STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4913A	1	

REFERENCE: U-4913A

PROJECT: 40543

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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LINE	STATION	PLAN
-L-	10+00 TO 36+56	4 - 6
-RDBT-	10+00 - 13+96	5
-Y1-	10+00 - 11+29	4
-Y2-	10+00 - 11+10	4
-Y3-	10+00 - 34+91	5, 7 - 8
-Y4-	10+00 - 13+69	5
-Y5-	10+00 - 11+53	5
-Y6-	10+00 - 10+94	5

APPENDICES

APPENDIX	TITLE	SHEETS
A	BORE LOGS	9 - 20
B	LABORATORY TEST RESULTS	21 - 22

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *MECKLENBURG*

PROJECT DESCRIPTION *PROPOSING TO WIDEN IDLEWILD RD (SR 3174) FROM BARNEY DRIVE AREA TO THE I-485 INNER RAMPS AND REALIGN STALLINGS RD (SR 3175) FROM ITS CURRENT TERMINUS AT IDLEWILD RD TO DAVIS TRACE DR*

INVENTORY

CAUTION NOTICE

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

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

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

NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
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

P. TOMASIC, G.I.T.

T. WENNER, P.G.

INVESTIGATED BY *CG2, PLLC*

DRAWN BY *K. DE MONTBRUN, P.E.*

CHECKED BY *M. WALKO, P.E.*

SUBMITTED BY *CG2, PLLC*

DATE *MAY 2024*

Prepared in the Office of:

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DocuSigned by:
Kelly N. de Montbrun 05/20/2024
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SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-4913A	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:
- [ ] CME-45C
- [ ] CME-55
- [X] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [X] DIEDRICH D-50
- [ ] _____

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

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] 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: N/A

ELEVATION: FEET

NOTES:

FIAD = FILLED IMMEDIATELY AFTER DRILLING

REF = REFUSAL

ROADWAY DESIGN FILES PROVIDED BY NCDOT DATED MARCH 2024.

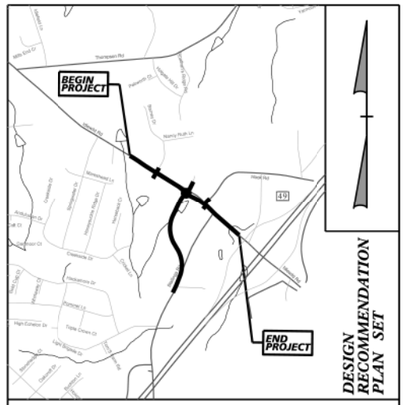
DATE: 8-15-14

09/08/99

TIP PROJECT: U-4913A

CONTRACT:

See Sheet 1B For Conventional Plan Sheet Symbols



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4913A	3	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

LOCATION: *IDLEWILD ROAD FROM*
BARNEY DRIVE AREA TO
GOVERNOR JAMES G. MARTIN FREEWAY (I-485)

TYPE OF WORK: *GRADING, DRAINAGE,*
AND PAVING

-Y1- SITE ACCESS A
-Y2- BARNEY DR
-Y3- STALLINGS RD
-Y4- DAVIS TRACE DR
-Y5- HOOKS RD
-Y6- SITE ACCESS B

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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2017 = 14,200
ADT 2040 = 18,400
K = 11 %
D = 55 %
T = 3 % *
V = 40 MPH
* TTST =1% DUAL 2%
FUNC CLASS =
MINOR ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-4913A = 1.040 MILES

TOTAL LENGTH TIP PROJECT U-4913A = 1.040 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

FRANK MASTERSON, P.E.
PROJECT ENGINEER

ANDREW WEEKS, E.I.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

5/16/2024

WBS ELEMENT: 40543.1.3
T.I.P. NO.: U-4913A
PROJECT ID: 44301
COUNTY: Mecklenburg
DESCRIPTION: Proposing to Widen Idlewild Rd (SR 3174) from Barney Drive area to the I-485 Inner Ramps and realign Stallings Road (SR 3175) from its current terminus at Idlewild Rd (SR 3174) to Davis Trace Dr.

SUBJECT: Geotechnical Roadway Inventory Report

PROJECT DESCRIPTION

This project will consist of widening and realignment of Idlewild Road at a new proposed roundabout at its intersection with Davis Trace Dr. and realignment of Stallings Road in Mecklenburg County, North Carolina. The improvements to Idlewild Road will consist of roadway widening to the right side of the centerline with cut and fill heights on the order of 6 feet and 11 feet, respectively. Additionally, Idlewild Road will be realigned at the approaches to the proposed roundabout intersection at Davis Trace Dr. Stallings Road (-Y3- alignment) will be realigned from its current terminus to the new roundabout intersection along Idlewild Road. Proposed cut and fill heights along the new -Y3- alignment are on the order of 11 feet and 15 feet, respectively.

The following alignments are included as part of this investigation:

Alignment	Stations
-L- (Idlewild Road)	10+00 to 36+56
-RDBT-	10+00 to 13+96
-Y1- (Site Access A)	10+00 to 11+29
-Y2- (Barney Drive)	10+00 to 11+10
-Y3- (Stallings Road)	10+00 to 34+91
-Y4- (Davis Trace Drive)	10+00 to 13+69
-Y5- (Hooks Road)	10+00 to 11+53
-Y6- (Site Access B)	10+00 to 10+94

The geotechnical field investigation was conducted by CG2 during March 2024. An ATV-mounted CME 550x and Diedrich D50 drill rigs equipped with automatic hammers were used to advance the twenty-one (21) soil test borings performed during this investigation. Standard Penetration Tests (SPT) were performed at selected depths within each boring. Representative soil samples were collected for visual-manual classification in the field and evaluated by staff professionals working under the supervision of a licensed engineer. Select soil samples were submitted for laboratory analysis by an approved NCDOT M&T testing facility.

PHYSIOGRAPHY AND GEOLOGY

The project corridor is located within the Piedmont Physiographic Province of North Carolina. The Piedmont Physiographic Province generally consists of hills and ridges which are intertwined with an established system of draws, streams, and valleys. According to the 1985 Geologic Map of North Carolina, the bedrock under the site consists of metavolcanic rock interbedded with felsic to mafic tuffs and flowrock. Weathered rock encountered during this investigation consisted of Metavolcanic rock. Crystalline rock was not encountered at the test locations to the depths explored during this investigation.

Within the project alignment, much of the bedrock is overlain by near-surface material consisting of roadway embankment and artificial fill materials associated with the existing development in the area and residual soils. Residual soils are derived from in situ chemical and physical weathering of the rock in the area and vary in thickness. The residual soils in this region are typically finer grained with a higher clay content near the surface due to advanced weathering, and typically become coarser grained with increasing depth as the degree of weathering decreases. As the degree of weathering decreases, the residual soils generally retain the overall appearance and fabric of the parent rock (sometimes referred to as "saprolite"). The boundary between soil and rock is not always sharply defined. A transitional zone termed "weathered rock" is often found overlying the parent bedrock. Weathered rock is defined as material requiring 100 blows with less than one foot of penetration from the SPT hammer.

SOIL PROPERTIES

Roadway embankment soils are similar in nature to residual soils and may be derived from nearby sources. Roadway embankment soils were observed along the existing roadways within the project corridor and specifically within Borings L_3400R and L_3600R. This material consists of medium stiff to stiff silty/sandy clay (A-6, A-7) with trace gravel and organics. Laboratory testing indicated a soil plasticity index (PI) of 13 for the encountered sandy clay roadway embankment soils.

Artificial fill soils were encountered at Borings L_2350R and Y3_3000R and extended to depths ranging from approximately 1½ to 5½ feet below existing grades. The artificial fill materials encountered consisted of soft to very stiff silty clay (A-7) with trace organics. Laboratory testing indicated a soil plasticity index (PI) of 28 and 32 for the encountered silty clay artificial fill soils.

Residual soils were encountered underneath the roadway embankment soils and artificial fill soils and underlying surficial organic soils along the majority of the project corridor. The residual soils generally consist of very soft to hard, sandy silts (A-4), clayey silts (A-5), sandy clays (A-6), and silty clay (A-7). Trace amounts of gravel-sized rock fragments and organics were encountered intermittently within the residual soils. Manganese oxide staining was observed at various depths within the residual soils. Laboratory testing indicated a soil plasticity index (PI) ranging from 13 to 39 for the encountered silty clay residual soils and a PI of 9 in the clayey silt residual soils.

Weathered rock was encountered at one of the boring locations along the proposed Stallings Road realignment, Boring Y3_1300. The weathered rock encountered consists of Metavolcanic rock. The top of weathered rock was encountered at a depth of approximately 29.6 feet (EL 678.6) below the existing ground surface. Boring Y3_1300 was terminated in the weathered rock at a depth of approximately 30.5 feet (EL 677.7).

GROUNDWATER

Groundwater measurements were attempted at the completion of drilling at each of the boring locations, at which time groundwater was encountered within four (4) of the borings at depths ranging from approximately 20 feet (EL 695.3) to 23 feet (EL 685.2) below existing grades. After a stabilization period of at least 24 hours, groundwater measurements were again attempted at each of the boring locations, at which time groundwater was encountered within eleven (11) of the borings at depths ranging from approximately 1 foot (EL 714.2) to 22 feet (EL 693.3) below existing ground surface. The soils encountered in the borings were generally described as moist to wet.

Water wells were not observed within the proposed construction corridor; however, wells may be encountered that were not observed during our field services.

AREAS OF SPECIAL GEOTECHNICAL INTEREST

Very soft to soft or very loose to loose soils were encountered along the project corridor, and were specifically encountered at the following locations:

Alignment	Stations	Offsets (ft)
-Y3-	20+00 to 22+00	LT to RT

Highly plastic soils (PI > 25) were encountered along the project, and were specifically encountered at the following location:

Alignment	Stations	Offsets (ft)
-L-	10+00 to 16+75	LT to RT

Alignment	Stations	Offsets (ft)
-L-	25+75 to 32+25	LT to RT
-Y1-	10+22 to 11+29	LT to RT
-Y2-	10+22 to 11+10	LT to RT
-Y3-	18+25 to 31+20	LT to RT
-Y4-	10+80 to 12+68	LT to RT
-Y5-	10+00 to 11+05	LT to RT

Artificial Fill soils were encountered along the project corridor, and were specifically encountered at the following locations:

Alignment	Stations	Offsets (ft)
-L-	22+20 to 23+30	LT to RT
-RDBT-	10+00 to 11+40	LT to RT
-Y3-	10+00 to 10+80	LT to RT
-Y3-	29+75 to 30+75	RT
-Y4-	10+00 to 10+45	LT to RT

Shallow groundwater was not encountered within 6 feet of the proposed subgrade.

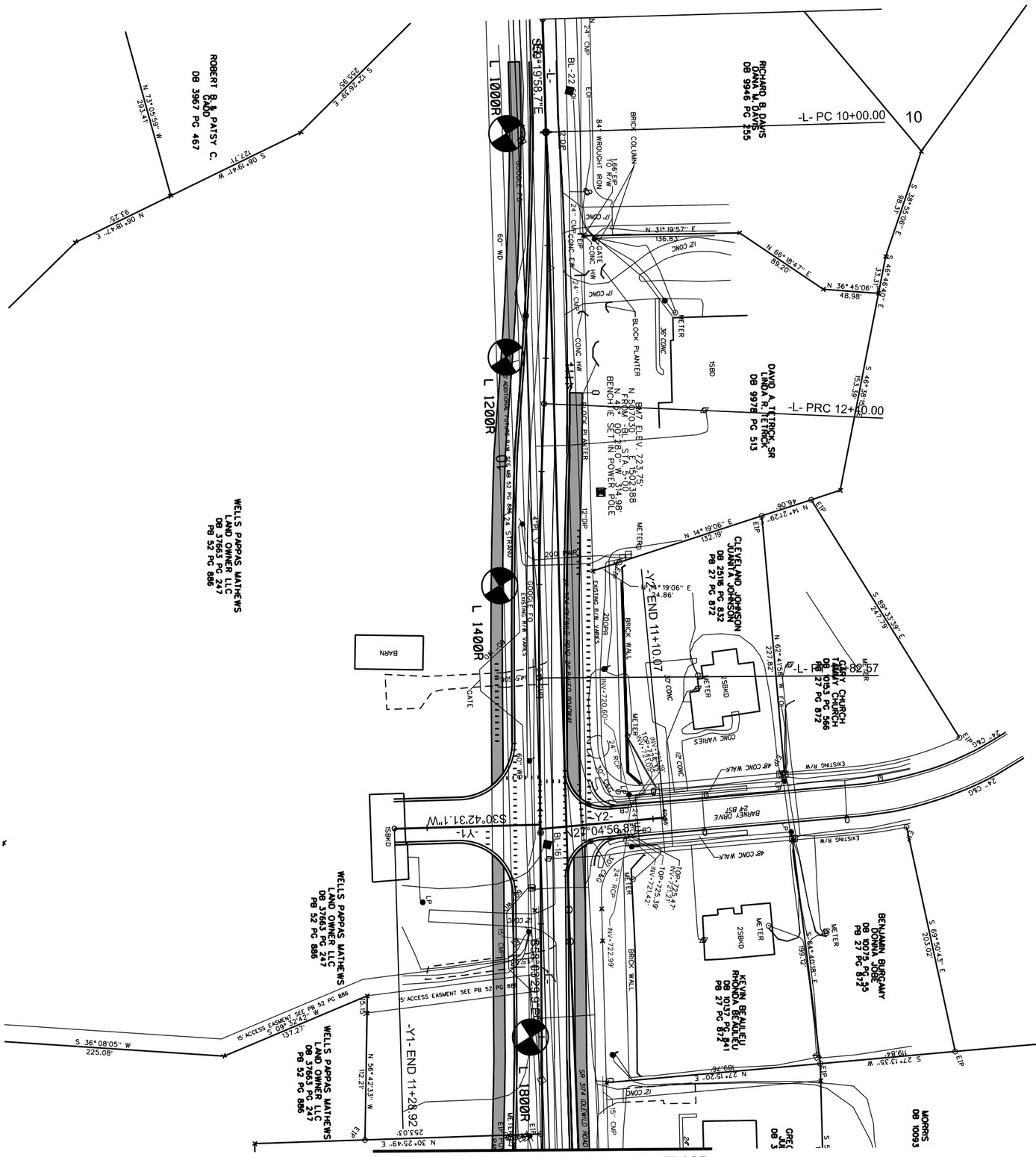
Crystalline rock was not encountered above or within 6 feet of the proposed grade.

Rock Outcrops: Rock outcrops were not observed within the project limits.

Sincerely,
Carolinas Geotechnical Group, PLLC

DocuSigned by:
Kelly N. de Montbrun
49E66D07E160486...
Kelly N. de Montbrun, PE
Senior Project Engineer

DocuSigned by:
Michael J. Walko
B0BEC14A5D19492...
Michael J. Walko, PE
Principal Engineer



CAROLINAS GEOTECHNICAL GROUP
2400 CROWNPOINT EXECUTIVE DRIVE
SUITE 800
CHARLOTTE, NC 28227
(980) 339-6684
PREPARED BY

GOTECHNICAL UNIT

U-4913A:

WIDEN IDLEWILD ROAD (SR 3174) FROM DAVIS TRACE DRIVE TO I-485 RAMPS AND REALIGN STALLINGS ROAD (SR 3175)

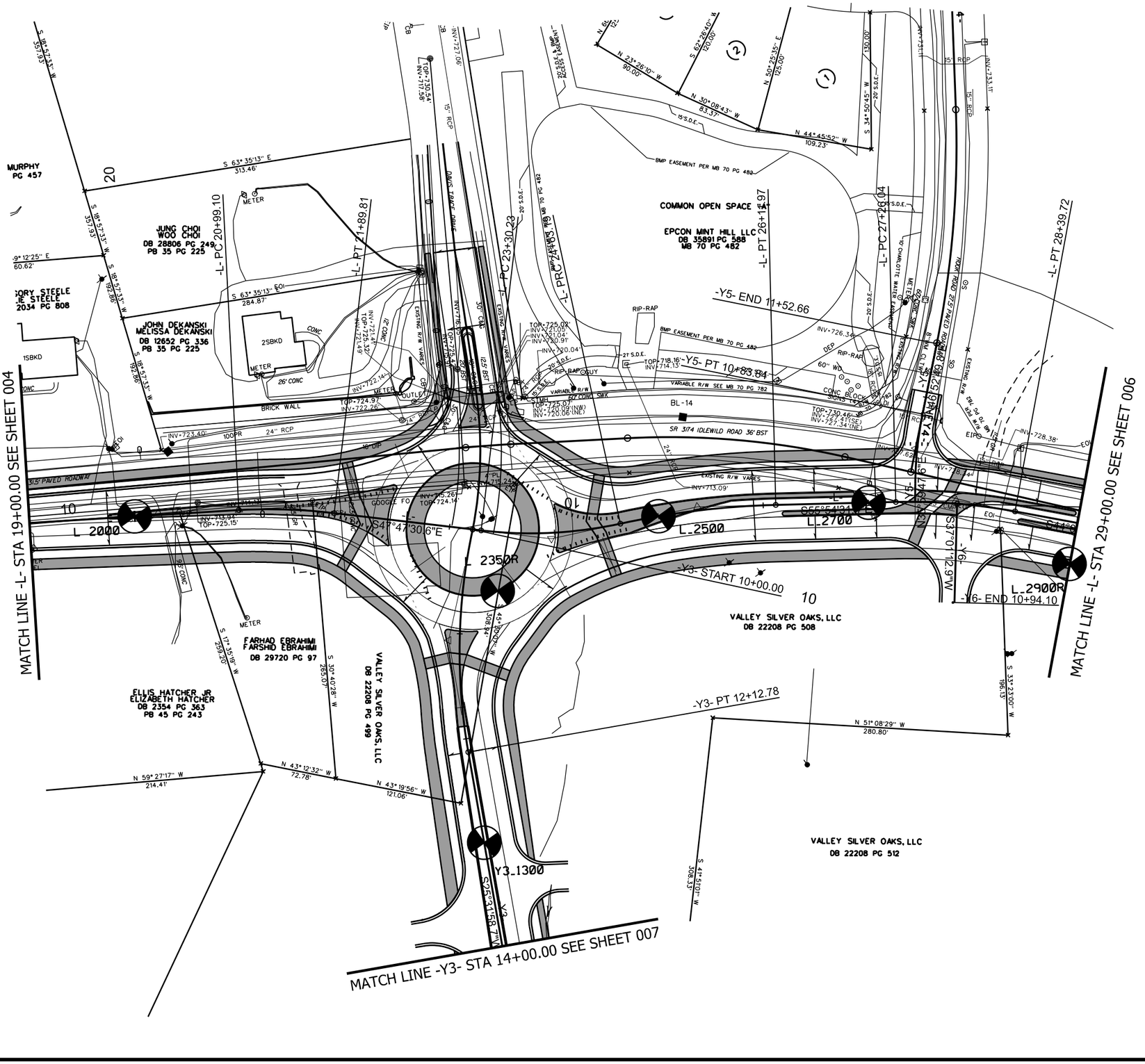
GEOTECHNICAL

Prepared For:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

U-4913A
004

5/26/20



CUR DATA -Y5-
PIc 10+50.70
Δc = 10°53'02.2" (RT)
D = 16°22'12.8"
Lc = 66.49
Tc = 33.34
R = 350
SE = 0.000

CUR DATA -L-
PIc 27+83.09
Δc = 11°50'32.1" (RT)
D = 10°25'02.7"
Lc = 113.6774'
Tc = 57.0419'
R = 550.0000'
0.0000

CUR DATA -L-
PIc 25+37.81
Δc = 10°55'44.2" (RT)
D = 07°20'44.2"
Lc = 148.7820'
Tc = 74.6174'
R = 780.0000'
0.0000

CUR DATA -L-
PIc 21+44.57
Δc = 09°37'28.5" (RT)
D = 10°36'37.2"
Lc = 90.7094'
Tc = 45.4617'
R = 540.0000'
0.0000

U-4913A
005

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

Prepared For:

GEOTECHNICAL

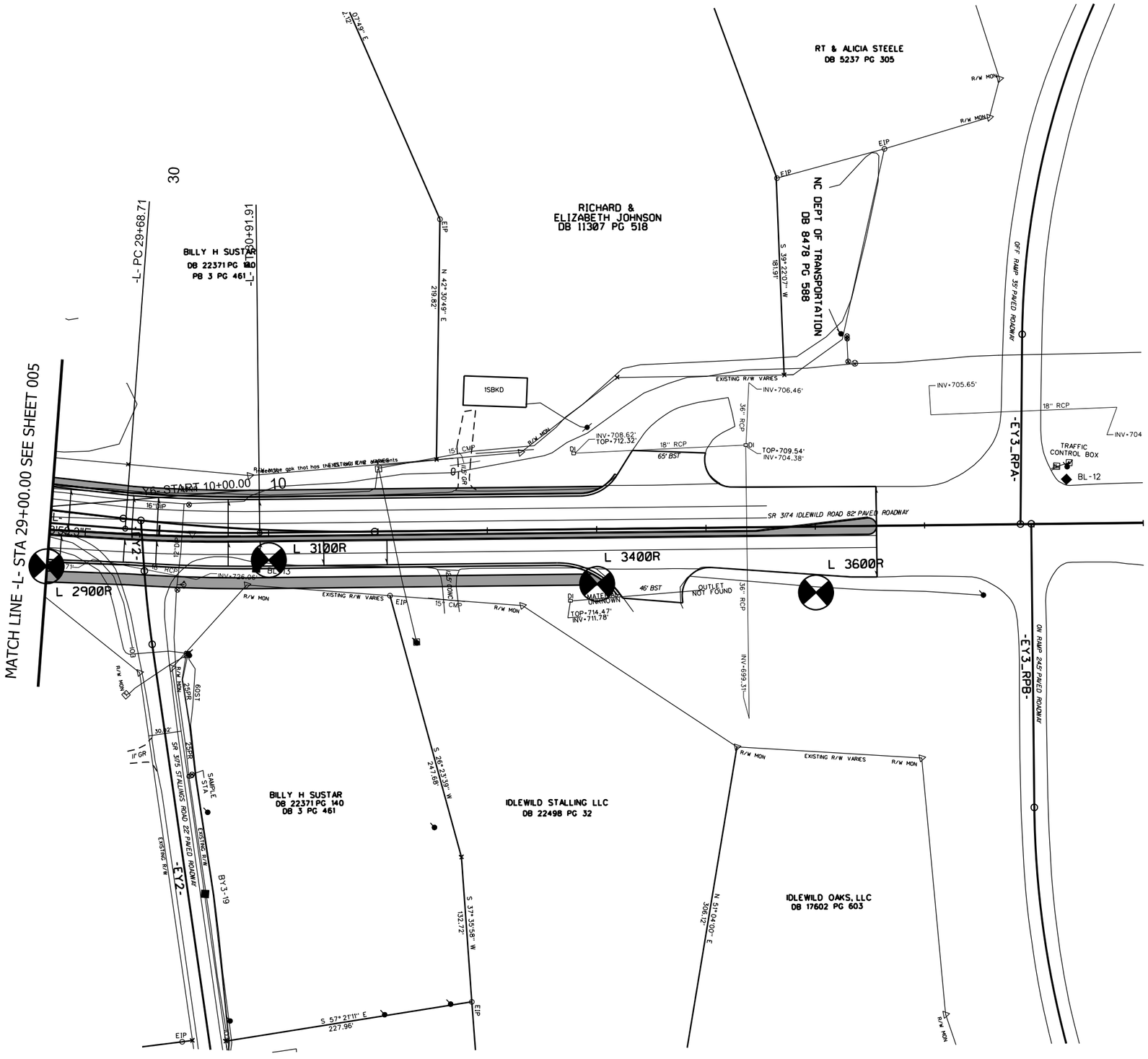
U-4913A:

WIDEN IDLEWILD ROAD (SR 3174) FROM DAVIS TRACE DRIVE TO I-485 RAMPS AND REALIGN STALLINGS ROAD (SR 3175)

GEOTECHNICAL UNIT

PREPARED BY
CAROLINAS GEOTECHNICAL GROUP
2400 CROWNPOINT EXECUTIVE DRIVE
SUITE 800
CHARLOTTE, NC 28227
(980) 339-9684

5/26/20



CUR DATA -L-
PIc 30+30.35
Δc = 04°52'04.7" (LT)
D = 03°57'05.2"
Lc = 123.1950'
Tc = 61.6346'
R = 1450.0000'
0.0000

U-4913A
006

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Prepared For:

GEOTECHNICAL

U-4913A:

WIDEN IDLEWILD ROAD (SR 3174) FROM DAVIS TRACE DRIVE TO I-485 RAMPS AND REALIGN STALLINGS ROAD (SR 3175)

GEOTECHNICAL UNIT

PREPARED BY

CAROLINAS GEOTECHNICAL GROUP

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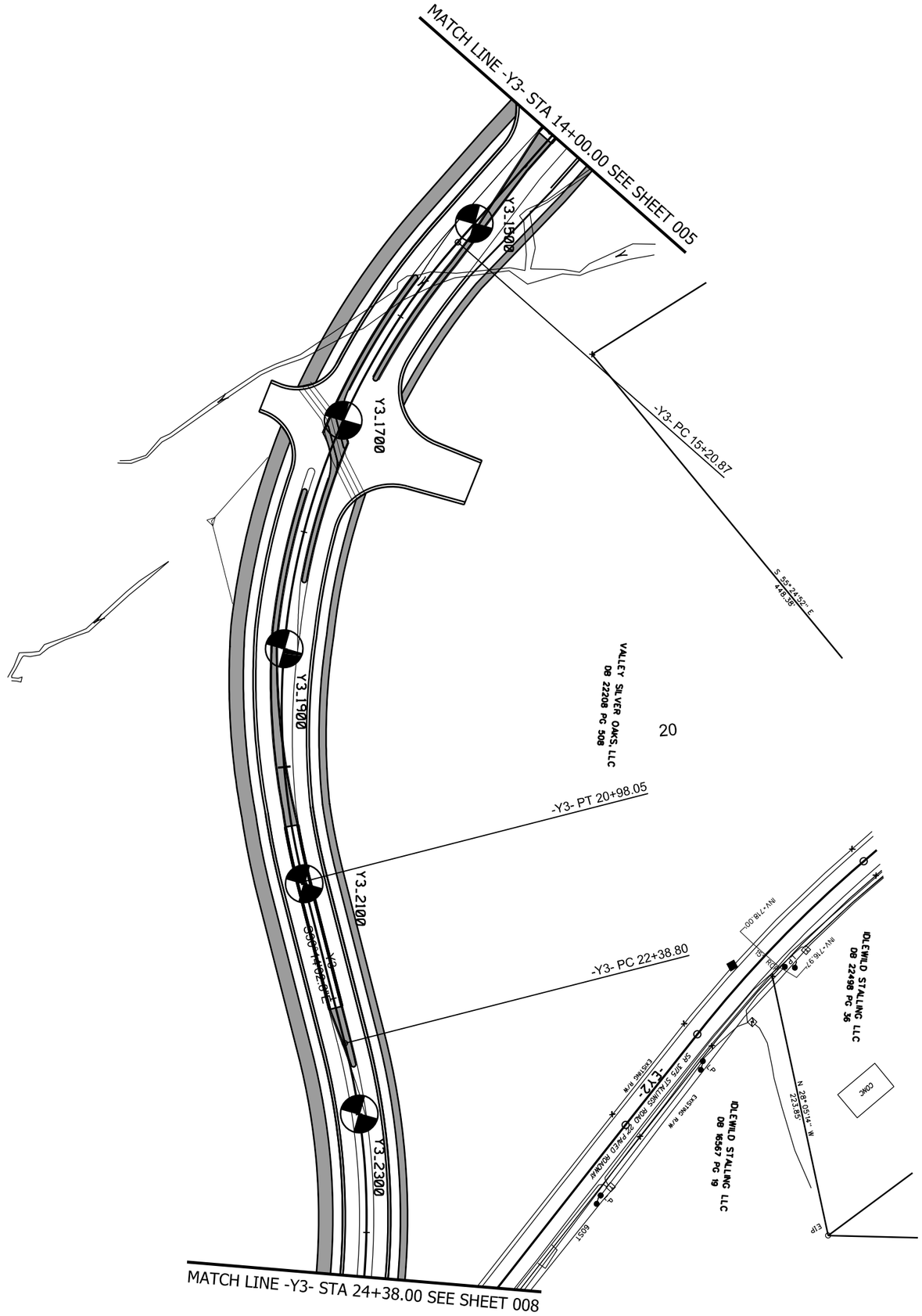
(980) 339-9884



CUR DATA -Y3-
PIc 18+34.63
Δc = 55°46'01.1" (LT)
D = 09°39'43.3"
Lc = 577.1772'
Tc = 313.7586'
R = 593.0000'
0.0000

NC GRID
NAD 83 NA 2011

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2400 CROWNPOINT EXECUTIVE DRIVE
SUITE 800
CHARLOTTE, NC 28227
(980) 339-5684

PREPARED BY

GEOTECHNICAL UNIT

U-4913A:

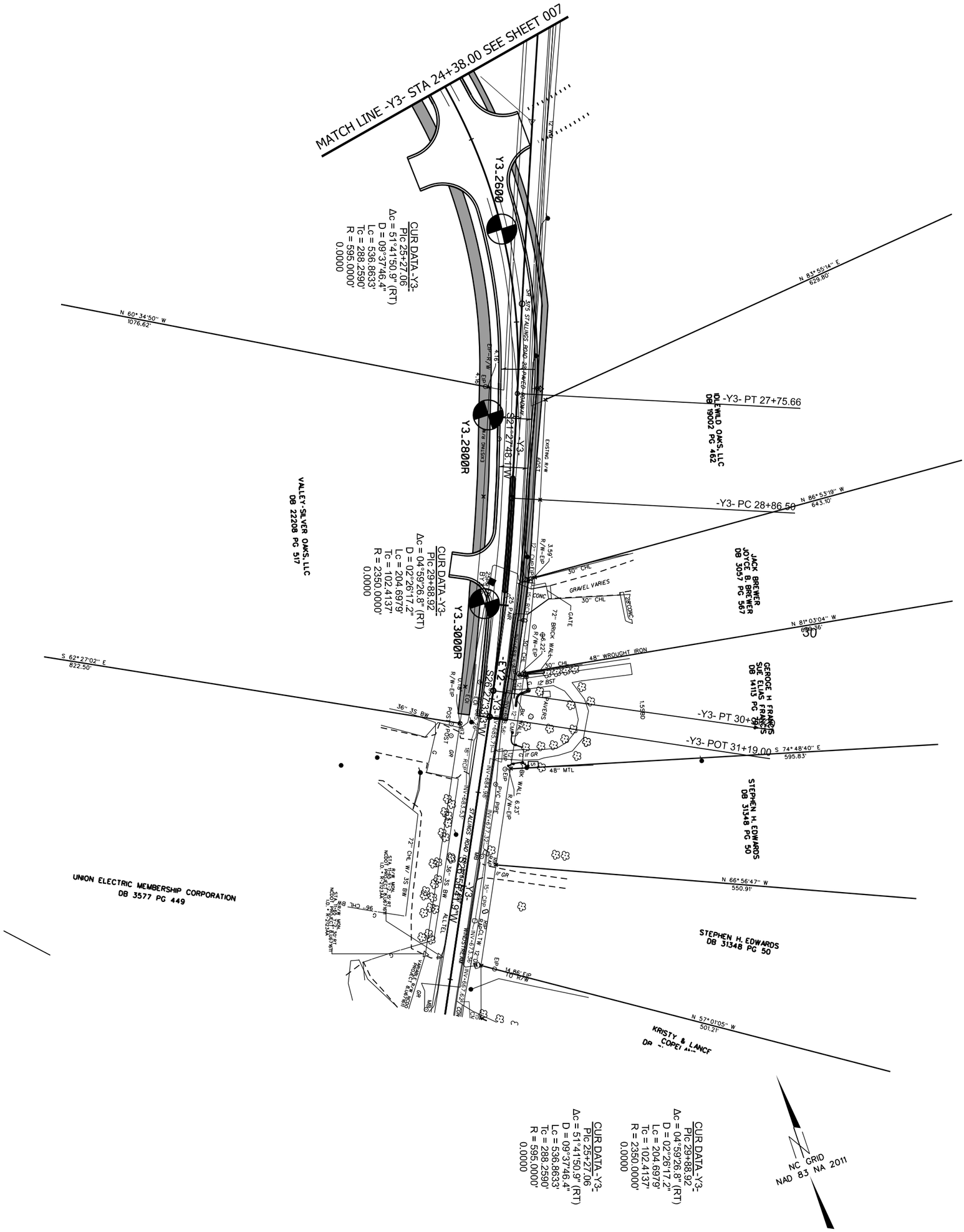
WIDEN IDLEWILD ROAD (SR 3174) FROM DAVIS TRACE DRIVE TO I-485 RAMPS AND REALIGN STALLINGS ROAD (SR 3175)

north carolina department of transportation
GEOTECHNICAL

Prepared For:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

U-4913A
007



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SUITE 800
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(980) 339-5684
PREPARED BY

GEOTECHNICAL UNIT

U-4913A:

WIDEN IDLEWILD ROAD (SR 3174) FROM DAVIS TRACE DRIVE TO I-485 RAMPS AND REALIGN STALLINGS ROAD (SR 3175)

Prepared For:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

U-4913A
008

PROJECT REFERENCE NO.	SHEET NO.
U–4913A	9

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX A
BORE LOGS

REFERENCE: U–4913A

PROJECT: 40543

Prepared in the Office of:
CAROLINAS GEOTECHNICAL GROUP
2400 CROWNPOINT EXECUTIVE DRIVE
SUITE 800
CHARLOTTE, NC 28227
(980) 339-8684

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_1000R	**STATION** 10+00	**OFFSET** 35 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 712.1 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 507,129	**EASTING** 1,502,076	**24 HR.** 7.8
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
715										
										712.1 GROUND SURFACE 0.0
	711.1	1.0	2	4	4	8	SS-116	23%		**RESIDUAL** Medium Stiff to Stiff, Orange-Tan, Highly Plastic Silty CLAY (A-7-6(20)), with trace rock fragments
710	708.6	3.5	3	4	7	11		M		
	706.1	6.0	5	9	10	19				705.6 6.5
705	703.6	8.5	3	4	7	11		M		704.1 Very Stiff, Green-Gray, Silty CLAY (A-7) 8.0 Stiff, Green-Gray, Clayey SILT (A-5)
700	698.6	13.5	2	3	7	10		M		700.1 12.0 Stiff, Orange-Tan, Silty CLAY (A-7) 697.1 15.0 Boring Terminated at Elevation 697.1 ft In Residual Silty CLAY (A-7) Surficial Organic Soil: 0.0'-0.7'

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_1200R	**STATION** 12+00	**OFFSET** 35 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 716.6 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 507,023	**EASTING** 1,502,243	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
720										
										716.6 GROUND SURFACE 0.0
715	715.6	1.0	5	8	11	19		D		**RESIDUAL** Very Stiff, Red-Orange, Silty CLAY (A-7)
	713.1	3.5	5	7	10	17		M		711.1 5.5
710	710.6	6.0	2	4	7	11		M		Stiff, Orange-Tan, Clayey SILT (A-5)
	708.1	8.5	2	4	7	11		M		706.6 10.0 Boring Terminated at Elevation 706.6 ft In Residual Clayey SILT (A-5) Surficial Organic Soil: 0.0'-0.5'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_1400R	**STATION** 14+00	**OFFSET** 35 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 721.5 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 506,910	**EASTING** 1,502,410	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
725										
										721.5 GROUND SURFACE 0.0
720	720.5	1.0	2	4	6	10		M		**RESIDUAL** Stiff, Red, Silty CLAY (A-7)
	718.0	3.5	3	4	6	10		M		718.5 3.0 Medium Stiff to Stiff, Orange-Tan, Clayey SILT (A-5)
715	715.5	6.0	3	3	4	7		M		
	713.0	8.5	2	4	4	8		M		711.5 10.0 Boring Terminated at Elevation 711.5 ft In Residual Clayey SILT (A-5)
										Surficial Organic Soil: 0.0'-0.3'

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_1800R	**STATION** 18+00	**OFFSET** 10 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 724.2 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 506,719	**EASTING** 1,502,762	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV (ft) DEPTH (ft)
725										
										724.2 GROUND SURFACE 0.0
	723.2	1.0	4	7	10	17	SS-129	22%		**RESIDUAL** Very Stiff, Orange-Red-Tan, Moderately Plastic Silty CLAY (A-7-6(17))
720	720.7	3.5	4	6	10	16		M		
	718.2	6.0	3	4	5	9		M		718.7 5.5 Stiff, Orange-Tan, Clayey SILT (A-5)
715	715.7	8.5	2	4	6	10		M		
										714.2 10.0 Boring Terminated at Elevation 714.2 ft In Residual Clayey SILT (A-5)
										Surficial Organic Soil: 0.0'-0.3'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_2000R	**STATION** 20+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 725.4 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 506,622	**EASTING** 1,502,937	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
730										
725										725.4 GROUND SURFACE 0.0
	724.4	1.0	5	6	9	15		M		**RESIDUAL** Stiff, Red, Silty CLAY (A-7)
	721.9	3.5	4	4	5	9		M		722.4 — 3.0
720	719.4	6.0	2	2	3	5		M		Medium Stiff to Stiff, Orange-Tan, Clayey SILT (A-5)
	716.9	8.5	3	2	2	4		M		715.4 — 10.0
										Boring Terminated at Elevation 715.4 ft In Residual Clayey SILT (A-5)
										Surficial Organic Soil: 0.0'-0.3'

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_2350R	**STATION** 23+50	**OFFSET** 56 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 717.5 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 506,364	**EASTING** 1,503,176	**24 HR.** 21.0
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/28/24	**COMP. DATE** 03/28/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
720										717.5 GROUND SURFACE 0.0
	716.5	1.0	6	10	14	24	SS-1	21%		**ARTIFICIAL FILL** Very Stiff, Tan-Orange-Red, Highly Plastic Silty CLAY (A-7-6(19)), with trace organics
715	714.0	3.5	5	11	13	24		M		712.0 — 5.5
	711.5	6.0	5	8	10	18		M		**RESIDUAL** Very Stiff, White-Tan-Red, Fine Sandy Silty CLAY (A-6)
710	709.0	8.5	5	8	10	18		M		
705	704.0	13.5	4	7	9	16		M		705.0 — 12.5
	699.0	18.5	16	23	25	48		M		Very Stiff to Hard, White-Tan-Brown, Fine Sandy SILT (A-4)
700										
695	694.0	23.5	16	20	15	35		M		692.5 — 25.0
										Boring Terminated at Elevation 692.5 ft In Residual Sandy SILT (A-4)
										Surficial Organic Soil: 0.0'-0.5'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_2500	**STATION** 25+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 715.2 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 506,333	**EASTING** 1,503,342	**24 HR.** 1.0
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
720										
715										715.2 GROUND SURFACE 0.0
	714.2	1.0	2	3	4	7		M		**RESIDUAL** Medium Stiff to Stiff, Orange-Tan-Brown-Gray, Silty CLAY (A-7), with trace organics
	711.7	3.5	2	2	4	6		M		
710	709.2	6.0	3	4	5	9		M		
	706.7	8.5	3	4	4	8		M		
705										702.7 12.5
	701.7	13.5	3	4	5	9		M		Stiff to Very Stiff, Brown-White-Orange, Fine Sandy SILT (A-4)
700										
	696.7	18.5	3	7	11	18		M		695.2 20.0 Boring Terminated at Elevation 695.2 ft In Residual Sandy SILT (A-4)
										Surficial Organic Soil: 0.0'-0.3'

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_2700	**STATION** 27+00	**OFFSET** CL	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 729.3 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 506,228	**EASTING** 1,503,512	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
730										729.3 GROUND SURFACE 0.0
	728.3	1.0	5	8	12	20		M		**RESIDUAL** Medium Stiff to Very Stiff, Red-Tan-White, Silty CLAY (A-7)
725	725.8	3.5	5	6	10	16		M		
	723.3	6.0	5	5	6	11		M		
720	720.8	8.5	3	3	4	7		M		719.3 10.0 Boring Terminated at Elevation 719.3 ft In Residual Silty CLAY (A-7)
										Surficial Organic Soil: 0.0'-0.3'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_2900R	**STATION** 29+00	**OFFSET** 40 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 734.9 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 506,070	**EASTING** 1,503,633	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
735											
	733.9	1.0	5	7	12	19				734.9 GROUND SURFACE	0.0
	731.4	3.5					SS-18	17%		**RESIDUAL** Very Stiff, Red-Tan, Moderately Plastic Silty CLAY (A-7-6(12))	
730			8	13	18	31		M		731.9	3.0
	728.9	6.0								Very Stiff to Hard, Red-Tan-White, Highly Plastic Silty CLAY (A-7-6(20)), with trace gravel-sized rock fragments	
			7	10	14	24	SS-20	26%			
	726.4	8.5									
725			5	9	13	22		M			
										722.4	12.5
	721.4	13.5								Medium Stiff to Stiff, Red-Tan-White, Clayey SILT (A-5)	
720			3	4	6	10		M			
	716.4	18.5									
715			2	3	4	7		M		714.9	20.0
										Boring Terminated at Elevation 714.9 ft In Residual Clayey SILT (A-5)	
										Surficial Organic Soil: 0.0'-0.3'	

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_3100R	**STATION** 31+00	**OFFSET** 25 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 726.6 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 505,939	**EASTING** 1,503,789	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
730										
										726.6 GROUND SURFACE 0.0
725	725.6	1.0	5	8	11	19		M		**RESIDUAL** Stiff to Very Stiff, Red-Orange, Silty CLAY (A-7)
	723.1	3.5	5	7	9	16		M		
720	720.6	6.0	5	4	7	11		M		719.6 7.0
	718.1	8.5	3	4	5	9		M		Stiff, Orange-Tan, Clayey SILT (A-5)
										716.6 10.0
										Boring Terminated at Elevation 716.6 ft In Residual Clayey SILT (A-5)
										Surficial Organic Soil: 0.0'-0.2'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_3400R	**STATION** 34+00	**OFFSET** 50 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 718.1 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 505,723	**EASTING** 1,503,999	**24 HR.** 7.8
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
720											
	717.1	1.0								718.1 GROUND SURFACE	0.0
715	714.6	3.5	2	1	4	5	SS-146	24%		**ROADWAY EMBANKMENT** Medium Stiff to Stiff, Orange-Tan-Brown, Slightly Plastic Fine Sandy CLAY (A-6(10)), with trace organics and gravel	
	712.1	6.0	8	5	6	11		M			
710	709.6	8.5	2	4	5	9					
			7	9	11	20		M		709.1	9.0
										708.1 **RESIDUAL** Very Stiff, Orange-Tan, Silty CLAY (A-7)	10.0
										Boring Terminated at Elevation 708.1 ft In Residual Silty CLAY (A-7)	
										Surficial Organic Soil: 0.0'-0.2'	

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. L_3600R	**STATION** 36+00	**OFFSET** 60 ft RT	**ALIGNMENT** -L-	**0 HR.** Dry
COLLAR ELEV. 716.6 ft	**TOTAL DEPTH** 10.0 ft	**NORTHING** 505,584	**EASTING** 1,504,143	**24 HR.** 7.0
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
720										
										716.6 GROUND SURFACE 0.0
715	715.6	1.0	2	2	5	7		M		**ROADWAY EMBANKMENT** Medium Stiff, Red-Orange-Tan, Silty CLAY (A-7), with trace gravel
	713.1	3.5	1	4	4	8		M		
710	710.6	6.0	2	2	5	7				
	708.1	8.5	3	2	3	5		M		706.6 10.0
										Boring Terminated at Elevation 706.6 ft In Roadway Embankment Silty CLAY (A-7)
										Surficial Organic Soil: 0.0'-0.3'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_1300	**STATION** 13+00	**OFFSET** CL	**ALIGNMENT** -Y3-	**0 HR.** 23.0
COLLAR ELEV. 708.2 ft	**TOTAL DEPTH** 30.5 ft	**NORTHING** 506,177	**EASTING** 1,503,027	**24 HR.** 6.0
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
710											
										708.2	0.0
	707.2	1.0	4	5	6	11		M		**RESIDUAL** Stiff, Tan-Orange, Silty CLAY (A-7)	
705	704.1	4.1	5	7	8	15					
	702.2	6.0	4	5	8	13		D		702.4	5.8
700	699.1	9.1	5	8	9	17		D		Stiff to Very Stiff, Tan-Orange, Fine Sandy SILT (A-4)	
										696.2	12.0
695	694.1	14.1	3	5	6	11		M		Stiff, Tan-Orange, Clayey SILT (A-5)	
690	689.1	19.1	8	14	15	29		M		690.2 Very Stiff to Hard, Brown-Orange, Fine to Coarse Sandy SILT (A-4), with trace gravel-sized rock fragments	18.0
685	684.1	24.1	18	22	42	64		M			
680	679.1	29.1	34	44	56/0.4	100/0.9		M		678.6 677.7 **WEATHERED ROCK** Brown-Orange (Metavolcanic Rock)	29.6 30.5
										Boring Terminated at Elevation 677.7 ft In Weathered Rock (Metavolcanic Rock)	
										Surficial Organic Soil: 0.0'-1.2'	

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_1500	**STATION** 15+00	**OFFSET** CL	**ALIGNMENT** -Y3-	**0 HR.** 20.0
COLLAR ELEV. 704.7 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 505,997	**EASTING** 1,502,941	**24 HR.** 5.5
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	
705											
										704.7	0.0
	703.7	1.0	4	6	10	16	SS-109	25%		GROUND SURFACE **RESIDUAL** Very Stiff, Red-Orange, Highly Plastic Silty CLAY (A-7-5(14))	
700	701.2	3.5	5	6	10	16					
	698.7	6.0	5	5	5	10		M		699.2	5.5
695	696.2	8.5	5	8	9	17		M		Stiff to Very Stiff, Orange-Tan, Silty CLAY (A-7)	
										692.7	12.0
690	691.2	13.5	6	8	9	17		M		Very Stiff, Orange-Tan, Fine to Coarse Sandy SILT (A-4), with Manganese Oxide staining	
685	686.2	18.5	7	10	13	23		M			
										682.7	22.0
680	681.2	23.5	3	9	22	31		M		Hard, Orange-Tan, Clayey SILT (A-5), with Manganese Oxide staining	
										679.7	25.0
										Boring Terminated at Elevation 679.7 ft In Residual Clayey SILT (A-5)	
										Surficial Organic Soil: 0.0'-1.4'	

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_1700	**STATION** 17+00	**OFFSET** CL	**ALIGNMENT** -Y3-	**0 HR.** 22.0
COLLAR ELEV. 700.1 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 505,807	**EASTING** 1,502,880	**24 HR.** 9.0
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
705										
700										700.1 GROUND SURFACE 0.0
	699.1	1.0	2	2	4	6		M		**RESIDUAL** Medium Stiff, Orange-Red-Tan, Silty CLAY (A-7)
	696.6	3.5								697.1 3.0
695			5	9	13	22		M		Very Stiff, Tan-Red-White, Fine Sandy SILT (A-4)
	694.1	6.0								694.6 5.5
			4	5	8	13		M		Stiff to Very Stiff, Orange-Tan-White, Fine Sandy CLAY (A-6), with Manganese Oxide staining
690	691.6	8.5	6	5	8	13		M		
	686.6	13.5	5	12	16	28		M		
685										
	682.6	17.5								Hard, Brown-Tan-White, Fine to Coarse Sandy SILT (A-4), with Manganese Oxide staining
	681.6	18.5	15	21	30	51		M		
680										
	676.6	23.5	19	40	59	99		M		675.1 25.0
										Boring Terminated at Elevation 675.1 ft In Residual Sandy SILT (A-4)
										Surficial Organic Soil: 0.0'-0.5'

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_1900	**STATION** 19+00	**OFFSET** CL	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 710.1 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 505,608	**EASTING** 1,502,885	**24 HR.** 17.7
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
715										
710										710.1 GROUND SURFACE 0.0
	709.1	1.0	2	4	5	9				**RESIDUAL** Stiff, Red-Tan, Highly Plastic Silty CLAY (A-7-5(20)), with trace organics
	706.6	3.5					SS-49	35%		707.1 3.0
705			3	4	7	11				Medium Stiff to Stiff, Red-Tan-White, Moderately Plastic Silty CLAY (A-7-5(20))
	704.1	6.0					SS-50	35%		
			2	3	4	7		M		702.1 8.0
700	701.6	8.5	2	3	5	8	SS-52	36%		Medium Stiff to Very Stiff, Red-Tan-Orange, Clayey SILT (A-5(8)), with Manganese Oxide staining
	696.6	13.5	2	4	4	8		M		
695										
	691.6	18.5	3	8	13	21		M		690.1 20.0
										Boring Terminated at Elevation 690.1 ft In Residual Clayey SILT (A-5)
										Surficial Organic Soil: 0.0'-0.5'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_2100	**STATION** 21+00	**OFFSET** CL	**ALIGNMENT** -Y3-	**0 HR.** 20.0
COLLAR ELEV. 715.3 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 505,422	**EASTING** 1,502,956	**24 HR.** 22.0
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION (ELEV. (ft) / DEPTH (ft))
720										
715	714.3	1.0								715.3 GROUND SURFACE 0.0
	711.8	3.5	2	3	7	10 20		M		**RESIDUAL** Stiff to Very Stiff, Tan-Brown, Highly Plastic Silty CLAY (A-7-5(20)), with trace organics
710	709.3	6.0	5	8	12		SS-42	38%		
	706.8	8.5	5	6	9	15		M		707.3 8.0
705	701.8	13.5	2	3	5	8	SS-44	44%		Very Soft to Stiff, Red-Tan-White-Orange, Moderately Plastic Silty CLAY (A-7-5(20)), with Mangaese Oxide staining
700	696.8	18.5	1	2	2	4		M		
695	691.8	23.5	1	1	1	2		W		
690	686.8	28.5	1	1	2	3		W		
			3	4	5	9		M		685.3 30.0

Boring Terminated at Elevation 685.3 ft In Residual Silty CLAY (A-7)

Surficial Organic Soil: 0.0'-0.3'

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_2300	**STATION** 23+00	**OFFSET** CL	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 712.7 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 505,248	**EASTING** 1,503,054	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
715										
	712.7	0.0								712.7 GROUND SURFACE 0.0
710	709.2	3.5	5	8	12	20		M		**RESIDUAL** Very Stiff, Red-Tan, Silty CLAY (A-7), with trace organics
	706.7	6.0	5	6	9	15		M		709.7 3.0
705	704.2	8.5	3	3	4	7	SS-37	30%		Medium Stiff to Stiff, Red-Tan-White, Slightly Plastic Silty CLAY (A-7-5(12)), with Manganese Oxide staining
			2	3	4	7		M		
700	699.2	13.5	2	3	4	7		M		
695	694.2	18.5	2	3	5	8		M		692.7 20.0

Boring Terminated at Elevation 692.7 ft In Residual Silty CLAY (A-7)

Surficial Organic Soil: 0.0'-0.5'

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_2600	**STATION** 26+00	**OFFSET** CL	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 707.9 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 504,955	**EASTING** 1,503,105	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
710											
	706.9	1.0	2	3	5	8		M		707.9 GROUND SURFACE	0.0
705	704.4	3.5	4	6	8	14	SS-30	32%		**RESIDUAL** Medium Stiff to Stiff, Red-Tan, Highly Plastic Silty CLAY (A-7-5(20)), with trace organics	
	701.9	6.0	2	3	5	8		M			
700	699.4	8.5	2	2	4	6		M		699.9 Medium Stiff, Orange-Tan-White, Clayey SILT (A-5), with Manganese Oxide staining	8.0
695	694.4	13.5	2	2	3	5		M			
690	689.4	18.5	2	2	4	6		M		687.9 Boring Terminated at Elevation 687.9 ft In Residual Clayey SILT (A-5) Surficial Organic Soil: 0.0'-0.5'	20.0

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** P. Tomasic	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_2800R	**STATION** 28+00	**OFFSET** 30 ft RT	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 702.3 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 504,773	**EASTING** 1,503,029	**24 HR.** Dry
DRILL RIG/HAMMER EFF./DATE CG20446 Diedrich D50 87% 05/10/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER C. Odom	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
705										
	701.3	1.0	4	5	8	13		M		702.3 GROUND SURFACE 0.0
700	698.8	3.5	4	6	8	14		M		**RESIDUAL** Stiff, Red-Tan, Silty CLAY (A-7), with trace organics 699.3 3.0
	696.3	6.0	7	12	17	29		M		Stiff to Hard, Red-Tan-Orange-White, Fine Sandy SILT (A-4), with trace oragnics, gravel-sized rock fragments, and Manganese Oxide staining
695	693.8	8.5	7	10	14	24		M		
690	688.8	13.5	9	15	16	31		M		687.3 Boring Terminated at Elevation 687.3 ft In Residual Sandy SILT (A-4) Surficial Organic Soil: 0.0'-0.5' 15.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 40543.1.3	**TIP** U-4913A	**COUNTY** MECKLENBURG	**GEOLOGIST** T. Wenner	
SITE DESCRIPTION Widen SR 3174 (Idlewild Rd) from Davis Trace Drive to the I-485 Inner Ramps and Realign SR 3175				**GROUND WTR (ft)**
BORING NO. Y3_3000R	**STATION** 30+00	**OFFSET** 20 ft RT	**ALIGNMENT** -Y3-	**0 HR.** Dry
COLLAR ELEV. 693.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 504,585	**EASTING** 1,502,962	**24 HR.** 2.6
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 90% 03/10/2023		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER J. Kiker	**START DATE** 03/29/24	**COMP. DATE** 03/29/24	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
695										693.8 GROUND SURFACE	0.0
	692.8	1.0	4	5	6	11		W		692.3 **ARTIFICIAL FILL** Soft, Brown, Silty CLAY (A-7), with trace organics	1.5
690	690.3	3.5	4	4	7	11	SS-137	16%		**RESIDUAL** Stiff, Red-Orange-Tan, Highly Plastic Silty CLAY (A-7-6(20))	
	687.8	6.0	3	6	7	13		M			
685	685.3	8.5	3	4	6	10		M			
								M			
680	680.3	13.5	14	19	32	51		D		680.1	13.7
										678.8 Hard, Orange-Tan, Fine Sandy SILT (A-4), with Manganese Oxide staining	15.0
										Boring Terminated at Elevation 678.8 ft In Residual Sandy SILT (A-4)	
										Surficial Organic Soil: 0.0'-1.5'	

NCDOT BORE DOUBLE U-4913A_GEO_GTM.GPJ NC_DOT.GDT 5/9/24

PROJECT REFERENCE NO.	SHEET NO.
U–4913A	21

REFERENCE: U–4913A

PROJECT: 40543

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

APPENDIX B
LABORATORY TEST RESULTS

Prepared in the Office of:

F&ME CONSULTANTS, INC.
COLUMBIA, SOUTH CAROLINA
NCDOT LAB CERT. NO. 130–0212

F&ME CONSULTANTS, INC.
211 BUSINESS PARK BOULEVARD, COLUMBIA SC 29203
(CERT No.: 130-0212)

Project Widen Idlewild Road From Davis Trace Drive to the I-485 Inner Ramps and Realign Stallings Road | **T.I.P. No.** U-4913A | **County** Mecklenburg | **F&ME Job No.** C8806.001 - Task 00023

Date Received 4/1/2024 | **Date Reported** 5/6/2024 | **Tested By** F&ME | **CERT No.:** 130-0212

SOIL TEST RESULTS

SAMPLE NO.	*OFFSET*	*STATION*	*DEPTH INTERVAL (ft.)*	*AASHTO CLASS*	*L.L.*	*P.I.*	*% BY WEIGHT*				*% PASSING (SIEVES)*			*%*	*%*
							C. SAND	*F. SAND*	*SILT*	*CLAY*	*10*	*40*	*200*	*MOISTURE*	*ORGANIC*
SS-1	56' RT	-L- 23+50	1.0 - 2.5	A-7-6(19)	49	28	16.2%	13.5%	31.6%	38.7%	97.5%	87.2%	71.7%	20.8%	ND
SS-18	40' RT	-L- 29+00	1.0 - 2.5	A-7-6(12)	44	23	20.3%	14.5%	22.6%	42.6%	91.8%	80.4%	62.5%	17.2%	ND
SS-20	40' RT	-L- 29+00	6.0 - 7.5	A-7-6(20)	68	39	3.7%	3.9%	33.2%	59.2%	87.0%	84.8%	81.7%	26.3%	ND
SS-30	CL	-Y3- 26+00	3.5 - 5.0	A-7-5(20)	65	30	8.5%	8.3%	22.9%	60.3%	99.9%	96.1%	84.9%	31.5%	ND
SS-37	CL	-Y3- 23+00	6.0 - 7.5	A-7-5(12)	49	14	17.2%	10.2%	39.1%	33.5%	99.8%	89.8%	74.6%	30.2%	ND
SS-42	CL	-Y3- 21+00	3.5 - 5.0	A-7-5(20)	76	39	5.5%	5.3%	22.7%	66.5%	97.4%	94.1%	88.0%	38.4%	ND
SS-44	CL	-Y3- 21+00	8.5 - 10.0	A-7-5(20)	60	18	3.9%	3.3%	42.9%	49.9%	98.4%	95.9%	91.9%	44.0%	ND
SS-49	CL	-Y3- 19+00	1.0 - 2.5	A-7-5(20)	68	35	12.6%	7.5%	40.7%	39.2%	97.7%	90.2%	79.5%	34.9%	ND
SS-50	CL	-Y3- 19+00	3.5 - 5.0	A-7-5(20)	61	21	12.8%	7.2%	32.5%	47.5%	98.7%	90.9%	80.4%	35.4%	ND
SS-52	CL	-Y3- 19+00	8.5 - 10.0	A-5(8)	47	9	16.5%	15.5%	43.8%	24.2%	99.2%	89.4%	70.2%	35.9%	ND
SS-109	CL	-Y3- 15+00	1.0 - 2.5	A-7-5(14)	62	31	12.9%	12.1%	21.3%	53.7%	68.1%	62.5%	53.0%	25.3%	ND
SS-116	35' RT	-L- 10+00	1.0 - 2.5	A-7-6(20)	59	36	10.8%	10.6%	27.3%	51.3%	95.8%	89.0%	78.3%	23.0%	ND
SS-129	10' RT	-L- 18+00	1.0 - 2.5	A-7-6(17)	51	23	17.3%	10.7%	28.5%	43.5%	97.6%	87.8%	71.7%	21.6%	ND
SS-137	20' RT	-Y3- 30+00	1.0 - 2.5	A-7-6(20)	56	32	15.0%	7.1%	35.1%	42.8%	88.4%	78.1%	70.5%	16.3%	ND
SS-146	50' RT	-L- 34+00	1.0 - 2.5	A-6(10)	39	13	8.2%	11.5%	47.3%	33.0%	90.9%	85.4%	76.5%	23.5%	ND

Alex M Abernathy	130-04-0212
Authorzed Signature	NCDOT Cert. No. 05/06/24
	Date