
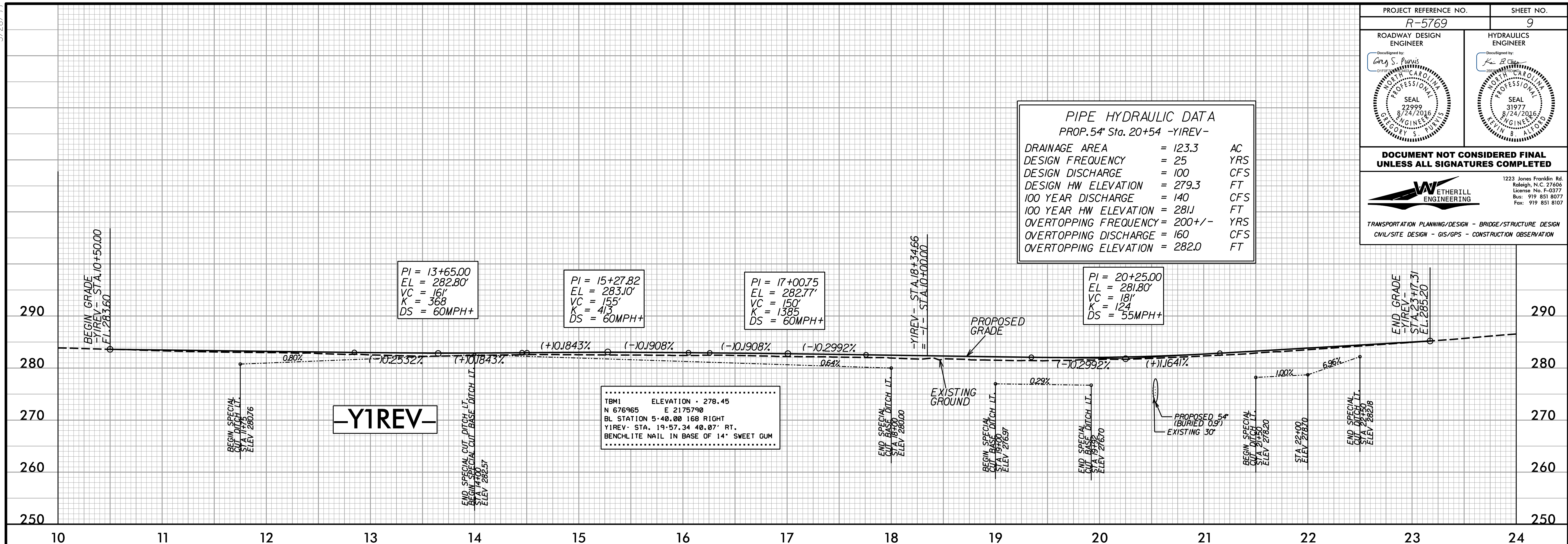


5/28/2016

|                                                                                                                                                                                                                          |                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROJECT REFERENCE NO.<br><b>R-5769</b>                                                                                                                                                                                   | SHEET NO.<br><b>9</b>                                                                                                                                                    |
| ROADWAY DESIGN ENGINEER<br>DocuSigned by:<br><b>Greg S. Parris</b><br>Professional Engineer<br>SEAL 22999<br>8/24/2016<br>NORTH CAROLINA ENGINEERS & SURVEYORS<br>W. GORRIS, FURNING                                     | HYDRAULICS ENGINEER<br>DocuSigned by:<br><b>Kevin S. Foy</b><br>Professional Engineer<br>SEAL 31977<br>8/24/2016<br>NORTH CAROLINA ENGINEERS & SURVEYORS<br>KEVIN S. FOY |
| <b>DOCUMENT NOT CONSIDERED FINAL<br/>UNLESS ALL SIGNATURES COMPLETED</b>                                                                                                                                                 |                                                                                                                                                                          |
| <br><small>1223 Jones Franklin Rd.<br/>Raleigh, N.C. 27606<br/>License No. F-0377<br/>Bus: 919 851 8077<br/>Fax: 919 851 8107</small> |                                                                                                                                                                          |
| <small>TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN<br/>CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</small>                                                                                       |                                                                                                                                                                          |

**PIPE HYDRAULIC DATA**  
PROP. 54" Sta. 20+54 -YIREV-

|                       |          |     |
|-----------------------|----------|-----|
| DRAINAGE AREA         | = 123.3  | AC  |
| DESIGN FREQUENCY      | = 25     | YRS |
| DESIGN DISCHARGE      | = 100    | CFS |
| DESIGN HW ELEVATION   | = 279.3  | FT  |
| 100 YEAR DISCHARGE    | = 140    | CFS |
| 100 YEAR HW ELEVATION | = 281J   | FT  |
| OVERTOPPING FREQUENCY | = 200+/- | YRS |
| OVERTOPPING DISCHARGE | = 160    | CFS |
| OVERTOPPING ELEVATION | = 282.0  | FT  |

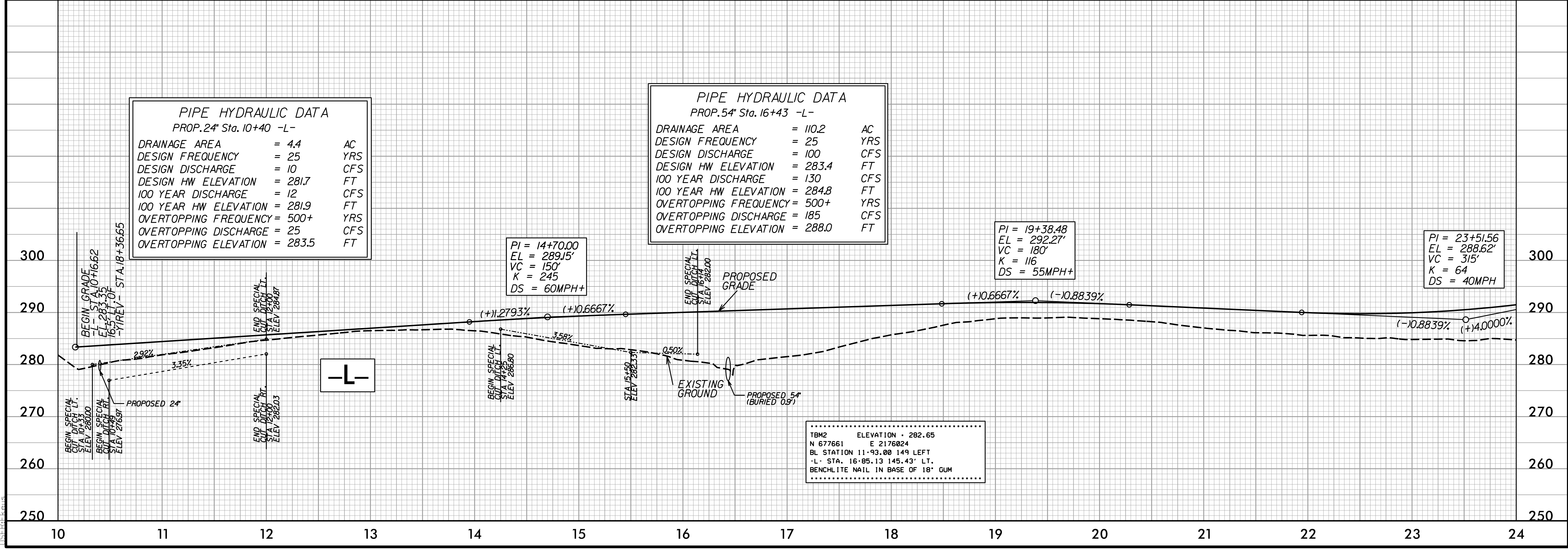


**PIPE HYDRAULIC DATA**  
PROP. 24" Sta. 10+40 -L-

|                       |         |     |
|-----------------------|---------|-----|
| DRAINAGE AREA         | = 4.4   | AC  |
| DESIGN FREQUENCY      | = 25    | YRS |
| DESIGN DISCHARGE      | = 10    | CFS |
| DESIGN HW ELEVATION   | = 281.7 | FT  |
| 100 YEAR DISCHARGE    | = 12    | CFS |
| 100 YEAR HW ELEVATION | = 281.9 | FT  |
| OVERTOPPING FREQUENCY | = 500+  | YRS |
| OVERTOPPING DISCHARGE | = 25    | CFS |
| OVERTOPPING ELEVATION | = 283.5 | FT  |

**PIPE HYDRAULIC DATA**  
PROP. 54" Sta. 16+43 -L-

|                       |         |     |
|-----------------------|---------|-----|
| DRAINAGE AREA         | = 110.2 | AC  |
| DESIGN FREQUENCY      | = 25    | YRS |
| DESIGN DISCHARGE      | = 100   | CFS |
| DESIGN HW ELEVATION   | = 283.4 | FT  |
| 100 YEAR DISCHARGE    | = 130   | CFS |
| 100 YEAR HW ELEVATION | = 284.8 | FT  |
| OVERTOPPING FREQUENCY | = 500+  | YRS |
| OVERTOPPING DISCHARGE | = 185   | CFS |
| OVERTOPPING ELEVATION | = 288.0 | FT  |



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