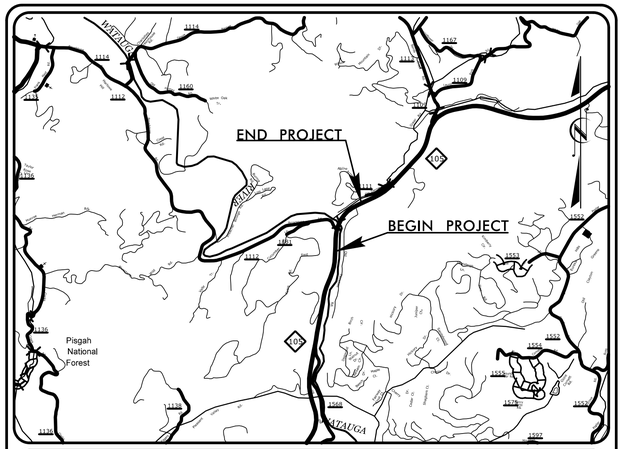
PROJECT: R-2566BA

CONTRACT: C204355



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

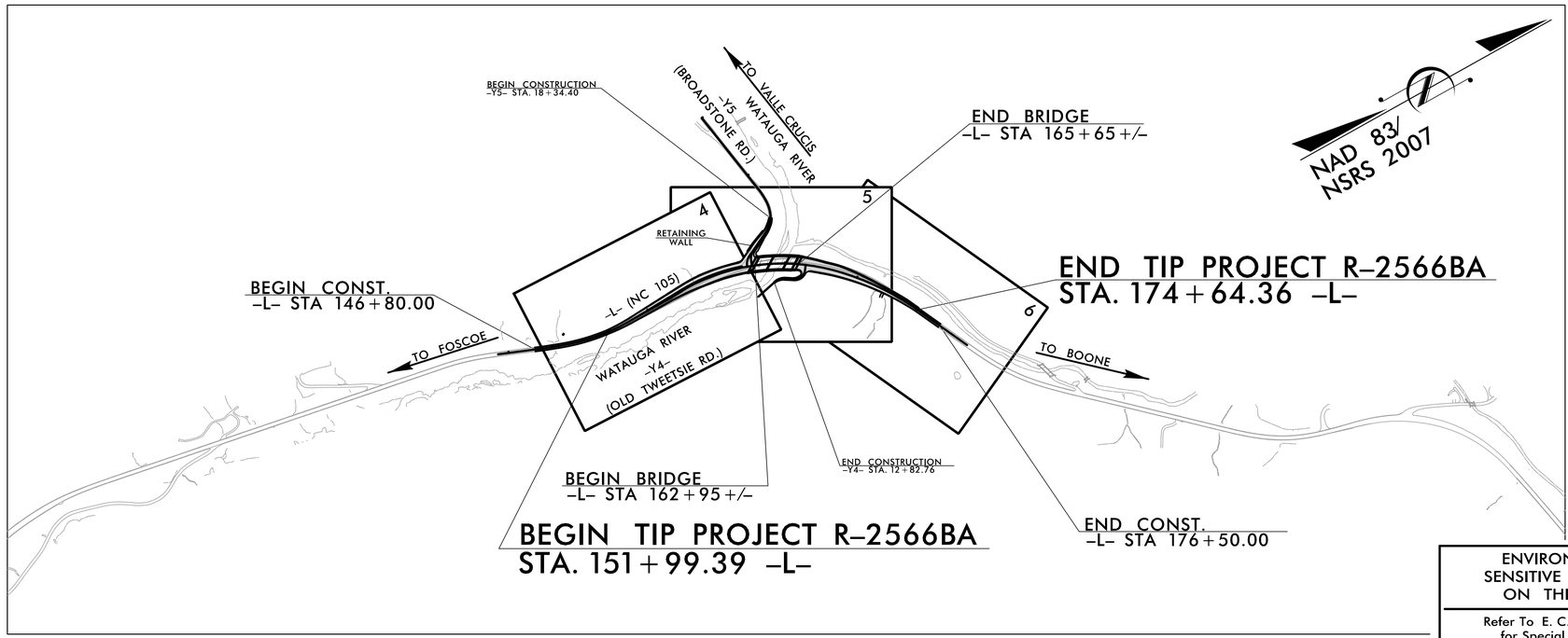
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

WATAUGA COUNTY

LOCATION: NC 105 – CONSTRUCT NEW BRIDGE OVER WATAUGA RIVER AND LEFT-TURN LANE AT SR 1112 (BROADSTONE RD.) WITHIN THE LIMITS OF R-2566B

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2566BA	EC-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
37512.1.4	NHP-0105(005)	PE	
37512.2.3		UTIL., ROW	



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
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	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
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	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SK
	Tiered Skimmer Basin	SK
	Infiltration Basin	SK

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.

HIGH QUALITY WATER(S) EXIST ON THIS PROJECT

High Quality Water Zone(s) Exist
From Sta. Begin
to Sta. End
Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

TGS ENGINEERS

Prepared In the Office of:

TGS ENGINEERS
804-C N. LAFAYETTE ST.
SHELBY, NC 28150

Designed by:

Andrew H. Cochrane, PE — *NAME*
3015 — *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

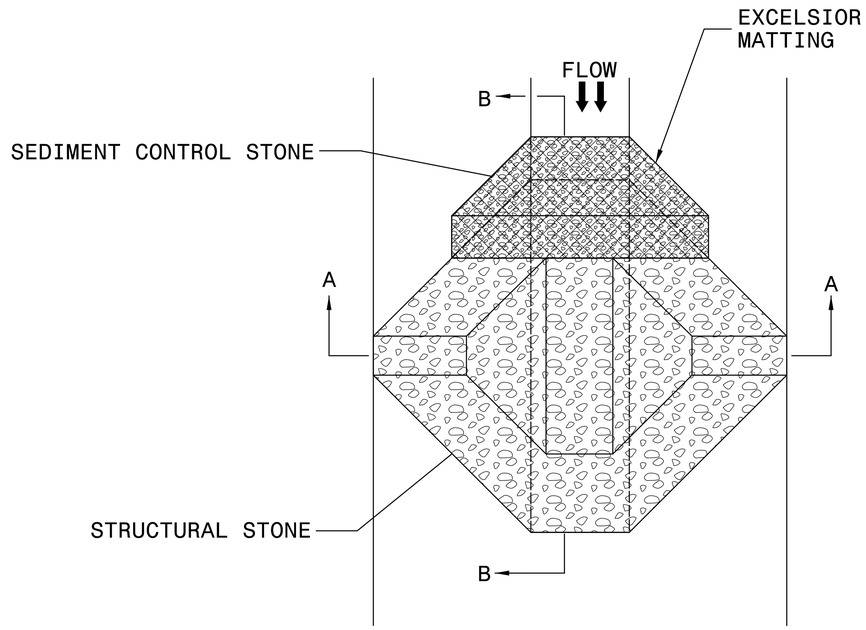
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

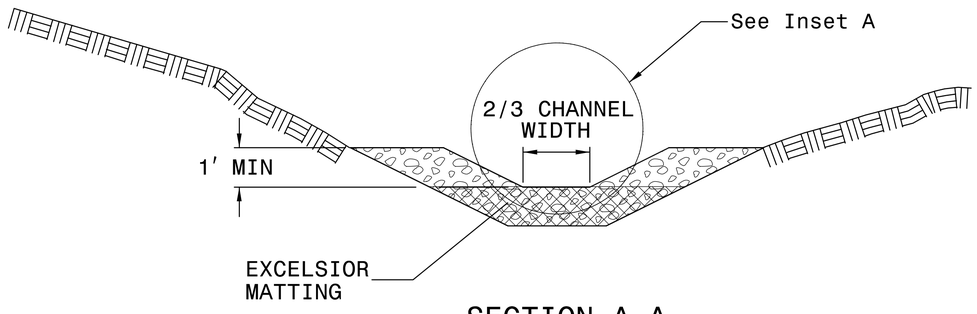
6/25/2021
R-2566BA\Drainage\Erosion Control\R-2566BA_EC.dgn_TSH.dgn
Harrison.Shane

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



SECTION A-A

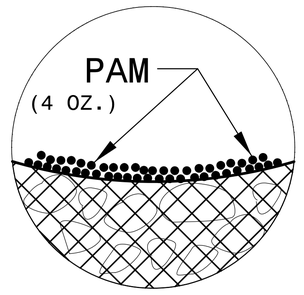
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

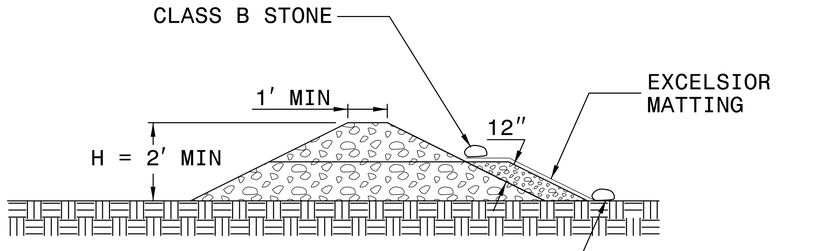
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



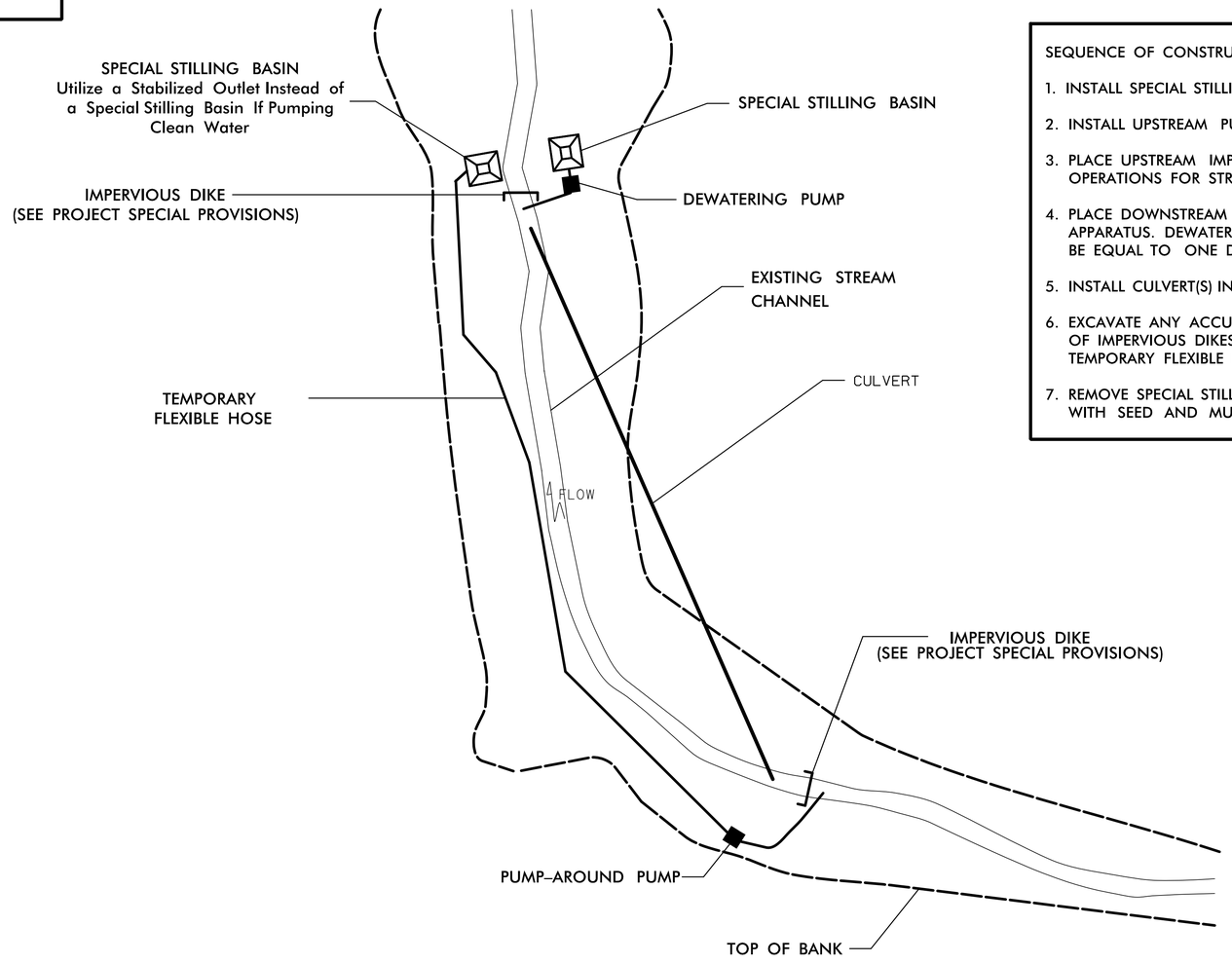
SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

EXAMPLE OF PUMP–AROUND OPERATION

NOTES:
1) All excavation shall be performed in only dry or isolated areas of the work zone.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
4) Pumps and hoses shall be of sufficient size to dewater the work area.



SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-04/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

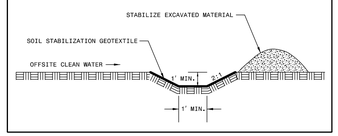
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2007

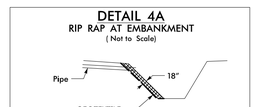
CLEAN WATER DIVERSION

→→ CWD →→ CWD →→ CWD →→ CWD →→

(Not to Scale)



DETAIL 4A
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = TBD TONS, Class I Rip-Rap
Geotextile = TBD SY

FROM -L- STA 152+91 TO 153+11 RT
FROM -L- STA 155+40 TO 155+63 RT
FROM -L- STA 158+42 TO 158+58 RT

-EL-
PI Sta 148+07.77
△ = 3° 23' 59.8" (LT)
D = 2° 05' 55.5"
L = 162.00'
T = 81.02'
R = 2,730.00'
SE = EXIST.
RO = EXIST.

-L-	
PI Sta 151+34.38	PI Sta 163+46.06
△ = 19° 29' 36.7" (LT)	△ = 46° 24' 19.4" (RT)
D = 4° 00' 24.1"	D = 4° 14' 38.9"
L = 486.52'	L = 1,093.40'
T = 245.64'	T = 578.69'
R = 1,430.00'	R = 1,350.00'
SE = 0.06 FT/FT	SE = 0.06 FT/FT
RO = SEE PLANS	RO = SEE PLANS

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.

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-05/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

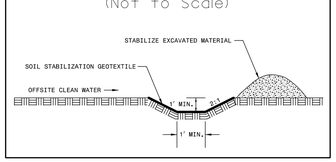
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2007

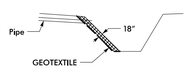
CLEAN WATER DIVERSION

→ CWD → CWD → CWD → CWD →

(Not to Scale)



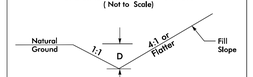
DETAIL 4A
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = 31 TONS,Class I Rip-Rap
Geotextile = 70 SY

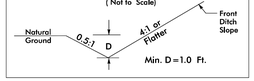
FROM –L– STA 161+94 TO 162+07 RT

DETAIL 5A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



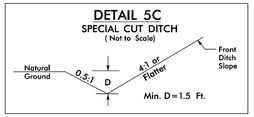
FROM –L– STA. 162+02 to 162+33 LT

DETAIL 5B
SPECIAL CUT DITCH
(Not to Scale)



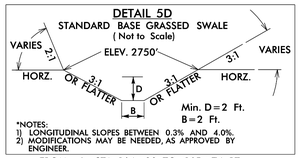
FROM –L– STA. 166+60 TO 166+84 RT

DETAIL 5C
SPECIAL CUT DITCH
(Not to Scale)



FROM –L– STA. 166+84 TO 167+15 RT

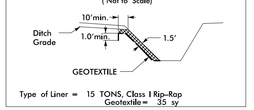
DETAIL 5D
STANDARD BASE GRASSED SWALE
(Not to Scale)



*NOTES:
1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

FROM –L– STA 164+39 TO 165+74 RT

DETAIL 5E
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = 15 TONS, Class I Rip-Rap
Geotextile = 35 sy

FROM –L– STA 164+25 TO 164+51 RT

–Y5–

PI Sta 16+59.54	PI Sta 17+55.18	PI Sta 18+51.22
△ = 9° 01' 25.6" (RT)	△ = 20° 47' 33.1" (RT)	△ = 31° 31' 28.0" (RT)
D = 9° 23' 33.9"	D = 22° 02' 12.6"	D = 32° 44' 25.6"
L = 96.07'	L = 94.35'	L = 96.29'
T = 48.14'	T = 47.70'	T = 49.40'
R = 610.00'	R = 260.00'	R = 175.00'
SE = 0.06 FT/FT	SE = 0.06 FT/FT	SE = 0.06 FT/FT
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS

–Y5–

PI Sta 19+23.61	PI Sta 21+24.63	PI Sta 21+74.18
△ = 11° 38' 44.0" (RT)	△ = 43° 15' 37.0" (LT)	△ = 44° 39' 39.0" (LT)
D = 22° 55' 05.9"	D = 60° 18' 40.8"	D = 60° 18' 40.8"
L = 50.81'	L = 71.73'	L = 74.05'
T = 25.49'	T = 37.67'	T = 39.21'
R = 250.00'	R = 95.00'	R = 95.00'
SE = EXIST.	SE = 0.02 FT/FT	SE = 0.02 FT/FT
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS

–Y5EV–

–Y4–

PI Sta 11+00.77	PI Sta 12+46.08
△ = 85° 59' 49.7" (RT)	△ = 44° 23' 57.2" (LT)
D = 81° 51' 04.0"	D = 57° 17' 44.8"
L = 105.07'	L = 77.49'
T = 65.27'	T = 40.81'
R = 70.00'	R = 100.00'
SE = 0.04 FT/FT	SE = 0.04 FT/FT
RO = SEE PLANS	RO = SEE PLANS

–L–

PI Sta 163+46.06	PI Sta 171+65.43
△ = 46° 24' 19.4" (RT)	△ = 19° 12' 46.1" (RT)
D = 4° 14' 38.9"	D = 3° 10' 59.2"
L = 1,093.40'	L = 603.59'
T = 578.69'	T = 304.65'
R = 1,350.00'	R = 1,800.00'
SE = 0.06 FT/FT	SE = 0.06 FT/FT
RO = SEE PLANS	RO = SEE PLANS

PLACE COIR FIBER MATTING ALONG THE STREAMBANK AT LOCATIONS WHICH WILL NOT BE PLATED IN CLASS II RIP RAP, BUT WILL BE EXPOSED BY REMOVAL OF END BENTS.

NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5

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

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-06/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2007

END NCDOT TIP PROJECT R-2566BA
-L- STA. 174+64.36

-L- PT Sta. 174+64.36

MATCHLINE -L- STA. 170+00.00 SEE SHT. 5

STANDARD BASE DITCH SEE DETAIL 6B DDE=12 CY

FILL ABANDONED STREAM WITH CLASS II RIP RAP EST 70 TNS

STANDARD BASE DITCH SEE DETAIL 6B, DDE=40 CY

350' LANE SHIFT

300' TAPER

720' TRANSITION

TB JB w/Slab Lid

FLOWABLE FILL

60" RCP (TRENCHLESS INSTALLATION)

REMOVE

STANDARD V DITCH, DDE=24 CY SEE DETAIL 6A

NO BURIAL AT INLET

TOE PROTECTION SEE DETAIL 6C 15 TONS CL B 33 SY GEO

TIE TO EXIST. GR

RETAIN

64° 34' 04.9" E

-L-

40' TYP

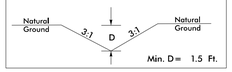
+64.36

END CONSTRUCTION
-L- STA. 176+50.00

-L- POT Sta. 176+79.96

-L-
PI Sta 171+65.43
Δ = 19° 12' 46.1" (RT)
D = 3° 10' 59.2"
L = 603.59'
T = 304.65'
R = 1,800.00'
SE = 0.06 FT/FT
RO = SEE PLANS

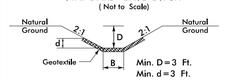
DETAIL 6A
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 1.5 Ft.

FROM -L- STA 172+60 TO 173+00 RT

DETAIL 6B
STANDARD BASE DITCH
(Not to Scale)



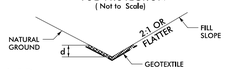
Min. D=3 Ft.
Min. d=3 Ft.
B=8 Ft.

*When B is < 6.0'

Type of Liner=Class II Rip-Rap

FROM -L- STA 171+41@104'LT TO 171+41@96'LT
FROM -L- STA 171+99@113'LT TO 172+03@95'LT

DETAIL 6C
TOE PROTECTION
(Not to Scale)



d=1 Ft.

Type of Liner=Class B Rip-Rap

FROM STA -L- 171+46 TO 172+00 RT

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 06

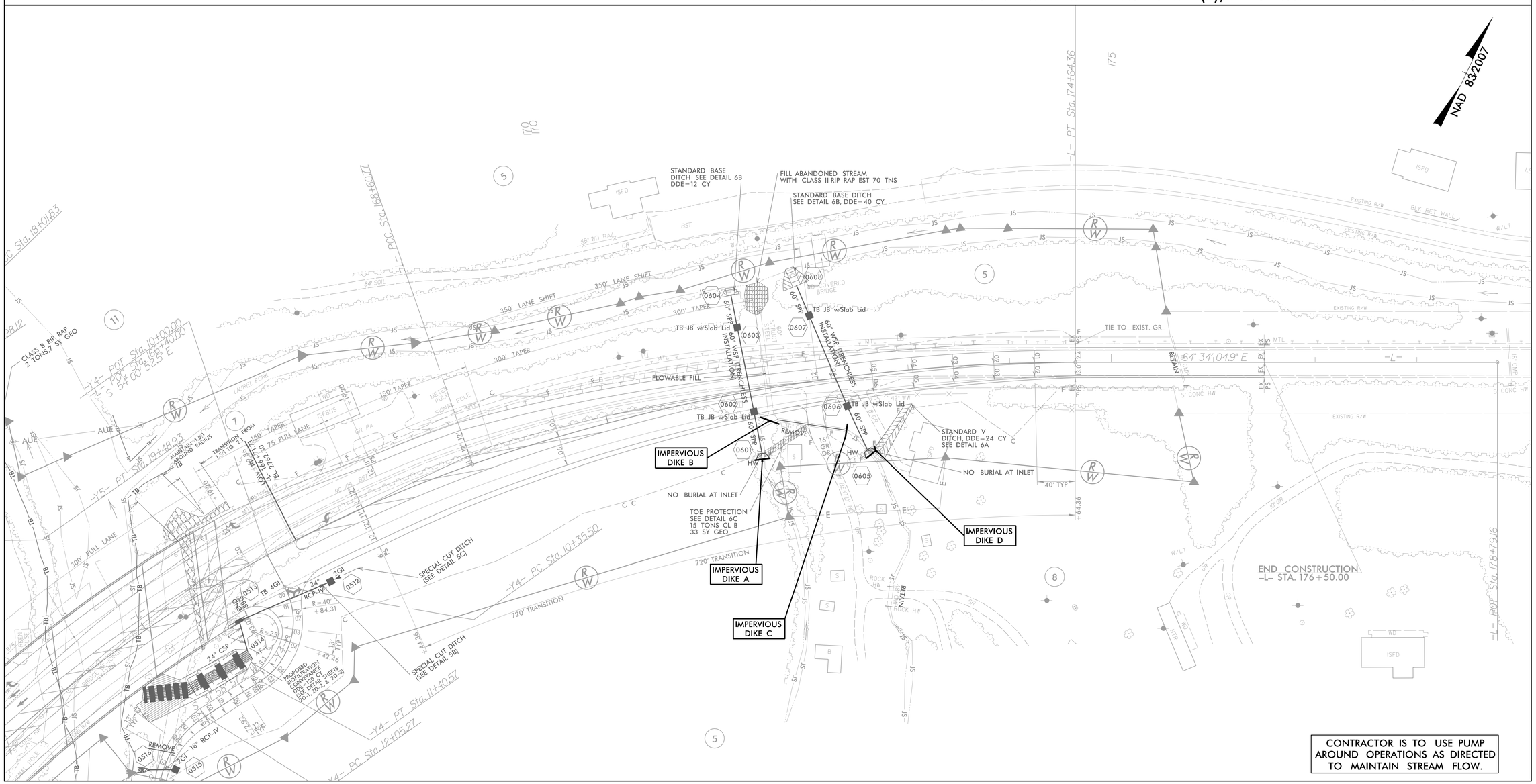
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

PIPE CONSTRUCTION SEQUENCE STA. 171+61 –L–

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-07/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT PIPE CONSTRUCTION.
2. INSTALL BOTH PROPOSED 60" WSPs (TRENCHLESS INSTALLATION). CONSTRUCT TB JBs WITH SLAB LIDS, INSTALL DOWNSTREAM END 60" SPPs, AND CONSTRUCT OUTLET CHANNEL STANDARD BASE DITCHES.
3. CONSTRUCT IMPERVIOUS DIKES A AND B. UTILIZE A PUMP AROUND OPERATION TO MAINTAIN STREAM FLOW THROUGH THE EXISTING 60" SSP.
4. INSTALL WESTERN 60" UPSTREAM END SPP AND HEADWALL.
5. REMOVE IMPERVIOUS DIKE A, ALLOWING FLOW THROUGH THE COMPLETED WESTERN PIPE INSTALLATION.
6. CONSTRUCT IMPERVIOUS DIKES C AND D. UTILIZE A PUMP AROUND OPERATION TO MAINTAIN STREAM FLOW THROUGH THE EXISTING 36" CMP AND EXISTING 60" SPP.
7. INSTALL EASTERN 60" UPSTREAM END SPP AND HEADWALL.
8. REMOVE IMPERVIOUS DIKES B, C, AND D, ALLOWING FLOW THROUGH THE COMPLETED EASTERN PIPE INSTALLATION.
9. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S), AND COMPLETE ROADWAY.



PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-08/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

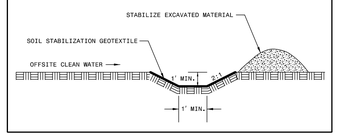
NAD 83/2007

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

CLEAN WATER DIVERSION

→→ CWD →→ CWD →→ CWD →→ CWD →→

(Not to Scale)



INSTALL MATTING IN THE PROPOSED DITCH LINE -L- STA 152+50 TO 162+00 LT EST. 845 SY

BEGIN NCDOT TIP PROJECT R-2566BA
-L- STA. 151+99.39

-EL- PC Sta. 147+26.75

-EL- PCC Sta. 148+88.75 BK=
-L- PC Sta. 148+88.75 AH

-L- PT Sta. 153+75.27

PC Sta. 157+67.37

720' TRANSITION

TRANSITION FROM 1'-6" C&G TO 2'-9" C&G -L- STA. 154+46 TO 154+71 LT.

40' TYP

REMOVE HW

FLOWABLE FILL

18" RCP-IV

24" RCP-IV

1'-6" C&G

2'-9" C&G

N 10°03'00.6" W

RIP RAP AT EMBANKMENT
EST 70 TNS CL I RIP RAP
150 SY GT
SEE DETAIL 4A

RIP RAP AT EMBANKMENT
EST 40 TNS CL I RIP RAP
85 SY GT
SEE DETAIL 4A

RIP RAP AT EMBANKMENT
EST 50 TNS
CL I RIP RAP
110 SY GT
SEE DETAIL 4A

FLOWABLE FILL

-L- +91.54
112.93

-L- +32.17
EX RW

-L- +31.22
68.59

-L- +16.19
85.44

-L- +30.00
EX RW
86.76
105.00

-L- +70.00
EX RW
90.50
105.00

-L- +74.38
EX RW

-L- +11.08
103.77

BEGIN SBG
-L- +46.92

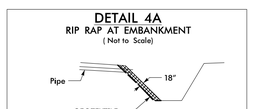
+19.39

240' TAPER

WATAUGA RIVER

MATCHLINE -L- STA. 160+00.00 SEE SHT. 5

DETAIL 4A
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = TBD TONS, Class I Rip-Rap
Geotextile = TBD SY

FROM -L- STA 152+91 TO 153+11 RT
FROM -L- STA 155+40 TO 155+63 RT
FROM -L- STA 158+42 TO 158+58 RT

-EL-	-L-	
PI Sta 148+07.77	PI Sta 151+34.38	PI Sta 163+46.06
Δ = 3° 23' 59.8" (LT)	Δ = 19° 29' 36.7" (LT)	Δ = 46° 24' 19.4" (RT)
D = 2° 05' 55.5"	D = 4° 00' 24.1"	D = 4° 14' 38.9"
L = 162.00'	L = 486.52'	L = 1,093.40'
T = 81.02'	T = 245.64'	T = 578.69'
R = 2,730.00'	R = 1,430.00'	R = 1,350.00'
SE = EXIST.	SE = 0.06 FT/FT	SE = 0.06 FT/FT
RO = EXIST.	RO = SEE PLANS	RO = SEE PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-09/CONST.5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

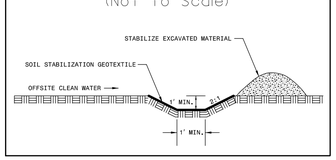
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2007

CLEAN WATER DIVERSION

CWD → CWD → CWD → CWD →

(Not to Scale)

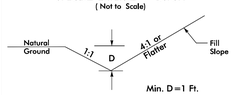


DETAIL 4A
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner = 31 TONS,Class I Rip-Rap
Geotextile = 70 SY

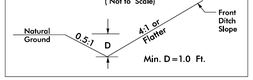
FROM –L– STA 161+94 TO 162+07 RT

DETAIL 5A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



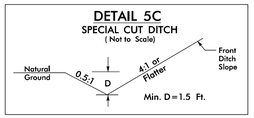
FROM –L– STA. 162+02 to 162+33 LT

DETAIL 5B
SPECIAL CUT DITCH
(Not to Scale)



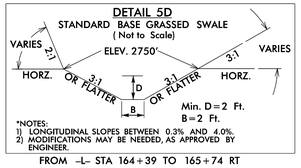
FROM –L– STA. 166+60 TO 166+84 RT

DETAIL 5C
SPECIAL CUT DITCH
(Not to Scale)



FROM –L– STA. 166+84 TO 167+15 RT

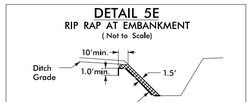
DETAIL 5D
STANDARD BASE GRASSED SWALE
(Not to Scale)



*NOTES:
1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

FROM –L– STA 164+39 TO 165+74 RT

DETAIL 5E
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = 15 TONS, Class I Rip-Rap
Geotextile = 35 sy

FROM –L– STA 164+25 TO 164+51 RT

INSTALL MATTING IN THE PROPOSED DITCH LINE
–L– STA 152+50 TO 162+00 LT
EST. 845 SY

PLACE COIR FIBER MATTING ALONG THE STREAMBANK AT LOCATIONS WHICH WILL NOT BE PLATED IN CLASS II RIP RAP, BUT WILL BE EXPOSED BY REMOVAL OF END BENTS.

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

INSTALL PSRM IN THE PROPOSED DITCH LINE
–Y4– STA 10+60 TO 12+50 LT
EST. 95 SY

NOTE:
UTILIZE SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

–Y5– PC Sta. 16+11.40

–Y5– PCC Sta. 17+07.48

–Y5– PCC Sta. 18+01.83

–Y5– STA. 18+34.40
END CONST.

PCC Sta. 18+98.12

–Y5– PT Sta. 19+48.93

–Y4– POT Sta. 10+00.00
–L– POC Sta. 166+40.00
S 54° 00' 52.5" E

–Y5– PC Sta. 20+86.96
–Y5REV– POT Sta. 20+86.96

–Y5REV– PC Sta. 21+34.97

–Y5– PT Sta. 21+58.69

–Y4– PCC Sta. 168+60.77

–Y4– PT Sta. 11+40.57

–Y4– PC Sta. 12+05.27

–Y4– PC Sta. 10+35.50

–Y5REV– PT Sta. 22+09.02
–L– POC Sta. 162+41.00

–Y4– PT Sta. 12+82.76
END CONST.

–Y5– POT Sta. 21+95.89
–L– POC Sta. 162+74.00
S 69° 32' 53.2" E

–Y4– POT Sta. 14+27.76
S 12° 25' 00.0" E

MATCHLINE –L– STA. 160+00.00 SEE SHEET 4

MATCHLINE –L– STA. 170+00.00 SEE SHEET 6

RETAIN & CLEAN OUT

CLASS B RIP RAP
2 TONS,7 SY GEO

RETAINING WALL NO.1
SINGLE FACED
CONC. BARRIER

PROP. CONC. PAVED DITCH

TRANSITION FROM WALL TO DITCH GRADE TO DRAIN
11 TONS, CLASS B,
24 SY GEO

SPECIAL LATERAL 'V' DITCH (SEE DETAIL 5A)

18" RCP-IV

CLASS B RIP RAP
2 TONS,
7 SY GEO

RIP RAP AT EMBANKMENT
SEE DETAIL 4A
EST CL I RR=31 TNS
GT=60 SY

MAINTAIN 1.5:1 AROUND RADIUS

TRANSITION FROM 1.5:1 TO 2:1

300' FULL LANE

150' TAPER

75' FULL LANE

350' LANE SHIFT

300' TAPER

720' TRANSITION

24" CSP

24" RCP-IV

PROPOSED BIOFILTRATION CONVEYANCE
DDE=120 CY
(SEE DETAIL SHEETS 2D-1, 2D-2, & 2D-3)

SPECIAL CUT DITCH
(SEE DETAIL 5C)

SPECIAL CUT DITCH
(SEE DETAIL 5B)

REMOVAL

–Y5–

PI Sta 16+59.54	PI Sta 17+55.18	PI Sta 18+51.22
△ = 9° 01' 25.6" (RT)	△ = 20° 47' 33.1" (RT)	△ = 31° 31' 28.0" (RT)
D = 9° 23' 33.9"	D = 22° 02' 12.6"	D = 32° 44' 25.6"
L = 96.07'	L = 94.35'	L = 96.29'
T = 48.14'	T = 47.70'	T = 49.40'
R = 610.00'	R = 260.00'	R = 175.00'
SE = 0.06 FT/FT	SE = 0.06 FT/FT	SE = 0.06 FT/FT
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS

–Y5–

PI Sta 19+23.61	PI Sta 21+24.63	–Y5EV– PI Sta 21+74.18
△ = 11° 38' 44.0" (RT)	△ = 43° 15' 37.0" (LT)	△ = 44° 39' 39.0" (LT)
D = 22° 55' 05.9"	D = 60° 18' 40.8"	D = 60° 18' 40.8"
L = 50.81'	L = 71.73'	L = 74.05'
T = 25.49'	T = 37.67'	T = 39.21'
R = 250.00'	R = 95.00'	R = 95.00'
SE = EXIST.	SE = 0.02 FT/FT	SE = 0.02 FT/FT
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS

–Y4–

PI Sta 11+00.77	PI Sta 12+46.08
△ = 85° 59' 49.7" (RT)	△ = 44° 23' 57.2" (LT)
D = 81° 51' 04.0"	D = 57° 17' 44.8"
L = 105.07'	L = 77.49'
T = 65.27'	T = 40.81'
R = 70.00'	R = 100.00'
SE = 0.04 FT/FT	SE = 0.04 FT/FT
RO = SEE PLANS	RO = SEE PLANS

–L–

PI Sta 163+46.06	PI Sta 171+65.43
△ = 46° 24' 19.4" (RT)	△ = 19° 12' 46.1" (RT)
D = 4° 14' 38.9"	D = 3° 10' 59.2"
L = 1,093.40'	L = 603.59'
T = 578.69'	T = 304.65'
R = 1,350.00'	R = 1,800.00'
SE = 0.06 FT/FT	SE = 0.06 FT/FT
RO = SEE PLANS	RO = SEE PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	EC-10/CONST.6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

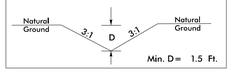
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

NAD 83/2007

END NCDOT TIP PROJECT R-2566BA
-L- STA. 174+64.36

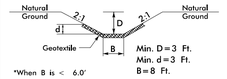
Place Matting for Erosion Control on Slope as Work Allows.
-L- Sta. 174+00 to 174+50 LT

DETAIL 6A
STANDARD 'V' DITCH
(Not to Scale)



FROM -L- STA 172+60 TO 173+00 RT

DETAIL 6B
STANDARD BASE DITCH
(Not to Scale)



Type of Liner=Class II Rip-Rap
FROM -L- STA 171+41@104'LT TO 171+41@96'LT
FROM -L- STA 171+99@113'LT TO 172+03@95'LT

DETAIL 6C
TOE PROTECTION
(Not to Scale)

Type of Liner=Class B Rip-Rap
FROM STA -L- 171+46 TO 172+00 RT

For Slopes Excavated Greater Than 10 feet Install Matting for Erosion Control on Entire Slope as Work Allows.

INSTALL MATTING IN THE PROPOSED DITCH LINE
-L- STA 167+15 TO 171+00 RT
EST. 465 SY

INSTALL PSRM IN THE PROPOSED DITCH LINE
-L- STA 172+60 TO 173+00 RT
EST. 65 SY

INSTALL PSRM IN THE PROPOSED DITCH LINE
-L- STA 173+00 TO 174+00 RT
EST. 105 SY

MATCHLINE -L- STA. 170+00.00 SEE SHT. 5

-L- PT Sta. 174+64.36

STANDARD BASE DITCH SEE DETAIL 6B DDE=12 CY

FILL ABANDONED STREAM WITH CLASS II RIP RAP EST 70 TNS

STANDARD BASE DITCH SEE DETAIL 6B, DDE=40 CY

350' LANE SHIFT

300' TAPER

720' TRANSITION

TB JB w/Slab Lid

TB JB w/Slab Lid

FLOWABLE FILL

TB JB w/Slab Lid

TB JB w/Slab Lid

REMOVE

STANDARD V DITCH, DDE=24 CY SEE DETAIL 6A

NO BURIAL AT INLET

NO BURIAL AT INLET

TOE PROTECTION SEE DETAIL 6C 15 TONS CL B 33 SY GEO

RETAIN

RETAIN

TIE TO EXIST. GR

64°34'04.9" E

-L-

+64.36

END CONSTRUCTION
-L- STA. 176+50.00

-L- POT Sta. 178+79.16

-L-
PI Sta 171+65.43
Δ = 19°12'46.1" (RT)
D = 3°10'59.2"
L = 603.59'
T = 304.65'
R = 1,800.00'
SE = 0.06 FT/FT
RO = SEE PLANS