STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0015	1	

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY DAVIDSON

PROJECT DESCRIPTION BRIDGE NO. 67 AND NO. 68 REPLACEMENTS ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVENUE)

SITE DESCRIPTION RETAINING WALLS STA. 24+60.37 (54' RT) -L- TO 28+66.66 (96' LT) -L- STA. 15+53.00 (34' LT) -Y1- TO 17+73.00 (34' LT) -Y1-

REFERENCE: BR-0015

PROJECT: 67015

CONTENTS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4 - 13	BORE LOGS
14	SOIL TEST RESULTS

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

M. FOSTER

J. KARDON

D. KUBINSKI

TRIGON EXPLORATION

INVESTIGATED BY KLEINFELDER, INC

DRAWN BY D. KUBINSKI

CHECKED BY J. FREGOSI

SUBMITTED BY KLEINFELDER, INC.

DATE JUNE 2023

Prepared in the Office of:

KLEINFELDER
Bright People. Right Solutions.
422 Gallimore Dairy Road, Suite B
Greensboro, North Carolina 27409
NC Engineering Firm License No. F-1312

NORTH CAROLINA PROFESSIONAL SEAL 046042 ENGINEER DANIEL H. KUBINSKI

DocuSigned by:
Daniel H. Kubinski 06/22/2023
AB2F7FFB796A411...
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
BR-0015	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	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
MATERIAL PASSING #40 LL	—		—	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PI	6 MX		NP	10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
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
GRAIN SIZE 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	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- 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
- [X] CME-55
- [ ] CME-550
- [ ] VANE SHEAR TEST
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

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
- [X] TRICONE 2-15/16" 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
- [X] DYNAMIC CONE PENETROMETER

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: GPS-2 (N. 758,007.44 FT, E. 1,621,938.93 FT)

ELEVATION: 732.299 FEET

NOTES:

FIAD - FILLED IMMEDIATELY AFTER DRILLING

RETAINING WALL BORING ELEVATIONS TAKEN FROM PROJECT TIN FILE "BR0015.TIN" DATED 9/23/2022

BRIDGE BORING ELEVATIONS WERE SURVEYED BY TRANSYSTEMS CORPORATION USING A SUB CENTIMETER GPS AND BASE STATION.

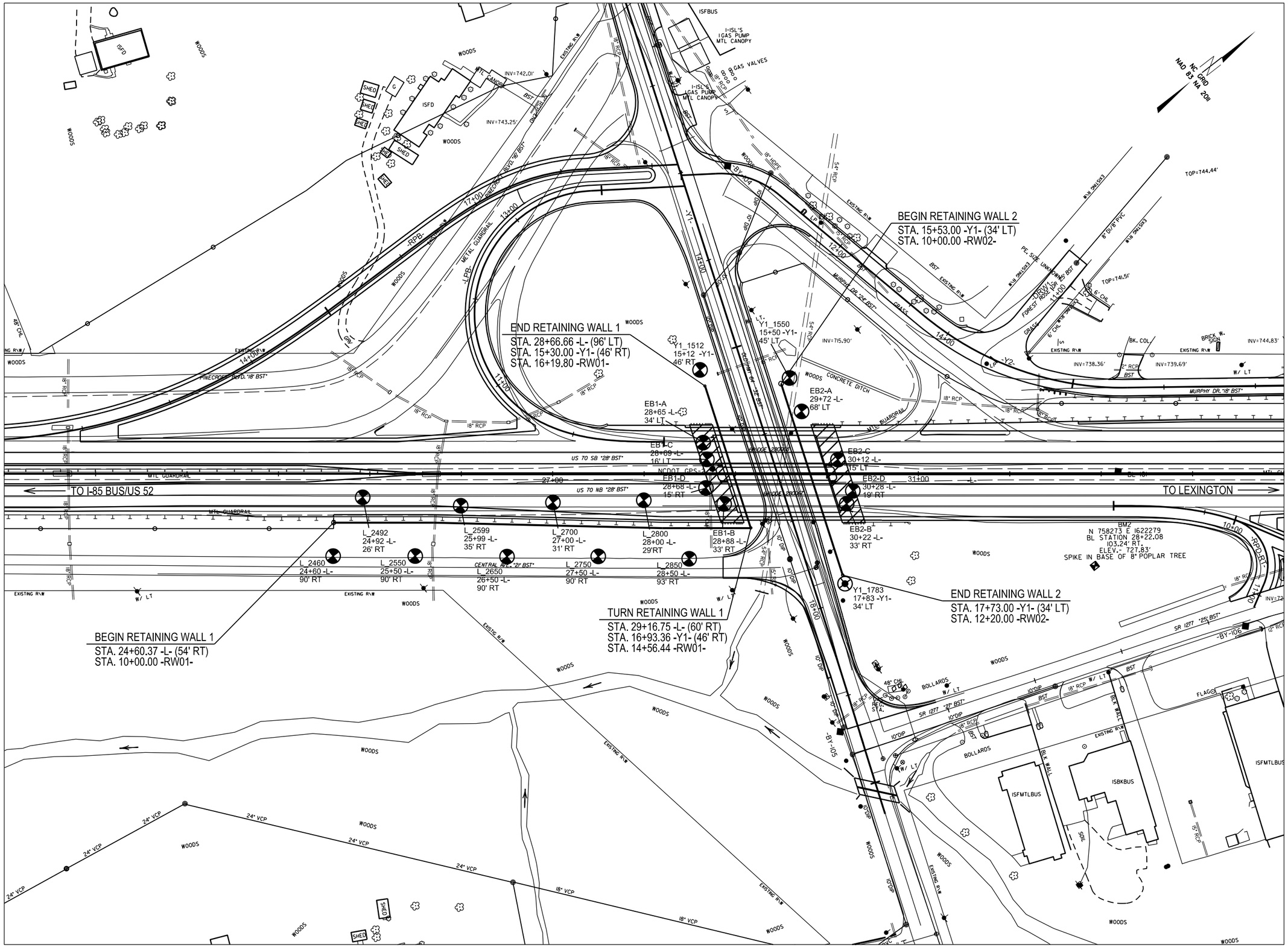
HAND AUGER AND DYNAMIC CONE PENETROMETER TEST

DATE: 8-15-14

5/26/20

BR-0015

1" = 100' | SHEET 3



GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2460	**STATION** 24+60	**OFFSET** 90 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 722.0 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 757,621	**EASTING** 1,621,760 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**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											
										722.0 GROUND SURFACE	0.0
	721.0	1.0								721.0 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.5 Foot)	1.0
720			2	4	2	6	SS-9	37%		719.0 ABC Stone (0.5 - 1.0 Foot)	3.0
	718.5	3.5								Medium Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica	
			3	5	6	11		M		**RESIDUAL**	
715										715.0 Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica	7.0
	713.5	8.5								Stiff to Very Stiff, Olive Brown, Coarse to Fine Sandy SILT	
			3	5	5	10		M			
710											
	708.5	13.5									
			2	4	5	9		M			
705											
	703.5	18.5									
			3	4	7	11		M			
700											
	698.5	23.5									
			5	10	12	22		M			
695											
	693.5	28.5									
			5	9	14	23		M		692.0	30.0
										Boring Terminated at Elevation 692.0 ft in RESIDUAL (Sandy SILT)	

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2492	**STATION** 24+92	**OFFSET** 26 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 737.7 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 757,686	**EASTING** 1,621,729 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/05/23	**COMP. DATE** 05/05/23	**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
740										
										737.7 GROUND SURFACE 0.0
	736.5	1.2								736.8 **ROADWAY EMBANKMENT** 0.9
735			4	6	2	8		M		Asphalt and ABC Stone (0.0 - 0.9 Foot)
	734.2	3.5								734.6 Medium Stiff, Reddish Brown, Coarse to Fine Sandy SILT, Trace Mica 3.1
			1	2	2	4		M		Medium Stiff, Highly Plastic, Reddish Brown, Silty CLAY, Trace Mica
730										
	729.2	8.5								
			2	2	3	5		M		726.6 11.1
725										**RESIDUAL**
	724.2	13.5								Medium Stiff to Stiff, Yellowish Brown to Light Brownish Gray, Coarse to Fine Sandy SILT, Trace Mica
			2	3	5	8		M		
720										
	719.2	18.5								
			3	4	6	10		M		717.7 20.0
										Boring Terminated at Elevation 717.7 ft in RESIDUAL (Sandy SILT)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2550	**STATION** 25+50	**OFFSET** 90 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 718.8 ft	**TOTAL DEPTH** 15.0 ft	**NORTHING** 757,692	**EASTING** 1,621,815 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**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										718.8 GROUND SURFACE	0.0
	717.8	1.0								717.8 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.5 Foot) ABC Stone (0.5 - 1.0 Foot)	1.0
715	715.3	3.5	5 / 2	2 / 4	3 / 6	5, 10		M / M		Medium Stiff to Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica	
710	710.3	8.5	2	3	3	6		M		712.8 **RESIDUAL** Medium Stiff, Reddish Brown, Clayey SILT, Trace Mica	6.0
705	705.3	13.5	3	5	6	11		M		706.8 Stiff, Brown, Coarse to Fine Sandy SILT	12.0
										703.8 Boring Terminated at Elevation 703.8 ft in RESIDUAL (Sandy SILT)	15.0

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2599	**STATION** 25+99	**OFFSET** 35 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 735.6 ft	**TOTAL DEPTH** 25.0 ft	**NORTHING** 757,765	**EASTING** 1,621,802 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/05/23	**COMP. DATE** 05/05/23	**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	
740										735.6 GROUND SURFACE	0.0
	734.6	1.0								734.9 **ROADWAY EMBANKMENT** Asphalt and ABC Stone (0.0 - 0.7 Foot)	0.7
735	732.0	3.6	3 / 2	2 / 2	3 / 3	5, 5		M / M		733.3 Medium Stiff, Highly Plastic, Reddish Brown, Silty CLAY, Trace Mica	2.3
730	727.1	8.5	3	3	5	8	SS-10	39%		Medium Stiff, Reddish Brown, Fine Sandy SILT, Trace Mica	
725	722.1	13.5	1	3	4	7		W		728.1 **RESIDUAL** Medium Stiff, Highly Plastic, Reddish Brown to Reddish Yellow, Silty CLAY	7.5
720	717.1	18.5	2	4	4	8		M		718.6 Medium Stiff, Reddish Yellow and Light Brownish Gray to Yellowish Brown and Light Brownish Gray, Coarse to Fine Sandy SILT, Trace Mica and Rock Fragments	17.0
715	712.1	23.5	2	2	4	6		M		710.6 Boring Terminated at Elevation 710.6 ft in RESIDUAL (Sandy SILT)	25.0

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2650	**STATION** 26+50	**OFFSET** 90 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 715.9 ft	**TOTAL DEPTH** 20.0 ft	**NORTHING** 757,771	**EASTING** 1,621,877 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**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	714.9	1.0								715.9 GROUND SURFACE	0.0
			3	3	4	7	SS-11	32%		714.9 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.5 Foot) ABC Stone (0.5 - 1.0 Foot)	1.0
	712.4	3.5	2	3	3	6		M		Medium Stiff, Highly Plastic, Red, Silty CLAY, Trace Mica	
710										708.9	7.0
	707.4	8.5	3	6	6	12		M		**RESIDUAL** Stiff to Very Stiff, Yellowish Brown, Coarse to Fine Sandy SILT	
705											
	702.4	13.5	3	6	9	15		M			
700											
	697.4	18.5	7	11	13	24		M		695.9	20.0
										Boring Terminated at Elevation 695.9 ft in RESIDUAL (Sandy SILT)	

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2700	**STATION** 27+00	**OFFSET** 31 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 734.2 ft	**TOTAL DEPTH** 30.0 ft	**NORTHING** 757,847	**EASTING** 1,621,861 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/05/23	**COMP. DATE** 05/05/23	**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	
735											
										734.2 GROUND SURFACE	0.0
730	730.5	3.7	1	3	3	6	SS-12	33%		732.3 **ROADWAY EMBANKMENT** Asphalt and ABC Stone (0.0 - 1.9 Feet)	1.9
725	725.7	8.5	2	3	4	7		W		Medium Stiff to Stiff, Moderately Plastic, Reddish Brown to Dark Reddish Brown, Reddish Brown and Olive Gray, Silty CLAY, Trace Mica	
720	720.7	13.5	2	3	5	8		W			
715	715.7	18.5	3	5	5	10		W			
										712.4	21.8
710	710.7	23.5	4	6	8	14		M		**RESIDUAL** Stiff to Very Stiff, Yellowish Brown to Gray, Fine Sandy SILT	
705	705.7	28.5	7	8	12	20		M		704.2	30.0
										Boring Terminated at Elevation 704.2 ft in RESIDUAL (Sandy SILT)	

NCDOT BORE DOUBLE BR0015_GEO_RWAL_GINT.GPJ NC_DOT.GDT 6/15/23

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2750	**STATION** 27+50	**OFFSET** 90 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 712.8 ft	**TOTAL DEPTH** 24.8 ft	**NORTHING** 757,850	**EASTING** 1,621,938 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**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										
										712.8 GROUND SURFACE 0.0
	711.8	1.0								711.8 **ROADWAY EMBANKMENT** 1.0
710			2	3	2	5	SS-13	22%		Asphalt (0.0 - 0.5 Foot)
	709.3	3.5								ABC Stone (0.5 - 1.0 Foot)
			5	3	4	7		M		Medium Stiff to Stiff, Moderately Plastic, Red, Silty CLAY, Trace Mica
705										
	704.3	8.5								
			4	6	5	11				
700										
	699.3	13.5								
			2	4	4	8		M		
										696.8 16.0
695										**ALLUVIAL** Loose, Gray, Clayey Fine to Coarse SAND
	694.3	18.5								
			2	1	4	5		M		
690										
	689.3	23.5								
			15	46	54/0.3	100/0.8				688.3 24.5
										688.0 24.8 **WEATHERED ROCK** Brown, METAGABBRO
										Boring Terminated at Elevation 688.0 ft in WEATHERED ROCK (METAGABBRO)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2800	**STATION** 28+00	**OFFSET** 29 ft RT	**ALIGNMENT** -L- / **0 HR.** Dry
COLLAR ELEV. 733.4 ft	**TOTAL DEPTH** 35.0 ft	**NORTHING** 757,927	**EASTING** 1,621,920 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/05/23	**COMP. DATE** 05/05/23	**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
735										
										733.4 GROUND SURFACE 0.0
										731.6 **ROADWAY EMBANKMENT** 1.8
730	729.9	3.5	2	2	3	5		M		Asphalt and ABC Stone (0.0 - 1.8 Feet)
										Medium Stiff, Reddish Brown, Fine Sandy SILT, Little Mica
										726.6 6.8
725	724.9	8.5	2	2	3	5		M		Medium Stiff, Moderately Plastic, Reddish Brown and Olive Gray to Reddish Brown to Olive Brown, Silty CLAY, Trace Mica
720	719.9	13.5	2	3	4	7	SS-14	30%		
715	714.9	18.5	2	4	4	8		M		
710	709.9	23.5	2	2	3	5		M		
										706.4 27.0
										ALLUVIAL Stiff, Highly Plastic, Dark Brown and Gray, Silty CLAY
705	704.9	28.5	1	3	6	9		M		
										701.6 31.8
										RESIDUAL Stiff, Light Brownish Gray, Silty CLAY
700	699.9	33.5	2	4	5	9		M		
										698.4 35.0
										Boring Terminated at Elevation 698.4 ft in RESIDUAL (Silty CLAY)

NCDOT BORE DOUBLE BR0015_GEO_RWAL_GINT.GPJ NC_DOT.GDT 6/15/23

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** J. Kardon
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. L_2850	**STATION** 28+50	**OFFSET** 93 ft RT	**ALIGNMENT** -L- / **0 HR.** 17.0
COLLAR ELEV. 711.9 ft	**TOTAL DEPTH** 29.3 ft	**NORTHING** 757,927	**EASTING** 1,622,001 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/09/23	**COMP. DATE** 05/09/23	**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											
										711.9 GROUND SURFACE	0.0
710	710.9	1.0	2	3	3	6		M		710.9 **ROADWAY EMBANKMENT** Asphalt (0.0 - 0.5 Foot) ABC Stone (0.5 - 1.0 Foot)	1.0
	708.4	3.5	2	2	3	5		M		Medium Stiff to Soft, Red to Reddish Brown, Silty CLAY, Trace Mica	
705											
	703.3	8.6	1	1	2	3		M			
700										700.9 **ALLUVIAL** Very Soft, Highly Plastic, Dark Brown and Dark Gray, Silty CLAY	11.0
	698.3	13.6	WOH	1	1	2		M			
695										694.9 **RESIDUAL** Very Dense, Brown, Silty Coarse to Fine SAND	17.0
	693.3	18.6	15	29	31	60		W			
690											
	688.3	23.6	15	76	24/0.1	100/0.6				687.3 **WEATHERED ROCK** Gray, METAGABBRO	24.6
685											
	683.3	28.6	60	40/0.2		100/0.7				682.6 Boring Terminated at Elevation 682.6 ft in WEATHERED ROCK (METAGABBRO)	29.3

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 28+88	**OFFSET** 33 ft RT	**ALIGNMENT** -L- / **0 HR.** N/A
COLLAR ELEV. 733.2 ft	**TOTAL DEPTH** 53.9 ft	**NORTHING** 757,994	**EASTING** 1,621,977 / **24 HR.** 15.7
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/24/23	**COMP. DATE** 04/24/23	**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
735										
										733.2 GROUND SURFACE 0.0
										732.2 **ROADWAY EMBANKMENT** 1.0
730	729.8	3.4	1	2	3	5		M		Asphalt & ABC Stone (0.0 - 1.0 Feet) Medium Stiff, Reddish Brown, Olive Brown, and Brown, Silty CLAY, Trace Mica
725	724.8	8.4	2	2	3	5		M		
720	719.9	13.3	2	2	2	4		M		
715	714.9	18.3	2	3	2	5		W		
710	709.9	23.3	2	2	2	4		W		706.7 **ALLUVIAL** 26.5
705	704.9	28.3	3	3	3	6		Sat.		Medium Stiff, Dark Reddish Brown, Dark Brown, and Gray, Silty CLAY, Trace Mica
700	699.9	33.3	3	3	3	6		Sat.		
										696.5 **RESIDUAL** 36.7
695	694.9	38.3	29	46	43	89		Sat.		Hard, Olive Gray, Coarse to Fine Sandy SILT
										691.5 **WEATHERED ROCK** 41.7
690	689.9	43.3	100/0.5			100/0.5				Dark Gray to Olive Gray, METAGABBRO
685	684.9	48.3	41	59/0.4		100/0.9				
680	679.9	53.3	49	51/0.1		100/0.6				679.3 Boring Terminated at Elevation 679.3 ft in Weathered Rock (METAGABBRO) 53.9

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. EB1-D	**STATION** 28+68	**OFFSET** 15 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 733.2 ft	**TOTAL DEPTH** 58.9 ft	**NORTHING** 757,989	**EASTING** 1,621,951	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/01/23	**COMP. DATE** 05/01/23	**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										
										733.2 GROUND SURFACE 0.0
										732.2 **ROADWAY EMBANKMENT** 1.0
										Asphalt & ABC Stone (0.0 - 1.0 Foot)
										Medium Stiff, Reddish Brown and Brown, Silty CLAY, Trace Mica
730	729.7	3.5	2	3	2	5		M		
725	724.8	8.4	2	3	4	7		M		
720	719.9	13.3	WOH	2	2	4		M		
715	714.9	18.3	WOH	2	2	4		M		
710	709.9	23.3	WOH	2	2	4		M		
705	704.9	28.3	2	2	4	6		M		
700	699.9	33.3	1	4	4	8		M		
695	694.9	38.3	2	4	15	19		M		
690	689.9	43.3	24	35	46	81		M		
685	684.9	48.3	47	53/0.3		100/0.8				
680	679.9	53.3	50	50/0.1		100/0.6				
675	674.9	58.3	87	13/0.1		100/0.6				
										706.6 **ALLUVIAL** 26.6
										Medium Stiff, Dark Reddish Brown and Dark Brown, Silty CLAY
										696.6 **RESIDUAL** 36.6
										Very Stiff to Hard, Olive Brown and Olive Gray, Coarse to Fine Sandy SILT, Trace Mica
										686.7 **WEATHERED ROCK** 46.5
										Olive Brown and Light Brownish Gray, METAGABBRO
										674.3 Boring Terminated at Elevation 674.3 ft in Weathered Rock (METAGABBRO) 58.9

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. EB1-C	**STATION** 28+69	**OFFSET** 16 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 733.1 ft	**TOTAL DEPTH** 73.5 ft	**NORTHING** 758,009	**EASTING** 1,621,927	**24 HR.** 21.1
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/20/23	**COMP. DATE** 04/20/23	**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
735										
										733.1 GROUND SURFACE 0.0
										732.1 **ROADWAY EMBANKMENT** 1.0
										Asphalt & ABC Stone (0.0 - 1.0 Foot)
										Medium Stiff, Reddish Brown to Dark Reddish Brown, Silty CLAY, Trace Mica
	731.0	2.1	4	2	2	4		M		
730	728.6	4.5	1	2	3	5		M		
725	724.7	8.4	1	2	2	4		M		
720	719.7	13.4	1	3	3	6				
715	714.7	18.4	1	2	2	4				
710	709.8	23.3	2	2	2	4		W		
705	704.8	28.3	3	3	3	6		W		
700	699.8	33.3	2	3	4	7		Sat.		
695	694.8	38.3	12	16	17	33		Sat.		
690	689.8	43.3	21	16	12	28		Sat.		
685	684.8	48.3	37	63/0.4		100/0.9				
680	679.8	53.3	7	13	18	31		Sat.		
675	674.8	58.3	8	14	14	28		Sat.		
670	669.8	63.3	100/0.4			100/0.4				
665	664.8	68.3	66	34/0.1		100/0.6				
660	659.8	73.3	100/0.2			100/0.2				
										707.1 **ALLUVIAL** 26.0
										Medium Stiff, Dark Brown and Dark Reddish Brown to Gray, Silty CLAY
										694.6 **RESIDUAL** 38.5
										Hard to Very Stiff, Olive Brown, Coarse to Fine Sandy SILT, Trace Mica
										686.6 **WEATHERED ROCK** 46.5
										Olive Brown, METAGABBRO
										682.1 **RESIDUAL** 51.0
										Hard to Very Stiff, Olive Brown and Olive Gray, Coarse to Fine Sandy SILT, Trace Mica
										671.6 **WEATHERED ROCK** 61.5
										Olive Brown, METAGABBRO
										659.6 Boring Terminated at Elevation 659.6 ft in Weathered Rock (METAGABBRO) 73.5

NCDOT BORE DOUBLE BR0015_GEO_RWAL_GINT.GPJ NC_DOT.GDT 6/15/23

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 28+65	**OFFSET** 34 ft LT	**ALIGNMENT** -L- / **0 HR.** N/A
COLLAR ELEV. 733.4 ft	**TOTAL DEPTH** 54.3 ft	**NORTHING** 758,017	**EASTING** 1,621,910 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/19/23	**COMP. DATE** 04/19/23	**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										
										733.4 / 0.0 GROUND SURFACE
										732.4 / 1.0 **ROADWAY EMBANKMENT** Asphalt & ABC Stone (0.0 - 1.0 Foot) Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica
730	730.8	2.6	3	3	3	6		M		
	728.9	4.5	2	2	2	4		M		
725	724.7	8.7	2	3	3	6		M		
										722.4 / 11.0 Soft to Medium Stiff, Yellowish Brown, Fine Sandy SILT, Trace Mica
720	719.8	13.6	WOH	1	2	3		M		
715	714.8	18.6	1	1	2	3		M		
710	709.8	23.6	1	2	2	4				
										706.9 / 26.5 **ALLUVIAL** Medium Stiff, Dark Brown and Gray, Silty CLAY
705	704.8	28.6	1	3	4	7		W		
700	699.8	33.6	WOH	2	3	5		Sat.		
										695.4 / 38.0 **RESIDUAL** Hard, Olive Brown, Coarse to Fine Sandy SILT, Trace Mica
695	694.8	38.6	32	35	50	85		Sat.		
690	689.8	43.6	16	38	62/0.4	100/0.9				
										688.8 / 44.6 **WEATHERED ROCK** Olive Brown, METAGABBRO
685	684.8	48.6	62	38/0.1		100/0.6				
680	679.8	53.6	57	43/0.2		100/0.7				
										679.1 / 54.3 Boring Terminated at Elevation 679.1 ft in Weathered Rock (METAGABBRO)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. Y1_1512	**STATION** 15+12	**OFFSET** 46 ft RT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 715.1 ft	**TOTAL DEPTH** 19.9 ft	**NORTHING** 758,063	**EASTING** 1,621,845 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 05/10/23	**COMP. DATE** 05/10/23	**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										
715	715.1	0.0								715.1 / 0.0 GROUND SURFACE
			2	3	2	5		M		**ROADWAY EMBANKMENT** Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica and Gravel
	711.7	3.4								712.6 / 2.5
710			2	2	2	4	SS-23	39%		711.0 / 4.1 Medium Stiff, Slightly Plastic, Reddish Yellow, Clayey SILT, Trace Mica
	706.7	8.4								**ALLUVIAL** Medium Stiff to Stiff, Highly Plastic, Dark Gray and Dark Brown to Dark Reddish Brown and Dark Brown, Silty CLAY, Trace Mica and Organic Matter (Topsoil, Wood Fragments)
705			WOH	1	3	4		M		
	701.7	13.4								
700			WOH	2	2	4		W		
	696.7	18.4								
			5	7	8	15		Sat.		695.2 / 19.9 Boring Terminated at Elevation 695.2 ft in ALLUVIAL (Silty CLAY)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. Y1_1550	**STATION** 15+50	**OFFSET** 45 ft LT	**ALIGNMENT** -Y1-
COLLAR ELEV. 717.8 ft	**TOTAL DEPTH** 13.5 ft	**NORTHING** 758,135	**EASTING** 1,621,912
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/18/23	**COMP. DATE** 04/18/23	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft)	
0 HR.	Dry
24 HR.	Dry

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											
										717.8 GROUND SURFACE	0.0
	716.8	1.0								**ROADWAY EMBANKMENT** Stiff to Medium Stiff, Moderately Plastic, Reddish Brown, Silty CLAY	
715			4	4	3	7		M			
	714.3	3.5	3	4	5	9	SS-24	29%			
710											
	709.3	8.5	2	2	2	4		M			
705										704.3	13.5
										Boring Terminated at Elevation 704.3 ft in ROADWAY EMBANKMENT (Silty CLAY) NOTE: No Sample taken at 13.5 ft due to potential obstruction on 54" RCP.	

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 29+72	**OFFSET** 68 ft LT	**ALIGNMENT** -L-
COLLAR ELEV. 718.8 ft	**TOTAL DEPTH** 54.1 ft	**NORTHING** 758,123	**EASTING** 1,621,949
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/18/23	**COMP. DATE** 04/18/23	**SURFACE WATER DEPTH** N/A

GROUND WTR (ft)	
0 HR.	18.8
24 HR.	12.4

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										
										718.8 GROUND SURFACE 0.0
	717.8	1.0								**ROADWAY EMBANKMENT** Medium Stiff, Reddish Brown, Silty CLAY
715			2	2	3	5		M		
	715.0	3.8	2	3	2	5		M		712.3 6.5
710										**RESIDUAL** Medium Stiff, Reddish Brown to Dark Reddish Brown, Silty CLAY
	710.0	8.8	1	2	2	4		M		
705										
	705.0	13.8	1	2	4	6				702.3 16.5
700										Medium Stiff to Hard, Reddish Brown, Gray, Brown, and Light Brownish Gray, Coarse to Fine Sandy SILT, Trace Mica
	700.0	18.8	2	3	4	7		W		
695										
	695.0	23.8	5	8	9	17		Sat.		
690										
	690.0	28.8	4	7	8	15		Sat.		
685										
	685.0	33.8	3	5	4	9		Sat.		
680										
	680.0	38.8	9	19	34	53		Sat.		677.3 41.5
675										**WEATHERED ROCK** Olive Brown, METAGABBRO
	675.0	43.8	46	54/0.3		100/0.8				
670										
	670.0	48.8	65	35/0.2		100/0.7				
665										
	665.0	53.8	100/0.3			100/0.3				664.7 54.1
										Boring Terminated at Elevation 664.7 ft in Weathered Rock (METAGABBRO)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. EB2-C	**STATION** 30+12	**OFFSET** 15 ft LT	**ALIGNMENT** -L- / **0 HR.** N/A
COLLAR ELEV. 732.9 ft	**TOTAL DEPTH** 73.9 ft	**NORTHING** 758,122	**EASTING** 1,622,015 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/21/23	**COMP. DATE** 04/21/23	**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										
										732.9 / 0.0 GROUND SURFACE
										731.9 / 1.0 **ROADWAY EMBANKMENT** Asphalt & ABC Stone (0.0 - 1.0 Foot) / Soft to Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica
730	729.5	3.4	2	2	2	4		M		
725	724.5	8.4	2	2	1	3		M		
720	719.6	13.3	1	2	2	4		M		
										716.4 / 16.5 **RESIDUAL** Stiff, Brown and Dark Brown, Silty CLAY
715	714.6	18.3	2	4	6	10		M		
										711.4 / 21.5 Medium Stiff to Hard, Brown, Gray, and Light Brownish Gray, Coarse to Fine Sandy SILT
710	709.6	23.3	3	5	5	10		W		
705	704.6	28.3	2	2	5	7		Sat.		
700	699.6	33.3	2	4	6	10		Sat.		
695	694.6	38.3	3	5	8	13		Sat.		
690	689.6	43.3	4	9	12	21		M		
685	684.6	48.3	6	11	14	25		M		
680	679.6	53.3	6	24	27	51		M		
675	674.6	58.3	16	25	24	49		M		
670	669.6	63.3	13	25	36	61		M		
665	664.6	68.3	100/0.5			100/0.5				
										666.4 / 66.5 **WEATHERED ROCK** Olive Gray, METAGABBRO
660	659.6	73.3	66	34/0.1		100/0.6				
										659.0 / 73.9 Boring Terminated at Elevation 659.0 ft in Weathered Rock (METAGABBRO)

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. EB2-D	**STATION** 30+28	**OFFSET** 19 ft RT	**ALIGNMENT** -L- / **0 HR.** N/A
COLLAR ELEV. 733.3 ft	**TOTAL DEPTH** 64.2 ft	**NORTHING** 758,114	**EASTING** 1,622,052 / **24 HR.** 11.2
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/26/23	**COMP. DATE** 04/26/23	**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										
										733.3 / 0.0 GROUND SURFACE
										732.3 / 1.0 **ROADWAY EMBANKMENT** Asphalt & ABC Stone (0.0 - 1.0 Foot) / Medium Stiff, Reddish Brown, Silty CLAY, Trace Mica
730	730.0	3.3	2	3	3	6		M		
725	724.8	8.5	3	3	3	6		M		
720	720.0	13.3	3	4	4	8		M		
										721.4 / 11.9 **RESIDUAL** Medium Stiff to Stiff, Reddish Brown and Yellowish Brown, Silty CLAY, Trace Mica
715	715.0	18.3	3	5	6	11		W		
										711.7 / 21.6 Medium Stiff to Hard, Reddish Yellow, Light Brownish Gray, Brown, and Pale Red, Coarse to Fine Sandy SILT, Trace Mica
710	710.0	23.3	3	3	4	7		W		
705	705.0	28.3	2	2	3	5		Sat.		
700	700.0	33.3	6	7	17	24		Sat.		
695	695.0	38.3	10	8	7	15		Sat.		
690	690.0	43.3	6	11	15	26		Sat.		
685	685.0	48.3	10	19	28	47				
680	680.0	53.3	18	27	38	65		Sat.		
675	675.0	58.3	30	60	40/0.2	100/0.7				
										674.0 / 59.3 **WEATHERED ROCK** Olive Gray and Light Brownish Gray, METAGABBRO
670	670.0	63.3	16	84/0.4		100/0.9				
										669.1 / 64.2 Boring Terminated at Elevation 669.1 ft in Weathered Rock (METAGABBRO)

GEOTECHNICAL BORING REPORT
BORE LOG

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** M. Foster
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 30+22	**OFFSET** 33 ft RT	**ALIGNMENT** -L- / **0 HR.** N/A
COLLAR ELEV. 733.2 ft	**TOTAL DEPTH** 54.8 ft	**NORTHING** 758,100	**EASTING** 1,622,059 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE TRI0055 CME-55 83% 05/09/2022		**DRILL METHOD** Mud Rotary	**HAMMER TYPE** Automatic
DRILLER R. Toothman	**START DATE** 04/25/23	**COMP. DATE** 04/25/23	**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										
										733.2 GROUND SURFACE 0.0
										732.2 **ROADWAY EMBANKMENT** 1.0
										Asphalt & ABC Stone (0.0 - 1.0 Feet)
										Medium Stiff, Reddish Brown, Silty CLAY
730	729.9	3.3	2	3	4	7		M		
725	724.8	8.4	2	3	3	6		M		
										721.6 **RESIDUAL** 11.6
										Stiff, Reddish Yellow, Silty CLAY
720	719.9	13.3	3	5	7	12		M		
										716.6 Very Stiff to Hard, Yellowish Brown, Olive Brown, Olive, Coarse to Fine Sandy SILT, Trace to Little Mica, Trace Rock Fragments and Quartz 16.6
715	714.9	18.3	5	7	11	18		M		
710	709.9	23.3	10	12	15	27		M		
705	704.9	28.3	9	14	18	32		M		
700	699.9	33.3	10	16	20	36		M		
695	694.9	38.3	8	13	17	30		M		
690	689.9	43.3	18	24	26	50		M		
685	684.9	48.3	20	27	47	74		M		
680	679.9	53.3	35	35	49	84		M		
										678.4 Boring Terminated at Elevation 678.4 ft in RESIDUAL (Sandy SILT) 54.8

WBS 67015.1.1	**TIP** BR-0015	**COUNTY** DAVIDSON	**GEOLOGIST** D. Kubinski
SITE DESCRIPTION Bridge No. 67 and No. 68 Replacements on US 29/US 70 NB & SB over SR 1192 (W. 5th Avenue)			**GROUND WTR (ft)**
BORING NO. Y1_1783	**STATION** 17+83	**OFFSET** 34 ft LT	**ALIGNMENT** -Y1- / **0 HR.** Dry
COLLAR ELEV. 715.2 ft	**TOTAL DEPTH** 10.3 ft	**NORTHING** 758,045	**EASTING** 1,622,127 / **24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE N/A		**DRILL METHOD** Hand Auger	**HAMMER TYPE** N/A
DRILLER D. Kubinski	**START DATE** 05/02/23	**COMP. DATE** 05/02/23	**SURFACE WATER DEPTH** N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 1.75in	1.75in	1.75in	BLOWS PER INCREMENT (0 25)	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
720										
715										715.2 GROUND SURFACE 0.0
	714.2	1.0	11	12	12	12		M		**RESIDUAL** Medium Stiff to Stiff, Olive, Coarse to Fine Sandy SILT, Trace Mica
	713.2	2.0	7	8	13	11				
	712.2	3.0	9	9	12	11				
	711.2	4.0	22	25+		25				
710	710.2	5.0	19	23	25	24		M		
	709.2	6.0	13	25	25+	25				
	708.2	7.0	15	25+		25				
	707.2	8.0	25+			25				
	706.2	9.0	24	25+		25				
705	705.2	10.0	24	25+		25				704.9 Boring Terminated at Elevation 704.9 ft in RESIDUAL (Sandy SILT) 10.3

NOTE:

Conventional dynamic cone penetrometer test performed at 1 foot intervals.

LABORATORY SUMMARY SHEET FOR SOIL SAMPLES

WBS NO. (TIP NO.): 67015.1.1 (BR-0015)
PROJECT ID: 41620
COUNTY: DAVIDSON
DESCRIPTION: BRIDGE NO. 67 AND NO. 68 REPLACEMENTS ON US 29/US 70 NB & SB OVER SR 1192 (W. 5TH AVENUE)

									Atterberg Limits			Gradation Results							
Sample No.	Boring Number	Alignment	Station	Offset	Sample Depth (ft.)	Natural Moisture Content (%)	AASHTO Class.	N-Value (blows/ft)	L.L.	P.L.	P.I.	Retained #4 Sieve	Pass #10 Sieve	Pass #40 Sieve	Pass #200 Sieve	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
SS-9*	L_2460	-L-	24+60	90' RT	1.0 - 2.5	37.1	A-7-5	6	78	45	33	0.0	100.0	97.8	86.5	4.2	13.2	23.4	59.2
SS-10*	L_2599	-L-	25+99	35' RT	8.5 - 10.0	39.4	A-7-5	8	65	34	31	0.0	100.0	99.4	80.3	2.4	25.4	34.6	37.7
SS-11*	L_2650	-L-	26+50	90' RT	1.0 - 2.5	32.1	A-7-5	7	73	35	38	2.0	97.0	94.5	79.0	8.8	16.4	21.4	53.4
SS-12*	L_2700	-L-	27+00	31' RT	3.7 - 5.2	32.5	A-7-5	6	52	30	22	0.0	100.0	90.1	64.0	16.3	25.7	25.6	32.5
SS-13*	L_2750	-L-	27+50	90' RT	1.0 - 2.5	21.7	A-7-5	5	56	31	25	3.0	92.0	88.3	63.3	18.1	24.2	23.0	34.6
SS-14*	L_2800	-L-	28+00	29' RT	13.5 - 15.0	29.7	A-7-5	7	58	34	24	0.0	100.0	96.0	72.4	9.4	23.7	24.9	41.9
SS-23*	Y1_1512	-Y1-	15+12	46' RT	3.4 - 4.1	38.7	A-5	4	50	41	9	0.0	99.0	94.3	66.6	11.8	28.5	25.9	33.8
SS-24*	Y1_1550	-Y1-	15+50	45' LT	3.5 - 5.0	28.6	A-7-5	9	59	35	24	0.0	98.0	94.3	76.3	10.3	15.9	25.7	48.1

*Roadway sample number

Michelle Stadel, P.E.
Lab Manager, NCDOT Certification No.: 111-02-1203

Clifford Blalock
Lab Technician, NCDOT Certification No.: 111-03-1203

Matt Johnson
Lab Technician, NCDOT Certification No.: 111-01-1203