TIP PROJECT: B-4301

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

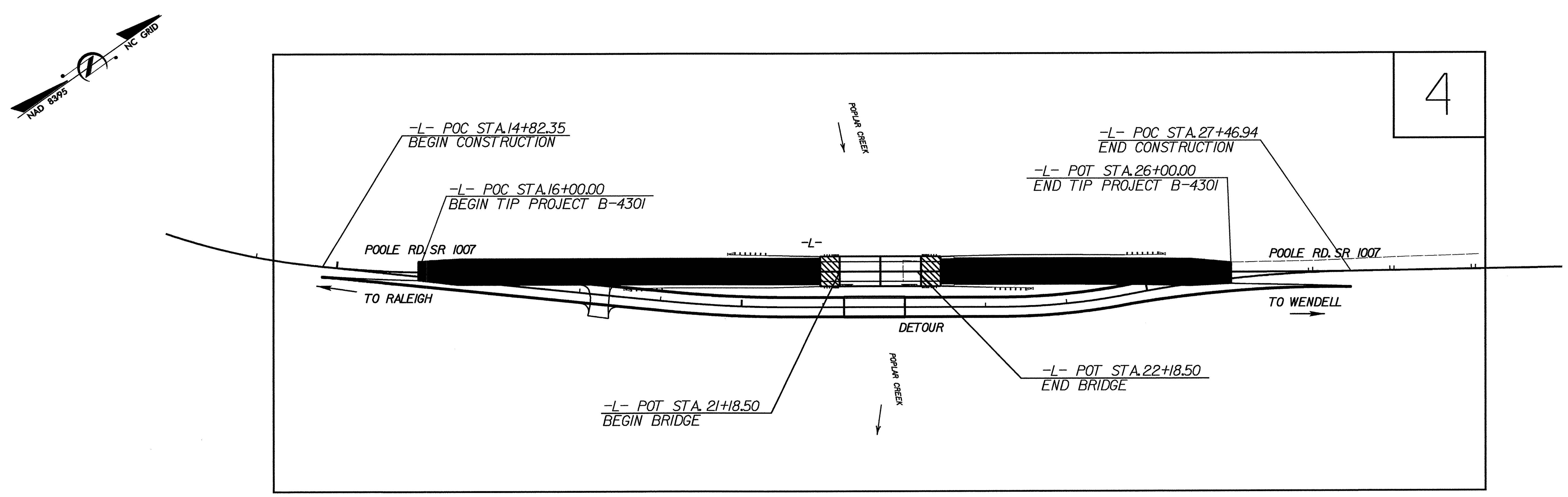
WAKE COUNTY

LOCATION: BRIDGE NO. 229 OVER POPLAR CREEK ON SR 1007

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4301	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
	Streambank Reforestation	
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.01	Riser Basin	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-B	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Prepared In the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2006 STANDARD SPECIFICATIONS

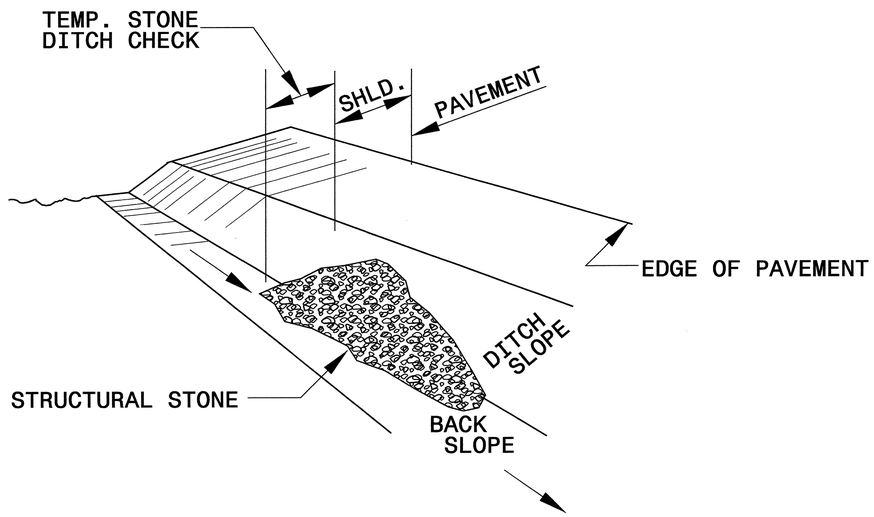
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated July 18, 2006 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1605.01	Temporary Silt Fence	1632.03	Rock Inlet Sediment Trap Type C
1606.01	Special Sediment Control Fence	1633.01	Temporary Rock Silt Check Type A
1607.01	Gravel Construction Entrance	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch		

PROJECT REFERENCE NO.	SHEET NO.
B-4301	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

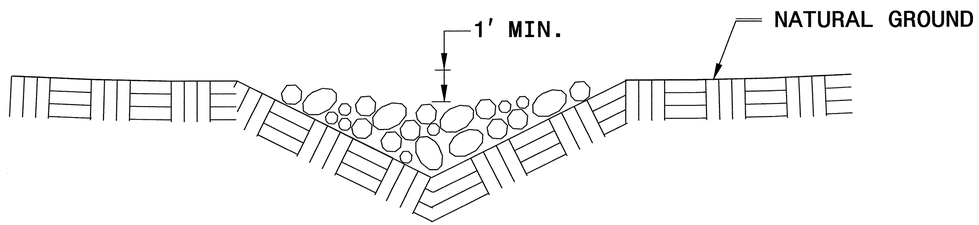


ISOMETRIC VIEW

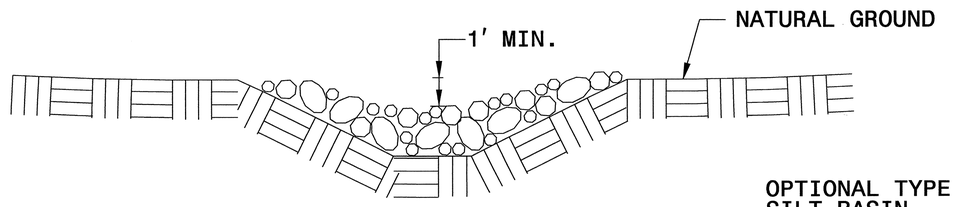
NOTES:

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

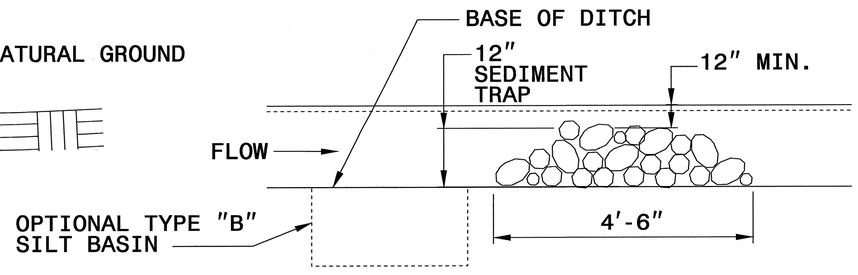
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



CROSS SECTION VEE DITCH



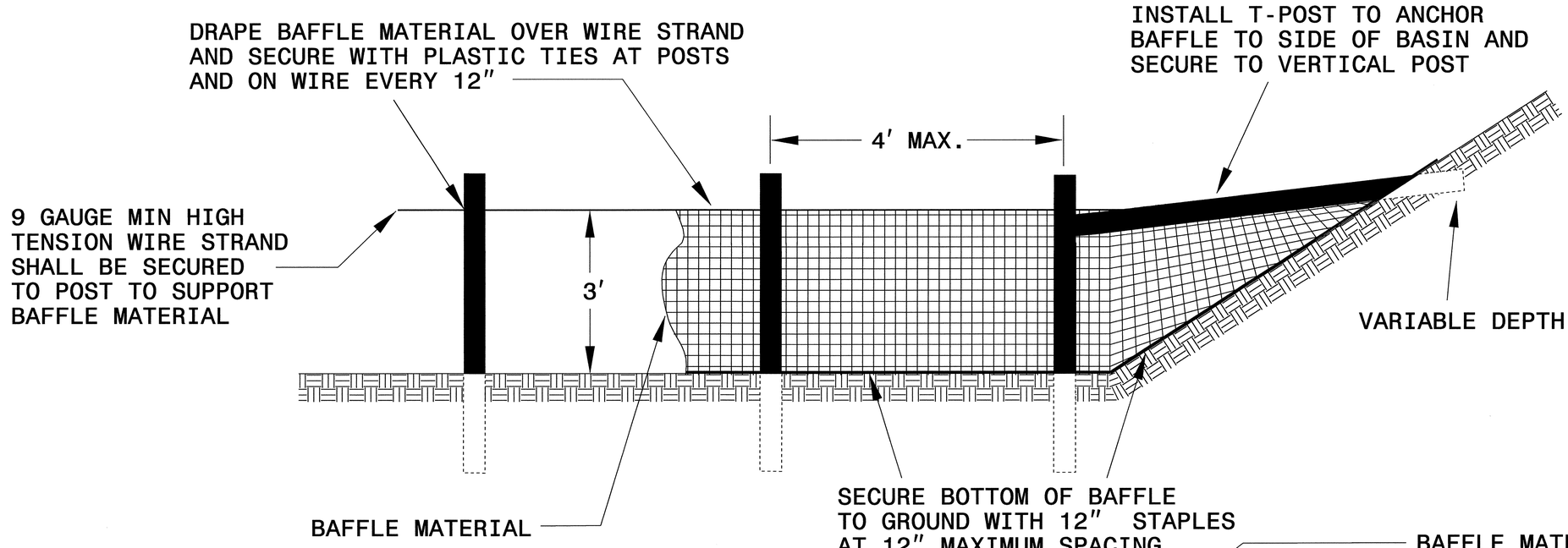
CROSS SECTION TRAPEZOIDAL DITCH

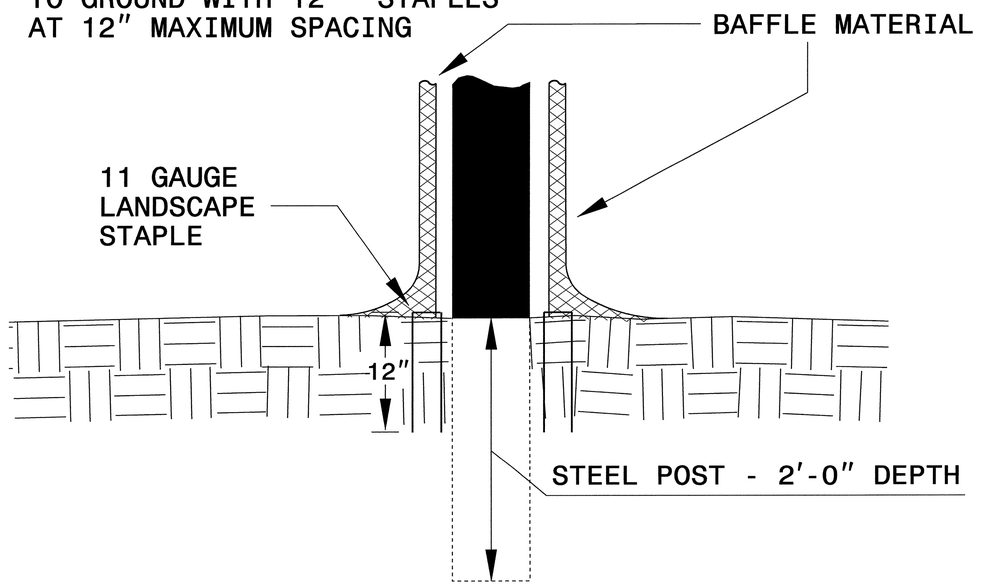


ELEVATION VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4301	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER BAFFLE DETAIL





BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 12″ LANDSCAPE STAPLES

NOTE: INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF ¼ THE BASIN LENGTH. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

PROJECT REFERENCE NO.	SHEET NO.
B-4301	EC-3

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	15+00	19+50	RT	410
4	L	17+00	20+00	LT	275
				SUBTOTAL	685
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					570
				TOTAL	1255
				SAY	1260

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
B-4301	EC-4/CONST. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

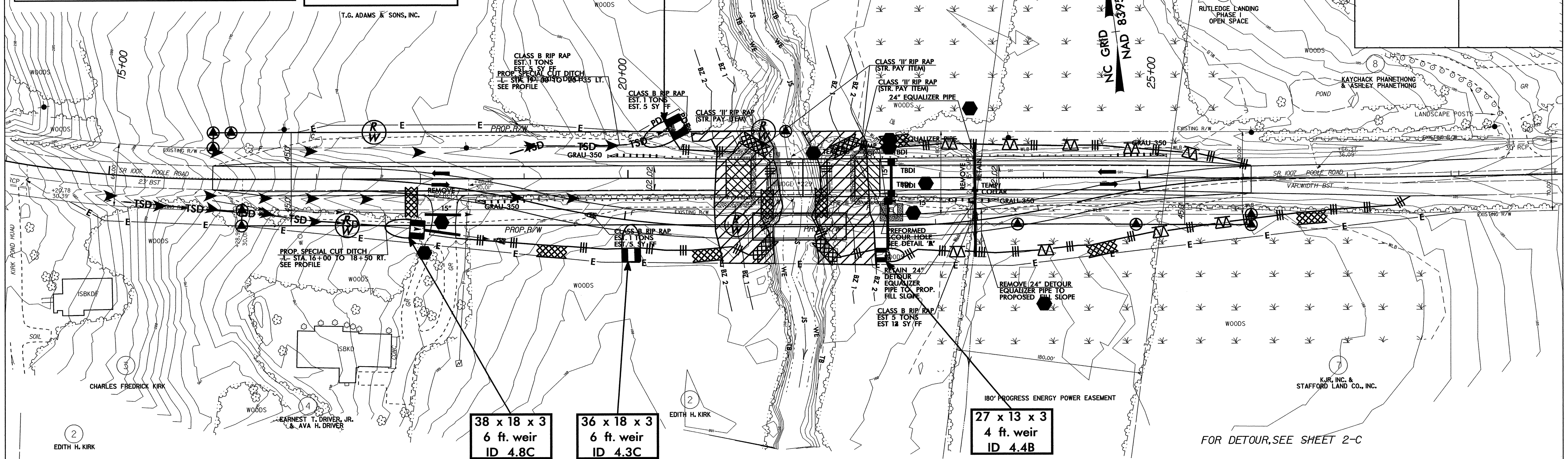
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE: UTILIZE TEMPORARY ROCK SILT CHECK TYPE – A AS STILLING BASIN WHERE APPLICABLE.

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

INSTALL FILTER FABRIC UNDER TEMPORARY ROCK SILT CHECK(S) TYPE A IN PERMITTED WETLANDS.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



BM #1, ELEV.= 183.32'
-L- STA. 21+65.65, 59.33' LT.
RR SPIKE IN 46" POPLAR

BM #2, ELEV.= 187.74'
-L- STA. 28+69.66, 40.45' RT.
RR SPIKE IN 32" POPLAR

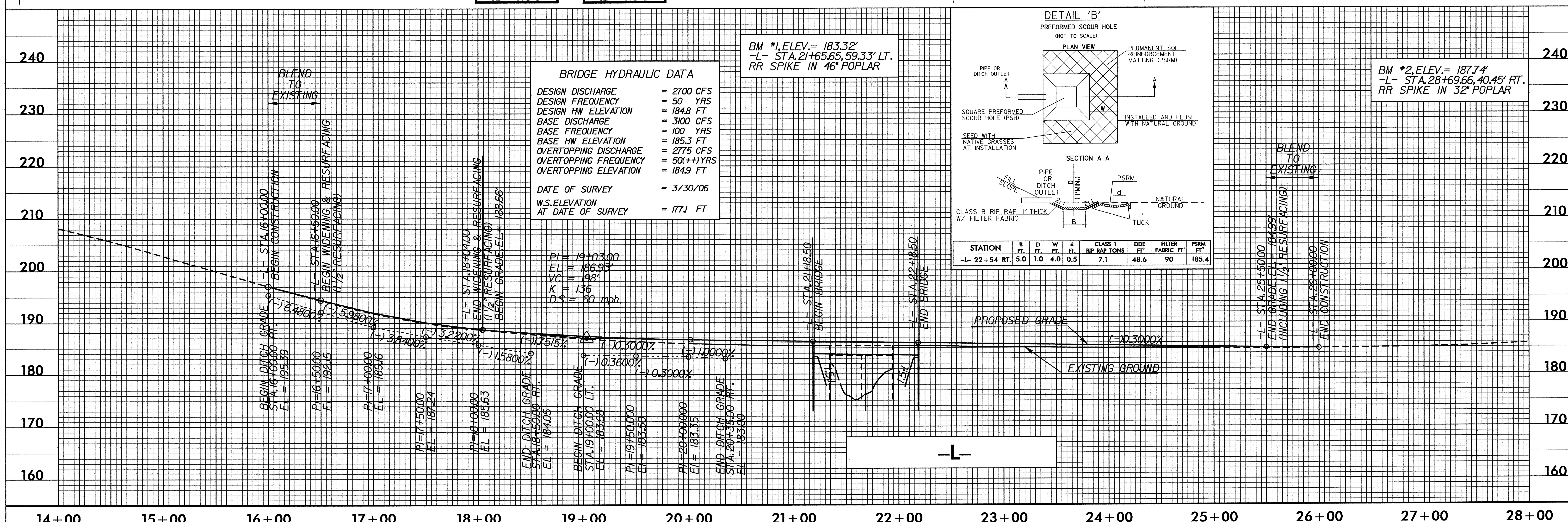
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2700 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 184.8 FT
BASE DISCHARGE	= 3100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 185.3 FT
OVERTOPPING DISCHARGE	= 2775 CFS
OVERTOPPING FREQUENCY	= 50(++)YRS
OVERTOPPING ELEVATION	= 184.9 FT
DATE OF SURVEY	= 3/30/06
W.S. ELEVATION AT DATE OF SURVEY	= 177.1 FT

DETAIL 'B'
PREFORMED SCOUR HOLE
(NOT TO SCALE)

PLAN VIEW
PIPE OR DITCH OUTLET
PERMANENT SOIL REINFORCEMENT MATTING (PSRM)
SQUARE PREFORMED SCOUR HOLE (PSH)
SEED WITH NATIVE GRASSES AT INSTALLATION
INSTALLED AND FLUSH WITH NATURAL GROUND
SECTION A-A
FILL SLOPE
PIPE OR DITCH OUTLET
PSRM
NATURAL GROUND
CLASS B RIP RAP W/ FILTER FABRIC
1' THICK
1' TUCK

STATION	B FT.	D FT.	W FT.	d FT.	CLASS 1 RIP RAP TONS	DDE FT²	FILTER FABRIC FT²	PSRM FT²
-L- 22+54 RT.	5.0	1.0	4.0	0.5	7.1	48.6	90	185.4



PROJECT REFERENCE NO.	SHEET NO.
B-4301	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
UTILIZE TEMPORARY ROCK SILT CHECK TYPE – A AS STILLING BASIN WHERE APPLICABLE.

INSTALL FILTER FABRIC UNDER TEMPORARY ROCK SILT CHECK(S) TYPE A IN PERMITTED WETLANDS.

T.G. ADAMS & SONS, INC.

44 x 21 x 3
7 ft. weir
ID 4.1B

15 x 7 x 3
4 ft. weir
ID 4.6F

35 x 16 x 3
5 ft. weir
ID 4.5F

27 x 14 x 3
5 ft. weir
ID 4.7F

NC GRID NAD 8395

15+00 | 20+00 | 25+00

PROP. SPECIAL CUT DITCH
–L– STA. 19+00 TO 20+35 LT.
SEE PROFILE

CLASS B RIP RAP
EST. 1 TONS
EST. 5 SY FF

CLASS 'II' RIP RAP
(STR. PAY ITEM)

EQUALIZER PIPE

PROP. SPECIAL CUT DITCH
–L– STA. 16+00 TO 18+50 RT.
SEE PROFILE

CLASS B RIP RAP
EST. 1 TONS
EST. 5 SY FF

PREFORMED SCOUR HOLE
SEE DETAIL 'A'

RETAIN 24" DETOUR EQUALIZER PIPE TO PROP. FILL SLOPE

CLASS B RIP RAP
EST 5 TONS
EST 12 SY FF

REMOVE 24" DETOUR EQUALIZER PIPE TO PROPOSED FILL SLOPE

180' PROGRESS ENERGY POWER EASEMENT

RUTLEDGE LANDING PHASE I OPEN SPACE

KAYCHACK PHANETHONG & ASHLEY PHANETHONG

KJR, INC. & STAFFORD LAND CO., INC.

CHARLES FREDRICK KIRK

EARNEST T. DRIVER, JR. & AVA H. DRIVER

EDITH H. KIRK

SR 1007 POOLE ROAD

KIRK POND ROAD

FOR DETOUR, SEE SHEET 2-C

DETAIL 'B'
PREFORMED SCOUR HOLE
(NOT TO SCALE)

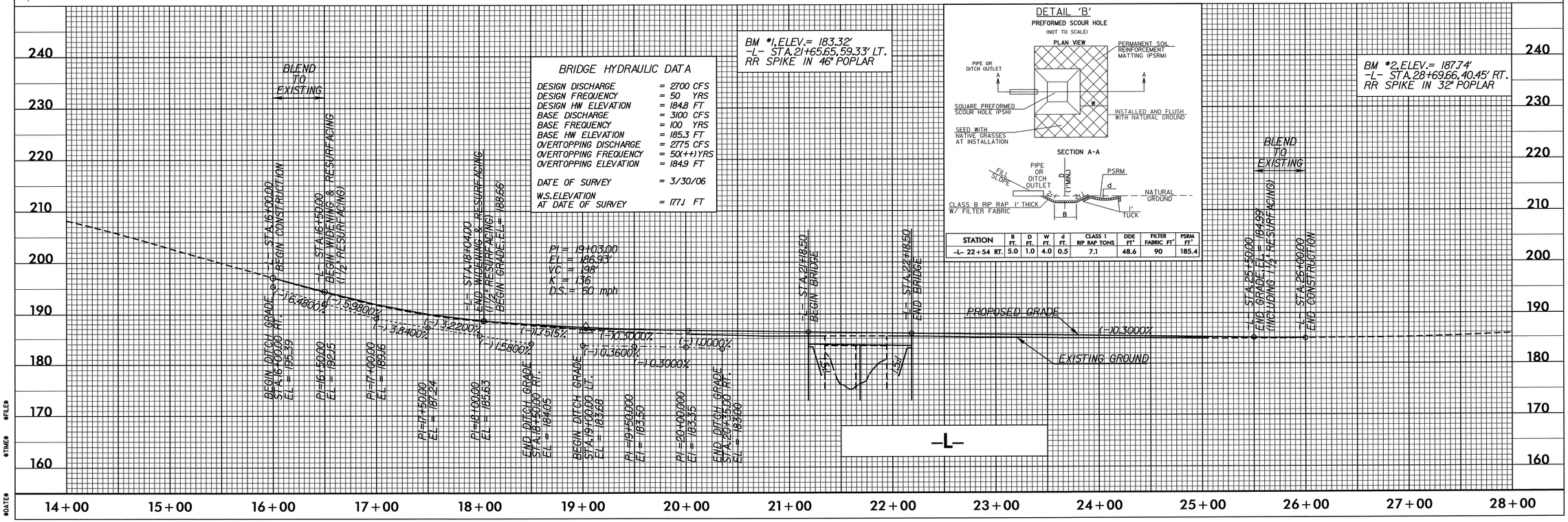
STATION	B FT.	D FT.	W FT.	d FT.	CLASS 1 RIP RAP TONS	DDE FT²	FILTER FABRIC FT²	PSRM FT²
–L– 22+54 RT.	5.0	1.0	4.0	0.5	7.1	48.6	90	185.4

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2700 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 184.8 FT
BASE DISCHARGE	= 3100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 185.3 FT
OVERTOPPING DISCHARGE	= 2775 CFS
OVERTOPPING FREQUENCY	= 50(++)YRS
OVERTOPPING ELEVATION	= 184.9 FT
DATE OF SURVEY	= 3/30/06
W.S.ELEVATION AT DATE OF SURVEY	= 177.1 FT

BM #1, ELEV.= 183.32'
–L– STA. 21+65.65, 59.33' LT.
RR SPIKE IN 46" POPLAR

BM #2, ELEV.= 187.74'
–L– STA. 28+69.66, 40.45' RT.
RR SPIKE IN 32" POPLAR



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DETOUR

PROJECT REFERENCE NO.	SHEET NO.
B-4301	EC-6/CONST.2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
UTILIZE TEMPORARY ROCK SILT CHECK TYPE – A AS STILLING BASIN WHERE APPLICABLE.

INSTALL FILTER FABRIC UNDER TEMPORARY ROCK SILT CHECK(S) TYPE A IN PERMITTED WETLANDS.

NC GRID NAD 83/95

SEE B.M 2001, PG 1257 FOR LOCATION OF WETLANDS, RIPARIAN BUFFERS, FLOODWAYS, FLOOD PLAINS, OPEN SPACE AND CONSERVATION NATURAL HAZARD AREAS.

FOR R/W AND EASEMENT LOCATION SEE PLAN SHEET 4

DETOUR POT 21+26.00 +/- BEGIN BRIDGE

DETOUR POT 22+01.00 +/- END BRIDGE

DETOUR PC 14+43.99

DETOUR PT 14+82.35 = -L- PC 14+82.35 BEGIN CONSTRUCTION

DETOUR PT 20+58.48

DETOUR PC 19+04.15

DETOUR PC 23+16.76

DETOUR PRC 24+78.19

DETOUR PC 27+62.00 -L- POC 27+46.94 END CONSTRUCTION

DETOUR PT 28+02.56

S 76°17'05.5" E

S 82°08'26.5" E

S 83°06'28.0" E DETOUR

SR 1007 POOLE ROAD

DO NOT DISTURB WELL

PROP. SPECIAL CUT DITCH -L- STA. 15+00 TO 18+75 RT. SEE PROFILE

PROP. SPECIAL CUT DITCH -L- STA. 22+00 TO 23+50 LT. SEE PROFILE

CLASS B RIP RAP EST. 1 TONS EST. 5 SY FF

CLASS 'II' RIP RAP (STR. PAY ITEM)

TEMP. GRAU-350

TEMP. C/R ANCHOR UNIT

TEMP. TYPE II C.S.

TEMPORARY 15" C.S.

PIPE PLUG

TEMP. COLLAR

REMOVE 9 LF FROM BOTH 15" CMP PLUS ONE 15" CMP COLLAR OTHER 15" CMP TO 24" RCP

TEMPORARY 24" EQUALIZER PIPE

52 x 16 x 3 5 ft. weir ID 4.2F

27 x 13 x 3 4 ft. weir ID 4.4B

180' PROGRESS ENERGY POWER EASEMENT

C/L POPLAR CREEK IS P/L MEANDER LINES FROM B.M. 2001, PG 1257 50' NEUSE RIVER RIPARIAN BUFFER FROM EACH TOP OF BANK OF POPLAR CREEK

C/L POPLAR CREEK IS P/L MEANDER LINES FROM B.M. 2000, PG 414 50' NEUSE RIVER RIPARIAN BUFFER FROM EACH TOP OF BANK OF POPLAR CREEK

SEE B.M 2005, PG 575 FOR LOCATION OF 100 YEAR FLOOD ZONE.

RUTLEDGE LANDING PHASE 1 OPEN SPACE B.M. 2001, PG 1257

KAYCHACK PHANETHONG & ASHLEY PHANETHONG D.B. 9376, PG 2126 B.M. 1995, PG 1409

T.G. ADAMS & SONS, INC. D.B. 8732, PG 1490

CHARLES FREDRICK KIRK D.B. 2381, PG 107

CHARLES F. KIRK D.B. 5143, PG 600 B.M. 1989, PG 1145

EARNEST T. DRIVER, JR. & AVA R. DRIVER D.B. 2507, PG. 424 B.M. 1977, PG 336

K.J.R. INC. & STAFFORD LAND CO., INC. D.B. 11703, PG. 2174 D.B. 11703, P.G. 2180 B.M. 2005, P.G. 2142 B.M. 2005, P.G. 2143

10' PRIVATE DRIVE D.B. 1726, PG 345 B.M. 1989, PG 1145

NOTES:

1) REMOVE DETOUR AND RETURN TO NATURAL CONTOURS IN WETLANDS AND RIPARIAN BUFFERS.

2) FOR -L-, SEE SHEET 4.

BM #1, ELEV.= 183.32' -L- STA. 21+65.65, 59.33' LT. RR SPIKE IN 46" POPLAR

BM #2, ELEV.= 187.74' -L- STA. 28+69.66, 40.45' RT. RR SPIKE IN 32" POPLAR

BLEND TO EXISTING

DETOUR STA. 14+82.35 BEGIN CONSTRUCTION

BEGIN DITCH GRADE STA. 15+00.00 RT. EL = 201.4

(-) 16.5800%

DETOUR STA. 16+57.00 BEGIN GRADE EL = 193.83 (@ EXIST. EOP)

PI = 16+00.000 EL = 194.90

(-) 5.5000%

PI = 17+00.000 EL = 189.40

(-) 16.8871%

(-) 3.0000%

PI = 17+80.00 EL = 186.36 VC = 355' K = 64 D.S. = 40 mph

(-) 10.3000%

(-) 0.5200%

PI = 18+50.000 EL = 184.90

END DITCH GRADE STA. 18+75.00 RT. EL = 184.77

DETOUR STA. 21+26.00 BEGIN BRIDGE

DETOUR STA. 22+10.00 END BRIDGE

PROPOSED GRADE

(+) 0.3000%

(-) 10.3000%

(+) 100.4321%

EXISTING GROUND

BEGIN DITCH GRADE STA. 22+45.00 LT. EL = 182.22

PI = 25+00.00 EL = 184.20 VC = 200' K = 27.3 D.S. = 80 MPH !!

END DITCH GRADE STA. 23+50.00 LT. EL = 182.52

DETOUR STA. 25+63.68 END GRADE EL = 184.50 (@ EXIST. EOP)

DETOUR STA. 27+52.00 END CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1400 CFS
DESIGN FREQUENCY	= 5 YRS
DESIGN HW ELEVATION	= 183.1 FT
BASE DISCHARGE	= CFS
BASE FREQUENCY	= YRS
BASE HW ELEVATION	= FT
OVERTOPPING DISCHARGE	= CFS
OVERTOPPING FREQUENCY	= YRS
OVERTOPPING ELEVATION	= FT
DATE OF SURVEY	= 3/30/06
W.S. ELEVATION AT DATE OF SURVEY	= 177.1 FT

DETOUR

$TIME$ $FILE$