



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

January 9, 2015

Addendum No. 1

RE: Contract ID C203256

WBS # 34962.3.FD1

F. A. # NHF-0918(93)

Guilford County (U-3615B)

SR-1820 (Skeet Club Road) From East Of SR-1818 (Johnson Street) To

West Of NC-68 (Eastchester Drive) In High Point

January 20, 2015 Letting

To Whom It May Concern:

Reference is made to the plans and proposal form furnished to you on this project.

The following revisions have been made to the Roadway plans:

Sheet No.	Revisions
1A	Revised to reflect the below noted Natural Stream Design plans being added
NS-1 thru NS-10	New sheets added to include Natural Stream Design details

Please void the sheet No.1A in your plans and staple the revised sheet thereto. Please insert Sheet Nos. NS-1 thru NS-10 after Sheet No. 28 in your plans.

The following revisions have been made to the proposal:

Page No.	Revisions
Proposal Cover	Note added that reads "Includes Addendum No. 1 Dated 01-09-15"
R-47 and New Pages R-48 and R-49	Added project special provision entitled "Concrete Pave Ditch Level Spreader"

Please void the existing Proposal Cover and staple the attached revised Proposal Cover thereto. Please void Page No.R-47 in your proposal and staple the revised Page No. R-47 and New Page Nos. R-48 and R-49 thereto.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS AND DEVELOPMENT UNIT
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1591

TELEPHONE: 919-707-6900
FAX: 919-250-4119

WEBSITE: www.ncdot.gov

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

C203256

U-3615B
Guilford County

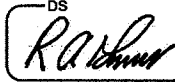
On the item sheets the following pay item quantities have been revised or added:

<u>Item</u>	<u>Description</u>	<u>Old Quantity</u>	<u>New Quantity</u>
011-0134000000-E-240	Drainage Ditch Excavation	4,530 CY	6,630 CY
048-1077000000-E-SP	#57 Stone	1,455 TON	1,690 TON
118-3642000000-E-876	Rip Rap, Class A	210 TON	415 TON
119-3649000000-E-876	Rip Rap, Class B	485 TON	520 TON
120-3651000000-E-SP	Boulders	95 TON	260 TON
121-3656000000-E-876	Geotextile For Drainage	8,250 SY	8,565 SY
223-6037000000-E-SP	Coir Fiber Mat	600 SY	2,900 SY
224-6038000000-E-SP	Permanent Soil Reinforcement Mat	1,600 SY	1,685 SY
330-2619000000-E-850	4" Concrete Paved Ditch	NEW ITEM	83 SY

The Contractor's bid must be based on these revised pay item quantities and include the new pay item. The contract will be prepared accordingly.

The Expedite File has been updated to reflect this revision. Please download the Expedite Addendum File and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

Sincerely,



R. A. Garris, PE
Contract Officer

RAG/jag
Attachments

cc: Mr. Ron Hancock, PE
Mr. Mike Mills, PE
Ms. D. M. Barbour, PE
Mr. Rodger Rochelle, PE
Mr. R.E. Davenport, PE
Mr. Glenn Mumford, PE
Project File (2)

Mr. Ray Arnold, PE
Ms. Natalie Roskam, PE
Mr. Ronnie Higgins
Mr. Mike Gwyn
Ms. Marsha Sample
Ms. Lori Strickland
Ms. Jaci Kincaid

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

Includes Addendum No.1 dated January 9, 2015

DATE AND TIME OF BID OPENING: **JANUARY 20, 2015 AT 2:00 PM**

CONTRACT ID C203256
WBS 34962.3.FD1

FEDERAL-AID NO. STP-1820(5)
COUNTY GUILFORD
T.I.P. NO. U-3615B
MILES 3.388
ROUTE NO. SR 1820
LOCATION SR-1820 (SKEET CLUB RD) FROM EAST OF SR-1818 (JOHNSON ST) TO WEST OF NC-68 (EASTCHESTER DR) IN HIGH POINT.
TYPE OF WORK GRADING, DRAINAGE, PAVING, SIGNALS & STRUCTURES.

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A ROADWAY PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

PERMANENT SEEDING AND MULCHING:

(7-1-95)

1660

SP16 R02

The Department desires that permanent seeding and mulching be established on this project as soon as practical after slopes or portions of slopes have been graded. As an incentive to obtain an early stand of vegetation on this project, the Contractor's attention is called to the following:

For all permanent seeding and mulching that is satisfactorily completed in accordance with the requirements of Section 1660 in the *2012 Standard Specifications* and within the following percentages of elapsed contract times, an additional payment will be made to the Contractor as an incentive additive. The incentive additive will be determined by multiplying the number of acres of seeding and mulching satisfactorily completed times the contract unit bid price per acre for Seeding and Mulching times the appropriate percentage additive.

Percentage of Elapsed Contract Time	Percentage Additive
0% - 30%	30%
30.01% - 50%	15%

Percentage of elapsed contract time is defined as the number of calendar days from the date of availability of the contract to the date the permanent seeding and mulching is acceptably completed divided by the total original contract time.

CONCRETE PAVED DITCH LEVEL SPREADER:

(3-18-03) (Rev 7-18-06)

SP8 R110

Description

Construct and maintain level spreaders at the locations shown on the plans and in accordance with the details in the plans. The purpose of the level spreader is to collect stormwater discharged from a drainage system and to direct the stormwater into the buffer areas in a sheet flow condition. Work includes excavation, concrete, 2" PVC pipe, No. 57 Stone and shaping, furnishing and placing permanent soil reinforcement matting.

Materials

Item	Section
Concrete paved ditch	850

Provide permanent erosion control reinforcement mat constructed of 100% coconut fiber stitch, bonded between heavy duty UV stabilized cuspatated (crimped) netting, overlaid with heavy duty UV stabilized top net. Stitch together three nettings on 1.5-inch centers using UV stabilized polyester thread to form a permanent three dimensional structure. The mat shall have the following physical properties:

<i>Property</i>	<i>Test Method</i>	<i>Value Unit</i>
Ground Cover	Image Analysis	93 %
Thickness	ASTM D1777	0.63 in
Mass Per Unit Area	ASTM D3776	0.92 lb/sy
Tensile Strength	ASTM D5035	480 lb/ft
Elongation	ASTM D5035	49 %
Tensile Strength	ASTM D5035	960 lb/ft
Elongation	ASTM D5035	31 %
Tensile Strength	ASTM D1682	177 lbs
Elongation	ASTM D1682	22 %
Resiliency	ASTM D1777	>80 %
UV Stability *	ASTM D4355	151 lbs
Color(Permanent Net)		UV Black
Porosity (Permanent Net)	Calculated	>95 %
Minimum Filament Diameter (permanent net)	Measured	0.03 in

*ASTM D1682 Tensile Strength and % strength retention of material after 1000 hours of exposure in a Xenon-arc weatherometer.

Submit certification (Type 1, 2, or 3) from the manufacturer showing:

- (A) Chemical and physical properties of the mat used, and
- (B) Conformance of the mat with this specification

Soil Preparation

Bring areas to be protected with the mat to final grade and seed in accordance with section 1660. Work surface of the soil so that is smooth, firm, stable and free of rocks, clods, roots or other obstructions which would prevent the mat from lying in direct contact with the soil surface. Areas where the mat is to be placed will not need to be mulched.

Measurement and Payment

Permanent Soil Reinforcement Matting will be measured and paid for as the actual number of square yards that have been incorporated into the completed and accepted work.

No. 57 Stone will be measured and paid for as the actual number of tons of stone that have been incorporated into the completed and accepted work.

2" PVC pipe will not be measured or paid for separately and it is considered incidental to the other pay items associated with this work.

Concrete Paved Ditch and Drainage Ditch Excavation will be measured and paid for in accordance with Sections 850 and 240 of the *Standard Specifications*.

Payment will be made under:

Pay Item	Pay Unit
Permanent Soil Reinforcement Matting	Square Yards
No. 57 Stone	Tons
4" Concrete Paved Ditch	Square Yards
Drainage Ditch Excavation	Cubic Yard

County: Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum	L.S.	
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUBBING	2 ACR		
0005	0022000000-E	225	UNCLASSIFIED EXCAVATION	52,900 CY		
0006	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (233+87.56 -L- LT)	Lump Sum	L.S.	
0007	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (233+87.56 -L- RT)	Lump Sum	L.S.	
0008	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (238+33.00 -L-)	Lump Sum	L.S.	
0009	0036000000-E	225	UNDERCUT EXCAVATION	2,250 CY		
0010	0106000000-E	230	BORROW EXCAVATION	205,600 CY		
0011	0134000000-E	240	DRAINAGE DITCH EXCAVATION	6,630 CY		
0012	0141000000-E	240	BERM DITCH CONSTRUCTION	1,000 LF		
0013	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	22,700 SY		
0014	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	33,000 SY		
0015	0195000000-E	265	SELECT GRANULAR MATERIAL	2,500 CY		
0016	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	14,050 SY		
0017	0199000000-E	SP	TEMPORARY SHORING	6,444 SF		
0018	0220000000-E	SP	ROCK EMBANKMENTS	1,700 TON		

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0019	0222000000-E	SP	GEOTEXTILE FOR ROCK EMBANKMENTS	1,130 SY		
0020	0223000000-E	275	ROCK PLATING	880 SY		
0021	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	3,979 TON		
0022	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	15,014 SY		
0023	0335100000-E	305	12" DRAINAGE PIPE	76 LF		
0024	0335200000-E	305	15" DRAINAGE PIPE	2,252 LF		
0025	0335300000-E	305	18" DRAINAGE PIPE	440 LF		
0026	0335400000-E	305	24" DRAINAGE PIPE	1,860 LF		
0027	0335500000-E	305	30" DRAINAGE PIPE	756 LF		
0028	0343000000-E	310	15" SIDE DRAIN PIPE	20 LF		
0029	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	100 LF		
0030	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	728 LF		
0031	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	52 LF		
0032	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	788 LF		
0033	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	296 LF		
0034	0402000000-E	310	48" RC PIPE CULVERTS, CLASS III	208 LF		
0035	0408000000-E	310	54" RC PIPE CULVERTS, CLASS III	344 LF		
0036	0420000000-E	310	66" RC PIPE CULVERTS, CLASS III	568 LF		

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0037	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	15,432 LF		
0038	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	3,332 LF		
0039	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	4,140 LF		
0040	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	276 LF		
0041	0448700000-E	310	42" RC PIPE CULVERTS, CLASS IV	40 LF		
0042	0576000000-E	310	*** CS PIPE CULVERTS, ***** THICK (72", 0.139")	200 LF		
0043	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	244 LF		
0044	0594000000-E	310	24" CS PIPE CULVERTS, 0.064" THICK	68 LF		
0045	0992000000-E	SP	GENERIC PIPE ITEM REMOVE & RESET FES	1 EA		
0046	0995000000-E	340	PIPE REMOVAL	4,585 LF		
0047	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0048	1077000000-E	SP	#57 STONE	1,690 TON		
0049	1099500000-E	505	SHALLOW UNDERCUT	4,343 CY		
0050	1099700000-E	505	CLASS IV SUBGRADE STABILIZA- TION	9,140 TON		
0051	1110000000-E	510	STABILIZER AGGREGATE	1,000 TON		
0052	1121000000-E	520	AGGREGATE BASE COURSE	8,800 TON		
0053	1220000000-E	545	INCIDENTAL STONE BASE	1,000 TON		
0054	1275000000-E	600	PRIME COAT	4,530 GAL		
0055	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	42,100 TON		

County: Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0056	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	31,700 TON		
0057	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	32,200 TON		
0058	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	5,310 TON		
0059	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	1,610 TON		
0060	2022000000-E	815	SUBDRAIN EXCAVATION	168 CY		
0061	2033000000-E	815	SUBDRAIN FINE AGGREGATE	84 CY		
0062	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	500 LF		
0063	2070000000-N	815	SUBDRAIN PIPE OUTLET	1 EA		
0064	2077000000-E	815	6" OUTLET PIPE	6 LF		
0065	2209000000-E	838	ENDWALLS	28 CY		
0066	2220000000-E	838	REINFORCED ENDWALLS	77 CY		
0067	2253000000-E	840	PIPE COLLARS	15.3 CY		
0068	2264000000-E	840	PIPE PLUGS	1.96 CY		
0069	2275000000-E	SP	FLOWABLE FILL	613.1 CY		
0070	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	324 EA		
0071	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	15 CY		
0072	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	134 LF		
0073	2354200000-N	840	FRAME WITH GRATE, STD 840.24	1 EA		
0074	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	16 EA		

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0075	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	20 EA		
0076	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	33 EA		
0077	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	106 EA		
0078	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	113 EA		
0079	2396000000-N	840	FRAME WITH COVER, STD 840.54	25 EA		
0080	2440000000-N	852	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN	41 EA		
0081	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	5 EA		
0082	2462000000-E	SP	*** SLUICE GATE (15")	3 EA		
0083	2462000000-E	SP	*** SLUICE GATE (18")	1 EA		
0084	2462000000-E	SP	*** SLUICE GATE (24")	5 EA		
0085	2462000000-E	SP	*** SLUICE GATE (30")	2 EA		
0086	2538000000-E	846	***_*** CONCRETE CURB & GUTTER (2'-9")	5,455 LF		
0087	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	16,570 LF		
0088	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	34,775 LF		
0089	2570000000-N	SP	MODIFIED CONCRETE FLUME	5 EA		
0090	2591000000-E	848	4" CONCRETE SIDEWALK	18,210 SY		
0091	2605000000-N	848	CONCRETE CURB RAMP	75 EA		

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0092	2612000000-E	848	6" CONCRETE DRIVEWAY	1,722 SY		
0093	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	2,300 SY		
0094	2657000000-E	852	*** MONOLITHIC CONCRETE MEDIAN (*****) (7", KEYED IN)	25 SY		
0095	2800000000-N	858	ADJUSTMENT OF CATCH BASINS	1 EA		
0096	2845000000-N	858	ADJUSTMENT OF METER BOXES OR VALVE BOXES	2 EA		
0097	2905000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX	3 EA		
0098	3000000000-N	SP	IMPACT ATTENUATOR UNIT, TYPE 350	1 EA		
0099	3030000000-E	862	STEEL BM GUARDRAIL	4,675 LF		
0100	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	325 LF		
0101	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA		
0102	3195000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE AT-1	3 EA		
0103	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	12 EA		
0104	3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	8 EA		
0105	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	14 EA		
0106	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	3 EA		
0107	3360000000-E	863	REMOVE EXISTING GUARDRAIL	2,844 LF		
0108	3380000000-E	862	TEMPORARY STEEL BM GUARDRAIL	237.5 LF		

County: Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0109	3387000000-N	862	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (CAT-1)	1 EA		
0110	3389100000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	1 EA		
0111	3533000000-E	866	CHAIN LINK FENCE, *** FABRIC (72")	254 LF		
0112	3539000000-E	866	METAL LINE POSTS FOR *** CHAIN LINK FENCE (72")	22 EA		
0113	3545000000-E	866	METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (72")	10 EA		
0114	3557000000-E	866	ADDITIONAL BARBED WIRE	100 LF		
0115	3564000000-E	866	SINGLE GATES, *** HIGH, *** WIDE, *** OPENING (72", 4', 4')	2 EA		
0116	3628000000-E	876	RIP RAP, CLASS I	35 TON		
0117	3635000000-E	876	RIP RAP, CLASS II	135 TON		
0118	3642000000-E	876	RIP RAP, CLASS A	415 TON		
0119	3649000000-E	876	RIP RAP, CLASS B	520 TON		
0120	3651000000-E	SP	BOULDERS	260 TON		
0121	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	8,565 SY		
0122	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	5 EA		
0123	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	2,805 LF		
0124	4096000000-N	904	SIGN ERECTION, TYPE D	10 EA		
0125	4102000000-N	904	SIGN ERECTION, TYPE E	166 EA		
0126	4108000000-N	904	SIGN ERECTION, TYPE F	10 EA		

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0127	4116100000-N	904	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)	6 EA		
0128	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U- CHANNEL	109 EA		
0129	4192000000-N	907	DISPOSAL OF SUPPORT, U-CHANNEL	5 EA		
0130	4238000000-N	907	DISPOSAL OF SIGN, D, E OR F	5 EA		
0131	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	1,368 SF		
0132	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	768 SF		
0133	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	141 SF		
0134	4415000000-N	1115	FLASHING ARROW BOARD	3 EA		
0135	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	7 EA		
0136	4430000000-N	1130	DRUMS	2,000 EA		
0137	4435000000-N	1135	CONES	20 EA		
0138	4445000000-E	1145	BARRICADES (TYPE III)	1,632 LF		
0139	4450000000-N	1150	FLAGGER	9,600 HR		
0140	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	6 EA		
0141	4470000000-N	1160	RESET TEMPORARY CRASH CUSHION	7 EA		
0142	4480000000-N	1165	TMA	4 EA		
0143	4485000000-E	1170	PORTABLE CONCRETE BARRIER	2,825 LF		
0144	4490000000-E	1170	PORTABLE CONCRETE BARRIER (ANCHORED)	1,260 LF		
0145	4500000000-E	1170	RESET PORTABLE CONCRETE BAR- RIER	1,460 LF		

County: Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0146	4507000000-E	1170	WATER FILLED BARRIER	1,375 LF		
0147	4508000000-E	1170	RESET WATER FILLED BARRIER	1,670 LF		
0148	4510000000-N	SP	LAW ENFORCEMENT	1,320 HR		
0149	4516000000-N	1180	SKINNY DRUM	50 EA		
0150	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	1,319 EA		
0151	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	10,060 LF		
0152	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	36,545 LF		
0153	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	3,175 LF		
0154	4697000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	3,439 LF		
0155	4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)	760 LF		
0156	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	1,185 LF		
0157	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	48 EA		
0158	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	259 EA		
0159	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)	2,439 LF		
0160	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	3,012 LF		
0161	4805000000-N	1205	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (II)	9 EA		

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0162	4805000000-N	1205	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (IV)	7 EA		
0163	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	513,936 LF		
0164	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	38,751 LF		
0165	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	5,112 LF		
0166	4840000000-N	1205	PAINT PAVEMENT MARKING CHARACTER	8 EA		
0167	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	233 EA		
0168	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	50,201 LF		
0169	4860000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (8")	4,060 LF		
0170	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	500 LF		
0171	4875000000-N	1205	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	25 EA		
0172	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	33 EA		
0173	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	1,447 EA		
0174	5325800000-E	1510	8" WATER LINE	95 LF		
0175	5326200000-E	1510	12" WATER LINE	2,299 LF		
0176	5546000000-E	1515	8" VALVE	1 EA		
0177	5558000000-E	1515	12" VALVE	5 EA		
0178	5571600000-E	1515	6" TAPPING VALVE	3 EA		
0179	5589200000-E	1515	2" AIR RELEASE VALVE	4 EA		

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0180	5648000000-N	1515	RELOCATE WATER METER	48	EA	
0181	5656100000-E	1515	RELOCATE *** RPZ BACKFLOW PRE-VENTION ASSEMBLY (1 1/2")	4	EA	
0182	5656100000-E	1515	RELOCATE *** RPZ BACKFLOW PRE-VENTION ASSEMBLY (1")	1	EA	
0183	5656100000-E	1515	RELOCATE *** RPZ BACKFLOW PRE-VENTION ASSEMBLY (2")	2	EA	
0184	5656100000-E	1515	RELOCATE *** RPZ BACKFLOW PRE-VENTION ASSEMBLY (3/4")	1	EA	
0185	5666000000-E	1515	FIRE HYDRANT	1	EA	
0186	5672000000-N	1515	RELOCATE FIRE HYDRANT	33	EA	
0187	5679200000-E	1515	16" LINE STOP	4	EA	
0188	5691300000-E	1520	8" SANITARY GRAVITY SEWER	257	LF	
0189	5691400000-E	1520	10" SANITARY GRAVITY SEWER	167	LF	
0190	5691500000-E	1520	12" SANITARY GRAVITY SEWER	946	LF	
0191	5709700000-E	1520	16" FORCE MAIN SEWER	9,247	LF	
0192	5768000000-N	1520	SANITARY SEWER CLEAN-OUT	72	EA	
0193	5775000000-E	1525	4' DIA UTILITY MANHOLE	10	EA	
0194	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	106	LF	
0195	5801000000-E	1530	ABANDON 8" UTILITY PIPE	614	LF	
0196	5802000000-E	1530	ABANDON 10" UTILITY PIPE	492	LF	
0197	5804000000-E	1530	ABANDON 12" UTILITY PIPE	1,190	LF	
0198	5810000000-E	1530	ABANDON 16" UTILITY PIPE	3,795	LF	

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0199	5816000000-N	1530	ABANDON UTILITY MANHOLE	5 EA		
0200	5828000000-N	1530	REMOVE UTILITY MANHOLE	5 EA		
0201	5836000000-E	1540	24" ENCASEMENT PIPE	416 LF		
0202	5836200000-E	1540	30" ENCASEMENT PIPE	390 LF		
0203	5871700000-E	1550	TRENCHLESS INSTALLATION OF 12" IN SOIL	120 LF		
0204	5871710000-E	1550	TRENCHLESS INSTALLATION OF 12" NOT IN SOIL	120 LF		
0205	5872200000-E	1550	TRENCHLESS INSTALLATION OF 24" IN SOIL	208 LF		
0206	5872210000-E	1550	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	208 LF		
0207	5872300000-E	1550	TRENCHLESS INSTALLATION OF 30" IN SOIL	195 LF		
0208	5872310000-E	1550	TRENCHLESS INSTALLATION OF 30" NOT IN SOIL	195 LF		
0209	5882000000-N	SP	GENERIC UTILITY ITEM ADJUSTMENT OF WATER METER VAULT TOP	1 EA		
0210	5882000000-N	SP	GENERIC UTILITY ITEM RELOCATE FIRE WATER METER IN VAULT	1 EA		
0211	5882000000-N	SP	GENERIC UTILITY ITEM SUPPORT EXISTING WATER LINE DURING CULVERT INSTALL	1 EA		
0212	6000000000-E	1605	TEMPORARY SILT FENCE	31,600 LF		
0213	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	2,440 TON		
0214	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	7,000 TON		
0215	6012000000-E	1610	SEDIMENT CONTROL STONE	7,000 TON		

County: Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0216	6015000000-E	1615	TEMPORARY MULCHING	55	ACR	
0217	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	3,700	LB	
0218	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	18.5	TON	
0219	6024000000-E	1622	TEMPORARY SLOPE DRAINS	6,080	LF	
0220	6029000000-E	SP	SAFETY FENCE	7,100	LF	
0221	6030000000-E	1630	SILT EXCAVATION	24,820	CY	
0222	6036000000-E	1631	MATTING FOR EROSION CONTROL	52,000	SY	
0223	6037000000-E	SP	COIR FIBER MAT	2,900	SY	
0224	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	1,685	SY	
0225	6042000000-E	1632	1/4" HARDWARE CLOTH	16,660	LF	
0226	6048000000-E	SP	FLOATING TURBIDITY CURTAIN	1,200	SY	
0227	6070000000-N	1639	SPECIAL STILLING BASINS	30	EA	
0228	6071012000-E	SP	COIR FIBER WATTLE	950	LF	
0229	6071020000-E	SP	POLYACRYLAMIDE (PAM)	1,400	LB	
0230	6071030000-E	1640	COIR FIBER BAFFLE	6,455	LF	
0231	6071050000-E	SP	*** SKIMMER (1-1/2")	35	EA	
0232	6071050000-E	SP	*** SKIMMER (2")	4	EA	
0233	6071050000-E	SP	*** SKIMMER (2-1/2")	2	EA	
0234	6084000000-E	1660	SEEDING & MULCHING	55	ACR	

County: Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0235	6087000000-E	1660	MOWING	27		ACR
0236	6090000000-E	1661	SEED FOR REPAIR SEEDING	700		LB
0237	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	2.5		TON
0238	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	1,425		LB
0239	6108000000-E	1665	FERTILIZER TOPDRESSING	42.5		TON
0240	6111000000-E	SP	IMPERVIOUS DIKE	75		LF
0241	6114500000-N	1667	SPECIALIZED HAND MOWING	30		MHR
0242	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	100		EA
0243	6120000000-E	SP	CULVERT DIVERSION CHANNEL	52		CY
0244	6123000000-E	1670	REFORESTATION	5		ACR
0245	6126000000-E	SP	STREAMBANK REFORESTATION	1.85		ACR
0246	7048500000-E	1705	PEDESTRIAN SIGNAL HEAD (16", 1 SECTION W/COUNTDOWN)	40		EA
0247	7060000000-E	1705	SIGNAL CABLE	24,975		LF
0248	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	107		EA
0249	7132000000-E	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	11		EA
0250	7144000000-E	1705	VEHICLE SIGNAL HEAD (12", 5 SECTION)	16		EA
0251	7252000000-E	1710	MESSENGER CABLE (1/4")	19,300		LF
0252	7264000000-E	1710	MESSENGER CABLE (3/8")	5,300		LF
0253	7279000000-E	1715	TRACER WIRE	730		LF

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0254	7300000000-E	1715	UNPAVED TRENCHING (*****) (1, 2")	4,890 LF		
0255	7300000000-E	1715	UNPAVED TRENCHING (*****) (2, 2")	500 LF		
0256	7300100000-E	1715	UNPAVED TRENCHING FOR TEMP- ORARY LEAD-IN	4,525 LF		
0257	7301000000-E	1715	DIRECTIONAL DRILL (*****) (2, 2")	430 LF		
0258	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	55 EA		
0259	7348000000-N	1716	JUNCTION BOX (OVER-SIZED, HEA- VY DUTY)	12 EA		
0260	7360000000-N	1720	WOOD POLE	14 EA		
0261	7372000000-N	1721	GUY ASSEMBLY	47 EA		
0262	7408000000-E	1722	1" RISER WITH WEATHERHEAD	4 EA		
0263	7420000000-E	1722	2" RISER WITH WEATHERHEAD	29 EA		
0264	7430000000-N	1722	HEAT SHRINK TUBING RETROFIT KIT	1 EA		
0265	7444000000-E	1725	INDUCTIVE LOOP SAWCUT	20,175 LF		
0266	7456000000-E	1726	LEAD-IN CABLE (*****) (14-2)	42,255 LF		
0267	7516000000-E	1730	COMMUNICATIONS CABLE (**FIBER) (48)	21,550 LF		
0268	7528000000-E	1730	DROP CABLE	1,150 LF		
0269	7540000000-N	1731	SPLICE ENCLOSURE	7 EA		
0270	7552000000-N	1731	INTERCONNECT CENTER	7 EA		
0271	7564000000-N	1732	FIBER-OPTIC TRANSCEIVER, DROP & REPEAT	7 EA		

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0272	7566000000-N	1733	DELINEATOR MARKER	10 EA		
0273	7575160000-E	1734	REMOVE EXISTING COMMUNICATIONS CABLE	18,575 LF		
0274	7575180000-N	1735	CABLE TRANSFER	3 EA		
0275	7576000000-N	SP	METAL STRAIN SIGNAL POLE	28 EA		
0276	7588000000-N	SP	METAL POLE WITH SINGLE MAST ARM	2 EA		
0277	7613000000-N	SP	SOIL TEST	30 EA		
0278	7614100000-E	SP	DRILLED PIER FOUNDATION	180 CY		
0279	7631000000-N	SP	MAST ARM WITH METAL POLE DE-SIGN	2 EA		
0280	7636000000-N	1745	SIGN FOR SIGNALS	18 EA		
0281	7642100000-N	1743	TYPE I POST WITH FOUNDATION	18 EA		
0282	7642200000-N	1743	TYPE II PEDESTAL WITH FOUNDATION	19 EA		
0283	7684000000-N	1750	SIGNAL CABINET FOUNDATION	7 EA		
0284	7756000000-N	1751	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	7 EA		
0285	7780000000-N	1751	DETECTOR CARD (TYPE 2070L)	42 EA		
0286	7901000000-N	1753	CABINET BASE EXTENDER	7 EA		
0287	7980000000-N	SP	GENERIC SIGNAL ITEM MICROWAVE VEHICLE DETECTION SYSTEM - MULTIPLE ZONE	1 EA		
0288	7980000000-N	SP	GENERIC SIGNAL ITEM MICROWAVE VEHICLE DETECTOR- SINGLE ZONE	1 EA		
0289	7990000000-E	SP	GENERIC SIGNAL ITEM BACK PULL FIBER OPTIC CABLE	2,050 LF		

County: Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0330	2619000000-E	850	4" CONCRETE PAVED DITCH	83		SY

CULVERT ITEMS

0290	8126000000-N	414	CULVERT EXCAVATION, STA ***** (266+36.00 -L-)	Lump Sum	L.S.	
0291	8133000000-E	414	FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	105		TON
0292	8196000000-E	420	CLASS A CONCRETE (CULVERT)	146.6		CY
0293	8245000000-E	425	REINFORCING STEEL (CULVERT)	20,800		LB

WALL ITEMS

0294	8801000000-E	SP	MSE RETAINING WALL NO **** (1)	1,870		SF
0295	8801000000-E	SP	MSE RETAINING WALL NO **** (2)	680		SF
0296	8801000000-E	SP	MSE RETAINING WALL NO **** (6)	385		SF
0297	8802014000-E	SP	SOLDIER PILE RETAINING WALLS	830		SF
0298	8802030000-E	SP	SEGMENTAL GRAVITY RETAINING WALLS	150		SF

STRUCTURE ITEMS

0299	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (238+33.00 -L-)	Lump Sum	L.S.	
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County : Guilford

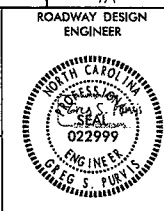
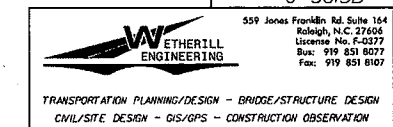
Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0300	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (238+33.00 -L-)	Lump Sum	L.S.	
0301	8096000000-E	450	PILE EXCAVATION IN SOIL	1,466 LF		
0302	8097000000-E	450	PILE EXCAVATION NOT IN SOIL	179 LF		
0303	8105540000-E	411	3'-6" DIA DRILLED PIERS IN SOIL	207 LF		
0304	8105640000-E	411	3'-6" DIA DRILLED PIERS NOT IN SOIL	75 LF		
0305	8111400000-E	411	PERMANENT STEEL CASING FOR 3'-6" DIA DRILLED PIER	209.8 LF		
0306	8113000000-N	411	SID INSPECTIONS	2 EA		
0307	8115000000-N	411	CSL TESTING	2 EA		
0308	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (238+33.00 -L-)	Lump Sum	L.S.	
0309	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	20,702 SF		
0310	8156000000-E	SP	CONCRETE WEARING SURFACE	8,310 SF		
0311	8161000000-E	420	GROOVING BRIDGE FLOORS	28,401 SF		
0312	8175000000-E	420	CLASS AA CONCRETE (BRIDGE)	82.3 CY		
0313	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	421.1 CY		
0314	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (233+87.56 -L- LT LN)	Lump Sum	L.S.	
0315	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (233+87.56 -L- RT LN)	Lump Sum	L.S.	
0316	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (238+33.00 -L-)	Lump Sum	L.S.	

County : Guilford

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0317	8217000000-E	425	REINFORCING STEEL (BRIDGE)	71,811 LB		
0318	8224000000-E	425	EPOXY COATED REINFORCING STEEL (BRIDGE)	3,359 LB		
0319	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	7,857 LB		
0320	8265000000-E	430	54" PRESTRESSED CONCRETE GIRDERS	2,478 LF		
0321	8364000000-E	450	HP12X53 STEEL PILES	1,850 LF		
0322	8391000000-N	450	STEEL PILE POINTS	28 EA		
0323	8482000000-E	460	THREE BAR METAL RAIL	603.46 LF		
0324	8503000000-E	460	CONCRETE BARRIER RAIL	219.2 LF		
0325	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	775 TON		
0326	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	850 SY		
0327	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	
0328	8748000000-E	SP	SELECT MATERIAL, CLASS ** (V)	13.3 TON		
0329	8753200000-E	430	3'-0" X 3'-3" PRESTRESSED CONC BOX BEAMS	3,388 LF		

1512/Jan08/Q1897556.97/D1529213506000/E330

Total Amount Of Bid For Entire Project :



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOL SHEET
1C-1 THRU 1C-5	SURVEY CONTROL SHEETS
2A-1 THRU 2A-5	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-3	INTERSECTION DETAIL SHEETS
2B-4 THRU 2B-9	TEMPORARY ALIGNMENT DETAIL SHEETS
2C-1	2'-9" CONCRETE CURB & GUTTER DETAIL SHEET
2C-2 THRU 2C-3	REINFORCED CONCRETE ENDWALL DETAIL SHEETS
2C-4	MODIFIED CONCRETE FLUME DETAIL SHEET
2C-5	DETAIL OF 2'-9" TO 2'-6" CURB & GUTTER TRANSITION SECTION
2C-6	STRUCTURAL ANCHOR UNITS, GUARDRAIL ANCHOR UNIT, TYPE III
2C-7	STRUCTURAL ANCHOR UNITS, GUARDRAIL ANCHOR UNIT, TYPE B-77
2C-8	CHAIN LINK FENCE WITH BARBED WIRE 6', 7' AND 8' HEIGHT
2C-9	DETAIL TO CONVERT EXISTING D1, CB, OTCB OR GI TO JUNCTION BOX
2C-10	DETAIL OF 1'-6" TO 2'-9" CURB & GUTTER TRANSITION SECTION
2C-11	SPECIAL JUNCTION BOX DETAIL
2C-12	CURB RAMPS
2D-1 THRU 2D-4	DRAINAGE DETAIL SHEETS
2C-1	ROCK EMBANKMENT AND ROCK PLATING DETAILS
2C-2	STANDARD TEMPORARY SHORING, STD. 1801.01
2C-3 THRU 2C-5	STANDARD TEMPORARY WALL, STD. 1801.02
2H-1	STOCKPILE CONTAINMENT DETAIL
3B-1	EARTHWORK SUMMARY
3B-2	GUARDRAIL SUMMARY
3B-3	SUMMARY OF ASPHALT REMOVAL, SUMMARY OF ASPHALT BREAKING, SUMMARY OF FENCE
3D-1 THRU 3D-18	SUMMARY OF DRAINAGE QUANTITIES
3G-1	GEOTECHNICAL SUMMARY TABLES
3P-1	PARCEL INDEX SHEET
4 THRU 17	PLAN SHEETS
18 THRU 28	PROFILE SHEETS
NS-1 THRU NS-10	NATURAL STREAM DESIGN
TMP-1 THRU TMP-7N	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-21	PAVEMENT MARKING PLANS
EC-1 THRU EC-33	EROSION CONTROL PLANS
RF-1 THRU RF-3	REFORESTATION PLANS
SIGN-1 THRU SIGN-10	SIGNING PLANS
SIG-1 THRU SIG-26.5	SIGNAL PLANS
SIG-M1 THRU SIG-M9	SIGNAL PLANS
SIG-P1 THRU SIG-P3	SIGNAL PLANS
SCP-1 THRU SCP-23	SIGNAL PLANS
UC-1 THRU UC-23	UTILITIES CONSTRUCTION PLANS
UD-1 THRU UD-17	UTILITIES BY OTHERS PLANS
X-1	CROSS SECTION INDEX
X-1A THRU X-1G	CROSS SECTION SUMMARY SHEETS
X-2 THRU X-93	CROSS-SECTIONS
S-1 THRU S-91	STRUCTURE PLANS
C-1 THRU C-7	CULVERT PLANS
W-1 THRU W-9	RETAINING WALL PLANS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

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 11.

SUPERELEVATION:
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04. 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.

BERM DITCHES:
BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

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' RADIUS OR RADIUS 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 RADIUS 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 CONTRACT PRICE FOR "TEMPORARY SHORING".

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

UTILITIES:
DUKE ENERGY, NORTH STATE COMMUNICATIONS, TIME WARNER CABLE, COLONIAL PIPELINE COMPANY, PIEDMONT NATURAL GAS, PLANTATION PIPELINE/KINDER-MORGAN, CITY OF HIGH POINT (POWER DISTRIBUTION & TRANSMISSION) & (WATER & SEWER), LEVEL 3 COMMUNICATIONS.

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

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

CURB RAMPS
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

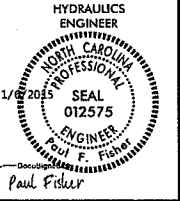
LIST OF ROADWAY STANDARD DRAWINGS

EFF. 01-17-2012
REV. 10-30-2012

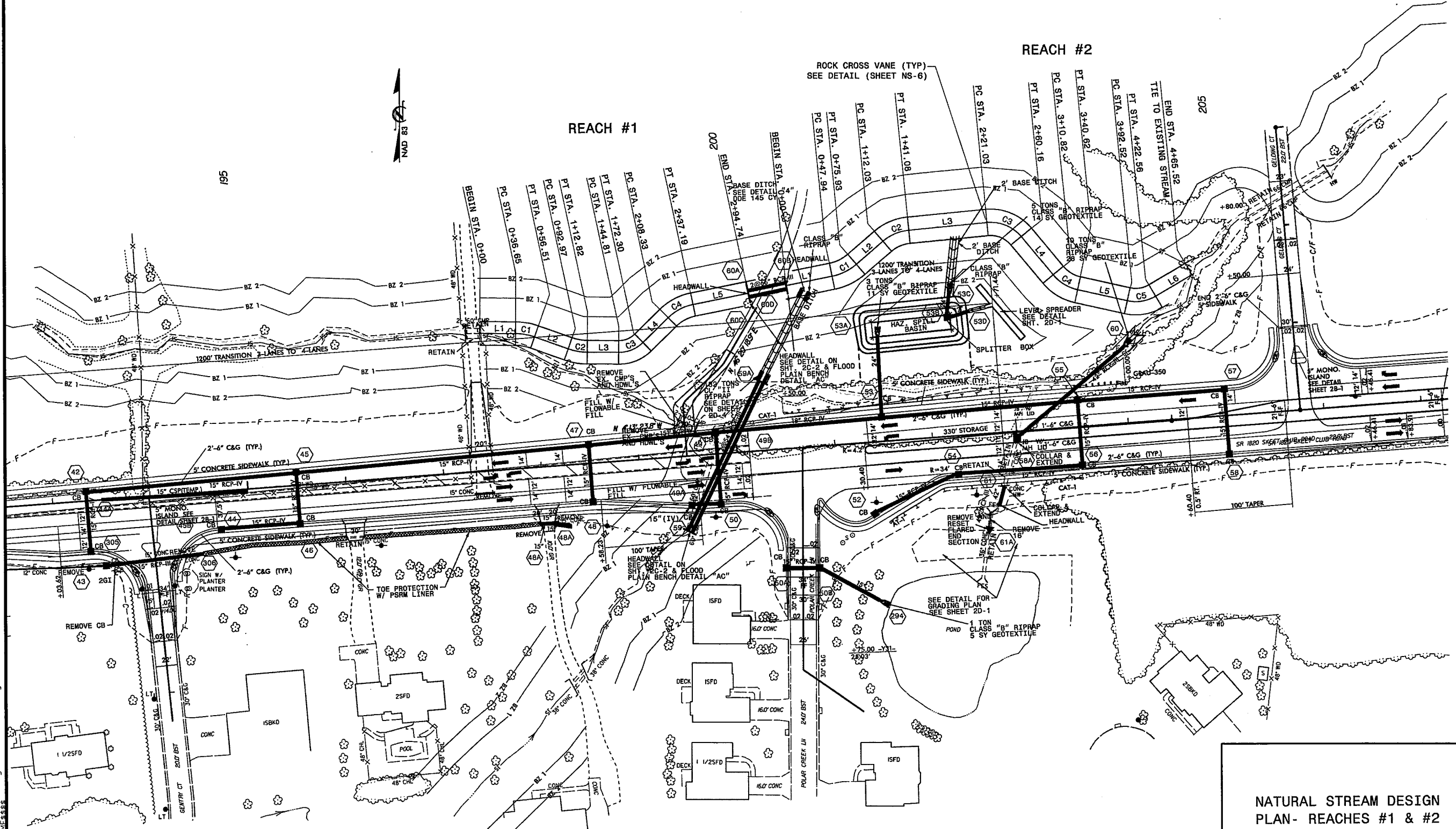
2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
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	
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.02	Concrete Endwall and Sluice Gate - 15" thru 36" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
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
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
850.11	Guide for Berm Drainage Outlet - 24" and 30" Pipe
852.01	Concrete Islands
852.02	Concrete Mountable Median - for Use with Rigid or Flexible Pavement
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
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



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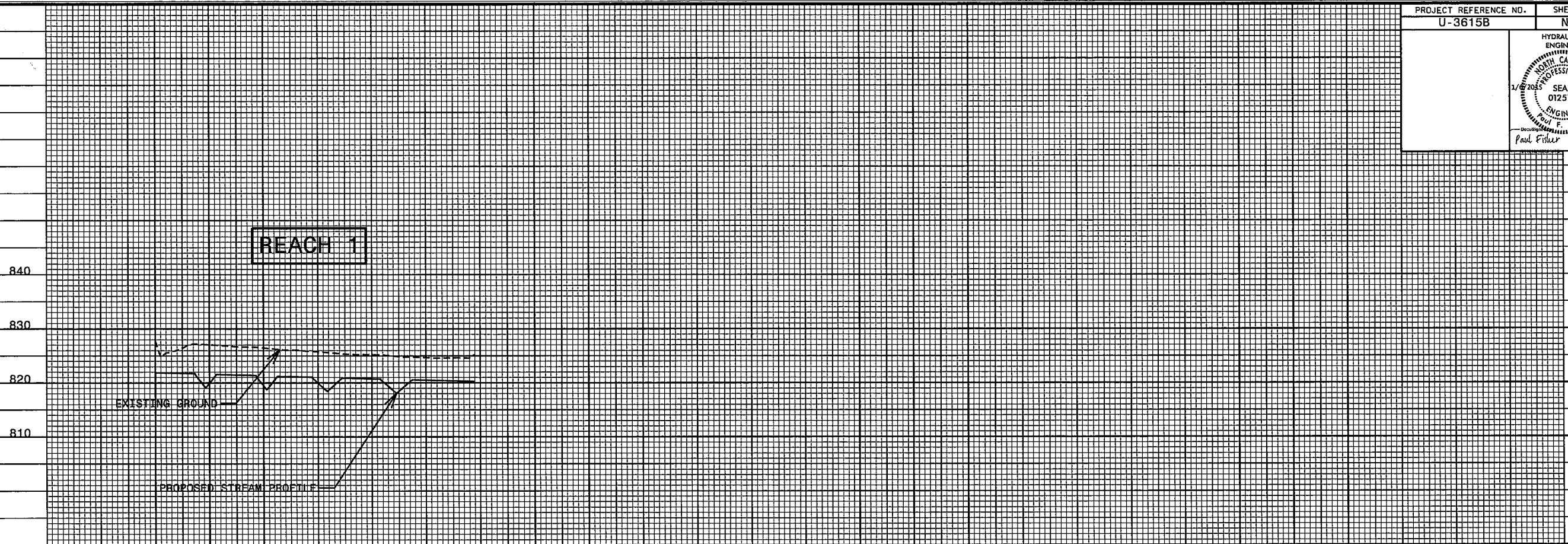
REACHES #1 & #2

NATURAL STREAM DESIGN
 PLAN- REACHES #1 & #2

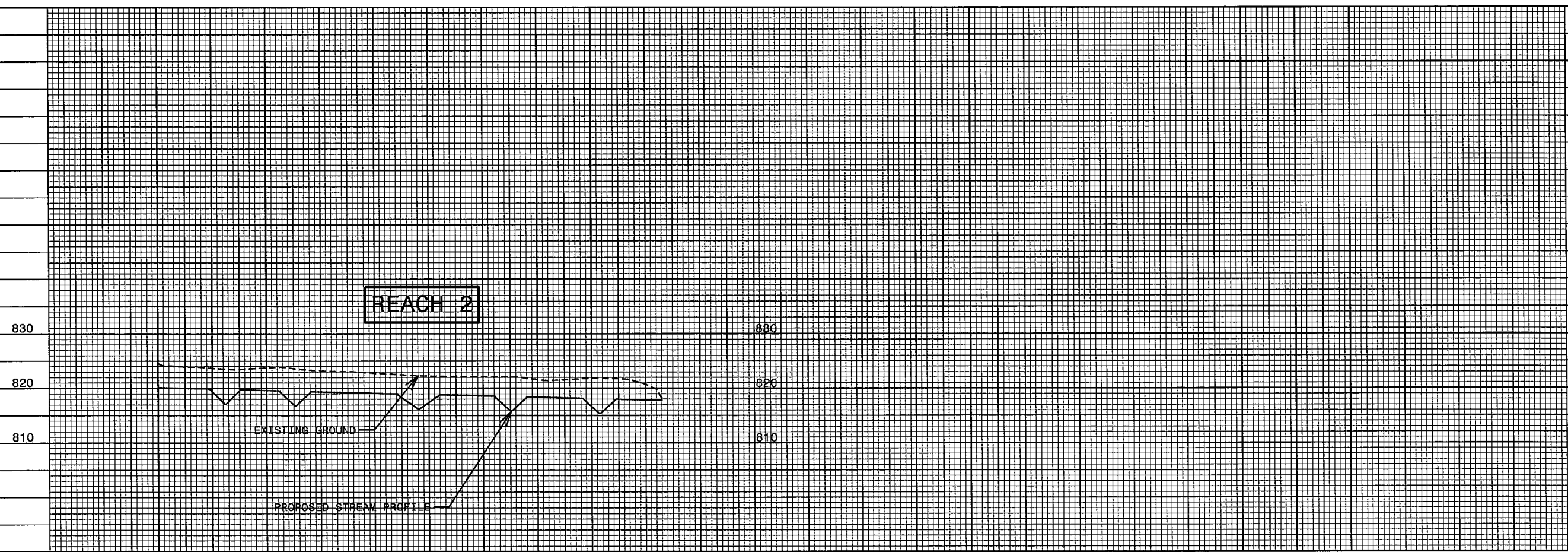
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PROJECT REFERENCE NO. U-3615B	SHEET NO. NS-2

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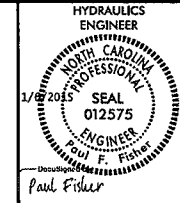


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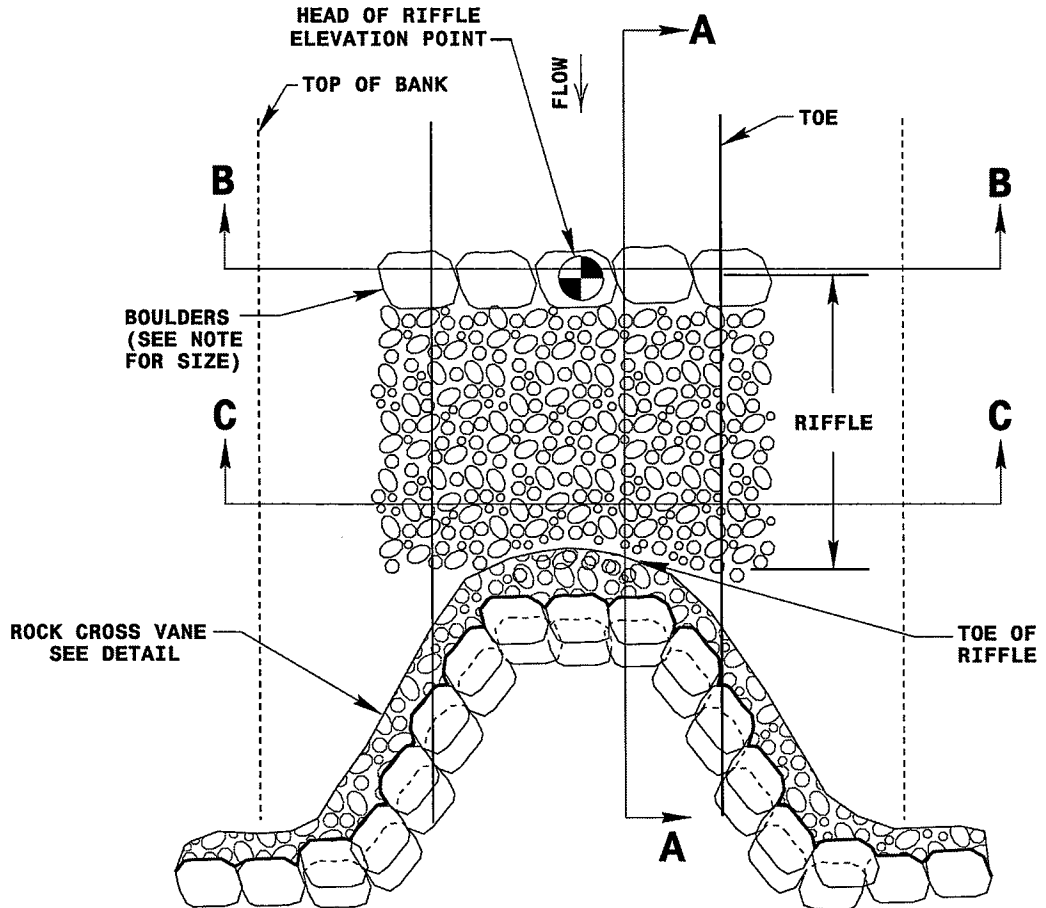
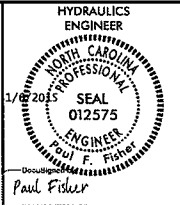
PROJECT REFERENCE NO. U-3615B	SHEET NO. NS-3
RAW SHEET NO.	



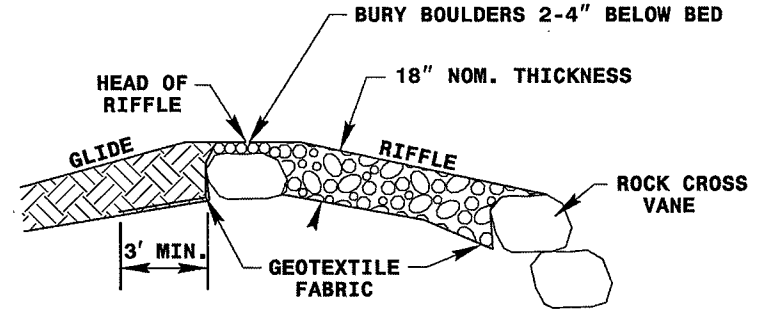
MORPHOLOGICAL MEASUREMENT TABLE- APPENDIX B

	VARIABLE	UNITS	REACH #1	REACH #2	REFERENCE REACH
1	STREAM TYPE	-	B4c/1	B4c/1	B4c/1
2	DRAINAGE AREA	sq. mi.	0.41	0.58	3.3
3	BANKFULL WIDTH	ft.	12.3	13.4	25.6
4	BANKFULL MEAN DEPTH	ft.	0.97	1.07	1.7
5	WIDTH/DEPTH RATIO	-	12.7	12.5	15.1
6	BANKFULL X-SECTIONAL AREA	s.f.	11.9	14.4	43.3
7	BANKFULL MEAN VELOCITY	fps	2.5	2.7	4.6
8	BANKFULL DISCHARGE	cfs	30	39	199
9	BANKFULL MAX. DEPTH	ft.	1.2	1.35	3.0
10	WIDTH of FLOODPRONE AREA	ft.	24.3	26.9	36.6
11	ENTRENCHMENT RATIO	-	2.0	2.0	1.4
12	MEANDER LENGTH	ft.	105	174	170
13	RATIO of MEANDER LENGTH to BANKFULL WIDTH	-	8.5	13.0	6.6
14	RADIUS of CURVATURE (MIN. C/L)	ft.	35	40	41
15	RATIO of RADIUS of CURVATURE to BANKFULL WIDTH	-	2.8	3.0	1.6
16	BELT WIDTH (AVG)	ft.	36.5	47.5	43.7
17	MEANDER WIDTH RATIO	-	3.0	3.5	1.7
18	SINUOSITY	-	1.02	1.03	1.07
19	VALLEY (WS) SLOPE	ft./ft.	0.0057	0.0053	0.0088
20	AVERAGE (WS) SLOPE	ft./ft.	0.0056	0.0051	0.0082
21	POOL (WS) SLOPE	ft./ft.	0.0003	0.0003	0.0004
22	RATIO of POOL SLOPE to AVERAGE SLOPE	-	0.05	0.06	0.05
23	MAXIMUM POOL DEPTH	ft.	2.5	2.8	4.5
24	RATIO of MAX. POOL DEPTH to AVERAGE BANKFULL DEPTH	-	2.58	2.62	2.65
25	AVERAGE POOL WIDTH (at BANKFULL HEIGHT)	ft.	12.5	14.0	25.9
26	RATIO of POOL WIDTH to BANKFULL WIDTH	-	1.02	1.04	1.01
27	POOL-to-POOL SPACING	ft.	58.7	86.4	62.4
28	RATIO of POOL-to-POOL SPACING to BANKFULL WIDTH	-	4.8	6.4	2.4
29	RATIO of LOWEST BANK HEIGHT to BANKFULL HEIGHT	-	1.0	1.0	2.1
a	STREAM LENGTH	ft.	295	465	348
b	VALLEY LENGTH	ft.	290	450	325
c	LOWEST BANK HEIGHT	ft.	1.0	1.1	3.6

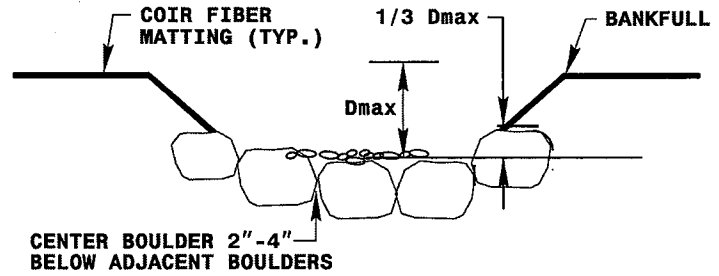
**NATURAL STREAM DESIGN
APPENDIX B**



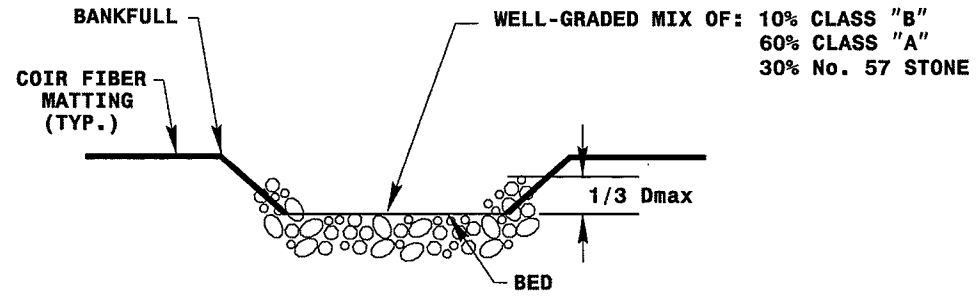
PLAN VIEW



SECTION A-A



SECTION B-B



SECTION C-C

REACH	NO. RIFFLES	ESTIMATED QUANTITIES					
		#57 STONE	CL. A RIP RAP	CL. B RIP RAP	# BLDRS.	WT. BLDRS.	GEOTEXTILE FABRIC
1	5	45 TONS	75 TONS	13 TONS	20	15 TONS	20 S.Y.
2	6	80 TONS	130 TONS	22 TONS	25	20 TONS	25 S.Y.
TOTAL	11	125 TONS	205 TONS	35 TONS	45	35 TONS	45 S.Y.

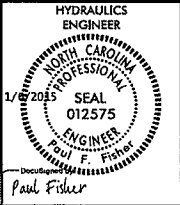
CONSTRUCTED RIFFLE DETAIL

NOT TO SCALE

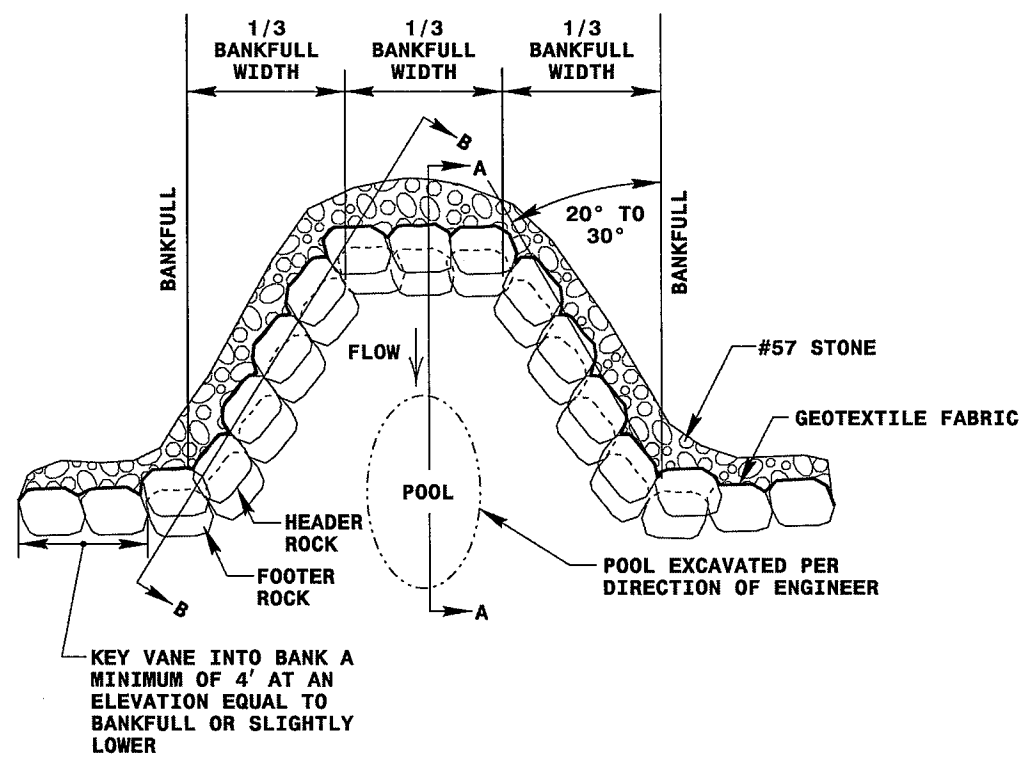
NOTE:
 1. BOULDERS SHOULD BE NATIVE STONES OR SHOT ROCK, ANGULAR AND OBLONG, WITH AXES APPROXIMATELY (3'L x 2'W x 1.5'D).
 2. SEE CHANNEL TYPICAL DETAIL FOR RIFFLE DIMENSIONS.

**NATURAL STREAM DESIGN
 CONSTRUCTED RIFFLE DETAIL**

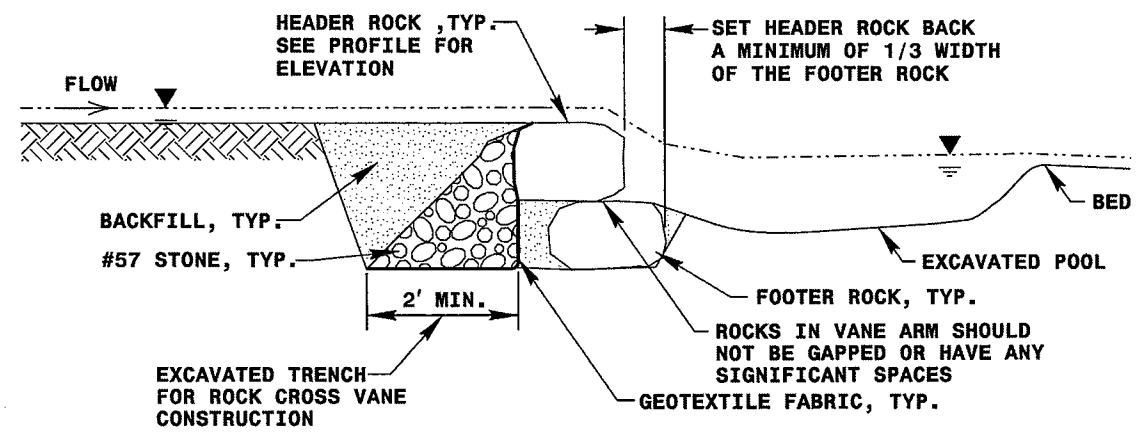
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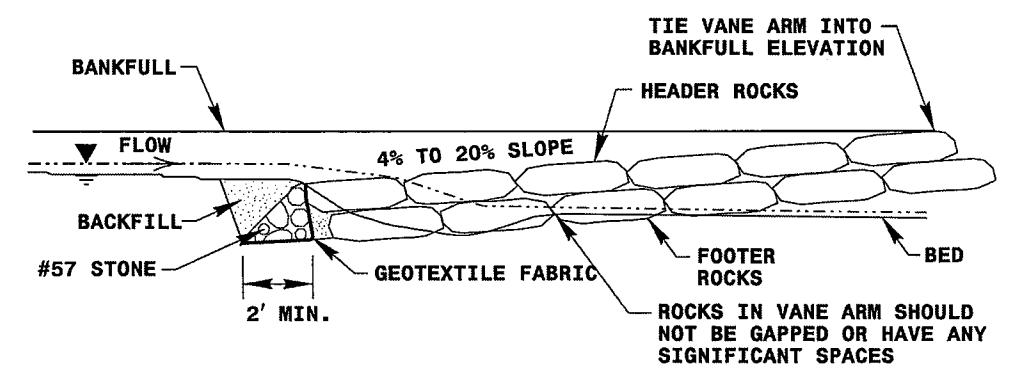
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PLAN VIEW



SECTION A-A



SECTION B-B

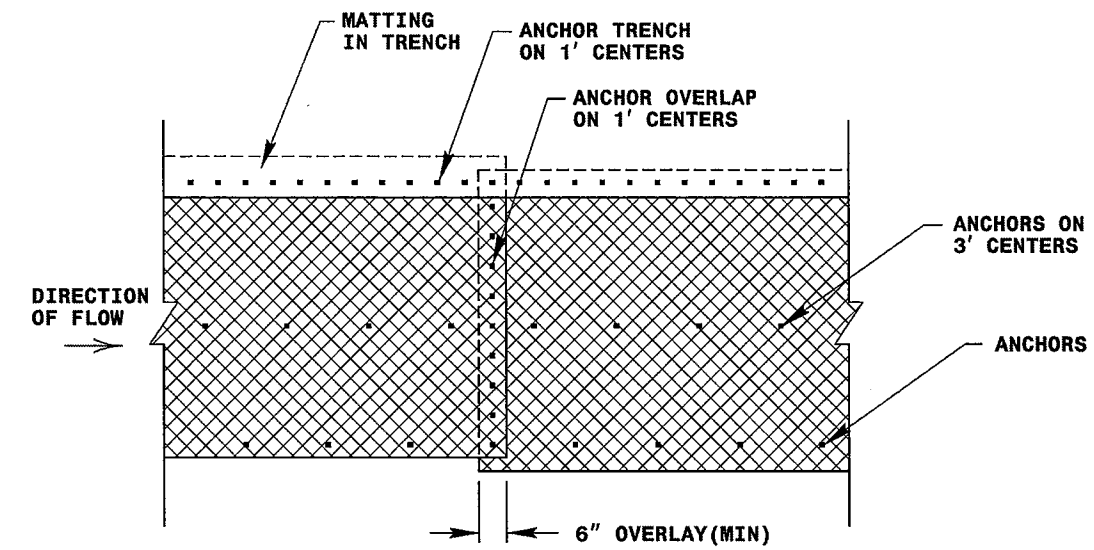
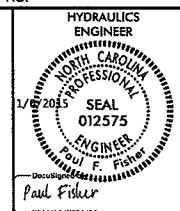
REACH	NO. STRUCTURES	BOULDER DIMENSIONS (FT)			ESTIMATED QUANTITIES			
		HEIGHT	LENGTH	WIDTH	# BLDRS.	WT. BLDRS.	#57 STONE	GEOTEXTILE FABRIC
1	4	1.5'	3'	2'	75	60 TONS	30 TONS	120 S.Y.
2	5	1.5'	3'	2'	90	70 TONS	40 TONS	150 S.Y.
TOTAL	9	1.5'	3'	2'	165	130 TONS	70 TONS	270 S.Y.

- NOTES:**
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
 2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
 3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
 4. COMPACT BANKFULL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
 5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

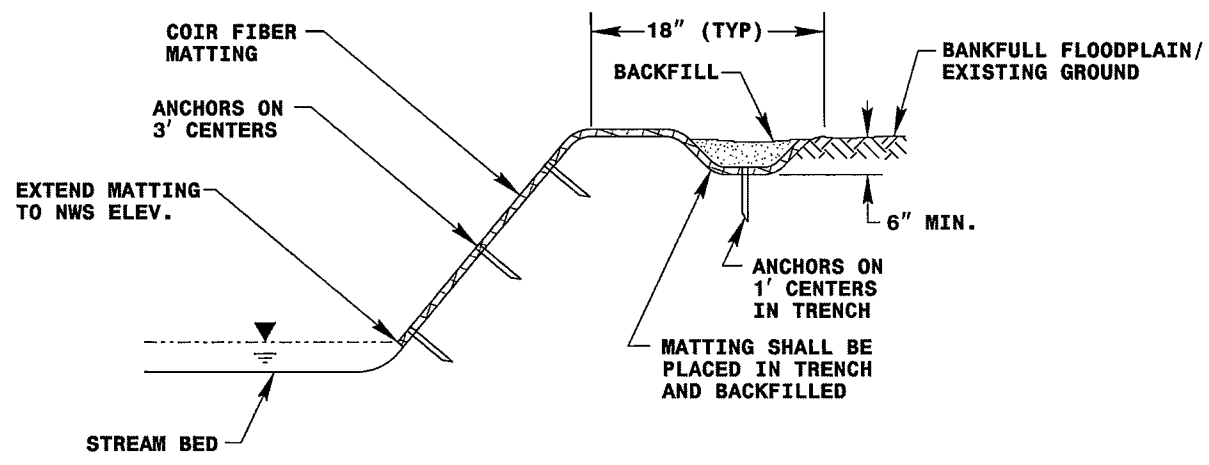
ROCK CROSS VANE DETAIL

NOT TO SCALE

NATURAL STREAM DESIGN
ROCK CROSS VANE DETAIL

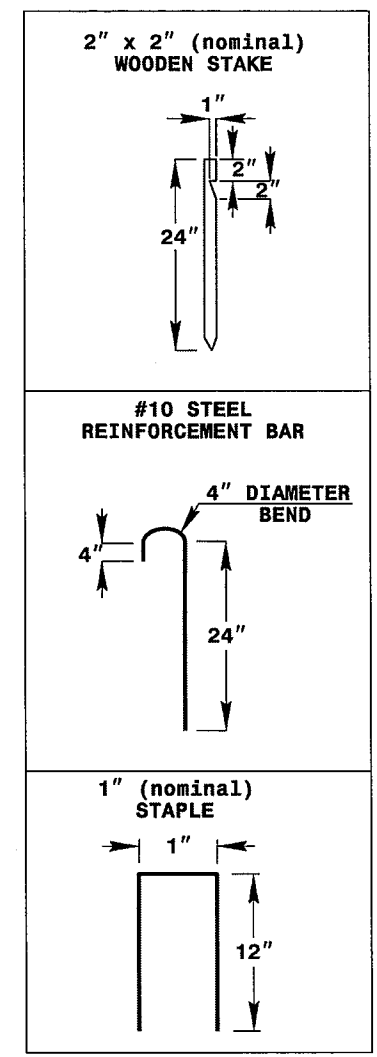


PLAN VIEW



TYPICAL CROSS SECTION

ESTIMATED QUANTITIES	
REACH	COIR FIBER MATTING
1	900 S.Y.
2	1400 S.Y.
TOTAL	2300 S.Y.



ANCHOR OPTIONS

- NOTES:**
1. IN AREAS TO BE MATTED, ALL SEEDING, SOIL AMENDMENTS, AND SOIL PREPARATION MUST BE COMPLETED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS PRIOR TO PLACEMENT OF COIR FIBER MATTING.
 2. REBAR OR STAPLES MAY BE USED IN PLACE OF WOODEN STAKES AS DIRECTED BY THE ENGINEER.

COIR FIBER MATTING DETAIL

NOT TO SCALE

NATURAL STREAM DESIGN
COIR FIBER MATTING DETAIL

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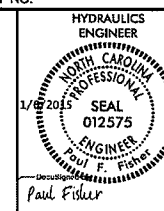
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PROJECT REFERENCE NO. U-3615B	SHEET NO. NS-8
RW SHEET NO.	

PROPOSED STREAM CENTERLINE TRAVERSE:

REACH #1



Point PT1 N 834,349.4817 E 1,700,064.2386, Sta. 0+00.00

Note: PT1 may need to be adjusted to invert out of existing pipes.

Course from PT1 to PC Curve #1, S 89° 31' 53.68" E, Distance 36.6520

Curve #1 Data:

P.I. Station 0+46.67 N 834,349.1001 E 1,700,110.9083
Delta = 18° 57' 37.89" (RT)
Degree = 95° 29' 34.68"
Tangent = 10.0193
Length = 19.8554
Radius = 60.0000
External = 0.8308
Long Chord = 19.7649
Mid. Ord. = 0.8195
P.C. Station 0+36.65 N 834,349.1820 E 1,700,100.8893
P.T. Station 0+56.51 N 834,345.7673 E 1,700,120.3571
C.C. = N 834,289.1840 E 1,700,100.3988
Back = S 89° 31' 53.68" E
Ahead = S 70° 34' 15.79" E
Chord Bear = S 80° 03' 04.73" E

Course from PT Curve #1 to PC Curve #2, S 70° 34' 15.79" E, Distance 36.4614

Curve #2 Data:

P.I. Station 1+02.99 N 834,330.3061 E 1,700,164.1909
Delta = 18° 57' 37.89" (LT)
Degree = 95° 29' 34.68"
Tangent = 10.0193
Length = 19.8554
Radius = 60.0000
External = 0.8308
Long Chord = 19.7649
Mid. Ord. = 0.8195
P.C. Station 0+92.97 N 834,333.6389 E 1,700,154.7421
P.T. Station 1+12.82 N 834,330.2242 E 1,700,174.2099
C.C. = N 834,390.2222 E 1,700,174.7004
Back = S 70° 34' 15.79" E
Ahead = S 89° 31' 53.68" E
Chord Bear = S 80° 03' 04.73" E

Course from PT Curve #2 to PC Curve #3, S 89° 31' 53.68" E, Distance 31.9832

Curve #3 Data:

P.I. Station 1+59.30 N 834,329.8442 E 1,700,220.6890
Delta = 45° 00' 00.00" (LT)
Degree = 163° 42' 08.02"
Tangent = 14.4975
Length = 27.4889
Radius = 35.0000
External = 2.8837
Long Chord = 26.7878
Mid. Ord. = 2.6642
P.C. Station 1+44.81 N 834,329.9627 E 1,700,206.1920
P.T. Station 1+72.30 N 834,340.0113 E 1,700,231.0237
C.C. = N 834,364.9615 E 1,700,206.4782
Back = S 89° 31' 53.68" E
Ahead = N 45° 28' 06.32" E
Chord Bear = N 67° 58' 06.32" E

Course from PT Curve #3 to PC Curve #4, N 45° 28' 06.32" E, Distance 36.0340

Curve #4 Data:

P.I. Station 2+23.17 N 834,375.6910 E 1,700,267.2916
Delta = 33° 04' 00.01" (RT)
Degree = 114° 35' 29.61"
Tangent = 14.8423
Length = 28.8561
Radius = 50.0000
External = 2.1564
Long Chord = 28.4573
Mid. Ord. = 2.0673
P.C. Station 2+08.33 N 834,365.2820 E 1,700,256.7111
P.T. Station 2+37.19 N 834,378.6411 E 1,700,281.8378
C.C. = N 834,329.6388 E 1,700,291.7762
Back = N 45° 28' 06.32" E
Ahead = N 78° 32' 06.33" E
Chord Bear = N 62° 00' 06.32" E

Course from PT Curve #4 to PT2, N 78° 32' 06.33" E, Distance 57.5539

Point PT2 N 834,390.0810 E 1,700,338.2433, Sta. 2+94.74

Note: PT2 may need to be adjusted to invert in of proposed pipes.

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NATURAL STREAM DESIGN
CENTERLINE TRAVERSE- REACH #1

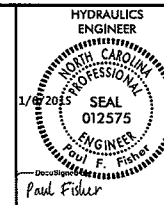
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PROJECT REFERENCE NO.	SHEET NO.
U-3615B	NS-9
RW SHEET NO.	

PROPOSED STREAM CENTERLINE TRAVERSE:

REACH #2



Point PT1 N 834,397.8948 E 1,700,376.7701, Sta. 0+00.00

Note: PT1 may need to be adjusted to invert out of proposed pipes.

Course from PT1 to PC Curve #1, N 78° 32' 06.33" E, Distance 47.9406

Curve #1 Data:

P.I. Station 0+62.25 N 834,410.2673 E 1,700,437.7739
Delta = 29° 09' 31.48" (LT)
Degree = 104° 10' 26.92"
Tangent = 14.3053
Length = 27.9904
Radius = 55.0000
External = 1.8299
Long Chord = 27.6893
Mid. Ord. = 1.7710
P.C. Station = 0+47.94 N 834,407.4238 E 1,700,423.7541
P.T. Station = 0+75.93 N 834,419.5813 E 1,700,448.6317
C.C. = N 834,461.3264 E 1,700,412.8219
Back = N 78° 32' 06.33" E
Ahead = N 49° 22' 34.85" E
Chord Bear = N 63° 57' 20.59" E

Course from PT Curve #1 to PC Curve #2, N 49° 22' 34.85" E, Distance 36.0996

Curve #2 Data:

P.I. Station 1+27.02 N 834,452.8467 E 1,700,487.4107
Delta = 35° 02' 04.45" (RT)
Degree = 120° 37' 21.70"
Tangent = 14.9924
Length = 29.0448
Radius = 47.5000
External = 2.3099
Long Chord = 28.5944
Mid. Ord. = 2.2028
P.C. Station = 1+12.03 N 834,443.0853 E 1,700,476.0314
P.T. Station = 1+41.08 N 834,454.3068 E 1,700,502.3319
C.C. = N 834,407.0327 E 1,700,506.9581
Back = N 49° 22' 34.85" E
Ahead = N 84° 24' 39.29" E
Chord Bear = N 66° 53' 37.07" E

Course from PT Curve #2 to PC Curve #3, N 84° 24' 39.29" E, Distance 79.9529

Curve #3 Data:

P.I. Station 2+42.32 N 834,464.1675 E 1,700,603.0961
Delta = 56° 03' 15.32" (RT)
Degree = 143° 14' 22.02"
Tangent = 21.2927
Length = 39.1333
Radius = 40.0000
External = 5.3142
Long Chord = 37.5912
Mid. Ord. = 4.6910
P.C. Station = 2+21.03 N 834,462.0937 E 1,700,581.9047
P.T. Station = 2+60.16 N 834,447.7458 E 1,700,616.6499
C.C. = N 834,422.2839 E 1,700,585.8004
Back = N 84° 24' 39.29" E
Ahead = S 39° 32' 05.38" E
Chord Bear = S 67° 33' 43.05" E

Course from PT Curve #3 to PC Curve #4, S 39° 32' 05.38" E, Distance 50.6630

Curve #4 Data:

P.I. Station 3+26.29 N 834,396.7447 E 1,700,658.7440
Delta = 37° 56' 03.32" (LT)
Degree = 127° 19' 26.24"
Tangent = 15.4659
Length = 29.7935
Radius = 45.0000
External = 2.5835
Long Chord = 29.2523
Mid. Ord. = 2.4433
P.C. Station = 3+10.82 N 834,408.6725 E 1,700,648.8993
P.T. Station = 3+40.62 N 834,393.3891 E 1,700,673.8415
C.C. = N 834,437.3172 E 1,700,683.6050
Back = S 39° 32' 05.38" E
Ahead = S 77° 28' 08.71" E
Chord Bear = S 58° 30' 07.05" E

Course from PT Curve #4 to PC Curve #5, S 77° 28' 08.71" E, Distance 51.9048

Curve #5 Data:

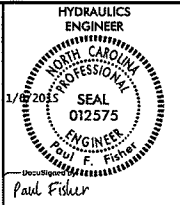
P.I. Station 4+08.29 N 834,378.7065 E 1,700,739.9018
Delta = 43° 01' 39.13" (LT)
Degree = 143° 14' 22.02"
Tangent = 15.7675
Length = 30.0389
Radius = 40.0000
External = 2.9955
Long Chord = 29.3380
Mid. Ord. = 2.7868
P.C. Station = 3+92.52 N 834,382.1275 E 1,700,724.5099
P.T. Station = 4+22.56 N 834,386.7083 E 1,700,753.4880
C.C. = N 834,421.1747 E 1,700,733.1885
Back = S 77° 28' 08.71" E
Ahead = N 59° 30' 12.16" E
Chord Bear = N 81° 01' 01.73" E

Course from PT Curve #5 to PT2, N 59° 30' 12.16" E, Distance 42.9544

Point PT2 N 834,408.5071 E 1,700,790.5001, Sta. 4+65.52

Note: PT2 may need to be adjusted to match invert of existing stream.

NATURAL STREAM DESIGN
CENTERLINE TRAVERSE- REACH #2



REACH #1- PROFILE DATA TABLE

STATION	ELEVATION	DESCRIPTION
0+00.00	821.90	INVERT OUT
0+36.65	821.72	TOE OF RIFFLE (HIGH POINT)
0+46.58	819.06	POOL
0+56.51	821.56	HEAD OF RIFFLE
0+92.97	821.38	TOE OF RIFFLE (HIGH POINT)
1+02.90	818.72	POOL
1+12.82	821.22	HEAD OF RIFFLE
1+44.81	821.06	TOE OF RIFFLE (HIGH POINT)
1+58.56	818.40	POOL
1+72.30	820.89	HEAD OF RIFFLE
2+08.33	820.71	TOE OF RIFFLE (HIGH POINT)
2+22.76	818.06	POOL
2+37.19	820.55	HEAD OF RIFFLE
2+94.74	820.26	INVERT IN

REACH #2- PROFILE DATA TABLE

STATION	ELEVATION	DESCRIPTION
0+00.00	820.13	INVERT OUT
0+47.94	819.89	TOE OF RIFFLE (HIGH POINT)
0+61.94	817.03	POOL
0+75.93	819.73	HEAD OF RIFFLE
1+12.03	819.55	TOE OF RIFFLE (HIGH POINT)
1+26.55	816.69	POOL
1+41.08	819.38	HEAD OF RIFFLE
2+21.03	818.98	TOE OF RIFFLE (HIGH POINT)
2+40.60	816.13	POOL
2+60.16	818.82	HEAD OF RIFFLE
3+10.82	818.56	TOE OF RIFFLE (HIGH POINT)
3+25.73	815.71	POOL
3+40.62	818.40	HEAD OF RIFFLE
3+92.52	818.14	TOE OF RIFFLE (HIGH POINT)
4+07.54	815.28	POOL
4+22.56	817.98	HEAD OF RIFFLE
4+65.52	817.76	INVERT IN

NATURAL STREAM DESIGN
 PROFILE DATA- REACHES #1 & #2

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