



## **ATTACHMENT 5**

### **SECTION 106 – INDIAN RELIGIOUS SITES**

Client: Person County  
 Site Name: Bethel Hill  
 TCNS# 129667  
 Date Filed: 7/27/2015

Tribe/Nation	Date Tribes Notified by TCNS	Response	Date of 2nd Correspondence	Response	FCC Referral Date	Comments
Tuscarora Nation	7/31/2015	If the Applicant/tower builder receives no response from the Tuscarora Nation within 30 days after notification through TCNS, the Tuscarora Nation has no interest in participating in pre-construction review for the site.				No interest in pre-construction review per TCNS
Eastern Shawnee Tribe of Oklahoma	7/31/2015	The Eastern Shawnee Tribe of Oklahoma is interested in consulting on this tower or broadband project, just as we are interested in consulting on all federal undertakings in our areas of geographic interest.	Mailed letter packet, tribe fees, SHPO conc., on 9/8/2015	Concurrence received on 9/30/2015		Concurrence received on 9/30/2015
Shawnee Tribe	7/31/2015	Interested in consulting on all projects built in our areas of geographic interest.	Mailed letter packet and review fee on 8/5/2015	Concurrence received on 8/27/2015		Concurrence received on 8/27/2015
Catawba Indian Nation Cultural Preservation Project	7/31/2015	The Catawba Indian Nation Tribal Historic Preservation Office requests that you send us by regular mail the following information needed to complete our research for the your proposed project:	Mailed letter packet and review fee on 8/5/2015	Concurrence received on 8/28/2015		Concurrence received on 8/28/2015
<b>Local Gov't/Historic Entities</b>						
Person County Planning & Zoning	mailed 8/5/2015					no comments to date
Person County Museum of History	mailed 8/5/2015					no comments to date
Preservation NC - Piedmont Regional Office	mailed 8/5/2015					no comments to date



# Tower Construction Notification

[FCC](#) > [WTB](#) > Tower Construction Notification

[FCC Site Map](#)

Logged In: ([Log Out](#)) [Section 106](#)

## Tower Construction Notification New Notification

[Notifications Home](#)

Your Notification has been successfully submitted to the FCC. The date for this Notification is 07/27/2015. Your Notification ID number is **129667**. Please make a note of this Notification ID — print out this page for your records. A confirmation of this submitted notification will also be emailed to the email address specified in your notification.

This system is intended to facilitate consultation under Section 106 of the National Historic Preservation Act by providing early notification of proposed construction to Tribes and State Historic Preservation officers. This system is not to be used in place of Section 106 consultation, and use of this notification system in itself does not satisfy parties' obligations with respect to historic preservation review under the Commission's rules.

### **Please note: the submission of this notification is NOT to be considered a submission for Antenna Structure Registration.**

Tower Structures that require antenna structure registration based on FCC Rules 47 C.F.R. Part 17 must complete FCC Form 854 after FAA clearance is obtained.

- ASR Help**                    [ASR License Glossary](#) - [FAQ](#) - [Online Help](#) - [Documentation](#) - [Technical Support](#)
- ASR Online Systems**       [TOWAIR- CORES/ASR Registration](#) - [ASR Online Filing](#) - [Application Search](#) - [Registration Search](#)
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Federal Communications Commission  
445 12th Street SW  
Washington, DC 20554  
[More FCC Contact Information...](#)

Phone: 1-877-480-3201  
TTY: 1-717-338-2824  
Fax: 1-866-418-0232  
[Submit Help Request](#)

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- [Required Browser Plug-ins](#)
- [Customer Service Standards](#)
- [Freedom of Information Act](#)

## Andrew Blake

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**From:** towernotifyinfo@fcc.gov  
**Sent:** Monday, July 27, 2015 12:40 PM  
**To:** Andrew Blake  
**Subject:** Proposed Tower Structure Info - Email ID #4291786

Dear Andrew B Blake,

Thank you for submitting a notification regarding your proposed construction via the Tower Construction Notification System. Note that the system has assigned a unique Notification ID number for this proposed construction. You will need to reference this Notification ID number when you update your project's Status with us.

Below are the details you provided for the construction you have proposed:

Notification Received: 07/27/2015

Notification ID: 129667  
Tower Owner Individual or Entity Name: Person County  
Consultant Name: Andrew B Blake  
Street Address: 326 Tryon Road  
City: Raleigh  
State: NORTH CAROLINA  
Zip Code: 27603-3530  
Phone: 919-661-6351  
Email: [ablake@tepgroup.net](mailto:ablake@tepgroup.net)

Structure Type: LTOWER - Lattice Tower  
Latitude: 36 deg 30 min 28.8 sec N  
Longitude: 78 deg 55 min 4.9 sec W  
Location Description: Claude Hall Road  
City: Roxboro  
State: NORTH CAROLINA  
County: PERSON  
Detailed Description of Project:  
Ground Elevation: 183.9 meters  
Support Structure: 91.4 meters above ground level  
Overall Structure: 97.5 meters above ground level  
Overall Height AMSL: 281.4 meters above mean sea level

## Andrew Blake

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**From:** towernotifyinfo@fcc.gov  
**Sent:** Friday, July 31, 2015 3:02 AM  
**To:** Andrew Blake  
**Cc:** Jonathan.Jonas@fcc.gov; diane.dupert@fcc.gov  
**Subject:** NOTICE OF ORGANIZATION(S) WHICH WERE SENT PROPOSED TOWER CONSTRUCTION NOTIFICATION INFORMATION - Email ID #4294052

Dear Sir or Madam:

Thank you for using the Federal Communications Commission's (FCC) Tower Construction Notification System (TCNS). The purpose of this electronic mail message is to inform you that the following authorized persons were sent the information you provided through TCNS, which relates to your proposed antenna structure. The information was forwarded by the FCC to authorized TCNS users by electronic mail and/or regular mail (letter).

Persons who have received the information that you provided include leaders or their designees of federally-recognized American Indian Tribes, including Alaska Native Villages (collectively "Tribal Nations"), Native Hawaiian Organizations (NHOs), and State Historic Preservation Officers (SHPOs). For your convenience in identifying the referenced Tribal Nations and NHOs and in making further contacts, the City and State of the Seat of Government for each Tribal Nation and NHO, as well as the designated contact person, is included in the listing below. We note that Tribal Nations may have Section 106 cultural interests in ancestral homelands or other locations that are far removed from their current Seat of Government. Pursuant to the Commission's rules as set forth in the Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission (NPA), all Tribal Nations and NHOs listed below must be afforded a reasonable opportunity to respond to this notification, consistent with the procedures set forth below, unless the proposed construction falls within an exclusion designated by the Tribal Nation or NHO. (NPA, Section IV.F.4).

The information you provided was forwarded to the following Tribal Nations and NHOs. If a Tribal Nation or NHO does not respond within a reasonable time, you should make a reasonable effort at follow-up contact, unless the Tribal Nation or NHO has agreed to different procedures (NPA, Section IV.F.5). In the event a Tribal Nation or NHO does not respond to a follow-up inquiry, or if a substantive or procedural disagreement arises between you and a Tribal Nation or NHO, you must seek guidance from the Commission (NPA, Section IV.G). These procedures are further set forth in the FCC's Declaratory Ruling released on October 6, 2005 (FCC 05-176).

1. Chief Leo R Henry - Tuscarora Nation - Via: Lewiston, NY - regular mail

Details: If the Applicant/tower builder receives no response from the Tuscarora Nation within 30 days after notification through TCNS, the Tuscarora Nation has no interest in participating in pre-construction review for the site. The Applicant/tower builder, however, must IMMEDIATELY notify the Tuscarora Nation in the event archaeological properties or human remains are discovered during construction.

2. THPO Robin Dushane - Eastern Shawnee Tribe of Oklahoma - Wyandotte, OK - regular mail

Details: NOTE: CHANGE IN CONSULTATION PROCEDURES AND FEE

The Cultural Preservation Office of the Eastern Shawnee Tribe of Oklahoma requires the following information and fees regarding all proposed FCC projects.

Please do not email documentation; it will be deleted without being opened. Mail one printed color copy of all documentation accompanied with a CD version.

Please submit by US postal mail or other parcel carrier all of the following information for all FCC projects:

1. A 1-page cover letter with the following information:

- a) TCNS number
- b) Company name
- c) Project name, city, county, state
- d) Project type
- e) UTM coordinates using WGS84 (G1150)
- f) Total area surveyed in acres
- g) Contact information.

2. Professional cultural/archaeological resource survey report.

3. Aerial and color USGS topographic maps locating project area within the state, county, and local area.

4. Aerial, color USGS topographic, or planimetric maps locating tower site, APE, access road, utility easement, guy wire locations surveyed, surveyed staging areas, and known archaeological/historic sites.

5. Project site plan map depicting labeled shovel test locations.

6. Shovel test log.

7. Site photographs.

8. A copy of the review letter or TCNS e-response from the State Historic Preservation Office and all other state-mandated review offices.

9. Submit a \$550.00 per/tower fee for administration, data processing, handling, research, and review. Collocations, PTC poles, and projects in previously disturbed locations require a \$100.00 fee. Make the check payable to the Eastern Shawnee Tribe of Oklahoma. On the memo line write all TCNS numbers.

NOTE: Effective November 1, 2014, for TCNS #119606 and forward, regarding collocations, PTC poles, and projects in previously disturbed locations; the administration, data processing, handling, research and review fee will decrease to \$100.00.

10. THE EASTERN SHAWNEE TRIBE'S NEW CONSULTATION PROCEDURES DOCUMENT is available by email and is highly recommended for guidance. Send an email to Dee Gardner at: [celltower@estoo.net](mailto:celltower@estoo.net).

If the applicant/tower builder receives no response from the Eastern Shawnee Tribe of Oklahoma within 30 days after notification through TCNS, the Eastern Shawnee Tribe of Oklahoma has no interest in participating in pre-construction review for the proposed site. The Applicant/tower builder, however, must immediately notify the Eastern Shawnee Tribe of Oklahoma in the event archaeological properties or human remains are discovered during construction, consistent with Section IX of the Nationwide Programmatic Agreement and applicable law.

### 3. THPO Kim Jumper - Shawnee Tribe - Miami, OK - regular mail

Details: THIS IS YOUR OFFICIAL NOTICE THAT THE SHAWNEE TRIBE IS INTERESTED IN CONSULTING ON ALL PROJECTS BUILT IN OUR AREAS OF GEOGRAPHIC INTEREST.

ATTENTION, NEW INFORMATION: Our procedures were updated on 14 January 2008. Please call Kim Jumper, THPO, at 918-542-2441, so that she can send you a copy.

If your tower is a co-location, please fax us this information to let us know. We cannot always tell from the TCNS web site that a tower is a co-location. We require a written response from you to let us know that it is a co-location. If a co-location project includes some new ground disturbance (such as from an expanded compound or access road, or construction of an ancillary structure), the Shawnee Tribe treats such a project the same as any other non co-location project.

Our correct mailing/physical address is: 29 South Highway 69A. Our correct phone number is (918-542-2441) and our historic preservation fax line is (918-542-9915). THPO Kim Jumper manages all cell tower consultation.

As of 26 June 2006, all of the faxed responses of our final comments on a tower site will contain an original Shawnee Tribe signature. Each final comment fax is signed individually. Copies may be compared, for authentication, against the original in our files. If a final comment fax does not contain a signature, it is not valid. ALL FINAL COMMENTS FROM THE SHAWNEE TRIBE ARE WRITTEN; FINAL COMMENTS ARE NEVER PROVIDED VERBALLY. IF THE SHAWNEE TRIBE IS CREDITED WITH HAVING GIVEN A VERBAL RESPONSE, THAT RESPONSE IS NOT VALID.

If you receive notification through the TCNS listing the Shawnee Tribe, that is an indication that the Shawnee Tribe is interested in consulting on the tower for which that notification was received. Please consider that our official indication of interest to you. The Shawnee Tribe considers the Tower Construction Notification System's weekly e-mail to be the first notification that we receive that a tower will be constructed in an area of our concern. We do not view the TCNS notification as completion of 106 consultation obligations.

The Shawnee Tribe has developed streamlined consultation procedures for cell tower developers and their subcontractors. If you do not have a copy of the procedures - most recently updated on 14 January 2008 - please contact us, as you must follow these procedures to consult with us on cell tower projects. Call us at 918-542-2441 or fax us at 918-542-9915. It is the tower builder's responsibility to make sure that you have our most recent consultation procedures.

PLEASE DO NOT SEND US INFORMATION, QUERIES, OR COMMENTS ELECTRONICALLY. SINCE 1 DECEMBER 2005, WE HAVE NOT HANDLED ANY CELL TOWER CONSULTATION, INQUIRIES, OR CORRESPONDENCE VIA E-MAIL.

4. THPO and Executive Director Dr. Wenonah G Haire - Catawba Indian Nation Cultural Preservation Project - Rock Hill, SC - electronic mail and regular mail

Details: The Catawba Indian Nation Tribal Historic Preservation Office requests that you send us by regular mail the following information needed to complete our research for your proposed project (including ALL Positive Train Control (PTC) projects):

Project Name \_\_\_\_\_

Project Number \_\_\_\_\_

\_\_\_\_\_1. The name, complete address, phone number, fax number and e-mail address of the project manager.

\_\_\_\_\_2. The project location plotted on a topo map.

\_\_\_\_\_3. The project name, address and location; street or highway, city, county, state.

\_\_\_\_\_4. A brief description of the proposed project. Please include the size of the proposed project site and the size of the area where ground-disturbing activities will be taking place and the type of disturbance anticipated.

\_\_\_\_\_5. A brief description of current and former land use. We are primarily interested in ground disturbance and do not need detailed information or photographs of historic structures in the project area.

\_\_\_\_\_6. A list of all recorded archaeological sites within one half (1/2) mile of the project area.

\_\_\_\_\_7. A list of all eligible and potentially eligible National Register of Historic Places sites within one half (1/2) mile of the proposed project area.

\_\_\_\_\_8. If there has been an archaeological survey done in the area, a copy of that report.

\_\_\_\_\_9. It is not necessary to send original color photos if you can provide high-resolution color copies.

\_\_\_\_\_10. A letter of concurrence from the appropriate State Historic Preservation Office.

If you use the FCC Form 620, please do not send Attachments 1 through 6. They are not necessary for our determination. We do not have an interest in projects that require no ground disturbance.

Please note: Our research/processing fee is \$400. Please send these requested materials in hard copy format. Send to:

CIN-THPO  
1536 Tom Steven Road  
Rock Hill, S.C. 29730

The information you provided was also forwarded to the following SHPOs in the State in which you propose to construct and neighboring States. The information was provided to these SHPOs as a courtesy for their information and planning. You need make no effort at this time to follow up with any SHPO that does not respond to this notification. Prior to construction, you must provide the SHPO of the State in which you propose to construct (or the Tribal Historic Preservation Officer, if the project will be located on certain Tribal lands), with a Submission Packet pursuant to Section VII.A of the NPA.

5. Environmental Review Coordinator Renee GledhillEarley - NC State Historic Preservation Office - Raleigh, NC - electronic mail

6. Deputy SHPO David Brook - Historic Preservation Office - Raleigh, NC - electronic mail

"Exclusions" above set forth language provided by the Tribal Nation or SHPO. These exclusions may indicate types of PTC wayside pole notifications that the Tribal Nation or SHPO does not wish to review. TCNS automatically forwards all notifications to all Tribal Nations and SHPOs that have an expressed interest in the geographic area of a proposal. However, if a proposal falls within a designated exclusion, you need not expect any response and need not pursue any additional process with that Tribal Nation or SHPO. Exclusions may also set forth policies or procedures of a particular Tribal Nation or SHPO (for example, types of information that a Tribal Nation routinely requests, or a policy that no response within 30 days indicates no interest in participating in pre-construction review).

Please be advised that the FCC cannot guarantee that the contact(s) listed above opened and reviewed an electronic or regular mail notification. The following information relating to the proposed tower was forwarded to the person(s) listed above:

Notification Received: 07/27/2015  
Notification ID: 129667  
Tower Owner Individual or Entity Name: Person County  
Consultant Name: Andrew B Blake  
Street Address: 326 Tryon Road  
City: Raleigh  
State: NORTH CAROLINA  
Zip Code: 27603-3530  
Phone: 919-661-6351  
Email: ablake@tepgroup.net

Structure Type: LTOWER - Lattice Tower  
Latitude: 36 deg 30 min 28.8 sec N  
Longitude: 78 deg 55 min 4.9 sec W

Location Description: Claude Hall Road

City: Roxboro

State: NORTH CAROLINA

County: PERSON

Detailed Description of Project:

Ground Elevation: 183.9 meters

Support Structure: 91.4 meters above ground level

Overall Structure: 97.5 meters above ground level

Overall Height AMSL: 281.4 meters above mean sea level

If you have any questions or comments regarding this notice, please contact the FCC using the electronic mail form located on the FCC's website at:

<http://wireless.fcc.gov/outreach/notification/contact-fcc.html>.

You may also call the FCC Support Center at (877) 480-3201 (TTY 717-338-2824). Hours are from 8 a.m. to 7:00 p.m. Eastern Time, Monday through Friday (except Federal holidays). To provide quality service and ensure security, all telephone calls are recorded.

Thank you,  
Federal Communications Commission



# EASTERN SHAWNEE TRIBE OF OKLAHOMA

12755 S. 705 Road, Wyandotte, OK 74370  
Bluejacket Building (918) 666-2435, Fax: 888-971-3905

Tower Engineering Professionals  
ATTN: Lindsey Woolridge  
326 Tryon Rd.  
Raleigh, NC 27603

RE: Cell Tower Project Bethel Hill, Roxboro, Person County, NC  
**TCNS 129667**

September 30, 2015

Dear Ms. Woolridge,

The Cultural Preservation Department of the Eastern Shawnee Tribe of Oklahoma (ESTO) has received the documentation for Tower Engineering Professionals' proposed telecommunications project, Bethel Hill, located at UTM Zone 17, 686444.4 m E, 4042312.1 m N (WGS84) in/near Roxboro in Person County, NC. ESTO has reviewed the project, TCNS 129667, in accordance with Section 106 of the National Historic Preservation Act (NHPA). Based on the information provided and a review of our records, we find that **No Historic Properties** of sacred and/or cultural significance to the Tribe will be impacted by this project. Therefore, ESTO has no objection to the project proceeding as described; however, please note that any future changes to this project may require additional consultation.

In accordance with the NHPA of 1966 (16 U.S.C. § 470-470w-6), federally funded, licensed, or permitted undertakings that are subject to the Section 106 review process must determine effects to significant historic properties. As clarified in Section 101(d)(6)(A-B), historic properties may have religious and/or cultural significance to Indian Tribes. Section 106 of NHPA requires Federal agencies to consider the effects of their actions on all significant historic properties (36 CFR Part 800) as does the National Environmental Policy Act of 1969 (43 U.S.C. § 4321-4347 and 40 CFR § 1501.7(a)). **This letter evidences NHPA and NEPA historic properties compliance pertaining to consultation with this Tribe in regard to the proposed project referenced as Bethel Hill, TCNS 129667.**

However, if during construction cultural objects or human remains are inadvertently discovered, please stop work immediately and contact the Cultural Preservation Department of the Eastern Shawnee Tribe of Oklahoma.

Thank you for consulting with the Eastern Shawnee Tribe of Oklahoma.

Robin Dushane  
Tribal Historic Preservation Officer

Jennifer Sigler  
Tribal Archaeologist



SHAWNEE TRIBE  
HISTORIC PRESERVATION DEPARTMENT  
29 SOUTH HIGHWAY 69A  
MIAMI, OKLAHOMA 74354  
918 ^ 542 ^ 2441 PHONE 918 ^ 542 ^ 9915 FAX

FACSIMILE COVER PAGE

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To: Lindsey FROM: KIM JUMPER  
 FIRM/AGENCY: TEP DATE/TIME: 8/26/15  
 FAX NUMBER: 919-6661-6350 NO. OF PAGES, INCLUDING COVER: 1  
 PHONE NUMBER: \_\_\_\_\_ MEMO: 129667, 129035, 129306

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**Message:** The Shawnee Tribe's Tribal Historic Preservation Officer concurs that no known historic properties will be negatively impacted by construction of this tower site (see memo line above for TCNS number/s). The Shawnee Tribe's archives do not reveal any issues of concern at this tower location. In the event that archaeological materials are encountered later during construction, use, or maintenance of this tower location, please re-notify us at that time as we would like to resume consultation under such a circumstance.

The Shawnee Tribe's Environmental and Natural Resources Department takes this opportunity to express its concerns that telecommunication towers can have a potentially destructive impact on bats and migratory birds, particularly those that migrate at night, including species listed as threatened and endangered by both states and the federal government, as well as other species. The Shawnee Tribe suggests that this tower be constructed in accordance with the guidelines available from the US Fish and Wildlife Service to reduce the adverse effects of telecommunications towers on migratory birds; these guidelines may be found at: [www.fws.gov/migratorybirds/issues/towers/comtow.html](http://www.fws.gov/migratorybirds/issues/towers/comtow.html).

The Shawnee Tribe's Environmental and Natural Resources Department is further concerned that the proliferation of cell towers may play a role in honey bee Colony Collapse Disorder. We acknowledge that cell phone technology may not be to blame, especially by itself, as other potential causative factors for the decline have been noted, such as insecticides, tracheal and varroa mites [an immunosuppressant], other parasites, pesticides used on hives to eliminate parasites, genetically modified plants, *Nosema* fungus, Israeli Acute Paralysis Virus (IAPV) perhaps introduced from Australia in 2004, Kashmir Bee Virus [KBV], climate change, and drought.

Finally, the Shawnee Tribe's Environmental and Natural Resources Department requests that cell tower sites, whenever remotely feasible, be restored to native vegetation. In all cases, habitat restoration can protect a variety of species, even in small project areas. The large number of cell tower sites provides an as yet unrealized opportunity for region-wide habitat restoration. The Tribe urges the cell phone industry to provide a model for native habitat restoration for other industries.

Please do not hesitate to call us for additional comment.



Catawba Indian Nation  
Tribal Historic Preservation Office  
1536 Tom Steven Road  
Rock Hill, South Carolina 29730

Office 803-328-2427  
Fax 803-328-5791



August 28, 2015

Attention: Lindsey Woolridge  
Tower Engineering Professionals  
326 Tryon Road  
Raleigh, NC 27603-3530

Re. THPO #	TCNS #	Project Description
2015-12-114	129667	Proposed 300ft Tower – Bethel Hill – Claude Hall Road, Roxboro, NC

Ms. Woolridge,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Totherow at 803-328-2427 ext. 226, or e-mail [caitlinh@ccppcrafts.com](mailto:caitlinh@ccppcrafts.com).

Sincerely,

Wenonah G. Haire  
Tribal Historic Preservation Officer

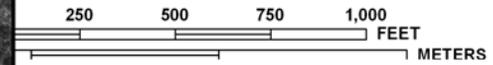


**ATTACHMENT 6**

**FLOODPLAIN MAP**



**GRID NORTH**  
**SCALE 1" = 500' (1 : 6,000)**



PANEL 0020J

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**NORTH CAROLINA**

**PANEL 0020**  
 (SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>CID No.</u>	<u>PANEL</u>	<u>SUFFIX</u>
PERSON COUNTY	370346	0020	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**EFFECTIVE DATE**    **MAP NUMBER**  
**JUNE 4, 2007**        **3721002000J**



State of North Carolina  
 Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

# LEGEND



**SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

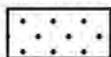
The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevation determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Areas to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.



**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.



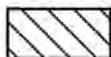
**OTHER FLOOD AREAS**

- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

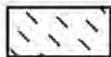


**OTHER AREAS**

- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.



**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**



**OTHERWISE PROTECTED AREAS (OPAs)**

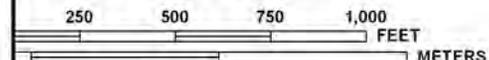
CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary



**GRID NORTH**

**SCALE 1" = 500' (1 : 6,000)**



**PANEL 0020J**

## FIRM

**FLOOD INSURANCE RATE MAP  
NORTH CAROLINA**

**PANEL 0020**

(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>CID No.</u>	<u>PANEL</u>	<u>SUFFIX</u>
PERSON COUNTY	370346	0020	J

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**EFFECTIVE DATE    MAP NUMBER**  
**JUNE 4, 2007            3721002000J**



State of North Carolina  
Federal Emergency Management Agency

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## **ATTACHMENT 7**

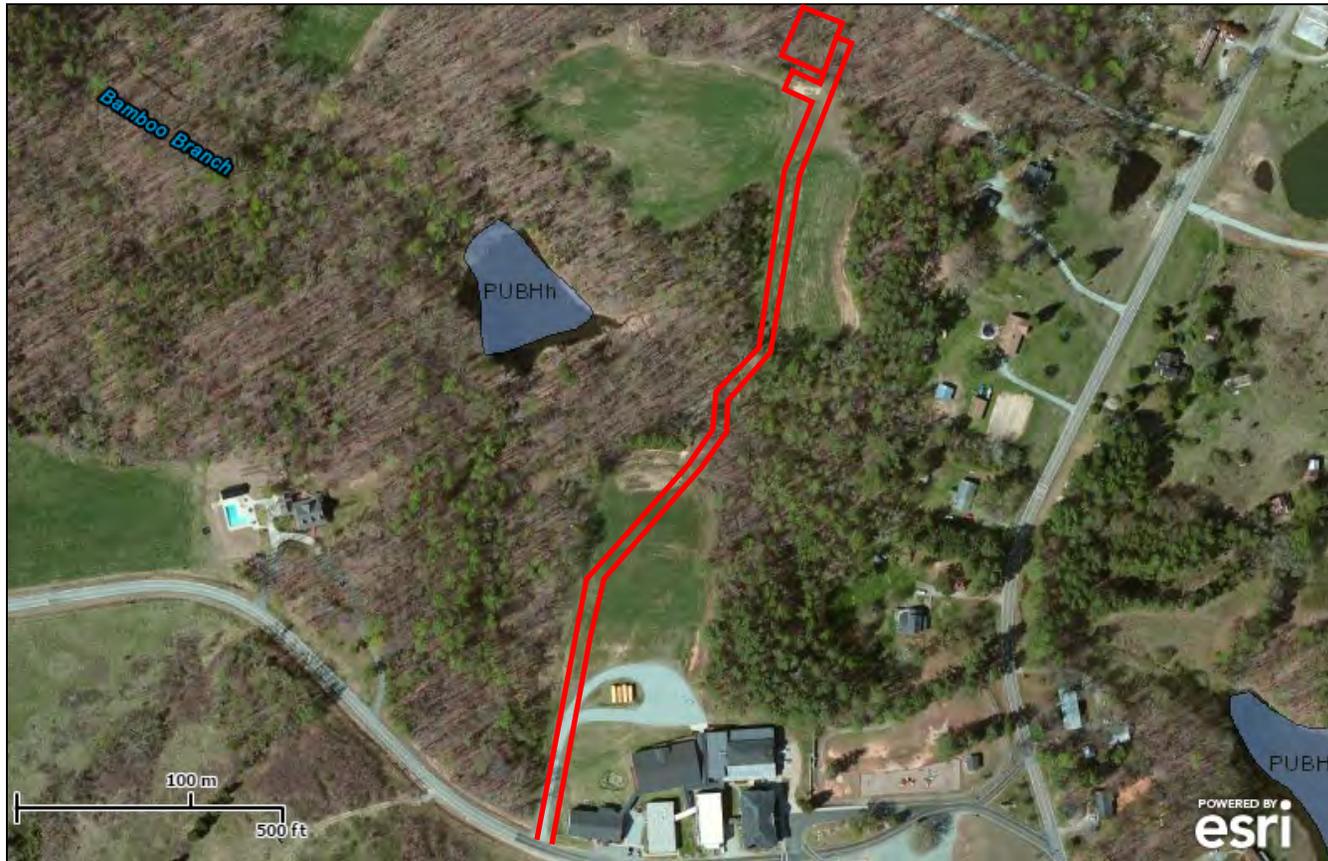
**SURFACE FEATURES (WETLANDS,  
DEFORESTATION, WATER DIVERSION)**



# U.S. Fish and Wildlife Service National Wetlands Inventory

Bethel Hill

Apr 30, 2015

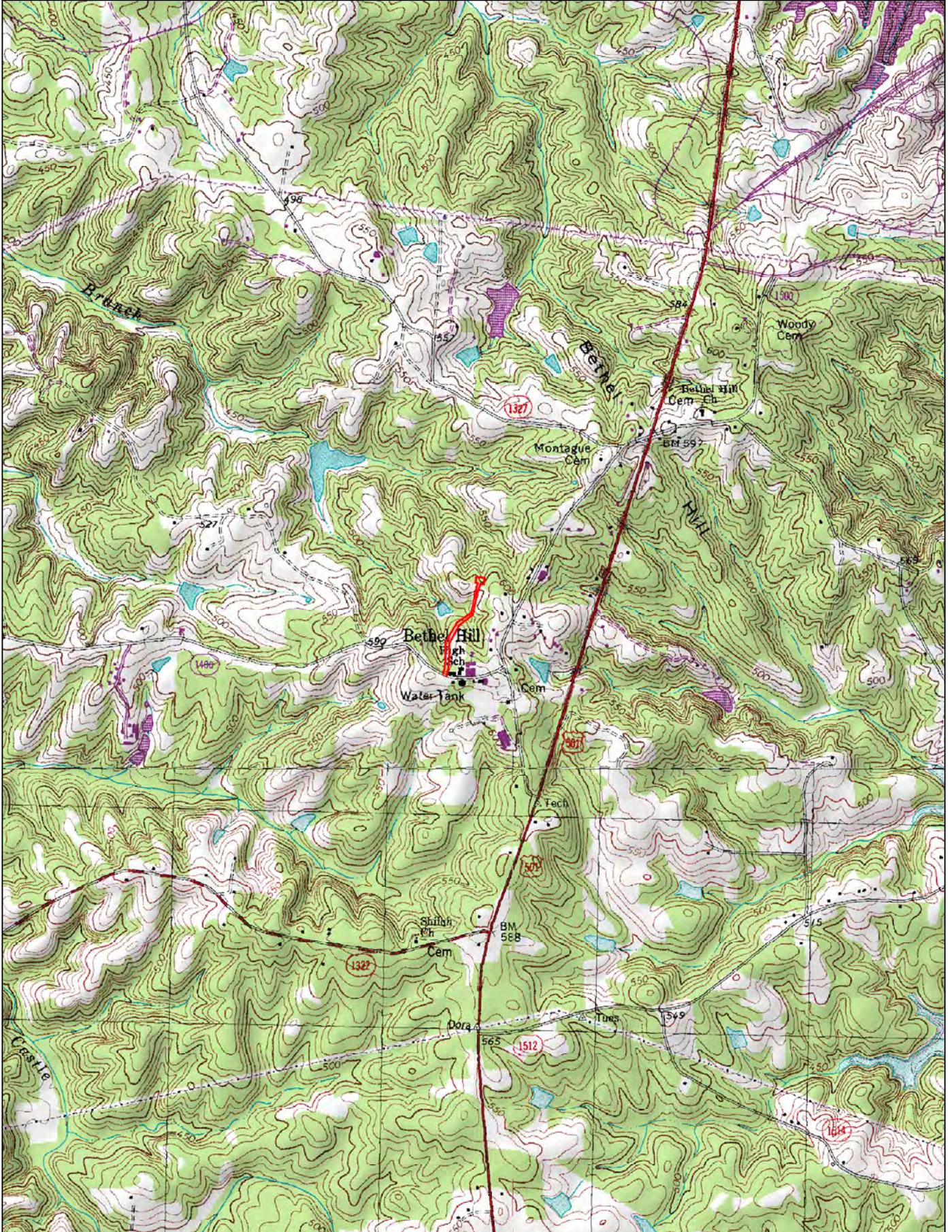


## Wetlands

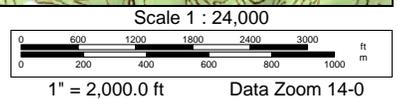
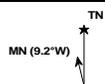
- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

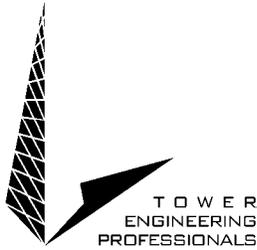


Data use subject to license.  
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## **APPENDIX C**

Agency Correspondence & Pertinent Research Information



Ray Foushee - Director  
Person County General Services  
304 S. Morgan Street  
Roxboro, NC 27573

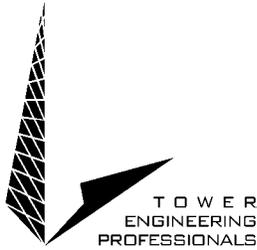
Re: Stream Determination Letter Report  
**Person County Emergency Services**  
**Bethel Hill**  
**Claude Hall Road**  
**Roxboro, NC 27574**

Mr. Foushee:

Tower Engineering Professionals, Inc. (TEP) conducted an onsite inspection and stream determination for an existing drainage feature that is within the limits of the proposed access and utility easement associated with the communications tower site designated as **Bethel Hill**, and is pleased to submit the findings to Person County General Services. The proposed site is located on a parcel of real estate in Person County, NC, that is currently occupied by Bethel Hill Charter School, undeveloped forested and fallow land uses.

During preliminary research of the site, TEP personnel confirmed that there are no mapped streams identified on the Cluster Springs USGS 7.5-minute Quadrangle or the NRCS soil map within the proposed project area. However, a "blue line" stream was identified on the Person County GIS website. TEP confirmed the presence of the drainage feature on the parent property during an initial site inspection completed on October 31, 2014.

TEP personnel completed a follow-up onsite inspection and stream determination on March 18, 2015, in accordance with North Carolina Division of Water Quality (NC DWQ) "Methodology for Identification of Intermittent and Perennial Streams and Their Origins" Version 4.11 effective September 1, 2010. Three (3) 100-ft stream reaches were assessed, two (2) of which were upstream of an existing 12" diameter metal culvert and one downstream of the existing culvert. Reach 1 (R1), the farthest upstream, scored 20 points on the NC DWQ Stream Identification Form Version 4.11, which indicates that the reach is intermittent. Reach 2 (R2) begins on the downstream side of Reach 1 and terminates at the aforementioned metal culvert and scored 30 points which represents the lowest score for a perennial stream. Reach 3 (R3) begins on the downstream side of the metal culvert and scored 31.5 points indicating that the reach is also considered perennial. According to NC DWQ and the US Army Corps of Engineers (USACE) water features are determined jurisdictional and are regulated by buffers and Section 404 permits if the stream is determined to be intermittent and/or perennial.



**TEP Findings and Recommendations:**

According to the “USGS Science in Your Watershed” ([http://water.usgs.gov/wsc/map\\_index2.html](http://water.usgs.gov/wsc/map_index2.html)) website, the site is located within the Roanoke River Watershed which is not regulated by buffers under NC DWQ. Though no buffers are required for the assessed stream, the stream could represent waters of the State which would be regulated by NCDWQ. Therefore, TEP recommends an onsite meeting with NC DWQ to determine if the stream represents waters of the State and to determine the necessity of state permits for impacts (dredging, culvert(s) and/or filling) to the stream.

Additionally, TEP recommends an onsite meeting with US Army Corps of Engineers (USACE) personnel to determine if the stream represents a water of the U.S. If the USACE determines that the stream is a water of the U.S. and claims jurisdiction over the stream a Section 404 permit(s) would be required addressing any impacts (dredging, culvert(s) and/or filling) to the stream itself.

Sincerely,

A handwritten signature in black ink that reads "Andrew B. Blake".

Tower Engineering Professionals, Inc.  
Andrew B. Blake  
Environmental Project Manager

**NC DWQ Stream Identification Form Version 4.11**

Date: <u>3/18/15</u>	Project/Site: <u>Bethel R1</u>	Latitude: <u>N 36° 30' 23'</u>
Evaluator: <u>Draw Blake</u>	County: <u>Person</u>	Longitude: <u>W 78° 55' 7'</u>
<b>Total Points:</b> <i>Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*</i> <u>20</u>	<b>Stream Determination (circle one)</b> Ephemeral <u>Intermittent</u> Perennial	Other <u>Cluster</u> e.g. Quad Name: <u>Springs</u>

A. Geomorphology (Subtotal = <u>10.5</u> )	Absent	Weak	Moderate	Strong
1 <sup>a</sup> . Continuity of channel bed and bank	0	<u>(1)</u>	2	3
2. Sinuosity of channel along thalweg	0	1	<u>(2)</u>	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	<u>(1)</u>	2	3
4. Particle size of stream substrate	0	1	<u>(2)</u>	3
5. Active/relict floodplain	0	1	<u>(2)</u>	3
6. Depositional bars or benches	0	<u>(1)</u>	2	3
7. Recent alluvial deposits	<u>(0)</u>	1	2	3
8. Headcuts	<u>(0)</u>	1	2	3
9. Grade control	0	0.5	<u>(1)</u>	1.5
10. Natural valley	0	0.5	1	<u>(1.5)</u>
11. Second or greater order channel	<u>(No = 0)</u>		<u>(Yes = 3)</u>	

<sup>a</sup> artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = <u>4.5</u> )	Absent	Weak	Moderate	Strong
12. Presence of Baseflow	0	1	<u>(2)</u>	3
13. Iron oxidizing bacteria	0	<u>(1)</u>	2	3
14. Leaf litter	1.5	1	<u>(0.5)</u>	0
15. Sediment on plants or debris	0	<u>(0.5)</u>	1	1.5
16. Organic debris lines or piles	0	<u>(0.5)</u>	1	1.5
17. Soil-based evidence of high water table?	<u>(No = 0)</u>		<u>(Yes = 3)</u>	

C. Biology (Subtotal = <u>5</u> )	Absent	Weak	Moderate	Strong
18. Fibrous roots in streambed	3	2	<u>(1)</u>	0
19. Rooted upland plants in streambed	<u>(3)</u>	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	<u>(0)</u>	1	2	3
22. Fish	<u>(0)</u>	0.5	1	1.5
23. Crayfish	<u>(0)</u>	0.5	1	1.5
24. Amphibians	<u>(0)</u>	0.5	1	1.5
25. Algae	<u>(0)</u>	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 <u>(Other = 0)</u>			

\*perennial streams may also be identified using other methods. See p. 35 of manual.

**Notes:**

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**Sketch:**

NC DWQ Stream Identification Form Version 4.11

Date: 3/18/15	Project/Site: Bethel R2	Latitude: N 36° 30' 23"
Evaluator: Drew Blaise	County: Person	Longitude: W 78° 55' 7"
<b>Total Points:</b> Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* <b>30</b>	<b>Stream Determination (circle one)</b> Ephemeral Intermittent <b>Perennial</b>	Other Cluster e.g. Quad Name: Springs

A. Geomorphology (Subtotal = 17)

	Absent	Weak	Moderate	Strong
1 <sup>a</sup> . Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0	1	(2)	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	(3)
4. Particle size of stream substrate	0	1	(2)	3
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	(1)	2	3
7. Recent alluvial deposits	0	1	(2)	3
8. Headcuts	(0)	1	2	3
9. Grade control	0	0.5	1	(1.5)
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No = 0		Yes = 3	

<sup>a</sup> artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.5)

12. Presence of Baseflow	0	1	(2)	3
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	1	(0.5)	0
15. Sediment on plants or debris	0	0.5	(1)	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 5.5)

18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macroinvertebrates (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	0	(0.5)	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

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Sketch:

**NC DWQ Stream Identification Form Version 4.11**

Date: 3/18/15	Project/Site: Bethel R3	Latitude: N 36° 30' 23"
Evaluator: Draw Blake	County: Person	Longitude: W 78° 55' 7"
<b>Total Points:</b> Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*      31.5	<b>Stream Determination (circle one)</b> Ephemeral Intermittent <u>Perennial</u>	Other Cluster Springs e.g. Quad Name:

A. Geomorphology (Subtotal = 20)	Absent	Weak	Moderate	Strong
1 <sup>a</sup> . Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No = 0		Yes = 3	

<sup>a</sup> artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 9)	Absent	Weak	Moderate	Strong
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = 3	

C. Biology (Subtotal = 2.5)	Absent	Weak	Moderate	Strong
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5		Other = 0	

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: One frog observed in pool

Sketch:



1) Photo facing downstream from the top of Reach 1.



2) Photo facing downstream from the top of Reach 2.



3) Photo facing upstream from exiting earthen access drive at the bottom of Reach 2.



4) Photo facing downstream from the top of Reach 3 (existing earthen access drive).



5) Photo facing upstream from the bottom of Reach 3.



6) Photo facing downstream from the bottom of Reach 3 toward freshwater pond.

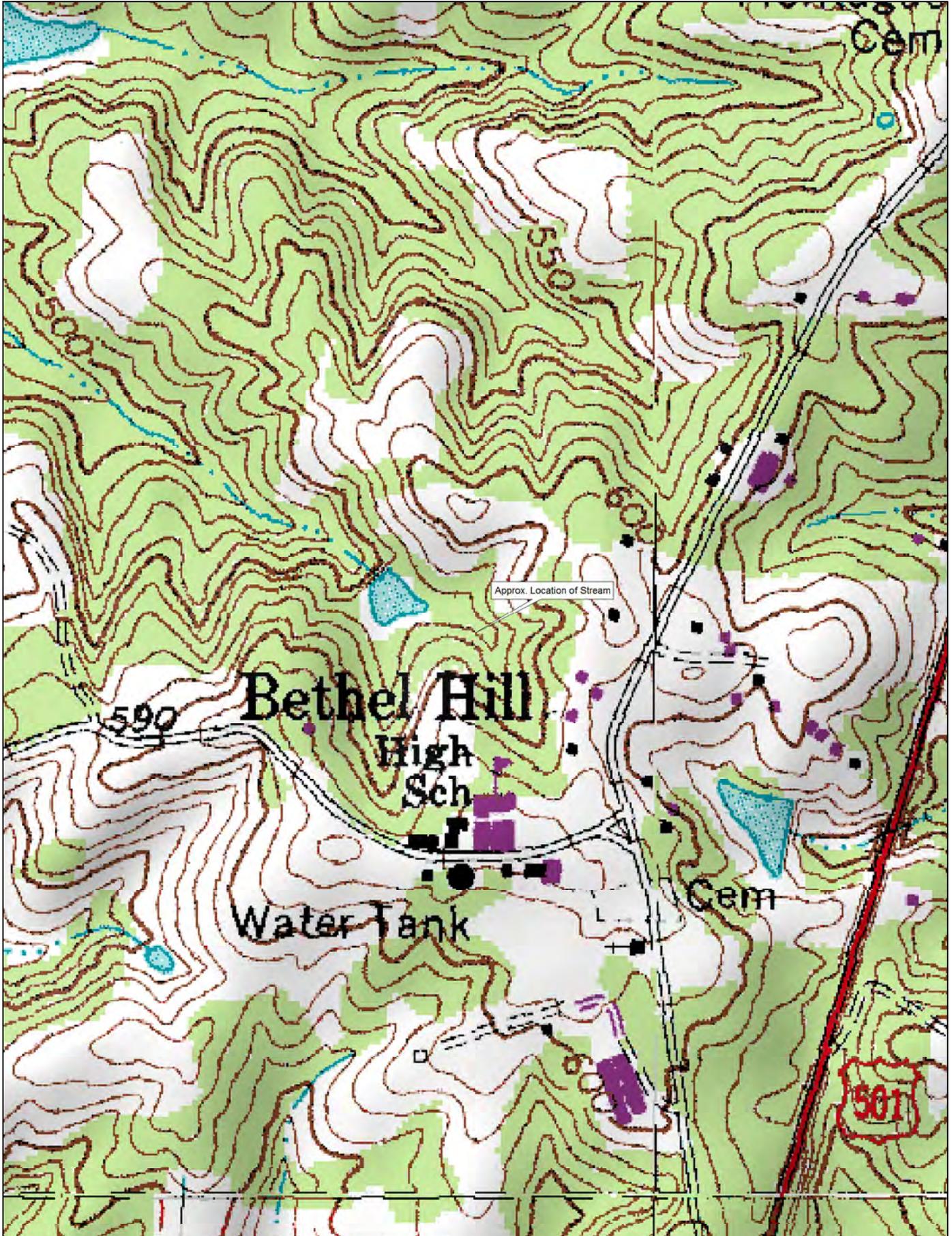


- Parcels
- Progress Areas (1)
- Progress Areas (2)
- Parcel Address Points
- Lakes
- Major Streams
- Minor Streams
- Roads
- City of Roxboro
- Voluntary Agricultural Districts



1 : 304 Feet

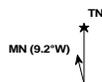
NOTICE: Recently, we have had several users report browser compatibility issues when trying to access our GIS website. Typically, the problem stems from users who have recently upgraded to the Windows 8 operating system or a new version of Internet Explorer. We were able to resolve this issue by directing users to the Internet Explorer Compatibility View tool. This link is to Microsoft's "How To" for the tool: <http://windows.microsoft.com/en-US/internet-explorer/products/ie-9/features/compatibility-view> If this does not solve the problem feel free to contact us at the number listed on our main page. Welcome to the Person County GIS Website. ConnectGIS has been prepared for the inventory of real property found within Person County, and is compiled from recorded deeds, plats, and other public records. Users of GIS system are notified that the aforementioned public information sources should be consulted for verification of the information in this system. Person County, Mobile 311, ConnectGIS assume no legal responsibility for the information in this system. Grid is based on the NC state plane coordinate system, 1983 NAD.



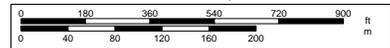
Data use subject to license.

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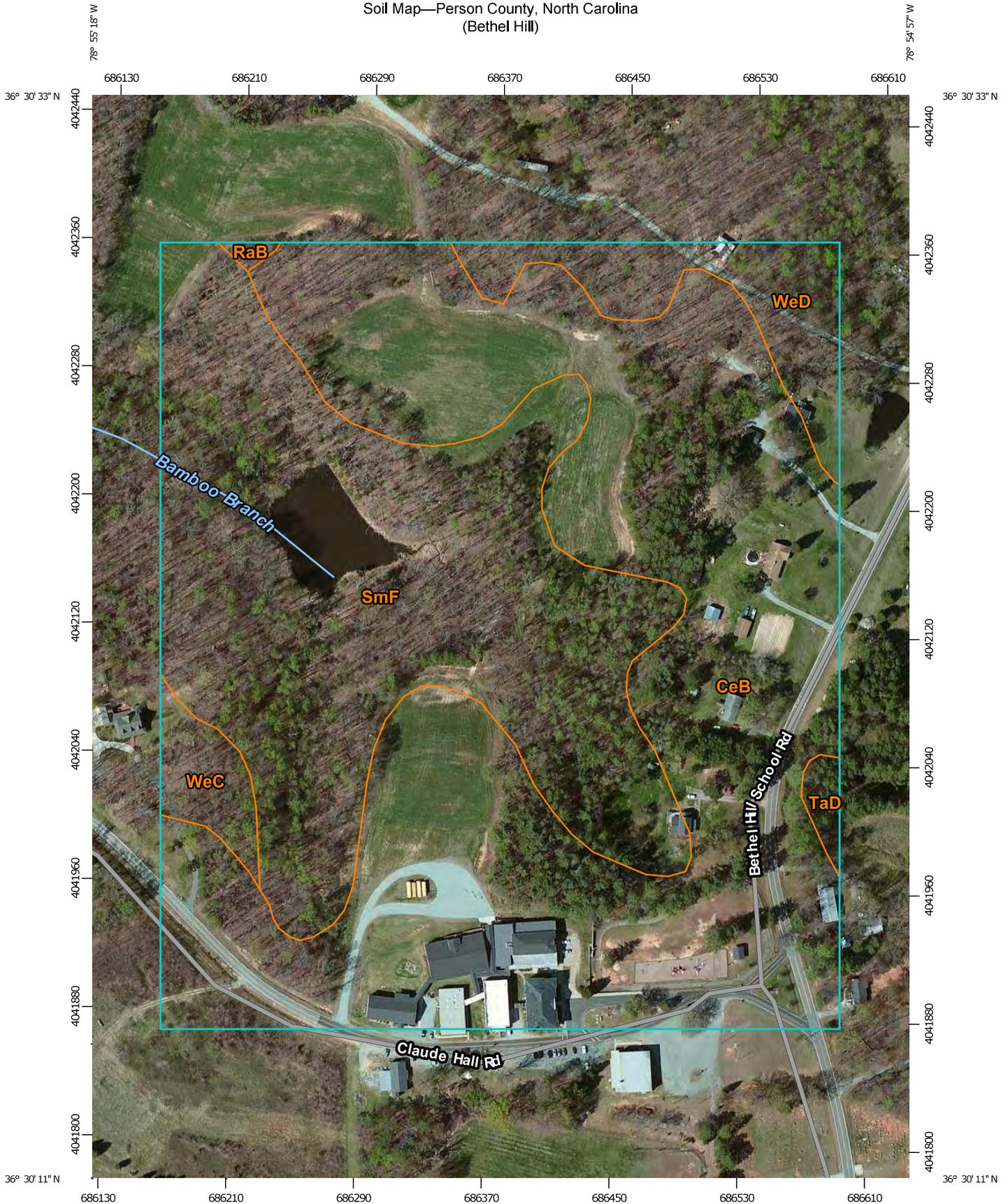
Scale 1 : 6,400



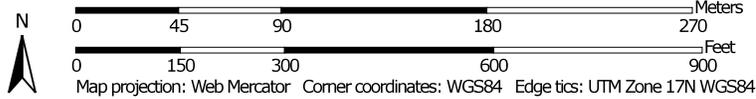
1" = 533.3 ft

Data Zoom 15-0

Soil Map—Person County, North Carolina  
(Bethel Hill)



Map Scale: 1:3,300 if printed on A portrait (8.5" x 11") sheet.



## MAP LEGEND

-  Area of Interest (AOI)
- Soils**
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

**Warning:** Soil Map may not be valid at this scale.  
Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Person County, North Carolina  
Survey Area Data: Version 16, Sep 10, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 10, 2010—Apr 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Person County, North Carolina (NC145)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CeB	Cecil sandy loam, 2 to 6 percent slopes	28.9	55.8%
RaB	Rasalo fine sandy loam, 2 to 6 percent slopes	0.1	0.2%
SmF	Siloam loam, 15 to 45 percent slopes	18.7	36.1%
TaD	Tarrus loam, 10 to 15 percent slopes	0.3	0.6%
WeC	Wedowee sandy loam, 6 to 10 percent slopes	1.0	2.0%
WeD	Wedowee sandy loam, 10 to 15 percent slopes	2.8	5.4%
<b>Totals for Area of Interest</b>		<b>51.8</b>	<b>100.0%</b>

## **APPENDIX D**

NC DWR - Surface Water Determination Letter



North Carolina Department of Environment and Natural Resources  
Division of Water Resources

Pat McCrory  
Governor

Donald R. van der Vaart  
Secretary

June 15, 2015

Mr. Stephen Hester  
401 Bethel Hill Charter School Rd  
Roxboro, NC 27574

**Subject: Surface Water Determination Letter**  
RRO#15-232  
Person County

<i>Determination Type: Buffer</i>	
<i>Buffer Call</i>	<i>Isolated or EIP Call</i>
<input type="checkbox"/> <i>Neuse (15A NCAC 2B .0233)</i> <input type="checkbox"/> <i>Tar-Pamlico (15A NCAC 2B .0259)</i> <input type="checkbox"/> <i>Jordan (15A NCAC 2B .0267)</i>	<input checked="" type="checkbox"/> <i>Ephemeral/Intermittent/Perennial Determination</i> <input type="checkbox"/> <i>Isolated Wetland Determination</i>

Project Name: Bethel Hill Charter School Rd

Location/Directions: Subject property is Person County Charter School land- for installation of emergency communications tower. Consultant requested a buffer determination for the property.

Subject Stream: UT to Bamboo Branch - Roanoke River Basin

Determination Date: 6/11/2015

Staff: Autumn Romanski



Feature	E/I/P*	Stream Not Subject to 401	Stream Subject To 401	Start@	Stop@	Soil Survey	USGS Topo
A1	E	X 2		36.50571 -78.91831	36.50625 -78.91866 DWR Flag	X	
A2	I		X	36.50625 -78.91866 Intermittent Start Point DWR Flag	36.50666 -78.91916 Intermittent End Point DWR Flag	X	
A3	P		X	36.50666 -78.91916 Perennial Start Point DWR Flag	Through to the downstream Pond	X	
A4	**Pond		X	Off-site	Off-site	X	X

\*E/I/P = Ephemeral/Intermittent/Perennial

\*\*Pond is outside of project boundary

**Non-Buffered Basin-NOT SUBJECT TO BUFFER RULES.**

Explanation: The feature(s) listed above has or have been located on the Soil Survey of Person County, North Carolina or the most recent copy of the USGS Topographic map at a 1:24,000 scale. Each feature that is checked "Not Subject" has been determined not to be a stream or is not present on the property. Features that are checked "Subject" have been located on the property and possess characteristics that qualify it to be a stream. There may be other streams located on your property that do not show up on the maps referenced above but, still may be considered jurisdictional according to the US Army Corps of Engineers and/or to the Division of Water Resources (DWR).

**This on-site determination shall expire five (5) years from the date of this letter. Landowners or affected parties that dispute a determination made by the DWR or Delegated Local Authority may request a determination by the Director. An appeal request must be made within sixty (60) days of date of this letter or from the date the affected party (including downstream and/or adjacent owners) is notified of this letter. A request for a**

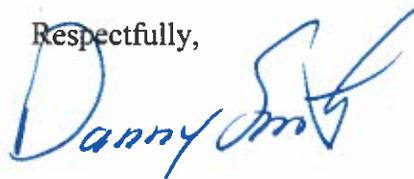
determination by the Director shall be referred to the Director in writing If sending via US Postal Service c/o Karen Higgins DWR – 401 & Buffer Permitting Unit 1617 Mail Service Center Raleigh, NC 27699-1617. If sending via delivery service (UPS, FedEx, etc.) Karen Higgins DWR – 401 & Buffer Permitting Unit 512 N. Salisbury Street Raleigh, NC 27604

This determination is final and binding unless, as detailed above, you ask for a hearing or appeal within sixty (60) days.

The owner/future owners should notify the Division of Water Resources (including any other Local, State, and Federal Agencies) of this decision concerning any future correspondences regarding the subject property (stated above). This project may require a Section 404/401 Permit for the proposed activity. Any inquiries should be directed to the Division of Water Resources (Central Office) at (919)-807-6300, and the US Army Corp of Engineers (Raleigh Regulatory Field Office) at (919)-554-4884.

If you have questions regarding this determination, please feel free to contact Autumn Romanski at (919) 791-4255.

Respectfully,



Danny Smith  
Regional Supervisor

cc: RRO/SWP File Copy

ec: ablake@tepgroup.net

## **APPENDIX E**

NC DWR - Section 401 Water Quality Certification



PAT MCCRORY

*Governor*

DONALD R. VAN DER VAART

*Secretary*

S. JAY ZIMMERMAN

*Director*

February 8, 2016

DWR #16-0021

Person County

Person County Government  
Attn: Donald Ray Foushee  
304 South Morgan St.  
Roxboro, NC 27573

**Subject: APPROVAL OF 401 WATER QUALITY CERTIFICATION WITH ADDITIONAL CONDITIONS**  
Bethel Hill

Dear Mr. Foushee:

You have our approval for the impacts listed below for the purpose described in your application dated October 2, 2015 and received by the Division of Water Resources (Division) on January 21, 2016. These impacts are covered by the attached Water Quality General Certification Number 3886 and the conditions listed below. This certification is associated with the use of Nationwide Permit Number 14 once it is issued to you by the U.S. Army Corps of Engineers. Please note that you should get any other federal, state or local permits before proceeding with your project, including those required by (but not limited to) Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

This approval requires you to follow the conditions listed in the enclosed certification and the following additional conditions:

1. The following impacts are hereby approved provided that all of the other specific and general conditions of the Certification are met. No other impacts are approved, including incidental impacts. [15A NCAC 02B .0506(b)(c)]

Type of Impact	Amount Approved (units) Permanent	Amount Approved (units) Temporary
	Stream	70 (linear feet)

2. No Waste, Spoil, Solids, or Fill of Any Kind

No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices, shall be performed so that no violations of state water quality standards, statutes, or rules occur. [15A NCAC 02H .0501 and .0502]

3. Protective Fencing

The outside buffer, wetland or water boundary and along the construction corridor within these boundaries approved under this authorization shall be clearly marked with orange warning fencing (or similar high visibility material) for the areas that have been approved to infringe within the buffer, wetland or water prior to any land disturbing activities to ensure compliance with 15 NCAC 02H .0500. [15A NCAC 02H .0506 (b)(2) and (c)(2) and 15A NCAC 02H .0507 (c)]

4. This approval is for the purpose and design described in your application. The plans and specifications for this project are incorporated by reference as part of the Certification. If you change your project, you must notify the Division and you may be required to submit a new application package with the appropriate fee. If the property is sold, the new owner must be given a copy of this approval letter and General Certification and is responsible for complying with all conditions. [15A NCAC 02B .0507(d)(2)]

5. This approval and its conditions are final and binding unless contested. [G.S. 143-215.5]

This Certification can be contested as provided in Articles 3 and 4 of General Statute 150B by filing a written petition for an administrative hearing to the Office of Administrative Hearings (hereby known as OAH). A petition form may be obtained from the OAH at <http://www.ncoah.com/> or by calling the OAH Clerk's Office at (919) 431-3000 for information.

Within **thirty (30) calendar days** of receipt of this notice, a petition must be filed with the OAH. A petition is considered filed when the original and one (1) copy along with any applicable OAH filing fee is received in the OAH during normal office hours (Monday through Friday between 8:00am and 5:00pm, excluding official state holidays).

The petition may be faxed to the OAH at (919) 431-3100, provided the original and one copy of the petition along with any applicable OAH filing fee is received by the OAH within five (5) business days following the faxed transmission.

Mailing address for the OAH:

*If sending by First Class Mail*

*If sending via delivery service*

*via the US Postal Service:*

*(e.g. UPS, FedEx):*

Office of Administrative Hearings  
6714 Mail Service Center  
Raleigh, NC 27699-6714

Office of Administrative Hearings  
1711 New Hope Church Road  
Raleigh, NC 27609-6285

One (1) copy of the petition must also be served to DENR:

Sam Hayes, General Counsel  
Department of Environment and Natural Resources  
1601 Mail Service Center  
Raleigh, NC 27699-1601

Please send one (1) copy of the petition to DWR:

*If sending by First Class Mail  
via the US Postal Service:*

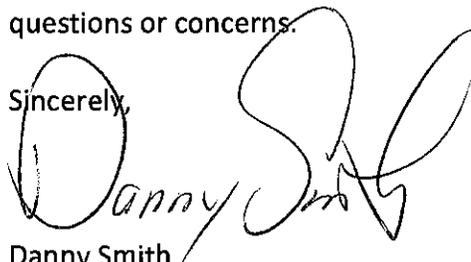
*If sending via delivery service  
(e.g. UPS, FedEx):*

Karen Higgins  
NC DENR-DWR – 401 & Buffer  
Permitting Unit  
1617 Mail Service Center  
Raleigh, NC 27699-1617

Karen Higgins  
NC DENR-DWR – 401 & Buffer  
Permitting Unit  
512 N. Salisbury Street  
Raleigh, NC 27604

This letter completes the review of the Division under section 401 of the Clean Water Act. Please contact Cherri Smith at 919-791-4251 or [cherri.smith@ncdenr.gov](mailto:cherri.smith@ncdenr.gov) if you have any questions or concerns.

Sincerely,



Danny Smith  
Supervisor, Water Quality Regional Operations Section

Enclosure: GC 3886

cc: U.S. Army Corps of Engineers; Raleigh Regulatory Field Office; 3331 Heritage Trade Drive, Ste. 105; Wake Forest, NC 27597

Andrew Blake; Tower Engineering Professionals, Inc.; 326 Tryon Rd.; Raleigh, NC  
27603

Stephen Hester; Bethel Hill Charter School, Inc.; 401 Bethel Hill School Rd.; Roxboro,  
NC 27574

DWR RRO 401 file

DWR 401 & Buffer Permitting Unit

# Water Quality Certification No. 3886

**GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 14 (LINEAR TRANSPORTATION PROJECTS) AND REGIONAL GENERAL PERMIT 198200031 (WORK ASSOCIATED WITH BRIDGE CONSTRUCTION, MAINTENANCE OR REPAIR CONDUCTED BY NCDOT OR OTHER GOVERNMENT AGENCIES) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)**

Water Quality Certification Number 3886 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to waters and adjacent wetland areas or to wetland areas that are not a part of the surface tributary system to interstate waters or navigable waters of the United States (as described in 33 CFR 330 Appendix A (B) (14) of the Corps of Engineers regulations (Nationwide Permit No. 14 and Regional General Permit 198200031) and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 02B .0200.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Any proposed fill or modification of wetlands and/or waters, including streams, under this General Certification requires application to, and written approval from the Division of Water Quality except for the single family lot exemption described below.

**Activities meeting any one (1) of the following thresholds or circumstances require *written approval* for a 401 Water Quality Certification from the Division of Water Quality (the "Division"):**

- a) Any temporary or permanent impacts to wetlands, open waters and/or streams, including stream relocations, except for construction of a driveway to a single family lot as long as the driveway involves *less than 25 feet* of temporary and/or permanent stream channel impacts, including any in-stream stabilization needed for the crossing; or
- b) Any impact associated with a high density project (as defined in Item (A)(iv) of the **401 Stormwater Requirements**) that is not subject to either a state stormwater program (such as, but not limited to, Coastal Counties, HQW, ORW or state-implemented Phase II NPDES) or a certified community's stormwater program; or
- c) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200); or
- d) Any impacts to streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities.

In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. If a project also requires a CAMA Permit, then one payment to both agencies shall be submitted and will be the higher of the two fees.

**Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval from the Division as long as they comply with**

# Water Quality Certification No. 3886

**the Conditions of Certification listed below. If any of these Conditions cannot be met, then written approval from the Division is required.**

Conditions of Certification:

1. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Certification

No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as authorized in the written approval from the Division or beyond the thresholds established for use of this Certification without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.

2. Standard Erosion and Sediment Control Practices

Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

- a. Design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
- b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
- c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.
- d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.
- e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

## Water Quality Certification No. 3886

### 3. No Sediment and Erosion Control Measures in Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

### 4. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at <http://portal.ncdenr.org/web/wq/ws/su/npdessw#tab-w>.

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit.

### 5. Construction Moratoriums and Coordination

If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

### 6. Work in the Dry

All work in or adjacent to stream waters shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC DOT Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application submittal to and written approval by the Division.

## Water Quality Certification No. 3886

### 7. Riparian Area Protection (Buffer) Rules

Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices. All buffer rule requirements, including diffuse flow requirements, must be met.

8. If concrete is used during the construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state due to the potential for elevated pH and possible aquatic life/ fish kills.
9. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*. Exceptions to this condition require written approval by the Division.

### 10. Compensatory Mitigation

In accordance with 15A NCAC 02H .0506 (h), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of wetlands. For linear public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.

Buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for activities classified as "Allowable with Mitigation" or "Prohibited" within the Table of Uses.

A determination of buffer, wetland, and stream mitigation requirements shall be made for any General Water Quality Certification for this Nationwide and/or Regional General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003) or its subsequent updates. Compensatory mitigation plans shall be submitted to the Division for written approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.

## Water Quality Certification No. 3886

11. Relocated stream designs should include the same dimensions, patterns, and profiles as the existing channel (or a stable reference reach if the existing channel is unstable), to the maximum extent practical. The new channel should be constructed in the dry and water shall not be turned into the new channel until the banks are stabilized. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30-foot wide wooded and an adjacent 20-foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transitional phase incorporating appropriate erosion control matting materials and seedling establishment is allowable, however matting that incorporates plastic mesh and/or plastic twine shall not be used in wetlands, riparian buffers or floodplains as recommended by the North Carolina Sediment and Erosion Control Manual. Rip-rap, A-Jacks, concrete, gabions or other hard structures may be allowed if it is necessary to maintain the physical integrity of the stream; however, the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage. Please note that if the stream relocation is conducted as a stream restoration as defined in the US Army Corps of Engineers Wilmington District, April 2003 *Stream Mitigation Guidelines* (or its subsequent updates), the restored length may be used as compensatory mitigation for the impacts resulting from the relocation.

### 12. Stormwater Management Plan Requirements

All applications shall address stormwater management throughout the entire project area per the 401 Stormwater Requirements, referenced herein as "**Attachment A**" at the end of this Certification.

### 13. Placement of Culverts and Other Structures in Waters and Wetlands

Culverts required for this project shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. Existing stream dimensions (including the cross section dimensions, pattern, and longitudinal profile) must be maintained above and below locations of each culvert.

Placement of culverts and other structures in waters and streams must be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life.

When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/ connectivity has been provided when possible (rock ladders, crossvanes, etc). Notification to the Division including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations shall be provided to the Division 60 days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification to the Division including supporting documentation such as, but not limited to, a location map of the culvert, geotechnical reports, photographs, etc shall be provided to the Division a minimum of 60 days prior to the installation of the culvert. If bedrock is discovered during construction, then the Division shall be notified by phone or email within 24 hours of discovery.

If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application submittal to, and written approval by, the Division of Water Quality, regardless of the total impacts to streams or wetlands from the project.

## Water Quality Certification No. 3886

Installation of culverts in wetlands must ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. Additionally, when roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native, woody vegetation and other soft stream bank stabilization techniques must be used where practicable instead of riprap or other bank hardening methods.

14. All temporary fill and culverts shall be removed and the impacted area returned to natural conditions within 60 days of the determination that the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, plan form pattern, and longitudinal bed and bed profile, and the various sites shall be stabilized with natural woody vegetation (except for the approved maintenance areas) and restored to prevent erosion.
15. All temporary pipes/ culverts/ riprap pads etc, shall be installed in all streams as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* so as not to restrict stream flow or cause dis-equilibrium during use of this General Certification.
16. Any riprap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be buried and/or "keyed in" such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area.
17. Any rip-rap used for stream stabilization shall be of a size and density so as not to be able to be carried off by wave, current action, or stream flows and consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures.
18. A one-time application of fertilizer to re-establish vegetation is allowed in disturbed areas including riparian buffers, but is restricted to no closer than 10 feet from top of bank of streams. Any fertilizer application must comply with all other Federal, State and Local regulations.
19. If this Water Quality Certification is used to access building sites, then all lots owned by the applicant must be buildable without additional impacts to streams or wetlands. The applicant is required to provide evidence that the lots are buildable without requiring additional impacts to wetlands, waters, or buffers if required to do so in writing by the Division. For road construction purposes, this Certification shall only be utilized from natural high ground to natural high ground.
20. Deed notifications or similar mechanisms shall be placed on all retained jurisdictional wetlands, waters, and protective buffers within the project boundaries in order to assure compliance for future wetland, water, and buffer impact. These mechanisms shall be put in place at the time of recording of the property or of individual lots, whichever is appropriate. A sample deed notification can be downloaded from the 401/Wetlands Unit web site at <http://portal.ncdenr.org/web/wq/swp/ws/401/certsandpermits/apply/forms>. The text of the sample deed notification may be modified as appropriate to suit to a specific project. Documentation of deed notifications shall be provided to the Division upon request.

## Water Quality Certification No. 3886

21. If an environmental document is required under the National or State Environmental Policy Act (NEPA or SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse.
22. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.
23. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.
24. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then the Division may reevaluate and modify this General Water Quality Certification.
25. When written authorization is required for use of this certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.
26. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards.
27. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification.

Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the wetland or downstream waters are precluded.

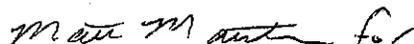
## Water Quality Certification No. 3886

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 19, 2012

DIVISION OF WATER QUALITY

By



Charles Wakild, P.E.

Director

*History Note: Water Quality Certification (WQC) Number 3886 issued March 12, 2012 replaces WQC Number 3820 issued April 6, 2010; WQC Number 3627 issued March 2007; WQC Number 3404 issued March 2003; WQC Number 3375 issued March 18, 2002; WQC Number 3289 issued June 1, 2000; WQC Number 3103 issued February 11, 1997; WQC Number 2732 issued May 1, 1992; WQC Number 2666 issued January 21, 1992; WQC Number 2177 issued November 5, 1987. This WQC is rescinded when the Corps of Engineers reauthorizes any of the corresponding Nationwide and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Quality.*

# Water Quality Certification No. 3886

## Attachment A: 401 Stormwater Requirements

The requirements listed below shall be implemented in order to comply with Condition 12 of this General Certification. For the North Carolina Department of Transportation, compliance with NCDOT's Individual NPDES permit NCS000250 shall serve to satisfy the 401 and Isolated Wetland Stormwater Requirements.<sup>1</sup>

- A. **Design and Implementation Requirements.** All projects, regardless of project area, amount of built-upon area or amount of jurisdictional impact, shall meet the following stormwater design requirements:
- i. **Non-Erosive Discharge to Streams and Wetlands.** Stormwater conveyances that discharge to streams and wetlands must discharge at a non-erosive velocity prior to entering the stream or wetland during the peak flow from the ten-year storm.<sup>2</sup>
  - ii. **Vegetated Setbacks.** A 30-foot wide vegetated setback must be maintained adjacent to streams, rivers and tidal waters in areas that are not subject to a state Riparian Area Protection Rule or other more stringent vegetated setback requirements. The width of the setback shall be measured horizontally from the normal pool elevation of impounded structures, the top-of-bank of streams and rivers, and the mean high waterline of tidal waters, perpendicular to shoreline. Vegetated setback and filters required by state rules or local governments may be met concurrently with this requirement and may contain coastal, isolated or 404 jurisdictional wetlands. Non-jurisdictional portions of the vegetated setback may be cleared and graded, but must be planted with and maintained in grass or other vegetative or plant material.<sup>3</sup>
  - iii. **Construction and Operation.** The stormwater management plan must be constructed and operational before any permanent building or other structure is occupied or utilized at the site. The stormwater management plan, including drainage patterns, must be maintained in perpetuity.<sup>4</sup>
  - iv. **Coordination with Other Stormwater Programs.** Projects that are subject to another Division of Water Quality (DWQ) stormwater program, including (but not limited to) the 20 Coastal Counties, HQW, ORW or state-implemented Phase II NPDES, or a Certified Community's stormwater management program, must be constructed and maintained in compliance with the approved stormwater management plan.<sup>5</sup>
  - v. **Stormwater Design Requirements for Projects Not Covered Under Item (iv).** Projects that are not subject to another DWQ stormwater program or a Certified Community's stormwater program shall meet all of the following requirements:
    - a. **Low Density.** A site is low density if all the following requirements are met:
      1. The development has a built upon area of twenty-four percent (24%) or less, considering both current and future development. When determining the amount of built upon area, coastal wetlands shall be included; however, ponds, lakes and rivers as specified in North Carolina's Schedule of Classifications shall be excluded. If a portion of project has a density greater than 24%, the higher density area must be located in an upland area and away from surface waters and drainageways to the maximum extent practicable.<sup>6</sup>
      2. All stormwater runoff from the built upon areas is transported primarily via vegetated conveyances designed in accordance with the most recent version of the *NC DWQ Stormwater Best Management Practices Manual*. Alternative designs may be approved if the applicant can show that the design provides

## Water Quality Certification No. 3886

equal or better water quality protection than the practices specified in the manual. The project must not include a stormwater collection system (such as piped conveyances) as defined in 15A NCAC 02B .0202(60).<sup>7</sup>

- b. **High Density.** Projects that do not meet the Low Density requirements shall meet the following requirements:
1. Stormwater runoff from the entire site must be treated by structural stormwater controls (BMPs) that are designed to remove eighty-five percent (85%) of the average annual amount of Total Suspended Solids (TSS). Stormwater runoff that drains directly to Nutrient Sensitive Waters (NSW) must also be treated to remove thirty percent (30%) of Total Nitrogen (TN) and Total Phosphorus (TP).<sup>8</sup>
  2. All BMPs must be designed in accordance with the version of the *NC DWQ Stormwater Best Management Practices Manual* that is in place on the date of stormwater management plan submittal. Alternative designs may be approved if the applicant can show that the design provides equal or better water quality protection than the practices specified in the manual.<sup>9</sup>
  3. DWQ may add specific stormwater management requirements on a case-by-case basis in order to ensure that a proposed activity will not violate water quality standards.<sup>10</sup>
  4. DWQ may approve Low Impact Developments (LIDs) that meet the guidance set forth in the *Low Impact Development: A Guidebook for North Carolina*.<sup>11</sup>
  5. Proposed new development undertaken by a local government solely as a public road project shall follow the requirements of the NC DOT BMP Toolbox rather than Items (1)-(4) above.<sup>12</sup>

B. **Submittal Requirements.** The submittal requirements listed below apply only to projects that require written authorization as indicated in the applicable General Certification as well as projects that require an Isolated Wetlands Permit. **Any required documentation shall be sent to the Wetlands, Buffers and Stormwater Compliance and Permitting Unit at 1650 Mail Service Center, Raleigh, NC 27699-1650.**

- i. **Projects that are Subject to Another DWQ Stormwater Program:** If the project is subject to another DWQ stormwater program, such as the 20 Coastal Counties, HQW, ORW or state-implemented Phase II NPDES, then the applicant shall submit a copy of the stormwater approval letter before any impacts occur on site.<sup>13</sup>
- ii. **Projects that are Subject to a Certified Community's Stormwater Program.** If the project is subject to a certified local government's stormwater program, then the applicant shall submit one set of approved stormwater management plan details and calculations with documentation of the local government's approval before any impacts occur on site.<sup>5</sup>
- iii. **Projects Not Covered Under Items (i) or (ii).** If the project is not subject to another DWQ Stormwater Program or a Certified Community's stormwater program, then it shall be reviewed and approved by the DWQ through the Water Quality Certification authorization process.
  - a. **Low Density.** For low density projects, the applicant shall submit two copies of the DWQ Low Density Supplement Form with all required items.<sup>13</sup>

## Water Quality Certification No. 3886

- b. **High Density.** For high density projects, the applicant shall submit two copies of a DWQ BMP Supplement Form and all required items at the specified scales for each BMP that is proposed.<sup>13</sup>
- iv. **Phasing.** Stormwater management plans may be phased on a case-by-case basis, with the submittal of a final stormwater management plan per Items (i)-(iii) above required for the current phase and a conceptual stormwater management plan for the future phase(s). The stormwater management plan for each future phase must be approved by the appropriate entity before construction of that phase is commenced. The approved stormwater management plan for each future phase must be constructed and operational before any permanent building or other structure associated with that phase is occupied.<sup>14</sup>
- v. **Stormwater Management Plan Modifications.** The stormwater management plan may not be modified without prior written authorization from the entity that approved the plan. If the project is within a Certified Community, then the applicant shall submit one set of approved stormwater management plan details and calculations with documentation of the local government's approval for record-keeping purposes. If the project is subject to DWQ review, then the applicant shall submit two copies of the appropriate Supplement Forms per Item (iii) above for any BMPs that have been modified for DWQ's review and approval.<sup>15</sup>

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<sup>1</sup> The stormwater requirement for 401 applications is codified in 15A NCAC 02H .0506(b)(5) and (c)(5).

<sup>2</sup> Non erosive discharge rates are required in SL 2008-211§2(b)(1). The 10-year design storm standard is codified in 15A NCAC 02H .1008(f)(2) and .1008(g)(1).

<sup>3</sup> 30-foot vegetated setbacks are required in SL 2006-246§9(d), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(c) and .1007(1)(a).

<sup>4</sup> Construction and maintenance of the stormwater plan is necessary to satisfy 15A NCAC 02H .0506(b)(5).

<sup>5</sup> Conveys application procedure to streamline the permitting process and reduce any unnecessary duplication in the review of stormwater management plans.

<sup>6</sup> Low density built upon area thresholds are set in SL 2006-246§9(c) and SL 2008-211§2(b).

<sup>7</sup> The requirement for low density development to use vegetated conveyances is codified in SL 2006-246§9(c), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(b) and .1007(1)(a). The Stormwater BMP Manual is also referenced in 15A NCAC 02B .0265(3)(a) and .0277(4)(e).

<sup>8</sup> 85% TSS removal is required in SL 2006-246§9(d), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(c), 15A NCAC 02H .1007(1)(a). The 30% TN and TP removal requirements for NSW waters are set forth in 15A NCAC 02B .0232, 15A NCAC 02B .0257(a)(1), 15A NCAC 02B .0265(3)(a) and 15A NCAC 02B .0277(4).

<sup>9</sup> The Stormwater BMP Manual is also referenced in 15A NCAC 02B .0265(3)(a) and .0277(4)(e).

<sup>10</sup> The requirement for DWQ to ensure that water quality standards are protected before issuing a 401 certification is codified in 15A NCAC 02H .0506.

<sup>11</sup> The LID Toolbox is also referenced in 15A NCAC 02B .0277(4)(g).

<sup>12</sup> The term "public road project" is defined in 15A NCAC 02B .0265(3)(a).

<sup>13</sup> Conveys application procedure to streamline the permitting process.

<sup>14</sup> Phased development is addressed as a "common plan of development" in 15A NCAC 02H .1003(3).

<sup>15</sup> Procedures for modifying stormwater plans are set forth in 15A NCAC 02H .1011.

## **APPENDIX F**

USACE Nationwide 14 Permit

## Andrew Blake

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**From:** Alsmeyer, Eric C SAW <Eric.C.Alsmeyer@usace.army.mil>  
**Sent:** Tuesday, March 15, 2016 4:36 PM  
**To:** Andrew Blake  
**Cc:** John Goins  
**Subject:** RE: Section 404 Permit; Bethel Hill Tower Submittal - Northern Person County; AID SAW-2016-00044  
**Attachments:** NWP14\_3-23.pdf

On 12/22/2015, the US Army Corps of Engineers, Wilmington District received your e-mail pre-construction notification (PCN) on behalf of the Person County Government, for an improved road crossing of a stream, for access to a communication tower site, on the Bethel Hill Charter School site, Claude Hall Road, north of Roxboro, Person County, North Carolina. Your notification indicated that the improved road crossing will impact an additional 70 linear feet of stream.

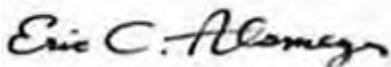
Based on the information provided in your application, your work meets the terms and conditions of Nationwide Permit (NWP) 14, Linear Transportation Crossing, and, since we did not act on your PCN within 45 days, your project is statutorily authorized, provided it is accomplished in strict accordance with the attached conditions and your submitted description. Any violation of the attached conditions or deviation from your submitted description may subject the permittee to a stop work order, a restoration order and/or appropriate legal action. Attached is a copy of the NWP 14 and the applicable permit conditions. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization. The Action Identification Number for this project is [SAW-2016-00044](#).

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone (919) 733-1786) to determine Section 401 requirements.

This response to your notification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

Please let me know if you have any questions regarding this permit or the conditions. You can call me at telephone (919) 554-4884, ext 23 or contact me via e-mail at [eric.c.alsmeyer@usace.army.mil](mailto:eric.c.alsmeyer@usace.army.mil).

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=136:4:0](http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0).



Eric Alsmeyer  
Project Manager

Raleigh Regulatory Field Office  
US Army Corps of Engineers, Wilmington District

3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587

Tel: (919) 554-4884, x23

Fax: (919) 562-0421

Regulatory Homepage: <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx>

(If you need information that is not yet available on our new website, please let me know)

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**From:** Andrew Blake [mailto:ablake@tepgroup.net]

**Sent:** Tuesday, December 22, 2015 8:32 AM

**To:** Alsmeyer, Eric C SAW <Eric.C.Alsmeier@usace.army.mil>

**Cc:** John Goins <jgoins@tepgroup.net>

**Subject:** [EXTERNAL] RE: Section 401 Submittal Process - Northern Person County (UNCLASSIFIED)

Eric,

Please see attached for the PCN submittal packet for the Bethel Hill tower site that we have been discussing over the last few months. Please let me know if you need any additional information.

Thanks,

Drew Blake

Direct Office Line: (919)-703-4147

**Environmental Project Manager | Tower Engineering Professionals, Inc.** ([Blockedwww.tepgroup.net](http://www.tepgroup.net))

326 Tryon Road | Raleigh, NC 27603-3530 | Office: (919) 661-6351 Ext. 5302 | Fax: (919) 661-6350 | Mobile: (919) 610-1274

**NATIONWIDE PERMIT 14  
DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS  
FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS  
FEDERAL REGISTER  
AUTHORIZED MARCH 19, 2012**

**Linear Transportation Projects.** Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

**Notification:** The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 31.) (Sections 10 and 404)

**Note:** Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

## NATIONWIDE PERMIT CONDITIONS

The following General Conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any “take” permits required under the U.S. Fish and Wildlife Service’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such “take” permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA

section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of

the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

\_\_\_\_\_  
(Transferee)

\_\_\_\_\_  
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(1)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

#### D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the

vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific

conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

### **FURTHER INFORMATION**

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

### **DEFINITIONS**

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence

of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or

flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through

which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent

mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.

## **Final Regional Conditions 2012**

### *NOTICE ABOUT WEB LINKS IN THIS DOCUMENT:*

*The web links (both internal to our District and any external links to collaborating agencies) in this document are valid at the time of publication. However, the Wilmington District Regulatory Program web page addresses, as with other agency web sites, may change over the timeframe of the five-year Nationwide Permit renewal cycle, in response to policy mandates or technology advances. While we will make every effort to check on the integrity of our web links and provide re-direct pages whenever possible, we ask that you report any broken links to us so we can keep the page information current and usable. We apologize in advanced for any broken links that you may encounter, and we ask that you navigate from the regulatory home page (wetlands and stream permits) of the Wilmington District Corps of Engineers, to the “Permits” section of our web site to find links for pages that cannot be found by clicking directly on the listed web link in this document.*

## **Final 2012 Regional Conditions for Nationwide Permits (NWP) in the Wilmington District**

### **1.0 Excluded Waters**

The Corps has identified waters that will be excluded from the use of all NWP’s during certain timeframes. These waters are:

#### **1.1 Anadromous Fish Spawning Areas**

Waters of the United States identified by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are excluded during the period between February 15 and June 30, without prior written approval from NCDMF or NCWRC and the Corps.

#### **1.2 Trout Waters Moratorium**

Waters of the United States in the twenty-five designated trout counties of North Carolina are excluded during the period between October 15 and April 15 without prior written approval from the NCWRC. (See Section 2.7 for a list of the twenty-five trout counties).

#### **1.3 Sturgeon Spawning Areas as Designated by the National Marine Fisheries Service (NMFS)**

Waters of the United States designated as sturgeon spawning areas are excluded during the period between February 1 and June 30, without prior written approval from the NMFS.

## **2.0 Waters Requiring Additional Notification**

The Corps has identified waters that will be subject to additional notification requirements for activities authorized by all NWP's. These waters are:

### **2.1 Western NC Counties that Drain to Designated Critical Habitat**

For proposed activities within Waters of the U.S. that require a Pre-Construction Notification pursuant to General Condition 31 (PCN) and are located in the sixteen counties listed below, applicants must provide a copy of the PCN to the US Fish and Wildlife Service, 160 Zillicoa Street, Asheville, North Carolina 28801. This PCN must be sent concurrently to the US Fish and Wildlife Service and the Corps Asheville Regulatory Field Office. Please see General Condition 18 for specific notification requirements related to Federally Endangered Species and the following website for information on the location of designated critical habitat.

Counties with tributaries that drain to designated critical habitat that require notification to the Asheville US Fish and Wildlife Service: Avery, Cherokee, Forsyth, Graham, Haywood, Henderson, Jackson, Macon Mecklenburg, Mitchell, Stokes, Surry, Swain, Transylvania, Union and Yancey.

Website and office addresses for Endangered Species Act Information:

The Wilmington District has developed the following website for applicants which provides guidelines on how to review linked websites and maps in order to fulfill NWP general condition 18 requirements: <http://www.saw.usace.army.mil/wetlands/ESA>

Applicants who do not have internet access may contact the appropriate US Fish and Wildlife Service offices listed below or the US Army Corps of Engineers at (910) 251- 4633:

US Fish and Wildlife Service  
Asheville Field Office  
160 Zillicoa Street  
Asheville, NC 28801  
Telephone: (828) 258-3939

Asheville US Fish and Wildlife Service Office counties: All counties west of and including Anson, Stanly, Davidson, Forsyth and Stokes Counties

US Fish and Wildlife Service  
Raleigh Field Office  
Post Office Box 33726  
Raleigh, NC 27636-3726  
Telephone: (919) 856-4520

Raleigh US Fish and Wildlife Service Office counties: all counties east of and including Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

## **2.2 Special Designation Waters**

Prior to the use of any NWP in any of the following identified waters and contiguous wetlands in North Carolina, applicants must comply with Nationwide Permit General Condition 31 (PCN). The North Carolina waters and contiguous wetlands that require additional notification requirements are:

“Outstanding Resource Waters” (ORW) or “High Quality Waters” (HQW) as designated by the North Carolina Environmental Management Commission; “Inland Primary Nursery Areas” (IPNA) as designated by the NCWRC; “Contiguous Wetlands” as defined by the North Carolina Environmental Management Commission; or “Primary Nursery Areas” (PNA) as designated by the North Carolina Marine Fisheries Commission.

## **2.3 Coastal Area Management Act (CAMA) Areas of Environmental Concern**

Non-federal applicants for any NWP in a designated “Area of Environmental Concern” (AEC) in the twenty (20) counties of Eastern North Carolina covered by the North Carolina Coastal Area Management Act (CAMA) must also obtain the required CAMA permit. Development activities for non-federal projects may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – 69 Darlington Avenue, Wilmington, NC 28403 or Washington Field Office – 2407 West 5th Street, Washington, NC 27889).

## **2.4 Barrier Islands**

Prior to the use of any NWP on a barrier island of North Carolina, applicants must comply with Nationwide Permit General Condition 31 (PCN).

## **2.5 Mountain or Piedmont Bogs**

Prior to the use of any NWP in a Bog classified by the North Carolina Wetland Assessment Methodology (NCWAM), applicants shall comply with Nationwide Permit General Condition 31 (PCN). The latest version of NCWAM is located on the NC DWQ web site at: <http://portal.ncdenr.org/web/wq/swp/ws/pdu/ncwam> .

## **2.6 Animal Waste Facilities**

Prior to use of any NWP for construction of animal waste facilities in waters of the US, including wetlands, applicants shall comply with Nationwide Permit General Condition 31 (PCN).

## **2.7 Trout Waters**

Prior to any discharge of dredge or fill material into streams or waterbodies within the twenty-five (25) designated trout counties of North Carolina, the applicant shall comply with Nationwide Permit General Condition 31 (PCN). The applicant shall also provide a copy of the notification to the appropriate NCWRC office to facilitate the determination of any potential

impacts to designated Trout Waters. Notification to the Corps of Engineers will include a statement with the name of the NCWRC biologist contacted, the date of the notification, the location of work, a delineation of wetlands, a discussion of alternatives to working in the mountain trout waters, why alternatives were not selected, and a plan to provide compensatory mitigation for all unavoidable adverse impacts to mountain trout waters.

#### NCWRC and NC Trout Counties

Western Piedmont Region Coordinator	Alleghany	Caldwell	Watauga
20830 Great Smoky Mtn. Expressway	Ashe	Mitchell	Wilkes
Waynesville, NC 28786	Avery	Stokes	
Telephone: (828) 452-2546	Burke	Surry	

Mountain Region Coordinator	Buncombe	Henderson	Polk
20830 Great Smoky Mtn. Expressway	Cherokee	Jackson	Rutherford
Waynesville, NC 28786	Clay	Macon	Swain
Telephone: (828) 452-2546	Graham	Madison	Transylvania
Fax: (828) 452-7772	Haywood	McDowell	Yancey

### 3.0 List of Corps Regional Conditions for All Nationwide Permits

The following conditions apply to all Nationwide Permits in the Wilmington District:

#### 3.1 Limitation of Loss of Perennial Stream Bed

NWPs may not be used for activities that may result in the loss or degradation of greater than 300 total linear feet of perennial, intermittent or ephemeral stream, unless the District Commander has waived the 300 linear foot limit for ephemeral and intermittent streams on a case-by-case basis and he determines that the proposed activity will result in minimal individual and cumulative adverse impacts to the aquatic environment. Loss of stream includes the linear feet of stream bed that is filled, excavated, or flooded by the proposed activity. Waivers for the loss of ephemeral and intermittent streams must be in writing and documented by appropriate/accepted stream quality assessments\*. This waiver only applies to the 300 linear feet threshold for NWPs.

\*NOTE: Applicants should utilize the most current methodology prescribed by Wilmington District to assess stream function and quality. Information can be found at:

<http://www.saw.usace.army.mil/wetlands/permits/nwp/nwp2012> (see “Quick Links”)

### **3.2 Mitigation for Loss of Stream Bed**

For any NWP that results in a loss of more than 150 linear feet of perennial and/or ephemeral/intermittent stream, the applicant shall provide a mitigation proposal to compensate for more than minimal individual and cumulative adverse impacts to the aquatic environment. For stream losses less than 150 linear feet, that require a PCN, the District Commander may determine, on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effect on the aquatic environment.

### **3.3 Pre-construction Notification for Loss of Streambed Exceeding 150 Feet.**

Prior to use of any NWP for any activity which impacts more than 150 total linear feet of perennial stream or ephemeral/ intermittent stream, the applicant must comply with Nationwide Permit General Condition 31 (PCN). This applies to NWPs that do not have specific notification requirements. If a NWP has specific notification requirements, the requirements of the NWP should be followed.

### **3.4 Restriction on Use of Live Concrete**

For all NWPs which allow the use of concrete as a building material, live or fresh concrete, including bags of uncured concrete, may not come into contact with the water in or entering into waters of the US. Water inside coffer dams or casings that has been in contact with wet concrete shall only be returned to waters of the US when it is no longer poses a threat to aquatic organisms.

### **3.5 Requirements for Using Riprap for Bank Stabilization**

For all NWPs that allow for the use of riprap material for bank stabilization, the following measures shall be applied:

**3.5.1.** Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters.

**3.5.2.** The placement of riprap shall be limited to the areas depicted on submitted work plan drawings.

**3.5.3.** The riprap material shall be clean and free from loose dirt or any pollutant except in trace quantities that would not have an adverse environmental effect.

**3.5.4.** It shall be of a size sufficient to prevent its movement from the authorized alignment by natural forces under normal conditions.

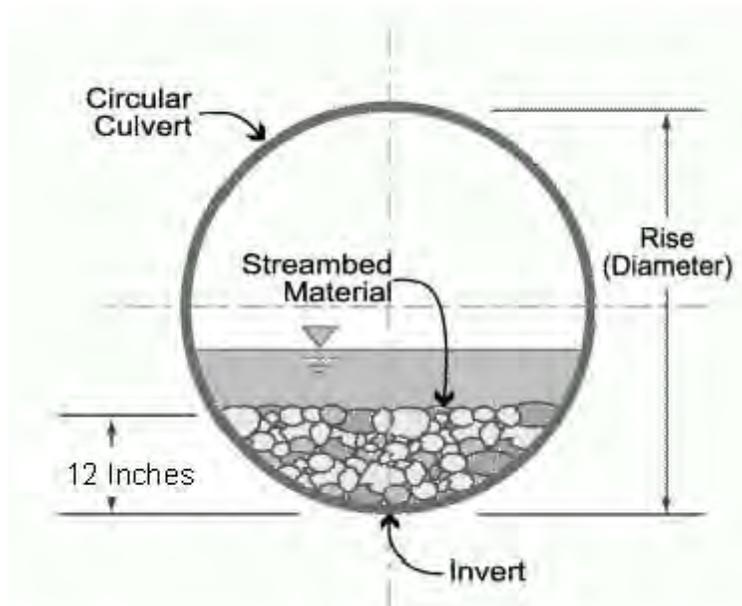
**3.5.5.** The riprap material shall consist of clean rock or masonry material such as, but not limited to, granite, marl, or broken concrete.

**3.5.6.** A waiver from the specifications in this Regional Condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this Regional condition would result in greater adverse impacts to the aquatic environment.

### **3.6 Safe Passage Requirements for Culvert Placement**

For all NWP's that involve the construction/installation of culverts, measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gage data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

In the twenty (20) counties of North Carolina designated as coastal counties by the Coastal Area Management Act (CAMA): All pipes/culverts must be sufficiently sized to allow for the burial of the bottom of the pipe/culvert at least one foot below normal bed elevation when they are placed within the Public Trust Area of Environmental Concern (AEC) and/or the Estuarine Waters AEC as designated by CAMA, and/or all streams appearing as blue lines on United States Geological Survey (USGS) 7.5-minute quadrangle maps.



In all other counties: Culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a

depth below the natural stream bottom to provide for passage during drought or low flow conditions.

Culverts are to be designed and constructed in a manner that minimizes destabilization and head cutting. Destabilizing the channel and head cutting upstream should be considered and appropriate actions incorporated in the design and placement of the culvert.

A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

All counties: Culverts placed within riparian and/or riverine wetlands must be installed in a manner that does not restrict the flow and circulation patterns of waters of the United States. Culverts placed across wetland fills purely for the purposes of equalizing surface water do not have to be buried.

### **3.7 Notification to NCDENR Shellfish Sanitation Section**

Applicants shall notify the NCDENR Shellfish Sanitation Section prior to dredging in or removing sediment from an area closed to shell fishing where the effluent may be released to an area open for shell fishing or swimming in order to avoid contamination from the disposal area and cause a temporary shellfish closure to be made. Such notification shall also be provided to the appropriate Corps of Engineers Regulatory Field Office. Any disposal of sand to the ocean beach should occur between November 1 and April 30 when recreational usage is low. Only clean sand should be used and no dredged sand from closed shell fishing areas may be used. If beach disposal were to occur at times other than stated above or if sand from a closed shell fishing area is to be used, a swimming advisory shall be posted, and a press release shall be issued by the permittee.

### **3.8 Preservation of Submerged Aquatic Vegetation**

Adverse impacts to Submerged Aquatic Vegetation (SAV) are not authorized by any NWP within any of the twenty coastal counties defined by North Carolina's Coastal Area Management Act of 1974 (CAMA).

### **3.9 Sedimentation and Erosion Control Structures and Measures**

**3.9.1.** All PCNs will identify and describe sedimentation and erosion control structures and measures proposed for placement in waters of the US. The structures and measures should be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams.

## 4.0 Additional Regional Conditions for Specific Nationwide Permits

### 4.1 NWP #14 - Linear Transportation Crossings

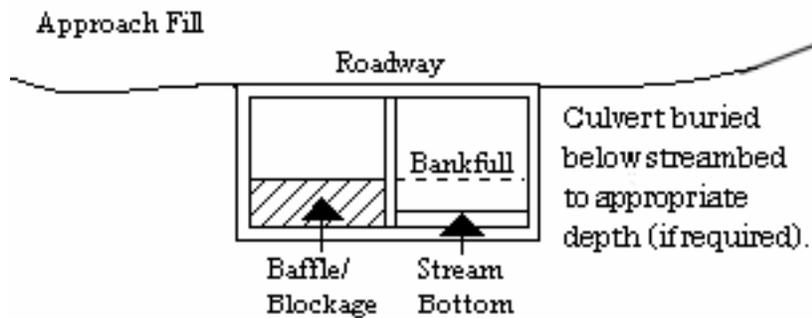
**4.1.1.** If appropriate, applicants shall employ natural channel design (see definition below and NOTE below) to the maximum extent practicable for stream relocations. In the event it is not appropriate to employ natural channel design, any stream relocation shall be considered a permanent impact and the applicant shall provide a mitigation plan to compensate for the loss of aquatic function associated with the proposed activity.

Natural Channel Design: A geomorphologic approach to stream restoration based on an understanding of valley type, general watershed conditions, dimension, pattern, profile, hydrology and sediment transport of natural, stable channels (reference condition) and applying this understanding to the reconstruction of a stable channel.

NOTE: For projects located within the Coastal Plain ecoregion of North Carolina and within headwater areas across the state, applicants should reference the following links for more information regarding appropriate stream design:

<http://www.saw.usace.army.mil/wetlands/permits/nwp>

**4.1.2.** Bank-full flows (or less) shall be accommodated through maintenance of the existing bank-full channel cross sectional area. Additional culverts at such crossings shall be allowed only to receive flows exceeding bank-full.



**4.1.3.** Where adjacent floodplain is available, flows exceeding bank-full should be accommodated by installing culverts at the floodplain elevation.

**4.1.4.** This NWP authorizes only upland to upland crossings and cannot be used in combination with Nationwide Permit 18 to create an upland within waters of the United States, including wetlands.

**4.1.5.** This NWP cannot be used for private projects located in tidal waters or tidal wetlands.

**4.1.6.** Excavation of existing stream channels shall be limited to the minimum necessary to construct or install the proposed culvert. The final width of the impacted streams at the culvert inlet and outlet should be no greater than the original stream width. A waiver from this condition may be requested in writing. The waiver will be issued if it can be demonstrated that it is not

practicable to limit the final width of the culvert to that of the impacted stream at the culvert inlet and outlet and the proposed design would result in less impacts to the aquatic environment.

## **APPENDIX G**

FAA Determination Letter



Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76193

Aeronautical Study No.  
 2015-ASO-3595-OE

Issued Date: 05/05/2015

911 Manager  
 County of Person  
 216 West Barden Street  
 Roxboro, NC 27573

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:            Antenna Tower Bethel Hill  
 Location:            Roxboro, NC  
 Latitude:            36-30-28.82N NAD 83  
 Longitude:           78-55-04.90W  
 Heights:             602 feet site elevation (SE)  
                           320 feet above ground level (AGL)  
                           922 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked/lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, a med-dual system - Chapters 4, 8(M-Dual), & 12 and DOT/FAA/TC-TN12/9 fig. C-2.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, we have no objection to the request to deviate from the standards outlined in the FAA Advisory Circular 70/7460-1 K Change 2 Obstruction Marking and Lighting, Chapter 5.

This deviation from the standard does not apply to any marking and/or paint conditions.

The FAA finds that for those towers 151-350 feet AGL that normally require only one top mounted Flashing Red Obstruction (L-864) light and one level of Steady-burning Red Obstruction (L-810) lights, it is necessary to either configure the existing L-810s to flash at the same rate as the L-864 or replace the L-810 with a L-864 configured to flash simultaneously. Flash rates must be 30 flashes per minute ( ± 3 flashes).

The FAA finds that for structures 351 feet AGL and above, the absence of steady burning Red Obstruction (L-810) lights on this structure will not impair aviation safety. However, aeronautical study revealed that the structure should continue to be lighted with the appropriate Flashing Red Obstruction (L-864) lights. Flash rates must be 30 flashes per minute ( ± 3 flashes).

This determination expires on 11/05/2016 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

**NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.**

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (718) 553-2611. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2015-ASO-3595-OE.

**Signature Control No: 246302308-251181574**

( DNE )

Angelique Eersteling  
Technician

Attachment(s)  
Frequency Data

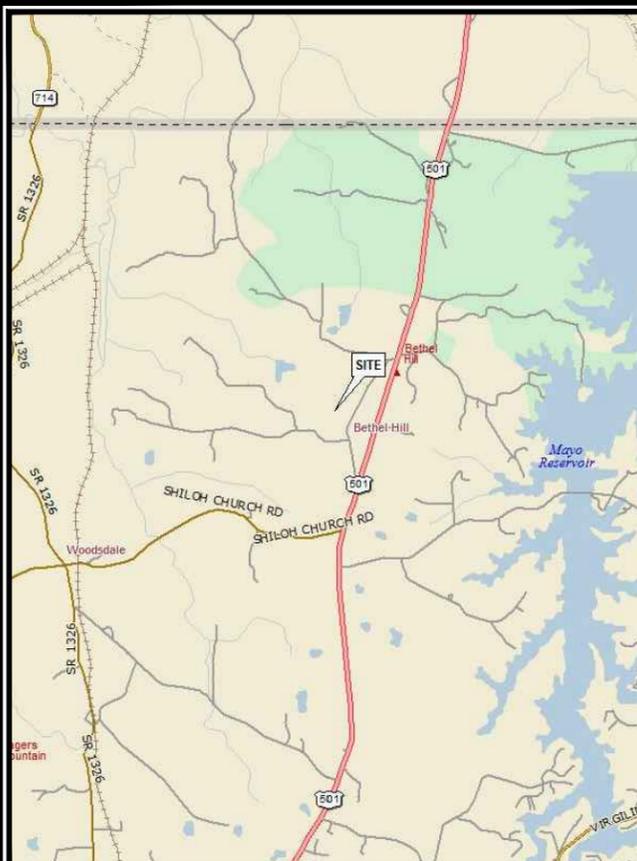
cc: FCC

Frequency Data for ASN 2015-ASO-3595-OE

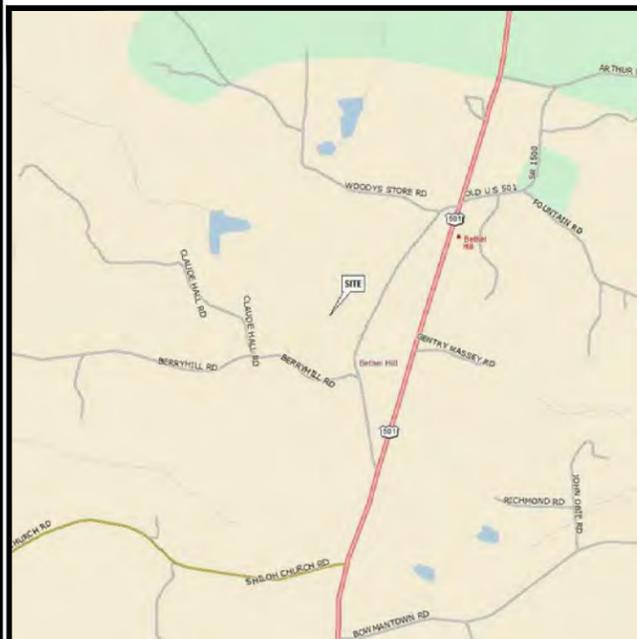
<b>LOW FREQUENCY</b>	<b>HIGH FREQUENCY</b>	<b>FREQUENCY UNIT</b>	<b>ERP</b>	<b>ERP UNIT</b>
154.07	159.06	MHz	200	W
824	849	MHz	500	W
851	866	MHz	500	W

## **APPENDIX H**

Pertinent Construction Drawings



**VICINITY MAP**



**LOCATION MAP**

FROM ROXBORO, TRAVEL NORTH ON US 501. AFTER APPROXIMATELY 8 MILES TURN LEFT ONTO BETHEL HILL SCHOOL ROAD. TAKE YOUR NEXT LEFT ONTO CLAUDE HILL ROAD. THE ACCESS DRIVE WILL BE PAST THE SCHOOL ON THE RIGHT.

**DRIVING DIRECTIONS**

PROJECT INFORMATION:

# PROPOSED TELECOMMUNICATIONS FACILITY

SITE NAME:  
**BETHEL HILL**

SITE ADDRESS:  
**CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)**

LATITUDE N 36° 30' 28.825" (NAD '83)\*  
 LONGITUDE W 78° 55' 04.903" (NAD '83)\*  
 GROUND ELEVATION = 603.4'(ASML) (NAVD '88)\*

\* COORDINATES PER 1A CERTIFICATION LETTER BY TOWER ENGINEERING PROFESSIONALS INC., DATED MARCH 18, 2015

**1A CERTIFICATION**

**APPLICANT / LESSEE:**  
 NAME PERSON COUNTY  
 ADDRESS 304 SOUTH MORGAN STREET  
 CITY, STATE, ZIP ROXBORO, NC 27573  
 CONTACT RAY FOUSHEE  
 PHONE OFFICE: (336) 597-1720

**TOWER OWNER:**  
 NAME PERSON COUNTY  
 ADDRESS 304 SOUTH MORGAN STREET  
 CITY, STATE, ZIP ROXBORO, NC 27573  
 CONTACT RAY FOUSHEE  
 PHONE OFFICE: (336) 597-1720

**PROPERTY OWNER:**  
 NAME BETHEL HILL CHARTER SCHOOL, INC.  
 ADDRESS 401 BETHEL HILL SCHOOL ROAD  
 CITY, STATE, ZIP ROXBORO, NC 27574  
 CONTACT N/A  
 PHONE (336) 599-2823

AREA OF CONSTRUCTION: 39,000 SQ. FT.±  
 PRESENT OCCUPANCY TYPE: VACANT LOT  
 PROPOSED OCCUPANCY TYPE: TELECOMMUNICATIONS FACILITY  
 CURRENT ZONING: RC  
 PARCEL ID NUMBER: 0020-00-33-6533.000  
 JURISDICTION: PERSON COUNTY

**UTILITIES:**  
 POWER COMPANY: PROGRESS ENERGY CAROLINAS  
 CONTACT: CUSTOMER SERVICE  
 PHONE: (866) 452-2777  
 TRANSFORMER # NEAR SITE: 15EC78

TELEPHONE COMPANY: SPRINT  
 CONTACT: CUSTOMER SERVICE  
 PHONE: (800) 927-2199  
 PEDESTAL # NEAR SITE: N/A

**PROJECT SUMMARY**

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING:

1. NC BUILDING CODE (2012 EDITION)
2. ANSI/TIA/EIA-222-G
3. NC ELECTRIC CODE (2011 EDITION)
4. LOCAL BUILDING CODE
5. CITY/COUNTY ORDINANCES

**CODE COMPLIANCE**

**SURVEYOR:**  
 NAME TOWER ENGINEERING PROFESSIONALS, INC.  
 ADDRESS 326 TRYON ROAD  
 CITY, STATE, ZIP RALEIGH, NC 27603  
 CONTACT CLIFFORD C. BYRD, P.L.S.  
 PHONE (919) 661-6351

**CIVIL ENGINEER:**  
 NAME TOWER ENGINEERING PROFESSIONALS, INC.  
 ADDRESS 326 TRYON ROAD  
 CITY, STATE, ZIP RALEIGH, NC 27603  
 CONTACT JOHN GOINS, P.E.  
 PHONE (919) 661-6351

**STRUCTURAL ENGINEER:**  
 NAME N/A  
 ADDRESS N/A  
 CITY, STATE, ZIP N/A  
 CONTACT N/A  
 PHONE N/A

**ELECTRICAL ENGINEER:**  
 NAME TOWER ENGINEERING PROFESSIONALS, INC.  
 ADDRESS 326 TRYON ROAD  
 CITY, STATE, ZIP RALEIGH, NC 27603  
 CONTACT MARK QUAKENBUSH, P.E.  
 PHONE (919) 661-6351

**GEOTECHNICAL ENGINEER:**  
 NAME TOWER ENGINEERING PROFESSIONALS, INC.  
 ADDRESS 326 TRYON ROAD  
 CITY, STATE, ZIP RALEIGH, NC 27603  
 CONTACT JOHN D. LONGEST, P.E.  
 PHONE (919) 661-6351

**TOWER MANUFACTURER:**  
 NAME T.B.D.  
 ADDRESS T.B.D.  
 CITY, STATE, ZIP T.B.D.  
 CONTACT T.B.D.  
 PHONE T.B.D.

**PROJECT TEAM**

APPLICANT/OWNER:



304 SOUTH MORGAN STREET  
 ROXBORO, NC 27573  
 OFFICE: (336) 597-1720

**IF YOU DIG IN  
 NORTH CAROLINA...  
 CALL US FIRST!  
 1-800-632-4949**

NORTH CAROLINA ONE CALL  
 IT'S THE LAW

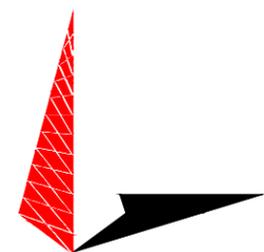
THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTORS CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER/SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

**UTILITY STATEMENT**

SHEET	DESCRIPTION	REV
T-1	TITLE SHEET	1
N-1	PROJECT NOTES	1
C-1	SITE PLAN	1
C-2	COMPOUND DETAIL	1
C-3	TOWER ELEVATION	1
C-4	SHELTER ELEVATIONS	1
C-5	SHELTER FOUNDATION DETAILS	1
C-6	GENERATOR FOUNDATION DETAILS	1
C-7	ICE BRIDGE DETAILS	1
C-8	ANTENNA & COAX MOUNTING DETAILS	1
C-9	FENCE DETAILS	1
C-10	ACCESS ROAD PLAN & PROFILE	1
C-11A	ACCESS GRADING PLAN I	1
C-11B	ACCESS GRADING PLAN II	1
C-11C	ACCESS GRADING PLAN III	1
C-12	EROSION CONTROL PLAN	1
C-13	CULVERT & DRIVEWAY DETAILS	1
C-14	VEG. WATERWAY DETAILS & SEEDING SCHEDULE	1
C-15	EROSION CONTROL MATTING INSTALLATION	1
E-1	ELECTRICAL NOTES	1
E-2	SERVICE ROUTING PLAN	1
E-3	ONE LINE DIAGRAM, PANEL SCHEDULE & NOTES	1
E-4	EQUIPMENT GROUNDING PLAN & NOTES	1
E-5	GROUNDING DETAILS I	1
E-6	GROUNDING DETAILS II	1

**INDEX OF SHEETS**

PLANS PREPARED BY:



**TOWER ENGINEERING PROFESSIONALS**  
 326 TRYON ROAD  
 RALEIGH, NC 27603-3530  
 OFFICE: (919) 661-6351  
 www.tepgroup.net

N.C. LICENSE # C-1794

REV	DATE	ISSUED FOR:
I	12-21-15	CONSTRUCTION
O	10-12-15	PRELIMINARY CONSTRUCTION

DRAWN BY: LES CHECKED BY: JBG

SEAL:

December 21, 2015

SEAL:

December 21, 2015

SHEET NUMBER: <b>T-1</b>	REVISION: <b>1</b>
-----------------------------	-----------------------

TEP #:57455\_42844

**NOTES:**

1. THIS PLAN DOES NOT REPRESENT A TITLE SURVEY.
2. THE BASIS OF THE MERIDIANS AND COORDINATES FOR THIS PLAT IS THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NCSPCS NAD 83) BASED ON DIFFERENTIAL GPS OBSERVATIONS PERFORMED ON OCTOBER 8, 2014.
3. VERTICAL INFORMATION SHOWN, BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88) IN US FEET.
4. ALL DISTANCES ARE GROUND UNLESS OTHERWISE NOTED.
5. THE PROPOSED LOCATION OF THE TOWER IS LOCATED IN FLOOD ZONE "X", AREAS OUTSIDE 0.2% ANNUAL CHANCE FLOOD PLAIN. (FEMA/FIRM PANEL MAP NUMBER 3721002000J).

**SURVEY NOTE:**

INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A SURVEY BY TOWER ENGINEERING PROFESSIONALS, INC. ALL INFORMATION SHOWN ON THIS PLAN IS FOR REFERENCE ONLY. ANY DISCREPANCIES SHOWN ON THIS PLAN SHALL BE SUPERCEDED BY THE ABOVE REFERENCED SURVEY.

N/F  
**HALLS AGRI BUSINESS LLC**  
PIN 0010-00-86-8362.000  
DB 341 PG 639

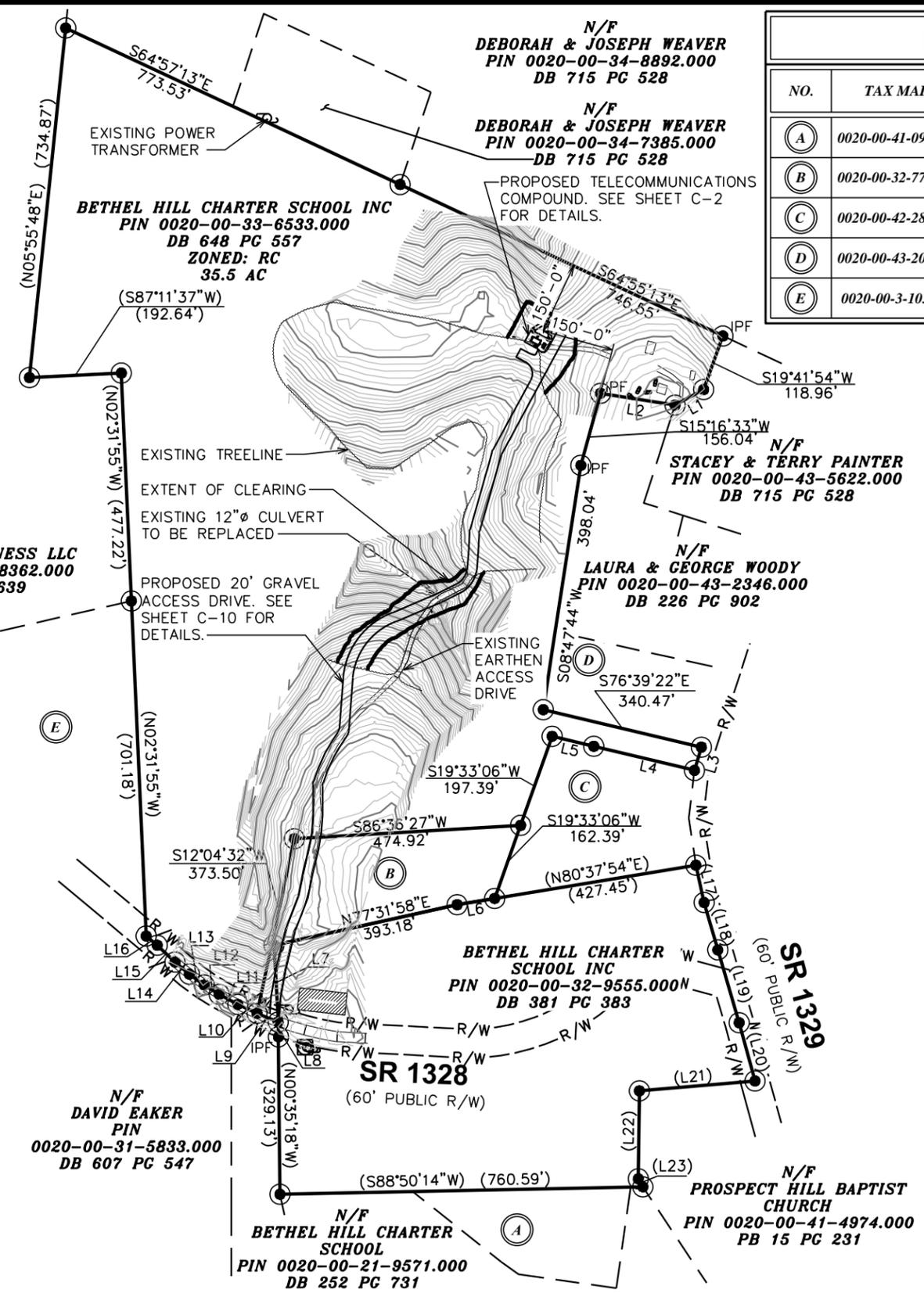
IMPERVIOUS SURFACE	
EXISTING IMPERVIOUS	0 SQ. FT. (0%)
PROPOSED IMPERVIOUS	38,706 SQ. FT. (2%)*
TOTAL IMPERVIOUS	38,706 SQ. FT. (2%)
TOTAL LOT AREA	2,178,482 SQ. FT.

\*2,129 SQ. FT. IS FUTURE COMPOUND AREA

LEGEND	
	EXIST. PROPERTY LINE
	EXIST. UTILITY POLE
	EXIST. TELCO PEDESTAL
	EXIST. POWER METER
	EXISTING CONCRETE MONUMENT
	PROPERTY CORNER
	IPF IRON PIPE FOUND
	EXIST. CONTOUR LINE
	EDGE OF PAVEMENT
	RIGHT-OF-WAY
	CHAIN LINK FENCE
	EXISTING TREE LINE
	PROPOSED TREE LINE

**SITE PLAN**

SCALE: 1" = 300'

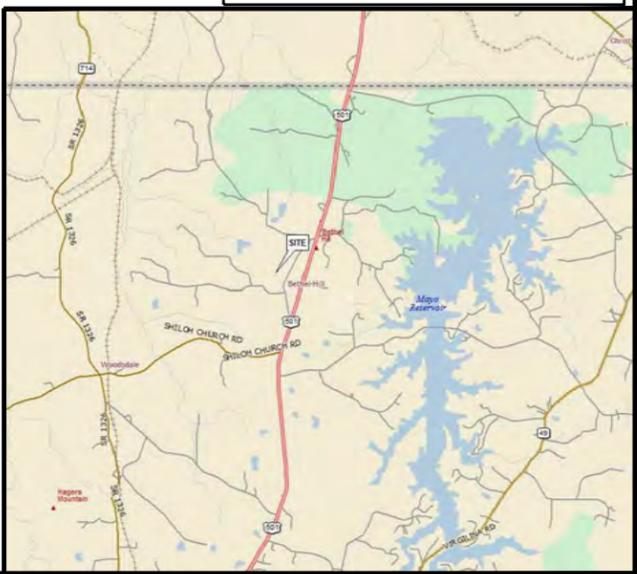


**PROPERTY INFORMATION**

NO.	TAX MAP #	N/F PROPERTY OWNER	DEED BOOK	PAGE	ZONING
(A)	0020-00-41-0997.000	BETHEL HILL CHARTER SCHOOL	378	147	RC
(B)	0020-00-32-7750.000	BETHEL HILL CHARTER SCHOOL, INC.	16	525	RC
(C)	0020-00-42-2812.000	KIMBERLY & CHRISTOPHER JACOBS	363	554	RC
(D)	0020-00-43-2068.000	MINDI MCLENDON	488	140	RC
(E)	0020-00-3-1037.000	EUGENE BERRYHILL	142	656	RC

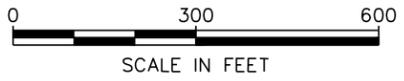
**PROPERTY LINE DATA**

LINE	BEARING	DISTANCE
L1	S61°24'54"W	68.19'
L2	N81°06'34"W	158.17'
L3	S16°36'11"W	50.13'
L4	N76°39'22"W	217.02'
L5	N76°39'22"W	89.71'
L6	S80°37'56"W	79.61'
L7	N03°14'41"W	156.72'
L8	N00°35'18"W	35.00'
L9	N67°54'12"W	47.84'
L10	N64°54'42"W	44.59'
L11	N61°35'05"W	44.33'
L12	N58°18'26"W	37.00'
L13	N53°42'15"W	38.43'
L14	N50°06'20"W	39.25'
L15	N46°49'50"W	51.16'
L16	N50°02'16"W	30.31'
L17	S12°28'05"E	79.85'
L18	S16°04'22"E	103.12'
L19	S16°24'42"E	158.79'
L20	S15°13'11"E	126.18'
L21	S85°05'38"W	243.15'
L22	S00°42'38"W	183.80'
L23	S29°39'47"E	19.40'



**VICINITY MAP**

SCALE: N.T.S.



PLANS PREPARED FOR:  
  
304 SOUTH MORGAN STREET  
ROXBORO, NC 27573  
OFFICE: (336) 597-1720

PROJECT INFORMATION:  
**BETHEL HILL**  
CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)

PLANS PREPARED BY:  
  
**TOWER ENGINEERING PROFESSIONALS**  
326 TRYON ROAD  
RALEIGH, NC 27603-3530  
OFFICE: (919) 661-6351  
www.tepgroup.net  
N.C. LICENSE # C-1794

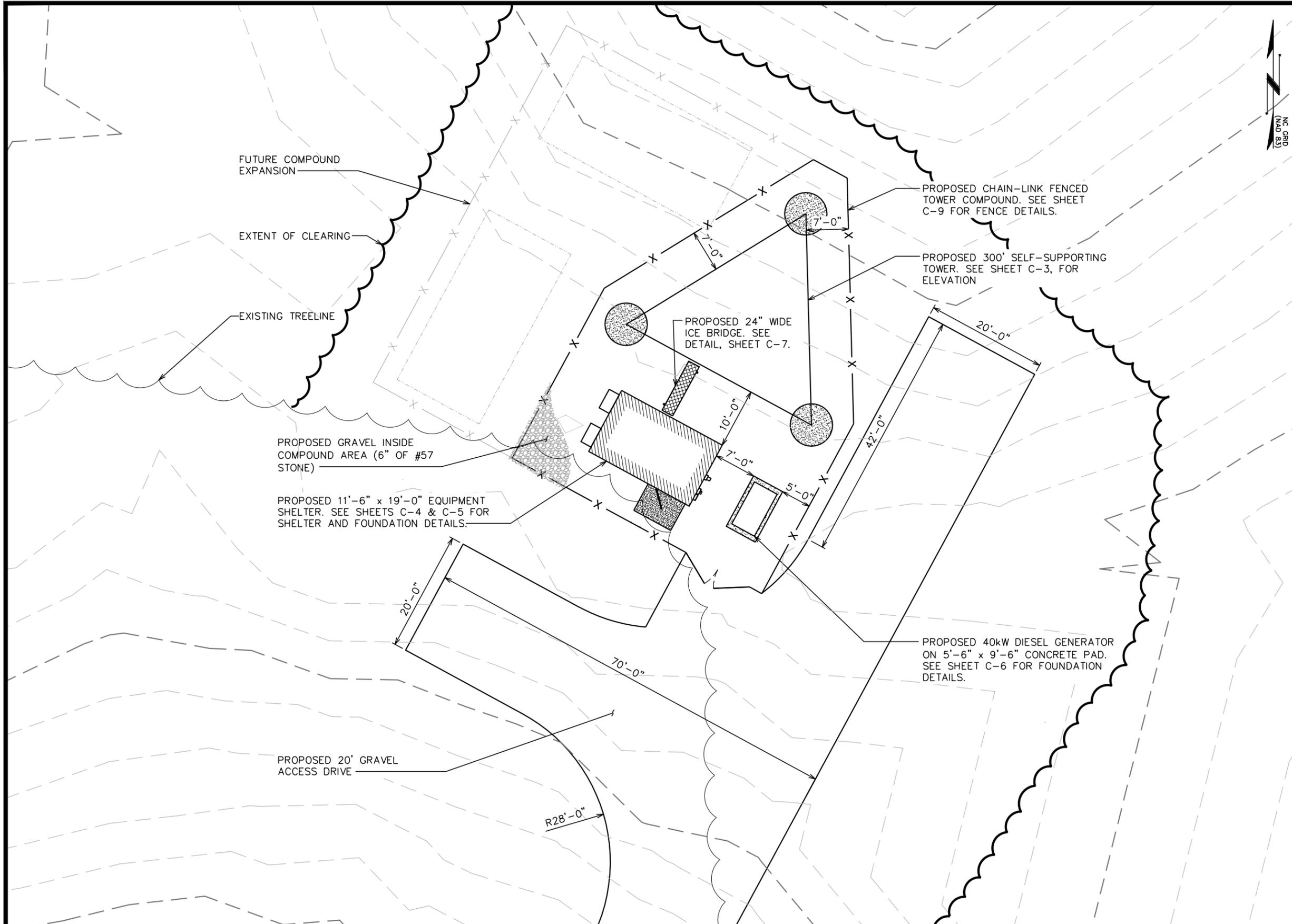
SEAL:

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0	10-12-15	PRELIMINARY CONSTRUCTION

DRAWN BY: LES CHECKED BY: JBG

SHEET TITLE:  
**SITE PLAN**

SHEET NUMBER: **C-1** REVISION: **1**  
TEP #57455 42844



PLANS PREPARED FOR:



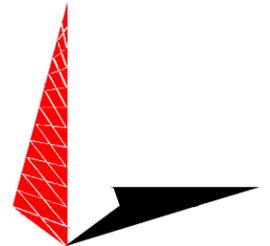
304 SOUTH MORGAN STREET  
 ROXBORO, NC 27573  
 OFFICE: (336) 597-1720

PROJECT INFORMATION:

**BETHEL HILL**

CLAUDE HALL ROAD  
 ROXBORO, NC 27574  
 (PERSON COUNTY)

PLANS PREPARED BY:

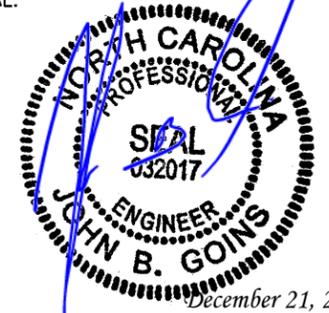


**TOWER ENGINEERING PROFESSIONALS**

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N.C. LICENSE # C-1794

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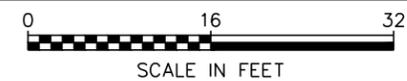
DRAWN BY: LES    CHECKED BY: JBG

SHEET TITLE:  
**COMPOUND DETAIL**

SHEET NUMBER: **C-2**    REVISION: **1**  
 TEP #57455 42844

**COMPOUND DETAIL**

SCALE: 1/8" = 1'-0"



**ANSI/TIA-222-G DESIGN NOTE:**

THE PROPOSED TOWER SHALL BE DESIGNED PER THE FOLLOWING PARAMETERS:

STRUCTURE CLASSIFICATION: III  
 EXPOSURE CATEGORY: C  
 TOPOGRAPHIC CATEGORY: 1

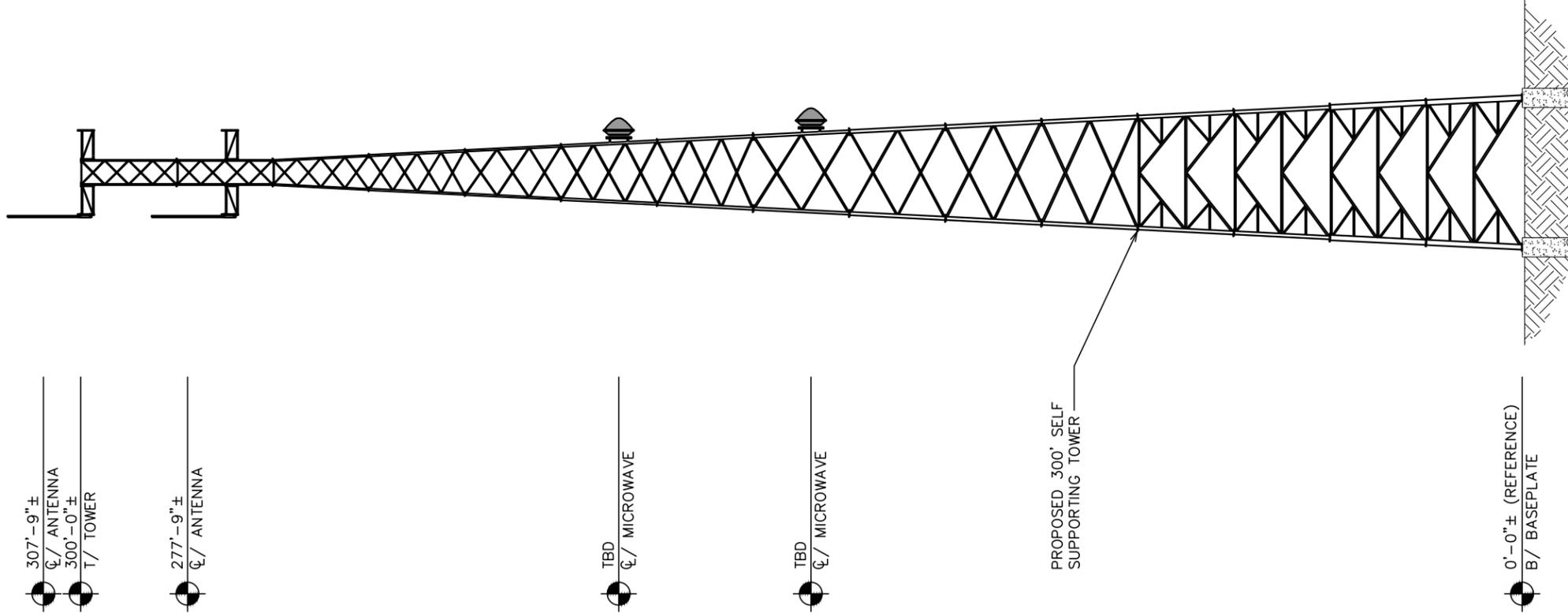
\*\* BASIC WIND SPEED:  
 90mph

**ANTENNA MOUNT NOTE:**

ANTENNA/MICROWAVE MOUNTS HAVE BEEN ORDERED FROM THE TOWER MANUFACTURER. MOUNTS SPECIFIED ON SHEET C-8 SHOULD NOT BE DUPLICATED IF EXISTING MOUNTS ARE PRESENT.

**NOTES:**

1. PROPOSED COAX TO BE MOUNTED TO WAVEGUIDE LADDER. VERIFY WITH TOWER MANUFACTURER THAT THE LADDER WILL BE PROVIDED WITH THE TOWER.
2. LIGHTNING ROD, TOWER LIGHTS, AND CLIMBING LADDER TO BE PROVIDED BY TOWER MANUFACTURER.
3. TOWER SHALL BE ILLUMINATED ONLY AS REQUIRED BY THE FEDERAL COMMUNICATIONS COMMISSION (FCC), THE FEDERAL AVIATION ADMINISTRATION (FAA), OR OTHER STATE OR FEDERAL AGENCY OF COMPETENT JURISDICTION.
4. TOWER SHALL BE CONSTRUCTED OF GALVANIZED STEEL OR PAINTED PER APPLICABLE STANDARDS OF THE FAA OR OTHER APPLICABLE FEDERAL OR STATE AGENCY.
5. A SINGLE SIGN, 2 FEET SQUARE, IN A VISIBLE LOCATION SHALL BE REQUIRED WITH NAME AND EMERGENCY TELEPHONE NUMBER OF THE TOWER OWNER AND ALL COMPANIES OPERATING ON THE TOWER. NO ADVERTISING SHALL BE ATTACHED TO THE TOWER.



**TOWER ELEVATION**  
 SCALE: 1" = 30'



PLANS PREPARED FOR:

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 OFFICE: (336) 597-1720

PROJECT INFORMATION:

**BETHEL HILL**

CLAUDE HALL ROAD  
 ROXBORO, NC 27574  
 (PERSON COUNTY)

PLANS PREPARED BY:

**TOWER ENGINEERING PROFESSIONALS**  
 326 TRYON ROAD  
 RALEIGH, NC 27603-3530  
 OFFICE: (919) 661-6351  
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SHEET TITLE:

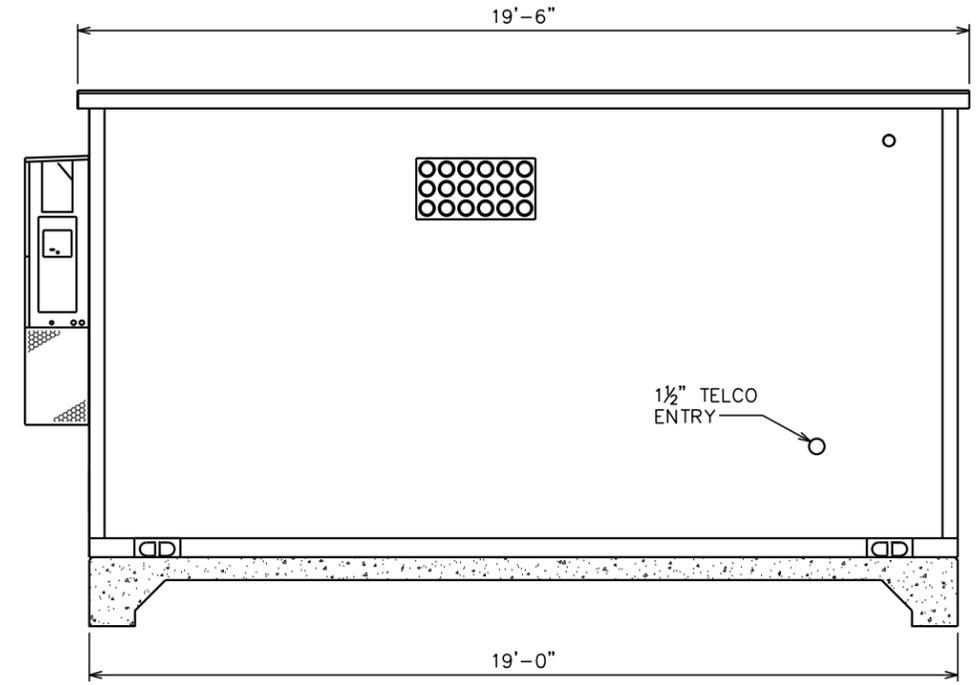
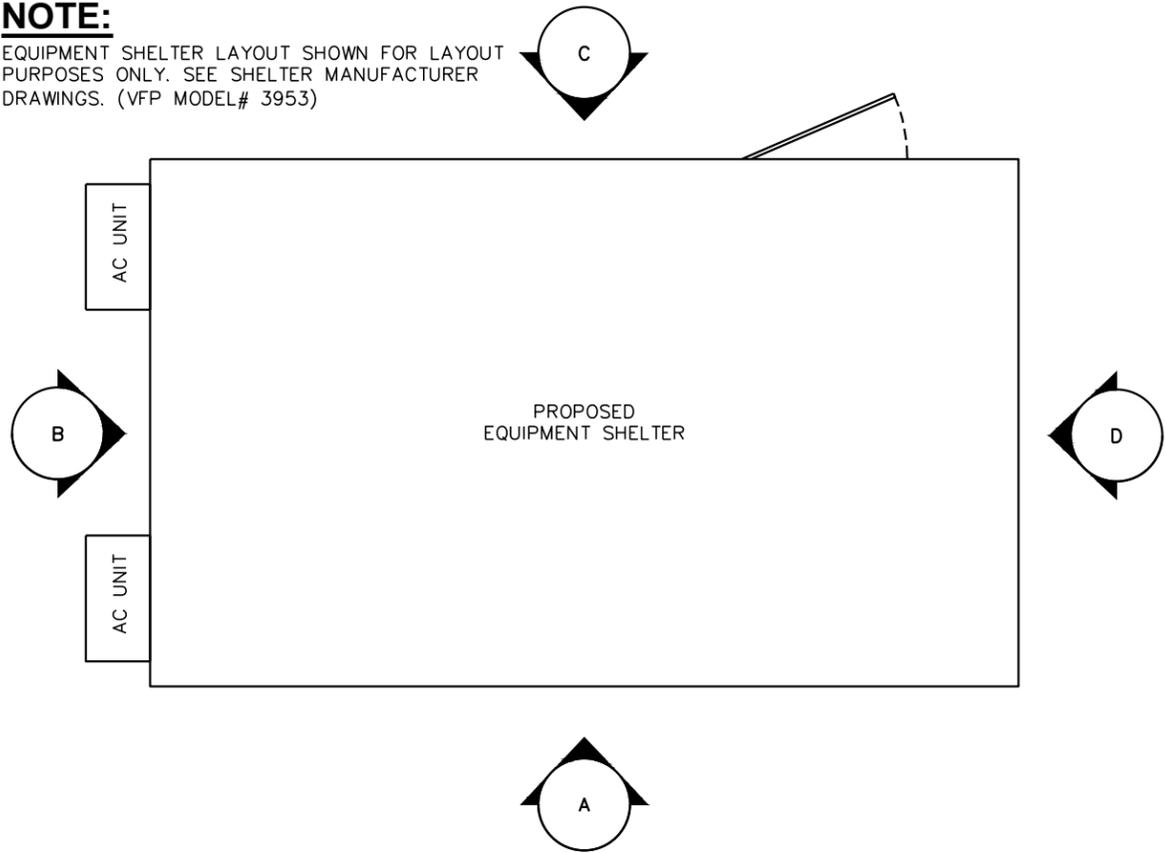
**TOWER ELEVATION**

SHEET NUMBER: **C-3**      REVISION: **1**

TEP #57455 42844

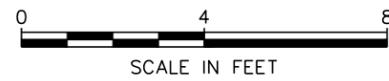
**NOTE:**

EQUIPMENT SHELTER LAYOUT SHOWN FOR LAYOUT PURPOSES ONLY. SEE SHELTER MANUFACTURER DRAWINGS. (VFP MODEL# 3953)



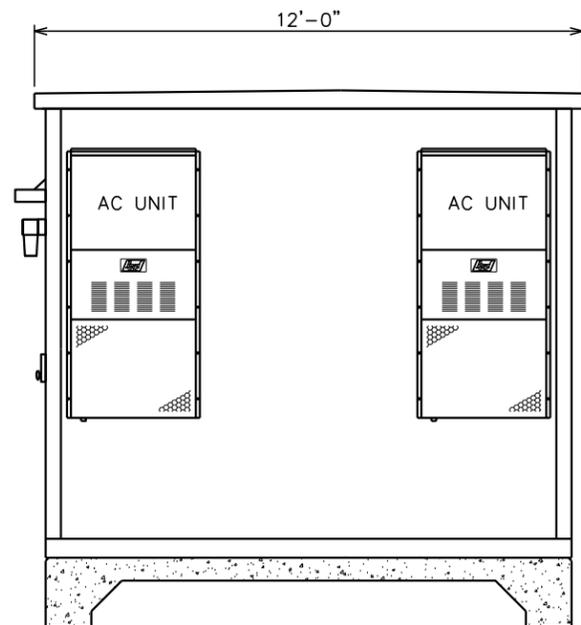
**ELEVATION KEY**

SCALE: 1/4" = 1'-0"



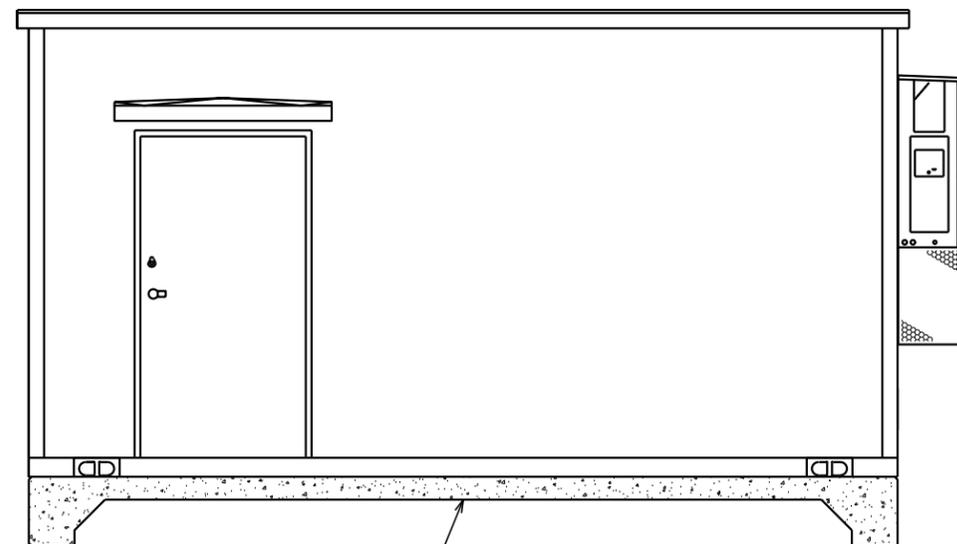
**ELEVATION A**

SCALE: 1/4" = 1'-0"



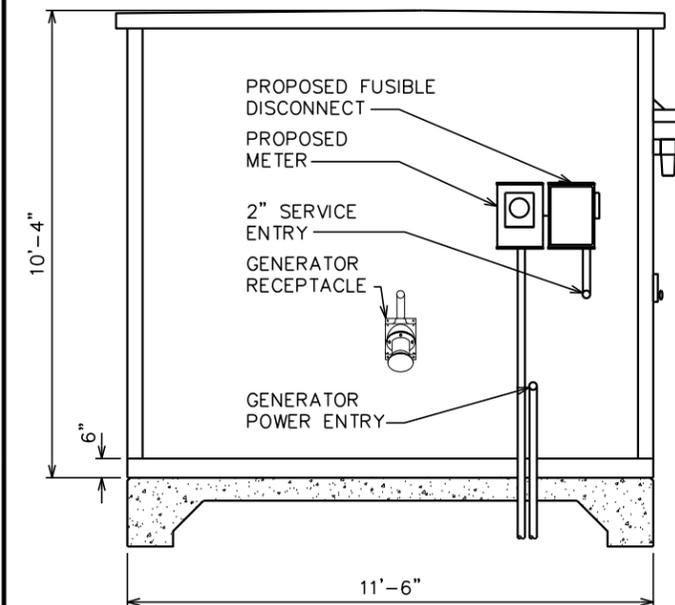
**ELEVATION B**

SCALE: 1/4" = 1'-0"



**ELEVATION C**

SCALE: 1/4" = 1'-0"



**ELEVATION D**

SCALE: 1/4" = 1'-0"

PLANS PREPARED FOR:



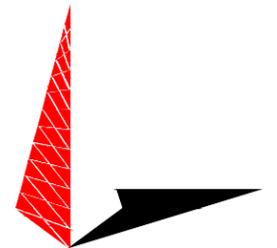
304 SOUTH MORGAN STREET  
ROXBORO, NC 27573  
OFFICE: (336) 597-1720

PROJECT INFORMATION:

**BETHEL HILL**

CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)

PLANS PREPARED BY:



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RALEIGH, NC 27603-3530  
OFFICE: (919) 661-6351  
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SHEET TITLE:

**SHELTER ELEVATIONS**

SHEET NUMBER:

**C-4**

REVISION:

**1**

TEP #:57455\_42844

### FOUNDATION NOTES:

1. FOUNDATION DESIGN BASED ON 2,000 PSF SOIL BEARING CAPACITY. IF OTHER CONDITIONS EXIST, FOUNDATION SHALL BE REDESIGNED. CONTRACTOR SHALL HAVE SOIL BEARING CAPACITY VERIFIED BY A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER PRIOR TO INITIATION OF CONSTRUCTION.
2. CONCRETE SHALL BE 3,000 PSI.
3. REINFORCING STEEL  $F_y = 60,000$  PSI
4. ALL BACKFILL SHALL BE THOROUGHLY COMPACTED TO A MINIMUM OF 95% DENSITY USING THE MODIFIED PROCTOR METHOD.
5. SURFACE OF FINISHED SLAB SHALL BE LEVEL AND FLAT WITHIN  $\frac{1}{4}$ ".
6. CONTRACTOR SHALL VERIFY WITH MANUFACTURER ACTUAL DIMENSIONS OF SHELTER PRIOR TO LAYING OUT FOUNDATION.

### GENERAL STRUCTURAL NOTES:

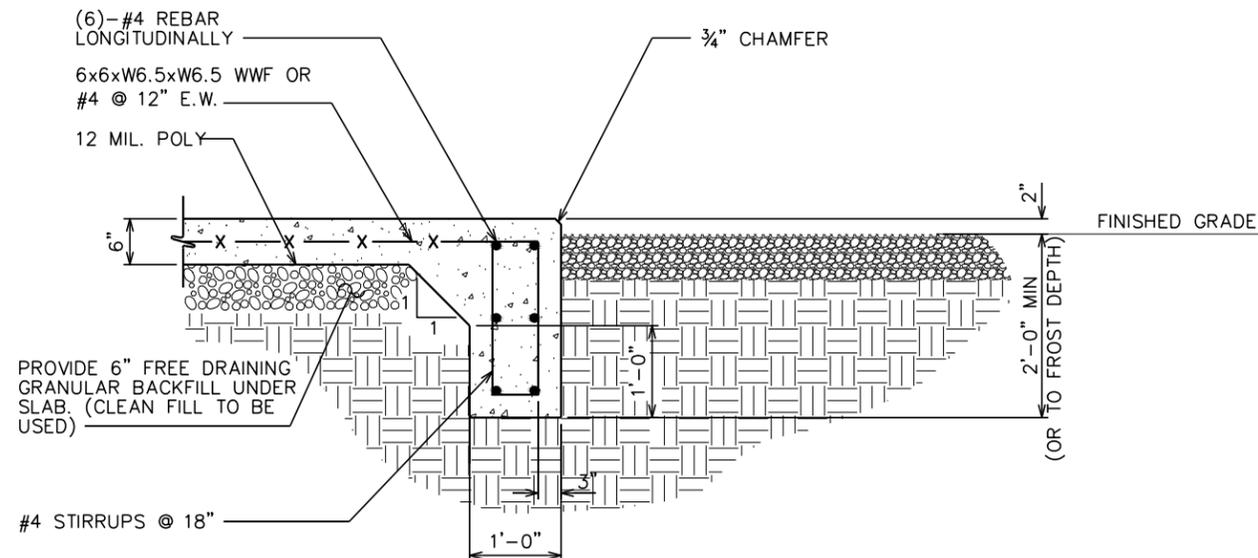
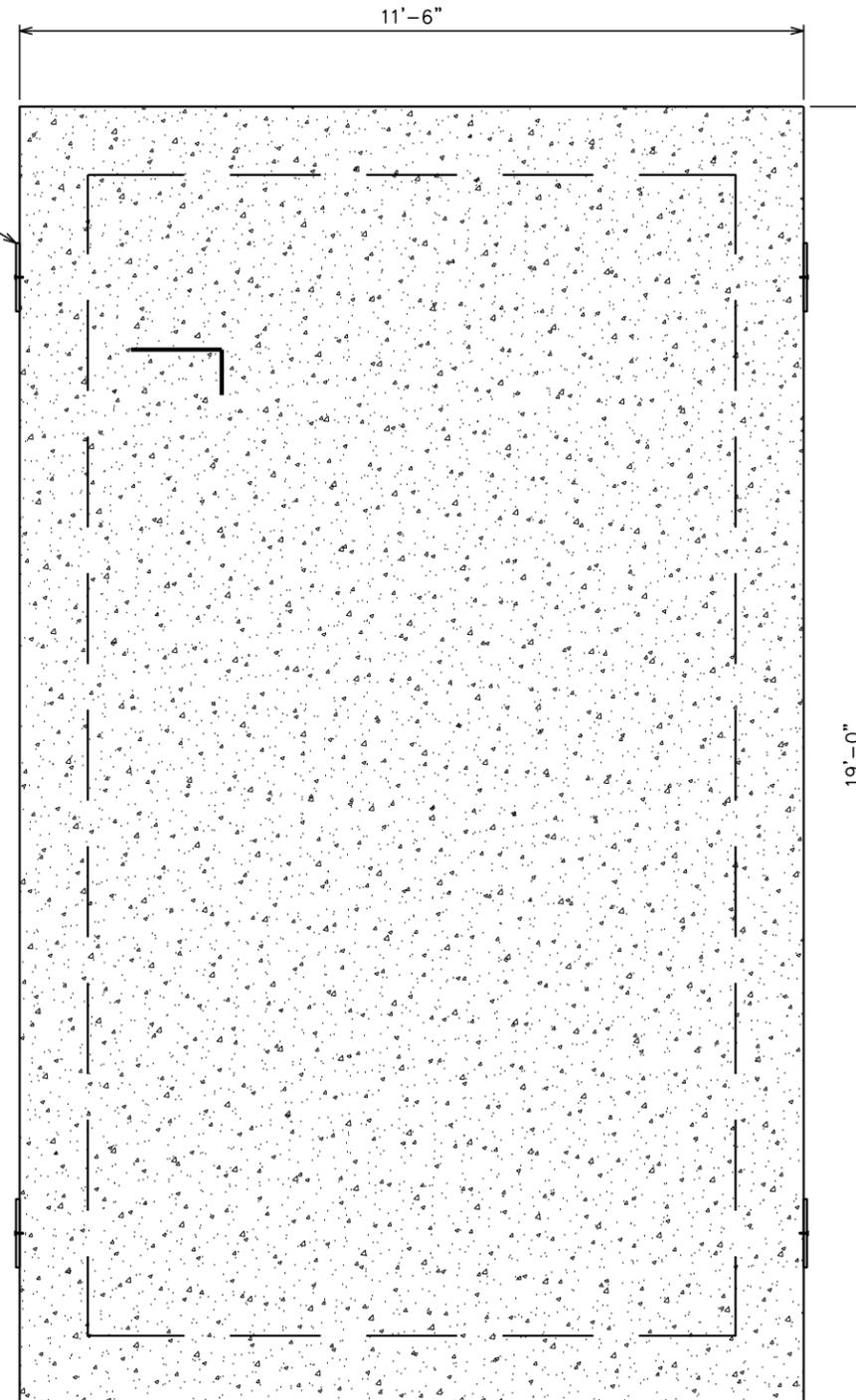
SPECIFICATIONS / CODES:

1. ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE ACI CODE.
2. STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, 13th EDITION.
3. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-10" STRUCTURAL WELDING CODE-STEEL.
4. REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI). "MANUAL OF STANDARD PRACTICE".

### NOTES:

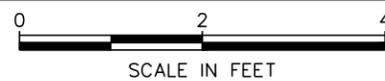
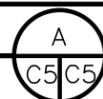
1. SHELTER TIE DOWN PLATE AND HARDWARE SUPPLIED BY SHELTER MANUFACTURER.
2. CONTRACTOR TO VERIFY THAT TIE DOWN PLATE LOCATED NEAR SHELTER DOOR DOES NOT INTERFERE WITH ACCESS. CONTRACTOR TO RELOCATE AS NEEDED.

TIE DOWN PLATE  
LOCATED AT LIFT POINTS  
(TYP OF 4)



### SECTION

SCALE:  $\frac{1}{2}$ " = 1'-0"



### FOUNDATION PLAN

SCALE:  $\frac{3}{8}$ " = 1'-0"



PLANS PREPARED FOR:



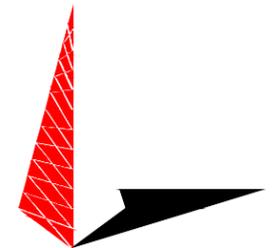
304 SOUTH MORGAN STREET  
ROXBORO, NC 27573  
OFFICE: (336) 597-1720

PROJECT INFORMATION:

### BETHEL HILL

CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)

PLANS PREPARED BY:



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SHEET TITLE:

### SHELTER FOUNDATION DETAILS

SHEET NUMBER:

**C-5**

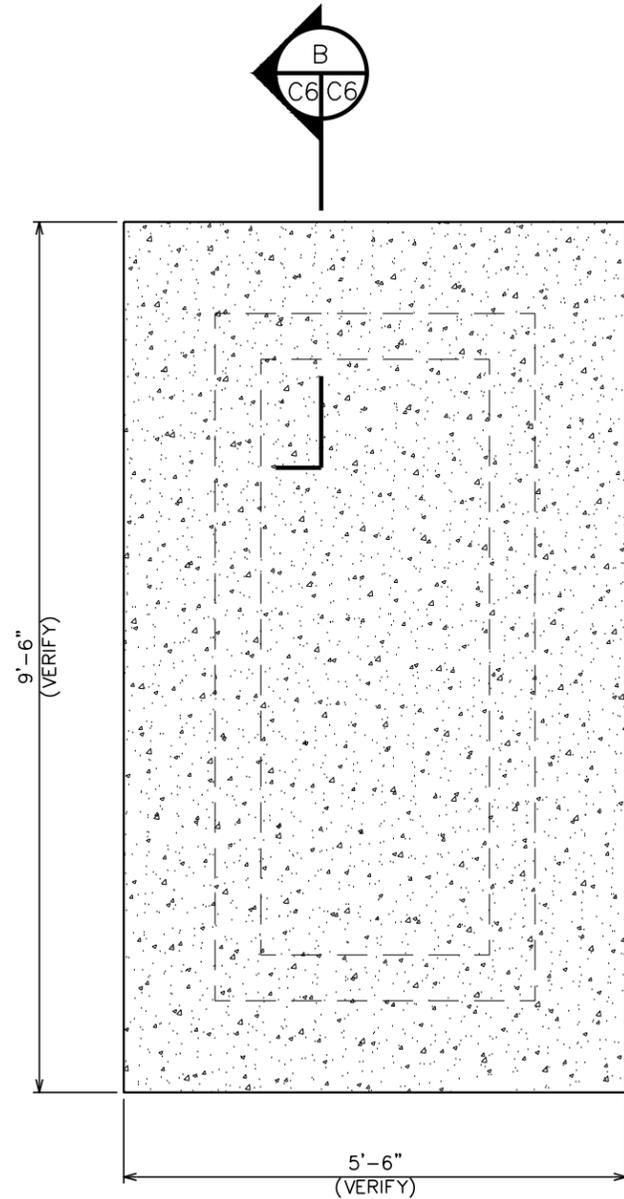
REVISION:

**1**

TEP #57455\_42844

**GENERATOR ANCHORAGE:**

THE GENERATOR CONNECTION TO THE CONCRETE SLAB IS ACHIEVED WITH (8) 1/2"Ø EXPANSION BOLT ASSEMBLIES [(4) BOLTS PER GENERATOR SIDE]. THE CURRENT GENERATOR ATTACHMENT SPECIFICATION IS TO USE (8) 1/2"Ø BOA COIL ANCHORS BY RED HEAD EMBEDDED AT A MINIMUM DEPTH OF 2" OR APPROVED EQUAL. CONTACT TEP FOR APPROVAL OF ALTERNATE ATTACHMENT METHOD.



**SPECIFICATIONS / CODES:**

1. ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE.
2. ALL STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL, 13th EDITION.
3. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS), D1.1-10 "STRUCTURAL WELDING CODE-STEEL".
4. REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE".

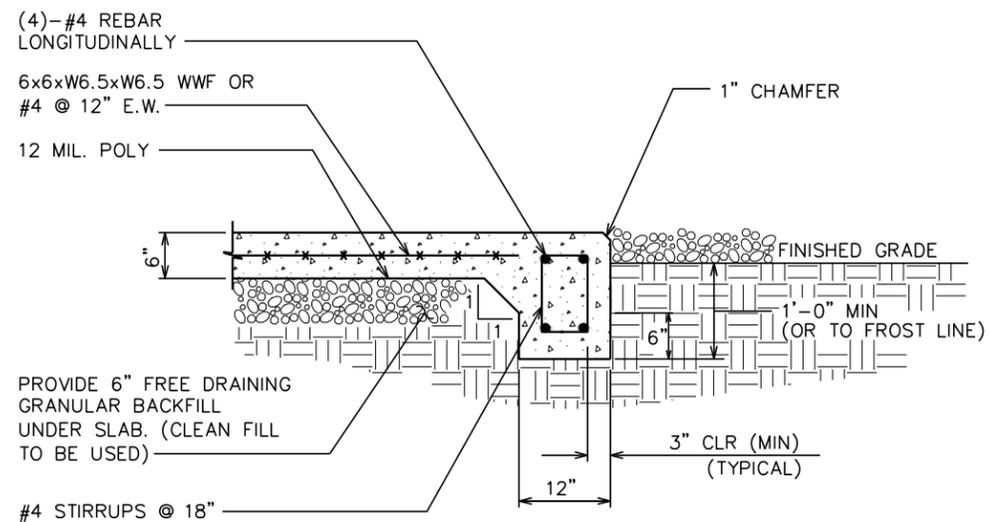
**GENERAL STRUCTURAL NOTES:**

SCALE: N.T.S.

1. FOUNDATION DESIGN IS BASED ON A 2,000 PSF SOIL BEARING CAPACITY. IF OTHER CONDITIONS EXIST, FOUNDATION SHALL BE REDESIGNED. CONTRACTOR SHALL HAVE SOIL BEARING CAPACITY VERIFIED BY A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER PRIOR TO INITIATION OF CONSTRUCTION ACTIVITIES.
2. CONCRETE SHALL BE 3,000 PSI @ 28 DAYS.
3. REBAR  $F_y = 60,000$  PSI ASTM A615 GRADE 60
4. ALL BACKFILL SHALL BE THOROUGHLY COMPACTED TO A MINIMUM OF 95% DENSITY USING THE MODIFIED PROCTOR METHOD.
5. SURFACE OF FINISHED SLAB SHALL BE LEVEL AND FLAT WITHIN 1/4".
6. CONTRACTOR SHALL VERIFY WITH THE MANUFACTURER ACTUAL DIMENSIONS OF THE GENERATOR PRIOR TO LAYING OUT FOUNDATION.

**FOUNDATION NOTES:**

SCALE: N.T.S.



PLANS PREPARED FOR:



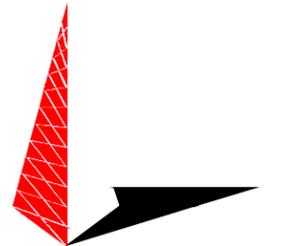
304 SOUTH MORGAN STREET  
ROXBORO, NC 27573  
OFFICE: (336) 597-1720

PROJECT INFORMATION:

**BETHEL HILL**

CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)

PLANS PREPARED BY:



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SHEET TITLE:  
**GENERATOR FOUNDATION DETAILS**

SHEET NUMBER: **C-6** REVISION: **1**  
TEP #57455\_42844

**GENERATOR FOUNDATION PLAN**

SCALE: 1/2" = 1'-0"

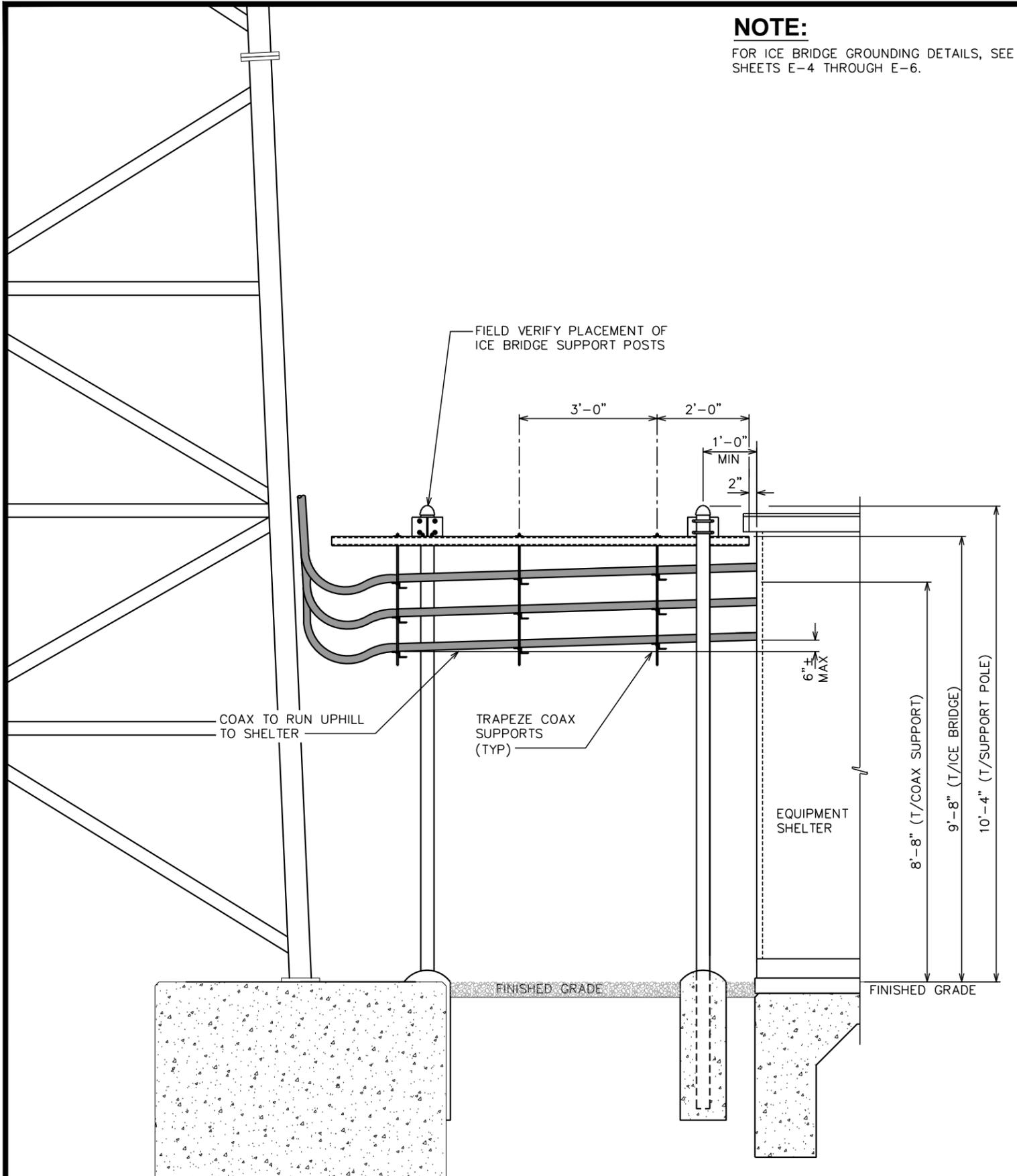


**SECTION**

SCALE: 3/4" = 1'-0"

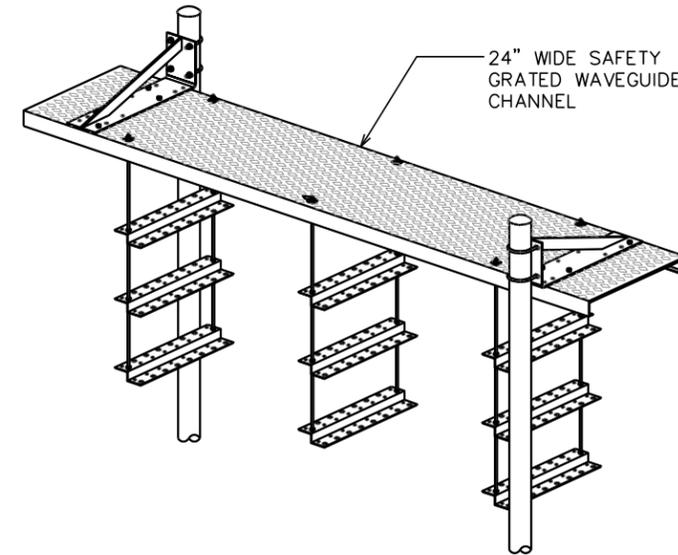


**NOTE:**  
FOR ICE BRIDGE GROUNDING DETAILS, SEE SHEETS E-4 THROUGH E-6.



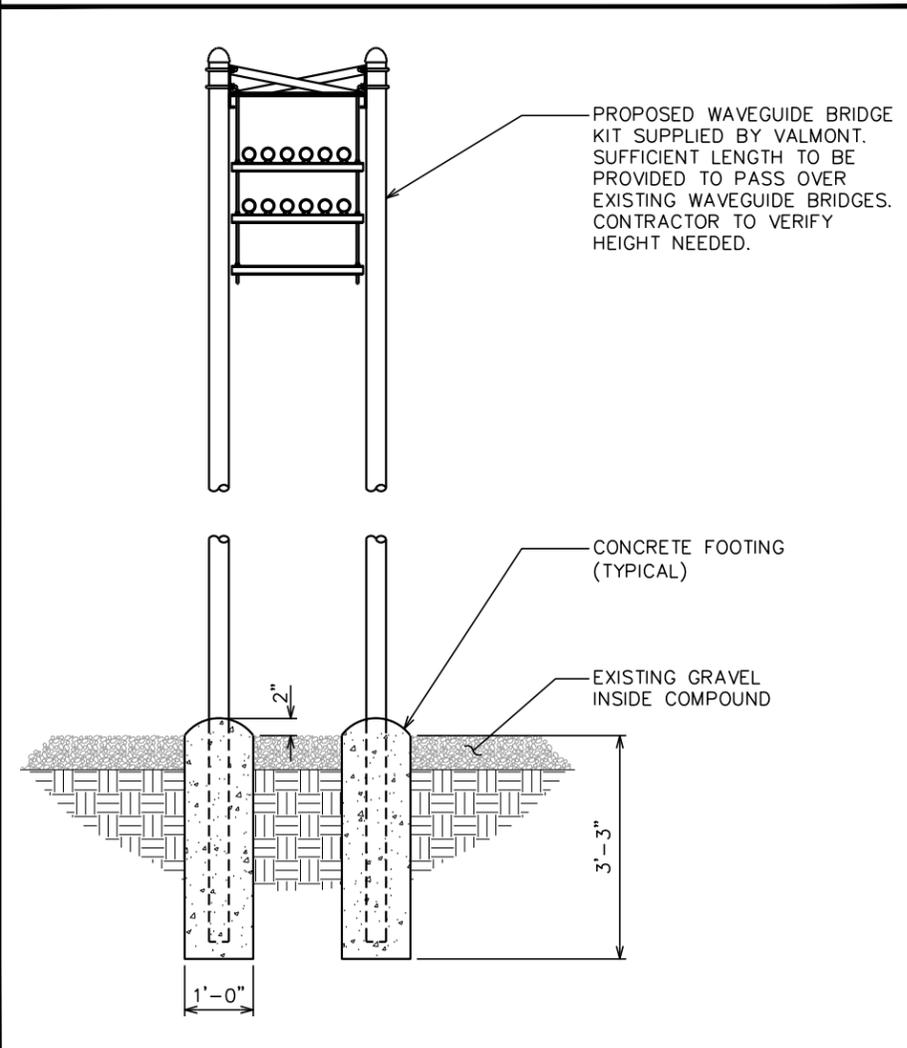
**ICE BRIDGE DETAIL**

SCALE: 3/8" = 1'-0"



**ISOMETRIC VIEW**

SCALE: N.T.S.



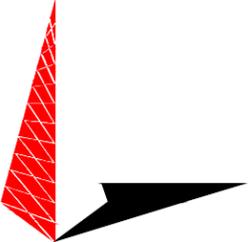
**SIDE VIEW**

SCALE: 3/8" = 1'-0"



PLANS PREPARED FOR:  
  
304 SOUTH MORGAN STREET  
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PROJECT INFORMATION:  
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CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)

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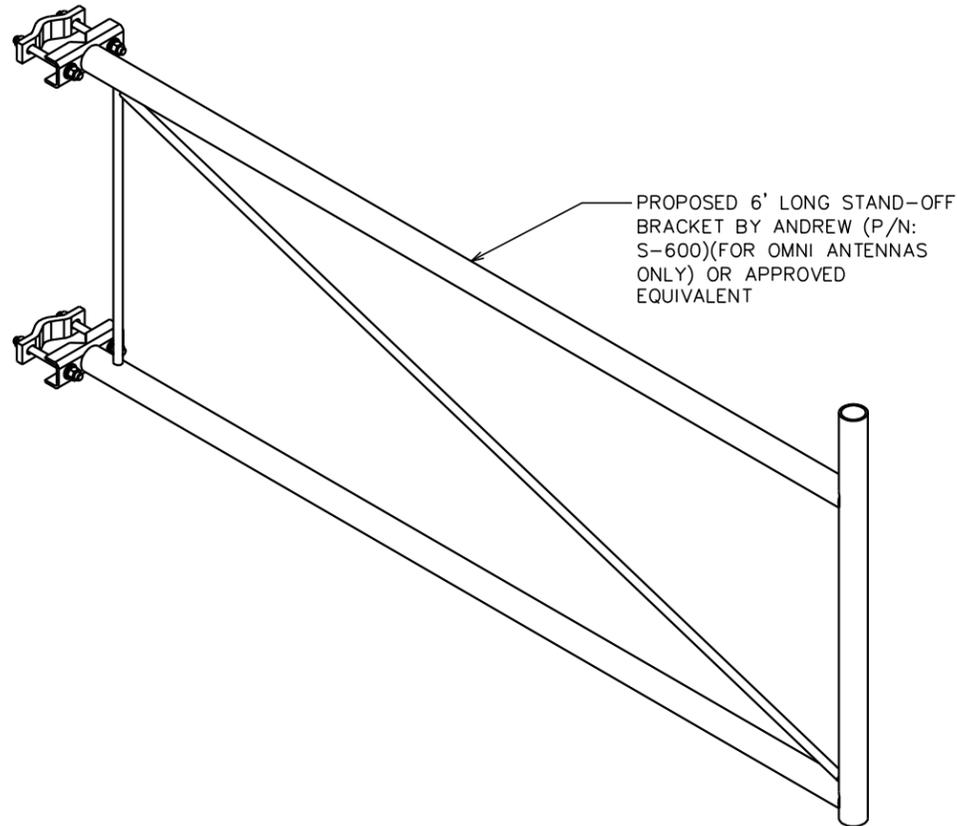
DRAWN BY: LES CHECKED BY: JBG

SHEET TITLE:  
**ICE BRIDGE DETAILS**

SHEET NUMBER: **C-7** REVISION: **1**  
TEP #57455 42844

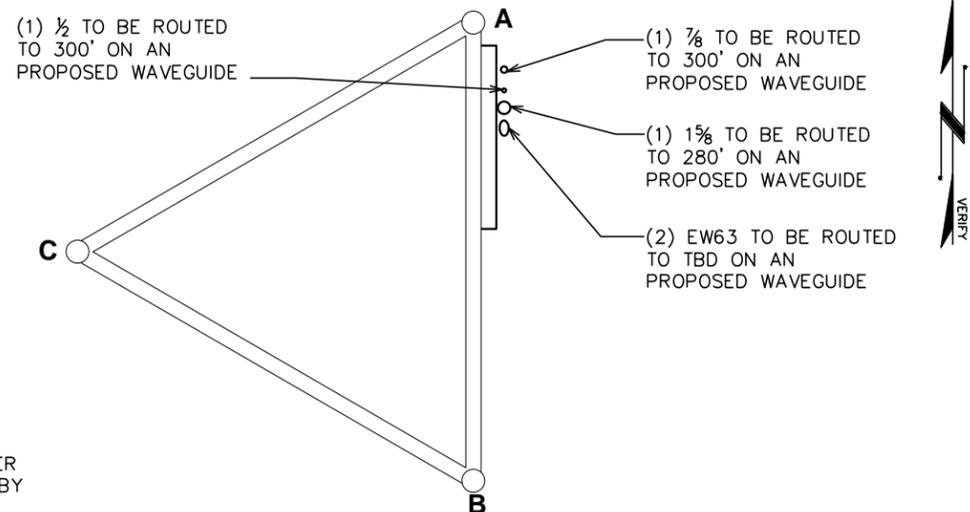
**NOTE:**

1. COORDINATE ORDERING OF MATERIALS WITH ANDREW (888) 687-2569.
2. LEG SIZE (VERIFY WITH TOWER MANUFACTURER): T.B.D.



**TYPICAL OMNI MOUNT DETAIL**

SCALE: N.T.S.



**NOTE:**

COAX TO BE PLACED PER STRUCTURAL ANALYSIS BY TOWER MANUFACTURER.

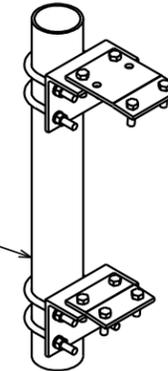
**COAX PLAN**

SCALE: N.T.S.

**NOTE:**

1. COORDINATE ORDERING OF MATERIALS WITH ANDREW (888) 687-2569.
2. LEG SIZE (VERIFY WITH TOWER MANUFACTURER): T.B.D.

PROPOSED 4 1/2" Ø X 8' LONG ADJUSTABLE PIPE MOUNT (P/N: PM-412T-96) WITH AN UNIVERSAL SADDLE MOUNT (P/N: SM-U2080) OR APPROVED EQUIVALENT



**TYPICAL MICROWAVE MOUNT DETAIL**

SCALE: N.T.S.

PLANS PREPARED FOR:



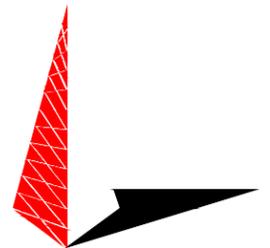
304 SOUTH MORGAN STREET  
ROXBORO, NC 27573  
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PROJECT INFORMATION:

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CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)

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SHEET TITLE:

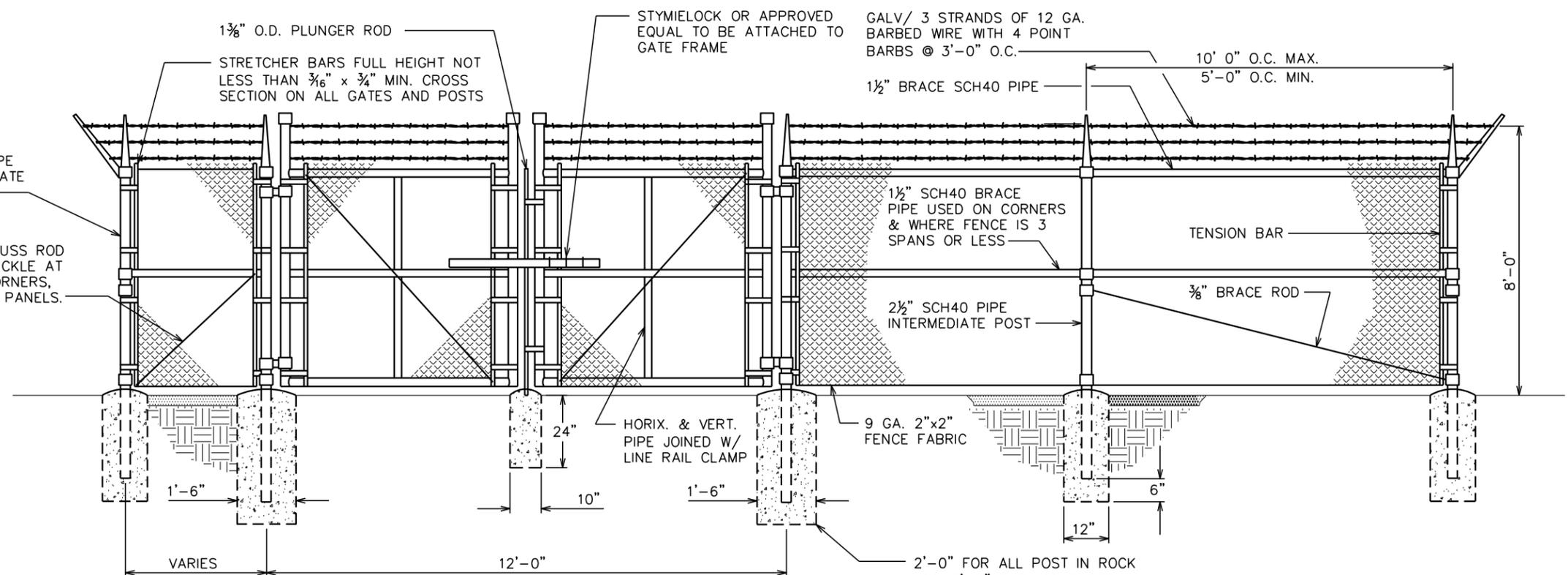
**ANTENNA & COAX MOUNTING DETAILS**

SHEET NUMBER: REVISION:

**C-8**

**1**

TEP #:57455\_42844

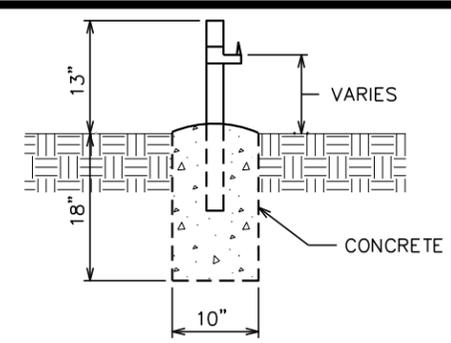


**NOTES:**

1. GATE LATCH: 1-3/8" O.D. PLUNGER ROD WITH MUSHROOM TYPE CATCH AND LOCK, KEYED ALIKE FOR ALL SITES IN A GIVEN MTA.
2. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLIED IF REQUIRED.
3. HEIGHT = 7' VERTICAL (UNLESS NOTED OTHERWISE) OR MATCH EXISTING FENCE (IF APPLICABLE AND 1' BARBED WIRE VERTICAL DIMENSION).
4. WARNING SIGNS USING THE INTERNATIONAL SYMBOL OF ELECTRICAL SHOCK HAZARD SHALL BE FURNISHED AND INSTALLED ON THE EXTERIOR OF ALL SIDES OF THE MAIN PERIMETER FENCE AND THE GATE. ADDITIONALLY, SIGNS SHALL BE FURNISHED AND INSTALLED THAT STATE "NO TRESPASSING" IN ENGLISH. THE SIGNS SHALL BE IMPERVIOUS TO WEATHERING AND BE MOUNTED TO AVOID EASE OF REMOVAL BY VANDALS.
5. MAXIMUM 1 1/2" GAP UNDER FENCE.
6. ALL OPEN POST REQUIRE CAPS.
7. INSTALL DUCK BILL OPEN GATE HOLDER. VERIFY LOCATION IN FIELD PRIOR TO INSTALLATION.
8. TENSION WIRE: 6 GA. MIN. GALVANIZED STEEL, SHOULD BE CONTINUOUS.

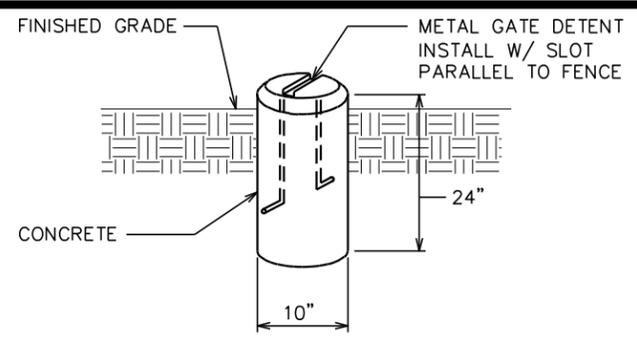
**TYPICAL FENCE ELEVATION**

SCALE: N.T.S.



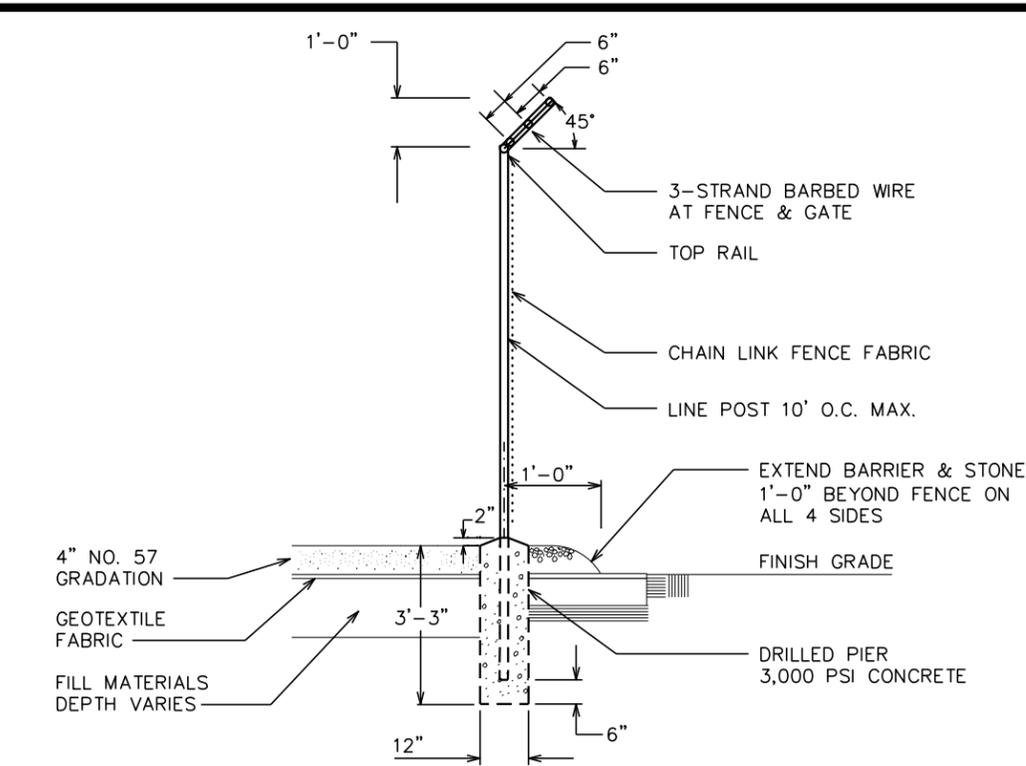
**GATE STOP / KEEPER DETAIL**

SCALE: N.T.S.



**GATE DETENT DETAIL**

SCALE: N.T.S.



**FENCE / BARBED WIRE ARM DETAIL**

SCALE: N.T.S.

PLANS PREPARED FOR:  
  
 304 SOUTH MORGAN STREET  
 ROXBORO, NC 27573  
 OFFICE: (336) 597-1720

PROJECT INFORMATION:  
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 CLAUDE HALL ROAD  
 ROXBORO, NC 27574  
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PLANS PREPARED BY:  
  
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 326 TRYON ROAD  
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 www.tepgroup.net  
 N.C. LICENSE # C-1794

SEAL:  
  
 JOHN B. GOINS  
 ENGINEER  
 NORTH CAROLINA  
 032017  
 December 21, 2015

REV	DATE	ISSUED FOR:
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DRAWN BY: LES CHECKED BY: JBG

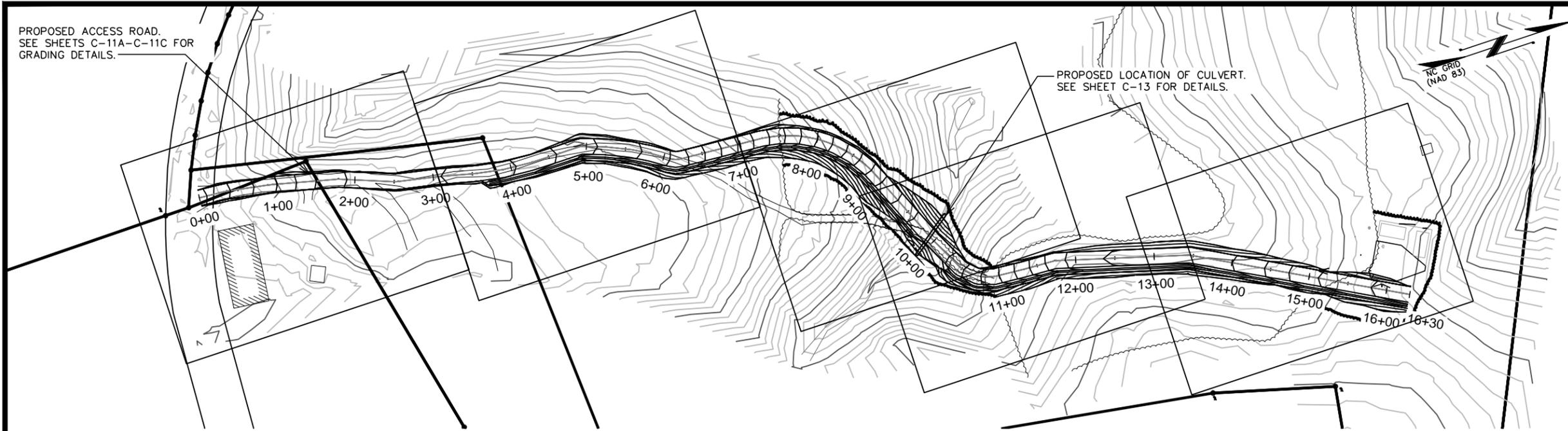
SHEET TITLE:  
**FENCE DETAILS**

SHEET NUMBER: **C-9** REVISION: **1**  
 TEP #57455 42844

PROPOSED ACCESS ROAD.  
SEE SHEETS C-11A-C-11C FOR  
GRADING DETAILS.

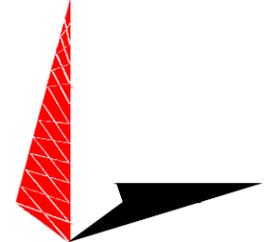
PROPOSED LOCATION OF CULVERT.  
SEE SHEET C-13 FOR DETAILS.

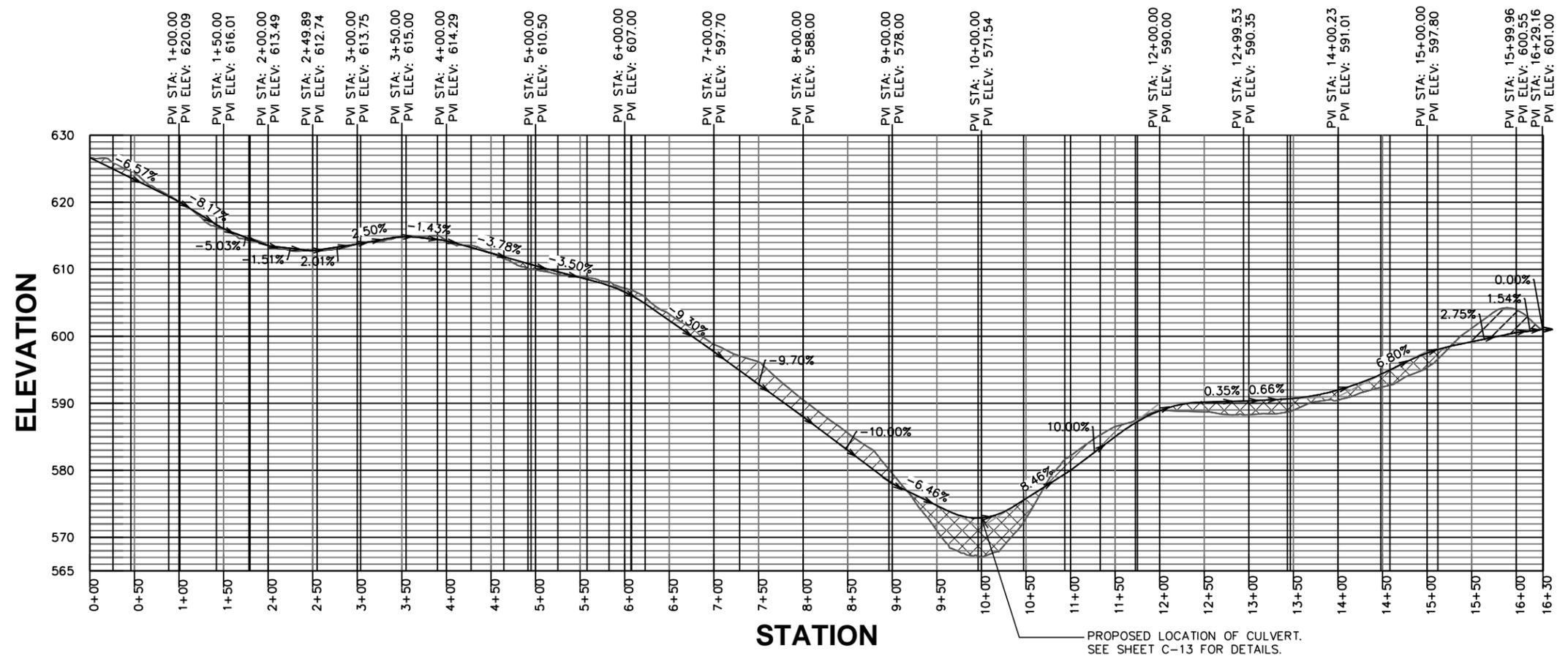
NC GRID  
(NAD 83)



PLANS PREPARED FOR:  
  
304 SOUTH MORGAN STREET  
ROXBORO, NC 27573  
OFFICE: (336) 597-1720

PROJECT INFORMATION:  
**BETHEL HILL**  
CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)

PLANS PREPARED BY:  
  
**TOWER ENGINEERING PROFESSIONALS**  
326 TRYON ROAD  
RALEIGH, NC 27603-3530  
OFFICE: (919) 661-6351  
www.tepgroup.net  
N.C. LICENSE # C-1794



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1	12-18-15	CONSTRUCTION
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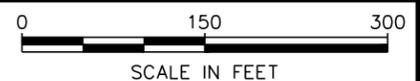
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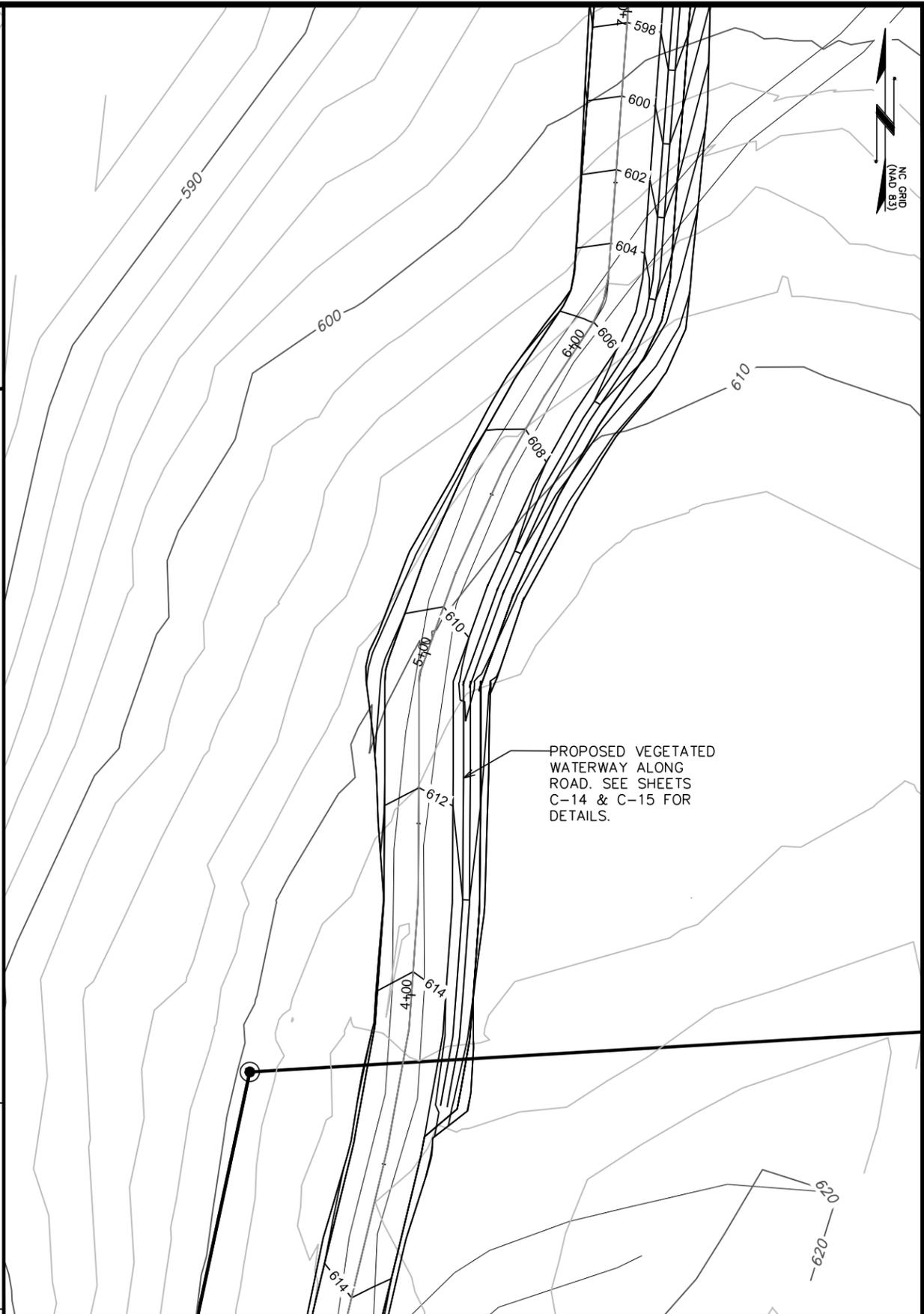
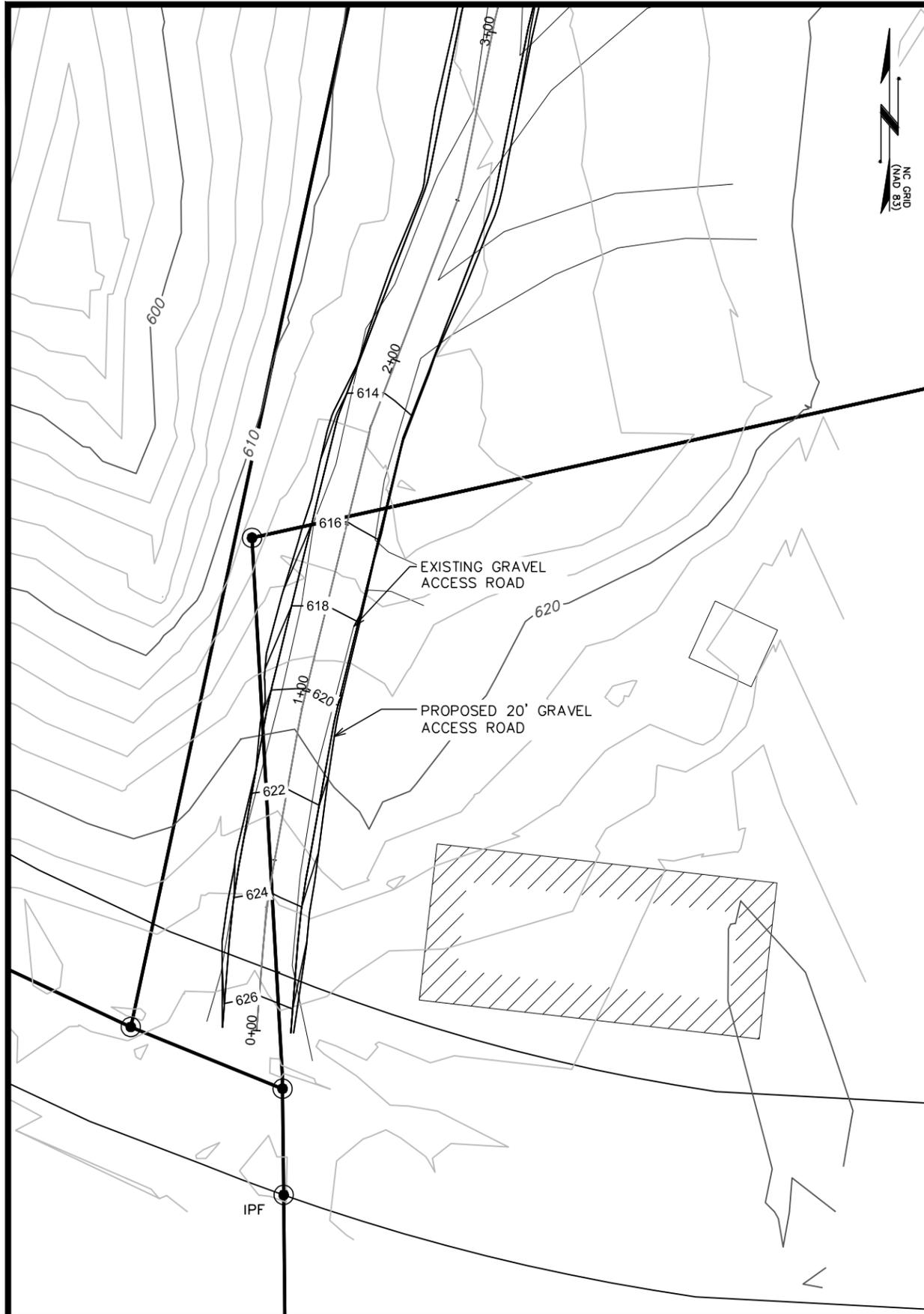
SHEET TITLE:  
**ROAD PLAN AND PROFILE**

SHEET NUMBER: **C-10** | REVISION: **1**  
TEP #: 57455 42844

**ROAD PLAN AND PROFILE**

SCALE: 1" = 150'





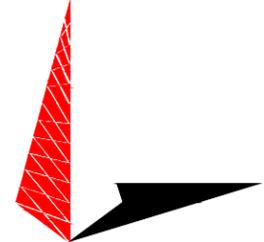
**GRADING PLAN I**

SCALE: 1" = 40'



PLANS PREPARED FOR:  
  
 304 SOUTH MORGAN STREET  
 ROXBORO, NC 27573  
 OFFICE: (336) 597-1720

PROJECT INFORMATION:  
**BETHEL HILL**  
 CLAUDE HALL ROAD  
 ROXBORO, NC 27574  
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SEAL:  
  
 JOHN B. GOINS  
 ENGINEER  
 032017  
 December 18, 2015

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SHEET TITLE:  
**GRADING PLAN I**

SHEET NUMBER: **C-11A**    REVISION: **1**  
 TEP #:57455 42844



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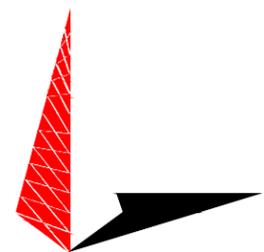
304 SOUTH MORGAN STREET  
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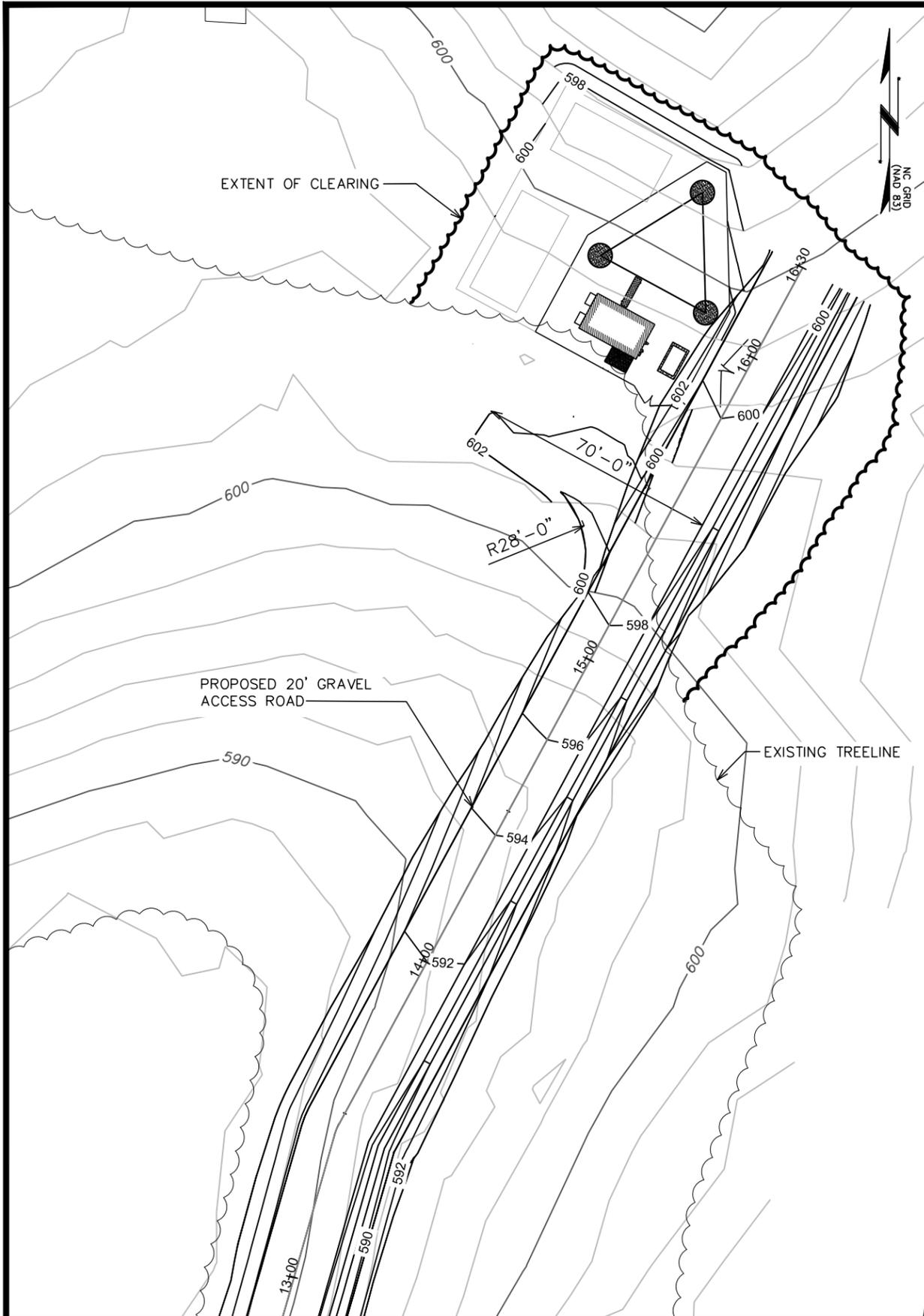
SHEET TITLE:

**GRADING PLAN II**

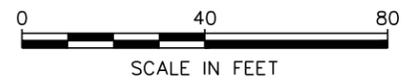
SHEET NUMBER: **C-11B**    REVISION: **1**  
 TEP #:57455 42844

**GRADING PLAN II**  
 SCALE: 1" = 40'





**GRADING PLAN III**  
SCALE: 1" = 40'



PLANS PREPARED FOR:



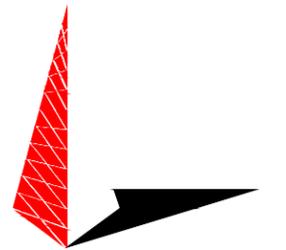
304 SOUTH MORGAN STREET  
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OFFICE: (336) 597-1720

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PLANS PREPARED BY:

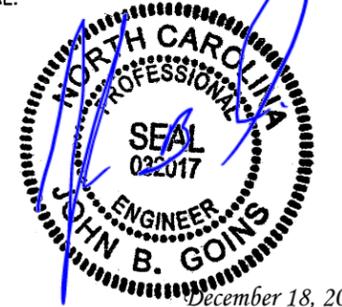


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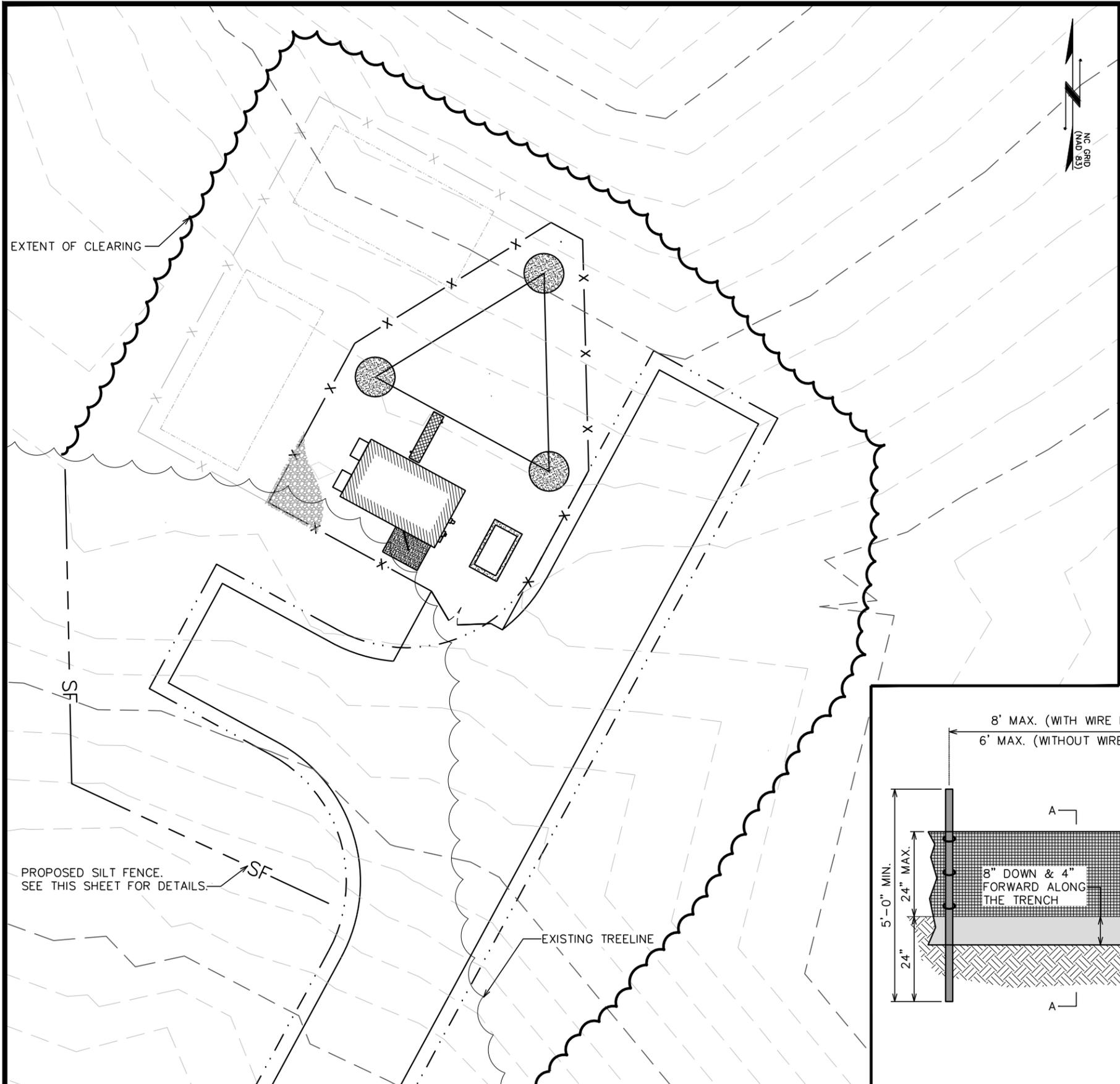


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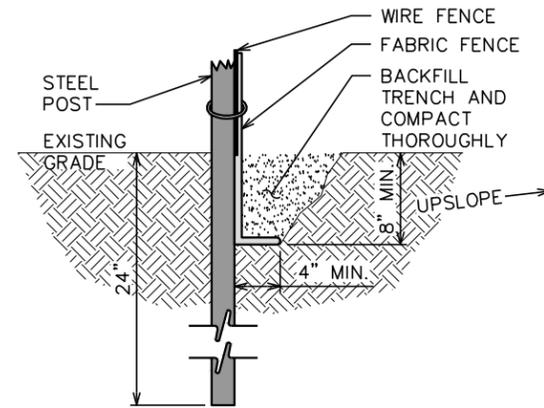
SHEET TITLE:  
**GRADING PLAN III**

SHEET NUMBER: **C-11C**    REVISION: **1**  
TEP #57455 42844

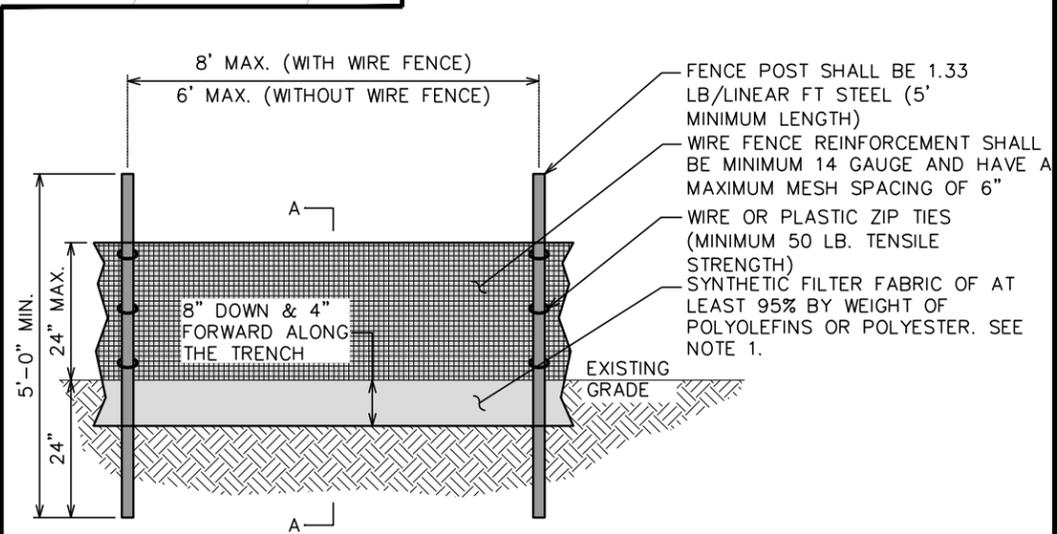


**NOTES:**

1. FILTER FABRIC SHALL CONFORM TO THE REQUIREMENTS LISTED IN ASTM D 6461.
2. ENDS OF INDIVIDUAL FILTER FABRIC SHALL BE SECURELY FASTENED AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST
3. PLACE 12 INCHES OF FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
4. INSPECT SEDIMENT FENCE(S) AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL.
5. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE.
6. AFTER CONSTRUCTION IS COMPLETE, THE CONTRACTOR SHALL REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE AND PROPERLY STABILIZE THE SITE.



**SECTION A-A**



**SILT FENCE DETAIL**

SCALE: N.T.S.

**EROSION CONTROL PLAN**

SCALE: 1" = 20'



PLANS PREPARED FOR:

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ROXBORO, NC 27573  
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ROXBORO, NC 27574  
(PERSON COUNTY)

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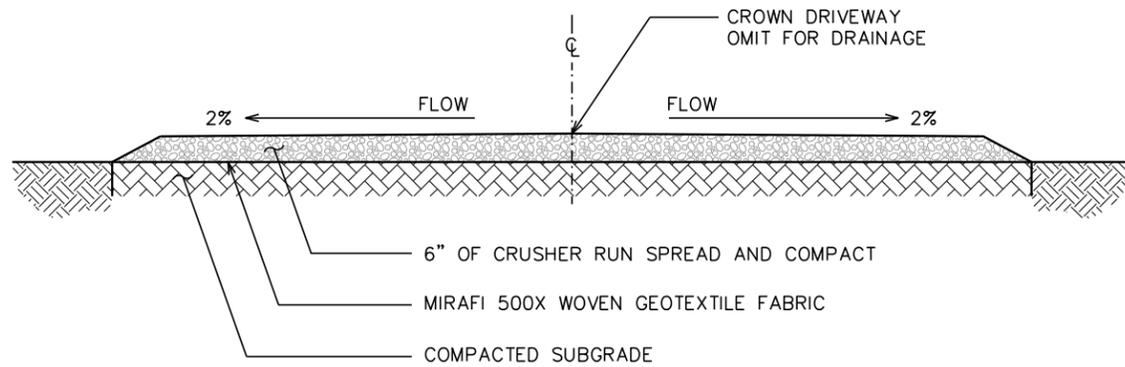
SHEET TITLE:

**EROSION CONTROL PLAN**

SHEET NUMBER: **C-12**

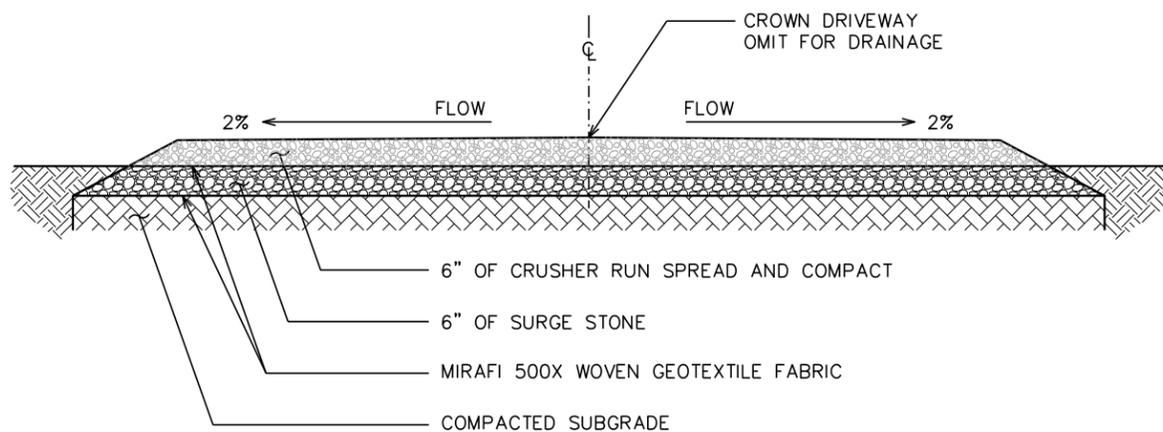
REVISION: **1**

TWP #: 57455 42844



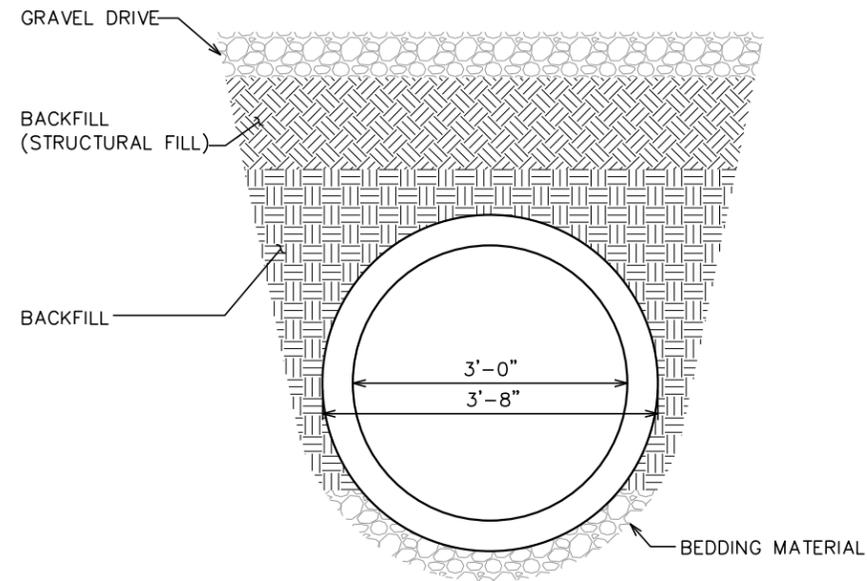
**STANDARD ROAD SECTION (GOOD SUBGRADE)**

SCALE: 3/8" = 1'-0"



**ALTERNATIVE ROAD SECTION (POOR SUBGRADE)**

SCALE: 3/8" = 1'-0"



**CULVERT DETAIL**

SCALE: N.T.S.

PLANS PREPARED FOR:



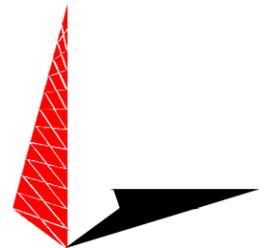
304 SOUTH MORGAN STREET  
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SHEET TITLE:

**CULVERT & DRIVEWAY DETAILS**

SHEET NUMBER:    REVISION:

**C-13**

**1**

TEP #57455 42844

**SEEDING SCHEDULE:**

ALL DISTURBED AREAS TO BE SEEDED WITHIN 15 DAYS OF SITE COMPLETION.  
GRASS SEED SHALL BE AS FOLLOWS:

**MIXTURE**

AGRICULTURE LIMESTONE: 2 TONS/ACRE (3 TONS/ACRE IN CLAY SOIL)  
FERTILIZER: 1,000 LBS/ACRE – 10-10-10  
SUPERPHOSPHATE: 500 LBS/ACRE – 20% ANALYSIS  
MULCH: 2 TONS/ACRE – SMALL GRAIN STRAW  
ANCHOR: ASPHALT EMULSION AT 300 GALS/ACRE

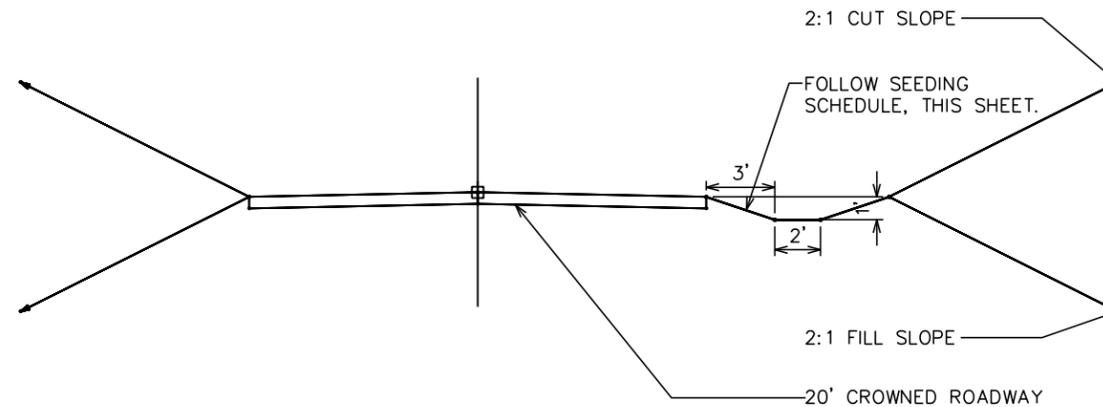
**SEEDING SPECIFICATIONS/SCHEDULE**

**FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX 2:1)**

DATE	TYPE	PLANTING RATE
AUG 16 – NOV 1	TALL FESCUE	200 LBS/ACRE
NOV 1 – MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE
MAR 1 – APR 15	TALL FESCUE	300 LBS/ACRE
APR 16 – JUN 30	JULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUL 1 – AUG 15	TALL FESCUE & BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE (TALL FESCUE); 35 LBS/ACRE (BROWNTOP MILLET); 30LBS/ACRE (SORGHUM-SUDAN HYBRIDS)

**FOR SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1)**

DATE	TYPE	PLANTING RATE
MAR 1 – JUN 1	SERICEA LESPEDEZA (SCARIFIED) & USE THE FOLLOWING COMBINATIONS:	50 LBS/ACRE (SERICEA LESPEDEZA)
MAR 1 – APR 15	ADD TALL FESCUE	120 LBS/ACRE
MAR 1 – JUN 30	OR ADD WEEPING LOVE GRASS	10 LBS/ACRE
MAR 1 – JUN 30	OR ADD JULLED COMMON BERMUDAGRASS	25 LBS/ACRE
JUN 1 – SEPT 1	TALL FESCUE & BROWNTOP MILLET OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE (TALL FESCUE); 35 LBS/ACRE (BROWNTOP MILLET); 30LBS/ACRE (SORGHUM-SUDAN HYBRIDS)
SEPT 1 – MAR 1	SERICEA LESPEDEZA (UNHULLED-UNSCARIFIED) & TALL FESCUE	70 LBS/ACRE (SERICEA LESPEDEZA); 120 LBS/ACRE (TALL FESCUE)
NOV 1 – MAR 1	ADD ABRUZZI RYE	25 LBS/ACRE



PLANS PREPARED FOR:



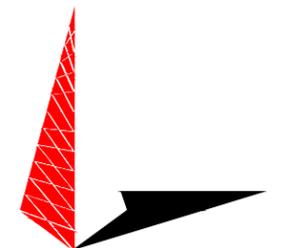
304 SOUTH MORGAN STREET  
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SHEET TITLE:  
**SOIL/EROSION  
DETAILS AND  
SEEDING SCHEDULE**

SHEET NUMBER: **C-14**    REVISION: **1**  
TEP #:57455\_42844

**SEEDING SCHEDULE**

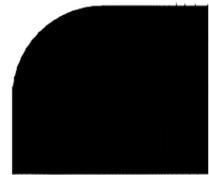
N.T.S.

**ROAD & VEGETATED WATERWAY SECTION**

N.T.S.

# EROSION CONTROL MATTING INSTALLATION

SCALE: N.T.S.

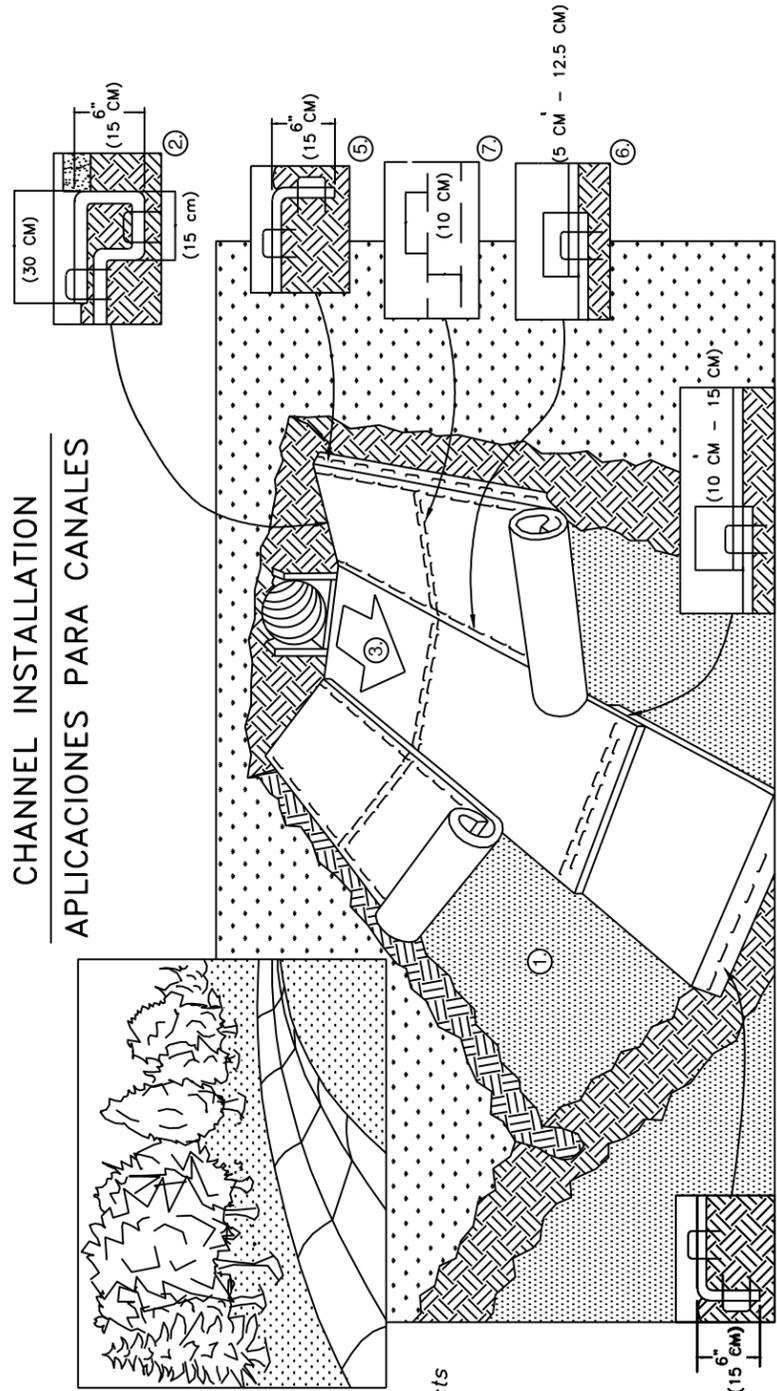


**NORTH AMERICAN GREEN**

EROSION CONTROL Products  
Guaranteed SOLUTIONS

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EVANSVILLE, IN 47725  
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## CHANNEL INSTALLATION APLICACIONES PARA CANALES

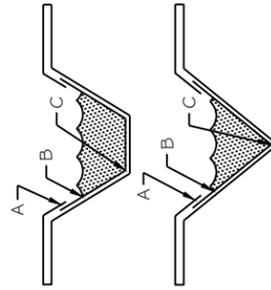


1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.  
NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP'S IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 1 2" (30 CM) OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 1 2" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 1 2" (30 CM) PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 1 2" (30 CM) ACROSS THE WIDTH OF THE RECP'S.
3. ROLL CENTER RECP'S IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP'S END OVER END (SHINGLE STYLE) WITH A 4" - 6" (10 CM - 15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE RECP'S.
5. FULL LENGTH EDGE OF RECP'S AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 1 2" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP'S MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) (DEPENDING ON RECP'S TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP'S MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 1 2" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTE:  
\* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP'S.

### CRITICAL POINTS

- A. OVERLAPS AND SEAMS
- B. PROJECTED WATER LINE
- C. CHANNEL BOTTOM/SIDE SLOPE VERTICES



### PUNTOS CRITICOS

- A. TRASLAPES Y JUNTAS
- B. LINEAS DE AGUA PROYECTADA
- C. FONDO DEL CANAL/VERTICES DE LAS PENDIENTES LATERALES

### NOTA:

\* LA SEPARACION HORIZONTAL DE LAS GRAPAS SE DEBE ALTERAR SI SE NECESITA, PARA PERMITIR QUE LAS GRAPAS ASEGUEN LOS PUNTOS CRITICOS A LO LARGO DE LA SUPERFICIE DEL CANAL.

\*\* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP'S.

\*\* EN CONDICIONES DE SUELO SUELTO, PUEDE QUE SE NECESITEN GRAPAS O ESTACAS DE MAS DE 6" (15 CM) DE LARGO PARA ASEGUAR LAS MANTAS CORRECTAMENTE.

1. PREPARE EL SUELO DE COLOCAR LAS MANTAS, INCLUYENDO LA APLICACION DE CAL, FERTILIZANTE SEMILLA. NOTA: CUANDO ESTE USANDO CELL-O-SEED NO SIEMPRE EL AREA PREPARADA. CELL-O-SEED TIENE QUE INSTALARSE CON EL LADO DE PAPEL HACIA ABAJO.

2. COMIENCE EN LA CABECERA DEL CANAL SUJETANDO LA MANTA EN UNA ZANJA DE 6" (15 CM) DE PROFUNDIDAD POR 6" (15 CM) DE ANCHO CON APROXIMADAMENTE 1 2" (30 CM) DE LA MANTA EXTENDIDA MAS ALLA DE LA PENDIENTE ALTA DE LA ZANJA. SUJETE RELLENE Y COMPACTE LA ZANJA DESPUES DEL ENGRAPE. RIEGUE LA SEMILLA EN EL SUELO COMPACTADO Y DOBLE LAS 1 2" (30 CM) REMANENTES DE MANTA SOBRE LA SEMILLA Y EL SUELO COMPACTADO. ASEGURE LA MANTA SOBRE EL SUELO CON UNA LINEA DE GRAPAS O ESTACAS APROXIMADAMENTE 1 2" (30 CM) UNA DE LA OTRA A TRAVES DEL ANCHO DE LA MANTA.

3. DESENROLLE LA MANTA DEL MEDIO EN EL FONDO DEL CANAL Y EN LA DIRECCION DEL FLUJO DE AGUA CON EL LADO APROPIADO HACIA LA SUPERFICIE DEL SUELO. TODAS LAS MANTAS DEBERAN ASEGUARSE A LA SUPERFICIE DEL SUELO POR MEDIO DE GRAPAS O ESTACAS EN LUGARES APROPIADOS TAL Y COMO SE INDICA EN EL PATRON GUIA DE ENGRAPADO. CUANDO ESTE USANDO EL DOT SYSTEM, LAS GRAPAS O ESTACAS DEBEN COLOCARSE A TRAVES DE CADA UNO DE LOS PUNTOS CON COLOR CORRESPONDIENTES AL PATRON DE ENGRAPADO APROPIADO.

4. COLOQUE LAS MANTAS CONSECUTIVAS BORDE SOBRE BORDE (TIPO ESCALONADO) CON UN TRASLAPSE DE 4" - 6" (10 CM - 15 CM). USE UNA LINEA DOBLE DE GRAPAS ESCALONADAS, SEPARADAS POR 4" (10 CM) Y CADA 4" (10 CM) SOBRE EL CENTRO PARA ASEGUAR LAS MANTAS.

5. EN EL TOPE DE LAS DOS PENDIENTES LATERALES DEL CANAL, SE DEBE SUJETAR TODO EL LARGO DE LA ORILLA DE LAS MANTAS CON UNA LINEA DE GRAPAS O ESTACAS APROXIMADAMENTE CADA 1 2" (30 CM) UNA DE LA OTRA EN UNA ZANJA DE 6" (15 CM) DE PROFUNDIDAD POR 6" (15 CM) DE ANCHO. RELLENE Y COMPACTE LA ZANJA DESPUES DEL ENGRAPE.

6. LAS MANTAS ADYACENTES DEBEN TRASLAPARSE APROXIMADAMENTE DE 2" - 5" (5 CM - 12.5 CM) (DEPENDIENDO DEL TIPO DE MANTA) Y ENGRAPPARSE.

7. EN APLICACIONES PARA CANALES DE FLUJO ALTO, SE RECOMIENDA DEJAR UNA RANURA PARA EL CHEQUEO DE LAS GRAPAS A INTERVALOS DE 30 A 40 PIES (9 M - 12 M). USE UNA LINEA DOBLE DE PRAPAS ESCALONADAS, SEPARADAS POR 4" (10 CM) Y CADA 4" (10 CM) SOBRE EL CENTRO A TRAVES DE TODO EL ANCHO DEL CANAL.

8. LOS BORDOS FINALES DE LAS MANTAS DEBEN SUJETARSE CON UNA LINEA DE GRAPAS O ESTACAS APROXIMADAMENTE CADA 1 2" (30 CM) UNA DE LA OTRA EN UNA ZANJA DE 6" (15 CM) DE PROFUNDIDAD POR 6" (15 CM) DE ANCHO. RELLENE Y COMPACTE DESPUES DEL ENGRAPADO.

### NOTA:

\* EN CONDICIONES DE SUELTO, PUEDE QUE SE NECESITEN GRAPAS O ESTACAS DE MAS DE 6" (15 CM) DE LARGO PARA ASEGUAR LAS MANTAS CORRECTAMENTE.

REV. 01/05

PLANS PREPARED FOR:



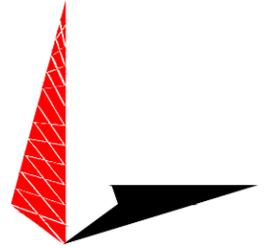
304 SOUTH MORGAN STREET  
ROXBORO, NC 27573  
OFFICE: (336) 597-1720

PROJECT INFORMATION:

## BETHEL HILL

CLAUDE HALL ROAD  
ROXBORO, NC 27574  
(PERSON COUNTY)

PLANS PREPARED BY:



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DRAWN BY: SCB CHECKED BY: GMA

SHEET TITLE:

## EROSION CONTROL MATTING INSTALLATION

SHEET NUMBER: REVISION:

**C-15**

1

TEP #:57455\_42844