

PROJECT: 34554 REFERENCE: R-3833C

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5	BORE LOGS

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY IREDELL
 PROJECT DESCRIPTION SR 1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1000' EAST OF US 21
 SITE DESCRIPTION CULVERT ON -L- (BRAWLEY SCHOOL ROAD) STATION 36+00.33 OVER UNNAMED TRIBUTARY TO REEDS CREEK

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3833C	1	5

CAUTION NOTICE

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

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

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

NOTES:

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

PERSONNEL

HPC

LANE, R.W.

INVESTIGATED BY FALCON ENG.

DRAWN BY CROCKETT, S.C.

CHECKED BY HAMM, J. R.

SUBMITTED BY FALCON

DATE MAY 2021

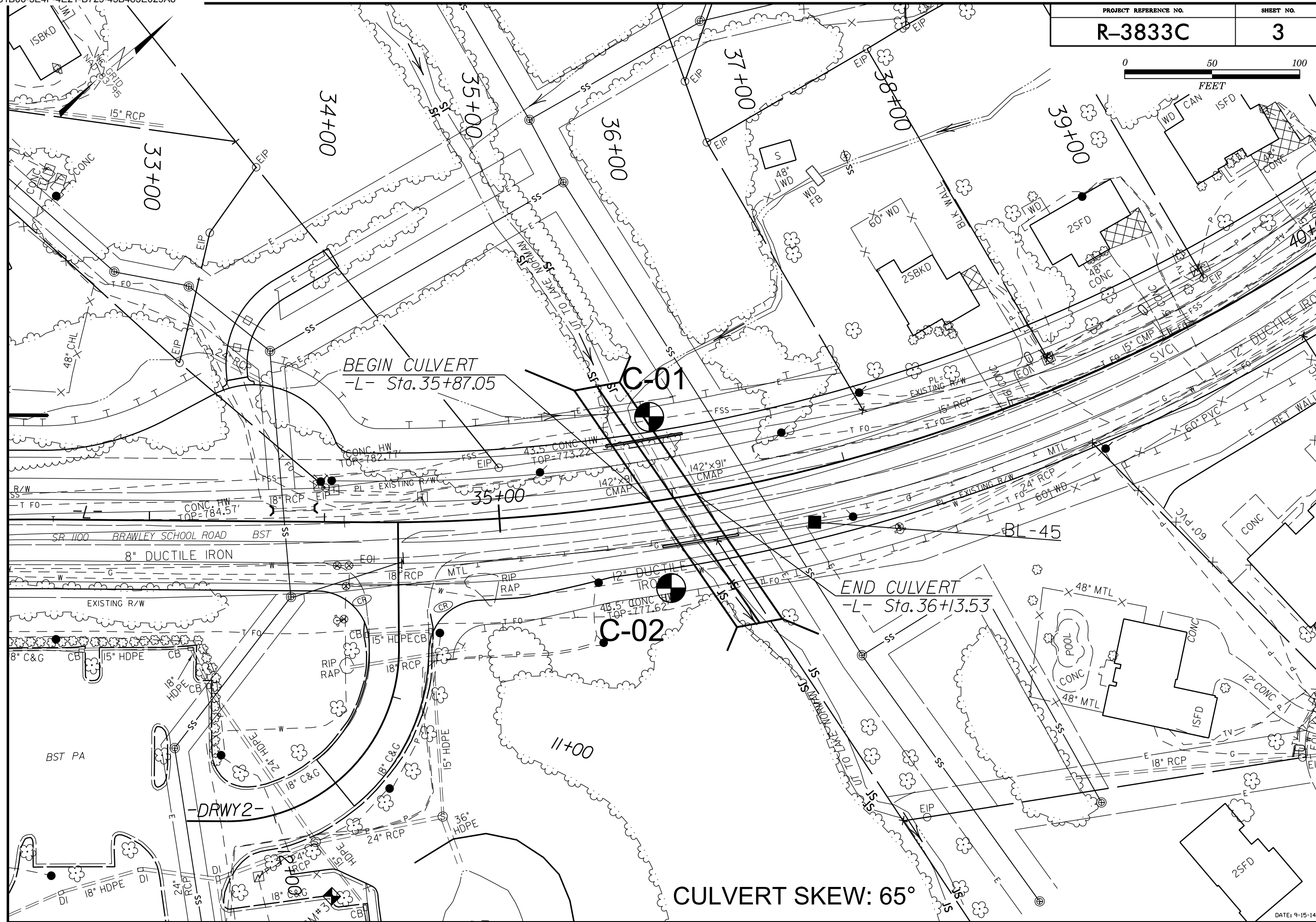


DocuSigned by:

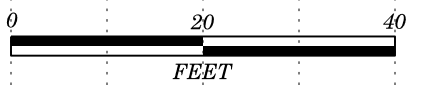
 C5CA5FED48E0435...
 SIGNATURE

5/7/2021
 DATE

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



CULVERT SKEW: 65°

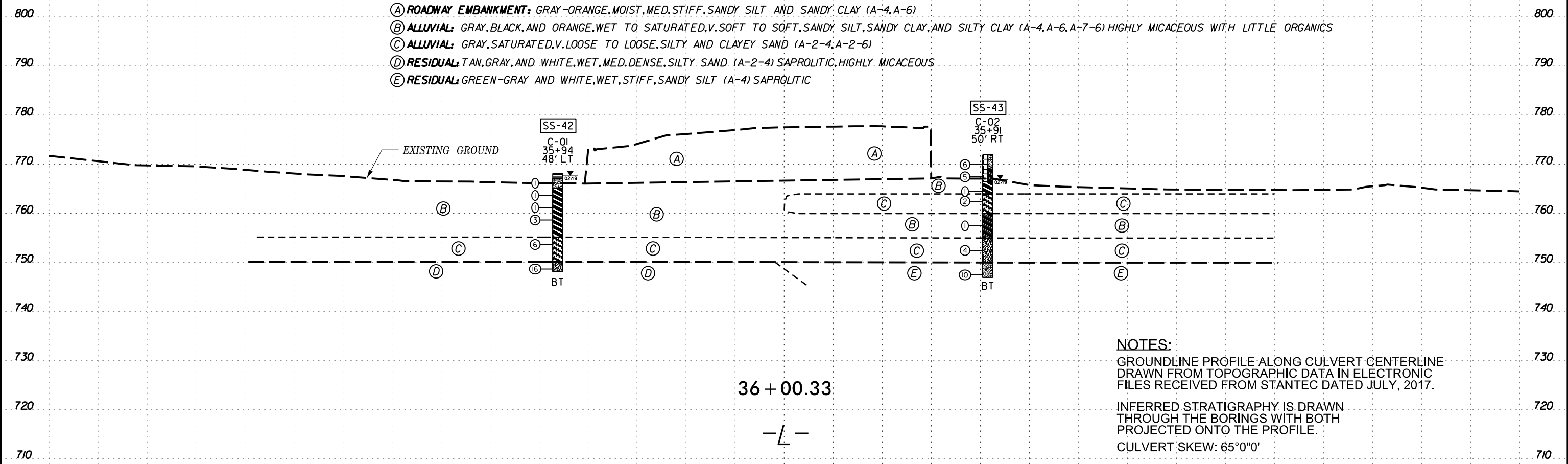


V.E. = 1

—L—
—L—

SOIL TEST RESULTS																
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC	
							C. SAND	F. SAND	SILT	CLAY	10	40	200			
SS-42	48 FT LT	35+94	3.5'-5.0'	A-7-6	48	21	19	21	26	34	94	83	60	34	-	
SS-43	50 FT RT	35+91	6.0'-7.5'	A-7-6	44	24	24	25	16	35	95	81	52	37	-	

- (A) ROADWAY EMBANKMENT: GRAY-ORANGE, MOIST, MED. STIFF, SANDY SILT AND SANDY CLAY (A-4, A-6)
- (B) ALLUVIAL: GRAY, BLACK, AND ORANGE, WET TO SATURATED, V. SOFT TO SOFT, SANDY SILT, SANDY CLAY, AND SILTY CLAY (A-4, A-6, A-7-6) HIGHLY MICACEOUS WITH LITTLE ORGANICS
- (C) ALLUVIAL: GRAY, SATURATED, V. LOOSE TO LOOSE, SILTY AND CLAYEY SAND (A-2-4; A-2-6)
- (D) RESIDUAL: TAN, GRAY, AND WHITE, WET, MED. DENSE, SILTY SAND (A-2-4) SAPROLITIC, HIGHLY MICACEOUS
- (E) RESIDUAL: GREEN-GRAY AND WHITE, WET, STIFF, SANDY SILT (A-4) SAPROLITIC



36 + 00.33

—L—

NOTES:
 GROUNDLINE PROFILE ALONG CULVERT CENTERLINE DRAWN FROM TOPOGRAPHIC DATA IN ELECTRONIC FILES RECEIVED FROM STANTEC DATED JULY, 2017.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
 CULVERT SKEW: 65°0'0"

8/23/9

SCALE\$

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 34554.1.1		TIP R-3833C		COUNTY IREDELL		GEOLOGIST Lane, R. W.										
SITE DESCRIPTION CULVERT ON -L- (BRAWLEY SCHOOL RD) STATION 36+00.33 OVER UT TO REEDS CREEK							GROUND WTR (ft)									
BORING NO. C-01		STATION 35+94		OFFSET 48 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 768.1 ft		TOTAL DEPTH 20.0 ft		NORTHING 670,200		EASTING 1,450,593										
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Odom, C.		START DATE 02/05/19		COMP. DATE 02/05/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
770																
	767.1	1.0	WOH	WOH	1										768.1	0.0
	764.6	3.5	WOH	WOH	1										767.1	1.0
	762.1	6.0	WOH	WOH	1										765.1	3.0
	759.6	8.5	2	2	1											
	754.6	13.5	WOH	3	3										755.1	13.0
	749.6	18.5	7	7	9										750.1	18.0
															748.1	20.0

WBS 34554.1.1		TIP R-3833C		COUNTY IREDELL		GEOLOGIST Lane, R. W.										
SITE DESCRIPTION CULVERT ON -L- (BRAWLEY SCHOOL RD) STATION 36+00.33 OVER UT TO REEDS CREEK							GROUND WTR (ft)									
BORING NO. C-02		STATION 35+91		OFFSET 50 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 771.9 ft		TOTAL DEPTH 25.0 ft		NORTHING 670,121		EASTING 1,450,534										
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 87% 01/10/2018				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Odom, C.		START DATE 02/04/19		COMP. DATE 02/04/19		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
775																
	770.9	1.0													771.9	0.0
	768.4	3.5	4	2	4										768.9	3.0
	765.4	6.5	WOH	WOH	1										766.4	5.5
	763.4	8.5	WOH	WOH	2										763.9	8.0
	758.4	13.5	WOH	WOH	1										759.9	12.0
	753.4	18.5	2	1	3										754.9	17.0
	748.4	23.5	4	4	6										749.9	22.0
															746.9	25.0

NCDOT BORE DOUBLE R3833_BORINGS.GPJ NC_DOT_GDT 5/6/21



August 25, 2021

Mindy B. Isenhour, PE
Stantec
801 Jones Franklin Road, Suite 300
Raleigh, NC 27606

Project: 34554.1.3 (R-3383C)
County: Iredell
Description: Culvert on -L- (Brawley School Road) Station 36+00.33 Over Unnamed Tributary to Reeds Creek
Subject: Culvert Foundation Recommendations

Dear Ms. Isenhour,

As authorized, Falcon Engineering Inc. (Falcon) has completed the Culvert Foundation Recommendations for the above referenced project based on current NCDOT LRFD design policy and procedures.

Foundation recommendations and notes on plans are presented in the attachments. These recommendations are based on subsurface data obtained by Falcon as presented in the Subsurface Investigation Report submitted under separate cover. Culvert geometry used in our analysis were obtained from the approved Culvert Survey and Hydraulic Design Report (CSR).

Falcon appreciates the opportunity to have provided Stantec with geotechnical engineering services. If you have any questions concerning the contents of this report or need additional information, please do not hesitate to contact our office.

Respectfully submitted:

FALCON ENGINEERING, INC.

A handwritten signature in black ink that reads "Stephen C. Crockett".

Stephen C. Crockett, PE
Geotechnical Engineer

A handwritten signature in blue ink that reads "Jeremy R. Hamm".

Jeremy R. Hamm, PE
Geotechnical Engineering Manager

Attachments: Foundation Recommendations and Notes on Plans

FOUNDATION RECOMMENDATIONS

WBS # 34554.1.3

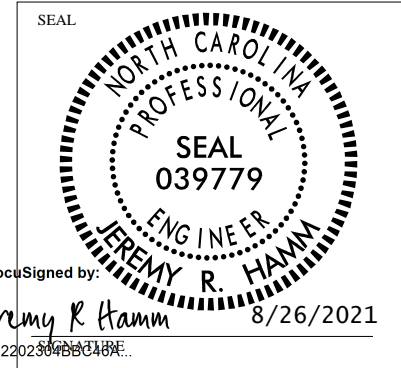
T.I.P. NO. R-3383C

COUNTY Iredell

STATION 36+00.33 -L-

DESCRIPTION Culvert on -L- (Brawley School Road)
Station 36+00.33 over Unnamed Tributary to Reeds Creek

	INITIALS	DATE
DESIGN	SCC	04/30/21
CHECK	JRH	08/25/21
APPROVAL		



CULVERT SIZE	STATION	FOUNDATION TYPE	EXCAVATION DEPTH	MISCELLANEOUS DETAILS
2 @ 12' x 9' Reinforced Concrete Box Culvert with Beveled Inlet, 1.0' Sill in Left (East) Barrel, 2.0' Sill in Right (West) Barrel	-L- 36+00.33	Full Concrete Invert on 3.0' Class VI Foundation Conditioning Material w/ Geotextile	3.0' below bottom of culvert	Approximate Culvert Length = 164 ft Culvert Skew = 65 degrees Culvert Invert Elevation at CL = 767.4 ft Slope = 0.854%

FOUNDATION RECOMMENDATION SPECIAL NOTES ON PLANS

- EXCAVATE FOUNDATION A MINIMUM OF 3.0 FEET BELOW CULVERT BEARING ELEVATION. PLACE 3.0 FEET OF CLASS VI FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS. ENCAPSULATE FOUNDATION CONDITIONING MATERIAL WITH TYPE 2 GEOTEXTILE.
- CONSTRUCT THE REINFORCED CONCRETE BOX CULVERT AT -L- STATION 36+00.33 WITH 4" OF CAMBER TO ACCOUNT FOR ANTICIPATED SETTLEMENT.

FOUNDATION RECOMMENDATION COMMENTS

- Unfactored bearing pressure of culvert foundation is 2.260 ksf.
- Total culvert settlement of 8 inches is anticipated.

PROJECT: 34554 REFERENCE: R-3833C

CONTENTS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN AND PROFILE
4-6	BORE LOGS

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY IREDELL
 PROJECT DESCRIPTION NORTH OF BRAWLEY SCHOOL ROAD BETWEEN CITATION DRIVE AND ROUNDKEEP LANE
 SITE DESCRIPTION NOISE WALL 2 ON (BRAWLEY SCHOOL ROAD) STATION -L- 36+00.33 -63.08' LT / -NW2- 10+00.00 TO -L- 52+99.95 -54.50' LT / -NW2- 20+05.00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3833C	1	6

CAUTION NOTICE

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

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

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

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

PERSONNEL

HPC

GOODNIGHT, D.J.

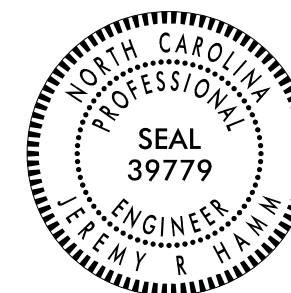
INVESTIGATED BY FALCON ENG.

DRAWN BY HILL, M.J.

CHECKED BY HUNSGERGER, W.S.

SUBMITTED BY FALCON

DATE SEPTEMBER 2021



DocuSigned by:
 Jeremy R Hamm

9/7/2021

462202304BBC46A...

SIGNATURE

DATE

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

GEOTECHNICAL BORING REPORT BORE LOG

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-1		STATION 10+32		OFFSET 18 ft RT		ALIGNMENT -NW2-									
COLLAR ELEV. 807.0 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,031		EASTING 1,451,217									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
810															
805	806.0	1.0	5	5	4							M	0.2' TOPSOIL	0.0	
	803.5	3.5	5	5	4							M	ARTIFICIAL FILL TAN, LOOSE, SILTY SAND (A-2-4) WITH TRACE DEBRIS		
800	801.0	6.0	3	5	5							M	RESIDUAL TAN, LOOSE TO MEDIUM DENSE, SILTY SAND (A-2-4)	5.5	
	798.5	8.5	4	4	6							M	Boring Terminated at Elevation 797.0 ft IN RESIDUAL: SILTY SAND	10.0	

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-2		STATION 11+23		OFFSET 28 ft RT		ALIGNMENT -NW2-									
COLLAR ELEV. 809.5 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,032		EASTING 1,451,309									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
810															
	808.5	1.0	4	6	9							M	0.3' TOPSOIL	0.0	
805	806.0	3.5	7	8	8							M	RESIDUAL TAN, MEDIUM DENSE, SILTY SAND (A-2-4)		
	803.5	6.0	5	5	6							M			
800	801.0	8.5	5	7	8							M	Boring Terminated at Elevation 799.5 ft IN RESIDUAL: SILTY SAND	10.0	

NCDOT BORE DOUBLE GINT - G18063.GPJ NC_DOT.GDT 6/15/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-3		STATION 12+17		OFFSET CL		ALIGNMENT -NW2-									
COLLAR ELEV. 807.2 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,071		EASTING 1,451,398									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
810															
805	806.2	1.0	5	5	6								M	0.5' TOPSOIL	0.0
	803.7	3.5	5	7	9								M	RESIDUAL TAN-BROWN, STIFF TO VERY STIFF, SANDY CLAY (A-6)	
800	801.2	6.0	4	5	7								M	RED-TAN, LOOSE TO MEDIUM DENSE, SILTY SAND (A-2-4)	5.5
	798.7	8.5	3	3	5								M		10.0
														Boring Terminated at Elevation 797.2 ft IN RESIDUAL: SILTY SAND	

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-4		STATION 13+34		OFFSET 7 ft RT		ALIGNMENT -NW2-									
COLLAR ELEV. 810.5 ft		TOTAL DEPTH 7.5 ft		NORTHING 670,085		EASTING 1,451,516									
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic											
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
815															
810	809.5	1.0	3	3	5								M	0.5' TOPSOIL	0.0
	807.0	3.5	4	6	8								M	RESIDUAL TAN-RED, MEDIUM STIFF TO STIFF, SANDY CLAY (A-6)	3.0
805	804.5	6.0	4	4	5								M	TAN-BROWN, STIFF, FINE SANDY SILT (A-4) WITH A LITTLE MICA	5.5
													M	TAN, LOOSE, SILTY SAND (A-2-4)	7.5
														Boring Terminated at Elevation 803.0 ft IN RESIDUAL: SILTY SAND	

NCDOT BORE DOUBLE GINT - G18063.GPJ NC_DOT.GDT 6/15/21

GEOTECHNICAL BORING REPORT BORE LOG

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.									
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)									
BORING NO. NW2-5		STATION 19+08		OFFSET 1 ft RT		ALIGNMENT -NW2-									
COLLAR ELEV. 821.9 ft		TOTAL DEPTH 10.0 ft		NORTHING 670,468		EASTING 1,451,922									
DRILL RIG/HAMMER EFF./DATE N/A		DRILL METHOD Hand Auger		HAMMER TYPE N/A											
DRILLER Goodnight, D.		START DATE 05/11/21		COMP. DATE 05/11/21		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
825															
820												M	821.9 0.5' TOPSOIL 0.0		
												M	820.4 RESIDUAL RED-BROWN, MEDIUM STIFF, SANDY CLAY (A-6) 1.5		
815												M	RED-TAN, LOOSE TO MEDIUM DENSE, SILTY SAND (A-2-4) WITH TRACE MICA		
												M	Boring Terminated at Elevation 811.9 ft IN RESIDUAL: SILTY SAND 10.0		

WBS 34554.1.1		TIP R-3883C		COUNTY IREDELL		GEOLOGIST Goodnight, D.								
SITE DESCRIPTION SR1100 (BRAWLEY SCHOOL ROAD) FROM SR 1116 (TALBERT ROAD) TO 1,000' EAST OF US 21						GROUND WTR (ft)								
BORING NO. NW2-6		STATION 19+97		OFFSET 5 ft RT		ALIGNMENT -NW2-								
COLLAR ELEV. 827.1 ft		TOTAL DEPTH 15.0 ft		NORTHING 670,536		EASTING 1,451,980								
DRILL RIG/HAMMER EFF./DATE HPC8513 CME-550 82% 12/18/2020		DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Kiker, J.		START DATE 05/11/21		COMP. DATE 05/11/21		SURFACE WATER DEPTH N/A								
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
830														
825	826.1	1.0	4	6	6							M	827.1 0.4' TOPSOIL 0.0	
	823.6	3.5	4	4	5							M	RESIDUAL RED-TAN, MEDIUM DENSE TO LOOSE, SILTY SAND (A-2-4)	
820	821.1	6.0	2	4	4							M		
	818.6	8.5	3	3	3							M		
815	813.6	13.5	3	4	5							M	Boring Terminated at Elevation 812.1 ft IN RESIDUAL: SILTY SAND 15.0	

NCDOT BORE DOUBLE GINT - G18063.GPJ NC_DOT.GDT 6/15/21



9/7/2021

MEMORANDUM TO: Tommy Dudeck, P.E.
Stantec, Inc.

FROM: Jeremy R. Hamm, P.E.
Geotechnical Department Manager
Falcon Engineering, Inc.

STATE PROJECT: 34554.1.3
TIP: R-3833C
COUNTY: Iredell
DESCRIPTION: Brawley School Road (SR 1100) from Talbert Road (SR 1116)
to 1000' East of US 21

SUBJECT: Foundation Recommendations for Noise Wall No. 2

Falcon Engineering has received the proposed Noise Wall No. 2 for the referenced project, completed the subsurface investigation, and recommends the following noise wall foundation table:

Pile Excavation Depths for Sound Barrier Wall No. 2

Begin Wall Station	End Wall Station	Max. Front Slope	Wall Height (ft)	Pile Excavation Depths, "D" (ft)		
				S = 10 ft	S = 15 ft	S = 20 ft
-NW2- 10+00	-NW2- 12+25	6:1	7	8	9	10
-NW2- 12+25	-NW2- 12+85	3:1	8	8	10	11
-NW2- 12+85	-NW2- 13+00	3:1	9	9	12	11
-NW2- 13+00	-NW2- 14+65	2:1	10-11	10	12	13
-NW2- 14+65	-NW2- 14+95	2:1	12	11	12	13
-NW2- 14+95	-NW2- 15+10	2:1	11	10	12	13
-NW2- 15+10	-NW2- 15+55	2:1	12	11	12	13
-NW2- 15+55	-NW2- 17+35	2:1	13	11	12	14
-NW2- 17+35	-NW2- 17+95	3:1	12	9	10	12
-NW2- 17+95	-NW2- 18+40	4:1	11	9	10	11
-NW2- 18+40	-NW2- 20+05	None	10-11	8	9	10

- Notes: 1. Pile Excavation Depths, "D" are based on 36" dia. holes shown on STD. NO. SBW1.
2. S = Pile Spacing

Please include the standard SMU PSP028, Sound Barrier Wall provision in the contract.

Please contact us at 919-871-0800 if there are any questions concerning this memorandum.

Prepared by,



W. Scott Hunsberger, P.E.
Geotechnical Engineer
Falcon Engineering, Inc.

9/7/2021

DocuSigned by:



462202304BBC46A...

Jeremy R. Hamm, PE
Geotechnical Services Manager
Falcon Engineering, Inc.

