TIP PROJECT: B-3528

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3528	EC-1	

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

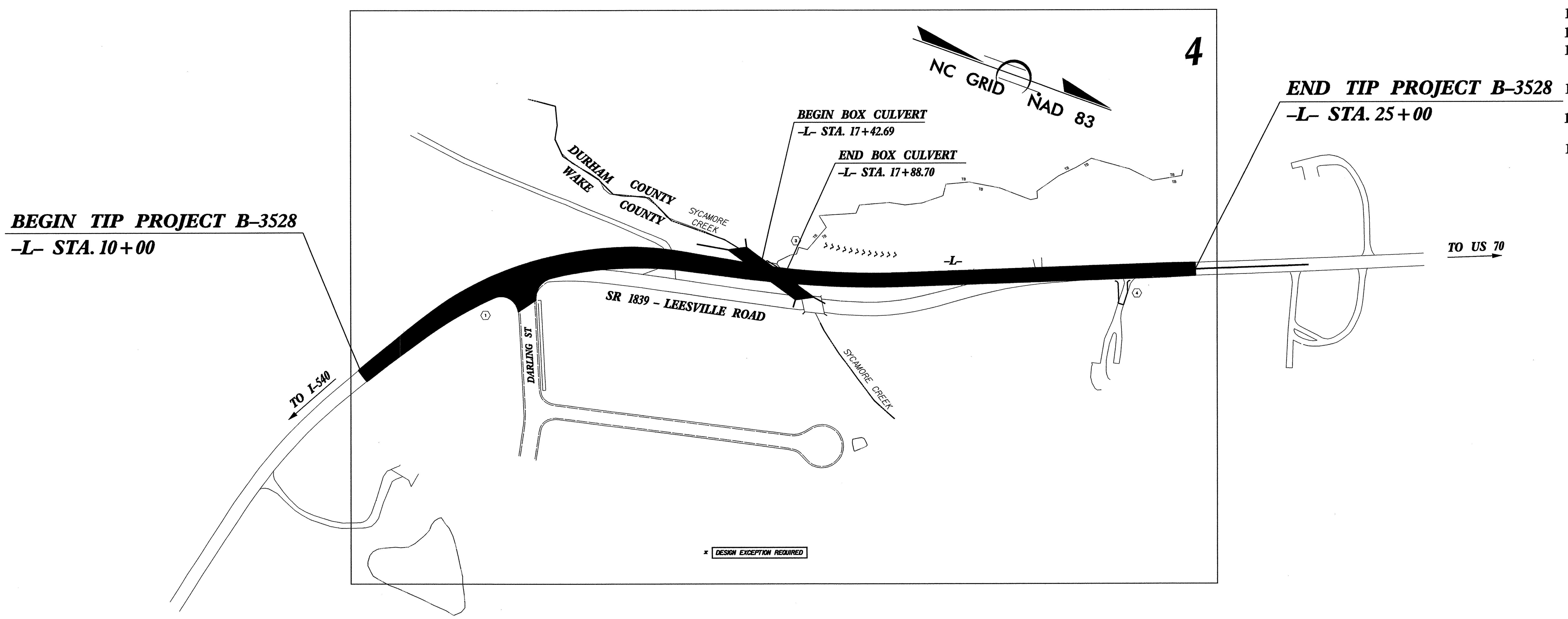
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

WAKE AND DURHAM COUNTIES

LOCATION: Bridge 429 over Sycamore Creek on SR 1839 and Approaches

TYPE OF WORK: Grading, Drainage, Paving and R. C. Box Culvert



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	

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

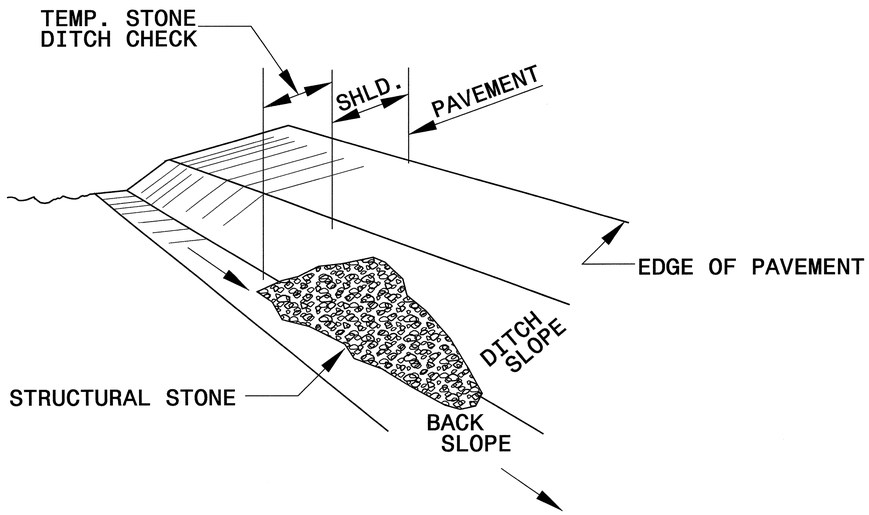
Roadway Standard Drawings

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
1607.01 Gravel Construction Entrance
1622.01 Temporary Berms and Slope Drains
1630.02 Silt Basin Type B
1630.03 Temporary Silt Ditch
1630.04 Stilling Basin
1630.06 Special Stilling Basin
1632.03 Rock Inlet Sediment Trap Type C
1633.01 Temporary Rock Silt Check Type A
1634.02 Temporary Rock Sediment Dam Type B
1635.02 Rock Pipe Inlet Sediment Trap Type B

PROJECT REFERENCE NO.	SHEET NO.
B-3528	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

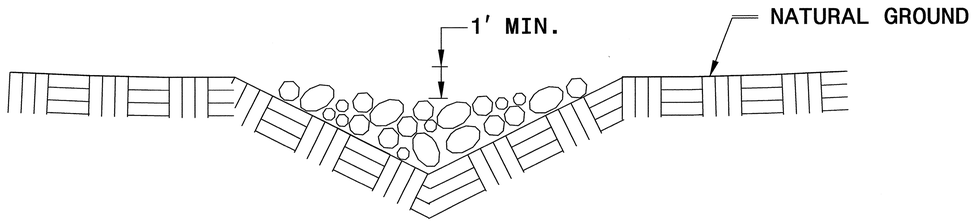


ISOMETRIC VIEW

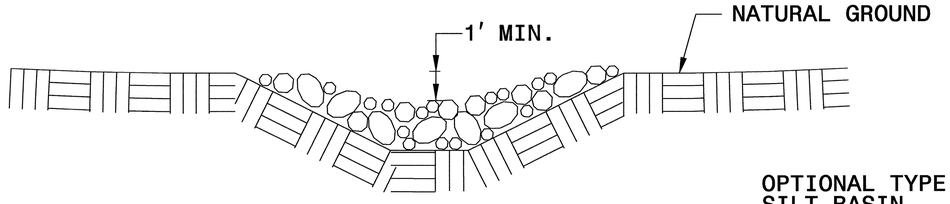
NOTES:

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

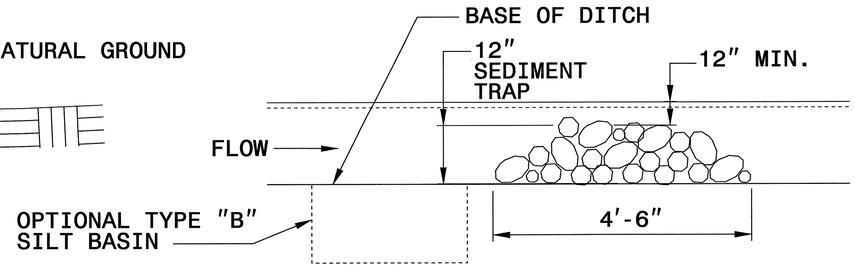
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



CROSS SECTION VEE DITCH



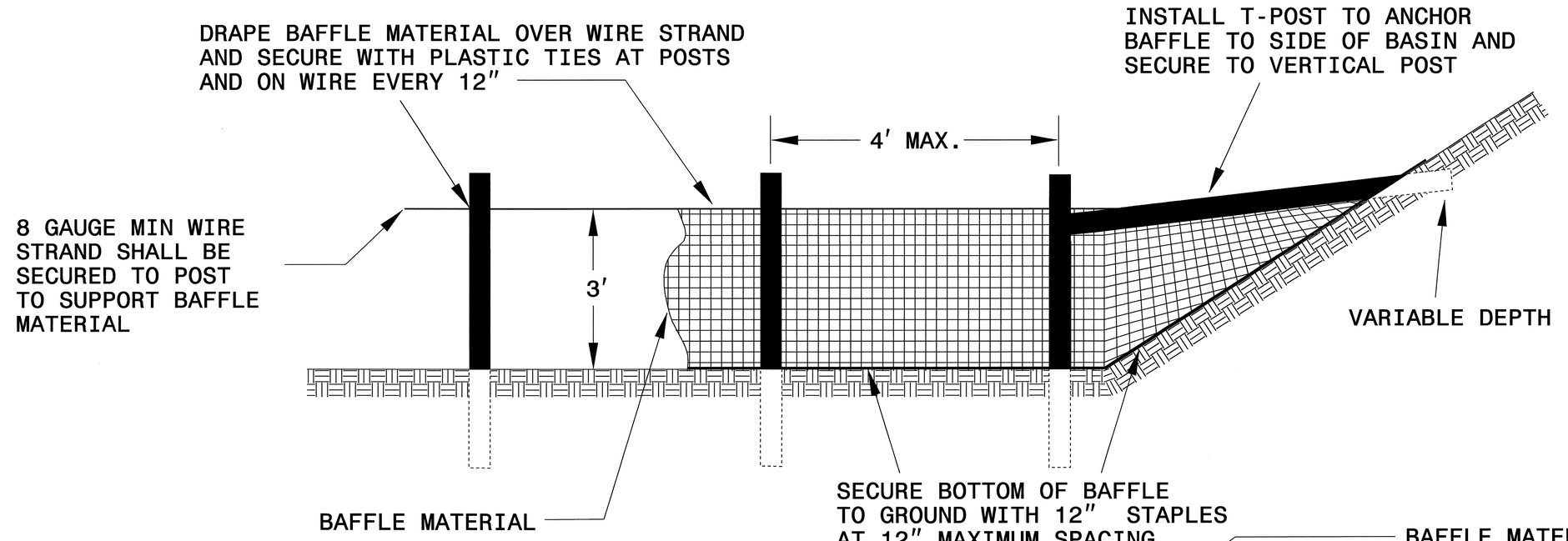
CROSS SECTION TRAPEZOIDAL DITCH

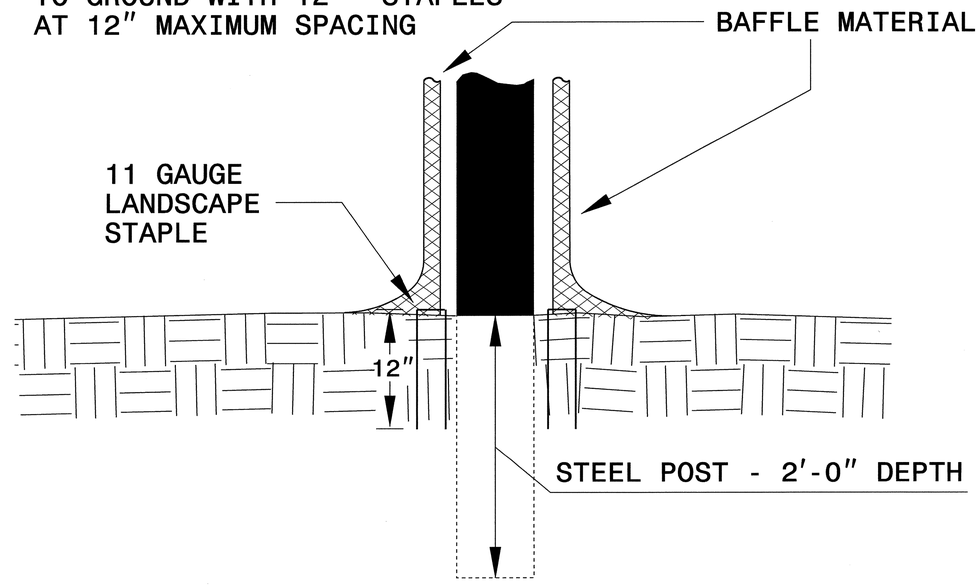


ELEVATION VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-3528	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-3528	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

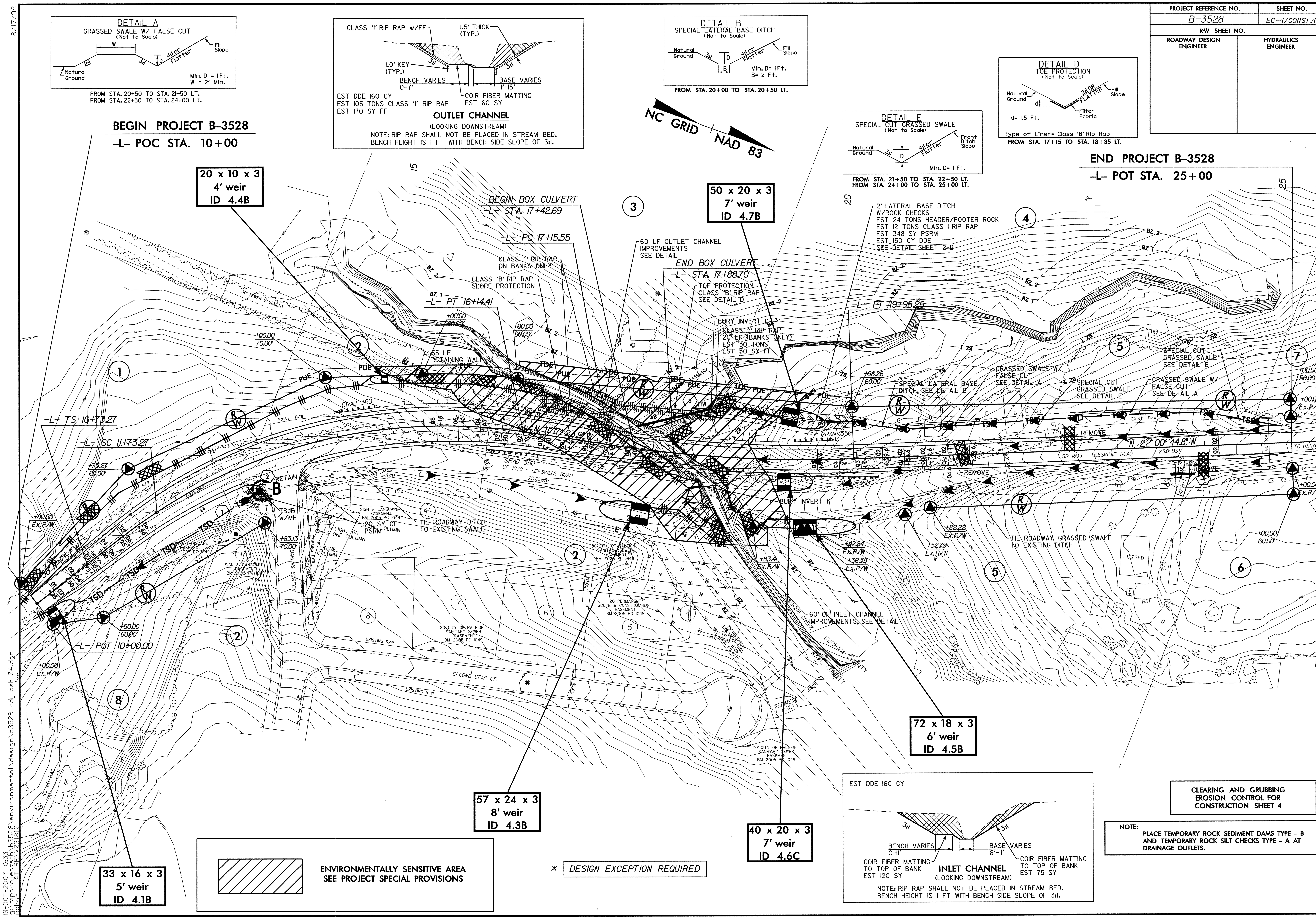
SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	10+50	14+00	RT	365
4	L	20+50	25+00	LT	365
4	L	21+50	25+00	RT	325
				SUBTOTAL	1055
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					855
				TOTAL	1910
				SAY	1910

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	L	18+50	20+50	LT	185
			SUBTOTAL		185
		ADDITIONAL PSRM TO BE INSTALLED			0
				TOTAL	185
				SAY	185



PROJECT REFERENCE NO. B-3528
SHEET NO. EC-4/CONST.4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DETAIL A
GRASSED SWALE W/ FALSE CUT
(Not to Scale)
Natural Ground
Fill Slope
4:1 or Flatter
Min. D = 1 Ft.
W = 2' Min.
FROM STA. 20+50 TO STA. 21+50 LT.
FROM STA. 22+50 TO STA. 24+00 LT.
CLASS 'I' RIP RAP w/FF
1.5' THICK (TYP.)
1.0' KEY (TYP.)
BENCH VARIES 0-7'
BASE VARIES 11'-15'
COIR FIBER MATTING
EST 60 SY
EST DDE 160 CY
EST 105 TONS CLASS 'I' RIP RAP
EST 170 SY FF
OUTLET CHANNEL
(LOOKING DOWNSTREAM)
NOTE: RIP RAP SHALL NOT BE PLACED IN STREAM BED.
BENCH HEIGHT IS 1 FT WITH BENCH SIDE SLOPE OF 3:1.
DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D= 1 Ft.
B= 2 Ft.
FROM STA. 20+00 TO STA. 20+50 LT.
DETAIL D
TOE PROTECTION
(Not to Scale)
d= 1.5 Ft.
Filter Fabric
Type of Liner= Class 'B' Rip Rap
FROM STA. 17+15 TO STA. 18+35 LT.
DETAIL E
SPECIAL CUT GRASSED SWALE
(Not to Scale)
Front Ditch Slope
Min. D= 1 Ft.
FROM STA. 21+50 TO STA. 22+50 LT.
FROM STA. 24+00 TO STA. 25+00 LT.
NC GRID NAD 83
BEGIN PROJECT B-3528
-L- POC STA. 10+00
END PROJECT B-3528
-L- POT STA. 25+00
BEGIN BOX CULVERT
-L- STA. 17+42.69
END BOX CULVERT
-L- STA. 17+88.70
-L- PC 17+15.55
-L- PT 16+14.41
-L- PT 19+96.26
-L- TS 10+73.27
-L- SC 11+73.27
-L- POT 10+00.00
60 LF OUTLET CHANNEL IMPROVEMENTS SEE DETAIL
CLASS 'I' RIP RAP ON BANKS ONLY
CLASS 'B' RIP RAP SLOPE PROTECTION
TOE PROTECTION CLASS 'B' RIP RAP SEE DETAIL D
BURY INVERT 1'
CLASS 'I' RIP RAP 20 LF (BANKS ONLY) EST 30 TONS EST 50 SY FF
2' LATERAL BASE DITCH W/ROCK CHECKS
EST 24 TONS HEADER/FOOTER ROCK
EST 12 TONS CLASS I RIP RAP
EST 348 SY PSRM
EST 150 CY DDE
SEE DETAIL SHEET 2-B
55 LF RETAINING WALL
SPECIAL LATERAL BASE DITCH, SEE DETAIL B
GRASSED SWALE W/ FALSE CUT SEE DETAIL A
SPECIAL CUT GRASSED SWALE SEE DETAIL E
N 22°00'44.8" W
SR 1839 - LEESVILLE ROAD
REMOVE
TIE ROADWAY DITCH TO EXISTING SWALE
TIE ROADWAY GRASSED SWALE TO EXISTING DITCH
20 SY OF PSRM
60' OF INLET CHANNEL IMPROVEMENTS, SEE DETAIL
SECOND STAR CT.
DURHAM COUNTY
WAKE COUNTY
20 x 10 x 3
4' weir
ID 4.4B
50 x 20 x 3
7' weir
ID 4.7B
72 x 18 x 3
6' weir
ID 4.5B
57 x 24 x 3
8' weir
ID 4.3B
40 x 20 x 3
7' weir
ID 4.6C
33 x 16 x 3
5' weir
ID 4.1B
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS
* DESIGN EXCEPTION REQUIRED
EST DDE 160 CY
BENCH VARIES 0-11'
BASE VARIES 6'-11'
COIR FIBER MATTING TO TOP OF BANK EST 120 SY
COIR FIBER MATTING TO TOP OF BANK EST 75 SY
INLET CHANNEL
(LOOKING DOWNSTREAM)
NOTE: RIP RAP SHALL NOT BE PLACED IN STREAM BED.
BENCH HEIGHT IS 1 FT WITH BENCH SIDE SLOPE OF 3:1.
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.
8/17/99
19-OCT-2007 10:33

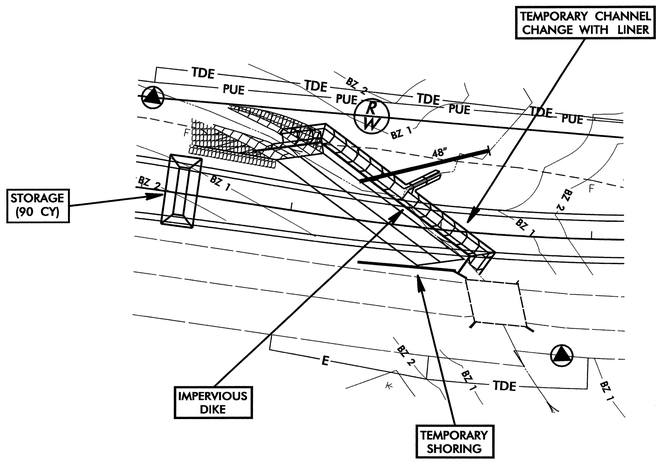
CULVERT CONSTRUCTION SEQUENCE STA. 17+66 –L–

PROJECT REFERENCE NO.	SHEET NO.
B-3528	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE I

1. CONSTRUCT STILLING BASIN (90 CY).
2. INSTALL TEMPORARY SHORING.
3. CONSTRUCT IMPERVIOUS DIKE AND TEMPORARY CHANNEL CHANGE WITH LINER (6 FT. BASE, 2 FT. DEEP, 1.5:1 SIDE SLOPES), DIVERTING FLOW.
4. CONSTRUCT PORTION OF CULVERT AND ENDWALL, AND OUTLET CHANNEL IMPROVEMENTS BELOW NORMAL WATER SURFACE ELEVATION.
5. REMOVE IMPERVIOUS DIKE AND TEMPORARY CHANNEL CHANGE, DIVERTING FLOW THROUGH CULVERT.
6. INSTALL 48" RCP WITH HEADWALL, AND CONSTRUCT CULVERT OUTLET WING WALLS.
7. CONSTRUCT ROADWAY, AND COMPLETE OUTLET CHANNEL IMPROVEMENTS ABOVE NORMAL WATER SURFACE ELEVATION.
8. SHIFT TRAFFIC FROM THE EXISTING LANES TO TEMPORARY TRAFFIC CONTROL PATTERN.

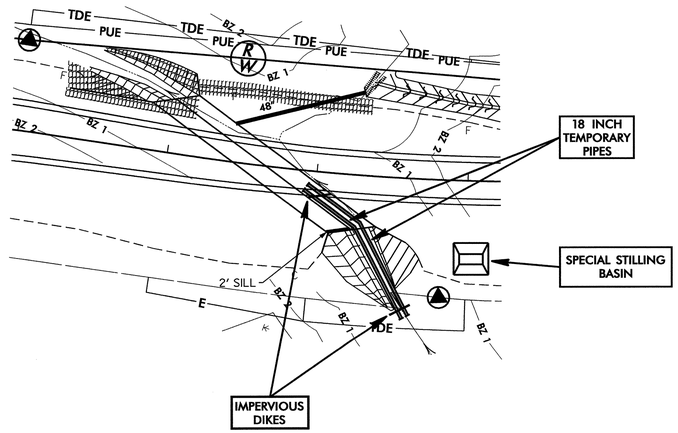
NC GRID / NAD 83



PHASE II

9. INSTALL SPECIAL STILLING BASIN.
10. CONSTRUCT IMPERVIOUS DIKES AND 2 18 INCH TEMPORARY PIPES.
11. REMOVE THE EXISTING BRIDGE, SHIFTING TEMPORARY PIPES WITHIN THE WORK AREA AS REQUIRED.
12. CONSTRUCT REMAINDER OF CULVERT, INCLUDING INLET WING WALLS.
13. CONSTRUCT INLET CHANNEL IMPROVEMENTS.
14. REMOVE IMPERVIOUS DIKES AND TEMPORARY PIPES.
15. COMPLETE ROADWAY.

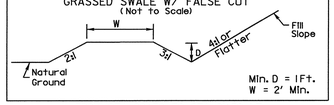
NC GRID / NAD 83



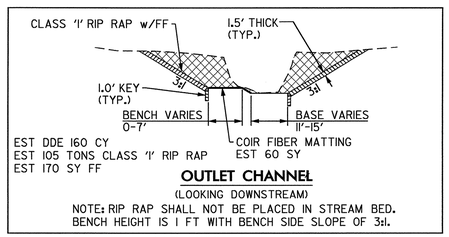
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3528	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL A
GRASSED SWALE W/ FALSE CUT
(Not to Scale)

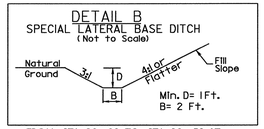


FROM STA. 20+50 TO STA. 21+50 LT.
FROM STA. 22+50 TO STA. 24+00 LT.



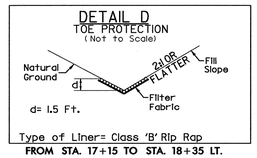
OUTLET CHANNEL
(LOOKING DOWNSTREAM)
NOTE: RIP RAP SHALL NOT BE PLACED IN STREAM BED.
BENCH HEIGHT IS 1 FT WITH BENCH SIDE SLOPE OF 3:1.

DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



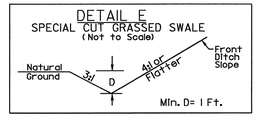
FROM STA. 20+00 TO STA. 20+50 LT.

DETAIL D
TOE PROTECTION
(Not to Scale)



Type of Liner= Class 'B' Rip Rap
FROM STA. 17+15 TO STA. 18+35 LT.

DETAIL E
SPECIAL CUT GRASSED SWALE
(Not to Scale)



FROM STA. 21+50 TO STA. 22+50 LT.
FROM STA. 24+00 TO STA. 25+00 LT.

NC GRID / NAD 83

BEGIN PROJECT B-3528
-L- POC STA. 10+00

END PROJECT B-3528
-L- POT STA. 25+00

20 x 10 x 3
4' weir
ID 4.4B

50 x 20 x 3
7' weir
ID 4.7B

72 x 18 x 3
6' weir
ID 4.5B

25 x 8 x 3
ID 4.2F

57 x 24 x 3
8' weir
ID 4.3B

33 x 16 x 3
5' weir
ID 4.1B

BEGIN BOX CULVERT
-L- STA. 17+42.69

END BOX CULVERT
-L- STA. 17+88.70

-L- PC 17+15.55
-L- PT 16+14.41
-L- PT 19+96.26
-L- TS 10+73.27
-L- SC 11+73.27
-L- POT 10+00.00

60 LF OUTLET CHANNEL IMPROVEMENTS SEE DETAIL

CLASS 'I' RIP RAP ON BANKS ONLY

CLASS 'B' RIP RAP SLOPE PROTECTION

TOE PROTECTION CLASS 'B' RIP RAP SEE DETAIL D

BURY INVERT 1'
CLASS 'I' RIP RAP
20 LF (BANKS ONLY)
EST 30 TONS
EST 50 SY FF

55 LF RETAINING WALL

2' LATERAL BASE DITCH
W/ROCK CHECKS
EST 24 TONS HEADER/FOOTER ROCK
EST 12 TONS CLASS I RIP RAP
EST 348 SY PSRM
EST 150 CY DDE
SEE DETAIL SHEET 2-B

SPECIAL LATERAL BASE DITCH, SEE DETAIL B

GRASSED SWALE W/ FALSE CUT SEE DETAIL A

SPECIAL CUT GRASSED SWALE SEE DETAIL E

SPECIAL CUT GRASSED SWALE SEE DETAIL E

GRASSED SWALE W/ FALSE CUT SEE DETAIL A

TBJB w/MH

20 SY OF PSRM

TIE ROADWAY DITCH TO EXISTING SWALE

TIE ROADWAY GRASSED SWALE TO EXISTING DITCH

60' OF INLET CHANNEL IMPROVEMENTS, SEE DETAIL

BURY INVERT 1'

REMOVE

SR 1839 - LEESVILLE ROAD

GRAU 350

N 11° 17' 23.9" W

N 22° 00' 44.8" W

TO US 70

SECOND STAR CT.

DURHAM COUNTY

WAKE COUNTY

SEDIMENT POND

20' CITY OF RALEIGH SANITARY SEWER EASEMENT BM 2005 PG 1049

30' CITY OF RALEIGH SANITARY SEWER EASEMENT BM 2005 PG 1049

20' PERMANENT SLOPE & CONSTRUCTION EASEMENT BM 2005 PG 1049

SIGN & LANSCAPE EASEMENT BM 2005 PG 1049

30' SEWER EASEMENT

EST DDE 160 CY

INLET CHANNEL
(LOOKING DOWNSTREAM)
NOTE: RIP RAP SHALL NOT BE PLACED IN STREAM BED.
BENCH HEIGHT IS 1 FT WITH BENCH SIDE SLOPE OF 3:1.

* *DESIGN EXCEPTION REQUIRED*

19-OCT-2007 10:33
gr:tippr o:jects:b3528\environmental\design\b3528_rdy_psh_04.dgn
pchan AT RFNV23182