



## **FIELD METHODOLOGY**

Locations of geophysical data points were obtained using a sub-meter Trimble Pro-XRS DGPS system. References to direction and location in this report are based on the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 83 datum, with units in US survey feet. The locations of existing site features (monitoring wells, signs, etc.) were recorded for later correlation with the geophysical data and for location references to the NCDOT drawings.

The EM61 data were collected along parallel survey lines spaced approximately 2.5 feet apart. The EM61 and DGPS data were recorded digitally using a field computer and later transferred to a desktop computer for data processing.

## **DISCUSSION OF RESULTS**

The contoured EM61 data collected over Parcel 902 are shown on Figures 3 and 4. The EM61 early time gate results are plotted on Figure 3. The early time gate data provide the more sensitive detection of metal objects. Figure 4 shows the difference between the response of the top and bottom coils of the EM61 instrument (differential response). The difference is taken to remove the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as USTs.

The early time gate results show anomalies apparently caused by buried utilities or known site features (Figures 3 and 4). GPR data were not collected at the site since there were not any differential EM61 anomalies that suggested the presence of unknown USTs. The geophysical data do not indicate the presence of metallic USTs within the areas surveyed.

## **CONCLUSIONS**

Our evaluation of the geophysical data collected on the subject property on Project R-2303A in Stedman, NC indicates the following:

The geophysical data do not indicate the presence of metallic USTs in the areas surveyed on the subject property.

**LIMITATIONS**

These services have been performed and this report prepared for the North Carolina Department of Transportation in accordance with generally accepted guidelines for conducting geophysical surveys. It is generally recognized that the results of geophysical surveys are non-unique and may not represent actual subsurface conditions.

We appreciate the opportunity to have provided these services. Please call if you need additional information or have any questions.

Sincerely,

**SCHNABEL ENGINEERING SOUTH, PC**



Jeremy S. Strohmeyer, LG  
Project Manager

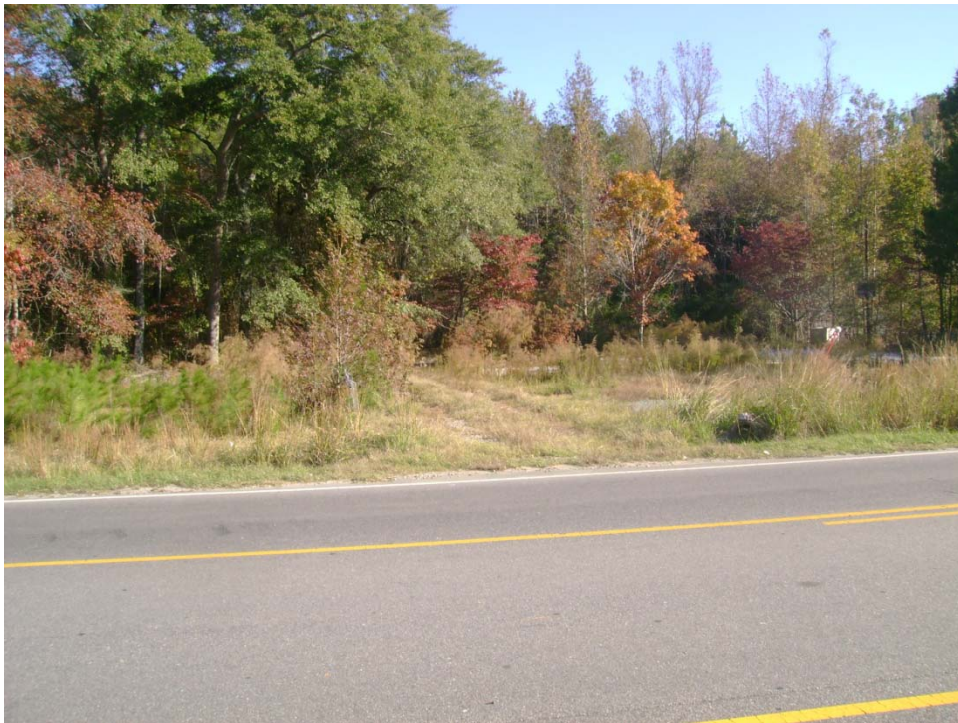


Edward D. Billington, LG  
Senior Vice President

JW:JS:NB

Attachments: Figures (4)

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Parcel 902 – NCDOT Property, looking northeast



Parcel 902 – NCDOT Property, looking north

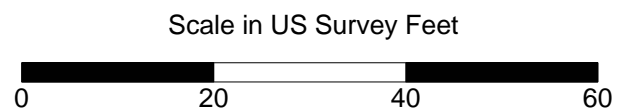
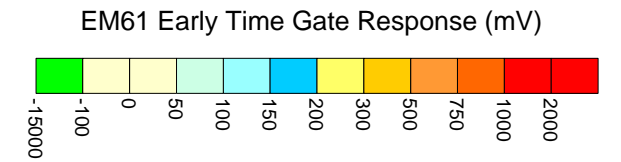
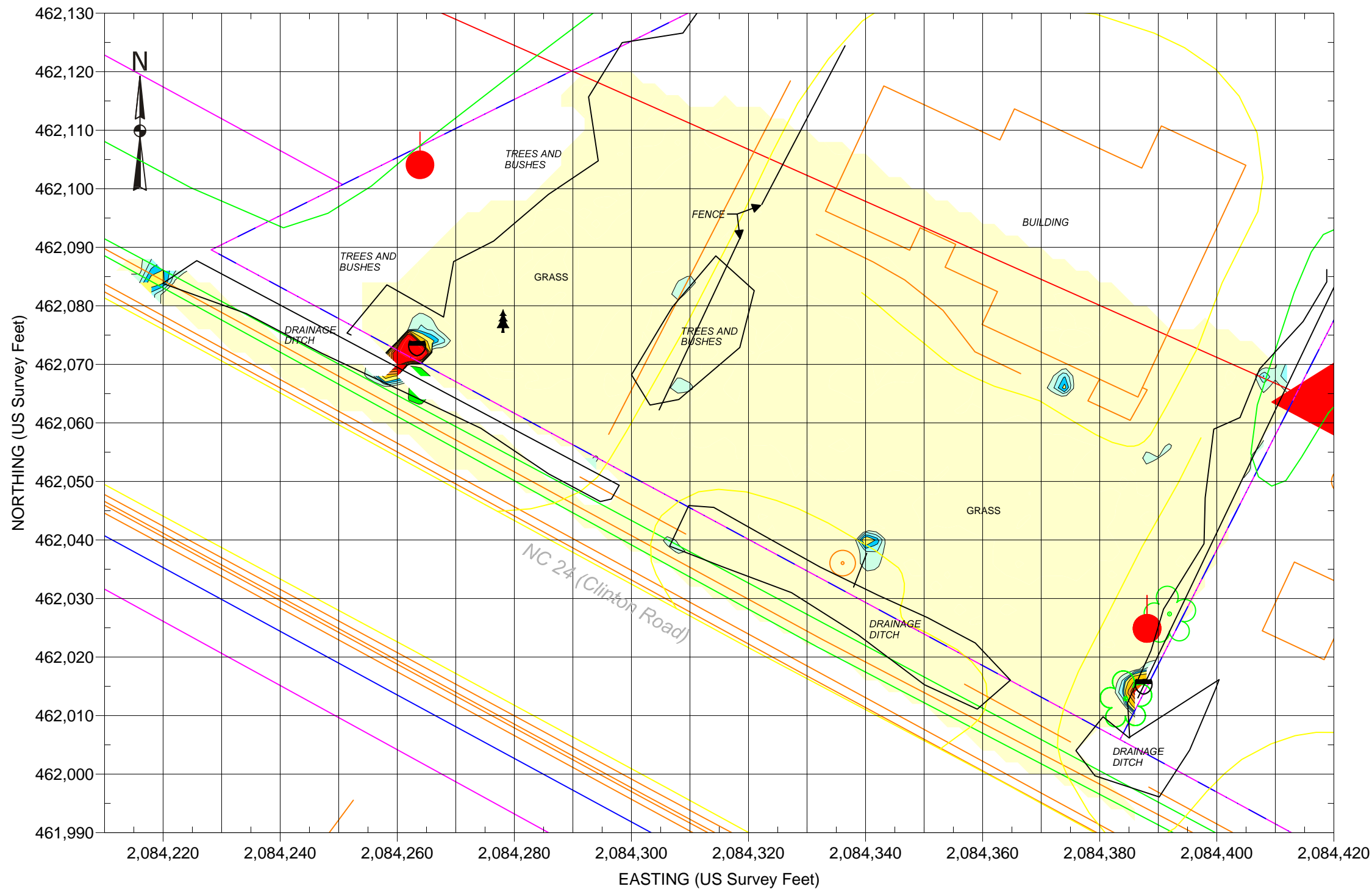




Geonics EM61-MK2



GSSI SIR-3000



| EXPLANATION |  |
|-------------|--|
|             | SIGN   |
|             | UTILITY POLE   |
|             | GUY WIRE   |
|             | MISCELLANEOUS METALLIC OBJECT  |
|             | UTILITY MANHOLE, METER, BOX, ETC.                                      |
|             | LIGHT POLE   |
|             | DOT PROPOSED R/W   |
|             | DOT PROPOSED UTILITY EASEMENT  |
|             | PROPERTY LINE  |
|             | UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS]) |
|             | GPR SURVEY AREA  |

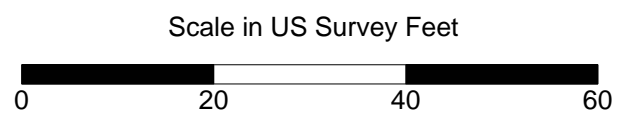
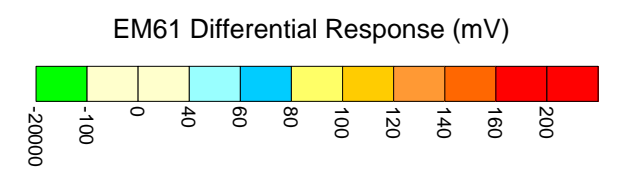
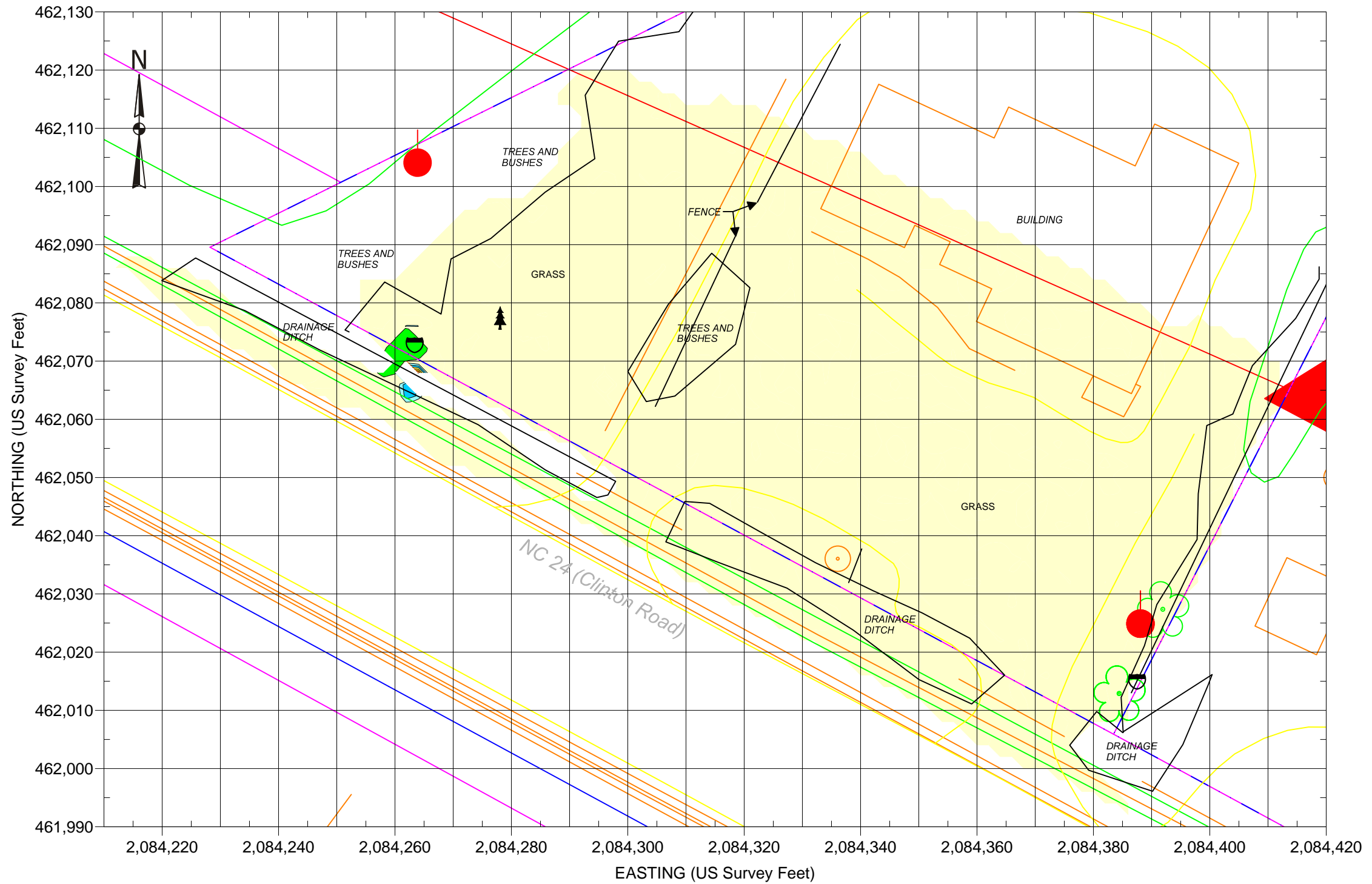
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(FOR SOME SITE FEATURES)

Note: The contour plot shows the earliest and most sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on November 8, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum.



STATE PROJECT R-2303A  
CUMBERLAND COUNTY, NC  
NC DEPARTMENT OF TRANSPORTATION  
PROJECT NO. 09210013.31

PARCEL 902  
EM61 EARLY TIME GATE  
RESPONSE  
FIGURE 3



| EXPLANATION |  |
|-------------|--|
|             | SIGN   |
|             | UTILITY POLE   |
|             | GUY WIRE   |
|             | MISCELLANEOUS METALLIC OBJECT  |
|             | UTILITY MANHOLE, METER, BOX, ETC.                                      |
|             | LIGHT POLE   |
|             | DOT PROPOSED R/W   |
|             | DOT PROPOSED UTILITY EASEMENT  |
|             | PROPERTY LINE  |
|             | UTILITY (AS MARKED BY OTHERS OR AS PROVIDED BY NCDOT [VARIOUS COLORS]) |
|             | GPR SURVEY AREA  |

REF.: NCDOT FILE: r2303a\_rdy\_psh\_15.dgn  
(FOR SOME SITE FEATURES)

Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as drums and tanks. The EM data were collected on November 8, 2010, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum.

|  |                                 |                   |
|--|---------------------------------|-------------------|
|  | STATE PROJECT R-2303A           | PARCEL 902        |
|  | CUMBERLAND COUNTY, NC           | EM61 DIFFERENTIAL |
|  | NC DEPARTMENT OF TRANSPORTATION | RESPONSE          |
|  | PROJECT NO. 09210013.31         | FIGURE 4          |