

REFERENCE: SF-650010

PROJECT: 17BP.1.R.79

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY NORTHAMPTON
 PROJECT DESCRIPTION BRIDGE NO. 10 ON -L- (SR 1341)
OVER CORDUROY SWAMP

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C. | SF-650010 | 1 | 6 |

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:

- THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
- BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

C.J. CORNETTE

J.M. EDMONDSON

R.E. SMITH

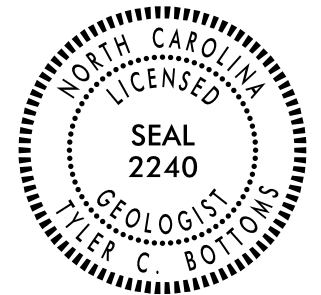
INVESTIGATED BY T.C. BOTTOMS

DRAWN BY T.C. BOTTOMS

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE AUGUST 2017



DocuSigned by:

Tyler Bottoms

8/2/2017

48A2D3BD88CF4A6 SIGNATURE

DATE

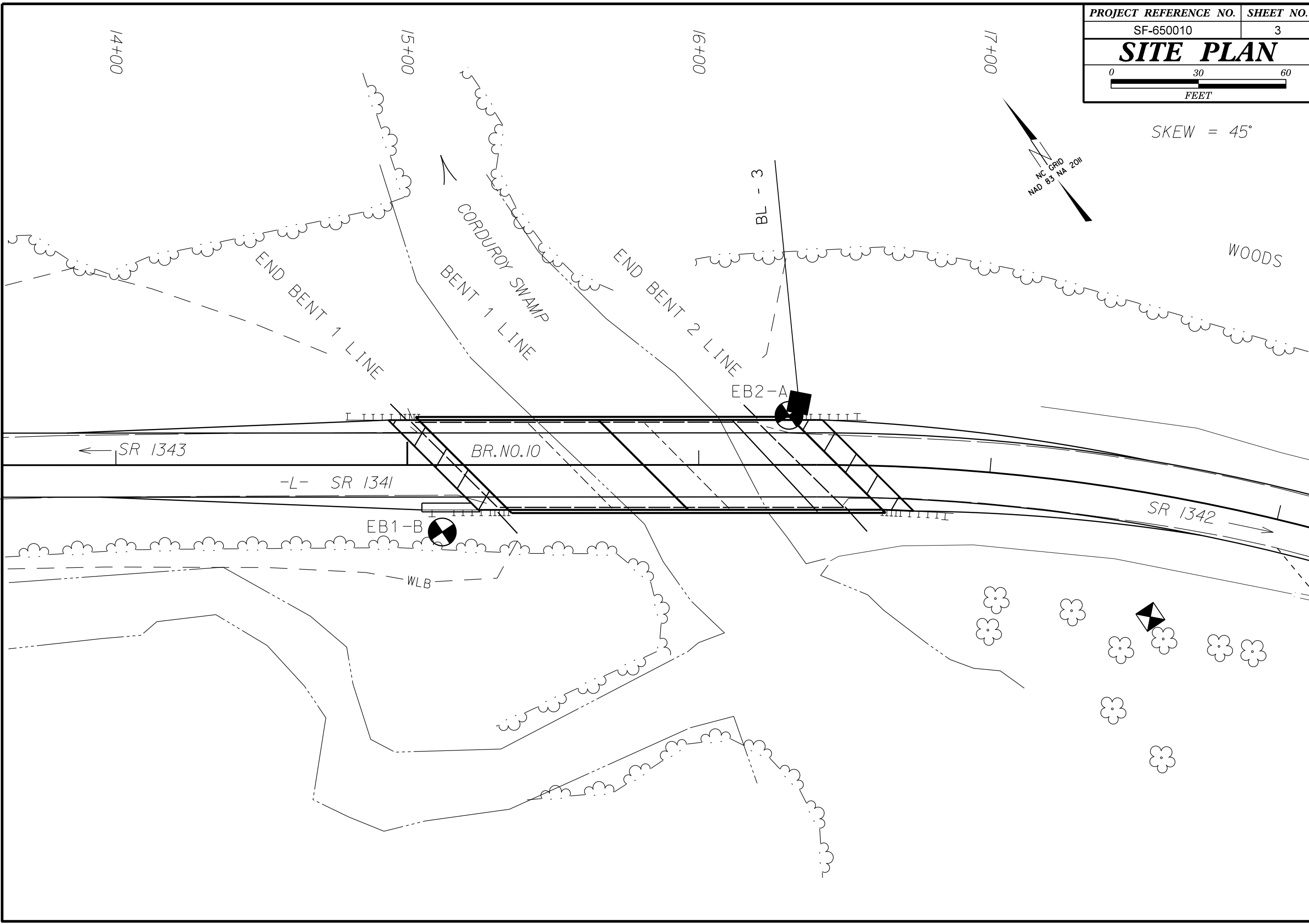
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| | |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| SF-650010 | 3 |
| SITE PLAN | |
| 0 30 60 FEET | |

SKEW = 45°



WOODS

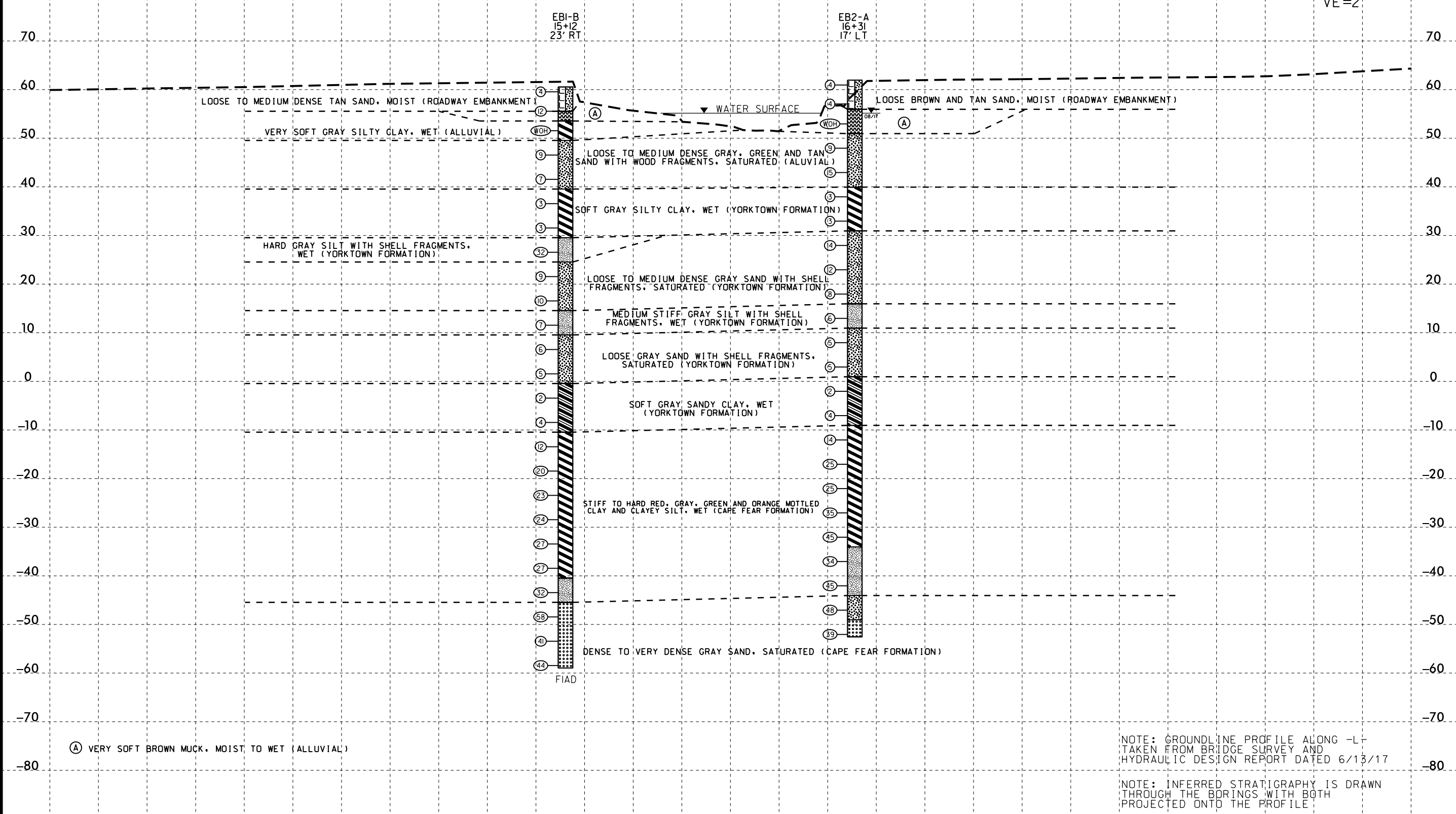


5/14/99

| | |
|---|---------------------|
| PROJECT REFERENCE NO. SF-650010 | SHEET NO. 4 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

PROFILE THROUGH BORINGS PROJECTED ALONG -L-

VE=2



02-AUG-2017 13:31 S:\ERC\Greenville\Investigation\TIP SF650010.GEO_BROG0010\CADD_GEO\TECH\Plan\Prof\17BP-1.R-79-Rdy-pl.dgn

NOTE: GROUNDLINE PROFILE ALONG -L- TAKEN FROM BRIDGE SURVEY AND HYDRAULIC DESIGN REPORT DATED 6/13/17

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE

GEOTECHNICAL BORING REPORT

BORE LOG

| | | | |
|--|-----------------------------|--------------------------------|---------------------------------|
| WBS 17BP.1.R.79 | TIP SF-650010 | COUNTY NORTHAMPTON | GEOLOGIST Cornette, C.J. |
| SITE DESCRIPTION BRIDGE NO. 10 ON -L- (SR 1341) OVER CORDUROY SWAMP | | | GROUND WTR (ft) |
| BORING NO. EB1-B | STATION 15+12 | OFFSET 23 ft RT | ALIGNMENT -L- |
| COLLAR ELEV. 60.5 ft | TOTAL DEPTH 119.5 ft | NORTHING 995,330 | EASTING 2,512,479 |
| DRILL RIG/HAMMER EFF./DATE GFO0057 CME-550X 76% 06/13/2017 | | DRILL METHOD Mud Rotary | HAMMER TYPE Automatic |
| DRILLER Smith, R. E. | START DATE 08/01/17 | COMP. DATE 08/01/17 | SURFACE WATER DEPTH N/A |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG MOI | SOIL AND ROCK DESCRIPTION | ELEV. (ft) | DEPTH (ft) | |
|-----------|-----------------|------------|------------|-------|-------|----------------|----|----|----|-----|-----------|---------|---------------------------|------------|------------|--|
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | |
| 65 | | | | | | | | | | | | | | | | |
| 60 | 60.5 | 0.0 | 1 | 2 | 2 | | | | | | | | | 60.5 | 0.0 | GROUND SURFACE |
| 55 | 56.5 | 4.0 | 2 | 3 | 9 | | | | | | | | | 55.5 | 5.0 | ROADWAY EMBANKMENT TAN SAND, MOIST |
| 50 | 52.5 | 8.0 | WOH | WOH | WOH | | | | | | | | | 53.5 | 7.0 | ALLUVIAL BROWN MUCK WITH WOOD FRAGMENTS, MOIST TO WET |
| 45 | 47.5 | 13.0 | 1 | 3 | 6 | | | | | | | | | 49.5 | 11.0 | ALLUVIAL GRAY SILTY CLAY, WET |
| 40 | 42.5 | 18.0 | 3 | 4 | 3 | | | | | | | | | 39.5 | 21.0 | ALLUVIAL GRAY AND TAN SAND WITH WOOD FRAGMENTS |
| 35 | 37.5 | 23.0 | 1 | 1 | 2 | | | | | | | | | 29.5 | 31.0 | COASTAL PLAIN GRAY SILTY CLAY, WET (YORKTOWN FORMATION) |
| 30 | 32.5 | 28.0 | 1 | 1 | 2 | | | | | | | | | 24.5 | 36.0 | COASTAL PLAIN GRAY SAND WITH SHELL FRAGMENTS, SATURATED (YORKTOWN FORMATION) |
| 25 | 27.5 | 33.0 | 12 | 15 | 17 | | | | | | | | | 14.5 | 46.0 | COASTAL PLAIN GRAY SILT WITH SHELL FRAGMENTS, WET (YORKTOWN FORMATION) |
| 20 | 22.5 | 38.0 | 5 | 4 | 5 | | | | | | | | | 9.5 | 51.0 | COASTAL PLAIN GRAY SAND WITH SHELL FRAGMENTS, SATURATED (YORKTOWN FORMATION) |
| 15 | 17.5 | 43.0 | 3 | 4 | 6 | | | | | | | | | -0.5 | 61.0 | COASTAL PLAIN GRAY SANDY CLAY, WET (YORKTOWN FORMATION) |
| 10 | 12.5 | 48.0 | 4 | 3 | 4 | | | | | | | | | -10.5 | 71.0 | COASTAL PLAIN RED AND GRAY MOTTLED CLAY, WET (CAPE FEAR FORMATION) |
| 5 | 7.5 | 53.0 | 2 | 3 | 3 | | | | | | | | | | | |
| 0 | 2.5 | 58.0 | 2 | 2 | 3 | | | | | | | | | | | |
| -5 | -2.5 | 63.0 | 1 | 1 | 1 | | | | | | | | | | | |
| -10 | -7.5 | 68.0 | WOH | 2 | 2 | | | | | | | | | | | |
| -15 | -12.5 | 73.0 | 3 | 5 | 7 | | | | | | | | | | | |

NCDOT BORE DOUBLE SF650010.GPJ NC_DOT.GDT 8/2/17

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| WBS 17BP.1.R.79 | TIP SF-650010 | COUNTY NORTHAMPTON | GEOLOGIST Cornette, C.J. |
| SITE DESCRIPTION BRIDGE NO. 10 ON -L- (SR 1341) OVER CORDUROY SWAMP | | | GROUND WTR (ft) |
| BORING NO. EB1-B | STATION 15+12 | OFFSET 23 ft RT | ALIGNMENT -L- |
| COLLAR ELEV. 60.5 ft | TOTAL DEPTH 119.5 ft | NORTHING 995,330 | EASTING 2,512,479 |
| DRILL RIG/HAMMER EFF./DATE GFO0057 CME-550X 76% 06/13/2017 | | DRILL METHOD Mud Rotary | HAMMER TYPE Automatic |
| DRILLER Smith, R. E. | START DATE 08/01/17 | COMP. DATE 08/01/17 | SURFACE WATER DEPTH N/A |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG MOI | SOIL AND ROCK DESCRIPTION | ELEV. (ft) | DEPTH (ft) | |
|-----------|-----------------|------------|------------|-------|-------|----------------|----|----|----|-----|-----------|---------|---------------------------|------------|------------|--|
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | | | |
| -15 | | | | | | | | | | | | | | | | |
| -20 | -17.5 | 78.0 | 7 | 8 | 12 | | | | | | | | | | | Match Line |
| -25 | -22.5 | 83.0 | 7 | 11 | 12 | | | | | | | | | | | COASTAL PLAIN RED AND GRAY MOTTLED CLAY, WET (CAPE FEAR FORMATION) (continued) |
| -30 | -27.5 | 88.0 | 9 | 11 | 13 | | | | | | | | | | | |
| -35 | -32.5 | 93.0 | 7 | 11 | 16 | | | | | | | | | | | |
| -40 | -37.5 | 98.0 | 10 | 11 | 16 | | | | | | | | | | | |
| -45 | -42.5 | 103.0 | 11 | 12 | 20 | | | | | | | | | | | COASTAL PLAIN GRAY CLAYEY SILT, WET (CAPE FEAR FORMATION) |
| -50 | -47.5 | 108.0 | 22 | 28 | 30 | | | | | | | | | | | COASTAL PLAIN GRAY SAND, SATURATED (CAPE FEAR FORMATION) |
| -55 | -52.5 | 113.0 | 17 | 19 | 22 | | | | | | | | | | | |
| | -57.5 | 118.0 | 17 | 21 | 23 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | Boring Terminated at Elevation -59.0 ft in Dense Sand |

GEOTECHNICAL BORING REPORT

BORE LOG

| | | | | | | | |
|---|--|----------------------|-------------------------|---------------------|-----------------------|--------------------------|-----------------|
| WBS 17BP.1.R.79 | | TIP SF-650010 | | COUNTY NORTHAMPTON | | GEOLOGIST Cornette, C.J. | |
| SITE DESCRIPTION BRIDGE NO. 10 ON -L- (SR 1341) OVER CORDUROY SWAMP | | | | | | | GROUND WTR (ft) |
| BORING NO. EB2-A | | STATION 16+31 | | OFFSET 17 ft LT | | ALIGNMENT -L- | |
| COLLAR ELEV. 61.9 ft | | TOTAL DEPTH 114.5 ft | | NORTHING 995,296 | | EASTING 2,512,600 | |
| DRILL RIG/HAMMER EFF./DATE GFO0057 CME-550X 76% 06/13/2017 | | | DRILL METHOD Mud Rotary | | HAMMER TYPE Automatic | | |
| DRILLER Smith, R. E. | | START DATE 07/31/17 | | COMP. DATE 08/01/17 | | SURFACE WATER DEPTH N/A | |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |
|-----------|-----------------|------------|------------|-------|-------|----------------|----|----|----|-----|-----------|-----|---|------------|
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | |
| 65 | 61.9 | 0.0 | | | | | | | | | | | GROUND SURFACE | 0.0 |
| 60 | 58.0 | 3.9 | 1 | 2 | 2 | | | | | | | | ROADWAY EMBANKMENT BROWN, TAN AND GRAY SAND, MOIST | |
| 55 | 53.9 | 8.0 | WOH | WOH | WOH | | | | | | | | ALLUVIAL BROWN MUCK, MOIST TO WET | 6.9 |
| 50 | 48.9 | 13.0 | 5 | 5 | 4 | | | | | | | | ALLUVIAL GRAY AND GREEN SAND, SATURATED | 11.0 |
| 45 | 43.9 | 18.0 | 4 | 6 | 9 | | | | | | | | COASTAL PLAIN GRAY SILTY CLAY, WET (YORKTOWN FORMATION) | 22.0 |
| 40 | 38.9 | 23.0 | 1 | 1 | 2 | | | | | | | | COASTAL PLAIN GRAY SAND WITH SHELL FRAGMENTS, SATURATED (YORKTOWN FORMATION) | 31.0 |
| 35 | 33.9 | 28.0 | 1 | 2 | 1 | | | | | | | | COASTAL PLAIN GRAY SILT WITH SHELL FRAGMENTS, WET (YORKTOWN FORMATION) | 46.0 |
| 30 | 28.9 | 33.0 | 4 | 6 | 8 | | | | | | | | COASTAL PLAIN GRAY SAND WITH SHELL FRAGMENTS, SATURATED (YORKTOWN FORMATION) | 51.0 |
| 25 | 23.9 | 38.0 | 4 | 7 | 5 | | | | | | | | COASTAL PLAIN GRAY SANDY CLAY, WET (YORKTOWN FORMATION) | 61.0 |
| 20 | 18.9 | 43.0 | 5 | 4 | 4 | | | | | | | | COASTAL PLAIN GRAY, GREEN AND ORANGE MOTTLED CLAY, WET (CAPE FEAR FORMATION) | 71.0 |
| 15 | 13.9 | 48.0 | 3 | 2 | 4 | | | | | | | | | |
| 10 | 8.9 | 53.0 | 2 | 2 | 3 | | | | | | | | | |
| 5 | 3.9 | 58.0 | 2 | 2 | 3 | | | | | | | | | |
| 0 | -1.1 | 63.0 | WOH | WOH | 2 | | | | | | | | | |
| -5 | -6.1 | 68.0 | 1 | 2 | 2 | | | | | | | | | |
| -10 | -11.1 | 73.0 | 4 | 6 | 8 | | | | | | | | | |
| -15 | | | | | | | | | | | | | | |

| | | | | | | | |
|---|--|----------------------|-------------------------|---------------------|-----------------------|--------------------------|-----------------|
| WBS 17BP.1.R.79 | | TIP SF-650010 | | COUNTY NORTHAMPTON | | GEOLOGIST Cornette, C.J. | |
| SITE DESCRIPTION BRIDGE NO. 10 ON -L- (SR 1341) OVER CORDUROY SWAMP | | | | | | | GROUND WTR (ft) |
| BORING NO. EB2-A | | STATION 16+31 | | OFFSET 17 ft LT | | ALIGNMENT -L- | |
| COLLAR ELEV. 61.9 ft | | TOTAL DEPTH 114.5 ft | | NORTHING 995,296 | | EASTING 2,512,600 | |
| DRILL RIG/HAMMER EFF./DATE GFO0057 CME-550X 76% 06/13/2017 | | | DRILL METHOD Mud Rotary | | HAMMER TYPE Automatic | | |
| DRILLER Smith, R. E. | | START DATE 07/31/17 | | COMP. DATE 08/01/17 | | SURFACE WATER DEPTH N/A | |

| ELEV (ft) | DRIVE ELEV (ft) | DEPTH (ft) | BLOW COUNT | | | BLOWS PER FOOT | | | | | SAMP. NO. | LOG | SOIL AND ROCK DESCRIPTION | DEPTH (ft) |
|-----------|-----------------|------------|------------|-------|-------|----------------|----|----|----|-----|-----------|-----|---|------------|
| | | | 0.5ft | 0.5ft | 0.5ft | 0 | 25 | 50 | 75 | 100 | | | | |
| -15 | -16.1 | 78.0 | 7 | 11 | 14 | | | | | | | | Match Line | |
| -20 | -21.1 | 83.0 | 8 | 10 | 15 | | | | | | | | COASTAL PLAIN GRAY, GREEN AND ORANGE MOTTLED CLAY, WET (CAPE FEAR FORMATION) <i>(continued)</i> | |
| -25 | -26.1 | 88.0 | 12 | 16 | 19 | | | | | | | | | |
| -30 | -31.1 | 93.0 | 18 | 22 | 23 | | | | | | | | | |
| -35 | -36.1 | 98.0 | 12 | 15 | 19 | | | | | | | | COASTAL PLAIN GRAY AND TAN CLAYEY SILT, WET (YORKTOWN FORMATION) | 96.0 |
| -40 | -41.1 | 103.0 | 11 | 17 | 28 | | | | | | | | | |
| -45 | -46.1 | 108.0 | 17 | 25 | 23 | | | | | | | | COASTAL PLAIN GRAY SAND, SATURATED (CAPE FEAR FORMATION) | 106.0 |
| -50 | -51.1 | 113.0 | 18 | 21 | 18 | | | | | | | | | 111.0 |
| | | | | | | | | | | | | | | 114.5 |

Boring Terminated at Elevation -52.6 ft in Dense Sand

NCDOT BORE DOUBLE SF650010.GPJ NC_DOT.GDT 8/2/17