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REFERENCE

**DESCRIPTION** TITLE SHEET LEGEND SITE PLAN PROFILE ALONG -YEBOI-CROSS SECTION(S) BORE LOGS SOIL TEST RESULTS

### STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

# **STRUCTURE** SUBSURFACE INVESTIGATION

#### COUNTY CRAVEN

PROJECT DESCRIPTION **INTERCHANGE FROM US 70** TO SLOCUM RD AT CHERRY POINT MILITARY

#### BASE

BRIDGE NO. 270 ON -YEB01-SITE DESCRIPTION . OVER -L- (US 70)

# 5492 4 • PROIEC

STATE N.C

#### R-5516

| TOTAL<br>SHEETS |
|-----------------|
| 17              |

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PERSONNEL

S. CROCKETT

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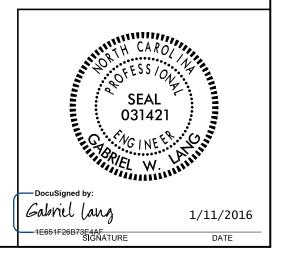
M. WITMORE

INVESTIGATED BY \_\_M. WITMORE

DRAWN BY <u>S. CROCKETT</u>

CHECKED BY **G. LANG** 

SUBMITTED BY \_\_**AECOM** 



# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

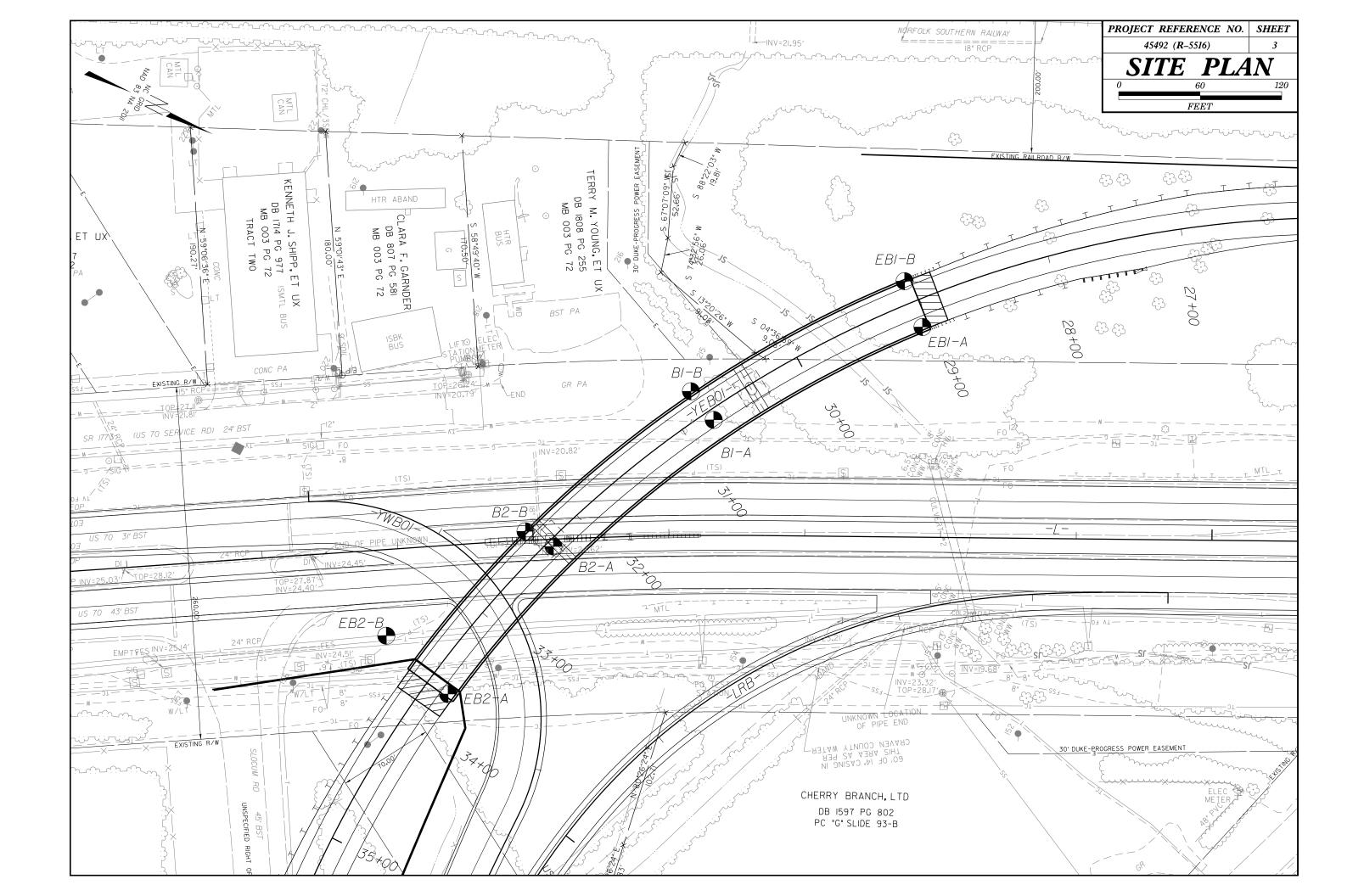
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

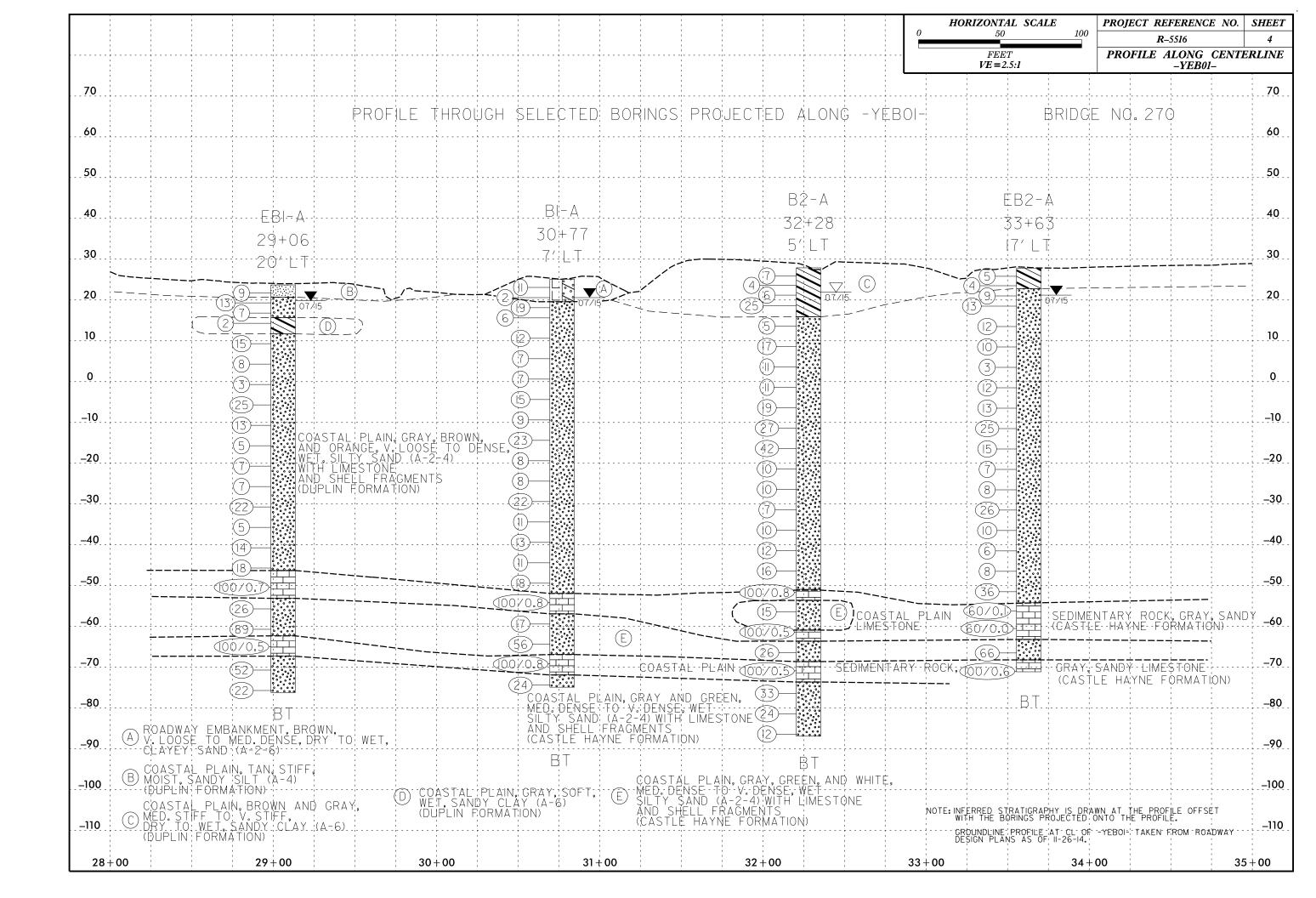
|                            |  |   | S                       | OIL DE                   | SCRI            | PTIO                | N                     |                 |                        |            |   |                     | GR                              | ADATION                                   |                    |  | T                         |                 |                             | ROCK DE   | SCRIPTION   |
|----------------------------|--|---|-------------------------|--------------------------|-----------------|---------------------|-----------------------|-----------------|------------------------|------------|---|---------------------|---------------------------------|---|--------------------|--|---------------------------|-----------------|-----------------------------|---|---|
| BE PENE                    | CONSIDERED<br>TRATED WIT<br>ING TO THE | H A CONTIN  | .IDATED, 9<br>NUOUS FL  | EMI-CONSO<br>GHT POWE    | LIDATEC         | D, OR WE<br>R AND Y | EATHERED<br>TIELD LES | S THAN 10       | Ø BLOWS PE             | ER FOOT    | WELL GRADED - INDICAT<br>UNIFORMLY GRADED - IN<br>GAP-GRADED - INDICATE | NDICATE             | GOOD REPRESE<br>ES THAT SOIL    | NTATION OF PARTIC<br>PARTICLES ARE ALI    | . APPROXIM         | ATELY THE SAME SIZE.                         | ROCK LINE I<br>SPT REFUSA | INDICATE        | ES THE LEVE<br>ENETRATION 6 | AIN MATERIAL THAT<br>EL AT WHICH NON-CO<br>BY A SPLIT SPOON S | WOULD YIELD SPT REFUSAL IF TESTE<br>ASTAL PLAIN MATERIAL WOULD YIELD<br>SAMPLER EQUAL TO OR LESS THAN 0,1 |
|                            | BASED ON T<br>ENCY,COLOR               |   |                         |                          |                 |                     |                       |                 |                        |            |   | <u> </u>            |                                 | ITY OF GRAIN                              |                    | on mone Sizes.                               |                           |                 |                             | MATERIAL, THE TR<br>EATHERED ROCK.                            | ANSITION BETWEEN SOIL AND ROCK  |
| A                          | S MINERALO                             | GICAL COM   | POSITION,               | ANGULARI                 | TY, STRU        | JCTURE,             | PLASTICIT             | Y,ETC.FC        | IR EXAMPLE.            |            | THE ANGULARIT   | YORF                |                                 | SOIL GRAINS IS DE                         |                    | BY THE TERMS:                                |                           | RIALS AF        | RE TYPICALL                 | Y DIVIDED AS FOLLO  |   |
|                            | very stiff.(                           | OIL LE  |                         |                          |                 |                     |                       |                 |                        |            | ANGULAR, SUBAN  |                     |                                 |   | TION               |  | WEATHERED<br>ROCK (WR)    |                 |                             | NON-COASTAL PLA   | AIN MATERIAL THAT WOULD YIELD SP1<br>FOOT IF TESTED.  |
| GENERAL                    |  | GRANULAR M  |                         |                          |                 | CLAY MAT            |                       | OF              | RGANIC MATER           | IALS       |   |                     |                                 | CAL COMPOSI                               |                    | 510  | CRYSTALLINE               | E               | PP                          |   | GRAIN IGNEOUS AND METAMORPHIC RC  |
| CLASS.                     | A-1                                    | ( ≤ 35% PASSI<br>A-3  | ING #200)<br>A-2        |                          |                 | A-5 A               |                       |                 |                        |            |   |                     |                                 | , FELDSPAR, MICA, TA<br>N THEY ARE CONSID |                    |  | ROCK (CR)                 |                 | H.H.                        | GNEISS, GABBRO, S   |   |
| GROUP<br>CLASS.            | A-1-a A-1-b                            |   | 4 A-2-5 A               | -2-6 A-2-7               |                 | H-0 H               | A-7-5.                | A-1, A-2<br>A-3 | A-4, A-5<br>A-6, A-7   |            |   | -                   | COMPF                           | RESSIBILITY                               |                    |  | NON-CRYSTA                | LLINE           |                             |   | GRAIN METAMORPHIC AND NON-COASTA<br>CK THAT WOULD YEILD SPT REFUSAL                                       |
| SYMBOL                     |  |   |                         |                          |                 | <u>_</u>            |                       |                 |                        |            |   |                     | OMPRESSIBLE                     | -   | LL < 31            | 50   | ROCK (NCR)                | ATN             |                             | ROCK TYPE INCLL   | IDES PHYLLITE, SLATE, SANDSTONE, ETC  |
| % PASSING                  | <u></u>                                |   |                         | <u> </u>                 | 4890488 · .     |                     | 27                    |                 |                        | *****      |   |                     | Y COMPRESSIBL<br>1PRESSIBLE     | .E  | LL = 31<br>LL > 50 | - 50   | COASTAL PL<br>SEDIMENTAR  |                 |                             | SPT REFUSAL. RO   | EDIMENTS CEMENTED INTO ROCK,BUT<br>CK TYPE INCLUDES LIMESTONE,SANDS                                       |
| •10                        | 50 MX                                  |   |                         |                          |                 |                     |                       | GRANULAR        | SILT-<br>CLAY          | MUCK,      |   | F                   | PERCENTA                        | GE OF MATER                               | IAL                |  | (CP)                      |                 |                             | SHELL BEDS, ETC.  | HERING  |
|                            | 30 MX 50 MX<br>15 MX 25 MX             |   | x 35 MX 3               | 5 MX 35 MX               | 36 MN 3         | AG MN RE            | MN 36 MN              | SOILS           | SOILS                  | PEAT       | ORGANIC MATERIAL  |                     | GRANULAR<br>SOILS               | SILT - CLAY<br>SOILS                      | OTHE               | R MATERIAL                                   |                           |                 |                             |   |   |
| MATERIAL                   | 10 1.11 20 1.11                        |   |                         | 5 00                     |                 |                     |                       |                 |                        |            | TRACE OF ORGANIC MA   |                     |                                 | 3 - 5%                                    | TRACE              | 1 - 10%                                      | FRESH                     |                 | ER IF CRYSTA                |   | NTS MAY SHOW SLIGHT STAINING. ROCK  |
| PASSING #40                |  |   |                         |                          |                 |                     |                       | SOIL            | S WITH                 |            | LITTLE ORGANIC MATT<br>MODERATELY ORGANIC                               |                     | 3 - 5%<br>5 - 10%               | 5 - 12%<br>12 - 20%                       | LITTLE<br>SOME     | 10 - 20%<br>20 - 35%                         |                           |                 |                             |   | , SOME JOINTS MAY SHOW THIN CLAY C  |
| LL<br>PI                   | -<br>6 MX                              |   |                         | 7 MX 41 MN<br>1 MN 11 MN |                 |                     |                       | LITI            | LE OR                  | HIGHLY     | HIGHLY ORGANIC  |                     | > 10%                           | > 20%                                     | HIGHLY             | 35% AND ABOVE                                | (V SLI.)                  |                 | ALS ON A BR                 |   | SHINE BRIGHTLY. ROCK RINGS UNDER H  |
| GROUP INDEX                | 0                                      | 0   | 0                       | 4 MX                     |                 |                     | MX NO MX              |                 | ERATE<br>NTS OF        | ORGANIC    |   |                     | GROL                            | JND WATER                                 |                    |  | SLIGHT                    |                 |                             |   | ) AND DISCOLORATION EXTENDS INTO RO   |
| USUAL TYPES                | STONE FRAGS.                           |   | on 74 op 4              |                          |                 |                     |                       | OR              | GANIC                  | SOILS      | $\nabla$  | WAT                 | ER LEVEL IN E                   | BORE HOLE IMMEDIA                         | TELY AFTER         | DRILLING                                     | (SLI.)                    | 1 INCH          | H. OPEN JOINT               | S MAY CONTAIN CLAY  | . IN GRANITOID ROCKS SOME OCCASIONA   |
| OF MAJOR                   | GRAVEL, AND                            |   | SILTY OR (<br>GRAVEL AN |                          | SILT            |                     | CLAYEY<br>SOILS       | MA              | TTER                   |            | <b>T</b>  |                     |                                 | VEL AFTER 24 H                            |                    |  | NODEDATE                  |                 |                             |   | RYSTALLINE ROCKS RING UNDER HAMMER  |
| MATERIALS                  | SAND                                   |   |                         |                          |                 |                     |                       |                 | 1                      |            | <br>√P₩_  |                     |                                 | ATURATED ZONE, OR                         |                    | DINC CTRATA                                  | MODERATE<br>(MOD.)        |                 |                             |   | ISCOLORATION AND WEATHERING EFFECTS<br>DULL AND DISCOLORED, SOME SHOW CLA                                 |
| GEN. RATING<br>AS SUBGRADE |  | EXCELLENT   | TO GOOD                 |                          | F               | AIR TO P            | OOR                   | FAIR TO<br>POOR | POOR                   | UNSUITABLE | -   |                     |                                 | HIGHHIED ZONE, ON                         | WHICK DEP          | INTRO STRATA                                 |                           | DULL            | SOUND UNDER                 |   | SHOWS SIGNIFICANT LOSS OF STRENGTH  |
|                            |  | PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30 |                         |                          |                 |                     |                       |                 |                        |            |   | SPRJ                | ING OR SEEP                     |   |                    |  | MODERATELY                |                 | FRESH ROCK.                 |   |   |
|                            |  | CONSISTENCY OR DENSENESS  |                         |                          |                 |                     |                       |                 |                        |            |   |                     | MISCELLA                        | NEOUS SYMBC                               | LS                 |  | SEVERE                    |                 |                             |   | DR STAINED. IN GRANITOID ROCKS,ALL F<br>KAOLINIZATION. ROCK SHOWS SEVERE L                                |
|                            |  | COMPACTNESS OF RANGE OF STANDARD RANGE OF                             |                         |                          |                 |                     |                       |                 |                        |            | П   |                     | NT (DC) 25/02                   | 25  |                    |  | (MOD. SEV.)               |                 |                             | ATED WITH A GEOLOG<br>YIELD SPT REFUSAL                       | IST'S PICK. ROCK GIVES "CLUNK" SOUND  |
| PRIMARY                    | SOIL TYPE                              |   |                         |                          |                 |                     |                       |                 |                        |            | L ROADWAY EMB   |                     |                                 |   |                    |  | SEVERE                    |                 |                             |   | DR STAINED. ROCK FABRIC CLEAR AND E   |
| 051/504                    |  | VE  | RY LOOS                 |                          |                 | < 4                 |                       |                 |                        |            |   |                     |                                 | SPT                                       |                    | SLOPE INDICATOR                              | (SEV.)                    | REDUC           | ED IN STREN                 | GTH TO STRONG SOIL.   | IN GRANITOID ROCKS ALL FELDSPARS A  |
| GENERA<br>GRANUL           |  |   | LOOSE                   |                          |                 | 4 TO 1              |                       |                 |                        |            | SOIL SYMBOL   |                     | Ū                               | DPT DMT TEST BOR                          |                    | INSTALLATION                                 |                           |                 |                             | SOME FRAGMENTS OF<br>YIELD SPT N VALUES                       | STRONG ROCK USUALLY REMAIN.   |
| MATERI                     |  |   | IUM DEN<br>DENSE        | DE                       |                 | 10 TO :<br>30 TO :  |                       |                 | N/A                    |            | ARTIFICIAL FI   |                     |                                 | AUGER BORING                              | ۵                  | CONE PENETROMETER<br>TEST                    | VERY                      |                 |                             |   | DR STAINED. ROCK FABRIC ELEMENTS AR   |
| (NON-CC                    | JHESIVE)                               | VE  | RY DENS                 | 5                        |                 | > 50                |                       |                 |                        |            | ×.  |                     | 4                               | \[  | $\cup$             |  | SEVERE                    | BUT M           | 1ASS IS EFFE                | CTIVELY REDUCED TO  | SOIL STATUS, WITH ONLY FRAGMENTS OF   |
| GENERA                     |  | VE  | ERY SOFT<br>SOFT        |                          |                 | < 2<br>2 TO         |                       |                 | < 0.25<br>0.25 TO      |            | INFERRED SOI  | L BOUN              | NDARY -                         | )- CORE BORING                            | •                  | SOUNDING ROD                                 | (V SEV.)                  |                 |                             |   | OF ROCK WEATHERED TO A DEGREE THAT<br>MAIN. <u>IF TESTED, WOULD YIELD SPT N V</u>                         |
| SILT-CL                    |  | MEC   | JUM STI                 | F                        |                 | 4 TO 3              |                       |                 | 0.5 TO 1               |            | SITENS INFERRED ROC   | CK LINF             | e <sup>™</sup> Ċ                | ) MONITORING WE                           | LL 🔶               | _ TEST BORING<br>WITH CORE                   | COMPLETE                  |                 |                             |   | OT DISCERNIBLE, OR DISCERNIBLE ONLY   |
| MATERI<br>(COHESI          |  |   | STIFF<br>RY STIFF       |                          |                 | 8 TO 1<br>15 TO 3   |                       |                 | 1 TO 2<br>2 TO 4       |            |   |                     |                                 | PIEZOMETER                                | -                  |  |                           |                 |                             | ITRATIONS. QUARTZ MA  | AY BE PRESENT AS DIKES OR STRINGERS   |
| CONESI                     |  | 1   | HARD                    |                          |                 | > 30                |                       |                 | > 4                    |            | TTTTT ALLUVIAL SOI  | L BUUN              |                                 | INSTALLATION                              | $\bigcirc$         | - SPT N-VALUE                                |                           | HLSU            | AN EXAMPLE.                 | DOCK I  |   |
|                            |  |   | TEXT                    | URE O                    | R GR            | AIN S               | SIZE                  |                 |                        |            |   | F                   | RECOMMEN                        | DATION SYMBI                              | DLS                |  |                           | CANNO           |                             |   | HARDNESS  |
| U.S. STD. SI               | EVE SIZE                               |   | 4                       | 1Ø                       | 40              | 60                  | 200                   | 270             |                        |            |   |                     | JNCLASSIFIED E                  |   |                    | SSIFIED EXCAVATION -                         | VERY HARD                 |                 |                             | WS OF THE GEOLOGIS  | ARP PICK. BREAKING OF HAND SPECIMEN:<br>T'S PICK.   |
| OPENING (M                 | M)                                     |   | 4.76                    | 2.00                     | 0.42            | 0.2                 | 5 0.07                | 5 0.053         |                        |            | SHALLOW   |                     | JNSUITABLE WA<br>JNCLASSIFIED E |   | USED               | TABLE, BUT NOT TO BE<br>IN THE TOP 3 FEET OF | HARD                      |                 |                             |   | NLY WITH DIFFICULTY. HARD HAMMER B  |
| BOULDE                     |  | BBLE  | GRAVEL                  | .                        | COARSE<br>SAND  |                     | F INE<br>SANI         |                 | SILT                   | CLAY       | UNDERCUT  | ĕ                   | ACCEPTABLE DE                   | GRADABLE ROCK                             | EMBA               | WENT OR BACKFILL                             | NODEDATELY                |                 | TACH HAND S                 |   |   |
| (BLDR.                     | ) ((                                   | COB.)   | (GR.)                   |                          | (CSE. SE        |                     | (F SE                 |                 | (SL.)                  | (CL.)      |   |                     | ABBF                            | REVIATIONS                                |                    |  | MODERATELY<br>HARD        |                 |                             |   | GOUGES OR GROOVES TO 0.25 INCHES DE<br>SIST'S PICK. HAND SPECIMENS CAN BE D                               |
| GRAIN MN                   |  | 75  |                         | 2.0                      |                 | 0.2                 | 5                     | 0.05            | 0.005                  |            | AR - AUGER REFUSAL  |                     |                                 | MEDIUM                                    |                    | - VANE SHEAR TEST                            |                           |                 | DDERATE BLOW                |   |   |
| SIZE IN                    | . 12                                   | 3   |                         |                          |                 |                     |                       |                 |                        |            | BT - BORING TERMINATED<br>CL CLAY                                       | J                   |                                 | MICACEOUS                                 |                    | - WEATHERED<br>UNIT WEIGHT                   | MEDIUM<br>HARD            |                 |                             |   | S DEEP BY FIRM PRESSURE OF KNIFE O<br>PEICES 1 INCH MAXIMUM SIZE BY HARD                                  |
|                            |  | SOIL MO   |                         |                          |                 |                     | IN OF                 | TERMS           |                        |            | CPT - CONE PENETRATION  | N TEST              | ſ NP - N                        | ION PLASTIC                               | $\gamma_{d}$ -     | DRY UNIT WEIGHT                              |                           |                 | OF A GEOLO                  |   |   |
|                            | MOISTURE<br>TERBERG LI                 |   | F                       | IELD MOIS<br>DESCRIPT    |                 | GU                  | IDE FOR               | FIELD MO        | ISTURE DES             | SCRIPTION  | CSE COARSE<br>DMT - DILATOMETER TES                                     | ст.                 |                                 | ORGANIC<br>PRESSUREMETER TE               | ST SA              | MPLE ABBREVIATIONS                           | SOFT                      |                 |                             |   | KNIFE OR PICK. CAN BE EXCAVATED IN  |
|                            |  |   |                         |                          |                 |                     |                       |                 |                        |            | DPT - DYNAMIC PENETRA   |                     | EST SAP                         | SAPROLITIC                                | S - I              | BULK   |                           |                 |                             | OKEN BY FINGER PRES   | E BY MODERATE BLOWS OF A PICK POIN<br>SURE.   |
|                            |  |   | -                       | SATURAT<br>(SAT.)        | ED -            |                     |                       |                 | Y WET,USU<br>OUND WATE |            | e - VOID RATIO<br>F - FINE  |                     |                                 | AND, SANDY                                |                    | SPLIT SPOON<br>SHELBY TUBE                   | VERY                      |                 |                             |   | CAVATED READILY WITH POINT OF PICK.   |
|                            |  | LIMIT   |                         |                          |                 |                     |                       |                 |                        |            | FOSS FOSSILIFEROUS  |                     | SLI 9                           | SLIGHTLY                                  |                    | ROCK   | SOFT                      | OR MO<br>FINGEF |                             | NESS CAN BE BROKEN  | BY FINGER PRESSURE. CAN BE SCRATCH  |
| PLASTIC<br>RANGE <         |  |   | -                       | WET - (W                 | D               |                     |                       |                 | DRYING TO              |            | FRAC FRACTURED, FRAC<br>FRAGS FRAGMENTS                                 | TURES               |                                 | TRICONE REFUSAL<br>DISTURE CONTENT        |                    | RECOMPACTED TRIAXIAL<br>- CALIFORNIA BEARING |                           |                 | TURE SP                     |   | BEDDING   |
| (PI) PL                    | PLASTI                                 | - WET - (W) ATTAIN OPTIMUM MOISTURE                                   |                         |                          |                 |                     |                       |                 |                        |            | HI HIGHLY   |                     | V - VE                          |   | CDN                | RATIO  | TERM                      |                 | TONE SI                     | SPACING   | TERM  |
|                            |  | ODTINUM MOLETUDE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM              |                         |                          |                 |                     |                       |                 |                        |            | EQI   | UIPM                | ENT USED                        | ON SUBJECT                                | PROJE              | СТ   | VERY WID                  |                 |                             | E THAN 10 FEET  | VERY THICKLY BEDDED   |
|                            |  |   | RE                      | MUISI -                  | (M)             | 50                  | LIU; AT U             | IR NEAR U       | PIIMUM MU              | ISTURE     | DRILL UNITS:  | ADV                 | ANCING TOOLS:                   |   | HAMMER             | TYPE:  | WIDE<br>MODERATI          | FLY CLO         |                             | 3 TO 10 FEET<br>1 TO 3 FEET                                   | THICKLY BEDDED 1.<br>THINLY BEDDED 0.1  |
| SL                         | SHRINK                                 | AGE LIMIT   |                         |                          |                 |                     |                       | 001710014       | WATER TO               |            | X CME-45C   |                     | CLAY BITS                       |   | X AU               | TOMATIC MANUAL                               | CLOSE                     |                 | Ø                           | .16 TO 1 FOOT   | VERY THINLY BEDDED 0.0  |
|                            |  |   | -                       | DRY - (D                 | )               |                     |                       | IMUM MOI        |                        | J          |   |                     | 6" CONTINUOUS                   | S FLIGHT AUGER                            | CORE SI.           | 7F•  | VERY CLO                  | USE             | LESS                        | 5 THAN 0.16 FEET  | THICKLY LAMINATED 0.00<br>THINLY LAMINATED <  |
|                            |  |   |                         |                          | STICI           | TY                  |                       |                 |                        |            | CME-55  | $ \overline{\Box} $ | 8" HOLLOW AU                    | GERS                                      | -в                 | П-н  |                           |                 |                             | INDU  | RATION  |
|                            |  |   |                         | PLASTIC                  |                 |                     |                       |                 | RY STRENG              | тц         | CME-550   |                     | HARD FACED F                    | FINGER BITS                               |                    |  | FOR SEDIME                | NTARY F         | ROCKS, INDUR                | ATION IS THE HARDE  | NING OF MATERIAL BY CEMENTING, HE   |
| NON                        | I PLASTIC                              |   |                         | <u>- LHOTIL</u>          | 0-5             |                     |                       | <u>U</u>        | VERY LOW               |            |   | ΙΠ                  | TUNGCARBIDE                     | E INSERTS                                 |                    |  | FRIAE                     | BLE             |                             |   | FINGER FREES NUMEROUS GRAINS;   |
|                            | GHTLY PLAS<br>DERATELY P               |   |                         |                          | 6-15            |                     |                       |                 | SLIGHT<br>MEDIUM       |            | VANE SHEAR TEST   |                     | _                               | W/ ADVANCER                               | HAND TO            |  |                           |                 |                             |   | BY HAMMER DISINTEGRATES SAMPLE.   |
|                            | HLY PLAST                              |   |                         |                          | 16-25<br>OR MOF | ٩E                  |                       |                 | HIGH                   |            | PORTABLE HOIST  |                     |                                 | STEEL TEETH                               |                    | ST HOLE DIGGER                               | MODE                      | RATELY          | INDURATED                   |   | BE SEPARATED FROM SAMPLE WITH ST<br>Y WHEN HIT WITH HAMMER.   |
|                            |  |   |                         | C.(                      | DLOR            |                     |                       |                 |                        |            |   |                     |                                 | 1/2. TUNGCARB.                            |                    | ND AUGER                                     |                           |                 |                             |   | DIFFICULT TO SEPARATE WITH STEEL  |
|                            |  |   |                         |                          |                 |                     |                       |                 |                        |            | X D-25  | 씜                   |                                 | _/2 TUNDUHRD.                             |                    | JNDING ROD                                   | INDUF                     | RATED           |                             |   | BREAK WITH HAMMER.  |
|                            | TIONS MAY<br>DDIFIERS SU               |   |                         |                          |                 |                     |                       |                 |                        |            |   |                     | CORE BIT                        |   |                    | NE SHEAR TEST                                | EVTD                      |                 | INDURATED                   |   | R BLOWS REQUIRED TO BREAK SAMPLE  |
| I MIC                      | Joi icho Sl                            | JUN HO LI   | UHRI                    | , JINEHKE                | 10, CTU.        | HINE US             | ,co 10 D              | COUNDE P        | - CANHINU              | -•         |   |                     |                                 |   | $  \sqcup  $       |  | EXTRE                     | EMELY I         | NUUKATEU                    |   | KS ACROSS GRAINS.   |

# R-5516



|   | TERMS AND DEFINITIONS   |
|---|---|
| ED. AN INFERRED<br>D SPT REFUSAL.                   | ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.  |
| 1 FOOT PER 60<br>IS OFTEN                           | AQUIFER - A WATER BEARING FORMATION OR STRATA.  |
| 10 0. 12.0  | ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.  |
| T N VALUES >  | ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING<br>A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.   |
| OCK THAT<br>NCLUDES GRANITE,                        | APTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT<br>WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND<br>SURFACE.   |
|   | CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.   |
| AL PLAIN<br>IF TESTED.<br>C.                        | COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM<br>OF SLOPE.  |
| MAY NOT YIELD<br>STONE, CEMENTED                    | CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED<br>BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.  |
|   | <u>DIKE</u> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT<br>ROCKS OR CUTS MASSIVE ROCK.  |
| RINGS UNDER   | $\underline{\text{DIP}}$ - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.  |
| COATINGS IF OPEN,<br>HAMMER BLOWS IF                | DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.   |
| OCK UP TO<br>AL FELDSPAR                            | FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE<br>SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.   |
| R BLOWS.  | FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.   |
| IS. IN<br>AY. ROCK HAS                              | FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM<br>PARENT MATERIAL.   |
| H AS COMPARED                                       | FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.   |
| FELDSPARS DULL<br>LOSS OF STRENGTH                  | FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.  |
| WHEN STRUCK.  | JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.  |
|   | LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO   |
| EVIDENT BUT<br>ARE KAOLINIZED                       | ITS LATERAL EXTENT.   |
|   | LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.   |
|   | MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS<br>USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.   |
| RE DISCERNIBLE<br>DF STRONG ROCK                    | PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE  |
| T ONLY MINOR  | OF AN INTERVENING IMPERVIOUS STRATUM.   |
| VALUES < 100 BPF                                    | RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.  |
| IN SMALL AND<br>S. SAPROLITE IS                     | ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF<br>ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE<br>RUN AND EXPRESSED AS A PERCENTAGE.                        |
| NS REQUIRES   | SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.   |
| BLOWS REQUIRED                                      | SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND<br>RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO<br>THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.                |
| DEEP CAN BE<br>DETACHED                             | SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT<br>OR SLIP PLANE.  |
|   | STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF  |
| OR PICK POINT.<br>) BLOWS OF THE                    | A 140 LB.HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL<br>WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL<br>TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.                   |
| N FRAGMENTS<br>NT. SMALL,THIN                       | STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY<br>TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.   |
| . PIECES 1 INCH                                     | STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL<br>LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY<br>THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. |
| HED READILY BY                                      | TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.  |
|   | BENCH MARK: BM8, RR SPIKE IN LIGHT POLE 129M02  |
| THICKNESS<br>4 FEET                                 | N: 430927 E: 2616910  |
| 1.5 - 4 FEET  | ELEVATION: 28.88 FEET   |
| .16 - 1.5 FEET<br>03 - 0.16 FEET<br>108 - 0.03 FEET | NOTES:  |
| < 0.008 FEET  |   |
|   | WOH = WEIGHT OF HAMMER  |
| EAT, PRESSURE, ETC.                                 | WOR = WEIGHT OF RODS  |
|   | FIAD = FILLED IMMEDIATELY AFTER DRILLING  |
| TEEL PROBE:   |   |
| PROBE:  |   |
| E;  |   |
|   | DATE: 8-15-14   |





|     |                                       |   |                  |         |                     |                      |              |                   |                |  | 0                     |             | 1                  | )             | 2                            | <b>PRO</b>                           | JECT REF<br>R-5   | ERENCE                        | NO. SHEE<br>5                         |
|-----|---------------------------------------|---|------------------|---------|---------------------|----------------------|--------------|-------------------|----------------|--|-----------------------|-------------|--------------------|---------------|------------------------------|--------------------------------------|-------------------|-------------------------------|---------------------------------------|
|     |                                       | ,<br>,  |                  |         |                     |                      |              |                   |                |  |                       | 1           | FE.<br><b>VE</b> = | ET<br>1:1     |                              |                                      | · · ·             | 1                             | SECTION                               |
|     |                                       |   |                  |         |                     |                      |              | L<br>L            |                | -<br>  |                       |             |                    |               |                              |                                      | GE NC<br>KEW S    |                               |                                       |
| 40  |                                       | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | FX               | IST / N | IG GRC              |                      | SUR          | FACE              | <br>-          |  | BOI-<br><b>+0</b> 1   |             |                    |               |                              |                                      |                   |                               | 40                                    |
|     | ·                                     | /   |                  |         |                     |                      |              |                   |                | 29   |                       |             |                    | :<br>  BI-E   |                              |                                      |                   |                               |                                       |
| 30  |                                       |   |                  |         |                     | EBI-<br>29+(<br>2011 | 06           |                   |                |  |                       |             | 2                  | 9+0<br>8/ R   | 5                            |                                      |                   |                               | 30                                    |
|     |                                       |   |                  |         |                     |                      |              |                   |                |  | Jasta                 |             | IN,                |               | <u>-</u>                     |                                      |                   | TO WE                         |                                       |
| 20  |                                       |   |                  |         | (9)<br>[3           | )                    | 07/15        | ;                 |                | <u> </u>   | <u>andy</u>           | <u>SILT</u> | <br>               |               | Υ <u>·</u><br>7/15 · · · · · | <u>-4) (DUF</u>                      | P <u>LIN FO</u> I | R <u>MATION</u>               | )20                                   |
|     | <br> <br> <br> <br> <br>              | ,<br>,<br>,<br>,<br>,<br>,                          |                  |         | <u>(7</u> )<br>(2)  | - //                 |              |                   |                |  |                       |             | (12)               |               | ,<br>,<br>,<br>,<br>,<br>,   |                                      |                   |                               |                                       |
| 10  |                                       |   |                  | `       |                     |                      |              |                   | /              | 1  | 1<br>1<br>1<br>1      |             |                    |               |                              |                                      |                   |                               | 10                                    |
|     | 1                                     |   |                  |         | (15)                | )                    |              |                   |                |  |                       |             | ([4)               |               |                              |                                      |                   |                               |                                       |
|     |                                       |   | ,                |         | 8                   |                      |              |                   |                | <br>   |                       |             |                    |               |                              | 1<br> <br>1<br>1<br>1                |                   |                               |                                       |
| 0   |                                       | ·   |                  |         | 3                   |                      |              |                   |                | ·<br>·<br>·<br>·                                 | -<br>-<br>-<br>-<br>- |             | - (2)              |               | !                            | !                                    |                   |                               | 0                                     |
|     |                                       | ,<br>,<br>,<br>,<br>,<br>,<br>,                     | · · · · · · ·    |         | (25                 | · · · ·              |              | TAL PIL           | <u> </u>       |  |                       |             |                    |               |                              | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>, |                   |                               | ,<br>,<br>,<br>,<br>,<br>,            |
| _10 |                                       |   |                  |         |                     |                      | ¥¥ E E E E   | SHELL<br>IN. F.OF | AND            | LINLOI   | and (4<br>One f       | RAGMI       | ' ~                |               |                              |                                      |                   |                               | _1(                                   |
|     |                                       |   |                  |         | (13)                | )                    |              |                   |                | -'   |                       |             | [3]                |               |                              |                                      |                   |                               | · · · · · · · · · · · · · · · · · · · |
|     |                                       | ·   |                  |         | 5                   |                      |              |                   |                | ·<br>·<br>·                                      |                       |             | 5                  |               |                              |                                      |                   |                               | ·                                     |
| -20 |                                       |   |                  |         |                     |                      |              |                   |                |  |                       |             |                    |               |                              |                                      |                   |                               | -20                                   |
|     |                                       |   |                  |         |                     |                      |              |                   |                | ,<br>,<br>,<br>,<br>,                            | ;<br>;<br>;           |             |                    |               |                              | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>, |                   |                               | ,<br>,<br>,<br>,<br>,                 |
| -30 |                                       |   |                  |         | Û                   |                      |              |                   |                |  |                       |             |                    |               |                              |                                      |                   |                               | _3                                    |
|     |                                       |   |                  |         | 22                  |                      |              |                   |                |  |                       |             | (31)               |               |                              |                                      |                   |                               |                                       |
|     |                                       |   |                  |         | (5)                 |                      |              |                   |                | ,<br>,<br>,                                      |                       |             | 7)                 |               |                              | ,<br>,<br>,<br>,<br>,<br>,           |                   |                               | ,                                     |
| -40 |                                       |   |                  |         | (14                 | )                    |              |                   |                | ,<br>,<br>,<br>, , , , , , , , , , , , , , , , , | ·<br>·<br>·<br>·      |             | (78)               |               |                              | ,<br>,<br>,<br>,<br>,<br>,           |                   |                               | _4                                    |
|     | <br> <br> <br> <br>                   |   | ,<br>,<br>,<br>, |         | )<br>-<br>-<br>-    |                      |              |                   |                |  | ·<br>·<br>·<br>·      |             |                    |               | 1<br>1<br>1<br>1             |                                      |                   |                               | ,<br>,<br>,<br>,                      |
| -50 |                                       |   |                  |         | (18)                |                      |              |                   |                |  | 1<br>1<br>1<br>1      |             | (24)-              |               |                              |                                      |                   |                               | -5                                    |
| -50 |                                       | · · · · · · · · · · · · · · · · · · ·               |                  |         | 0070                |                      |              | STAL<br>K, GRA    |                |  |                       |             | 00/0.5             |               | (CASTLE                      | HAYNE                                | FORMA             | TION)                         |                                       |
|     | <br> <br> <br> <br> <br> <br>         | · · · · · · · · · · · · · · · · · · ·               |                  |         | 26                  | )                    | C 0;A        | STAL              | PL'AIN,        | , GRAY   | +<br>, MED.           | ĎENSE       | 63                 |               | TO: V.D                      |                                      |                   |                               | 1<br>1<br>1<br>1<br>1                 |
| -60 |                                       |   |                  |         | (89                 |                      | WEI<br>(CAS  | SILT;<br>STLE H   | Y SAN<br>HAYNE | FORM   | 4) WI<br>A TION)      |             | U.0.5              |               | AND LI                       | MĘSIUN<br>-÷                         | E FRAG            | MENIS;<br>                    | -6                                    |
|     |                                       |   |                  |         |                     |                      | COAS         | STAL F<br>;-SANE  | PLAIN          | SEDIME   | NTARY                 | ROCI        | <,,                |               |                              |                                      |                   |                               |                                       |
|     |                                       |   |                  |         |                     |                      | <u>(CA\$</u> | TLE H             | AYNE           | FORMA  | TION)                 |             | 0070.6             |               |                              |                                      |                   | ·                             | _                                     |
| -70 |                                       |   |                  |         | (52                 | )                    |              |                   |                |  |                       |             | - (93)             |               |                              |                                      |                   |                               | -70                                   |
|     |                                       | · · · · · · · · · · · · · · · · · · ·               |                  |         | 22                  | )                    |              |                   |                | <br> <br> <br> <br>                              | :<br>;<br>;<br>;      |             | - 28-              |               |                              | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 |                   |                               | ,                                     |
| -80 |                                       | ,<br>,<br>,<br>,                                    |                  |         |                     | BT                   |              |                   |                |  |                       |             | TO V.I             |               |                              | FRAGME                               | NITS              | ,<br>,<br>,                   | -8                                    |
|     |                                       |   |                  |         |                     |                      |              | TLE H             |                | FORMA  | TION)                 |             |                    |               |                              |                                      |                   | <ul> <li>тыс 'си</li> </ul>   | /E\\/                                 |
|     |                                       | COASTA<br>Sandy                                     |                  |         | RAY, SÓF<br>(DUPLIN |                      |              |                   |                | OI<br>IN   | F THE B               | STRAT       | AKEN FR<br>IGRAPHY | OM S<br>IS DI | URVEY F<br>RAWN TI           | ILE R5510<br>HROUGH                  | 5 ls tin.tin      | G THE SK<br>DATED<br>RINGS WI | 11/2014.<br>Th Both                   |
| -90 | · · · · · · · · · · · · · · · · · · · |   |                  |         |                     |                      |              |                   |                | PR   | OJECTE                | ON1 ט       | IO THE             | SKEW          | OF THE                       | : BENT.                              |                   |                               | -9                                    |

| 1                                     |                     |   |                | -          | <br> <br> <br>  |                      |                       |              |                                       |            |                     |                                       |                     |               | 1<br>1<br>1<br>1               | 0             |               | 10             |                 |               | 20             |                 | OJEC1              | <u> </u>                              |          | CE NO.    | SHEE                       |
|---------------------------------------|---------------------|---|----------------|------------|---|----------------------|-----------------------|--------------|---------------------------------------|------------|---------------------|---------------------------------------|---------------------|---------------|--------------------------------|---------------|---------------|----------------|-----------------|---------------|----------------|-----------------|--------------------|---------------------------------------|----------|-----------|----------------------------|
| · · · · · · · · · · · · · · · · · · · |                     |   |                |            | ,<br>,<br>,<br>,<br>,   |                      | !                     |              | <br>                                  |            |                     | :<br> -<br> <br>                      |                     |               | -<br>-<br><br>-                |               |               | FEEZ<br>VE=1   | Г<br>: <b>1</b> |               |                |                 | BEN                |                                       |          | S SEC     |                            |
|                                       |                     | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>, |                |            | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>, |                      |                       |              | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  |            |                     |                                       | L                   |               | · •                            |               |               |                |                 |               |                | BRI             | DGE<br>KE\         |                                       |          | <u>'0</u> |                            |
| 40                                    |                     |   |                |            |   |                      | !                     |              |                                       |            |                     |                                       |                     |               |                                |               |               |                |                 |               |                |                 |                    |                                       |          |           | 40                         |
|                                       |                     |   |                | F          |   |                      | <u> </u>              |              | UND                                   |            |                     | -<br>- Λ(                             | ∩ E                 |               | BOI<br><b>+41</b>              | -             |               |                |                 |               |                |                 |                    |                                       |          |           |                            |
|                                       |                     |   |                | · · ·      | - A- I;   | > <i>† - ⊦ ⊦</i> ∀ ( | - <i>-</i>  (         | -7-1-5-      | UFV E                                 | /¦)·       | (-)-/-/-            |                                       | - A                 |               |                                |               |               |                |                 | if−B<br>)+79  | 9              |                 |                    |                                       |          |           |                            |
| 30                                    | ·                   |   |                | ·          |   |                      |                       |              | -<br>                                 |            |                     | 30                                    | +.7                 | 7             |                                |               |               |                |                 | ŗŖ.           | J<br>          |                 |                    |                                       |          |           | 30                         |
|                                       |                     |   |                |            | ,<br>,<br>,<br>, , , , , ,  |                      | ,<br>,<br>,<br>,<br>, |              |                                       |            |                     | ; (<br>;<br>;f                        | _<br> <br> -   -  - |               | <br>                           |               |               | (77            | ·               |               |                |                 |                    | ,<br>,<br>,<br>,                      |          |           | ,<br>,<br>,<br>,<br>,<br>, |
| RC                                    | DADWAY<br>ED. DENS- | EME                                       | <br>3anki      | MEN 1      | <br>T, Bf   | ROWN,                |                       |              | ∔<br>\$ET(                            | )          |                     |                                       |                     | ▼             | - <u>-</u>                     |               |               | 3              | )<br>)          |               | 7/15           |                 |                    |                                       |          |           |                            |
| 20 ME                                 | ED. DENS            | E, G                                      | R-Y T          | F          | VE-T,   | - C-L- A-Y           | <u>E-</u> Y           | <u>S A-N</u> | <u>ID - (A</u>                        | <u>-26</u> | <u>5)(2)</u><br>(9) |                                       |                     | 7/15          | <u>;</u>                       |               |               |                | 5               |               | 1715           |                 |                    |                                       |          |           | 20                         |
|                                       |                     |   |                |            |   |                      |                       |              |                                       |            |                     | -<br>                                 | -                   |               |                                |               |               |                | )               |               |                |                 |                    |                                       |          |           |                            |
| 10                                    |                     |   |                |            | 1   |                      |                       |              |                                       |            | (12)                |                                       |                     |               |                                |               |               | 4              | )               |               |                |                 |                    |                                       |          |           | 10                         |
|                                       |                     |   |                |            |   |                      | <br> <br> <br> <br>   |              | · · · · · · · · · · · · · · · · · · · |            |                     |                                       |                     |               |                                |               |               | (8             | )               |               |                |                 | 1                  |                                       |          |           | 1                          |
|                                       | ,                   |   |                |            | ,<br>,<br>,<br>,<br>,<br>,  |                      | !<br> <br>            |              |                                       |            | (7).                |                                       |                     |               |                                |               |               |                |                 |               |                |                 |                    |                                       |          |           |                            |
| 0                                     |                     |   |                |            | ,<br>,<br>,<br>, , , , , ,  |                      | !                     |              |                                       |            | (7).                |                                       | - L                 |               |                                |               |               | 6              | )               |               |                |                 |                    |                                       |          |           | 0                          |
|                                       |                     |   |                |            | 1   |                      |                       |              |                                       |            |                     |                                       |                     |               | -<br>-<br>-<br>-               |               |               | (14            | )               |               |                |                 |                    | 1                                     |          |           |                            |
|                                       | ·                   |   |                | ·          | ,<br>,<br>,<br>,<br>,<br>,  |                      |                       |              |                                       |            | <u>(15)</u>         | -<br>-<br>-<br>-<br>-                 |                     |               |                                |               |               |                |                 |               |                |                 |                    |                                       |          |           | <u>1</u>                   |
| -10                                   |                     |   |                |            |   |                      |                       |              |                                       |            | (9)-                | ·<br>·<br>·                           |                     |               | :<br>:<br>:<br>:               |               |               | (19            | )               |               |                |                 |                    |                                       |          |           | _10                        |
|                                       |                     |   | L005           | SË T       | O Ľ   | ENSE                 | , WE                  | ΞT,          | ID TA                                 | ΔN,        | (23)                | -<br>-<br>-<br>-                      |                     |               | -<br>-<br>-<br>-               |               |               | (14            | )               |               |                |                 |                    |                                       |          |           |                            |
|                                       | ·                   |   | SHEL           | ĻΑ         | ND  |                      | σŢΟ                   |              | RAGN                                  | 1ENT       | $\sim$              |                                       | -                   |               | <br>-<br>-                     |               |               | (7             | · · · · ·       |               |                |                 |                    |                                       |          |           |                            |
| -20                                   | ·                   |   | (DUP           | L'IN       | FOR   | ΜΑΤΙΟ                | )<br>¦                |              |                                       |            | (8).                | -<br>-<br>-<br>-                      | -                   |               | ;<br>;                         |               |               | U              | )<br>           |               |                |                 |                    |                                       |          |           | -20                        |
|                                       |                     |   |                |            |   |                      |                       |              |                                       |            | (8)-                |                                       |                     |               |                                |               |               | (7             | )               |               |                |                 |                    |                                       |          |           |                            |
|                                       |                     |   |                |            | 1   |                      |                       |              |                                       |            | 0                   | · · · · · · · · · · · · · · · · · · · |                     |               |                                |               |               | (9             | )               |               |                |                 | -                  | 1                                     |          |           |                            |
| -30                                   |                     |   |                |            | ,   |                      |                       |              |                                       |            | . (2.2)             | -<br>                                 |                     |               |                                |               |               | )              |                 |               |                |                 |                    |                                       |          |           | -30                        |
|                                       |                     |   |                |            | ,   |                      |                       |              |                                       |            |                     |                                       |                     |               |                                |               |               | (48            |                 |               |                |                 |                    |                                       |          |           |                            |
| 40                                    |                     |   |                |            | 1   |                      |                       |              |                                       |            |                     |                                       |                     |               |                                |               |               | (13            | )—              |               |                |                 |                    | 1                                     |          |           | -40                        |
| -40                                   |                     |   |                |            |   |                      |                       |              |                                       |            | (1 <u>3</u> )       |                                       |                     |               | •<br>• • • • • • • •<br>•<br>• |               |               | (-6            |                 |               |                |                 |                    |                                       |          |           | -40                        |
|                                       |                     |   |                |            | ,<br>,<br>,<br>,<br>,<br>,<br>,   |                      | 1                     |              |                                       |            |                     | ·<br>·                                |                     |               |                                |               |               | (16            | )               |               |                |                 |                    |                                       |          |           |                            |
| -50                                   |                     |   |                |            |   |                      |                       |              |                                       |            | (18)                | 1<br>1<br>1                           |                     |               |                                |               |               | (12            | )—              |               |                |                 |                    |                                       |          |           | -50                        |
|                                       |                     | со'А                                      |                | - PL       | AIN   | SEDI                 | <u> </u>              |              | Y RO                                  | СК.        |                     | ·                                     |                     |               |                                |               |               | 00/            |                 |               |                |                 |                    |                                       |          |           |                            |
|                                       |                     | GRA                                       | Y, SA          | AND Y      | í LD  | NEST (<br>FORM       | DNE                   |              | ;<br>                                 | Ú          | 0/0                 | 8                                     |                     | · · · · · · · |                                |               |               |                |                 |               | <u> </u>       |                 |                    |                                       |          |           | 1                          |
| -60                                   |                     |   | COAS           | STAL       | _ PĽ  | AIN, (               | ;<br>GRA              | A Y          | :<br>Nd Wi                            | HITE       | • (17)              |                                       |                     |               | ;<br>;<br>;                    |               |               | (12            | )               |               |                |                 |                    |                                       |          |           | -60                        |
|                                       |                     |   |                | Y' Si      | AND   |                      |                       |              | , WET<br>  She                        |            | $\sim$              |                                       |                     |               | -<br>-<br>-<br>-               |               |               | (54            | )—              |               |                |                 |                    |                                       |          |           |                            |
|                                       |                     |   | TCAS           | ŤĽΕ        | - HA  | YNE F                |                       |              | 1                                     |            | (56)                | -<br>                                 |                     |               | ÷                              |               |               |                |                 |               | <u> </u>       |                 |                    |                                       | <u> </u> | <u></u>   |                            |
| -70                                   |                     | GRA                                       | Y <u>, S</u> A | NDY.       | LIŅ   | IESTO                | ŊΕ                    |              | ROC                                   | .к,<br>іс  | 0/0                 | 8                                     |                     |               | ;<br>;<br>;                    |               |               | 00/            | U.9)            |               |                |                 |                    |                                       | <u></u>  | <u></u>   | _7(                        |
|                                       | (                   | し A 2<br>                                 | ILL            | <u>mar</u> | INE   | <u>Form</u>          | <u>A:11</u>           | <u>UN)</u>   | <u> </u>                              |            | . (2.4)             |                                       |                     |               |                                |               |               | (77            |                 |               |                |                 |                    |                                       |          |           |                            |
|                                       | ·                   | ·   |                |            | ,   |                      |                       |              | <br>-<br>-<br>-                       |            |                     | ;,                                    | ЗТ                  |               |                                |               |               | N, GRA         | Y A             |               |                | Ę,              |                    | · · · · · · · · · · · · · · · · · · · |          |           | <del>i</del><br><br><br>   |
| -80                                   | - ROA               |   | Y EN           | /RAN       | 1 K W E   | NT                   |                       |              | ,<br>,<br>,                           |            |                     |                                       |                     |               | ŚΙŁŦ'n                         | ' - '¦S A-N   | 1D - (7       | ) V.D<br>424)  | -W1T-           | H- SH         | FELL           |                 |                    |                                       |          |           | -80                        |
| (                                     | A BRO               | WN  |                | ĠRA        |   | OFT,                 | -                     |              |                                       | -          |                     |                                       |                     | N/            | 1                              |               |               | E-CRO          |                 | ÷             |                |                 | 1                  |                                       | С. тн    | SKF\      | ·                          |
|                                       |                     |   |                |            | AY.   | (A-6                 | )                     |              |                                       |            |                     | ,<br> <br> <br> <br> <br>             |                     | OI<br>IN      | f the<br>Ferrei                | BENT<br>D_STR | TAKE<br>ATIGI | N FRC<br>RAPHY | IS D            | SURVE<br>RAWN | EY FII<br>N TH | LE R55<br>ROUGI | 16 <sup>:</sup> Is | tin.tin                               | DATE     | D 11/2    | 014.<br>BOTH               |
| -90                                   |                     |   |                |            | 1   |                      | 1                     |              |                                       |            |                     | ·<br>•<br>•                           |                     | PR            | OJECT                          | ED O          | ΝΙΟ           | THE S          | KEW             | OF            | THE            | BENT.           |                    |                                       |          |           | -90                        |

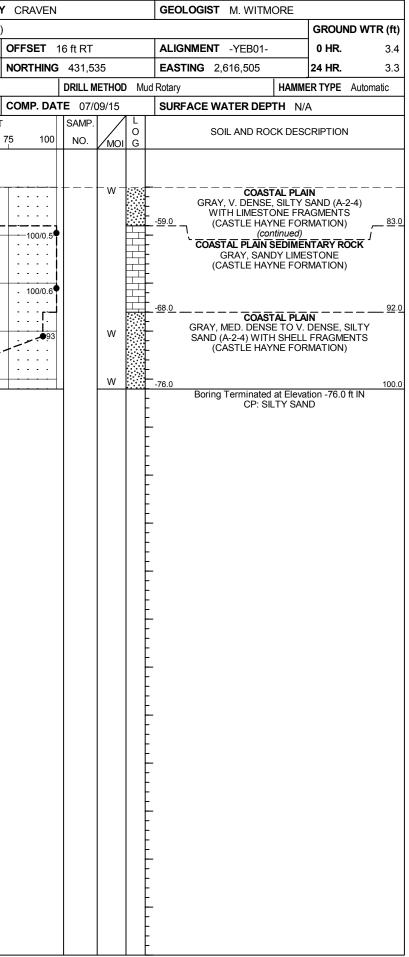
|                                 |          |      | 1                                     |         |                 |                                 | -<br>-<br>-<br>-<br>-<br>-           |             |             |          | 0           |                                       | 10                |                  | 20   |                                 | ECT RE  | FERENC<br>5516                  | E NO.                           | SHEET<br>7                      |
|---------------------------------|----------|------|---------------------------------------|---------|-----------------|---------------------------------|--------------------------------------|-------------|-------------|----------|-------------|---------------------------------------|-------------------|------------------|--|---------------------------------|---|---------------------------------|---------------------------------|---------------------------------|
| <br> <br> <br> <br> <br> <br>   |          |      |                                       |         |                 |                                 | 1<br>1<br>1<br>1<br>1                |             |             |          |             | 1                                     | FEE<br>VE =       | T<br>1:1         | 1  | ,                               | BENT 2  | 1                               | 1                               | ION                             |
|                                 |          |      |                                       |         |                 |                                 | ,<br>,<br>,<br>,<br>,                |             |             | - L      |             |                                       |                   | ·<br>·<br>·<br>· | ·<br>·<br>·<br>·   | 1                               | GE N<br>(EW:  |                                 | 0                               |                                 |
| 40                              |          |      | <u> </u>                              | (IST II | VG G            | ROUN                            | D SU                                 | RFA         | ĈE          |          | B0I-        |                                       |                   |                  |  | ,<br>,<br>,<br>,<br>,<br>,      | ·<br>·<br>·<br>·  | ,<br>,<br>,<br>,<br>,<br>,      | -<br>                           | 40                              |
| ,<br>,<br>,<br>,<br>,<br>,<br>, |          |      | · · · · · · · · · · · · · · · · · · · |         |                 |                                 |                                      |             |             | A 32     | •           |                                       | 2                 | 32-B             |  | ,<br>,<br>,<br>,<br>,           |   | <br> <br> <br> <br> <br>        | ,<br>,<br>,<br>,<br>,<br>,<br>, | ,<br>,<br>,<br>,<br>,<br>,<br>, |
| 30                              |          |      |                                       |         |                 |                                 | -<br>-<br>-<br>-                     |             | 32+<br>5′L  | 28<br>   |             |                                       | 1                 | 2+35<br>7′ RT    | 1  | ,<br>,<br>,<br>,<br>,           |   | 1<br>1<br>1<br>1<br>1           |                                 | 30                              |
|                                 | /        |      | ;<br>;<br>;                           |         |                 | 1<br>1<br>1<br>1<br>1<br>1<br>1 |                                      |             |             |          |             |                                       |                   |                  |  |                                 | MBANK<br>Sandy  |                                 |                                 |                                 |
|                                 |          | CO   | ASTA                                  | AL PL   | AIN, BF         | ROWN A                          | ND GR                                | ΑΥ,<br>τ    |             |          |             |                                       | (2)               |                  |  |                                 |   |                                 |                                 |                                 |
| 20                              |          | : SA | NDY                                   | CLAY    | (A-6)<br>MATION | MOIST                           | 10 WE                                |             | 25          |          |             |                                       | 3                 |                  | ,<br><u>,</u><br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>,<br>, |                                 | <u>-</u>  |                                 | <del>-</del>                    | 20                              |
|                                 |          |      |                                       |         |                 |                                 |                                      |             | - <u>-</u>  | N        |             |                                       | 3                 |                  |  |                                 |   | ,<br>,<br>,                     |                                 |                                 |
| 10                              |          |      |                                       |         |                 | -<br>-<br>-<br>-                |                                      |             | (17)        |          |             |                                       | 4)                |                  |  | ,<br>,<br>,<br>,                | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |                                 | -<br>-<br>                      | 10                              |
|                                 |          |      | ,<br>,<br>,<br>,<br>,<br>,<br>,<br>,  |         |                 | 1<br>1<br>1<br>1<br>1<br>1<br>1 | 1<br>1<br>1<br>1<br>1<br>            |             |             |          |             |                                       | (4)               |                  | <br> <br> <br>   | 1<br>1<br>1<br>1<br>1           | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  | <br> <br> <br> <br>             |                                 | ,<br>,<br>,<br>,<br>,           |
| 0                               |          |      |                                       |         |                 | 1<br>1<br>1<br>1<br>            | 1<br>1<br>1<br>1<br>1<br>1<br>1      |             |             |          |             | ·<br>·<br>·                           | (WOH)-            |                  | 1<br>1<br>1<br>1<br>   | ,<br>,<br>,<br>,<br>,<br>,      | 1<br>1<br>1<br>1<br>1<br>1  | <br> <br> <br> <br>             | <br> <br> <br> <br> <br> <br>   | 0                               |
| ,<br>,<br>,<br>,<br>,<br>,<br>, |          |      |                                       |         |                 | ·<br>·<br>·<br>·                | ·<br>·<br>·<br>·                     |             |             |          | ·<br>·<br>· | ·<br>·<br>·                           | -                 |                  | ·<br>·<br>·<br>·   | ,<br>,<br>,<br>,<br>,<br>,      |   | ·<br>·<br>·<br>·                |                                 |                                 |
| -10                             | COAST    |      |                                       |         |                 |                                 |                                      | Δ-2-4       | (19)<br>1): |          |             |                                       | WOR               |                  |  | -<br>-<br>-<br>-<br>-           |   |                                 |                                 | -10                             |
|                                 |          | HEĻL | AND                                   | LIMES   |                 | FRAGM                           |                                      |             | 27          |          |             | · · · · · · · · · · · · · · · · · · · | 36-               |                  |  |                                 | · · · · · · · · · · · · · · · · · · ·   |                                 |                                 |                                 |
| ·                               |          |      |                                       |         |                 |                                 |                                      | (           | 42          |          |             |                                       | 24-               |                  |  |                                 | · • • • • • • • • • • • • • • • • • • •   |                                 |                                 | - +                             |
| -20                             |          |      |                                       |         |                 |                                 |                                      |             | (10)        |          |             |                                       | (16)              |                  |  |                                 | ·<br>   | <br>                            |                                 | 20                              |
|                                 |          |      |                                       |         |                 |                                 | ,<br>,<br>,<br>,<br>,                |             | (10)        |          |             |                                       | 8                 |                  |  | ,<br>,<br>,<br>,                | ·<br>·<br>·   | ,<br>,<br>,<br>,<br>,           | -<br>-<br>-<br>-<br>-           | - <del>-</del>                  |
| -30                             |          |      |                                       |         |                 | -,                              | ,<br>,<br>,                          |             | (7)         |          |             |                                       | 5-                |                  | -,   | ,<br>,<br>,                     |   | ,<br>,<br>,                     |                                 | -30                             |
|                                 |          |      |                                       |         |                 |                                 |                                      |             |             |          |             |                                       | (5)               |                  | -<br>-<br>-<br>-   |                                 |   |                                 |                                 |                                 |
| -40                             |          |      |                                       |         |                 |                                 | -<br>-<br>-<br>-<br>-<br>-<br>-<br>- |             |             |          |             |                                       | 6                 |                  | ·<br>·<br>·  | -<br>-<br>-<br>-<br>-<br>-<br>- |   |                                 | -<br>-<br>-<br>-<br>-           | -40                             |
|                                 |          |      | ,<br>,<br>,<br>,<br>,                 |         |                 |                                 | 1<br>1<br>1<br>1<br>1<br>1           | ·<br>·<br>· | (12)        |          |             |                                       |                   |                  |  | 1<br>1<br>1<br>1<br>1<br>1      |   | 1<br>1<br>1<br>1<br>1<br>1      |                                 |                                 |
| -50                             |          |      |                                       |         |                 |                                 | 1<br>1<br>1<br>1<br>1<br>1           |             | (16)        |          |             |                                       | 9                 |                  |  | 1<br>1<br>1<br>1<br>1<br>1      |   |                                 |                                 | -50                             |
|                                 |          |      |                                       |         |                 | -'                              |                                      |             | 0/0.8       | ·····    |             | · · · · · · · · · · · · · · · · · · · | 40-               |                  | -!   | 1                               | · ·   | L                               | L                               |                                 |
|                                 |          | 1    | WET,                                  | SILTY   | SANE            | WHITE,<br>(A-2-<br>FRAGN        | 4)                                   | ENSE,       | (15)        |          |             |                                       | - 82-             |                  | COASTA   |                                 | IN SED  |                                 | <br>RY R(                       | -¦                              |
| -60                             |          |      | <u>(CAS</u>                           | TLE.H   | AYNE.           | FORMA                           | TLON)                                | -0          | 0/0.5       |          |             | j<br>                                 | 100/0.            |                  | GRA-Y,-S<br>(Castli  | ATIND 1                         |   | UNE                             |                                 | -60                             |
|                                 | COASTAL  |      | N, GR                                 | REEN, N | MED.D           | ENSE, V                         | <u>е</u> т,<br>Ет,                   |             | 26          | (CAS     | STLE H      | AYNE F                                | DRMAT             | ION)             |  | ,<br>,<br>,                     | 1<br>1<br>1<br>1<br>1<br>1  | 1<br>1<br>1<br>1<br>1<br>1<br>1 |                                 |                                 |
| -70                             | SILTÝ SA |      |                                       |         | . LIVIE         |                                 |                                      | <br>        | 0/0.5       |          | )<br>ASTAL  | PLAIN                                 | <br>SEDIM         | ;<br>Entar       |  |                                 |   |                                 |                                 | _70                             |
|                                 |          |      |                                       |         |                 |                                 |                                      |             | - <u></u>   |          | AI, SA      | NDY LI                                |                   | NE ICA           | .01LE  |                                 |   |                                 | ι<br>ι<br>ι<br>Γ                |                                 |
| -80                             |          |      |                                       |         |                 |                                 |                                      | (           | 33          |          | .Ţ, .SIL T. | PLAIN,<br>Y. SANI                     | <u>)</u> . (А-2-  | 4). WITI         |  |                                 |   |                                 | ŚΕ,                             | -80                             |
|                                 |          |      |                                       |         |                 |                                 |                                      | (           | 24          |          |             | HAYNE<br>OUNDLI                       |                   | 1<br>1<br>1      |  | <u>א</u> אקרו                   |   | с тыс                           | SKE/*/                          |                                 |
| -90                             |          |      |                                       |         |                 |                                 | ,,,                                  |             | $\sim$      | <u> </u> | F THE B     | STRATIC                               | (EN FRO<br>GRAPHY | DM SUI           | RVEY FIL<br>WN THI   | E R5516<br>OUGH                 | ls tin.ti   | h DATEI                         | ⊃ 11⁄20                         | 14.<br>BOTH                     |
| -70                             |          |      |                                       |         |                 |                                 | -<br>                                |             |             |          |             |                                       | -,                |                  | 20   | , \                             |   | ,<br>                           | 40                              | -90                             |

|     |       |   |                |                    |                                       |                                       |                            | 0                     |                            | 10  |                  | 20  | PROJE                                 | CT REI<br>R-S | F <b>ERENCE</b> 1<br>5516 | NO. S   | SHEET<br>8   |
|-----|-------|---|----------------|--------------------|---------------------------------------|---------------------------------------|----------------------------|-----------------------|----------------------------|---|------------------|---|---------------------------------------|---------------|---------------------------|---------|--------------|
|     |       |   |                |                    |                                       |                                       | -<br>-<br>-<br>-<br>-<br>- |                       | 1                          | FEET VE = 1:  |                  |   | END                                   |               | 2 CROSS                   | S SEC   | -            |
|     |       | EXISTING                                  | CROUM          |                    |                                       |                                       |                            | -<br>-<br>            |                            | · · · · · · · · · · · · · · · · · · ·   |                  | E   |                                       | SE NO         | D. 270                    |         |              |
| 40  |       |   | GRUUN          | V <i>D</i> 30.     |                                       |                                       | 1<br>1<br>1<br>1<br>1      | ·<br>·<br>·<br>·      | 1<br>1<br>1<br>1<br>2      |   |                  | ,<br>,<br>,<br>,<br>,   |                                       | L V V. (      | 50                        |         | 40           |
|     |       |   |                |                    |                                       | BOI-<br><b>+66</b>                    |                            | 1<br>1<br>1<br>1      |                            |   |                  | 1   |                                       |               |                           |         |              |
|     |       |   | EB2-A<br>33+63 |                    | 00                                    |                                       |                            | -<br>-<br>-<br>-<br>- |                            |   |                  |   |                                       | EB2           | 2-B                       |         |              |
| 30  |       |   | 17′.LT.        |                    |                                       |                                       |                            |                       |                            | · · · · · · · · · · · · · · · · · · ·   |                  |   |                                       |               |                           |         | 30           |
|     |       |   |                |                    | COA                                   | STAL I                                | PLAIN, E<br>Ft san         | BROWN                 | , SOFT                     | TO MED<br>6) (DUP   | , STIFF          | ,<br>RMATI  | <u>F</u><br>F<br>V                    |               |                           | (Č)     | <del>.</del> |
| 20  |       | <u>4</u><br>9                             |                | /15                |                                       |                                       |                            |                       |                            |   |                  |   | - — —                                 |               |                           |         | 20           |
|     |       | (13)                                      | )              |                    |                                       |                                       |                            |                       |                            |   |                  |   | (                                     |               |                           |         |              |
|     |       | (12)                                      | )              |                    |                                       |                                       |                            |                       |                            |   |                  |   |                                       |               |                           |         |              |
| 10  |       |   | )              |                    |                                       |                                       |                            |                       |                            |   |                  |   | Q                                     | 2)            |                           |         | 10           |
|     |       | (3)                                       |                |                    |                                       |                                       |                            |                       |                            |   |                  | 1   |                                       | Ð             | *<br>*<br>*               |         |              |
| 0   |       | 3   |                |                    | V                                     | LOOSE                                 | E TO D                     | ENSE,                 | WET,                       | GRAY,<br>-2-4, A  | -2-6):-          | <br> <br> <br> <br> <br>  |                                       | Ð             |                           |         | 0            |
|     |       | (12)                                      |                |                    | W                                     | ITH SH                                | ėll an<br>Forma            | id lime<br>Tion)      | ESTONE                     | FRAGM   | ENTS             | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | (1                                    | <b>4</b> )    |                           |         |              |
| ·   |       | (13)                                      | )              |                    | · · · · · · · · · · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · | L                          | 1                     | 1<br>1<br>1<br>1<br>1      | J / / / / / / / / _ / / _ / / _ / / _ / / _ / / _ / / _ / |                  |   | · · · · · · · · · · · · · · · · · · · |               |                           |         |              |
| _10 |       | 25  | ·····          |                    |                                       |                                       |                            |                       |                            |   |                  |   | <u> </u>                              | 5)            |                           |         | -10          |
|     |       | (15)                                      |                |                    |                                       | ·<br>·<br>·                           |                            |                       |                            | · · · · · · · · · · · · · · · · · · ·   |                  | '   |                                       | )<br>         |                           |         |              |
| -20 |       |   |                |                    |                                       | ·<br>·<br>·                           |                            |                       | 1<br>1<br>1<br>1<br>1<br>1 |   | t                |   | B                                     |               |                           | \<br>\ر | -20          |
|     |       | (7)                                       |                |                    |                                       |                                       |                            |                       |                            |   | <i>.</i>         |   |                                       | <b>-</b>      |                           |         |              |
|     |       | 8   |                |                    |                                       |                                       |                            |                       |                            | ,   |                  | , , , , , , , , , , , , ,   |                                       |               |                           |         |              |
| -30 |       | (26                                       |                |                    |                                       |                                       | -<br>                      | -<br>-<br>-<br>-<br>- | -<br>-<br>-<br>-<br>-      | · · · · · · · · · · · · · · · · · · ·   |                  |   |                                       |               |                           |         | -30          |
|     |       | (10)                                      | )              |                    |                                       |                                       |                            |                       |                            |   |                  |   | Q                                     | Ð             |                           |         |              |
| -40 |       |   |                |                    |                                       |                                       |                            |                       |                            |   |                  |   |                                       | D             |                           |         | -40          |
|     |       | (6)                                       |                |                    |                                       |                                       |                            | -<br>-<br>-<br>-<br>  |                            |   |                  |   |                                       | D             |                           |         |              |
| -50 |       | 8   |                |                    |                                       |                                       |                            |                       |                            |   |                  | 1   | (                                     | 7)            |                           |         | -50          |
| -50 |       | 36  |                |                    |                                       |                                       |                            |                       |                            |   |                  |   |                                       |               |                           |         | -50          |
|     |       | 60/0                                      |                | —————<br>СОА       | STAL PLA                              | IN SEC                                | MENTA                      | RY RC                 | рск,                       |   |                  |   |                                       |               |                           |         |              |
| -60 |       | 60/0                                      |                |                    | Y, SANDY<br>Stle hayi                 | VE FOR                                | MATION                     |                       | <br>RAY.                   |   |                  |   |                                       | 9             |                           |         | -60          |
|     |       |   |                |                    |                                       | : MED                                 | STAL P<br>DENSE            |                       | : AN WIT!                  | , WET,<br>H SHELL<br>ION)   | FRAG             | MENTS   | )<br>(                                | <u>)</u>      |                           |         |              |
| 70  |       | 66  |                |                    |                                       |                                       | STLE H                     | AYNE                  | ORMAT                      |   |                  |   |                                       | <br>/0.8H     |                           |         | 70           |
| -70 |       | (00/0                                     | -              |                    |                                       |                                       |                            |                       |                            | Y ROCK  |                  |   |                                       |               |                           |         | _70          |
|     |       | CIAL FILL, BF                             | BT<br>ROWN STI | FF                 |                                       |                                       | NDY L<br>HAYNE             |                       | )NE<br>1/4 T10N) *         | · · · · · · · · · · · · · · · · · · ·   |                  |   |                                       | /0.9¤<br>B    |                           |         |              |
| -80 | MOIST | ,SANDY CLA                                | Y (A-6)        |                    |                                       |                                       |                            |                       | 1<br>1<br>1<br>1<br>1<br>1 | · · · · · · · · · · · · · · · · · · ·   |                  |   |                                       |               |                           |         | -80          |
| 1   | SANDY | AL PLAIN, GF<br>CLAY (A-6)<br>N-FORMATION | WITH SH        | -,WE¦I,<br>Ell Fra | GMENTS                                |                                       | N                          | OTE CP                | QUNDU                      |   | S-SECTIO         | 21 NC   | DRAWN                                 |               | g                         | EW-     |              |
| 00  | COAST | AL PLAIN, BF<br>O WET, SANE               | ROWN, SOF      |                    |                                       |                                       | OF<br>IN                   | F THE B               | ENT TAK                    | EN FRO  | M SURV<br>S DRAW | EY FILE<br>N THR  | R5516<br>OUGH                         | ls tin.tir    | RINGS WI                  | 11/2014 | DTH          |
| -90 |       |   |                |                    |                                       |                                       | ГК                         | ~JL~1E                |                            | , 111 <b>∟ Ο</b> Γ  |                  | E Ç   |                                       |               |                           |         | -90          |

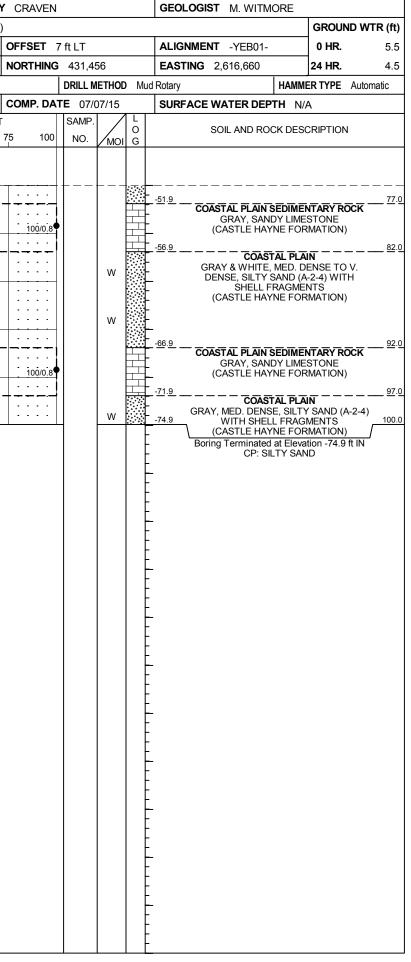
| <b>WBS</b> 45492.1.1 <b>TIP</b>  | R-5516 COUNTY                           | CRAVEN                                | GEOLOGIST M. WITMORE   |   | WBS          | <b>S</b> 4549         | 92.1.1                        |               |                | TIP          | P R-5516 COUN                                 | TY CRAVEN                             |                     | GEOLOGIST M. WITM                       | ORE  |
|--|---|---------------------------------------|--|---|--------------|-----------------------|-------------------------------|---------------|----------------|--------------|---|---------------------------------------|---------------------|---|--|
| SITE DESCRIPTION BRIDGE NO. 270 ON   | N -YEB01- OVER -L- (US 70)              |                                       |  | GROUND WTR (ft)                                   | SITE         | E DESCI               | RIPTION                       | BRID          | GE NC          | D. 270 (     | ON -YEB01- OVER -L- (US 7                     | (0)                                   |                     |   | GROUND WTR (ft)  |
| BORING NO. EB1-A STAT  | TION 29+06                              | OFFSET 20 ft LT                       | ALIGNMENT -YEB01-  | 0 HR. 3.8   | BOF          | ring no               | <b>D.</b> EB1-/               | A             |                | ST           | <b>ATION</b> 29+06                            | OFFSET 20 ft                          | t LT                | ALIGNMENT -YEB01-                       | 0 HR. 3.8  |
| COLLAR ELEV. 23.7 ft TOTA  | AL DEPTH 99.9 ft                        | <b>NORTHING</b> 431,562               | EASTING 2,616,529  | <b>24 HR.</b> 3.9                                 | COL          | LLAR EL               | <b>LEV</b> . 23               | 3.7 ft        |                | ТО           | OTAL DEPTH 99.9 ft                            | NORTHING 43                           | 31,562              | EASTING 2,616,529                       | <b>24 HR.</b> 3.9  |
| DRILL RIG/HAMMER EFF./DATE MID3964 CME-  |   | DRILL METHOD Mud                      | Rotary HAMM  | IER TYPE Automatic                                | DRIL         | L RIG/HA              | AMMER EF                      | F./DATE       | MID3           | 3964 CM      | IE-45C 83% 08/07/2014                         |                                       | RILL METHOD         | /ud Rotary                              | HAMMER TYPE Automatic  |
|  | RT DATE 07/09/15                        | COMP. DATE 07/09/15                   | SURFACE WATER DEPTH N/   | /A  | DRII         |                       | M. COOC                       |               |                |              | ART DATE 07/09/15                             | COMP. DATE                            |                     | SURFACE WATER DEP                       | TH N/A   |
| ELEV<br>(ft)         DRIVE<br>ELEV<br>(ft)         DEPTH<br>(ft)         BLOW COUNT           0.5ft         0.5ft         0.5ft         0  | BLOWS PER FOOT                          | 75 100 NO. MOI G                      | SOIL AND ROCK DES<br>ELEV. (ft)  | CRIPTION<br>DEPTH (ft)                            | ELEV<br>(ft) | DRIVE<br>ELEV<br>(ft) | E DEPTH<br>(ft)               | BLOV<br>0.5ft | V COU<br>0.5ft | JNT<br>0.5ft | BLOWS PER FOO<br>0 25 50                      |                                       | AMP. L<br>NO. MOI G |   | CK DESCRIPTION   |
| 25   |   |                                       | 23.7 GROUND SURF   |   | -55          |                       |                               | 8             | 10             | -16 +        | Match Line                                    | <u></u>                               | w                   |   | AL PLAIN<br>E TO V. DENSE, SILTY                                   |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | • • • • • • • • • • • • • • • • • • •   |                                       | COASTAL PLA<br>TAN, STIFF, SANDY 3<br>20.7 (DUPLIN FORMAT<br>COASTAL PLA<br>GRAY & ORANGE, LOO | SILT (A-4)<br>.TION) <u>3.0</u> <u>3.0</u><br>AIN | -60          | -59.7                 | , <u> </u>                    | 55            | 55             | 34           |   |                                       | w                   | SAND (A-2-4) WITH<br>FRAC<br>CASTLE HAY | I LIMESTONE & SHELL<br>SMENTS<br>NE FORMATION)<br>tinued)          |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | • • • • • • • • • • • • • • • • • • •   |                                       | DENSE, SILTY SAND<br>(DUPLIN FORMA<br>COASTAL PLA  | D (A-2-4)<br>TION)<br>AIN <u>8.0</u>              | -65          | -64.7                 | , <u>+</u><br>, <u>+</u> 88.4 | 100/0.5       |                |              |   |                                       |                     | GRAY, SANI<br>(CASTLE HAY               | SEDIMENTARY ROCK<br>DY LIMESTONE<br>NE FORMATION)                  |
|  | • |                                       | GRAY, SOFT, SANDY<br>(DUPLIN FORMA)<br>11.7 COASTAL PLA<br>GRAY, V. LOOSE TO M                 | .TION) 12.0<br><b>AN</b> 12.0<br>IED. DENSE,      | -70          | -69.7                 | , <u>93.4</u>                 | 24            | 27             | 25           |   |                                       | ×                   | GRAY, MED. DENS                         | T <b>AL PLAIN</b> 91.0<br>E TO V. DENSE, SILTY<br>TH LIMESTONE AND |
| 5 5.3 18.4   |   |                                       | SILTY SAND (A-2-4) WITH<br>AND SHELL FRAGI<br>(DUPLIN FORMA <sup>-</sup>                       | MENTS   | -75          | 74.7                  | , <u>98.4</u>                 | 14            | 13             | 9            |   | · · · · · · · · · · · · · · · · · · · | W                   | CASTLE HAY                              | RAGMENTS<br>NE FORMATION)  |
|  | . • 8                                   |                                       |  |   |              |                       | *<br>+<br>+<br>+              |               |                |              | <u>, , , , , , , , , , , , , , , , , , , </u> | <u>·····</u>                          |                     | Boring Terminated                       | 99.9<br>at Elevation -76.2 ft IN<br>.TY SAND                       |
|  |   |                                       |  |   |              |                       | +<br>+<br>+<br>+              |               |                |              |   |                                       |                     | -                                       |  |
|  | · · · · · · · · · · · · · · · · · · ·   |                                       |  |   |              |                       |                               |               |                |              |   |                                       |                     | -<br>-<br>-                             |  |
|  | · · · · · · · · · · · · · · · · · · ·   |                                       |  |   |              |                       |                               |               |                |              |   |                                       |                     |   |  |
| <u>-20</u> -19.7 43.4  | φ5                                      |                                       |  |   |              |                       |                               |               |                |              |   |                                       |                     | -<br>-<br>-<br>-                        |  |
| - <u>25</u> - <u>24.7</u> <u>48.4</u> <u>2</u> <u>3</u> <u>4</u>   |   |                                       |  |   |              |                       |                               |               |                |              |   |                                       |                     |   |  |
| <sup>51</sup><br>-30 -29.7 - 53.4<br>  |   |                                       |  |   |              |                       |                               |               |                |              |   |                                       |                     |   |  |
| 0     -       0 <td>• • • • • • • • • • • • • • • • • • •</td> <td></td> | • • • • • • • • • • • • • • • • • • •   |                                       |  |   |              |                       |                               |               |                |              |   |                                       |                     |   |  |
| a     -40     -39.7     63.4       a     -40     -39.7     -63.4   | · · · · · · · · · · · · · · · · · · ·   |                                       |  |   |              |                       |                               |               |                |              |   |                                       |                     |   |  |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | · · · · · · · · · · · · · · · · · · ·   | · · · · · · · · · · · · · · · · · · · | -46.3  | 70.0  |              |                       |                               |               |                |              |   |                                       |                     |   |  |
| <u>2</u><br><u>-50</u> <u>-49.7</u> 73.4<br><u>19</u> 81/0.2   | · · · · · · · · · · · · · · · · · · ·   |                                       | COASTAL PLAIN SEDIME<br>GRAY, SANDY LIME<br>(CASTLE HAYNE FOF                                  | ESTONE  |              |                       |                               |               |                |              |   |                                       |                     |   |  |
|  |   |                                       | - <u>53.1</u>  | 76.8  |              |                       |                               |               |                |              |   |                                       |                     | -<br>-<br>-                             |  |

# NCDOT GEOTECHNICAL ENGINEERING UNIT

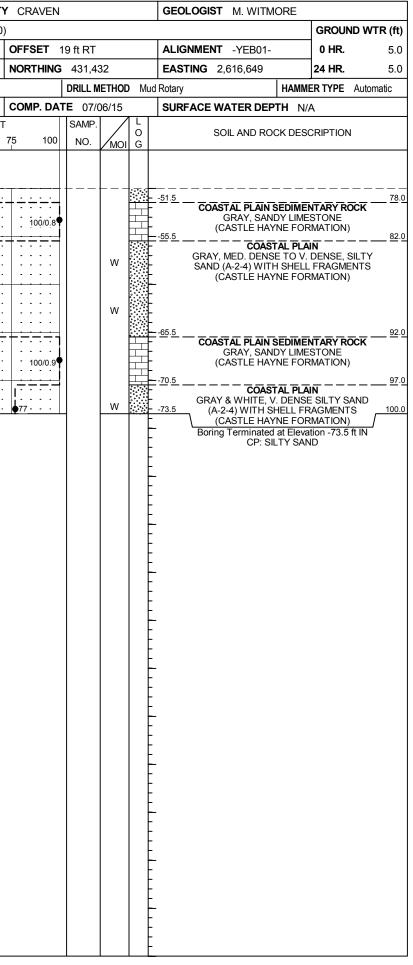
| WBS           | 45492         | 2.1.1         |         |         | TI      | P R-5                | 516         |                  | C       | OUNTY   | CRAVEN    | I              |          |      | GEO            | LOGIST           | M. WITMC                  | ORE      |                       |              | WBS   | 45492         | .1.1          |         |       | ТІ      | <b>P</b> R-5516 | ;                 | COUNT             | Y  |
|---------------|---------------|---------------|---------|---------|---------|----------------------|-------------|------------------|---------|---------|-----------|----------------|----------|------|----------------|------------------|---------------------------|----------|-----------------------|--------------|-------|---------------|---------------|---------|-------|---------|-----------------|-------------------|-------------------|----|
| SITE          | DESCR         |               | BRID    | DGE N   | 0. 270  | ON -YI               | EB01        | - OVEF           | R -L- ( | US 70)  |           |                |          |      |                |                  |                           |          | GROUND W              | VTR (ft)     | SITE  | DESCRI        | IPTION        | BRID    | GE N  | 0. 270  | ON -YEB         | 01- OVER -L       | L- (US 70         | )) |
| BOR           | NG NO.        | EB1-E         | 3       |         | S       | TATION               | <b>1</b> 29 | +05              |         |         | OFFSET    | 16 ft RT       |          |      | ALIG           | NMENT -          | -YEB01-                   |          | 0 HR.                 | 3.4          | BORI  | NG NO.        | EB1-E         | 3       |       | ST      | TATION 2        | <u>'</u> 9+05     |                   | 0  |
| COL           |               | <b>EV.</b> 24 | .0 ft   |         | т       | OTAL D               | DEPTI       | H 100            | .0 ft   |         | NORTHING  | <b>3</b> 431,5 | 35       |      | EAS            | <b>TING</b> 2,61 | 16,505                    |          | 24 HR.                | 3.3          | COLL  | AR ELE        | <b>EV.</b> 24 | .0 ft   |       | тс      | )TAL DEP        | <b>TH</b> 100.0 f | ft                | 1  |
| DRILL         | . RIG/HAN     | IMER EF       | F./DATI | e Mid;  | 3964 CN | ME-45C 8             | 83% 08      | 8/07/201         | 4       |         |           | DRILL          | NETHC    | DD M | ud Rotary      |                  |                           | HAMME    | R TYPE Auto           | omatic       | DRILL | RIG/HAM       | IMER EF       | F./DATE | E MID | 3964 CN | ME-45C 83%      | 08/07/2014        |                   |    |
| DRIL          | LER M         |               |         |         | ST      | FART D               | DATE        | 07/09            | 9/15    |         | COMP. DA  | <b>TE</b> 07/  | 09/15    | ,    | SURF           |                  | FER DEPT                  | TH N/A   | ١                     |              | DRIL  | LER M         | . COOO        | GAN     |       | ST      | ART DAT         | E 07/09/15        | 5                 | 0  |
| ELEV          | DRIVE<br>ELEV | DEPTH         |         | w col   |         |                      |             |                  | S PER   | R FOOT  |           | SAMP.          |          |      |                | SOIL             | AND ROC                   | K DESC   | RIPTION               |              | ELEV  | DRIVE<br>ELEV | DEPTH         | BLO     | w col | JNT     |                 | BLOWS F           |                   |    |
| (ft)          | (ft)          | (ft)          | 0.5ft   | 0.5ft   | 0.5ft   | 0                    | 2           | 5                | 50      |         | 75 100    | NO.            | Имс      |      | ELEV. (        |                  |                           |          |                       | DEPTH (ft)   | (ft)  | (ft)          | (ft)          | 0.5ft   | 0.5ft | 0.5ft   | 0               | 25 5              | 50                | 7  |
|               |               |               |         |         |         |                      |             |                  |         |         |           |                |          |      |                |                  |                           |          |                       |              |       |               |               |         |       |         |                 |                   |                   |    |
| 25            |               | Ļ             |         |         |         |                      |             |                  |         |         |           |                |          |      | 24.0           |                  | GROUND                    |          | CE                    | 0.0          | -55   |               |               | -11 -   | - 26- | -37     |                 | Matc              | h Line            |    |
|               | 23.0          | 1.0           | 4       | 4       | 5       |                      |             |                  |         |         |           |                |          |      | - 24.0         | TAN              | COAST                     | AL PLAII | N                     | 0.0          |       | -             | _             |         | 20    | 57      | · · · ·         | · · · · ·         |                   |    |
| 20            | - 20.5        | - 3.5         |         | -       | 5       | : <b>•</b> 9         |             | · · ·<br>· · ·   |         | · · · · |           |                | <b>W</b> |      |                |                  | I, STIFF, S/<br>(DUPLIN F | ORMATI   | ION)                  | <u>3.0</u>   | -60   | -59.5         | 83.5          |         |       |         |                 |                   | · ·  ·<br>  · · ⊑ |    |
| 20            |               | ‡             | 5       | 7       | 6       | •                    | 13          |                  |         |         |           |                | w        |      | <b>⊨</b>       | GRAY             |                           | AL PLAI  | <b>N</b><br>OSE TO V. |              | -00   | -             | -             | 100/0.5 |       |         |                 |                   |                   |    |
|               | 18.0          | 6.0           | 1       | 5       | 7       | ::;                  | <br>12 -    | · · ·<br>· · ·   | · ·     | · · ·   |           |                | w        |      | +              |                  | E, SILTY S                |          | 2-4) WITH<br>RAGMENTS |              |       | -             | -             |         |       |         |                 |                   |                   |    |
| 15            | 15.5          | 8.5           | 2       | 2       | 4       | ·/                   | •••         |                  |         |         |           |                | w        |      | -              |                  | (DUPLIN F                 |          |                       |              | -65   | -64.5         | 88.5          | 50      | 90    | 10/0.1  |                 |                   |                   | •  |
|               | -             | ‡             |         |         |         | <u>¶6</u><br>  .∖.   | · · ·       | · · ·            | :   :   |         |           |                |          |      | ł              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
|               | 10 5          | - 12 -        |         |         |         | • \                  | ::          |                  |         |         |           |                |          |      | Ł              |                  |                           |          |                       |              |       | 60 5          | - 02 =        |         |       |         |                 |                   |                   | •  |
| 10            | 10.5          | 13.5          | 1       | 6       | 8       |                      | 014         |                  |         |         |           |                | w        |      | F              |                  |                           |          |                       |              | -70   | -69.5         | 93.5<br>-     | 51      | 40    | 53      |                 | +                 |                   | •  |
|               | -             | f             |         |         |         |                      |             | · · · ·<br>· · · |         |         |           |                |          |      | Ł              |                  |                           |          |                       |              |       | -             | L             |         |       |         |                 |                   | · · ·             |    |
| 5             | 5.5           | 18.5          |         |         | _       | ::                   |             |                  |         |         |           |                |          |      | F              |                  |                           |          |                       |              | -75   | -74.5         | 98.5          | 4.4     | 4.4   | 44      |                 |                   |                   | •  |
|               | -             | Ŧ             | 3       | 6       | 1       |                      | 13          |                  |         |         |           |                | W        |      | F              |                  |                           |          |                       |              |       |               | F             | 14      | 14    | 14      |                 | <b>Q</b> 28       |                   |    |
|               | -             | Ŧ             |         |         |         | • /•                 | •••         | · · · ·          |         |         | · · · · · |                |          |      | +              |                  |                           |          |                       |              |       | -             | -             |         |       |         |                 |                   |                   |    |
| 0             | 0.5           | + 23.5<br>+   | 4       | 1       | 1       |                      |             |                  |         |         |           | -              | w        |      | -              |                  |                           |          |                       |              |       | -             | -             |         |       |         |                 |                   |                   |    |
|               | -             | ‡             |         |         |         |                      | •••         | · · ·<br>· · ·   | · ·     |         |           |                |          |      | +              |                  |                           |          |                       |              |       | -             |               |         |       |         |                 |                   |                   |    |
| _             | -4.5          | - 28.5        |         |         |         | .\.<br>   .\.        | ::          |                  |         | · · · · |           |                |          |      | +              |                  |                           |          |                       |              |       | -             | -             |         |       |         |                 |                   |                   |    |
| -5            |               | - 20.0        | 7       | 7       | 6       |                      | 13          |                  | : :     |         |           |                | w        |      | <u> </u>       |                  |                           |          |                       |              |       | -             |               |         |       |         |                 |                   |                   |    |
|               | -             | t             |         |         |         |                      | · · ·       | · · ·            |         |         |           |                |          |      | L              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| -10           | -9.5          | 33.5          | 7       | 6       | 7       |                      |             |                  |         |         |           |                |          |      | F              |                  |                           |          |                       |              |       | _             | F             |         |       |         |                 |                   |                   |    |
|               | -             | ŧ             | '       |         | ,       | 9                    | 13          |                  | ·   ·   |         |           |                | W        |      | Ł              |                  |                           |          |                       |              |       | -             | Ł             |         |       |         |                 |                   |                   |    |
|               |               | f             |         |         |         | . /                  |             |                  |         |         |           |                |          |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| -15           | -14.5 -       | <u>+ 38.5</u> | 2       | 3       | 2       | •/•<br>•5            |             |                  |         |         |           |                | w        |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
|               | -             | Ŧ             |         |         |         | <u>ī</u> .           | · ·<br>· ·  | · · ·<br>· · ·   |         | ••••    | · · · · · |                |          |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| -20           | -19.5         | 43.5          |         |         |         |                      | · · ·       | · · · ·          | :   :   |         |           |                |          |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| -20           | -             | ‡             | 2       | 3       | 3       | <b>•</b> 6           | •••         |                  |         |         |           |                | w        |      | -              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
|               | -             | ‡             |         |         |         | :                    | · · ·       | · · ·<br>· · ·   | ·   ·   | · · · · |           |                |          |      | +              |                  |                           |          |                       |              |       | -             | È.            |         |       |         |                 |                   |                   |    |
| -25           | -24.5         | 48.5          | 3       | 3       | 4       | .  .<br>  <b>!</b> . |             |                  | ·   ·   |         |           |                | w        |      | +              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| 15            | -             | t             |         |         |         |                      | •••         | · · ·            | ·   ·   |         |           |                | "        |      | ł              |                  |                           |          |                       |              |       | -             | È             |         |       |         |                 |                   |                   |    |
| -30<br>-30    | -             | F 52 5        |         |         |         |                      | $\sim$      | · · ·            | ·   ·   |         |           |                |          |      | Ł              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| <u>ດີ -30</u> | -29.5         | + 53.5<br>_   | 9       | 9       | 22      |                      |             | •31              |         |         | +         |                | w        |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| -30<br>-30    | -             | Ŧ             |         |         |         |                      | /           |                  | .   .   |         |           |                |          |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| ⊆<br>⊻35      | -34.5         | -<br>58.5     |         |         |         | • •                  | Ϊ.          |                  | .   .   |         |           |                |          |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
|               | -             | Ŧ             | 6       | 4       | 3       |                      | ~           |                  |         |         |           | 11             | W        |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| BRDG.GPJ      | -             | ŧ             |         |         |         |                      | ]           | · · · ·          |         |         | · · · · · |                |          |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| Hanger -40    | -39.5 -       | + 63.5<br>+   | 15      | 58      | 20      |                      |             | · · ·            | ·   `   | ```     | 78        |                | w        |      | F              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| 0<br>U<br>U   | -             | ‡             |         |         |         |                      | · ·<br>· ·  | · · ·<br>· · ·   | :   :   | · · · / | · · · ·   |                |          |      | +              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| 516           | -44.5         | -<br>68.5     |         |         |         |                      | ::          | · · · /          | :/:     | · · · · |           |                |          |      | +              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
|               |               | +             | 16      | 16      | 8       |                      |             | 24               |         |         |           |                | w        |      | -              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| UBL           | -             | t             |         |         |         |                      | ::          | · · ·            | ·   ·   |         |           |                |          |      | L              |                  |                           |          |                       |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| BORE DOUBLE   | -49.5         | 73.5          | 8       | 100/0.5 |         |                      |             |                  | ·   -   |         |           |                |          |      | _<br>50.0      |                  |                           | _        |                       | 74.0         |       | -             | Ł             |         |       |         |                 |                   |                   |    |
| BOR           | -             | Ŧ             | °       | 100/0.5 |         |                      |             |                  |         |         | 100/0.5   | •              |          |      | -              |                  | AL PLAIN S<br>RAY, SAND   |          | TARY ROCK             |              |       | -             | F             |         |       |         |                 |                   |                   |    |
| LODON -55     | -             | Ŧ             |         |         |         |                      |             | · · ·            |         | · · · · |           |                |          |      | - <u>-53.0</u> |                  | STLE HAYN                 |          |                       | <u> 77.0</u> |       | -             | F             |         |       |         |                 |                   |                   |    |
| Öz -55        | -54.5         | 78.5          |         |         |         |                      | •••         |                  | •       |         | · · · ·   |                |          |      |                |                  |                           |          |                       |              |       |               | [             |         |       |         |                 |                   |                   |    |



| WBS                                  | 45492         | 2.1.1              |        |       | ТІ      | P R-5      | 516                     |                | COU     | NTY | CRAVEN    | ١              |        |       | GEOL                     | LOGIST          | M. WITM    | ORE     |                        | WBS    | <b>4</b> 5492 | 2.1.1          |         |        | TIF    | <b>P</b> R-5516 | ;               | COUNT         | Y |
|--------------------------------------|---------------|--------------------|--------|-------|---------|------------|-------------------------|----------------|---------|-----|-----------|----------------|--------|-------|--------------------------|-----------------|------------|---------|------------------------|--------|---------------|----------------|---------|--------|--------|-----------------|-----------------|---------------|---|
| SITE                                 | DESCR         | RIPTION            | BRI    | DGE N |         |            |                         | - OVER         | -L- (US |     |           |                |        |       | I                        |                 |            |         | GROUND WTR (ft)        | -      |               |                | BRID    | DGE NO |        |                 |                 | -L- (US 70)   | ) |
| BORI                                 | NG NO.        | . B1-A             |        |       | SI      |            | <b>N</b> 30-            | +77            |         | 0   | FFSET     | 7 ft LT        |        |       | ALIG                     | NMENT           | -YEB01-    |         | 0 HR. 5.5              | BOR    | ING NO.       | B1-A           |         |        | ST     | ATION 3         | 60+77           |               | [ |
| COLI                                 | AR EL         | <b>EV.</b> 25      | 5.1 ft |       | т       |            | DEPTH                   | <b>H</b> 100.0 | ) ft    | N   | ORTHIN    | <b>G</b> 431,4 | 456    |       | EAST                     | <b>FING</b> 2,6 | 616,660    |         | 24 HR. 4.5             | COL    | LAR ELI       | <b>EV</b> . 25 | 5.1 ft  |        | тс     | TAL DEP         | <b>TH</b> 100.0 | ft            | Γ |
| DRILL                                | RIG/HAN       | MMER EF            | F./DAT | E MID | 3964 CN | ME-45C 8   | 83% 08                  | 3/07/2014      |         |     |           | DRILL          | METHO  | DD M  | lud Rotary               |                 |            | HAMM    | ER TYPE Automatic      | DRILI  | RIG/HAN       | MMER EF        | F./DATI | E MID3 | 964 CN | NE-45C 83%      | 08/07/2014      |               | - |
| DRIL                                 | LER N         | 1. COO             | GAN    |       | ST      | TART D     | DATE                    | 07/07/         | 15      | С   | omp. Da   | <b>TE</b> 07   | /07/15 | ;     | SURF                     | ACE WA          | ATER DEP   | ΤΗ Ν//  | A                      | DRIL   | LER M         | 1. COO         | GAN     |        | ST     | ART DAT         | E 07/07/        | 15            | Γ |
| ELEV                                 | DRIVE<br>ELEV | DEPTH              | BLC    | W COL | JNT     |            |                         | BLOWS          | PER FC  | тос |           | SAMF           | P. 🗸   | L     |                          | SO              | IL AND RO  |         |                        | ELEV   | DRIVE<br>ELEV | DEPTH          | BLC     | ow cor | JNT    |                 | BLOWS           | PER FOOT      | ſ |
| (ft)                                 | (ft)          | (ft)               | 0.5ft  | 0.5ft | 0.5ft   | 0          | 25                      | 5              | 50      | 75  | 100       | NO.            | Имс    |       |                          |                 |            | ONDEO   | DEPTH (f               | ) (ft) | (ft)          | (ft)           | 0.5ft   | 0.5ft  | 0.5ft  | 0               | 25              | 50            | 7 |
|                                      |               |                    |        |       |         |            |                         |                |         |     |           |                |        |       |                          |                 |            |         |                        |        |               |                |         |        |        |                 |                 |               |   |
| 30                                   |               | ļ                  |        |       |         |            |                         |                |         |     |           |                |        |       | L                        |                 |            |         |                        | -50    |               | L              |         |        |        |                 | Mat             | ch Line       |   |
|                                      |               | ŧ                  |        |       |         |            |                         |                |         |     |           |                |        |       | E                        |                 |            |         |                        |        | -             | ŧ              |         |        |        | :::¦            | ·               | <br>          | _ |
| 05                                   |               | ŧ                  |        |       |         |            |                         |                |         |     |           |                |        |       | - 25.1                   |                 | GROUN      |         | ACE 0.                 |        | -53.4         | + 78.5<br>+    | 22      | 78/0.3 |        |                 |                 |               |   |
| 25                                   | 24.1          | 1.0                | 3      |       |         | <u> </u>   |                         |                |         |     |           |                |        |       | ,23.1<br>\$              |                 | ROADWAY    | EMBAN   | KMENT                  | -55    | -             | ŧ              |         |        |        |                 |                 | +             | - |
|                                      | 21.6          | +<br>+ 3.5         |        | 3     | 8       | : /        | 11 -                    | · · ·          |         | · · | · · · ·   |                | D      |       | ₽ <u>+</u><br>₽ <u>+</u> | BROW            | CLAYEY     |         | /IED. DENSE,<br>A-2-6) |        | -58.4         | +<br>+ 83.5    |         |        |        | : : : <u>.</u>  | +               |               | - |
| 20                                   | _             | t                  | WOH    | 1     | 1       | <b>2</b>   | •••                     |                |         |     |           |                |        |       | \$ <b>-</b><br>• − 19.6  |                 |            |         | 5.                     | -60    | -50.4         | 1 00.0         | 7       | 10     | 7      | • • •           | 7               |               |   |
|                                      | 19.1          | 6.0                | 9      | 9     | 10      |            | 19                      |                |         |     |           |                | w      |       |                          |                 |            |         | JN<br>DENSE, SILTY     |        |               | ŧ              |         |        |        |                 | 1.5.1           |               |   |
|                                      | 16.6          | - 8.5              | 2      | 3     | 3       |            |                         |                |         |     |           |                |        |       |                          |                 | (A-2-4) WI | TH LIME | STONE AND              |        | -63.4         | 88.5           | 9       | 29     | 27     |                 |                 |               |   |
| 15                                   | -             | Ŧ                  |        |       | 5       | <b>4</b> 6 |                         | · · · ·        | · · ·   |     | · · · ·   |                | W      |       | F                        |                 | SHELL F    |         |                        | -65    |               | Ŧ              |         | 29     | ~      |                 | + • • • •       | •56           | _ |
|                                      |               | Ŧ                  |        |       |         |            | •••                     | · · ·<br>· · · |         |     | · · · · · |                |        |       | F                        |                 |            |         |                        |        |               | Ŧ              | 1       |        |        |                 |                 | 1             | _ |
| 10                                   | 11.6          | + 13.5<br>+        | 4      | 5     | 7       |            | 12                      |                |         |     | · · · · · |                | w      |       |                          |                 |            |         |                        | -70    | -68.4         | + 93.5<br>+    | 66      | 34/0.3 |        |                 |                 |               |   |
| 10                                   | -             | ‡                  |        |       |         |            |                         |                |         |     |           |                |        |       |                          |                 |            |         |                        |        | -             | ŧ              |         |        |        |                 |                 |               | - |
|                                      | 6.6           | +<br>+ 18.5        |        |       |         |            | · ·<br>· ·              | · · ·<br>· · · | · · · · |     | · · · · · |                |        |       | 1                        |                 |            |         |                        |        | -73.4         | +<br>+ 98.5    |         |        |        |                 |                 | + <del></del> | - |
| 5                                    | -             | ‡                  | 4      | 4     | 3       | •7         |                         |                |         |     |           |                | W      |       |                          |                 |            |         |                        |        |               | ‡              | 6       | 8      | 16     |                 | <b>4</b> 24     |               |   |
|                                      |               | ‡                  |        |       |         |            | · ·<br>· ·              | · · ·<br>· · · | · · · · | · · | · · · · · |                |        |       | 1                        |                 |            |         |                        |        |               | ŧ              |         |        |        |                 |                 |               |   |
|                                      | 1.6           | <u>+</u> 23.5      | 5      | 4     | 3       |            | ::                      | · · ·          |         |     | · · · · · |                | w      |       |                          |                 |            |         |                        |        | -             | ŧ              |         |        |        |                 |                 |               |   |
| 0                                    | -             | <u>+</u>           |        |       |         |            |                         | <br>           |         |     |           | - 1            |        |       |                          |                 |            |         |                        |        | -             | ŧ              |         |        |        |                 |                 |               |   |
|                                      | -3.4          | -<br>- 28.5        |        |       |         | \<br> \    | NI I                    |                |         |     | · · · · · |                |        |       |                          |                 |            |         |                        |        |               | ŧ              |         |        |        |                 |                 |               |   |
| -5                                   | -3.4          | - 20.5             | 8      | 8     | 7       |            | <b>1</b> 5              |                |         |     |           |                | w      |       |                          |                 |            |         |                        |        |               | Ŧ              |         |        |        |                 |                 |               |   |
|                                      | -             | Ŧ                  |        |       |         | · · ·      |                         |                |         |     |           |                |        |       |                          |                 |            |         |                        |        |               | Ŧ              |         |        |        |                 |                 |               |   |
|                                      | -8.4          | 33.5               | 5      | 4     | 5       | - /        |                         |                |         |     |           |                |        |       |                          |                 |            |         |                        |        |               | Ŧ              |         |        |        |                 |                 |               |   |
| -10                                  | -             | Ŧ                  |        | 4     | 5       | - •9       | )                       |                |         |     |           | - 1            | W      |       |                          |                 |            |         |                        |        | -             | Ŧ              |         |        |        |                 |                 |               |   |
|                                      |               | Ŧ                  |        |       |         |            | $\langle \cdot \rangle$ |                |         |     | · · · · · |                |        |       |                          |                 |            |         |                        |        |               | Ŧ              |         |        |        |                 |                 |               |   |
| -15                                  | -13.4         | + <u>38.5</u><br>+ | 10     | 11    | 12      |            | ΞX.                     | 23 <sup></sup> |         |     |           |                | w      |       | i -                      |                 |            |         |                        |        |               | Ŧ              | 1       |        |        |                 |                 |               |   |
|                                      | -             | ŧ                  |        |       |         |            |                         | ••••           |         |     |           | 11             |        |       | -                        |                 |            |         |                        |        | -             | Ŧ              | 1       |        |        |                 |                 |               |   |
|                                      | -18.4         | +<br>+ 43.5        |        |       |         | : :,       | <i>[</i> .:]            | · · ·<br>· · · |         | · · | · · · · · |                |        |       |                          |                 |            |         |                        |        |               | ŧ              | 1       |        |        |                 |                 |               |   |
| -20                                  | -             | ‡                  | 3      | 4     | 4       |            | •••                     |                |         |     |           |                | W      |       | Ļ                        |                 |            |         |                        |        | -             | ‡              | 1       |        |        |                 |                 |               |   |
| 15                                   |               | ‡                  |        |       |         |            | · · ·                   | · · ·<br>· · · | · · · · | · · | · · · · · |                |        |       |                          |                 |            |         |                        |        | -             | ‡              | 1       |        |        |                 |                 |               |   |
| 9/17/15                              | -23.4         | + 48.5<br>+        | 3      | 4     | 4       |            | · · ·                   | · · ·<br>· · · |         |     | · · · · · |                | l w    |       | } <b>⊢</b>               |                 |            |         |                        |        |               | ‡              |         |        |        |                 |                 |               |   |
| 5 -25                                | -             | ‡                  |        |       |         |            | · · ·                   |                |         |     |           | 11             |        |       | <u> </u>                 |                 |            |         |                        |        | -             | ‡              |         |        |        |                 |                 |               |   |
| JOT.                                 | -28.4         | +<br>+ 53.5        |        |       |         |            | Ŋ.                      | · · ·          |         | ::  | · · · ·   |                |        |       |                          |                 |            |         |                        |        | -             | t              | 1       |        |        |                 |                 |               |   |
| -30<br>-30                           | - 20.7        | +                  | 10     | 13    | 9       |            |                         | 2              |         |     |           |                | w      |       | <u>}</u>                 |                 |            |         |                        |        | ·             | t              | 1       |        |        |                 |                 |               |   |
| GPJ                                  |               | ŧ                  |        |       |         |            | ·/·                     |                |         | ::  |           |                |        |       |                          |                 |            |         |                        |        | -             | ŧ              | 1       |        |        |                 |                 |               |   |
| KDG.(                                | -33.4         | 58.5               | 4      | 6     | 5       | • •,       | /· ·                    |                |         | ••  |           |                |        |       | 1                        |                 |            |         |                        |        | .             | Ŧ              | 1       |        |        |                 |                 |               |   |
| 뚭 <u>-35</u>                         | -             | Ŧ                  |        |       | 5       |            | 11                      |                |         |     |           |                | W      |       | F                        |                 |            |         |                        |        | -             | Ŧ              | 1       |        |        |                 |                 |               |   |
| Э<br>СШ                              |               | Ŧ                  |        |       |         | : :        | •••                     | · · ·<br>· · · |         | ••• |           |                |        |       | Į.                       |                 |            |         |                        |        |               | Ŧ              | 1       |        |        |                 |                 |               |   |
| 40<br>40                             | -38.4         | + 63.5<br>+        | 12     | 6     | 7       |            | 13                      |                |         |     |           |                | w      |       | F                        |                 |            |         |                        |        |               | ŧ              |         |        |        |                 |                 |               |   |
| щ то                                 | -             | ‡                  |        |       |         |            |                         |                |         |     |           | 11             |        |       | -                        |                 |            |         |                        |        | -             | ŧ              | 1       |        |        |                 |                 |               |   |
| OUBI                                 | -43.4         | + 68.5             |        |       |         | ::¦        | <br>                    | · · ·<br>· · · |         | · · | · · · · · |                |        |       | <b>}</b>                 |                 |            |         |                        |        | -             | ‡              | 1       |        |        |                 |                 |               |   |
| од<br>ш45                            |               | ‡                  | 4      | 6     | 5       |            | 11                      |                | -       |     |           |                | W      |       | 1                        |                 |            |         |                        |        | -             | ‡              | 1       |        |        |                 |                 |               |   |
| BOF                                  |               | <b>‡</b>           |        |       |         |            | <u>;</u> ;              | · · ·          |         | · · | · · · ·   |                |        |       | 1                        |                 |            |         |                        |        |               | ‡              | 1       |        |        |                 |                 |               |   |
| NCDOT BORE DOUBLE R5516_GEO_BRDG.GPJ | -48.4         | 73.5               | 21     | 12    | 6       |            | Y                       | · · ·          |         | ::  |           |                | l w    |       |                          |                 |            |         |                        |        |               | ŧ              | 1       |        |        |                 |                 |               |   |
| 2 -50                                |               | 1                  | L      |       | Ĩ       |            | <b>•</b> 18             |                |         |     |           |                | 1 **   | ••••• | 1                        |                 |            |         |                        |        |               | L              | 1       |        |        |                 |                 |               |   |



| Internet     Encomposition     Encomposi   | WBS          | 4549      | 2.1.1            |        |       | Т     | <b>P</b> R-55              | 516                          |         | COUNT     | CRAVE   | N        |               |     |       | GEOLOGIST M. WITM | ORE      |                   | WBS  | 45492   | .1.1             |       |        | TIF     | <b>P</b> R-5516 |            | COUNTY          |
|--|--------------|-----------|------------------|--------|-------|-------|----------------------------|------------------------------|---------|-----------|---------|----------|---------------|-----|-------|-------------------|----------|-------------------|------|---------|------------------|-------|--------|---------|-----------------|------------|-----------------|
| LODING DI-LO         STATUM 3079         OPERATING 1019         Columbel LV         DOING ADDI-LV         STATUM 3079         DOING ADDI-LV         STATUM 30799         DOING ADDI-LV         STATUM 3079   |              |           |                  | BRI    | DGE N |       |                            |                              |         |           |         |          |               |     |       |                   |          | GROUND WTR (ft)   |      |         |                  | BRID  |        |         |                 | 1- OVER -  |                 |
| DBL. BOWWREE PT.ONE  |              |           |                  |        |       |       |                            |                              |         |           |         | 19 ft R1 | Г             |     | 1     | ALIGNMENT -YEB01- |          | 0 HR. 5.0         |      |         |                  |       |        |         |                 |            |                 |
| DBL. BOWWREE PT.ONE  |              |           |                  |        |       |       |                            |                              |         | t         |         |          |               |     | +     | EASTING 2,616,649 |          | <b>24 HR.</b> 5.0 |      |         |                  | .5 ft |        | _       |                 |            | ft              |
| Description         STATE DATE 07:00:15         COMP DATE 07:00:15         Description         Descrip   | DRILL        | . RIG/HAI | MMER EF          | F./DAT | E MID |       |                            |                              |         |           |         |          |               | D M | /ud F | Rotary            | НАММ     | ER TYPE Automatic |      |         |                  |       | E MID  | 3964 CN |                 | )8/07/2014 | 1               |
| (h)       (  | DRIL         |           | Л. COO           | GAN    |       | S     | TART D                     | ATE 0                        | 7/06/15 |           | COMP. D |          |               |     |       |                   |          |                   | DRIL | LER M   | . COOG           | BAN   |        | ST      | ART DATE        | 07/06/1    | 5               |
| (h)       (  | ELEV         | DRIVE     | DEPTH            | BL     | ow co | UNT   |                            | BL                           | OWS P   | ER FOOT   | -       | SAMF     | P. <b>▼</b> ∕ |     |       |                   |          |                   | ELEV | DRIVE   | DEPTH            | BLC   | W COI  |         |                 | BLOWS      | PER FOOT        |
| 32.       25.       1.1       2       2       2       2       1       30       1.1       1.1       <  | (ft)         |           |                  |        | 0.5ft | 0.5ft | 0                          | 25                           | 50      | 0         | 75 100  | NO.      | мс            |     |       |                   | CK DES   |                   | (ft) | (ft)    | (ft)             | 0.5ft | 0.5ft  | 0.5ft   | 0 2             | 25 !       | 50 7            |
| 32.       25.       1.1       2       2       2       2       1       30       1.1       1.1       <  |              |           |                  |        |       |       |                            |                              |         |           |         |          |               |     |       |                   |          |                   |      |         |                  |       |        |         |                 |            |                 |
| 2       25       10       2       2       11       35       11       11  | 30           |           | Ţ                |        |       |       |                            |                              |         |           |         |          |               |     | L     |                   |          |                   | -50  |         |                  |       |        |         |                 | Matc       | ch Line         |
| g     20.0     10     2     2     2     1       ab     32     2     2     1     2     2     1       ab     32     2     2     1     2     2     2       ab     30     2     2     2     1     2     2       ab     40     7     12     30     30     40     7       ab     4     4     7     10     10     10     10       ab     4     4     7     10     10     10     10       ab     4     4     7     10     10     10     10       ab     4     4     4     4     4     4     4       ab     10     115     4     4     4     4     4       ab     10     115     14     40     10     10       ab     10     10     10     10     10     10     10       ab     4     4     4     4     4     4     4     4       ab     4     4     4     4     4     4     4     4       ab     4     4     4     4     4   |              |           | ł                |        |       |       |                            |                              |         |           |         |          |               |     | F     |                   |          |                   |      | -52.0   | 78.5             |       |        |         | : <u>-</u>      | +===       | ++++            |
| 10       10 <td< td=""><td></td><td>0F F</td><td><u> </u></td><td></td><td>_</td><td></td><td></td><td></td><td> [</td><td></td><td></td><td></td><td>_</td><td></td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td>  11</td><td>33</td><td>67/0.3</td><td></td><td></td><td></td></td<>  |              | 0F F      | <u> </u>         |        | _     |       |                            |                              | [       |           |         |          | _             |     | 2     |                   |          |                   |      |         |                  | 11    | 33     | 67/0.3  |                 |            |                 |
| 20     35     2     2       30     235     2     2       40     3     4     7       15     4     4     7       10     135     2     2       11     135     2     2       11     135     2     2       11     135     2     2       12     135     2     2       13     135     2     2       14     4     4       15     135     2     2       16     16     16       17     17     17       18     4     4       19     10       10     135       10     136       11     11       12     20       13     135       14     4       15     16       16     16       16     16       170     16       18     16       19     10       10     10       11     10       12     20       13     10       14     10       15     10        16   | 25           | 25.5      | $\frac{1}{10}$   | 2      | 2     | 2     | <b>4</b>                   |                              |         |           |         |          | D             |     | F     | BROWN & GRAY,     | SOFT, S  | SILTY SANDY       | -55  | _       | F                |       |        |         |                 |            | +               |
| 20       20.3       40.7       7<  |              | 23.0      | 3.5              | 2      | 1     | 2     |                            | .                            |         |           |         |          |               |     | 1     | CLA               | AY (A-6) |                   |      | -57.0   | 83.5             | 11    | 8      | 4       |                 |            |                 |
| IBA         4         4         7         12         10 <td>20</td> <td>20.5</td> <td><del>-</del> 6.0</td> <td></td> <td>_</td> <td></td> <td>3</td> <td>   .</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2</td> <td></td> <td></td> <td><u>5.5</u></td> <td>-60</td> <td>-</td> <td>F</td> <td></td> <td></td> <td></td> <td>• 12</td> <td></td> <td></td>  | 20           | 20.5      | <del>-</del> 6.0 |        | _     |       | 3                          | .                            |         |           |         |          |               |     | 2     |                   |          | <u>5.5</u>        | -60  | -       | F                |       |        |         | • 12            |            |                 |
|  |              | 10.0      | ‡ 。_             |        | 7     | 12    |                            | <b>●</b> 19                  |         |           |         | 11       | M             |     | -     | GRAY & TAN, LOC   | SE TO I  | DENSE, SILTY      |      | 62.0    |                  |       |        |         |                 |            |                 |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   |              | 18.0      | + 0.5            | 4      | 4     | 7     | <b>/</b><br>  <b>/</b> 1   | 1 -   -                      |         |           |         |          | м             |     | 1     | SHELL F           | RAGME    | NTS               |      | -02.0 - | - 00.5           | 15    | 14     | 40      |                 |            | -L              |
| 10       10 <td< td=""><td>15</td><td>-</td><td>‡</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Ľ.</td><td>(DUPLIN I</td><td>-ORMA</td><td>I ION)</td><td>-65</td><td>-</td><td></td><td></td><td></td><td></td><td>· · · ·</td><td>· · · ·</td><td>  L<br/>  <b>k</b></td></td<>   | 15           | -         | ‡                |        |       |       |                            |                              |         |           |         |          |               |     | Ľ.    | (DUPLIN I         | -ORMA    | I ION)            | -65  | -       |                  |       |        |         | · · · ·         | · · · ·    | L<br>  <b>k</b> |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |              | 13.0      | 13.5             |        |       |       |                            | .                            | · · ·   |           |         |          |               |     |       |                   |          |                   |      | -67.0   | 93.5             |       |        |         |                 | · · · ·    |                 |
| 10       0       116       4   |              |           | ł                | 2      | 2     | 2     |                            | .                            |         |           |         |          | M             |     | Ŀ     |                   |          |                   |      | -       |                  | 32    | 68/0.4 |         |                 |            |                 |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | 10           |           | Ŧ                |        |       |       | <u> </u>                   |                              | • • •   |           |         |          |               |     | F     |                   |          |                   | -70  | -       | -                |       |        |         |                 |            | +               |
| $ \begin{array}{c} 5 \\ 3.0 \\ 2.25 \\ 2.0 \\$ |              | 8.0       | 18.5             | 4      | 4     | 4     | · · · ·                    | .                            |         |           |         |          |               |     | F     |                   |          |                   |      | -72.0   | 98.5             | 33    | 40     | 37      |                 |            |                 |
| 30       225       2       4         -20       225       7       6       8         -70       335       0       10       9         -10       -120       335       6       6       8         -10       -120       335       6       6       8         -10       -120       335       6       6       8         -10       -120       335       6       6       8         -10       -120       335       6       6       8         -120       335       -6       6       8       7         -15       -16       -170       435       -16       -170         -200       245       3       3       4       -170       -170         -200       245       3       3       4       -170       -170       -170         -200       585       8       9       30       -170       <  | 5            |           | ŧ                |        | ·     | ·     | • <b>•</b> 8 •<br>   • • • |                              |         |           |         |          |               |     | 1     |                   |          |                   |      |         | +                |       |        |         |                 | · · · ·    | · · · ·         |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |              |           | ‡                |        |       |       |                            |                              |         |           |         | -11      |               |     |       |                   |          |                   |      | -       | -                |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |              | 3.0       | 23.5             | 2      | 2     | 4     | . <br>  .∎.                |                              |         |           |         |          | м             |     | t     |                   |          |                   |      | -       |                  |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | 0            |           | <u>+</u>         |        |       |       | ·\. ·                      |                              |         |           |         |          |               |     | Ł     |                   |          |                   |      | -       |                  |       |        |         |                 |            |                 |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$  |              | -2.0      | 28.5             |        |       |       | :`\:                       |                              |         |           |         |          |               |     | ł     |                   |          |                   |      | -       |                  |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |              |           | +                | 7      | 6     | 8     |                            | 14 -                         |         |           |         |          | W             |     | F     |                   |          |                   |      | -       | -                |       |        |         |                 |            |                 |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$   | -5           |           | Ŧ                |        |       |       |                            | <u>.</u>                     |         |           |         |          |               |     | F     |                   |          |                   |      | -       | -                |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |              | -7.0      | 33.5             | 10     | 10    | Q     |                            | ·\.   .                      |         | · · · · · |         |          |               |     | ÷     |                   |          |                   |      | -       |                  |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | 10           |           | ŧ                |        |       | ľ     |                            | • • 19                       |         |           |         |          | vv            |     | 1     |                   |          |                   |      |         |                  |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | -10          | -         | ‡                |        |       |       | ,                          | 1                            |         |           |         |          |               |     | -     |                   |          |                   |      | -       | +                |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |              | -12.0     | <u> </u>         | 6      | 6     | 8     |                            |                              |         |           |         |          | w             |     |       |                   |          |                   |      | -       |                  |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  | -15          |           | Ŧ                |        |       |       | <u> </u>                   |                              |         |           |         |          |               |     | Ł     |                   |          |                   |      | -       |                  |       |        |         |                 |            |                 |
| 20     220     48.5     3     3     4       20     220     48.5     3     3     4       20     220     48.5     3     3     4       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1  |              | -17.0     | 43.5             |        |       |       |                            | .                            |         |           |         |          |               |     |       |                   |          |                   |      | -       | Ł                |       |        |         |                 |            |                 |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$  |              |           | ł                | 2      | 3     | 4     |                            |                              |         |           |         |          | м             |     | 1     |                   |          |                   |      | -       | F                |       |        |         |                 |            |                 |
| -22.0     48.5     3     3     4       -27.0     53.5  | -20          |           | f                |        |       |       |                            |                              |         |           |         |          |               |     | Ē     |                   |          |                   |      | -       | +                |       |        |         |                 |            |                 |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   | /15          | -22.0     | 48.5             | 3      | 3     | 4     |                            |                              |         |           |         |          |               |     | Ĩ     |                   |          |                   |      | -       | F                |       |        |         |                 |            |                 |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$   |              |           | ‡                |        |       | .<br> | ¶ <sup>7</sup> .           |                              |         |           |         |          |               |     | F     |                   |          |                   |      |         | ţ                |       |        |         |                 |            |                 |
| -32.0     58.5     8     9     39          -35     -37.0     63.5     -37.0     63.5          -37.0     63.5            -37.0     63.5           -37.0     63.5          -37.0     63.5          -37.0     63.5          -37.0     63.5          -37.0     63.5          -40   |              |           | ‡                |        |       |       | -+                         | .                            |         |           |         | 11       |               |     |       |                   |          |                   |      | -       | ŧ                |       |        |         |                 |            |                 |
| -32.0     58.5     8     9     39          -35     -37.0     63.5     -37.0     63.5          -37.0     63.5            -37.0     63.5           -37.0     63.5          -37.0     63.5          -37.0     63.5          -37.0     63.5          -37.0     63.5          -40   | DOT.         | -27.0     | + 53.5           | 3      | 4     | 5     | .<br>                      |                              |         |           |         |          | м             |     | 1     |                   |          |                   |      |         | ‡                |       |        |         |                 |            |                 |
| -32.0     58.5     8     9     39          -35     -37.0     63.5     -37.0     63.5          -37.0     63.5            -37.0     63.5           -37.0     63.5          -37.0     63.5          -37.0     63.5          -37.0     63.5          -37.0     63.5          -40   | 9 -30        | -         | ±                |        |       |       | ,                          |                              |         |           |         |          |               |     | Ł     |                   |          |                   |      |         | t I              |       |        |         |                 |            |                 |
|  |              | -32.0     | 58.5             |        |       |       |                            | :: ``                        | S. I    |           |         |          |               |     |       |                   |          |                   |      | -       | t l              |       |        |         |                 |            |                 |
|  | KDG.(        |           | <u>+</u>         | 8      | 9     | 39    |                            |                              |         | 48        |         |          | M             |     |       |                   |          |                   |      | -       | $\left  \right $ |       |        |         |                 |            |                 |
|  | 뚭 <u>-35</u> | -         | Ŧ                |        |       |       |                            |                              | /       |           |         |          |               |     | F     |                   |          |                   |      | -       | F                |       |        |         |                 |            |                 |
|  | GE           | -37.0     | 63.5             | 3      | 5     | 8     |                            | -                            |         |           |         |          |               |     | F     |                   |          |                   |      | -       | FI               |       |        |         |                 |            |                 |
|  | 5516<br>5    |           | ‡                | ľ      |       | ັ     | ¶                          | 13                           |         |           |         |          |               |     |       |                   |          |                   |      |         | ‡                |       |        |         |                 |            |                 |
| Import     -42.0     68.5     3     4     12          -45     -47.0     73.5     -           -47.0     73.5     -           -600     -     -           -47.0     73.5     -          -47.0     73.5     -          -47.0     73.5     -          -47.0     73.5     -          -47.0     73.5     -          -47.0     73.5     -          -7.0            -7.0  |              |           | <b>†</b>         |        |       |       |                            |                              |         |           |         |          |               |     |       |                   |          |                   |      |         | <b>t</b>         |       |        |         |                 |            |                 |
| -45     -47.0     73.5     -73.5     -71.0     -1.0     -1.0     -1.0     -1.0       -47.0     73.5     5     5     7     -1.0     -1.0     -1.0       -50     -47.0     -1.0     -1.0     -1.0     -1.0   | DUBL         | -42.0     | + 68.5           | 3      | 4     | 12    |                            |                              |         |           |         |          | м             |     | 1     |                   |          |                   |      | -       | t l              |       |        |         |                 |            |                 |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $   | й<br>ш -45   |           | ±                |        |       |       |                            |                              |         |           |         |          |               |     | Ł     |                   |          |                   |      | -       | Ł                |       |        |         |                 |            |                 |
|  | BOR          | -47 0     | 73 5             |        |       |       | · · [·                     | $\cdot \cdot \uparrow \cdot$ |         |           |         |          |               |     |       |                   |          |                   |      | -       | Ł                |       |        |         |                 |            |                 |
|  | DOT          |           | Ŧ                | 5      | 5     | 7     |                            |                              |         |           |         |          | w             |     | F     |                   |          |                   |      | -       | F                |       |        |         |                 |            |                 |
|  | Öz -50       |           | <u>†</u>         |        |       |       |                            |                              |         |           |         |          |               |     |       |                   |          |                   |      | -       | t                |       |        |         |                 |            |                 |

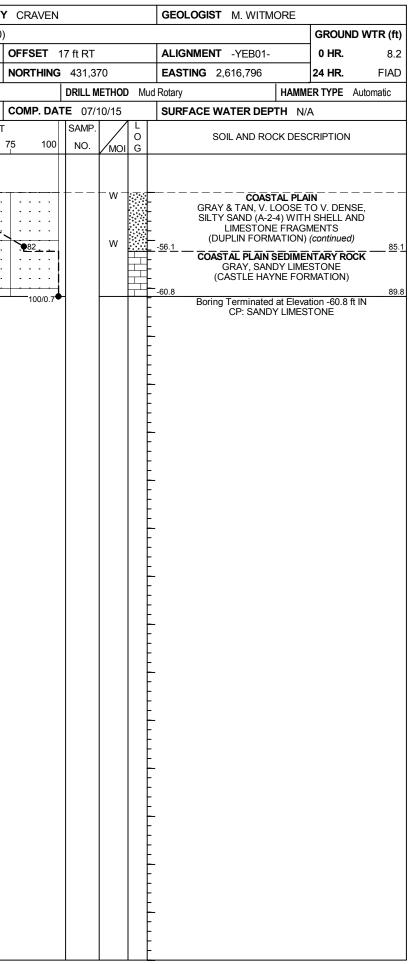


# NCDOT GEOTECHNICAL ENGINEERING UNIT

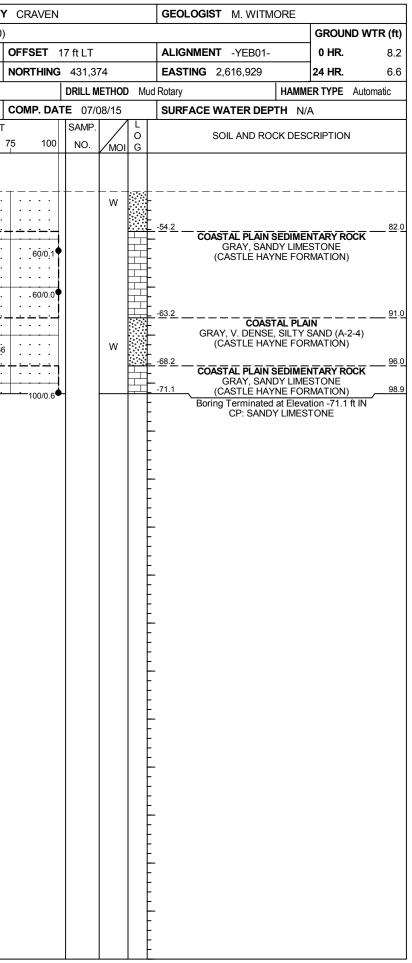
(27)

| <b>WBS</b> 45492.        | 1.1           |         |         | TIP          | R-5516               |                      | COUNT         | TY CRAVEN    | 1              |           |               | GEOLOGIST M. WITMORE                         |                |            | WBS          | <b>S</b> 45492 | .1.1          |              |       | TIF      | <b>P</b> R-5516                       | COUNT         | Y CRAVEN  |                |              | GEOL                                    | OGIST M. WITMO                     | ORE                      |                         |
|--------------------------|---------------|---------|---------|--------------|----------------------|----------------------|---------------|--------------|----------------|-----------|---------------|--|----------------|------------|--------------|----------------|---------------|--------------|-------|----------|---------------------------------------|---------------|-----------|----------------|--------------|---|------------------------------------|--------------------------|-------------------------|
| SITE DESCRI              | PTION         | BRIDG   | E NO. 2 | 270 ON       | I-YEB01              | - OVER -I            | L- (US 70     | 0)           |                |           |               |  | GROUND V       | NTR (ft)   | SITE         | DESCR          | IPTION        | BRID         | GE N  | D. 270   | ON -YEB01- OVER -L-                   | - (US 70)     | )         |                |              | I                                       |                                    | GROU                     | ND WTR (ft)             |
| BORING NO.               | B2-A          |         |         | STAT         | <b>ION</b> 32-       | +28                  |               | OFFSET       | 5 ft LT        |           |               | ALIGNMENT -YEB01-                            | 0 HR.          | 6.0        | BOR          | ring no.       | B2-A          |              |       | ST       | ATION 32+28                           |               | OFFSET    | 5 ft LT        |              | ALIGI                                   | MENT -YEB01-                       | 0 HR.                    | 6.0                     |
| COLLAR ELE               | <b>V.</b> 27. | .9 ft   |         | ΤΟΤΑ         | L DEPTH              | H 114.8              | ft            | NORTHIN      | <b>G</b> 431,3 | 394       |               | EASTING 2,616,797                            | 24 HR.         | FIAD       | COL          | LAR EL         | <b>EV.</b> 27 | .9 ft        |       | тс       | DTAL DEPTH 114.8 ft                   | t             | NORTHING  | <b>3</b> 431,3 | 94           | EAST                                    | ING 2,616,797                      | 24 HR.                   | FIAD                    |
| DRILL RIG/HAMI           | MER EFF       | F./DATE | MID5152 | 2 D-25 8     | 6% 05/19/2           | 2014                 |               | •            | DRILL          | METHO     | D Mud         | d Rotary HAMM                                | IER TYPE Auto  | omatic     | DRIL         | L RIG/HAN      | IMER EF       | F./DATE      | E MID | 5152 D-2 | 25 86% 05/19/2014                     |               | •         | DRILL N        | IETHOD       | Mud Rotary                              |                                    | HAMMER TYPE              | Automatic               |
| DRILLER B.               | FOWL          | ER      |         | STAR         | RT DATE              | 03/17/1              | 5             | COMP. DA     | TE 03/         | /17/15    |               | SURFACE WATER DEPTH N/                       | /A             |            | DRIL         | LER B          | . FOWL        | ER           |       | ST       | ART DATE 03/17/15                     |               | COMP. DA  | TE 03/         | 17/15        | SURF                                    | ACE WATER DEP                      | TH N/A                   |                         |
| ELEV DRIVE<br>(ft) CRIVE |               | BLOW    |         |              | 25                   | BLOWS F              | PER FOO<br>50 | DT<br>75 100 | SAMP           | 17        |               | SOIL AND ROCK DES                            |                |            | ELEV<br>(ft) | DRIVE          | DEPTH<br>(ft) | BLO<br>0.5ft | W COU |          | BLOWS PE                              |               | 75 100    | SAMP.<br>NO.   |              |   | SOIL AND ROC                       | CK DESCRIPTION           | 1                       |
| (it) (ft)                | . ,           | 0.011 0 |         |              |                      | <u> </u>             |               |              | 110.           |           |               | ELEV. (ft)                                   |                | DEPTH (ft) |              | (ft)           |               | 0.011        | 0.011 | 0.011    |                                       | -             |           | 110.           | <u>/ MOI</u> | G                                       |                                    |                          |                         |
| 30                       |               |         |         |              |                      |                      |               |              |                |           |               |  |                |            | -50          |                |               |              |       |          | Match                                 | Line          |           |                |              |   |                                    |                          |                         |
|                          |               |         |         |              |                      |                      | -1            |              |                |           | L             | 27.9 GROUND SURF                             |                | 0.0        |              | -50.4          | 78.3          | 16           | 73    | 27/0.3   | · · · · · · · · · · · · · · · · · · · |               | 100/0.8   |                |              | -50.9                                   | COASTAL PLAIN S                    |                          | 78.8<br>DCK             |
| 25 26.9                  | . 1.0         | 3       | 4 3     | 3            | •<br>•<br>7 • •      | · · · · ·            | · · · ·       | · · · · ·    |                | м         |               | COASTAL PLA<br>BROWN AND GRAY, MED           | ). STIFF TO V. |            | -55          |                | ł             |              |       |          |                                       | $\frac{1}{2}$ |           |                |              | - <u></u> - <u>-53.6</u>                | CASTLE HAY                         | OY LIMESTONE             | <u> </u>                |
| 23 24.6                  | - 3.3         | 1       | 2 2     | 2            | 4                    |                      |               |              | SS-45          | 7 25%     |               | - STIFF, SANDY CLA<br>(DUPLIN FORMAT         |                |            | -55          | -55.4 -        | - 83.3        | 8            | 6     | 9        | · · • • 15                            |               |           |                | w            | -                                       | WHITE, MED. DE                     |                          |                         |
| 22.2                     | 5.7           | WOH     | 2 4     | -   Ì        |                      | · · · · ·            |               | · · · · · ·  |                | $ \nabla$ |               |  |                |            |              |                | ŧ             |              |       |          |                                       | · · · · ·     |           |                |              |   | (A-2-4) WITH LIN<br>(CASTLE HAY)   | MESTONE FRAG             |                         |
| 20 19.6                  | •             |         | 12 1    |              |                      | · · · ·              |               |              |                |           |               | -  |                |            | -60          | -60.4 -        | 88.3          | 14           | 71    | 20/0.0   |                                       |               |           |                |              | -60.9                                   |                                    |                          | 88.8                    |
|                          |               | 0       | 12 1    | -            |                      | 25                   |               | · · · · · ·  |                | W         |               |  |                |            |              |                | ŧ             | 14           | /1    | 29/0.0   |                                       |               | 100/0.5   | •              |              |   | COASTAL PLAIN S<br>GRAY, SAND      | EDIMENTARY R             | OCK                     |
| 15                       | . 10.0        |         |         |              | / .                  |                      |               |              |                |           |               |  | <u></u>        | <u> </u>   | -65          | 05.4           |               |              |       |          | <del> </del> -                        |               |           |                |              | <u>-63.6</u>                            |                                    | NE FORMATION             | ${-} / - \frac{91.5}{}$ |
| 14.6                     | 13.3          | 2       | 1 4     |              | 5                    |                      |               | · · · · ·    |                | w         | E             | GRAY AND GREEN, LOOS<br>SILTY SAND (A-2-4) W | SE TO DENSE,   | ,          |              | -05.4 -        | - 93.3<br>[   | 6            | 10    | 16       | •26                                   |               |           |                | w            |   | GREEN, MED. DI<br>(A-2-4) WITH LIN | ENSE, SILTY SA           |                         |
|                          | .             |         |         |              | · \                  |                      |               |              |                |           |               | FRAGS.<br>(DUPLIN FORMAT                     |                |            |              |                | Ł             |              |       |          |                                       |               |           |                |              | <u>-68.6</u>                            |                                    | NE FORMATION             | 96.5                    |
| 10 9.6                   | 18.3          | 4       | 7 1     | 0            | · · · · · ·          |                      |               |              |                | 1 19%     |               | -  | ,              |            | -70          | -70.4 -        | 98.3          | 95           | 5/0.0 |          |                                       | <u> </u>      | - 100/0.5 |                |              |   | GRAY, SAND                         | DY LIMESTONE             |                         |
|                          | .             |         |         |              | :: <u>/</u> 17       | · · · · ·            |               | · · · · ·    | 33-40          | 1 19%     |               |  |                |            |              |                | ł             |              |       |          |                                       | · · · ·       |           |                |              | <u>-73.6</u>                            | (CASTLE HAY)                       | NE FORMATION             | )<br>1 <u>01.5</u>      |
| 5 4.6                    | . 23 3        |         |         |              | l<br>l               |                      |               |              |                |           |               | _  |                |            | -75          | -754-          | - 103.3       |              |       |          | · · · · · · · · · · · · · · · · · · · |               |           |                |              |   | GREEN AND GRA                      |                          |                         |
| 4.0                      | 20.0          | 6       | 6 5     | 5            | <b>•</b> 11          | · · · ·              |               | · · · · ·    |                | w         |               |  |                |            |              | -10.4          |               | 9            | 10    | 23       |                                       |               |           |                | w            |   | DENSE, SILTY S                     | SAND (A-2-4) WI          |                         |
|                          | .             |         |         |              | : :::                | · · · · ·            |               |              |                |           |               |  |                |            |              |                | ŧ             |              |       |          | <i>[</i>  <br>    <i>[</i>            |               |           |                |              |   |                                    | . FRAGS.<br>NE FORMATION | )                       |
| 0 -0.4 -                 | 28.3          | 3       | 4 7     | -            | •                    |                      |               |              |                | w         |               | -  |                |            | -80          | -80.4 -        | 108.3         | 6            | 12    | 12       |                                       |               |           |                | w            |   |                                    |                          |                         |
|                          | .             | -       |         |              | · · · · ·            | · · · · ·            |               | · · · · ·    |                |           |               |  |                |            |              |                | ŧ             | -            |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| -5 -5.4 -                | - 33 3        |         |         |              | · · j ·              |                      |               |              |                |           | _             | -  |                |            | -85          | -854-          | -113.3        |              |       |          | ···/·                                 |               |           |                |              |   |                                    |                          |                         |
|                          |               | 9       | 9 1     | ~            | <b>4</b> 19          | · · · ·              | · · ·         | · · · · ·    |                | W         |               |  |                |            |              |                |               | 7            | 5     | 7        | ·                                     |               | • • • •   |                | w            | -86.9                                   | Dering Terminated                  | at Floyedian 86 (        | 114.8                   |
|                          | .             |         |         |              | $   \frac{1}{2} $    |                      |               |              |                |           | -             |  |                |            |              |                | ł             |              |       |          |                                       |               |           |                |              |   | Boring Terminated<br>CP: SIL       | TY SAND                  |                         |
| -10 -10.4 -              | - 38.3        | 10 '    | 12 1    | 5            |                      |                      |               |              | 11             | l w       | -             | -  |                |            |              | -              | ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          | .             |         |         |              | · · · · [            |                      |               | · · · · · ·  |                |           | -             |  |                |            |              |                | ÷             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| -15                      | - 43.3        |         |         |              |                      |                      |               | · · · · ·    |                |           | -             | -  |                |            |              | -              | +             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          | .             | 16 2    | 24   1  |              |                      | <b>4</b> 2           |               |              |                | W         | -             |  |                |            |              |                | ÷             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| -20 20.4                 | .             |         |         |              | · · · ·              | /                    |               |              |                |           | -             |  |                |            |              |                | ł             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| -20.4                    | - 48.3        | 4       | 4 6     | 3            | · • 10 ·             |                      |               |              | 1              | м         | -             | -  |                |            |              | -              | +             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          |               |         |         |              |                      | · · · · ·<br>· · · · |               |              |                |           | -             |  |                |            |              |                | ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| <sup>6</sup> -2525.4 −   | - 53.3        |         |         |              | • • • •              |                      |               |              |                |           |               | -  |                |            |              | -              | ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          | ·             | 3       | 4 6     | <b>`</b>     |                      |                      |               |              | SS-46          | 8 33%     | -             |  |                |            |              |                | ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          |               |         |         |              | : <u> </u> : : :     |                      |               |              |                |           | -             |  |                |            |              |                | ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| 2 - <u>50</u> -30.4 -    | - 58.3        | 4       | 3 4     | <b>,    </b> |                      |                      |               |              | 11             | м         | -             | -  |                |            |              |                | Ŧ             |              |       |          |                                       |               |           |                |              | I F                                     |                                    |                          |                         |
|                          | .             |         |         |              | · ¦· · ·             | · · · · ·            |               |              |                |           | -             |  |                |            |              |                | ŧ             |              |       |          |                                       |               |           |                |              | -                                       |                                    |                          |                         |
| <u>-35</u> -35.4         | - 63.3        |         |         |              | · · · ·              |                      |               | · · · · ·    | 41             |           |               | -  |                |            |              | -              | ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          | .             | 4       | 4 6     | <b>)</b>     | <b>a</b> 10          | · · · · ·            |               |              |                | W         |               |  |                |            |              |                | ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| 91252 -40 40             |               |         |         |              | 111                  | · · · · ·            |               |              |                |           |               |  |                |            |              |                | Ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| <u>~ -40.4 -</u>         | 68.3          | 3       | 4 8     | 3            | 12                   |                      |               |              | 1              | w         |               | -  |                |            |              | -              | Ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          |               |         |         |              | · · ·                | · · · · ·            |               |              |                |           | ÷             |  |                |            |              |                | Ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
| u -45 -45.4 -            | 73.3          |         | 6       |              |                      |                      |               |              |                |           |               | -  |                |            |              | -              | F             |              |       |          |                                       |               |           |                |              | -                                       |                                    |                          |                         |
|                          |               | 4       | 6 1     |              | · · ¶ <sup>16</sup>  | · · · · ·            |               |              |                | W         |               |  |                |            |              |                | F             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          | .             |         |         |              | · · 1 ·  <br>· · 1 · | · · · · ·            |               |              |                |           | ÷             |  |                |            |              |                | Ŧ             |              |       |          |                                       |               |           |                |              |   |                                    |                          |                         |
|                          |               |         |         |              |                      |                      |               |              |                |           | 17. 9. 9. 9 L |  |                |            | ·            | ·              | <u> </u>      |              |       |          |                                       |               |           |                |              | · • • • • • • • • • • • • • • • • • • • |                                    |                          |                         |

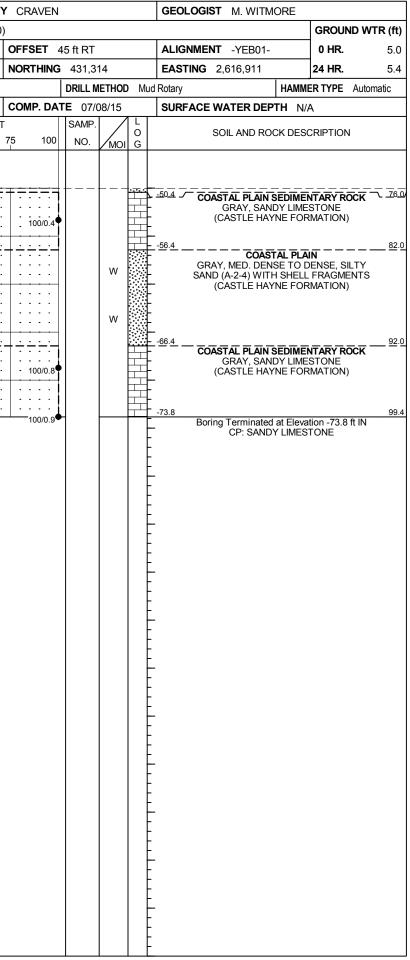
| WRS          | 45492        | 211           |      |       | т   | P R-{            | 5516     |                        |                | C            | OUNTY          | CRA   | VEN         |         |     |           |              | GEOLO      | GIST    | M W/IT                                  | MORE                       |       |         |            | WR           | <b>S</b> 45492          | 211           |       |       |          | <br>TIP ¤ | R-5516 |               | COU     | ΝΤΥ            |
|--------------|--------------|---------------|------|-------|-----|------------------|----------|------------------------|----------------|--------------|----------------|-------|-------------|---------|-----|-----------|--------------|------------|---------|---|----------------------------|-------|---------|------------|--------------|-------------------------|---------------|-------|-------|----------|-----------|--------|---------------|---------|----------------|
|              | DESCR        |               | RRIF |       |     |                  |          |                        | )\/FR          |              |                |       |             |         |     |           | [            | 01010      | 2.01    |   |                            | GF    |         | D WTR (ft) | -            |                         |               |       |       |          |           |        | 1- OVER       |         |                |
|              | ING NO.      |               |      |       |     |                  |          |                        |                | <b>-</b> - ( | 5570)          |       | <b>-T</b> 1 | 7 ft RT |     |           |              | ALIGNN     | IENT    | -YER01                                  |                            | _     | HR.     | 8.2        |              | RING NO.                |               |       |       |          |           | ION 32 |               | - (00   | <u>, , , ,</u> |
|              | LAR EL       |               |      |       | _   | OTAL             |          |                        |                | ft           |                |       |             | 431,3   |     |           |              | EASTIN     |         |   |                            | _     | HR.     | FIAD       |              | LAR EL                  |               |       |       |          |           |        | <b>H</b> 89.8 | ft      | +              |
|              | . RIG/HAN    |               |      |       |     |                  |          |                        |                |              |                | NOIT  |             | DRILL N |     | ח ח       |              |            | 0 2,0   | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | НАММ                       |       |         | Automatic  | -            |                         |               |       |       |          |           |        | 08/07/2014    |         |                |
|              |              |               |      |       |     | TART I           |          |                        |                | 15           |                | COMP  |             | E 07/   |     |           |              | SURFA      |         |   |                            |       | IFE .   | Automatic  | ┥┝───        |                         |               |       |       |          |           |        | 07/10/        |         |                |
|              |              |               |      | W CO  |     |                  |          |                        |                |              | R FOOT         |       |             | SAMP.   |     | ,<br>// L | .            | JUNFA      |         |   |                            | /A    |         |            | ┥┝───        | -                       |               |       | ow co |          |           |        | BLOWS         |         |                |
| ELEV<br>(ft) | ELEV<br>(ft) | DEPTH<br>(ft) |      | 0.5ft | 1   | 0                |          | 25                     |                | 50           |                |       | 100         | NO.     | M   | 0<br>0  G |              |            | SOI     | L AND R                                 | OCK DES                    | SCRIP | PTION   |            | ELEV<br>(ft) | / DRIVE<br>ELEV<br>(ft) | DEPTI<br>(ft) | 0.5ft | 0.5ft |          | t 0       | 2      | 25            | 50      | 7              |
|              | (11)         |               |      | 0.0.0 |     |                  |          | 1                      |                |              |                |       |             | 110.    |     |           |              | ELEV. (ft) |         |   |                            |       |         | DEPTH (f   | )            | (11)                    |               |       |       |          |           |        | Ĺ             | 1       |                |
|              |              |               |      |       |     |                  |          |                        |                |              |                |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         |               |       |       |          |           |        | Ma            | ch Line |                |
| 30           |              | <u>+</u>      |      |       |     |                  |          |                        |                |              |                |       |             |         |     |           |              | 29.0       |         |   | ND SURF                    |       |         | 0.         | -50          | +                       | ±             |       | 14    | 26       | ++        |        |               |         |                |
|              | 28.0         | 1.0           | 5    | 4     | 5   |                  | <br>a    | -                      | · · ·          |              | · · ·          |       |             |         | D   |           | Ł            |            |         |   | <b>Y EMBAN</b><br>⁼F, SAND |       |         | .)         |              |                         | ŧ             |       |       |          |           | · · ·  |               |         | <br>           |
| 25           | 25.4         | 3.6           | 1    | 1     | 1   |                  | · ·      | -                      |                | -            |                |       |             |         |     |           | $\pm^2$      | 26.0       |         |   | STAL PLA                   |       |         | 3.         | -55          | -54.6                   | 83.6          | 49    | 14    | 68       | _L:       |        | · · · ·       |         | <u>```</u>     |
|              | 22.9         | 6.1           |      |       | '   | <b>•</b> 2 .     |          | -                      |                | -   -        |                |       |             |         | W   |           |              | I          | BROWI   | N & GRA                                 | Y, SOFT,<br>(A-6)          | , SAN | DY CL   | AY         |              |                         | ł             | 49    | 14    | 00       | .         | · · ·  |               |         |                |
|              |              | + 0.1<br>+    | WOH  | 2     | 2   | <b>•</b> 4 ·     | • •      | -                      |                |              |                |       |             |         | w   |           | <b>1</b> 2   | 21.0       |         | (DUPLI                                  | N FORMA                    | TION  | 1)      | 8.         |              |                         | Ŧ             |       |       |          |           |        |               |         |                |
| 20           | 20.4         | 8.6           | 2    | 1     | 2   |                  |          |                        |                |              |                |       |             |         | W   |           | Ē            |            |         |   | STAL PLA                   |       |         |            | -60          | -59.6                   | + 88.6<br>+   | 13    | 26    | 74/0.3   | 2         |        |               |         |                |
|              |              | ŧ             |      |       |     | <b>▼</b> 3 .<br> | •••      | -                      |                |              |                |       |             |         |     |           | -            |            | SILTY S | SAND (A                                 | -2-4) WIT                  | 'H SH | IELL AI |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| 15           | 15.4         | + 13.6        |      |       |     | <u> </u> · · ·   |          | -                      |                | -            |                |       |             |         |     |           | 1            |            |         |   | NE FRAG<br>N FORMA         |       |         |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| 15           | - 10.4       | + 10.0        | 2    | 1     | 2   | <b>•</b> 3       |          | -                      |                |              |                | · · · |             |         | w   |           |              |            |         |   |                            |       |         |            |              | -                       | ŧ             |       |       |          |           |        |               |         |                |
|              |              | ‡             |      |       |     | <br>             |          | -                      | · · ·          |              |                | •••   |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | <b>‡</b>      |       |       |          |           |        |               |         |                |
| 10           | 10.4         | 18.6          | 2    | 2     | 2   | i··              |          | -                      |                | -            |                |       |             |         |     |           | Ł            |            |         |   |                            |       |         |            |              | -                       | ŧ             |       |       |          |           |        |               |         |                |
|              |              | ł             |      | 2     | 2   | <b>  ●</b> 4 .   | •••      | •                      |                | -            |                |       |             |         | W   |           |              |            |         |   |                            |       |         |            |              |                         | ł             |       |       |          |           |        |               |         |                |
|              |              | Ŧ             |      |       |     | []               |          | -                      |                |              |                |       |             |         |     |           | F            |            |         |   |                            |       |         |            |              |                         | Ŧ             |       |       |          |           |        |               |         |                |
| 5            | 5.4          | <u>† 23.6</u> | 1    | 2     | 2   |                  |          |                        |                |              |                |       |             |         | l w |           | Ē            |            |         |   |                            |       |         |            |              | -                       | Ŧ             |       |       |          |           |        |               |         |                |
|              |              | ŧ             |      |       |     |                  | •••      | -                      |                |              |                |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| 0            | 0.4          | +<br>+ 28.6   |      |       |     | <i> i</i> ::     |          | -                      |                | -            |                |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| 0            |              | +             | 1    | WOH   | WOH | •                |          | -                      |                |              |                |       |             |         | w   |           |              |            |         |   |                            |       |         |            |              | -                       | ŧ             |       |       |          |           |        |               |         |                |
|              |              | ŧ             |      |       |     | ::               | •••      | -                      |                |              |                |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| -5           | -4.6         | 33.6          | WOR  | WOR   | WOR |                  |          | -                      |                | -            |                |       |             |         |     |           | Ŀ            |            |         |   |                            |       |         |            |              | -                       | ŧ             |       |       |          |           |        |               |         |                |
|              |              | ŧ             | WUR  | WOR   | WOR | ••               | •••      | -                      |                |              | • • •          |       |             |         | W   |           |              |            |         |   |                            |       |         |            |              |                         | Ŧ             |       |       |          |           |        |               |         |                |
|              |              | ł             |      |       |     |                  | ``.      | -                      |                | -   -        |                |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | ł             |       |       |          |           |        |               |         |                |
| -10          | -9.6         | T 38.6        | 13   | 15    | 21  |                  |          |                        | ●36            |              |                | · · · |             |         | l w |           | F            |            |         |   |                            |       |         |            |              | -                       | Ŧ             |       |       |          |           |        |               |         |                |
|              |              | Ŧ             |      |       |     |                  | · ·      |                        | /              | -            | · · ·<br>· · · |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | Ŧ             |       |       |          |           |        |               |         |                |
| -15          | -14.6        | + 436         |      |       |     |                  |          |                        |                |              |                |       |             |         |     |           | -            |            |         |   |                            |       |         |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| -13          |              | -             | 18   | 14    | 10  | 1                |          | 24                     |                |              |                |       |             |         | w   |           |              |            |         |   |                            |       |         |            |              | -                       | ŧ             |       |       |          |           |        |               |         |                |
|              |              | <b>‡</b>      |      |       |     | ::               |          |                        | · · ·          |              | · · ·<br>· · · |       |             |         |     |           | ł            |            |         |   |                            |       |         |            |              |                         | ‡             |       |       |          |           |        |               |         |                |
| -20          | -19.6        | 48.6          | 4    | 6     | 10  |                  |          |                        |                |              |                |       |             |         | ,   |           | Ł            |            |         |   |                            |       |         |            |              | .                       | ‡             |       |       |          |           |        |               |         |                |
| 2            |              | ŧ             |      |       |     |                  | ●16<br>/ |                        | · · ·          |              | · · ·          |       |             |         | W   |           |              |            |         |   |                            |       |         |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| 2 25         |              | ±             |      |       |     |                  | 1        | -                      |                | -            |                |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| <u>-25</u>   | -24.6        | <u>  53.6</u> | 3    | 4     | 4   | 1   <i>i</i> -   | 3        |                        |                |              |                |       |             |         | w   |           | $\mathbf{F}$ |            |         |   |                            |       |         |            |              | -                       | Ŧ             |       |       |          |           |        |               |         |                |
|              |              | Ŧ             |      |       |     | .¦.              |          |                        | · · ·<br>· · · | -            | · · ·          |       |             |         |     |           | ļ            |            |         |   |                            |       |         |            |              |                         | Ŧ             |       |       |          |           |        |               |         |                |
| ≤<br>2 -30   | -29.6        | T<br>58 6     |      |       |     |                  |          |                        | · · ·<br>· · · |              |                |       |             |         |     |           | 1            |            |         |   |                            |       |         |            |              |                         | ŧ             |       |       |          |           |        |               |         |                |
| -            |              | ‡             | 4    | 2     | 3   | <b>•</b> 5.      |          | 1:                     |                | +            |                |       |             |         | w   |           |              |            |         |   |                            |       |         |            |              | -                       | ‡             |       |       |          |           |        |               |         |                |
| 5            |              | ‡             |      |       |     | ¦·               | : :      |                        | · · ·          |              | · · ·          |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | <b>‡</b>      |       |       |          |           |        |               |         |                |
| -35          | -34.6        | 63.6          | 3    | 2     | 3   |                  |          |                        |                |              |                |       |             |         |     |           | Ł            |            |         |   |                            |       |         |            |              |                         | t             |       |       |          |           |        |               |         |                |
|              |              | t             |      |       |     |                  |          |                        |                |              |                |       |             |         | W   |           |              |            |         |   |                            |       |         |            |              |                         | t             |       |       |          |           |        |               |         |                |
|              |              | Ŧ             |      |       |     | ¦.               |          | -                      |                | ·   -        |                |       |             |         |     |           | F            |            |         |   |                            |       |         |            |              |                         | Ŧ             |       |       |          |           |        |               |         |                |
| -40          | -39.6        | <u>† 68.6</u> | 3    | 2     | 4   |                  |          |                        |                |              |                |       |             |         | l w |           | -            |            |         |   |                            |       |         |            |              | -                       | Ŧ             |       |       |          |           |        |               |         |                |
|              |              | ‡             |      |       |     |                  | · ·      |                        | · · ·<br>· · · |              | · · ·          |       |             |         |     |           | 1            |            |         |   |                            |       |         |            |              |                         | ‡             |       |       |          |           |        |               |         |                |
| 45           | -44.6        | + 73 6        |      |       |     |                  |          |                        | · · ·          |              | :::            |       |             |         |     |           | 4            |            |         |   |                            |       |         |            |              |                         | ‡             |       |       |          |           |        |               |         |                |
| u -45<br>Ľ   | -++.0        | + '           | 2    | 4     | 5   | 1                | 9        |                        |                | +:           |                |       |             |         | w   |           |              |            |         |   |                            |       |         |            |              | -                       | <b>†</b>      |       |       |          |           |        |               |         |                |
|              |              | t             |      |       |     | ::               | <u>}</u> |                        | · · ·          | .   -        | : : :          |       |             |         |     |           | ł            |            |         |   |                            |       |         |            |              |                         | t             |       |       |          |           |        |               |         |                |
| -50          | -49.6        | 78.6          |      |       |     |                  |          | $\left  \right\rangle$ | <u> </u>       |              |                |       |             |         |     |           |              |            |         |   |                            |       |         |            |              |                         | ł             |       |       |          |           |        |               |         |                |
|              |              | -             |      |       |     | • • • • • •      |          |                        |                |              |                |       |             | •       | •   | 10 0 0    | <u> </u>     |            |         |   |                            |       |         |            |              |                         | <u> </u>      | •     | •     | <u> </u> |           |        |               |         |                |



| WRS          | 45492   | 211           |      |              | т        | IP R-5        | 5516         |            |            |          | Y CRAVE    | -N           |            |      |             | GEOLOGIST M. WITM                |                           |                    | WP                                    | <b>4</b> 5492 | 11            |            |        | т    | <b>P</b> R-5516 |           | COUNTY         |
|--------------|---------|---------------|------|--------------|----------|---------------|--------------|------------|------------|----------|------------|--------------|------------|------|-------------|----------------------------------|---------------------------|--------------------|---------------------------------------|---------------|---------------|------------|--------|------|-----------------|-----------|----------------|
|              |         |               | יסק  |              |          |               |              | 1 0\/      |            | - (US 70 |            | _1N          |            |      |             |                                  | URE                       | GROUND WTR (ft)    |                                       |               |               | ייסק       |        |      | ON -YEB0        |           |                |
|              |         | EB2-/         |      |              |          |               |              |            | _r\ -L     | - (0370  |            | 17 4 1       | . <u>т</u> |      |             | ALIGNMENT -YEB01-                |                           | <b>0 HR.</b> 8.2   |                                       | ING NO.       |               |            |        |      | TATION 3        |           |                |
|              |         |               |      |              |          |               |              |            | 0.4        |          |            |              |            | 4    |             |                                  |                           | -                  |                                       |               |               |            |        |      |                 |           |                |
|              |         | EV. 27        |      | <b>F</b> M45 |          |               |              |            |            |          | NORTHI     | - 1          | ,          |      |             | EASTING 2,616,929                |                           | <b>24 HR.</b> 6.6  |                                       |               |               |            |        |      |                 |           |                |
|              |         |               |      | E MID        |          |               |              |            |            |          | 0040       |              |            |      | <b>v</b> Mu |                                  |                           | IER TYPE Automatic | · · · · · · · · · · · · · · · · · · · |               |               |            | E MID  |      | ME-45C 83%      |           |                |
|              |         | 1. COO(       |      |              |          |               | DATE         |            |            |          |            |              |            | 3/15 | 1 1 1       |                                  | 'IH N/                    | /A                 |                                       |               |               | 1          |        |      |                 |           |                |
| ELEV<br>(ft) |         | DEPTH<br>(ft) |      |              | 0.5ft    | 0             |              | BLO<br>25  | wsp<br>5   | ER FOO   |            | SAN<br>00 NO | _          |      | Ō           | SOIL AND RO                      | CK DES                    |                    | ELEV<br>(ft)                          | ELEV          | DEPTH<br>(ft) | ' <b> </b> | 0.5ft  |      | 0               |           | PER FOOT<br>50 |
| ()           | (ft)    | (14)          | 0.51 | 0.51         | 0.51     |               | 2            | 1          | 5          | 0        |            |              | <u> </u>   | MOI  | G           | ELEV. (ft)                       |                           | DEPTH (ft)         | (14)                                  | (ft)          | (14)          | 0.51       | 0.51   | 0.51 |                 | 20 (      |                |
|              |         |               |      |              |          |               |              |            |            |          |            |              |            |      |             |                                  |                           |                    |                                       |               |               |            |        |      |                 | •••       |                |
| 30           |         | -             |      |              |          |               |              |            |            |          |            |              |            |      |             |                                  |                           |                    | <u>50</u> _                           | -50.5         | 78.3          | 5          | 29     |      |                 | Matc      | h Line         |
|              | 26.8    | - 1.0         |      |              |          |               |              |            |            |          |            |              |            |      |             | 27.8 GROUN                       | d surf<br><b>Tal pl</b> a |                    |                                       | -             | Ł             |            | 20     |      |                 | . 936     |                |
| 25           |         | ÷             | 2    | 3            | 2        | <b>6</b> 5-   | • •          |            | • •        |          |            |              |            | D    |             | BROWN, SOFT T                    |                           | STIFF, SANDY       | -55                                   | -             | F             |            |        |      |                 | 1.1.      | +              |
|              | 24.5    | + 3.3<br>+    | 3    | 2            | 2        | <b>i</b> 4 ·  | •••          |            |            |          |            |              |            | W    |             | DUPLIN                           |                           |                    |                                       | -56.1         | 83.9          | 60/0.1     | -      |      |                 |           |                |
|              | 22.0    | 5.8           | 3    | 4            | 5        | l X.          | •••          |            | · ·<br>· · |          |            | -            |            |      |             |                                  |                           | AIN                |                                       | -             | ŧ             |            |        |      |                 |           |                |
| 20           | 19.5 -  | + 8.3         |      |              |          | _¶            | y            |            |            |          |            |              |            | -    |             | BROWN & GRAY,<br>SILTY SAND (A-2 | -4) WITI                  | H SHELL AND        | -60                                   | -60.5 -       | 88.3          |            |        |      |                 | + • • • • |                |
|              |         | ‡             | 2    | 6            | 7        | ::}           | <b>1</b> 3   | · ·        | · ·<br>· · |          |            | :            |            | W    |             | LIMESTON                         |                           |                    |                                       | -             | ‡             | 60/0.0     |        |      |                 | · · · ·   |                |
| 45           |         | ‡             |      |              |          |               | 1            |            | ::         |          |            |              |            |      |             | ÷<br>÷                           |                           |                    | 0.5                                   | -             | ŧ             |            |        |      |                 |           |                |
| 15           | 14.5 -  | 13.3          | 2    | 5            | 7        |               | <u>i: :</u>  |            |            |          |            |              |            | w    |             | <u> -</u><br> -                  |                           |                    | -65                                   | -65.5 -       | 93.3          | 28         | 28     | 38   |                 |           |                |
|              |         | ŧ             | -    |              | .        |               | • <u>1</u> 2 | · ·        |            |          |            |              |            | vV   |             | -                                |                           |                    |                                       | -             | ŧ             | _          |        |      |                 |           | ●66            |
| 10           | 0.5     | ±             |      |              |          |               |              | <u> </u>   |            |          |            | ·            |            |      |             | <u>}</u>                         |                           |                    | -70                                   | 70 -          |               |            |        |      |                 |           |                |
|              | 9.5     | + 18.3<br>+   | 4    | 4            | 6        | 1             | 10           |            |            |          |            | • ] [        |            | w    |             | -<br>-                           |                           |                    |                                       | -70.5         | 98.3          | 74         | 26/0.1 |      |                 |           |                |
|              |         | Ŧ             |      |              |          | :/.           | · ·          |            | · ·<br>· · |          |            |              |            |      |             | r<br>F                           |                           |                    |                                       | -             | Ŧ             |            |        |      |                 |           |                |
| 5            | 4.5 -   | + 23.3        |      |              |          | <i>-'</i> -'  | <br>         |            |            |          |            |              |            |      |             | <del>-</del>                     |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | ‡             | 1    | 1            | 2        | <b>6</b> 3 :  | · ·<br>· ·   |            | · ·<br>· · |          |            |              |            | W    |             | <b>†</b>                         |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | ‡             |      |              |          | <u>\</u> :    | : :          | 2.1        | ::         |          |            | :            |            |      |             | }_<br>₽                          |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| 0            | -0.5    | 28.3          | 8    | 6            | 6        | 1.            |              |            | ::         |          |            |              |            | w    |             | <u> </u>                         |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | t             | ľ    |              | Ĭ        |               | 12           | •••        | : :        |          |            |              |            | v٧   |             |                                  |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| -5           |         | +             |      |              |          |               |              | <u> </u>   |            |          |            | ·            |            |      |             |                                  |                           |                    |                                       | -             | Ł             |            |        |      |                 |           |                |
|              | -5.5    | + 33.3<br>+   | 8    | 7            | 6        |               | <b>€</b> 13  |            |            |          |            | -            |            | W    |             | -                                |                           |                    |                                       | -             | F             |            |        |      |                 |           |                |
|              |         | Ŧ             |      |              |          |               | <u>۱</u>     |            | · ·<br>· · |          |            |              |            |      |             |                                  |                           |                    |                                       | -             | Ŧ             |            |        |      |                 |           |                |
| -10          | -10.5 - | + 38.3        |      |              |          |               | ,            |            |            |          |            |              |            |      |             | F                                |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | ‡             | 14   | 13           | 12       | ] ::          | ::)          | 25         | · ·<br>· · |          |            | :            |            | W    |             | <del> </del>                     |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| 45           |         | ‡             |      |              |          | ::            | • /          | : :        |            |          |            |              |            |      |             | ₽<br>₽                           |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| -15          | -15.5 - | 43.3          | 7    | 7            | 8        |               |              |            |            |          |            |              |            | w    |             | <u>}</u>                         |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | t             |      | 1            |          | ::            | ●15<br>/     |            |            |          |            |              |            | vV   |             | -                                |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| -20          | 00 F    | ±             |      |              |          | $    \cdot  $ | /            |            |            |          |            |              |            |      |             | -                                |                           |                    |                                       | -             | Ł             |            |        |      |                 |           |                |
|              | -20.5   | + 48.3<br>T   | 3    | 3            | 4        |               | · ·          |            | • •        |          |            |              |            | w    |             | }                                |                           |                    |                                       | -             | F             |            |        |      |                 |           |                |
| 25           |         | Ŧ             |      |              |          | . .           | •••          | · ·<br>· · |            |          |            | -            |            |      |             | T<br>T                           |                           |                    |                                       |               | F             |            |        |      |                 |           |                |
|              | -25.5 - | 53.3          |      |              | <u> </u> |               |              |            |            |          | . <b> </b> |              |            |      |             | <del>,</del>                     |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | ‡             | 3    | 4            | 4        | :•            | 3            | •••        |            | · · · ·  |            | -            |            | W    |             |                                  |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | ‡             |      |              |          | : .'          | \.<br>.\.    |            |            |          |            |              |            |      |             | <u>+</u>                         |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| -30          | -30.5 - | + 58.3<br>+   | 15   | 16           | 10       |               |              |            |            |          |            | .            |            | w    |             | <u>}</u><br>                     |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| -35          |         | <b>‡</b>      |      |              |          | ::            | 17           | <b>2</b> 6 | · ·        |          |            |              |            | vV   |             | +                                |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| -35          | 255     | +             |      |              |          |               | ./.          |            |            |          |            |              |            |      |             | -                                |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              | -35.5   | + 63.3<br>    | 3    | 3            | 7        | 1             | 10           |            | • •        |          |            | ·            |            | W    |             |                                  |                           |                    |                                       | -             | ł             |            |        |      |                 |           |                |
|              |         | Ŧ             |      |              |          | - f.          | •••          | · ·<br>· · |            |          |            | -            |            |      |             | F                                |                           |                    |                                       |               | F             |            |        |      |                 |           |                |
| -40          | -40.5 - | + 68.3        |      |              |          | - <i>¦</i> -  |              |            |            |          | . <b> </b> |              |            |      |             | F<br>                            |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | ‡             | 3    | 3            | 3        | <b>•</b> 6    | · ·<br>· ·   | •••        |            | · · · ·  |            |              |            | W    |             |                                  |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
|              |         | ‡             |      |              |          | -  -          | · ·<br>· ·   |            | · · ·      |          |            |              |            |      |             | ₽<br>₽                           |                           |                    |                                       | -             | ‡             |            |        |      |                 |           |                |
| -45          | -45.5 - | 73.3          | 3    | 2            | 6        |               |              |            |            |          |            |              |            | w    |             | <u>}_</u>                        |                           |                    |                                       |               | ŧ             |            |        |      |                 |           |                |
| 5            |         | ŧ             | ľ    | -            | Ĩ        |               |              | · ·        |            |          |            |              |            | vV   |             | -                                |                           |                    |                                       | -             | ŧ             |            |        |      |                 |           |                |
| -50          |         | ł             |      |              |          | • •           | .``          |            |            |          | -          | -            |            |      |             | }                                |                           |                    |                                       | -             | ╞             |            |        |      |                 |           |                |
|              | -       | *             |      | •            |          | • • • • •     |              | · • • • •  |            |          |            |              |            |      | ا •فتمع     | <u>-</u>                         |                           |                    | •                                     |               | -             | •          |        |      |                 |           |                |



| WPC                | 45492                 | 011               |      |        | т    | <b>IP</b> R-5516                      | CO1                        | NTY CRAV                              |          |     |  | GEOLOGIST M. WITMORE                     |                              | WES          | 45492                 | 1 1           |           |        | Ти   | <b>P</b> R-5516 |           | COUN        |         |
|--------------------|-----------------------|-------------------|------|--------|------|---------------------------------------|----------------------------|---------------------------------------|----------|-----|--|--|------------------------------|--------------|-----------------------|---------------|-----------|--------|------|-----------------|-----------|-------------|---------|
|                    |                       |                   | ייסס |        |      |                                       |                            |                                       | _IN      |     |  |  |                              |              |                       |               |           |        |      |                 |           |             |         |
|                    |                       |                   |      | JGE N( |      | ON -YEB01- O                          |                            |                                       | 45 ft RT | -   |  | ALIGNMENT -YEB01-                        | GROUND WTR (ft)<br>0 HR. 5.0 |              |                       |               |           |        |      | ON -YEBO        |           | - (057      | -í-     |
|                    | NG NO.                |                   |      |        | _    |                                       |                            |                                       |          |     |  |  | _                            |              | NG NO.                |               |           |        | _    | ATION 33        |           |             | 4       |
|                    |                       |                   |      |        |      |                                       |                            |                                       | NG 431,3 |     | <u> </u>                               | EASTING 2,616,911                        | <b>24 HR.</b> 5.4            |              |                       |               |           | - 1400 |      |                 |           |             | 1       |
|                    |                       |                   |      | E MID  |      | ME-45C 83% 08/07                      |                            | 0045                                  |          |     |  | · · · · · · · · · · · · · · · · · · ·    | MER TYPE Automatic           |              |                       |               |           | = MID3 |      | ME-45C 83% (    |           | _           |         |
|                    | LER M                 |                   |      | W COL  |      | TART DATE 0                           | -OWS PER F                 |                                       | DATE 07  |     | 11                                     | SURFACE WATER DEPTH                      | N/A                          |              | LER M                 |               | 1         | W COU  |      |                 | BLOWS F   |             |         |
| ELEV<br>(ft)       | DRIVE<br>ELEV<br>(ft) | DEPTH<br>(ft)     |      | 0.5ft  |      | 4                                     | 50 50                      |                                       | 00 NO.   |     | 0                                      | SOIL AND ROCK DE                         |                              | ELEV<br>(ft) | DRIVE<br>ELEV<br>(ft) | DEPT⊦<br>(ft) | ' <b></b> | 0.5ft  |      | 0 2             |           | 2ER FOC     | וכ<br>7 |
|                    | (11)                  |                   | 0.51 | 0.011  | 0.51 |                                       |                            |                                       |          |     | I G                                    | ELEV. (ft)                               | DEPTH (ft)                   | . ,          | (11)                  | ( )           | 0.51      | 0.511  | 0.51 | +               |           |             |         |
|                    |                       |                   |      |        |      |                                       |                            |                                       |          |     |  |  |                              |              |                       |               |           |        |      |                 | NA-4-(    |             |         |
| 30                 |                       | ŧ                 |      |        |      |                                       |                            |                                       |          |     |  | -  |                              | 50           | ·                     |               |           |        | +    |                 |           |             | ΞŦ      |
|                    | -                     | ŧ                 |      |        |      |                                       |                            |                                       |          |     |  |  |                              |              | -52.9                 | 78.5          |           |        |      |                 |           |             |         |
| 25                 | 24.6                  |                   |      |        |      |                                       |                            |                                       |          | _   |  | - GROUND SUR                             |                              | -55          | -                     | Ł             | 100/0.4   |        |      |                 |           |             | •       |
|                    | 24.6 -                | T 1.0             | 6    | 6      | 5    | • • 11 •                              |                            |                                       |          | м   |  | BROWN, STIFF, SAND                       | DY CLAY (A-6)                |              | -                     | F             |           |        |      |                 | · · · · · | <u> </u>    |         |
|                    | 22.1                  | 3.5               | 3    | 5      | 7    |                                       |                            |                                       | -        |     | <u> </u>                               | COASTAL PL                               |                              |              | -57.9                 | 83.5          | 16        | 16     | 23   |                 |           |             |         |
| 20                 | 19.6 -                | 6.0               |      | 10     |      |                                       |                            |                                       |          |     | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | BROWN, MED. DENSE,<br>(A-2-6)            |                              | -60          | -                     | F             |           |        |      |                 | • 39      |             |         |
|                    | -<br>17.1             | +<br>-<br>8.5     | 5    | 10     | 9    | 19                                    | · · · · · · ·              | · · · · · · · ·                       | .        | W   | /./                                    | (DUPLIN FORM                             | ,<br>8.0                     |              | -62.9                 | 88.5          |           |        |      |                 |           |             |         |
| 15                 |                       | - 0.0             | 4    | 2      | 5    | • • • • • • • • • • • • • • • • • • • | · · ·   · ·                | · · · · · · · ·                       |          | w   |  | BROWN, LOOSE TO MEL                      |                              | 6E           | -02.9                 |               | 4         | 6      | 10   |                 |           |             | :       |
| 15                 | -                     | ‡                 |      |        |      | <u> </u>                              |                            |                                       | -        |     |  | - SAND (A-2-4) WITH SHEI<br>(DUPLIN FORM |                              | -65          | -                     | -             |           |        |      |                 | <u> </u>  |             | -       |
|                    | 12.1                  | 13.5              |      |        |      |                                       | · · ·   · ·                |                                       |          |     |  |  |                              |              | -67.9                 | 93.5          |           | 25/0.0 |      |                 |           | <del></del> |         |
| 10                 |                       | t                 | 4    | 6      | 6    | <b>\$</b> 12                          |                            |                                       |          | W   |  | _  |                              | -70          |                       | Ł             | 65        | 35/0.3 |      | · · · ·         | · · · ·   |             |         |
|                    | -                     | ŧ                 |      |        |      | :/::: :                               | · · ·   · ·                | · · · · · ·                           |          |     |  |  |                              |              | -                     |               |           |        |      |                 |           |             |         |
|                    | 7.1                   | 18.5              | 2    | 1      | 3    |                                       |                            |                                       | -        | l w |  |  |                              |              | -72.9                 | 98.5          | 70        | 30/0.4 |      |                 |           |             |         |
| 5                  | _                     | Ŧ                 |      |        |      |                                       |                            |                                       |          |     |  | -<br>-                                   |                              |              | _                     | F             |           |        |      |                 |           |             |         |
|                    | 21                    | 23.5              |      |        |      |                                       |                            |                                       |          |     |  |  |                              |              | -                     | F             |           |        |      |                 |           |             |         |
| 0                  |                       | + 20.0            | 2    | 2      | 2    |                                       | · · · · · · ·              | · · · · · · · ·                       |          | w   |  |  |                              |              | -                     | -             |           |        |      |                 |           |             |         |
| 0                  |                       | ŧ                 |      |        |      | <u> </u>                              |                            |                                       | -        |     |  | -  |                              |              | -                     | -             |           |        |      |                 |           |             |         |
|                    | -2.9                  | 28.5              | 6    | 6      | 8    | . \   .<br> \   .                     | · · ·   · ·                | · · · · · · · · · · · · · · · · · · · |          |     |  |  |                              |              | -                     | -             |           |        |      |                 |           |             |         |
| -5                 | -                     | ŧ                 |      | 0      | 0    | •14 -                                 |                            |                                       | -        | W   |  | <del>_</del>                             |                              |              | -                     | -             |           |        |      |                 |           |             |         |
|                    | -                     | ŧ                 |      |        |      |                                       | · · ·   · ·                | · · · · · ·                           |          |     |  |  |                              |              | -                     |               |           |        |      |                 |           |             |         |
|                    | -7.9                  | 33.5              | 7    | 8      | 7    | 1 <b>l</b>                            |                            | · · · · · ·                           |          | w   |  |  |                              |              | _                     |               |           |        |      |                 |           |             |         |
| -10                | _                     | ł                 |      |        |      |                                       |                            |                                       |          |     |  | _  |                              |              | _                     | -             |           |        |      |                 |           |             |         |
|                    | -12.9                 | T<br>38.5         |      |        |      |                                       |                            |                                       |          |     |  |  |                              |              | -                     | F             |           |        |      |                 |           |             |         |
| -15                | -                     | Ŧ                 | 8    | 8      | 7    | 15 -                                  |                            |                                       | -        | w   |  |  |                              |              | -                     | -             |           |        |      |                 |           |             |         |
|                    | -                     | Ŧ                 |      |        |      |                                       |                            |                                       | •        |     |  | -<br>- <u>-16.4</u>                      | 42.0                         |              | -                     | F             |           |        |      |                 |           |             |         |
|                    | -17.9                 | 43.5              | 4    | 6      | 4    |                                       | · · ·   · ·<br>· · ·   · · | · · · · · · · ·                       |          | l w |  | GRAY, STIFF, SANDY C                     | LAY (A-6) WITH               |              | -                     | F             |           |        |      |                 |           |             |         |
| -20                | -                     | ŧ                 |      | Ŭ      | -    |                                       |                            |                                       |          |     |  | SHELL FRAGM                              | ATION)                       |              | -                     | È             |           |        |      |                 |           |             |         |
| 15                 |                       | ‡                 |      |        |      |                                       | · · ·   · ·                | · · · · · · · ·                       | ·        |     |  |  | 47.0                         |              | -                     | È.            |           |        |      |                 |           |             |         |
| <u>91//1/6</u> _25 | -22.9                 | 48.5              | 3    | 4      | 4    |                                       |                            | · · · · · · · · ·                     | -        | w   |  | GRAY, LOOSE TO MED.<br>SAND (A-2-        | . DENSE, SILTY               |              | -                     | F             |           |        |      |                 |           |             |         |
| <u>-25</u>         |                       | ŧ                 |      |        |      |                                       |                            |                                       |          |     |  | - (DUPLIN FORM                           |                              |              | -                     | F             |           |        |      |                 |           |             |         |
| -22<br>-22         | -27.9                 | 53.5              |      | _      |      |                                       |                            |                                       | :        |     |  |  |                              |              |                       | F             |           |        |      |                 |           |             |         |
|                    | -                     | Ŧ                 | 4    | 5      | 5    | 10                                    |                            |                                       | -        | W   |  | _  |                              |              | -                     | Ł             |           |        |      |                 |           |             |         |
|                    | -                     | Ŧ                 |      |        |      |                                       |                            |                                       | ·        |     |  | -  |                              |              | -                     | F             |           |        |      |                 |           |             |         |
|                    | -32.9                 | 58.5              | 3    | 5      | 9    |                                       | · · · · · · ·              | · · · · · · · ·                       |          | l w |  |  |                              |              | -                     | F             |           |        |      |                 |           |             |         |
| 품 <u>-35</u>       | -                     | ŧ                 |      |        |      |                                       |                            |                                       |          |     |  | _  |                              |              | -                     | F             |           |        |      |                 |           |             |         |
| CEC                | -37.9                 | +<br>-<br>63.5    |      |        |      |                                       |                            | · · · · · · · ·                       | :        |     |  |  |                              |              | -                     | ļ.            |           |        |      |                 |           |             |         |
| 5516<br>5          | -37.9                 | + <sup>03.5</sup> | 3    | 6      | 5    |                                       |                            | · · · · · · · ·                       | :        | w   |  |  |                              |              |                       | -             |           |        |      |                 |           |             |         |
|                    |                       | ‡                 |      |        |      |                                       |                            |                                       |          |     |  | -  |                              |              | -                     | F             |           |        |      |                 |           |             |         |
| JUBL               | -42.9                 | 68.5              |      |        | 4    |                                       | · · ·   · ·                | · · · · · · · ·                       |          |     |  |  |                              |              | -                     | F             |           |        |      |                 |           |             |         |
| -45                | -                     | ŧ                 | 2    | 3      | 4    | <b>•</b> 7 • • •                      |                            |                                       | ·        | W   |  | _  |                              |              |                       | F             |           |        |      |                 |           |             |         |
| BOR                | -                     | t                 |      |        |      |                                       |                            |                                       | :        |     |  |  |                              |              | -                     | Ł             |           |        |      |                 |           |             |         |
| JCDOJ<br>-50       | -47.9                 | 73.5              | 3    | 3      | 4    |                                       |                            |                                       | -        | W   |  |  |                              |              | -                     | Ł             |           |        |      |                 |           |             |         |
| Öz -50             | -                     | Ι                 |      |        |      |                                       |                            |                                       |          |     |  |  |                              |              |                       | [             | 1         |        |      |                 |           |             |         |



|          |        |         |            |              | SOL     | L $'$ | TES.        | ST R   | ESUI   | LTS  |      |      |         |
|----------|--------|---------|------------|--------------|---------|-------|-------------|--------|--------|------|------|------|---------|
| SAMPLE   | OFFSET | STATION | ALIGNMENT  | DEPTH        | AASHTO  | L.L.  | <i>P.I.</i> |        | % BY   | 1    |      |      | SING (S |
| NO.      |        |         |            | INTERVAL     | CLASS.  |       |             | C.SAND | F.SAND | SILT | CLAY | 10   | 40      |
| SS- 457  | 5′ LT  | 32+28   | - Y EBO 1- | 3. 3- 4. 8   | A- 6    | 39    | 23          | 9.7    | 40.5   | 10.9 | 38.9 | 96.2 | 96.9    |
| SS- 46 1 | 5′ LT  | 32+28   | - Y EBO 1- | 18. 3- 19. 8 | A- 2- 4 | -     | -           | 62.8   | 32.8   | 1.4  | 3.0  | 99.7 | 79.6    |
| SS- 468  | 5′ LT  | 32+28   | - Y EBO 1- | 53. 3- 54. 8 | A- 2- 4 | 30    | 7           | 21.2   | 63.3   | 6.0  | 9.5  | 99.0 | 90.8    |

TESTED BY: Michael D. Sm NCDOT NO.: 129-03-0411

|                       |               | PROJECT REFE | ERENCE NO. | SHEET |
|-----------------------|---------------|--------------|------------|-------|
|                       |               | R-55         | 16         | 17    |
|                       | _             |              |            |       |
|                       |               |              |            |       |
|                       | ~             | ~            |            |       |
| <u>SIEVES)</u><br>200 | %<br>MOISTURE | %<br>ORGANIC |            |       |
| 51.2                  | 24. 9         | -            |            |       |
| 5.2                   | 19.3          | _            |            |       |
| 21.0                  | 32.8          | -            |            |       |
|                       |               |              |            |       |
|                       |               |              |            |       |
|                       |               |              |            |       |
|                       |               |              |            |       |
|                       |               |              |            |       |
|                       |               |              |            |       |