REFERENCE: R-3300B

PROJECT: 40237

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3300B	1	44

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY *PENDER*

PROJECT DESCRIPTION *NC 417 (HAMPSTEAD BYPASS) FROM SOUTH OF NC 210 TO US-17 NORTH OF HAMPSTEAD*

SITE DESCRIPTION *NOISE WALLS 9&11 AND 10*

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CAUTION NOTICE

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

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NOTES:
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2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

CATLIN PERSONNEL

INVESTIGATED BY *S. V. HUDSON, LG*

DRAWN BY *S. V. HUDSON, LG*

CHECKED BY *J. L. STONE, LG*

SUBMITTED BY *S. V. HUDSON, LG*

DATE *MARCH 2020*

CATLIN
Engineers and Scientists
Wilmington, NC - Washington, NC - Raleigh, NC

NORTH CAROLINA LICENSED SEAL 1583 GEOLOGIST STEVEN V HUDSON

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3/31/2020
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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5, A-7-6			
SYMBOL														
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL	
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	> 10%	> 20%	HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / DPT / DMT / VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING WITH CORE
- SPT N-VALUE

RECOMMENDATION SYMBOLS

- UNDERCUT
- SHALLOW UNDERCUT
- UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE
- UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK
- UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [X] CME-45B
- [X] CME-55
- [X] D-25
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] CPT RIG
- [ ] _____

ADVANCING TOOLS:
- [X] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B _____ [ ] -H _____
- [ ] -N _____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FOOT
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

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 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 USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: Survey Grade GPS

ELEVATION: FEET

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING

U.C.P. = UNDIVIDED COASTAL PLAIN

APPROXIMATE LIMITS OF ORGANIC SOILS

DATE: 8-15-14

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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	3

RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

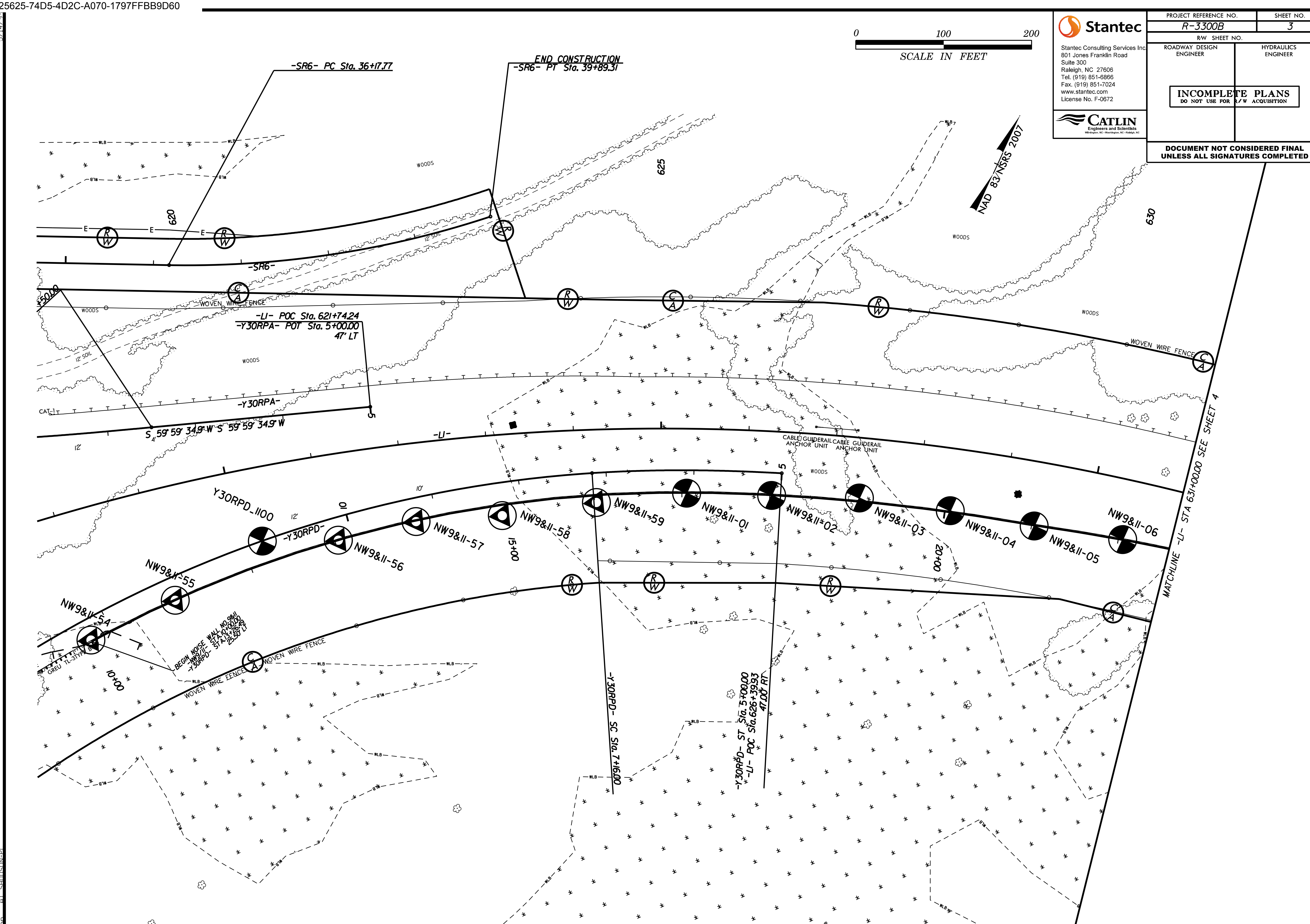
Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

CATLIN Engineers and Scientists

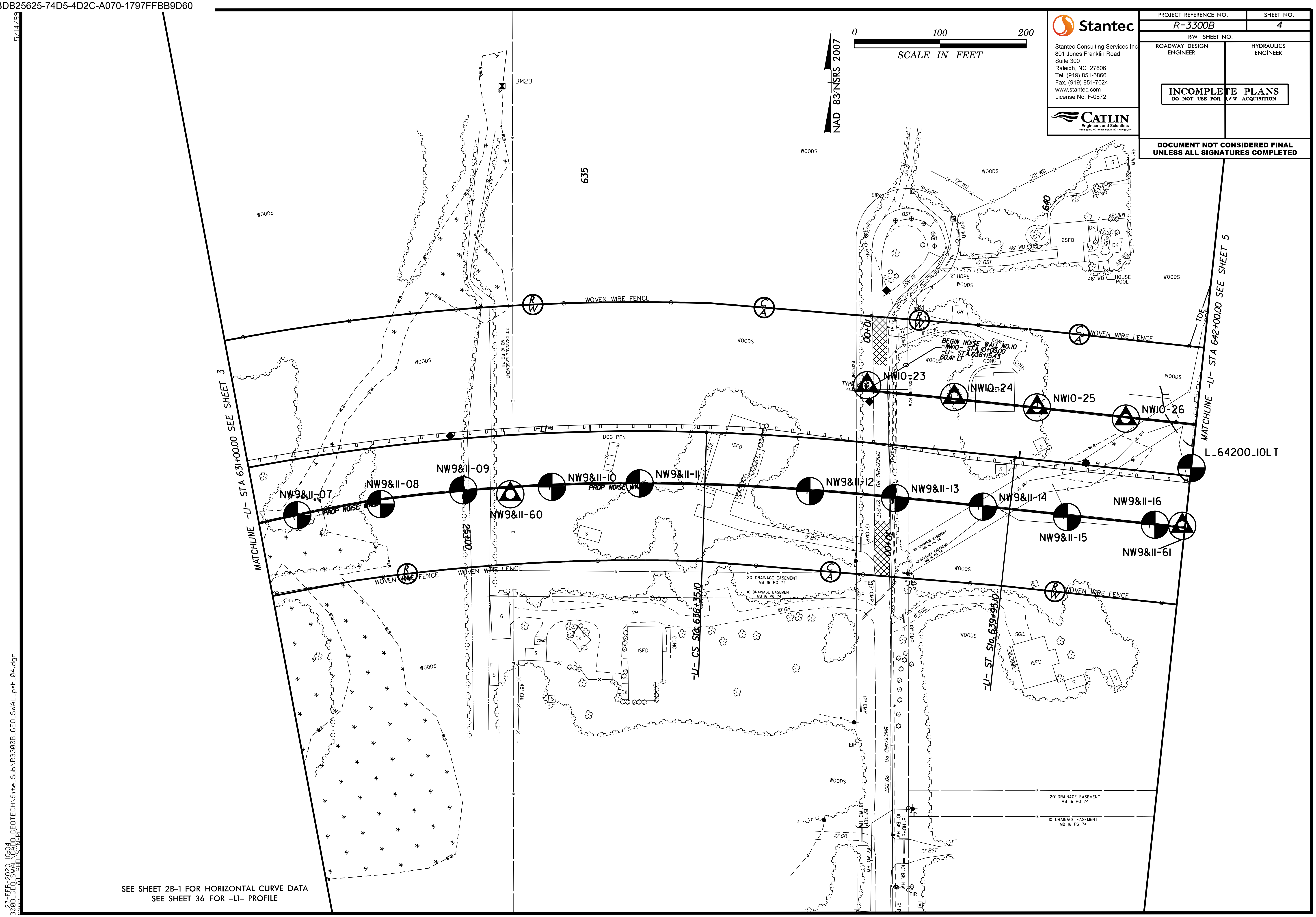
0 100 200
SCALE IN FEET

NAD 83/NSRS 2007



-SR6- PC Sta. 36+17.77
END CONSTRUCTION
-SR6- PT Sta. 39+89.31
-SR6-
-LI- POC Sta. 621+74.24
-Y30RPA- POT Sta. 5+00.00
47' LT
-Y30RPA-
S 59° 59' 34.9" W S 59° 59' 34.9" W
-LI-
-Y30RPD-
Y30RPD_1100
NW9&11-54
NW9&11-55
NW9&11-56
NW9&11-57
NW9&11-58
NW9&11-59
NW9&11-01
NW9&11-02
NW9&11-03
NW9&11-04
NW9&11-05
NW9&11-06
WOVEN WIRE FENCE
WOODS
CABLE GUIDERAIL ANCHOR UNIT
BEGIN NOISE WALL NO. 9&11
-Y30RPD- SC Sta. 7+16.00
-Y30RPD- ST Sta. 5+00.00
-LI- POC Sta. 626+39.93
47.00' RT
MATCHLINE -LI- STA 631+00.00 SEE SHEET 4
620
625
630
10+00
15+00
20+00

27-FEB-2020 10:03


PROJECT REFERENCE NO.
R-3300B
SHEET NO.
4
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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CATLIN
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0
100
200
SCALE IN FEET
NAD 83/NSRS 2007
5/14/99
BM23
635
640
WOODS
WOVEN WIRE FENCE
MATCHLINE -L1- STA 631+00.00 SEE SHEET 3
MATCHLINE -L1- STA 642+00.00 SEE SHEET 5
BEGIN NOISE WALL NO.10
-NW10- STA 10+00.00
-L1- STA 638+15.43
60.41' LT
NW10-23
NW10-24
NW10-25
NW10-26
L_64200_10LT
NW9&11-07
NW9&11-08
NW9&11-09
NW9&11-10
NW9&11-11
NW9&11-12
NW9&11-13
NW9&11-14
NW9&11-15
NW9&11-16
NW9&11-60
NW9&11-61
PROP NOISE WALL
DOG PEN
1SFD
2SFD
HOUSE POOL
BRICKYARD RD
20' BST
10+00
25+00
30+00
-L1- CS Sta 636+35.10
-L1- ST Sta 639+95.10
20' DRAINAGE EASEMENT MB 16 PG 74
10' DRAINAGE EASEMENT MB 16 PG 74
30' DRAINAGE EASEMENT
27-FEB-2020 10:04
R3300B_GEO_SWAL_psh_04.dgn

SEE SHEET 2B-1 FOR HORIZONTAL CURVE DATA
SEE SHEET 36 FOR -L1- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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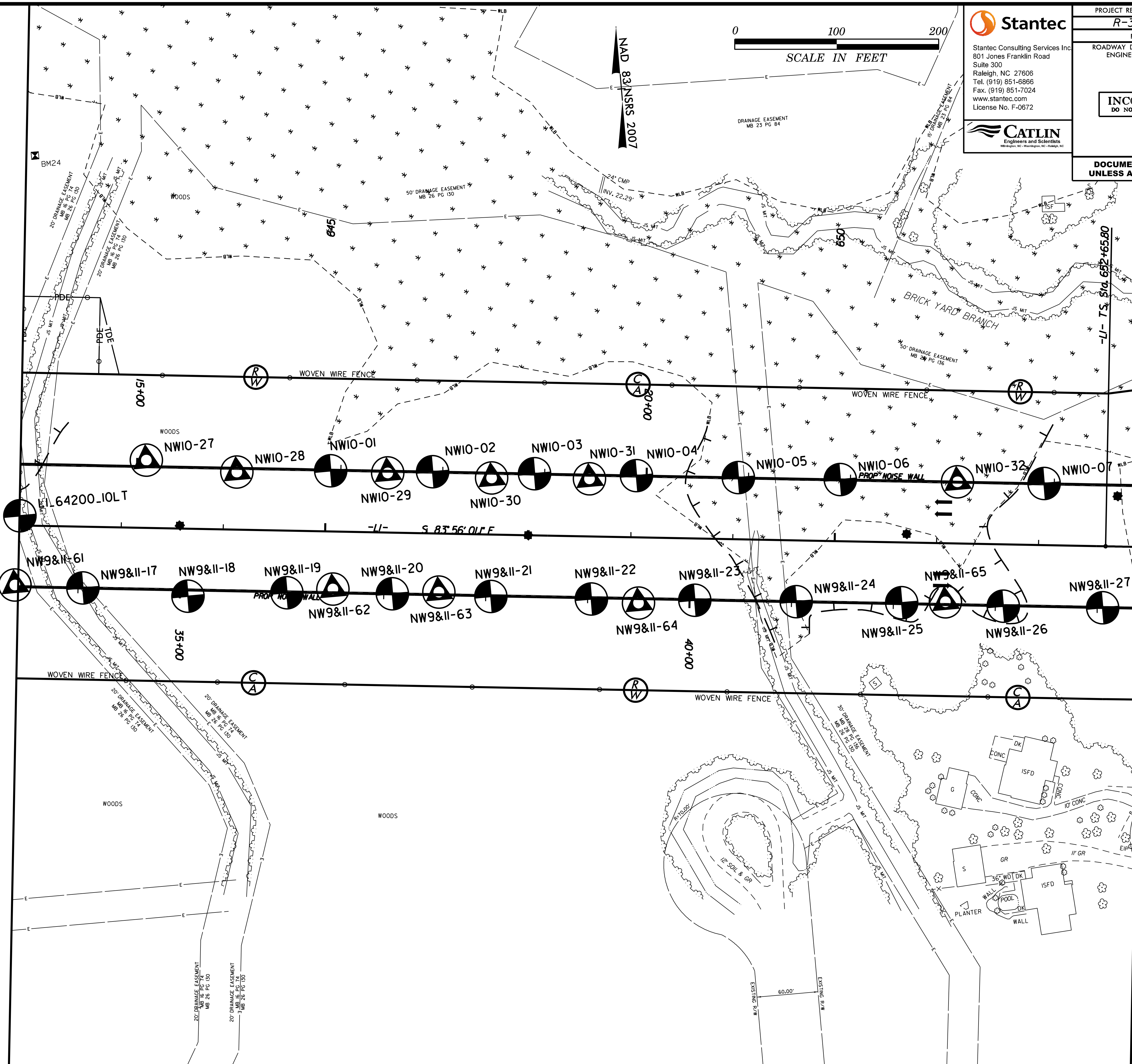
0
100
200
SCALE IN FEET
NAD 83/NSRS 2007
BM24
WOODS
50' DRAINAGE EASEMENT MB 26 PG 130
DRAINAGE EASEMENT MB 23 PG 84
24" CMP
INV. 22.29'
BRICK YARD BRANCH
50' DRAINAGE EASEMENT MB 26 PG 136
-L1- TS Sta 652+65.80
PDE
TDE
WOVEN WIRE FENCE
15+00
20+00
35+00
40+00
NW10-27
NW10-28
NW10-01
NW10-29
NW10-02
NW10-30
NW10-03
NW10-31
NW10-04
NW10-05
NW10-06
PROP' NOISE WALL
NW10-32
NW10-07
L1_64200_10LT
-L1-
S 83°56'01" E
NW9&11-61
NW9&11-17
NW9&11-18
NW9&11-19
NW9&11-62
NW9&11-20
NW9&11-63
NW9&11-21
NW9&11-22
NW9&11-64
NW9&11-23
NW9&11-24
NW9&11-25
NW9&11-65
NW9&11-26
NW9&11-27
MATCHLINE -L1- STA 642+00.00 SEE SHEET 4
MATCHLINE -L1- STA 653+00.00 SEE SHEET 6
20' DRAINAGE EASEMENT MB 16 PG 74 MB 26 PG 130
30' DRAINAGE EASEMENT MB 16 PG 74 MB 26 PG 130
ISFD
CONC
DK
G
S
GR
POOL
PLANTER
WALL
10' CONC
11' GR
12' SOIL & GR
60.00'
EXISTING R/W

02-MAR-2020 12:25
3300B_GEO_SWAL_psh_05.dgn
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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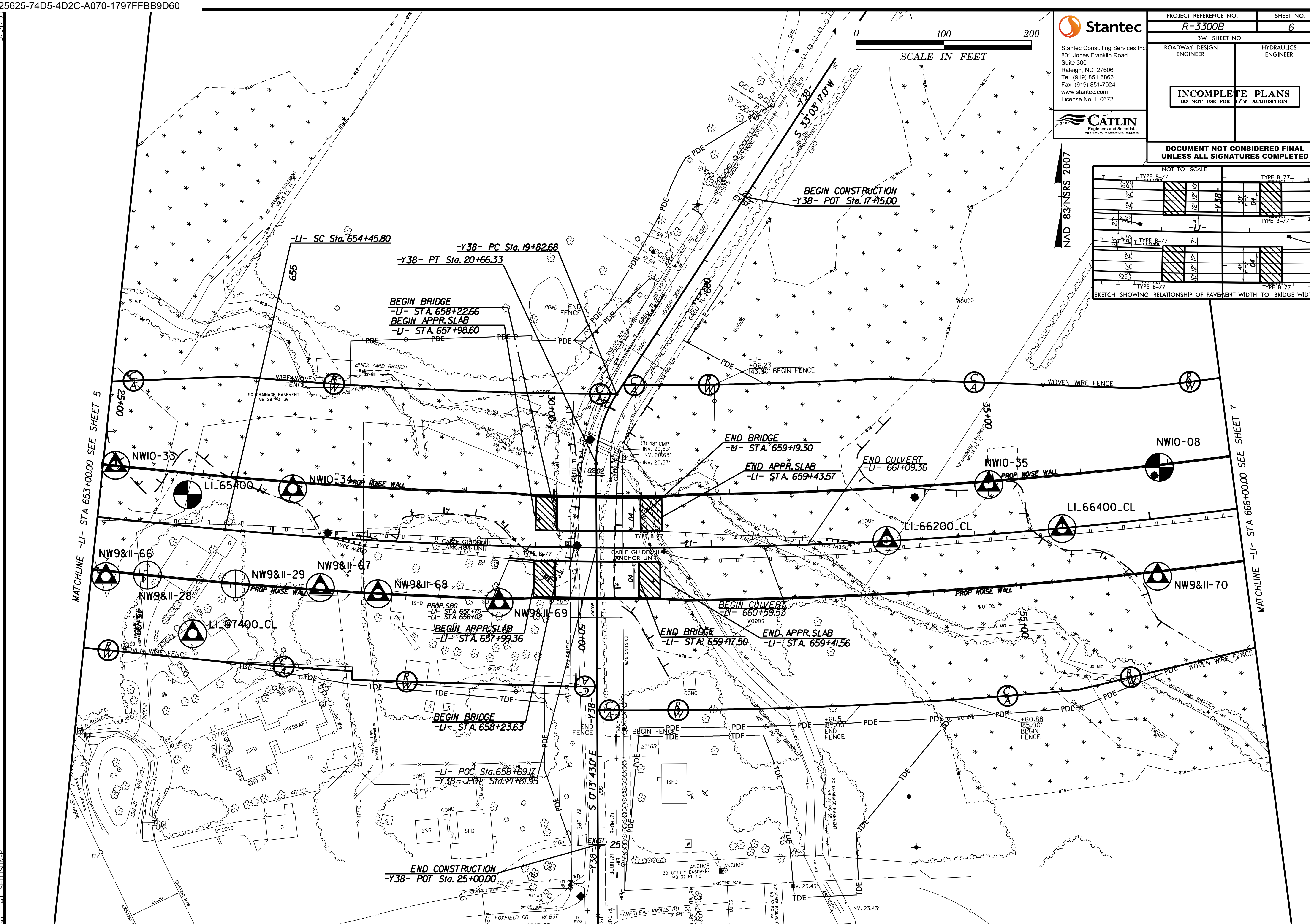
0 100 200
SCALE IN FEET
NAD 83/NSRS 2007
NOT TO SCALE
TYPE B-77
SKETCH SHOWING RELATIONSHIP OF PAVEMENT WIDTH TO BRIDGE WIDTH
BEGIN CONSTRUCTION
-Y38- POT Sta. 17+15.00
-Y38- S 33°03'17.0" W
-LI- SC Sta. 654+45.80
-Y38- PC Sta. 19+82.68
-Y38- PT Sta. 20+66.33
BEGIN BRIDGE
-LI- STA. 658+22.66
BEGIN APPR. SLAB
-LI- STA. 657+98.60
END BRIDGE
-LI- STA. 659+19.30
END APPR. SLAB
-LI- STA. 659+43.57
END CULVERT
-LI- 661+09.36
BEGIN CULVERT
-LI- 660+59.53
END BRIDGE
-LI- STA. 659+17.50
END APPR. SLAB
-LI- STA. 659+41.56
BEGIN APPR. SLAB
-LI- STA. 657+99.36
BEGIN BRIDGE
-LI- STA. 658+23.63
-LI- POC Sta. 658+69.17
-Y38- POT Sta. 21+61.95
END CONSTRUCTION
-Y38- POT Sta. 25+00.00
S 01°13'43.0" E
MATCHLINE -LI- STA 653+00.00 SEE SHEET 5
MATCHLINE -LI- STA 666+00.00 SEE SHEET 7
NW10-33
LI_65400
NW10-34
NW10-35
NW10-08
LI_66400_CL
LI_66200_CL
NW9&11-66
NW9&11-28
NW9&11-29
NW9&11-67
NW9&11-68
NW9&11-69
NW9&11-70
LI_67400_CL
PROP NOISE WALL
WOVEN WIRE FENCE
BRICK YARD BRANCH
CABLE GUIDERAIL ANCHOR UNIT
FOXFIELD DR
HAMPSTEAD KNOLLS RD
HOLLOW DRIVE

02-MAR-2020 12:26
R3300B_GEO_SWAL_psh_06.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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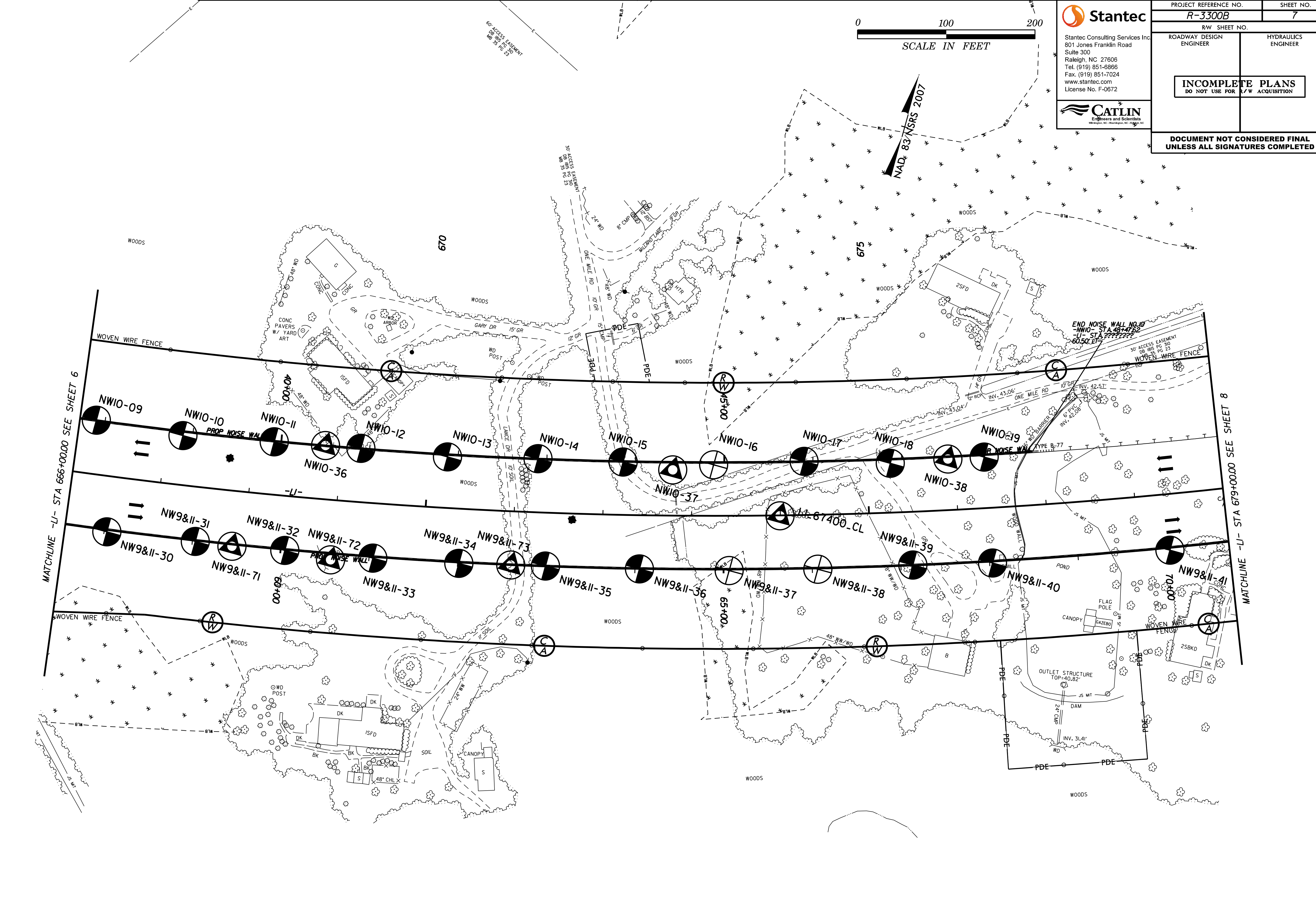
0 100 200
SCALE IN FEET
NAD 83/NSRS 2007
MATCHLINE -L1- STA 666+00.00 SEE SHEET 6
MATCHLINE -L1- STA 679+00.00 SEE SHEET 8
WOVEN WIRE FENCE
NW10-09
NW10-10
NW10-11
NW10-12
NW10-13
NW10-14
NW10-15
NW10-16
NW10-17
NW10-18
NW10-19
NW10-36
NW10-37
NW10-38
NW9&11-30
NW9&11-31
NW9&11-32
NW9&11-33
NW9&11-34
NW9&11-35
NW9&11-36
NW9&11-37
NW9&11-38
NW9&11-39
NW9&11-40
NW9&11-41
NW9&11-71
NW9&11-72
NW9&11-73
PROP NOISE WALL
-L1-
L1_67400_CL
40+00
45+00
60+00
65+00
70+00
END NOISE WALL NO.10
ONE MILE RD
GARY DR
LANCE DR
WOODS
OUTLET STRUCTURE
FLAG POLE
CANOPY
GAZEBO
POND
PDE

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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

0 100 200
SCALE IN FEET

NAD 83/NSRS 2007

-LI- CS Sta. 690+57.24

-LI- ST Sta. 692+37.24

MATCHLINE -LI- STA 679+00.00 SEE SHEET 7

MATCHLINE -LI- STA 693+00.00 SEE SHEET 9

WOODS

WOVEN WIRE FENCE

PDE

NV. 42.77'

NV. 42.90'

15" WPE

680

685

690

57

CABLE GUIDERAIL ANCHOR UNIT

PROPOSED WALL

BASKETBALL COURT

ONE MILE RD

40' CR

48" WW/WD

BM26

BM27

LI_68400

LI_69000

NW9&II-42

NW9&II-43

NW9&II-44

NW9&II-45

NW9&II-46

NW9&II-47

NW9&II-48

NW9&II-74

NW9&II-75

NW9&II-76

NW9&II-77

NW9&II-78

NW9&II-79

NW9&II-50

NW9&II-51

NW9&II-52

NW9&II-53

75+00

80+00

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	9
RW SHEET NO.	
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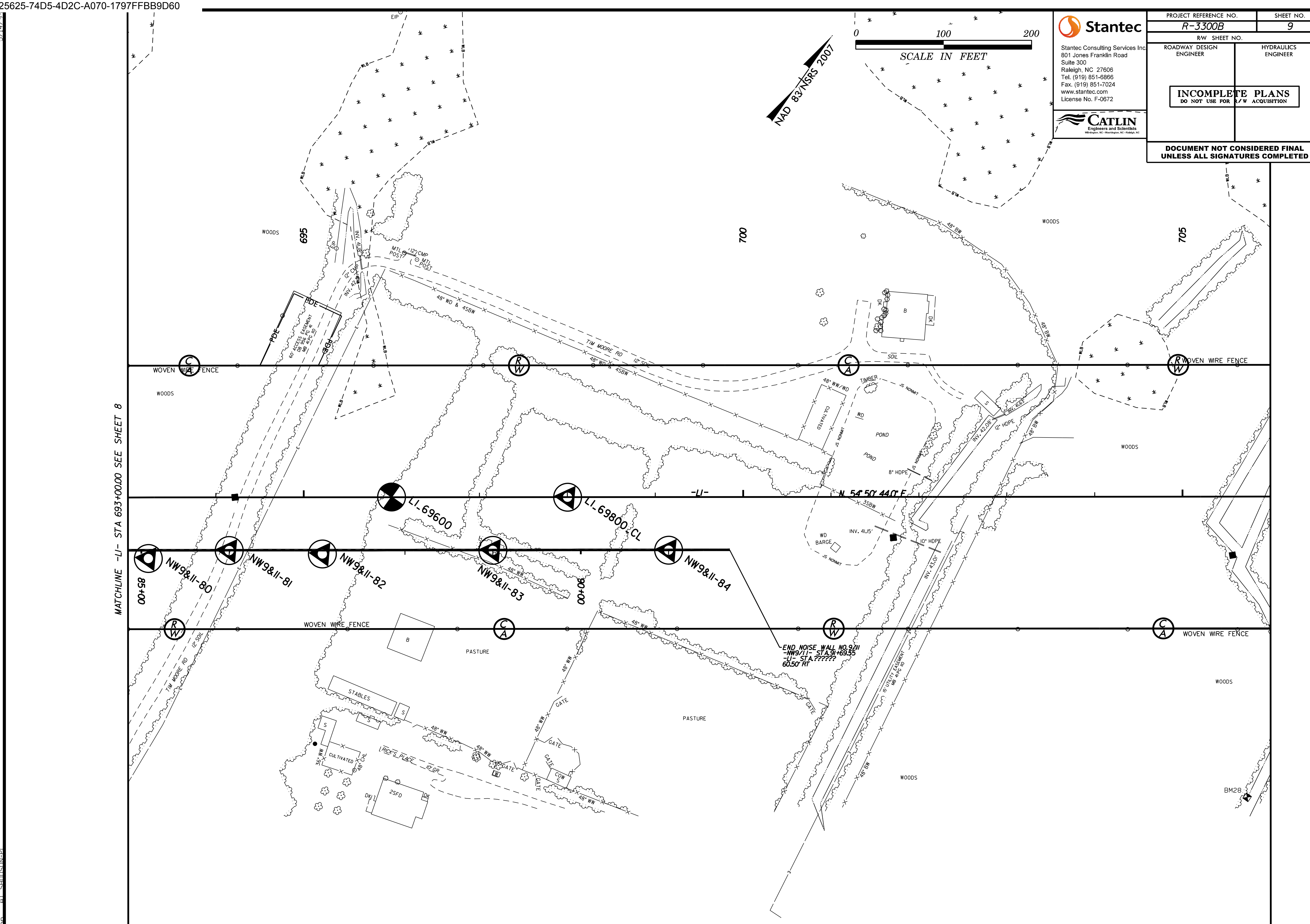

5/14/99

SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING SIEVES 10	40	200	% MOISTURE	% ORGANIC
SS-025B	26 ft LT	12+22	8.6 - 10.1	A-2-4(0)	15	NP	26.4	47.0	9.2	17.4	99.8	96	28	33	-
SS-026B	26 ft LT	12+22	13.6 - 15.1	A-7-5(9)	44	14	24.3	12.0	42.4	21.3	99.4	83	66	87	-
SS-01NW	CL	17+05	0.0 - 1.5	A-2-4(0)	NP	NP	2.1	82.2	11.0	4.7	99.6	99	22	-	-
SS-02NW	CL	17+05	8.7 - 10.2	A-2-4(0)	NP	NP	46.1	34.7	5.4	13.8	99.7	81	22	-	-
SS-03NW	CL	17+05	13.7 - 15.2	A-7-6(12)	44	21	15.9	21.1	29.1	33.9	99.6	98	66	-	-
SS-04NW	CL	22+05	4.0 - 5.5	A-4(0)	NP	NP	0.4	67.3	15.5	16.8	99.6	100	49	-	-
SS-05NW	CL	22+05	8.6 - 10.1	A-2-4(0)	NP	NP	30.6	41.5	7.1	20.7	99	92	29	-	-
SS-06NW	CL	22+05	13.6 - 15.1	A-7-5(10)	45	12	18.5	7.9	56.3	17.3	99.7	87	76	-	-

0 100 200
FEET
VE = 5

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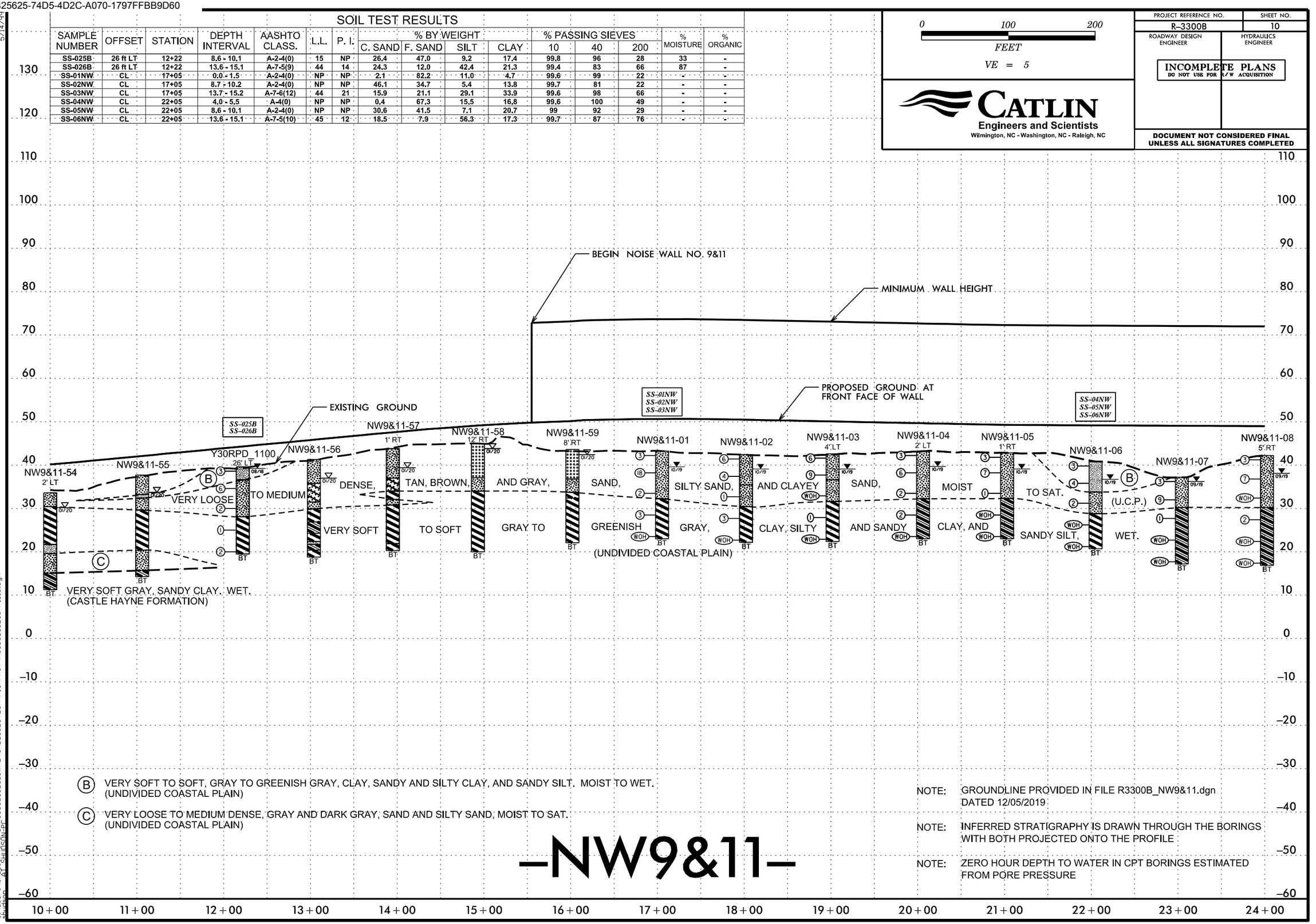
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



(B) VERY SOFT TO SOFT, GRAY TO GREENISH GRAY, CLAY, SANDY AND SILTY CLAY, AND SANDY SILT. MOIST TO WET. (UNDIVIDED COASTAL PLAIN)

(C) VERY LOOSE TO MEDIUM DENSE, GRAY AND DARK GRAY, SAND AND SILTY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW9&11.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

–NW9&11–

02-MAR-2020 13:04
C:\Users\shudson\Share\R3300B_GEO_SWAL\CADD_GEOTECH\PlanProf\R3300B_GEO_PF11.10.dgn
shudson
ET SHEETS=ET

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	11

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

0 100 200
FEET
VE = 5

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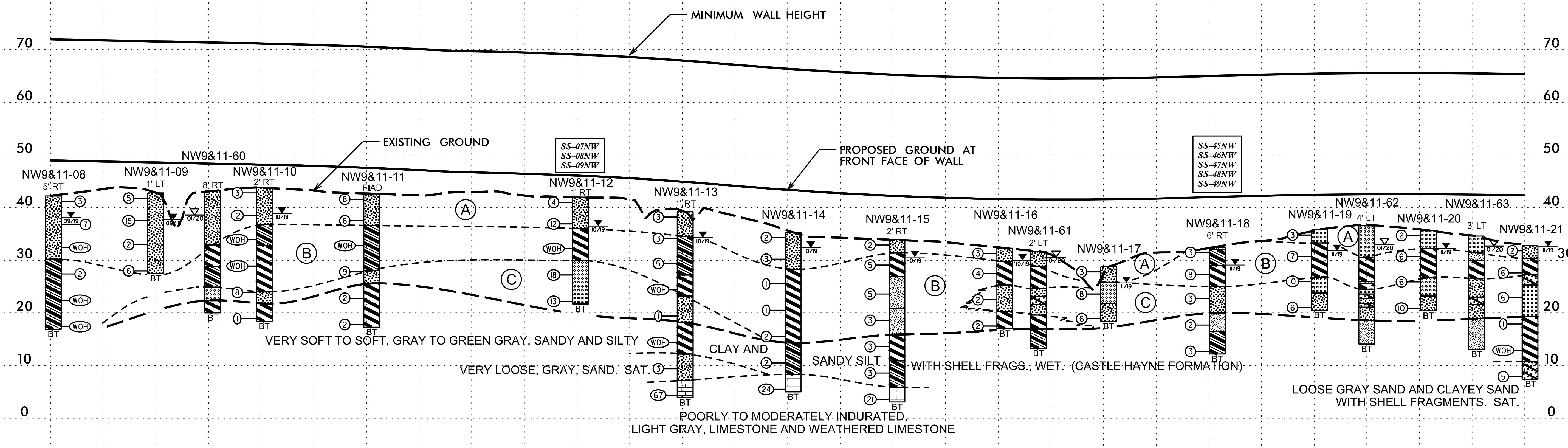
SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-07NW	1 ft RT	29+03	0.0 - 1.5	A-2-4(0)	NP	NP	2.9	78.7	11.6	6.7	100	99	29	-	-
SS-08NW	1 ft RT	29+03	8.8 - 10.3	A-7-5(24)	53	23	6.0	7.1	37.3	49.6	99.7	98	88	-	-
SS-09NW	1 ft RT	29+03	13.8 - 15.3	A-3(0)	NP	NP	16.4	76.7	3.2	3.7	100	99	8	-	-
SS-45NW	6 ft RT	35+08	0.5 - 1.5	A-6(9)	37	18	12.2	29.1	22.8	36.0	99.9	95	63	-	-
SS-46NW	6 ft RT	35+08	4.2 - 5.7	A-7-6(18)	49	25	8.6	21.0	33.1	37.3	99.4	98	72	-	-
SS-47NW	6 ft RT	35+08	8.8 - 10.3	A-2-4(0)	NP	NP	32.8	49.1	12.2	5.9	90.0	74	25	-	-
SS-48NW	6 ft RT	35+08	13.8 - 15.3	A-4(2)	26	6	5.5	43.4	35.5	15.6	99.8	96	61	-	-
SS-49NW	6 ft RT	35+08	18.8 - 20.3	A-6(15)	38	19	4.0	22.4	47.8	25.8	100	98	83	-	-



Ⓐ VERY LOOSE TO MEDIUM DENSE, TAN, BROWN, AND GRAY, SAND AND SILTY SAND. MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓑ VERY SOFT TO MEDIUM STIFF, GRAY TO GREENISH GRAY, CLAY, SANDY AND SILTY CLAY, AND SANDY SILT. WET. (UNDIVIDED COASTAL PLAIN)

Ⓒ VERY LOOSE TO MEDIUM DENSE, GRAY AND DARK GRAY, SAND, SILTY SAND, AND CLAYEY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW9&11.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

–NW9&11–

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

5/14/99

SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-44NW	CL	40+05	4.3 - 5.8	A-2-4(0)	NP	NP	19.9	63.8	8.8	7.5	99.7	92	21	-	2.5
SS-10NW	CL	41+05	0.5 - 1.5	A-2-4(0)	NP	NP	10.6	58.4	18.9	12.1	99.9	98	34	-	-
SS-11NW	CL	41+05	3.3 - 4.8	A-2-4(0)	NP	NP	50.4	39.5	4.1	6.0	100	78	11	-	-
SS-12NW	CL	41+05	8.3 - 9.8	A-2-4(0)	NP	NP	5.4	77.4	11.2	6.0	100	97	24	-	-
SS-13NW	CL	41+05	13.3 - 14.8	A-6(16)	36	18	1.8	16.5	58.5	23.3	99.8	99	92	-	-
S-01NW	CL	45+05	1.5 - 2.5	A-6(6)	36	18	8.4	41.8	15.2	34.6	100	98	52	-	-
S-02NW	CL	45+05	6.5 - 7.5	A-2-4(0)	NP	NP	10.4	66.3	4.9	18.4	100	97	25	-	-
S-03NW	CL	45+05	7.5 - 9.0	A-3(0)	NP	NP	46.4	45.1	3.2	5.2	99.9	84	9	-	-

0 100 200
FEET
VE = 5

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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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OVERHEAD SIGN STRUCTURE LOCATION

MINIMUM WALL HEIGHT

PROPOSED GROUND AT FRONT FACE OF WALL

EXISTING GROUND

S-01NW
S-02NW
S-03NW

SS-44NW

SS-10NW
SS-11NW
SS-12NW
SS-13NW

NW9&11-21 NW9&11-22 NW9&11-64 NW9&11-23 NW9&11-24 NW9&11-25 NW9&11-65 NW9&11-26 NW9&11-27 NW9&11-66 NW9&11-28 NW9&11-29 NW9&11-67 NW9&11-68 NW9&11-69

VERY SOFT TO SOFT, GRAY TO GREEN GRAY, SANDY AND SILTY CLAY AND SANDY SILT WITH SHELL FRAGS., WET. (CASTLE HAYNE FORMATION)

LOOSE GRAY SAND SAT.

LOOSE, GRAY SAND WITH SHELL FRAGMENTS, SAT.

VERY LOOSE TO LOOSE, GRAY, SAND AND CLAYEY SAND WITH SHELL AND LIMESTONE FRAGMENTS. SAT.

VERY SOFT TO HARD, GRAY, LIMESTONE

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00

Ⓐ VERY LOOSE TO MEDIUM DENSE, TAN, BROWN, AND GRAY, SAND AND SILTY AND CLAYEY SAND. MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓑ VERY SOFT TO MEDIUM STIFF, GRAY TO GREENISH GRAY, CLAY, SANDY AND SILTY CLAY, AND SANDY SILT. MOIST TO WET. (UNDIVIDED COASTAL PLAIN)

Ⓒ VERY LOOSE TO MEDIUM DENSE, GRAY AND DARK GRAY, SAND, SILTY SAND, AND CLAYEY SAND, TRACE ORGANICS, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓓ MEDIUM STIFF, BLACK, SILT WITH LITTLE ORGANICS. MOIST. (UNDIVIDED COASTAL PLAIN)

Ⓖ VERY SOFT TO SOFT, BROWN, SANDY SILT WITH LITTLE ORGANICS. MOIST. (ALLUVIAL)

–NW9&11–

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW9&11.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

02-MAR-2020 13:05
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shudson
21 SHEETS

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

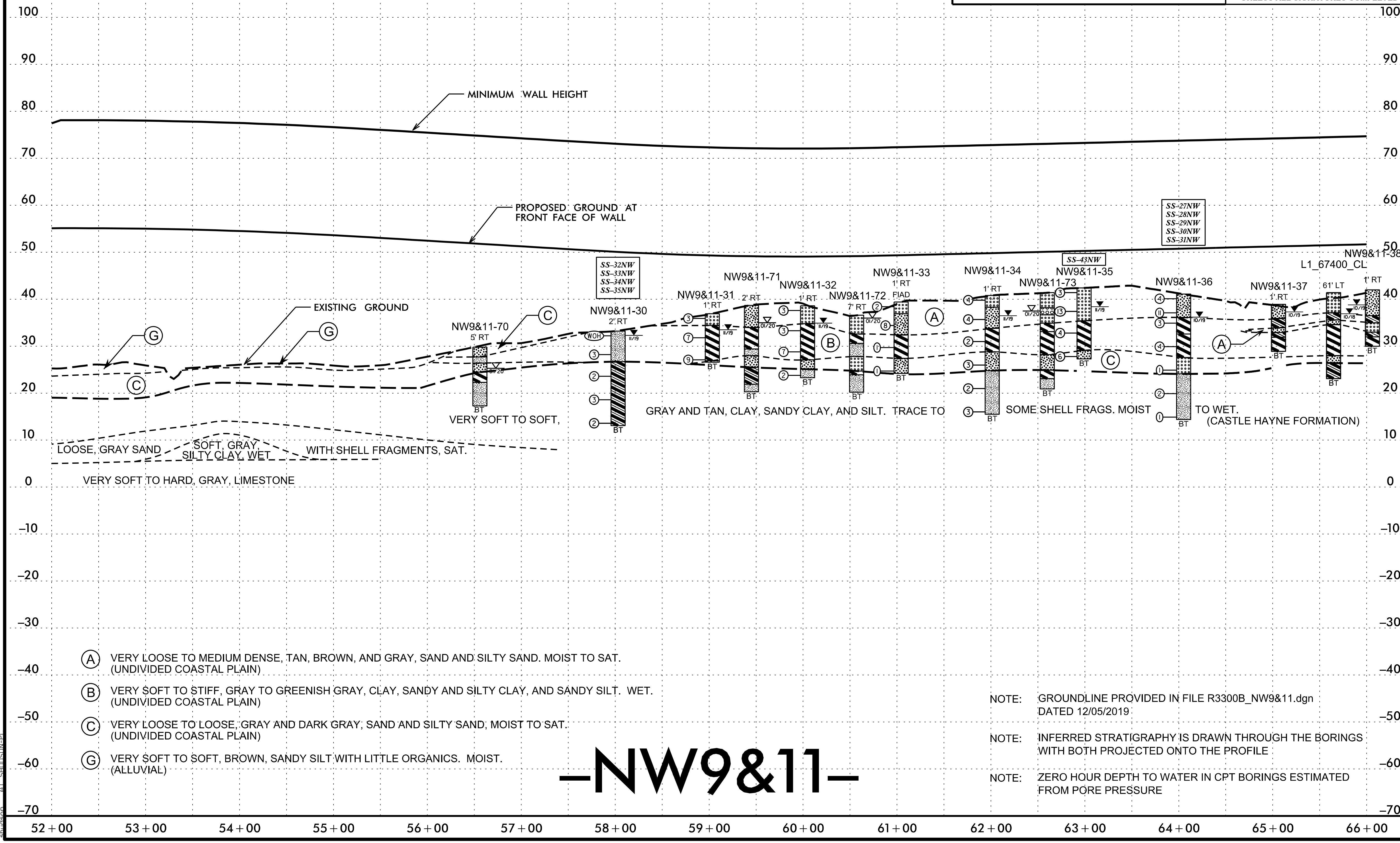
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CATLIN
Engineers and Scientists
Wilmington, NC - Washington, NC - Raleigh, NC

0 100 200 FEET
VE = 5

SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING SIEVES 10	40	200	% MOISTURE	% ORGANIC
SS-32NW	2 ft RT	58+03	0.0 - 1.5	A-4(0)	23	6	8.4	53.6	20.6	17.4	99.9	97	43	-	-
SS-33NW	2 ft RT	58+03	8.6 - 10.1	A-6(3)	33	13	8.5	56.3	12.3	22.8	99.3	94	45	-	-
SS-34NW	2 ft RT	58+03	13.6 - 15.1	A-6(13)	35	15	1.4	24.2	56.0	18.5	100	99	89	-	-
SS-35NW	2 ft RT	58+03	18.6 - 20.1	A-6(13)	35	15	4.5	21.7	57.9	16.0	98.2	96	89	-	-
SS-43NW	CL	62+99	13.6 - 15.1	A-2-4(0)	NP	NP	29.9	45.2	7.9	17.1	93.6	88	26	-	-
SS-27NW	CL	64+05	0.0 - 1.5	A-2-4(0)	NP	NP	4.4	82.1	6.5	7.0	100	98	19	-	-
SS-28NW	CL	64+05	5.2 - 6.7	A-7-6(13)	42	27	5.8	38.3	17.9	38.0	99.8	98	60	-	-
SS-29NW	CL	64+05	10.2 - 11.7	A-7-6(37)	65	42	2.1	19.9	30.4	47.7	100	100	83	-	-
SS-30NW	CL	64+05	15.2 - 16.7	A-3(0)	NP	NP	41.8	51.5	5.7	1.0	99.8	84	7	-	-
SS-31NW	CL	64+05	20.2 - 21.7	A-4(6)	30	9	6.0	30.4	51.4	12.2	99.7	95	79	-	-



(A) VERY LOOSE TO MEDIUM DENSE, TAN, BROWN, AND GRAY, SAND AND SILTY SAND. MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

(B) VERY SOFT TO STIFF, GRAY TO GREENISH GRAY, CLAY, SANDY AND SILTY CLAY, AND SANDY SILT. WET. (UNDIVIDED COASTAL PLAIN)

(C) VERY LOOSE TO LOOSE, GRAY AND DARK GRAY, SAND AND SILTY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

(G) VERY SOFT TO SOFT, BROWN, SANDY SILT WITH LITTLE ORGANICS. MOIST. (ALLUVIAL)

–NW9&11–

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW9&11.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

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5/14/99

SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING SIEVES 10	40	200	% MOISTURE	% ORGANIC
SS-20NW	4 ft RT	71+17	0.0 - 1.5	A-2-4(0)	NP	NP	16.7	67.1	11.2	5.0	99.8	94	23	-	-
SS-21NW	4 ft RT	71+17	10.3 - 11.8	A-6(11)	37	20	9.0	31.9	19.9	39.3	99.8	97	65	-	-
SS-22NW	4 ft RT	71+17	15.3 - 16.8	A-2-4(0)	NP	NP	0.6	82.3	7.0	10.1	100	100	21	-	-
SS-55NW	CL	77+05	0.0 - 1.0	A-2-4(0)	NP	NP	31.0	48.6	16.3	4.1	98.0	88	25	-	5.2
SS-56NW	CL	77+05	4.0 - 5.5	A-2-4(0)	NP	NP	44.8	39.3	7.6	8.2	99.9	88	19	-	-
SS-57NW	CL	77+05	8.7 - 10.2	A-2-4(0)	NP	NP	1.8	86.9	6.1	5.2	100	99	14	-	-
SS-58NW	CL	77+05	13.7 - 15.2	A-4(0)	26	10	9.9	58.2	9.6	22.4	99.9	97	35	-	-
SS-59NW	CL	77+05	18.7 - 20.2	A-2-4(0)	NP	NP	28.4	51.6	16.8	3.2	99.3	86	25	-	-

0 100 200
FEET
VE = 5

CATLIN
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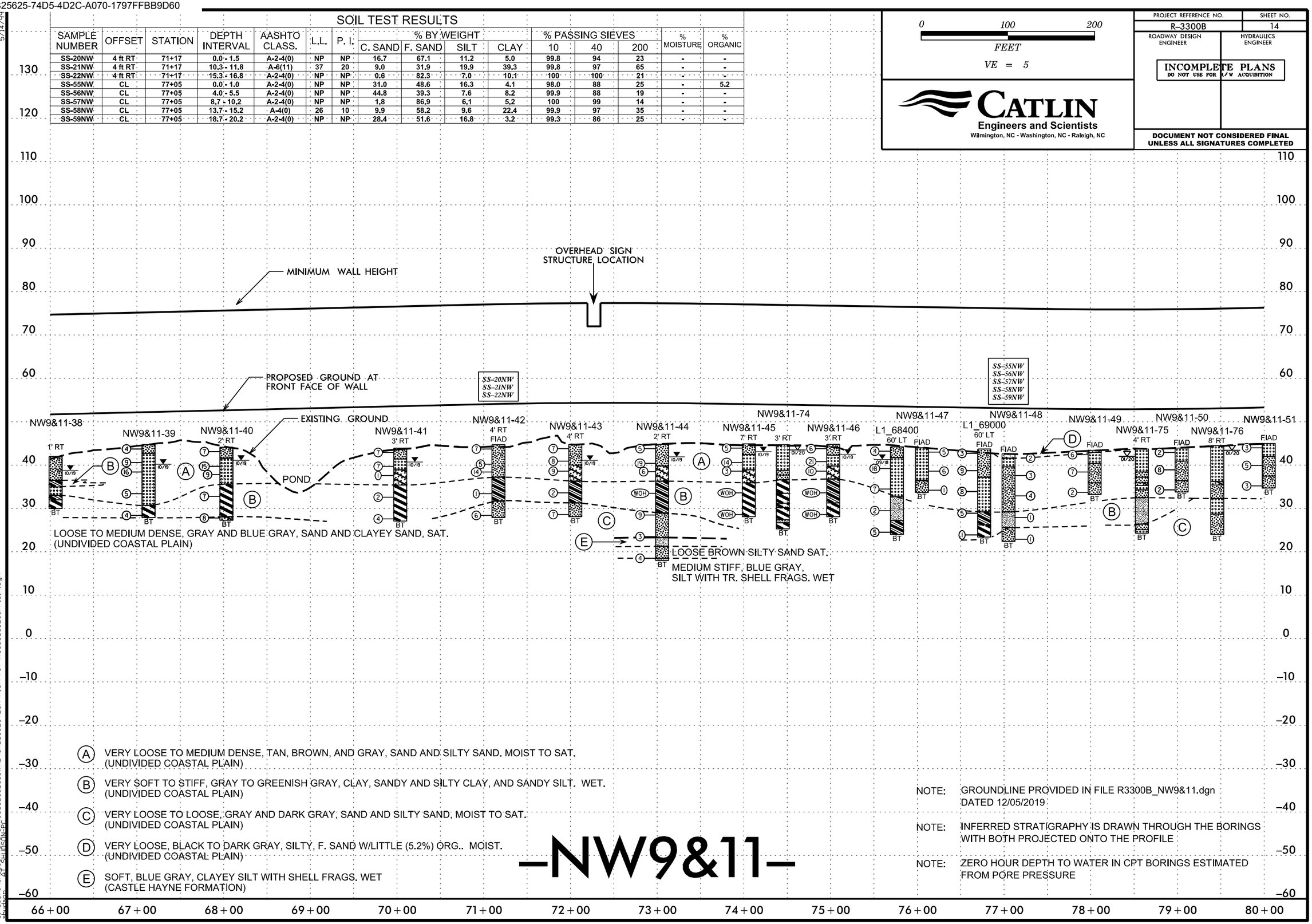
Wilmington, NC - Washington, NC - Raleigh, NC

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



(A) VERY LOOSE TO MEDIUM DENSE, TAN, BROWN, AND GRAY, SAND AND SILTY SAND. MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

(B) VERY SOFT TO STIFF, GRAY TO GREENISH GRAY, CLAY, SANDY AND SILTY CLAY, AND SANDY SILT. WET. (UNDIVIDED COASTAL PLAIN)

(C) VERY LOOSE TO LOOSE, GRAY AND DARK GRAY, SAND AND SILTY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

(D) VERY LOOSE, BLACK TO DARK GRAY, SILTY, F. SAND W/LITTLE (5.2%) ORG.. MOIST. (UNDIVIDED COASTAL PLAIN)

(E) SOFT, BLUE GRAY, CLAYEY SILT WITH SHELL FRAGS. WET (CASTLE HAYNE FORMATION)

–NW9&11–

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW9&11.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

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PROJECT REFERENCE NO.	SHEET NO.
R-3300B	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

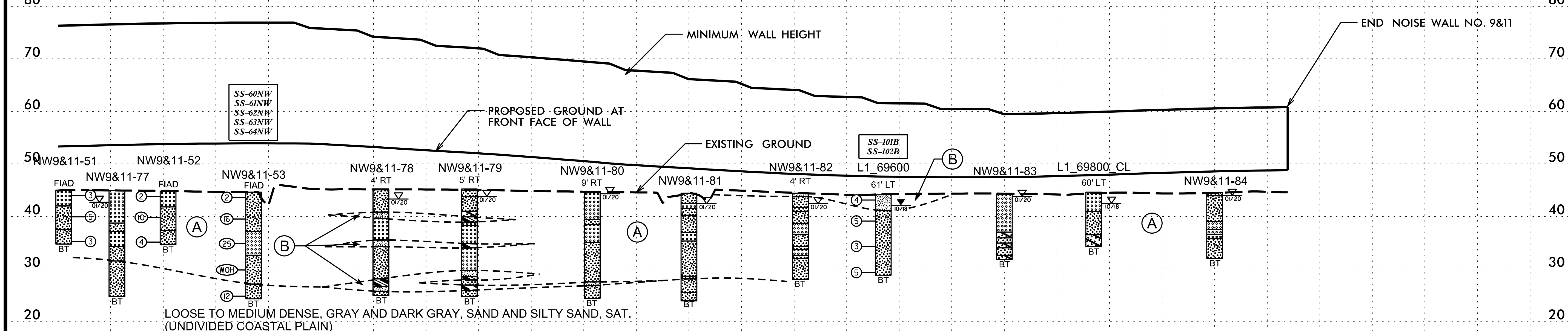
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

0 100 200
FEET
VE = 5

CATLIN
Engineers and Scientists
Wilmington, NC - Washington, NC - Raleigh, NC

SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-60NW	CL	81+86	0.0 - 1.5	A-2-4(0)	NP	NP	26.3	53.4	13.1	7.2	99.9	90	25	-	1.4
SS-61NW	CL	81+86	4.1 - 5.6	A-2-4(0)	NP	NP	15.1	59.8	14.8	10.2	100	96	28	-	-
SS-62NW	CL	81+86	8.8 - 10.3	A-3(0)	NP	NP	34.5	60.5	2.8	2.2	100	97	6	-	-
SS-63NW	CL	81+86	13.8 - 15.3	A-2-4(0)	NP	NP	0.5	73.5	15.8	10.3	100	100	34	-	-
SS-64NW	CL	81+86	18.8 - 20.3	A-2-4(0)	NP	NP	3.9	80.2	11.7	4.2	100	100	20	-	-
SS-101B	61 ft LT	87+85	0.0 - 1.5	A-4(0)	NP	NP	37.5	45.4	9.1	8.1	100	85	36	-	-
SS-102B	61 ft LT	87+85	8.8 - 10.3	A-2-4(0)	NP	NP	18.3	61.9	5.8	14.1	99.7	99	22	-	-



Ⓐ VERY LOOSE TO MEDIUM DENSE, TAN, BROWN, AND GRAY, SAND AND SILTY SAND. MOIST TO SAT.
(UNDIVIDED COASTAL PLAIN)

Ⓑ VERY SOFT TO MEDIUM STIFF, GRAY TO GREENISH GRAY, CLAY, SANDY AND SILTY CLAY, AND SANDY SILT. WET.
(UNDIVIDED COASTAL PLAIN)

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW9&11.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

-NW9&11-

80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00 90+00 91+00

5/14/99

SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING SIEVES 10	40	200	% MOISTURE	% ORGANIC
SS-50NW	CL	18+90	0.0 - 1.5	A-2-4(0)	NP	NP	13.6	68.0	10.9	7.4	98.9	95	24	-	1.8
SS-51NW	CL	18+90	4.1 - 5.6	A-7-6(39)	69	47	4.0	18.7	24.6	52.7	100	99	79	-	-
SS-52NW	CL	18+90	8.8 - 10.3	A-3(0)	NP	NP	61.3	32.3	1.9	4.5	100	78	7	-	-
SS-53NW	CL	20+90	13.8 - 15.3	A-7-6(16)	41	24	4.9	30.4	37.9	26.8	100	97	72	-	-
SS-54NW	CL	20+90	18.8 - 19.4	A-2-4(0)	22	4	53.8	18.4	19.1	8.7	70.6	65	30	-	-

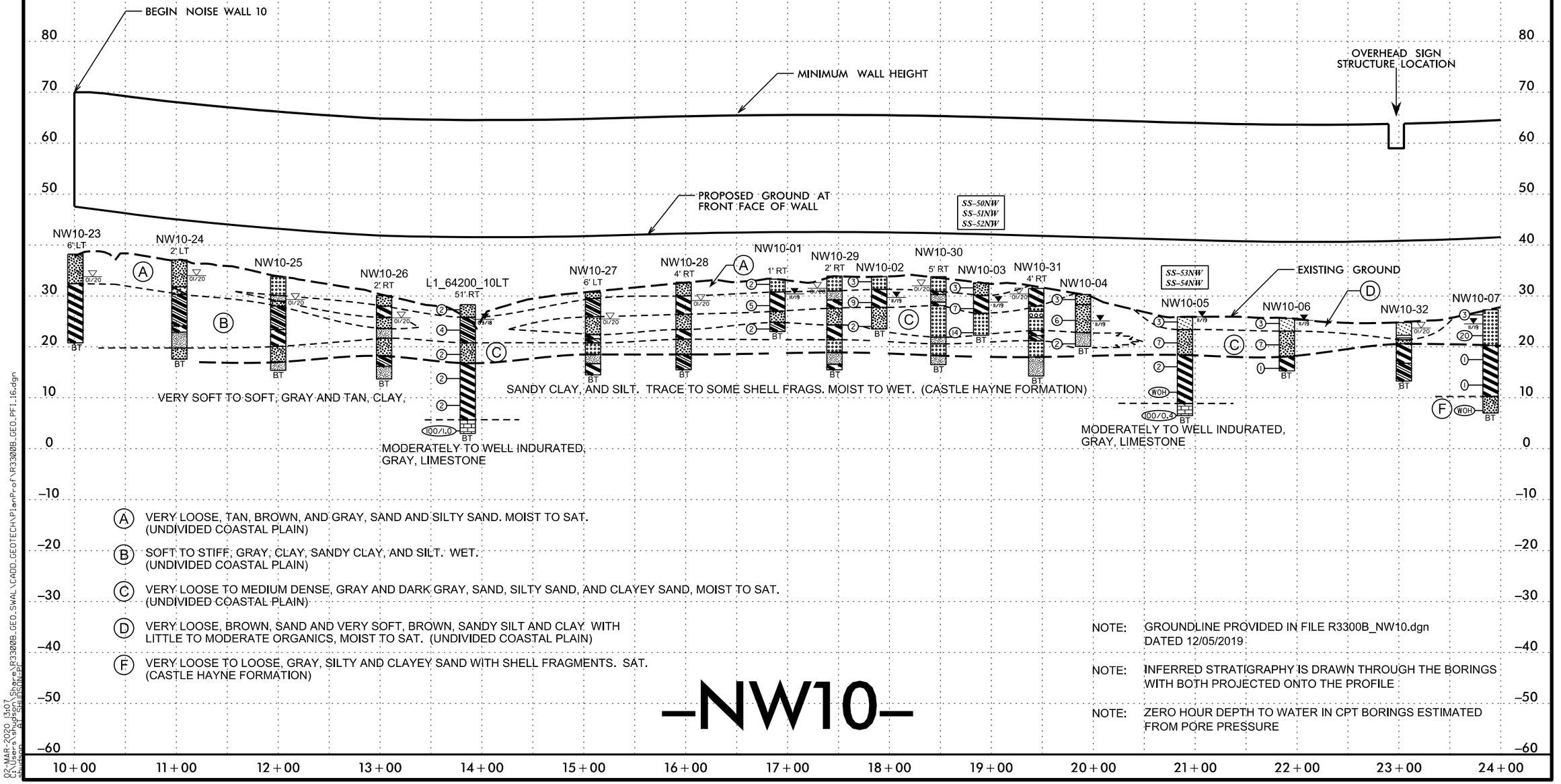
0 100 200
FEET
VE = 5

CATLIN
Engineers and Scientists
Wilmington, NC - Washington, NC - Raleigh, NC

PROJECT REFERENCE NO.	SHEET NO.
R-3300B	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



(A) VERY LOOSE, TAN, BROWN, AND GRAY, SAND AND SILTY SAND. MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

(B) SOFT TO STIFF, GRAY, CLAY, SANDY CLAY, AND SILT. WET. (UNDIVIDED COASTAL PLAIN)

(C) VERY LOOSE TO MEDIUM DENSE, GRAY AND DARK GRAY, SAND, SILTY SAND, AND CLAYEY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

(D) VERY LOOSE, BROWN, SAND AND VERY SOFT, BROWN, SANDY SILT AND CLAY WITH LITTLE TO MODERATE ORGANICS, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

(F) VERY LOOSE TO LOOSE, GRAY, SILTY AND CLAYEY SAND WITH SHELL FRAGMENTS. SAT. (CASTLE HAYNE FORMATION)

–NW10–

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW10.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

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ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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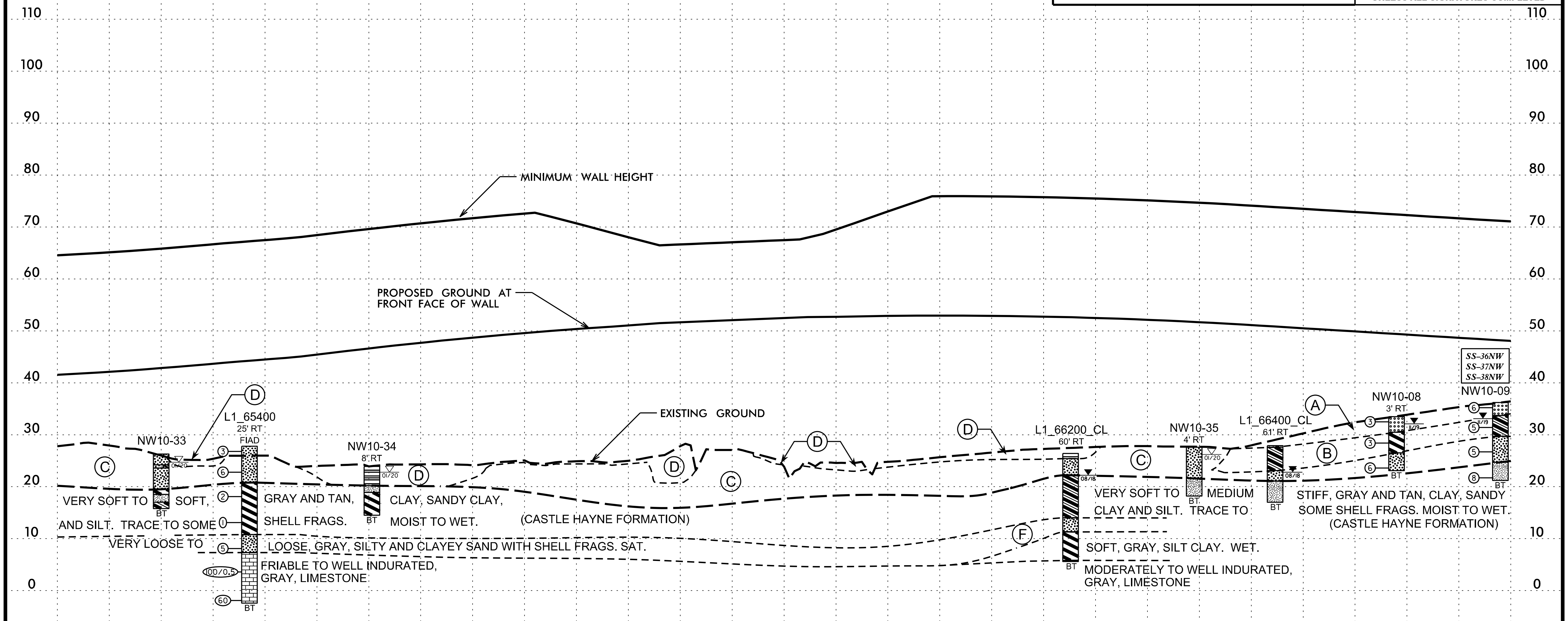
CATLIN
Engineers and Scientists
Wilmington, NC - Washington, NC - Raleigh, NC

0 100 200
FEET
VE = 5

SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING SIEVES 10	40	200	% MOISTURE	% ORGANIC
SS-36NW	CL	37+90	3.8 - 5.3	A-6(5)	33	19	10.4	46.3	20.9	22.4	100	97	48	-	-
SS-37NW	CL	37+90	8.5 - 10.0	A-2-4(0)	NP	NP	27.4	59.3	7.3	6.1	100	93	14	-	-
SS-38NW	CL	37+90	13.5 - 15.0	A-4(3)	29	10	2.0	55.0	22.5	20.4	100	99	59	-	-



Ⓐ VERY LOOSE TO LOOSE, TAN, BROWN, AND GRAY, SAND AND SILTY SAND. MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓑ VERY SOFT TO MEDIUM STIFF, GRAY, CLAY, SANDY CLAY, AND SILT. WET. (UNDIVIDED COASTAL PLAIN)

Ⓒ VERY LOOSE TO MEDIUM DENSE, GRAY AND DARK GRAY, SAND, SILTY SAND, AND CLAYEY SAND. MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓓ VERY LOOSE, BROWN, SAND AND VERY SOFT, BROWN, SANDY SILT AND CLAY WITH LITTLE TO MODERATE ORGANICS, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓕ VERY LOOSE TO LOOSE, GRAY, SILTY AND CLAYEY SAND WITH SHELL FRAGMENTS. SAT. (CASTLE HAYNE FORMATION)

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW10.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

–NW10–

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

SOIL TEST RESULTS

SAMPLE NUMBER	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P. I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING SIEVES 10	40	200	% MOISTURE	% ORGANIC
SS-39NW	1 ft RT	39+92	13.7 - 15.2	A-6(4)	30	16	13.2	42.7	17.3	26.8	100	96	47	-	-
SS-40NW	3 ft RT	41+88	8.8 - 10.3	A-7-6(15)	47	32	7.2	39.0	18.4	35.4	100	99	57	-	-
SS-41NW	3 ft RT	41+88	13.8 - 15.3	A-2-4(0)	26	7	20.9	46.7	7.7	24.7	99.6	92	33	-	-
SS-42NW	3 ft RT	41+88	28.8 - 30.3	A-6(14)	37	16	5.1	18.5	51.1	25.4	99.1	96	88	-	-
SS-23NW	1 ft RT	43+86	0.0 - 1.5	A-2-4(0)	NP	NP	3.1	83.7	5.2	8.0	99.8	99	21	-	-
SS-24NW	1 ft RT	43+86	5.2 - 6.7	A-2-4(0)	NP	NP	9.1	81.9	1.9	7.0	100	95	12	-	-
SS-25NW	1 ft RT	43+86	10.2 - 11.7	A-7-6(13)	43	25	6.8	34.5	21.6	37.1	100	99	61	-	-
SS-26NW	1 ft RT	43+86	15.2 - 16.7	A-7-5(26)	58	23	4.2	7.8	32.6	55.3	100	98	89	-	-
SS-19NW	5 ft RT	46+87	3.1 - 4.6	A-4(0)	NP	NP	3.4	37.3	54.3	5.0	99	99	63	-	3.5
SS-18NW	3 ft RT	47+93	0.0 - 1.5	A-4(0)	NP	NP	6.1	34.6	55.4	3.9	97.4	98	62	-	4.3
ST-01NW	3 ft RT	47+93	10.0 - 12.3	A-7-6(43)	82	68	5.9	32.4	15.8	45.9	100	98	67	30.2	2.0

0 100 200 FEET

VE = 5

CATLIN
Engineers and Scientists
Wilmington, NC - Washington, NC - Raleigh, NC

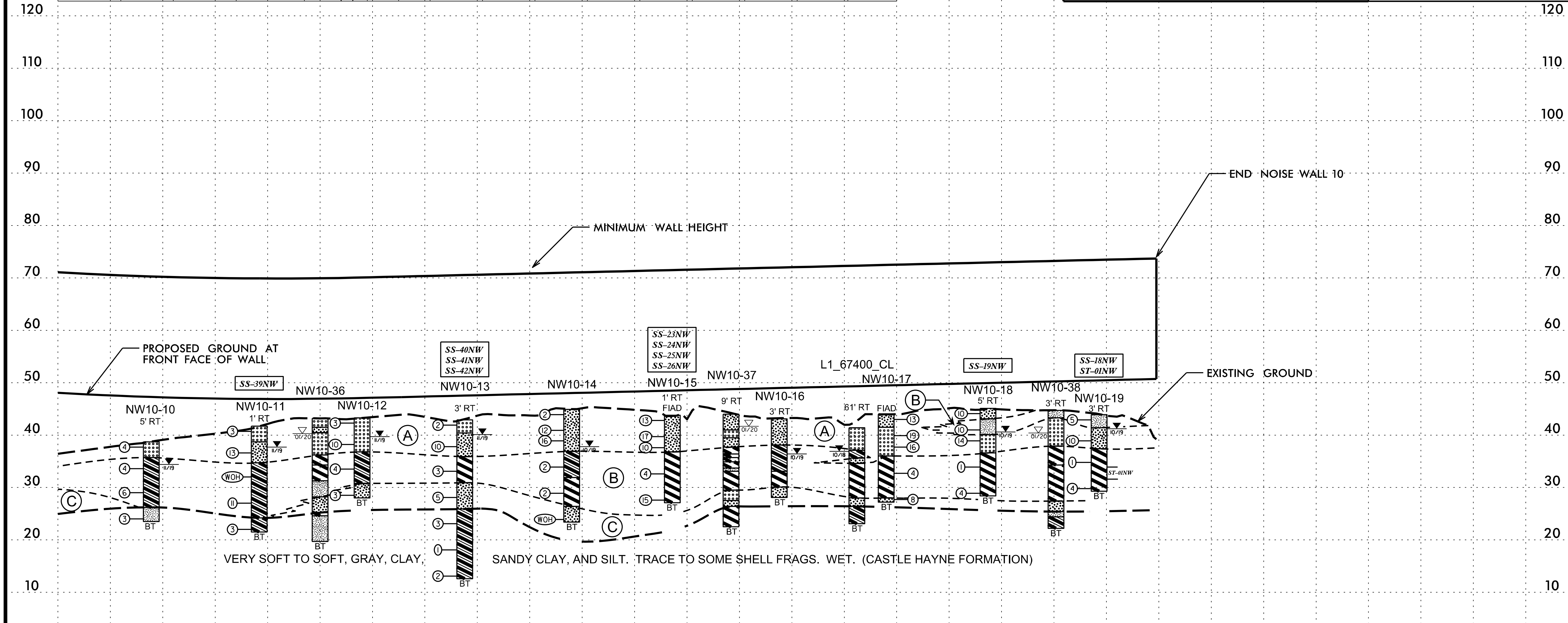
PROJECT REFERENCE NO.	SHEET NO.
R-3300B	18

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



Ⓐ VERY LOOSE TO MEDIUM DENSE, TAN, BROWN, AND GRAY, SAND AND SILTY SAND. MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓑ VERY SOFT TO STIFF, GRAY, CLAY, SANDY CLAY, AND SILT. TRACE ORGANICS. WET. (UNDIVIDED COASTAL PLAIN)

Ⓒ VERY LOOSE TO MEDIUM DENSE, GRAY AND DARK GRAY, SAND AND SILTY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

NOTE: GROUNDLINE PROVIDED IN FILE R3300B_NW10.dgn DATED 12/05/2019

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

NOTE: ZERO HOUR DEPTH TO WATER IN CPT BORINGS ESTIMATED FROM PORE PRESSURE

–NW10–

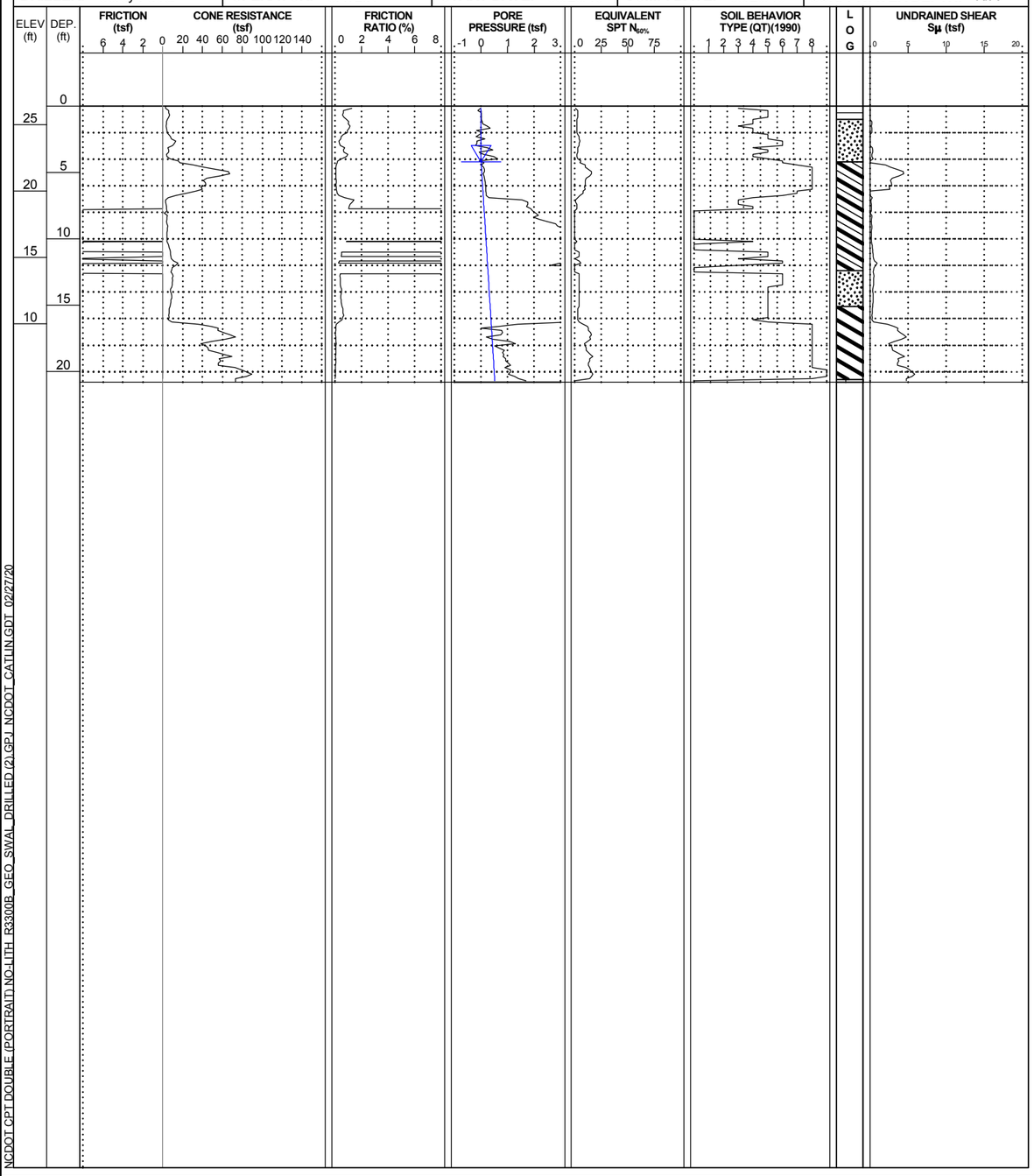
38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00

CONE PENETROMETER TEST BORING REPORT

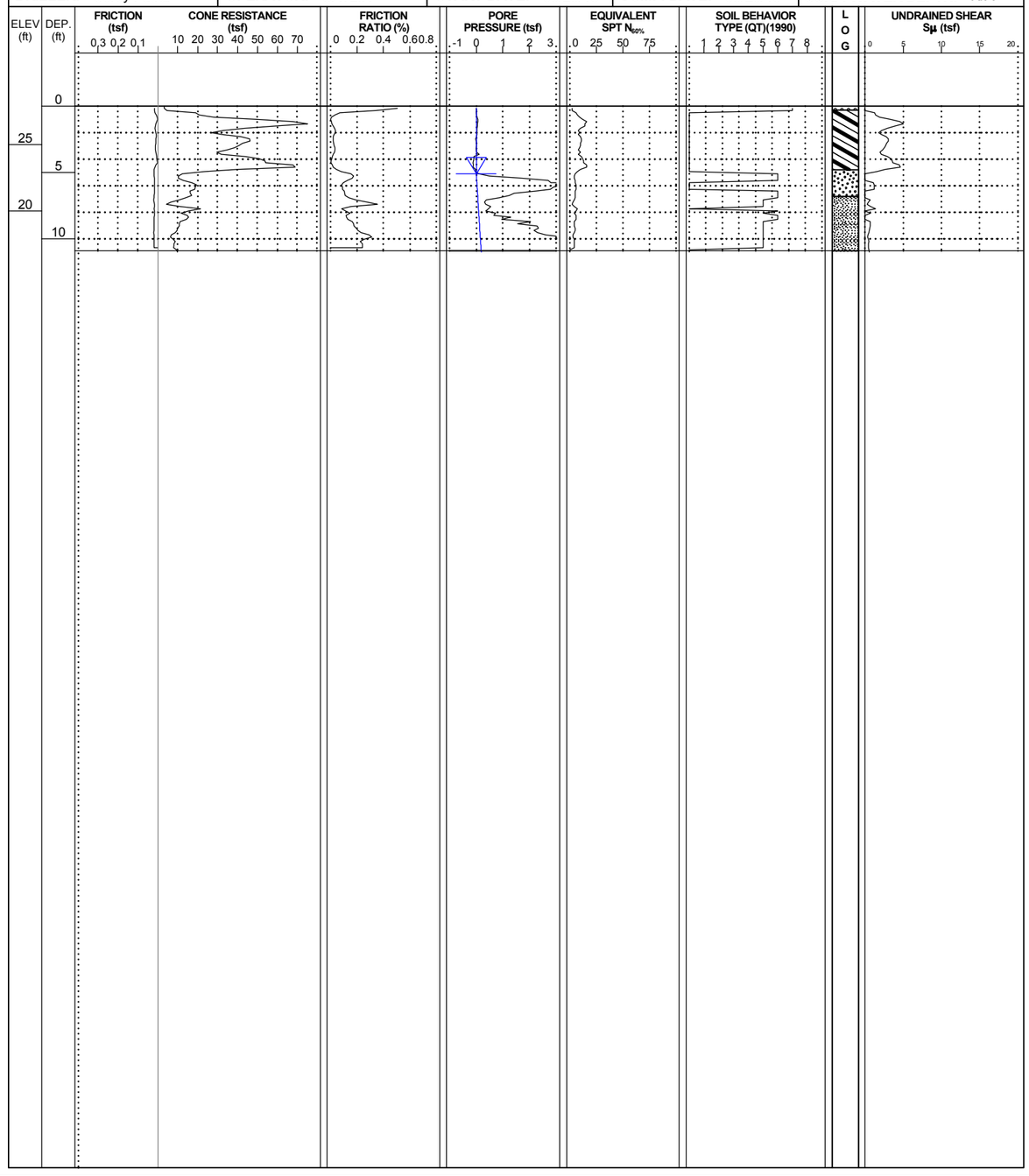
CATLIN Engineers and Scientists
220 Old Dairy Road
Wilmington, NC 28405
Corporate Licensure No. for Engineering Services C-0585
219094

PROJECT REFERENCE NO.	SHEET
R-3300B	19

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: L1_66200_CL	**STATION:** 33+76	**OFFSET:** 60 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 4.2
COLLAR ELEV.: 26.4 ft	**TOTAL DEPTH:** 20.8 ft	**NORTHING:** 232,873	**EASTING:** 2,382,997	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~10,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSA1123
DRILLER: Corey Futral	**OPERATOR:** CATLIN	**START DATE:** 08/29/18	**COMP. DATE:** 08/29/18	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: L1_66400_CL	**STATION:** 35+73	**OFFSET:** 61 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 5.1
COLLAR ELEV.: 27.9 ft	**TOTAL DEPTH:** 10.9 ft	**NORTHING:** 232,887	**EASTING:** 2,383,196	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~10,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSA1123
DRILLER: Corey Futral	**OPERATOR:** CATLIN	**START DATE:** 08/29/18	**COMP. DATE:** 08/29/18	**SURF. WATER DEPTH:** N/A

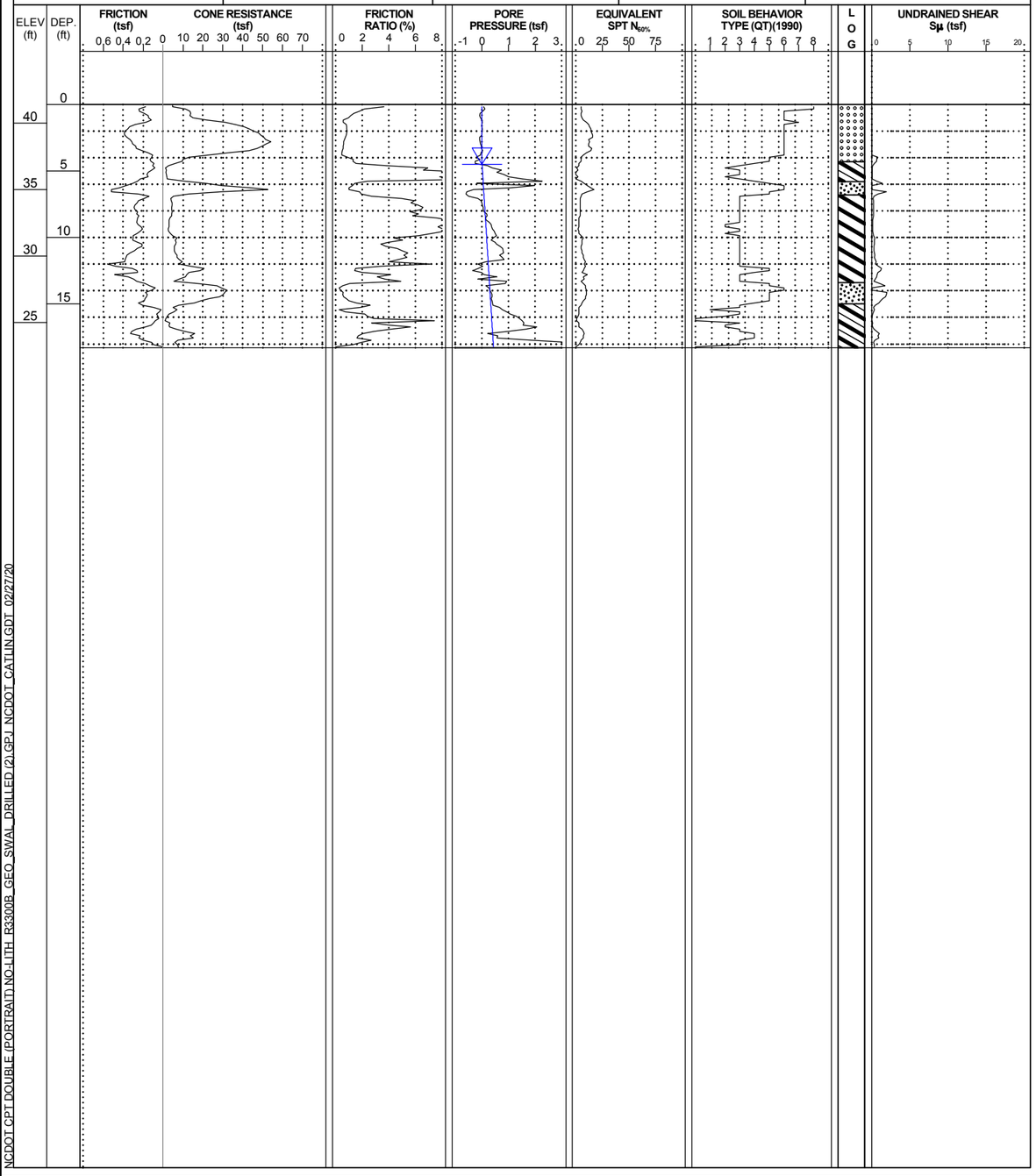


CONE PENETROMETER TEST BORING REPORT

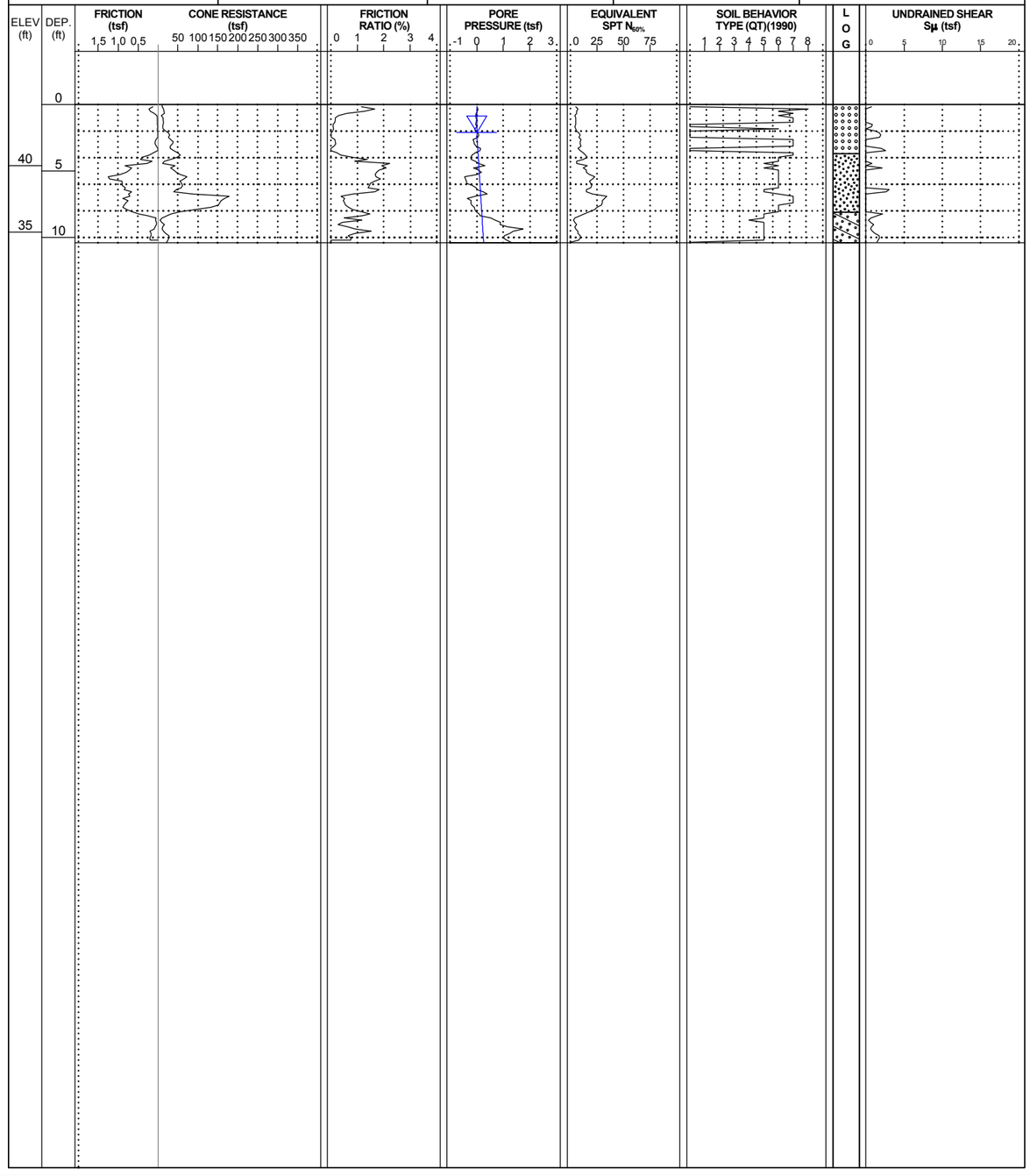
219094 CATLIN Engineers and Scientists
220 Old Dairy Road
Wilmington, NC 28405
Corporate Licensure No. for Engineering Services C-0585

PROJECT REFERENCE NO.	SHEET
R-3300B	20

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: L1_67400_CL	**STATION:** 45+62	**OFFSET:** 61 ft LT	**ALIGNMENT:** NW9	**EST. 0 HR.** 4.5
COLLAR ELEV.: 41.4 ft	**TOTAL DEPTH:** 18.3 ft	**NORTHING:** 233,073	**EASTING:** 2,384,177	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~10,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: William J. Miller	**OPERATOR:** CATLIN	**START DATE:** 10/04/18	**COMP. DATE:** 10/04/18	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: L1_69800_CL	**STATION:** 89+85	**OFFSET:** 60 ft LT	**ALIGNMENT:** NW9	**EST. 0 HR.** 2.1
COLLAR ELEV.: 44.6 ft	**TOTAL DEPTH:** 10.4 ft	**NORTHING:** 234,202	**EASTING:** 2,386,279	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / ~10,000 LBS.		**CONE TYPE:** TYPE II PIEZO		**CONE ID:** DSG1156
DRILLER: William J. Miller	**OPERATOR:** CATLIN	**START DATE:** 10/04/18	**COMP. DATE:** 10/04/18	**SURF. WATER DEPTH:** N/A



CONE PENETROMETER TEST BORING REPORT

219094 CATLIN Engineers and Scientists
220 Old Dairy Road
Wilmington, NC 28405
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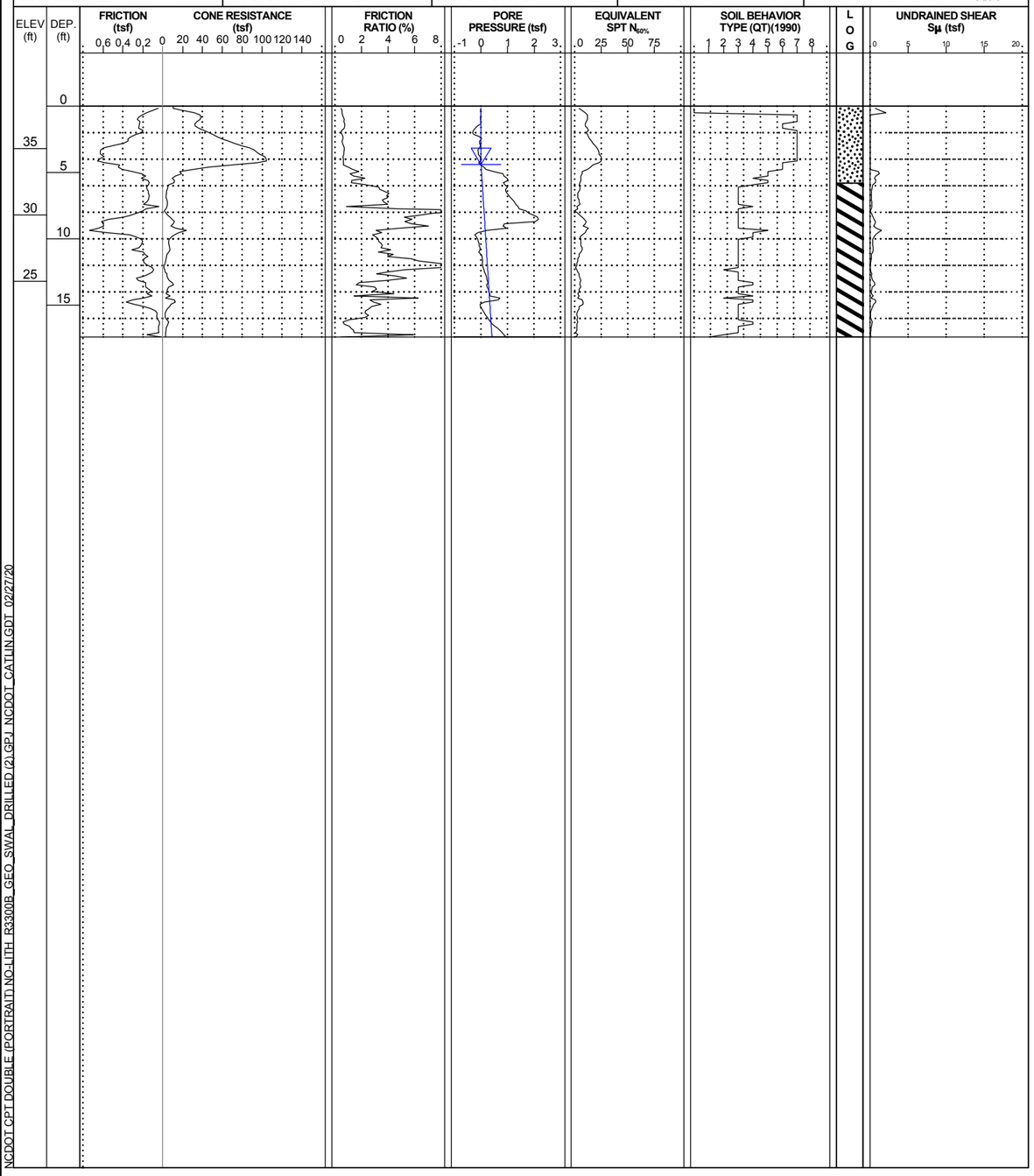
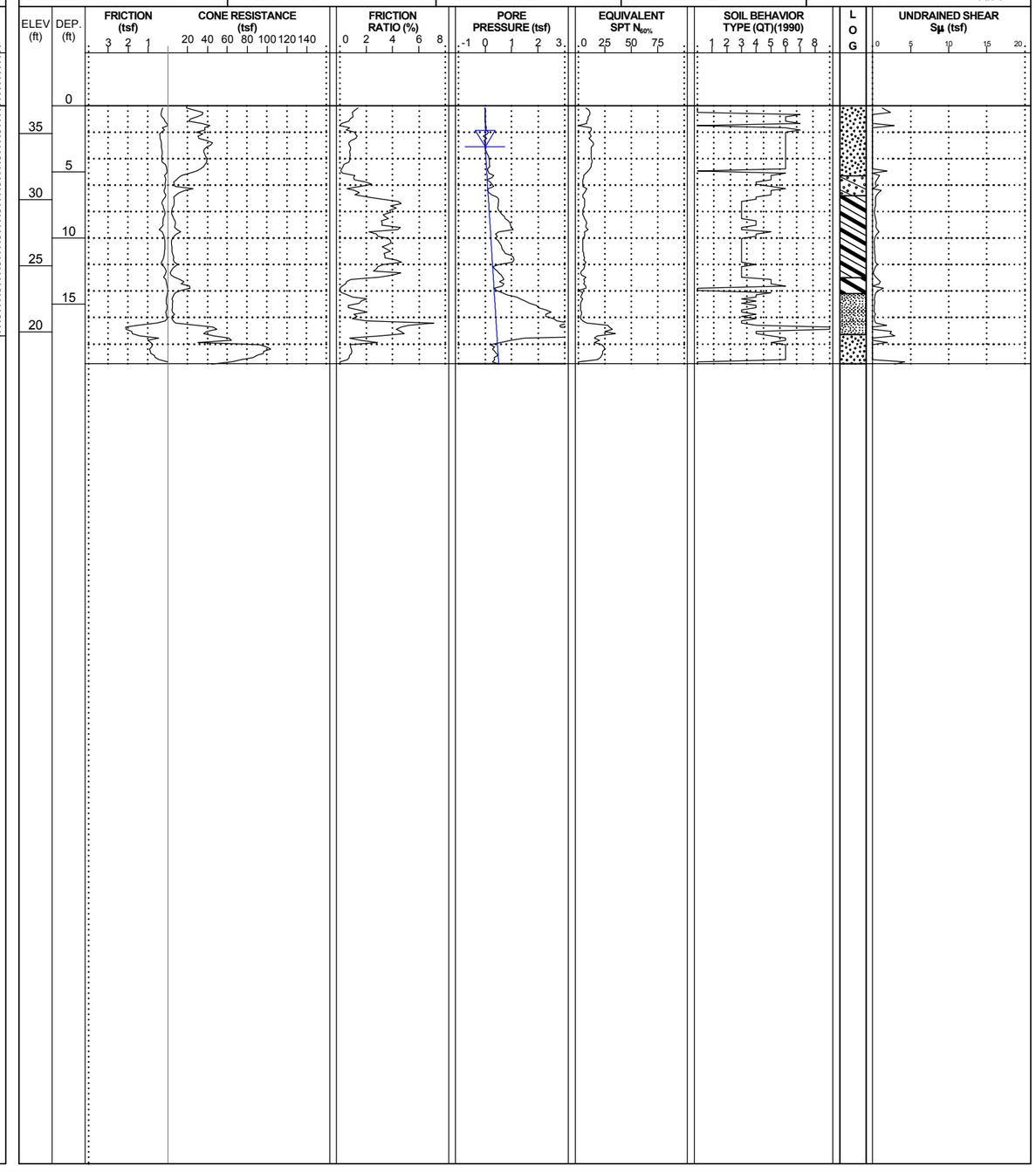
PROJECT REFERENCE NO.	SHEET
R-3300B	21

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-23	**STATION:** 10+01	**OFFSET:** 6 ft LT	**ALIGNMENT:** W10	**EST. 0 HR.** 4.4
COLLAR ELEV.: 38.2 ft	**TOTAL DEPTH:** 17.4 ft	**NORTHING:** 233,115	**EASTING:** 2,380,629	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/07/20	**COMP. DATE:** 01/07/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-24	**STATION:** 11+03	**OFFSET:** 2 ft LT	**ALIGNMENT:** W10	**EST. 0 HR.** 3.1
COLLAR ELEV.: 37.1 ft	**TOTAL DEPTH:** 19.5 ft	**NORTHING:** 233,108	**EASTING:** 2,380,730	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/17/20	**COMP. DATE:** 01/17/20	**SURF. WATER DEPTH:** N/A



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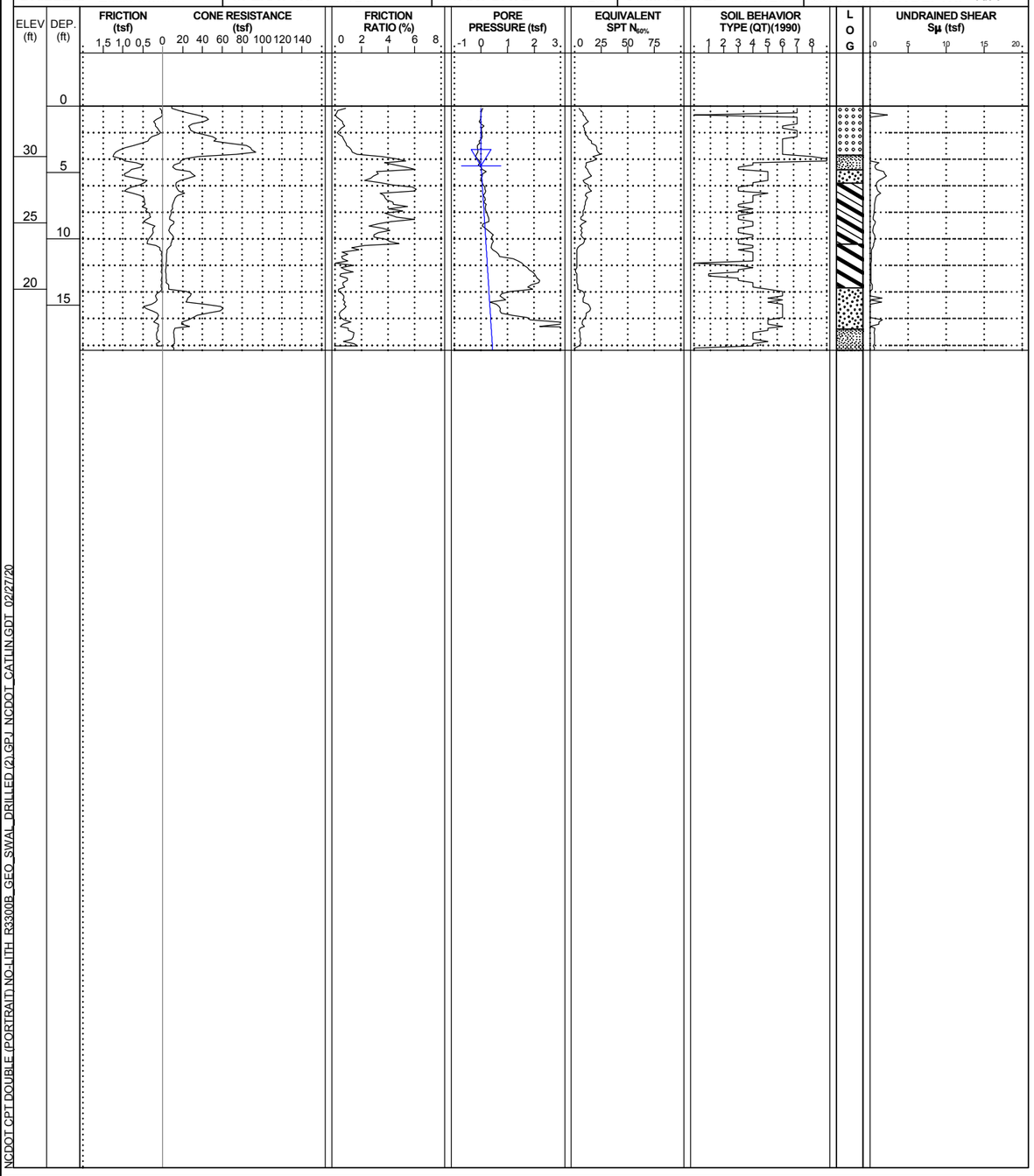
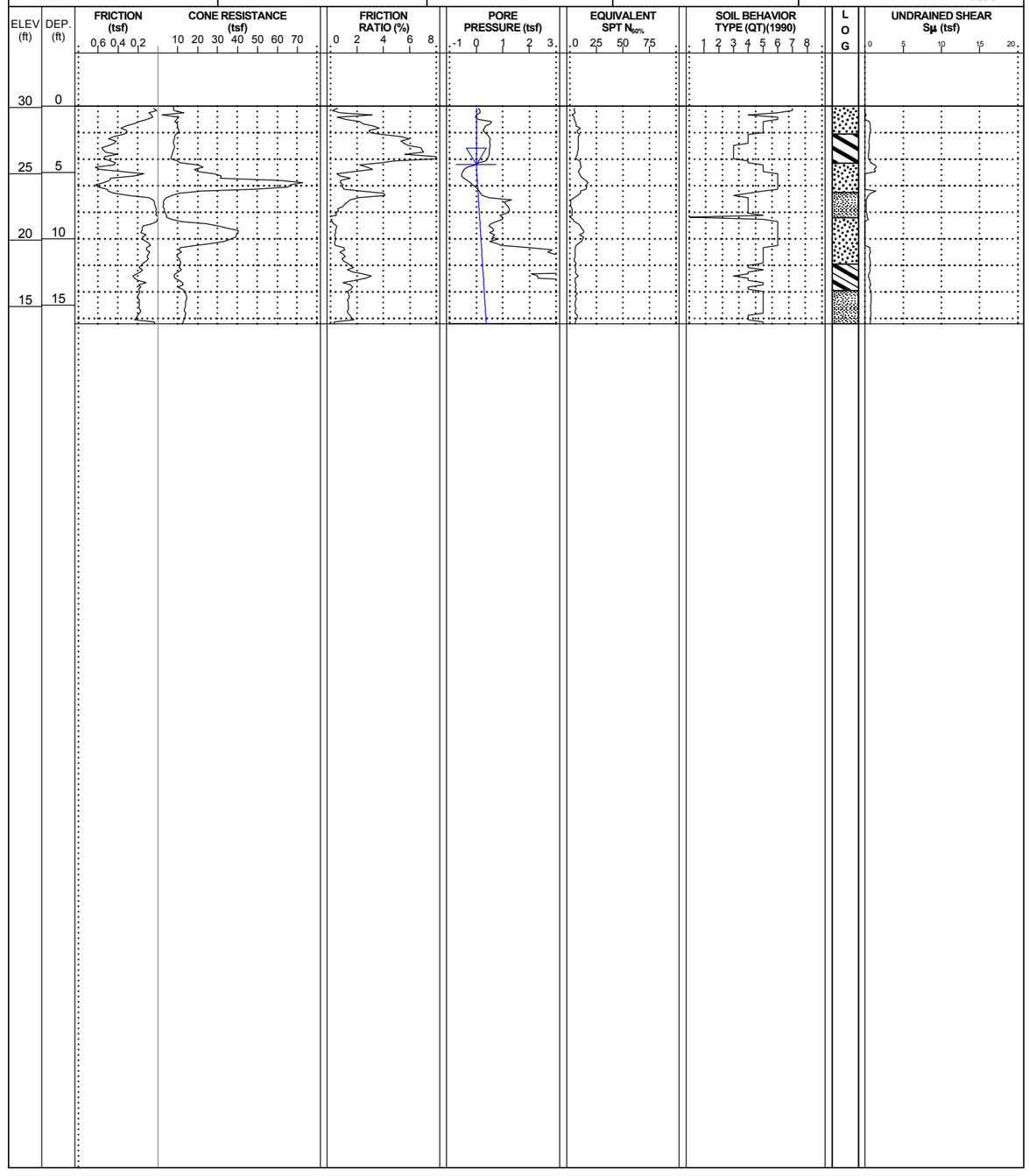
PROJECT REFERENCE NO.	SHEET
R-3300B	22

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-25	**STATION:** 12+00	**OFFSET:** CL	**ALIGNMENT:** W10	**EST. 0 HR.** 4.5
COLLAR ELEV.: 33.8 ft	**TOTAL DEPTH:** 18.4 ft	**NORTHING:** 233,096	**EASTING:** 2,380,826	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/17/20	**COMP. DATE:** 01/17/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-26	**STATION:** 13+04	**OFFSET:** 2 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 4.4
COLLAR ELEV.: 30.1 ft	**TOTAL DEPTH:** 16.4 ft	**NORTHING:** 233,083	**EASTING:** 2,380,929	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/08/20	**COMP. DATE:** 01/08/20	**SURF. WATER DEPTH:** N/A



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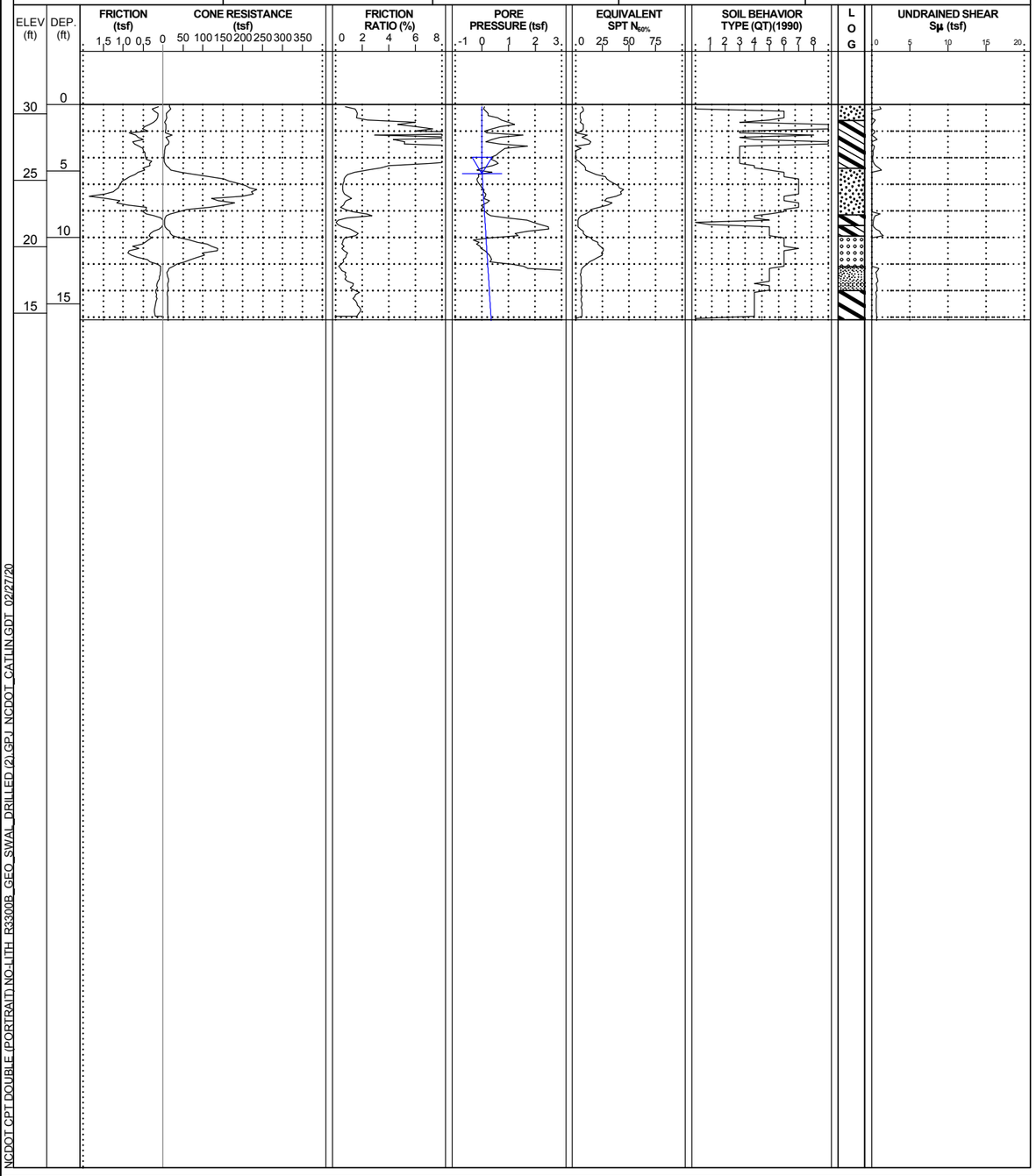
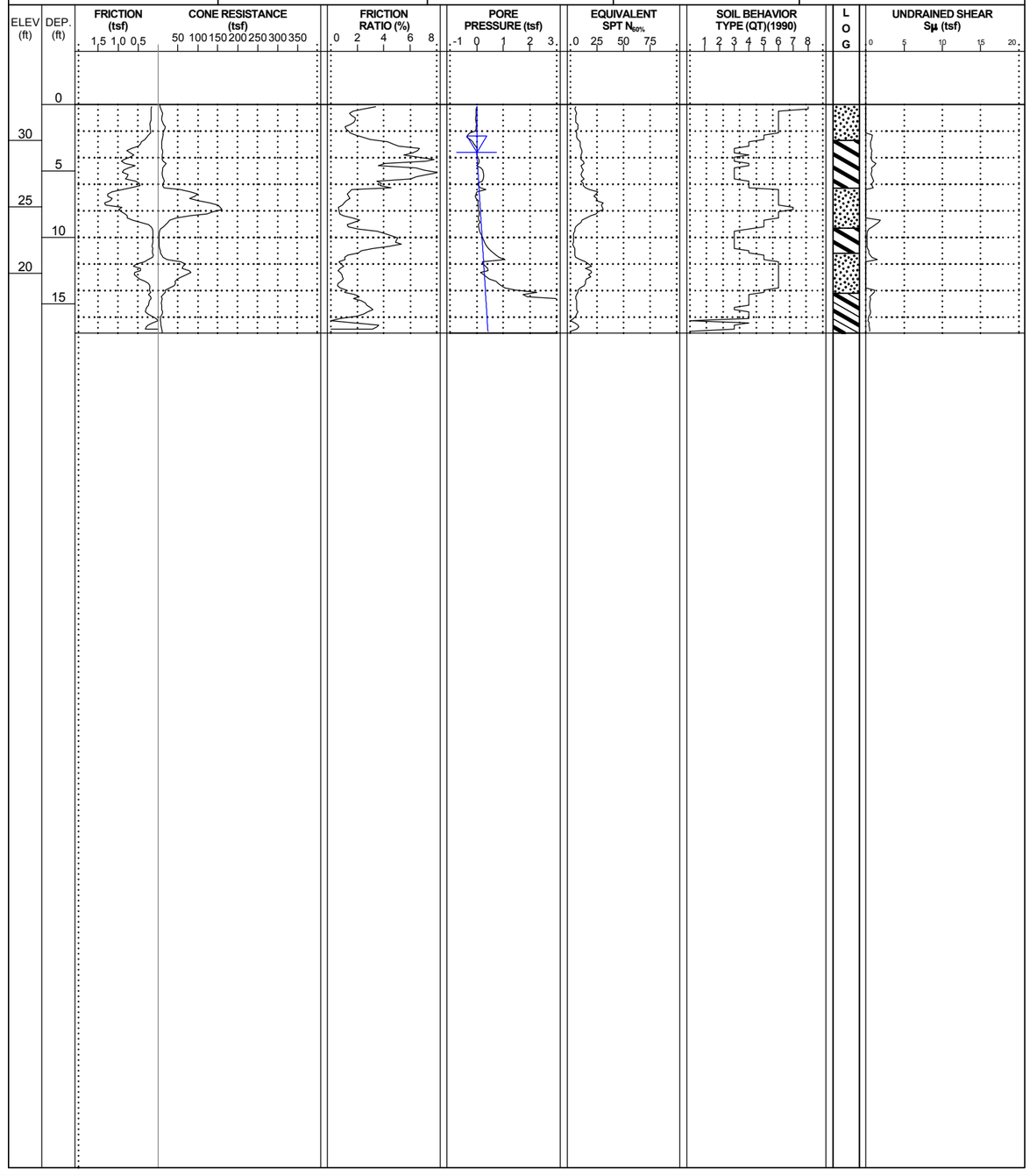
PROJECT REFERENCE NO.	SHEET
R-3300B	23

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-27	**STATION:** 15+09	**OFFSET:** 6 ft LT	**ALIGNMENT:** W10	**EST. 0 HR.** 5.2
COLLAR ELEV.: 30.7 ft	**TOTAL DEPTH:** 16.2 ft	**NORTHING:** 233,069	**EASTING:** 2,381,134	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/08/20	**COMP. DATE:** 01/08/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-28	**STATION:** 15+98	**OFFSET:** 4 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 3.6
COLLAR ELEV.: 32.7 ft	**TOTAL DEPTH:** 17.2 ft	**NORTHING:** 233,050	**EASTING:** 2,381,222	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/08/20	**COMP. DATE:** 01/08/20	**SURF. WATER DEPTH:** N/A



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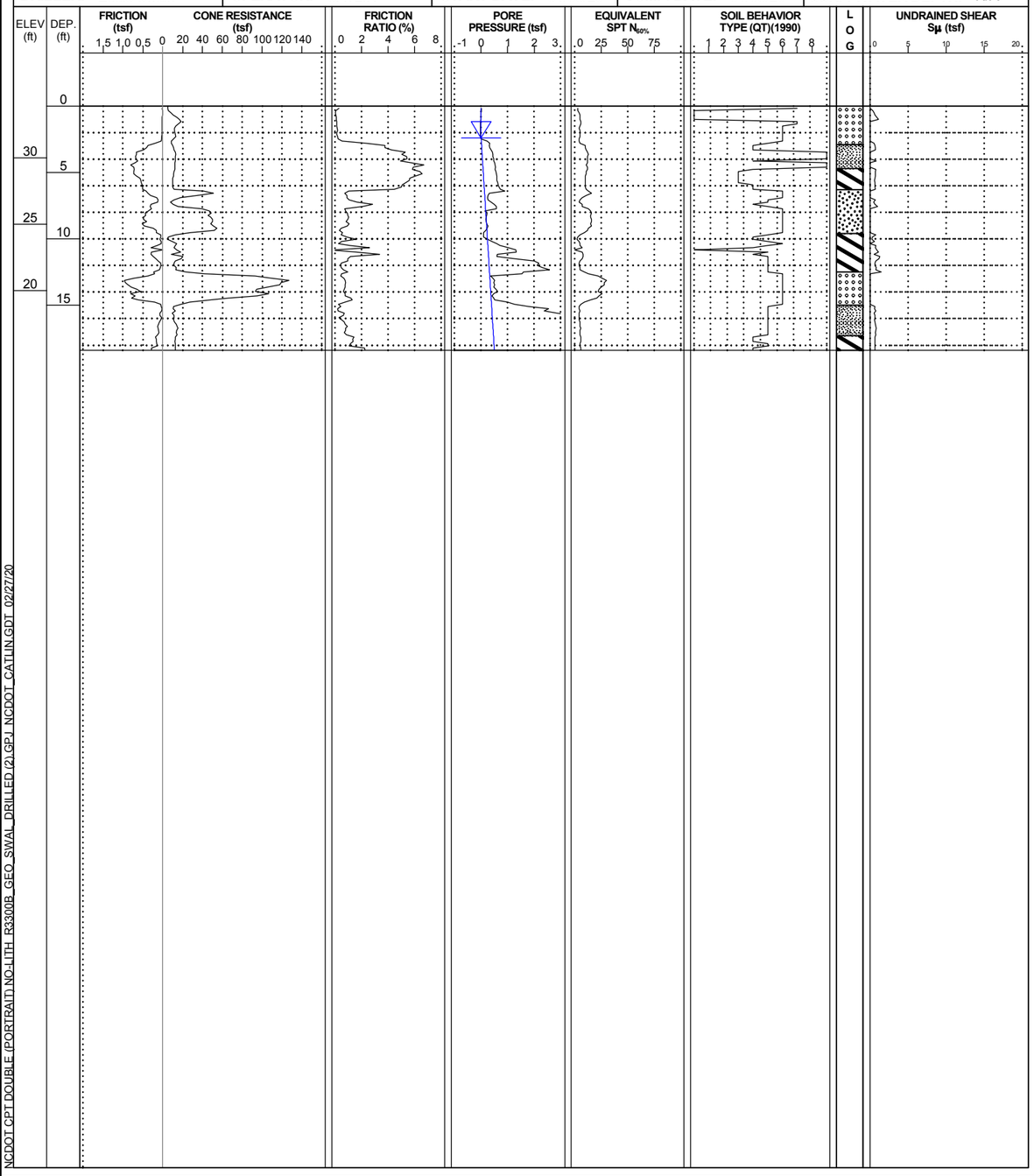
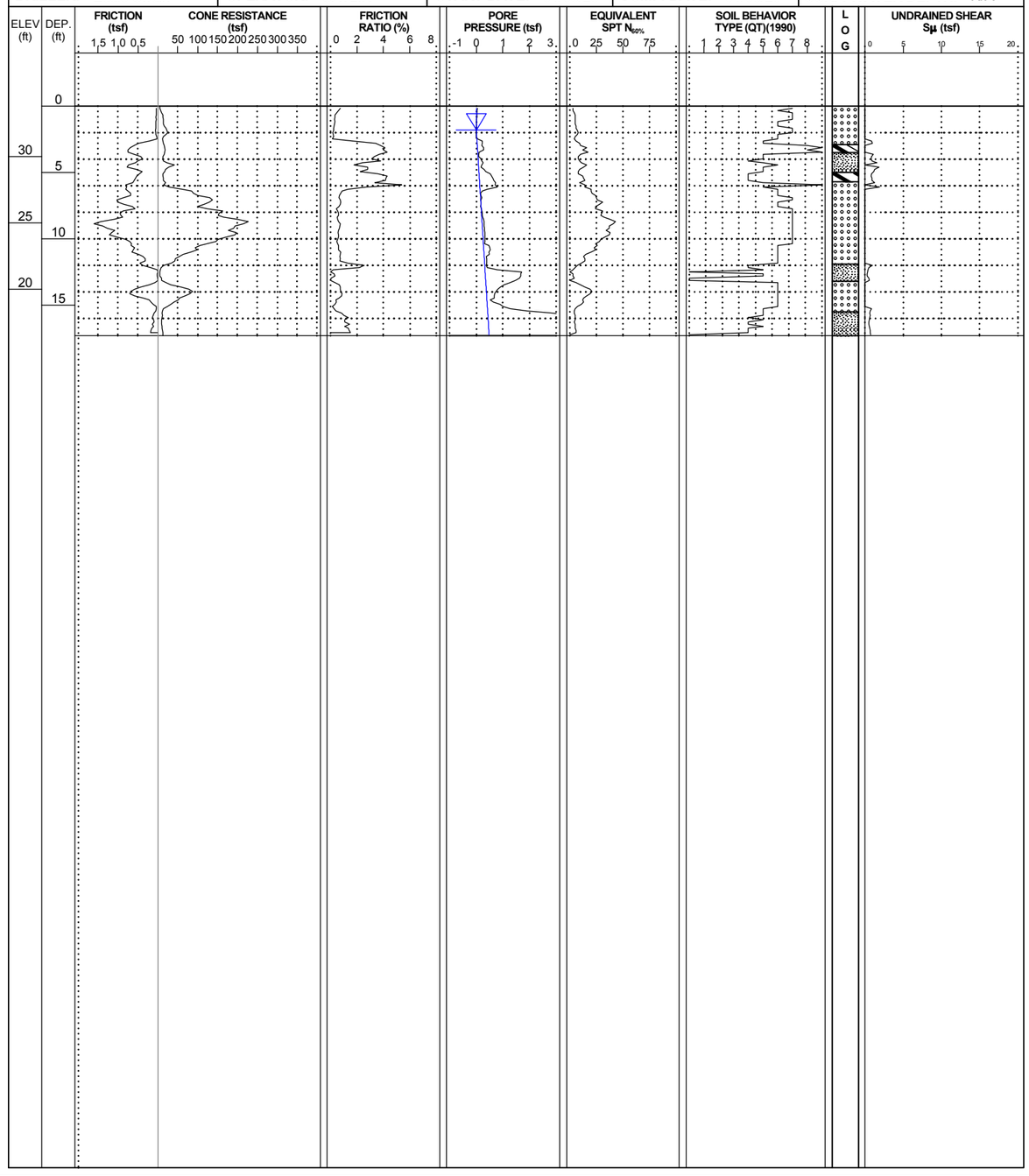
PROJECT REFERENCE NO.	SHEET
R-3300B	24

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-29	**STATION:** 17+46	**OFFSET:** 2 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 2.4
COLLAR ELEV.: 33.9 ft	**TOTAL DEPTH:** 18.4 ft	**NORTHING:** 233,036	**EASTING:** 2,381,369	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/08/20	**COMP. DATE:** 01/08/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-30	**STATION:** 18+48	**OFFSET:** 5 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 1.8
COLLAR ELEV.: 33.8 ft	**TOTAL DEPTH:** 17.3 ft	**NORTHING:** 233,022	**EASTING:** 2,381,470	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/08/20	**COMP. DATE:** 01/08/20	**SURF. WATER DEPTH:** N/A



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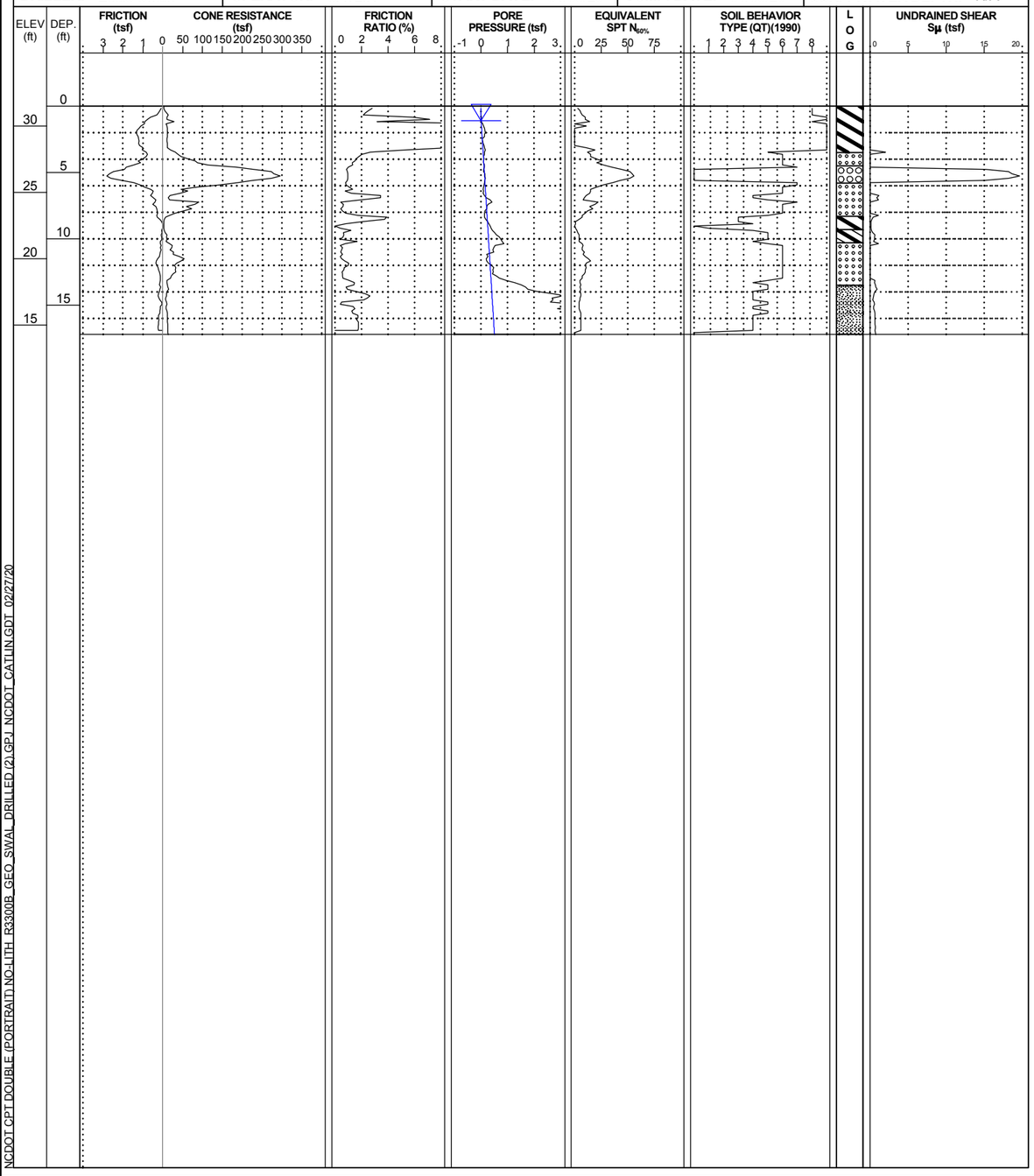
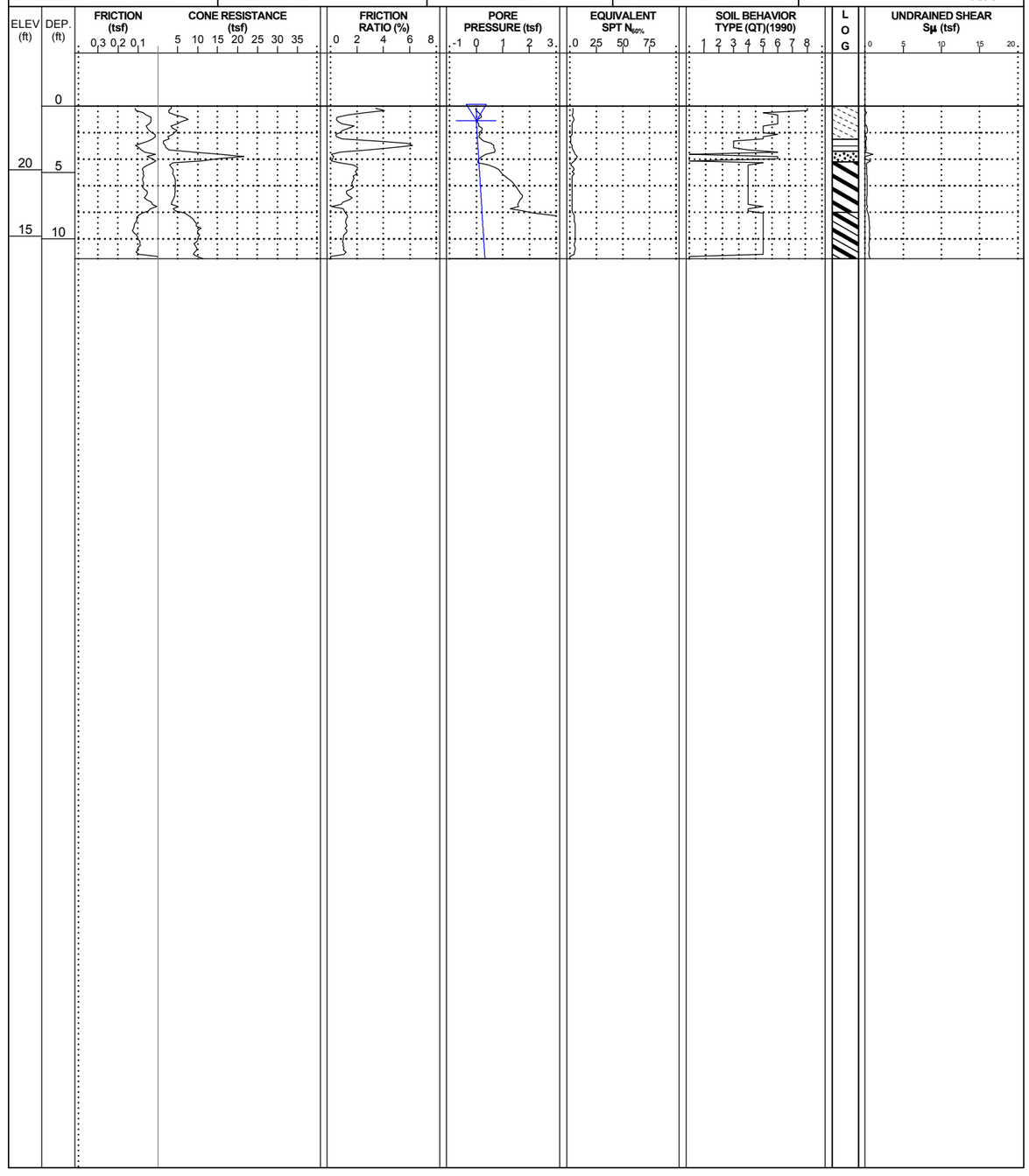
PROJECT REFERENCE NO.	SHEET
R-3300B	25

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-31	**STATION:** 19+44	**OFFSET:** 4 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 1.1
COLLAR ELEV.: 31.5 ft	**TOTAL DEPTH:** 17.2 ft	**NORTHING:** 233,013	**EASTING:** 2,381,566	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/09/20	**COMP. DATE:** 01/09/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-32	**STATION:** 23+05	**OFFSET:** CL	**ALIGNMENT:** W10	**EST. 0 HR.** 1.1
COLLAR ELEV.: 24.8 ft	**TOTAL DEPTH:** 11.5 ft	**NORTHING:** 232,979	**EASTING:** 2,381,925	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/10/20	**COMP. DATE:** 01/10/20	**SURF. WATER DEPTH:** N/A



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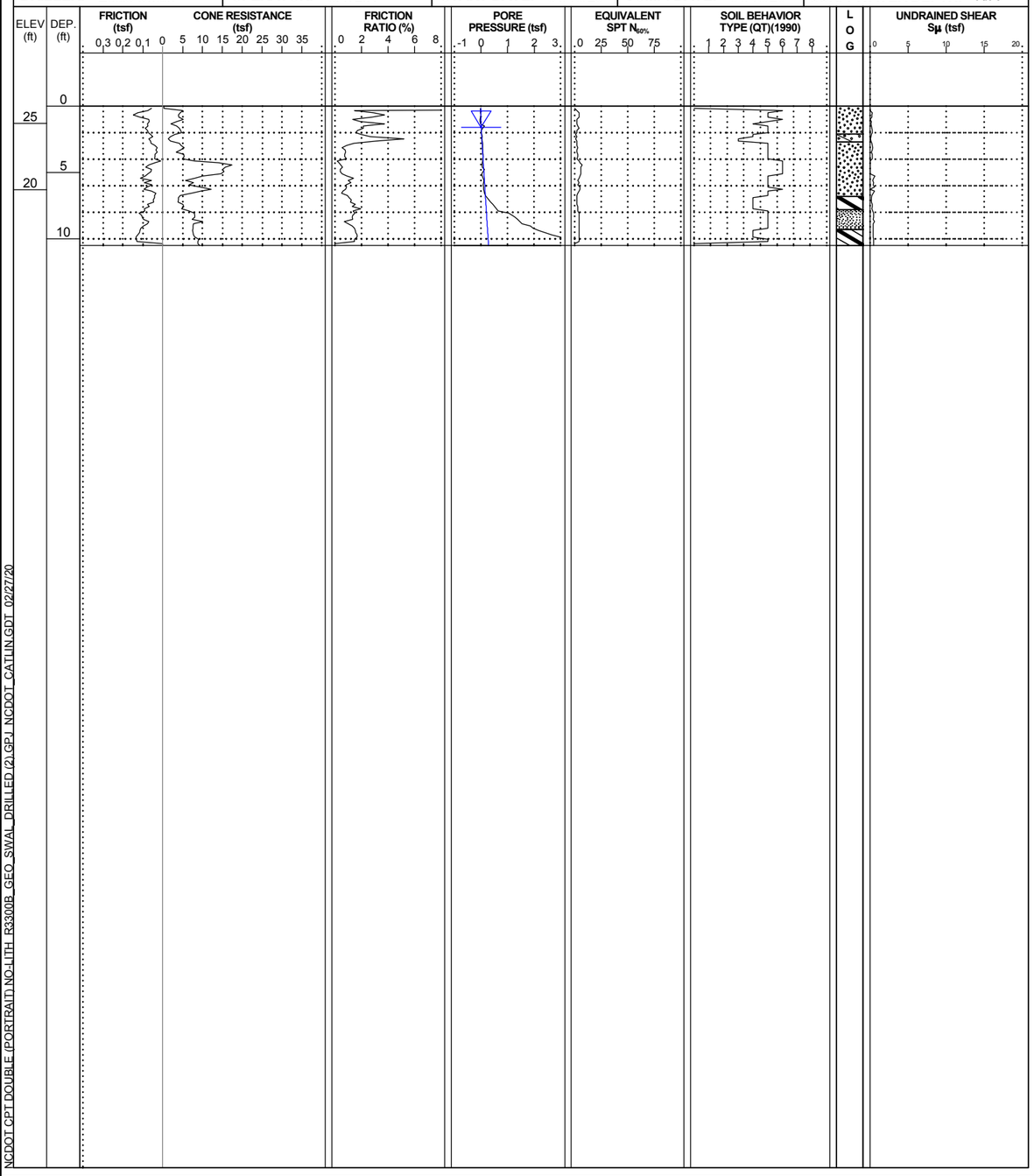
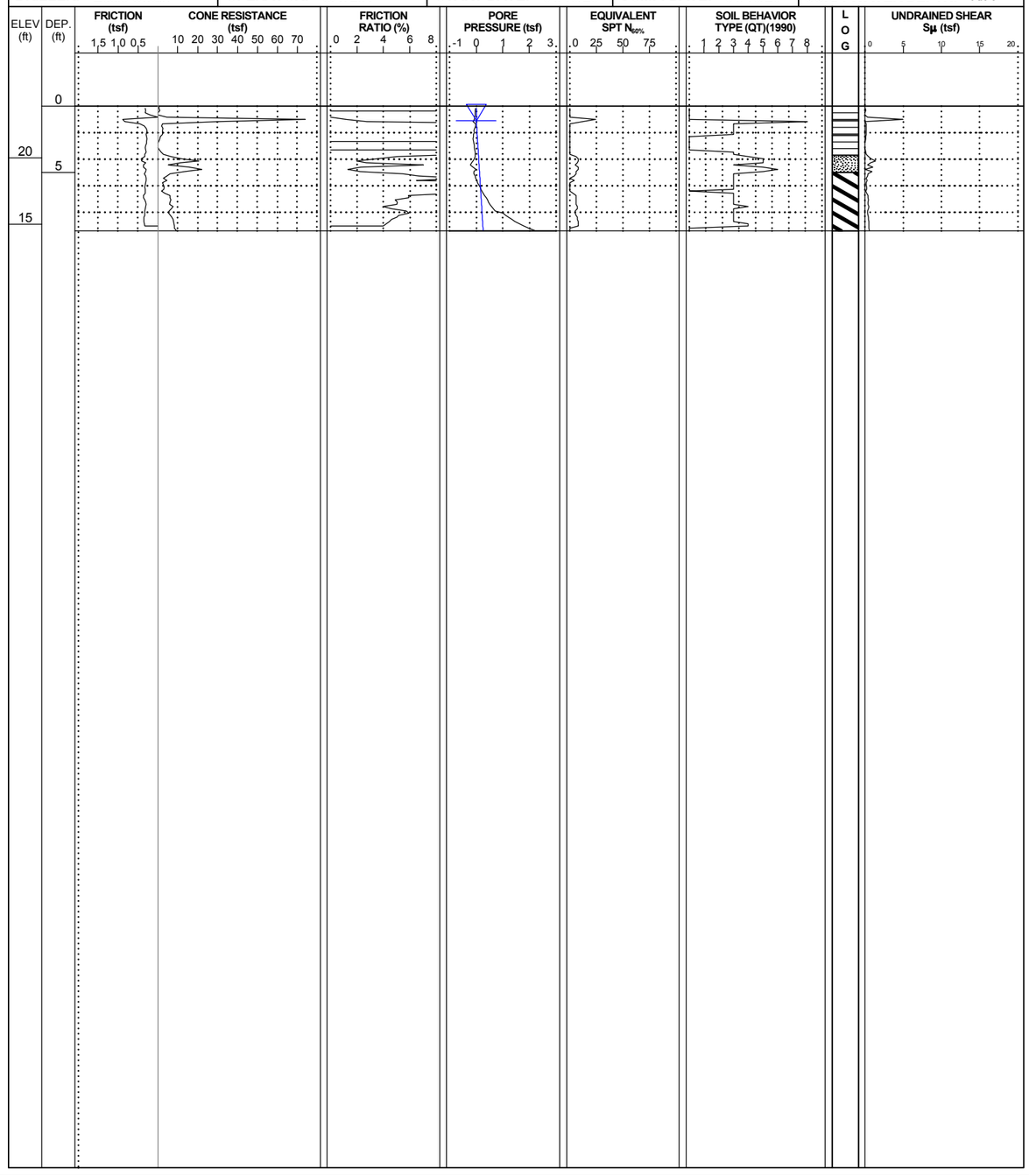
PROJECT REFERENCE NO.	SHEET
R-3300B	26

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-33	**STATION:** 25+00	**OFFSET:** CL	**ALIGNMENT:** W10	**EST. 0 HR.** 1.6
COLLAR ELEV.: 26.3 ft	**TOTAL DEPTH:** 10.5 ft	**NORTHING:** 232,959	**EASTING:** 2,382,119	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/10/20	**COMP. DATE:** 01/10/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-34	**STATION:** 27+03	**OFFSET:** 8 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 1.1
COLLAR ELEV.: 23.9 ft	**TOTAL DEPTH:** 9.4 ft	**NORTHING:** 232,932	**EASTING:** 2,382,320	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/10/20	**COMP. DATE:** 01/10/20	**SURF. WATER DEPTH:** N/A



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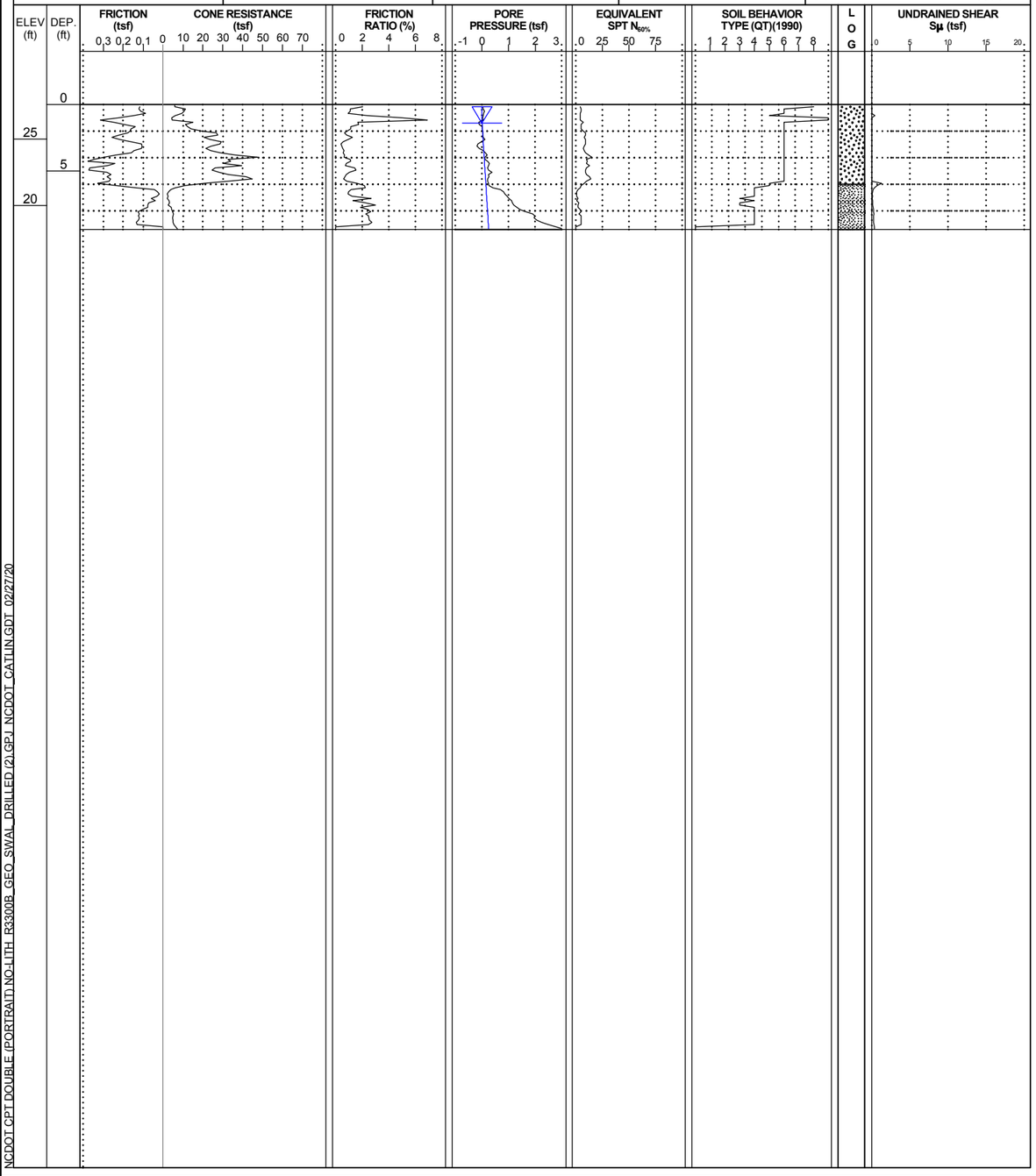
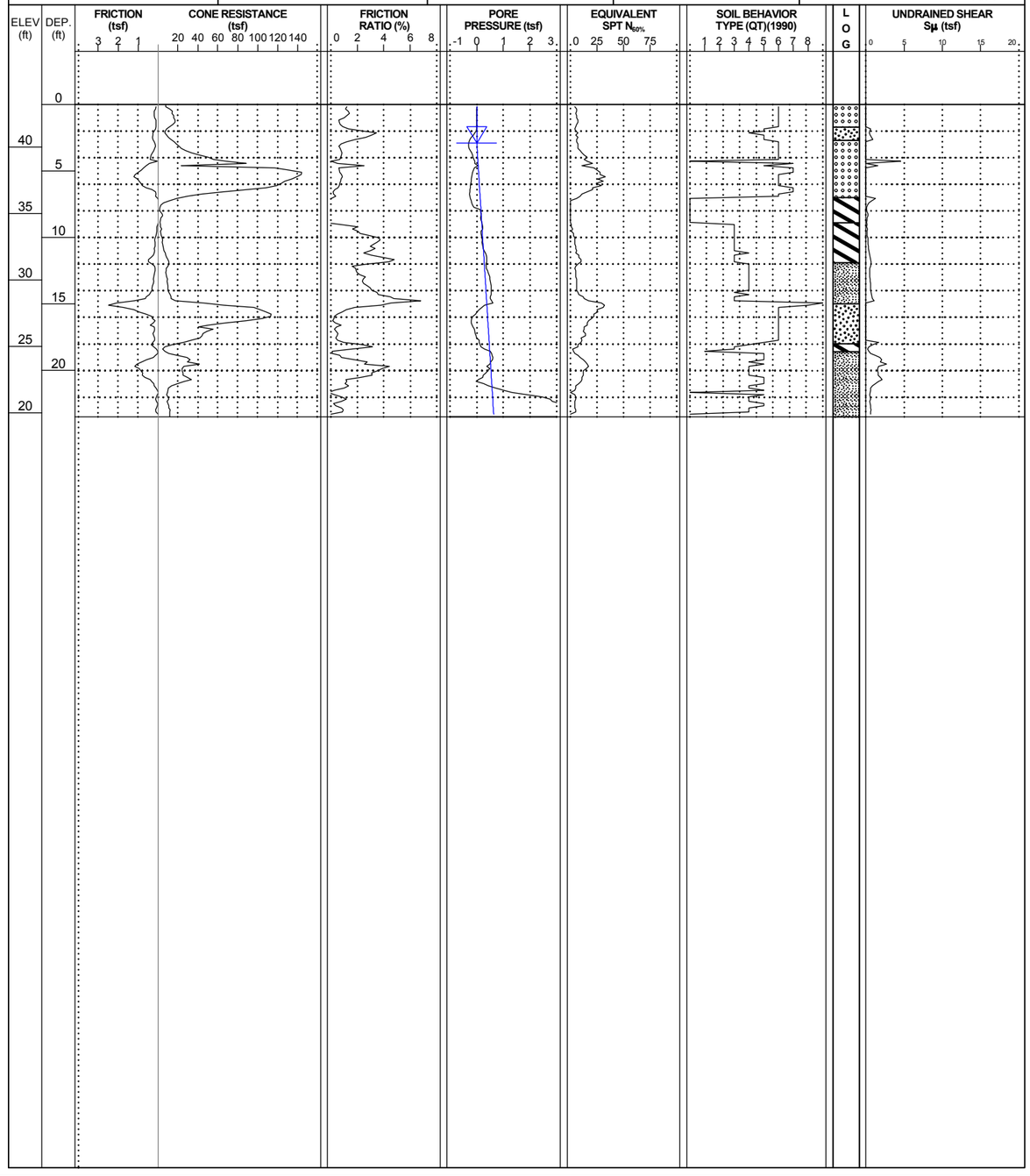
PROJECT REFERENCE NO.	SHEET
R-3300B	27

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-35	**STATION:** 34+95	**OFFSET:** 4 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 1.4
COLLAR ELEV.: 27.6 ft	**TOTAL DEPTH:** 9.4 ft	**NORTHING:** 232,937	**EASTING:** 2,383,112	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/13/20	**COMP. DATE:** 01/13/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-36	**STATION:** 40+50	**OFFSET:** CL	**ALIGNMENT:** W10	**EST. 0 HR.** 2.9
COLLAR ELEV.: 43.2 ft	**TOTAL DEPTH:** 23.5 ft	**NORTHING:** 233,013	**EASTING:** 2,383,662	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/13/20	**COMP. DATE:** 01/13/20	**SURF. WATER DEPTH:** N/A



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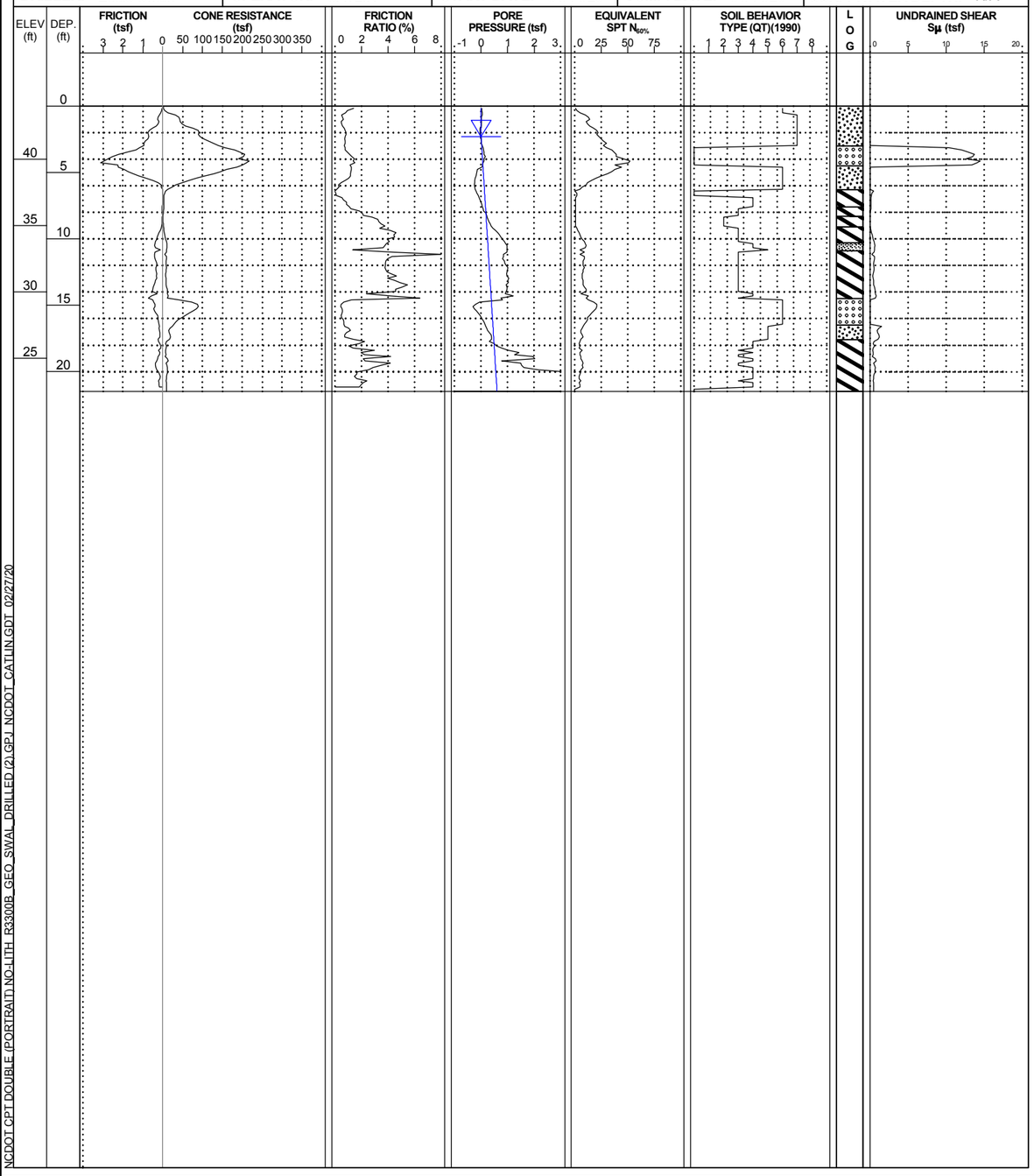
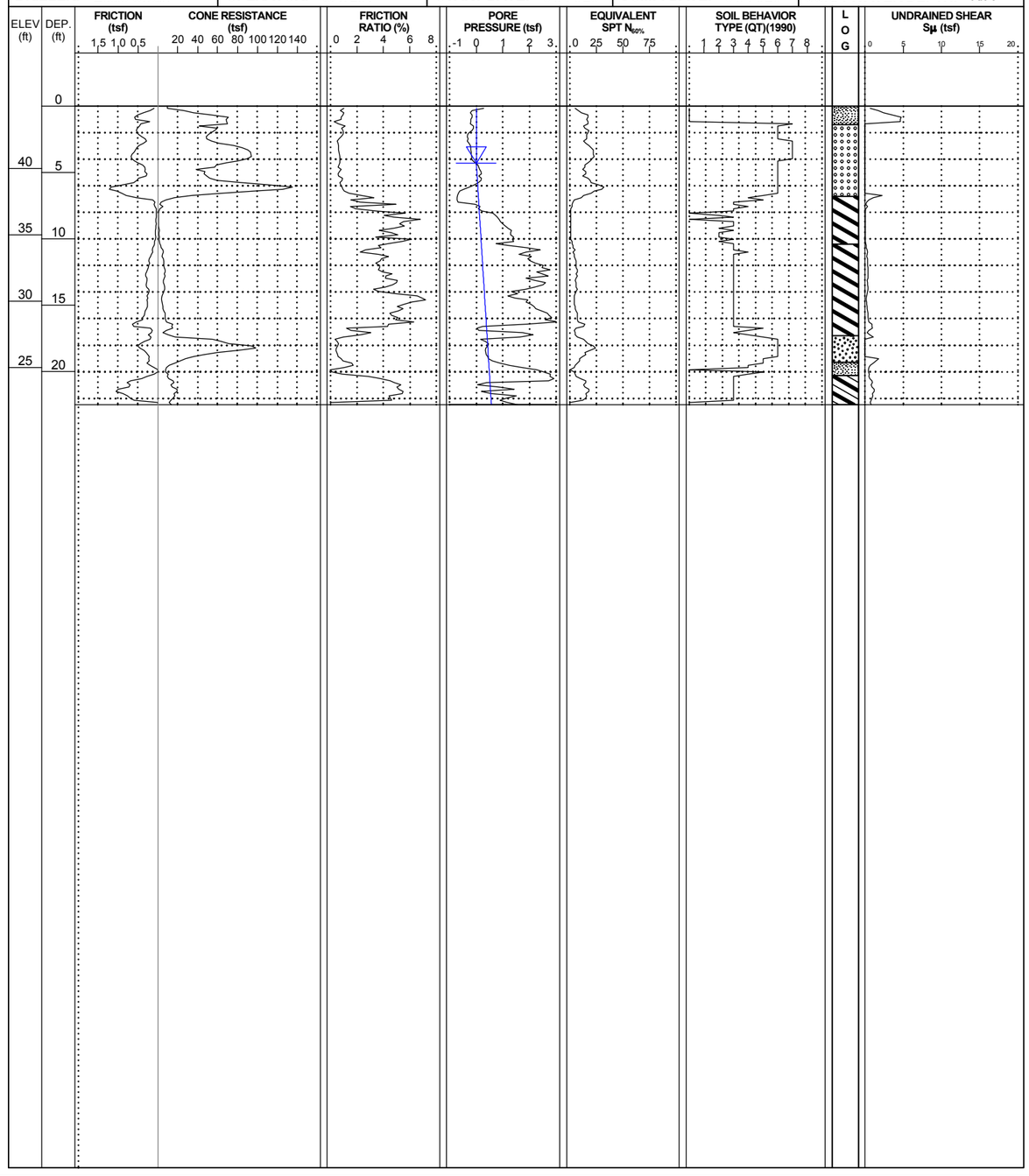
PROJECT REFERENCE NO.	SHEET
R-3300B	28

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-37	**STATION:** 44+42	**OFFSET:** 9 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 2.3
COLLAR ELEV.: 44.0 ft	**TOTAL DEPTH:** 21.5 ft	**NORTHING:** 233,091	**EASTING:** 2,384,047	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/14/20	**COMP. DATE:** 01/14/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW10-38	**STATION:** 47+52	**OFFSET:** 3 ft RT	**ALIGNMENT:** W10	**EST. 0 HR.** 4.3
COLLAR ELEV.: 44.7 ft	**TOTAL DEPTH:** 22.5 ft	**NORTHING:** 233,185	**EASTING:** 2,384,342	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/14/20	**COMP. DATE:** 01/14/20	**SURF. WATER DEPTH:** N/A



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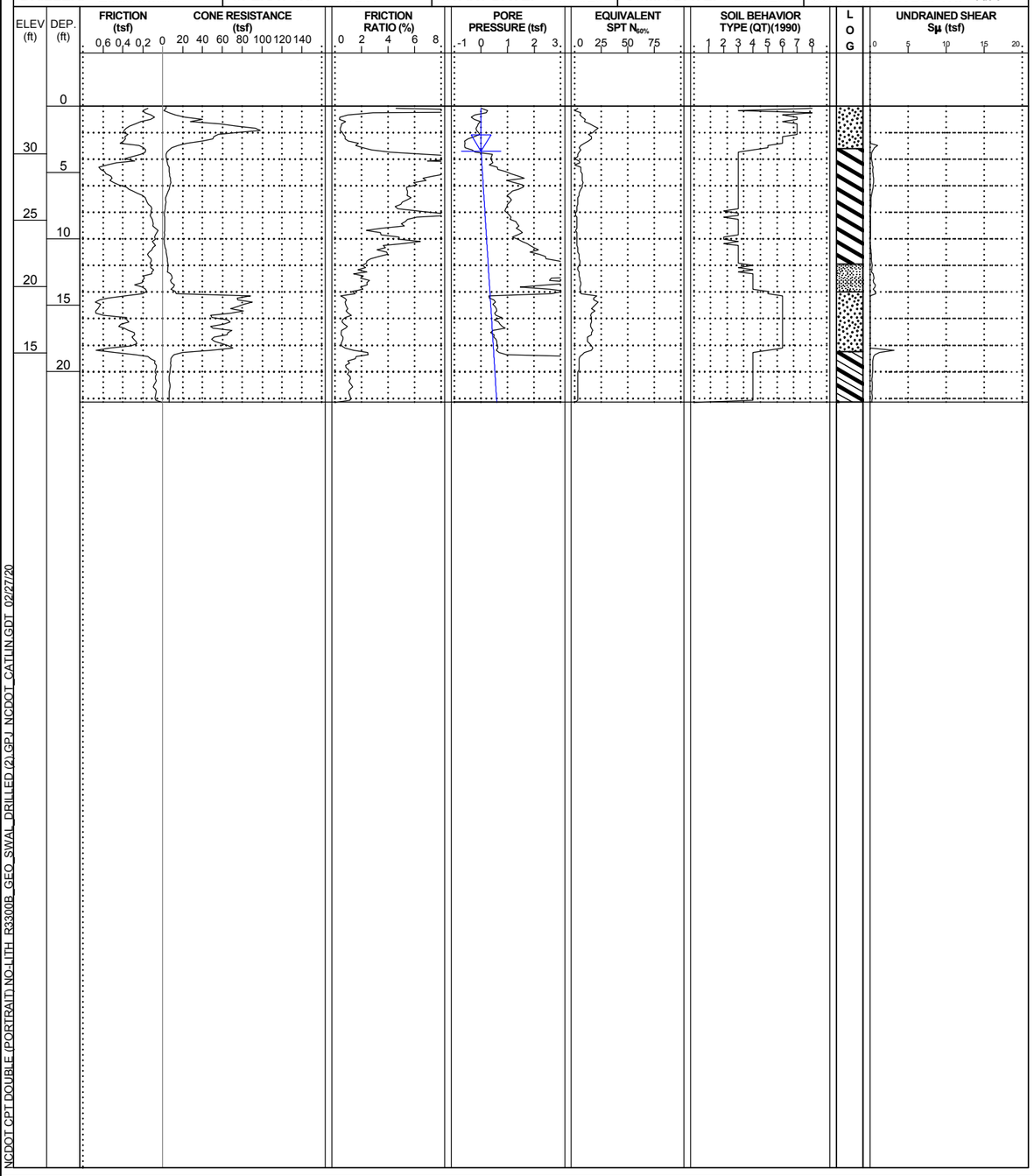
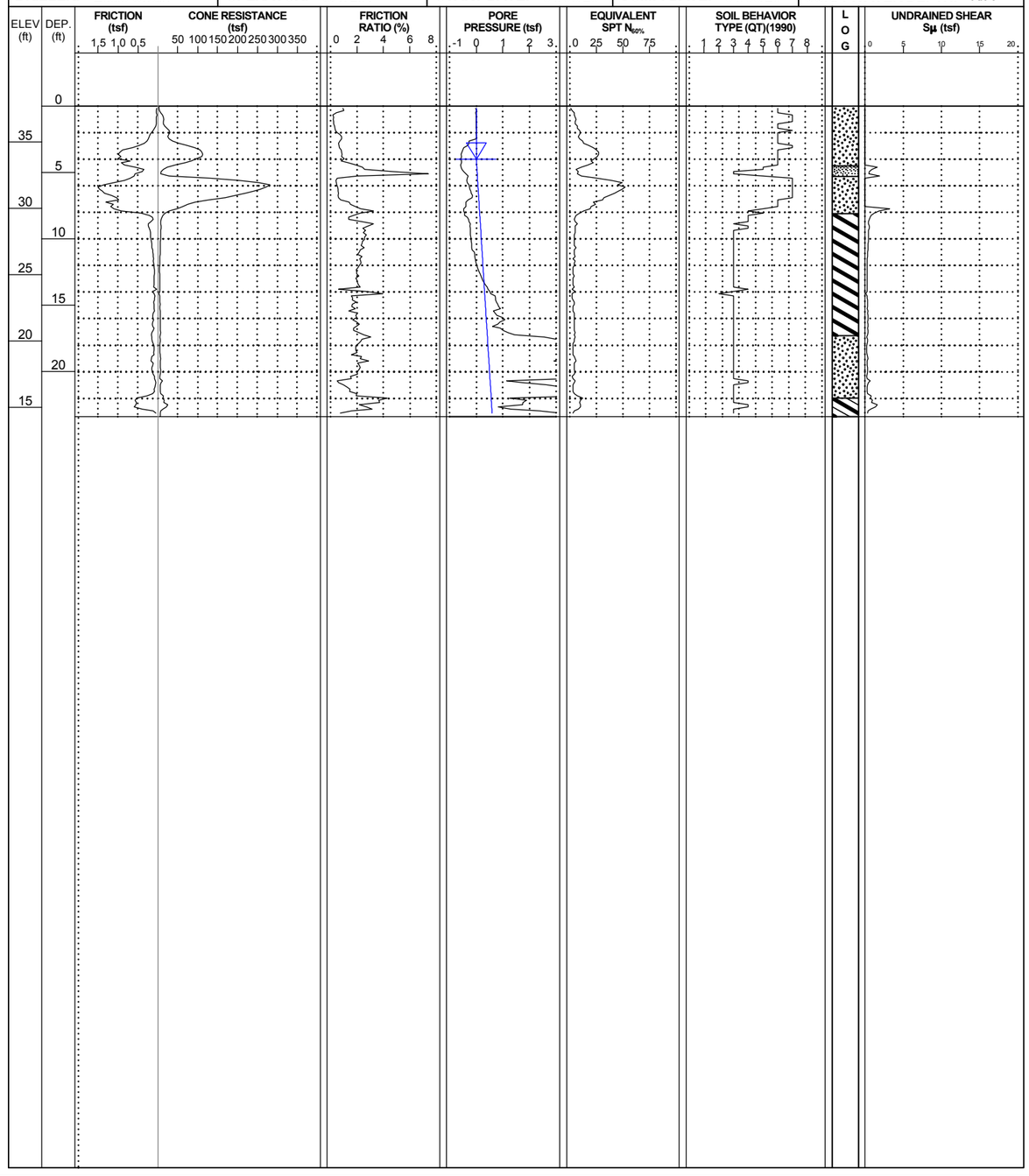
PROJECT REFERENCE NO.	SHEET
R-3300B	29

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-54	**STATION:** 10+00	**OFFSET:** 2 ft LT	**ALIGNMENT:** NW9	**EST. 0 HR.** 3.4
COLLAR ELEV.: 33.6 ft	**TOTAL DEPTH:** 22.3 ft	**NORTHING:** 232,354	**EASTING:** 2,378,849	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/06/20	**COMP. DATE:** 01/06/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-55	**STATION:** 11+06	**OFFSET:** CL	**ALIGNMENT:** NW9	**EST. 0 HR.** 4.0
COLLAR ELEV.: 37.7 ft	**TOTAL DEPTH:** 23.4 ft	**NORTHING:** 232,437	**EASTING:** 2,378,918	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/06/20	**COMP. DATE:** 01/06/20	**SURF. WATER DEPTH:** N/A

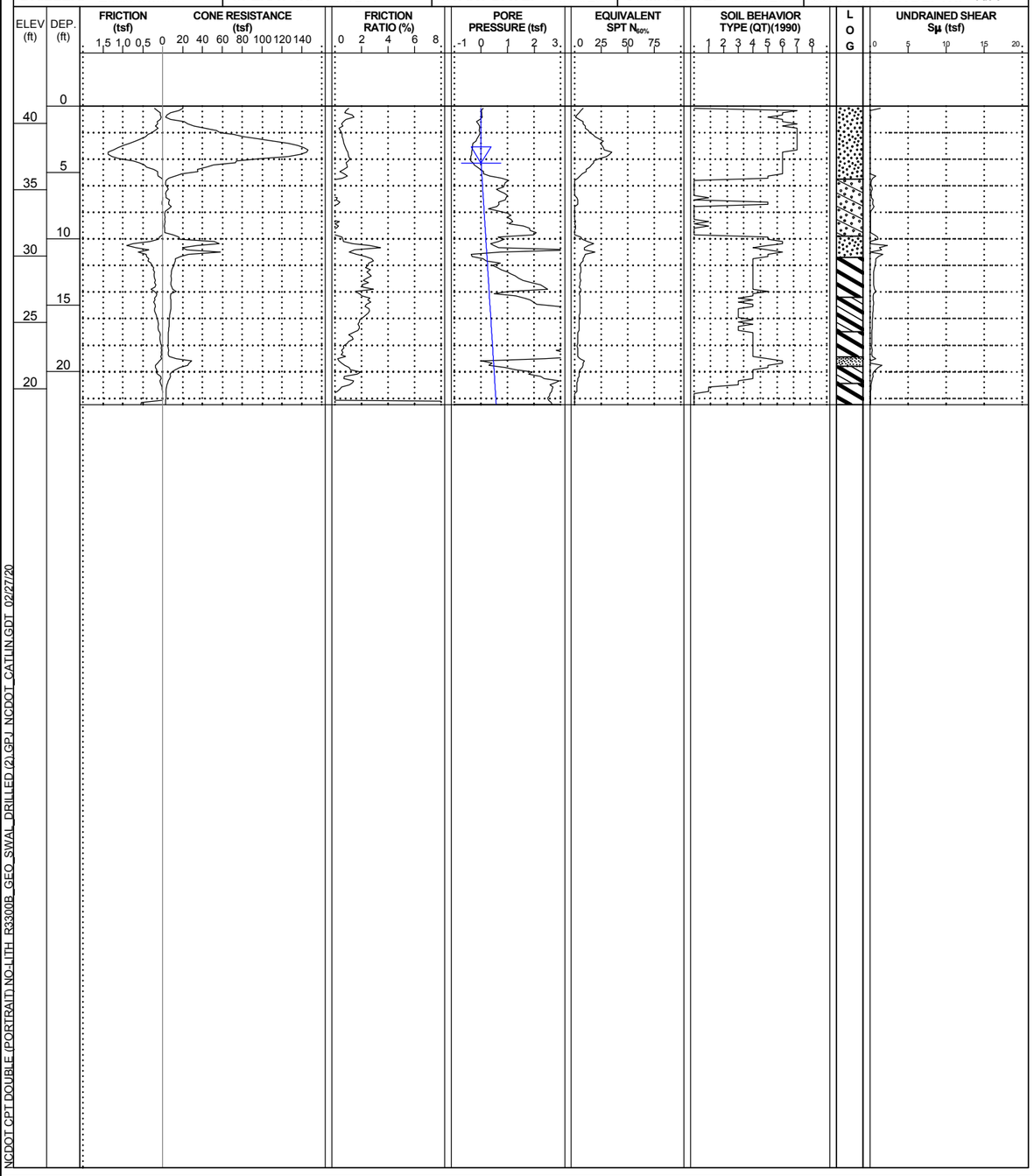


CONE PENETROMETER TEST BORING REPORT

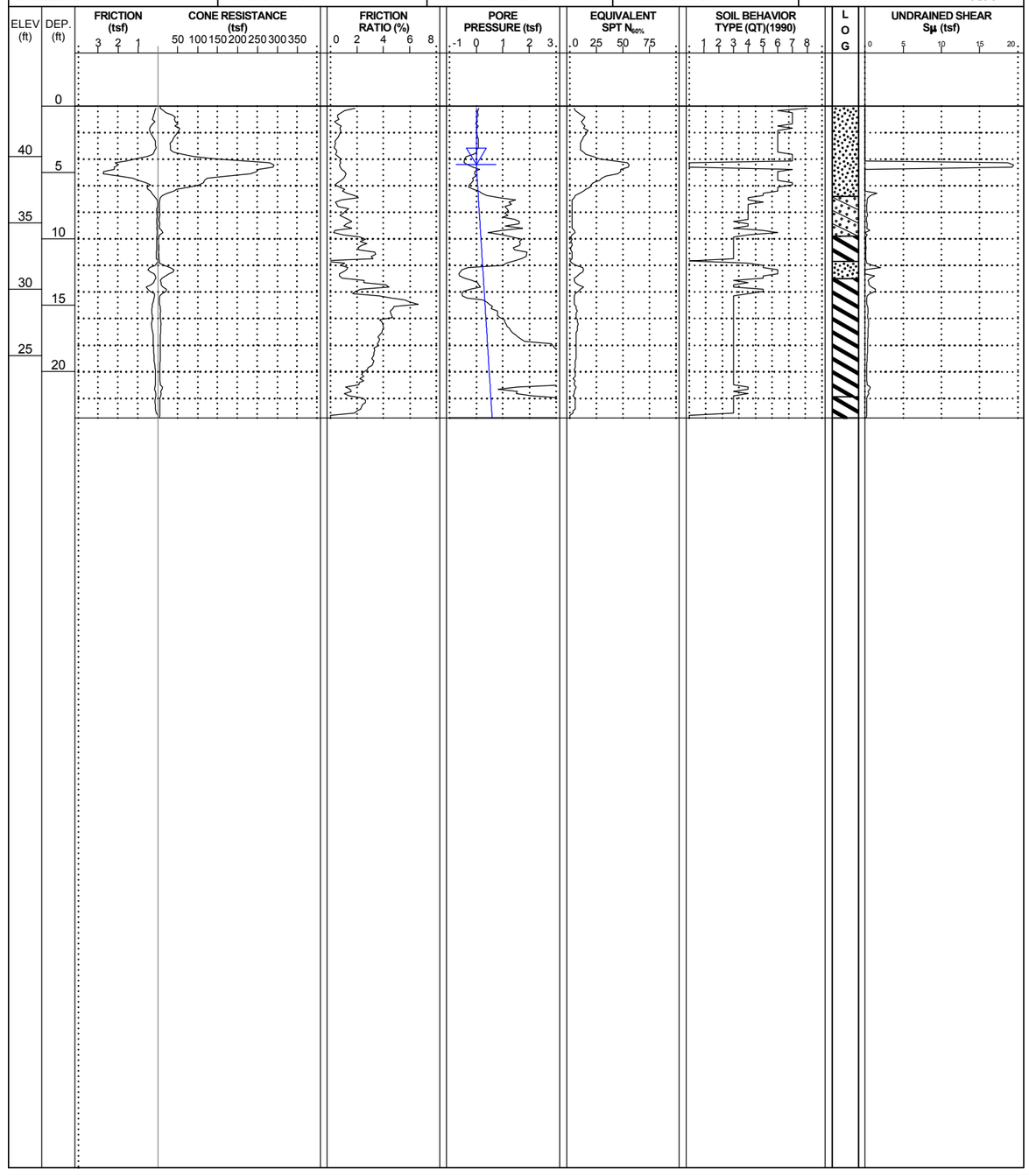
219094 CATLIN Engineers and Scientists
220 Old Dairy Road
Wilmington, NC 28405
Corporate Licensure No. for Engineering Services C-0585

PROJECT REFERENCE NO.	SHEET
R-3300B	30

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-56	**STATION:** 13+04	**OFFSET:** CL	**ALIGNMENT:** NW9	**EST. 0 HR.** 4.3
COLLAR ELEV.: 41.3 ft	**TOTAL DEPTH:** 22.5 ft	**NORTHING:** 232,576	**EASTING:** 2,379,058	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/06/20	**COMP. DATE:** 01/06/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-57	**STATION:** 13+95	**OFFSET:** 1 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 4.4
COLLAR ELEV.: 43.8 ft	**TOTAL DEPTH:** 23.5 ft	**NORTHING:** 232,632	**EASTING:** 2,379,130	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/07/20	**COMP. DATE:** 01/07/20	**SURF. WATER DEPTH:** N/A



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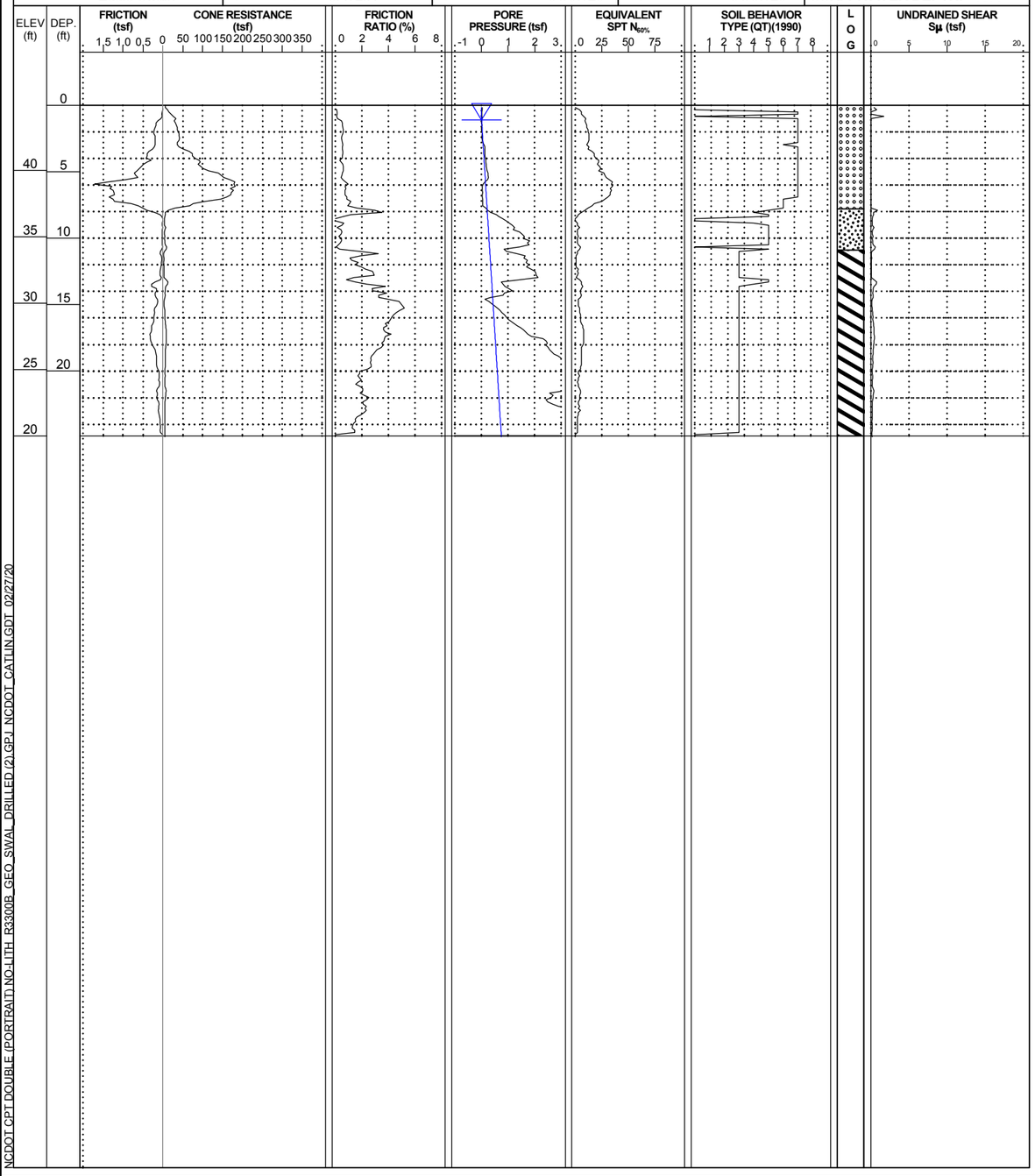
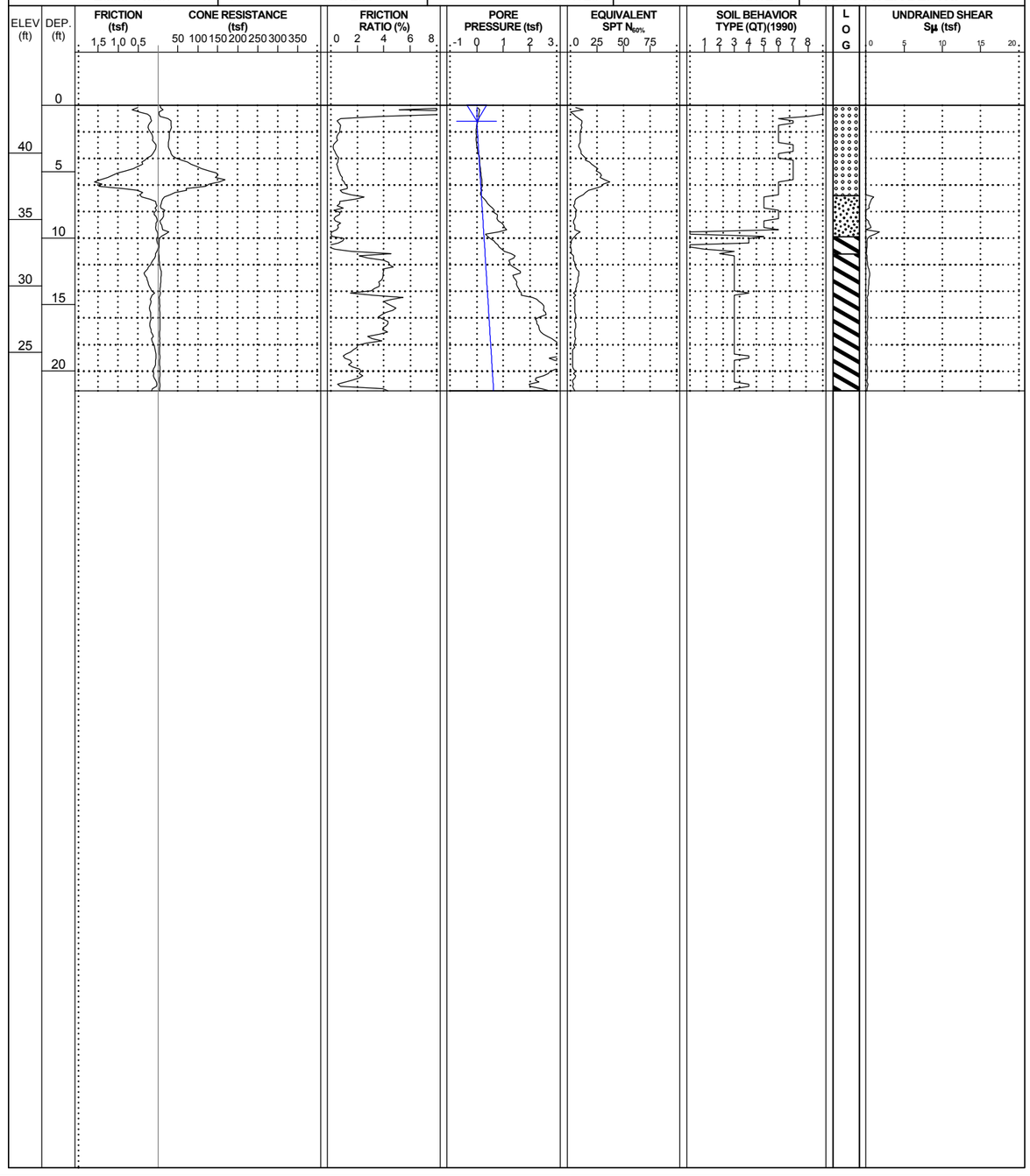
PROJECT REFERENCE NO.	SHEET
R-3300B	31

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-58	**STATION:** 14+93	**OFFSET:** 12 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.1
COLLAR ELEV.: 44.9 ft	**TOTAL DEPTH:** 24.9 ft	**NORTHING:** 232,679	**EASTING:** 2,379,216	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/07/20	**COMP. DATE:** 01/07/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-59	**STATION:** 16+02	**OFFSET:** 8 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.2
COLLAR ELEV.: 43.6 ft	**TOTAL DEPTH:** 21.5 ft	**NORTHING:** 232,737	**EASTING:** 2,379,307	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/07/20	**COMP. DATE:** 01/07/20	**SURF. WATER DEPTH:** N/A



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219094 CATLIN Engineers and Scientists
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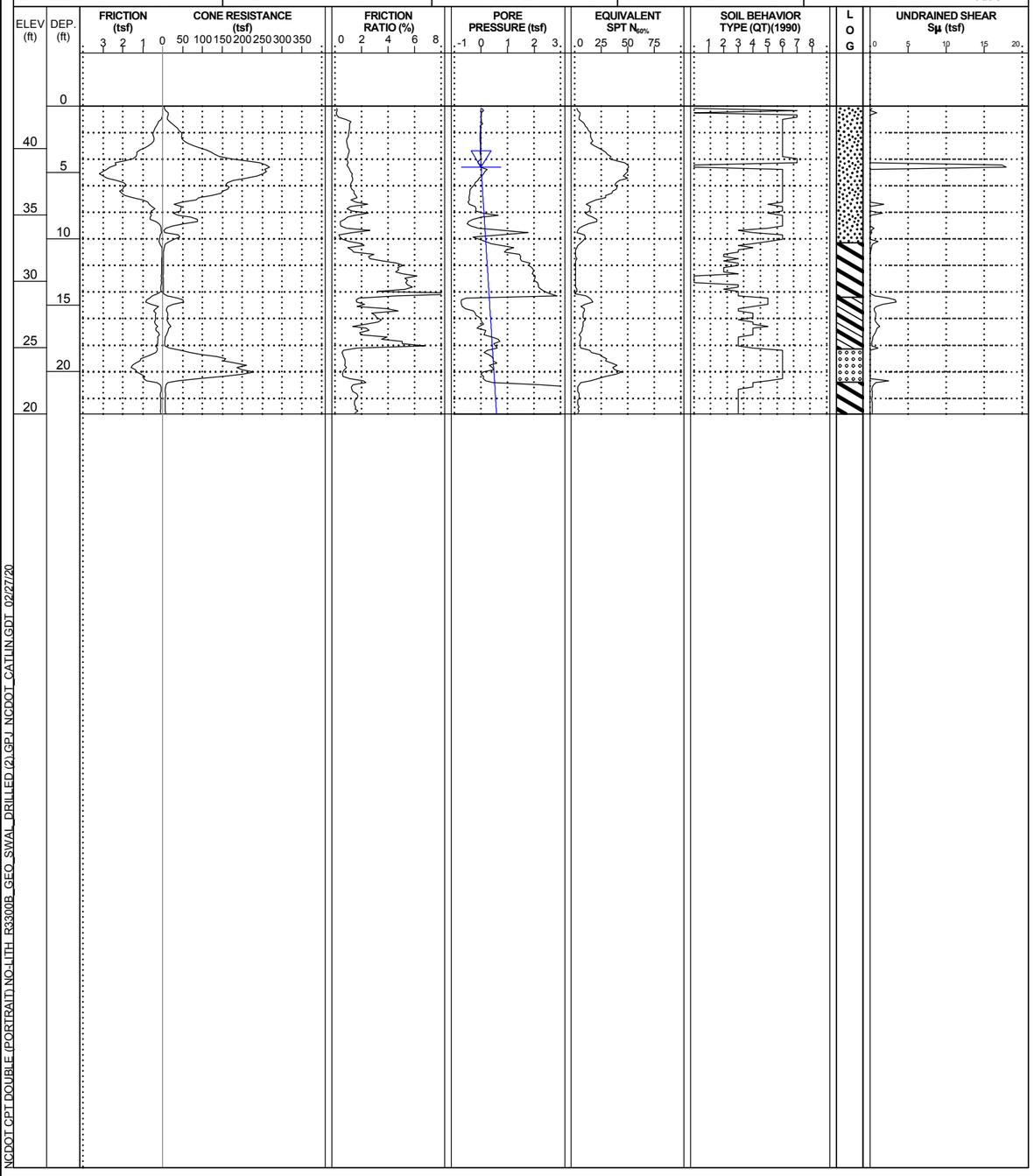
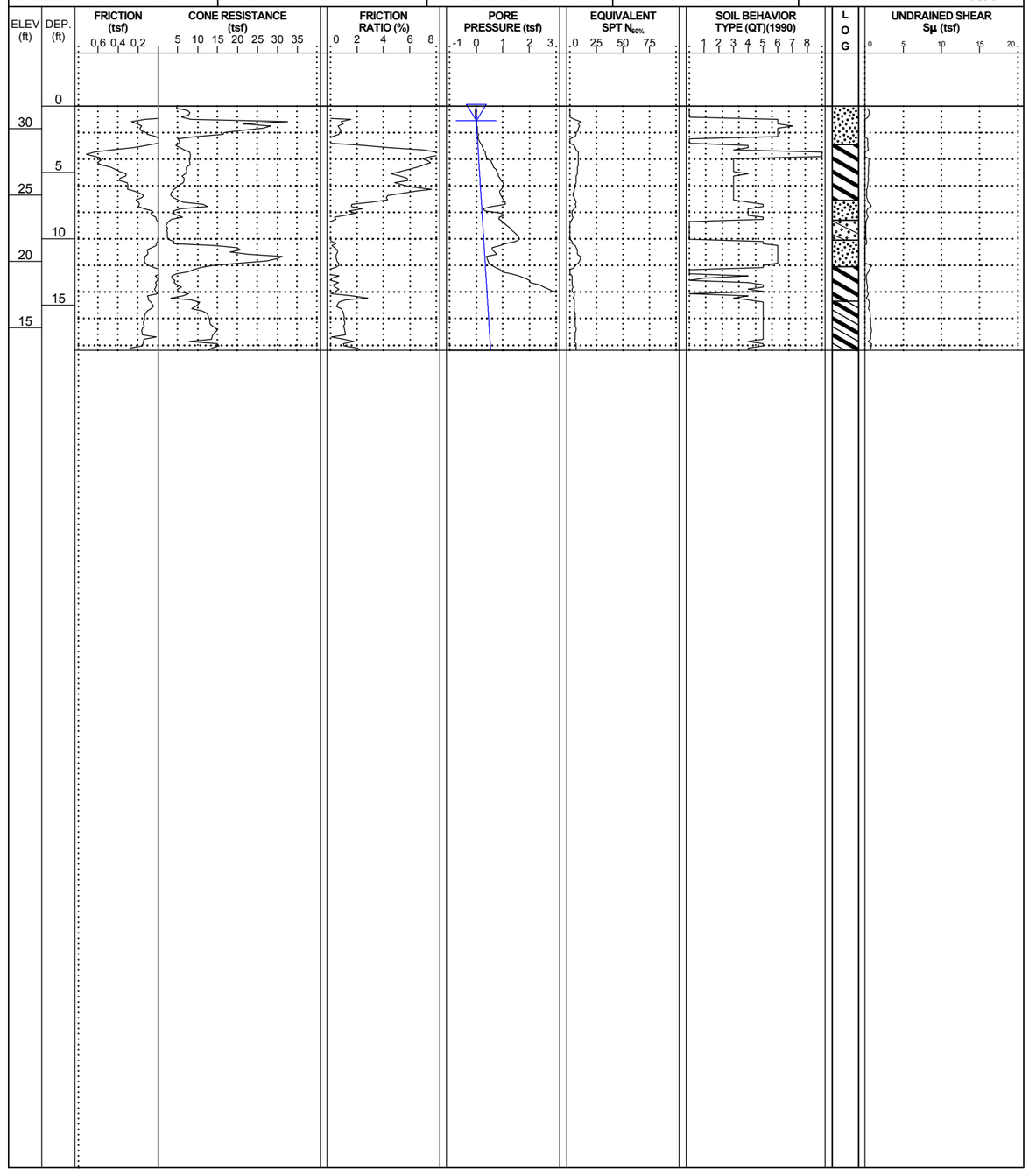
PROJECT REFERENCE NO.	SHEET
R-3300B	32

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-60	**STATION:** 25+54	**OFFSET:** 8 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 4.6
COLLAR ELEV.: 43.2 ft	**TOTAL DEPTH:** 23.2 ft	**NORTHING:** 232,995	**EASTING:** 2,380,214	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/07/20	**COMP. DATE:** 01/07/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-61	**STATION:** 33+38	**OFFSET:** 2 ft LT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.1
COLLAR ELEV.: 31.7 ft	**TOTAL DEPTH:** 18.4 ft	**NORTHING:** 232,959	**EASTING:** 2,380,995	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/08/20	**COMP. DATE:** 01/08/20	**SURF. WATER DEPTH:** N/A



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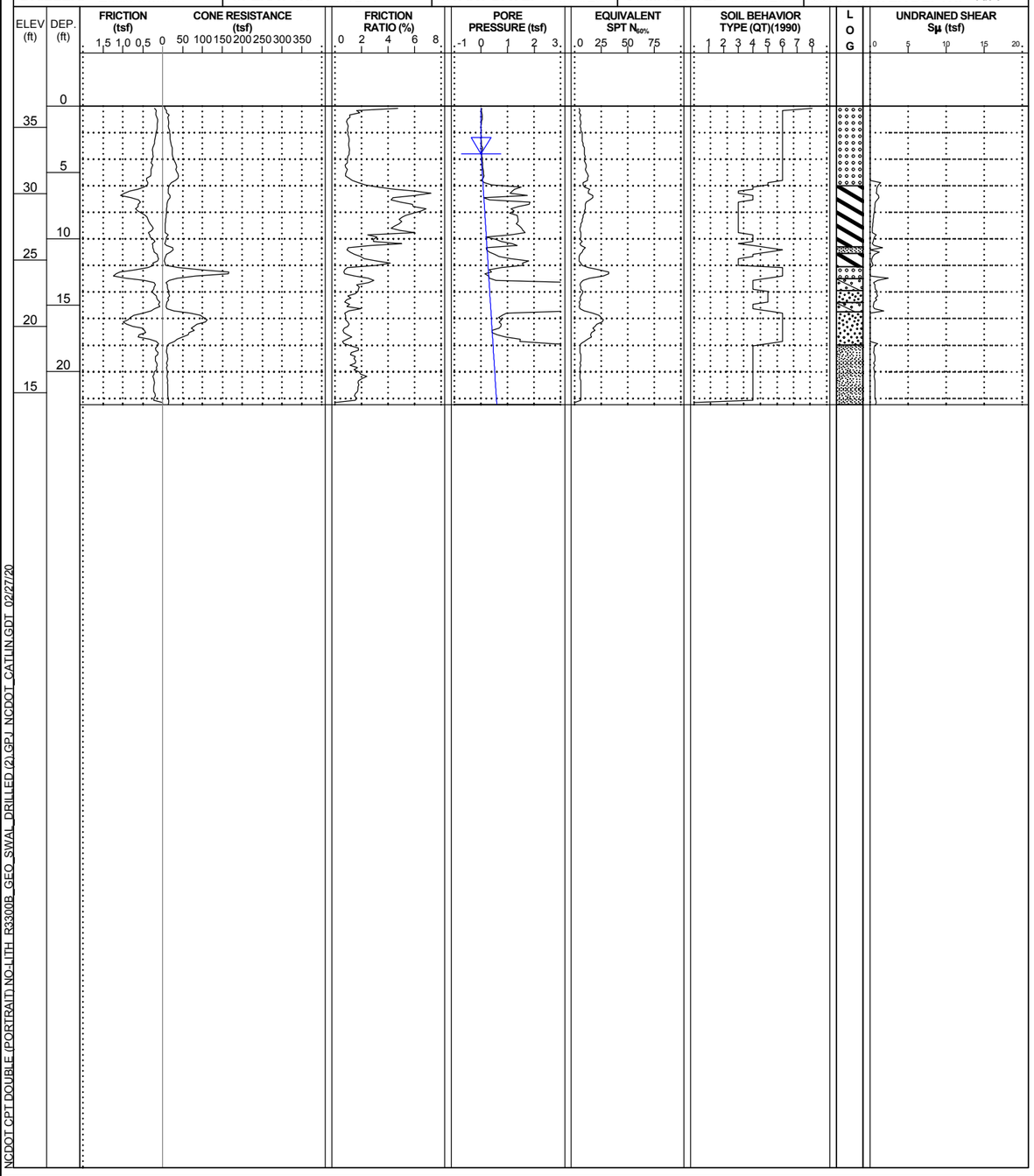
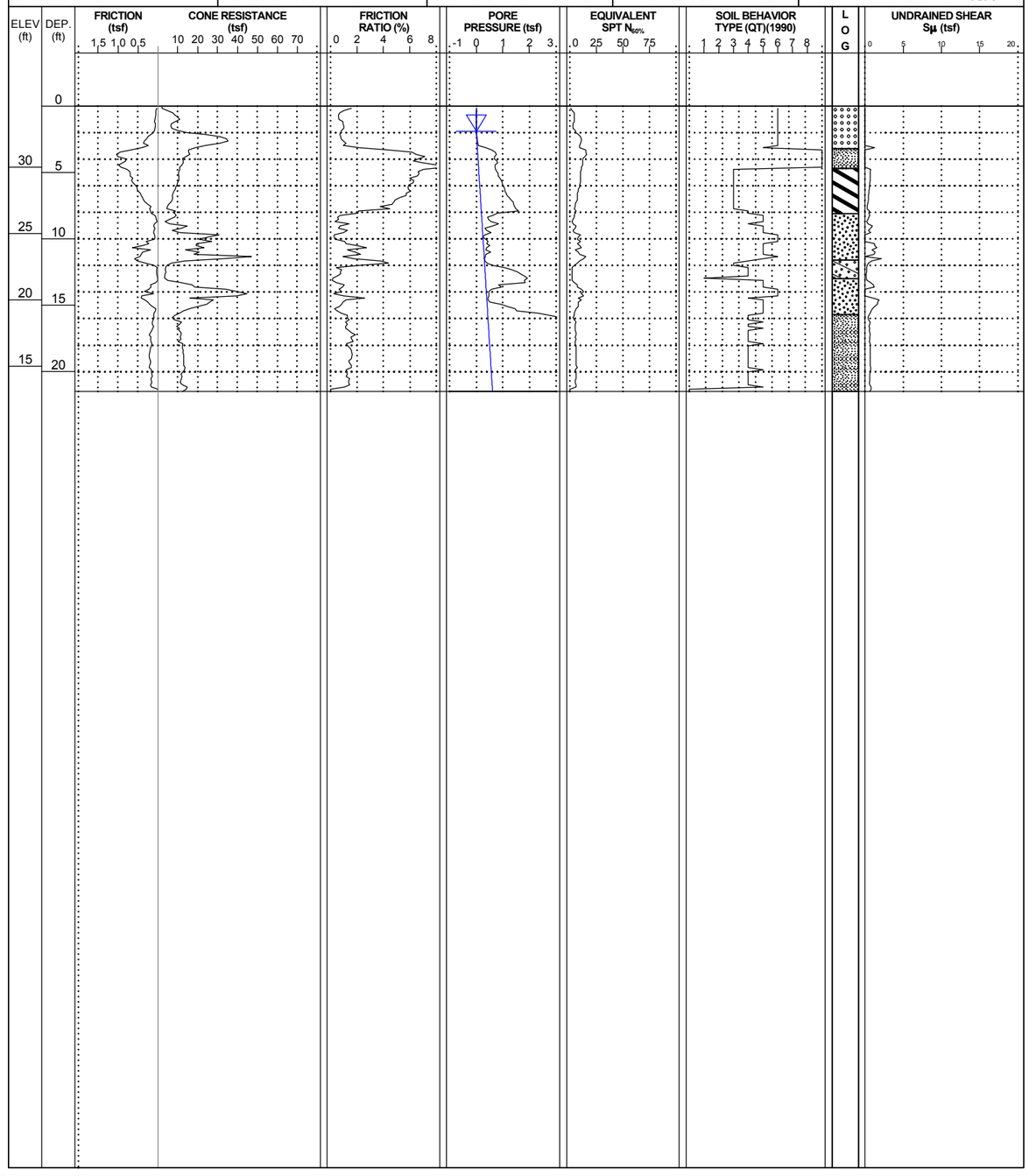
PROJECT REFERENCE NO.	SHEET
R-3300B	33

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-62	**STATION:** 36+50	**OFFSET:** 4 ft LT	**ALIGNMENT:** NW9	**EST. 0 HR.** 3.6
COLLAR ELEV.: 36.6 ft	**TOTAL DEPTH:** 22.5 ft	**NORTHING:** 232,928	**EASTING:** 2,381,305	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/09/20	**COMP. DATE:** 01/09/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-63	**STATION:** 37+54	**OFFSET:** 3 ft LT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.9
COLLAR ELEV.: 34.6 ft	**TOTAL DEPTH:** 21.5 ft	**NORTHING:** 232,916	**EASTING:** 2,381,409	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/09/20	**COMP. DATE:** 01/09/20	**SURF. WATER DEPTH:** N/A



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219094 CATLIN Engineers and Scientists
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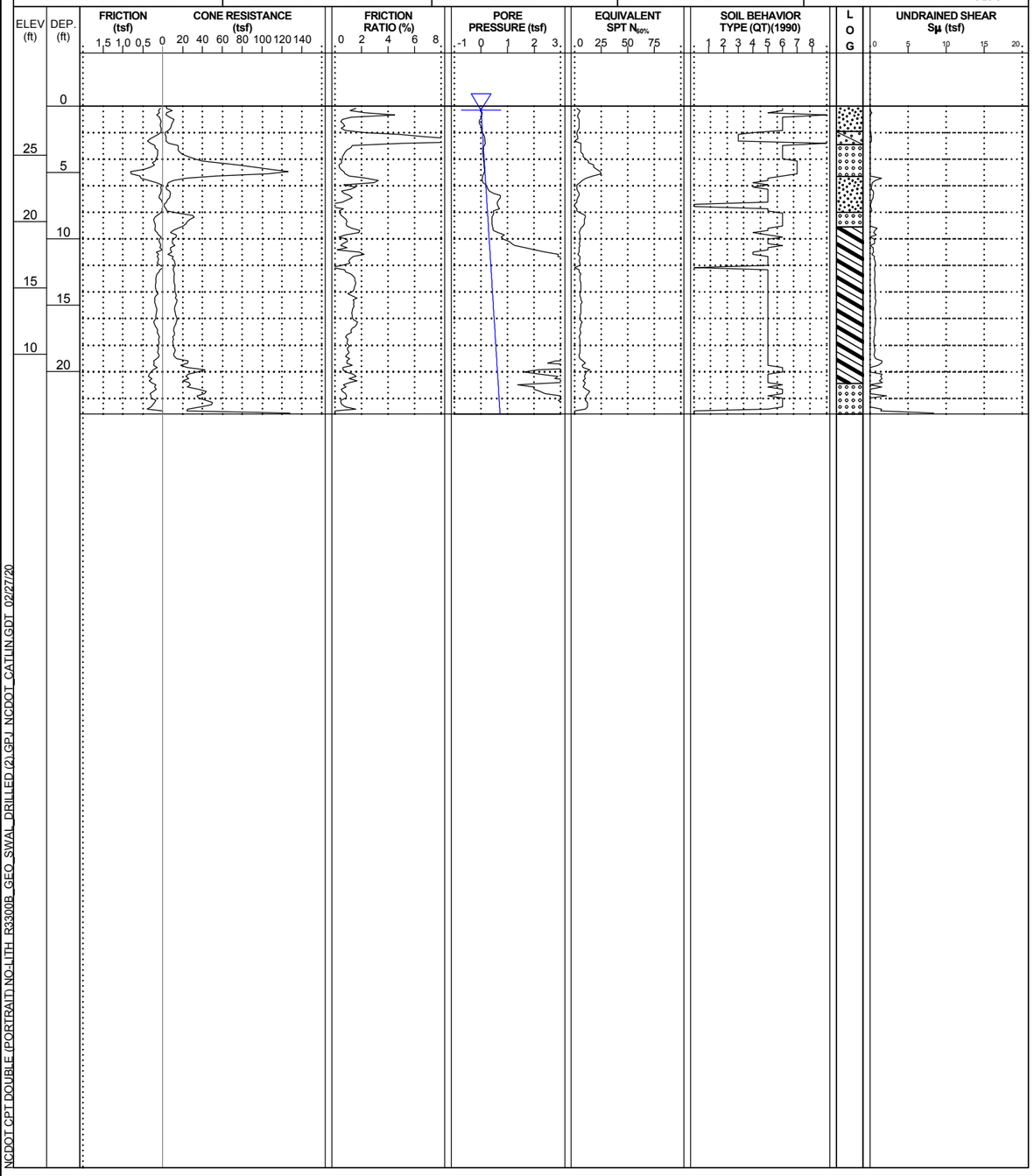
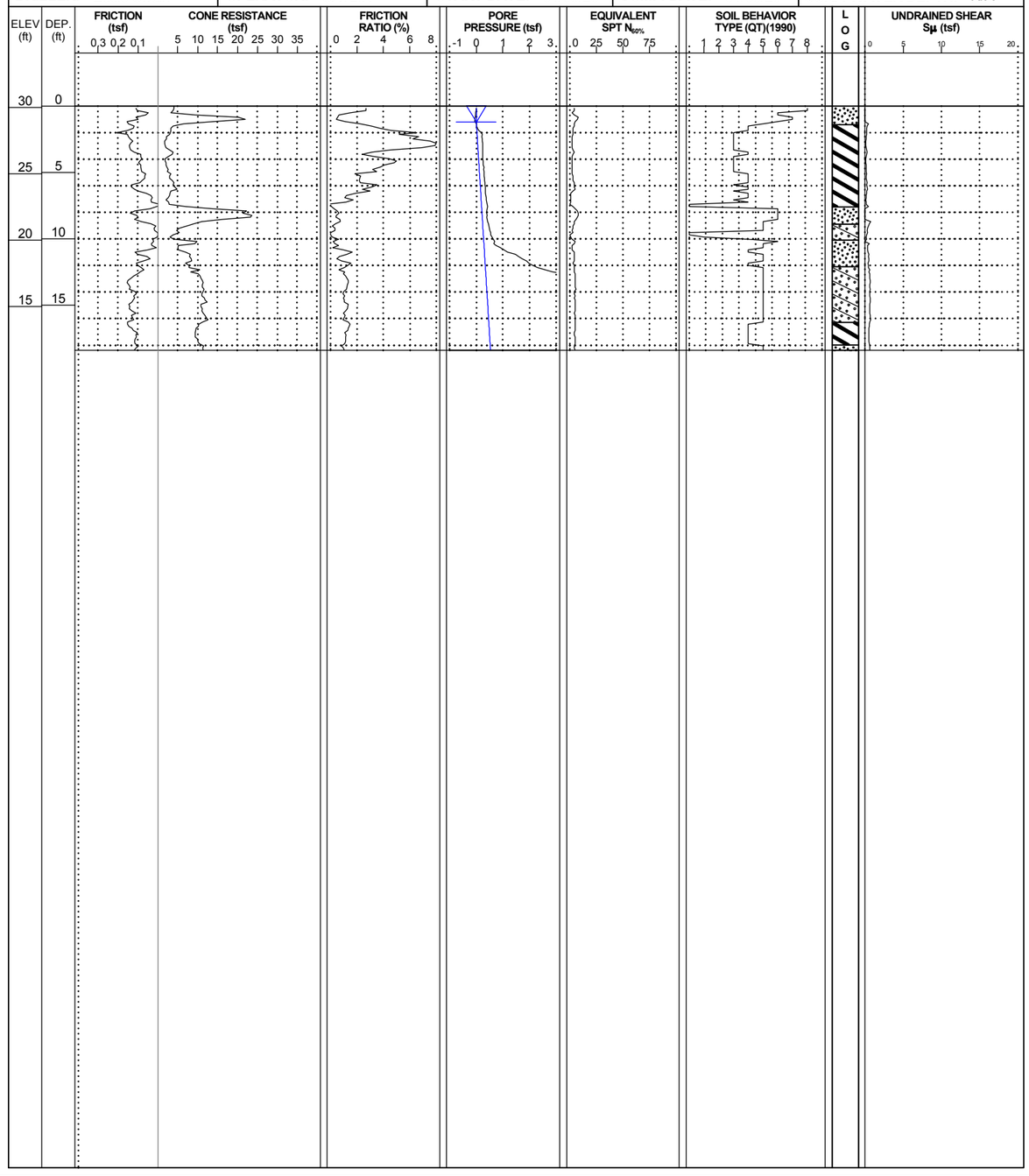
PROJECT REFERENCE NO.	SHEET
R-3300B	34

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-64	**STATION:** 39+50	**OFFSET:** 4 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 0.3
COLLAR ELEV.: 28.7 ft	**TOTAL DEPTH:** 23.2 ft	**NORTHING:** 232,888	**EASTING:** 2,381,603	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/09/20	**COMP. DATE:** 01/09/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-65	**STATION:** 42+51	**OFFSET:** 3 ft LT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.2
COLLAR ELEV.: 30.1 ft	**TOTAL DEPTH:** 18.4 ft	**NORTHING:** 232,863	**EASTING:** 2,381,903	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/09/20	**COMP. DATE:** 01/09/20	**SURF. WATER DEPTH:** N/A

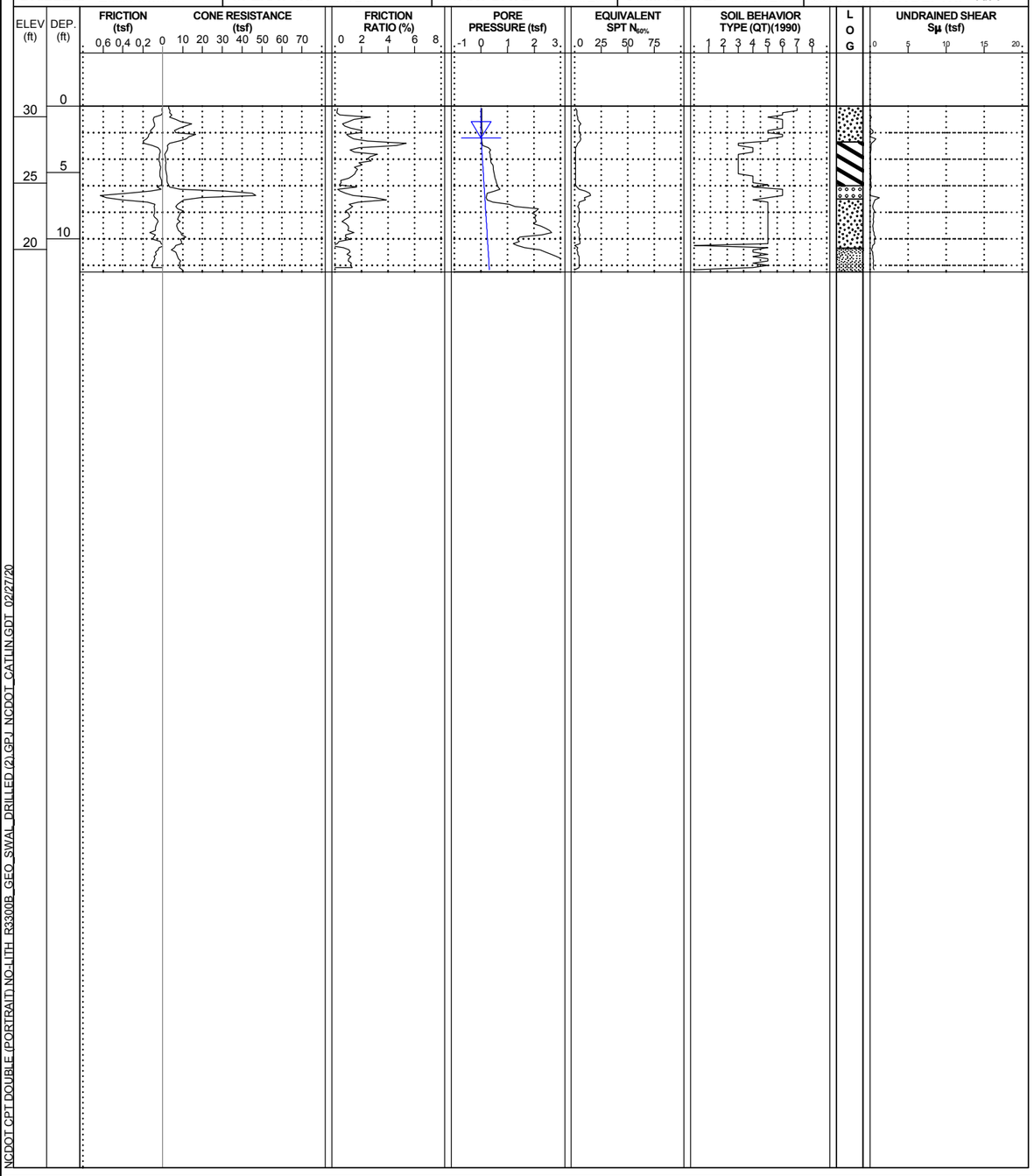


CONE PENETROMETER TEST BORING REPORT

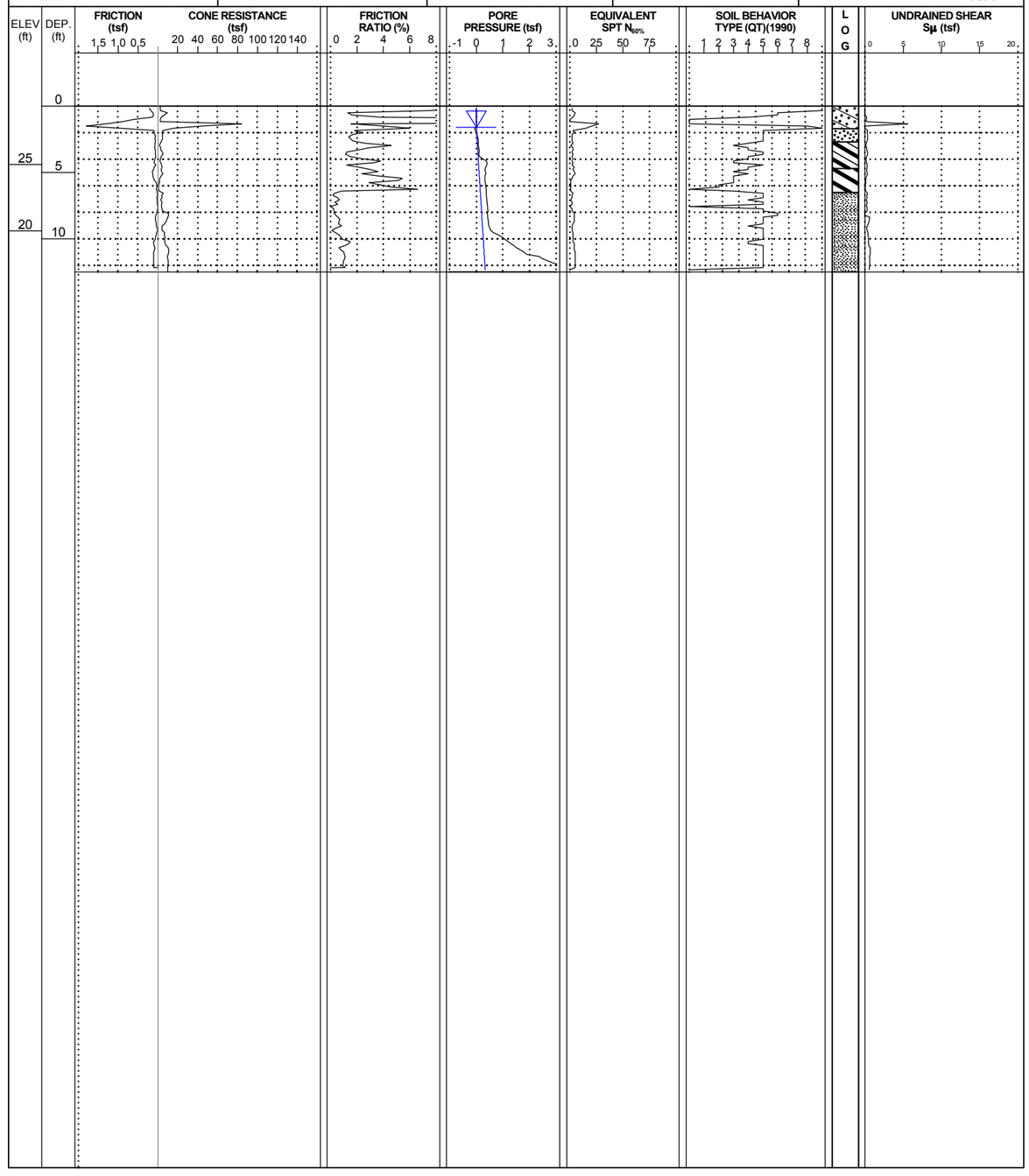
219094 CATLIN Engineers and Scientists
220 Old Dairy Road
Wilmington, NC 28405
Corporate Licensure No. for Engineering Services C-0585

PROJECT REFERENCE NO.	SHEET
R-3300B	35

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-66	**STATION:** 44+58	**OFFSET:** 6 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 2.4
COLLAR ELEV.: 30.8 ft	**TOTAL DEPTH:** 12.5 ft	**NORTHING:** 232,832	**EASTING:** 2,382,108	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/10/20	**COMP. DATE:** 01/10/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-67	**STATION:** 47+02	**OFFSET:** 3 ft LT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.6
COLLAR ELEV.: 29.4 ft	**TOTAL DEPTH:** 12.5 ft	**NORTHING:** 232,820	**EASTING:** 2,382,352	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/10/20	**COMP. DATE:** 01/10/20	**SURF. WATER DEPTH:** N/A



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219094 CATLIN Engineers and Scientists
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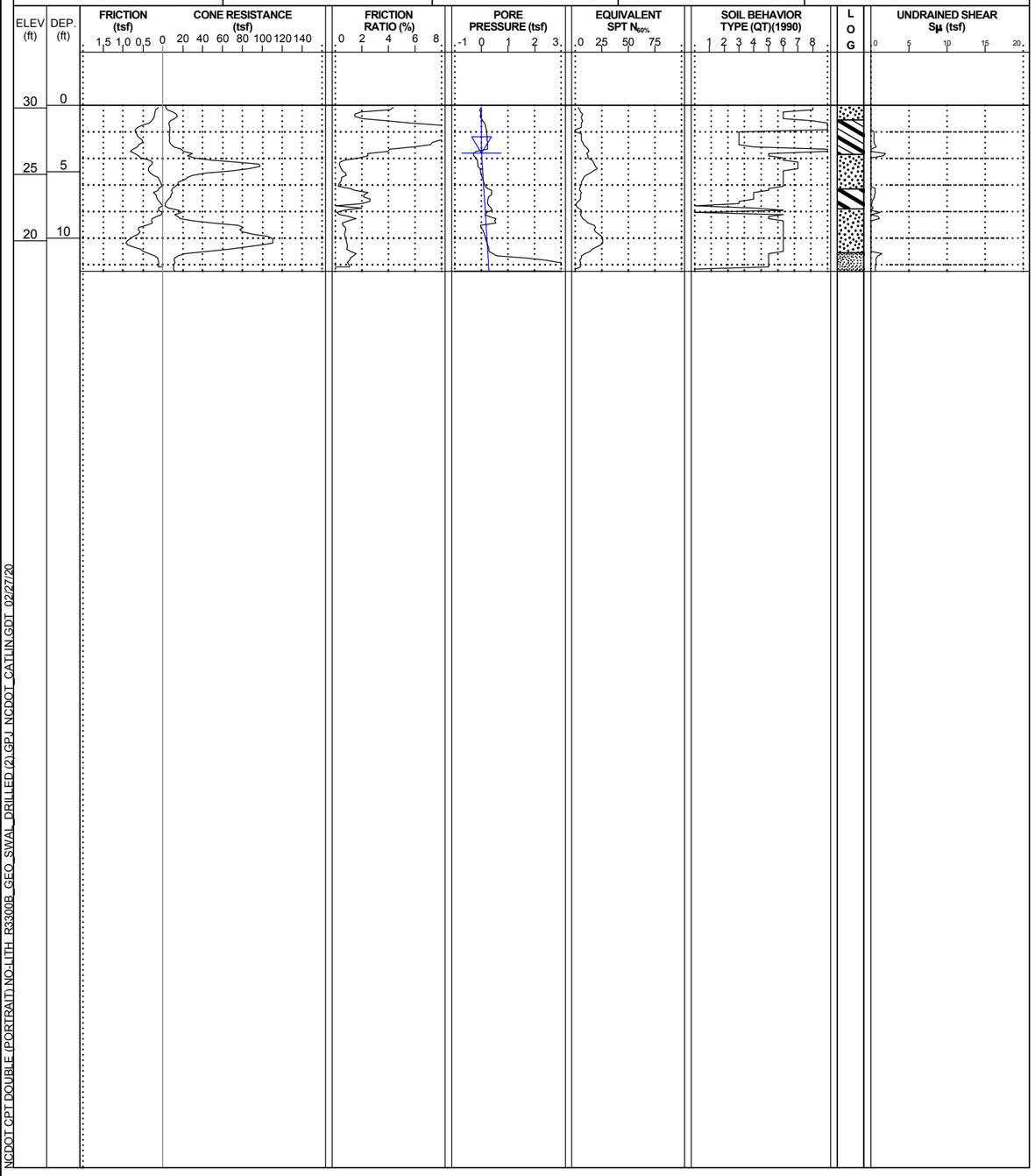
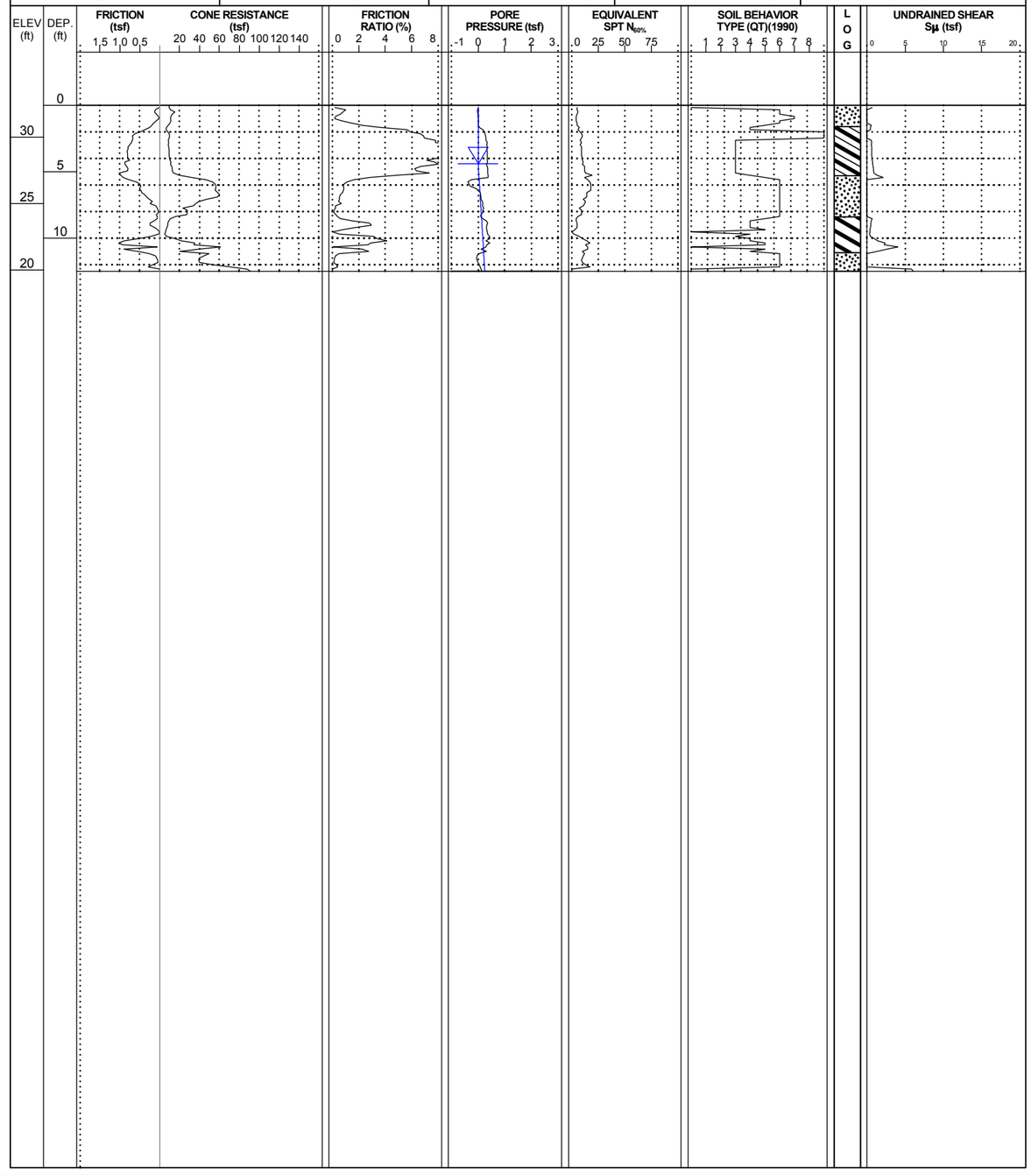
PROJECT REFERENCE NO.	SHEET
R-3300B	36

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-68	**STATION:** 47+68	**OFFSET:** CL	**ALIGNMENT:** NW9	**EST. 0 HR.** 3.6
COLLAR ELEV.: 30.2 ft	**TOTAL DEPTH:** 12.5 ft	**NORTHING:** 232,813	**EASTING:** 2,382,417	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/17/20	**COMP. DATE:** 01/17/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-69	**STATION:** 49+06	**OFFSET:** 4 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 4.4
COLLAR ELEV.: 32.4 ft	**TOTAL DEPTH:** 12.5 ft	**NORTHING:** 232,803	**EASTING:** 2,382,555	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/17/20	**COMP. DATE:** 01/17/20	**SURF. WATER DEPTH:** N/A



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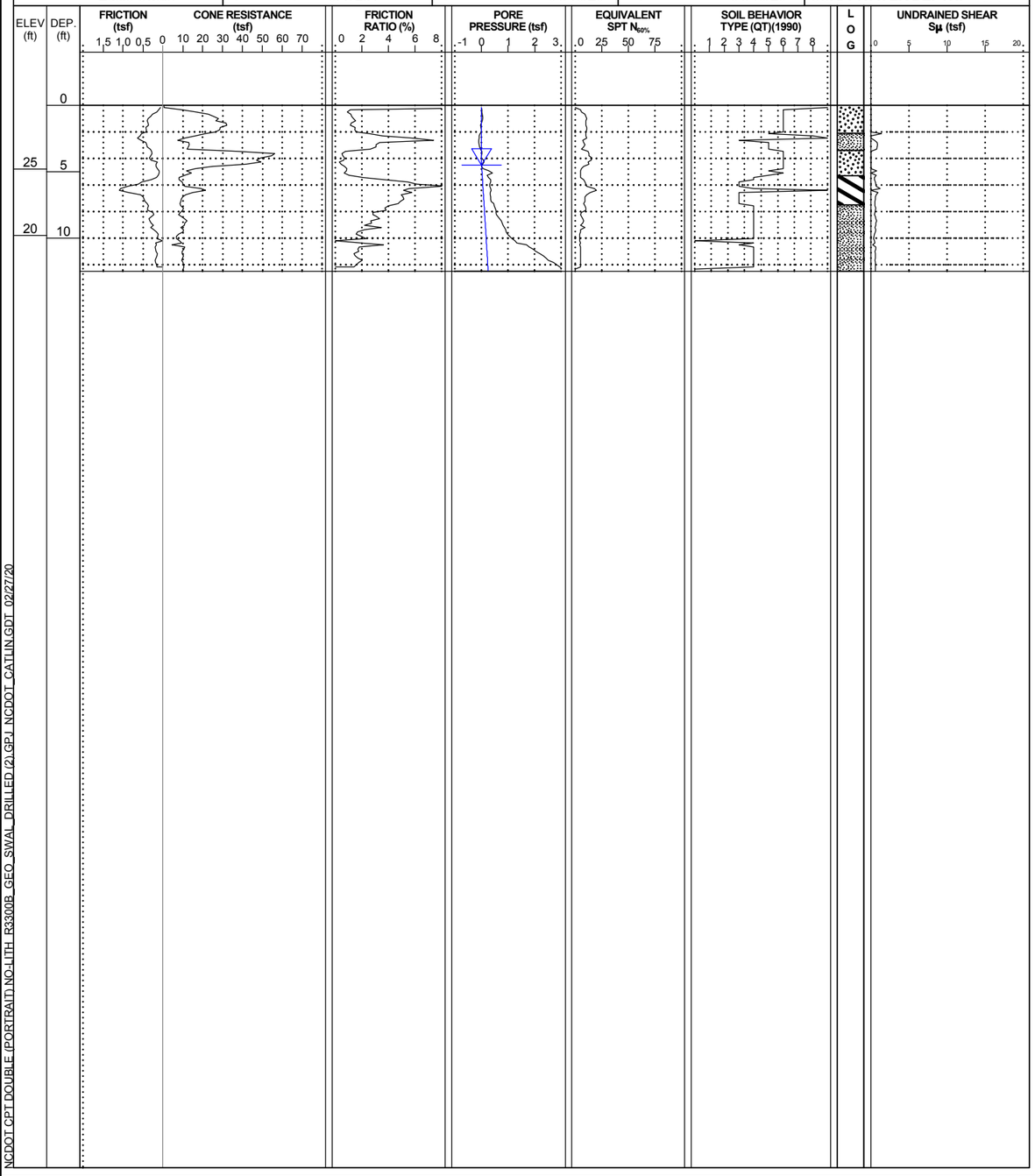
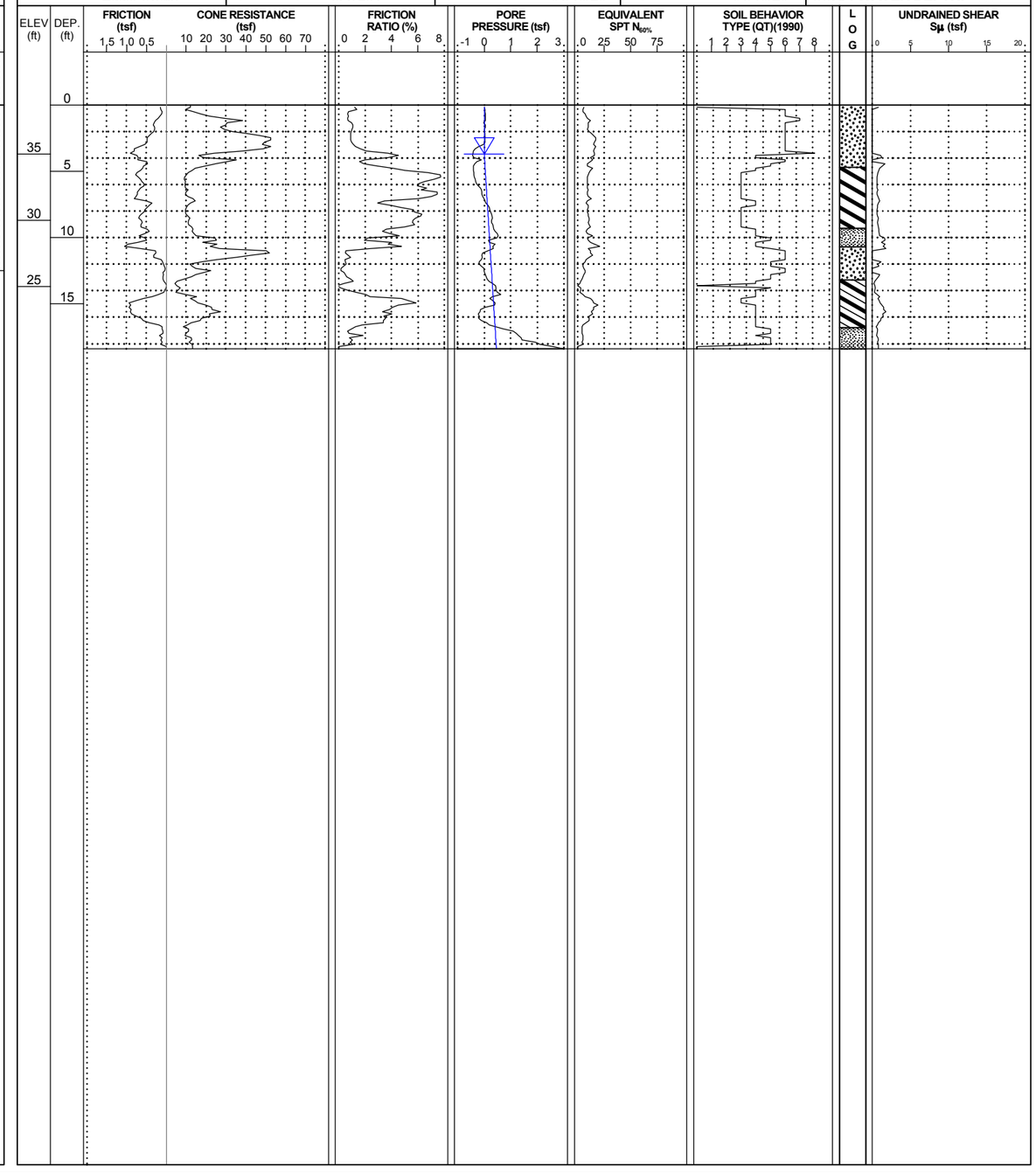
PROJECT REFERENCE NO.	SHEET
R-3300B	37

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-70	**STATION:** 56+56	**OFFSET:** 5 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 4.5
COLLAR ELEV.: 29.8 ft	**TOTAL DEPTH:** 12.5 ft	**NORTHING:** 232,833	**EASTING:** 2,383,304	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/13/20	**COMP. DATE:** 01/13/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-71	**STATION:** 59+45	**OFFSET:** 2 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 3.7
COLLAR ELEV.: 38.7 ft	**TOTAL DEPTH:** 18.4 ft	**NORTHING:** 232,876	**EASTING:** 2,383,590	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/13/20	**COMP. DATE:** 01/13/20	**SURF. WATER DEPTH:** N/A

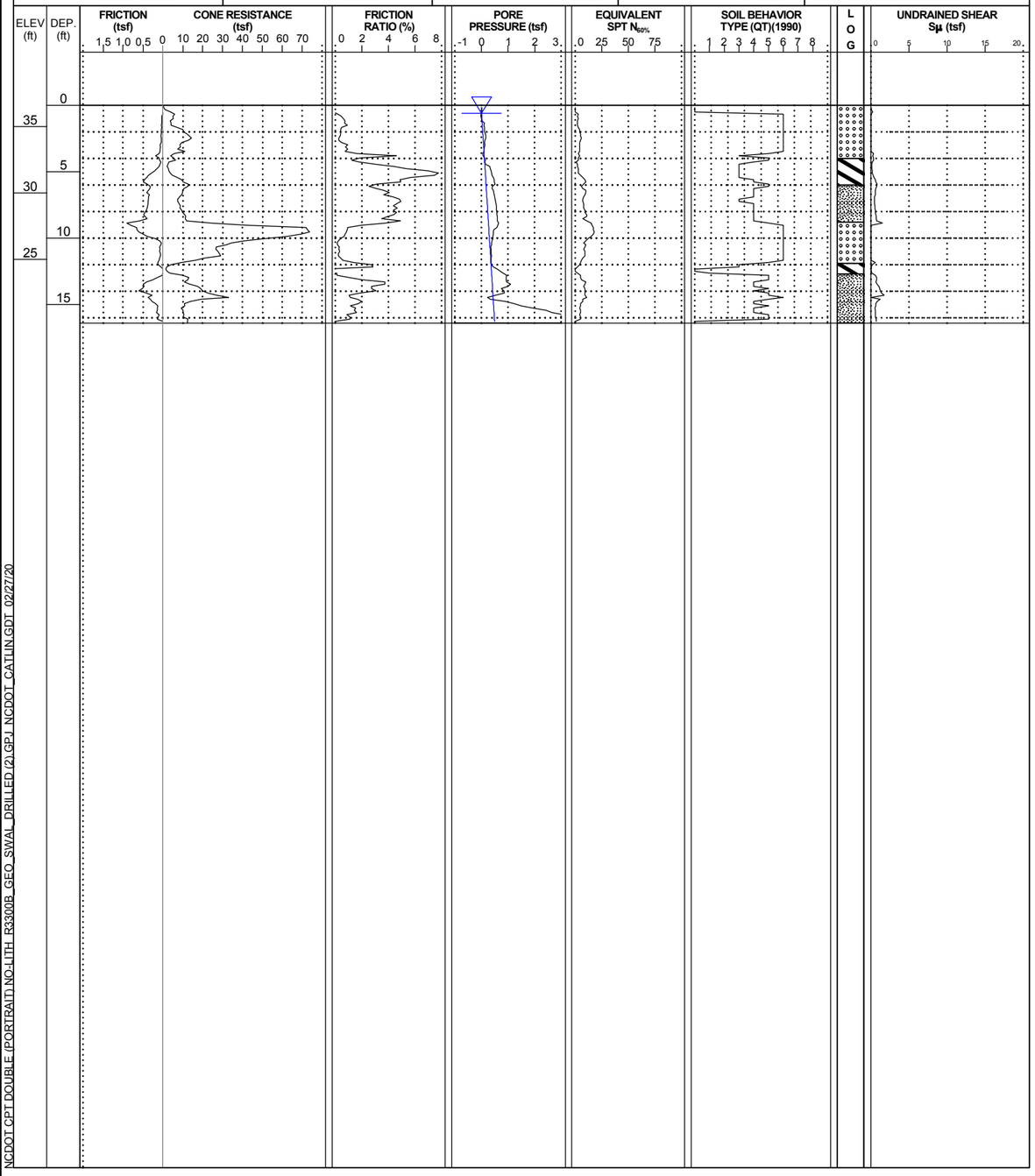


CONE PENETROMETER TEST BORING REPORT

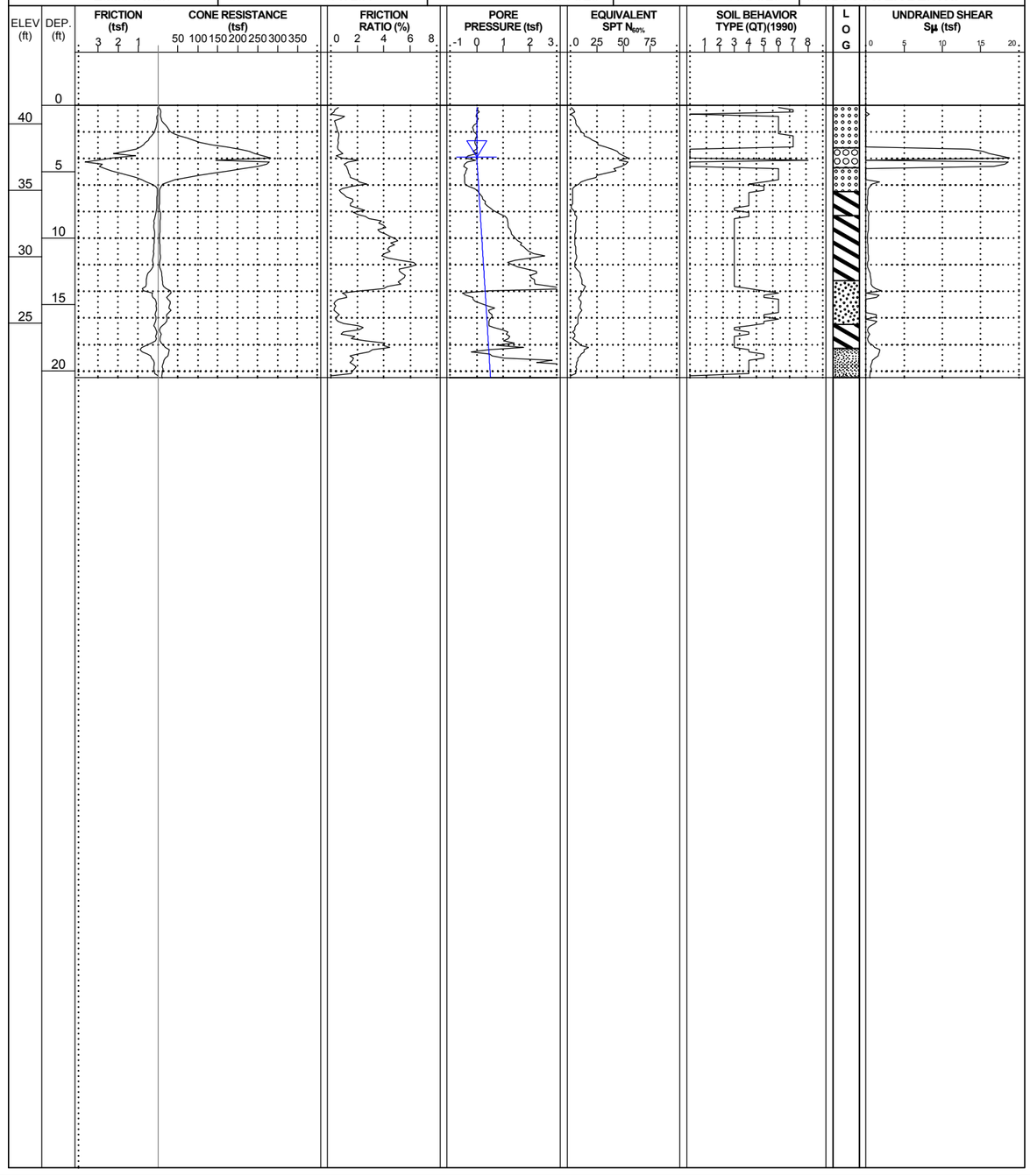
219094 CATLIN Engineers and Scientists
220 Old Dairy Road
Wilmington, NC 28405
Corporate Licensure No. for Engineering Services C-0585

PROJECT REFERENCE NO.	SHEET
R-3300B	38

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-72	**STATION:** 60+57	**OFFSET:** 7 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 0.6
COLLAR ELEV.: 36.6 ft	**TOTAL DEPTH:** 16.4 ft	**NORTHING:** 232,890	**EASTING:** 2,383,702	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/13/20	**COMP. DATE:** 01/13/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-73	**STATION:** 62+60	**OFFSET:** CL	**ALIGNMENT:** NW9	**EST. 0 HR.** 3.9
COLLAR ELEV.: 41.4 ft	**TOTAL DEPTH:** 20.5 ft	**NORTHING:** 232,939	**EASTING:** 2,383,899	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/14/20	**COMP. DATE:** 01/14/20	**SURF. WATER DEPTH:** N/A



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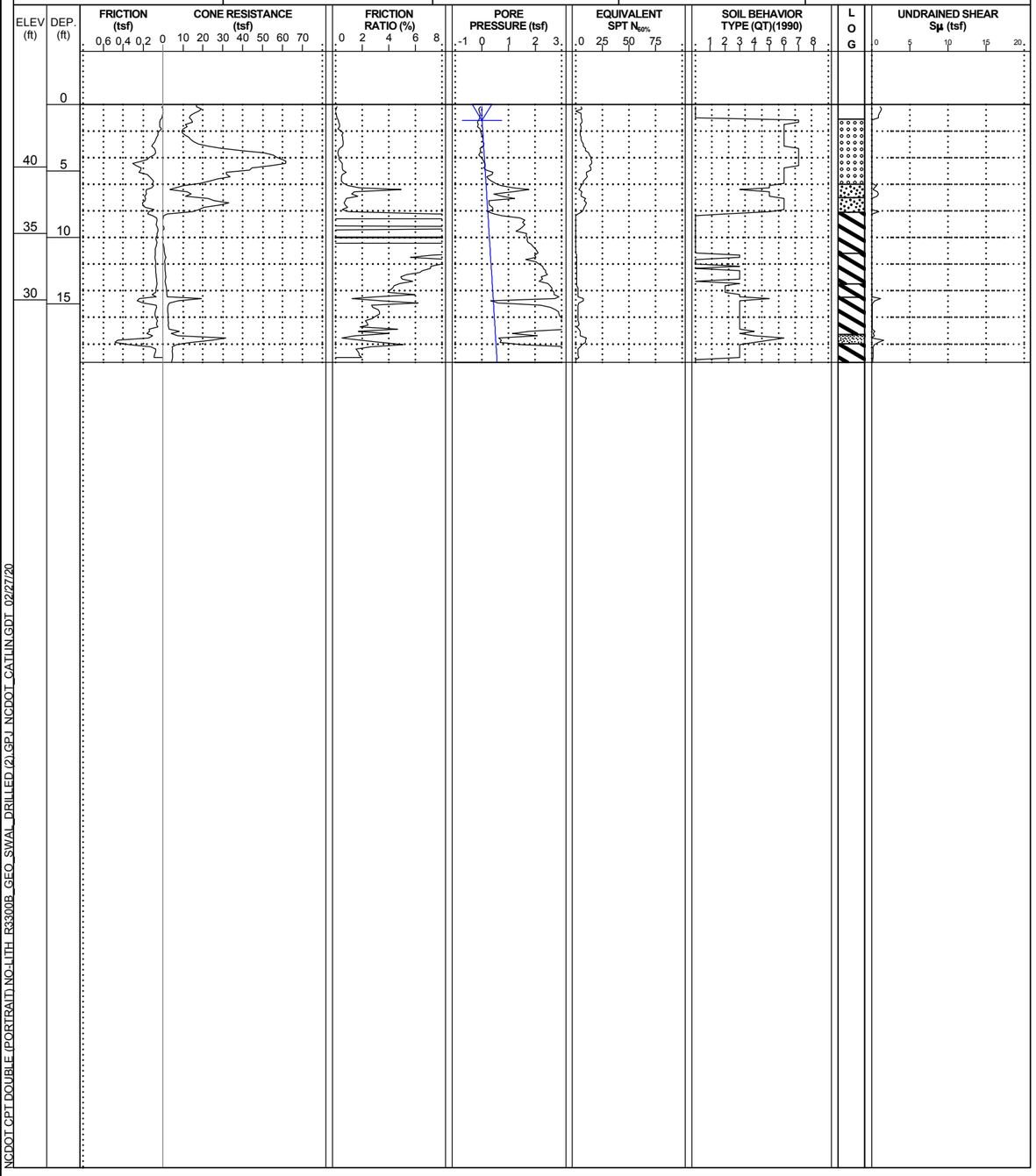
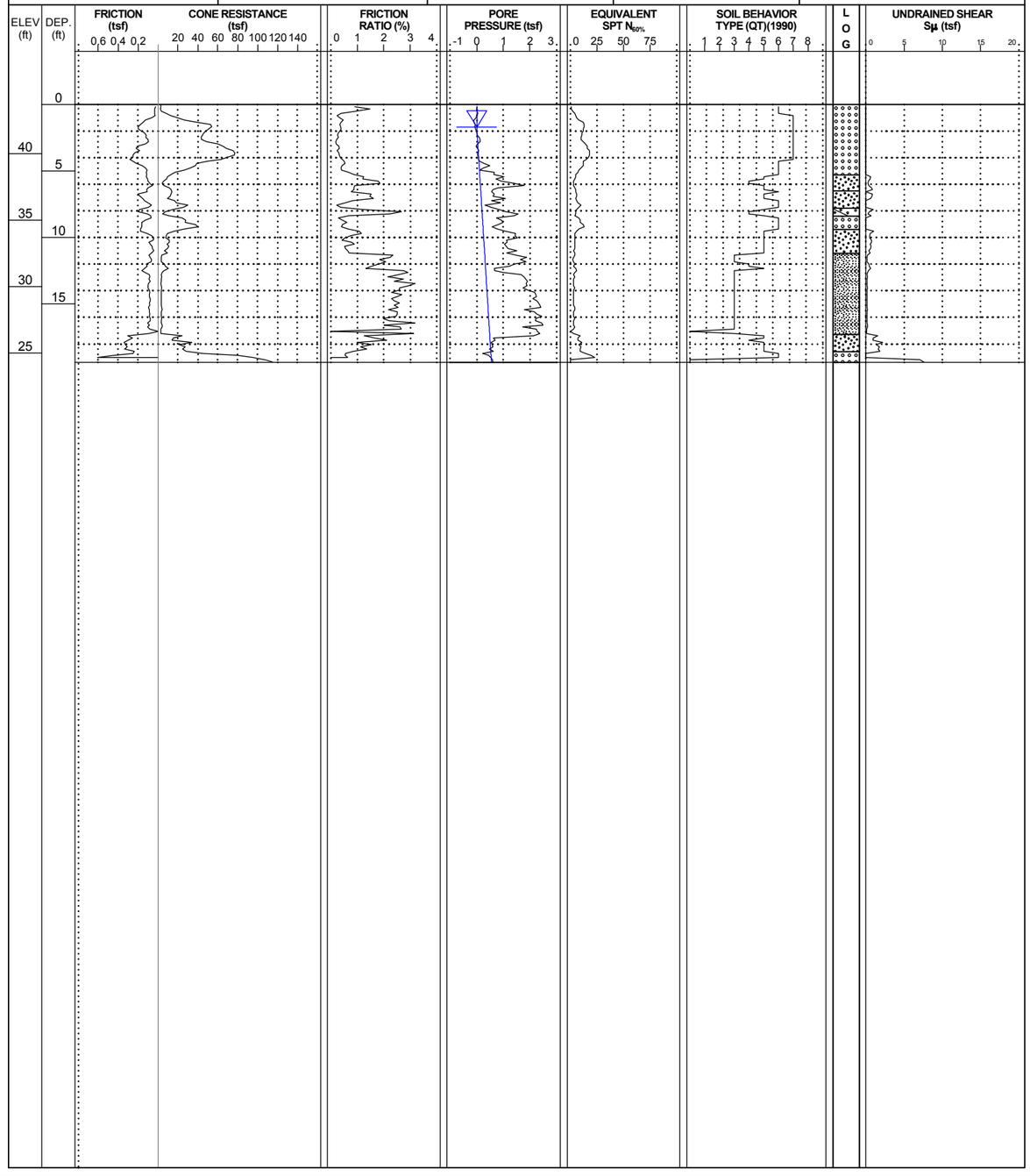
PROJECT REFERENCE NO.	SHEET
R-3300B	39

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-74	**STATION:** 74+45	**OFFSET:** 3 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.2
COLLAR ELEV.: 44.7 ft	**TOTAL DEPTH:** 19.4 ft	**NORTHING:** 233,326	**EASTING:** 2,385,017	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/14/20	**COMP. DATE:** 01/14/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-75	**STATION:** 78+59	**OFFSET:** 4 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.7
COLLAR ELEV.: 43.7 ft	**TOTAL DEPTH:** 19.4 ft	**NORTHING:** 233,519	**EASTING:** 2,385,383	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/15/20	**COMP. DATE:** 01/15/20	**SURF. WATER DEPTH:** N/A



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CATLIN Engineers and Scientists
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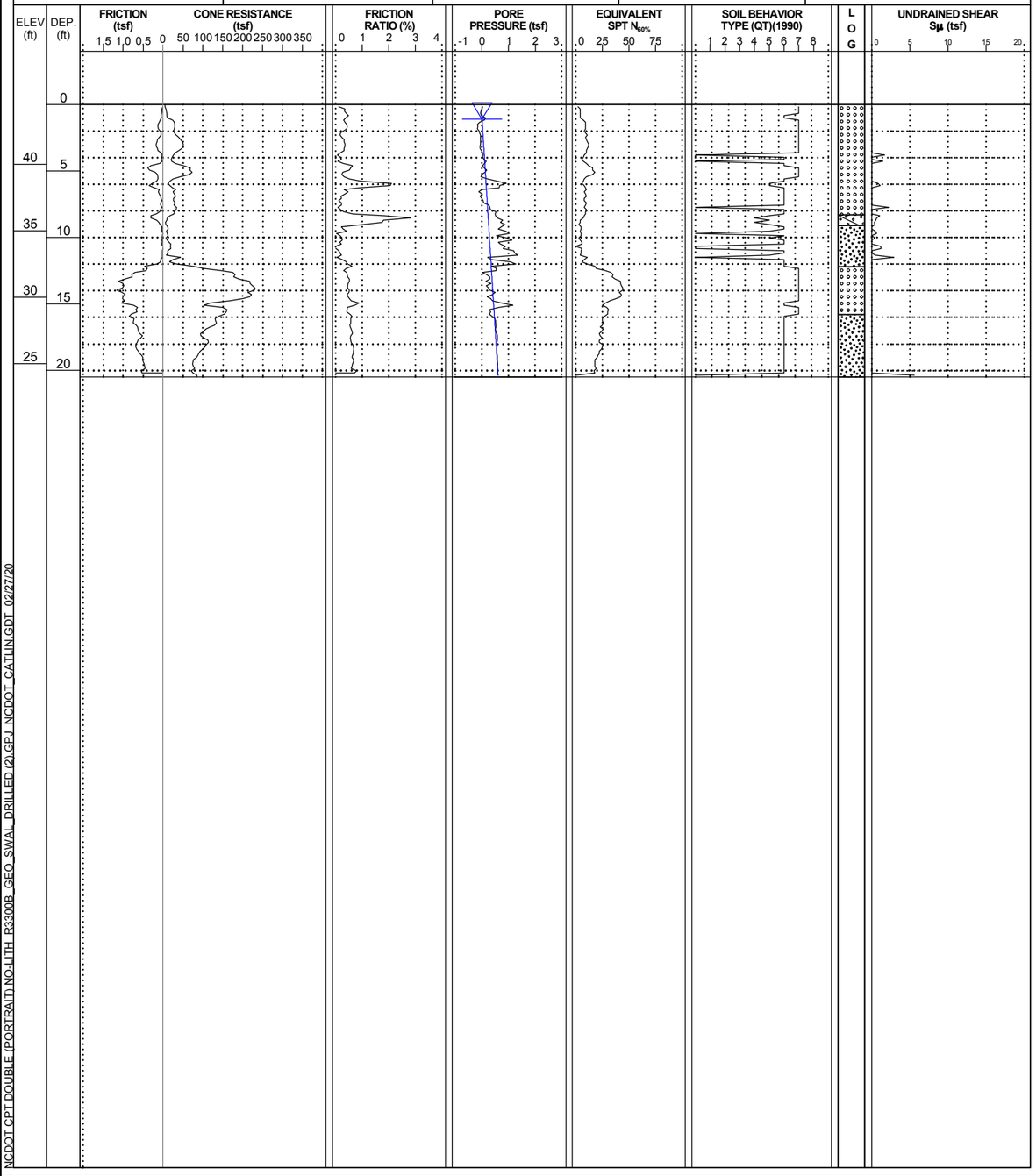
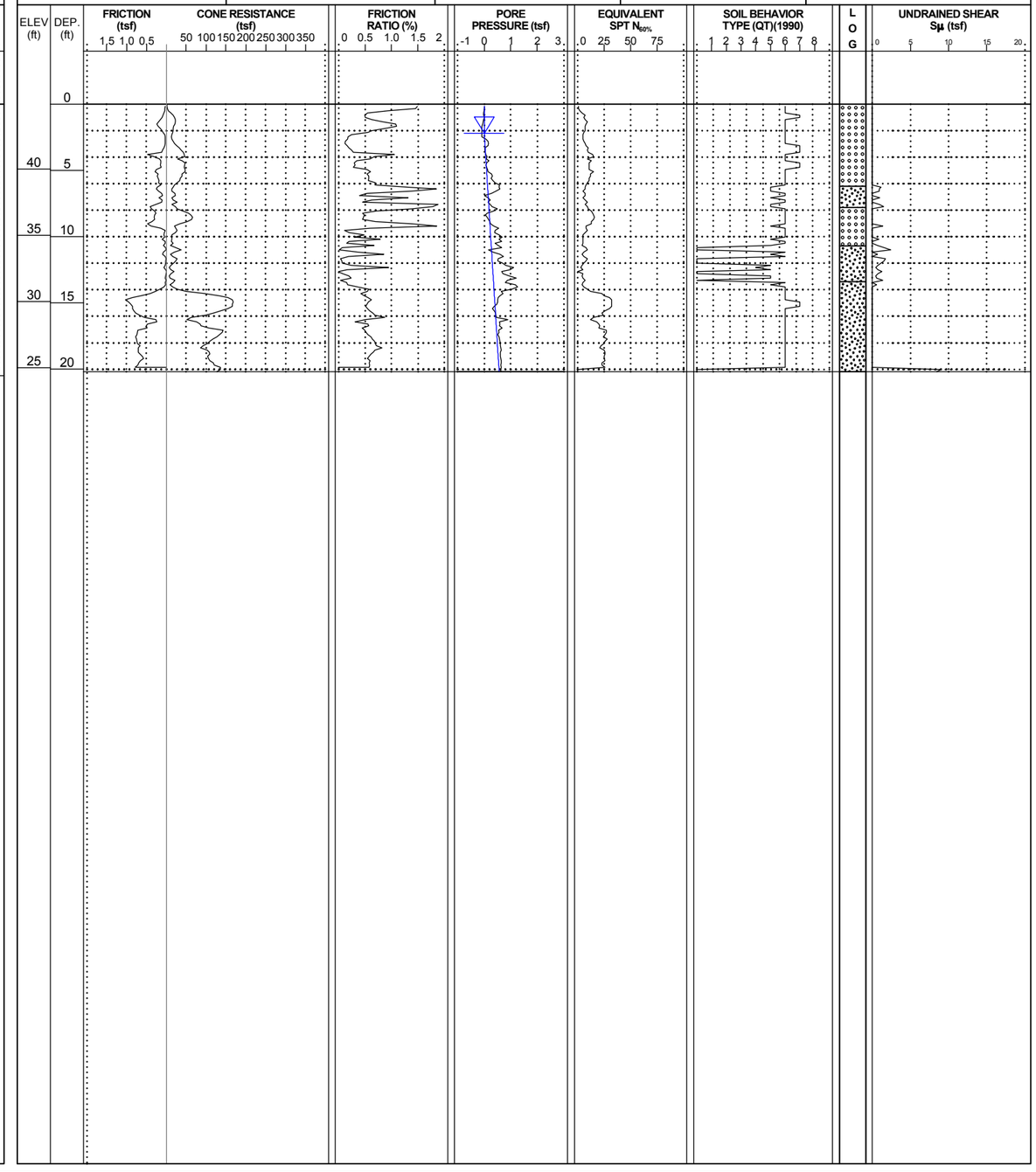
PROJECT REFERENCE NO.	SHEET
R-3300B	40

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-76	**STATION:** 79+46	**OFFSET:** 8 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.1
COLLAR ELEV.: 44.5 ft	**TOTAL DEPTH:** 20.5 ft	**NORTHING:** 233,559	**EASTING:** 2,385,460	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/15/20	**COMP. DATE:** 01/15/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-77	**STATION:** 80+56	**OFFSET:** CL	**ALIGNMENT:** NW9	**EST. 0 HR.** 2.2
COLLAR ELEV.: 44.9 ft	**TOTAL DEPTH:** 20.2 ft	**NORTHING:** 233,624	**EASTING:** 2,385,550	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/15/20	**COMP. DATE:** 01/15/20	**SURF. WATER DEPTH:** N/A



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219094 CATLIN Engineers and Scientists
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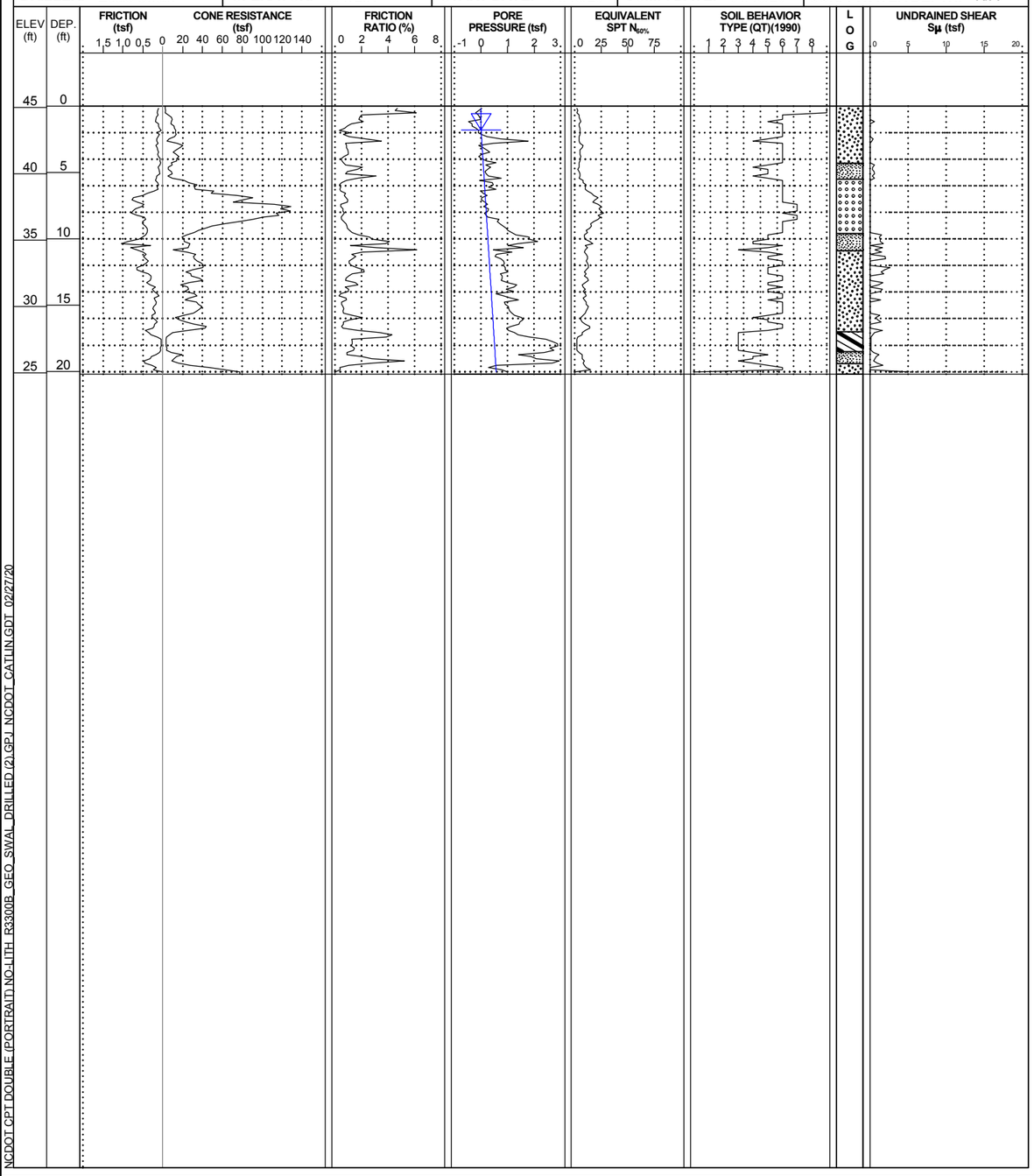
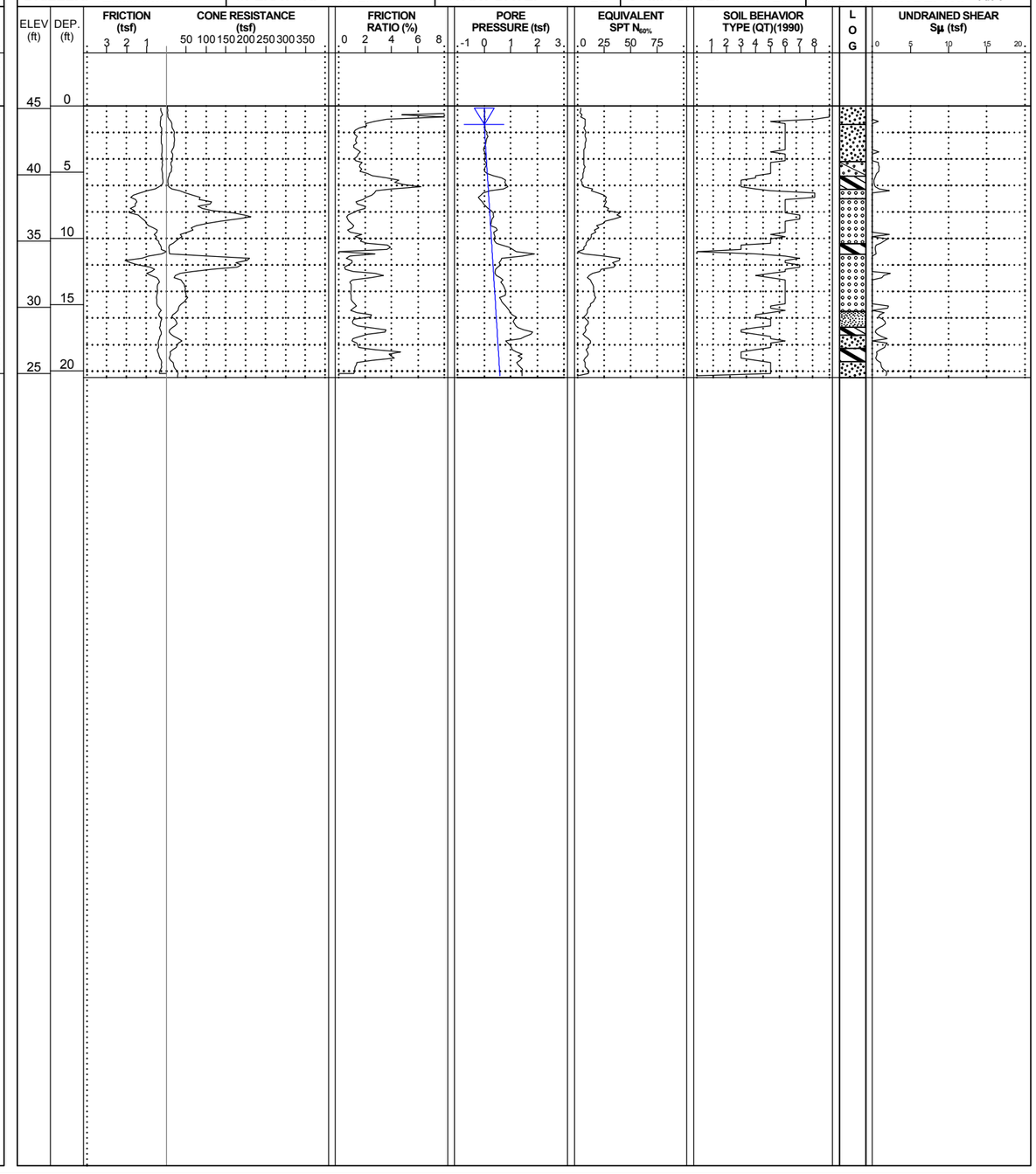
PROJECT REFERENCE NO.	SHEET
R-3300B	41

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-78	**STATION:** 83+07	**OFFSET:** 4 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.8
COLLAR ELEV.: 45.1 ft	**TOTAL DEPTH:** 20.2 ft	**NORTHING:** 233,759	**EASTING:** 2,385,762	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/15/20	**COMP. DATE:** 01/15/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-79	**STATION:** 83+91	**OFFSET:** 5 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 1.4
COLLAR ELEV.: 45.2 ft	**TOTAL DEPTH:** 20.5 ft	**NORTHING:** 233,807	**EASTING:** 2,385,831	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/15/20	**COMP. DATE:** 01/15/20	**SURF. WATER DEPTH:** N/A



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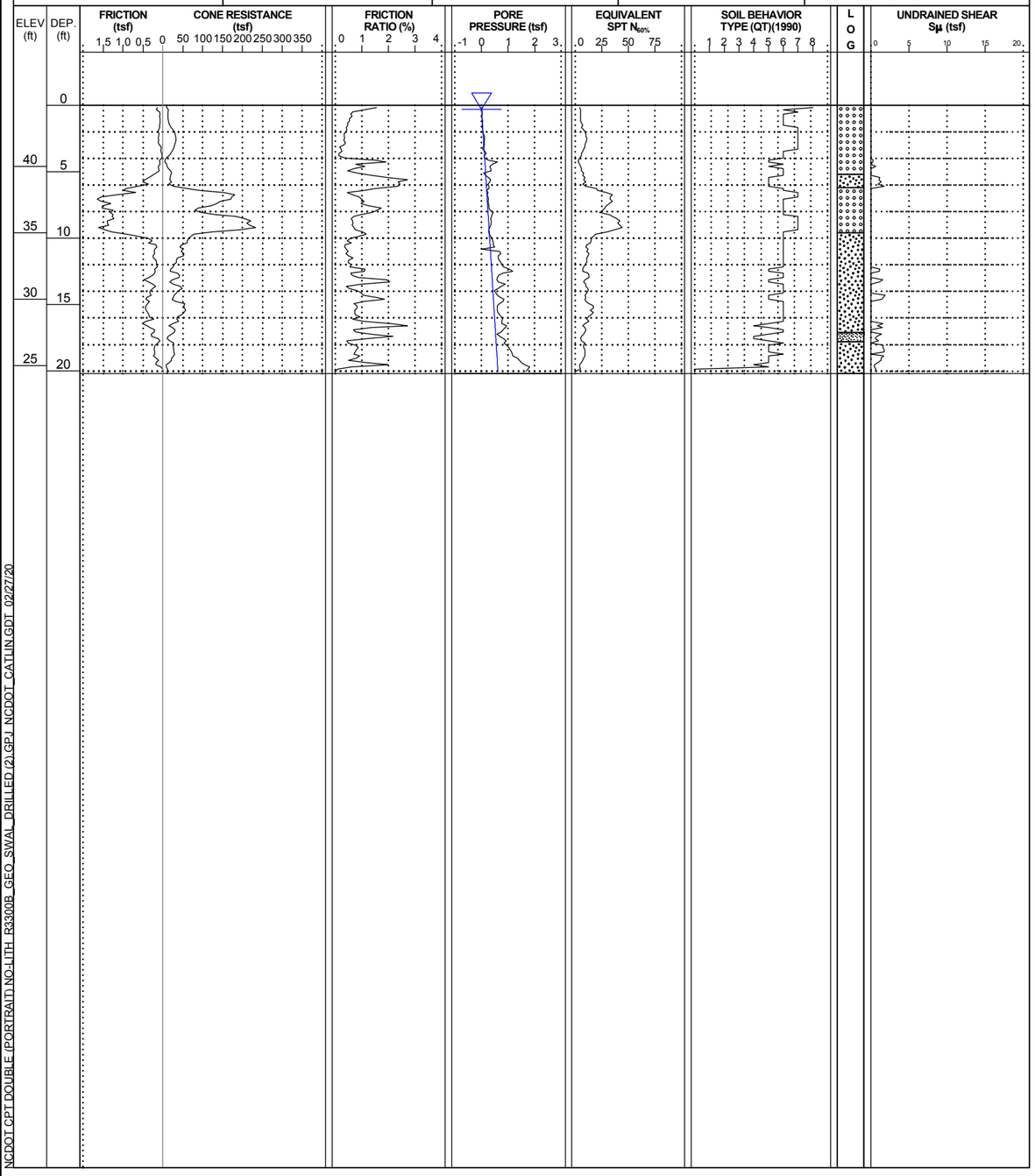
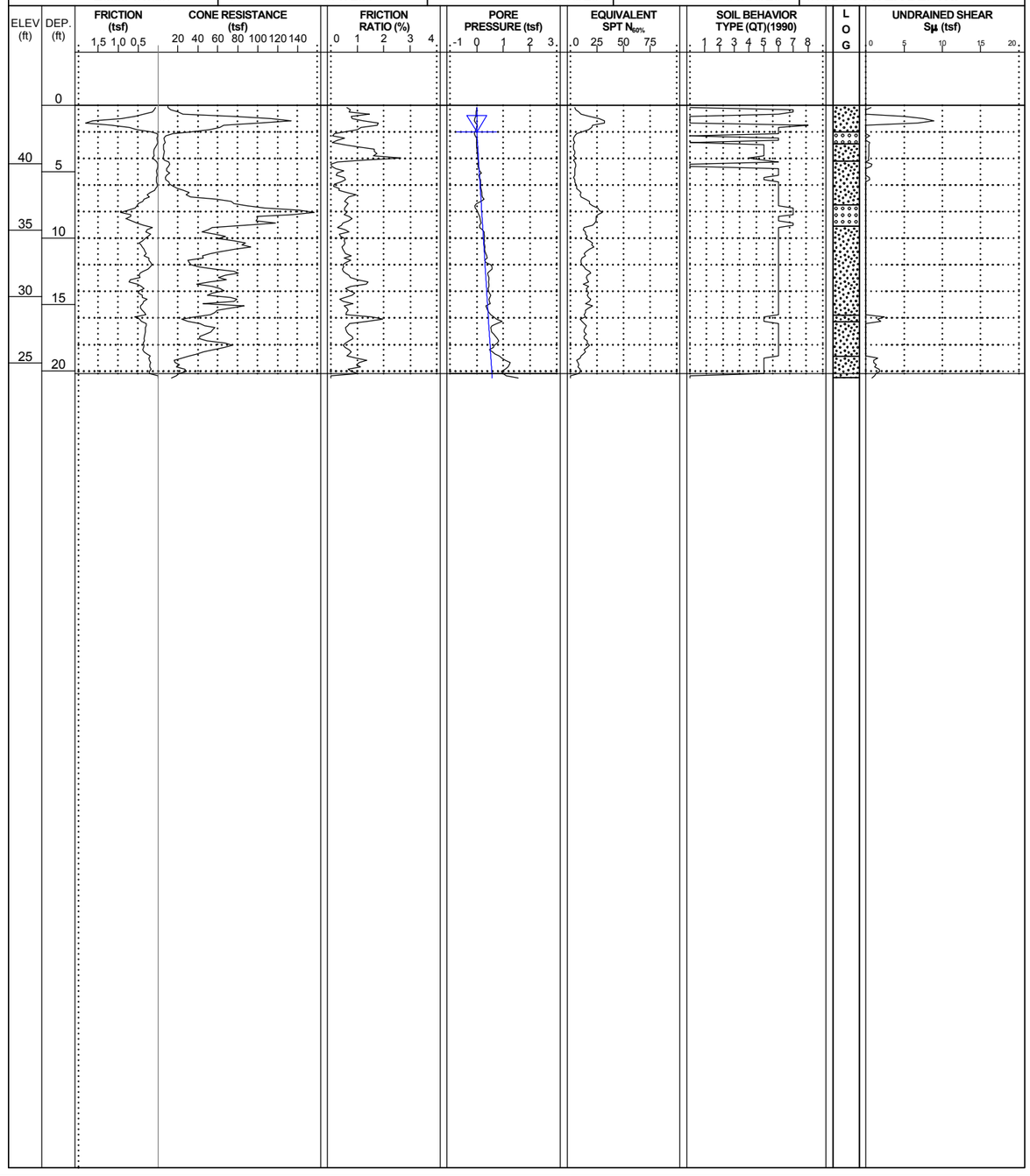
PROJECT REFERENCE NO.	SHEET
R-3300B	42

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-80	**STATION:** 85+08	**OFFSET:** 9 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 0.3
COLLAR ELEV.: 44.6 ft	**TOTAL DEPTH:** 20.2 ft	**NORTHING:** 233,881	**EASTING:** 2,385,921	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/15/20	**COMP. DATE:** 01/15/20	**SURF. WATER DEPTH:** N/A



WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-81	**STATION:** 86+00	**OFFSET:** CL	**ALIGNMENT:** NW9	**EST. 0 HR.** 2.0
COLLAR ELEV.: 44.4 ft	**TOTAL DEPTH:** 20.2 ft	**NORTHING:** 233,931	**EASTING:** 2,385,999	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSG0867
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/16/20	**COMP. DATE:** 01/16/20	**SURF. WATER DEPTH:** N/A



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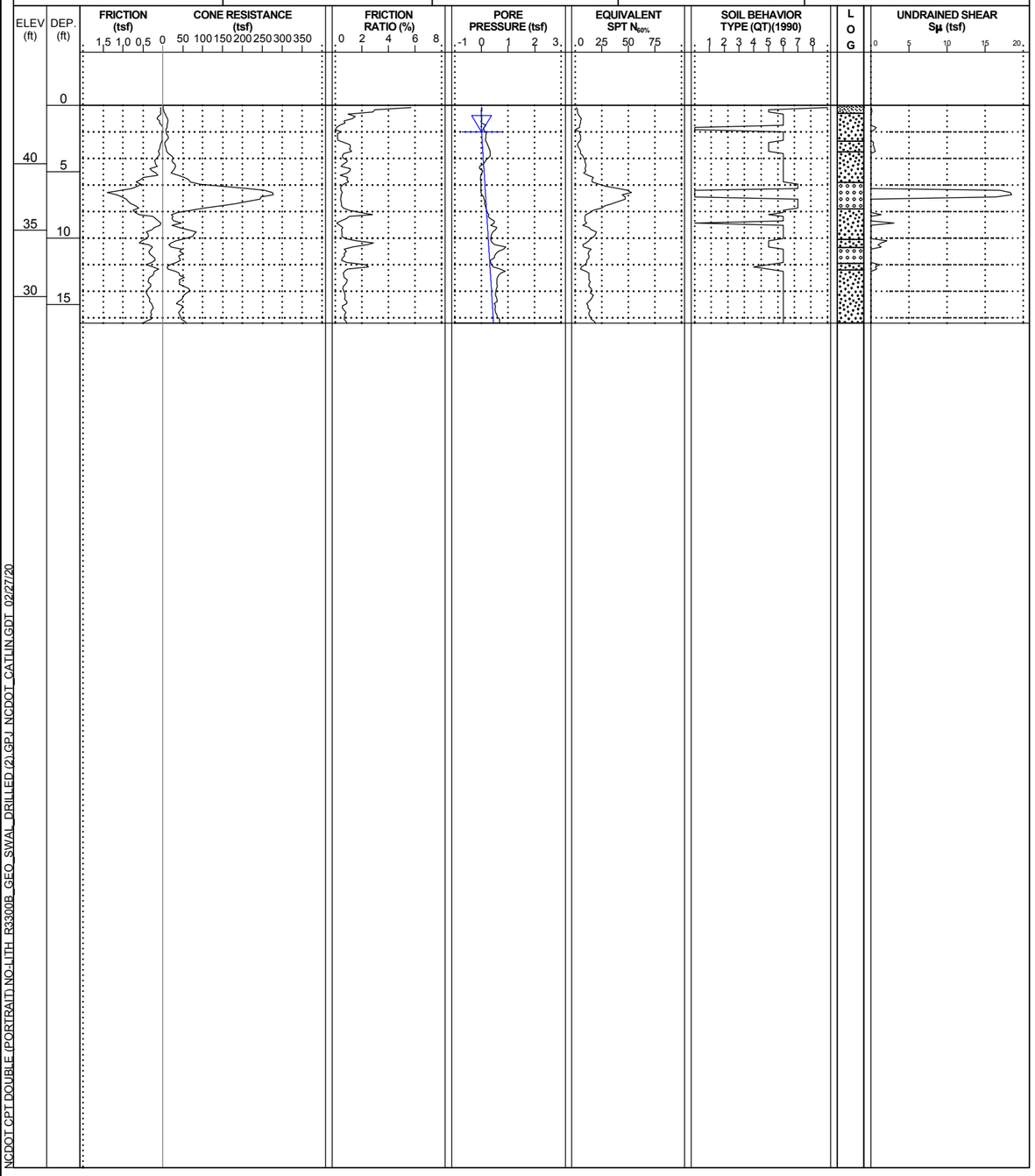
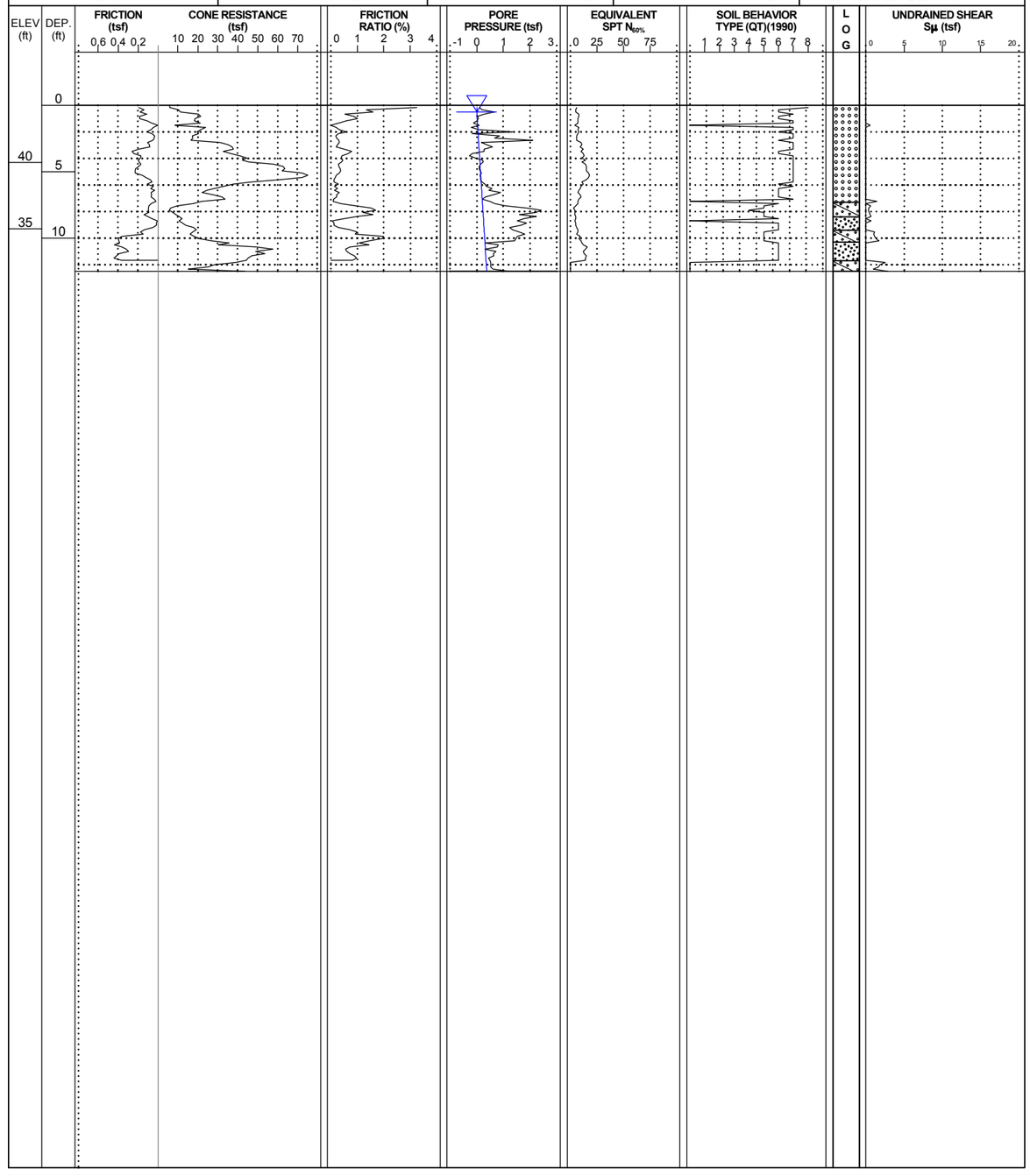
Corporate Licensure No. for Engineering Services C-0585

PROJECT REFERENCE NO.	SHEET
R-3300B	43

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-82	**STATION:** 87+06	**OFFSET:** 4 ft RT	**ALIGNMENT:** NW9	**EST. 0 HR.** 2.0
COLLAR ELEV.: 44.4 ft	**TOTAL DEPTH:** 16.4 ft	**NORTHING:** 233,986	**EASTING:** 2,386,085	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSG0867
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/16/20	**COMP. DATE:** 01/16/20	**SURF. WATER DEPTH:** N/A

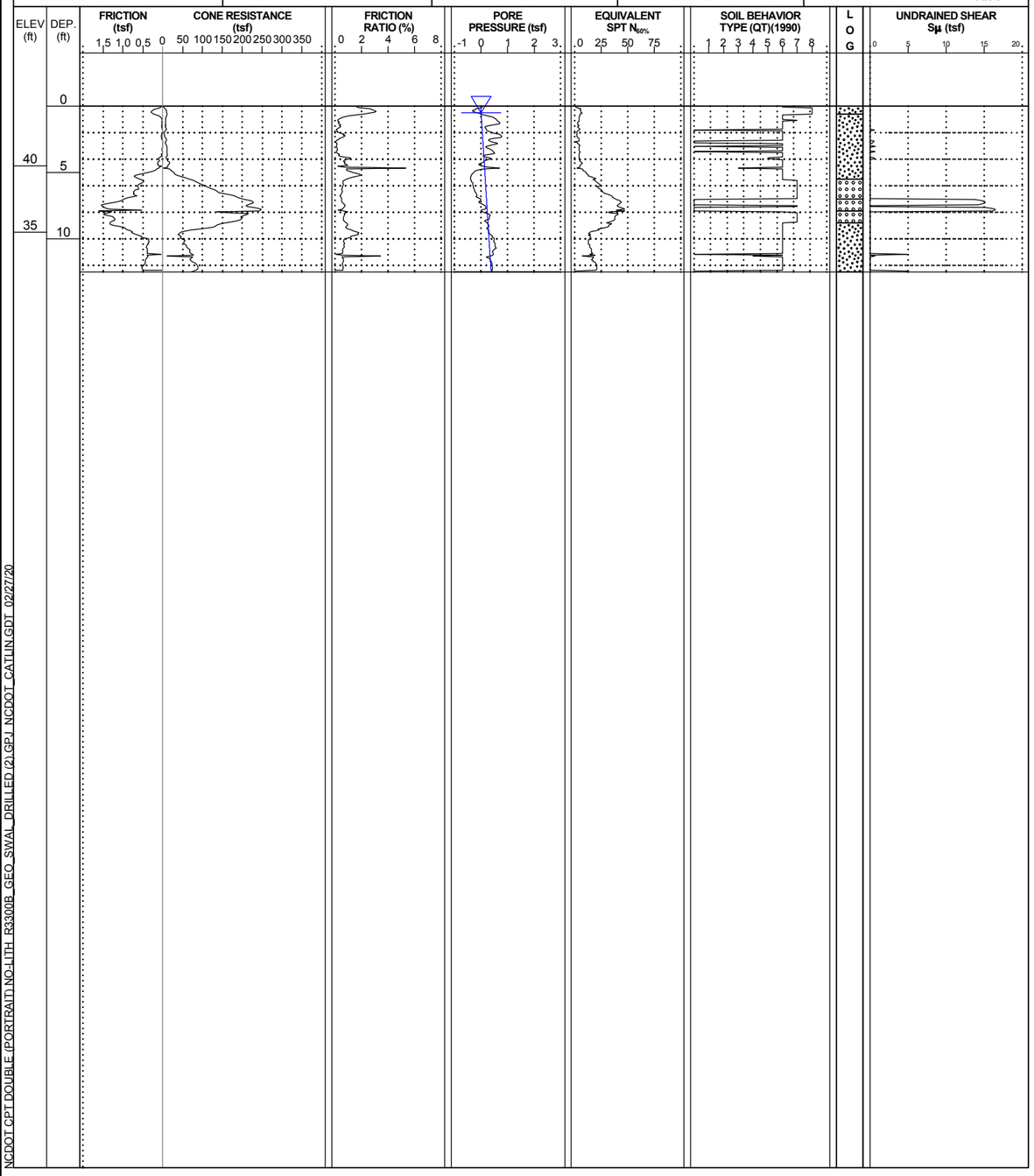


WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-83	**STATION:** 89+00	**OFFSET:** CL	**ALIGNMENT:** NW9	**EST. 0 HR.** 0.5
COLLAR ELEV.: 44.3 ft	**TOTAL DEPTH:** 12.5 ft	**NORTHING:** 234,104	**EASTING:** 2,386,244	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/17/20	**COMP. DATE:** 01/17/20	**SURF. WATER DEPTH:** N/A



CONE PENETROMETER TEST BORING REPORT

WBS: 40237.1.2	**TIP:** R-3300B	**COUNTY:** PENDER	**GEOLOGIST:** S. HUDSON	
SITE DESCRIPTION: HAMPSTEAD BYPASS FROM -L1- STA. 578+00 TO US 17 NORTH OF HAMPSTEAD - SOUNDWALLS				**GROUND WTR (ft)**
BORING NO.: NW9&11-84	**STATION:** 91+00	**OFFSET:** CL	**ALIGNMENT:** NW9	**EST. 0 HR.** 0.5
COLLAR ELEV.: 44.5 ft	**TOTAL DEPTH:** 12.5 ft	**NORTHING:** 234,219	**EASTING:** 2,386,408	**24 HR.** N/A
CPT RIG/MAX. DOWN PRESSURE: CATLIN CPT/DPT-01 / 10,000 LBS (NO ANCHORS)		**CONE TYPE:** TYPE 2 PIEZO		**CONE ID:** DSA1123
DRILLER: Eddie Swain	**OPERATOR:** CATLIN	**START DATE:** 01/17/20	**COMP. DATE:** 01/17/20	**SURF. WATER DEPTH:** N/A



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