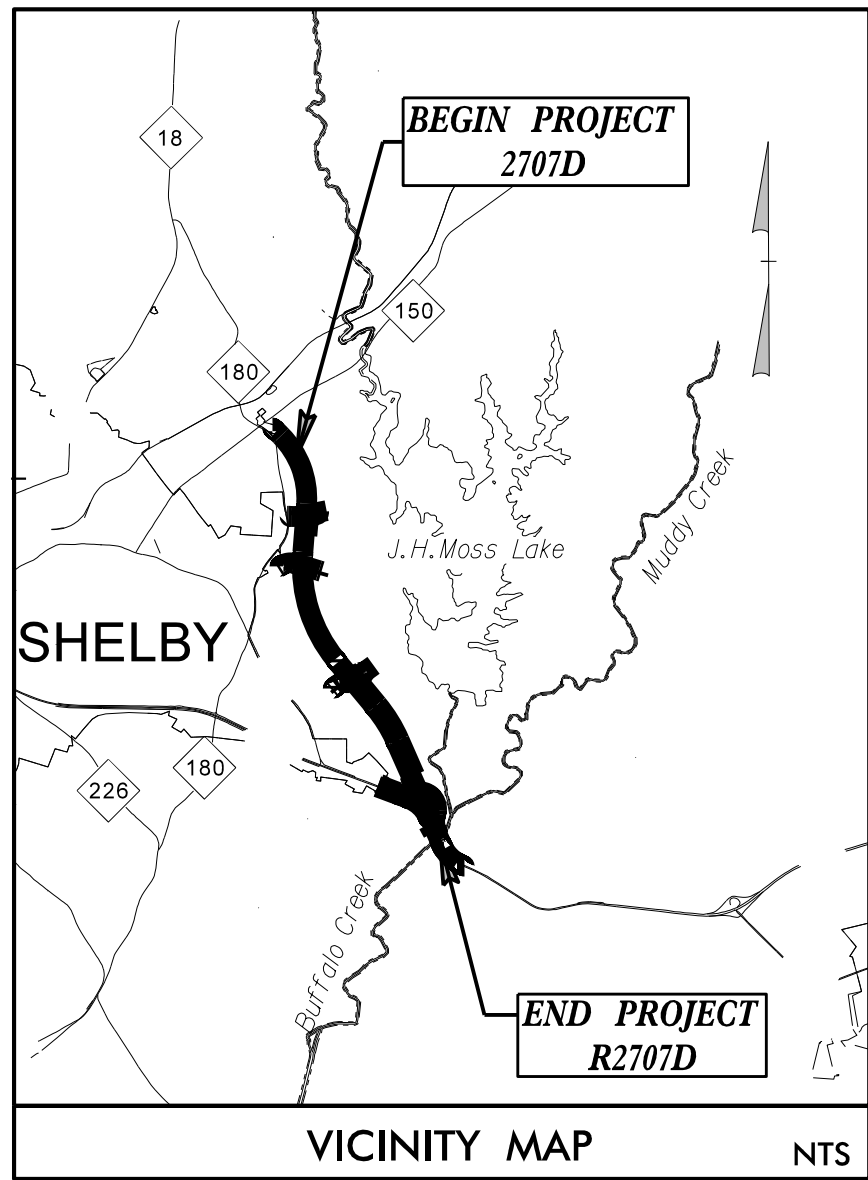


TIP PROJECT: R-2707D

CONTRACT:

See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Symbols



25% PLAN SUBMITTAL

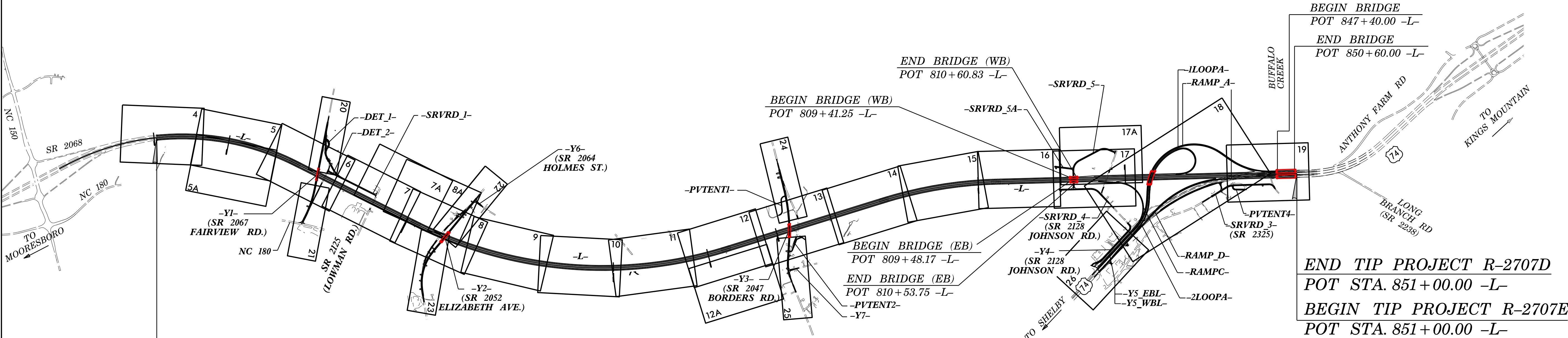
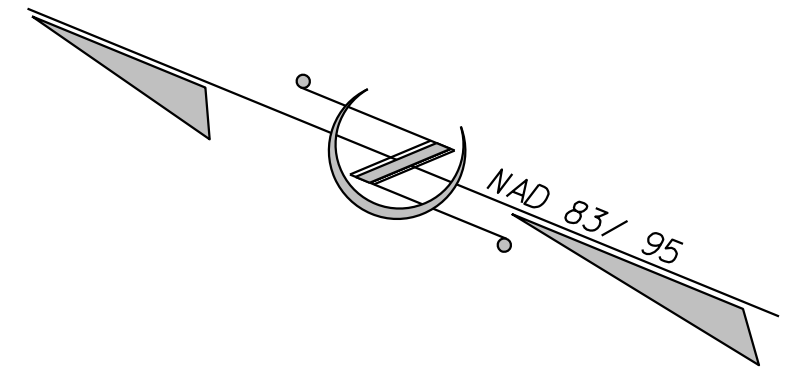
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

CLEVELAND COUNTY

LOCATION: US 74, SHELBY BYPASS FROM EAST OF NC 150  
TO EXISTING US 74, WEST OF SR 2238  
(LONG BRANCH ROAD)  
TYPE OF WORK: GRADING, DRAINAGE, PAVING, & STRUCTURES

REDLINE DRAINAGE PLANS – 4B MEETING

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.          | TOTAL SHEETS |
|-----------------|-----------------------------|--------------------|--------------|
| N.C.            | R-2707D                     | 1                  |              |
| STATE PROJ. NO. | P.A. PROJ. NO.              | DESCRIPTION        |              |
| 34497.1.F56     | N/A                         | P.E.<br>R/W & UTIL |              |
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END TIP PROJECT R-2707C

POC STA. 635+00.00 -L-

BEGIN TIP PROJECT R-2707D

POC STA. 635+00.00 -L-

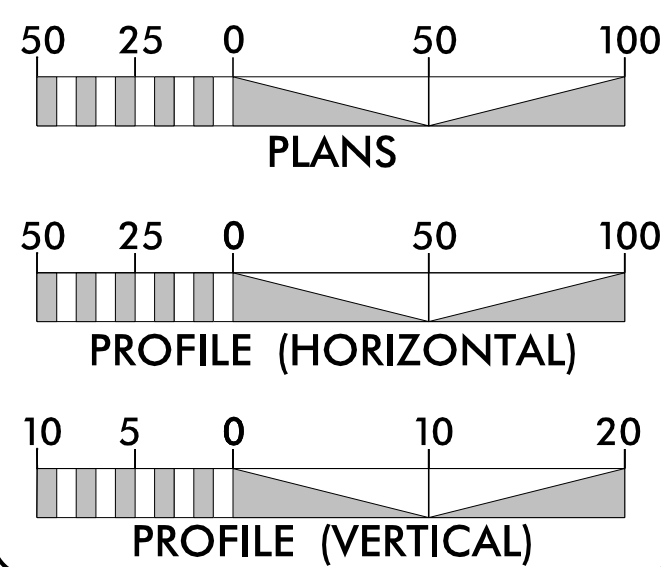
THIS PROJECT IS NOT WITHIN ANY CITY LIMITS

THIS IS A CONTROLLED ACCESS PROJECT  
WITH ACCESS BEING LIMITED TO INTERCHANGES

CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD \_\_\_\_.

INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2019 = 41,600  
ADT 2040 = 59,200  
K = 11 %  
D = 55 %  
T = 15 % \*  
V = 70 MPH  
\* TTST = 10% DUAL 5%  
FUNC CLASS = FREEWAY

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2707D = 4.008 MI.  
LENGTH OF STRUCTURE TIP PROJECT R-2707D = 0.083 MI.  
TOTAL LENGTH OF TIP PROJECT R-2707D = 4.091 MI.

STRUCTURE LENGTHS BASED ON WB LANES



PREPARED IN THE OFFICE OF:  
STANTEC CONSULTING  
801 Jones Franklin Road | Suite 300 | Raleigh, NC 27606  
Tel. (919) 851-6866 | Fax. (919) 851-7024 | www.stantec.com  
License No. R-0672

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
FEBRUARY 2018

LETTING DATE:  
FEBRUARY 19, 2019

JOSEPH T. KELVINGTON, P.E.  
PROJECT ENGINEER

MICHAEL LINDGREN, P.E.  
PROJECT DESIGN ENGINEER

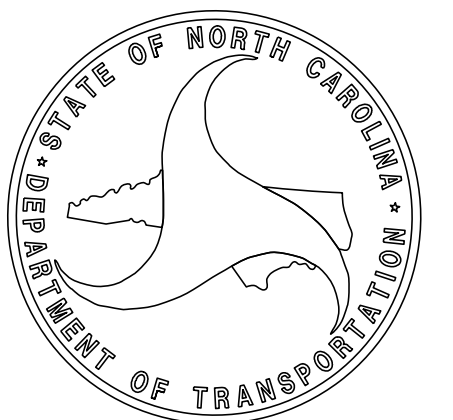
J. B. MCSWAIN  
NCDOT DIVISION 12

HYDRAULICS ENGINEER

SIGNATURE: P.E.

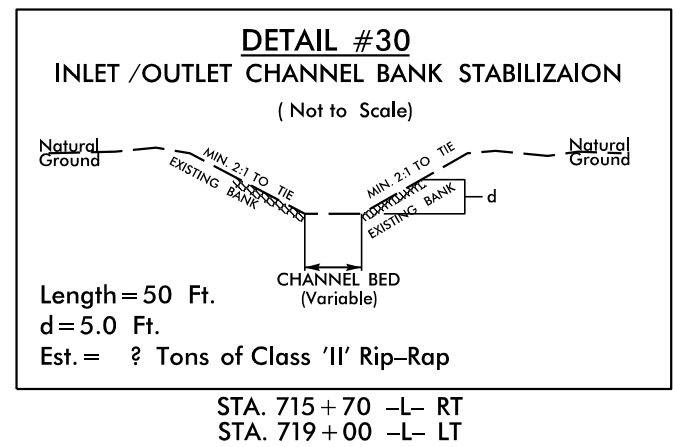
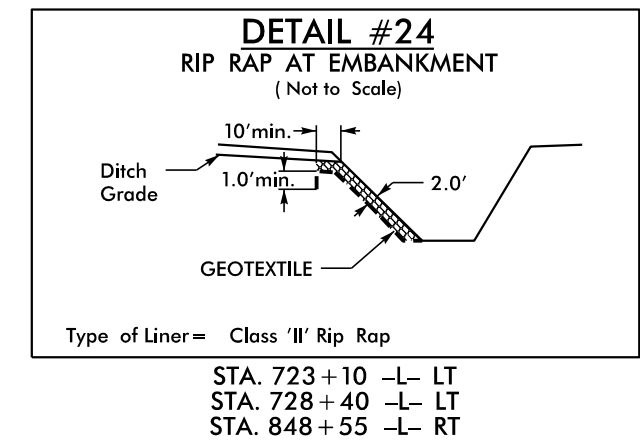
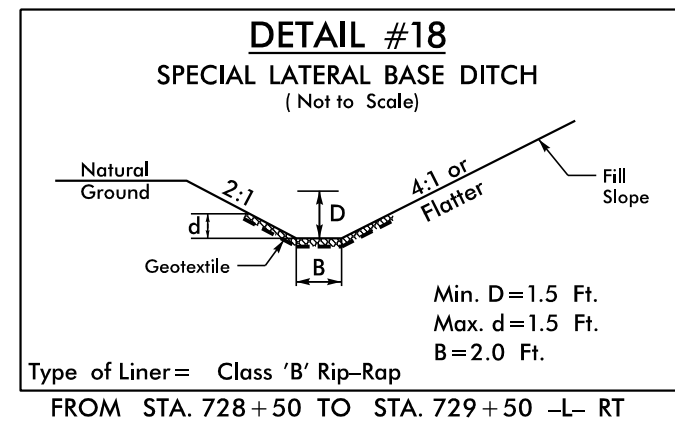
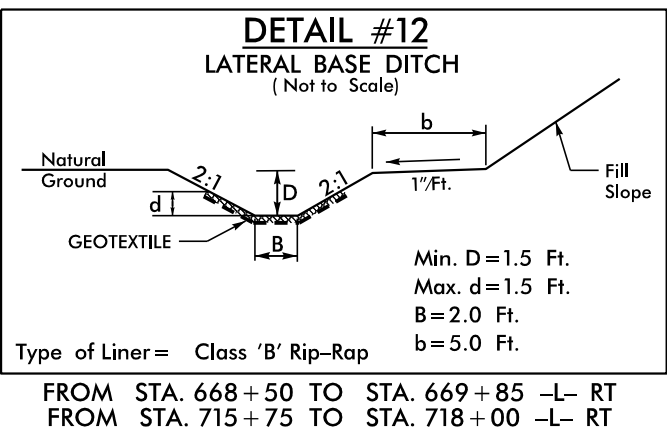
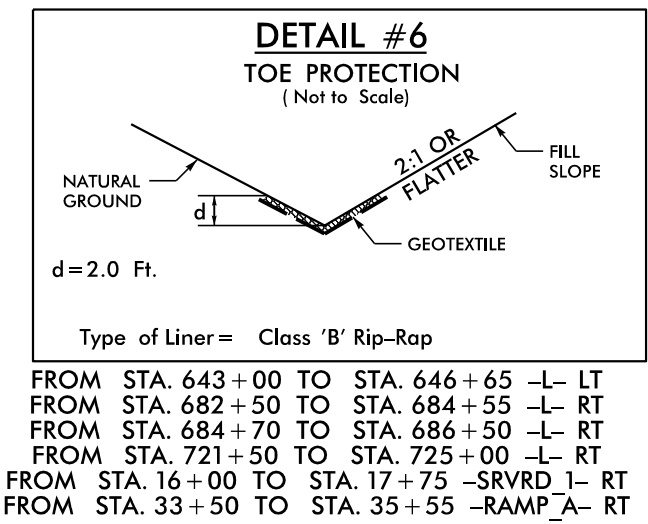
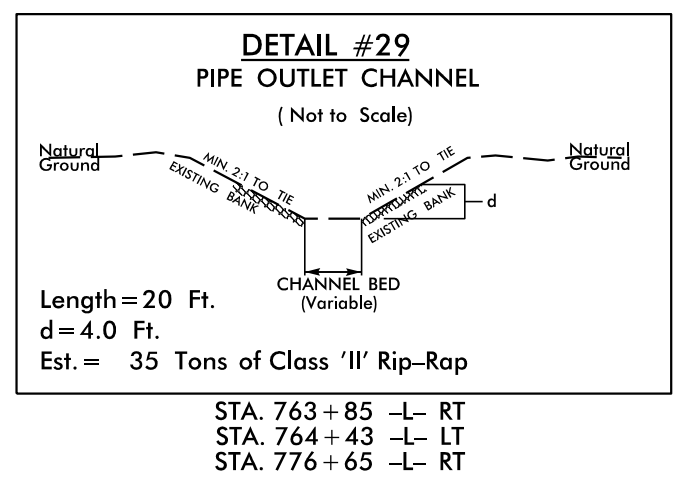
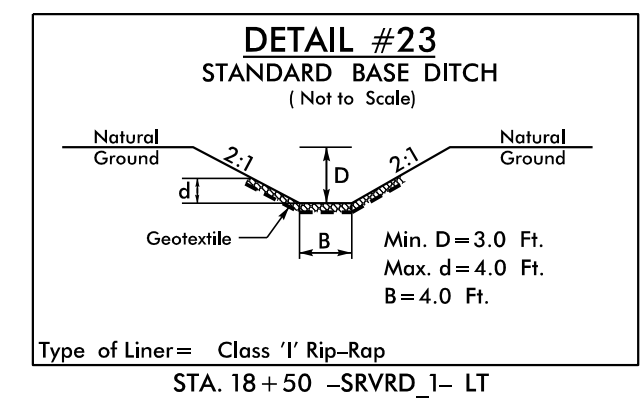
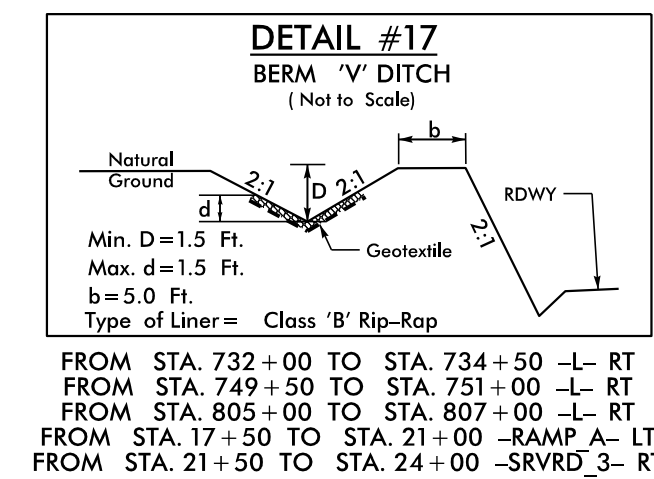
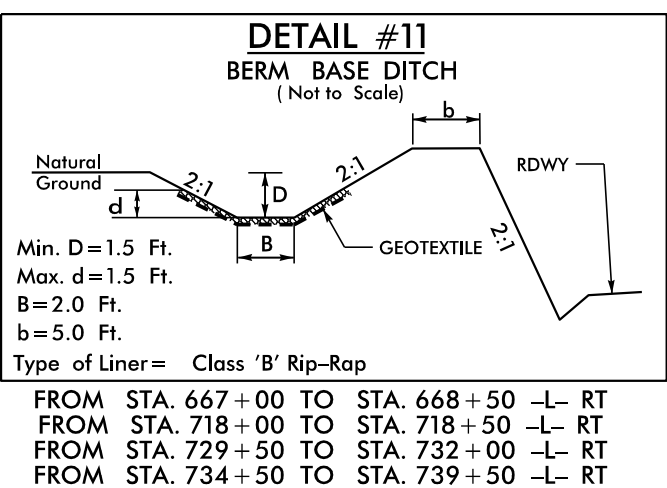
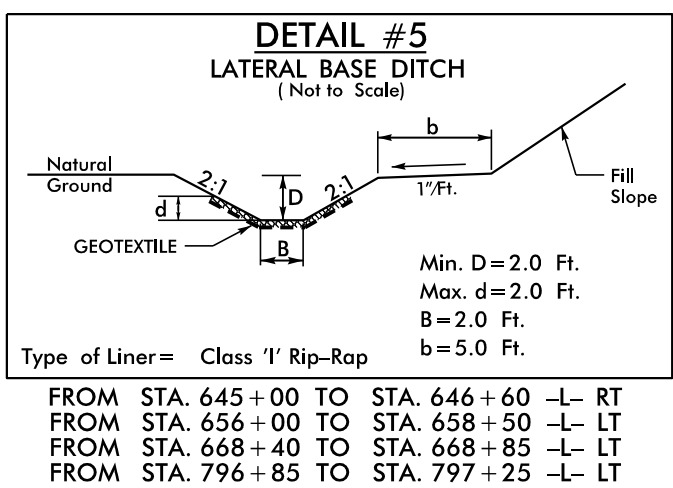
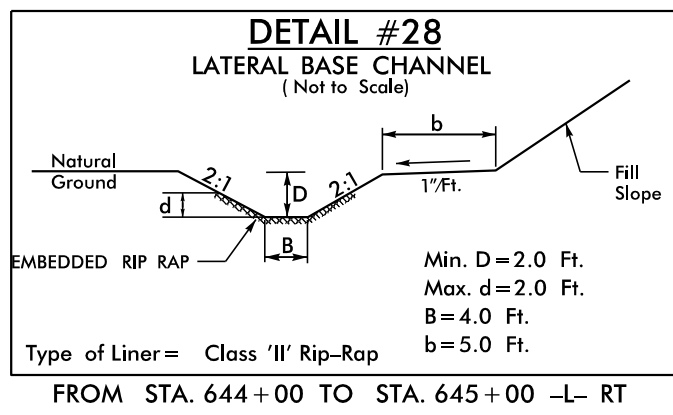
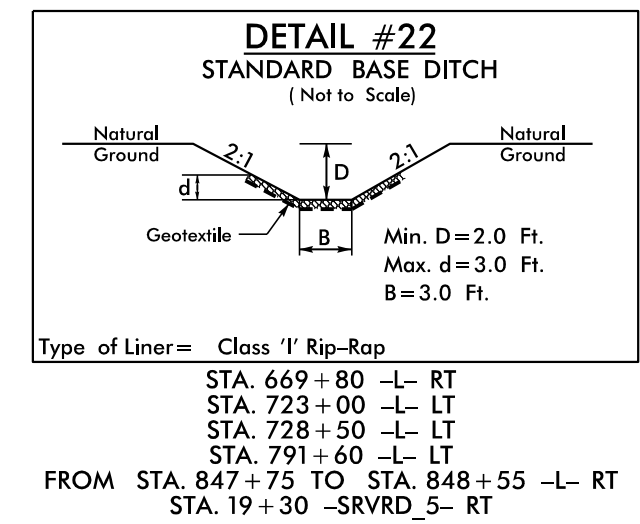
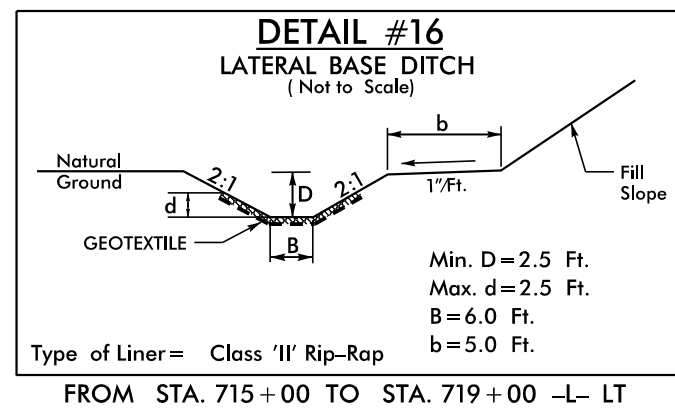
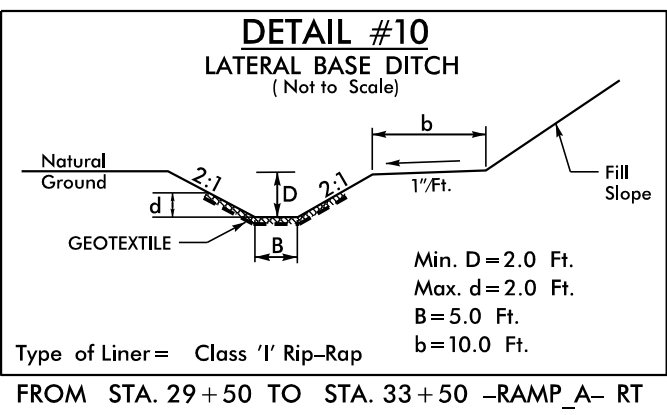
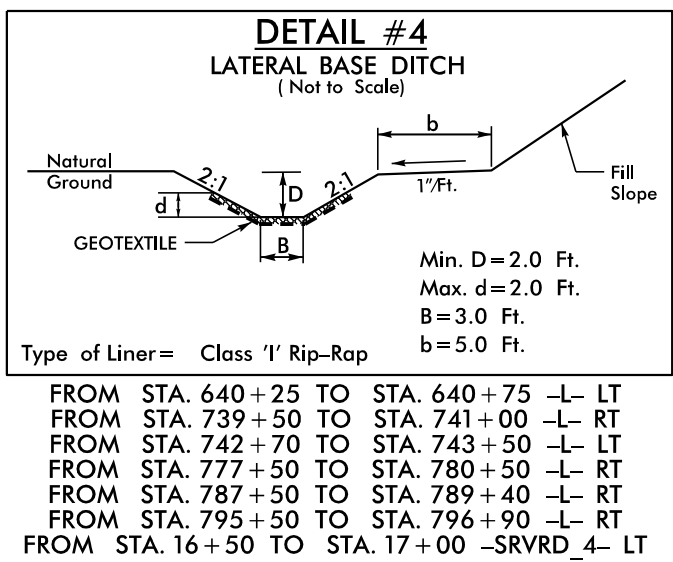
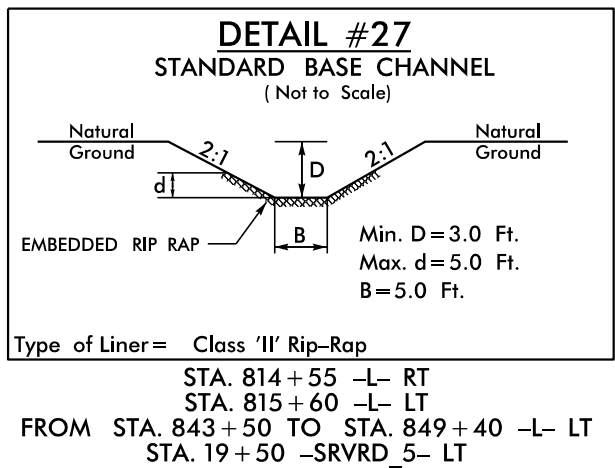
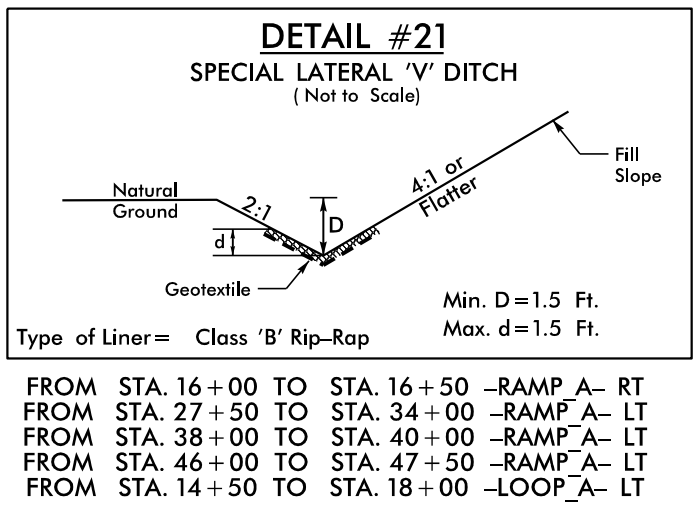
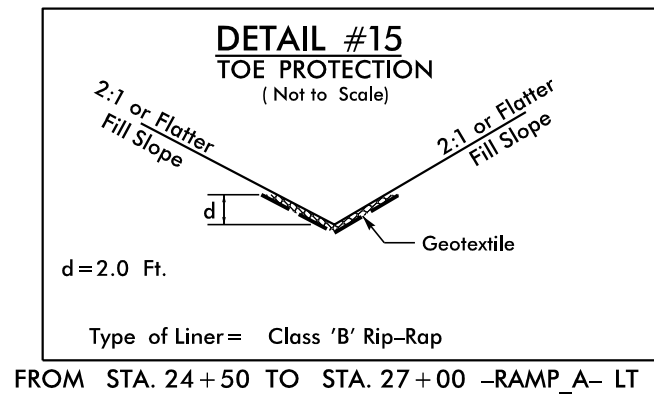
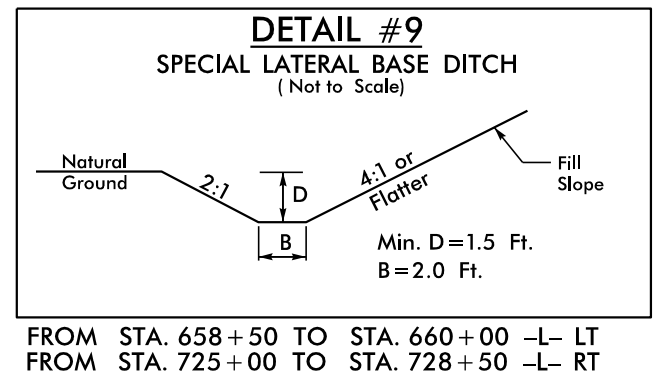
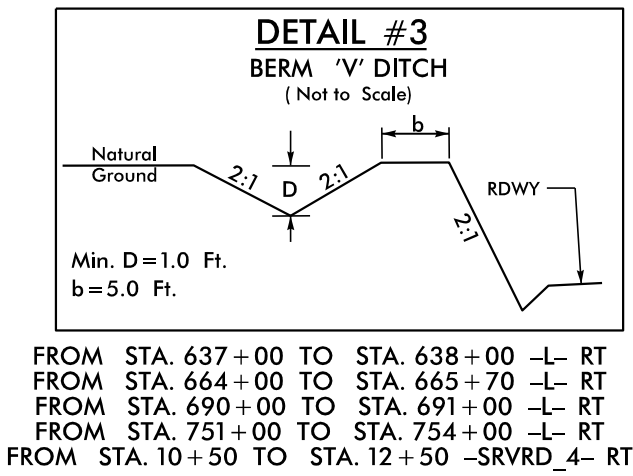
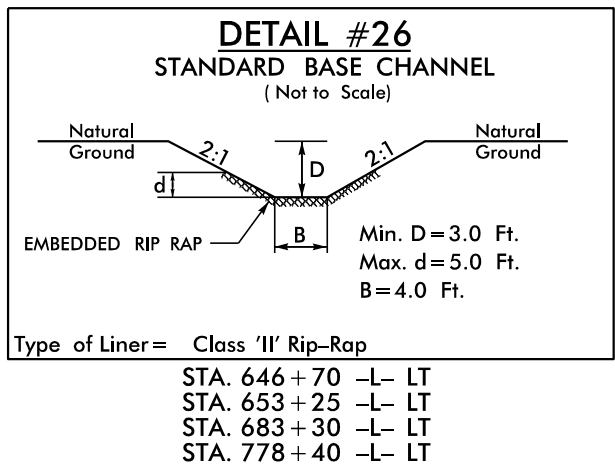
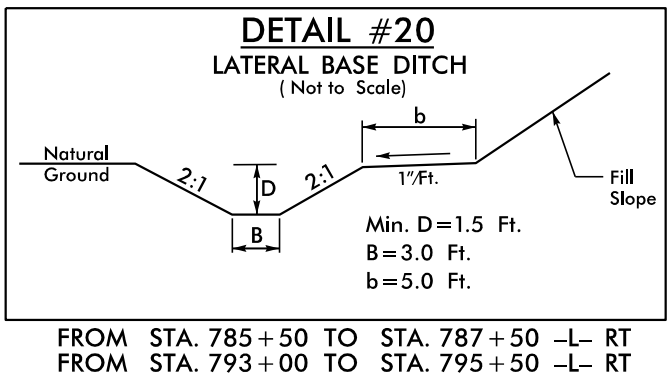
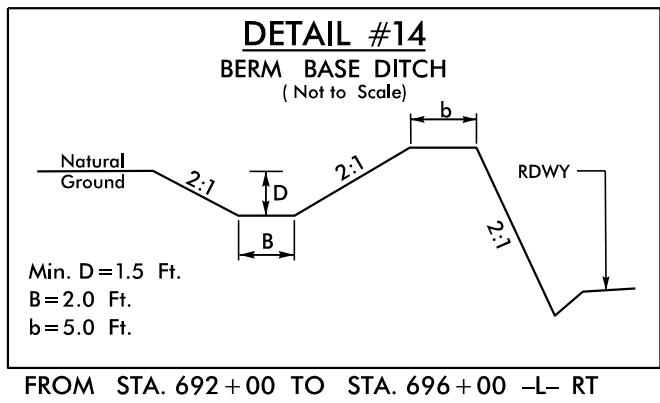
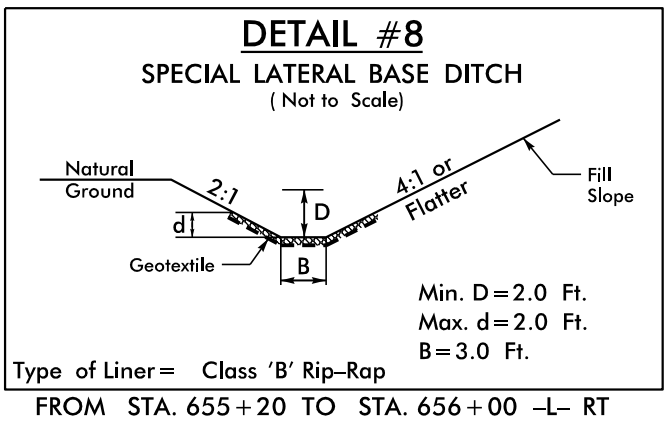
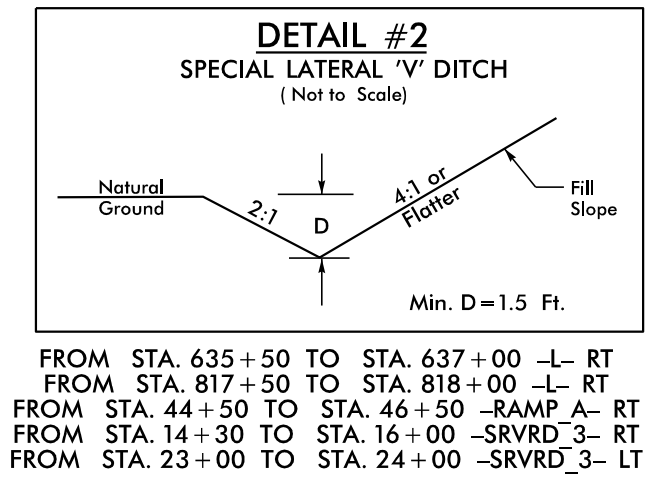
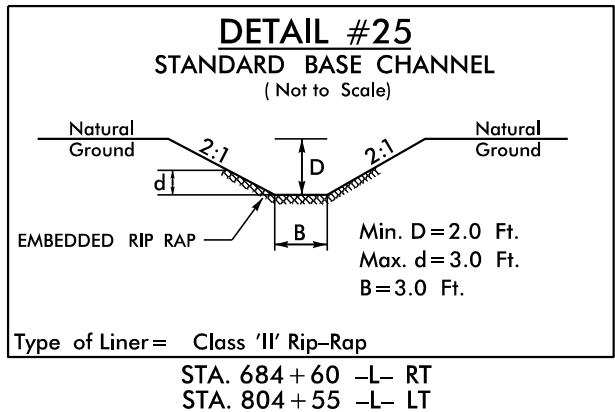
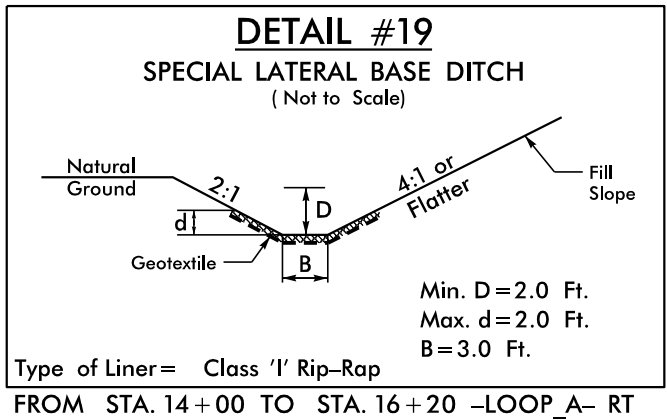
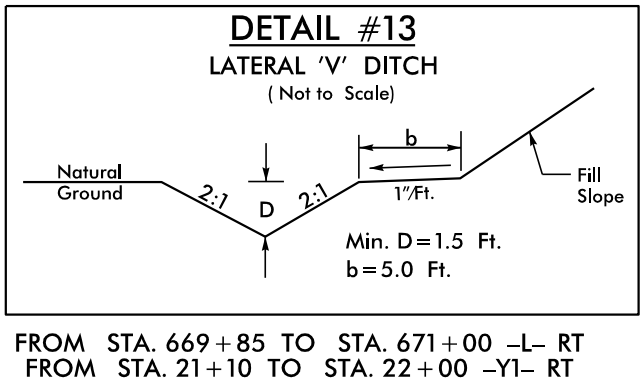
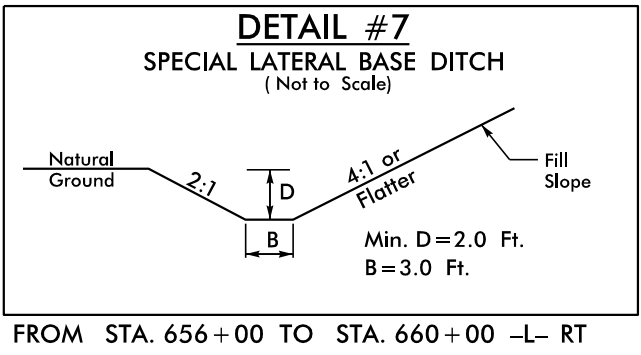
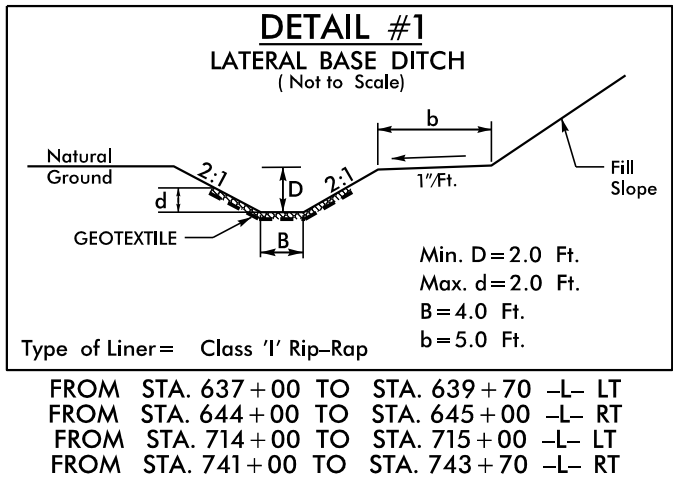
ROADWAY DESIGN  
ENGINEER

SIGNATURE: P.E.





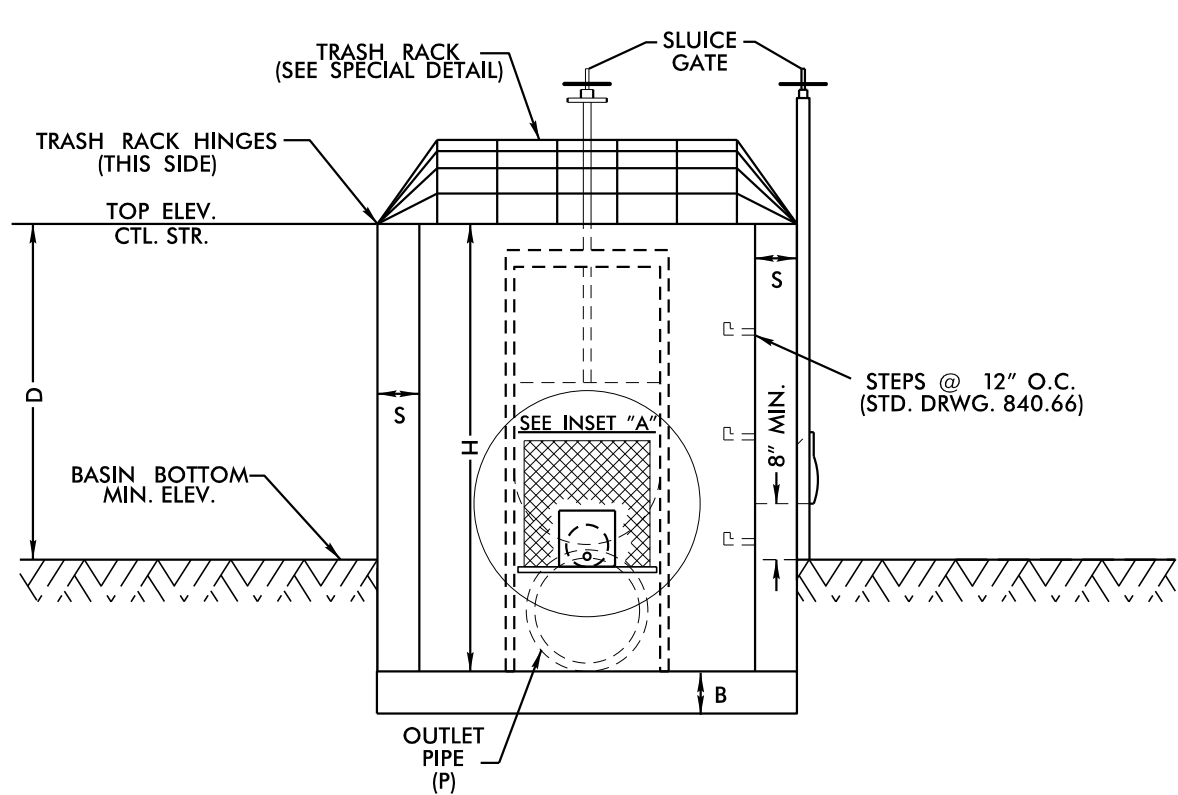
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| R-2707D                    |  | 2D-1                   |
| RW SHEET NO.               |  |                        |
| ROADWAY DESIGN<br>ENGINEER |  | HYDRAULICS<br>ENGINEER |
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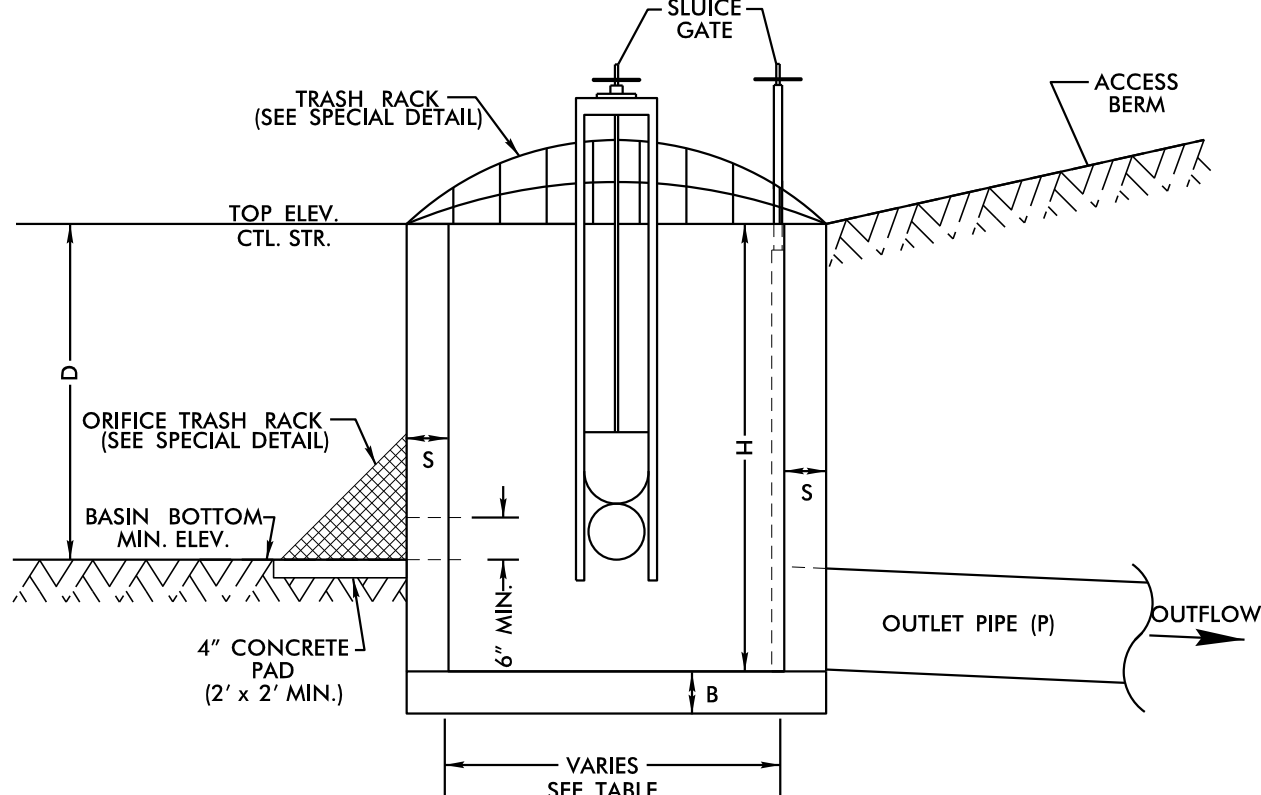


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| PROJECT REFERENCE NO.                                            |  | SHEET NO.           |
| R-2707D                                                          |  | 2D-2                |
| RW SHEET NO.                                                     |  |                     |
| ROADWAY DESIGN ENGINEER                                          |  | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |  |                     |

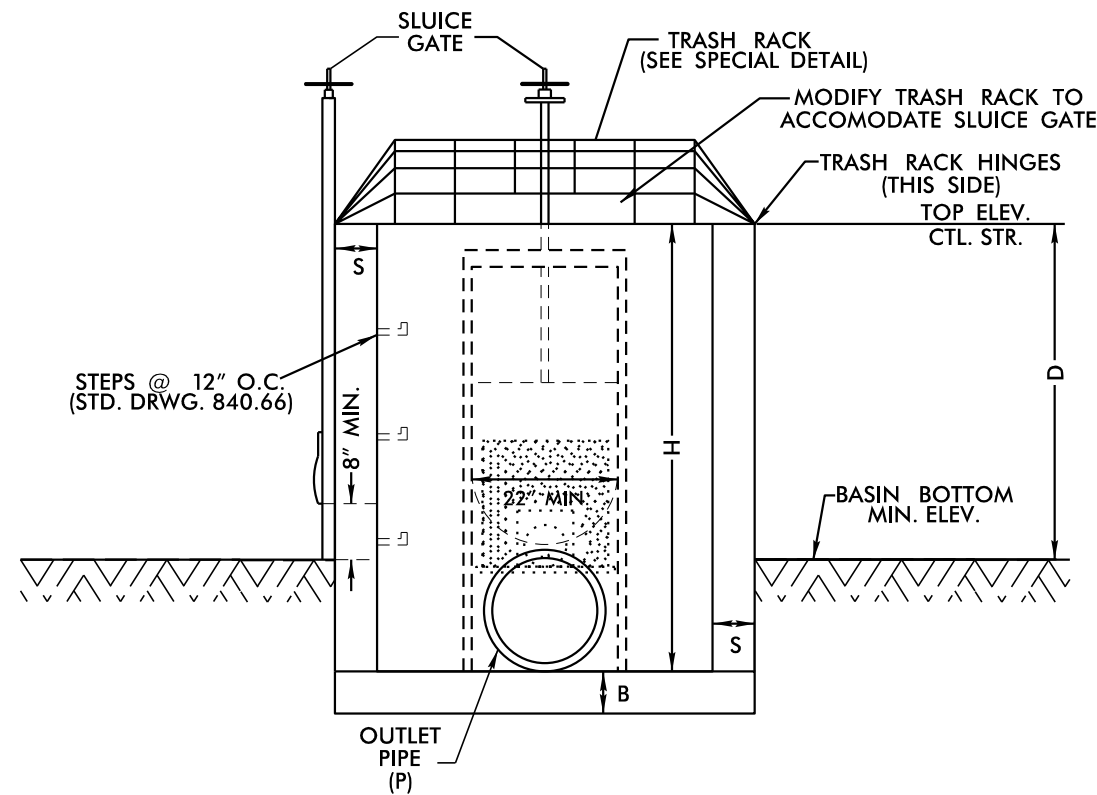
DETAIL #31  
DRY DETENTION/HAZARDOUS SPILL BASIN  
DRAWDOWN STRUCTURE  
\*NOT TO SCALE\*



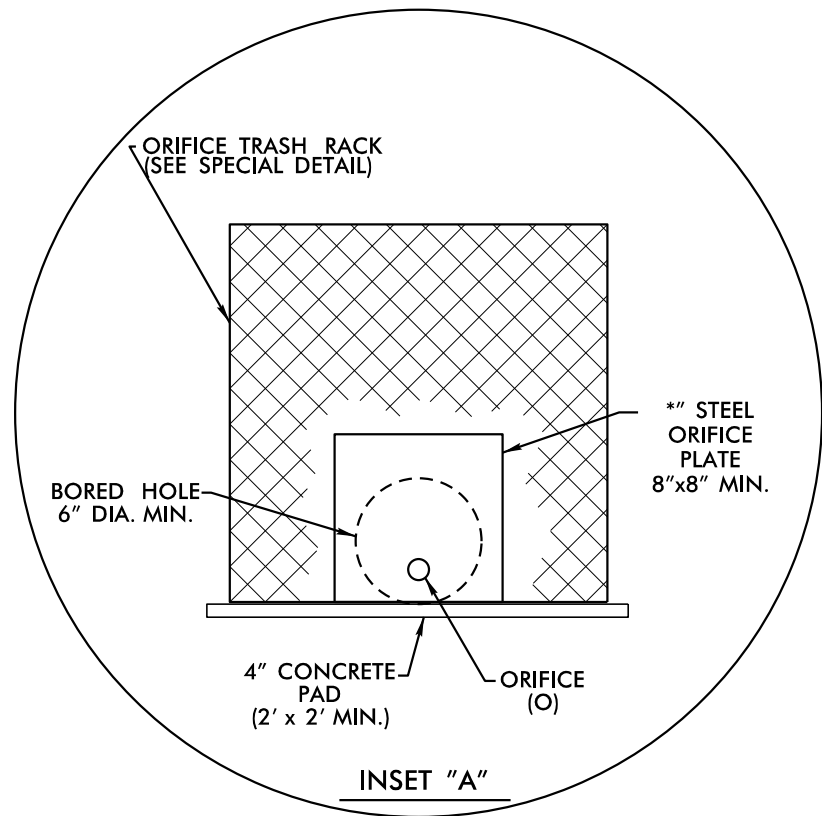
SIDE 1



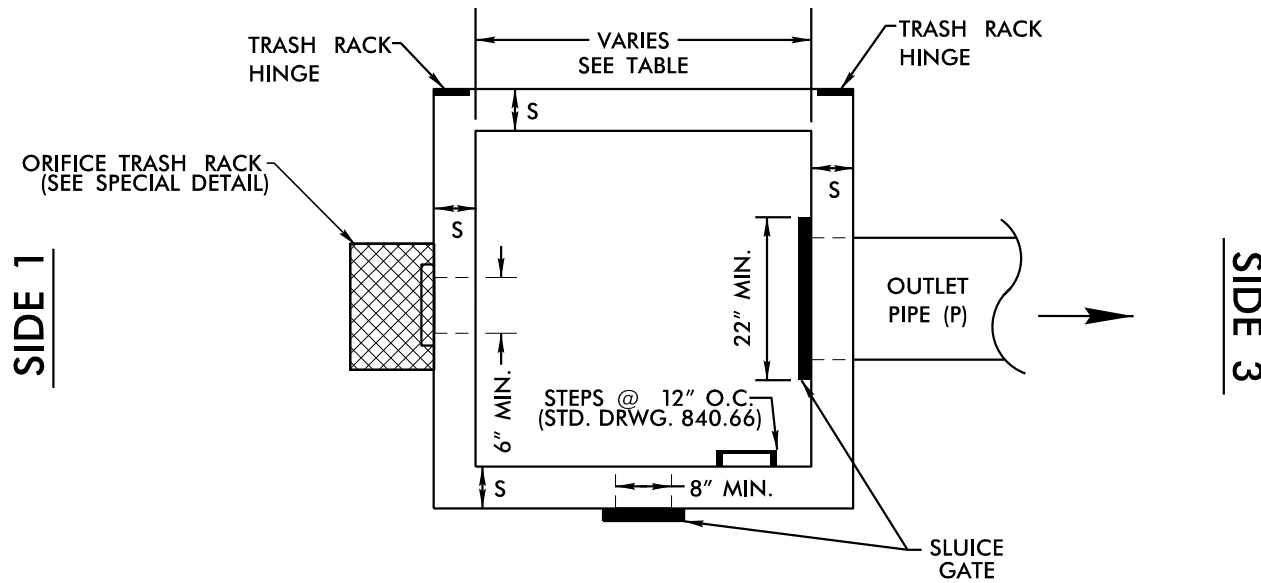
SIDE 2



SIDE 3



INSET "A"



SIDE 2

PLAN VIEW  
TRASH RACK NOT SHOWN FOR CLARITY

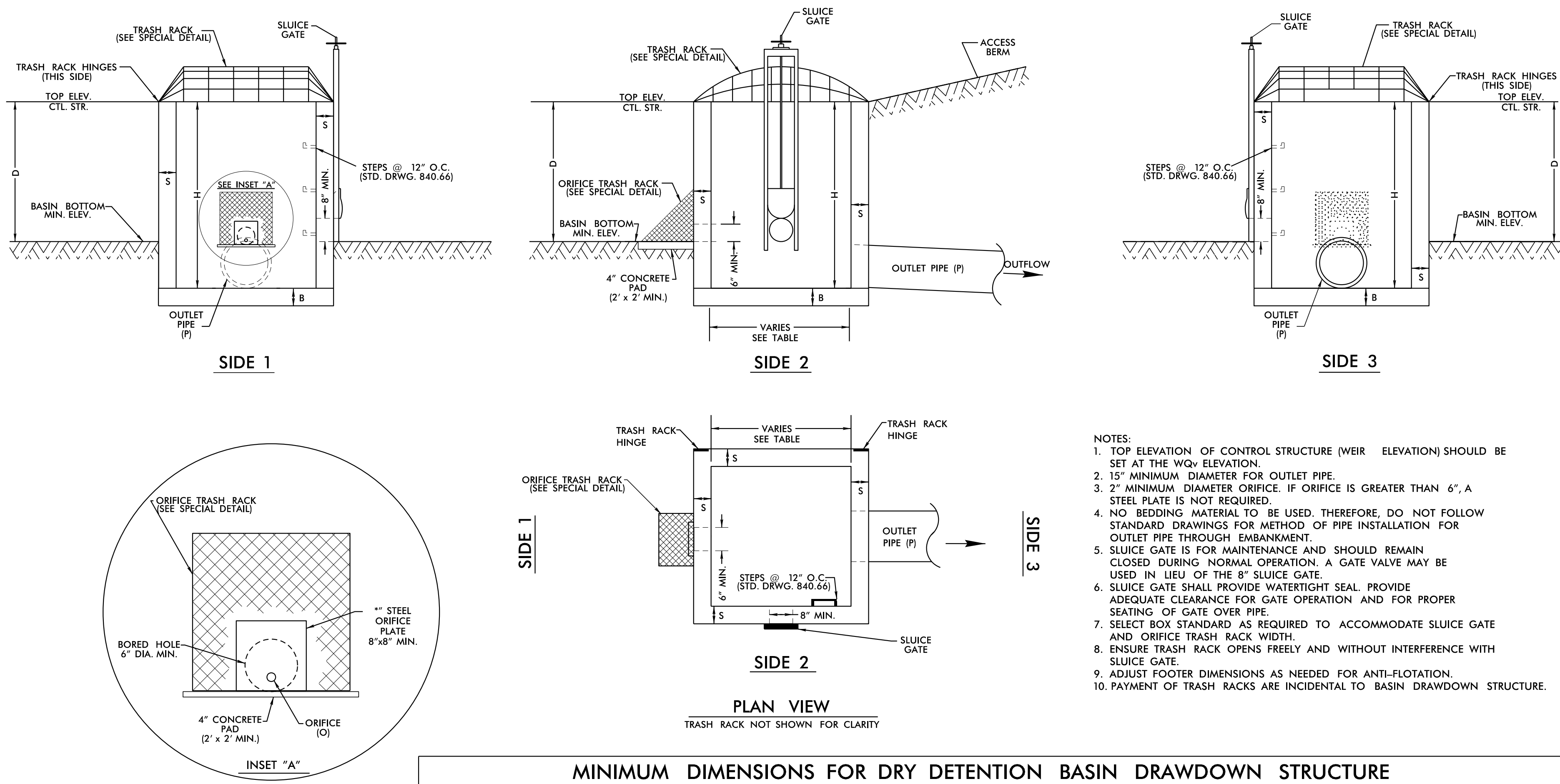
- NOTES:
1. THE BASIN SHOULD BE DESIGNED TO HOLD THE HAZARDOUS SPILL VOLUME ABOVE THE WATER QUALITY VOLUME (WQV) ELEVATION.
  2. TOP ELEVATION OF CONTROL STRUCTURE (WEIR ELEVATION) SHOULD BE SET AT THE WQV ELEVATION.
  3. 15" MINIMUM DIAMETER FOR OUTLET PIPE.
  4. 2" MINIMUM DIAMETER ORIFICE. IF ORIFICE IS GREATER THAN 6", A STEEL PLATE IS NOT REQUIRED.
  5. NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
  6. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION. A GATE VALVE MAY BE USED IN LIEU OF THE 8" SLUICE GATE.
  7. 22" MIN. SLUICE GATE AT THE OUTLET PIPE IS FOR SPILL CONTAINMENT AND SHOULD REMAIN OPEN DURING NORMAL OPERATION.
  8. SLUICE GATE SHALL PROVIDE WATERTIGHT SEAL. PROVIDE ADEQUATE CLEARANCE FOR GATE OPERATION AND FOR PROPER SEATING OF GATE OVER PIPE.
  9. SELECT BOX STANDARD AS REQUIRED TO ACCOMMODATE SLUICE GATE AND ORIFICE TRASH RACK WIDTH.
  10. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATES.
  11. ADJUST FOOTER DIMENSIONS AS NEEDED FOR ANTI-FLOTATION.

| MINIMUM DIMENSIONS FOR DRY DETENTION BASIN DRAWDOWN STRUCTURE |                  |                    |                    |                            |                                 |                            |                      |                                  |                             |                    |                                |
|---------------------------------------------------------------|------------------|--------------------|--------------------|----------------------------|---------------------------------|----------------------------|----------------------|----------------------------------|-----------------------------|--------------------|--------------------------------|
| STATION                                                       | STRUCTURE NUMBER | S (INCHES) 6" MIN. | B (INCHES) 6" MIN. | BASIN BOTTOM MINIMUM ELEV. | TOP ELEVATION CONTROL STRUCTURE | MAX. STORAGE DEPTH(D) FEET | INV. ELEV. CTL. STR. | CTL. STR. DIMENSIONS (W x L x H) | ORIFICE DIAMETER (O) INCHES | ORIFICE INV. ELEV. | OUTLET PIPE DIAMETER(P) INCHES |
| 642+00 -L- LT                                                 | —                | 6"                 | 18"                | 857.0                      | 860.0                           | 3.0'                       | 855.0                | 5.0' X 5.0' X 5.0'               | 3"                          | 857.0              | 30"                            |
| —                                                             | —                | —                  | —                  | —                          | —                               | —                          | —                    | —                                | —                           | —                  | —                              |



|                                                                  |                     |
|------------------------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                                            | SHEET NO.           |
| R-2707D                                                          | 2D-3                |
| RW SHEET NO.                                                     |                     |
| ROADWAY DESIGN ENGINEER                                          | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                     |

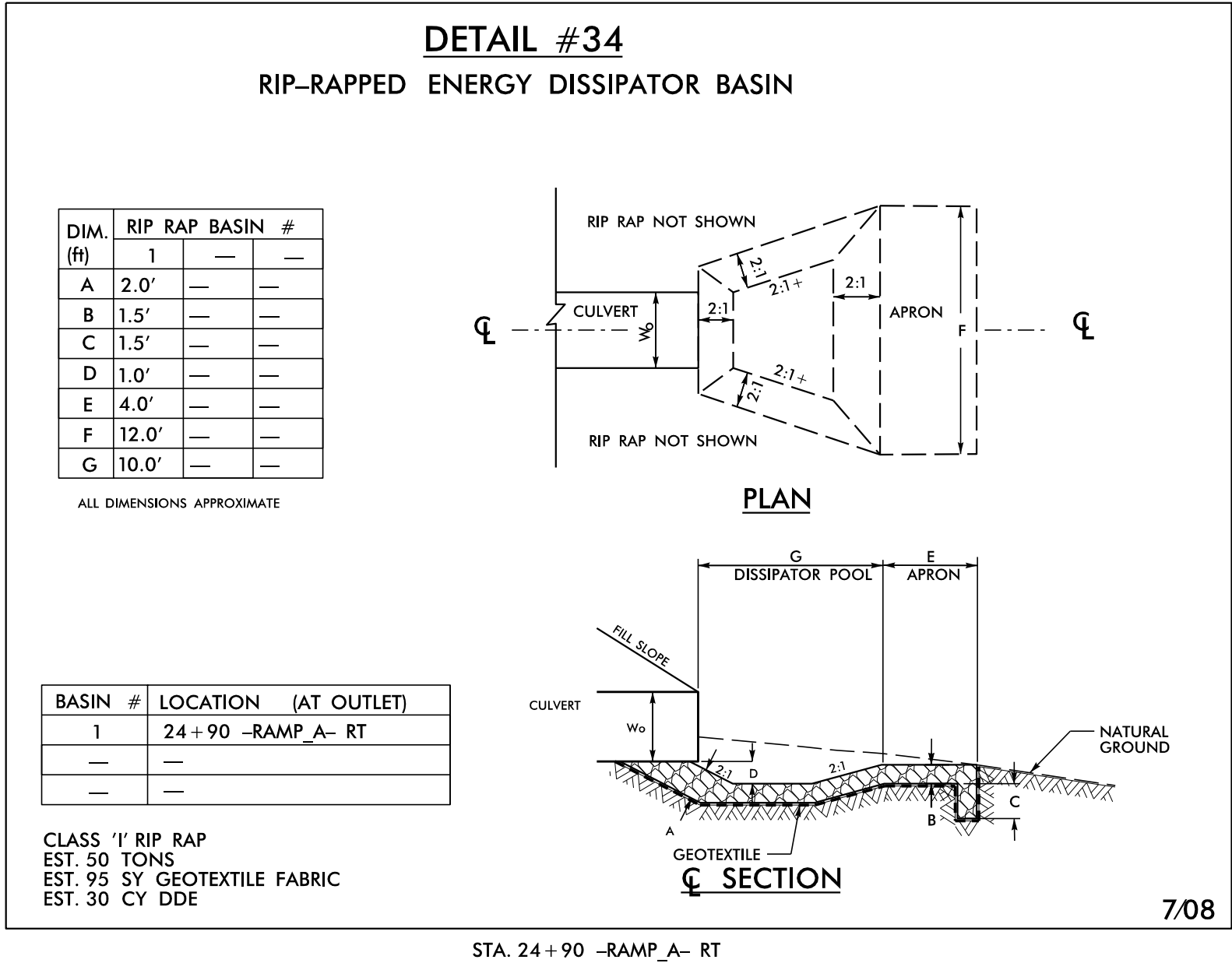
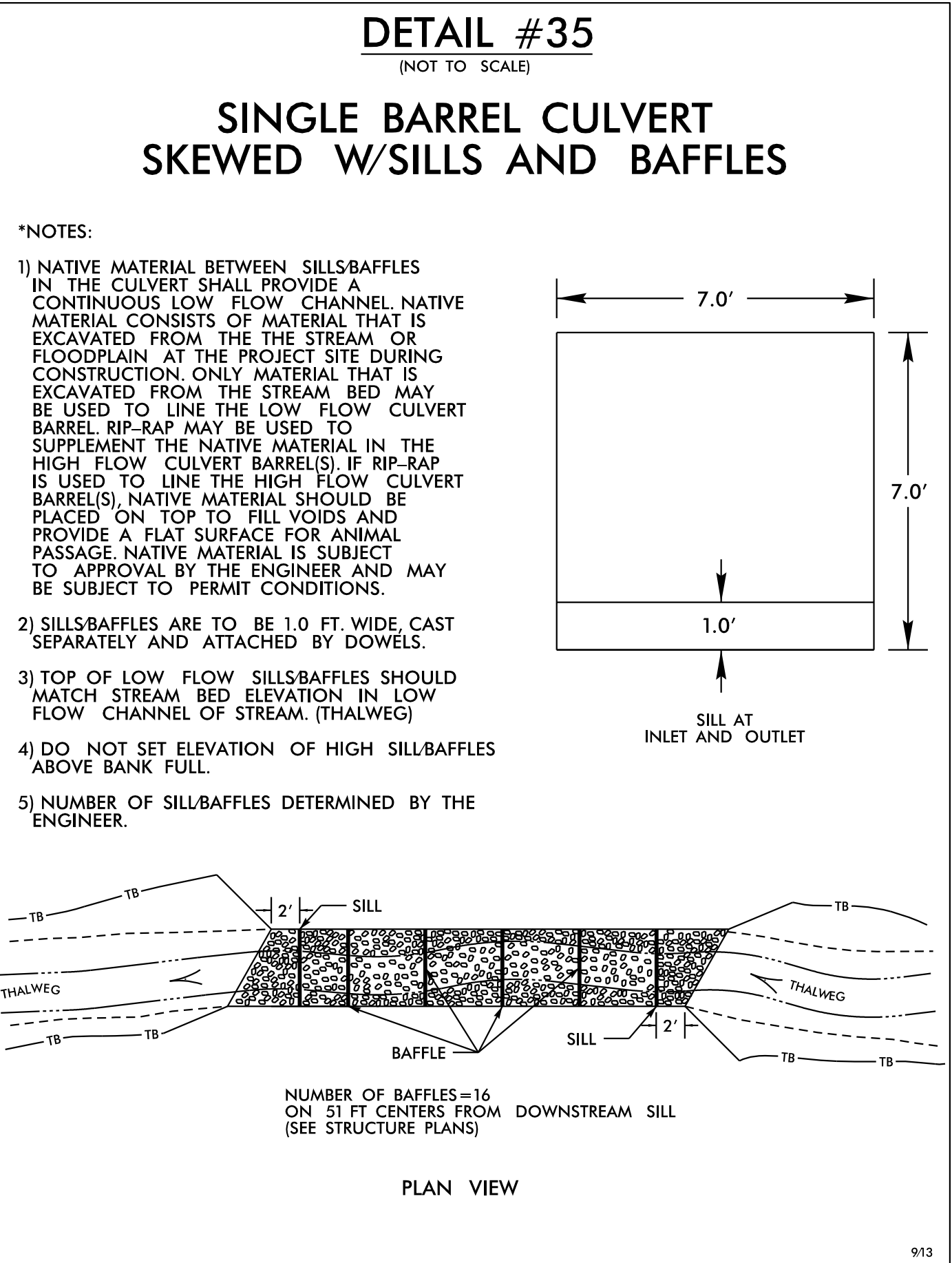
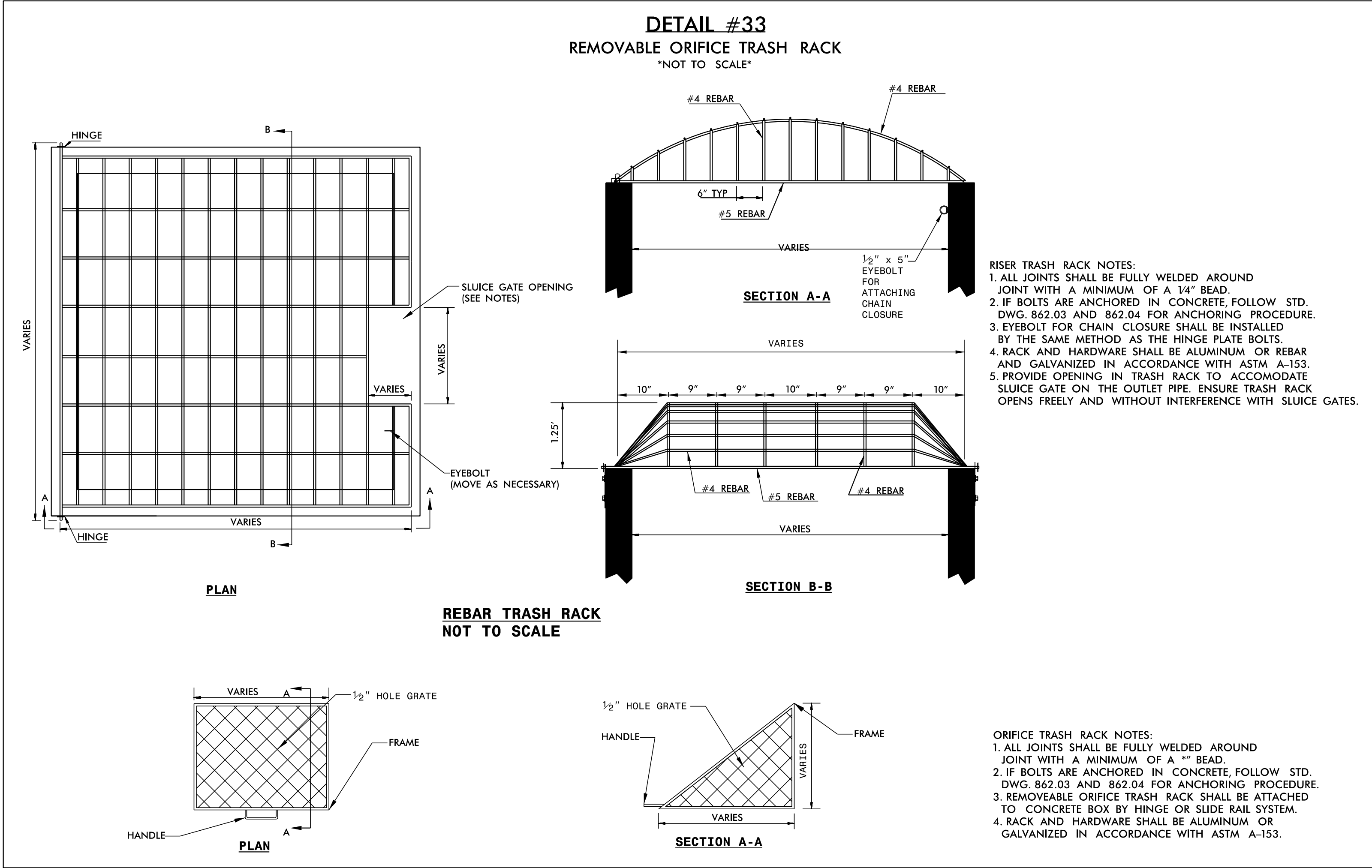
DETAIL #32  
DRY DETENTION BASIN DRAWDOWN STRUCTURE  
\*NOT TO SCALE\*



| MINIMUM DIMENSIONS FOR DRY DETENTION BASIN DRAWDOWN STRUCTURE |                  |                    |                    |                            |                                 |                            |                      |                                  |                             |                    |                                |
|---------------------------------------------------------------|------------------|--------------------|--------------------|----------------------------|---------------------------------|----------------------------|----------------------|----------------------------------|-----------------------------|--------------------|--------------------------------|
| STATION                                                       | STRUCTURE NUMBER | S (INCHES) 6" MIN. | B (INCHES) 6" MIN. | BASIN BOTTOM MINIMUM ELEV. | TOP ELEVATION CONTROL STRUCTURE | MAX. STORAGE DEPTH(D) FEET | INV. ELEV. CTL. STR. | CTL. STR. DIMENSIONS (W x L x H) | ORIFICE DIAMETER (O) INCHES | ORIFICE INV. ELEV. | OUTLET PIPE DIAMETER(P) INCHES |
| 782+00 -L- RT                                                 | —                | 6"                 | 18"                | 727.0                      | 730.0                           | 3.0'                       | 725.0                | 5.0' X 5.0' X 5.0'               | 3"                          | 727.0              | 24"                            |
| 814+00 -L- LT                                                 | —                | 6"                 | 18"                | 715.0                      | 718.0                           | 3.0'                       | 713.0                | 5.0' X 5.0' X 5.0'               | 3"                          | 715.0              | 24"                            |

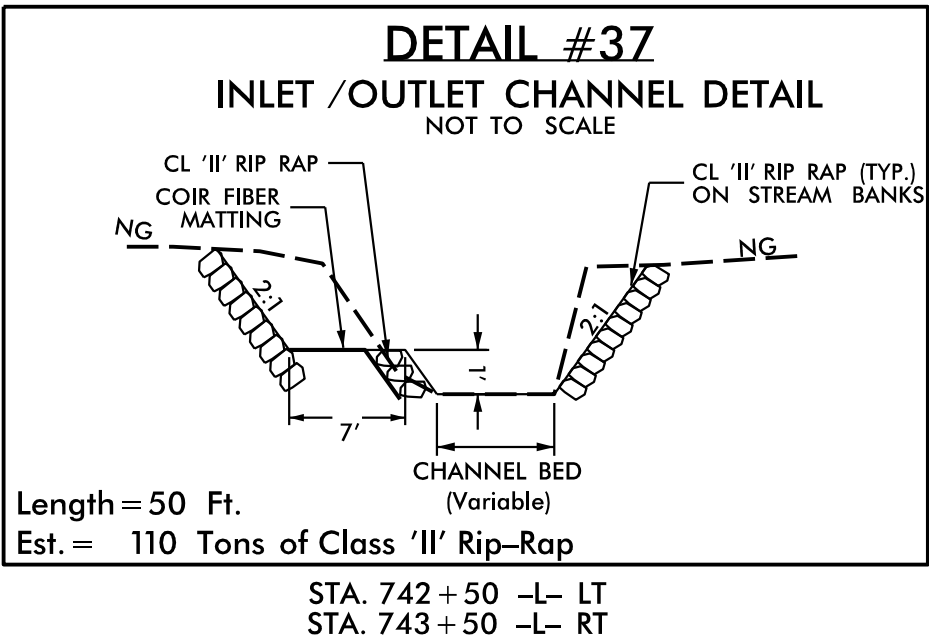
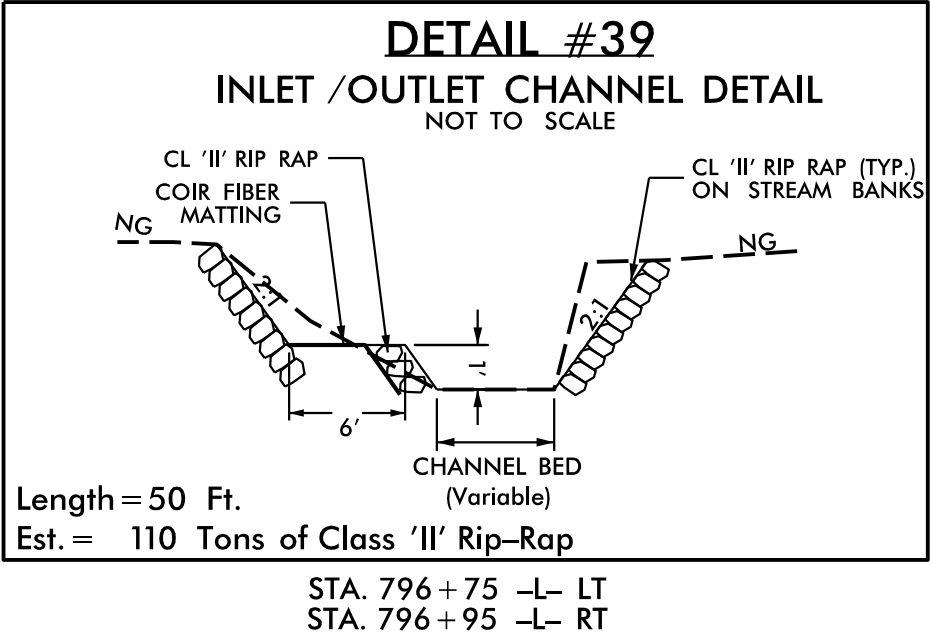
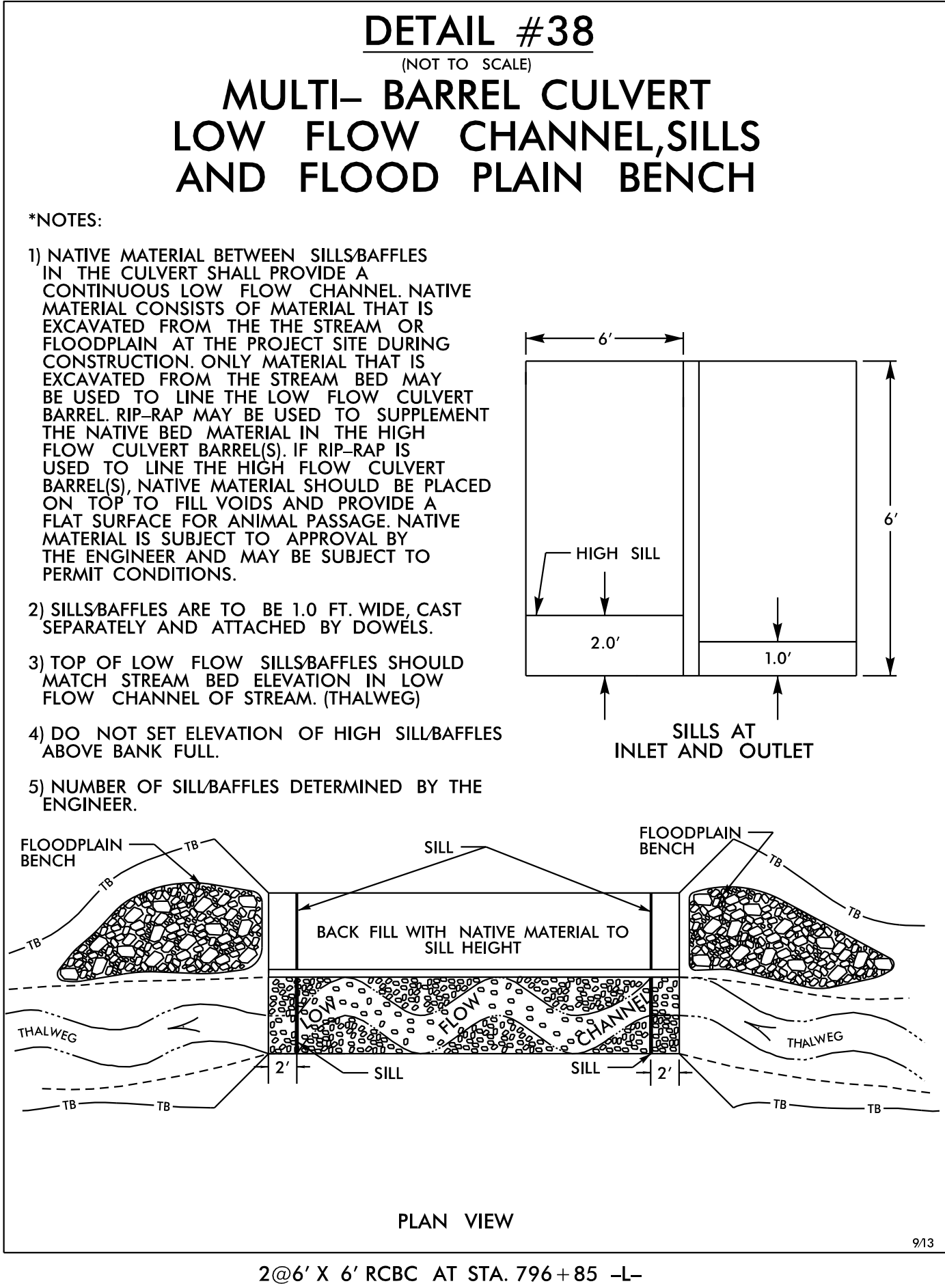
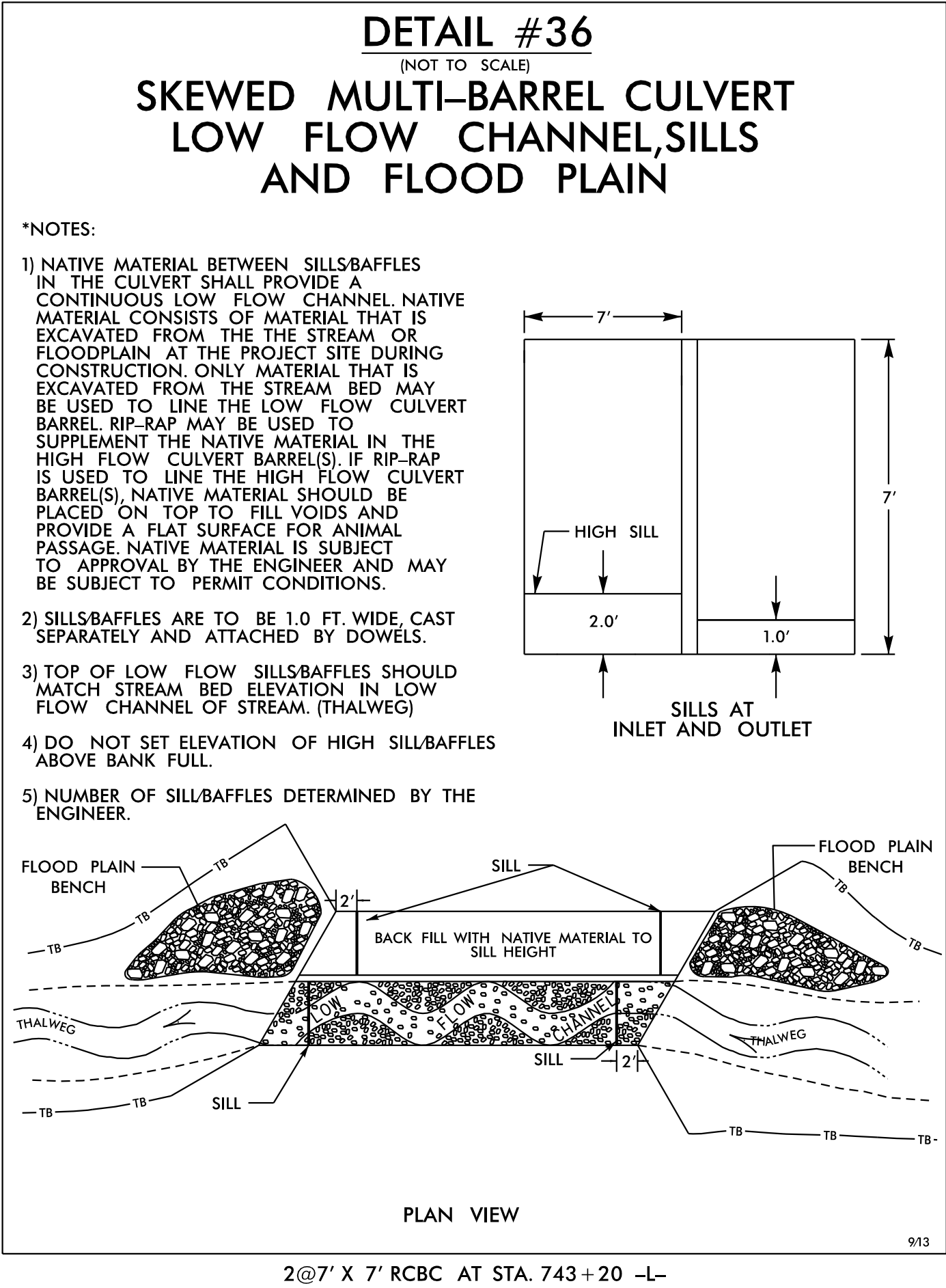


|                                                                  |  |                     |
|------------------------------------------------------------------|--|---------------------|
| PROJECT REFERENCE NO.                                            |  | SHEET NO.           |
| R-2707D                                                          |  | 2D-4                |
| RW SHEET NO.                                                     |  |                     |
| ROADWAY DESIGN ENGINEER                                          |  | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |  |                     |





|                                                                  |                     |
|------------------------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                                            | SHEET NO.           |
| R-2707D                                                          | 2D-5                |
| RW SHEET NO.                                                     |                     |
| ROADWAY DESIGN ENGINEER                                          | HYDRAULICS ENGINEER |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                     |









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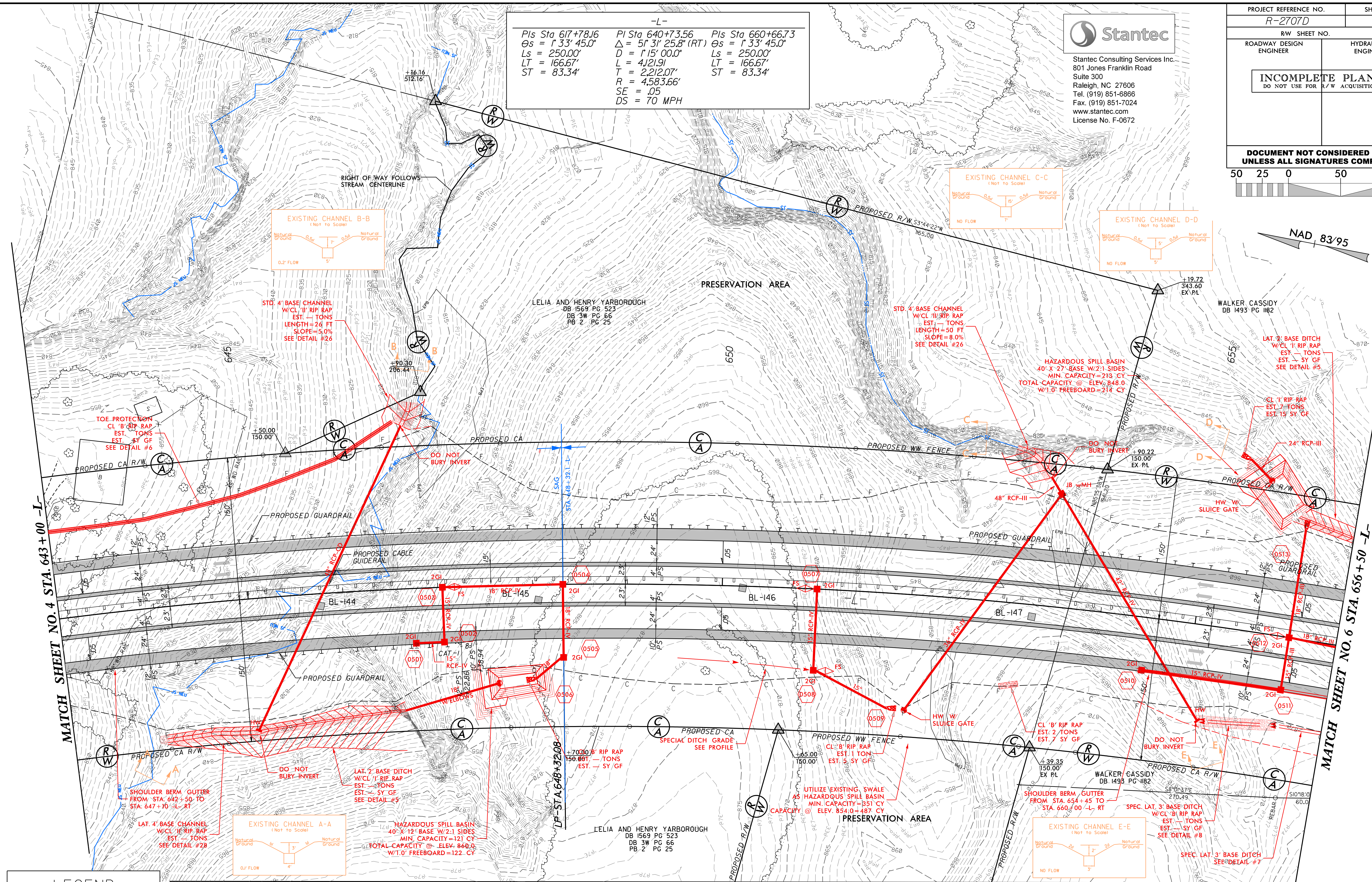
REVISIONS

12/20/08 R2707D\_Hyd\_PSH\_05.dgn

-L-  
Pls Sta 617+78.16  
 $\Delta s = 1' 33" 45.0"$   
Ls = 250.00'  
LT = 166.67'  
ST = 83.34'  
PI Sta 640+73.56  
 $\Delta = 5' 31" 25.8" (RT)$   
D = 1' 15" 00.0"  
L = 4,121.91'  
T = 2,212.07'  
R = 4,583.66'  
SE = .05  
DS = 70 MPH  
Pls Sta 660+66.73  
 $\Delta s = 1' 33" 45.0"$   
Ls = 250.00'  
LT = 166.67'  
ST = 83.34'

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|                                                                         |  |                       |  |
|-------------------------------------------------------------------------|--|-----------------------|--|
| PROJECT REFERENCE NO.<br><b>R-2707D</b>                                 |  | SHEET NO.<br><b>5</b> |  |
| RW SHEET NO.                                                            |  | HYDRAULICS ENGINEER   |  |
| ROADWAY DESIGN ENGINEER                                                 |  |                       |  |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION               |  |                       |  |
| <b>DOCUMENT NOT CONSIDERED FINAL</b><br>UNLESS ALL SIGNATURES COMPLETED |  |                       |  |
| 50 25 0                                                                 |  | 50 100                |  |



**LEGEND**

- FALSE SUMP DITCH  
DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

MATCH SHEET NO. 5A

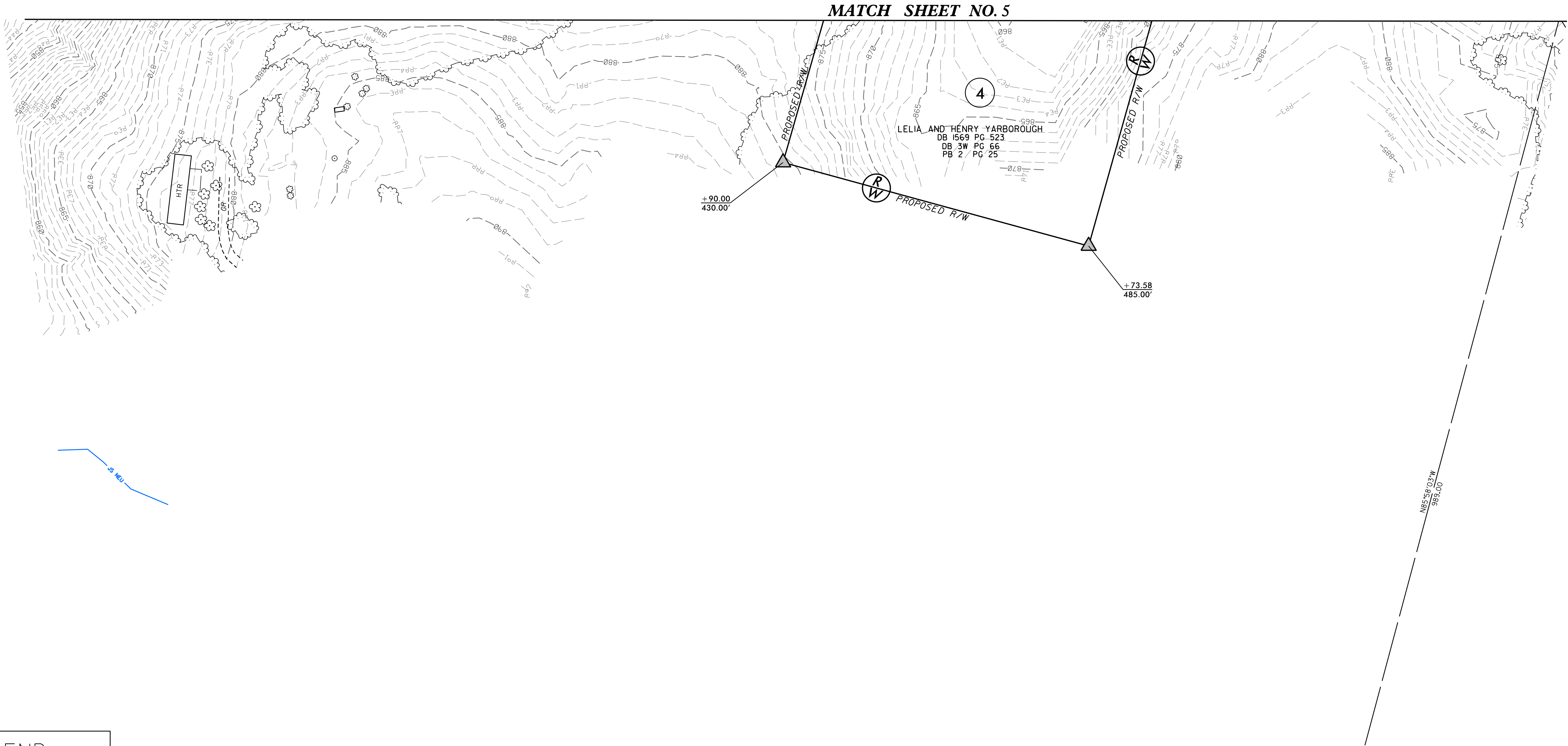
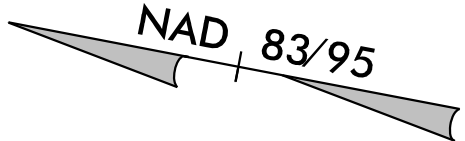
REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO.27

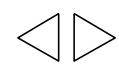
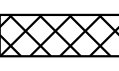




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|                                                                                     |    |                                                                                     |        |
|-------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------|--------|
| PROJECT REFERENCE NO.                                                               |    | SHEET NO.                                                                           |        |
| R-2707D                                                                             |    | 5A                                                                                  |        |
| RW SHEET NO.                                                                        |    |                                                                                     |        |
| ROADWAY DESIGN<br>ENGINEER                                                          |    | HYDRAULICS<br>ENGINEER                                                              |        |
| <div>INCOMPLETE PLANS<br/>DO NOT USE FOR R/W ACQUISITION</div>                      |    |                                                                                     |        |
|                                                                                     |    |                                                                                     |        |
| <div>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</div>        |    |                                                                                     |        |
| 50                                                                                  | 25 | 0                                                                                   | 50 100 |
|  |    |  |        |



| LEGEND                                                                              |                                          |
|-------------------------------------------------------------------------------------|------------------------------------------|
|  | FALSE SUMP DITCH<br>DETAIL SHEET 2_      |
|  | PAVED SHOULDER                           |
|  | OBLITERATE, REMOVE<br>AND GRADE TO DRAIN |
|  | CONCRETE                                 |



—L—  
Pls Sta 617+78.16  
Θs = 1° 33' 45.0"  
Ls = 250.00'  
LT = 166.67'  
ST = 83.34'

Pls Sta 640+73.56  
Δ = 5° 31' 25.8" (RT)  
D = 1° 15' 00.0"  
L = 412.91'  
T = 2,212.07'  
R = 4,583.66'  
SE = .05  
DS = 70 MPH

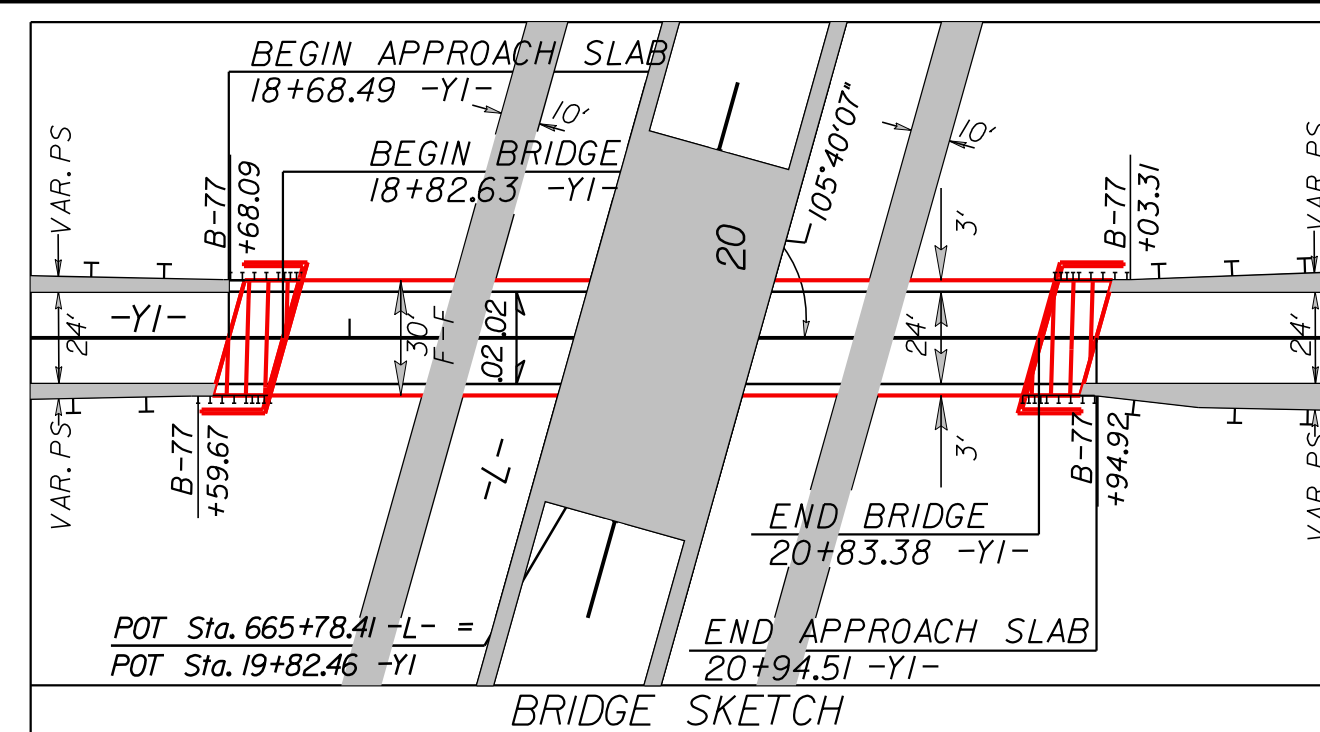
Pls Sta 660+66.73  
Θs = 1° 33' 45.0"  
Ls = 250.00'  
LT = 166.67'  
ST = 83.34'

—YI—  
Pls Sta 22+89.15  
Θs = 2° 24' 00.0"  
Ls = 160.00'  
LT = 106.68'  
ST = 53.34'

Pls Sta 25+22.07  
Δ = 10° 44' 39.5" (RT)  
D = 3° 00' 00.0"  
L = 358.14'  
T = 179.60'  
R = 1,909.86'  
SE = .04  
DS = 35 MPH

Pls Sta 27+53.96  
Θs = 2° 24' 00.0"  
Ls = 160.00'  
LT = 106.68'  
ST = 53.34'

—SRVRD\_1—  
Pls Sta 17+75.32  
Δ = 35° 15' 10.8" (LT)  
D = 14° 19' 26.2"  
L = 246.11'  
T = 127.09'  
R = 400.00'  
SE = .03  
RO = 50'  
DS = 15 MPH

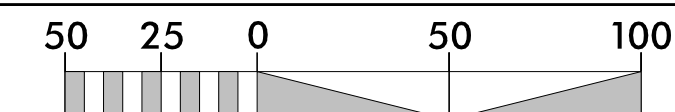


NAD 83/95



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|                                                                         |                       |
|-------------------------------------------------------------------------|-----------------------|
| PROJECT REFERENCE NO.<br><b>R-2707D</b>                                 | SHEET NO.<br><b>6</b> |
| ROADWAY DESIGN ENGINEER                                                 | HYDRAULICS ENGINEER   |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION               |                       |
| <b>DOCUMENT NOT CONSIDERED FINAL</b><br>UNLESS ALL SIGNATURES COMPLETED |                       |



MATCH SHEET NO. 5 STA. 656+50 -L-

CS Sta. 659+83.39 -L-

ST Sta. 662+33.39 -L-

TS Sta. 21+82.47 -YI-

SC Sta. 23+42.47 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

STA. 24+00 -YI-

## LEGEND

- FALSE SUMP DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE AND GRADE TO DRAIN
- CONCRETE

MATCH SHEET NO. 20 STA. 16+75 -YI-

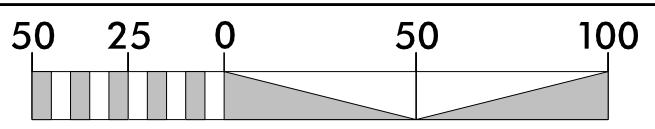
MATCH SHEET NO. 20 STA. 14+00 -SRVRD\_1-

MATCH SHEET NO. 7 STA. 18+71.37 -SRVRD\_1-

MATCH SHEET NO. 7 STA. 670+00 -L-

REFERENCES:  
FOR -L- PROFILE, SEE SHEET NO. 28  
FOR -YI- PROFILE, SEE SHEET NO. 44  
FOR -SRVRD\_1- PROFILE, SEE SHEET NO. 50  
FOR DET 1- PROFILE, SEE SHEET NO. 2B-1  
FOR -DET\_2- PROFILE, SEE SHEET NO. 2B-2





**MATCH SHEET NO. 8 STA. 683+50 - L-**

|                                                                                     |                                          |
|-------------------------------------------------------------------------------------|------------------------------------------|
|  | FALSE SUMP DITCH                         |
|  | DETAIL SHEET 2_                          |
|  | PAVED SHOULDER                           |
|  | OBLITERATE, REMOVE<br>AND GRADE TO DRAIN |
|  | CONCRETE                                 |

REFERENCES:  
 FOR -L- PROFILE, SEE SHEET NO. 28  
 FOR -SRVRD 1- PROFILE, SEE SHEET NO. 50



8/17/99

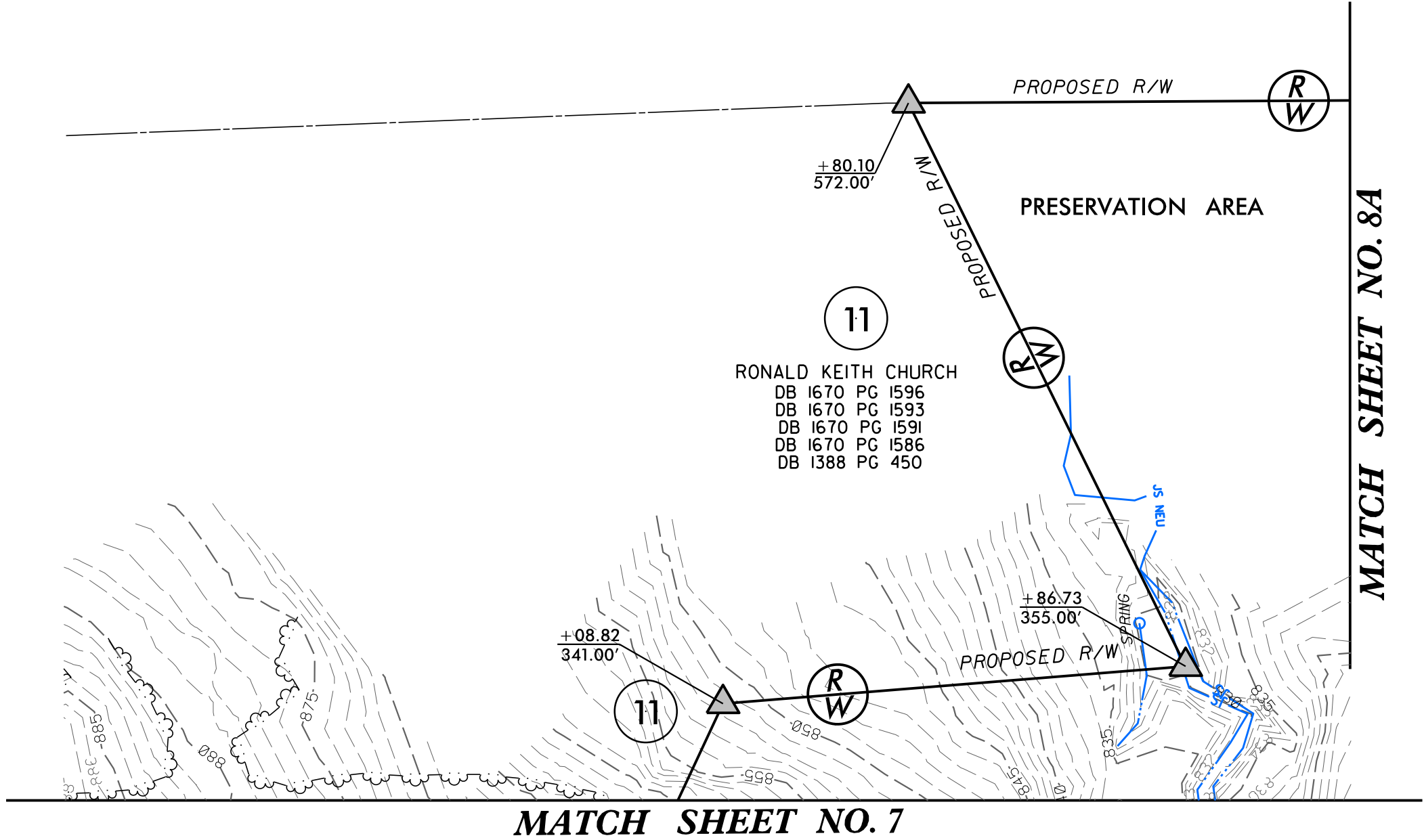
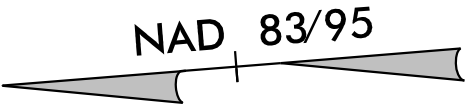
REVISIONS

KL/2018  
R2707D\_Hyd\_PSH\_07A.dgn  
08/17/99

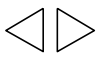


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|                                                                  |  |                     |  |
|------------------------------------------------------------------|--|---------------------|--|
| PROJECT REFERENCE NO.                                            |  | SHEET NO.           |  |
| R-2707D                                                          |  | 7A                  |  |
| RW SHEET NO.                                                     |  |                     |  |
| ROADWAY DESIGN ENGINEER                                          |  | HYDRAULICS ENGINEER |  |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION               |  |                     |  |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |  |                     |  |
| 50 25 0 50 100                                                   |  |                     |  |



LEGEND



FALSE SUMP DITCH  
DETAIL SHEET 2



PAVED SHOULDER



OBLITERATE, REMOVE  
AND GRADE TO DRAIN



CONCRETE



| -L-                        |                                |                            |
|----------------------------|--------------------------------|----------------------------|
| Pls Sta 686+23.97          | Pls Sta 716+56.80              | Pls Sta 744+15.89          |
| $\Theta_s = 0' 45' 00.0''$ | $\Delta = 42' 26' 22.0''$ (LT) | $\Theta_s = 0' 45' 00.0''$ |
| $L_s = 200.00'$            | $D = 0' 45' 00.0''$            | $L_s = 200.00'$            |
| $LT = 133.33'$             | $L = 5658.59'$                 | $LT = 133.33'$             |
| $ST = 66.67'$              | $T = 2966.17'$                 | $ST = 66.67'$              |
|                            | $R = 7639.44'$                 |                            |
|                            | $SE = .03$                     |                            |
|                            | $DS = 70$ MPH                  |                            |

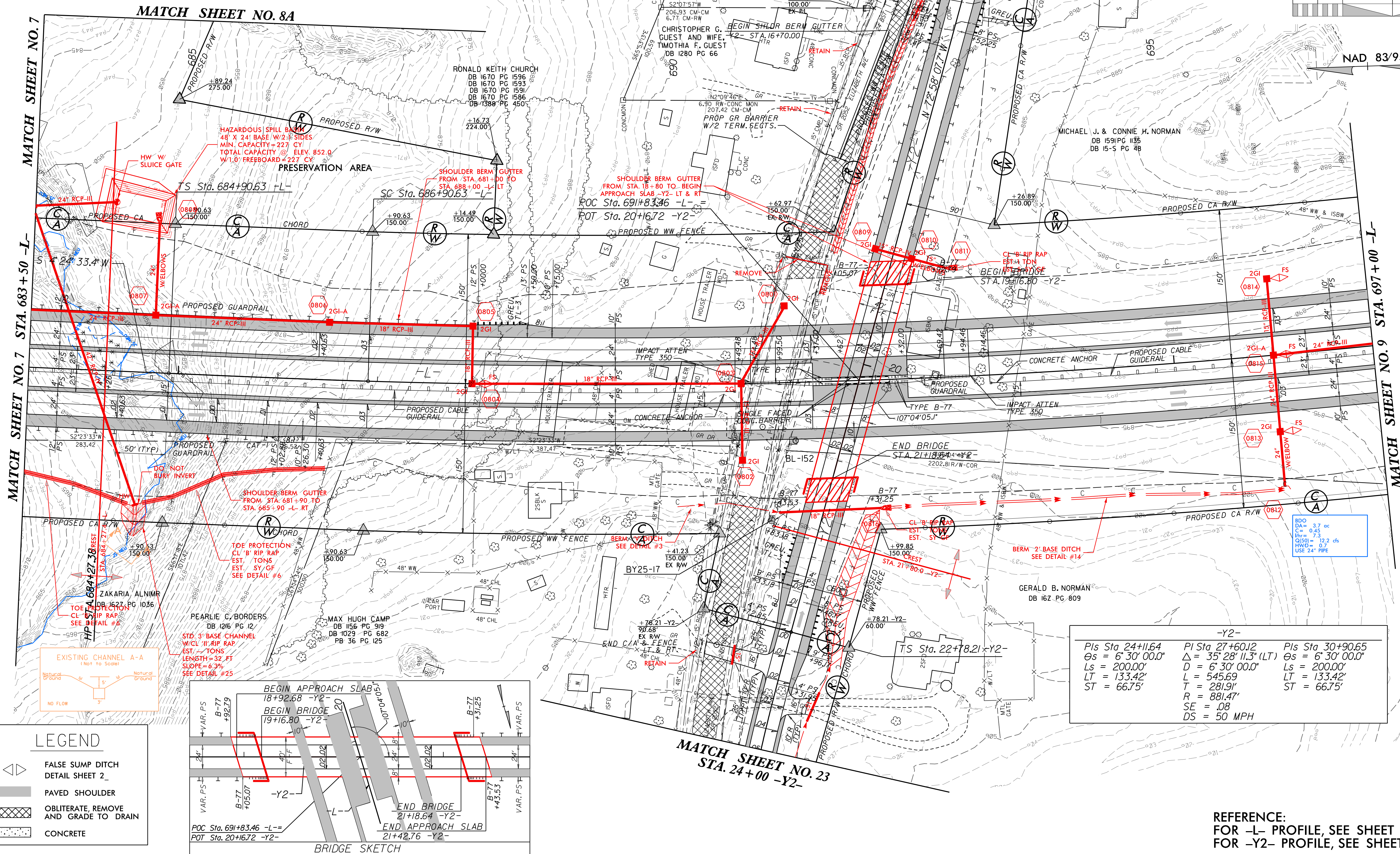


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|                                                                         |                       |
|-------------------------------------------------------------------------|-----------------------|
| PROJECT REFERENCE NO.<br><b>R-2707D</b>                                 | SHEET NO.<br><b>8</b> |
| RW SHEET NO.                                                            | HYDRAULICS ENGINEER   |
| ROADWAY DESIGN ENGINEER                                                 |                       |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION               |                       |
| <b>DOCUMENT NOT CONSIDERED FINAL</b><br>UNLESS ALL SIGNATURES COMPLETED |                       |



NAD 83/95



| -Y2-                       |                                |                            |
|----------------------------|--------------------------------|----------------------------|
| Pls Sta 24+11.64           | Pls Sta 27+60.12               | Pls Sta 30+90.65           |
| $\Theta_s = 6' 30' 00.0''$ | $\Delta = 35' 28' 11.3''$ (LT) | $\Theta_s = 6' 30' 00.0''$ |
| $L_s = 200.00'$            | $D = 6' 30' 00.0''$            | $L_s = 200.00'$            |
| $LT = 133.42'$             | $L = 545.69'$                  | $LT = 133.42'$             |
| $ST = 66.75'$              | $T = 281.91'$                  | $ST = 66.75'$              |
|                            | $R = 881.47'$                  |                            |
|                            | $SE = .08$                     |                            |
|                            | $DS = 50$ MPH                  |                            |

## LEGEND

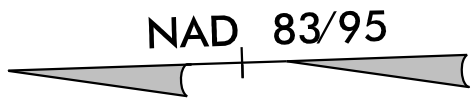
- FALSE SUMP DITCH  
DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 29  
FOR -Y2- PROFILE, SEE SHEET NO. 45





|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-2707D               | 8A        |



**MATCH SHEET NO. 8**

## LEGEND

FALSE SUMP DITCH  
DETAIL SHEET 2

PAVED SHOULDER

 OBLITERATE, REMOVE  
AND GRADE TO DRAIN

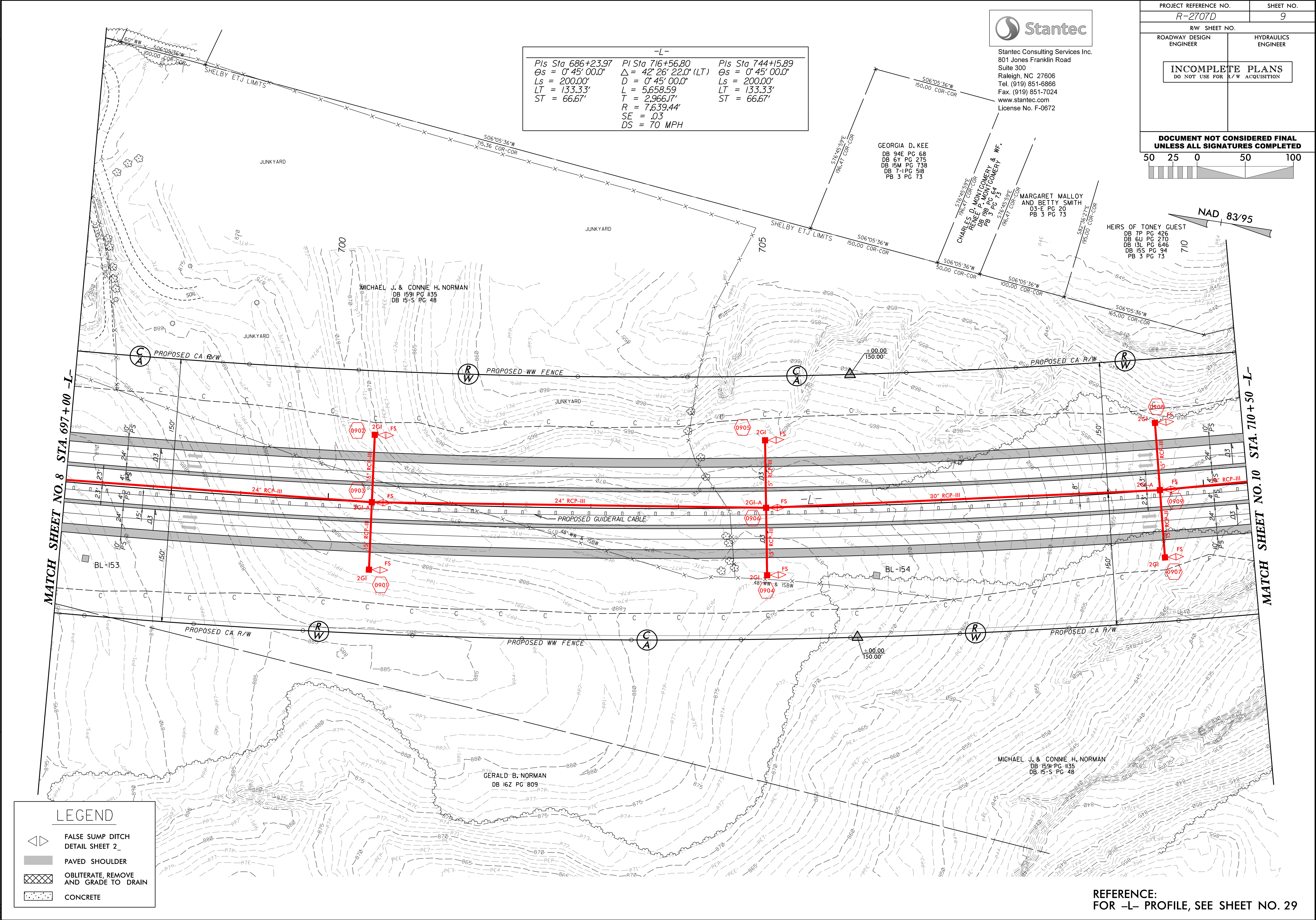
## CONCRETE



8/17/99

REVISIONS

1/2/2018  
R2707D\_Hyd\_PSH\_09.dgn  
csl.com



REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 29



8/17/99

REVISIONS

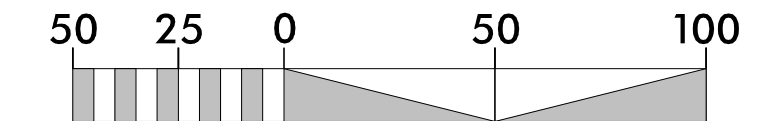
1/2/2018  
R2707D\_Hyd\_PSH10.dgn  
csl.com



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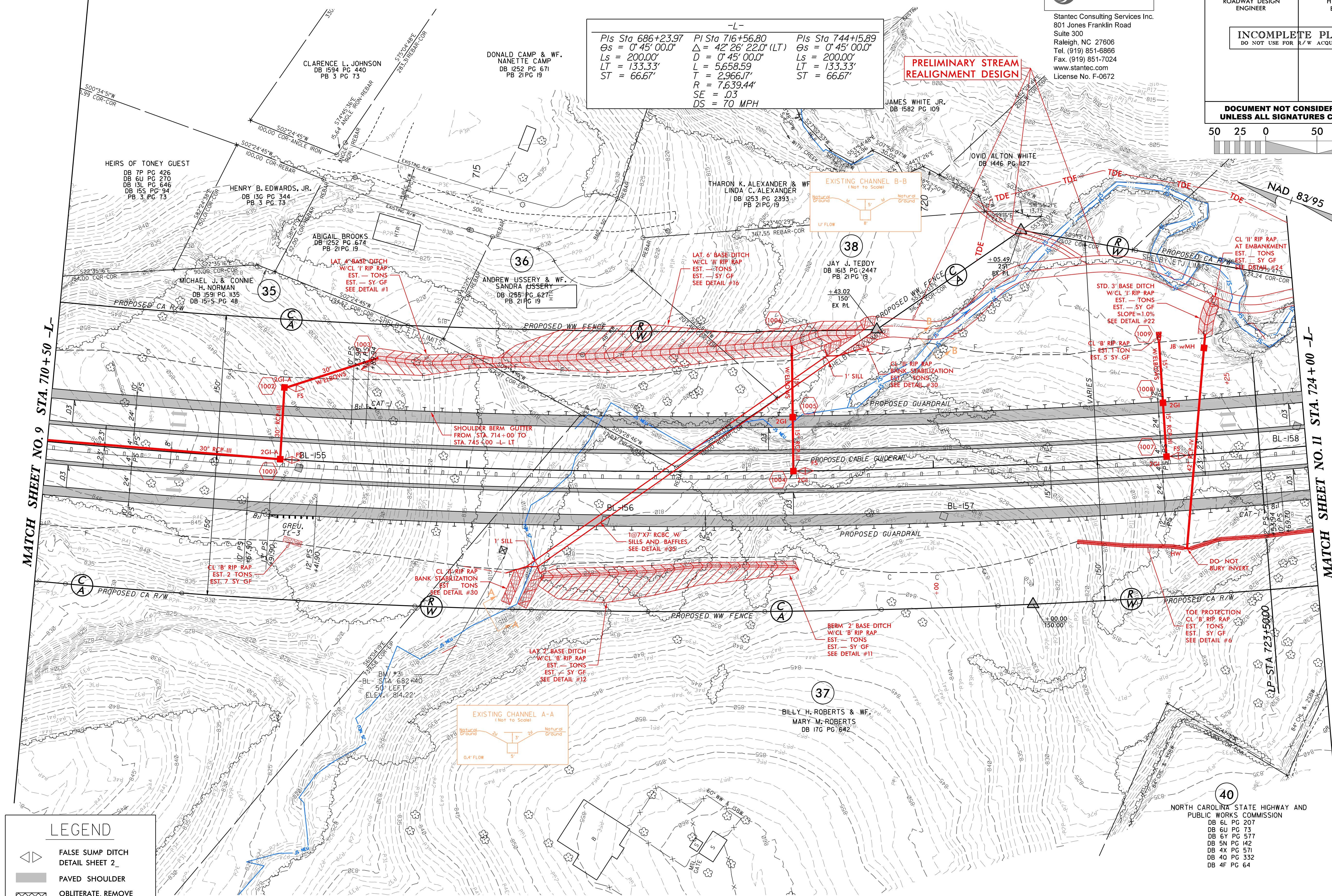
| PROJECT REFERENCE NO.                              | SHEET NO.           |
|----------------------------------------------------|---------------------|
| R-2707D                                            | 10                  |
| ROADWAY DESIGN ENGINEER                            | HYDRAULICS ENGINEER |
|                                                    |                     |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION |                     |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



MATCH SHEET NO. 9 STA. 710+50 -L-

MATCH SHEET NO. 11 STA. 724+00 -L-



### LEGEND

- FALSE SUMP DITCH  
DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

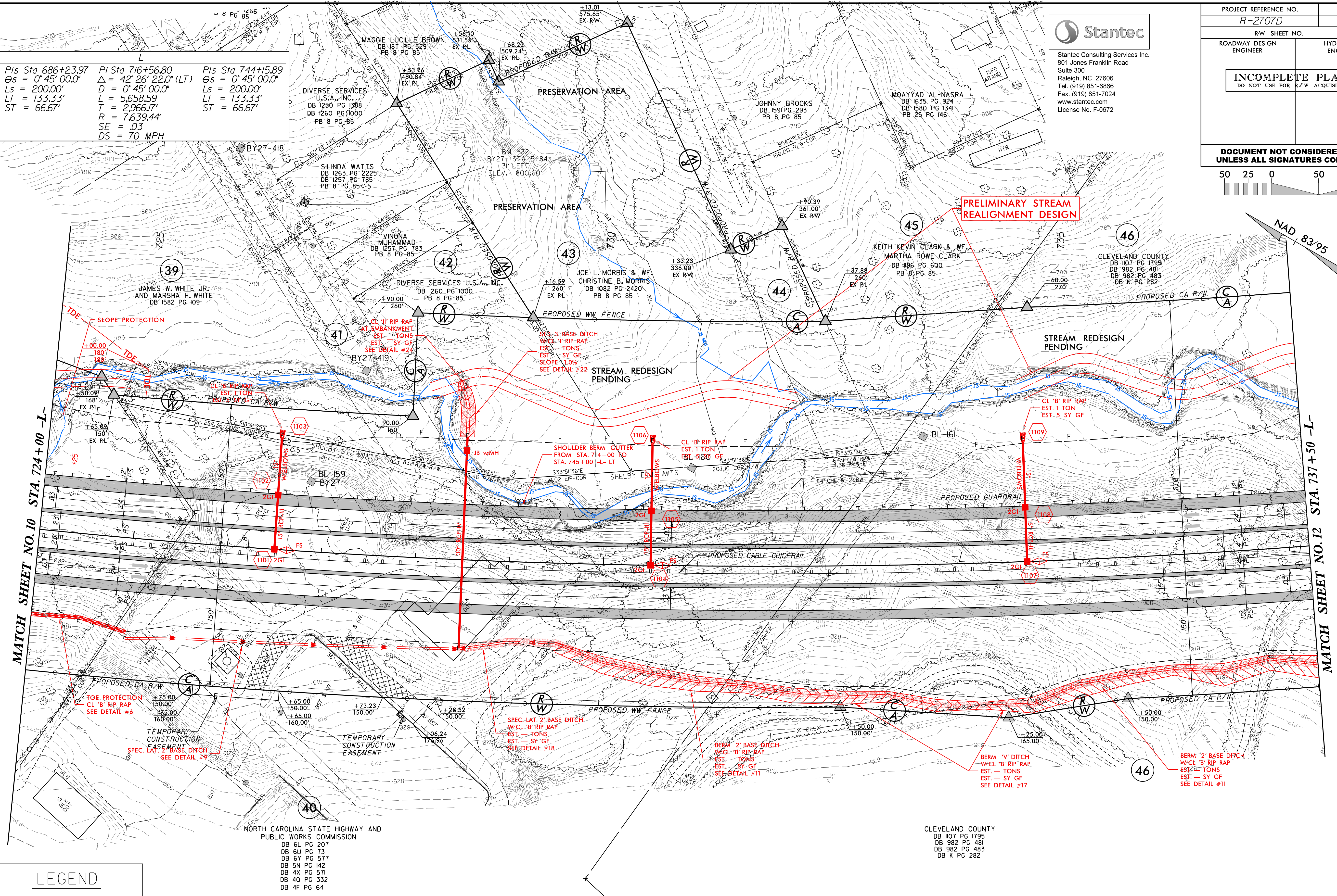
REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 30



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License No. F-0672

|                                                                          |  |                        |  |
|--------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.<br><i>R-2707D</i>                                  |  | SHEET NO.<br><i>11</i> |  |
| RW SHEET NO.                                                             |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER                                               |  | HYDRAULICS<br>ENGINEER |  |
| <div>INCOMPLETE PLANS</div> <div>DO NOT USE FOR R/W ACQUISITION</div>    |  |                        |  |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b> |  |                        |  |
| 50 25 0                                                                  |  | 50 100                 |  |

*Pls Sta 686+23.97* *Pls Sta 716+56.80* *Pls Sta 744+15.89*  
*Gs = 0' 45" 00.0'* *Δ = 42' 26" 22.0" (LT)* *Gs = 0' 45" 00.0'*  
*Ls = 200.00'* *D = 0' 45" 00.0'* *Ls = 200.00'*  
*LT = 133.33'* *L = 5,658.59'* *LT = 133.33'*  
*ST = 66.67'* *T = 2,966.17'* *ST = 66.67'*  
*R = 7,639.44'*  
*SE = .03*  
*DS = 70 MPH*



| LEGEND |                                          |
|--------|------------------------------------------|
|        | FALSE SUMP DITCH<br>DETAIL SHEET 2       |
|        | PAVED SHOULDER                           |
|        | OBLITERATE, REMOVE<br>AND GRADE TO DRAIN |
|        | CONCRETE                                 |

NORTH CAROLINA STATE HIGHWAY AND  
PUBLIC WORKS COMMISSION  
DB 6L PG 207  
DB 6U PG 13  
DB 6Y PG 577  
DB 5N PG 142  
DB 4X PG 571  
DB 40 PG 332  
DB 4F PG 64

CLEVELAND COUNTY  
DB 107 PG 1795  
DB 982 PG 481  
DB 982 PG 483  
DB K PG 282

REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 30  
NOTE:  
ALL PIPES ARE RCP UNLESS OTHERWISE NOTED

REVISIONS

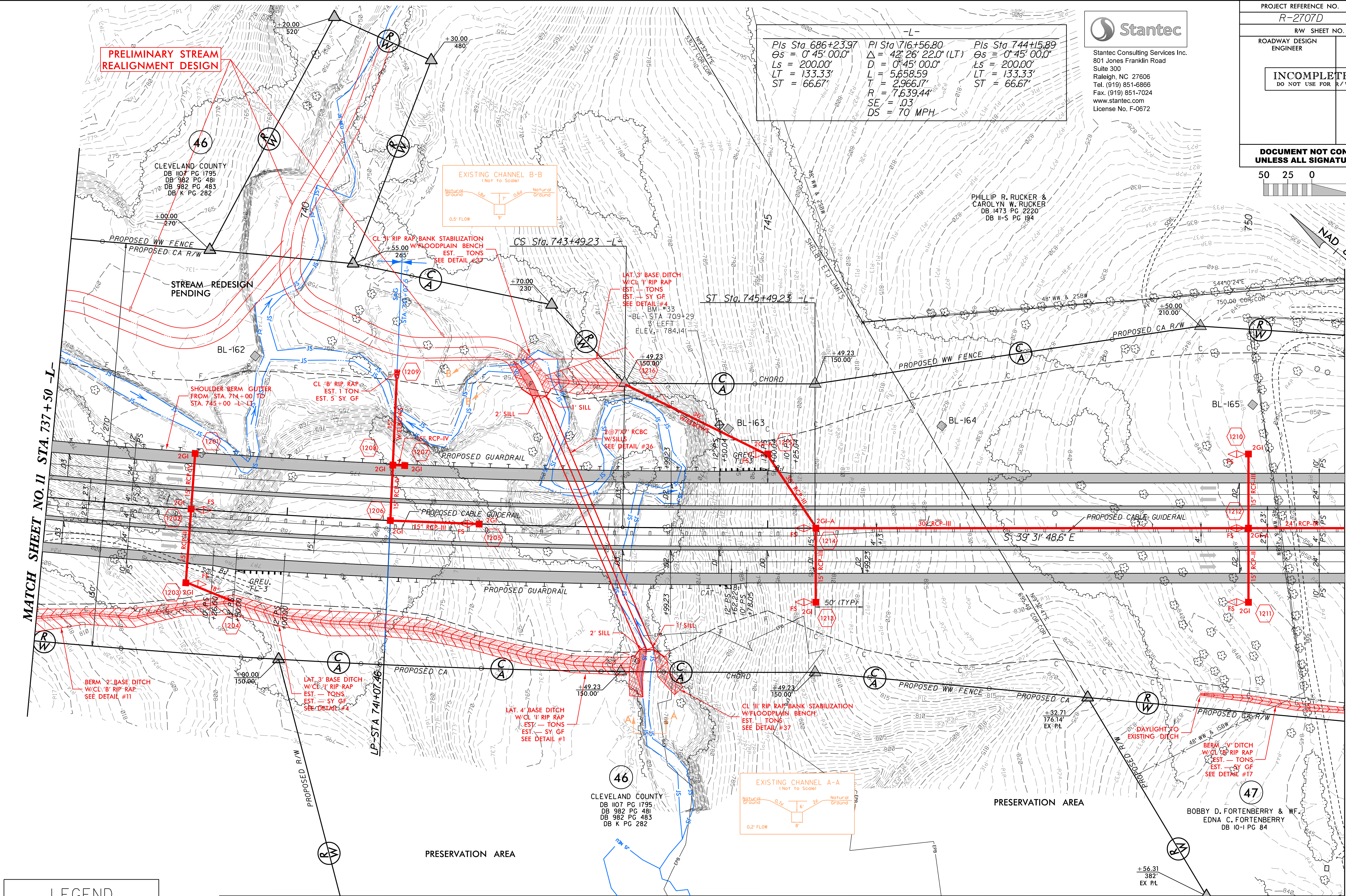
8/17/99  
K/L/2008  
R2707D\_Hyd\_PSH11.dgn  
06/10/2010



8/17/99

REVISIONS

1/2/2018  
R2707D\_Hyd\_PSH12.dgn  
csl.com



**LEGEND**

- FALSE SUMP DITCH  
DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

MATCH SHEET NO. 12A

**-L-**

|                                                                                       |                                                                                                                                              |                                                                                       |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Pls Sta 686+23.97<br>Es = 0° 45' 00.0"<br>Ls = 200.00'<br>LT = 133.33'<br>ST = 66.67' | PI Sta 716+56.80<br>Δ = 42° 26' 22.0" (LT)<br>D = 0° 45' 00.0"<br>L = 5,658.59'<br>T = 2,966.17'<br>R = 7,639.44'<br>SE = .03<br>DS = 70 MPH | Pls Sta 744+15.89<br>Es = 0° 45' 00.0"<br>Ls = 200.00'<br>LT = 133.33'<br>ST = 66.67' |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|

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|                                                                         |  |                        |  |
|-------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.<br><b>R-2707D</b>                                 |  | SHEET NO.<br><b>12</b> |  |
| RW SHEET NO.                                                            |  | HYDRAULICS ENGINEER    |  |
| ROADWAY DESIGN ENGINEER                                                 |  | HYDRAULICS ENGINEER    |  |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION               |  |                        |  |
| <b>DOCUMENT NOT CONSIDERED FINAL</b><br>UNLESS ALL SIGNATURES COMPLETED |  |                        |  |
| 50 25 0                                                                 |  | 50 100                 |  |

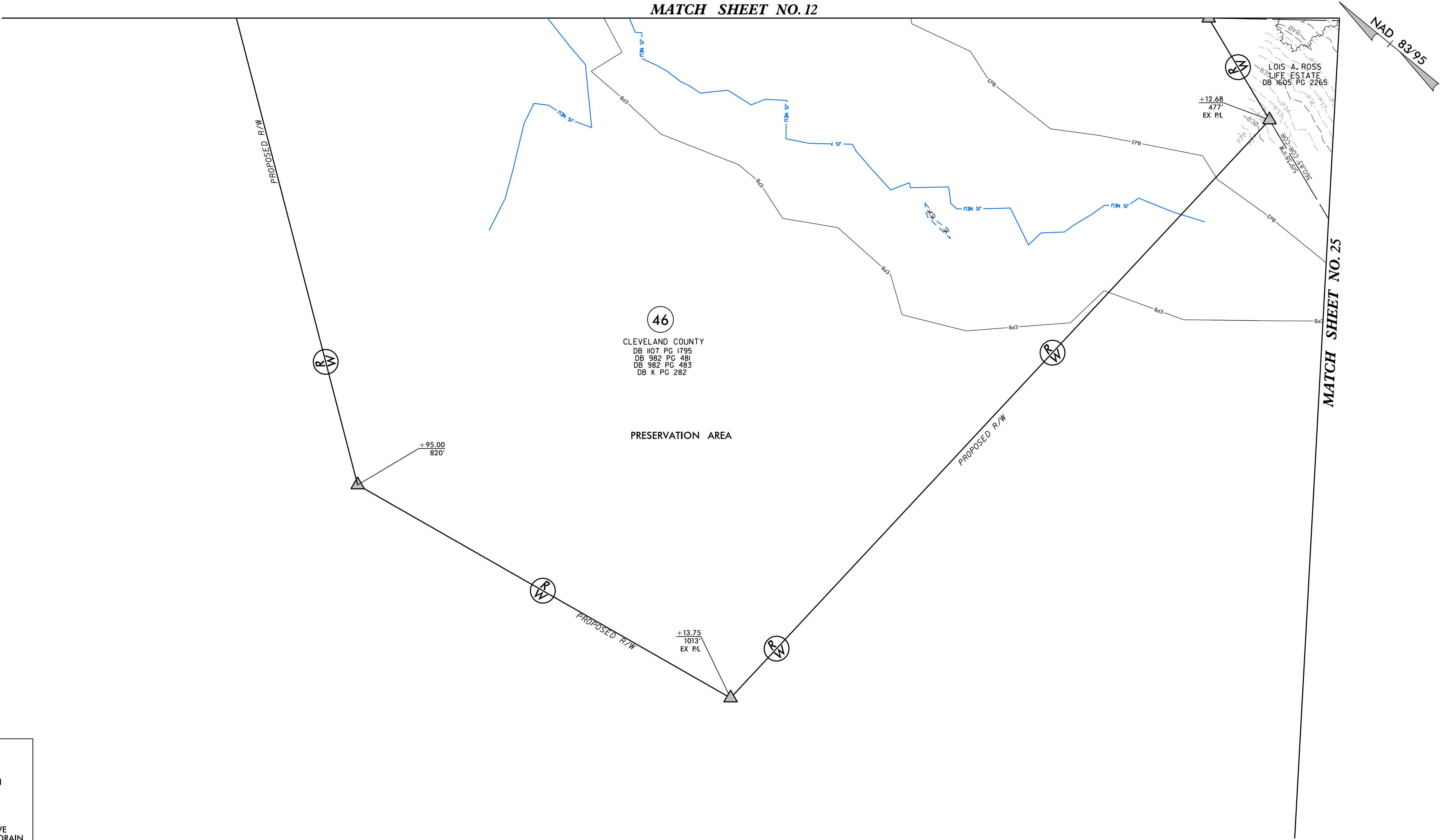
REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 31



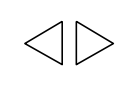
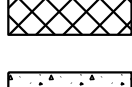
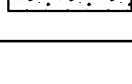


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|                                                                                                                      |                        |           |
|----------------------------------------------------------------------------------------------------------------------|------------------------|-----------|
| PROJECT REFERENCE NO.                                                                                                |                        | SHEET NO. |
| R-2707D                                                                                                              |                        | 12A       |
| RW SHEET NO.                                                                                                         |                        |           |
| ROADWAY DESIGN<br>ENGINEER                                                                                           | HYDRAULICS<br>ENGINEER |           |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION                                                                   |                        |           |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED                                                     |                        |           |
| <div>5025050100</div> <div></div> |                        |           |



LEGEND

-  FALSE SUMP DITCH  
DETAIL SHEET 2\_
-  PAVED SHOULDER
-  OBLITERATE, REMOVE  
AND GRADE TO DRAIN
-  CONCRETE



8/17/99

-Y3-  
PI Sta 15+95.11  
 $\Delta s = 1' 18" 45.0"$   
Ls = 150.00'  
LT = 100.00'  
ST = 50.00'

PI Sta 20+76.29  
 $\Delta = 15' 00" 18.8" (RT)$   
D = 1' 45' 00.0"  
L = 857.44  
T = 431.9'  
R = 3,274.04'  
SE = .04  
DS = 50 MPH

PI Sta 25+52.55  
 $\Delta s = 1' 18" 45.0"$   
Ls = 150.00'  
LT = 100.00'  
ST = 50.00'

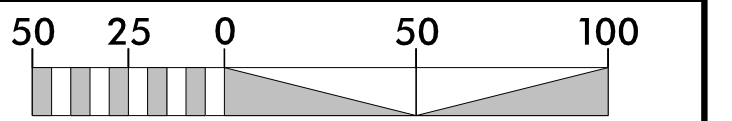
-PVTENT1-  
PI Sta 6+40.93  
 $\Delta = 71' 06" 22.1" (LT)$   
D = 76' 23' 39.7"  
L = 93.08'  
T = 53.60'  
R = 75.00'

## LEGEND

- FALSE SUMP DITCH  
DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

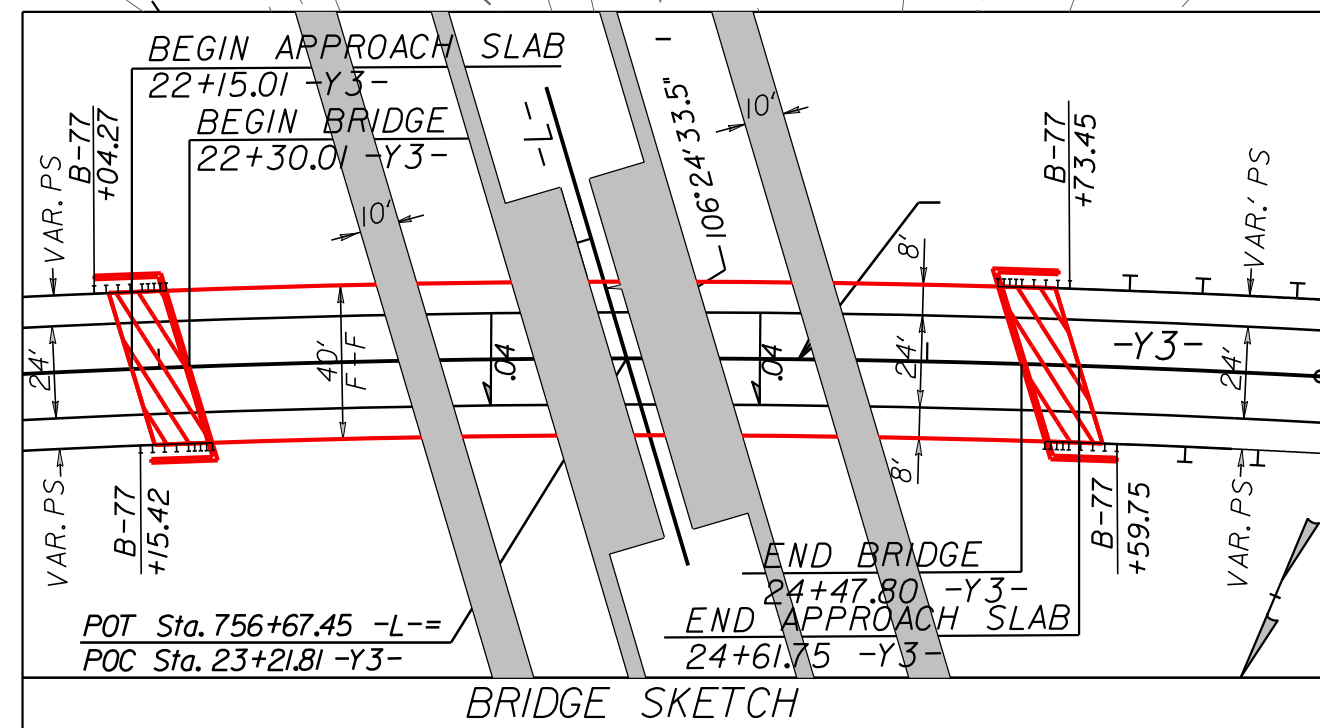
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| PROJECT REFERENCE NO.                                            |  | SHEET NO.           |
|------------------------------------------------------------------|--|---------------------|
| R-2707D                                                          |  | 13                  |
| RW SHEET NO.                                                     |  | HYDRAULICS ENGINEER |
| ROADWAY DESIGN ENGINEER                                          |  |                     |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION               |  |                     |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |  |                     |



MATCH SHEET NO. 12 STA. 751+00 -L-

MATCH SHEET NO. 14 STA. 765+00 -L-



REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 32  
FOR -Y3- PROFILE, SEE SHEET NO. 46  
FOR -PVTENT1- & -PVTENT2- PROFILES, SEE SHEET NO. 55



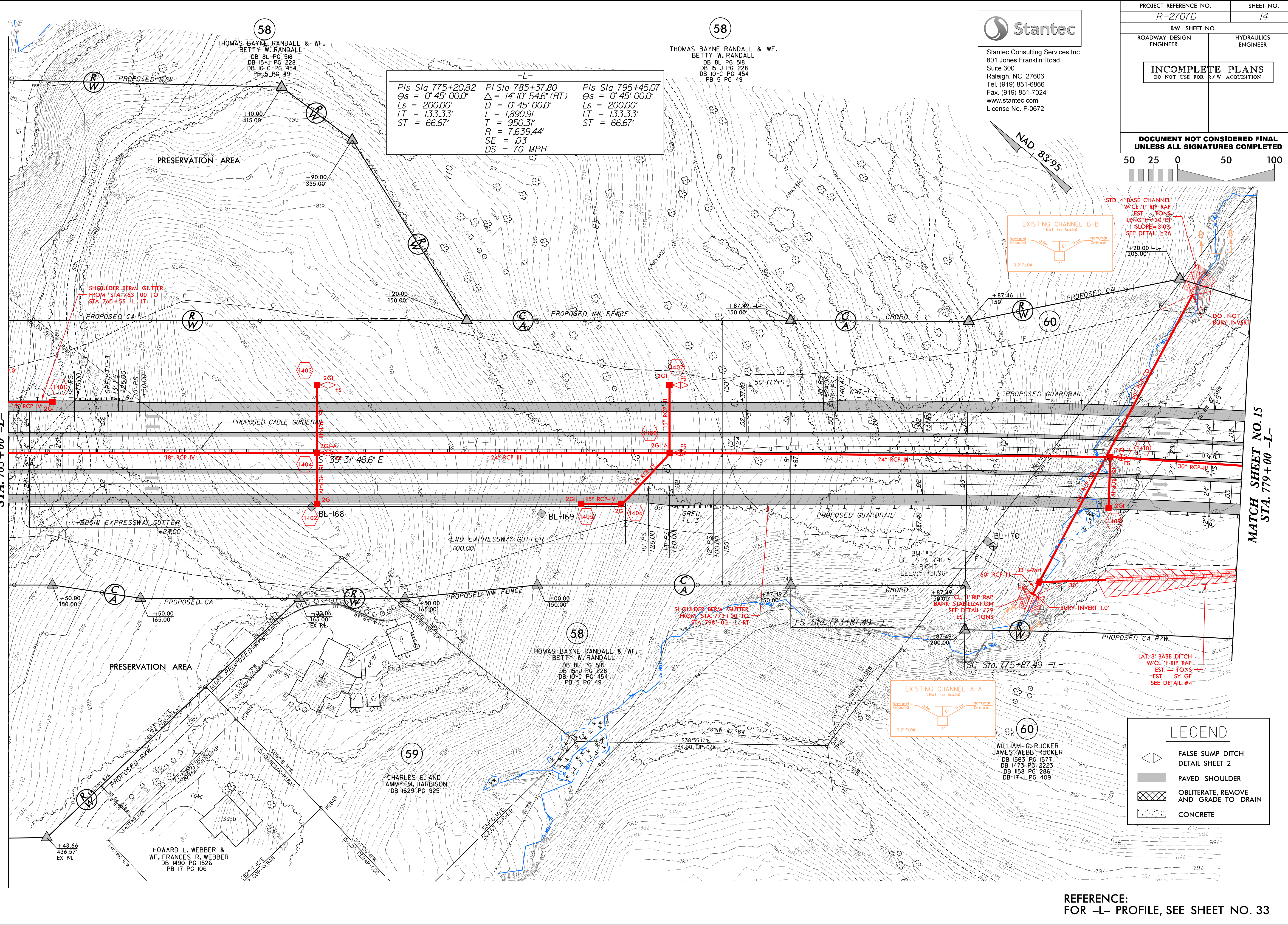
8/17/99

REVISIONS

1/2/2018  
R2707D\_Hyd\_PSH14.dgn  
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MATCH SHEET NO. 13  
STA. 765+00 -L-

MATCH SHEET NO. 24



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|                                                                       |                        |           |
|-----------------------------------------------------------------------|------------------------|-----------|
| PROJECT REFERENCE NO.                                                 |                        | SHEET NO. |
| R-2707D                                                               |                        | 14        |
| RW SHEET NO.                                                          |                        |           |
| ROADWAY DESIGN<br>ENGINEER                                            | HYDRAULICS<br>ENGINEER |           |
| <div>INCOMPLETE PLANS</div> <div>DO NOT USE FOR R/W ACQUISITION</div> |                        |           |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED      |                        |           |
| 50                                                                    | 25                     | 0         |
|                                                                       |                        |           |

LEGEND

- FALSE SUMP DITCH  
DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 33

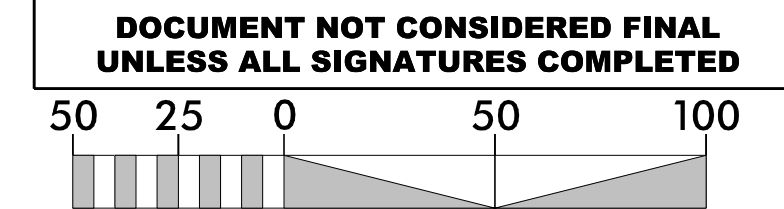




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JOSEPH NEWTON CRAVER II &  
ADELAIDE AUSTELL CRAVER  
DB 1262 PG 979  
DB 1262 PG 980  
DB 1080 PG 1442

|                                                    |                        |           |
|----------------------------------------------------|------------------------|-----------|
| PROJECT REFERENCE NO.                              |                        | SHEET NO. |
| R-2707D                                            |                        | 15        |
| RW SHEET NO.                                       |                        |           |
| ROADWAY DESIGN<br>ENGINEER                         | HYDRAULICS<br>ENGINEER |           |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION |                        |           |



MATCH SHEET NO. 14  
STA. 779+00 -L-

MATCH SHEET NO. 16  
STA. 793+00 -L-

| LEGEND |                                          |
|--------|------------------------------------------|
|        | FALSE SUMP DITCH<br>DETAIL SHEET 2       |
|        | PAVED SHOULDER                           |
|        | OBLITERATE, REMOVE<br>AND GRADE TO DRAIN |
|        | CONCRETE                                 |

Pls Sta 775+20.82  
 $\theta_s = 0^\circ 45' 00.0''$   
 $L_s = 200.00'$   
 $LT = 133.33'$   
 $ST = 66.67'$

Pls Sta 785+37.80  
 $\Delta = 14^\circ 10' 54.6'' (RT)$   
 $D = 0^\circ 45' 00.0''$   
 $L = 1,890.91'$   
 $T = 950.31'$   
 $R = 7,639.44'$   
 $SE = .03$   
 $DS = 70 \text{ MPH}$

Pls Sta 795+45.07  
 $\theta_s = 0^\circ 45' 00.0''$   
 $L_s = 200.00'$   
 $LT = 133.33'$   
 $ST = 66.67'$

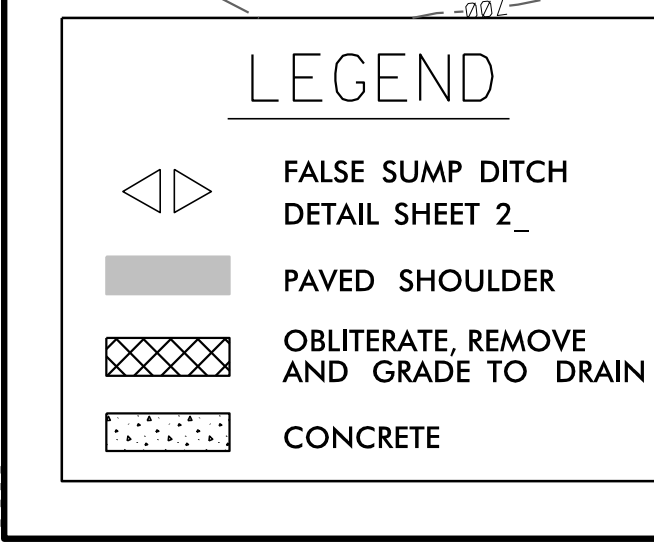
60  
WILLIAM G. RUCKER  
JAMES WEBB RUCKER  
DB 1563 PG 1577  
DB 1473 PG 2223  
DB 1158 PG 286  
DB 17-J PG 409

61

JOSEPH NEWTON CRAVER II &  
ADELAIDE AUSTELL CRAVER  
DB 1262 PG 979  
DB 1262 PG 980  
DB 1080 PG 1442

REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 34





REFERENCE:  
FOR -L- PROFILE, SEE SHEET NO. 34







8/17/99

REVISIONS

1/2/2018  
R2707D\_Hyd\_PSH\_17A.dgn  
bcalan



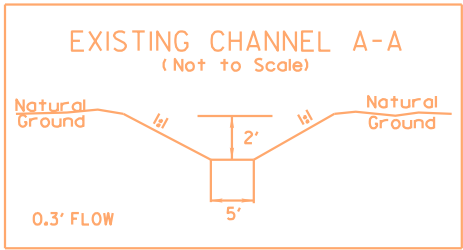
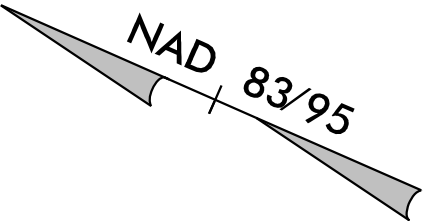
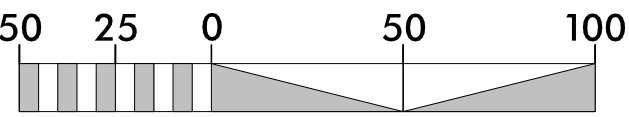
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| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|
| R-2707D               | 17A       |

| RW SHEET NO.            |                     |
|-------------------------|---------------------|
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



**-SRVRD\_5-**  
PI Sta 20+75.52  
 $\Delta = 50^{\circ} 03' 50.7''$  (RT)  
 $D = 28^{\circ} 38' 52.4''$   
 $L = 174.76'$   
 $T = 93.40'$   
 $R = 200.00'$   
 $SE = .03$   
 $RO = 45'$   
 $DS = 15$  MPH

**63**  
F. DON MELTON & WF.  
VICKY C. MELTON  
DB 15-Z PG 411  
DB 14-L PG 799  
DB 14-D PG 396  
DB 13-J PG 488  
DB 13-F PG 407  
DB 12-I PG 334  
DB 10-O PG 375

GLOBAL FINANCIAL LLC  
DB 1392 PG 361  
PB 8 PG 89

STD. 5' BASE CHANNEL  
W/CL 11" RIP RAP  
EST. TONS  
LENGTH=23'  
SLOPE=2.5%  
SEE DETAIL #27

PC Sta. 19+82.13 -SRVRD\_5-

+82.13 -SRVRD\_5-  
60.00'

BURY INVERT 1.0'

(RW)

PT Sta. 21+56.88 -SRVRD\_5-

+56.88 -SRVRD\_5-  
60.00'

+79.51 -SRVRD\_5-  
60.00'

EX. R/W

END CONSTRUCTION  
POT Sta. 22+96.49 -SRVRD\_5-

MATCH STA. 16+50 -SRVRD\_5-  
SHEET NO. 16

MATCH SHEET NO. 17

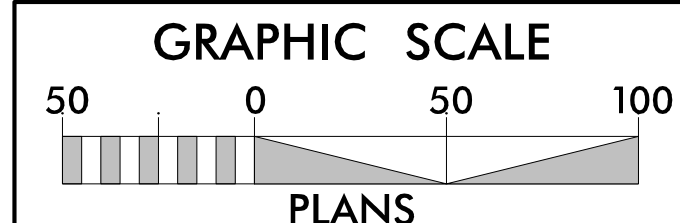
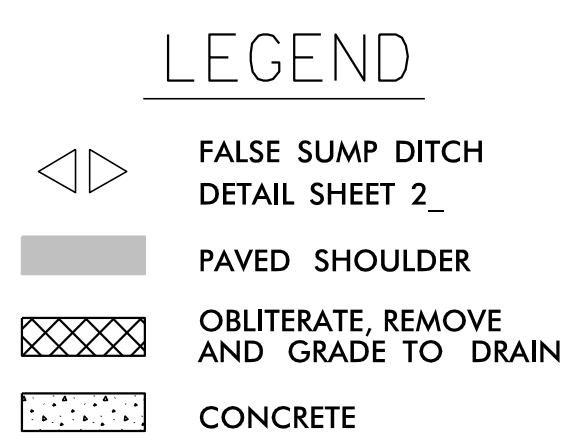
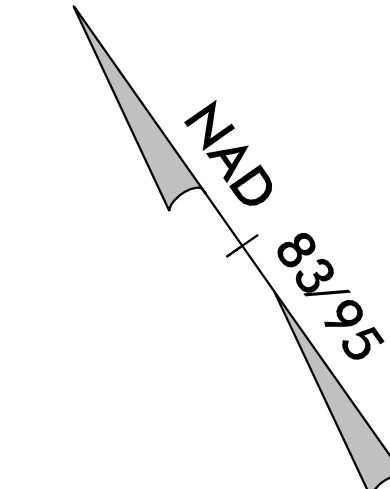
### LEGEND

- FALSE SUMP DITCH  
DETAIL SHEET 2\_
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

REFERENCE:  
FOR -SRVRD\_5- PROFILE, SEE SHEET NO. 53



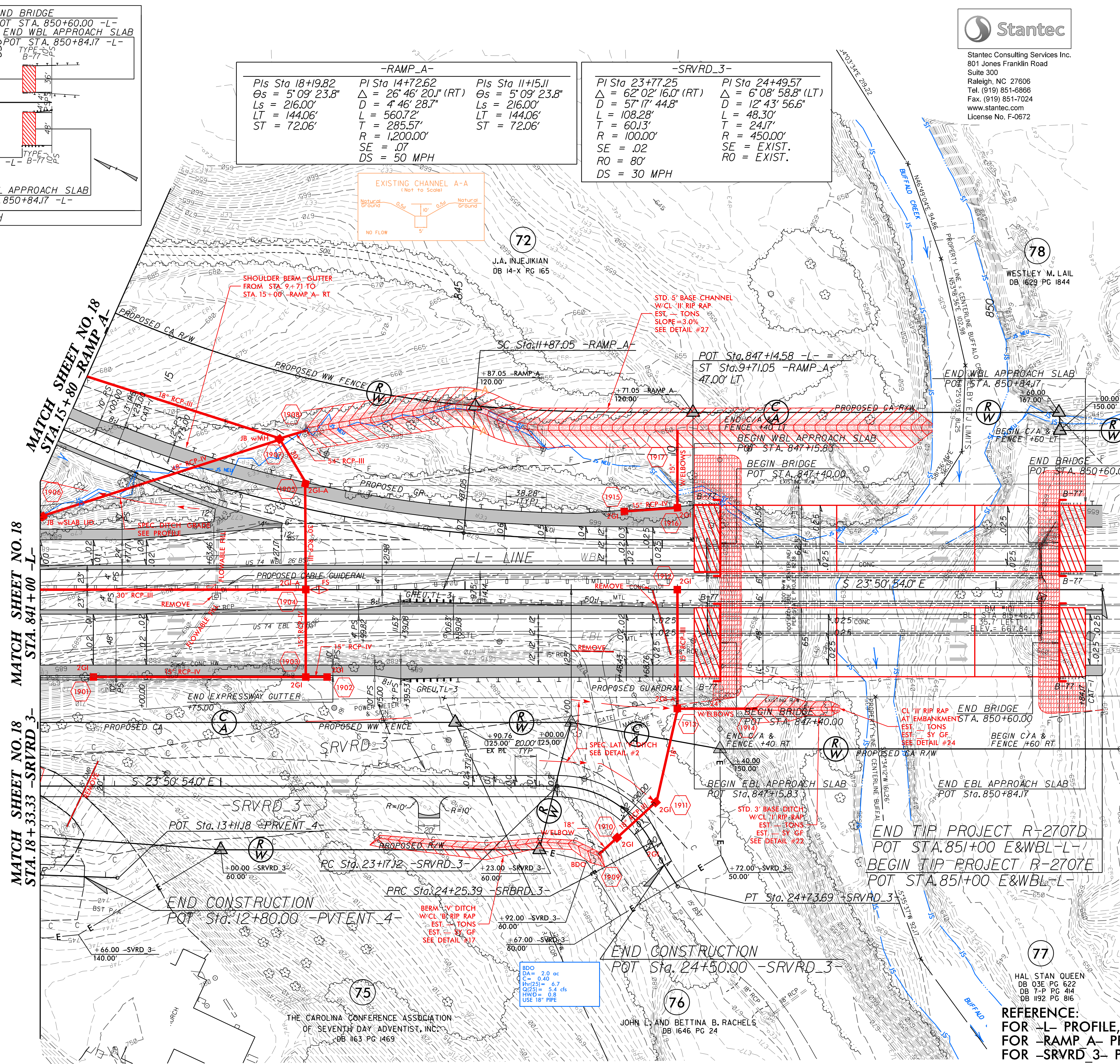
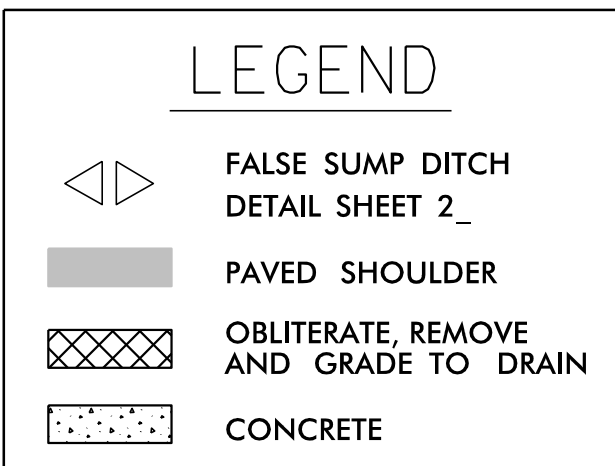
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REFERENCE:  
 FOR -L- PROFILE, SEE SHEET NO. 36 & 37  
 FOR -RAMP A- PROFILE, SEE SHEET NO. 38, 39 & 40  
 FOR -LOOPA- PROFILE, SEE SHEET NO. 41 & 42  
 FOR -RAMP C- PROFILE, SEE SHEET NO. 42  
 FOR -RAMP D- PROFILE, SEE SHEET NO. 43  
 FOR -Y4- PROFILE, SEE SHEET NO. 47  
 FOR -SRVRD 3- PROFILE, SEE SHEET NO. 55  
 FOR SHEAR POINT LAYOUT, SEE SHEET NO. 2F

|                                                                |                   |
|----------------------------------------------------------------|-------------------|
| LOCATION:                                                      |                   |
| TRUMPET INTERCHANGE<br>SHELBY BYPASS & US-74<br>EAST OF SHELBY |                   |
| TIP NO.: R-2707D                                               | COUNTY: CLEVELAND |
| DESIGNED BY: KEITH HUDSON                                      |                   |
| CHECKED BY:                                                    | DATE:             |







8/17/99

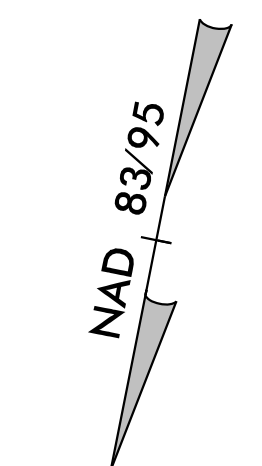
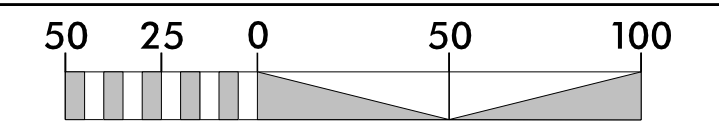
REVISIONS

1/2/2018  
R2707D\_Hyd\_PSH-20.dgn  
08/20/2018



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| PROJECT REFERENCE NO.                                            |  | SHEET NO.           |
|------------------------------------------------------------------|--|---------------------|
| R-2707D                                                          |  | 20                  |
| RW SHEET NO.                                                     |  |                     |
| ROADWAY DESIGN ENGINEER                                          |  | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION               |  |                     |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |  |                     |



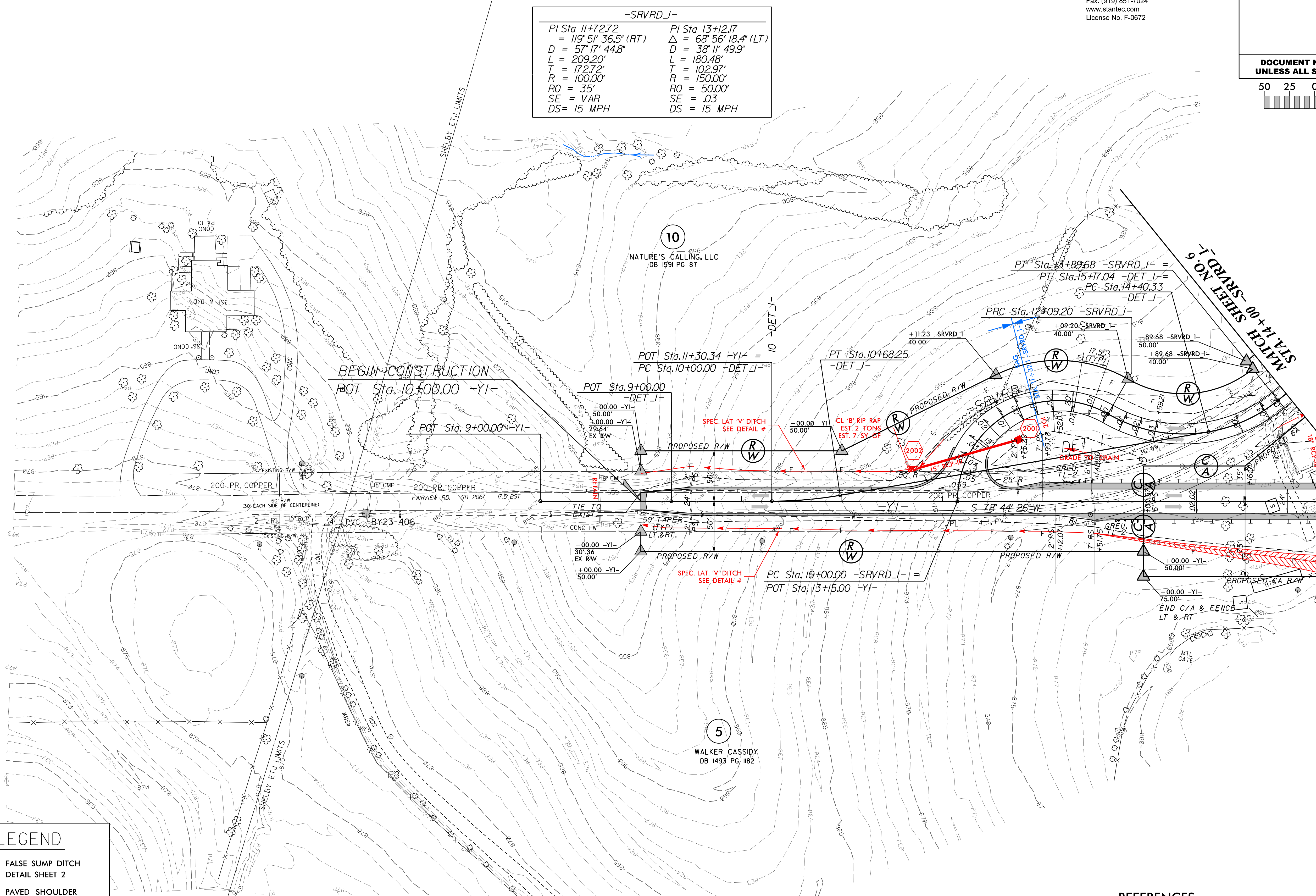
LEGEND

FALSE SUMP DITCH  
DETAIL SHEET 2

PAVED SHOULDER

OBLITERATE, REMOVE  
AND GRADE TO DRAIN

CONCRETE

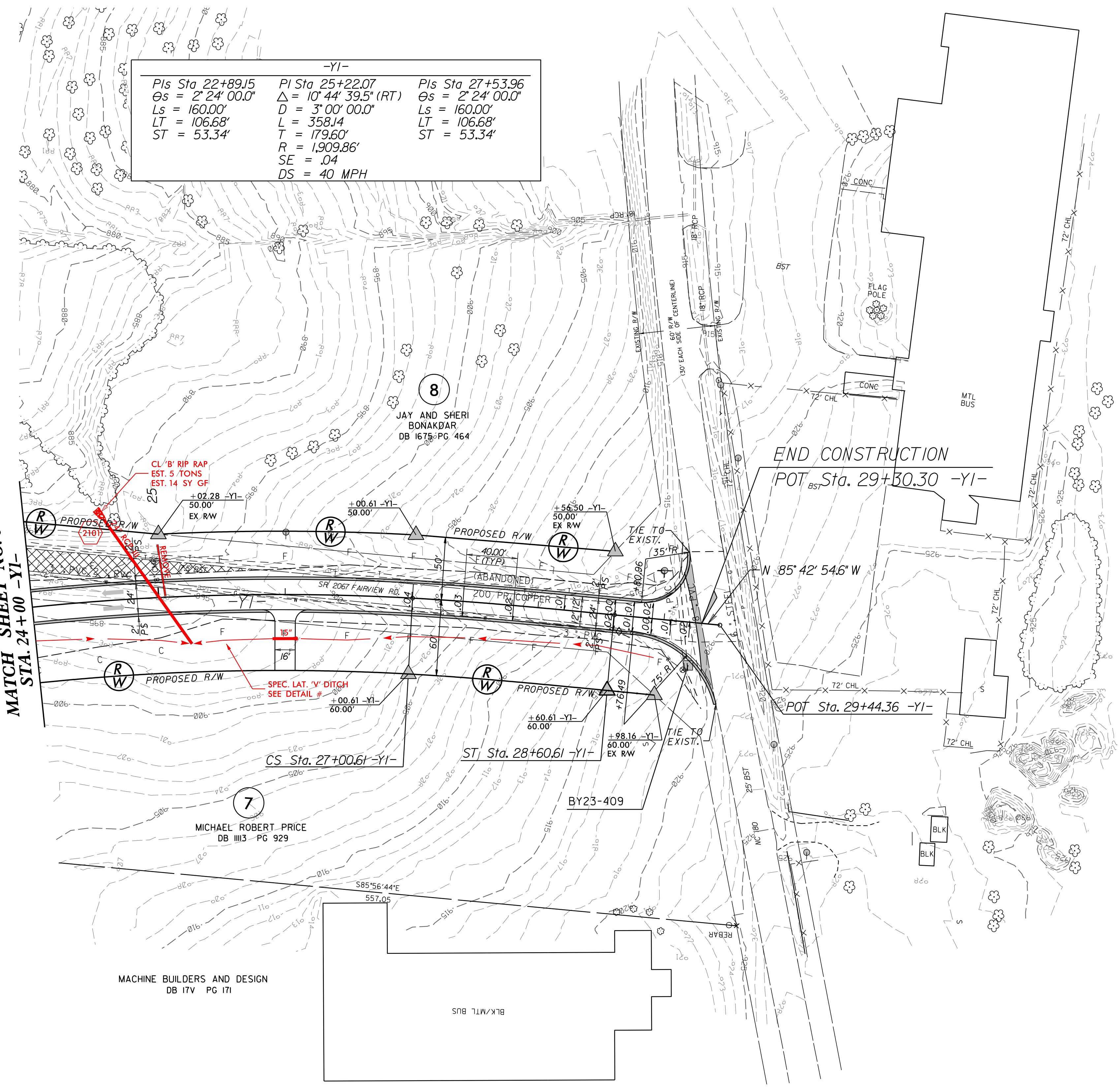


REFERENCES:  
FOR -YI- PROFILE, SEE SHEET NO. 44  
FOR -SRVRD\_1- PROFILE, SEE SHEET NO. 50  
FOR -DET\_1- PROFILE, SEE SHEET NO. 2B-1



MATCH SHEET NO. 6  
STA. 24+00 -Y1-

| -Y1-                              |                                       |                                   |
|-----------------------------------|---------------------------------------|-----------------------------------|
| Pls Sta. 22+89.15                 | Pls Sta. 25+22.07                     | Pls Sta. 27+53.96                 |
| $\Theta s = 2^{\circ} 24' 00.0''$ | $\Delta = 10^{\circ} 44' 39.5''$ (RT) | $\Theta s = 2^{\circ} 24' 00.0''$ |
| $Ls = 160.00'$                    | $D = 3^{\circ} 00' 00.0''$            | $Ls = 160.00'$                    |
| $LT = 106.68'$                    | $L = 358.14'$                         | $LT = 106.68'$                    |
| $ST = 53.34'$                     | $T = 179.60'$                         | $ST = 53.34'$                     |
|                                   | $R = 1,909.86'$                       |                                   |
|                                   | $SE = .04$                            |                                   |
|                                   | $DS = 40$ MPH                         |                                   |



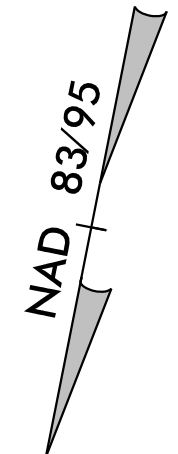
**LEGEND**

- FALSE SUMP DITCH  
DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

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|                                                                          |                        |
|--------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                    | SHEET NO.              |
| R-2707D                                                                  | 21                     |
| RW SHEET NO.                                                             |                        |
| ROADWAY DESIGN<br>ENGINEER                                               | HYDRAULICS<br>ENGINEER |
| <b>INCOMPLETE PLANS</b><br>DO NOT USE FOR R/W ACQUISITION                |                        |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b> |                        |
| 50 25 0 50 100                                                           |                        |



REFERENCES:  
FOR -Y1- PROFILE, SEE SHEET NO. 44

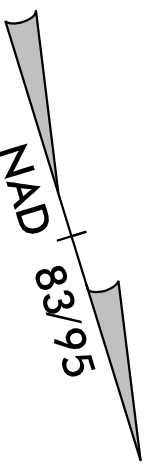
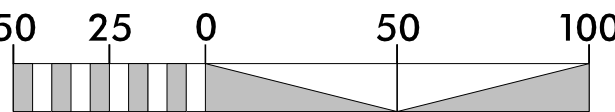




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|                                                    |  |                        |
|----------------------------------------------------|--|------------------------|
| PROJECT REFERENCE NO.                              |  | SHEET NO.              |
| R-2707D                                            |  | 22                     |
| RW SHEET NO.                                       |  |                        |
| ROADWAY DESIGN<br>ENGINEER                         |  | HYDRAULICS<br>ENGINEER |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION |  |                        |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



BEGIN CONSTRUCTION  
POT Sta.10+00.00 -Y2-

PINC Sta.11+32.77 -Y2-  
 $\Delta = 0^{\circ} 32' 37.6" RT$   
(NO CURVE)

MATCH SHEET NO. 8 STA. 15+00 -Y2-

| LEGEND |                                          |
|--------|------------------------------------------|
|        | FALSE SUMP DITCH<br>DETAIL SHEET 2       |
|        | PAVED SHOULDER                           |
|        | OBLITERATE, REMOVE<br>AND GRADE TO DRAIN |
|        | CONCRETE                                 |

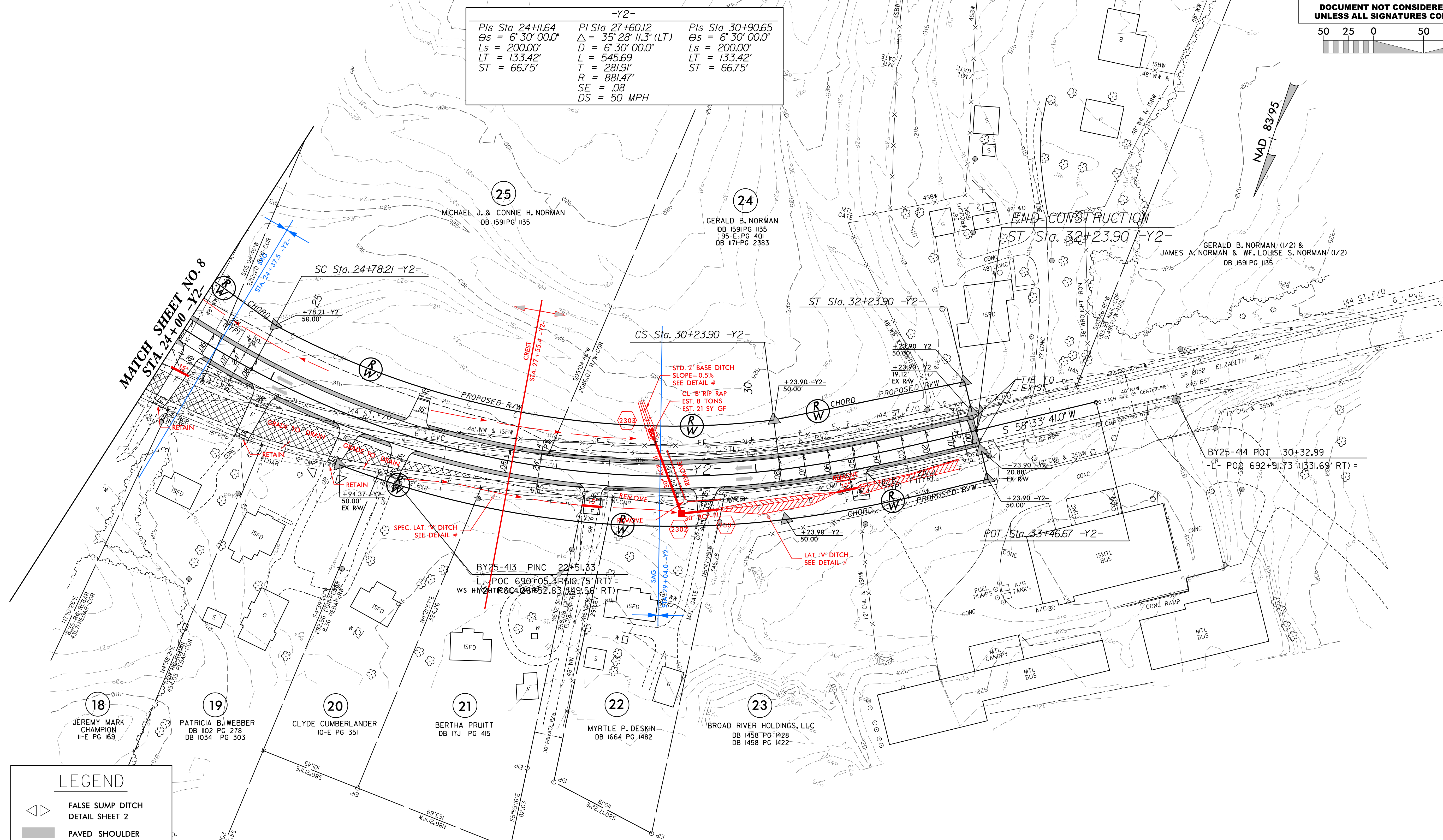
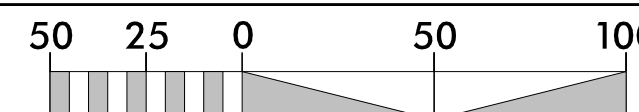
REFERENCE:  
FOR -Y2- PROFILE, SEE SHEET NO. 45  
FOR -Y6- PROFILE, SEE SHEET NO. 49





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|                                                                                                                                                            |                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| PROJECT REFERENCE NO.                                                                                                                                      | SHEET NO.              |
| <i>R-2707D</i>                                                                                                                                             | <i>23</i>              |
| RW SHEET NO.                                                                                                                                               |                        |
| ROADWAY DESIGN<br>ENGINEER                                                                                                                                 | HYDRAULICS<br>ENGINEER |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"> <b>INCOMPLETE PLANS</b><br/>         DO NOT USE FOR R/W ACQUISITION       </div> |                        |
| <p align="center"><b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b></p>                                                             |                        |



REFERENCE:  
FOR -Y2- PROFILE, SEE SHEET NO. 45



## REVISIONS

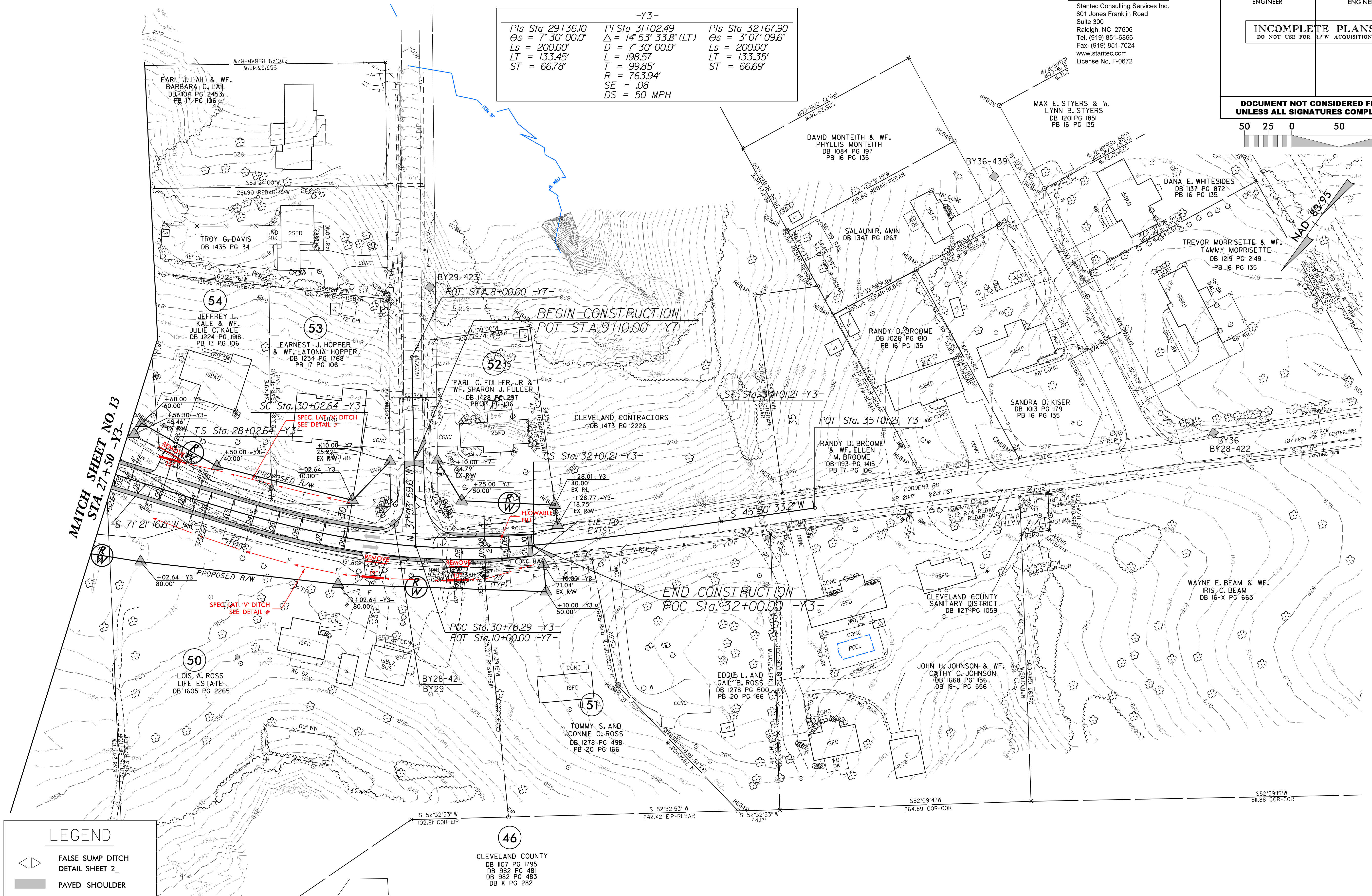
1/21/2018  
R2707D-Hyd\_PSH\_24.dgn  
belam





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|                                                                  |                     |
|------------------------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                                            | SHEET NO.           |
| R-2707D                                                          | 25                  |
| R/W SHEET NO.                                                    |                     |
| ROADWAY DESIGN ENGINEER                                          | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION               |                     |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |                     |



## LEGEND

- FALSE SUMP DITCH  
DETAIL SHEET 2
- PAVED SHOULDER
- OBLITERATE, REMOVE  
AND GRADE TO DRAIN
- CONCRETE

MATCH SHEET NO. 12A

REFERENCE:  
FOR -Y3- PROFILE, SEE SHEET NO. 46  
FOR -Y7- PROFILE, SEE SHEET NO. 49



