See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

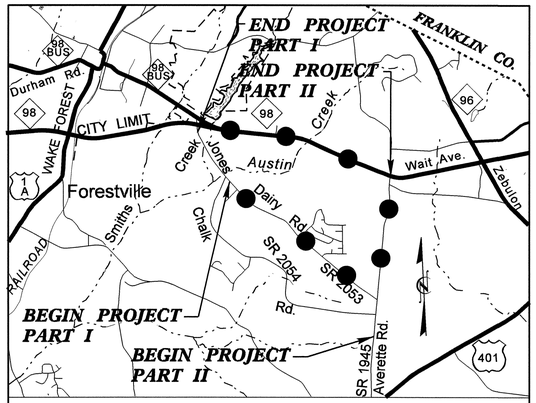
WAKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3919/5CR.20921.27	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33353.1.1	BRZ-2053(1)	P.E.
33353.2.1	BRZ-2053(1)	R/W & UTIL.
33353.3.1	BRZ-2053(1)	CONST.
5CR.20921.27		CONST.

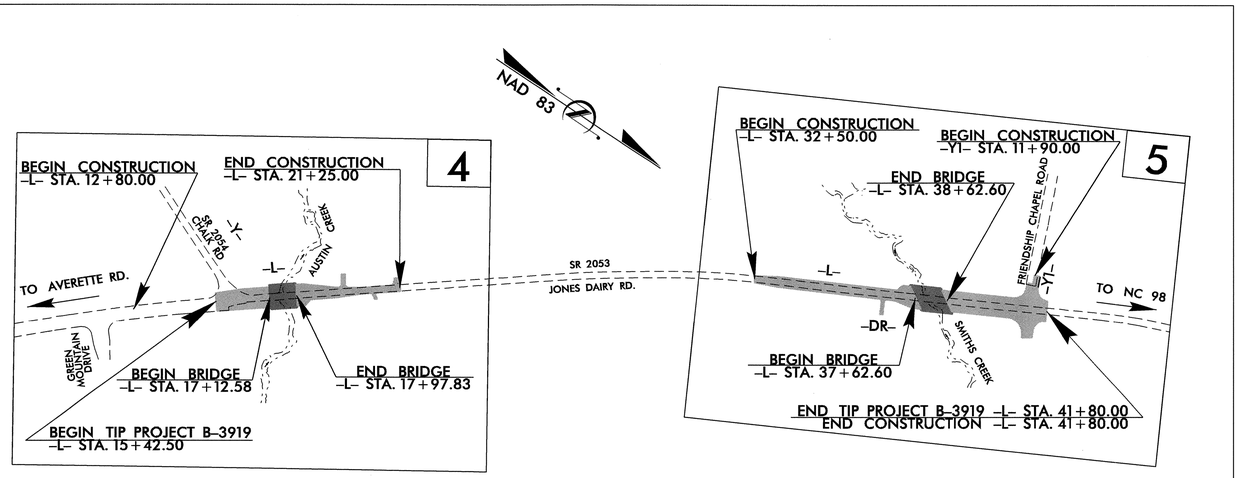
LOCATION: ***BRIDGE NO. 448 OVER AUSTIN CREEK AND BRIDGE NO. 140 OVER SMITHS CREEK AND APPROACHES ON SR 2053 (JONES DAIRY RD.) AND SR 1945 (AVERETTE RD.) FROM THE JOINT AT GRANITE FALLS TO NC 98***

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES



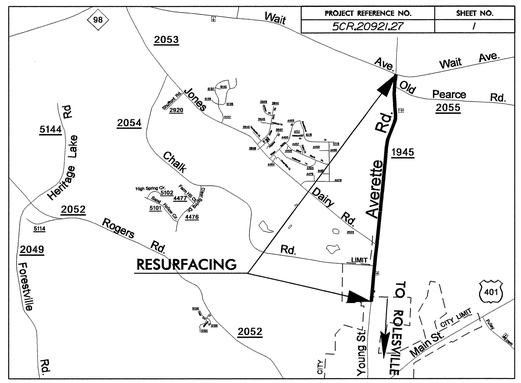
VICINITY MAP

OFF-SITE DETOUR



PART 1

RESURFACING SR 1945 (AVERETTE ROAD) TO BE USED ON B-3919 DETOUR



PART 2

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3919 = 0.251 MI

LENGTH ROADWAY STATE PROJECT 5CR.20921.27 = 1.800 MI

LENGTH STRUCTURES TIP PROJECT B-3919 = 0.035 MI

TOTAL LENGTH TIP/STATE PROJECT B-3919/5CR.0921.7 = 2.086 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

NOVEMBER 24, 2008

LETTING DATE:

JANUARY 19, 2009

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.

STATE HIGHWAY DESIGN ENGINEER

CONTRACT: C202232 TIP PROJECT: B-3919/5CR.20921.27

REVISIONS

10-DEC-2009 10:46
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PROJECT REFERENCE NO.	SHEET NO.
B-3919/5CR.20921.27	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

1	TITLE SHEET (B-3919/5CR.20921.27)
1-A	"INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARDS (2006 SPECIFICATIONS)"
2	SUMMARY OF QUANTITIES
PART I	
1	TITLE SHEET (B-3919)
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THROUGH 2-B	"PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAIL"
2-C THROUGH 2-D	DRAINAGE DETAILS
2-E	DETAIL OF ANCHORAGE FOR FRAMES
2-F THROUGH 2-G	METHOD OF PIPE INSTALLATION
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	"SUMMARY OF EARTHWORK, 2'-6"" CURB AND GUTTER, BREAKING OF EXISTING ASPHALT PAVEMENT, REMOVAL OF EXISTING ASPHALT PAVEMENT, AND MILLING OF ASPHALT PAVEMENT"
3-C	PARCEL INDEX SHEET
4 THROUGH 5	PLAN SHEETS
6	PROFILE SHEETS
TCP-1 THROUGH TCP-4	TRAFFIC CONTROL PLANS
PMP-1 THROUGH PMP-4	PAVEMENT MARKING PLANS
EC-1 THROUGH EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THROUGH SIGN-4	SIGNING PLANS
UC-1 THROUGH UC-5	UTILITY CONSTRUCTION PLANS
UO-1 THROUGH UO-3	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX
X-1A	CROSS-SECTION SUMMARY SHEET
X-2 THROUGH X-12	CROSS-SECTIONS
S-1 THROUGH S-51	STRUCTURE PLANS
PART II	
1	MAP
2	TYPICAL SECTIONS
3	SUMMARY OF QUANTITIES & THERMOPLASTIC AND PAINT QUANTITIES

2006 ROADWAY ENGLISH STANDARD DRAWINGS

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

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	
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
806.02	Granite Right-of-Way Marker
840.00	Concrete Base Pad for Drainage Structures
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
840.13	Concrete Bridge Approach Drop Inlet - 12" thru 24" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.04	Street Turnout
848.05	Wheelchair Ramp - Curb Cut
850.01	Concrete Paved Ditches
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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. 560.01.

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.

DRIVEWAYS:

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.

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 (Water & Sanitary Sewer)
Wake EMC (Power) PSNC Energy (Gas)
Embarq (Telephone) Time Warner (CATV)

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.

WHEELCHAIR RAMPS:

WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH STD. NO. 848.05

5/28/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ************ (17+55.20)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ************ (38+12.60)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	400	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0106000000-E	230	15,972	CY	BORROW EXCAVATION
0134000000-E	240	275	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	400	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	400	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	150	TON	FOUNDATION CONDITIONING MATE-RIAL, MINOR STRS
0320000000-E	SP	300	SY	FOUNDATION CONDITIONING FABRIC
0343000000-E	310	24	LF	15" SIDE DRAIN PIPE
0344000000-E	310	20	LF	18" SIDE DRAIN PIPE
0714000000-E	310	32	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0807000000-E	310	2	EA	18" BIT COAT CS PIPE ELBOWS, T YPE B 0.064" THICK
0995000000-E	340	44	LF	PIPE REMOVAL
1121000000-E	520	35	TON	AGGREGATE BASE COURSE
1220000000-E	545	240	TON	INCIDENTAL STONE BASE
1245000000-E	SP	3.6	SMI	SHOULDER RECONSTRUCTION
1297000000-E	607	195	SY	MILLING ASPHALT PAVEMENT, ***" DEPTH (3")
1330000000-E	607	448	SY	INCIDENTAL MILLING
1489000000-E	610	2,925	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	1,180	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	3,505	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	393	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	20	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
1704000000-E	SP	930	TON	PATCHING EXISTING PAVEMENT
2000000000-N	806	23	EA	RIGHT OF WAY MARKERS
2286000000-N	840	13	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	19.7	LF	MASONRY DRAINAGE STRUCTURES
2355000000-N	840	4	EA	FRAME WITH GRATE, STD 840.29
2374000000-N	840	5	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2396000000-N	840	4	EA	FRAME WITH COVER, STD 840.54
2549000000-E	846	820	LF	2'-6" CONCRETE CURB & GUTTER
2591000000-E	848	700	SY	4" CONCRETE SIDEWALK
2605000000-N	848	2	EA	CONCRETE WHEELCHAIR RAMPS
2619000000-E	850	43	SY	4" CONCRETE PAVED DITCH
2830000000-N	858	4	EA	ADJUSTMENT OF MANHOLES
2845000000-N	858	3	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES
3030000000-E	862	237.5	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3215000000-N	862	5	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	5	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3628000000-E	876	20	TON	RIP RAP, CLASS I
3649000000-E	876	20	TON	RIP RAP, CLASS B
3656000000-E	876	1,275	SY	FILTER FABRIC FOR DRAINAGE
3659000000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
4072000000-E	903	120	LF	SUPPORTS, 3-LB STEEL U-CHANNEL

ItemNumber	Sec #	Quantity	Unit	Description
4102000000-N	904	7	EA	SIGN ERECTION, TYPE E
4116100000-N	904	2	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (D)
4155000000-N	907	17	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4192000000-N	907	1	EA	DISPOSAL OF SUPPORT, U-CHANNEL
4400000000-E	1110	436	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	148	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	78	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	144	LF	BARRICADES (TYPE III)
4455000000-N	1150	30	MD	FLAGGER
4685000000-E	1205	21,341	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	22,677	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	933	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	142	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4725000000-E	1205	6	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4770000000-E	1205	957	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)
4780000000-E	1205	356	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III)
4810000000-E	1205	7,840	LF	PAINT PAVEMENT MARKING LINES (4")
4900000000-N	1251	197	EA	PERMANENT RAISED PAVEMENT MARKERS
5326200000-E	1510	799	LF	12" WATER LINE
5558000000-E	1515	2	EA	12" VALVE
5648000000-N	1515	1	EA	RELOCATE WATER METER
5672000000-N	1515	1	EA	RELOCATE FIRE HYDRANT
5804000000-E	1530	745	LF	ABANDON 12" UTILITY PIPE
5836000000-E	1540	332	LF	24" ENCASEMENT PIPE
5872200000-E	1550	166	LF	TRENCHLESS INSTALLATION OF 24" IN SOIL
5872210000-E	1550	166	LF	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL
6000000000-E	1605	4,000	LF	TEMPORARY SILT FENCE
6006000000-E	1610	450	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	750	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	350	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	6	ACR	TEMPORARY MULCHING
6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.75	TON	FERTILIZER FOR TEMPORARY SEED-ING
6024000000-E	1622	800	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	8	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	2,000	LF	SAFETY FENCE
6030000000-E	1630	1,725	CY	SILT EXCAVATION
6036000000-E	1631	8,500	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	275	SY	COIR FIBER MAT
6038000000-E	SP	900	SY	PERMANENT SOIL REINFORCEMENT MAT

ItemNumber	Sec #	Quantity	Unit	Description
6042000000-E	1632	625	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	400	LF	WATTLE
6071020000-E	SP	100	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	1,025	LF	COIR FIBER BAFFLES
6071050000-E	SP	5	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	12.6	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

ItemNumber	Sec #	Quantity	Unit	Description
6096000000-E	1662	125	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	3.5	TON	FERTILIZER TOPDRESSING
6114500000-N	SP	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION
******* BEGIN SCHEDULE AA ******* ******* (3 ALTERNATES) *******				
0360000000-E AA1	310	20	LF	12" RC PIPE CULVERTS, CLASS III
0366000000-E AA1	310	716	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA1	310	48	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA1	310	12	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E AA1	310	12	LF	30" RC PIPE CULVERTS, CLASS III
*** OR ***				
0366000000-E AA2	310	616	LF	15" RC PIPE CULVERTS, CLASS III
0536000000-E AA2	SP	20	LF	***" HDPE PIPE CULVERTS (12")
0536000000-E AA2	SP	100	LF	***" HDPE PIPE CULVERTS (15")
0536000000-E AA2	SP	48	LF	***" HDPE PIPE CULVERTS (18")
0536000000-E AA2	SP	12	LF	***" HDPE PIPE CULVERTS (24")
0536000000-E AA2	SP	12	LF	***" HDPE PIPE CULVERTS (30")
*** OR ***				
0366000000-E AA3	310	616	LF	15" RC PIPE CULVERTS, CLASS III
0540000000-E AA3	SP	20	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (12", 0.064")
0540000000-E AA3	SP	100	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (15", 0.064")
0540000000-E AA3	SP	48	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (18", 0.064")
0540000000-E AA3	SP	12	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (24", 0.064")
0540000000-E AA3	SP	12	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (30", 0.064")
******* END SCHEDULE AA *******				

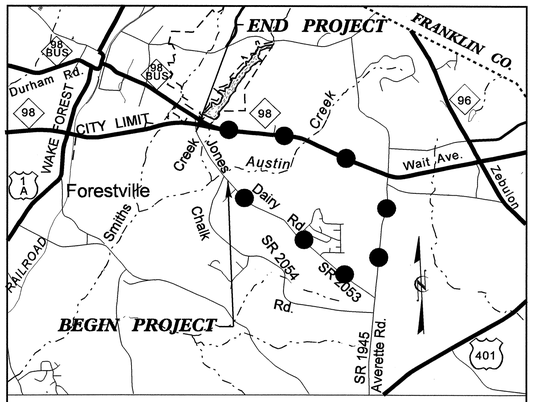
09/08/09

REVISIONS

TIP PROJECT: B-3919

CONTRACT: C202232

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



VICINITY MAP

OFF-SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

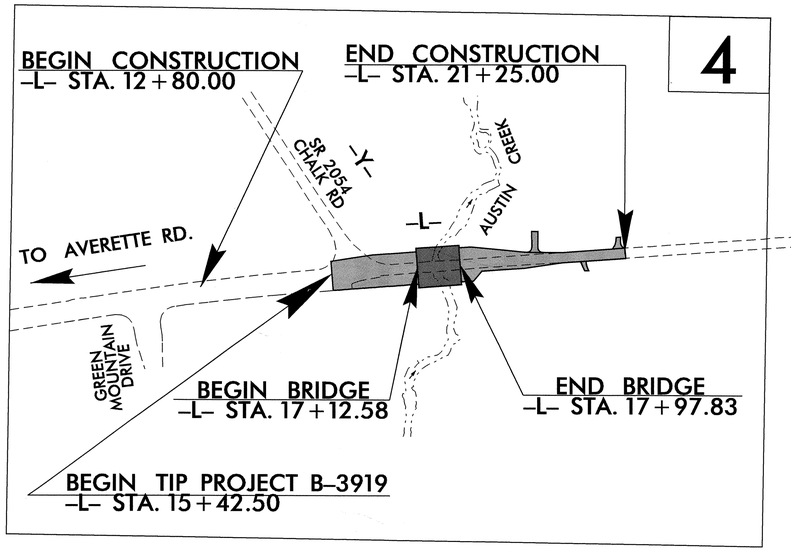
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3919	1	

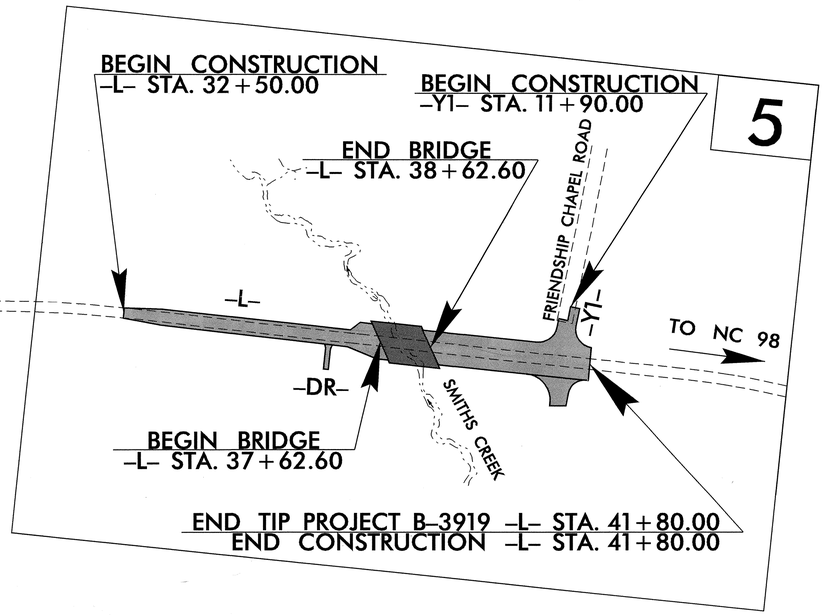
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33353.1.1	BRZ-2053(1)	P.E.
33353.2.1	BRZ-2053(1)	R/W & UTIL.
33353.3.1	BRZ-2053(1)	CONST.

LOCATION: BRIDGE NO. 448 OVER AUSTIN CREEK AND BRIDGE NO. 140 OVER SMITHS CREEK AND APPROACHES ON SR 2053 (JONES DAIRY RD.)

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES

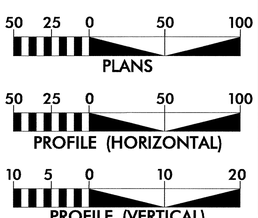
NAD 83





**DESIGN EXCEPTION REQUIRED FOR VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE.

GRAPHIC SCALES



DESIGN DATA

ADT 2009 = 8,530
ADT 2030 = 16,600
DHV = 11 %
D = 63 %
T = 4 % *
V = 55 MPH**
FUNC CLASS = RURAL LOCAL
* (TTST 2% + DUAL 2%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3919 = 0.251 MI
LENGTH STRUCTURES TIP PROJECT B-3919 = 0.035 MI
TOTAL LENGTH TIP PROJECT B-3919 = 0.286 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 24, 2008

LETTING DATE: DECEMBER 15, 2009

GLENN W. MUMFORD, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M BONNOR
P.E. 9-29-09
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C LANCASTER
9/29/09
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

art mcmillan
P.E.
STATE HIGHWAY DESIGN ENGINEER

25-SEP-2009 07:28
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3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-3919	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

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
- Swamp Marsh
- 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

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.

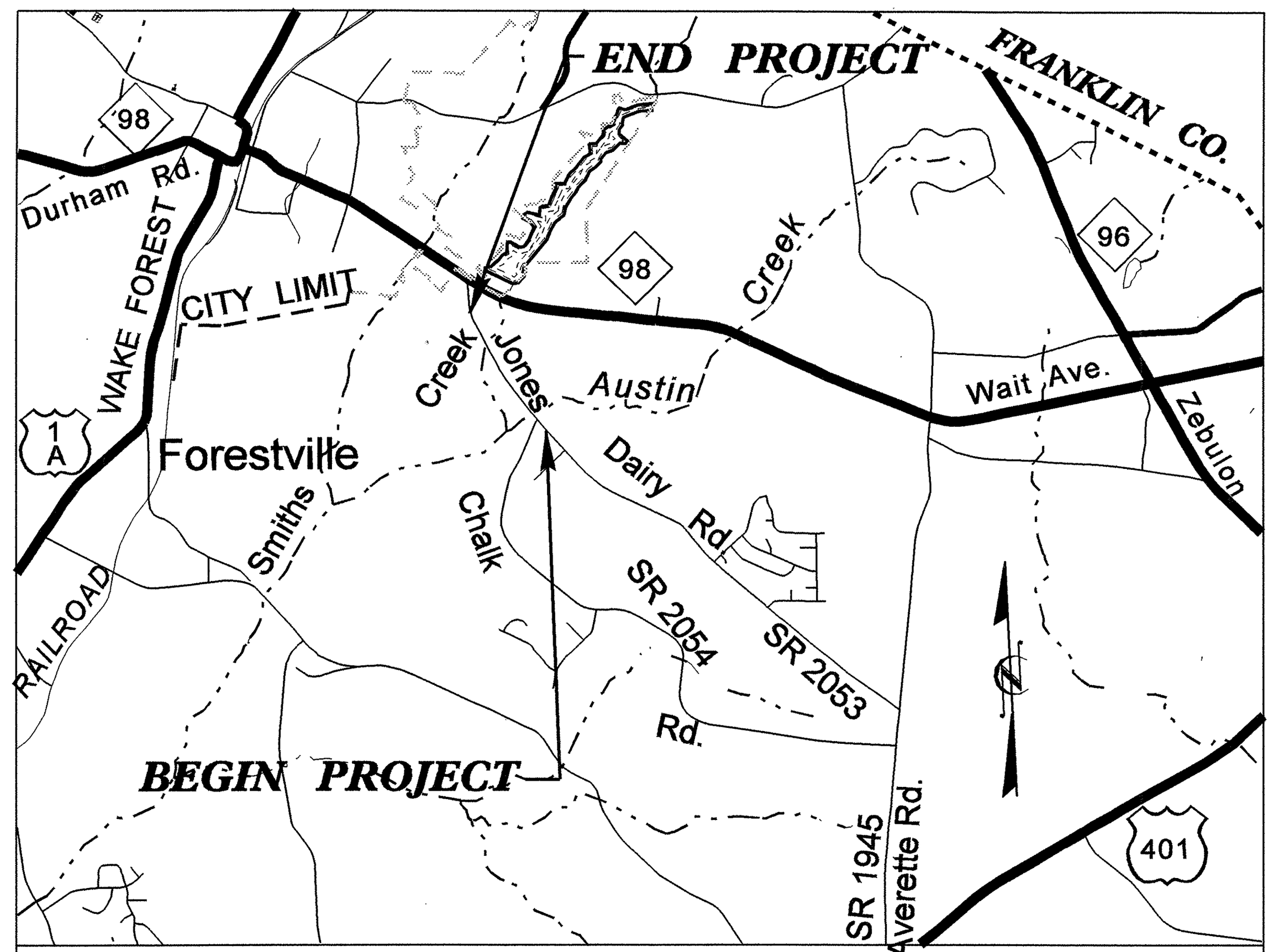
PROJECT REFERENCE NO.	SHEET NO.
B-3919	1C
Location and Surveys	

B-3919

SURVEY CONTROL SHEET B-3919

WAKE COUNTY

LOCATION: BRIDGE NO. 448 OVER AUSTIN CREEK AND BRIDGE NO. 140 OVER SMITHS CREEK AND APPROACHES ON SR 2053 (JONES DAIRY RD.)

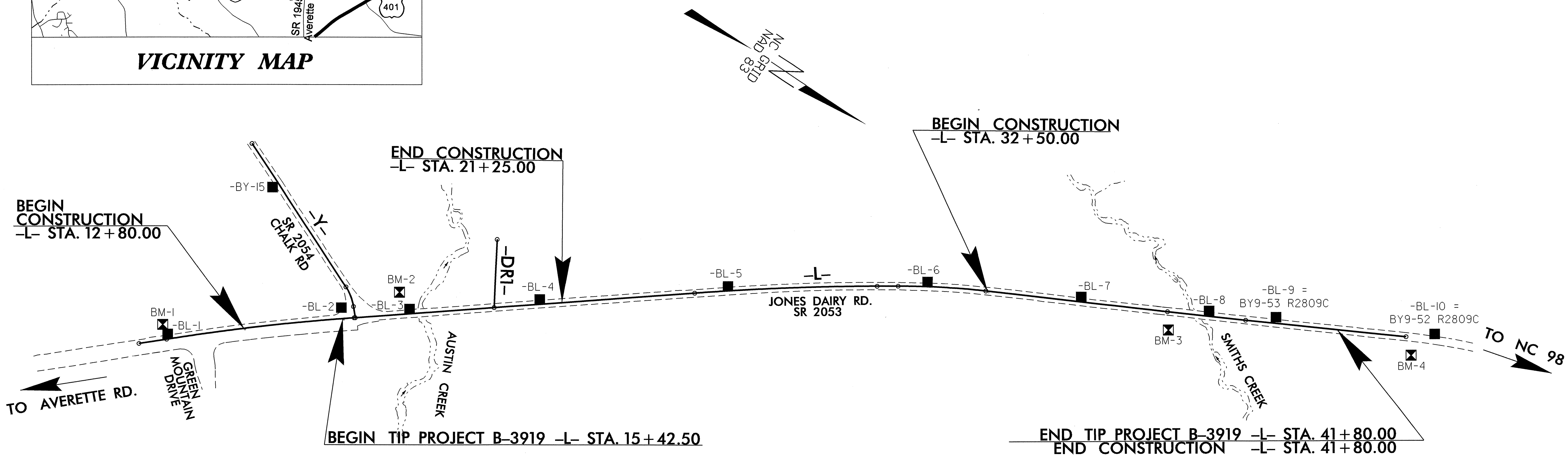


VICINITY MAP

NCGS MONUMENT "JIMWILL"
STATE PLANE COORDINATES

N=807009.9574
E=2142735.9407

▲



CONTROL DATA

BASELINE

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	804713.8278	2152474.6658	279.94	10+78.95	13.63 LT
2	BL-2	805056.8917	2152162.1761	259.47	15+41.20	29.31 LT
3	BL-3	805208.7756	2152064.9442	256.43	17+20.62	12.69 LT
4	BL-4	805481.3413	2151852.9061	263.07	20+65.95	12.64 LT
5	BL-5	805875.2103	2151547.3365	284.51	25+64.30	12.49 LT
6	BL-6	806307.3661	2151244.8532	292.50	30+90.69	13.22 LT
7	BL-7	806667.6417	2151053.1422	271.04	34+97.89	13.08 LT
8	BL-8	806969.3517	2150896.3300	266.47	38+38.00	14.38 LT
9	BL-9 = (BY9-53 R-2809C)	807125.2296	2150812.0501	269.91	40+15.26	16.51 LT
10	BL-10 = (BY9-52 R-2809C)	807498.6585	2150616.5252	296.42	OUTSIDE PROJECT LIMITS	

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
15	BY-15	804730.1690	2151999.5086	270.74	11+26.42	18.06 RT
2	BL-2	805056.8917	2152162.1761	259.47	15+04.55	31.97 RT

BENCHMARK DATA

BM1 ELEVATION = 279.55
N 804689 E 2152461
L STATION 10+70 40 LEFT
R/R SPIKE SET IN A 16" OAK TREE

BM2 ELEVATION = 260.43
N 805162 E 2152043
L STATION 16+97 58 LEFT
R/R SPIKE SET IN A 30" OAK TREE

BM3 ELEVATION = 263.02
N 806908 E 2150998
L STATION 37+36 48 RIGHT
R/R SPIKE SET IN A 32" PINE TREE

BM4 ELEVATION = 294.32
N 807478 E 2150699
L STATION 43+62
N 41° 14′ 00.2" E DIST 51.23
R/R SPIKE SET IN A 16" HICKORY TREE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "JIMWILL"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 807009.9574(ft) EASTING: 2142735.9407(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99993779
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "JIMWILL" TO -L- STATION 15+42.50 IS
S 78°25′56.7″ E 9644.35′
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

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

B3919_ls_control_071018.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.*

NETWORK ESTABLISHED FROM NCGS COORDINATES FROM PROJECT R2809C

6/2/99

10-SEP-2009 11:19
r:\locationsurveys\b3919_ls_1c.dgn
$$$$USERNAME$$$$

RD248601 9/10/2009 b3919_ls_1c esykes RD-Oce860-34

6/2/99

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD IN EACH OF TWO LAYERS
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD IN EACH OF TWO LAYERS
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH
J	8" AGGREGATE BASE COURSE
R	2'-6" CONCRETE CURB AND GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING ASPHALT PAVEMENT. 3" DEPTH.
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING)

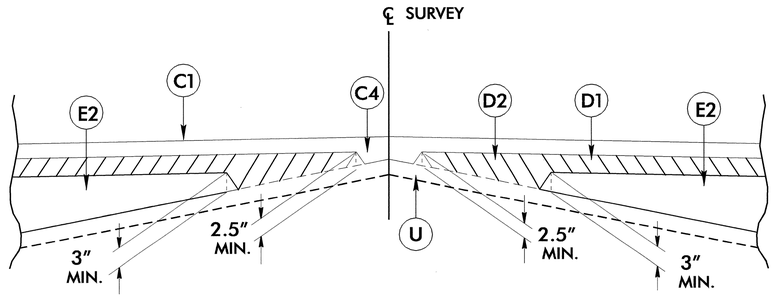
PROJECT REFERENCE NO.	SHEET NO.
B-3919	2

ROADWAY DESIGN ENGINEER

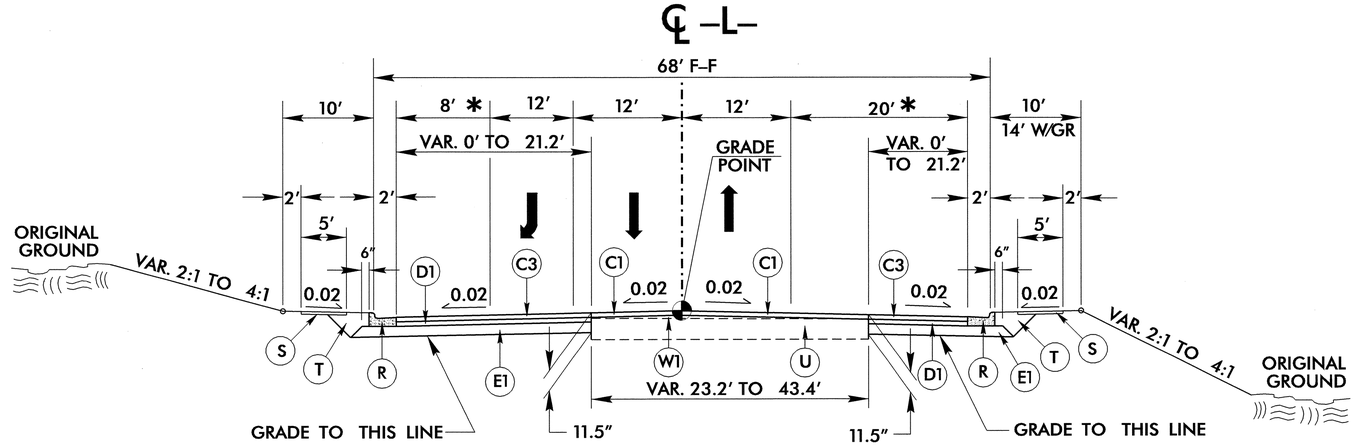
NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER
9/29/09

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
9/29/09



Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

TRANSITION FROM EXISTING AT –L– STA. 15+42.50 TO TYPICAL SECTION NO. 1 AT –L– STA. 16+25.00

–L– STA. 16+25.00 TO –L– STA. 16+54.00

–L– STA. 40+50.00 TO –L– STA. 41+80.00**

* 14' FUTURE OUTSIDE LANES FOR BICYCLE ACCOMMODATION

** TIE TO EXISTING 40+56.00 TO 41+80.00 RT.

PROJECT REFERENCE NO.	SHEET NO.
B-3919	2-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER 9/12/09

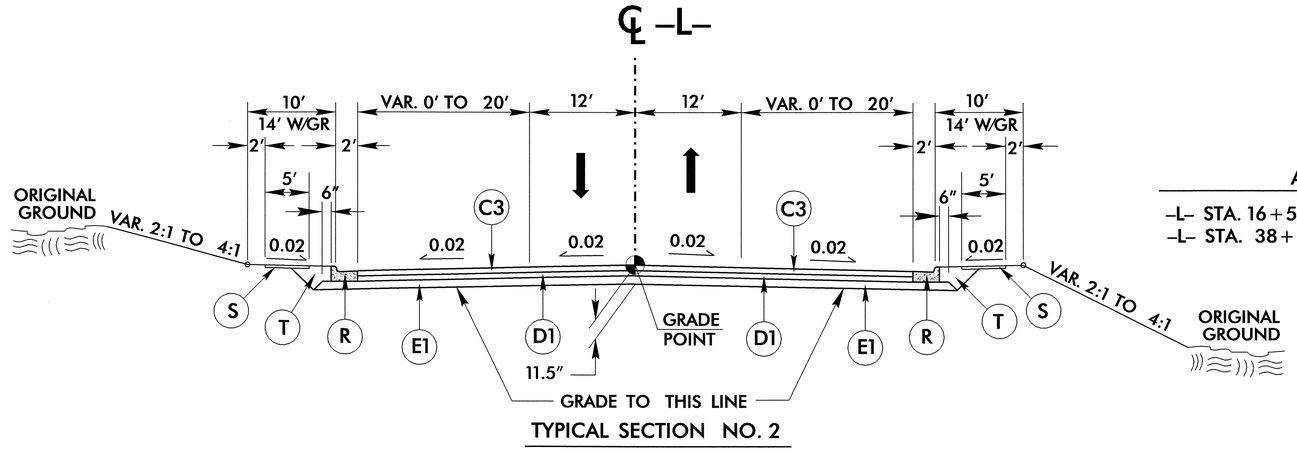
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 9/25/09

REVISIONS

PAVEMENT SCHEDULE

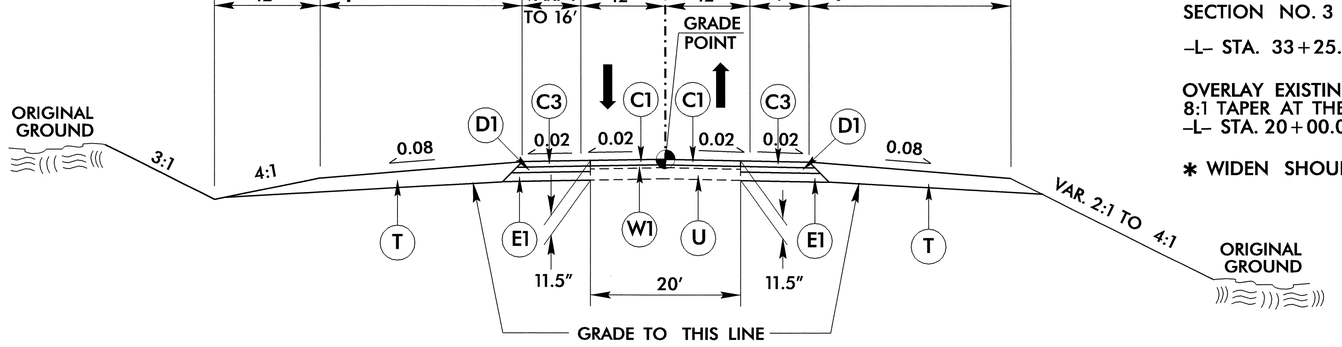
C1	1½" S9.5B
C2	2.5" S9.5B
C3	3" S9.5B
C4	VAR. DEPTH S9.5B
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
E1	4.5" B25.0B
E2	VAR. DEPTH B25.0B
J	8" ABC
R	2'-6" C & G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING PAVEMENT
W1	WEDGING DETAIL



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
AT THE FOLLOWING LOCATIONS:

–L– STA. 16+54.00 TO –L– STA. 17+12.58 (BEGIN BRIDGE NO. 448)
–L– STA. 38+62.60 (END BRIDGE NO. 140) TO –L– STA. 40+50.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
AT THE FOLLOWING LOCATIONS:

–L– STA. 18+57.00 TO 19+25.00

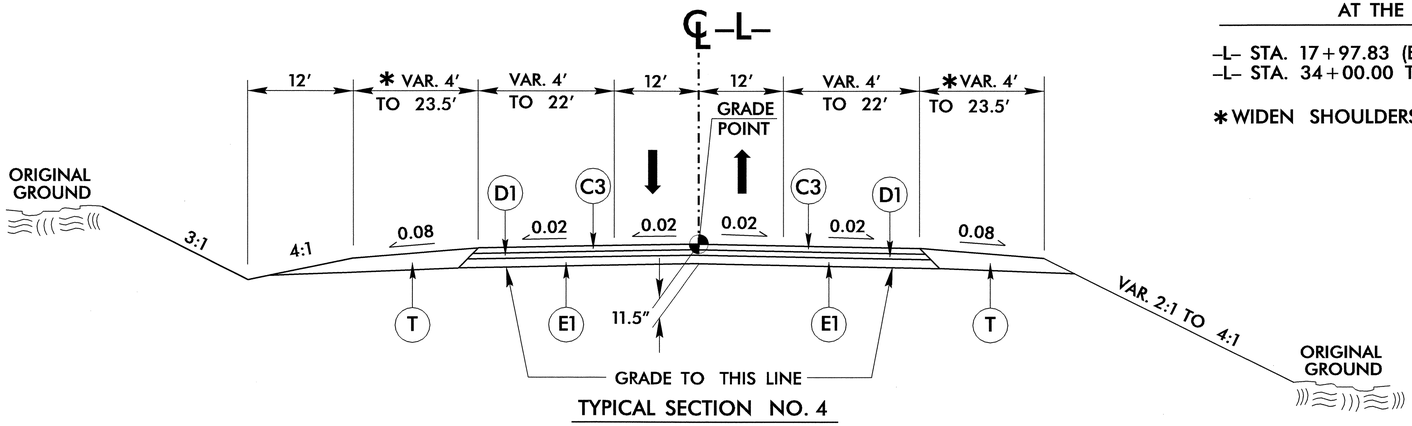
TRANSITION FROM TYPICAL SECTION NO. 3 AT –L– STA. 19+25.00 TO EXISTING AT –L– STA. 20+00.00

TRANSITION FROM EXISTING AT –L– STA. 32+50.00 TO TYPICAL SECTION NO. 3 AT –L– STA. 33+25.00

–L– STA. 33+25.00 TO 34+00.00

OVERLAY EXISTING PAVEMENT AND TRANSITION SHOULDERS AT AN 8:1 TAPER AT THE FOLLOWING LOCATIONS:
–L– STA. 20+00.00 TO –L– 21+25.00

* WIDEN SHOULDERS AN ADDITIONAL 3' WHERE GUARDRAIL IS PROPOSED



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
AT THE FOLLOWING LOCATIONS:

–L– STA. 17+97.83 (END BRIDGE NO. 448) TO –L– STA. 18+57.00
–L– STA. 34+00.00 TO –L– STA. 37+62.60 (BEGIN BRIDGE NO. 140)

* WIDEN SHOULDERS AN ADDITIONAL 3' WHERE GUARDRAIL IS PROPOSED

PROJECT REFERENCE NO.	SHEET NO.
B-3919	2-B

ROADWAY DESIGN ENGINEER

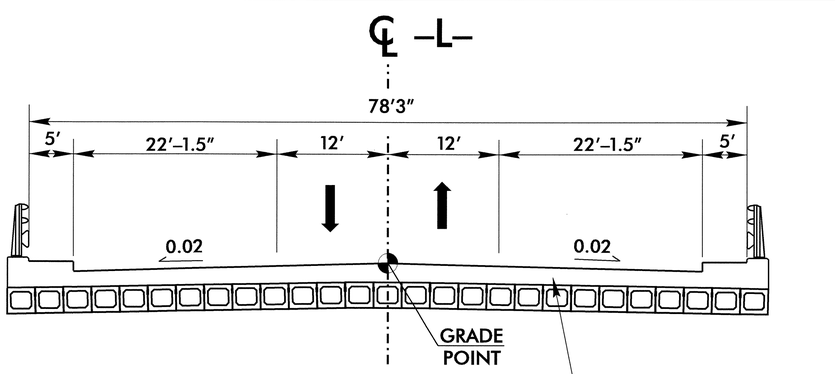
NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER 12/2/09

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 9/25/09

REVISIONS

PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	2.5" S9.5B
C3	3" S9.5B
C4	VAR. DEPTH S9.5B
D1	4" I19.0B
D2	VAR. DEPTH I19.0B
E1	4.5" B25.0B
E2	VAR. DEPTH B25.0B
J	8" ABC
R	2'-6" C & G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILLING PAVEMENT
W1	WEDGING DETAIL

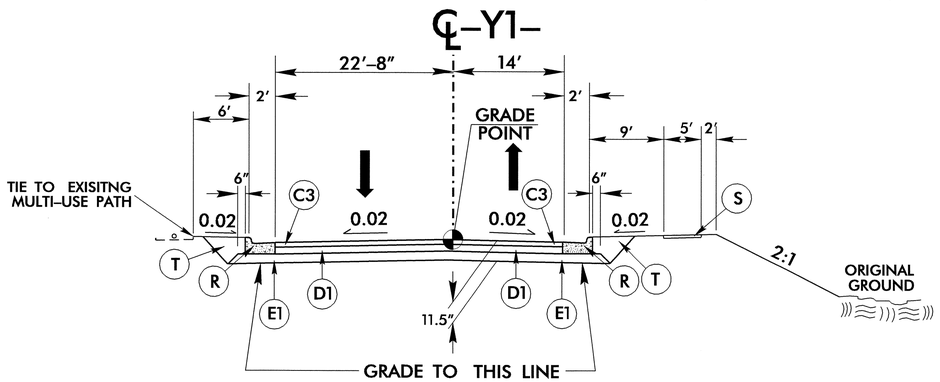


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
AT THE FOLLOWING LOCATIONS:

–L– STA. 17+12.58 (BEGIN BRIDGE NO. 448)
TO –L– STA. 17+97.83 (END BRIDGE NO. 448)

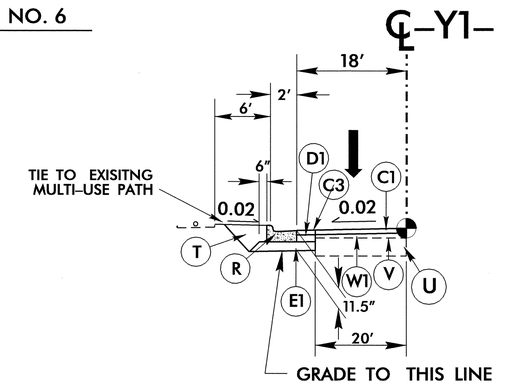
–L– STA. 37+62.60 (BEGIN BRIDGE NO. 140)
TO –L– STA. 38+62.60 (END BRIDGE NO. 140)



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
AT THE FOLLOWING LOCATIONS:

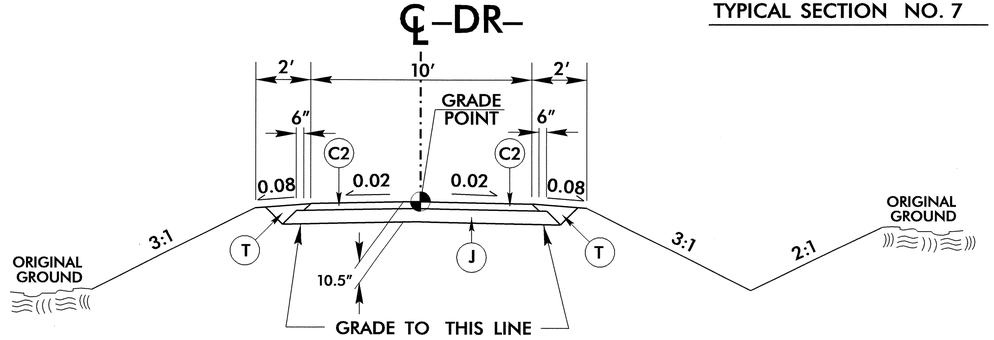
–Y1– STA. 12+18.00 TO –Y1– STA. 12+68.26



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
AT THE FOLLOWING LOCATION:

–Y1– STA. 11+90.00 TO –Y1– STA. 12+18.00 LT



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
AT THE FOLLOWING LOCATION:

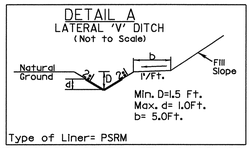
–DR– STA. 10+12.00 TO –DR– STA. 10+66.00

PROJECT REFERENCE NO.	SHEET NO.
B-3919	2-C
RW SHEET NO.	

HYDRAULICS ENGINEER

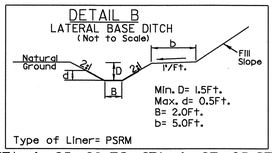
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BORDOR 9.29.09

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



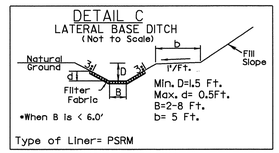
STA. -L- 18+20 TO STA. -L- 18+92 LT
STA. -L- 19+63 TO STA. -L- 20+50 LT

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



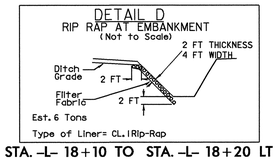
STA. -L- 35+00 TO STA. -L- 37+25 RT
STA. -L- 37+90 TO STA. -L- 38+90 LT

DETAIL C
LATERAL BASE DITCH
(Not to Scale)



STA. -L- 37+25 TO STA. -L- 37+66 RT

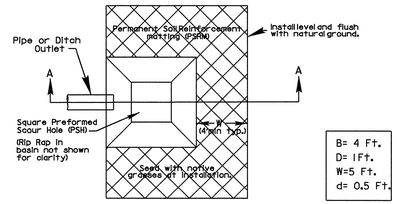
DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



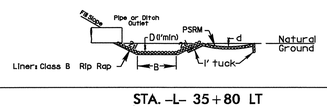
STA. -L- 18+10 TO STA. -L- 18+20 LT
STA -L- 37+80 TO STA -L- 37+90 LT
STA -L- 38+10 TO -L- STA 38+40 RT

PREFORMED SCOUR HOLE

PLAN VIEW

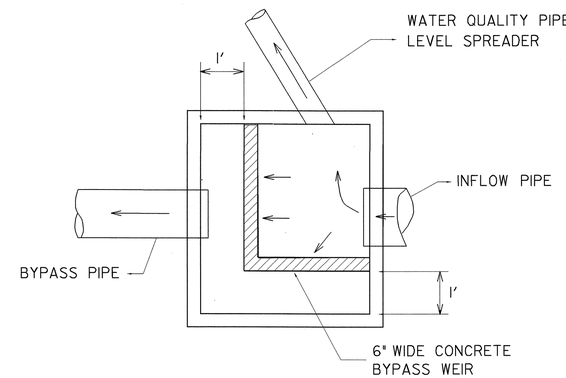


SECTION A-A



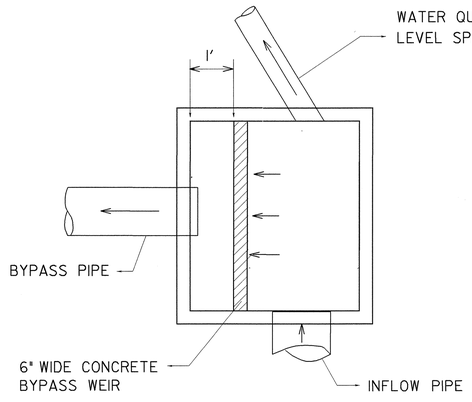
5/05

STA. -L- 35+80 LT

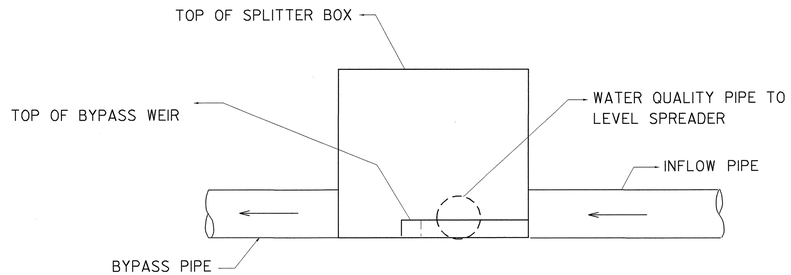


6" CONCRETE SPLITTER BOX
WITH MANHOLE COVER OR FLAT GRATE
INSIDE DIMENSIONS 4'W x 4'L x 4'H
WITH 6" CONCRETE SLAB BOTTOM
CONSTRUCT PER CONCRETE JUNCTION
BOX STANDARD DRAWING 840.31

PLAN VIEW
18+90 LT



PLAN VIEW
39+00 LT



PROFILE VIEW

FLOW SPLITTER BOX FOR LEVEL SPREADER

(NOT TO SCALE)

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3919	2-D
RW SHEET NO.	

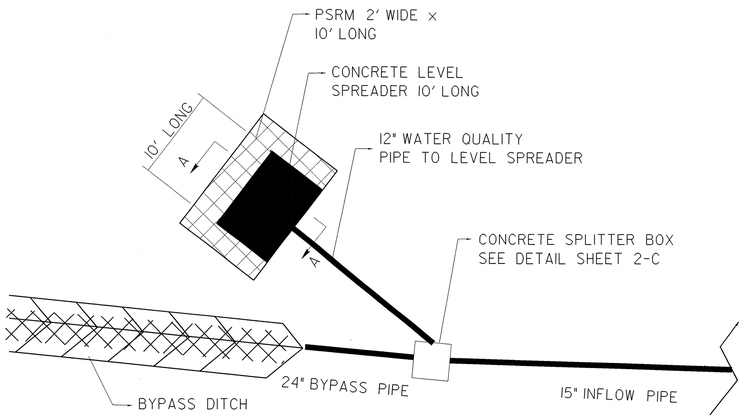
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR

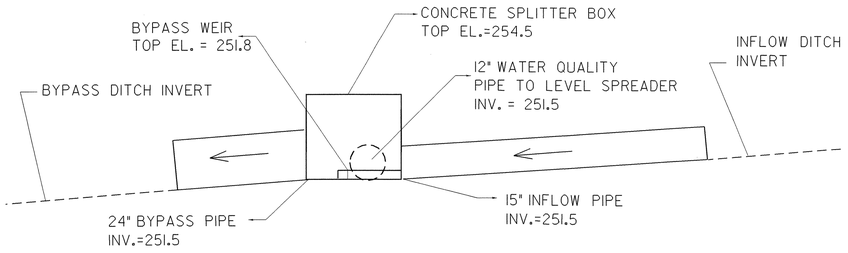
9.29.09

LEVEL SPREADER WITH BYPASS -L- STA 18+90 LT

(NOT TO SCALE)

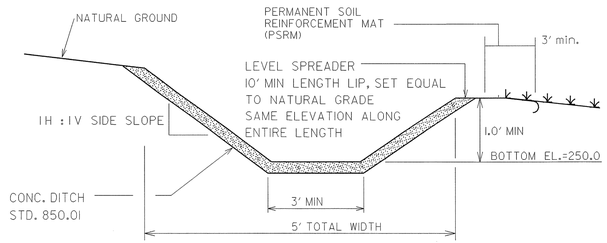


PLAN VIEW



PROFILE VIEW

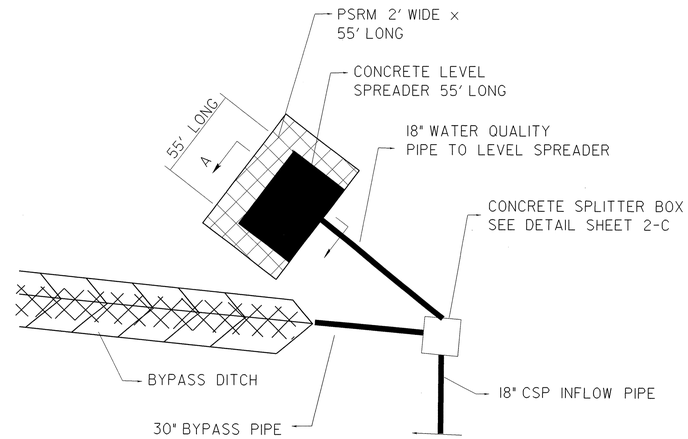
CONCRETE PAVED DITCH LEVEL SPREADER



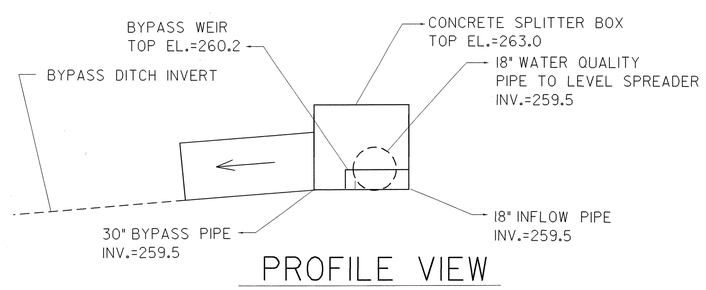
SECTION-AA

LEVEL SPREADER WITH BYPASS -L- STA 39+00 LT

(NOT TO SCALE)

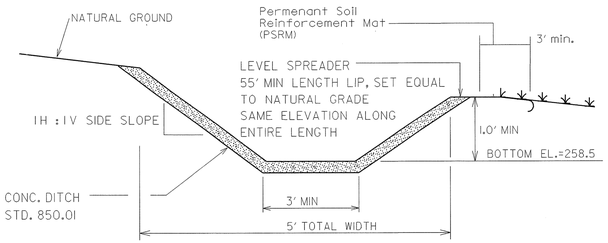


PLAN VIEW

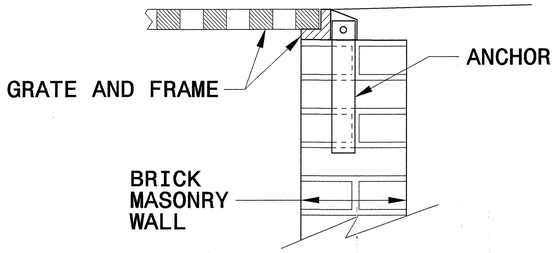


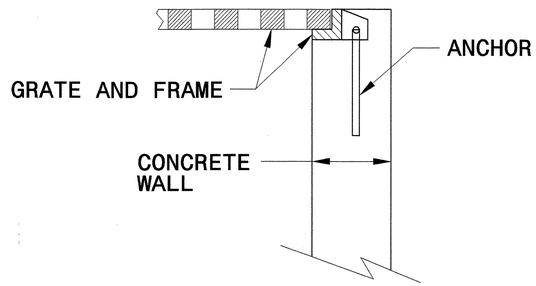
PROFILE VIEW

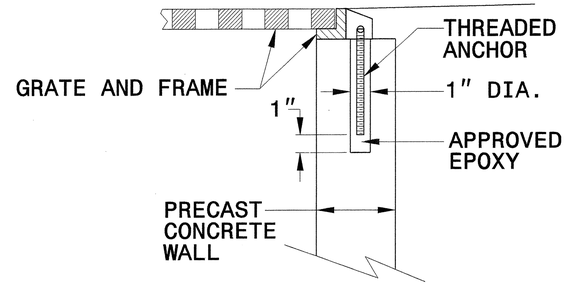
CONCRETE PAVED DITCH LEVEL SPREADER

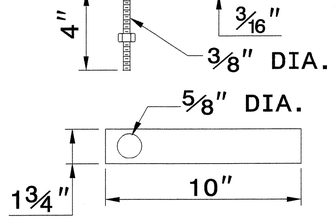


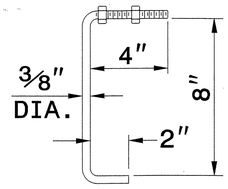
SECTION-AA

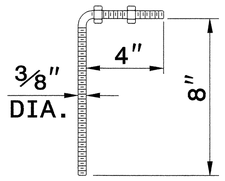


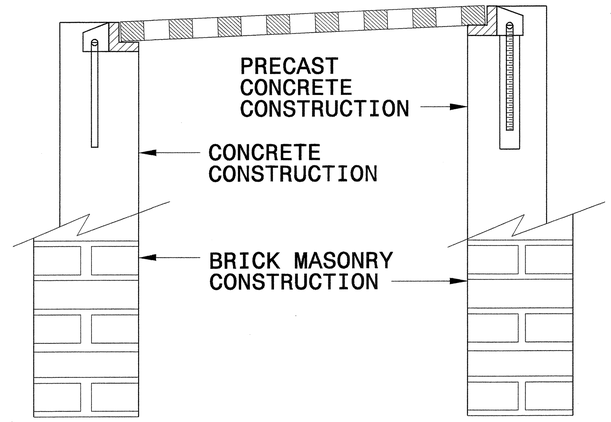












STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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
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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

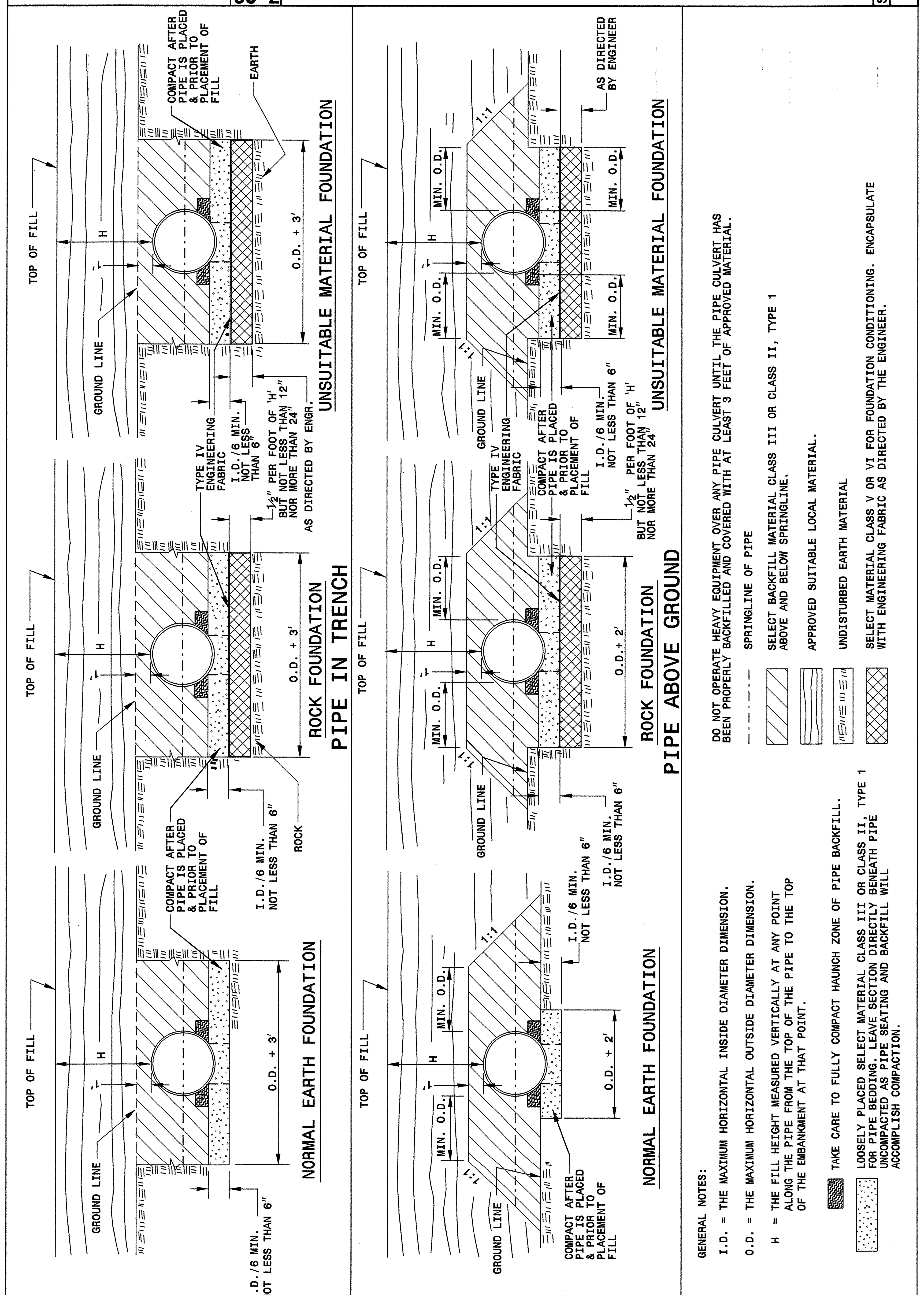
SHEET 1 OF 1
840D25

SEAL 022966
JOEL S. HOWERTON
9/30/09

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: Jack Hunt DATE: 11/13/06
FILE SPEC.:


TOP OF FILL
GROUND LINE
H
COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL
I.D./6 MIN. NOT LESS THAN 6"
O.D. + 3'
NORMAL EARTH FOUNDATION
ROCK
TYPE IV ENGINEERING FABRIC
½" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24"
AS DIRECTED BY ENGR.
ROCK FOUNDATION
PIPE IN TRENCH
EARTH
UNSUITABLE MATERIAL FOUNDATION
MIN. O.D.
O.D. + 2'
1:1
AS DIRECTED BY ENGINEER
PIPE ABOVE GROUND
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.

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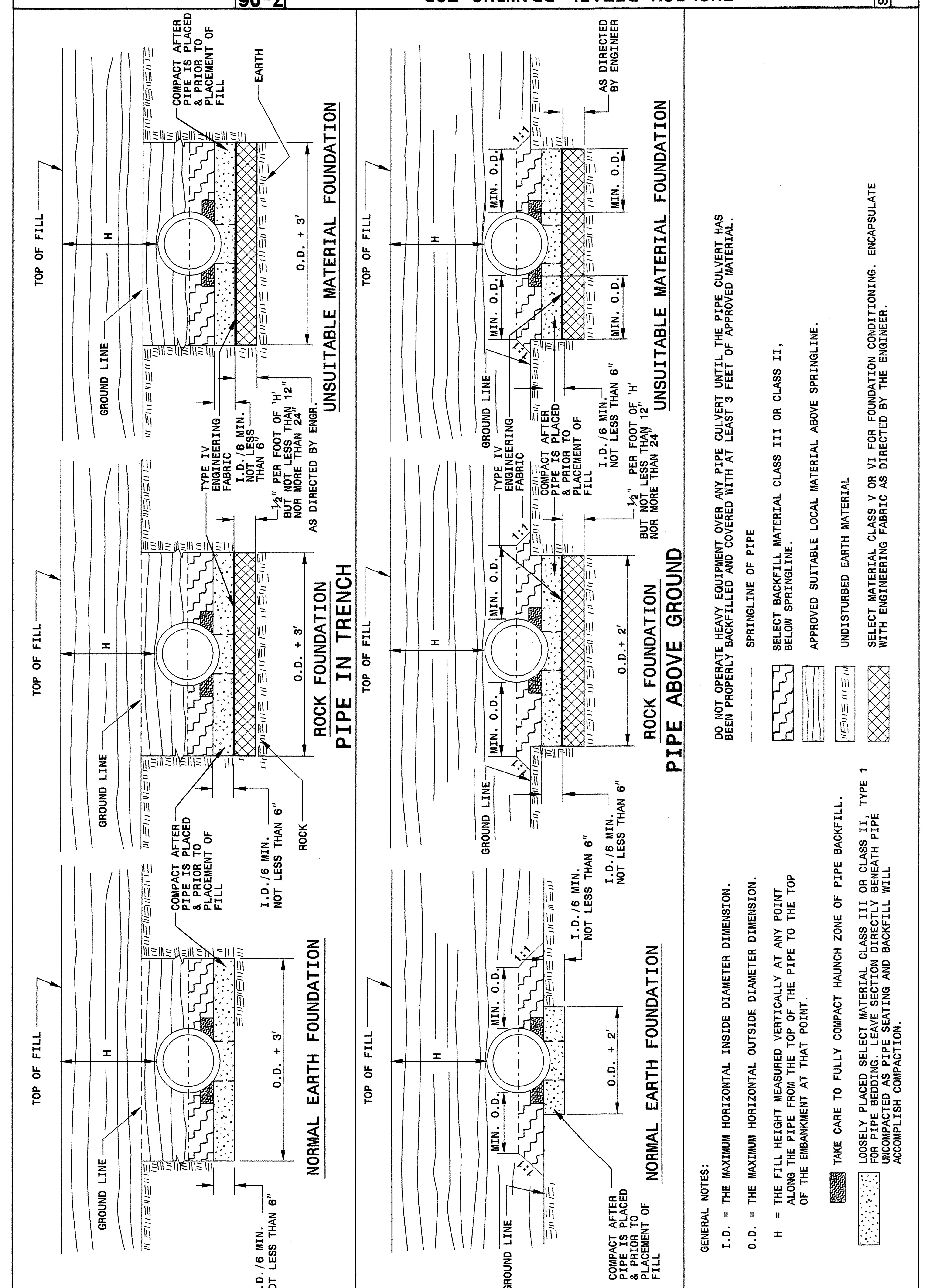
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 3
300D01


TOP OF FILL
GROUND LINE
H
COMPACT AFTER PIPE IS PLACED & PRIOR TO PLACEMENT OF FILL
I.D./6 MIN. NOT LESS THAN 6"
O.D. + 3'
NORMAL EARTH FOUNDATION
ROCK
TYPE IV ENGINEERING FABRIC
½" PER FOOT OF 'H' BUT NOT LESS THAN 12" NOR MORE THAN 24"
AS DIRECTED BY ENGR.
ROCK FOUNDATION
PIPE IN TRENCH
EARTH
UNSUITABLE MATERIAL FOUNDATION
MIN. O.D.
O.D. + 2'
1:1
AS DIRECTED BY ENGINEER
PIPE ABOVE GROUND
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.

STATE OF
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RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 3
300D01

SEAL 022966 – NORTH CAROLINA PROFESSIONAL ENGINEER – JOEL S. HOWERTON – 9/30/09

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: [signature] DATE:
CHECKED BY: DATE: 7/30/09
FILE SPEC: c/ericward/stds/stdstodetails/30001/0300d01.dgn

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

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

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

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 REFERENCE NO. B-3919 | SHEET NO. 2-G

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
9/30/09

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: 7/30/09
FILE SPEC: /ericward/stds/stdstodetails/30001/0300d01.dgn

RD248601,9/29/2009,R:\Roadway\Proj\Drainage_Sum.xls

RD248772

COMPUTED BY:	EMS	DATE:	8/17/2009
CHECKED BY:	SCL	DATE:	8/20/2009

PROJECT NO.	SHEET NO.
B-3919	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)								CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D							
SIZE								12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE		FROM	TO													.064	.064	.064	.064	.079	.079	.109	.109								
-L- 15+76	RT	3		257.9																											
-L-		3	4		250.3	250.6			40																						
-L-16+15	RT	4		257.2																											
-L-		4	5		251.1	251.5			36																						
-L- 16+50	RT	5		256.5																											
-L-		5	6		252	252.4			60																						
-L- 17+07	RT	6		256.4																											
-L-		6	7		252.9	253.4			64																						
-L- 17+07	LT	7		256.4																											
-L- 19+63	LT	8		NONE																											
		8	9		254.1	251.5																			56						
-L- 19+06	LT	9		254.4																							12				
		9	10		251.5	251.3																		20							
-L- 18+93	LT	10		NONE																											
-L- 34+92	RT	11		NONE																											
-L- 36+61	RT	12		NONE																											
-L- 37+59	RT	13		269.5																											
-L-		13	14		266.33	265.68			72																						
-L- 37+34	LT	14		269.5																											
-L-		14	15		265.2	261.5			156																						
-L- 35+80	LT	15		269																											
		15	16		261	259																			44						
-L- 35+80	LT	16		NONE																											
-L- 40+79	LT	17		273																											
-L-		17	18		269.9	269.5			32																						
-L- 40+59	LT	18		273.5																											
-L-		18	19		269.4	266.55			156																						
-L- 39+04	LT	19		269.8																											
		19	20		266.45	259.5												32													
-L- 39+04	LT	20		263																								12			
		20	21		259.5	259.2																				48					
-L- 38+74	LT	21		NONE																											
SHEET TOTALS									616									32						20	100	48	12	12			

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	ENDWALLS CU. YARDS C.S.P.	QUANITIES 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	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. STD. 840.13	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	FLOW SPLITTER BOX (SEE DETAIL SHEET 2-C)	LEVEL SPREADER (SEE DETAIL SHEET 2-D)	PREFORMED SCOUR HOLE (SEE DETAIL SHEET 2-C)	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-L- 15+76	RT	3							1	2.6		1		1																						Remove existing C.B.
-L-		3	4																																	
-L-16+15	RT	4							1	1.6		1		1																						
-L-		4	5																																	
-L- 16+50	RT	5							1			1		1																						
-L-		5	6																																	
-L- 17+07	RT	6							1											1				1												
-L-		6	7																																	
-L- 17+07	LT	7							1											1				1												
-L- 19+63	LT	8																																	22	Remove existing 12" RCP
		8	9																																	
-L- 19+06	LT	9							1																			1	1							
		9	10																																	
-L- 18+93	LT	10																												1						
-L- 34+92	RT	11		24																																Remove existing 12" RCP
-L- 36+61	RT	12			20																														22	Remove existing 18" RCP
-L- 37+59	RT	13							1											1				1												
-L-		13	14																																	
-L- 37+34	LT	14							1											1				1												
-L-		14	15																																	
-L- 35+80	LT	15							1	3															1			1								
		15	16																																	
-L- 35+80	LT	16																													1					
-L- 40+79	LT	17							1																1			1								
-L-		17	18																																	
-L- 40+59	LT	18							1			1		1																						
-L-		18	19																																	
-L- 39+04	LT	19							1			1		1																						
		19	20																													2 @ 18"				
-L- 39+04	LT	20							1																			1	1							
		20	21																																	
-L- 38+74	LT	21																												1						
SHEET TOTALS				24	20				13	7.2		5		5						4				4	2			4	2	2	1	2 @ 18"			44	

ABBREVIATIONS

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

COMPUTED BY: DDK	DATE: 7-31-09
CHECKED BY: EMS	DATE: 9-1-09

PROJECT NO.	SHEET NO.
B-3919	3-B

RD226357

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	UNDERCUT	EMBANK. +%	BORROW	TOTAL WASTE
BRIDGE #448							
-L-	15+42.50	17+12.58	44		928	884	0
-L-	17+97.83	21+25.00	73		907	834	0
		BRIDGE #448 SUBTOTAL:	117		1835	1718	0
BRIDGE #140							
-L-	32+50.00	37+62.60	8		8014	8006	0
-L-	38+62.60	41+80.00	15		4030	4015	0
-Y1-	11+90.00	12+68.26	145		6	0	139
-DR-	10+12.38	10+66.00	3		25	22	0
		BRIDGE #140 SUBTOTAL:	171		12075	12043	139
		PROJECT SUBTOTAL:	288		13910	13761	139
		WASTE IN LIEU OF BORROW				-139	-139
		SHOULDER MATERIAL			971	971	
		LOSS DUE TO CLEARING & GRUBBING	0		0	0	0
		ADDITIONAL UNDERCUT		400	480	480	400
		PROJECT TOTAL:	288	400	15361	15073	400
		ESTIMATED 5% TO REPLACE				754	
		TOPSOIL IN BORROW PIT					
		GRAND TOTAL:	288	400	15361	15827	400
		SAY	**300**			**15900**	

DDE = 275 cu. yds.

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	16+54.00	17+35.77	CL	200.49
-L-	17+71.39	18+57.00	CL	190.01
-L-	37+00.00	37+76.52	CL	192.10
-L-	38+12.53	39+26.00	CL	286.93
-L-	40+00.00	40+50.00	CL	216.27
-L-	40+50.00	41+80.00	RT	63.76
-L-	40+50.00	41+80.00	LT	111.62
			TOTAL:	1,261.19
			SAY:	**1,270**

2' -6" CONCRETE CURB AND GUTTER

LINE	STATION	STATION	LOCATION LT/RT/CL	FT
-L-	15+42.50	16+88.58	LT	146
-L-	15+42.50	16+88.58	RT	146
-L-	38+67.00	40+71.38	LT	204
-L-	39+06.06	40+55.87	RT	150
-L-/-Y1-	40+71.38	12+18.00	CL	73
-Y1-/-L-	11+90.00	41+80.00	CL	95
			TOTAL:	814.00
			SAY	**820**

SUMMARY OF BREAKING OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	34+50.00	37+00.00	CL	554.00
-L-	39+26.00	40+00.00	CL	283.98
			TOTAL:	837.98
			SAY:	**840**

SUMMARY OF MILLING OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	15+00	16+00	CL	133.33
-Y1-	11+90	12+18	LT	56.00
			TOTAL:	189.33
			SAY:	**195**

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

GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPR. END	WARRANT POINT TRAIL. END	"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH APPR. END	FLARE LENGTH TRAIL. END	W APPR. END	W TRAIL. END	ANCHORS TYPE -III	ANCHORS GRAU 350	ANCHORS CAT-1	ANCHORS AT-1	ANCHORS XII	ANCHORS M-350	ANCHORS VI MOD	IMP. ATTEN. TYPE 350 EA	IMP. ATTEN. TYPE 350 G	IMP. ATTEN. TYPE 350 NG	REMOVE EXISTING GRDRAIL		REMARKS
BRIDGE 448																											
-L-	16+43.83	17+12.58	RT	68.75				17+12.58	7	10	50		1		1	1											
-L-	17+97.83	18+66.58	LT	68.75				17+97.83	23	26	50		1		1	1											
BRIDGE 140																											
-L-	36+79.01	37+85.26	RT	106.25				37+50	23	26	50		1		1	1											
-L-	38+39.88	40+08.63	LT	168.75			39+00		7	10	50		1		1	1											
-L-	38+85.01	40+53.76	RT	168.75			38+85.01		7	10		50	1		1	1											
			SUBTOTAL:	581.25											5	5											
		ANCHOR DEDUCTIONS:																									
		GRAU- 350	5 @ 50	-250.00													**(5 ADDITIONAL GUARDRAIL POSTS)**										
		TYPE - III	5 @18.75	-93.75																							
			TOTAL:	**237.50**																							

PROJ. REFERENCE NO.	SHEET NO.
B-3919	3-C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	NISAR A. CHATHA, ZAIBUNISA CHATHA, AMJAD I. SALEEM & ZOHRA AMJAD
2	4	BOWLING GREEN ASSOCIATES, LLC
3	4	JUDY C. BYRD & VICKIE C. BYRD
4	4	GEORGE C. MACKIE, JR. & WIFE MARTHA H.
5	4	LILLIAN BURWELL FOWLER
6	4	LIBBY B. RHODES
7	4	GEORGE C. MACKIE, JR. & WIFE MARTHA H.
8	5	HENRY EDWARD JOYNER & WIFE CAROL P. JOYNER
9	5	DOROTHY M. AYCOCK PEARCE
10	5	HERITAGE WAKE FOREST
12	5	QUAIL CROSSING RETAIL INVESTORS, LLC
13	5	NANCY H. DAMERON
14	4	THE DREES HOMES CO.

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
B-3919	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER — 7/9/09

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDUR — 7.29.09

8/17/99

REVISIONS

*** DESIGN EXCEPTION REQUIRED FOR VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE.**

-Y- POT STA. 10+00.00

CHRISTINE M. CHALK HEIRS
PIN 1850.03 14 5845
PB. 1994, PG. 710
1444-E-02
DB 1637 PG. 172

CHRISTINE M. CHALK HEIRS
PIN 1850.03 14 5845
DB 1637, PG. 172
1444-E-02
PB. 2001, PG. 286

-BY- 15 POT 5+00.00 =
-Y- STA. 11+26.42
18.05' LT

-Y- PC STA. 14+52.22

-L- PC STA. 10+73.92

-L- STA. 18+20 TO 18+92LT
BYPASS LATERAL V DITCH
LINED WITH PSRM
SEE SHEET 2-C, DETAIL A
DDE=12 CY

-L- STA. 18+10 TO 18+20 LT
RIPRAP EMBANKMENT
SEE SHEET 2-C, DETAIL D
EST. 6 TONS
FILTER FABRIC
EST. 4.44 SY

LEVEL SPREADER, BYPASS PIPE SPLITTER BOX
SEE DETAIL SHEET 2-D
DDE=2 CY

NAD 83

6
LIBBY B. RHODES
PIN 1850.01 15 6444
DB 4138, PG. 61

JOHNNY M. WALTERS
PIN 1850.03 24 3621
DB 1758, PG. 236

-BL- 1 POT 5+00.00=
-L- STA. 10+78.95
13.63' LT

BM#1
-L- STA. 10+69.84
40.18' LT =
-BL- STA. 5+00.00
28.07' LT
ELEV. = 279.55'

1
NISAR A. CHATHA
ZAIBUNISA CHATHA
AMJAD I. SALEEM
ZOHRA AMJAD
DB 11596, PG. 215
P.B. 1988, PG. 381

BM#2
-L- STA. 16+97.19 58.16' LT =
-BL- STA. 11+17 43.00' LT
ELEV. = 260.43'

-Y- PT STA. 15+07.49

JUDY C. BYRD
VICKIE C. BYRD

3

DI & RCP INSTALLATION, PAVEMENT REMOVAL & GUARDRAIL BARRICADE TO BE DONE BY OTHERS

LILLIAN BURWELL FOWLER
DB 12806, PG. 1206
DB 12806, PG. 1210

LATERAL 'V' DITCH
L 19+63 TO L 20+50 LT
LINE WITH PSRM
SEE SHEET 2-C, DETAIL A
DDE=26 CY

-BL- 4 PINC 14+89.72
-L- STA. 20+65.95
12.64' LT

REMOVE 12" RCP TO BE DONE BY OTHERS

PROP. 5' SIDEWALK

JB W/MH COVER TO BE DONE BY OTHERS

FILLER CAPS UG JB NOT LOCATED

8"X12" CURB

2-GAS 10,000 GAL APPROX. LOCATION

REMOVE

RETAIN

PDE

5

GLOVER TRAPP, JR. AND WIFE, OTISTEEN M. TRAPP
PIN 1850.03 24 4511
DB 2267, PG. 697

-L- POT STA. 10+00.00

N 42° 38' 59.9" W

BEGIN CONSTRUCTION
-L- STA. 12+80.00

BEGIN TIP PROJECT B-3919
-L- STA. 15+42.50

-BL- 2 PINC 9+64.05 =
-BY- 16 PINC 8+64.98 =
-L- STA. 15+41.20
29.31' LT

-L- PT STA. 15+72.56

-L- POT STA. 15+75.66
-Y- POT STA. 15+37.35

END CONSTRUCTION
-L- STA. 21+25.00

7
GEORGE C. MACKIE, Jr. & WIFE MARTHA H.
PIN 1850.01 36 0752
DB 1854, PG. 169
DB 1879, PG. 355

4
GEORGE C. MACKIE, Jr. & WIFE MARTHA H.

CLASS II RIP RAP STRUCTURE PAY ITEM

THE DREES HOMES CO.
DB 12318 PG 0917
PB 2005 PG 2413

BOWLING GREEN ASSOCIATES, LLC
DB 10891 PG 001
PB 2005 PG 2413

SR 2054 CHALK RD. — SR 2053 JONES DAIRY RD.

2215 / 4800		2009 / 2030	ADT
515 / 1000	1777 / 4200	8523 / 16600	
7262 / 13400			

SKETCH OF PAVEMENT/BRIDGE RELATIONSHIP

BEGIN BRIDGE -L- STA. 17+12.58
PROP. 5' SIDEWALK
TYPE-III
GRAU 350
2' 6" C&G
BEGIN APPROACH SLAB -L- STA. 16+88.58
22'1.5"
78'3"
24'
1:1
END APPROACH SLAB -L- STA. 18+21.83
END BRIDGE -L- STA. 17+97.83

-L-
PI Sta 13+23.38
Δ = 4° 45' 41.9" (RT)
D = 0° 57' 17.7"
L = 498.64'
T = 249.46'
R = 6,000.00'
INC = 25'
R0 = SEE PLANS

-Y-
PI Sta 14+80.27
Δ = 24° 08' 30.6" (RT)
D = 43° 40' 51.2"
L = 55.27'
T = 28.05'
R = 131.17'

NOTES:
1) SEE SHEET 6 FOR -L- PROFILE
2) SEE SHEETS S1 - S25 FOR STRUCTURE PLANS
3) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

25-SEP-2009 11:04
r:\roadway\pres\b3919_rdy_psh4.dgn
$$$$USERNAME$$$$

8/17/99

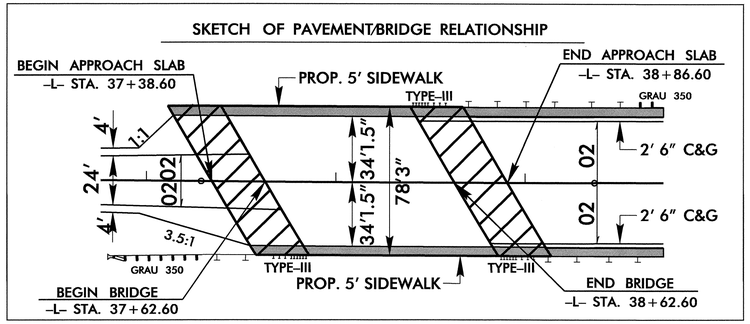
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3919	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER 9/29/09

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONTOR 9.29.09

SKETCH OF PAVEMENT/BRIDGE RELATIONSHIP



* DESIGN EXCEPTION REQUIRED FOR VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE.

N 22°58'50" W
725.01'
-BL- 6 PINC 25+15.72
-L- STA. 30+90.69
13.22' LT

-BL- 7 PINC 29+23.83 =
-L- STA. 34+97.89
13.08' LT

-L- STA. 37+80 TO 37+90 LT
RIPRAP EMBANKMENT
SEE SHEET 2-C, DETAIL D
EST. 6 TONS
FILTER FABRIC
EST. 4.44 SY

-L- POT STA. 36+61.25
-DR- POT STA. 10+00.00

-L- STA. 38+10 LT TO 38+40 RT
RIPRAP EMBANKMENT
SEE SHEET 2-C, DETAIL D
EST. 6 TONS
FILTER FABRIC
EST. 13.33 SY

HERITAGE WAKE FOREST
PIN 1850.06 7806
DB 11158, PG. 1401
BM 1992, PG. 839
BM 2005 PG 2323

-BL- 9 PINC 34+41.06 =
-BY9-53- (TIP NO. R-2809C)
-L- STA. 40+15.26
16.5' LT DESTROYED

BEGIN CONSTRUCTION
-L- STA. 32+50.00

BEGIN CONSTRUCTION
-L- STA. 11+90.00

-Y1- POT Sta. 10+00.00

CLASS II RIP RAP
STRUCTURE PAY ITEM

LEVEL SPREADER
BYPASS 2' BASE DITCH
LINED WITH PSRM
-L- STA 37+90 TO 38+90 LT
SEE SHEET 2-C, DETAIL B
DDE=35 CY

LEVEL SPREADER, BYPASS PIPE
SPLITTER BOX, SEE DETAIL SHEET 2-D
DDE= 10 CY

HERITAGE WAKE FOREST
PIN 1850.06 7806
DB 11158, PG. 1401
BM 1992, PG. 839
BM 2005 PG 2323

CL. B OUTLET
PROTECTION
EST. 8 TONS
FILTER FABRIC
EST. 21 SY

REMOVE FES
AND RIPRAP

JBOX WITH
MH COVER

RETAIN

GATEWAY COMMONS CIRCLE

GATEWAY FOREST, LLC
DB 9440 PG 378
BM 2001PG 1555
BM 2002 PG 876
SANITARY SEWER EASEMENT
INSUFICIENT INFORMATION ON PLAT
TO DETERMINE LOCATION
N.C.D.O.T.
PSD 222-00-L
BM 2008 PG 912-918

-BL- 10 POT 38+62.58 =
-BY9-52- (TIP NO. R-2809C)
DESTROYED

REMOVE EXISTING C&G
-Y1- 11+90 TO 12+18 LT.
AND ADJUST EXISTING CB

SITE UNDER CONSTRUCTION

-L- POT STA. 43+62.26

-BL- 107 OUT OF BL CH
ADDED 6/09

NANCY H. DAMERON
DB 12337, PG. 2555

75' TAPER

PREFORMED SCOUR HOLE
SEE DETAIL
SHEET 2-C

PDE

CB WITH
MH COVER
TO BE PLACED
IN FUTURE C&G

N 27° 11' 36.9" W
SR 2053 JONES DAIRY ROAD
BOLD BST

REMOVE

LINE TOE WITH PSRM
-L- 33+50 TO 35+00RT

-L- PT STA. 32+45.35

END CONSTRUCTION
-DR- STA. 10+66.00

-DR- STA. 10+75.00

2' LATERAL BASE DITCH
-L- 35+00 TO 37+25RT
LINE W/PSRM
SEE SHEET 2-C,
DETAIL B
DDE=98 CY

CL. B OUTLET
PROTECTION
EST. 3 TONS
FILTER FABRIC
EST. 10 SY

-L- PC STA. 37+28.85

DOROTHY M. AYCOCK PEARCE
PIN 1850.01 16 0955
DB 7332, PG. 771
BM 1978, PG. 911
BM 1980, PG. 653

BM#3
-L- STA. 37+36.45 48.05' RT =
-BL- STA. 31+62.00 62.00' RT
ELEV. = 263.02'

HENRY EDWARD JOYNER & WIFE CAROL P. JOYNER
PIN 1850.01 16 5402
DB 2695, PG. 227
P.B. 1978, PG. 911

STA. -L- 37+25 TO 37+66 RT
WIDEN DITCH FROM 2' BASE DITCH
TO 8' WIDE BASE DITCH LINED WITH
PSRM DETAIL C. PLACE 8' LONG
X 16' WIDE X 1' DEEP CL B RIPRAP PAD
WITH FILTER FABRIC AT END OF DITCH ON
EXISTING GRADE.
EST. 6 TONS
FILTER FABRIC
EST. 14 SY
DDE=91 CY

HENRY EDWARD JOYNER & WIFE CAROL P. JOYNER
PIN 1850.01 16 2883
DB 8386, PG. 93
BM 1978, PG. 911
BM 1980, PG. 653

300' MEDIAN TAPER

-L-

PI Sta 31+29.48
Δ = 6° 38' 47.8" (RT)
D = 2° 51' 53.2"
L = 232.01'
T = 116.14'
R = 2,000.00'

PI Sta 38+32.70
Δ = 0° 35' 42.1" (LT)
D = 0° 17' 11.3"
L = 207.70'
T = 103.85'
R = 20,000.00'
INC = 25'
RO = SEE PLANS

-Y1- POT Sta. 13+00.42

-L- POT 41+15.59 =

-L- PT STA. 39+36.55

END TIP PROJECT B-3919

END CONSTRUCTION
-L- STA. 41+80.00

QUAIL CROSSING RETAIL
INVESTORS, LLC
DB 13418 PG 1794
BM 2001 PG 1555
BM 2004 PG 626
BM 2004 PG 1789
N.C.D.O.T.
PSD 222-00-L

TIE SIDEWALK, 2'-6" C&G,
AND PAVEMENT TO
DEVELOPMENT
UNDER CONSTRUCTION

SITE UNDER CONSTRUCTION

BM#4
-L- STA. 43+62.26 S41°14'0C
-BL- STA. 38+07 63.0
ELEV. = 294.32'

SITE UNDER CONSTRUCTION

NOTES:
1) SEE SHEET 6 FOR -L- PROFILE
2) SEE SHEET 6 FOR -DR- PROFILE
3) SEE SHEET 6 FOR -Y1- PROFILE
4) SEE SHEETS S26 – S51 FOR STRUCTURE PLANS
5) SEE SHEET PMP-4 FOR WHEELCHAIR RAMP LOCATIONS
6) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED

28-SEP-2009 15:24
\$\$\$\$USERNAME\$\$\$\$
\$\$\$\$DGNNAME\$\$\$\$

PROJECT REFERENCE NO. B-3919
SHEET NO. 6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER
NORTH CAROLINA PROFESSIONAL SEAL 12786 ENGINEER STEVEN M. BONDOR
9.29.09
REVISIONS
DITCH LEGEND
LEFT DITCH
RIGHT DITCH
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 1180 CFS
DESIGN FREQUENCY = 25 YR
DESIGN HW ELEVATION = 252.0 FT
BASE DISCHARGE = 2325 CFS
BASE FREQUENCY = 100 YR
BASE HW ELEVATION = 254.1 FT
OVERTOPPING DISCHARGE = 4320 CFS
OVERTOPPING FREQUENCY = 500++ YR
OVERTOPPING ELEVATION = 256.2 FT
DATE OF SURVEY = 3/11/08
NORMAL W.S.ELEVATION = 245.0 FT
-L-
* DESIGN EXCEPTION REQUIRED FOR VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE.
PROPOSED 33" BOX BEAM BRIDGE
1 SPAN @ 85'
℄ -L- STA. 17+55.20
SKEW = 90°
END GRADE
BEGIN RESURFACING
-L- STA. 20+00.00
ELEV. = 261.37'
END RESURFACING
-L- STA. 21+25.00
PI = 16+35.00
EL = 257.14'
VC = 185'
* K = 68
V = 40 MPH
PI = 19+00.00
EL = 257.93'
VC = 200'
* K = 64
V = 40 MPH
BEGIN BRIDGE
-L- STA. 17+12.58
END BRIDGE
-L- STA. 17+97.83
(-)2.4203%
(+)0.3000%
(+)3.4400%
(+)3.3%
(+)4.0%
(+)0.3%
(+)0.4%
BEGIN GRADE
-L- STA. 15+42.50
ELEV = 259.37'
BEGIN LT DITCH PI = 18+20 El = 248.50
PI = 18+50 El = 249.50
END LT DITCH PI = 18+92 El = 251.20
BEGIN LT DITCH PI = 19+63 El = 254.10
PI = 20+00 El = 254.20
END LT DITCH PI = 20+50 El = 254.40
BM# 2 RAILROAD SPIKE SET IN A 30" OAK TREE
-L- STA. 16+97.19 58.16' LT
ELEV. = 260.43' N 805162 E 2152043
SEE SHEET 4 FOR -L- PLAN
-Y1-
PI = 12+35.50
EL = 276.43'
VC = 35.00'
K = 32
PI = 12+60.00
EL = 275.91'
VC = 14.00'
K = 5
(-)1.0406%
(-)2.1438%
(+)1.0000%
BEGIN GRADE
-Y1- STA. 11+90.00
ELEV. = 276.90'
END GRADE
-Y1- STA. 12+68.26
ELEV. = 275.99'
SEE SHEET 5 FOR -Y1- PLAN
-L-
BEGIN GRADE
-L- STA. 32+50.00
ELEV. = 287.80'
PI = 35+50.00
EL = 268.81'
VC = 432'
* K = 64
V = 40 MPH
PROPOSED 39" BOX BEAM BRIDGE
1 SPAN @ 100'
℄ -L- STA. 38+12.60
SKEW = 60°
PI = 40+25.00
EL = 271.10'
VC = 310'
* K = 63
V = 40 MPH
END GRADE
-L- STA. 41+80.00
ELEV. = 279.73'
-L- STA. 41+19.84 =
-Y1- STA. 13+00.00
BEGIN BRIDGE
-L- STA. 37+62.60
END BRIDGE
-L- STA. 38+62.60
(-)6.3305%
(+)0.4830%
(+)5.5655%
(-)5.0%
(-)3.8%
(-)3.5%
(-)3.2%
(-)2.7%
(+)1.2%
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 1040 CFS
DESIGN FREQUENCY = 25 YR
DESIGN HW ELEVATION = 261.2 FT
BASE DISCHARGE = 1750 CFS
BASE FREQUENCY = 100 YR
BASE HW ELEVATION = 262.4 FT
OVERTOPPING DISCHARGE = 9000 CFS
OVERTOPPING FREQUENCY = 500++ YR
OVERTOPPING ELEVATION = 269.9 FT
DATE OF SURVEY = 3/11/08
NORMAL W.S.ELEVATION = 253.8 FT
BEGIN RT DITCH PI = 35+00 El = 267.36
PI = 35+50 El = 264.86
PI = 36+00 El = 262.94
PI = 36+50 El = 261.19
PI = 37+00 El = 259.59
END RT DITCH PI = 37+66 El = 257.80
BEGIN LT DITCH PI = 37+90 El = 258.00
END LT DITCH PI = 38+90 El = 259.20
BM# 3 RAILROAD SPIKE SET IN A 32" PINE TREE
-L- STA. 37+36.45 48.05' RT
ELEV. = 263.02' N 806908 E 2150998
SEE SHEET 5 FOR -L- PLAN
-DR-
PI = 10+25.00
EL = 269.00'
VC = 26'
K = 5
BEGIN GRADE
-DR- STA. 10+12.00
ELEV. = 269.78'
(-)6.0000%
(-)11.0526%
(-)0.7100%
END GRADE
-DR- STA. 10+66.00
ELEV. = 265.09
PI = 10+60.00
EL = 265.13'
VC = 12'
K = 1
SEE SHEET 5 FOR -DR- PLAN
5/28/99
11-SEP-2009 13:12
b3919_rdy_pfl.dgn