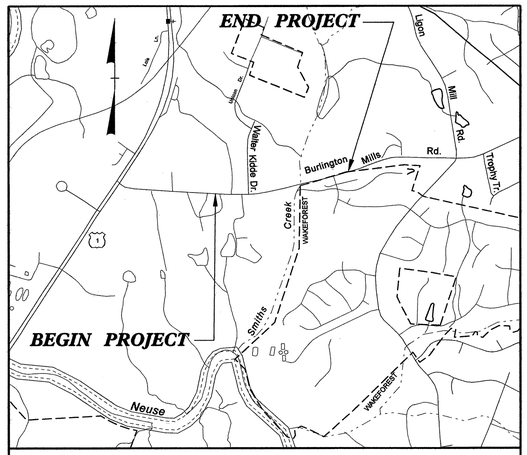
TIP PROJECT: B-3705

CONTRACT: C201472

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



VICINITY MAP N.T.S

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

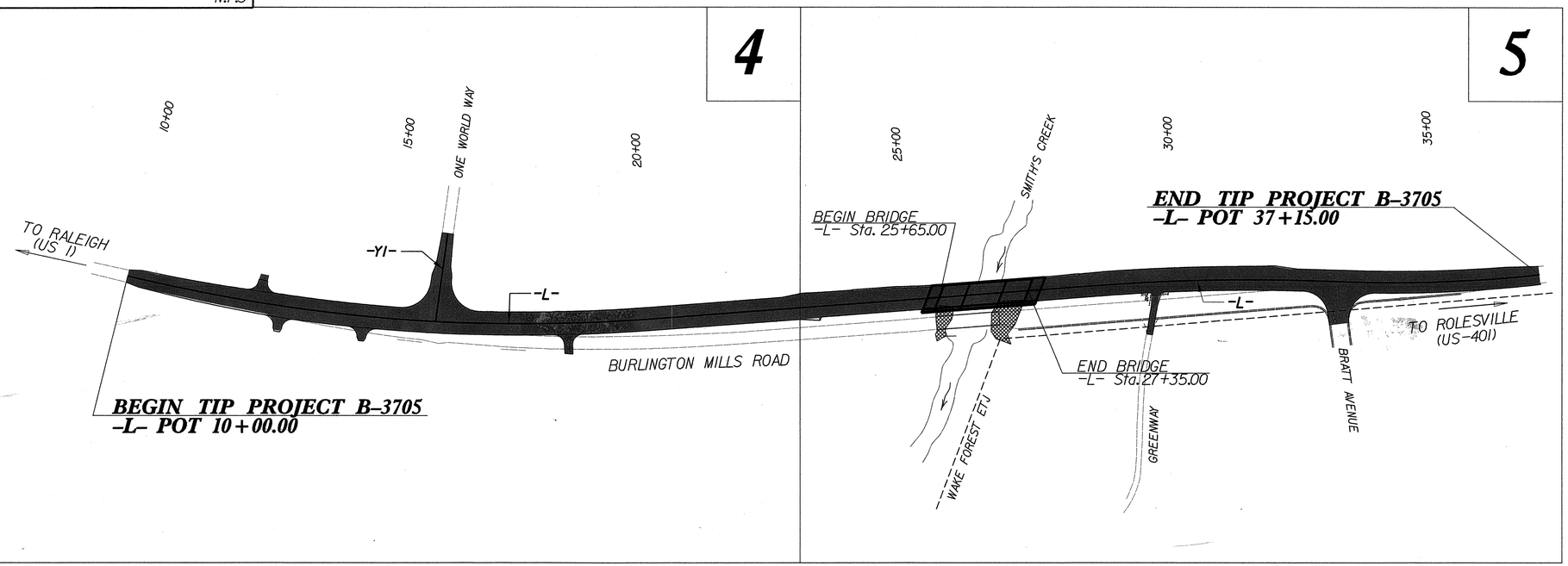
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3705	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33245.1.1	BRZ-2045(1)	P.E.
33245.2.2	BRZ-2045(1)	ROW/UTILITIES
33245.3.1	BRZ-2045(2)	CONSTRUCTION

LOCATION: BRIDGE NO. 125 OVER SMITH'S CREEK ON SR 2045 (BURLINGTON MILLS RD)

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

NAD 83/95



NCDOT CONTACT: B. DOUG TAYLOR, P.E. - ROADWAY DESIGN - ENGINEERING COORDINATION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 10,822
ADT 2028 = 18,561
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH
* (TTST 1% + DUAL 2%)
FUNCTIONAL CLASS. = RURAL MINOR COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-3705 = 0.482 MILES

LENGTH OF STRUCTURE TIP PROJECT B-3705 = 0.032 MILES

TOTAL LENGTH OF TIP PROJECT B-3705 = 0.514 MILES

Prepared In the Office of:
WILBUR SMITH ASSOCIATES
421 FAYETTEVILLE STREET, STE 1303
RALEIGH NC, 27601
FOR: NORTH CAROLINA DEPT. OF TRANSPORATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 16, 2007

LETTING DATE: APRIL 15, 2008

DAVID L. WILVER, P.E.
PROJECT ENGINEER

JIM MORRISON, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR.

11/09/07
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19026 ENGINEER DAVID L. WILVER

11/9/07
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION *

P.E.
STATE HIGHWAY DESIGN ENGINEER

FILE: n:\NCDOT\B3705 Roadway\Proj\b3705_RDY_TSH_01.dgn
DATE: 11/5/2007 10:14:15 AM

PROJECT REFERENCE NO.	SHEET NO.
B-3705	1A

REVISIONS

FILE: $FILE$
DATE: $DATE$

$TIME$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19026 DAVID L. WILKER 11/01/06

INDEX OF SHEETS

GENERAL NOTES

GENERAL NOTES: 2006 SPECIFICATIONS EFFECTIVE: 07–18–06
REVISED: 07–18–06

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE–IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

UNDERDRAINS:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE 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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTACT PRICE FOR "TEMPORARY SHORING" OR "TEMPORARY SHORING–BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

SUBSURFACE PLANS:

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

END BENTS:

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

UTILITIES

UTILITY OWNERS ON THIS PROJECT ARE:
CITY OF RALEIGH
PSNC ENERGY
EMBARQ
GIBSON & GIBSON, LLC

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOPLISHED 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 DRAWING

2006 ROADWAY STANDARD DRAWINGS EFF. 07–18–06

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N. C. Department of Transportation – Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
200.03	Method of Clearing – Method III
225.02	Guide for Grading Subgrade – Secondary and Local
225.04	Method of Obtaining Superelevation – Two Lane Pavement
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation – Method 'A'
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
DIVISION 6 – ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 – INCIDENTALS	
806.01	Concrete Right–of–Way Marker
815.03	Pipe Underdrain and Blind Drain
838.27	Reinforced Concrete Endwall – for Single 60" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall – Std. Dwg 838.21 thru 838.40
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
840.18	Concrete Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' – 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' – 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structure
846.01	Concrete Curb, Gutter and Curb & Gutter
848.02	Driveway Turnout – Radius Type
848.04	Street Turnout
848.05	Wheelchair Ramp – Curb Cut
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
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

PROJECT REFERENCE NO.	SHEET NO.
B-3705	1B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

REVISIONS

3/15/06

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 Utility Easement — PUE

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
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- 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.

FILE: n:\radon\b3705\roadway\prod\B3705_RDY_pshtlb.dgn
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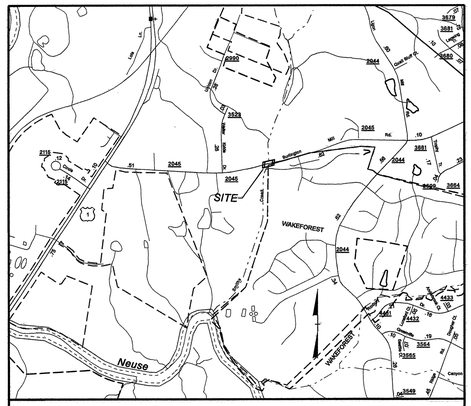
PROJECT REFERENCE NO.	SHEET NO.
B-3705	1 C
R/W SHEET NO.	

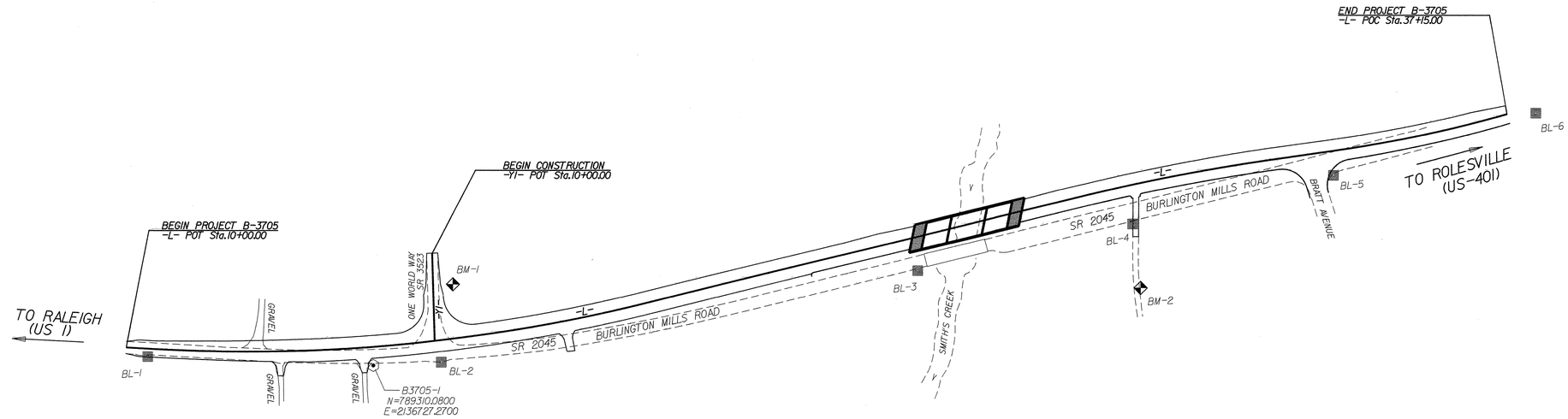
B-3705

SURVEY CONTROL SHEET B-3705
WAKE COUNTY

LOCATION: BRIDGE NO. 125 OVER SMITH'S CREEK
ON SR 2045 (BURLINGTON MILLS RD)



VICINITY MAP



BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-1	789327.4017	2136291.4888	230.99	10+42.56	15.25 RT
4	BL-2	789315.8718	2136858.4521	223.05	16+04.74	42.20 RT
5	BL-3	789491.7279	2137778.4572	200.85	25+35.94	64.78 RT
6	BL-4	789582.6910	2138193.4959	204.15	29+62.30	74.32 RT
7	BL-5	789676.8432	2138581.3418	227.56	33+65.73	46.22 RT
8	BL-6	789796.6416	2138972.0469	257.00	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

BM1 ELEVATION = 226.50
N 789466 E 2136881
L STATION 16+46 104' LEFT
Y1 STATION 10+62 38' LEFT
RR SPIKE SET IN 10" PINE

BM2 ELEVATION = 198.80
N 789458 E 2138209
L STATION 29+50 199' RIGHT
RR SPIKE SET IN BASE OF PP

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3705-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 789,310.0800(ft) EASTING: 2,136,727.270(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99993373 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3705-1" TO -L- STATION 10+00 IS N 85°48' 37.8" W 478.68' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 88

NOTES:

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

THE FILES TO BE FOUND ARE AS FOLLOWS:

b3705_ls_control_060711.txt

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

⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM HARN MONUMENTS

REVISIONS

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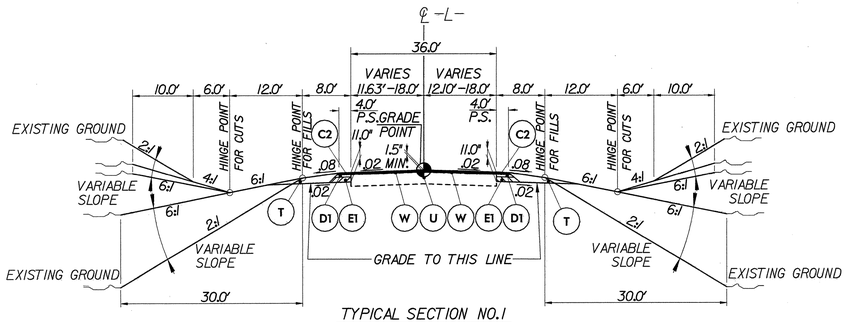
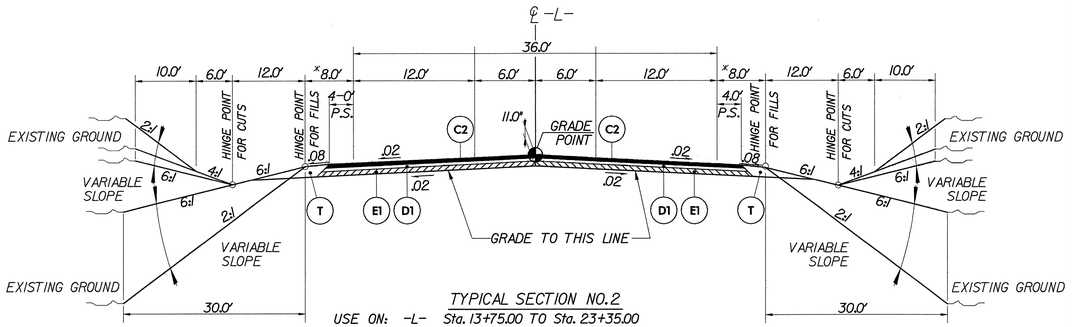
REVISIONS



TYPICAL SECTION NO.1

USE ON: -L- Sta.10+00.00 TO Sta.13+75.00



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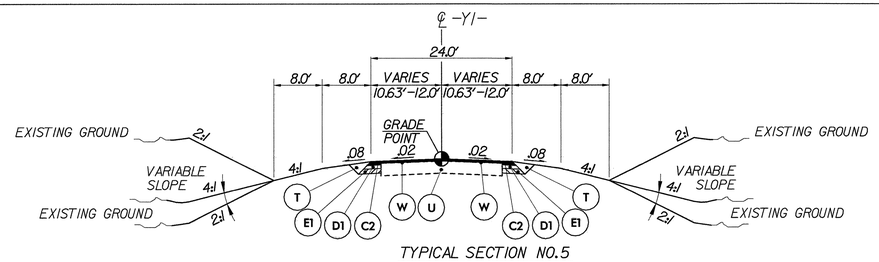
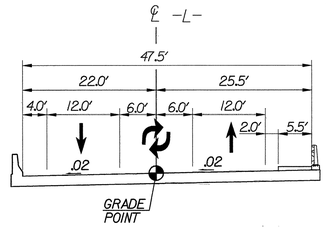
USE ON: -L- Sta. 13+75.00 TO Sta. 23+35.00

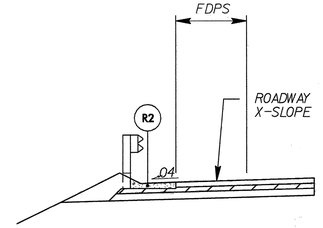


TYPICAL SECTION NO.5

USE ON: -Y1- Sta.10+00.00 TO Sta.11+51.94



TYPICAL SECTION ON BRIDGE



SHOULDER BERM GUTTER DETAIL

USE ON: -L- Sta. 24+00.00 TO Sta. 25+52.20 (LT)
-L- Sta. 27+70.00 TO Sta. 28+35.00 (LT)

PROJECT REFERENCE NO.	2
B-3705	B-3705
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

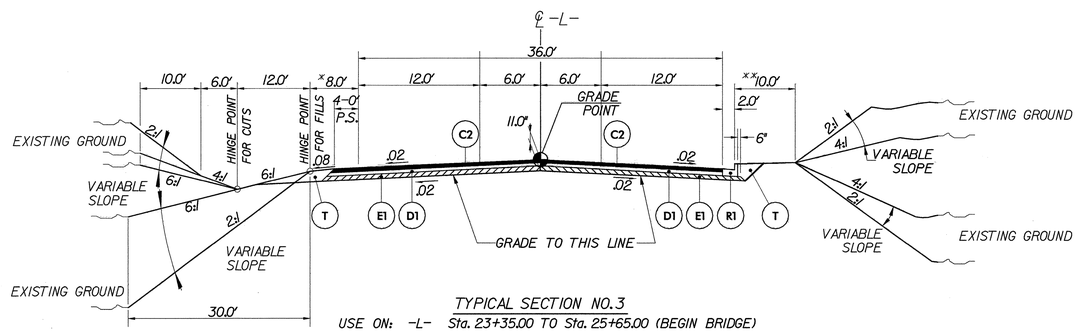
NORTH CAROLINA PROFESSIONAL SEAL 19026 ENGINEER DAVID L. WILLIVER

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030826 ENGINEER CHUN-CHI CHEN 11/7/07

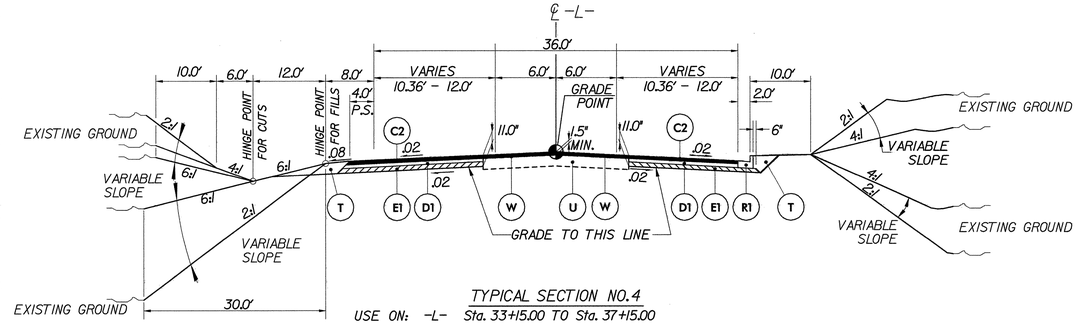
Wilbur Smith Associates — 421 Fayetteville Street Mall Suite 1305 RALEIGH, N. C. 27601

NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1590 MAIL SERVICE CENTER RALEIGH, NC 27699-1590



TYPICAL SECTION NO.3

USE ON: -L- Sta. 23+35.00 TO Sta. 25+65.00 (BEGIN BRIDGE)
-L- Sta. 27+35.00 (END BRIDGE) TO Sta. 33+15.00

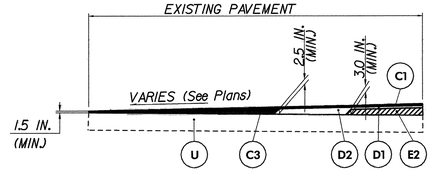


TYPICAL SECTION NO.4

USE ON: -L- Sta. 33+15.00 TO Sta. 37+15.00

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	PROP. APPROX. 1.5 IN. ASPHALT SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS/SY.	E2	PROP. VAR. DEPTH ASPHALT BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS/SY/IN IN LIFTS NOT LESS THAN 3 IN. NOR GREATER THAN 5.5 IN.
C2	PROP. APPROX. 3.0 IN. ASPHALT SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LIFTS.	R1	2' – 6" CONCRETE CURB AND GUTTER
C3	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS/SY/IN. IN LIFTS NOT LESS THAN 1.5 IN. NOR GREATER THAN 2.0 IN.	R2	SHOULDER BERM GUTTER
D1	PROP. APPROX. 4.0 IN. ASPHALT INT. COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS/SY	T	EARTH MATERIAL
D2	PROP. VAR. DEPTH ASPHALT INT. COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS/SY/IN. IN LIFTS NOT LESS THAN 2.5 IN. NOR GREATER THAN 4.0 IN.	U	EXISTING PAVEMENT
E1	PROP. APPROX. 4.0 IN. ASPHALT BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS/SY.	W	WEDGING (SEE DETAIL A)

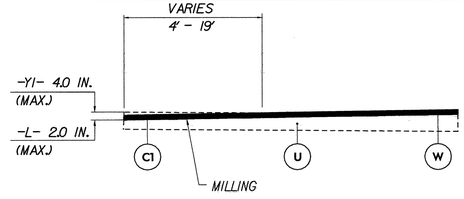


WEDGING DETAIL A

NOTES : *TOTAL SHOULDER WIDTH TO BE INCREASED 3' WHERE GUARDRAIL IS USED.

**TOTAL SHOULDER WIDTH TO BE INCREASED 4' WHERE GUARDRAIL IS USED BEHIND CURB

USE 8" INCIDENTAL STONE BASE FOR GRAVEL DRIVES



MILLING DETAIL B

USE ON: -L- Sta. 11+00.00 TO Sta. 13+50.00 LT
-L- Sta. 33+50.00 TO Sta. 37+15.00 LT
-L- Sta. 33+00.00 TO Sta. 37+15.00 RT
-Y1- Sta. 10+25.00 TO Sta. 11+51.94

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DATE: 11/7/2007 11:51:49 AM

PROJECT REFERENCE NO.	SHEET NO.
B-3705	2A
R/W SHEET NO.	

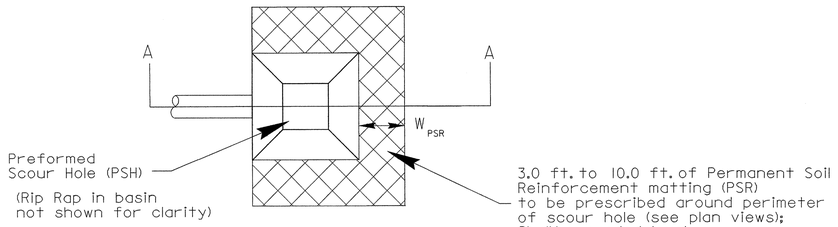
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR.
11/8/07

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606

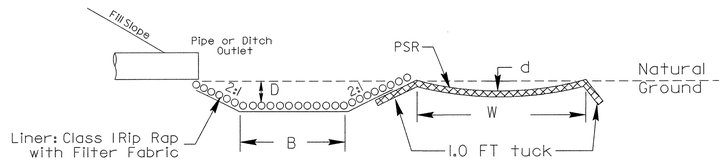
REVISIONS

PREFORMED SCOUR HOLE

(Not to scale)



Section A-A



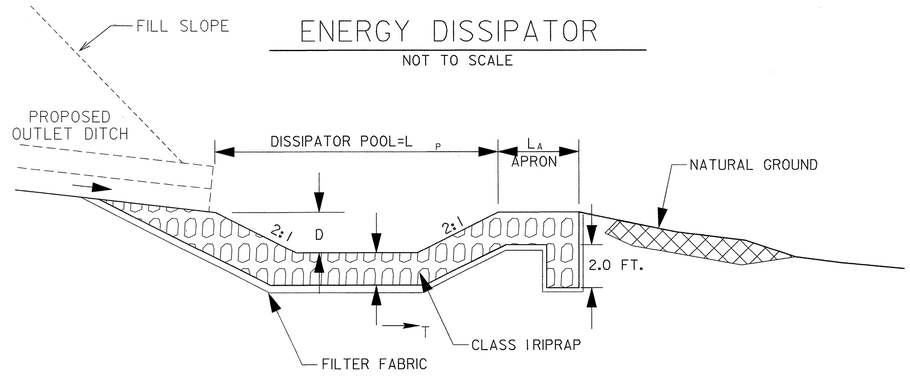
NOTE: "B" denotes size of basin;
For example: 5.0ft.x 5.0ft. PSH, B=5.0

NOTE: The Permanent Soil Reinforcement matting (PSR) shall be seeded with native grasses at installation.

STATION	B FT.	D FT.	W_{PSR} FT.	d FT.
24+71-L-Rt.	4	1.5	5	0.5
27+71-L-Lt.	4	1.5	5	0.5

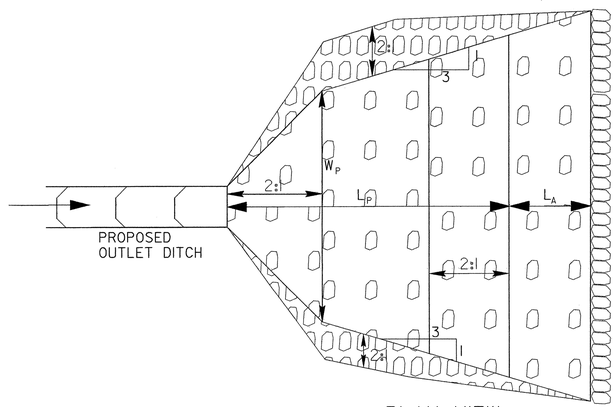
ENERGY DISSIPATOR

NOT TO SCALE



PROFILE

NOT TO SCALE



PLAN VIEW

NOT TO SCALE

STATION	L_P FT.	W_P FT.	L_A FT.	T FT.	D FT.	CLASS I RIP RAP TONS	DDE (CU YD)	FILTER FABRIC (SQ YD)
+/-24+25-L-Lt.	17	10	10	2	2	62	78	50

FILE: I:\roads\B3705\roadway\proj\B3705_RDY_PSH_LOA.dgn
DATE: 10/22/2007 2:25:09 PM

PROJECT REFERENCE NO.	SHEET
B-3705	2B

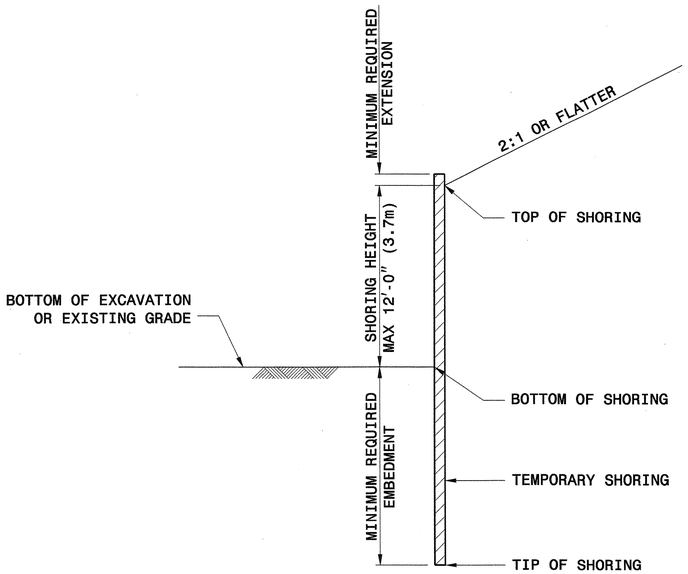
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

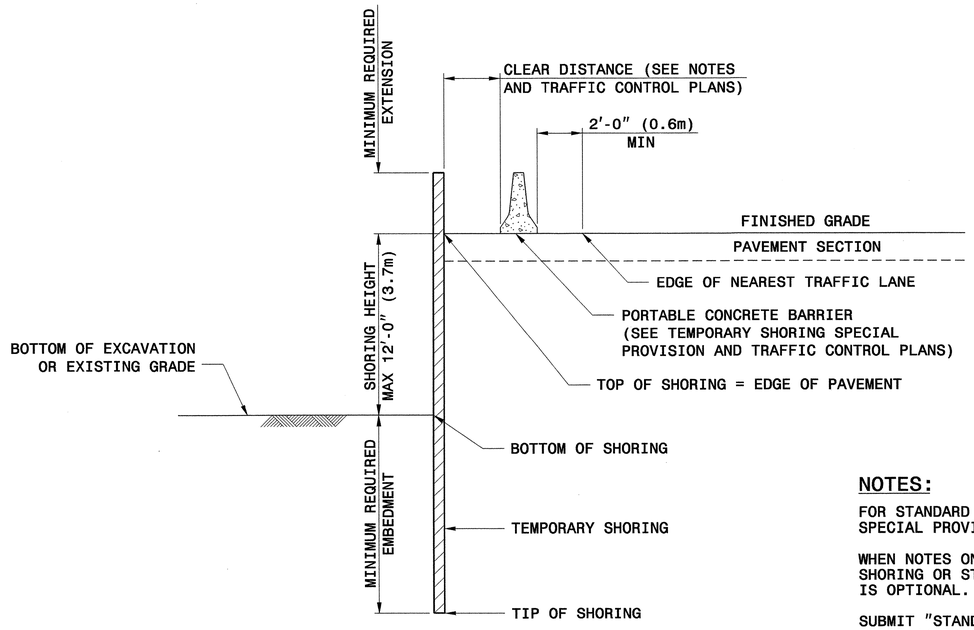
Scott A. Hidden 3/29/07
SIGNATURE DATE

ENGINEER

SIGNATURE DATE



SLOPE CASE



SURCHARGE CASE

GROUNDWATER CONDITION	SHORING HEIGHT FT (m)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H PILES WITH TIMBER LAGGING			SHEET PILES		H PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN^3/FT (cm^3/m)	MINIMUM REQUIRED EMBEDMENT FT (m)			MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN^3/FT (cm^3/m)	MINIMUM REQUIRED EMBEDMENT FT (m)		
				HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)			HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)
	12 (3.7)	15.0 (4.6)	21.5 (1156)	--	--	16.0 (4.9)	16.0 (4.9)	25.5 (1371)	--	--	15.5 (4.7)
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)
	12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFFIC IMPACT".

NOTES:

FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.

SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:
1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
4) H PILE SPACING IS 6'-0" (1.8m).
5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M^3)
FRICTION ANGLE = 30 DEGREES
COHESION = 0 PSF (0 KPA)
GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".

AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 2-20-07

PROJECT REFERENCE NO.	SHEET NO.
B-3705	2C

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

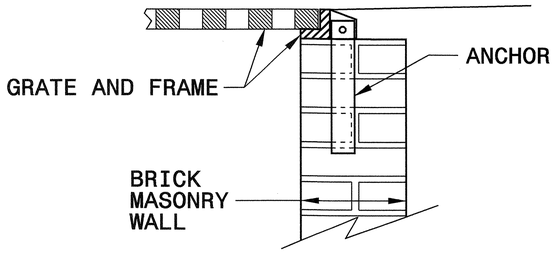
ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

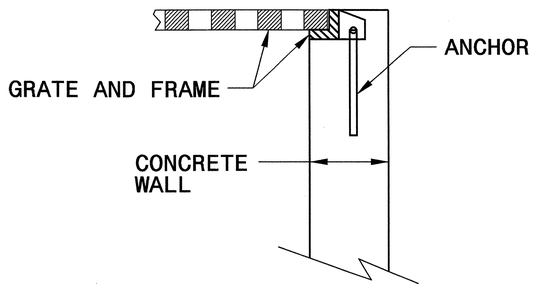
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

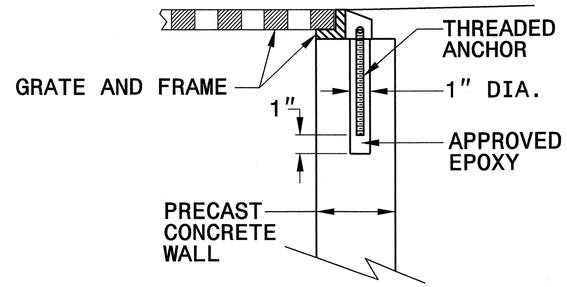
840D25



BRICK MASONRY CONSTRUCTION



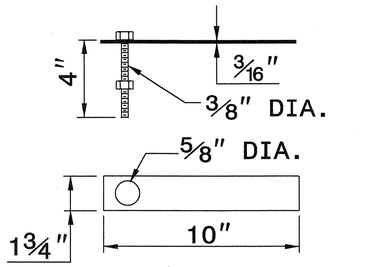
CONCRETE CONSTRUCTION



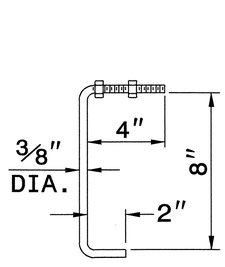
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

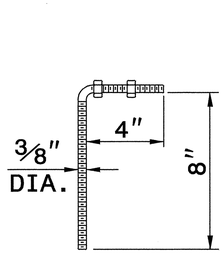
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



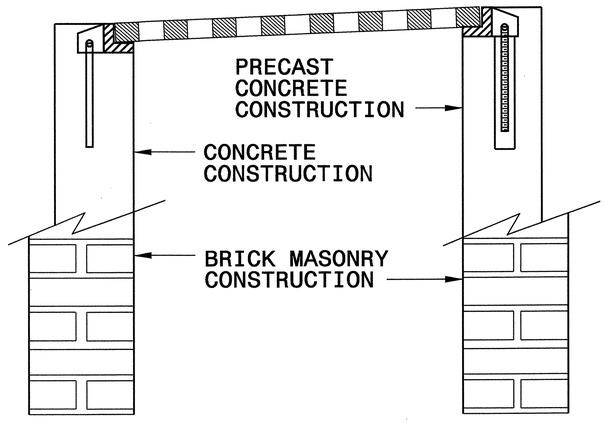
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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

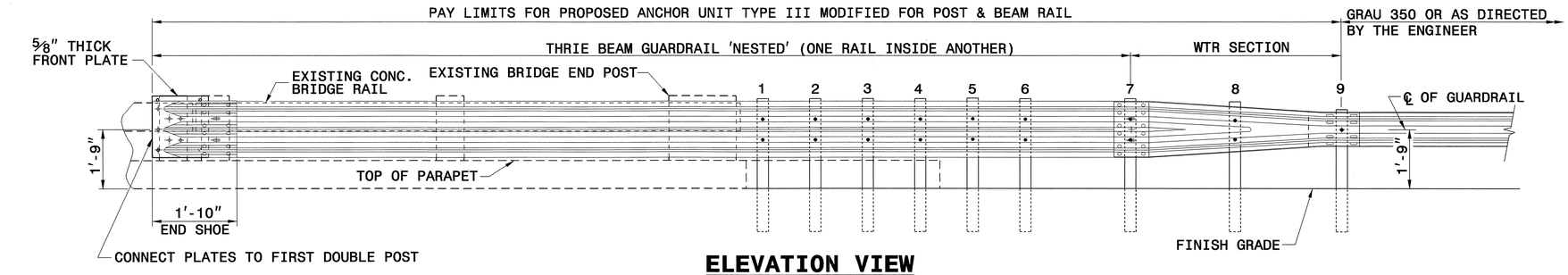
840D25

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

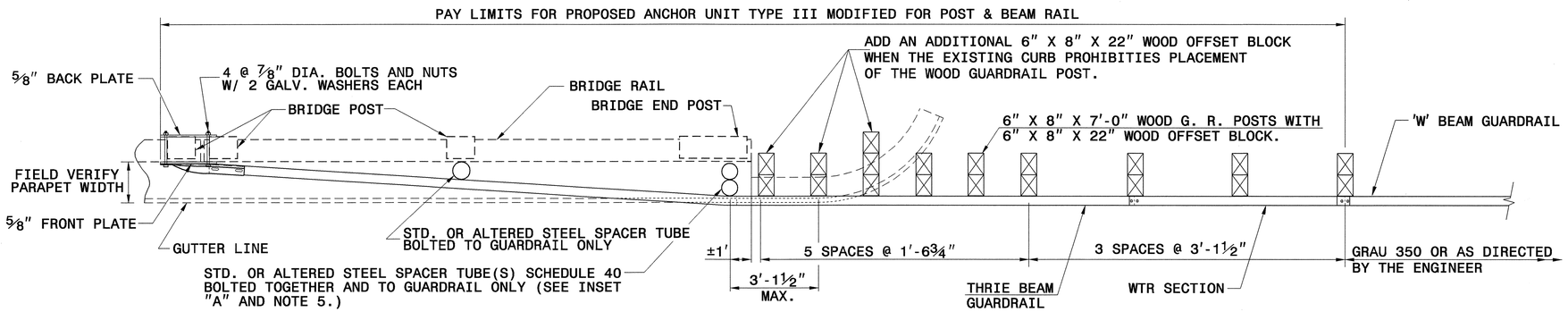
SEE PLATE FOR TITLE

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

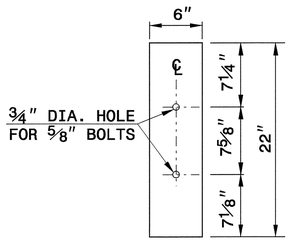
PROJECT REFERENCE NO.	SHEET NO.
B-3705	2-D



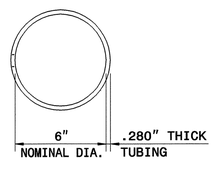
ELEVATION VIEW



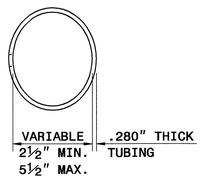
PLAN VIEW



FRONT VIEW

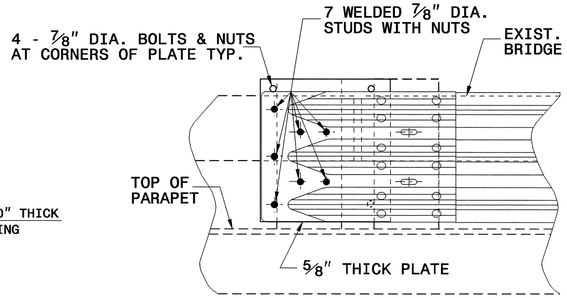


PLAN VIEW

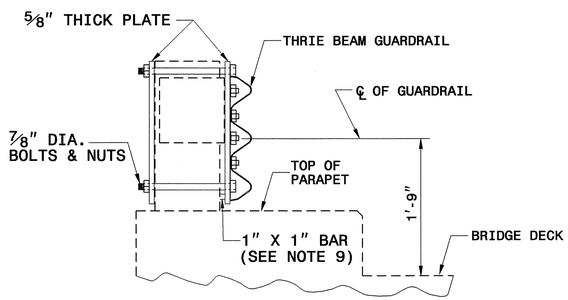


PLAN VIEW
INSET "A"

STEEL SPACER TUBE



ELEVATION VIEW

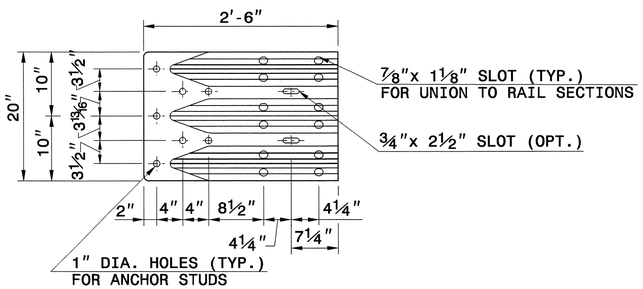


SECTION VIEW

GENERAL NOTES:

1. USE NUTS, BOLTS, AND WASHERS CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-307 AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
2. TAP NUTS FOR THE 7/8" DIA. STUDS AND BOLTS AFTER GALVANIZING SEE A.S.T.M. A-563.
3. USE PLATES AND TUBES CONFORMING TO THE REQUIREMENTS OF A.S.T.M. A-36 AND GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 1076 OF STAND. SPECS.
4. ADDITIONAL FIELD HOLES MAY BE DRILLED IN STEEL RAIL AS DIRECTED BY THE ENGINEER.
5. INSTALL FACE OF GUARDRAIL AS NEAR AS POSSIBLE TO PLUMB WITH THE PARAPET FACE AT BRIDGE END POST SPACER TUBE LOCATION BY USING STANDARD OR ALTERED SPACER TUBES OR A COMBINATION THEREOF OR AS DIRECTED BY THE ENGINEER. FOR VERY SMALL PARAPET WIDTHS, GUARDRAIL MAY BE INSTALLED AGAINST BRIDGE RAIL WITHOUT SPACER TUBES.
6. DO NOT DRILL BRIDGE RAIL IN ORDER TO INSTALL GUARDRAIL ANCHOR UNIT.
7. USE THIS DETAIL ONLY FOR BRIGES WITH POST AND BEAM TYPE RAIL.
8. ATTACH 1" X 1" BAR AND THREADED STUDS TO PLATE WITH 1/4" WELDS ALL AROUND.
9. 1" X 1" BAR MAY NOT BE NEEDED ON BRIDGE RAILS WHERE FACE OF RAIL DOES NOT PROJECT BEYOND FACE OF POST.
10. PROVIDE SHOP DRAWINGS OF THE PLATES TO THE ENGINEER FOR APPROVAL BEFORE FABRICATING THE PLATES.
11. LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
12. SEE ROADWAY STARDARD DRAWING 862.03 SHEET 4 FOR ADDITIONAL INFORMATION ON THE TYPE III ANCHOR UNIT

GUARDRAIL ATTACHMENT TO BRIDGE POST



END SHOE

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL E. HOMEYER
2/5/08

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

GUARDRAIL ANCHOR UNIT TYPE III MODIFIED FOR POST & BEAM RAIL

ORIGINAL BY: E.E. WARD DATE: 01-03
MODIFIED BY: E.E. WARD DATE: 02-04
CHECKED BY: DATE:
FILE SPEC.: \usr\details\stand\bpiii originial.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-3705	3

IEET NO.

REVISIONS

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DATE: 10/25/2007 3:24:59 PM

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201472

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (26+50.00)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	750	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0080000000-E	SP	100	TON	CLASS IV SUBGRADE STABILIZATION
0106000000-E	230	23,000	CY	BORROW EXCAVATION
0134000000-E	240	180	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION
0199000000-E	SP	700	SF	TEMPORARY SHORING
0318000000-E	300	158	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0343000000-E	310	28	LF	15" SIDE DRAIN PIPE
0414000000-E	310	96	LF	60" RC PIPE CULVERTS, CLASS III
0708000000-E	310	104	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0806000000-E	310	4	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0995000000-E	340	289	LF	PIPE REMOVAL
1220000000-E	545	225	TON	INCIDENTAL STONE BASE
1489000000-E	610	2,600	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	2,575	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	2,350	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	375	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	53	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	12	EA	RIGHT OF WAY MARKERS
2022000000-E	815	90	CY	SUBDRAIN EXCAVATION
2033000000-E	815	68	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	400	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	12	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2220000000-E	838	5.9	CY	REINFORCED ENDWALLS
2286000000-N	840	14	EA	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.29
2374000000-N	840	1	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	1	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2549000000-E	846	1,130	LF	2'-6" CONCRETE CURB & GUTTER
2556000000-E	846	218	LF	SHOULDER BERM GUTTER
2612000000-E	848	20	SY	6" CONCRETE DRIVEWAY
2860000000-N	859	3	EA	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX
3030000000-E	862	775	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3215000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3380000000-E	862	62.5	LF	TEMPORARY STEEL BM GUARDRAIL
3387000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE ********** TEMPORARY (III MOD)
3389100000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY
3628000000-E	876	110	TON	RIP RAP, CLASS I
3635000000-E	876	375	TON	RIP RAP, CLASS II
3649000000-E	876	159	TON	RIP RAP, CLASS B
3656000000-E	876	1,425	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	2	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4025000000-E	901	32	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (D)
4025000000-E	901	47.75	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)
4072000000-E	903	176	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	2	EA	SIGN ERECTION, TYPE D
4102000000-N	904	8	EA	SIGN ERECTION, TYPE E
4155000000-N	907	13	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	458	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	208	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	184	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	60	EA	DRUMS
4435000000-N	1135	40	EA	CONES
4445000000-E	1145	112	LF	BARRICADES (TYPE III)
4455000000-N	1150	120	MD	FLAGGER
4650000000-N	1251	40	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	4,200	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	6,915	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	200	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	30	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4725000000-E	1205	8	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4770000000-E	1205	1,000	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)
4770000000-E	1205	800	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)
4780000000-E	1205	60	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III)
4810000000-E	1205	46,270	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	400	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	120	LF	PAINT PAVEMENT MARKING LINES (24")
4845000000-N	1205	16	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	200	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4900000000-N	1251	70	EA	PERMANENT RAISED PAVEMENT MARKERS
5326200000-E	1510	40	LF	12" WATER LINE
5672000000-N	1515	2	EA	RELOCATE FIRE HYDRANT
5691900000-E	1520	171	LF	24" SANITARY GRAVITY SEWER
5776000000-E	1525	2	EA	5' DIA UTILITY MANHOLE
5782000000-E	1525	4	LF	UTILITY MANHOLE WALL, 5' DIA
5804000000-E	1530	25	LF	ABANDON 12" UTILITY PIPE
5813000000-E	1530	81	LF	ABANDON 24" UTILITY PIPE
5828000000-N	1530	1	EA	REMOVE UTILITY MANHOLE
6000000000-E	1605	1,870	LF	TEMPORARY SILT FENCE
6006000000-E	1610	165	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	515	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	525	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	5	ACR	TEMPORARY MULCHING
6018000000-E	1620	200	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.75	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	100	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	3	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	500	LF	SAFETY FENCE
6030000000-E	1630	1,370	CY	SILT EXCAVATION
6036000000-E	1631	3,415	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	15	SY	COIR FIBER MAT
6038000000-E	SP	1,110	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	300	LF	1/4" HARDWARE CLOTH
6070000000-N	SP	12	EA	SPECIAL STILLING BASINS
6071030000-E	SP	270	LF	COIR FIBER BAFFLES
6071050000-E	SP	1	EA	** SKIMMER (2")
6071050000-E	SP	1	EA	** SKIMMER (2-1/2")
6084000000-E	1660	6.5	ACR	SEEDING & MULCHING
6087000000-E	1660	3	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	125	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	4.75	TON	FERTILIZER TOPDRESSING
6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	8	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION
		******* BEGIN SCHEDULE AA ******* ******* (3 ALTERNATES) *******		
0366000000-E AA1	310	840	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA1	310	248	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA1	310	52	LF	24" RC PIPE CULVERTS, CLASS III
		*** OR ***		
0366000000-E AA2	310	548	LF	15" RC PIPE CULVERTS, CLASS III
0540000000-E AA2	SP	292	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15", 0.064")
0540000000-E AA2	SP	248	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (18", 0.064")
0540000000-E AA2	SP	52	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (24", 0.064")
		*** OR ***		
0366000000-E AA3	310	548	LF	15" RC PIPE CULVERTS, CLASS III
0536000000-E AA3	SP	292	LF	*** HDPE PIPE CULVERTS (15")
0536000000-E AA3	SP	248	LF	*** HDPE PIPE CULVERTS (18")
0536000000-E AA3	SP	52	LF	*** HDPE PIPE CULVERTS (24")
		******* END SCHEDULE AA *******		

COMPUTED BY: R. M. P. DATE: 1-07
CHECKED BY: D. L. W. DATE: 1-07

PROJECT REFERENCE NO.	SHEET NO.
B-3705	3A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 19026 ENGINEER DAVID L. WILVER 11/05/07

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 11/8/07

Wilbur Smith Associates, 421 Fayetteville Street Mall, Suite 1303, RALEIGH, N. C. 27601

SUNGATE DESIGN GROUP, P.A., 915 JONES FRANKLIN ROAD, RALEIGH, NORTH CAROLINA 27606

REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

Part 1 – Station, structures, elevations and Class III R.C. Pipe (unless noted otherwise) (Thickness or gauge row: none printed for this group)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	12"	15"	18"	24"	30"	36"	42"	48"
14+57 -L-	RT	2A													
15+35 -L-	LT	3		222.0	219.25										
		3	4		219.25	215.48			160						
17+00 -L-	LT	4		218.23	215.48										
		4	5		215.48	207.95									
20+00 -L-	LT	5		210.70	207.7										
		5	6		207.7	201.6									
22+50 -L-	LT	6		204.60	201.1										
23+00 -L-		6	7		201.1	198.0									
25+43 -L-	LT	8		204.56	201.81										
		8	10		201.81	201.20			72						
24+70 -L-	LT	10		204.24	201.20										
		9	10		201.26	201.20			16						
24+50 -L-	LT	9		204.26	201.26										
		10	12		201.20	201.04			40						
24+70 -L-	RT	12		204.98	201.04										
		11	12		201.58	201.04			52						
24+17 -L-	RT	11		204.58	201.58										
		12	13		201.04	191.0									
29+00 -L-	RT	14		207.52	204.52										
		14	15		204.52	204.14			28						
28+70 -L-	RT	15		207.14	204.14										
		15	16		204.14	203.14			88						
27+78 -L-	RT	16		206.14	203.14										
		16	17		203.14	202.90			40						
27+78 -L-	LT	17		205.90	202.90										
		17	18		202.90	190.5									
30+50 -L-	RT	19		211.54	208.54										
		19	20		208.54	EXIST			52						
30+20 -L-	RT	20		206.2	EXIST										
33+79 -L-	RT	21		228.1	EXIST										
35+60 -L-	RT	22		241.90	EXIST										
TOTAL									548						

Part 2 – Bituminous Coated C.S. Pipe Type B (unless noted otherwise); Class III R.C. Pipe or C.S. Pipe, Type IR Aluminized or HDPE Pipe, Type S or D; Side drain pipe

STATION	FROM	TO	BIT. 12"	BIT. 15" (.064)	BIT. 18" (.064)	BIT. 24" (.064)	BIT. 30" (.079)	BIT. 36" (.079)	BIT. 42" (.109)	BIT. 48" (.109)	RCP/CSP/HDPE 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE
14+57 -L-	2A																		28		
15+35 -L-	3																				
	3	4																			
17+00 -L-	4																				
	4	5										292									
20+00 -L-	5																				
	5	6											248								
22+50 -L-	6																				
23+00 -L-	6	7												52							
25+43 -L-	8																				
	8	10																			
24+70 -L-	10																				
	9	10																			
24+50 -L-	9																				
	10	12																			
24+70 -L-	12																				
	11	12																			
24+17 -L-	11																				
	12	13		64																	
29+00 -L-	14																				
	14	15																			
28+70 -L-	15																				
	15	16																			
27+78 -L-	16																				
	16	17																			
27+78 -L-	17																				
	17	18		40																	
30+50 -L-	19																				
	19	20																			
30+20 -L-	20																				
33+79 -L-	21																				
35+60 -L-	22																				
TOTAL				104								292	248	52					28		

Part 3 – Endwalls, drainage structures, frames and grates, pipe removal and remarks

Endwalls: STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE), CU. YDS. Quantities for drainage structures: * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B'). Frame, grates and hood standard 840.03 – type of grate.

STATION	FROM	TO	ENDWALLS R.C.P.	ENDWALLS C.S.P.	PER EACH (0' THRU 5.0')	LIN. *FT. A: 5.0' THRU 10.0'	LIN. *FT. B: 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	GRATE E	GRATE F	GRATE G		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32					CONV. EXIST. C.B. TO J.B.	15" BIT COATED CS ELBOWS, 0.064"	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
14+57 -L-	2A																															28	
15+35 -L-	3				1											1					1												
	3	4																														60	
17+00 -L-	4				1											1					1											114	PIPE REMOVAL -L- 15+37 TO 16+50 RT
	4	5																															
20+00 -L-	5				1											1					1												
	5	6																															
22+50 -L-	6				1											1					1												
23+00 -L-	6	7																															
25+43 -L-	8				1												1					1											
	8	10																															
24+70 -L-	10				1												1					1											
	9	10																															
24+50 -L-	9				1												1					1											
	10	12																															
24+70 -L-	12				1			1	1																								
	11	12																															
24+17 -L-	11				1			1		1																							
	12	13																												2				
29+00 -L-	14				1			1			1																						
	14	15																															
28+70 -L-	15				1			1			1																						
	15	16																															
27+78 -L-	16				1			1			1																					87	PIPE REMOVAL -L- 27+09 RT (2 PIPES)
	16	17																															
27+78 -L-	17				1												1					1											
	17	18																												2				
30+50 -L-	19				1			1			1																						
	19	20																															
30+20 -L-	20																												1					
33+79 -L-	21																												1					
35+60 -L-	22																												1					
TOTAL					14			6	1	1	4					4	4				4	4						3	4			289	

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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DATE: 11/5/2007 10:39:33 AM

COMPUTED BY: R. M. P. DATE: 1-07
CHECKED BY: D. L. W. DATE: 1-07

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

PROJECT REFERENCE NO.	SHEET NO.
B-3705	3B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19026 ENGINEER DAVID L. WILVER
4/2/07

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR.
4/2/07

Wilbur Smith Associates — 421 Fayetteville Street Mall, Suite 1303, RALEIGH, N. C. 27601
SUNGATE DESIGN GROUP, P.A. — 816 JONES FRANKLIN ROAD, RALEIGH, NORTH CAROLINA 27606

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH: STRAIGHT	LENGTH: SHOP CURVED	LENGTH: DOUBLE FACED	WARRANT POINT: APPROACH END	WARRANT POINT: TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH: APPROACH END	FLARE LENGTH: TRAILING END	W: APPROACH END	W: TRAILING END	ANCHORS: GRAU 350	ANCHORS: CAT-1	ANCHORS: AT-1	ANCHORS: B-77	ANCHORS: TYPE III	IMPACT ATTENUATOR TYPE 350: EA	IMPACT ATTENUATOR TYPE 350: G	IMPACT ATTENUATOR TYPE 350: NG	SINGLE FACED CONCRETE BARRIERS	REMARKS
-L-	23+00.50	25+63	LT	262.5'			BEGIN BRIDGE	23+50	8.0	11.0	115		2.3		1			1						
-L-	23+39.50	25+52	RT	212.5'			BEGIN BRIDGE	25+52	8.9	N/A		130		2.6	1				1					
-L-	27+56	32+06	LT	450'			31+50	END BRIDGE	8.0	11.0		115	2.3		1			1						
-L-	27+22	28+22	RT	100'			27+22	END BRIDGE	8.9	N/A	20		0.4		1				1					
			SUB TOTAL	1025'																				
	ANCHOR UNIT DEDUCTIONS																							
	GRAU 350	4 @ 50'	200.00'																					
	B-77	2 @ 18.75'	37.50'																					
	TYPE III	2 @ 18.75'	37.50'																					
		SUB TOTAL	275.00'	-275.00'																				
			TOTAL	750'											4			2	2					
			SAY	775'											4			2	2					
	5 ADDITIONAL GUARDRAIL POST																							

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH: STRAIGHT	LENGTH: SHOP CURVED	LENGTH: DOUBLE FACED	WARRANT POINT: APPROACH END	WARRANT POINT: TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH: APPROACH END	FLARE LENGTH: TRAILING END	W: APPROACH END	W: TRAILING END	ANCHORS: GRAU 350	ANCHORS: CAT-1	ANCHORS: AT-1	ANCHORS: B-77	ANCHORS: TYPE III MODIFIED	IMPACT ATTENUATOR TYPE 350: EA	IMPACT ATTENUATOR TYPE 350: G	IMPACT ATTENUATOR TYPE 350: NG	SINGLE FACED CONCRETE BARRIERS	REMARKS
-L-	24+75 (+/-)	25+56 (+/-)	RT	87.5'			EXIST BRIDGE								1				1					MATCH EXISTING OFFSET AND TIE TO EXISTING BRIDGE
-L-	26+77 (+/-)	27+85 (+/-)	RT	112.5'				EXIST BRIDGE							1				1					MATCH EXISTING OFFSET AND TIE TO EXISTING BRIDGE
																								AS DIRECTED BY THE RESIDENT ENGINEER
			SUB TOTAL	200.0'											2				2					
	ANCHOR UNIT DEDUCTIONS																							
	GRAU 350	2 @ 50'	100.00'																					
	TYPE III	2 @ 18.75'	37.50'																					
		SUB TOTAL	137.50'	-137.5'																				
			TOTAL	62.5'											2				2					

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: 54" .109	54" .138	54" .168	54" SHOP ELON-GATED .138	54" SHOP ELON-GATED .168	60" .138	60" .168	66" .138	66" .168	72" .138	72" .168	STRUCTURAL PLATE PIPE: 60" 12	60" 10	66" 12	66" 10	72" 12	72" 10	REINFORCED ENDWALLS STD 838.27: WITH R.C. - C.Y.	WITH C.S. - C.Y.	MASONARY DRAINAGE STRUCTURES CUBIC YARDS	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & SIZE	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	PIPE REMOVAL LIN.FT.	REMARKS
SIZE																																				
THICKNESS OR GAUGE		FROM	TO																																	
10+80 -L-	CL	1	2		221.3	220.0			96																				5.9								

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

REMOVAL OF EXISTING ASPHALT PAVEMENT SUMMARY

LINE	STATION TO STATION	LOCATION	REMOVAL(sq. yd.)	BREAKING(sq. yd.)
-L-	STA 13+75 TO STA 25+56	RT	2616	
-L-	STA 26+76 TO STA 33+15	RT	1603	708
		TOTAL	4219	708
		SAY	4225	710

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

REVISIONS

FILE: n:\radon\b3705\roadway\gsm\b3705_RDY_SUM_038.dgn
DATE: 10/26/2007 10:04:12 AM

COMPUTED BY: B. R. CRAWFORD DATE: 8-06
CHECKED BY: D. L. WILVER DATE: 8-06

PROJECT REFERENCE NO.	SHEET NO.
B-3705	3C

REVISIONS

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
SUMMARY #1					
-L- 10+00.00 TO -L- 25+65.00 (BEG BRIDGE)	7,609		11,550	3,941	0
-Y1- 10+00.00 to -Y1- 11+51.94	44		13		31
SUBTOTAL: SUMMARY #1	7,654		11,563	3,941	31
SUMMARY #2					
-L- 27+35.00 (END BRIDGE) -L- 37+15.00	1,697		18,079	16,382	
SUBTOTAL: SUMMARY #2	1,697		18,079	16,382	
SUMMARY TOTAL	9,351		29,642	20,323	31
LOSS DUE TO CLEARING AND GRUBBING	-400			400	
WASTE TO BE USED IN LIEU OF BORROW				-31	-31
SHOULDER CONSTRUCTION			984	984	
PROJECT TOTAL	8,950		30,626	21,676	0
5% TO REPLACE TOPSOIL ON BORROW PIT(S)				1,084	
GRAND TOTAL	8,950		30,626	22,760	0
SAY	9,000			23,000	

UNDERCUT CONTINGENCY (PER GEOTECH REPORT & DIVISION) = 750 CY
DDE = 180 CY

NOTE: 1075 CY UNCLASSIFIED STRUCTURE EXCAVATION MAY BE USED IN ROADWAY EMBANKMENT IF DEEMED SUITABLE BY ENGINEER AS CONSTRUCTION PHASING ALLOWS.

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

EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANITITES ARE BASED IN PART ON SUBSURFACE DATA PPROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

FILE: n:\roddef\b3705\roadway\proj\B3705_RDY_SUM_EARTHWORK.dgn
DATE: 10/26/2007 10:24:14 AM

COMPUTED BY: T. H. BUCKNER DATE: 12-04
CHECKED BY: D. L. WILVER DATE: 12-04

PROJECT REFERENCE NO.	SHEET NO.
B-3705	3D

REVISIONS

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4 & 5	DAVID D. FULLER, TRUSTEE
2	4 & 5	GRACIE P. MACON, ETAL
3	4	JAMES M. MACON, JR. AND DOROTHY P. MACON
4	5	THURMAN D. KITCHEN, III, ETAL
5	5	CADELL WOODS HOMEOWNERS ASSOCIATION, INC.
6	5	CADELL WOODS HOMEOWNERS ASSOCIATION, INC.
7	5	WESTMINISTER HOMES, INC

FILE: c:\rocket\b3705\roadway\proj\b3705_RDY_ROWINDEX.dgn
DATE: 10/26/2007 10:04:34 AM

PROJECT REFERENCE NO.	SHEET NO.
B-3705	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19026, DAVID L. WILVER

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334, HENRY WELLS

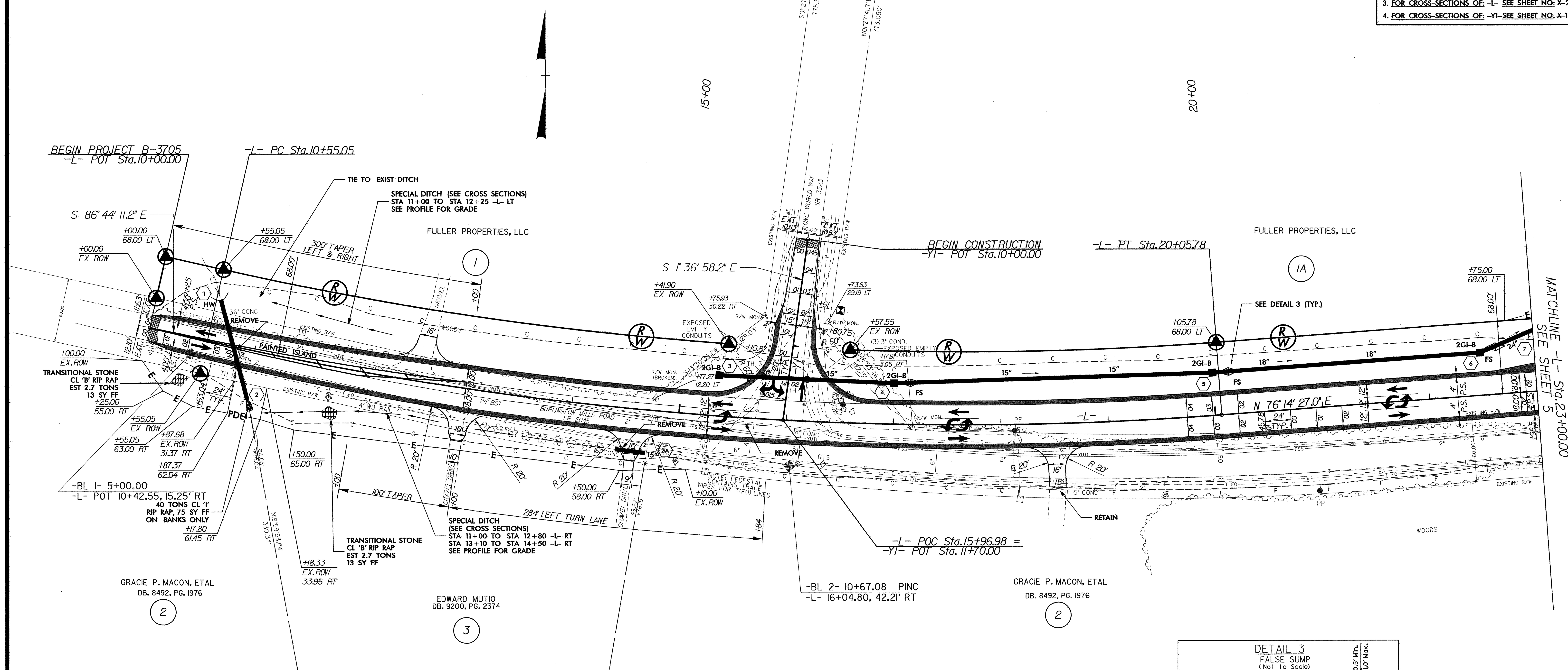
Wilbur Smith Associates, 421 Fayetteville Street Mall, Suite 1303, RALEIGH, N. C. 27601

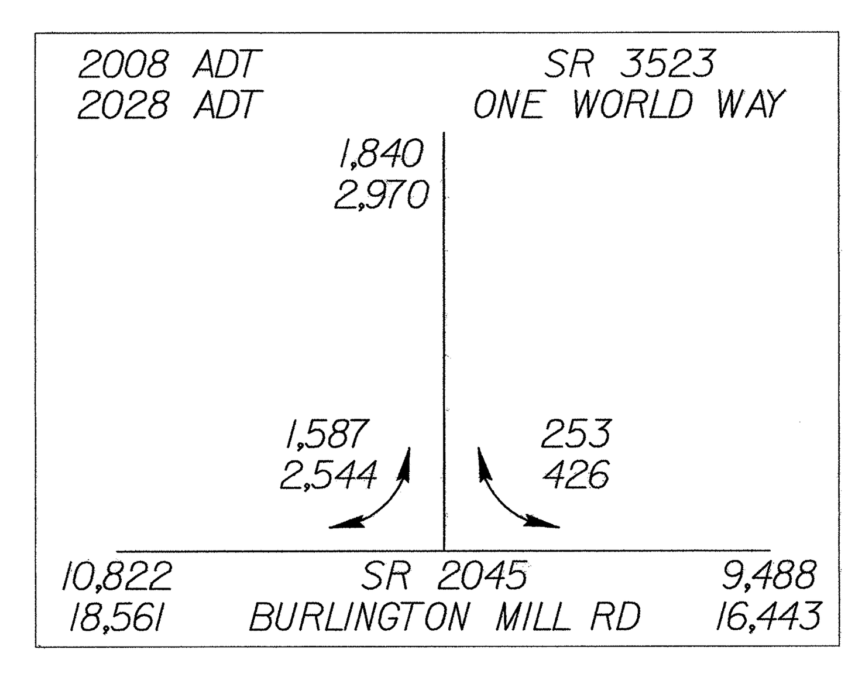
SUNGATE DESIGN GROUP, P.A.

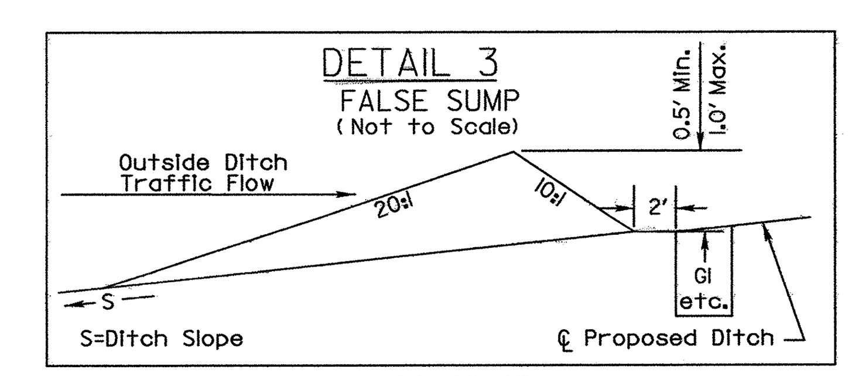
NOTES

1. FOR PROFILE OF: -L- SEE SHEET NO: 6
2. FOR PROFILE OF: -Y1- SEE SHEET NO: 6
3. FOR CROSS-SECTIONS OF: -L- SEE SHEET NO: X-2 THRU X-11
4. FOR CROSS-SECTIONS OF: -Y1- SEE SHEET NO: X-12

-L-
PI = 15+33.94
Δ = 17° 01' 21.8" (LT)
D = 1° 47' 25.8"
L = 950.73'
T = 478.89'
R = 3,200.00'
DS = 50 MPH
SE = 0.04
RUNOFF = 96'







-L- STA. 17+15
-L- STA. 20+15
-L- STA. 22+65

REVISIONS

FILE: r:\nodot\b3705\roadway\proj\b3705_RDY_PSH_04.dgn
DATE: 2/22/2008 3:16:37 PM

PROJECT REFERENCE NO.	SHEET NO.
B-3705	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19026 ENGINEER DAVID L. WILVER
12/17/07

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR.
12/17/07

Wilbur Smith Associates — 421 Fayetteville Street Mall, Suite 1305, RALEIGH, N. C. 27601

SUNGATE DESIGN GROUP, P.A. — 915 JONES FRANKLIN ROAD, RALEIGH, NORTH CAROLINA 27606

NOTES
1. FOR PROFILE OF: -L- SEE SHEET NO: 7
2. FOR CROSS-SECTIONS OF: -L- SEE SHEET NO: X-2 THRU X-11
3. FOR STRUCTURE PLANS SEE SHEET NO.: S-1 THUR S-42

REVISIONS

MATCHLINE -L- Sta.23+00.00
SEE SHEET 4

BRIDGE SKETCH

END BRIDGE
-L- POT Sta. 27+35.00

SHOULDER BERM GUTTER
B-77
N 76°14' 27.0" E
TYPE III
2'-6" CURB AND GUTTER
APPROACH SLAB
-L- POT Sta. 25+41.10
BEGIN BRIDGE
-L- POT Sta. 25+65.00
4.00'
22.00'
20.00'
2.00'
5.50'
TYPE III SIDEWALK
GRAU 350
APPROACH SLAB
-L- POT Sta. 27+58.90
S 03°37'14.1"E
409.86'

-L-

PI = 30+73.02	PI = 35+40.14
Δ = 5° 52' 02.1" (RT)	Δ = 8° 01' 27.3" (LT)
D = 1° 32' 54.7"	D = 2° 17' 30.6"
L = 378.89'	L = 350.12'
T = 189.61'	T = 175.35'
R = 3,700.00'	R = 2,500.00'
DS = 50 MPH	DS = 50 MPH
SE = 0.03	SE = 0.04
RUNOFF = 72'	RUNOFF = 96'

DETAIL 1
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 2H, d1, D, 2H, b, 1'/Ft., Fill Slope, B, Filter Fabric
Min. D=1.5 Ft.
Max. d=1.0 Ft.
B=2.0 Ft.
b=5.0 Ft.
•When B is < 6.0'
Type of Liner=Class 'B' Rip-Rap
FROM STA. 23+00 TO STA. 24+00 -L- LT
FROM STA. 31+00 TO STA. 32+00 -L- LT

DETAIL 2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 2H, d1, D, 4H or Flatter, Fill Slope, Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
Type of Liner= Class 'B' Rip-Rap
FROM STA. 32+00 TO STA.34+00 -L- LT

25+00
30+00
35+00

59 CY DDE
45 TONS CL 'B' RIP RAP, 67 SY FF
LAT 2' BASE DITCH W/5' BERM LINED W/CL 'B' RIP RAP STA 23+00 TO STA 24+00 -L- LT SEE DETAIL #1
ENERGY DISSIPATOR CL I RIP RAP 62 TONS FILTER FABRIC 50 SQ YD DDE 78 CY SEE DETAIL SHEET 2A
FULLER PROPERTIES, LLC
1A
NOTE: PRIVATELY OWNED 2" FSS LINE ATTACHED TO SIDE OF EXISTING BRIDGE
CENTERLINE OF CREEK IS PROPERTY LINE
WETLANDS
+85.00 68.00 LT 88.00 LT
+50.00 68.00 LT 88.00 LT
PDE
BEGIN SBG STA 24+00 -L- LT TO BEGIN OF BRIDGE -L- LT
CL 'I' RIP RAP STRUCTURE PAY ITEM
S 58°54'54.0"W 50.00'
46.89'
S 25°59'25.5"W
S 32°55'26.3"E 39.26'
S 79°37'54" E 37.84' COR TO CL
BZ 1
BZ 2
+62.00 68.00 LT 83.00 LT
BEGIN SBG END OF BRIDGE -L- LT
PSH B=4.0' SEE DETAIL SHEET 2A
15" CSP W/ELBOWS ROD AND LUG CONNECTORS W/SLEEVE GASKETS
THURMAN D. KITCHEN, III, ETAL DB. 8333, PG. 1583
4
-L- PC Sta. 28+83.41
+83.41 68.00 LT
+94.00 68.00 LT 83.00 LT
+00.00 72.00 LT
+13.00 68.00 LT
END SBG STA 28+35 -L- LT
2GI W/FLAT GRATE
EXISTING RIP RAP
EXISTING 30' SANITARY SEWER EASEMENT
SEWER EASEMENT
26 CY DDE
45 TONS CL 'B' RIP RAP, 67 SY FF
LAT 2' BASE DITCH W/5' BERM LINED W/CL 'B' RIP RAP STA 31+00 TO STA 32+00 -L- LT SEE DETAIL #1
-L- PT Sta. 32+62.30
+00.00 75.00 LT
+50.00 68.00 LT
+62.30 68.00 LT
60 TONS CL 'B' RIP RAP, 89 SY FF
LATERAL V DITCH STA 32+00 TO STA 34+00 -L- LT SEE PROFILE FOR GRADE SEE DETAIL #2
-L- PC Sta. 33+64.79
+64.79 68.00 LT
+15.00 68.00 LT
END PROJECT B-3705
-L- POT Sta. 37+15.00
-L- PT Sta. 37+14.92
CHORD
+15.00 EX ROW
+00.00 P.S.
350' TAPER
+04.00
+06.32
EXISTING R/W
BURLINGTON MILLS ROAD SR 2045
24' BST
24' TYP.
+10.30
N 82°06'29.1"E
N 74°05'01.8"E
GRAU 350
WOODS
-L-
CONVERT CB TO JB
RETAIN 18" CONC
RETAIN 15" CONC
PROP. 2'-6" CURB AND GUTTER
I' STONE RET. WALL
STONE SIGN W/COLUMNS
ECI CUSTOM HOMES, INC. DB. 9080, PG. 170
THE DREES COMPANY DB. 8358, PG. 1387
WILLIAM J. STONE DB. 8841, PG. 1969
DEREK & MARCENIA WILSON DB. 8760, PG. 2062
S76°54'26.4"W 59.29'
S77°00'24.5"W 79.22'
S76°52'25.3"W 77.71'
S76°54'36.9"W 67.62'
-BL 5- PINC 28+27.74
-L- 33+65.73, 46.22' RT
N 76°14' 27.0" E
GRATE
2GI W/FLAT GRATE
TYPE III
REMOVE +46.98
END SIDEWALK
PROP. 2'-6" CURB AND GUTTER
REMOVE +125 EXISTING BRIDGE
REG. SIDEWALK +29.19
GRAU 350
+04.00
BEGIN 2'-6" C&G +35.00 (26.50' RT)
PROP. 2'-6" CURB AND GUTTER
15" CSP W/ELBOWS ROD AND LUG CONNECTORS W/SLEEVE GASKETS
PSH B=4.0' SEE DETAIL SHEET 2A
+54.00 EX. ROW 78.56 RT
+54.00 106.00 RT
+86.00 EX/ROW 78.50 RT
+86.00 106.00 RT
+86.00 92.25 RT
-BL 3- 20+03.74 PINC
-L- 25+35.94, 64.78' RT
+19.10 118.63' RT
-BL 4- 24+28.63 PINC
-L- 29+63.30, 74.32' RT
REMOVE EXISTING 2'-6" CURB AND GUTTER
RETAIN 3 TONS CL 'B' RIP RAP, 10 SY FF (NO CLAIM)
+75.00 108.00 RT
WESTMINISTER HOMES, INC
DB. 8341 PG. 434
ERNEST G. & ANNA S. GALLO DB. 8548, PG. 1058
TIMOTHY R. COUNTEE, JR. DB. 8638, PG. 1280
BRATT AVENUE
THURMAN D. KITCHEN, III, ETAL DB. 8333, PG. 1583
4
7
2SFD
GRACIE P. MACON, ETAL DB. 8492, PG. 1976
2
CADELL WOODS HOMEOWNERS ASSOCIATION, INC. DB. 8555, PG. 2289
5
CADELL WOODS HOMEOWNERS ASSOCIATION, INC. DB. 8663, PG. 2338
5
EXCAVATE EXISTING ROAD FILL TO NATURAL GROUND +/- 905 CY STRUCTURE PAY ITEM
EXCAVATE EXISTING ROAD FILL TO NATURAL GROUND +/- 170 CY STRUCTURE PAY ITEM
CHANNEL BANK REPAIR CLASS II 200LB-700LB (MEDIAN 50% 400LB) STONE EST +/-375 TONS RIP RAP EST +/-175 SY FF
NOTE: THE 14" WATER LINE IS DEPICTED AT QUALITY LEVEL C BASED ON VERBAL TESTIMONY FROM ELVIS MEDLIN OF THE CITY OF RALEIGH.
N82°41'18.7"E 71.80'
N0°32'14.8"E 50.00'
N8°09'31.6"E 78.09'
N88°38'15.1"W 233.95'
N88°38'14.7"W 114.67'
S30°21'44.8"W 100.39'
S23°51'12.0"E 89.83'
S36°44'53.9"E 140.92'
N40°27'43.8"E 111.57'
N72°49'13.2"E 111.80'
S17°01'41.6"E 55.57'
S71°38'36.9"W 286.02'
S83°59'7.0"W 171.87'
24" CONC
BST
SEWER EASEMENT
EXISTING 30' SANITARY SEWER EASEMENT
8" PVC 145.63'
S78°53'24.0"E
S74°08'38.1"W 44.41'
S17°01'47.1"E 123.76'
S78°00'25.2"E 85.75'
S78°00'25.2"E 80.79'
S78°00'25.2"E 38.78'
S74°29'31.2"E 33.52'
S 03°37'14.1"E 409.86'
PP

BRIDGE APPROACH SLAB
UNCLASSIFIED STR. EXCAVATION
CLASS II RIP RAP

FILE: c:\NCDOT\B3705 Roadway\Prof\B3705_RDY_PSH_05.dgn
DATE: 12/7/2007 11:52:12 AM

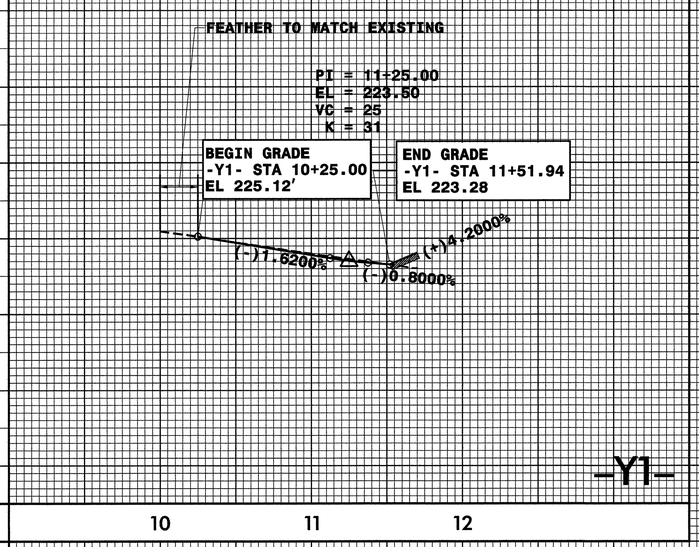
PROJECT REFERENCE NO.	SHEET NO.
B-3705	6
RW SHEET NO.	

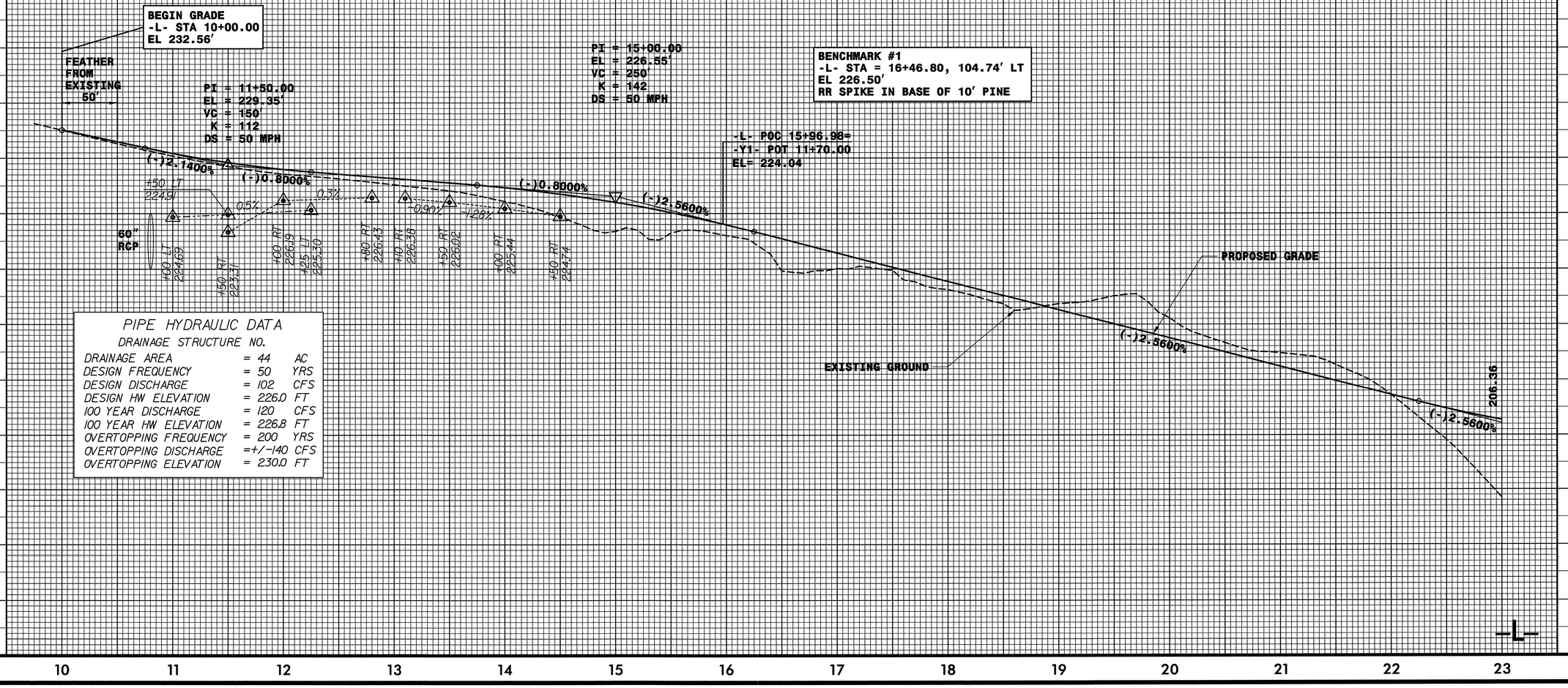
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19026 DAVID L. WILVES
11/16/07

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 M. HENRY WELLS JR.
11/16/07

Wilbur Smith Associates — 421 Fayetteville Street Mall, Suite 1203, RALEIGH, N. C. 27601

SUNGATE DESIGN GROUP, P.A. — 115 JONES FRANKLIN ROAD, RALEIGH, NORTH CAROLINA 27606





PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 44	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 102	CFS
DESIGN HW ELEVATION	= 226.0	FT
100 YEAR DISCHARGE	= 120	CFS
100 YEAR HW ELEVATION	= 226.8	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	=+/-140	CFS
OVERTOPPING ELEVATION	= 230.0	FT

FILE: n:\radel\b3705\roadway\proj\b3705_RDY_PFL_04.dgn
DATE: 10/23/2007 3:24:46 PM

PROJECT REFERENCE NO.	SHEET NO.
B-3705	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19026 ENGINEER DAVID L. WILTER

HYDRAULICS ENGINEER

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

Wilbur Smith Associates
421 Fayetteville Street Mall
Suite 1305
RALEIGH, N. C. 27601

SUNGATE DESIGN GROUP, P.A.
910 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 6,000 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 199.0 FT
BASE DISCHARGE	= 7,500 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 200.4 FT
OVERTOPPING DISCHARGE	= 13,000CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 204.8 FT
DATE OF SURVEY	= 6/15/04
W.S.ELEVATION AT DATE OF SURVEY	= 188.45FT

PI = 23+75.00
EL = 204.15'
VC = 300'
K = 96
DS = 50 MPH

BENCHMARK #2
-L- STA = 29+50.56, 199.23' RT
EL 198.80'
RR SPIKE IN BASE OF PP

BEGIN BRIDGE
-L- STA. 25+65.00

END BRIDGE
-L- STA. 27+35.00

206.36

(-)2.5600%

(+)0.5594%

(+)0.5594%

(+)0.5594%

PROPOSED GRADE

EXISTING GROUND

WATER SURFACE EL = 188.45'

PI = 30+90.00
EL = 208.15'
VC = 660'
K = 96
DS = 50 MPH

(+)7.4000%

234.79

EXISTING GROUND

PROPOSED GRADE

100 LT 225+14 10.3%
150 LT 225+00 5.4%
100 LT 219+90 5.6%
150 LT 216+50 8.4%
100 LT 212+30 12.5%
150 LT 208+00 9.0%
100 LT 202+00
100 LT 195+50
150 LT 195+70 10.7%
100 LT 190+30 5.4%

END GRADE
-L- STA = 36+60.00
EL. 250.33

(+)7.4000%

37+15.00

234.79

EXISTING GROUND

PROPOSED GRADE

FEATHER TO MATCH EXIST

-L-

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DATE: 10/29/2007 12:44:44 PM