y-5)	218																						
17+03.67 (Y-5)	219																						
	219	222		6																			
17+03 (Y-5)	222																						
	222	223												24									
16+77.50 (Y-5)	223																						
17+47 (Y-5)	226																						
17+76.78 (Y-5)	227																						
19+04.42 (Y-5)	228																						
	228	229										28											
18+76.08 (Y-5)	229																						
18+74.41 (Y-5)	230																						
19+71.65 (Y-5)	231																						
	231	232										36											
20+07 (Y-5)	232																						
	232	233										52											
20+61.01 (Y-5)	233																						
	233	234										100											
21+61.61 (Y-5)	234																						
	234	237										40											
20+62.45 (Y-5)	235																						
	235	236		20																			
20+58.21 (Y-5)	236																						
	236	237										104											
21+63.01 (Y-5)	237																						
16+75-18+33(Y5)																							
SHEET TOTAL												372		24									
GRAND TOTAL				912	384	900		1320	520	56		4606	244	312	452	224	348	648	428				

STATION	STRUCTURE NO. FROM	STRUCTURE NO. TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS 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	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT DI TO JB	SIDE DRAIN PIPE ELBOWS NO. & SIZE	FLOWABLE FILL, C.Y.	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
	214	215																															
15+83.53 (Y-5)	215				1			1	1																								
	215	216																															
15+83.45 (Y-5)	216				1																			1			1						REMOVE DI
16+00 (Y-5)	217				1			1	1																								
	217	218																															
16+00 (Y-5)	218				1			1			1																						
17+03.67 (Y-5)	219				1			1	1																								
	219	222																															
17+03 (Y-5)	222				1			1			1																						
	222	223																															
16+77.50 (Y-5)	223				1			1			1																						
17+47 (Y-5)	226				1																			1			1						REMOVE DI
17+76.78 (Y-5)	227				1			1			1																						
19+04.42 (Y-5)	228				1			1	1																								
	228	229																															
18+76.08 (Y-5)	229				1			1		1																							
18+74.41 (Y-5)	230				1																			1			1						REMOVE DI
19+71.65 (Y-5)	231				1			1		1																							
	231	232																															
20+07 (Y-5)	232				1			1		1																							
	232	233																															
20+61.01 (Y-5)	233				1			1		1																							
	233	234																															
21+61.61 (Y-5)	234				1			1		1																							ADJUST TOP OF EX. CB
	234	237																															
20+62.45 (Y-5)	235				1									1	1																		
	235	236																															
20+58.21 (Y-5)	236				1			1			1																						
	236	237																														36	
21+63.01 (Y-5)	237				1			1			1																						ADJUST TOP OF EX. CB
16+75-18+33(Y5)																																160	
SHEET TOTAL					19			15	4	5	6			1	1									3			3					196	
GRAND TOTAL			55		145	2.1		69	18	29	22	8	32	3	3	1	60	1	39	20	1	3	6	5			15	4	36 (15")	28	1	1023	

ABBREVIATIONS

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

COMPUTED BY:	FRANK FLEMING	DATE:	1/1/2010
CHECKED BY:	KEITH HUDSON	DATE:	4/1/2010

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-4007B	3-H

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 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"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 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" .139	72" .168	STRUCTURAL PLATE PIPE 60" 12	60" 10	66" 12	66" 10	72" 12	72" 10	REINFORCED ENDWALLS WITH R.C. - C.Y.	REINFORCED ENDWALLS WITH C.S. - C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR 840.02	FRAMES, GRATES & HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & Size	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
16+61.29 (-L-)	CL	119			32.9	32.1			244																			11.2															HW and EW
40+25.26 (-L-)	CL	147			36	34.9					224																	14.2															HW and EW
SHEET TOTALS									244		224																	26															

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

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COMPUTED BY: KFH DATE: Sept 2010

CHECKED BY: DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	3-I

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBT + %	BORROW	WASTE
SUMMARY NO. 1							
Y-2 AUX. LA	50+00.00	62+00.00	1,283		2,035	752	
Y-2 NBL	61+99.05	63+25.00	88		28		61
NBL RAMP	10+00.00	21+95.00	946		42,435	41,489	
SBL RAMP	10+00.00	21+88.00	750		35,233	34,483	
PR-1	10+90.00	12+24.13	208		1		207
TOTAL SUMMARY NO. 1			**3,275**		**79,732**	**76,724**	**268**
SUMMARY NO. 2							
NBL RAMP	22+78.50	34+88.50	279		38,053	37,774	
SBL RAMP	22+85.50	41+46.50	295		98,730	98,435	
Y-2	81+10.00	89+50.00	1,543		123,675	122,132	
RAMP 1B	16+40.86	26+92.31	1,473		3,239	1,766	
SER. ROAD	10+10.06	22+00.00	1,490	858	1,573	224	999
TOTAL SUMMARY NO. 2			**5,080**	**858**	**265,270**	**260,331**	**999**
SUMMARY NO. 3							
NBL RAMP	37+06.00	40+87.00	2		66,254	66,252	
Y-2	89+50.00	108+50.00	3,761	1,957	34,493	30,732	1,957
Y-2 CONN.	10+00.00	14+81.01	350		2,171	1,821	
TOTAL SUMMARY NO. 3			**4,113**	**1,957**	**102,918**	**98,805**	**1,957**
SUMMARY NO. 4							
NBL RAMP	42+47.50	50+54.94	1	265	53,080	53,079	265
SBL RAMP	42+57.00	50+81.29		705	55,219	55,219	705
L-LINE	10+00.00	13+50.00			13,488	13,488	
Y-1A SBL	49+33.02	71+03.25	10,509	1,483	13,743	3,234	1,483
PR 2	10+19.55	12+55.00	6		55	49	
TOTAL SUMMARY NO. 4			**10,516**	**2,453**	**135,585**	**125,069**	**2,453**
SUMMARY NO. 5							
RAMP-1A	16+30.09	26+95.19	23	547	17,780	17,757	547
LOOP-1A	13+30.37	21+61.21	7	1,122	8,281	8,274	1,122
LOOP-1D	13+50.00	20+53.93	2,383	1,871	6,794	4,411	1,871
TOTAL SUMMARY NO. 5			**2,413**	**3,540**	**32,855**	**30,442**	**3,540**

LOCATION	STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBT + %	BORROW	WASTE
SUMMARY NO. 6							
L-LINE	13+50.00	41+00.00	146	1,140	85,375	85,229	1,140
Y-4	10+36.17	30+00.00	421	1,942	11,353	11,042	2,052
Y-4A	12+25.00	16+43.50	111		1,124	1,013	
TOTAL SUMMARY NO. 6			**678**	**3,082**	**97,852**	**97,284**	**3,192**
SUMMARY NO. 7							
L-LINE	41+00.00	76+58.49	3,798	4,268	92,619	88,931	4,378
Y-5	10+35.20	22+41.44	574	3,324	4,659	4,085	3,324
TOTAL SUMMARY NO. 7			**4,372**	**7,592**	**97,278**	**93,016**	**7,702**
PROJECT SUBTOTAL			**30,447**	**19,482**	**811,489**	**781,670**	**20,111**
ADJUSTMENT DUE TO:							
EMBANKMENT FOR UNDERCUT					24,353	24,353	
MATERIAL FOR SHOULDER CONSTRUCTION					13,750	13,750	
LOSS DUE TO CL. & GRUBBING							
GRADE POINT UNDERCUT				1,400	1,750	1,750	1,400
UNDERCUT FOR EMBANK. STABILIZATION				830	1,038	1,038	830
ADDITIONAL UNDERCUT				2,300	2,875	2,875	2,300
SELECT MATERIAL, CLASS III					-68,100	-68,100	
WASTE IN LIEU OF BORROW						-268	-268
PROJECT TOTALS			**30,447**	**24,012**	**787,155**	**757,068**	**24,373**
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT						37,853	
GRAND TOTAL			30,447	24,012	787,155	794,921	24,373
SAY			**30,500**	**24,100**		**795,000**	
FABRIC FOR SOIL STABILIZATION			65,300 SY				
CLASS IV SUBGRADE STABILIZATION			1,450 TONS				
STABILIZER AGGREGATE			8,700 TONS				
EST DRAINAGE DITCH EXCAVATION			5,500 CY				
PAVEMENT STRUCTURE VOLUME			5,980 CY				
SHALLOW UNDERCUT			500 CY				

NOTES

1. QUANTITIES ARE APPROXIMATE ONLY. THE RESIDENT ENGINEER WILL RECROSS-SECTION THE WORK ACCURATELY WHEN THE PROJECT IS STAKED OUT. THESE CROSS-SECTION NOTES WILL BE USED IN COMPUTING THE FINAL QUANTITIES FOR WHICH THE CONTRACTOR WILL BE PAID.
2. 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.

COMPUTED BY: *KEITH HUDSON* DATE: *APRIL 2010*
CHECKED BY: _____ DATE: _____

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	*3-J*

"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 BEGIN

GUARDRAIL SUMMARY

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

SURVEY LINE	BEG. STA.	END STA.	SIDE	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE & STOCKPILE EXISTING GUIDERAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE III	TERM SECT	GRAU 350	M-350	CAT-1	B-77	AT-1	CONCRETE GUIDERAIL ANCHOR	G	NG			
NBL-RAMP	62+61.38 (Y-2)	21+58.38	RT.	1225.00			62+61.38	Barrier Wall	12	15	50	-	1	-			1			1							
NBL-RAMP	19+76.52	21+39.02	LT.	162.50			19+76.52	Bridge	Var	Var	143.75	-	11	4				1		1							
NBL-RAMP	23+24.12	12+58.93 (CC)	RT.	925.00			Bridge	Dead End	10	13	165	-	2	-					1	1							
NBL-RAMP	31+55.00	34+05.00	LT.	250.00			31+55.00	Barrier Wall	6	9	50	119.88	1	10			1			1							
NBL-RAMP	32+71.09	34+71.09	RT.	200.00			32+71.09	Bridge	10	13	50	-	1	-			1			1							
NBL-RAMP	37+91.49	40+61.17	RT.	269.68			Bridge	Bridge	10	13	-	221.75	-	6						2							
NBL-RAMP	39+23.67	40+61.17	LT.	137.50			39+23.67	Bridge	Var	Var	-	118.75	10	4			1			1							
NBL-RAMP	42+83.58	44+58.58	LT.	175.00			Bridge	44+50.00	6	6	-	-	4	6					1	1							
NBL-RAMP	42+83.58	44+58.58	RT.	175.00			Bridge	44+50.00	6	12	-	-	6	12					1	1							
SBL-RAMP	11+45.16	21+20.16	LT.	975.00			11+45.16	Bridge	12	15	-	50	2	-					1	1							
SBL-RAMP	23+16.88	30+91.88	LT.	775.00			Bridge	30+91.88	12	15	50	50	2	1			1			1							
SBL-RAMP	23+38.82	25+01.32	RT.	162.50			Bridge	25+01.32	Var	Var	143.75	-	11	4				1		1							
SBL-RAMP	42+97.89	44+34.89	RT.	137.50			Bridge	44+34.89	Var	Var	-	118.75	4	10			1			1							
SBL-RAMP	42+90.52	44+40.52	LT.	150.00			Bridge	44+40.52	Var	Var	-	131.25	6	12			1			1							
Y1A SBL	49+62.50	51+12.50	RT.	150.00			51+00.00	51+00.00	12	15	50	-	1	-			1		1								
Y1A SBL	59+85.78	62+47.79	RT.	225.00	50		60+04.00	61+86.00	5.67	VAR	-	-	-	-					1		1						
Y2	63+12.50	65+12.50	LT.	200.00			65+00.00	65+00.00	6	EXIST	50	-	1	-			1		1								
Y2	64+87.50	66+87.50	LT.	200.00			65+00.00	65+00.00	6	EXIST	50	-	1	-			1		1								
Y2	71+86.67	72+36.67	RT.	50.00			71+86.67	72+36.67	12	15	50	-	1	-			1										
Y2	77+92.13	78+42.13	LT.	50.00			77+92.13	78+42.13	12	15	-	50	-	1			1										
Y2	83+39.00	84+89.00	RT.	150.00			83+39.00	Barrier Wall	12	15	50	-	1	-			1			1							
Y2	84+89.00	88+24.00	RT.																						335.0		
Y2	103+62.50	105+12.50	LT.	150.00			105+00.00	105+00.00	6	6	50	-	1	-			1		1								
Y2	104+92.50	106+42.50	LT.	150.00			105+00.00	105+00.00	6	6	50	-	1	-			1		1								
L	13+62.50	15+12.50	LT.	150.00			15+00.00	15+00.00	6	6	50	-	1	-			1		1								
L	(Y4) 11+98.66	15+28.36	RT.	112.50	62.5		15+00.00	15+00.00	8	11	50	-	4	-					1		1						
L	14+87.50	16+37.50	LT.	150.00			15+00.00	15+00.00	6	6	50	-	1	-			1		1								
L	41+85.00	48+25.00	LT.																						640.0		
L	48+25.00	49+75.00	LT.	150.00			Barrier Wall	49+75.00																			
L	44+50.00	52+25.00	RT.	775.00			1.5:1 Slope	52+25.00	12	15	50	-	1	-			1		1								
RAMP CC	12+71.00	-		25.00			Barricade								2												
SUBTOTAL				8407.18	112.5									**SUBTOTAL ANCHORS**	2	18	2	14	16	2				975.0		
DEDUCTIONS FROM ANCHORS				1262.50																						
DEDUCTIONS FROM RESET GUARDRAIL				3450.00																						
TOTAL				3694.68																						
SAY				**3700.00**	**112.5**																				**980.0**		
REMOVE AND RESET GUARDRAIL AND ANCHORS																											
Y2	62+67.49	72+36.67	RT.	969.18													1										
Y2	63+28.09	73+49.08	LT.	1020.99															1								
Y2	77+92.13	84+63.37	LT.	671.24													1										
Y2	76+44.09	84+12.74	RT.	768.65															1								
TOTAL REMOVE AND RESET				3430.06																							
SAY				**3450.00**										**SUBTOTAL ANCHORS**	0	2		2									
														TOTAL ANCHORS	2	16	2	12	16	2							

ANCHOR TYPE	DEDUCTIONS		LF	TOTAL
GRAU-350	16	@	50	800
M-350	2	@	37.5	75
CAT-1	12	@	6.25	75
B-77	16	@	18.75	300
AT-1	2	@	6.25	12.5
TOTAL DEDUCTIONS =				**1262.50**

GUIDERAIL SUMMARY

REMOVE AND STOCKPILE GUIDERAIL																											
Y2	81+10.00	38+33 +/- (SBL RP)	LT.																						**953**		
PROPOSED GUIDERAIL ANCHOR																											
Y2	81+10.00	81+35.00	LT.																								
ADDITIONAL GUARDRAIL POSTS				**10**																							

COMPUTED BY: KFH	DATE: FEB. 2010
CHECKED BY: RAW	DATE: JUNE 2010

JAMSRA

PROJECT NO.	SHEET NO.
U-4007B	3-K

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BREAKING OF EXISTING CONC. PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YD'S
SBL RAMP	38+35.57	40+93.34		4191		465.67
					SAY	470

REMOVAL OF EXISTING ASPH. PAVEMENT

Y1A SBL	54+51.41	70+50.81		29873		3319.22
HAWKSIDE RD.				7528		836.44
Y-2	103+04.00	107+90.00	RT.	19572		2174.67
						6330.33
					SAY	6350

BREAKING OF EXISTING ASPH. PAVEMENT

SBL RAMP	10+00.00	21+94.46	LT/RT	9260		1028.89
SBL RAMP	24+04.78	41+03.53	LT/RT	82551		9172.33
Y-1A SBL	50+07.08	881+85.98	LT/RT	107682		11964.67
HAWKSIDE RD.				18706		2078.44
Y-4	28+77.53	29+52.42		817		90.78
						24335.11
					SAY	24,340

WOVEN WIRE FENCE

E = [A - (8B + 16C + 16D)] - (B + C + D) F = (2B + 3C + 3D)
14 2

STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POST	F 5" POST
NBL RAMP							
10+08.07 TO 18+91.50	RT.	901.23	2	1	3	56	16
23+37.96 TO 27+20.81	RT.	501.63	2	3		29	13
27+50.26 TO 30+51.88	RT.	330.93	1	1		21	5
SBL RAMP							
12+06.22 TO 13+66.92	LT.	159.2	2			9	4
23+30.00 TO 26+27.87	LT.	410.24	2	4		21	16
26+39.88 TO 30+21.97	LT.	399.87	2	1	1	23	10
L-LINE							
15+11.22 TO 39+07.46	RT.	2459.97		5	7	156	36
41+07.46 TO 52+51.38	RT.	1230.49	1	6	2	74	26
53+11.39 TO 72+94.34	RT.	1853.02	2	2	6	117	28
73+54.34 TO 75+94.34	RT.	240	2			15	4
15+93.95 TO 25+20.00	LT.	938.71	2		3	60	13
25+80.00 TO 43+81.05	LT.	1780.24	1	4	5	111	29
43+81.05 TO 63+05.00	LT.	2028.33	1	5	5	127	32
63+65.00 TO 72+33.07	LT.	962.45	2		3	62	13
72+93.07 TO 76+14.39	LT.	321.32	2			21	4
RP CC 10+72.95 TO Y-2 94+67.16	RT.	945.68	1		3	62	11
Y-4							
11+00± TO 19+00.00	RT.	808.7	1		3	52	11
11+01.00 TO 19+00.00	LT.	789.47	1		3	50	11
Y-5							
10+98.46 TO 13+01.42	RT	225.17	1	1		13	5
11+00.02 TO 12+65.47	LT	199.25	1	1		12	5.00
TOTAL		17485.9				1090	292.00
SAY		17490				1090	300.00

ADDITIONAL BARBED WIRE 100 LF

CHAIN LINK FENCE

E = [A - (8B + 16C + 16D)] + (B + 2C + 2D) - (B + C + D) F = (B + C + D)
12 2

STATION TO STATION	LT. OR RT.	A FABRIC L. F.	B EMD BRACE	C CPRNER BRACE	D LINE BRACE	E LINE POSTS	F TERMINAL POST
SERVICE ROAD							
10+67.00 TO 22+45.32	LT.	1310	2	2		109.17	4
Y1A SBL							
50+05.57 TO 54+63.53	LT.	454.91	1	1		37.91	2
67+40.00 TO 77+32.56	LT.	1052.61	1	4		88.22	5
RAMP 1A							
10+00.00 TO 26+29.05	RT.	1668.64	1	1	2	139.39	4
LOOP ID							
15+26.54 TO 19+73.26	LT.	672.83		2		56.40	2
NBL RAMP							
48+07.55 TO 50+54.94	RT.	367.78				30.65	
L-LINE							
10+00.00 TO 14+07075	RT.	309.09	1	1		25.76	2
Y-2							
103+30.68 to 107+99.16	RT	468				39.00	
SBL RAMP							
13+66.92 TO 20+61.03	LT	812.02	2	1		67.50	3
TOTAL		7115.88				593.99	22
SAY		7116				594	22

PROJ. REFERENCE NO.	SHEET NO.
U-4007B	3-L

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	ROBERT S. MONK, et ux
1Z	4	ROBERT S. MONK, et ux
3	4	CITY OF JACKSONVILLE
4	4	BARDEN B. LANIER
4Z	4	BARDEN B. LANIER
4A	4	NC DEPT. OF TRANSPORTATION
3	5	CITY OF JACKSONVILLE
5A	5	NC DEPT. OF TRANSPORTATION
4	5	BARDEN B. LANIER
4Z	5	BARDEN B. LANIER
5	5	ALLIED BEHAVIORAL HOMES INC.
5Z	5	ALLIED BEHAVIORAL HOMES INC.
7A	5	NC DEPT. OF TRANSPORTATION
7	5	KEYSTONE CONTRACTORS PARTNERSHIP
7B	5	RICHARD C. PETERS
10	5	OUT ISLAND, LLC
9	5	M. HENDERSON & D. BROWN HEIRS
3	5	CITY OF JACKSONVILLE
7	6	KEYSTONE CONTRACTORS PARTNERSHIP
10	6	OUT ISLAND, LLC
11C	6	RUFUS E. MURRAY
11D	6	JERRY SHEPARD
11E	6	JAMES BROWN, et ux
11F	6	RUTHIE OLLISON
11	6	RUFUS E. MURRAY, et ux
11A	6	EMMA SIDBURY
11B	6	DAISY BELL PEARSON HEIRS
908	6	ROCK T. WITTMAN, et al
907	6	CAROLINA GAS PARTNERS LLC
13	6	ARDIE MONTFORD et al
906	6	RICHARD S. NEWTON
909	6	LONGLEY SUPPLY COMPANY OF JACKSONVILLE, INC.
14	6	TERENCE NICHOLS
15	6	ALONZO PERKINS
16	6	VANESA A. PERKINS, et ux
17	6	WINSTON W. PERKINS, et ux
911	6	EARNEL PERKINS, et ux
912	6	LETTICE L. GRAHAM, et vir
18	6	SALLIE H. GUINN
913	6	SALLIE B. GUINN
19	6	TRUDIE H. BENNETT
914	6	FLORA D. MORRISON
918	6	R. M. TALLMAN, HEIRS
910	6	ROBERT L. TOUDLE
905	6	MICHAEL J. PADGETT, et ux
918	7	R. M. TALLMAN, HEIRS
911	7	EARNEL PERKINS, et ux
918	8	R. M. TALLMAN, HEIRS
21	8	LIMA HOLDINGS, LLC
21	9	LIMA HOLDINGS, LLC
918	9	R. M. TALLMAN, HEIRS
23	9	IA JACKSONVILLE GATEWAY LLC
22	9	SYDNEY M. ROCHESTER
25	9	TARGET CORP.
23	10	IA JACKSONVILLE GATEWAY LLC
25	10	TARGET CORP.
26	10	KENNITH P. WHICHARD, JR.
26	11	KENNITH P. WHICHARD, JR.
28	11	S. DOUGLAS PADGETT, JR.
27	11	WESTERN PARKWAY, LLC

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
7	12	KEYSTONE CONTRACTORS PARTNERSHIP
903	12	BAILEY & FULLER PROPERTIES
30A	12	TEXAS ROADHOUSE HOLDINGS, LLC
29	12	4 CORNERS PROPERTIES, LLC CAPE FEAR MEDICAL CENTER
30B	12	TEXAS ROADHOUSE HOLDINGS, LLC
918	12	R. M. TALLMAN, HEIRS
918	13	R. M. TALLMAN, HEIRS
32	13	ED BROWN HEIRS
34	13	RUBY TUESDAY, INC.
31	13	CONRAD HAUGEN HEIRS
33	13	STATE EMPLOYEES CREDIT UNION
23	14	IA JACKSONVILLE GATEWAY LLC
21	14	LIMA HOLDINGS, LLC
35	14	JEAN S. CORPENING TRUSTEE, et al

8/17/99

REVISIONS

END PROJECT U-4007A
POT Sta. 62+00.00 (Y-2) BK

BEGIN PROJECT U-4007B
POT Sta. 61+99.05 (Y-2) AHD

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
7/30/10

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
7/30/10

Stantec
Stantec Consulting Services Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC
27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com

SBL-RAMP
PI Sta 12+52.71
Δ = 3° 37' 07.1" (LT)
D = 0° 42' 58.3"
L = 505.26'
T = 252.71'
R = 8,000.00'
e = .025
D = 60 MPH

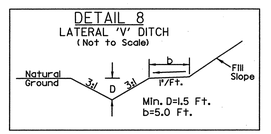
SBL-RAMP
PI Sta 17+57.97
Δ = 3° 37' 07.1" (RT)
D = 0° 42' 58.3"
L = 505.26'
T = 252.71'
R = 8,000.00'
e = .025
D = 60 MPH

POT Sta.62+00.00 Y-2
POT Sta.10+00.00 SBL-RAMP (58.6' LT)

POT Sta.63+28.00 Y-2
POT Sta.10+00.00 NBL-RAMP (46.0' RT)

NBL-RAMP
PI Sta 16+19.88
Δ = 4° 07' 00.0" (LT)
D = 0° 42' 58.3"
L = 574.80'
T = 287.52'
R = 8,000.00'
e = .025
DS = 60 MPH

DETAIL 8
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 10+00 NBL-RAMP TO 19+00 NBL-RAMP RT
STA 10+50 SBL-RAMP LT TO STA 13+75 SBL-RAMP LT

LEGEND

PROPOSED PAVED SHOULDER

EXISTING SHL'D.BERM GUTTER REMOVAL

REFERENCES:
FOR PROFILE OF NBL-RAMP SEE SHEET 18
FOR PROFILE OF SBL-RAMP SEE SHEET 20

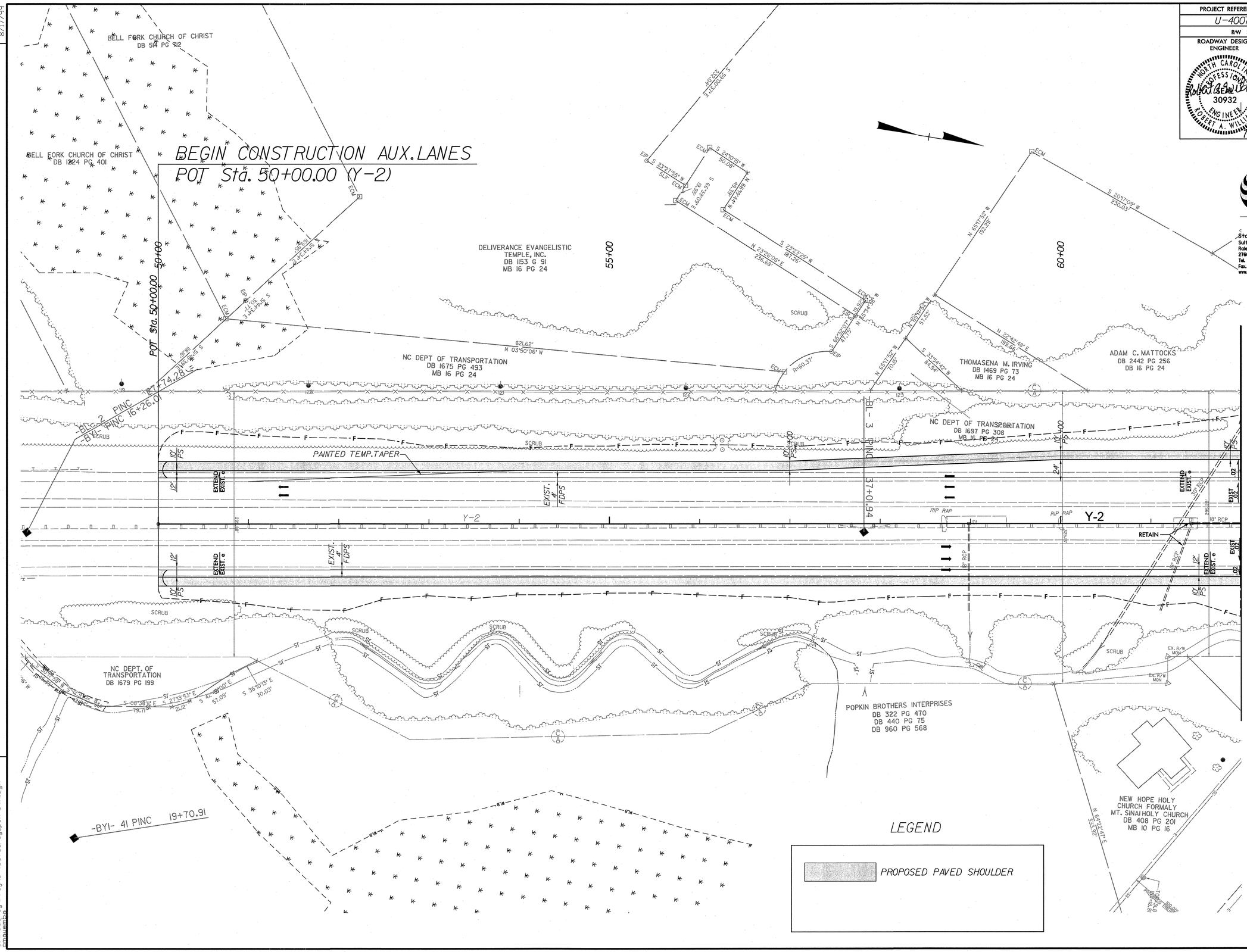
MATCHLINE SHEET STA.62+00.00, SEE SHEET 4A

MATCHLINE SHEET 5 STA.70+00.00

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	4A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS 7/30/10

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 7/30/10



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8/17/99

7/28/2010
U:\Roadway\Proj\u-4007b_rdy_psh 04A.dgn
amquembo

FOR RCBC EXTENSION,SEE C-1 THRU C-10

A POT Sta. 42+27.41 SBL-RAMP= POC Sta. 60+35.83 Y-1A SBL

B POT Sta. 41+19.38 NBL-RAMP= POT Sta. 10+42.83 Y-2 CONN

C POT Sta. 42+15.92 NBL-RAMP= POC Sta. 61+59.28 Y-1A SBL

LEGEND

- PROPOSED PAVED SHOULDER
- OBLITERATE REMOVE & GRADE TO DRAIN
- EXISTING SHL'D.BERM GUTTER REMOVAL
- PROPOSED PSRM (PERMANENT SOIL REINFORCEMENT MATTING)
- PROPOSED SINGLE FACED CONC.BARRIER
- EXISTING SIGNAL TO BE MODIFIED

REFERENCES:
FOR CURVE DATA,SEE SHEET 6A
FOR PROFILE OF L-LINE,SEE SHEETS 15
FOR PROFILE OF NBL-RAMP,SEE SHEETS 19
FOR PROFILE OF SBL-RAMP,SEE SHEETS 21
FOR PROFILE OF RAMP-1A,SEE SHEET 22
FOR PROFILE OF RAMP-IB,SEE SHEET 23
FOR PROFILE OF RAMP CC,SEE SHEET 23
FOR PROFILE OF LOOP-1A,SEE SHEET 24
FOR PROFILE OF LOOP-ID,SEE SHEET 24
FOR PROFILE OF Y-1A SBL,SEE SHEET 25
FOR PROFILE OF Y-2 CONN,SEE SHEET 26
FOR PROFILE OF Y-2 SEE,SHEET 27
FOR PROFILE OF SERV.RD,SEE SHEET 31
FOR SHEAR POINT LAYOUT,SEE SHEET 2G
FOR MSE RET.WALL,SEE SHEET RW-3 & RW-4

NOTES:
THE EXISTING PAVEMENT IS TO BE REMOVED AND THE ROADBED SCARIFIED TO A MINIMUM DEPTH OF 2'-0" (610MM) BELOW ORIGINAL SURFACE IN THE AREA WHERE PILES ARE TO BE DRIVEN THROUGH THE PROPOSED EMBANKMENT, AS DIRECTED BY THE ENGINEER. (AT STR.4/END BENT 1)

PROJECT REFERENCE NO. U-4007B	SHEET NO. 6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Stantec
Stantec Consulting Services Inc.

LOCATION:
WESTERN PARKWAY
MARTIN LUTHER KING FREEEWAY
@ MARINE BOULEVARD, IN THE CITY OF JACKSONVILLE, NC

TIP NO.: U-4007B	COUNTY: ONSLOW
DESIGNED BY: ROBERT WILLIAMS	
CHECKED BY: KEITH F. HUDSON	DATE: NOVEMBER 24, 2008

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	6A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS 8/2/10

L-LINE
PI Sta 15+10.06
Δ = 19° 17' 54.5" (RT)
D = 1° 54' 35.5"
L = 1,010.47'
T = 510.06'
R = 3,000.00'
e = .04
DS = 50 MPH

NBL-RAMP
PIs Sta 26+56.88
Θs = 2° 51' 53.2"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

NBL-RAMP
PIs Sta 29+23.56
Θs = 4° 01' 14.7"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

NBL-RAMP
PI Sta 34+09.30
Δ = 32° 46' 41.2" (LT)
D = 4° 01' 14.7"
L = 815.22'
T = 419.10'
R = 1,425.00'
e = .06
DS = 50 MPH

NBL-RAMP
PIs Sta 38+72.11
Θs = 4° 01' 14.7"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

NBL-RAMP
PIs Sta 45+65.31
Θs = 1° 55' 29.8"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

NBL-RAMP
PI Sta 48+43.81
Δ = 8° 08' 30.9" (RT)
D = 1° 55' 29.8"
L = 422.97'
T = 211.84'
R = 2,976.50'
e = .040
DS = 60 MPH

SBL-RAMP
PIs Sta 33+57.48
Θs = 4° 46' 28.7"
Ls = 200.00'
LT = 133.38'
ST = 66.71'

SBL-RAMP
PI Sta 35+89.59
Δ = 15° 42' 17.4" (LT)
D = 4° 46' 28.7"
L = 328.92'
T = 165.50'
R = 1,200.00'
e = .08
DS = 45 MPH

SBL-RAMP
PIs Sta 38+19.73
Θs = 4° 46' 28.7"
Ls = 200.00'
LT = 133.38'
ST = 66.71'

SBL-RAMP
PIs Sta 50+14.63
Θs = 1° 53' 42.1"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

RAMP-IA
PIs Sta 15+33.44
Θs = 7° 09' 43.1"
Ls = 200.00'
LT = 133.44'
ST = 66.77'

RAMP-IA
PI Sta 17+43.07
Δ = 20° 16' 42.9" (RT)
D = 7° 09' 43.1"
L = 283.14'
T = 143.07'
R = 800.00'
e = .075
DS = 45 MPH

RAMP-IA
PIs Sta 19+49.91
Θs = 7° 09' 43.1"
Ls = 200.00'
LT = 133.44'
ST = 66.77'

RAMP-IA
PIs Sta 22+17.54
Θs = 22° 12' 27.6"
Ls = 200.00'
LT = 134.40'
ST = 67.64'

RAMP-IA
PI Sta 23+54.46
Δ = 30° 54' 18.8" (LT)
D = 22° 12' 27.6"
L = 139.16'
T = 71.32'
R = 258.00'
e = .08
DS = 45 MPH

LOOP-IA
PIs Sta 12+04.65
Θs = 37° 22' 00.5"
Ls = 300.00'
LT = 204.65'
ST = 104.24'

LOOP-IA
PI Sta 23+80.49
Δ = 204° 02' 02.6" (LT)
D = 24° 54' 40.4"
L = 819.05'
T = 1,080.49'
R = 230.00'
e = .08
DS = 30 MPH

LOOP-IA
PIs Sta 22+23.28
Θs = 37° 22' 00.5"
Ls = 300.00'
LT = 204.65'
ST = 104.24'

RAMP-IB
PIs Sta 13+95.55
Θs = 10° 13' 53.0"
Ls = 200.00'
LT = 133.56'
ST = 66.87'

RAMP-IB
PI Sta 21+06.92
Δ = 98° 03' 47.1" (LT)
D = 10° 13' 53.0"
L = 958.45'
T = 644.92'
R = 560.00'
e = .08
DS = 45 MPH

RAMP-IB
PIs Sta 24+87.32
Θs = 10° 13' 53.0"
Ls = 200.00'
LT = 133.56'
ST = 66.87'

LOOP-ID
PIs Sta 12+04.65
Θs = 37° 22' 00.5"
Ls = 300.00'
LT = 204.65'
ST = 104.24'

LOOP-ID
PI Sta 29+89.33
Δ = 195° 30' 22.2" (RT)
D = 24° 54' 40.4"
L = 784.81'
T = 1,689.33'
R = 230.00'
e = .075
DS = 30 MPH

LOOP-ID
PIs Sta 21+89.05
Θs = 37° 22' 00.5"
Ls = 300.00'
LT = 204.65'
ST = 104.24'

Y-IA SBL
PIs Sta 50+66.67
Θs = 0° 49' 06.6"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

Y-IA SBL
PI Sta 52+31.83
Δ = 4° 18' 50.6" (LT)
D = 1° 38' 13.3"
L = 263.53'
T = 131.83'
R = 3,500.00'
e = .035
DS = 50 MPH

Y-IA SBL
PIs Sta 53+96.87
Θs = 0° 49' 06.6"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

Y-IA SBL
PIs Sta 55+30.20
Θs = 0° 49' 06.6"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

Y-IA SBL
PI Sta 56+52.60
Δ = 2° 54' 55.7" (RT)
D = 1° 38' 13.3"
L = 178.10'
T = 89.07'
R = 3,500.00'
e = .035
DS = 50 MPH

Y-IA SBL
PIs Sta 57+79.22
Θs = 0° 07' 11.6"
F s = 0° 49' 06.7"
Ls = 100.00'
LT = 62.41'
ST = 37.59'

Y-IA SBL
PI Sta 60+50.46
Δ = 1° 00' 05.6" (RT)
D = 0° 14' 23.3"
L = 417.65'
T = 208.83'
R = 23,892.78'
e = NC LT
DS = 50 MPH

Y-IA SBL
PIs Sta 63+25.94
Θs = 0° 49' 47.6"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

Y-IA SBL
PI Sta 64+38.21
Δ = 2° 37' 10.6" (LT)
D = 1° 39' 35.2"
L = 157.83'
T = 78.93'
R = 3,452.00'
e = .035
DS = 50 MPH

Y-IA SBL
PIs Sta 65+50.44
Θs = 0° 49' 47.6"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

Y-IA SBL
PIs Sta 66+83.77
Θs = 0° 49' 06.6"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

Y-IA SBL
PI Sta 69+61.09
D = 1° 38' 13.3"
L = 487.18'
T = 243.98'
R = 3,500.00'
e = .035
DS = 50 MPH

Y-2
PIs Sta 85+83.81
Θs = 3° 10' 59.2"
Ls = 200.00'
LT = 133.35'
ST = 66.69'

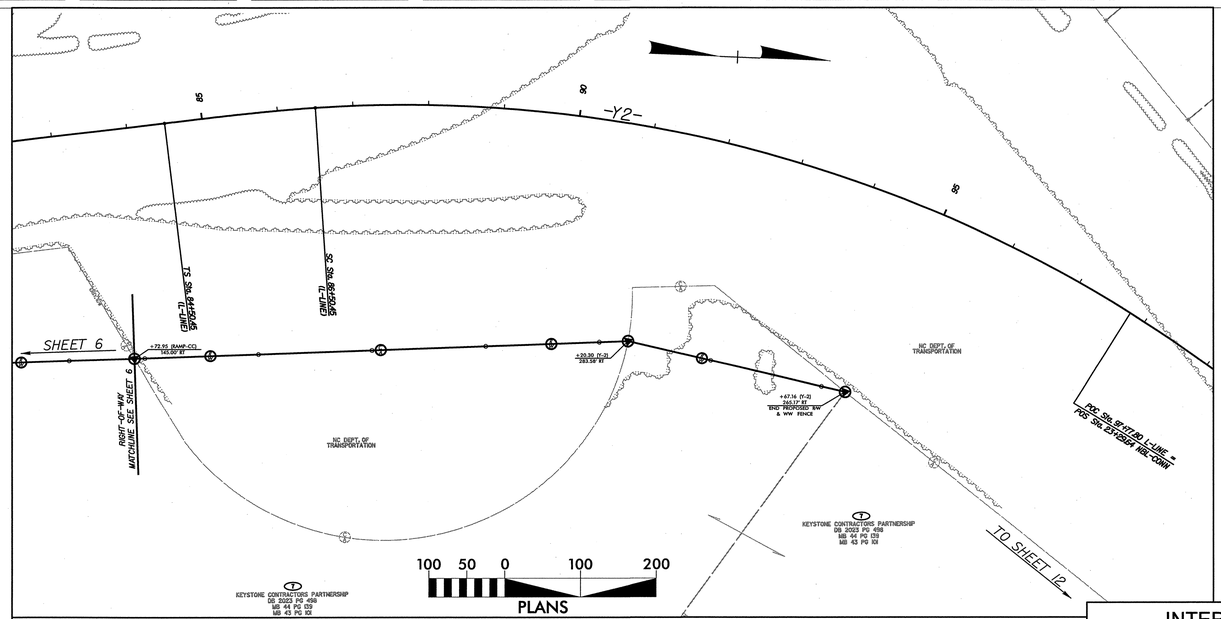
Y-2
PI Sta 95+08.92
Δ = 50° 59' 44.2" (RT)
D = 3° 10' 59.2"
L = 1,602.07'
T = 858.47'
R = 1,800.00'
e = .055
DS = 50 MPH

Y-2 CONN
PI Sta 12+74.83
Δ = 35° 15' 59.9" (RT)
D = 10° 25' 02.7"
L = 338.54'
T = 174.82'
R = 550.00'
e = .04
DS = 35 MPH

SER-I
PI Sta 11+51.42
Δ = 60° 37' 17.2" (RT)
D = 30° 09' 20.4"
L = 201.03'
T = 111.07'
R = 190.00'
e = .025
DS = 25 MPH

SER-I
PI Sta 16+94.01
Δ = 4° 25' 23.1" (RT)
D = 4° 46' 28.7"
L = 92.64'
T = 46.34'
R = 1,200.00'
e = .025
DS = 25 MPH

SER-I
PI Sta 20+17.66
Δ = 68° 05' 52.8" (RT)
D = 30° 09' 20.4"
L = 225.82'
T = 128.39'
R = 190.00'
e = .025
DS = 25 MPH



PROPOSED RIGHT-OF-WAY EXTENSION

INTERCHANGE CURVE DATA & RIGHT-OF-WAY EXTENSION

REVISIONS

8/17/99

8/2/2010
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cwilliams

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS 7/30/10

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 7/30/10

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REVISIONS 8/17/99

L-LINE	L-LINE	L-LINE	L-LINE
PI Sta 15+10.06	PIs Sta 20+77.14	PIs Sta 23+43.80	PI Sta 31+70.59
Δ = 19°17' 54.5" (RT)	Θs = 1° 54' 35.5"	Θs = 1° 38' 13.3"	Δ = 24° 30' 22.3" (LT)
D = 1° 54' 35.5"	Ls = 200.00'	Ls = 200.00'	D = 1° 38' 13.3"
L = 1,010.47'	LT = 133.34'	LT = 133.34'	L = 1,497.00'
T = 510.06'	ST = 66.67'	ST = 66.67'	T = 760.12'
R = 3,000.00'			R = 3,500.00'
e = .04			e = .035
DS = 50 MPH			DS = 50 MPH

911 EARNEL PERKINS, et ux DB 1893 PG 471 MB 13 PG 50

SHERWOOD PARK, SECTION ONE MB 18 PG 41

JURISDICTIONAL STREAM

CL 'A' RIP RAP (BANKS ONLY) EST. = 50 TONS EST. = 70 SY FF

POC Sta. 14+59.48 L-LINE = POT Sta. 10+00.00 Y-4

POC Sta. 15+93.95 L-LINE END CL FENCE POT 10+00 35.5' LT BEGIN WW FENCE

15+00

918 R. M. TALLMAN, HEIRS DB 150 PG 391

+00.00 (RAMP-1A) 80.00' RT

TOE PROTECTION EST. = 123 TONS EST. = 272 SY FF SEE DETAIL #1

+00.00 (L-LINE) 110.00' LT

PSH B=4'

112 111 119 118 117 116 115 121 120 122 123 124 125 126 127 114 113

15" RCP-IV 18" RCP-IV 24" RCP-IV

CB

HW

CHORD

200' AUX LANE

300' TAPER

150' TAPER

-BY4- 21 PINC 39+21.93 POC Sta. 18+22.50 -L- (9.39' RT)

+10.47 (L-LINE) 100.00' LT

+94.25

-BY4- 22 PINC 43+97.99= POS Sta. 22+98.08 -L- (3.12' LT.)

20+00

25+00

MATCHLINE SHEET 6 STA.13+50.00

+35.50 +66.70 +88.99 +00.13

+11.21 (L-LINE) 100.00' RT

+07.75 (L-LINE) 100.00' RT

END CHAIN-LINK FENCE BEGIN W/W FENCE STA. 11+00.00 (Y-4)

SPECIAL LAT 'V' DITCH SEE DETAIL #2

PROP. 1'-6" CURB & GUTTER

CL 'B' RIP RAP EST. = 7 TONS EST. = 22 SY FF

END FENCE & C/A +20.00 (L-LINE)

END FENCE & C/A +80.00 (L-LINE)

60' ACCESS POINT

N 39° 13' 50.2" W

57.14' (TYP.)

50' (TYP.)

100'

50'

R=50'

-BY4- PINC 35+58.50 = -BY4REV- 60 POT Sta. 10+00.00 Y-4 (24.04' LT)

-BY4- 80 PINC 37+05.37 = POC Sta. 16+07.24 -L- (17.09' LT)

CS Sta. 20+10.47 (L-LINE)

SRS Sta. 22+10.47 (L-LINE)

SC Sta. 24+10.47 (L-LINE)

MATCHLINE SHEET 8 STA.26+50.00

TOE PROTECTION EST. = 210 TONS EST. = 467 SY FF SEE DETAIL #1

Y-4 L=200.20.99 N

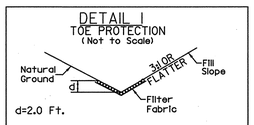
+60 15+00

+20.54

EQUALIZER PIPE

MATCHLINE SHEET 13 STA.16+75.00

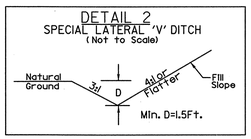
DETAIL 1
TOE PROTECTION
(Not to Scale)



Type of Liner=Class 'B' Rip-Rap

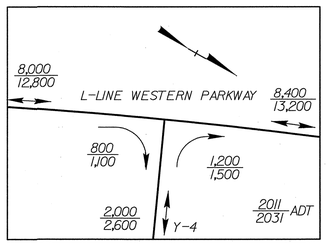
FROM STA. 15+50 TO STA. 17+25 L-LINE LT
STA. 25+50 TO STA. 28+50 L-LINE RT

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

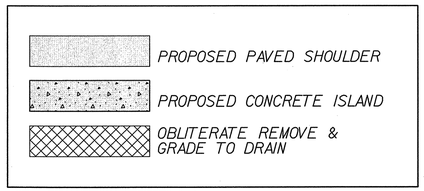


FROM STA. 11+00 TO STA. 13+60 Y-4 RT

TRAFFIC COUNTS



LEGEND



REFERENCES:

FOR PROFILE OF L-LINE, SEE SHEET 15
FOR PROFILE OF Y-4, SEE SHEET 29

7/28/2010
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mmuench

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS 7/30/10

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 7/30/10

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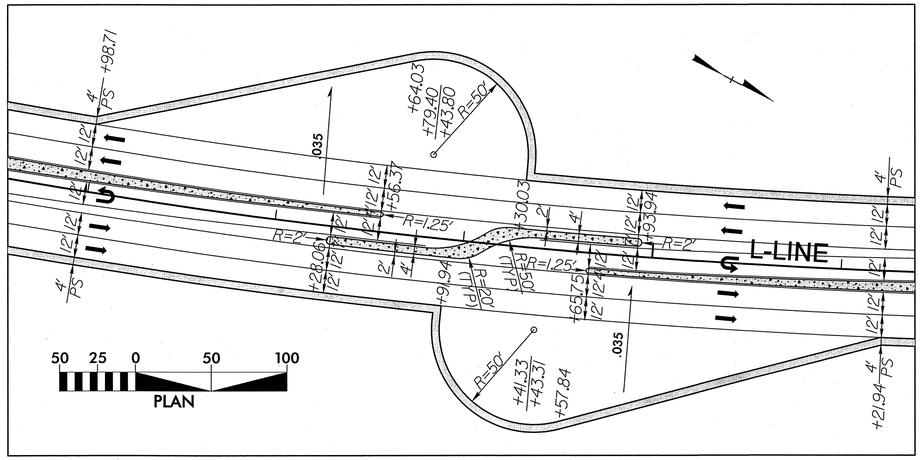
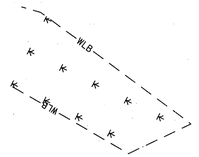
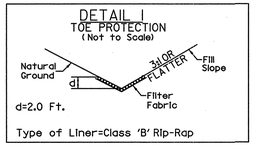
REVISIONS

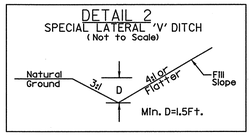
8/17/99



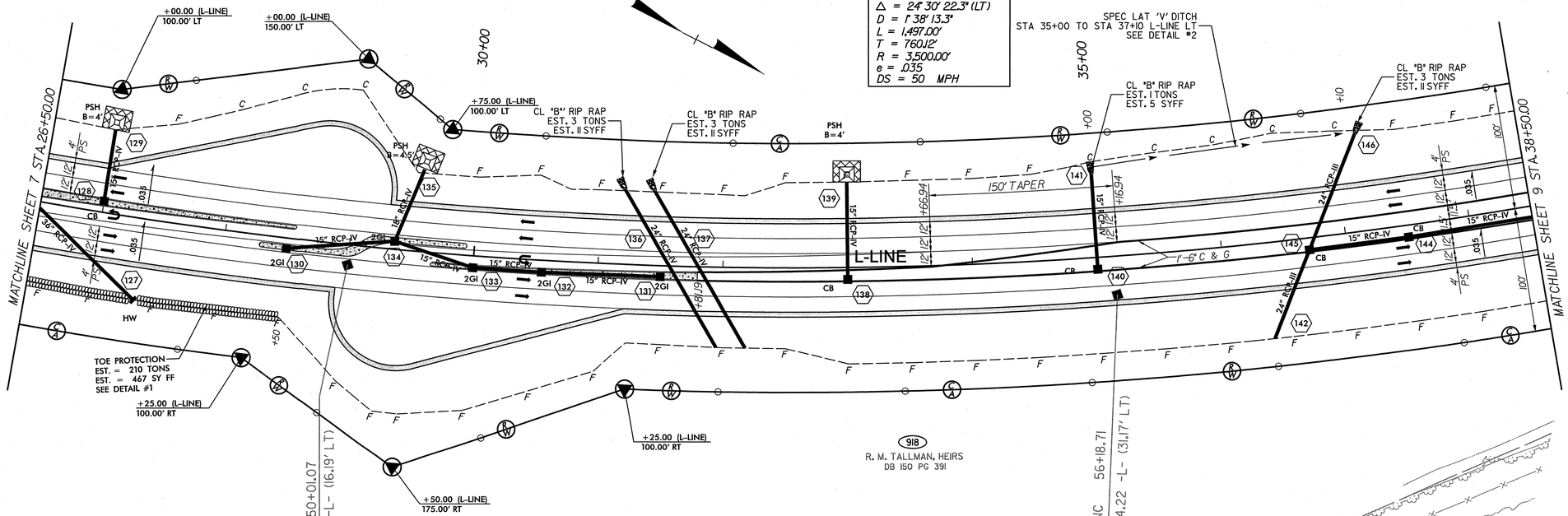




FROM STA. 25+50 TO STA. 28+50 L-LINE RT



FROM STA. 35+00 TO STA. 37+10 L-LINE LT



LEGEND

PROPOSED PAVED SHOULDER

PROPOSED CONCRETE ISLANDS

REFERENCES:

FOR PROFILE OF L-LINE SEE SHEET 16

7/28/2010
U:\Roadway\Proj\u-4007b_rdy_psh 08.dgn
omquembo

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS — 1/30/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. — 7/30/10

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Fax. 919.85 1.7024
www.stantec.com

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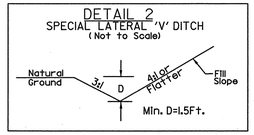
REVISIONS

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



FROM STA. 40+25 TO STA. 46+00 L-LINE LT

L-LINE
PI Sta 31+70.59
Δ = 24° 30' 22.3" (LT)
D = 1° 38' 13.3"
L = 1,497.00'
T = 760.12'
R = 3,500.00'
DS = 50 MPH

L-LINE
PIs Sta 39+74.14
Θs = 1° 38' 13.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

40+00 -BY4- 25 PINC 61+17.42
-BY6- POT 5+00.00
POC 40+08.67 -L- (37.90' LT)
POT 10+37.88 Y-5 (4.29' LT)

CS Sta. 39+07.46 (L-LINE)

POS Sta. 40+12.77 L-LINE=
POT Sta. 10+00.00 Y-5

45+00

JAMES L. STUBBS, et ux
DB 1346 PG 453
MB 22 PG 86

ROBERT J. PUDAS
DB 1873 PG 782
MB 22 PG 86

ARTHUR R. WALLER, et ux
DB 1081 PG 453
MB 22 PG 86

TERRELL WELFORD
DB 1439 PG 551
MB 22 PG 86

SYDNEY M. ROCHESTER
DB 1590 PG 803
MB 22 PG 86

(22)

(23)
IA JACKSONVILLE GATEWAY LLC
DB 3370 PG 970
MB 41 PG 183

(918)
R. M. TALLMAN, HEIRS
DB 150 PG 391

(21)
LIMA HOLDINGS, LLC
DB 1438 PG 285
PB 34 PG 187

(25)
TARGET CORP.
DB 1516 PG 941
MB 36 PG 231

JURISDICTIONAL STREAM

CL 'II' RIP RAP (BANKS ONLY)
+/-75 TONS
FF= 1105Y

CL 'B' RIP RAP
EST. 1 TONS
EST. 5 SYFF
+07.46 (L-LINE)
100.00' LT

SPEC LAT 'V' DITCH
SEE DETAIL #2

(PROPERTY LINE)
+81.05 (L-LINE)
100.00' LT

(PROPERTY LINE)
+82.23 (L-LINE)
88.00' LT

TEMP.CONSTR. EASEMENT

(PROPERTY CORNER)
+31.28 (L-LINE)
97.85' LT

+71.21 (L-LINE)
88.00' LT
(PROPERTY LINE)

END NOISE WALL & BARRIER WALL
STA 48+25.00

BEGIN NOISE WALL & CONC.BARRIER
STA. 41+85.00 (49.0' LT)

15" W/2 ELBOWS

(PROPERTY LINE)
+83.13 (L-LINE)
78.44 LT

(PROPERTY CORNER)
+12.91 (L-LINE)
78.44 LT

PROP. NOISE WALL

PROP. BARRIER WALL

L-LINE

N 39° 13' 50.2" W

150' TAPER

REMOVE 30" OF 18"

+75.71 (L-LINE)
79.49' RT

+76.43 (L-LINE)
85.70' RT

+75.00
100' RT

+75
130' RT

+90.00 (L-LINE)
92.55' RT
(PROPERTY LINE)
TEMP.DRAINAGE EASEMENT

ROCK FILL IN POND
ROCK PLATE SIDE SLOPE IN POND
SEE DETAIL ON SHEET 2H

+165.00 (L-LINE)
100.00' RT

BEGIN SHOULDER BERM GUTTER
STA 45+24 L-LINE RT

CL 'B' RIP RAP
EST. = 5 TONS
EST. = 14 SY FF

CL 'I' RIP RAP
EST. = 10 TONS
EST. = 23 SY FF

CL 'B' RIP RAP
EST. = 1TONS
EST. = 5 SY FF

PROP 2'-6" C & G

+154.80 (Y-5)
50.00' LT

+670.00 (Y-5)
40.00' LT

+112.12 (Y-5)
40.00' LT

TEMP.CONST.R.EASEMENT

+47.40 (Y-5)
56.81' RT

+07.46 (L-LINE)
100.00' RT

+64.47

+35.50

+23.31

+97.90

+57.14' (TYP.)
+07.46 (L-LINE)
100.00' RT

RETAIN
DO NOT DISTURB

RETAIN

FILL SLOPES SHOULD VARY TO DRAIN BETWEEN STA 47+00 TO STA 52+00 L-LINE RT

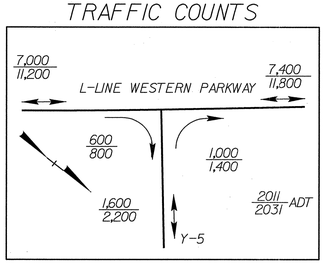
-BY4- 26 PINC 44+58.53 -L- (39.58' LT) 65+67.55

MATCHLINE SHEET 8 STA.38+50.00

MATCHLINE SHEET 10 STA.51+00.00

MATCHLINE SHEET 14 STA.12+50.00

TRAFFIC COUNTS



LEGEND

PROPOSED PAVED SHOULDER

PROPOSED CONCRETE ISLAND

PROPOSED SINGLE FACE CONCRETE BARRIER

REFERENCES:
FOR PROFILE OF L-LINE SEE SHEET 16
FOR PROFILE OF Y-5 SEE SHEET 30
FOR POND PROTECTION DETAIL, SEE SHEET 2K
FOR NOISE WALL DETAILS, SEE SW-1 & SW-2

7/29/2010
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dmcwaine

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS 7/30/10

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR. 7/30/10

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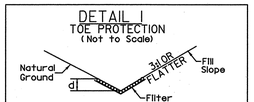
REVISIONS

8/17/99

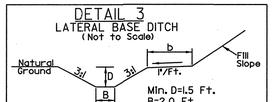
DETAIL 1
TOE PROTECTION
(Not to Scale)



Type of Liner=Class 'B' Rip-Rap

FROM STA. 56+50 TO STA. 58+00 L-LINE RT
FROM STA. 60+00 TO STA. 60+80 L-LINE RT

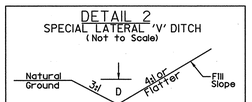
DETAIL 3
LATERAL BASE DITCH
(Not to Scale)



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

FROM STA. 58+75 TO STA. 61+50 L-LINE LT

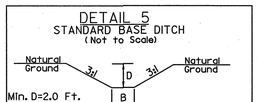
DETAIL 2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.5Ft.

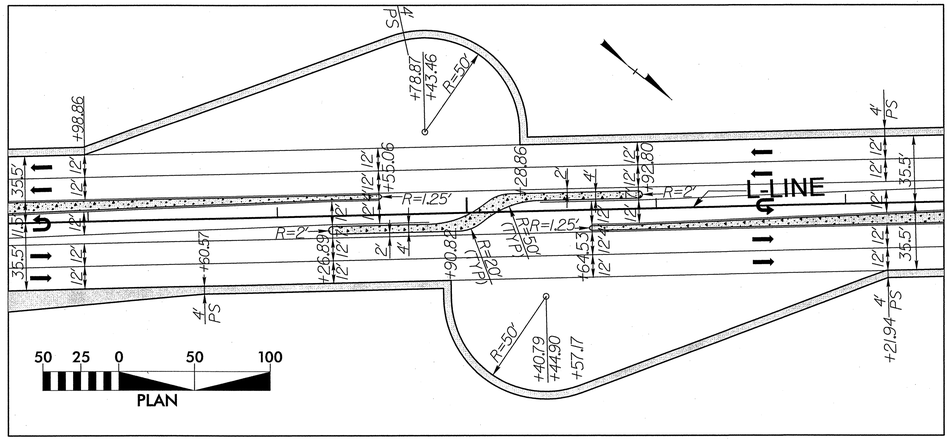
FROM STA. 52+50 TO STA. 56+50 L-LINE RT
FROM STA. 61+50 TO STA. 62+50 L-LINE LT

DETAIL 5
STANDARD BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
B=2.0 Ft.

FROM STA. 57+88 TO STA. 58+75 L-LINE LT



REFERENCES:

FOR PROFILE OF L-LINE SEE SHEET 17

7/28/2010
U:\Roadway\Proj\u-4007b_rdy_psh 10.dgn
dmaybrey2

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	11
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS — 8/25/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. — 8/24/10

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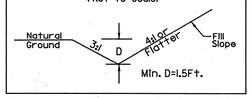
Fax. 919.851.7024
www.stantec.com

8/17/99

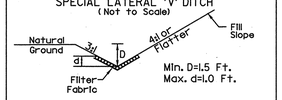
REVISIONS

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



FROM STA. 66+50 TO STA. 68+60 L-LINE RT
FROM STA. 69+50 TO STA. 71+50 L-LINE RT

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

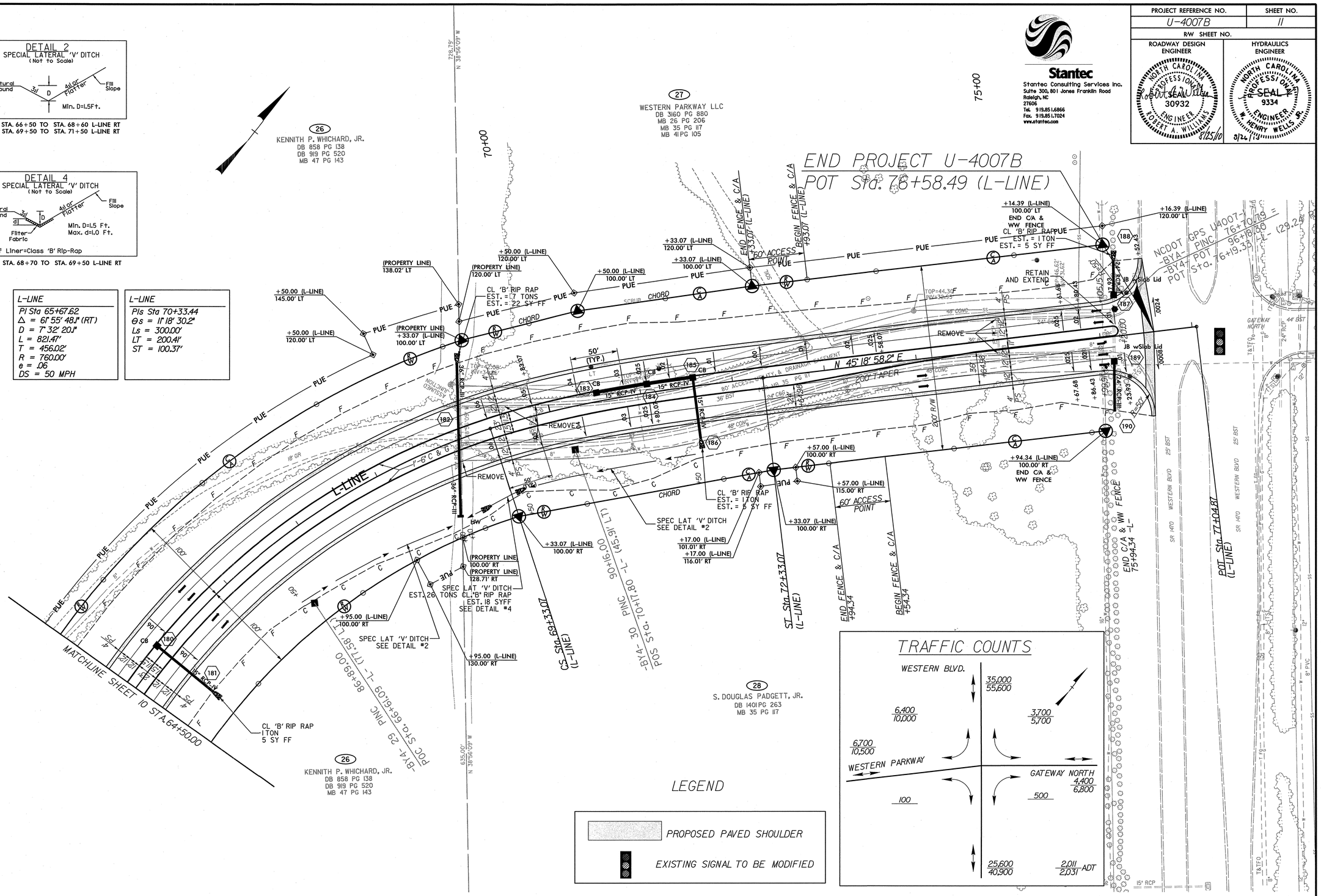


Type of Liner=Class 'B' Rip-Rap

FROM STA. 68+70 TO STA. 69+50 L-LINE RT

L-LINE
PI Sta 65+67.62
Δ = 6° 55' 48.1" (RT)
D = 7° 32' 20.1"
L = 821.47'
T = 456.02'
R = 760.00'
e = .06
DS = 50 MPH

L-LINE
PIs Sta 70+33.44
Θs = 11° 18' 30.2"
Ls = 300.00'
LT = 200.41'
ST = 100.37'



TRAFFIC COUNTS

LEGEND

PROPOSED PAVED SHOULDER

EXISTING SIGNAL TO BE MODIFIED

REFERENCES:
FOR PROFILE OF L-LINE SEE SHEETS 17

8/27/2010
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cwilloms

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	12
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS

7/30/10

HYDRAULICS ENGINEER

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

7/30/10

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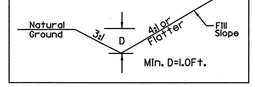
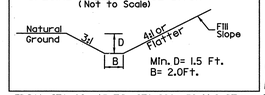
REVISIONS

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



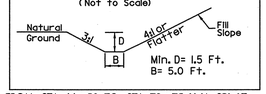
FROM STA. 104+80 TO STA. 105+50 Y-2 LT

DETAIL 9
SPECIAL LATERAL BASE DITCH
(Not to Scale)



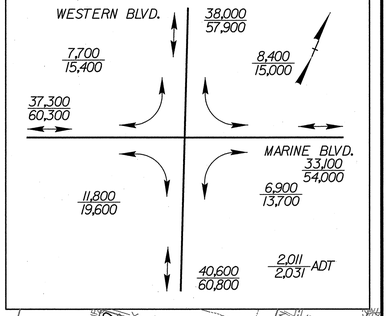
FROM STA. 93+65 TO STA. 100+50 Y-2 RT

DETAIL 12
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 66+50 TO STA. 72+75 Y-1A SBL LT

TRAFFIC COUNTS



MATCHLINE SHEET 6 STA.67+75.00 Y-1A SBL

MATCHLINE SHEET 6 STA.97+50.00 Y-2

-BL- 7 PINC 77+23.59
POC Sta. 98+08.66 Y-2 (18.91' RT)

NC DEPT. OF TRANSPORTATION

(918) R. M. TALLMAN, HEIRS
DB 150 PG 391

(30B) TEXAS ROADHOUSE HOLDINGS, LLC
DB 2322 PG 877
PB 47 PG 36

(29) 4 CORNERS PROPERTIES, LLC
CAPE FEAR MEDICAL CENTER
DB 2344 PG 902
PB 47 PG 36
PB 2 PG 30

CAPE FEAR MEDICAL CENTER CONDOMINIUM
DB 2686 PG 434
MB 2 PG 30

(30A) TEXAS ROADHOUSE HOLDINGS, LLC
DB 2523 PG 945
PB 47 PG 36

MOOSEHAVEN PROPERTY OWNERS ASSOCIATION INC
DB 2537 PG 117
MB 47 PG 36

SHIVA TWO, INC.
DB 1670 PG 956
MB 35 PG 103

H&M FARMS, LLC
DB 1962 PG 417

NEW SOUTH PROPERTIES
MB 139 PG 531
29 PB PG 220

BAILEY & FULLER PROPERTIES
DB 2991 PG 615
MB 48 PG 42

(7) KEYSTONE CONTRACTORS PARTNERSHIP
DB 2023 PG 498
MB 44 PG 139
MB 43 PG 101

Y-1A SBL	Y-1A SBL	Y-1A SBL
PI Sta 69+61.09	Pls Sta 72+37.62	PI Sta 77+27.65
D = 1° 58' 30.9" (RT)	Θs = 0° 49' 06.6"	Δ = 4° 30' 09.4" (LT)
D = 1° 38' 13.3"	Ls = 100.00'	D = 0° 57' 17.7"
L = 487.18'	LT = 66.67'	L = 471.51'
T = 243.98'	ST = 33.33'	T = 235.88'
R = 3,500.00'		R = 6,000.00'
e = .035		e = .025
DS = 50 MPH		DS = 50 MPH

Y-2	Y-2
PI Sta 95+08.92	Pls Sta 103+19.21
Δ = 50° 59' 44.2" (RT)	Θs = 3° 10' 59.2"
D = 3° 10' 59.2"	Ls = 200.00'
L = 1,602.07'	LT = 133.35'
T = 858.47'	ST = 66.69'
R = 1,800.00'	
e = .055	
DS = 50 MPH	

LEGEND

- PROPOSED PAVED SHOULDER
- OBLITERATE, REMOVE AND GRADE TO DRAIN
- EXISTING SIGNAL TO BE MODIFIED
- PROPOSED DETOUR PAVEMENT

REFERENCES:

FOR PROFILE OF Y-2 SEE SHEET 28
FOR PROFILE OF Y-1A SBL SEE SHEETS 26

7/28/2010
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omaulding

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	13
RW SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS — 7/30/18

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. — 7/30/18

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REVISIONS
8/17/99

-BY5- 34 PINC 13+76.70

R. M. TALLMAN, HEIRS
DB 150 PG 391
(918)

Y-4
PI Sta 18+69.42
Δ = 18° 12' 13.1" (LT)
D = 5° 43' 46.5"
L = 317.71'
T = 160.21'
R = 1,000.00'
e = .06
DS = 45 MPH

-BY4REV- 61 PINC 12+22.63
POC Sta. 17+46.67 Y-4 (0.21' RT)

+09.21 (Y-4) 50.00' LT
+09.21 (Y-4) 50.00' RT
MATCHLINE SHEET 7 STA.16+75.00
PC Sta. 17+09.21 (Y-4)
22.17' (TYP.)
+53.34
+82.60
+26.93 (Y-4) 50.00' RT
+26.93 (Y-4) 50.00' LT
END W/W FENCE & C/A LINE POC STA.19+00 LT&RT
20+00
N 47° 54' 47.1" E
Y-4
PT Sta. 20+26.93 (Y-4)
-BY5- 35 PINC 19+81.74 Y-4 (0.49' RT)
-BY4REV- POT Sta. 17+91.86 Y-4 (33.23' RT)
-BY5- 36 PINC 19+04.07
-BY4REV- POT Sta. 23+13.29 Y-4 (33.23' RT)
-BY5- 62 PINC 21+87.17

DETAIL I
TOE PROTECTION
(Not to Scale)
Natural Ground
3:1 OR FLATTER
Fill Slope
d
Filter Fabric
d=2.0 Ft.
Type of Liner=Class 'B' Rip-Rap

DETAIL #8
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
3:1
D
4:1 or Flatter
Fill Slope
B
Min. D=1.0 Ft.
B= 3.0 Ft.

FROM STA. 23+00 TO STA. 24+00 Y-4 LT
FROM STA. 12+95 TO STA. 13+85 Y-4A LT
FROM STA. 14+70 TO STA. 16+00 Y-4A LT
FROM STA. 23+50 TO STA. 25+00 Y-4 RT

(918)
R. M. TALLMAN, HEIRS
DB 150 PG 391

INSERT 1
+80.62 (Y-4A) 30.00' RT
+81.99 (Y-4A) 40.00' RT
+80.00 (Y-4A) 30.00' LT
+79.33 (Y-4) 40.62' LT
+81.39 (Y-4) 24.00' LT
+60.00 (Y-4) 50.00' RT
+68.18 (Y-4) 60.00' RT
+00.00 (Y-4A) 50.00' RT
+61.53 (Y-4) 26.77' RT
+35.28 (Y-4) 70 28.47' RT
+42.45 29.98' RT
18" RCP-IV
15" RCP-III
CB
DI

Y-4A
PI Sta 14+42.65
Δ = 11° 18' 36.3" (LT)
D = 4° 46' 28.7"
L = 236.88'
T = 118.83'
R = 1,200.00'
e = .06
DS = 45 MPH

POT Sta. 10+00.00
Y-4A
S 30° 42' 43.8" E
EXIST R/W
60.00'
MATCH EXISTING
BEGIN CONSTRUCTION POT Sta. 12+25.00 Y-4A
(31)
CONRAD HAUGEN HEIRS
DB 285 PG 666
USE 1.5:1 FILL SLOPE
ROCK FILL IN POND
W/ROCK PLATE 1.5:1 SIDE SLOPE IN POND
SEE DETAIL ON SHEET 2H
+46.27 30' RT
+60.19 40' RT
EXIST .007
EXIST .047
EXIST .036 RCP
PC Sta. 13+23.83
POT Sta. 25+32.61 Y-4 = POC Sta. 144+26.51 Y-4A
JURISDICTIONAL STREAM
TOE PROTECTION SEE DETAIL #1 CLASS 'B' RIP RAP EST. = 70 TONS EST. = 155 SY FF
(32)
ED BROWN HEIRS
DB 859 PG 609
PB 38 PG 151
CLASS 'I' RIP RAP ON BANKS ONLY 15 TONS 30 SY FF
SPECIAL LAT. 3' BASE DITCH SEE DETAIL #8 CLASS 'B' RIP RAP EST. = 4 TONS EST. = 14 SY FF
*DAYLIGHT DITCH IN WETLANDS
15+00
+30.00 50' RT
+30.00 60' RT
PT Sta. 15+60.71
SPEC DITCH STA 14+70 TO STA 16+25 -Y4A- RT SEE PROFILE FOR GRADE
+00.00 RESURFACING ONLY
+87.50
+75.00
+25.00 40' RT
+25.00 30' RT
EXIST .015
EXIST .030
MATCH EXISTING
END CONSTRUCTION POT Sta. 16+43.50 Y-4A
S 42° 01' 20.1" E
POT Sta. 18+41.88
N 48°01'19" E 274.65'
N 36°15'49" W 271.39'

STATE EMPLOYEES CREDIT UNION
DB 962 PG 269
PB 34 PG 72
WLB
8'TM
MATCH EXISTING
N 49°01'43" E 100.00'
N 52°38'43" E 129.48'
N 31°41'09" E 139.23'
(33)
STATE EMPLOYEES CREDIT UNION
DB 962 PG 269
PB 34 PG 72
24" C&G
60.00' LT
50.00' RT
+85.00 30' RT
+85.00 40' RT
+00.50 (Y-4) 55.00' LT
TOE PROTECTION SEE DETAIL #1 CLASS 'B' RIP RAP EST. = 63 TONS EST. = 140 SY FF
+00.00 (Y-4) 35.00' LT REMOVE DI
+08.00 (Y-4) 60.00' LT
+87.00 (Y-4) 38.00' LT
+53.63 (Y-4) 60.00' LT
+51.67 (Y-4) 24.00' LT
+56.00 (Y-4) 38.00' LT
+28.00 (Y-4) 38.00' LT
+28.00 (Y-4) 55.00' LT
+60.00 (Y-4) 38.00' LT
+56.00 (Y-4) 24.92' LT
+60.00 (Y-4) 29.71' LT
+11.38
RETAIN
15" RCP-III
15" RCP-IV
18" RCP-IV
CB
DI
REMOVE
+35.28 (Y-4) 70 28.47' RT
+42.45 29.98' RT
+35.28 (Y-4) +4.5' +42.45' (Y-4) 29.98' RT
PROP. 2'-6" C&G
RET AIN POLE
TEMPORARY CONSTRUCTION EASEMENT
GRADE TO DRAIN
END CONSTRUCTION POS Sta. 30+00.00 (Y-4)
POT Sta. 30+50.50
(34)
RUBY TUESDAY, INC.
DB 1329 PG 448
MB 33 PG 223
MB 27 PG 18
+48.61 (Y-4) 31.96' RT
TOE PROTECTION SEE DETAIL #1 CLASS 'B' RIP RAP EST. = 91 TONS EST. = 202 SY FF
+82.50
+96.00 33' RT
+96.00 30' RT
N 47°01'55" E
-BY5- 37 PINC 21+85.17
POT Sta. 25+63.21 Y-4 (6.79' LT)
RUBY TUESDAY, INC.
DB 1329 PG 448
S 47°01'48" W 226.38'
N 47°28'W 156.75'
OUTBACK GROUP
DB 1481 PG 195
PB 32 PG 104
-BY5- 38 PINC 22+21.23
POT Sta. 29+88.35 Y-4 (65.12' LT)
SR 1470 WESTERN BLVD 30' BST
48" CONC
30+00
(TS)

LEGEND
PROPOSED PAVED SHOULDER
OBLITERATE
EXISTING SIGNAL TO BE MODIFIED

TRAFFIC COUNTS
WESTERN BLVD.
800 / 1,700
30,900 / 48,300
3,800 / 6,100
8,000 / 10,500
Y-4
SHOPPING ENT. 12,500 / 16,700
5,100 / 7,800
6,600 / 9,600
38,000 / 57,900
2,011 / 2,031 ADT

REFERENCES:
FOR PROFILE OF Y-4 SEE SHEET 29
FOR PROFILE OF Y-4A SEE SHEET 30
FOR ROADWAY GEOMETRY SEE SHEET 2-I

7/28/2010
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gmurrell

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS — 7/30/10

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. — 7/30/10

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REVISIONS

8/17/99

END C/A & WW FENCE +65.47

MATCHLINE | SHEET 9 STA.12+50.00

END C/A & WW FENCE +01.42

23 IA JACKSONVILLE GATEWAY LLC
DB 3370 PG 970
MB 41PG 183

21 LIMA HOLDINGS, LLC
DB 1438 PG 285
PB 34 PG 187

35 JEAN S. CORPENING TRUSTEE, et
DB 1644 PG 464
DB 3201PG 141
MB 38 PG 150

WYATT INVESTMENTS, LLC
DB 1555 PG 54
MB 38 PG 150

-BY6- 31 PNG 9+87.98
POT Sta. 15+25.85 Y-5 (2.11' LT)

-BY6- 32 POT 16+77.20 = -BYA- PNG 48+80.92
POT Sta. 22+16.81 Y-5 (34.77' RT)

15+00 20+00

N 51°02'23" E 239.28'

S 51°03'32" W 293.78'

S 50°49'00" W 399.79'

S 51°02'02" W 239.24'

N 50°57'05.3" E

ADJUST TOP OF CBs

END CURB & GUTTER 22+01.93 Y-5

END CURB & GUTTER 22+00.77 -Y5-

END CONSTRUCTION POT Sta. 22+41.44 (Y-5)

PC Sta. 17+64.88 (Y-5)

PRC Sta. 19+40.51 (Y-5)

PT Sta. 21+14.88 (Y-5)

POT Sta. 22+99.88 (Y-5)

DO NOT DISTURB ATM

THE C&G TO EXISTING

WESTERN BLVD

PROP 2'-6" C&G

PROP 2'-6" C & G

TEMP.CONSTR. EASEMENT

REMOVE

RETAIN

REMOVE & REPLACE W/TBJB W/MH

REPLACE W/ TBJB W/MH

REMOVE & REPLACE W/TBJB w/MH

REMOVE DI

REMOVE CB

REMOVE REDUCER

15" RCP-III

15" RCP-IV

24" RCP

30" RCP

36" RCP

48" CMP

18" CMP

8" PVC

24" CHL

6" CURB

24" C&G

60" CONC

15" CONC

RIPRAP

WE 4.5

WE 44.1

40' BST

48' BST

50' BST

27' BST

8" 30° RCP

TRAFFIC COUNTS

WESTERN BLVD.

1,900 / 2,100		26,400 / 42,100
7,000 / 9,300		2,900 / 3,200
Y-5		
3,800 / 4,500		SHOPPING ENT. 6,900 / 9,000
		2,700 / 3,200
28,100 / 44,500		2,011 / 2,031 ADT

Y-5
PI Sta 18+52.92
Δ = 10° 03' 45.5" (RT)
D = 5° 43' 46.5"
L = 175.63'
T = 88.04'
R = 1,000.00'
e = .025
DS = 45 MPH

Y-5
PI Sta 20+27.91
Δ = 9° 59' 25.5" (LT)
D = 5° 43' 46.5"
L = 174.37'
T = 87.40'
R = 1,000.00'
e = .025
DS = 45 MPH

LEGEND

PROPOSED PAVED SHOULDER

EXISTING SIGNAL TO BE MODIFIED

REFERENCES:

FOR PROFILE OF Y-5 SEE SHEET 30

7/30/2010
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cwilliams

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	15

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS

7/30/10

HYDRAULICS ENGINEER

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

7/30/10

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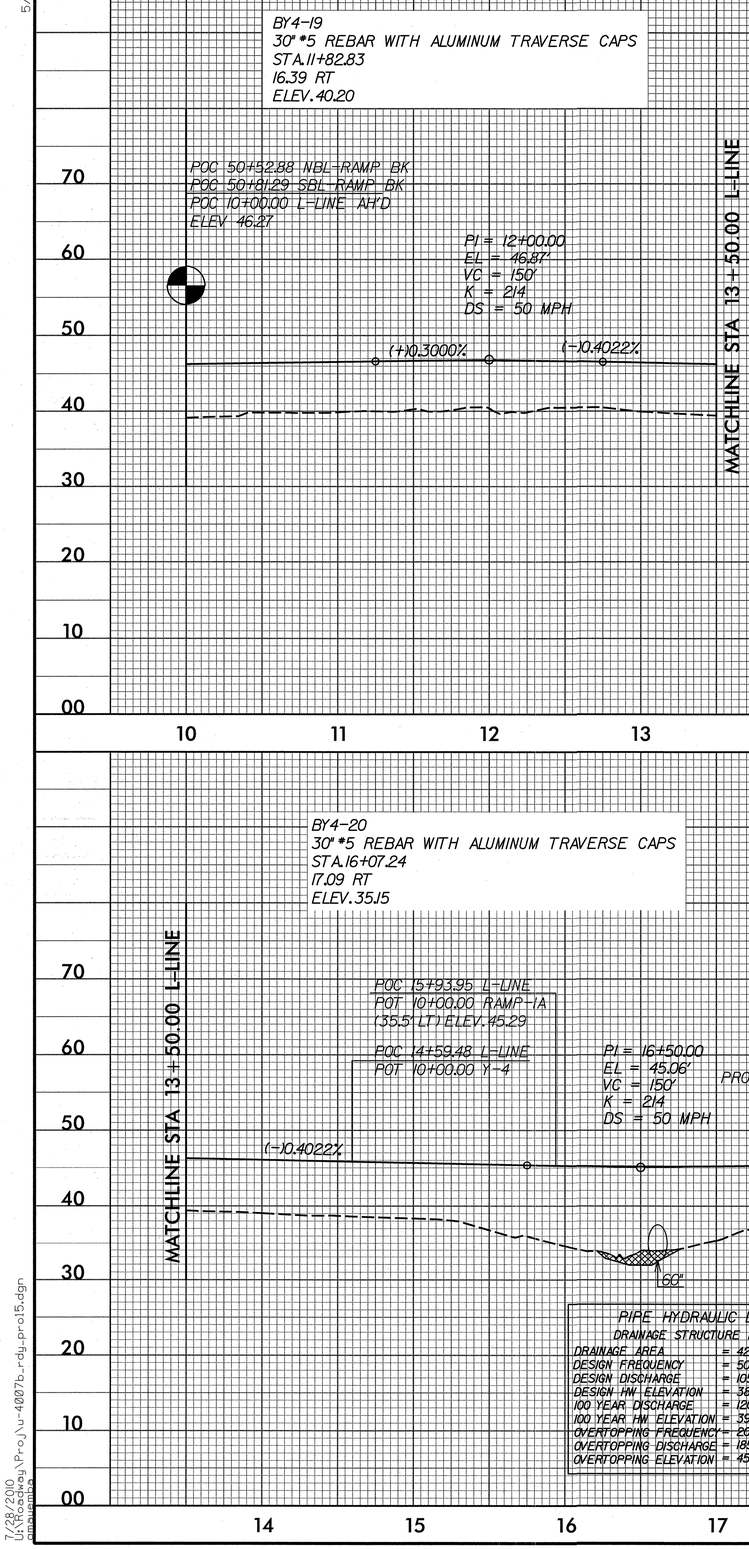
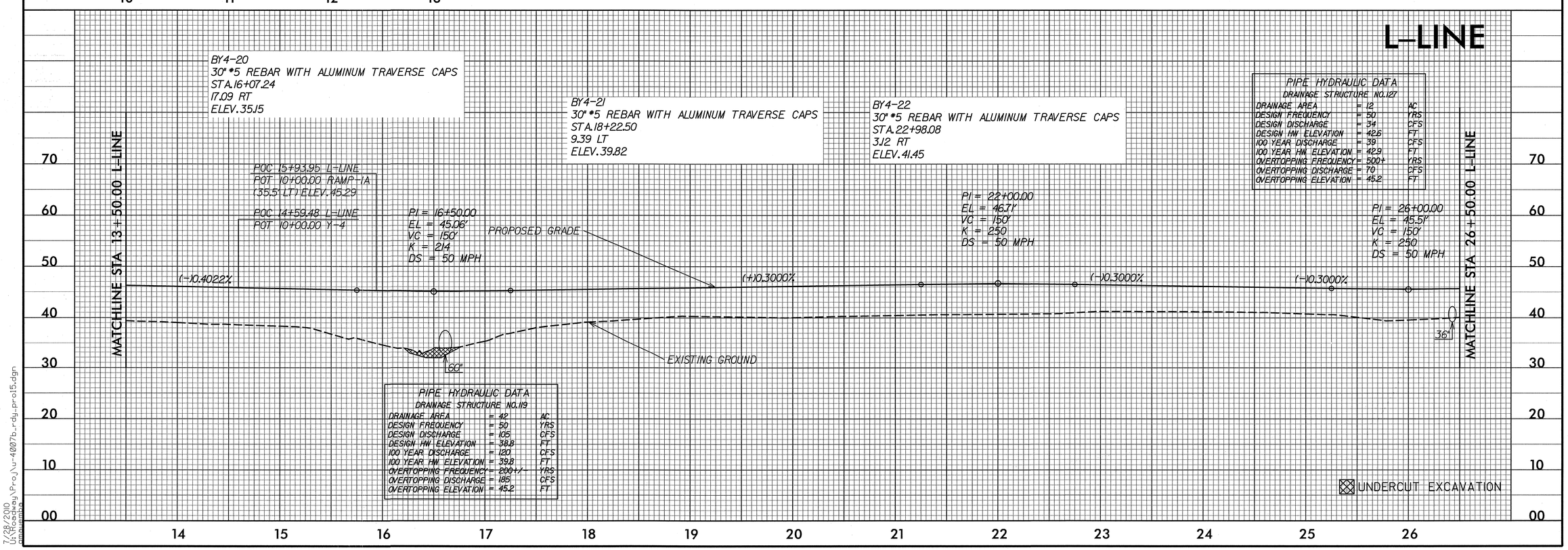
L-LINE



L-LINE



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.127

DRAINAGE AREA	= 12	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 34	CFS
DESIGN HW ELEVATION	= 42.6	FT
100 YEAR DISCHARGE	= 39	CFS
100 YEAR HW ELEVATION	= 42.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 70	CFS
OVERTOPPING ELEVATION	= 45.2	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.119

DRAINAGE AREA	= 42	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 105	CFS
DESIGN HW ELEVATION	= 38.8	FT
100 YEAR DISCHARGE	= 120	CFS
100 YEAR HW ELEVATION	= 39.8	FT
OVERTOPPING FREQUENCY	= 200+/-	YRS
OVERTOPPING DISCHARGE	= 185	CFS
OVERTOPPING ELEVATION	= 45.2	FT

5/28/99

7/28/2010
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amquembo

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	16

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER 30932 ROBERT A. WILLIAMS — 7/30/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. — 7/9/10

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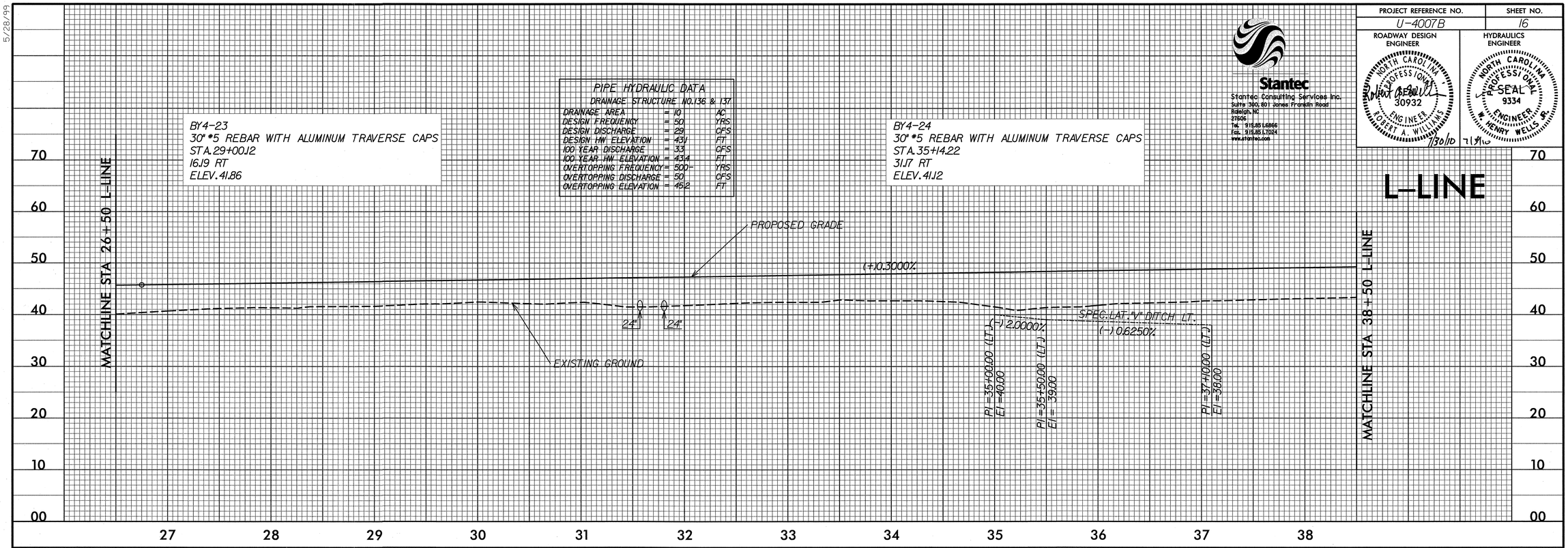
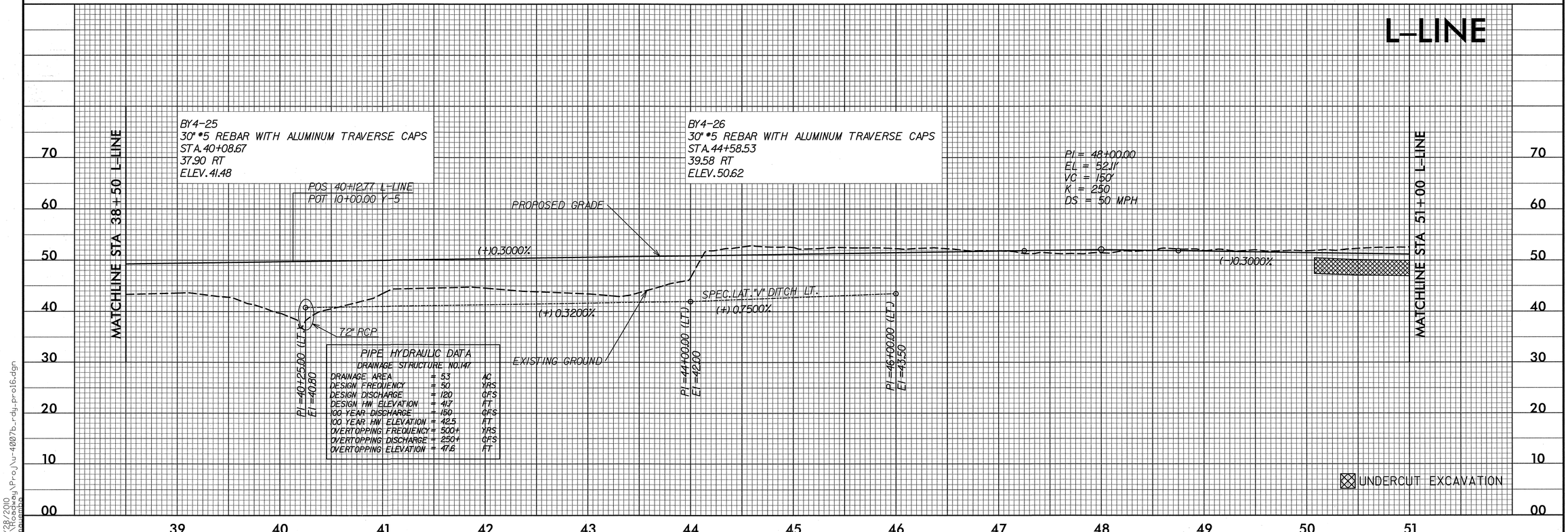
L-LINE



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 136 & 137

DRAINAGE AREA	= 10	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 29	CFS
DESIGN HW ELEVATION	= 43.1	FT
100 YEAR DISCHARGE	= 33	CFS
100 YEAR HW ELEVATION	= 43.4	FT
OVERTOPPING FREQUENCY	= 500-	YRS
OVERTOPPING DISCHARGE	= 50	CFS
OVERTOPPING ELEVATION	= 45.2	FT

L-LINE



PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 147

DRAINAGE AREA	= 53	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120	CFS
DESIGN HW ELEVATION	= 41.7	FT
100 YEAR DISCHARGE	= 150	CFS
100 YEAR HW ELEVATION	= 42.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 250+	CFS
OVERTOPPING ELEVATION	= 47.6	FT

5/28/99

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	17

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS

7/30/10

HYDRAULICS ENGINEER

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

7/30/10

Stantec

Stantec Consulting Services Inc.
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Raleigh, NC
27606
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Fax. 919.851.7024
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L-LINE

BY4-27
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 52+91.44
37.05 RT
ELEV. 45.74

BY4-28
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 59+42.49
49.05 RT
ELEV. 43.43

PI = 60+50.00
EL = 48.36'
VC = 150'
K = 250
DS = 50 MPH

MATCHLINE STA 51+00 L-LINE

PROPOSED GRADE

(-)0.5000%

SPEC. LAT. "V" DITCH RT.

(-)1.2500%

(-)0.3000%

(+)0.3000%

SPEC. LAT. 2' BASE DITCH LT.

(+) 0.7467%

SPEC. LAT. "V" DITCH LT.

(+) 0.7467%

EXISTING GROUND

MATCHLINE STA 64+00 L-LINE

PI = 52+50.00 (RT.)
EL = 44.80

PI = 54+50.00 (RT.)
EL = 43.80

PI = 56+50.00 (RT.)
EL = 41.30

42"

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.172

DRAINAGE AREA	= 14	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 39	CFS
DESIGN HW ELEVATION	= 41.3	FT
100 YEAR DISCHARGE	= 45	CFS
100 YEAR HW ELEVATION	= 41.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 80+	CFS
OVERTOPPING ELEVATION	= 48.5	FT

PI = 58+75.00 (LT.)
EL = 38.00

36"

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.173

DRAINAGE AREA	= 5.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 27	CFS
DESIGN HW ELEVATION	= 41.5	FT
100 YEAR DISCHARGE	= 29	CFS
100 YEAR HW ELEVATION	= 41.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 48+	CFS
OVERTOPPING ELEVATION	= 48.5	FT

PI = 61+50.00 (LT.)
EL = 40.05

PI = 62+50.00 (LT.)
EL = 40.80

UNDERCUT EXCAVATION

L-LINE

BY4-29
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 66+61.09
77.58 RT
ELEV. 43.43

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.182

DRAINAGE AREA	= 16.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 44	CFS
DESIGN HW ELEVATION	= 41.3	FT
100 YEAR DISCHARGE	= 50	CFS
100 YEAR HW ELEVATION	= 41.9	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	= 74	CFS
OVERTOPPING ELEVATION	= 44.0	FT

PI = 69+00.00
EL = 50.91'
VC = 150'
K = 250
DS = 50 MPH

BY4-30
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 70+17.80
45.91 RT
ELEV. 43.09

PS U4007-1
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 76+19.35
29.24 LT
ELEV. 46.84

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.187-189

DRAINAGE AREA	= 5.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 20	CFS
DESIGN HW ELEVATION	= 43.4	FT
100 YEAR DISCHARGE	= 22	CFS
100 YEAR HW ELEVATION	= 43.7	FT
OVERTOPPING FREQUENCY	= 500-	YRS
OVERTOPPING DISCHARGE	= 39-	CFS
OVERTOPPING ELEVATION	= 48.0	FT

END PROJECT
POT 76+58.49 L-LINE
ELEV. 48.63

MATCHLINE STA 64+00 L-LINE

PROPOSED GRADE

(+)0.3000%

(-)0.3006%

SPEC. LAT. "V" DITCH RT.

(-) 1.6667%

SPEC. LAT. "V" DITCH RT.

(+) 0.0000%

(+) 3.8750%

(+) 0.3000%

EXISTING GROUND

36"

24"

PI = 66+50.00 (RT.)
EL = 41.90

PI = 68+60.00 (RT.)
EL = 38.40

PI = 68+70.00 (RT.)
EL = 38.40

PI = 69+50.00 (RT.)
EL = 41.50

PI = 71+50.00 (RT.)
EL = 42.10

7/28/2010
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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	18

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS
7/30/12

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
7/30/12

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NBL-RAMP

BL-4
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.15+57.56
19.13 LT
ELEV.53.55

POT 63+28.00 Y-2
POT 10+00.00 NBL-RAMP
(46.00 RT) EL 40.60

PROPOSED GRADE

PI = 11+80.00
EL = 44.72'
NO CURVE

(+)2.2380%

(+)2.2889%

EXISTING GROUND

SPEC. LAT "V" DITCH RT.
(+) 0.5000%

(+) 0.1250%

MATCHLINE STA 17+00.00 NBL-RAMP

PI =10+00.00 (RT.)
ET =28.60

PI =14+00.00 (RT.)
ET =29.30

NBL-RAMP

GPS U4007-4
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.23+52.77
27.46 LT
ELEV.60.33

BEGIN BRIDGE
POT 21+47.17 NBL-RAMP

PI = 21+00.00
EL = 65.31'
VC = 850'
K = 215
DS = 60 MPH

POT 22+34.57 NBL-RAMP
POC 16+27.84 Y-0

END BRIDGE
POT 23+11.42 NBL-RAMP

PI = 29+25.00
EL = 51.10'
VC = 800'
K = 163
DS = 55 MPH

PROPOSED GRADE

(+)2.2380%

(-)1.7229%

(-)1.7229%

EXISTING GROUND

SPEC. LAT. "V" DITCH RT.
(+) 0.5000%

SPEC. LAT. 3' BASE DITCH RT.
5.0% W.
5' BERM
(-)1.5% (-)1.5%

MATCHLINE STA 17+00.00 NBL-RAMP

MATCHLINE STA 27+00.00 NBL-RAMP

PI =19+00.00 (RT.)
ET =31.80

PI =26+00.00 (RT.)
ET =29.70

PI =26+20.00 (RT.)
ET =28.70

REMOVE EXISTING
2.0' SILLS
EXISTING 2 @
6'x 7' RCBC

#00
EL=22.83

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 625	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 33.2	FT
BASE DISCHARGE	= 820	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 34.9	FT
OVERTOPPING DISCHARGE	= <820	CFS
OVERTOPPING FREQUENCY	= <100	YRS
OVERTOPPING ELEVATION	= 34.5	FT

7/28/2010
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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	19

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS

7/30/10

HYDRAULICS ENGINEER

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

7/30/10

NBL-RAMP

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BL-5
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 34+81.15
73.12 LT
ELEV. 41.44

BEGIN BRIDGE
POC 34+50.24 NBL-RAMP

END BRIDGE
POC 37+69.24 NBL-RAMP

PI = 36+00.00
EL = 72.50'
VC = 400'
K = 86
DS = 50 MPH

POC 36+17.74 NBL-RAMP
POC 89+31.48 Y-2

PROPOSED GRADE

PI = 29+25.00
EL = 51.10'
VC = 800'
K = 165
DS = 55 MPH

(+)3.1704%

(-)1.4859%

(-)1.7229%

RET. WALL

EXISTING GROUND

(+)0.7429%

SPEC. LAT. 3' BASE DITCH RT. W/ 5' BERM

(-)7.2333%

(+)7.1429%

H00
EL=22.83
PI=27+25.00 (RT) ℄
EL=21.00
PI=27+45.00 (RT) ℄
EL=21.60

PI=28+50.00 (RT) ℄
EL=28.50

PI=30+25.00 (RT) ℄
EL=29.80

MATCHLINE STA 27+00.00 NBL-RAMP

MATCHLINE STA 38+50.00 NBL-RAMP

GPS U4007-3
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 40+82.74
165.29 LT
ELEV. 38.81

BY4-17
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 42+19.83
124.29 LT
ELEV. 36.75

BY4-18
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 46+70.53
45.74 LT
ELEV. 38.49

POT 43+25.21 NBL-RAMP
T.S. 110+00.00 100P-ID
(12'RT) ELEV. 61.69

PI = 44+50.00
EL = 59.87'
VC = 300'
K = 116
DS = 50 MPH

BEGIN BRIDGE
POT 40+61.17 NBL-RAMP

END BRIDGE
POT 42+83.58 NBL-RAMP

(-)1.4859%

POT 41+19.38 NBL-RAMP
POT 10+42.83 Y-2 CON

FUTURE RAMP 28

POT 42+15.92 NBL-RAMP
POC 61+59.28 Y-1A SBL

(-)4.0613%

PROPOSED GRADE

PI = 48+25.00
EL = 44.64'
VC = 450'
K = 103
DS = 50 MPH

POC 50+54.94 NBL-RAMP
POC 10+00 L-LINE
(23.50' LT) ELEV. 45.33

(+)0.3001%

30" CLASS V

48" CLASS IV

EXISTING GROUND

42"

42"

MATCHLINE STA 38+50.00 NBL-RAMP

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.64

DRAINAGE AREA	= 7.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21	CFS
DESIGN HW ELEVATION	= 38.3	FT
100 YEAR DISCHARGE	= 23	CFS
100 YEAR HW ELEVATION	= 38.5	FT
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING DISCHARGE	= 29+	CFS
OVERTOPPING ELEVATION	= 40	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.91

DRAINAGE AREA	= 26	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 55	CFS
DESIGN HW ELEVATION	= 36	FT
100 YEAR DISCHARGE	= 65	CFS
100 YEAR HW ELEVATION	= 36.3	FT
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING DISCHARGE	= 95	CFS
OVERTOPPING ELEVATION	= 37.2	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.107

DRAINAGE AREA	= 59	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 110	CFS
DESIGN HW ELEVATION	= 39.2	FT
100 YEAR DISCHARGE	= 130	CFS
100 YEAR HW ELEVATION	= 40.6	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 220+	CFS
OVERTOPPING ELEVATION	= 45.3	FT

UNDERCUT EXCAVATION

7/28/2010
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mmcarthy

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	20

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A WILLIAMS

7/30/10

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W HENRY WELLS JR

7/30/10

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SBL-RAMP

BL-4
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 16+79.64
147.53 RT
ELEV. 53.55

POT 62+00.00 Y-2
PC 10+00.00 SBL-RAMP
(58.60 RT) EL 37.37

BEGIN GRADE
POC 10+25.00 SBL-RAMP
ELEV 37.88

BLEND GRADE

PROPOSED GRADE

PI = 12+15.00
EL = 42.44'
NO CURVE

(+)2.4000%

(+)2.0400%

(+)2.2740%

EXISTING GROUND

(+) 0.4818%

SPEC. LAT. "V" DITCH W/ 5' BERM LT.

PI=10+50.00 (LT.)
EL=29.10

PI=13+75.00 (LT.)
EL=30.66

MATCHLINE STA 18+00.00 SBL-RAMP

SBL-RAMP

GPS U4007-4
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA. 24+80.11
153.55 RT
ELEV. 60.33

POT 22+41.58 SBL-RAMP
POC 14+09.99 Y-0

BEGIN BRIDGE
POT 21+38.83 SBL-RAMP

PI = 23+50.00
EL = 68.25'
VC = 1,000'
K = 191
DS = 60 MPH

END BRIDGE
POT 23+29.58 SBL-RAMP

(+)2.2740%

(-)2.9571%

PROPOSED GRADE

EXISTING GROUND

(+) 2.2308%

SPEC. LAT. 3' BASE DITCH W/ 5' BERM LT.

EXISTING 2 @ 6'x 7' RCBC

REMOVE EXISTING 2.0' SILLS

PI=26+40.00 (LT.)
EL=22.80

+50
EL=27.48

MATCHLINE STA 18+00.00 SBL-RAMP

MATCHLINE STA 28+50.00 SBL-RAMP

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 625	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 33.2	FT
BASE DISCHARGE	= 820	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 34.9	FT
OVERTOPPING DISCHARGE	= <820	CFS
OVERTOPPING FREQUENCY	= <100	YRS
OVERTOPPING ELEVATION	= 34.5	FT

Plotted: 27-JUL-2010 09:52
By: Rodney Hamilton
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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	21

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30932 ROBERT A. WILLIAMS 7/30/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 W. HENRY WELLS JR. 7/30/10

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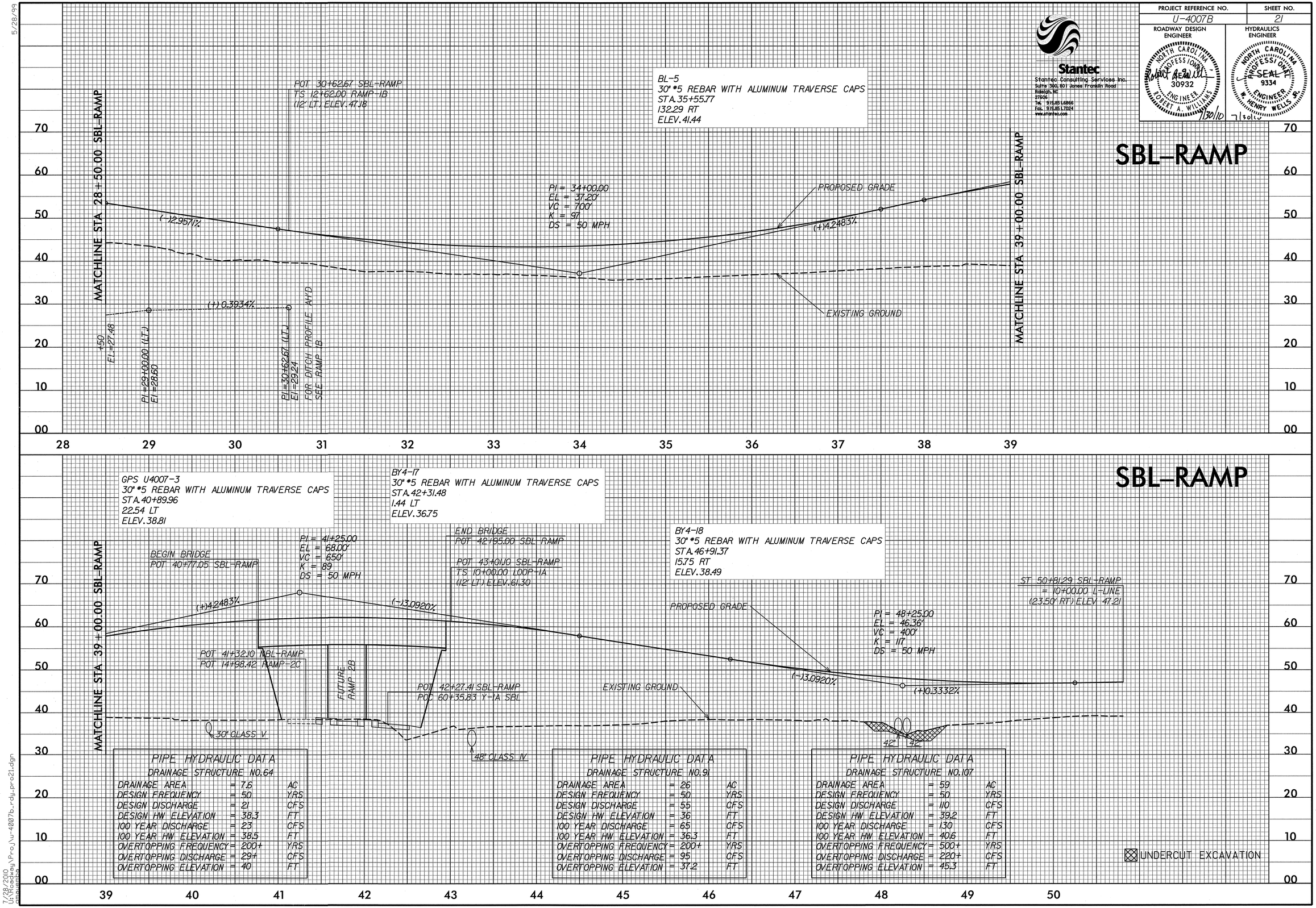

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 64

DRAINAGE AREA	= 7.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21	CFS
DESIGN HW ELEVATION	= 38.3	FT
100 YEAR DISCHARGE	= 23	CFS
100 YEAR HW ELEVATION	= 38.5	FT
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING DISCHARGE	= 29+	CFS
OVERTOPPING ELEVATION	= 40	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 91

DRAINAGE AREA	= 26	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 55	CFS
DESIGN HW ELEVATION	= 36	FT
100 YEAR DISCHARGE	= 65	CFS
100 YEAR HW ELEVATION	= 36.3	FT
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING DISCHARGE	= 95	CFS
OVERTOPPING ELEVATION	= 37.2	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 107

DRAINAGE AREA	= 59	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 110	CFS
DESIGN HW ELEVATION	= 39.2	FT
100 YEAR DISCHARGE	= 130	CFS
100 YEAR HW ELEVATION	= 40.6	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 220+	CFS
OVERTOPPING ELEVATION	= 45.3	FT

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	22

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS 7/30/10

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 7/30/10

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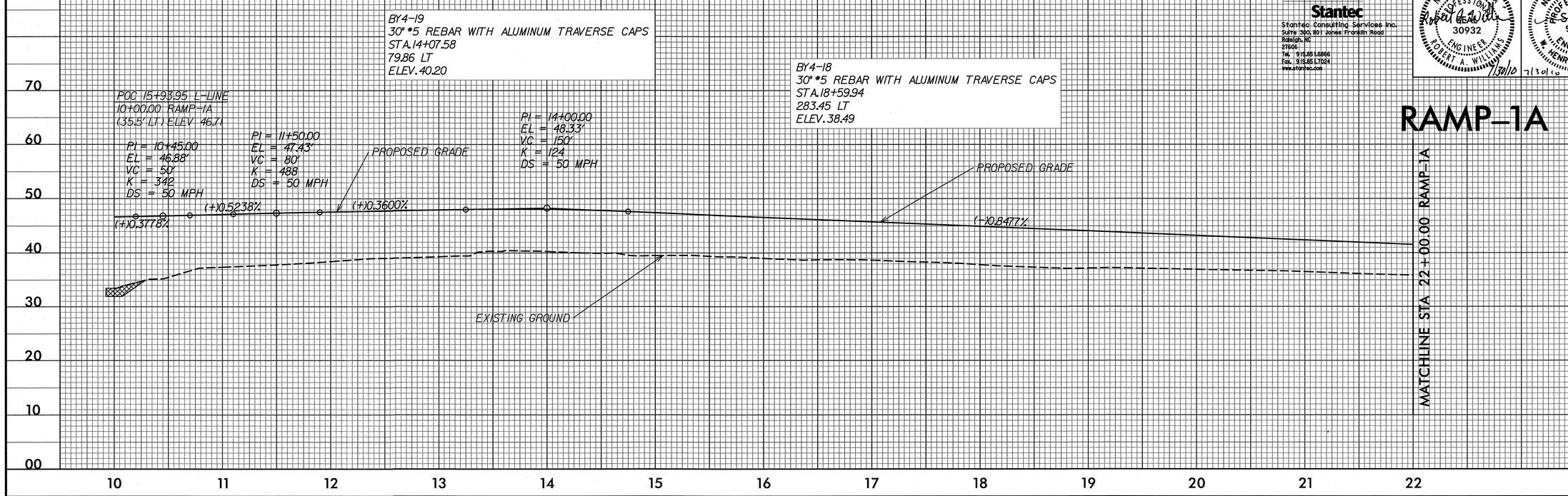
RAMP-1A



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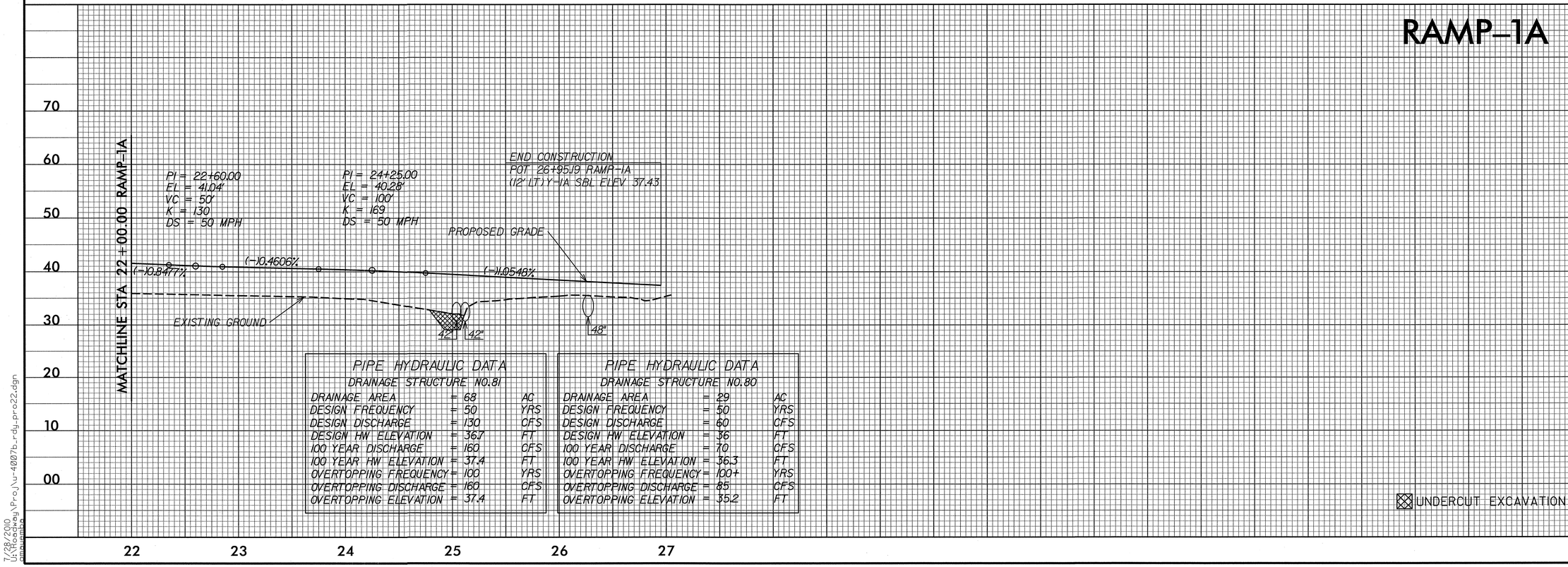

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.81

DRAINAGE AREA	= 68	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 130	CFS
DESIGN HW ELEVATION	= 36.7	FT
100 YEAR DISCHARGE	= 160	CFS
100 YEAR HW ELEVATION	= 37.4	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 160	CFS
OVERTOPPING ELEVATION	= 37.4	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.80

DRAINAGE AREA	= 29	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 60	CFS
DESIGN HW ELEVATION	= 36	FT
100 YEAR DISCHARGE	= 70	CFS
100 YEAR HW ELEVATION	= 36.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 85	CFS
OVERTOPPING ELEVATION	= 35.2	FT

UNDERCUT EXCAVATION

5/28/99

7/28/2010
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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	23

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS — 7/30/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. — 7/30/10

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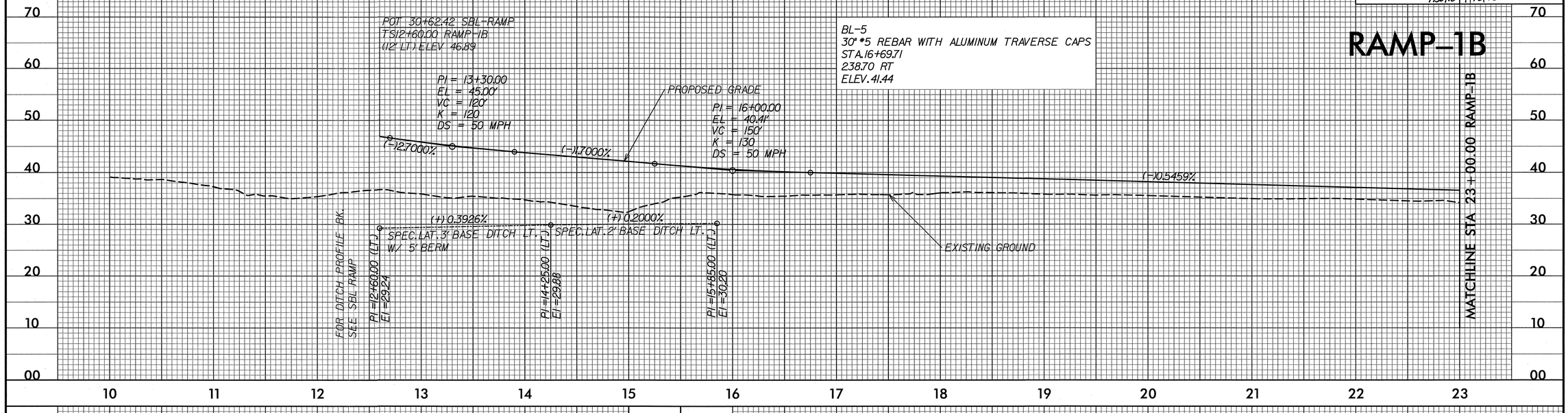

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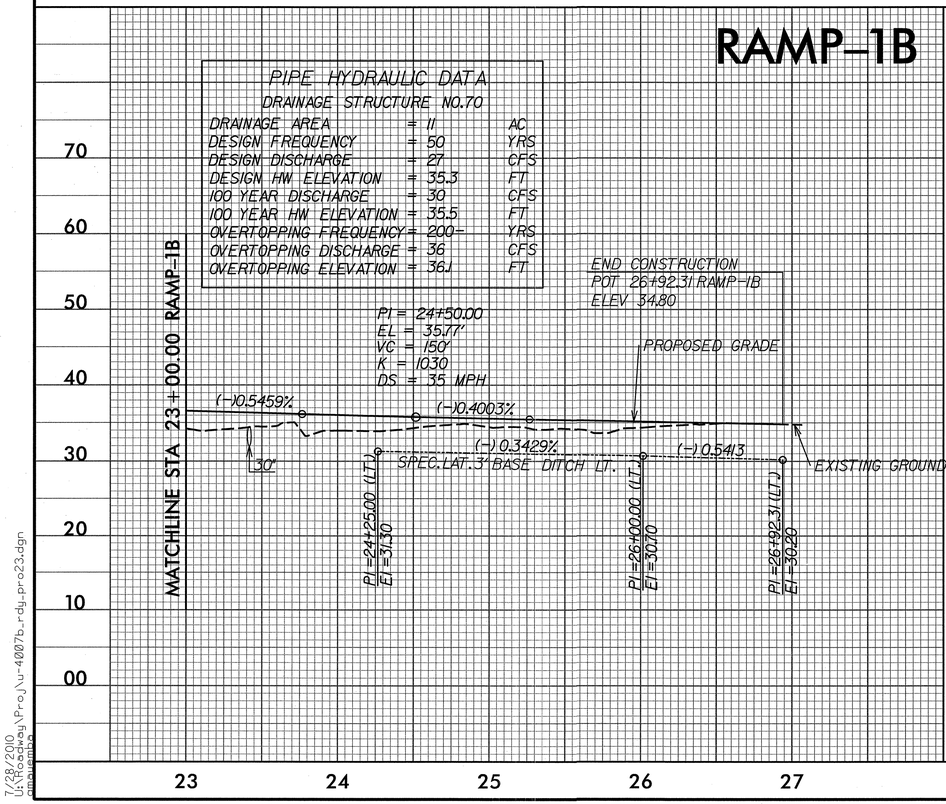

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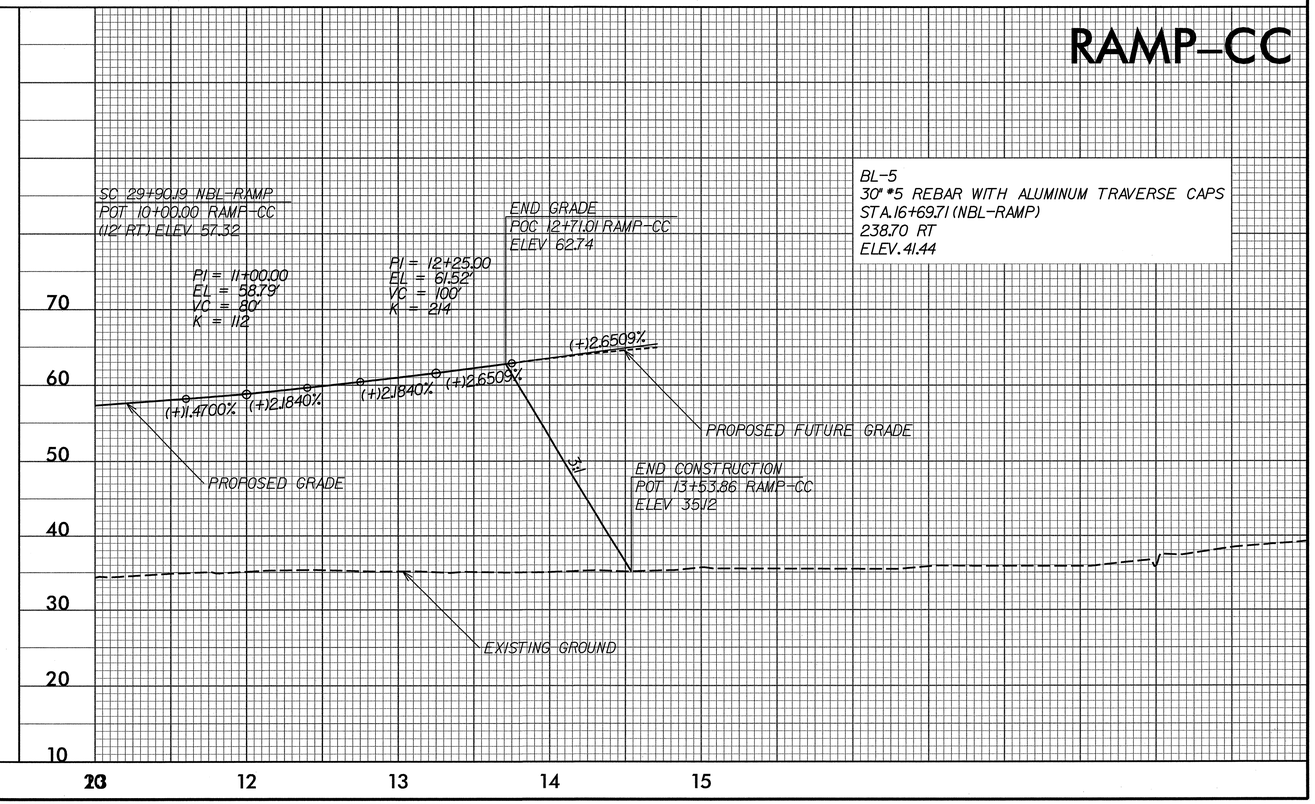

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	24

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30932 ROBERT A. WILLIAMS — 7/30/10

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 W. HENRY WELLS JR. — 7/30/10

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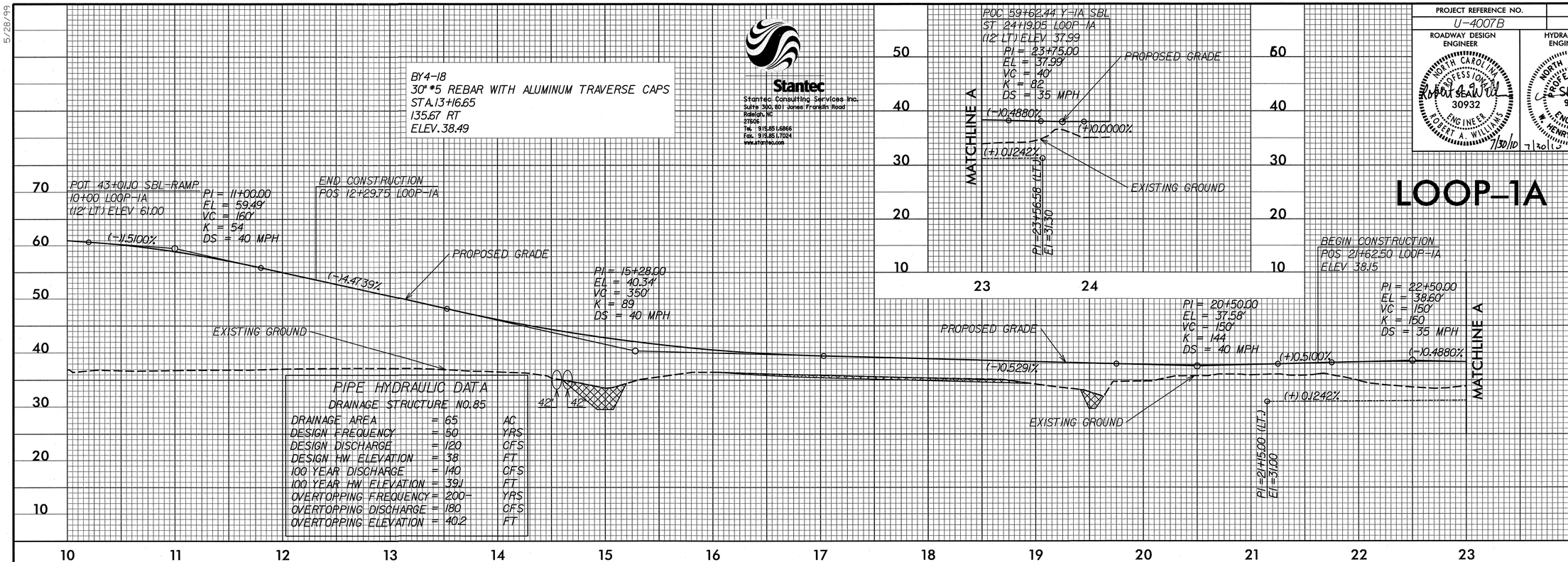
LOOP-1A



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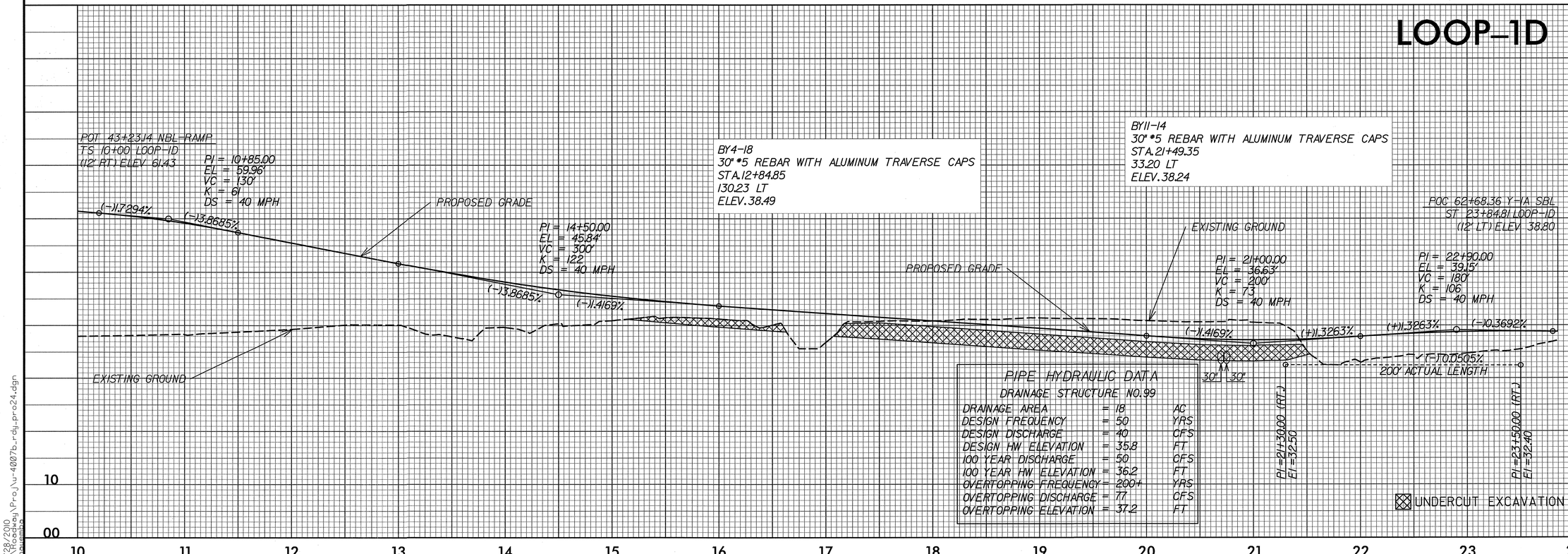

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	25

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL ENGINEER 30932 ROBERT A. WILLIAMS 7/30/10

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 7/30/10

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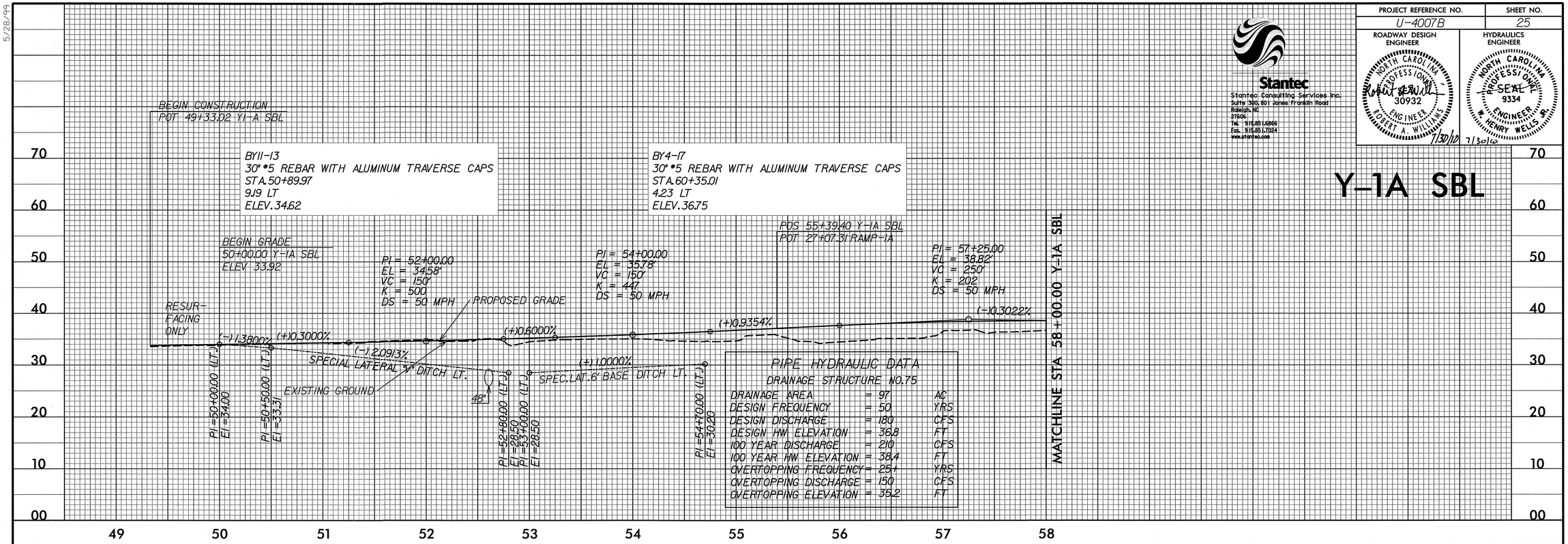
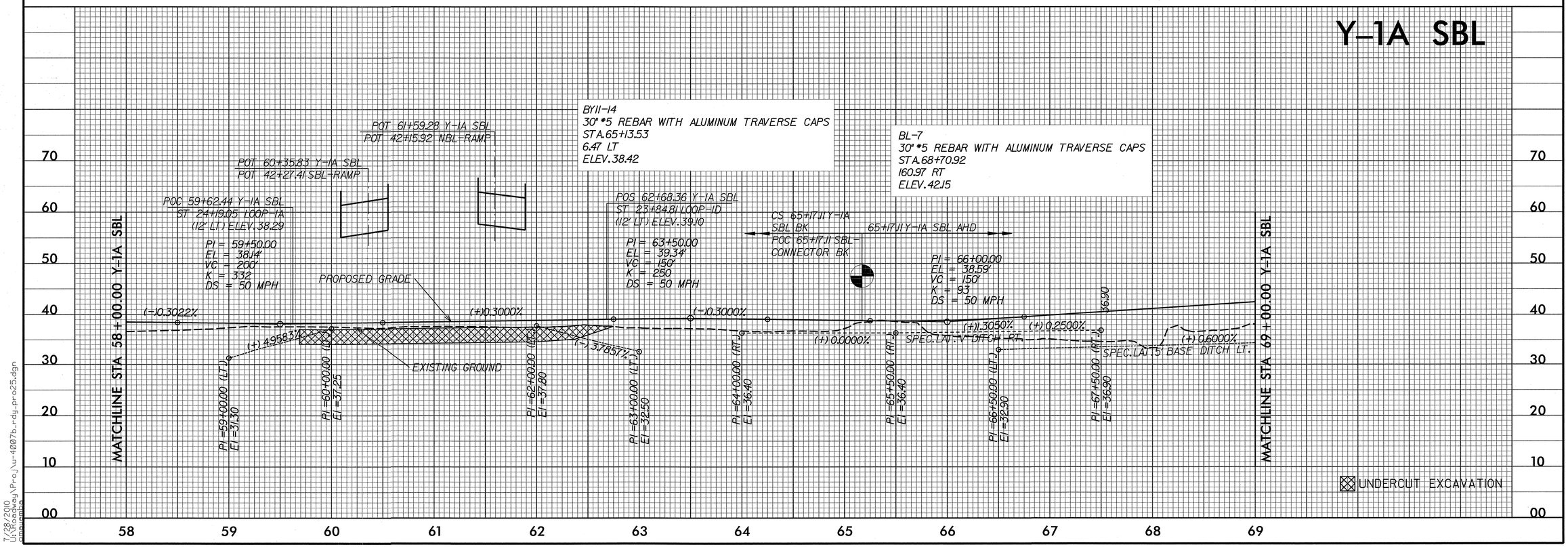
Y-1A SBL



Y-1A SBL



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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	26

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS

7/30/10

HYDRAULICS ENGINEER

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

7/30/10

Stantec
Stantec Consulting Services Inc.
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Raleigh, NC
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Y-1A SBL

BY11-15
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.72+60.02
28.62 RT
ELEV.39.93

BL-8
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.75+04.62
142.20 RT
ELEV.42.14

BY11-16
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.78+99.22
41.94 LT
ELEV.41.42

MATCHLINE STA. 69+00.00 Y-1A SBL

PROPOSED GRADE

PI = 72+00.00
EL = 46.42'
VC = 300'
K = 104
DS = 50 MPH

PI = 74+10.00
EL = 43.10'
VC = 120'
K = 151
DS = 50 MPH

PI = 76+40.00
EL = 41.29'
VC = 150'
K = 98
DS = 50 MPH

PI = 77+80.00
EL = 42.34'
VC = 100'
K = 297
DS = 50 MPH

PI = 80+00.00
EL = 43.25'
VC = 150'
K = 851
DS = 50 MPH

(+)1.3050% (−)1.5810% (−)1.5810% (−)10.7870% (−)10.7870% (+)0.7500% (+)0.7500% (+)0.4136% (+)0.4136% (+)0.2373%

(+) 0.6000%

(+)0.4727%

SPEC.LAT.5' BASE DITCH LT.

EXISTING GROUND

PI =70+00.00 (LT.)
EL =35.00

PI =72+75.00 (LT.)
EL =36.30

END CONSTR
POT 81+90.95
Y-1A SBL

RESURFACING ONLY

END GRADE
POT 81+05.35 Y-1A SBL
ELEV 43.50

EXISTING GROUND

UNDERCUT EXCAVATION

Y-2 CONN

POT 41+19.38 NBL-RAMP
POT 10+42.83 Y-2 CONN

BY11-14
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.13+30.43
175.45 LT
ELEV.38.24

BL-6
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.14+43.83
295.03 RT
ELEV.38.92

END CONSTRUCTION
POT 14+81.01Y-2 CONN
(47' LT) ELEV 45.22

BEGIN CONSTRUCTION
POT 10+00.00 Y-2 CONN
ELEV 39.58

PROPOSED GRADE

PI = 12+50.00
EL = 42.08'
VC = 100'
K = 87
DS = 45 MPH

PI = 13+80.00
EL = 44.87'
VC = 150'
K = 84
DS = 45 MPH

(+)1.0000% (+)2.1468% (−)1.2000% (−)1.4094% (+)10.3506% SKEWED (−)9.6494%

EXISTING GROUND

SPEC.LAT.4' DITCH RT.

18"

137.00

PI =12+50.00 (LT.)
EL =40.30

PI =13+00.00 (LT.)
EL =39.70

PI =14+49.00 (LT.)
EL =37.60

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.67

DRAINAGE AREA	= 1.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 7	CFS
DESIGN HW ELEVATION	= 39.0	FT
100 YEAR DISCHARGE	= 8	CFS
100 YEAR HW ELEVATION	= 39.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 13+	CFS
OVERTOPPING ELEVATION	= 41.9	FT

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	27

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS 7/30/10

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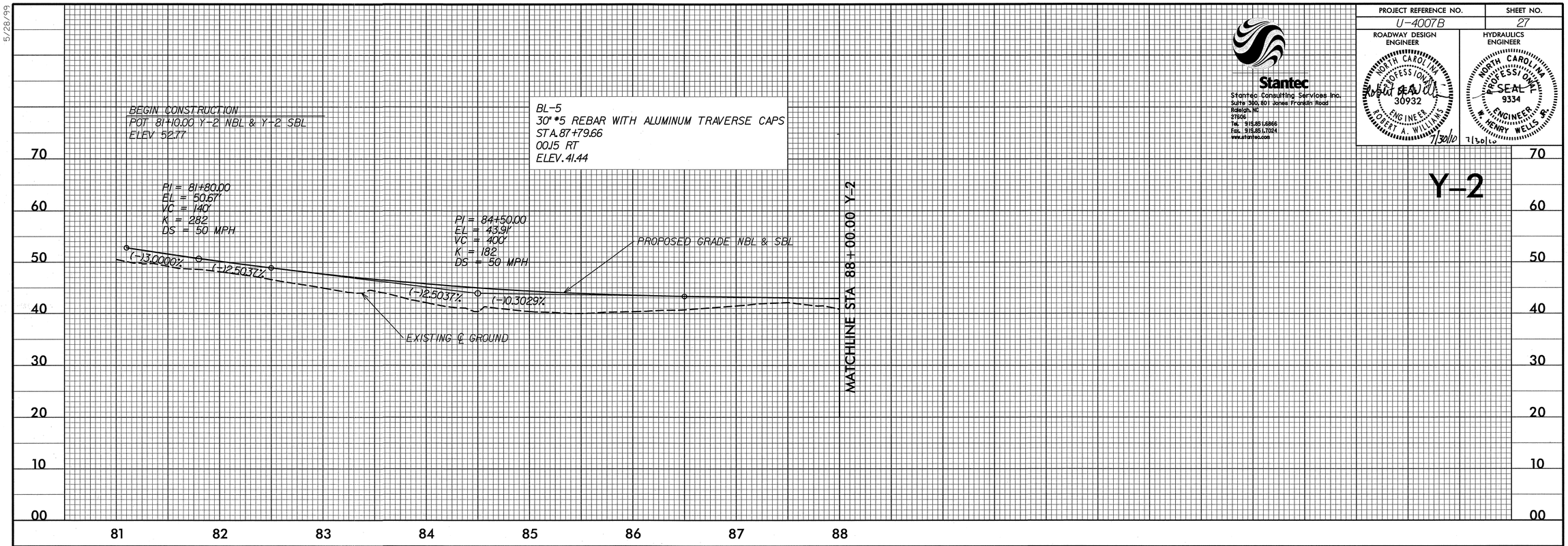

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	28

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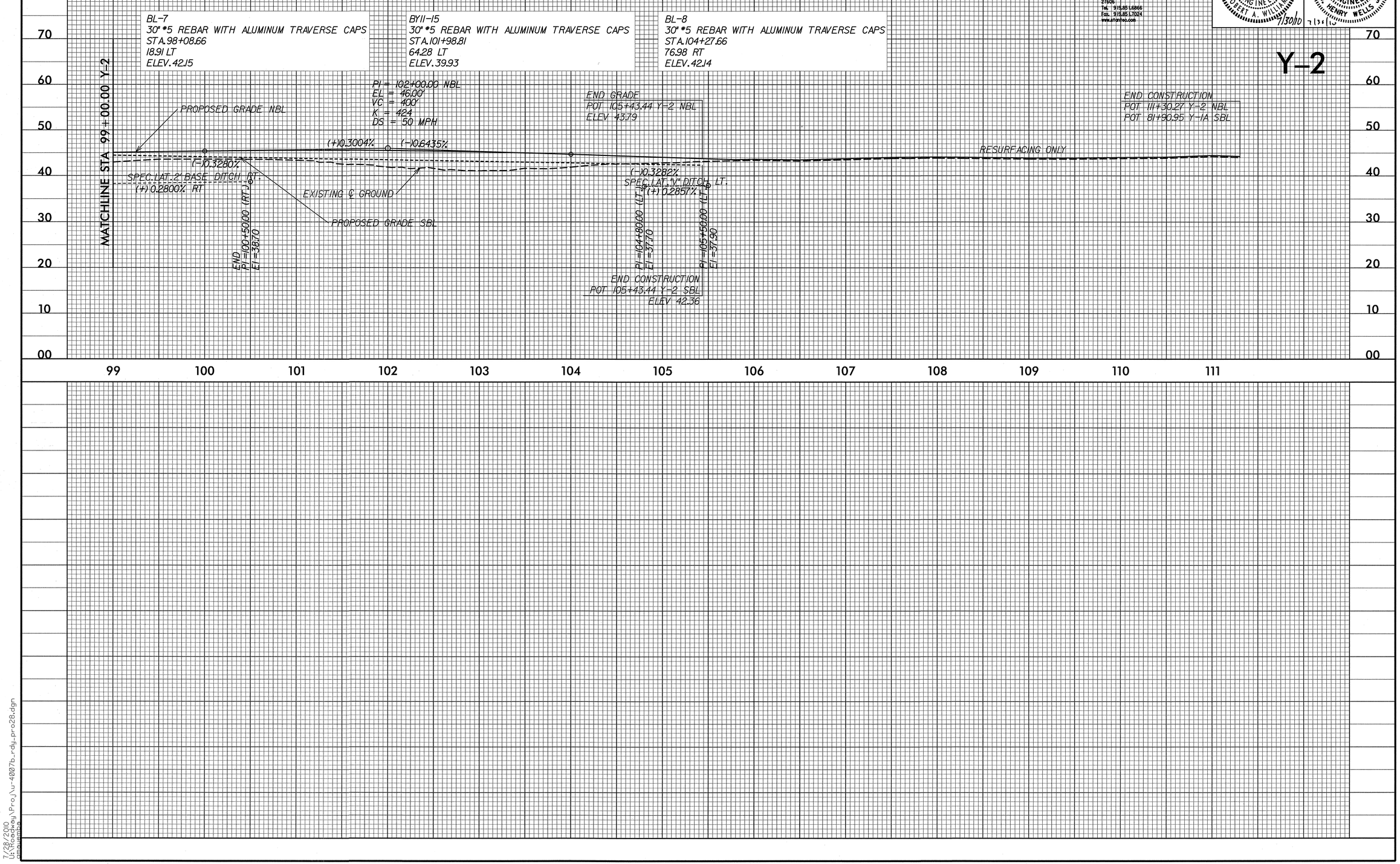
Y-2



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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	29

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS

7/30/10

HYDRAULICS ENGINEER

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

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Y-4

BY5-33
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.15+69.55
716.35 LT
ELEV.42.09

BY4-20
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.10+20.70
146.86 LT
ELEV.35.15

BY5-34
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.18+58.37
375.75 LT
ELEV.41.64

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.113

DRAINAGE AREA	= 3.2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 15	CFS
DESIGN HW ELEVATION	= 39.7	FT
100 YEAR DISCHARGE	= 18	CFS
100 YEAR HW ELEVATION	= 40.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 29	CFS
OVERTOPPING ELEVATION	= 43.1	FT

BEGIN CONSTRUCTION
POC 14+59.48 L-LINE
POT 10+35.50 Y-4
(39.50 RT) ELEV 44.27

PI = 13+00.00
EL = 42.95'
VC = 150'
K = 185
DS = 40MPH

PROPOSED GRADE

(-)4.0000%

(-)0.4990%

(-)0.4990%

(+)0.3124%

SPEC. LAT. 3' BASE DITCH RT.

(-) 0.5714%

(+) 0.2353%

24"

18"

EXISTING GROUND

PI =11+00.00 (RT.)
EI = 38.50

PI =12+75.00 (RT.)
EI = 37.50

PI =13+60.00 (RT.)
EI = 37.70

PIPE HYDRAULIC DATA
EQUALIZER PIPE STR.NO.114

DRAINAGE AREA	= NA	AC
DESIGN FREQUENCY	= NA	YRS
DESIGN DISCHARGE	= NA	CFS
DESIGN HW ELEVATION	= NA	FT
100 YEAR DISCHARGE	= NA	CFS
100 YEAR HW ELEVATION	= NA	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

MATCHLINE STA 18+00.00 Y-4

Y-4

BY5-35
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.21+71.02
188.29 LT
ELEV.42.08

BY5-37
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.25+63.21
6.79 RT
ELEV.42.50

BY5-36
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.23+13.29
33.23 LT
ELEV.42.89

BY5-38
30" #5 REBAR WITH ALUMINUM TRAVERSE CAPS
STA.29+88.35
65.12 RT
ELEV.45.22

MATCHLINE STA 18+00.00 Y-4

MOOSEHAVEN RD

PI = 23+50.00
EL = 46.23'
VC = 150'
K = 221
DS = 40MPH

PROPOSED GRADE

(+)0.3124%

(-)0.3660%

SPEC. LAT. 3' BASE DITCH RT.

(+) 0.0667%

24"

EXISTING GROUND

36" (RT.)

36"

PI =23+50.00 (RT.)
EI =40.00

PI = 28+50.00
EL = 44.40'
VC = 200'
K = 129
DS = 40 MPH

END CONSTRUCTION
POT 30+00.00 Y-4
ELEV 46.18

PROPOSED GRADE

(-)0.3660%

(+)1.1867%

PI =25+00.00 (RT.)
EI =40.10

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.194

DRAINAGE AREA	= 2.3	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 10	CFS
DESIGN HW ELEVATION	= 40.2	FT
100 YEAR DISCHARGE	= 12	CFS
100 YEAR HW ELEVATION	= 40.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 20+	CFS
OVERTOPPING ELEVATION	= 43.1	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.195&95A

DRAINAGE AREA	= 25	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 65	CFS
DESIGN HW ELEVATION	= 41.9	FT
100 YEAR DISCHARGE	= 75	CFS
100 YEAR HW ELEVATION	= 42.5	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	= 108	CFS
OVERTOPPING ELEVATION	= 44.5	FT

UNDERCUT EXCAVATION

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	30

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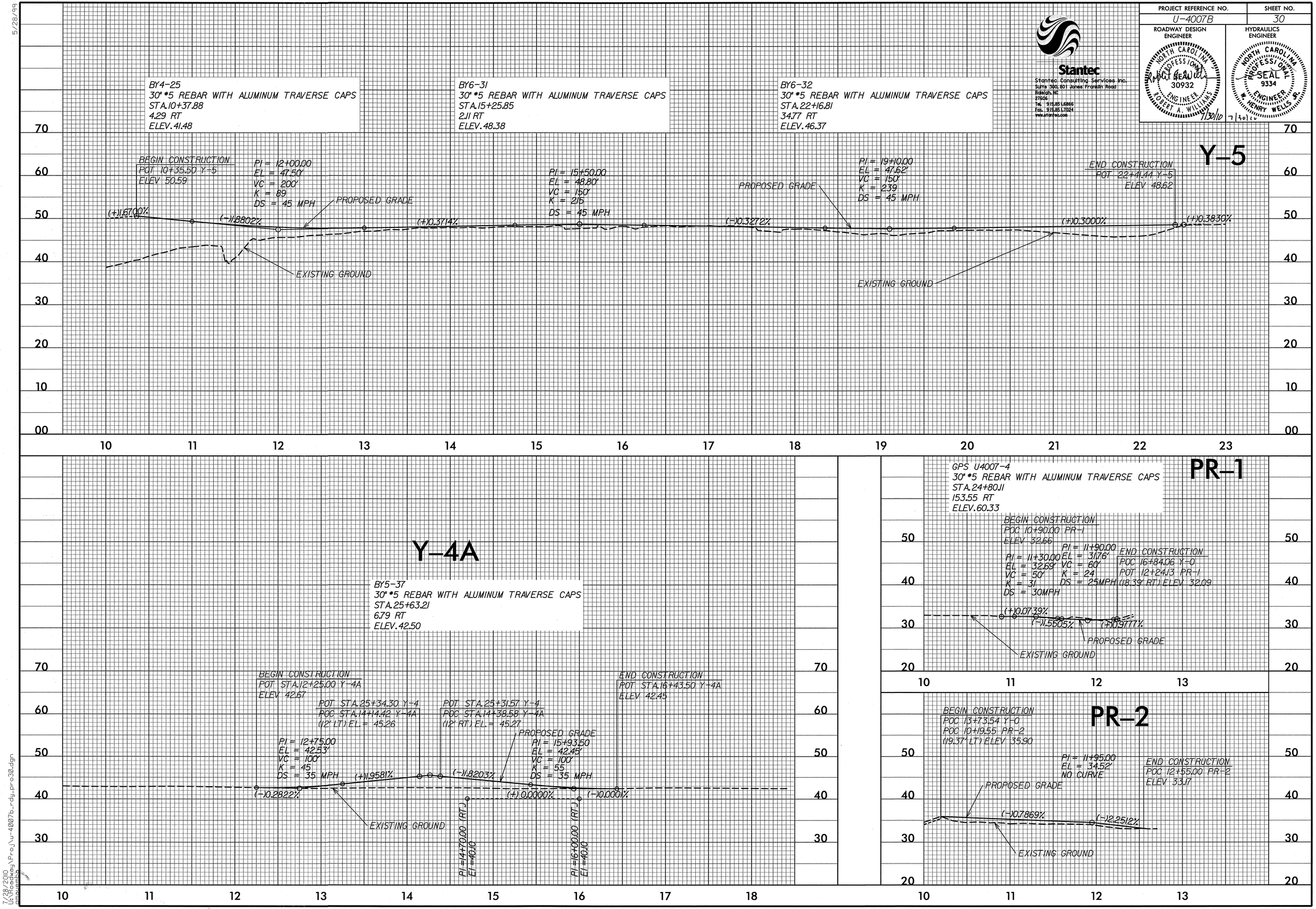

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	31

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 30932 ENGINEER ROBERT A. WILLIAMS 7/30/10

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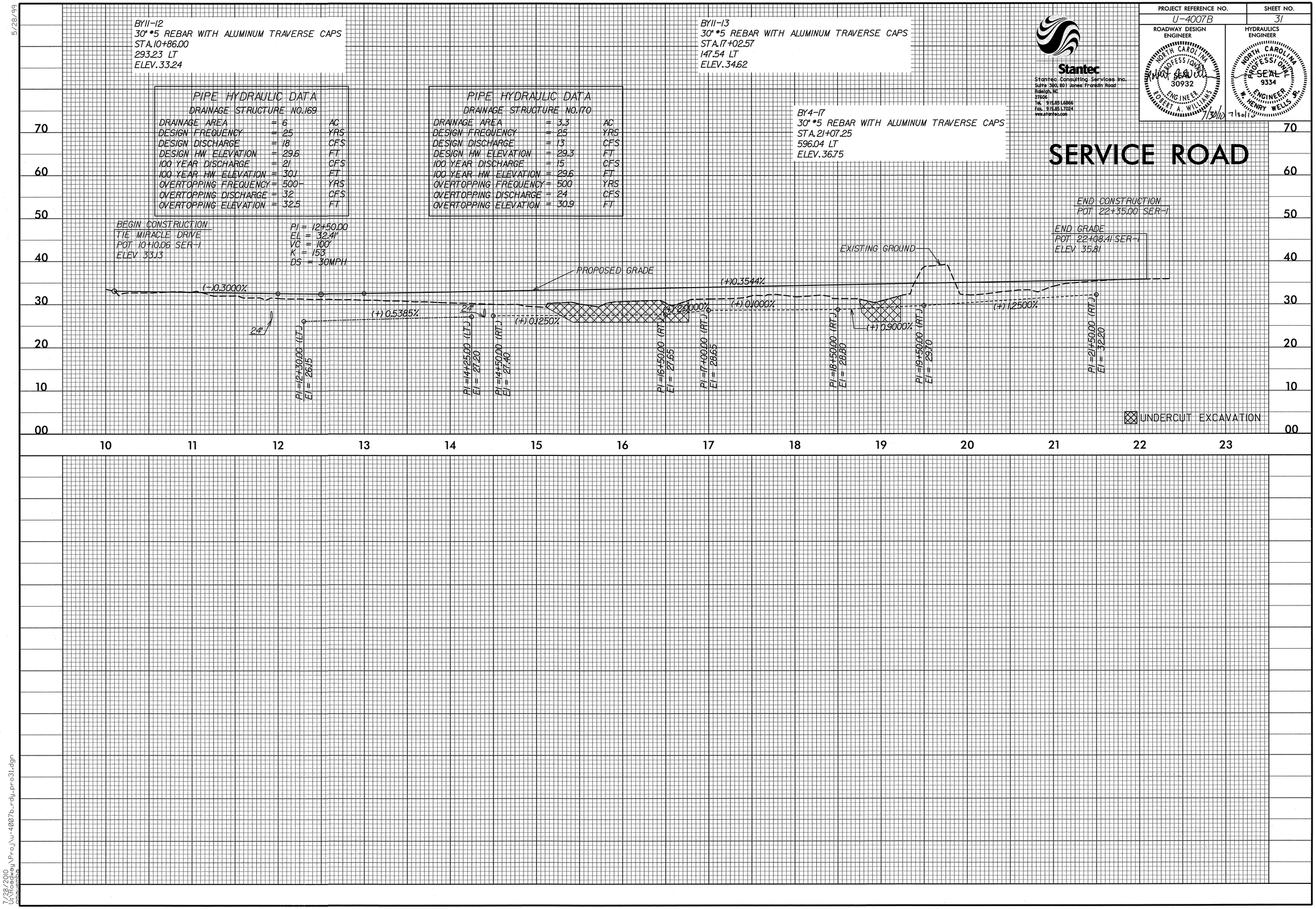

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