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.

Stephen C. Crockett, PE
Geotechnical Engineer

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		

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 039779 ENGINEER JEREMY R. HAMM

DocuSigned by: Jeremy R Hamm 8/26/2021

SIGNATURE 462202304BBC40A...

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

1. 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.
2. CONSTRUCT THE REINFORCED CONCRETE BOX CULVERT AT -L- STATION 36+00.33 WITH 4" OF CAMBER TO ACCOUNT FOR ANTICIPATED SETTLEMENT.

FOUNDATION RECOMMENDATION COMMENTS

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