

Final Survey Report May 11, 2016

TIP #: B-5667
Project #: 45622.1.1
LS #: 04-16-018
Project ID #: D04B5667-con-gel
Johnston County

Description: Bridge # 231 on SR 2159 (Bay Valley Road) over Little Buffalo Creek

Field Surveys:

Project was surveyed between 3/4/16 and 5/10/16.
GEL performed the following surveys by conventional methods:

- Property
- Pavement DTM's
- Planimetric features
- Full DTM's
- Hydrographic surveys
- Level "B" SUE designation (non-gravity utilities)
- Microstation Files were mapped at 1" = 50' scale

Limits:

Limits are defined as 300' from each end of bridge and 75' left and right of centerline of road. Hydrographic survey limits are 100' upstream and 100' downstream and include top of bank, water's edge, under water shots, centerline of stream and ground shots 25' away from top of bank.

Control:

Two GPS points (B5667-1 and B5667-2) were set on the site and used as project control. The GPS points were set as GPS VRS control points. Each GPS point was observed at least twice with a minimum of 2 hours between observations. The maximum allowable spread between the two observations was .07' horizontally and .07' vertically. B5667-1 was held as the Network Reference Station and B5667-2 was localized about B5667-1 using a combined factor of 0.999892935195. Point BL 100 was established using conventional survey methods.

Two conventional level loops were run to check VRS elevations on B-5654-1 and B5654-2, and to establish elevations for BL 100 and Bench Mark 50. Benchmark 50 is a Bench Tie nail set in a 12" Pine at BL station 10+75.00 34' left.

Existing R/W:

R/W was mapped based on deeds and plats. No R/W abstract was provided by NCDOT.

Existing Alignment:

An existing alignment was computed using pavement splits of pavement located within project limits. This existing alignment was stored as chain EL.

Property:

Property information requested was based limits of survey area. Property owner and property information was obtained from Johnston County GIS and Johnston County Register of Deeds.

Utility Information:

SUE information was designated and collected by GEL at LOS B.

Hydro Information:

The creek was surveyed for 100 feet upstream and 100 feet downstream. Top of bank, bottom of bank, centerline of creek and random underwater shots were obtained. Ground shots were obtained 25' from the top of the bank. The water level of Little Buffalo Creek varied greatly throughout the duration of the project. The NW quadrant of the project was flooded throughout.

DTM & TIN Files:

The DTM file is a product of conventional topo (pavement, supplemental, and hydrographic dtm's performed by GEL. Curve stroke tolerance was set at 0.15' with a minimum length of 30' and a side dissolve option with a side length of 100'.

Adjacent land usage and traffic:

- Undeveloped wooded tracts.
- Light traffic observed during work hours.

Deliverables:

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|------------------------|------------------------------------|
| • Survey Report | B5667_ls_sr_160511.pdf |
| • Baseline Text File | B5667_ls_bln_160511.txt |
| • Project GPK file | B5667_ls_gpk_160511.gpk |
| • Final Survey File | B5667_NCDOT_FS_160511.dgn |
| • DTM File | B5667_ls_dtl_160511.dtm |
| • TIN File | B5667_ls_tnl_160511.tin |
| • Propcon Database | B5667_ls_poc_160511.mdb |
| • Deed Book (digital) | pdf copies |
| • Plat Book (digital) | pdf copies |
| • Certification Letter | B5667-con-gel Certification Letter |
| • SUE Contact Letter | B5667-con-gel Utility Owner Letter |