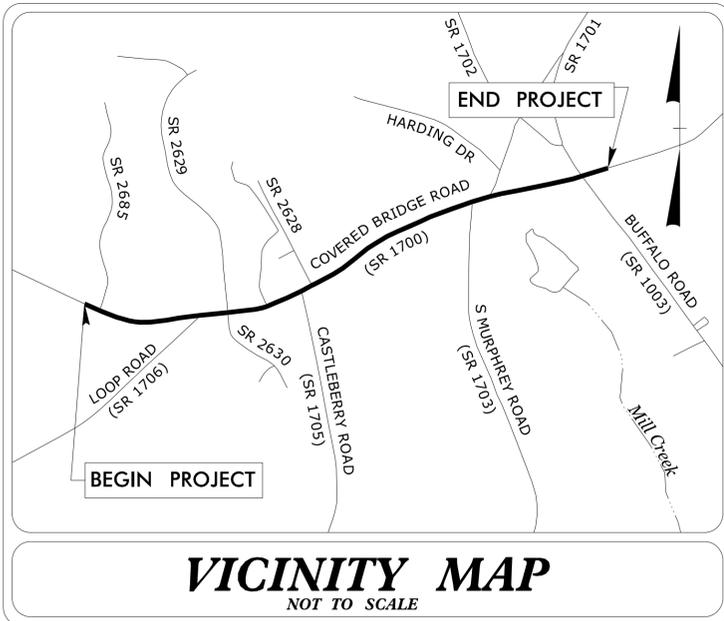


**TIP PROJECT: W-5704E**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

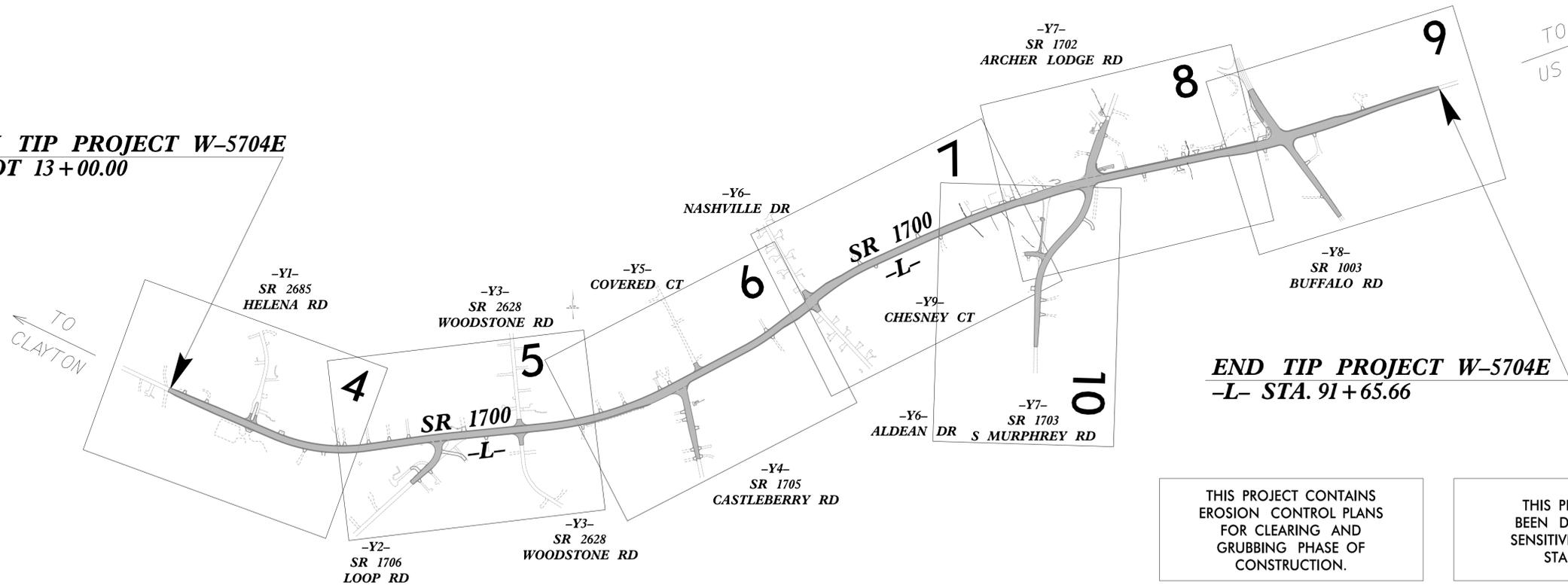
JOHNSTON COUNTY  
LOCATION: SR 1700 (COVERED BRIDGE ROAD) FROM  
SR 2685 (HELENA LANE) TO SR 1003 (BUFFALO ROAD)

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5704E	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

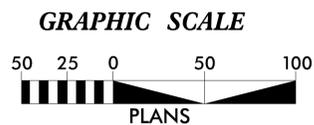
NAD 83 / NA2011

BEGIN TIP PROJECT W-5704E  
-L- POT 13+00.00

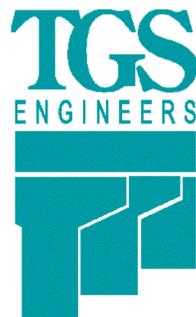


THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG 010000 GENERAL STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES.



Prepared in the Office of:  
**TGS ENGINEERS**  
706 HILLSBOROUGH STREET  
SUITE 200  
RALEIGH, NC 27603

Designed by:  
**Ben Henegar, PE** 3564  
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

# DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

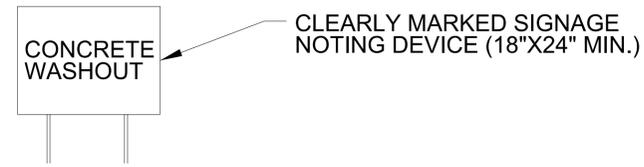
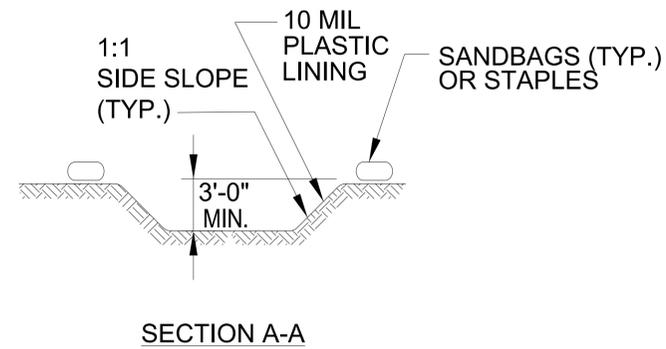
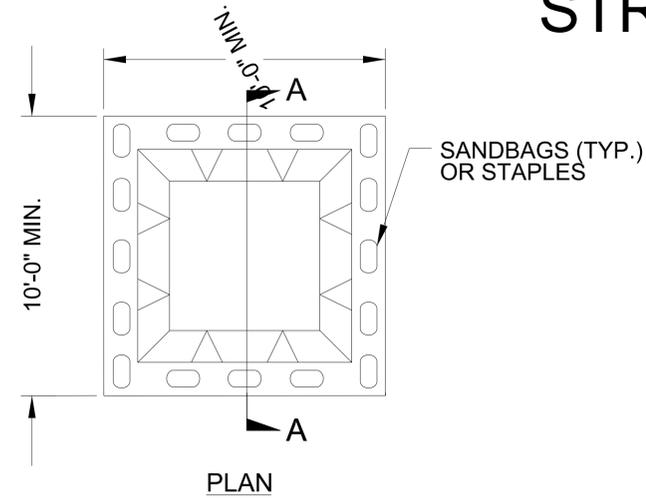
PROJECT REFERENCE NO. <b>W-5704E</b>	SHEET NO. <b>EC-02</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

## EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol	Std. #	Description	Symbol
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1630.02	Silt Basin Type B		1634.01	Temporary Rock Sediment Dam Type A	
1630.03	Temporary Silt Ditch		1634.02	Temporary Rock Sediment Dam Type B	
1630.04	Stilling Basin		1635.01	Rock Pipe Inlet Sediment Trap Type A	
1630.05	Temporary Diversion		1635.02	Rock Pipe Inlet Sediment Trap Type B	
1630.06	Special Stilling Basin		1636.01	Excelsior Wattle Check	
1630.07	Skimmer Basin		1636.01	Excelsior Wattle Check with Flocculant	
1630.08	Tiered Skimmer Basin		1636.01	Coir Fiber Wattle Check	
1630.09	Earthen Dam with Skimmer		1636.01	Coir Fiber Wattle Check with Flocculant	
	Infiltration Basin		1636.02	Silt Fence Excelsior Wattle Break	
	Rock Inlet Sediment Trap:			Silt Fence Coir Fiber Wattle Break	
1632.01	Type A		1636.03	Excelsior Wattle Barrier	
1632.02	Type B		1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C				

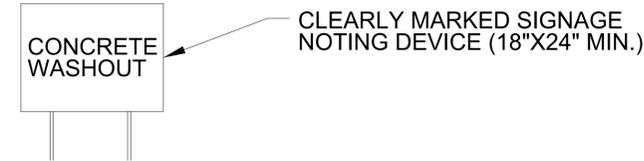
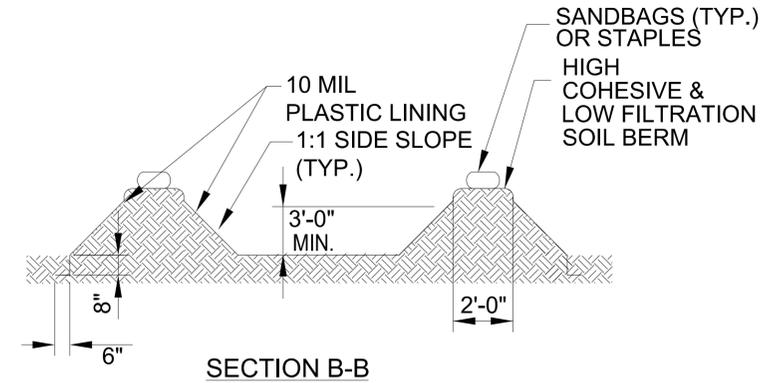
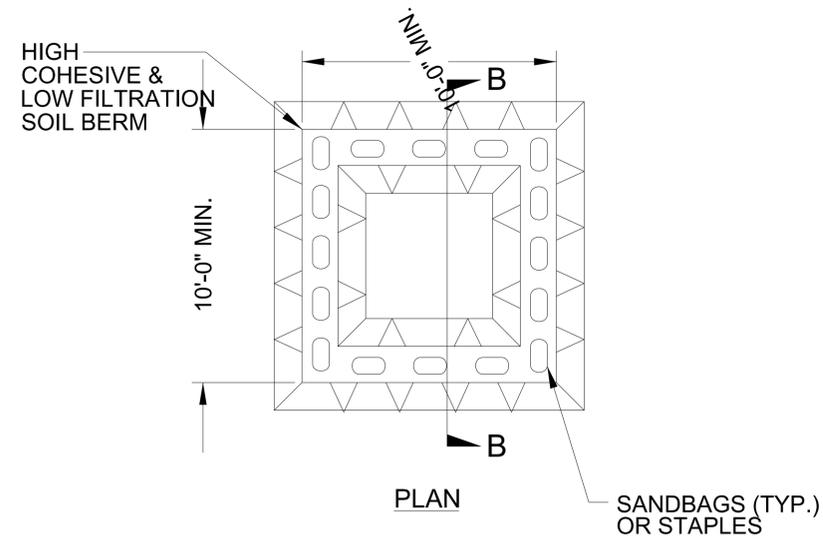
PROJECT REFERENCE NO.	SHEET NO.
W-5704E	EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



**BELOW GRADE WASHOUT STRUCTURE**  
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
  2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
  3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.



**ABOVE GRADE WASHOUT STRUCTURE**  
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
  2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
  3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.





DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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PROJECT REFERENCE NO. <i>W-5704E</i>	SHEET NO. <i>EC-3B</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

## ***SOIL STABILIZATION TIMEFRAMES***

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

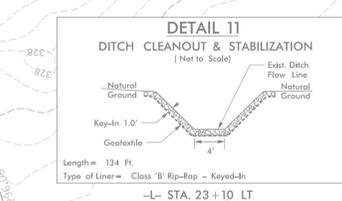
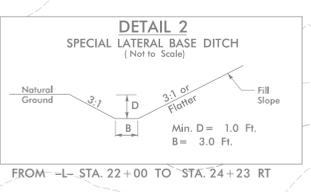
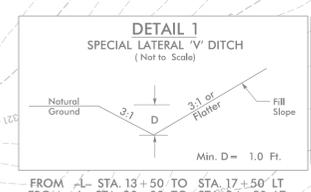
PROJECT REFERENCE NO. W-5704E	SHEET NO. EC-4/CONST.4
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

**-L- CURVE DATA**

PI Sta 13+89.85 Δ = 2° 04' 48.4" (LT) D = 5' 36" 05.5" L = 345.80' T = 172.92' R = 9,525.00' SE = EXISTING	PI Sta 22+46.17 Δ = 3° 10' 18.2" (LT) D = 5' 43' 46.5" L = 544.05' T = 278.94' R = 1,000.00' V = 50 MPH
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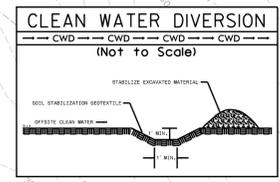
**-YI- CURVE DATA**

PI Sta 13+89.67 Δ = 5° 56' 12.8" (RT) D = 5' 43' 46.5" L = 103.62' T = 51.86' R = 1,000.00'	PI Sta 11+31.39 Δ = 2° 09' 43.0" (RT) D = 2' 13' 14.4" L = 128.00' T = 65.22' R = 270.00'
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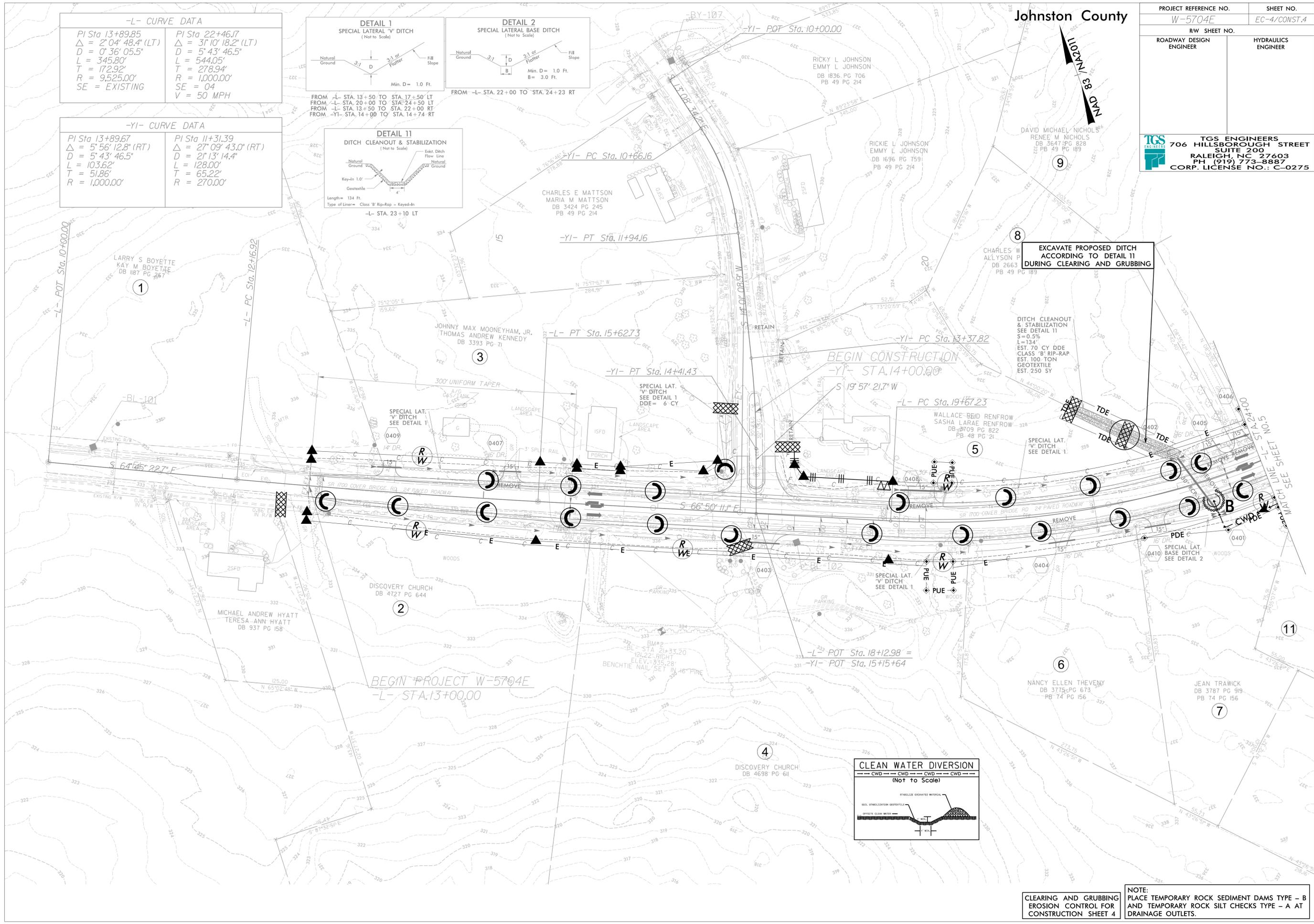


**EXCAVATE PROPOSED DITCH ACCORDING TO DETAIL 11 DURING CLEARING AND GRUBBING**

DITCH CLEANOUT & STABILIZATION SEE DETAIL 11  
S = 0.5%  
L = 134'  
EST. 70 CY DDE  
CLASS 'B' RIP-RAP  
EST. 100 TON  
GEOTEXTILE  
EST. 250 SY



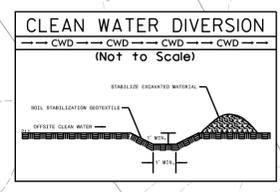
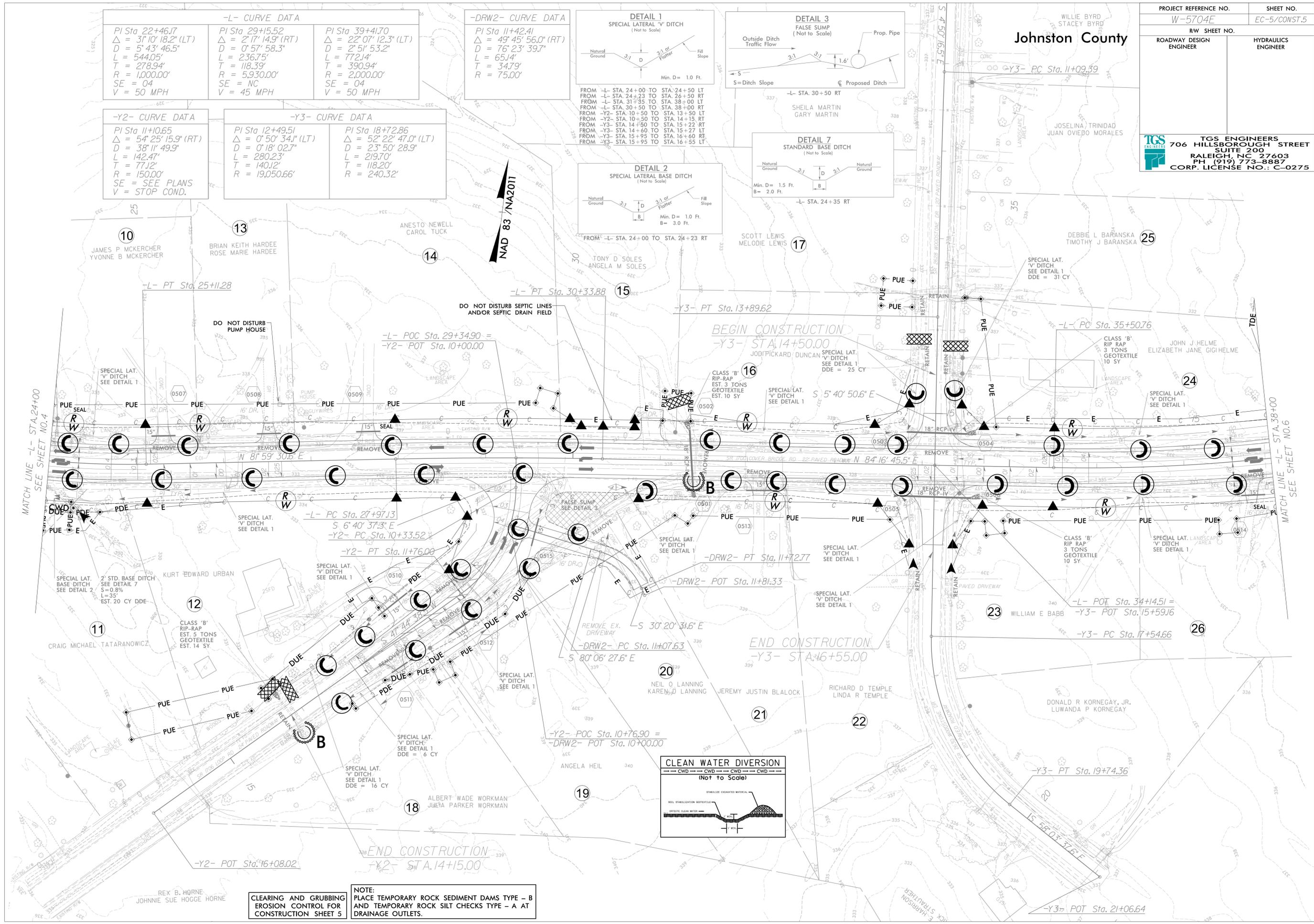
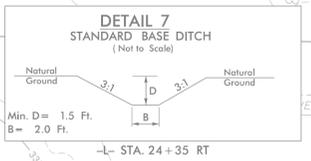
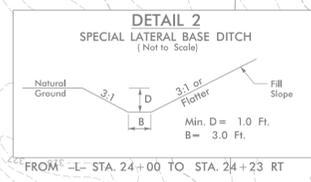
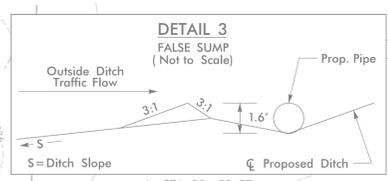
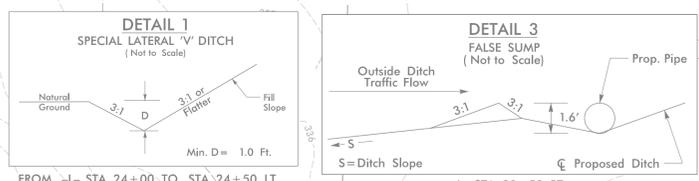
**NOTE:**  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.



# Johnston County

-L- CURVE DATA			-DRW2- CURVE DATA		
PI Sta 22+46.17	PI Sta 29+15.52	PI Sta 39+41.70	PI Sta 11+42.41		
$\Delta = 31^{\circ} 10' 18.2''$ (LT)	$\Delta = 2^{\circ} 17' 14.9''$ (RT)	$\Delta = 22^{\circ} 07' 12.3''$ (LT)	$\Delta = 49^{\circ} 45' 56.0''$ (RT)		
D = 5' 43' 46.5"	D = 0' 57' 58.3"	D = 2' 51' 53.2"	D = 76' 23' 39.7"		
L = 544.05'	L = 236.75'	L = 772.14'	L = 65.14'		
T = 278.94'	T = 118.39'	T = 390.94'	T = 34.79'		
R = 1,000.00'	R = 5,930.00'	R = 2,000.00'	R = 75.00'		
SE = 04	SE = NC	SE = 04			
V = 50 MPH	V = 45 MPH	V = 50 MPH			

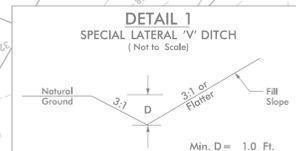
-Y2- CURVE DATA		-Y3- CURVE DATA	
PI Sta 11+10.65	PI Sta 12+49.51	PI Sta 18+72.86	
$\Delta = 54^{\circ} 25' 15.9''$ (RT)	$\Delta = 0^{\circ} 50' 34.1''$ (LT)	$\Delta = 52^{\circ} 22' 47.0''$ (LT)	
D = 38' 11' 49.9"	D = 0' 18' 02.7"	D = 23' 50' 28.9"	
L = 142.47'	L = 280.23'	L = 219.70'	
T = 77.12'	T = 140.12'	T = 118.20'	
R = 150.00'	R = 19,050.66'	R = 240.32'	
SE = SEE PLANS			
V = STOP COND.			



**NOTE:**  
 CLEARING AND GRUBBING  
 EROSION CONTROL FOR  
 CONSTRUCTION SHEET 5  
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
 DRAINAGE OUTLETS.

Johnston County

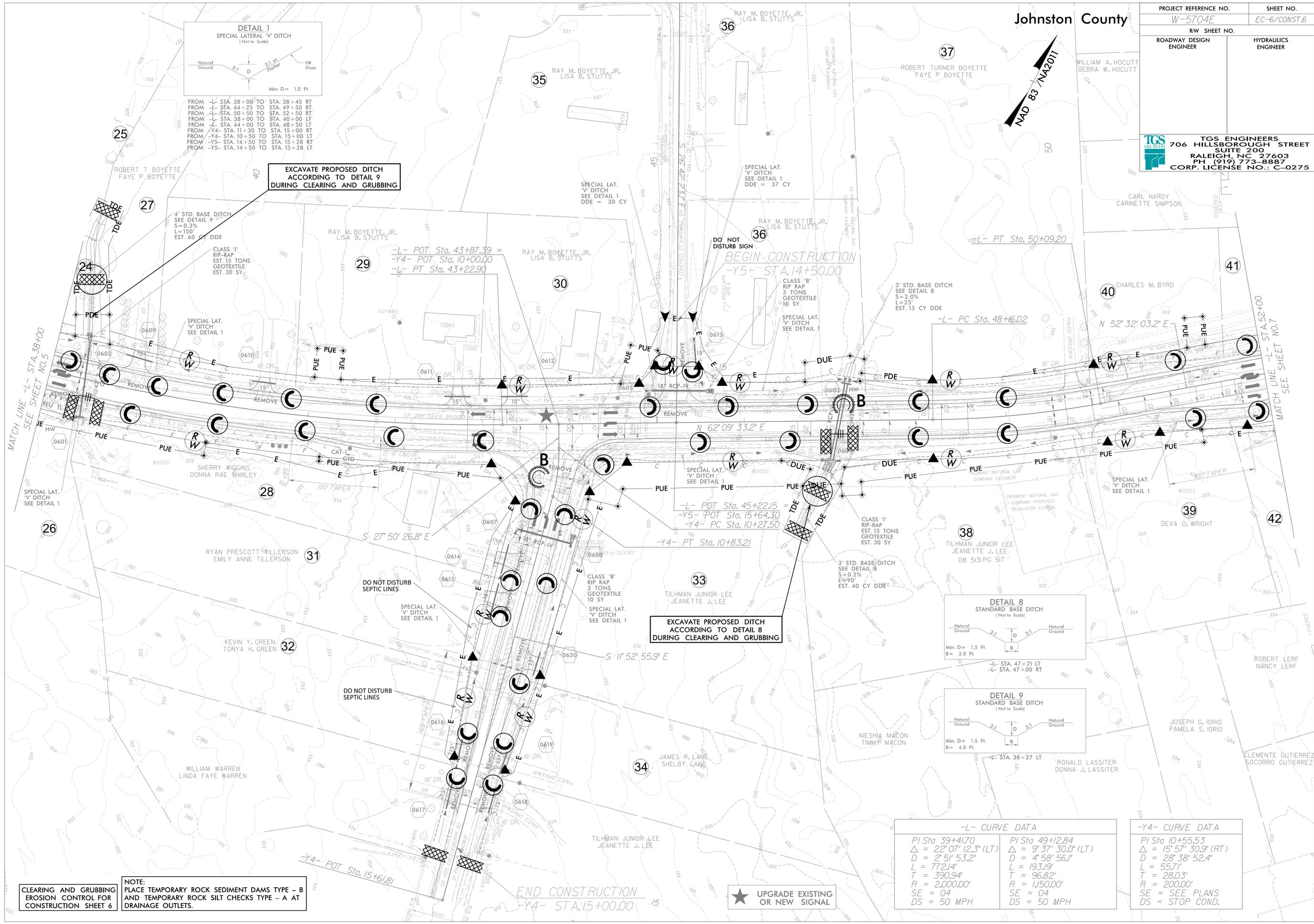
NAD 83 / NAD 2011



FROM -L- STA. 38+00 TO STA. 38+45 RT  
 FROM -L- STA. 44+25 TO STA. 49+50 RT  
 FROM -L- STA. 50+50 TO STA. 52+50 RT  
 FROM -L- STA. 38+00 TO STA. 40+00 LT  
 FROM -L- STA. 44+00 TO STA. 48+50 LT  
 FROM -Y4- STA. 11+30 TO STA. 15+00 RT  
 FROM -Y4- STA. 10+50 TO STA. 15+00 LT  
 FROM -Y5- STA. 14+50 TO STA. 15+28 RT  
 FROM -Y5- STA. 14+50 TO STA. 15+28 LT

EXCAVATE PROPOSED DITCH  
 ACCORDING TO DETAIL 9  
 DURING CLEARING AND GRUBBING

EXCAVATE PROPOSED DITCH  
 ACCORDING TO DETAIL 8  
 DURING CLEARING AND GRUBBING



CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 6

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

-L- CURVE DATA		-Y4- CURVE DATA	
PI Sta 39+41.70	$\Delta = 22^{\circ} 07' 12.3''$ (LT)	PI Sta 49+12.84	$\Delta = 9^{\circ} 37' 30.0''$ (LT)
D = 2' 51' 53.2"	L = 772.14'	D = 4' 58' 56.1"	L = 193.19'
T = 390.94'	R = 2,000.00'	T = 96.82'	R = 1,150.00'
SE = 04	DS = 50 MPH	SE = 04	DS = 50 MPH

-Y4- CURVE DATA	
PI Sta 10+55.53	$\Delta = 15^{\circ} 57' 30.9''$ (RT)
D = 28' 38' 52.4"	L = 55.71'
T = 28.03'	R = 200.00'
SE = SEE PLANS	DS = STOP COND.

★ UPGRADE EXISTING OR NEW SIGNAL

END CONSTRUCTION  
 -Y4- STA. 15+00.00

PROJECT REFERENCE NO. W-5704E	SHEET NO. EC-7/CONST.7
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	

**-L- CURVE DATA**

PI Sta 55+48.36 Δ = 12° 51' 54.2" (RT) D = 4' 16" 32.9" L = 300.88' T = 151.08' R = 1,340.00' SE = 04 DS = 50 MPH	PI Sta 62+56.27 Δ = 5° 05' 30.7" (RT) D = 0' 57" 58.3" L = 527.00' T = 263.67' R = 5,930.00' SE = NC DS = 45 MPH
--	---

**-Y6- CURVE DATA**

PI Sta 13+89.30 Δ = 8° 17' 57.9" (LT) D = 28' 38" 52.4" L = 28.97' T = 14.51' R = 200.00'	PI Sta 16+25.51 Δ = 5° 38' 27.1" (LT) D = 28' 38" 52.4" L = 19.69' T = 9.85' R = 200.00'
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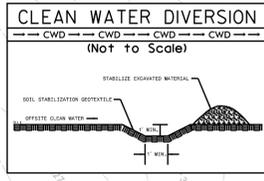
85 x 25 x 3  
1.5 inch Skimmer  
with 1.25 inch  
Orifice Diameter  
10 ft. weir  
ID 7.1

EXCAVATE PROPOSED DITCH  
ACCORDING TO DETAIL 1  
DURING CLEARING AND GRUBBING  
FROM -L- STA. 62+50 TO STA. 63+10 LT

EXCAVATE PROPOSED DITCH  
ACCORDING TO DETAIL 2  
DURING CLEARING AND GRUBBING  
FROM -L- STA. 62+50 TO STA. 65+50 RT

1.5 inch Skimmer  
with 0.625 inch  
Orifice Diameter  
8 ft. weir with  
2.25 ft. weir height  
ID 7.2  
(See Earthen Dam  
with Skimmer Detail)

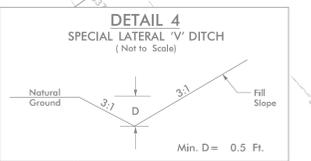
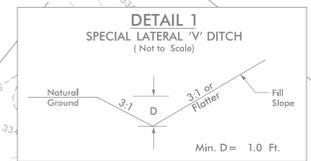
EXCAVATE PROPOSED DITCH  
ACCORDING TO DETAIL 7  
DURING CLEARING AND GRUBBING



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

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 7

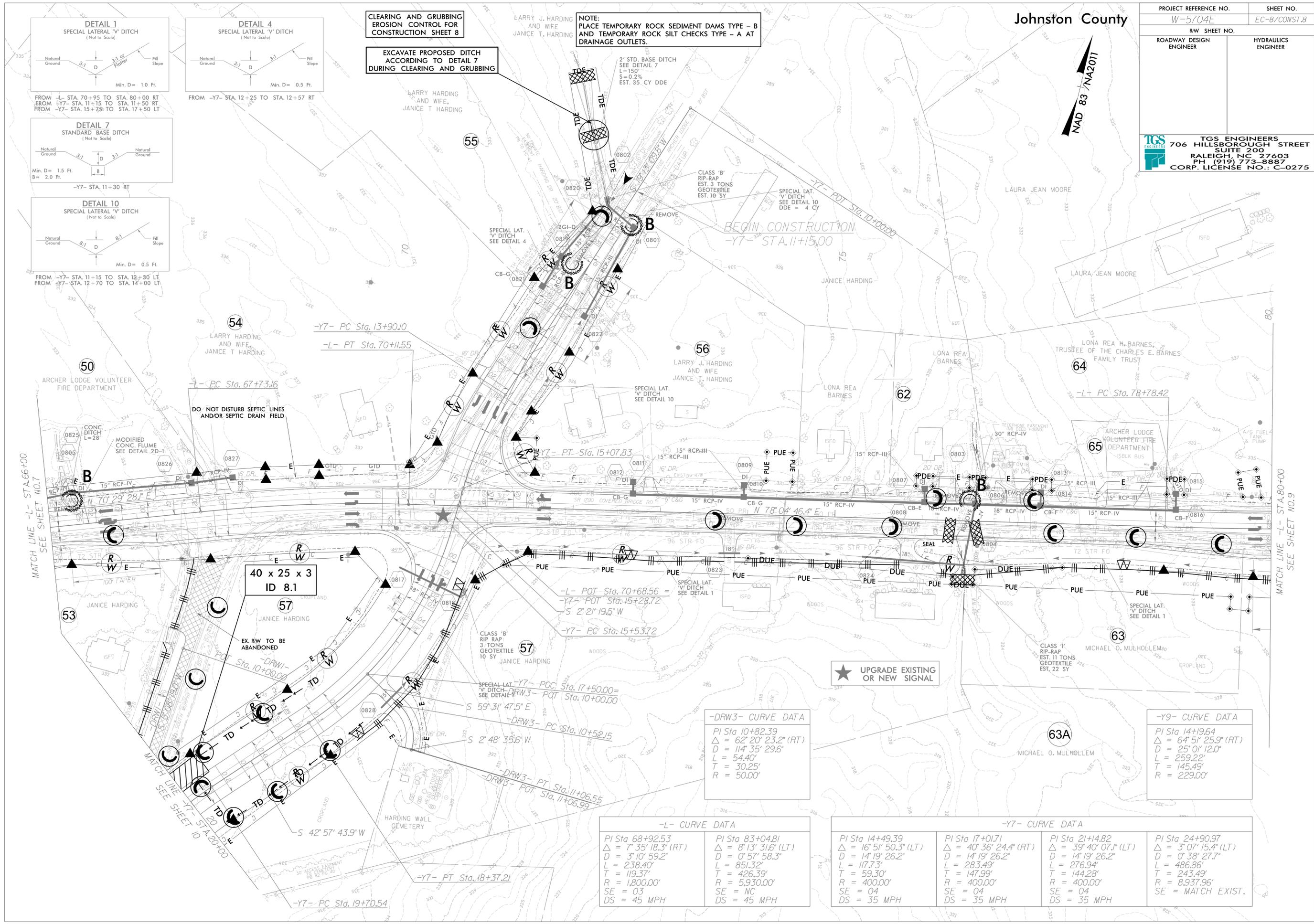
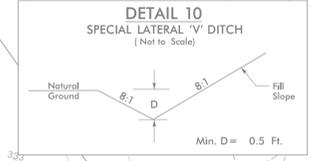
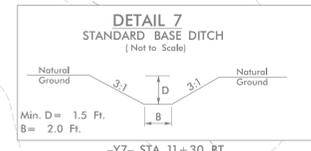
Johnston County



CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 8

EXCAVATE PROPOSED DITCH  
ACCORDING TO DETAIL 7  
DURING CLEARING AND GRUBBING

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



DO NOT DISTURB SEPTIC LINES  
AND/OR SEPTIC DRAIN FIELD

40 x 25 x 3  
ID 8.1

★ UPGRADE EXISTING  
OR NEW SIGNAL

**-DRW3- CURVE DATA**

PI Sta 10+82.39	$\Delta = 62^\circ 20' 23.2''$ (RT)
D = 114' 35" 29.6"	L = 54.40'
T = 30.25'	R = 50.00'

**-Y9- CURVE DATA**

PI Sta 14+19.64	$\Delta = 64^\circ 51' 25.9''$ (RT)
D = 25' 01" 12.0"	L = 259.22'
T = 145.49'	R = 229.00'

**-L- CURVE DATA**

PI Sta 68+92.53	$\Delta = 7^\circ 35' 18.3''$ (RT)
D = 3' 10" 59.2"	L = 238.40'
T = 119.37'	R = 1,800.00'
SE = 03	DS = 45 MPH

**-Y7- CURVE DATA**

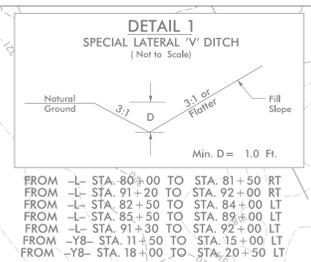
PI Sta 14+49.39	$\Delta = 16^\circ 51' 50.3''$ (LT)	PI Sta 17+01.71	$\Delta = 40^\circ 36' 24.4''$ (RT)	PI Sta 21+14.82	$\Delta = 39^\circ 40' 07.1''$ (LT)	PI Sta 24+90.97	$\Delta = 3^\circ 07' 15.4''$ (LT)
D = 14' 19" 26.2"	L = 117.73'	D = 14' 19" 26.2"	L = 283.49'	D = 14' 19" 26.2"	L = 276.94'	D = 0' 38" 27.7"	L = 486.86'
T = 59.30'	R = 400.00'	T = 147.99'	R = 400.00'	T = 144.28'	R = 400.00'	T = 243.49'	R = 8,937.96'
SE = 04	DS = 35 MPH	SE = 04	DS = 35 MPH	SE = 04	DS = 35 MPH	SE = MATCH EXIST.	DS = 35 MPH

MATCH LINE -L- STA.66+00  
SEE SHEET NO.7

MATCH LINE -L- STA.80+00  
SEE SHEET NO.9

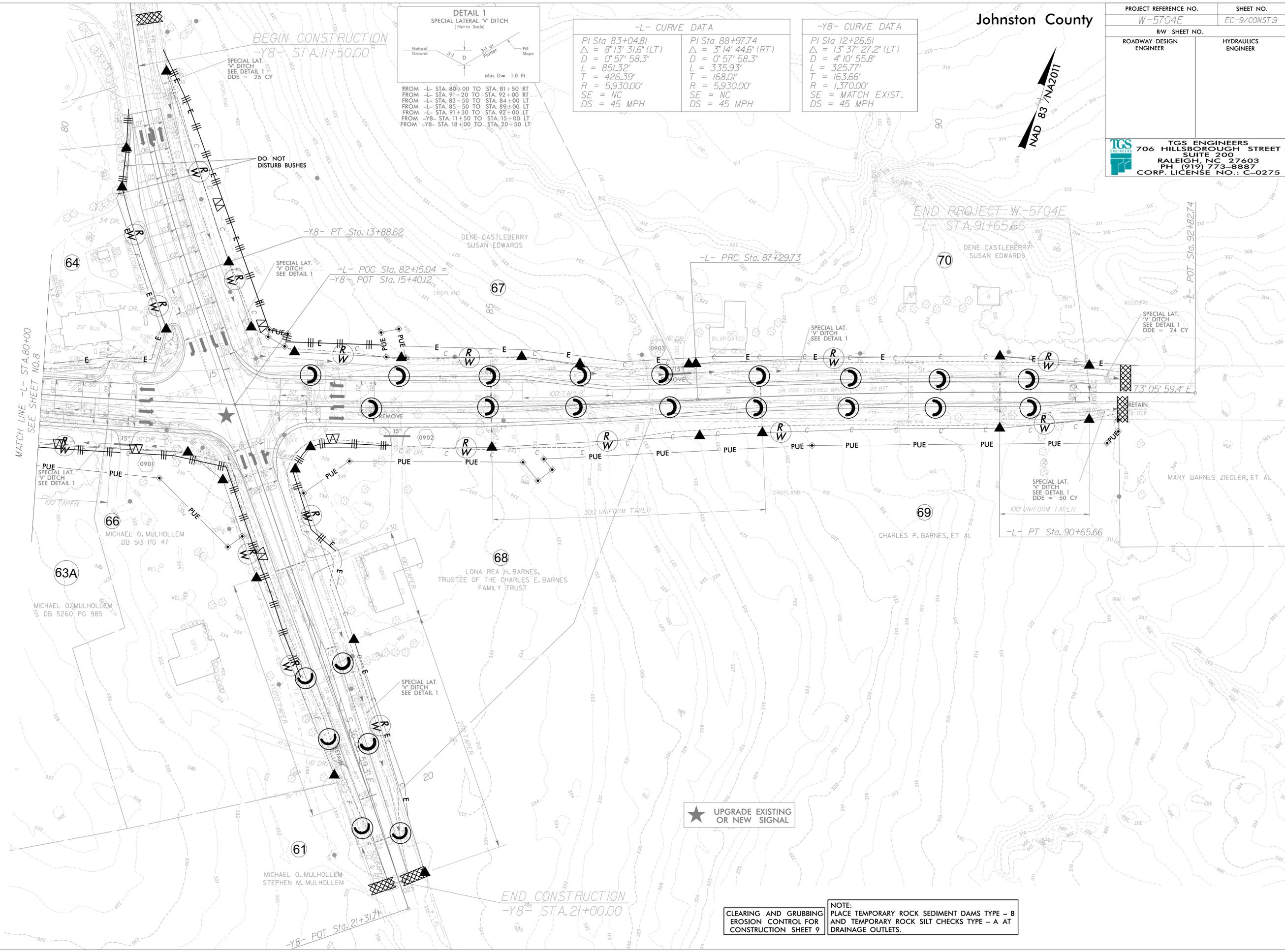
PROJECT REFERENCE NO. W-5704E	SHEET NO. EC-9/CONST.9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS  
706 HILLSBOROUGH STREET  
SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275



-L- CURVE DATA	
PI Sta 83+04.81	PI Sta 88+97.74
$\Delta = 8^{\circ} 13' 31.6"$ (LT)	$\Delta = 3^{\circ} 14' 44.6"$ (RT)
$D = 0^{\circ} 57' 58.3"$	$D = 0^{\circ} 57' 58.3"$
$L = 851.32'$	$L = 335.93'$
$T = 426.39'$	$T = 168.01'$
$R = 5,930.00'$	$R = 5,930.00'$
SE = NC	SE = NC
DS = 45 MPH	DS = 45 MPH

-Y8- CURVE DATA	
PI Sta 12+26.51	
$\Delta = 13^{\circ} 37' 27.2"$ (LT)	
$D = 4^{\circ} 10' 55.8"$	
$L = 325.77'$	
$T = 163.66'$	
$R = 1,370.00'$	
SE = MATCH EXIST.	
DS = 45 MPH	



MATCH LINE -L- STA. 80+00  
SEE SHEET NO. 8

END PROJECT W-5704E  
-L- STA. 91+65.66

END CONSTRUCTION  
-Y8- STA. 21+00.00

NOTE:  
CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 9

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

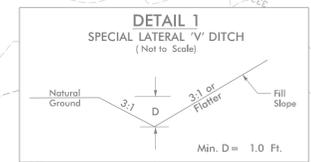
CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 10

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

Johnston County

PROJECT REFERENCE NO. W-5704E	SHEET NO. EC-10/CONST.10
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

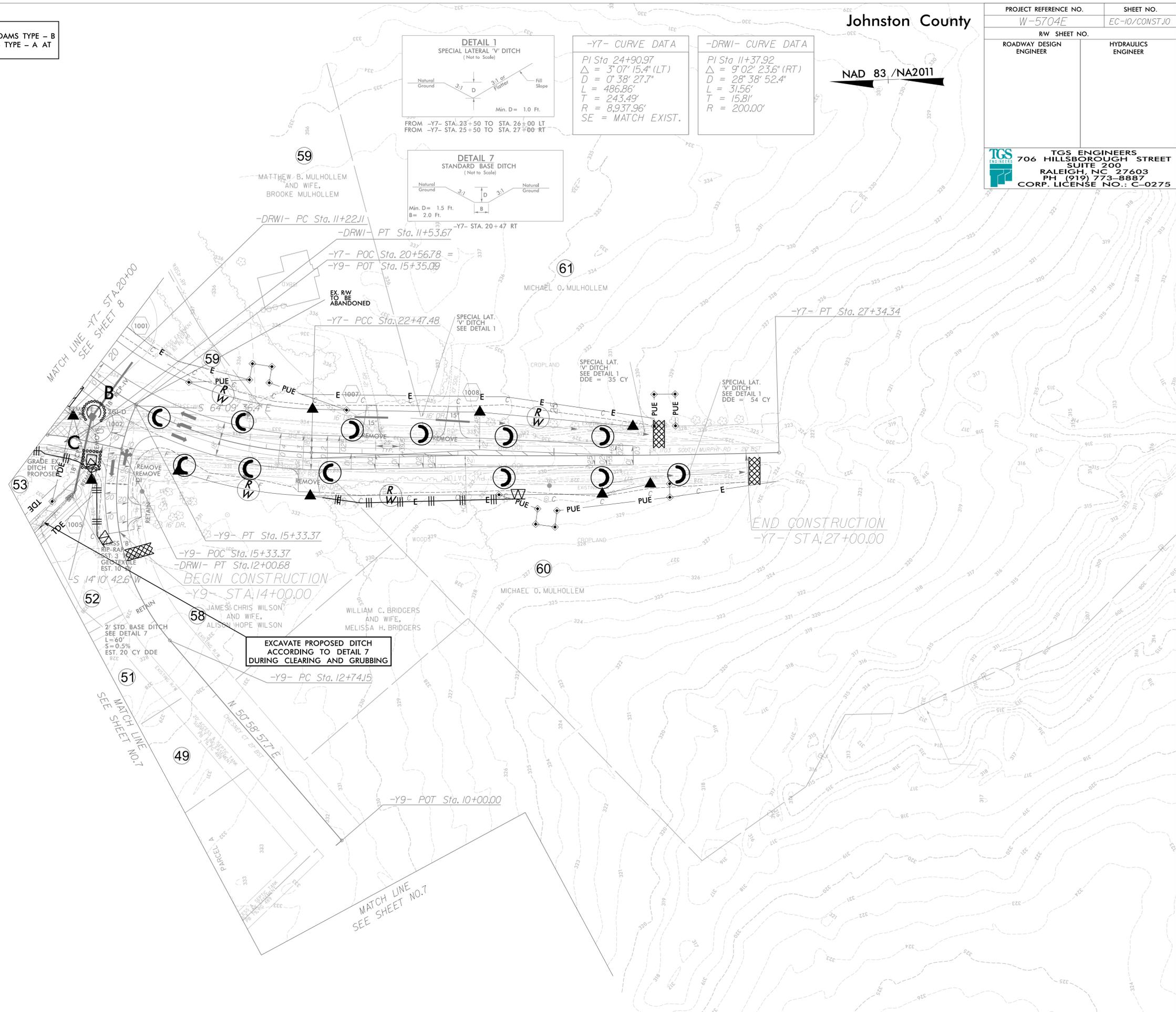
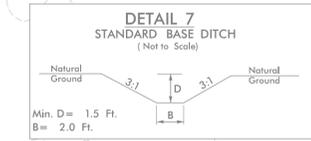
TGS ENGINEERS  
706 HILLSBOROUGH STREET  
SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275



-Y7- CURVE DATA  
PI Sta 24+90.97  
 $\Delta = 3^{\circ}07'15.4''$  (LT)  
 $D = 0^{\circ}38'27.7''$   
 $L = 486.86'$   
 $T = 243.49'$   
 $R = 8,937.96'$   
SE = MATCH EXIST.

-DRWI- CURVE DATA  
PI Sta 11+37.92  
 $\Delta = 9^{\circ}02'23.6''$  (RT)  
 $D = 28^{\circ}38'52.4''$   
 $L = 31.56'$   
 $T = 15.81'$   
 $R = 200.00'$

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PROJECT REFERENCE NO. W-5704E	SHEET NO. EC-11/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

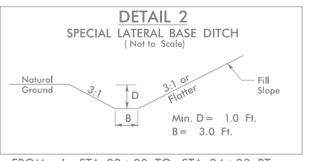
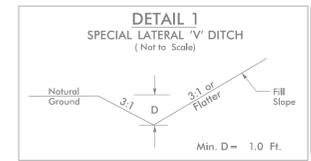
TGS ENGINEERS  
706 HILLSBOROUGH STREET  
SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

**-L- CURVE DATA**

PI Sta 13+89.85 Δ = 2° 04' 48.4" (LT) D = 0' 36' 05.5" L = 345.80' T = 172.92' R = 9,525.00' SE = EXISTING	PI Sta 22+46.17 Δ = 3° 10' 18.2" (LT) D = 5' 43' 46.5" L = 544.05' T = 278.94' R = 1,000.00' V = 50 MPH
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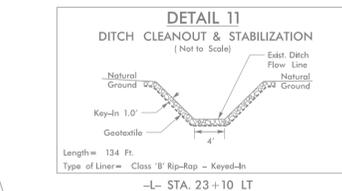
**-YI- CURVE DATA**

PI Sta 13+89.67 Δ = 5° 56' 12.8" (RT) D = 5' 43' 46.5" L = 103.62' T = 51.86' R = 1,000.00'	PI Sta 11+31.39 Δ = 27° 09' 43.0" (RT) D = 2' 13' 14.4" L = 128.00' T = 65.22' R = 270.00'
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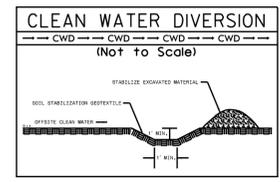
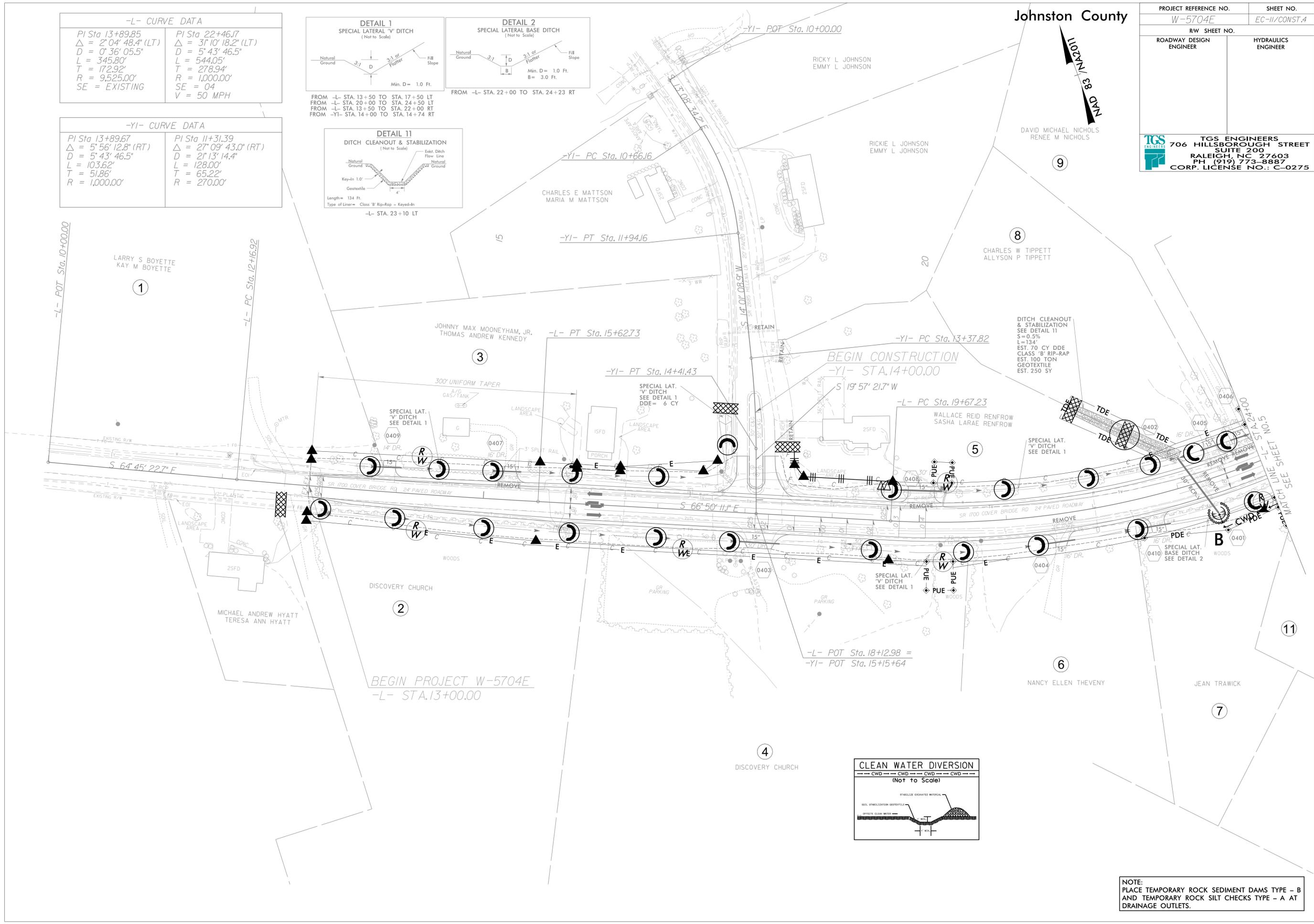


FROM -L- STA. 13+50 TO STA. 17+50 LT  
FROM -L- STA. 20+00 TO STA. 24+50 LT  
FROM -L- STA. 13+50 TO STA. 22+00 RT  
FROM -YI- STA. 14+00 TO STA. 14+74 RT

FROM -L- STA. 22+00 TO STA. 24+23 RT



Length = 134 Ft.  
Type of Lining = Class 'B' Rip-Rap - Keyed-In  
-L- STA. 23+10 LT



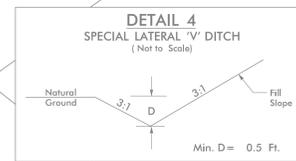
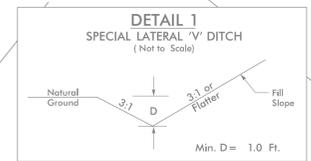
NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.



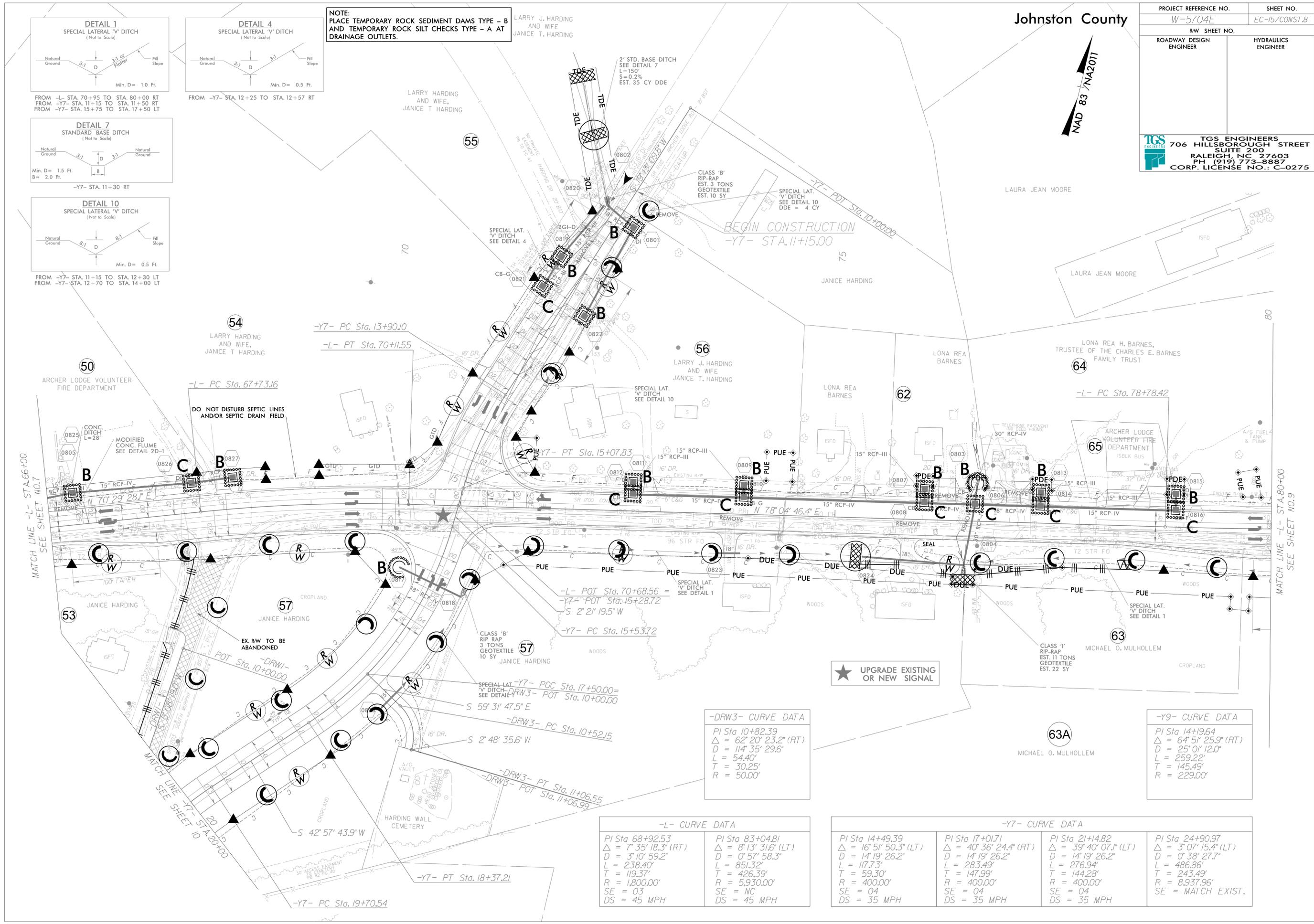
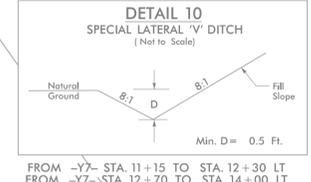
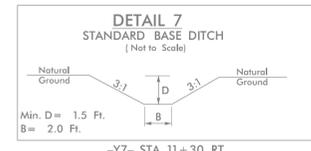




PROJECT REFERENCE NO. W-5704E	SHEET NO. EC-15/CONST.8
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



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



**-DRW3- CURVE DATA**

PI Sta 10+82.39	$\Delta = 62^\circ 20' 23.2''$ (RT)
D = 114' 35" 29.6"	L = 54.40'
T = 30.25'	R = 50.00'

**-Y9- CURVE DATA**

PI Sta 14+19.64	$\Delta = 64^\circ 51' 25.9''$ (RT)
D = 25' 01" 12.0"	L = 259.22'
T = 145.49'	R = 229.00'

**-L- CURVE DATA**

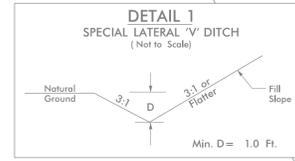
PI Sta 68+92.53	$\Delta = 7^\circ 35' 18.3''$ (RT)
D = 3' 10" 59.2"	L = 238.40'
T = 119.37'	R = 1,800.00'
SE = 03	DS = 45 MPH

**-Y7- CURVE DATA**

PI Sta 14+49.39	$\Delta = 16^\circ 51' 50.3''$ (LT)	PI Sta 17+01.71	$\Delta = 40^\circ 36' 24.4''$ (RT)	PI Sta 21+14.82	$\Delta = 39^\circ 40' 07.1''$ (LT)	PI Sta 24+90.97	$\Delta = 3^\circ 07' 15.4''$ (LT)
D = 14' 19" 26.2"	L = 117.73'	D = 8' 13' 24.6"	L = 283.49'	D = 14' 19" 26.2"	L = 276.94'	D = 0' 38" 27.7"	L = 486.86'
T = 59.30'	R = 400.00'	T = 147.99'	R = 400.00'	T = 144.28'	R = 400.00'	T = 243.49'	R = 8,937.96'
SE = 04	DS = 35 MPH	SE = 04	DS = 35 MPH	SE = 04	DS = 35 MPH	SE = MATCH EXIST.	DS = 35 MPH

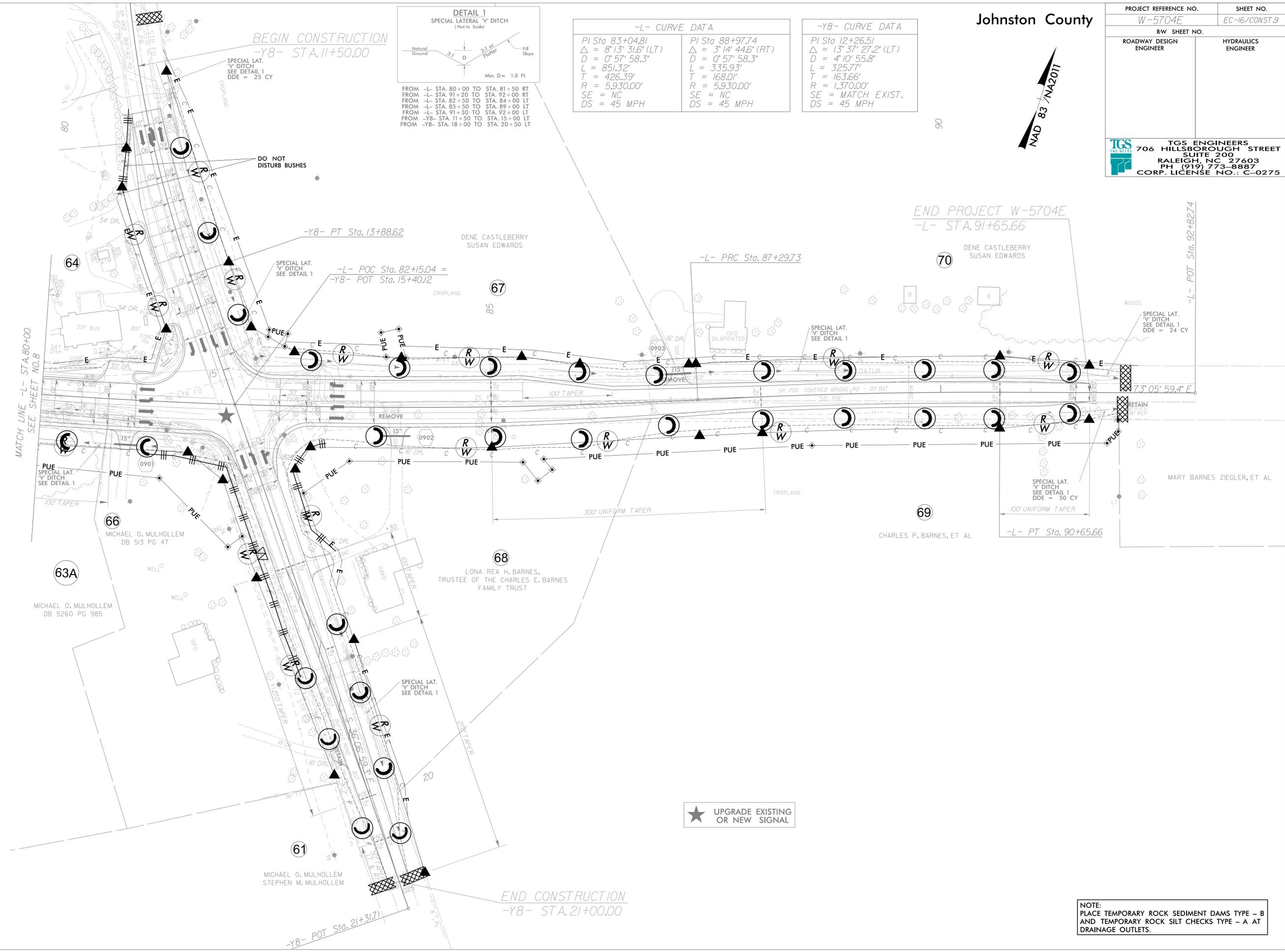
PROJECT REFERENCE NO. W-5704E	SHEET NO. EC-16/CONST.9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS  
706 HILLSBOROUGH STREET  
SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275



-L- CURVE DATA		-Y8- CURVE DATA	
PI Sta 83+04.81	PI Sta 88+97.74	PI Sta 12+26.51	
$\Delta = 8^{\circ} 13' 31.6"$ (LT)	$\Delta = 3^{\circ} 14' 44.6"$ (RT)	$\Delta = 13^{\circ} 37' 27.2"$ (LT)	
$D = 0^{\circ} 57' 58.3"$	$D = 0^{\circ} 57' 58.3"$	$D = 4^{\circ} 10' 55.8"$	
$L = 851.32'$	$L = 335.93'$	$L = 325.77'$	
$T = 426.39'$	$T = 168.01'$	$T = 163.66'$	
$R = 5,930.00'$	$R = 5,930.00'$	$R = 1,370.00'$	
SE = NC	SE = NC	SE = MATCH EXIST.	
DS = 45 MPH	DS = 45 MPH	DS = 45 MPH	

FROM -L- STA. 80+00 TO STA. 81+50 RT	FROM -L- STA. 81+20 TO STA. 82+00 RT	FROM -L- STA. 82+50 TO STA. 84+00 LT	FROM -L- STA. 85+50 TO STA. 89+00 LT	FROM -L- STA. 91+30 TO STA. 92+00 LT	FROM -Y8- STA. 11+50 TO STA. 15+00 LT	FROM -Y8- STA. 18+00 TO STA. 20+50 LT
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★ UPGRADE EXISTING OR NEW SIGNAL

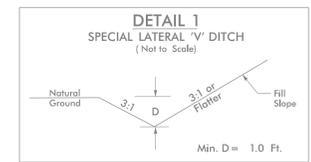
NOTE:  
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B  
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT  
DRAINAGE OUTLETS.

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

Johnston County

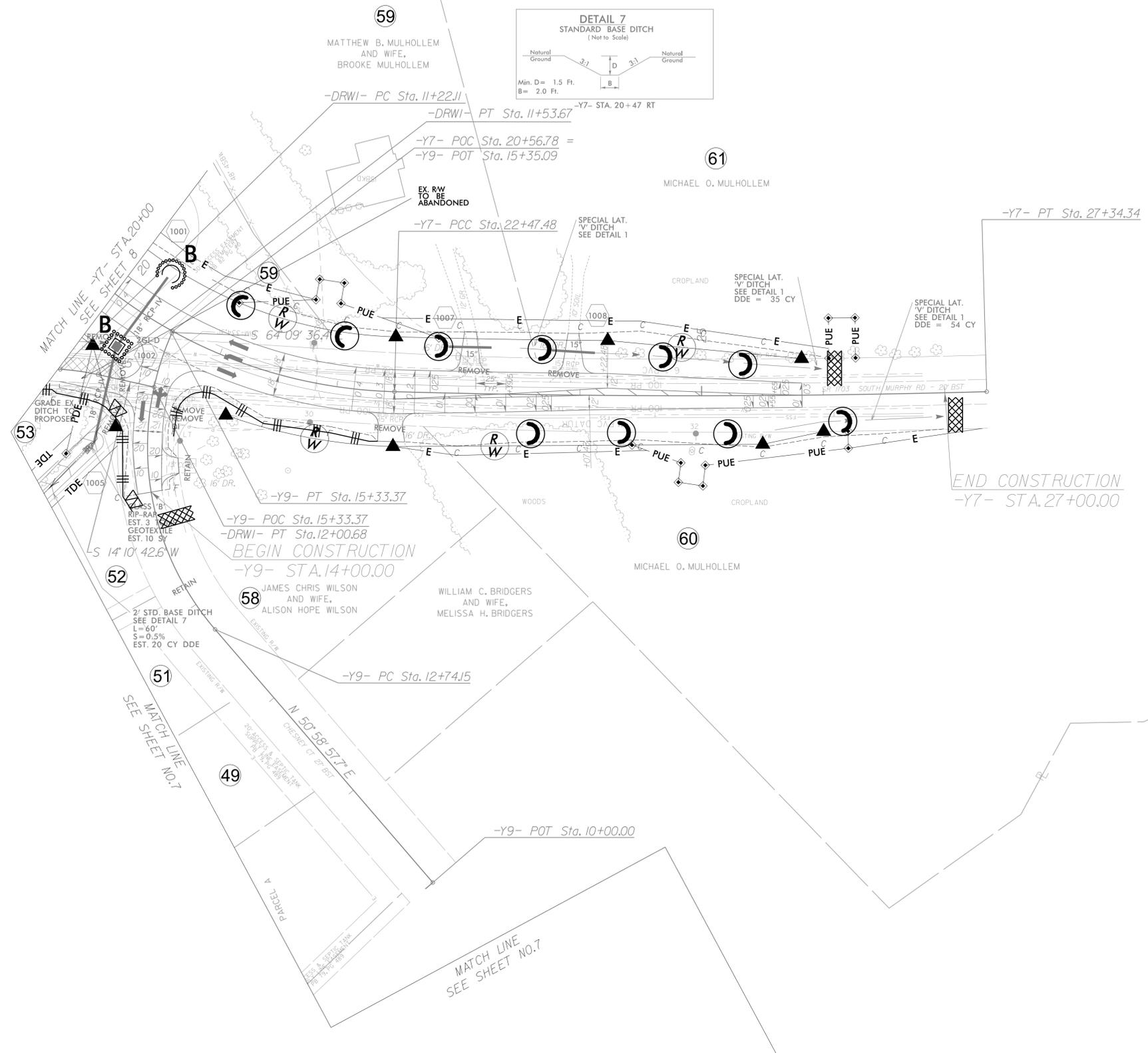
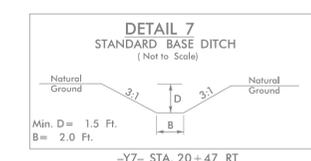
NAD 83 /NA2011

PROJECT REFERENCE NO. W-5704E	SHEET NO. EC-17/CONST.10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 <b>TGS ENGINEERS</b> 706 HILLSBOROUGH STREET SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275	



**-Y7- CURVE DATA**  
 PI Sta 24+90.97  
 $\Delta = 3^{\circ} 07' 15.4''$  (LT)  
 $D = 0^{\circ} 38' 27.7''$   
 $L = 486.86'$   
 $T = 243.49'$   
 $R = 8,937.96'$   
 SE = MATCH EXIST.

**-DRWI- CURVE DATA**  
 PI Sta 11+37.92  
 $\Delta = 9^{\circ} 02' 23.6''$  (RT)  
 $D = 28^{\circ} 38' 52.4''$   
 $L = 31.56'$   
 $T = 15.81'$   
 $R = 200.00'$



59

MATTHEW B. MULHOLLEM AND WIFE, BROOKE MULHOLLEM

61

MICHAEL O. MULHOLLEM

60

MICHAEL O. MULHOLLEM

52

58

JAMES CHRIS WILSON AND WIFE, ALISON HOPE WILSON

WILLIAM C. BRIDGERS AND WIFE, MELISSA H. BRIDGERS

51

49

MATCH LINE SEE SHEET NO.7