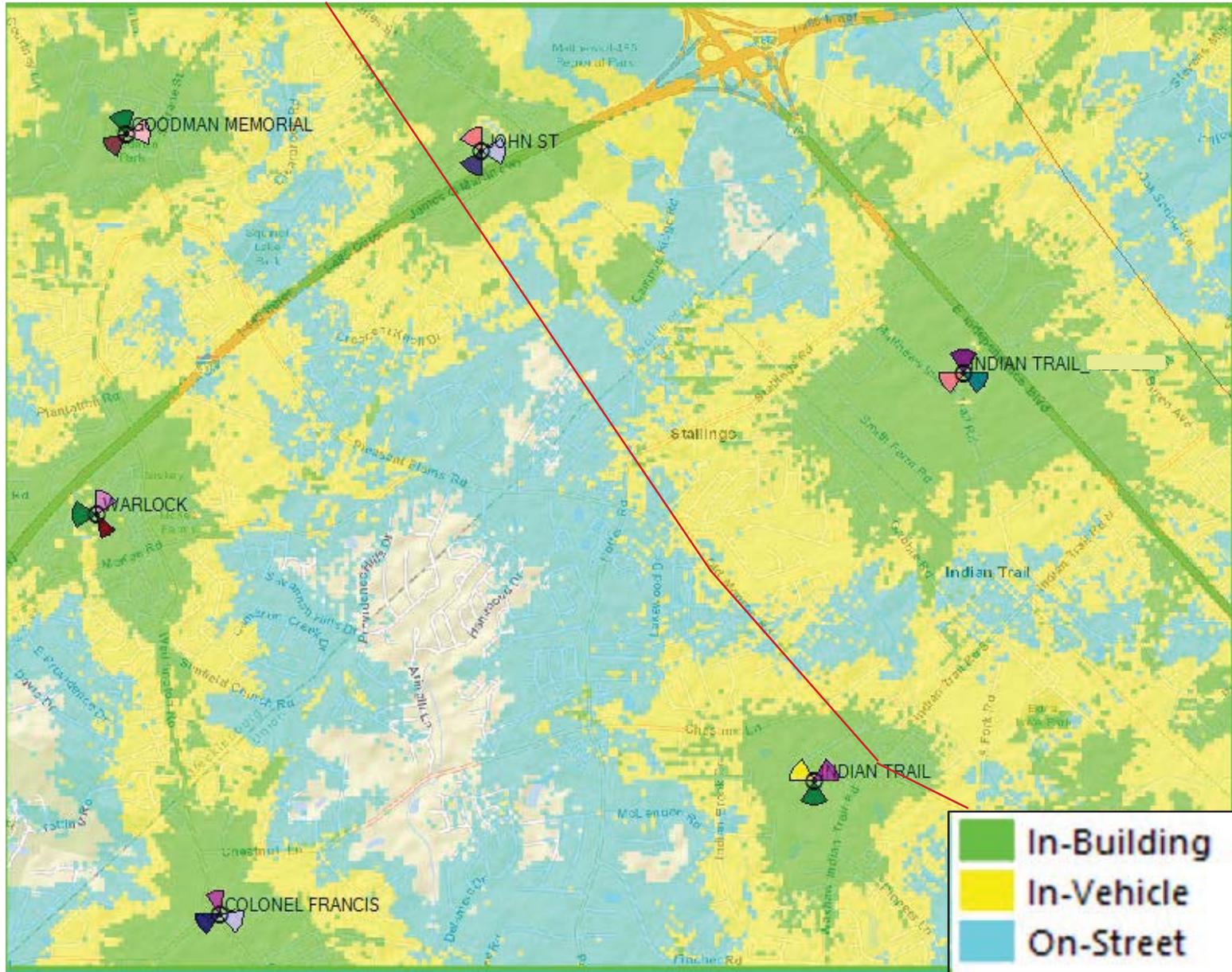


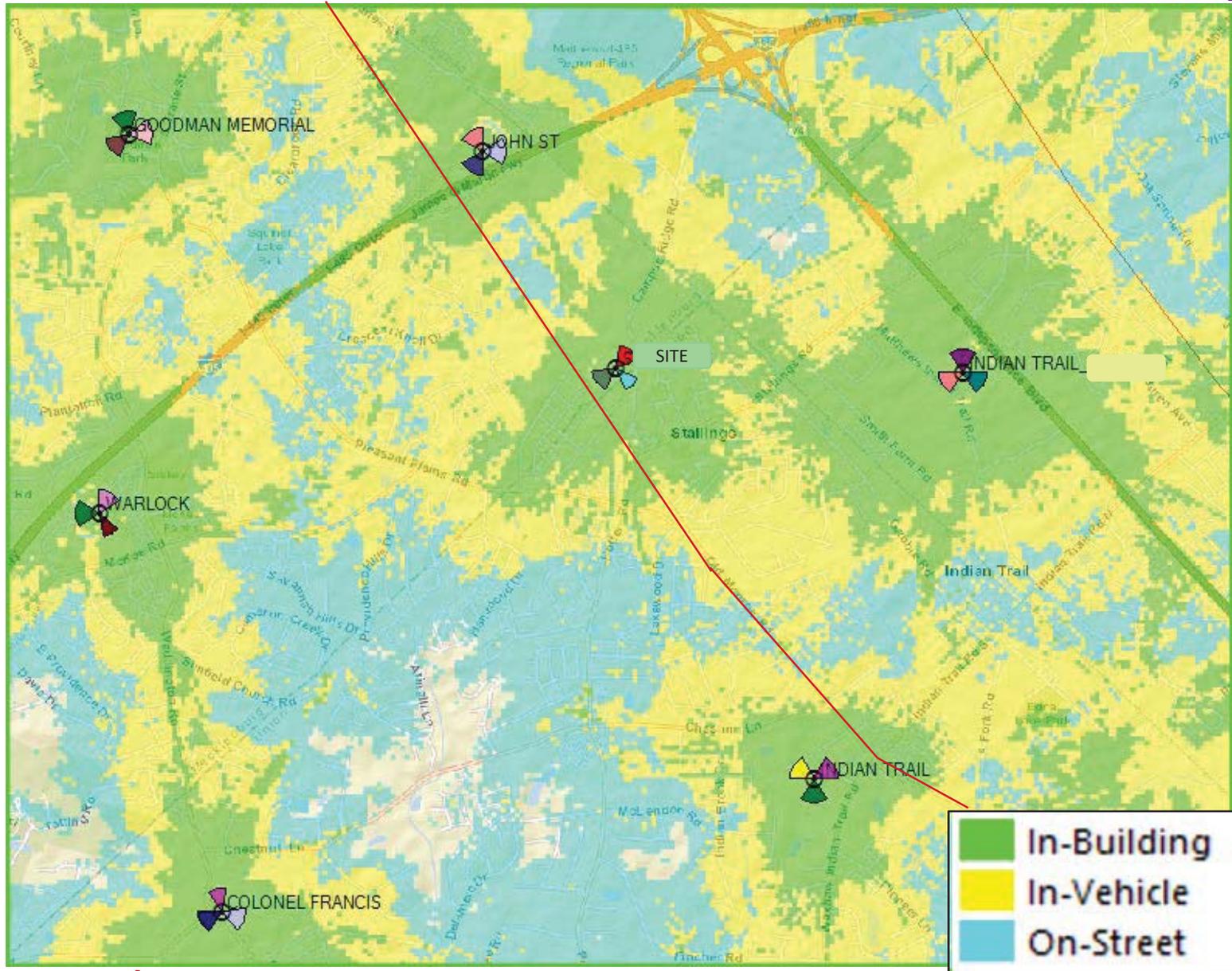
# Current VZW 4G LTE Coverage

CURRENT 2019-708  
2/5/2020



# Proposed VZW 4G LTE Coverage

CURRENT 2019-708  
2/5/2020



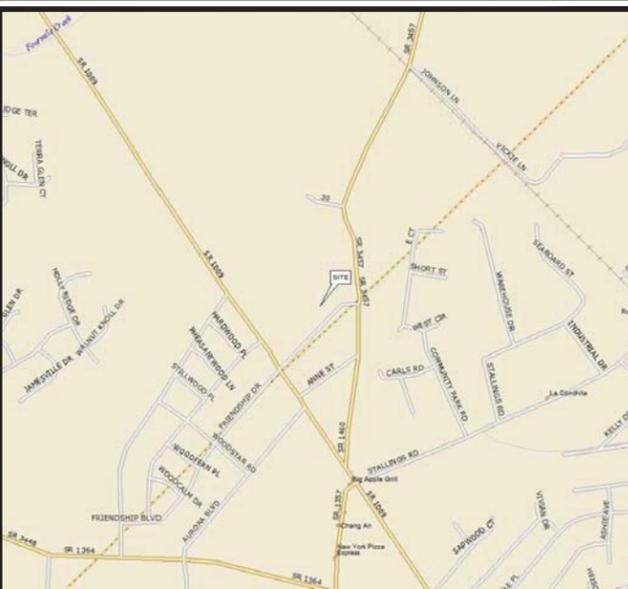
**SITE NAME:** NC-1512 FRIENDSHIP DRIVE  
**PROJECT DESCRIPTION:** PROPOSED TELECOMMUNICATIONS FACILITY  
**TOWER TYPE:** 118' MONOPINE (120' T/APPURTENANCE)  
**SITE ADDRESS:** 2447 E. JOHN ST. MATTHEWS, NC 28105 (MECKLENBURG COUNTY)  
**JURISDICTION:** TOWN OF MATTHEWS  
**DISTURBED AREA:** 0.17 AC (7,385 ± SQ. FT.)  
**PROPOSED LAND USE:** TELECOMMUNICATIONS FACILITY  
**CURRENT LAND USE:** INDUSTRIAL  
**CURRENT ZONING:** I-1  
**PIN:** 21505125

**PROJECT INFORMATION**

**LATITUDE** N 35° 05' 29.475" (NAD '83)  
**LONGITUDE** W 80° 41' 50.172" (NAD '83)

**EXISTING GROUND ELEV. (AMSL) = 768.4' ± (NAVD '88)**

**TOWER COORDINATES**



**LOCATION MAP**

FROM RALEIGH, NC: TAKE PREFERRED ROUTE TO I-40 W. CONTINUE ON I-40 W FOR APPROXIMATELY 70 MILES. KEEP LEFT TO MERGE ONTO I-85 S AND CONTINUE FOR APPROXIMATELY 80 MILES. TAKE EXIT 48 FOR INNER INTERSTATE 485 TOWARDS MATTHEWS/I-77 N/HUNTERSVILLE. CONTINUE ON I-485 INNER S FOR 22 MILES THEN TAKE EXIT 52 FOR E JOHN ST E TOWARDS MATTHEWS. TURN LEFT ONTO E JOHN ST THEN TURN LEFT ONTO FRIENDSHIP DR. SITE IS ON YOUR LEFT.

**DRIVING DIRECTIONS**



**8601 SIX FORKS ROAD SUITE 250  
 RALEIGH, NC 27615  
 (919) 324-1922**

**SITE NAME:  
 NC-1512 FRIENDSHIP DRIVE  
 2447 E. JOHN ST.  
 MATTHEWS, NC 28105  
 (MECKLENBURG COUNTY)**

**CURRENT** 2019-708  
 2/5/2020

PLANS PREPARED BY:



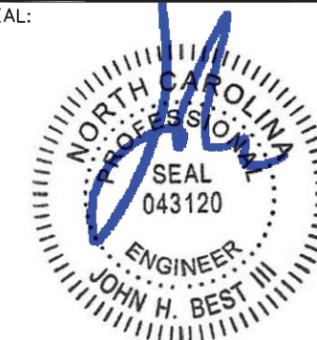
TOWER ENGINEERING PROFESSIONALS  
 326 TRYON ROAD  
 RALEIGH, NC 27603-3530  
 OFFICE: (919) 661-6351  
 www.tepgroup.net

N.C. LICENSE # C-1794

13	01-30-20	CONSTRUCTION
12	01-28-20	CONSTRUCTION
11	01-27-20	CONSTRUCTION
10	01-06-20	CONSTRUCTION
9	11-25-19	CONSTRUCTION
8	11-21-19	CONSTRUCTION
7	11-05-19	CONSTRUCTION
6	10-24-19	CONSTRUCTION
5	09-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

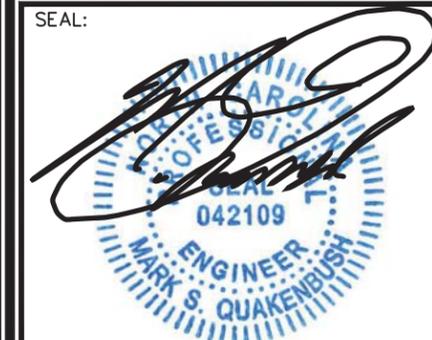
**DRAWN BY:** SAT **CHECKED BY:** MWS

SEAL:



January 30, 2020

SEAL:



January 30, 2020

**TOWER OWNER:**

**NAME:** APC TOWERS  
**ADDRESS:** 8601 SIX FORKS ROAD SUITE 250  
**CITY, STATE, ZIP:** RALEIGH, NC 27615  
**CONTACT:** PAUL ALVAREZ  
**PHONE:** (919) 249-7732

**SURVEYOR:**

**NAME:** SMW ENGINEERING GROUP INC.  
**ADDRESS:** 158 BUSINESS CENTER DRIVE  
**CITY, STATE, ZIP:** BIRMINGHAM, ALABAMA 35244  
**CONTACT:** ANDREW A. KRAMER, P.L.S.  
**PHONE:** (205) 252-6985

**CIVIL ENGINEER:**

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

**ELECTRICAL ENGINEER:**

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

**PROPERTY OWNER:**

**NAME:** COUCHELL FAMILY PROPERTIES, LLC  
**ADDRESS:** 3362 SMITH FARMS ROAD  
**CITY, STATE, ZIP:** MATTHEWS, NC 28104  
**CONTACT:** COUCHELL FAMILY PROPERTIES, LLC  
**PHONE:** UNKNOWN

**CONTACT INFORMATION**

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. NORTH CAROLINA BUILDING CODE (2018 EDITION)
2. NORTH CAROLINA CODE COUNCIL
3. ANSII/TIA-222-G-2-2009
4. 2017 NCEC (W/ 2017 NC AMENDMENTS)
5. LOCAL BUILDING CODE
6. CITY/COUNTY ORDINANCES

**CODE COMPLIANCE**

**UTILITIES:**

**POWER COMPANY:** DUKE ENERGY  
**CONTACT:** CUSTOMER SERVICE  
**PHONE:** (800) 777-9898  
**METER # NEAR SITE:** UNKNOWN  
**XFMR # NEAR SITE:** UNKNOWN

**TELEPHONE COMPANY:** AT&T  
**CONTACT:** CUSTOMER SERVICE  
**PHONE:** (800) 331-0500  
**PHONE # NEAR SITE:** UNKNOWN  
**PEDESTAL # NEAR SITE:** UNKNOWN

SHEET	DESCRIPTION	REV
T-1	TITLE SHEET	13
T-2 - T-6	APPENDIX B	8
N-1	PROJECT NOTES	12
C-1	SITE PLAN	12
C-1A	PROPERTY VICINITY MAP	13
C-1BC	PROPERTY INFORMATION	8
C-2	COMPOUND DETAIL	12
C-3	TOWER ELEVATION	12
C-4	GRADING & EROSION CONTROL PLAN	12
C-5	SILT FENCE DETAILS	8
C-6	ACCESS ROAD DETAILS	8
C-7	FENCE DETAILS	8
C-8	TREE PROTECTION PLAN	12
L-1	LANDSCAPING PLAN	11
L-2	LANDSCAPING DETAILS	8
E-1	ELECTRICAL NOTES	8
E-2	SERVICE RACK DETAILS	8
E-3	TOWER GROUNDING PLAN	11
E-4	GROUNDING DETAILS I	8
E-5	GROUNDING DETAILS II	8

**INDEX OF SHEETS**

SHEET NUMBER:

**T-1**

REVISION:

**13**

TEP #: 141883

CURRENT 2019-708  
2/5/2020

**2018 APPENDIX B**  
**BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS**  
**(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)**  
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: NC-1512 FRIENDSHIP DRIVE  
Address: 2447 EAST JOHN STREET, MATTHEWS, NC Zip Code 28105  
Owner/Authorized Agent: Paul Alvarez Phone # ( 919 ) 244 - 7732 E-Mail PALVAREZ@APCTOWERS.COM  
Owned By:  City/County  Private  State  
Code Enforcement Jurisdiction:  City  County MECKLENBURG  State

**CONTACT:** Tower Engineering Professionals

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				( )	
Civil	<u>Tower Engineering Professionals</u>	<u>John H. Best, III</u>	<u>043120</u>	<u>(919) 661-6351</u>	<u>jbest@tepgroup.net</u>
Electrical	<u>Tower Engineering Professionals</u>	<u>Mark S. Quakenbush</u>	<u>042109</u>	<u>(919) 661-6351</u>	<u>mquakenbush@tepgroup.net</u>
Fire Alarm				( )	
Plumbing				( )	
Mechanical				( )	
Sprinkler-Standpipe				( )	
Structural				( )	
Retaining Walls >5' High				( )	
Other				( )	

(\*Other\* should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

**2018 NC BUILDING CODE:**  New Building  Addition  Renovation  
 1<sup>st</sup> Time Interior Completion  
 Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements  
 Phased Construction - Shell/Core- Contact the local inspection jurisdiction for possible additional procedures and requirements

**2018 NC EXISTING BUILDING CODE: EXISTING:**  Prescriptive  Repair  Chapter 14  
Alteration:  Level I  Level II  Level III  
 Historic Property  Change of Use

**CONSTRUCTED:** (date) \_\_\_\_\_ **CURRENT OCCUPANCY(S)** (Ch. 3): \_\_\_\_\_  
**RENOVATED:** (date) \_\_\_\_\_ **PROPOSED OCCUPANCY(S)** (Ch. 3): \_\_\_\_\_

**OCCUPANCY CATEGORY** (Table 1604.5): **Current:**  I  II  III  IV  
**Proposed:**  I  II  III  IV

**BASIC BUILDING DATA**

**Construction Type:**  I-A  II-A  III-A  IV  V-A  
(check all that apply)  I-B  II-B  III-B  V-B

**Sprinklers:**  No  Partial  Yes  NFPA 13  NFPA 13R  NFPA 13D

**Standpipes:**  No  Yes Class  I  II  III  Wet  Dry

**Fire District:**  No  Yes **Flood Hazard Area:**  No  Yes

**Special Inspections Required:**  No  Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

Gross Building Area Table			
FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3 <sup>rd</sup> Floor		N/A	
2 <sup>nd</sup> Floor		N/A	
Mezzanine		N/A	
1 <sup>st</sup> Floor		N/A	
Basement		N/A	
TOTAL			

**ALLOWABLE AREA**

**Primary Occupancy Classification(s):** Select one Select one Select one Select one Select one Select one

Assembly  A-1  A-2  A-3  A-4  A-5  
Business   
Educational   
Factory  F-1 Moderate  F-2 Low  
Hazardous  H-1 Detonate  H-2 Deflagrate  H-3 Combust  H-4 Health  H-5 HPM  
Institutional  I-1 Condition  1  2  
 I-2 Condition  1  2  
 I-3 Condition  1  2  3  4  5  
 I-4  
Mercantile   
Residential  R-1  R-2  R-3  R-4  
Storage  S-1 Moderate  S-2 Low  High-piled  
 Parking Garage  Open  Enclosed  Repair Garage  
Utility and Miscellaneous

**Accessory Occupancy Classification(s):** N/A

**Incidental Uses (Table 509):** N/A

**Special Uses (Chapter 4 – List Code Sections):** N/A

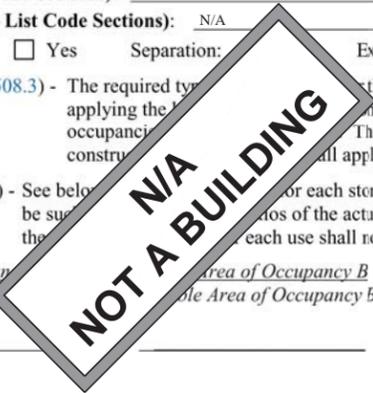
**Special Provisions: (Chapter 5 – List Code Sections):** N/A

**Mixed Occupancy:**  No  Yes Separation: \_\_\_\_\_ Exception: \_\_\_\_\_

Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the provisions for each of the applicable occupancy classifications. The most restrictive type of construction shall apply to the entire building.

Separated Use (508.4) - See below. For each story, the area of the occupancy shall be subdivided into areas of the actual floor area of each use divided by the area of the occupancy. Each use shall not exceed 1.

$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$



PLANS PREPARED FOR:

**APC Towers**

8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512**  
**FRIENDSHIP DRIVE**

2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS  
326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794

November 21, 2019

8	11-21-19	CONSTRUCTION
7	11-05-19	CONSTRUCTION
6	10-24-19	CONSTRUCTION
5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JKW CHECKED BY: JKW

SHEET TITLE:

**APPENDIX B**

SHEET NUMBER: **T-2** REVISION: **8**

TEP #: 141883

8	11-21-19	CONSTRUCTION
7	11-05-19	CONSTRUCTION
6	10-24-19	CONSTRUCTION
5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JKW CHECKED BY: JKW

SHEET TITLE:  
**APPENDIX B**

SHEET NUMBER: **T-3** REVISION: **8**  
TEP #: 141883

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2 <sup>4</sup> AREA	(C) AREA FOR FRONTAGE INCREASE <sup>1,5</sup>	(D) ALLOWABLE AREA PER STORY OR UNLIMITED <sup>2,3</sup>

<sup>1</sup> Frontage area increases from Section 506.2 are:  
a. Perimeter which fronts a public way  
b. Total Building Perimeter  
c. Ratio (F/P) = \_\_\_\_\_ (F/P)  
d. W = Minimum width of public way  
e. Percent of frontage increase =  $\frac{F}{P} \times W/30 = \text{_____} (\%)$   
<sup>2</sup> Unlimited area applicable under conditions of Section 507.  
<sup>3</sup> Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).  
<sup>4</sup> The maximum area of open parking garage must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.  
<sup>5</sup> Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT			
	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)			
Building Height in Stories (Table 504.4)			

<sup>1</sup> Provide code reference if the "Shown on Plans" quantity is not based on code.

**FIRE PROTECTION REQUIREMENTS**

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING		DETAIL # AND SHEET	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
		REQ'D	PROVIDED (w/REDUCTION)*				
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions							
Exterior walls							
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction							
Including supporting beams and joists							
Floor Ceiling Assembly							
Columns Supporting Floors							
Roof Construction, including supporting beams and joists							
Roof Ceiling Assembly							
Columns Supporting Roof							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy/Fire Barrier Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Smoke Partition							
Tenant/Dwelling Unit/Sleeping Unit Separation							
Incidental Use Separation							

\* Indicate section number permitting reduction

PLANS PREPARED FOR:



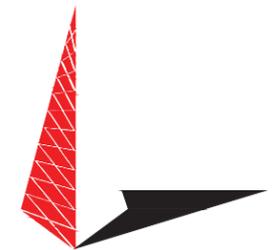
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS  
326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794



8	11-21-19	CONSTRUCTION
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REV	DATE	ISSUED FOR:

DRAWN BY: JKW CHECKED BY: JKW

SHEET TITLE:

**APPENDIX B**

SHEET NUMBER: <b>T-4</b>	REVISION: <b>8</b>
	TEP #: 141883

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)

NOT A BUILDING

**LIFE SAFETY PLAN REQUIREMENTS**

Emergency Lighting:  Yes  No  
 Exit Signs:  Yes  No  
 Fire Alarm:  Yes  No  
 Smoke Detection Systems:  Yes  Partial  No  
 Panic Hardware:  Yes  No

**LIFE SAFETY PLAN REQUIREMENTS**

- Life Safety Plan Sheet #: \_\_\_\_\_
- Fire and/or smoke rated wall locations (Chapter 7)
  - Assumed and real property line locations (if not on the site plan)
  - Exterior wall opening area with respect to distance to assumed property lines (705.8)
  - Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
  - Occupant loads for each area
  - Exit access travel distances (1017)
  - Common path of travel distances (Tables 1006)
  - Dead end lengths (1020.4)
  - Clear exit widths for each exit door
  - Maximum calculated occupant load that can be accommodated based on egress width (1005.3)
  - Actual occupant load for each exit
  - A separate schematic plan indicating floor/ceiling and/or roof structure is provided for purposes of occupancy separation (1010.1.9.1)
  - Location of doors with panic hardware (1010.1.9.7)
  - Location of doors with delayed egress and the amount of delay (1010.1.9.7)
  - Location of doors with electromagnetic egress locks (1010.1.9.9)
  - Location of doors equipped with hold-open devices
  - Location of emergency escape windows (1030)
  - The square footage of each fire area (202)
  - The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
  - Note any code exceptions or table notes that may have been utilized regarding the items above

NOT A BUILDING

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

NOT A BUILDING

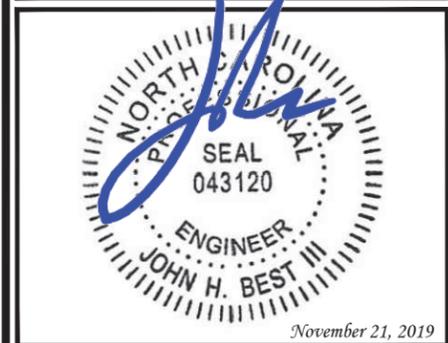
LOT OR PARKING AREA	TOTAL # OF PARKING REQUIRED	ACCESSIBLE SPACES PROVIDED		TOTAL # ACCESSIBLE PROVIDED
		132" ACCESS AISLE	8' ACCESS AISLE	
TOTAL				

**PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)**

USE	SPACE	WATERCLOSETS			URINALS	LAVATORIES			SHOWERS / TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE	UNISEX		MALE	FEM	UNISEX		REGULAR	ACCESSIBLE
	EXIST'G										
	NEW										
	REQ'D										

NOT A BUILDING

Special approval: (Local Jurisdiction, Dept. of Health, Fire, etc., describe below)



8	11-21-19	CONSTRUCTION
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5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JKW CHECKED BY: JKW

SHEET TITLE:  
**APPENDIX B**

SHEET NUMBER: **T-5** REVISION: **8**  
TEP #: 141883

**ENERGY SUMMARY**

**ENERGY REQUIREMENTS:**  
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code:  No  Yes (Provide code or reference here) (remainder of this section is not applicable)

Exempt Building:  No  Yes (Provide code or reference here)

Climate Zone:  3A  4A  5A

Method of Compliance: Energy  Prescriptive  
AS  Prescriptive  
(Provide code or reference here)

**THERMAL ENVELOPE (Prescriptive)**

**Roof/ceiling Assembly (each assembly)**  
Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_  
Skylights in each assembly: \_\_\_\_\_  
U-Value of skylight: \_\_\_\_\_  
total square footage of skylights in each assembly: \_\_\_\_\_

**Exterior Walls (each assembly)**  
Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_  
Openings (windows or doors with glazing)  
U-Value of assembly: \_\_\_\_\_  
Solar heat gain coefficient: \_\_\_\_\_  
projection factor: \_\_\_\_\_  
Door R-Values: \_\_\_\_\_

**Walls below grade (each assembly)**  
Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_

**Floors over unconditioned space (each assembly)**  
Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_

**Floors slab on grade**  
Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_  
Horizontal/vertical requirement: \_\_\_\_\_  
slab heated: \_\_\_\_\_

**2018 APPENDIX B  
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS  
STRUCTURAL DESIGN  
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)**

**DESIGN LOADS:**

**Importance Factors:** Snow (I<sub>s</sub>) \_\_\_\_\_  
Seismic (I<sub>e</sub>) \_\_\_\_\_

**Live Loads:** Roof \_\_\_\_\_ psf  
Mezzanine \_\_\_\_\_ psf  
Floor \_\_\_\_\_ psf

**Ground Snow Load:** \_\_\_\_\_ psf

**Wind Load:** Basic Wind Speed \_\_\_\_\_ (ASCE-7)  
Exposure Category \_\_\_\_\_

**SEISMIC DESIGN CATEGORY:**  I  II  III  IV

Provide the following Seismic Design Risk Category (Table 1601-ASCE 7):  I  II  III  IV

**Spectral Response Acceleration Coefficient (S<sub>a</sub>):** \_\_\_\_\_ %g

**Site Classification (ASCE 7):**  B  C  D  E  F

Data Source:  Test  Presumptive  Historical Data

**Basic structural system:**  Bearing Wall  Dual w/Special Moment Frame  
 Building Frame  Dual w/Intermediate R/C or Special Steed  
 Moment Frame  Inverted Pendulum

**Analysis Procedure:**  Simplified  Equivalent Lateral Force  Dynamic

**Architectural, Mechanical, Components anchored?**  Yes  No

**LATERAL DESIGN CONTROL:** Earthquake  Wind

**SOIL BEARING CAPACITIES:**  
Field Test (provide copy of test report) \_\_\_\_\_ psf  
Presumptive Bearing capacity \_\_\_\_\_ psf  
Pile size, type, and capacity \_\_\_\_\_

**2018 APPENDIX B  
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS  
MECHANICAL DESIGN  
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)**

**MECHANICAL SUMMARY**

**MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT**

**Thermal Zone**

winter dry bulb: \_\_\_\_\_  
summer dry bulb: \_\_\_\_\_

**Interior design conditions**

winter dry bulb: \_\_\_\_\_  
summer dry bulb: \_\_\_\_\_  
relative humidity: \_\_\_\_\_

**Building heating load:** \_\_\_\_\_

**Building cooling load:** \_\_\_\_\_

**Mechanical Spacing Conditioning System**

Unitary  
description of unit: \_\_\_\_\_  
heating efficiency: \_\_\_\_\_  
cooling efficiency: \_\_\_\_\_  
size category of unit: \_\_\_\_\_

Boiler  
Size category. If oversized, state reason.: \_\_\_\_\_

Chiller  
Size category. If oversized, state reason.: \_\_\_\_\_

**List equipment efficiencies:** \_\_\_\_\_

**2018 APPENDIX B  
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS  
ELECTRICAL DESIGN  
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)**

**ELECTRICAL SUMMARY**

**ELECTRICAL SYSTEM AND EQUIPMENT**

**Method of Compliance:** Energy Code  Performance  Prescriptive  
ASHRAE 90.1  Performance  Prescriptive

**Lighting schedule (each fixture type)**

lamp type required in fixture \_\_\_\_\_  
number of lamps in fixture \_\_\_\_\_  
ballast type used in fixture \_\_\_\_\_  
number of ballasts \_\_\_\_\_  
total wattage per fixture \_\_\_\_\_  
total interior wattage allowed (whole building or space by space) \_\_\_\_\_  
total exterior wattage allowed \_\_\_\_\_

**Additional Efficiency Package Options  
(When using the 2018 NCECC; not required for ASHRAE 90.1)**

- C406.2 More Efficient HVAC Equipment Performance
- C406.3 Reduced Lighting Power Density
- C406.4 Enhanced Digital Lighting Controls
- C406.5 On-Site Renewable Energy
- C406.6 Dedicated Outdoor Air System
- C406.7 Reduced Energy Use in Service Water Heating

PLANS PREPARED FOR:



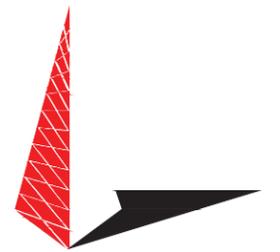
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

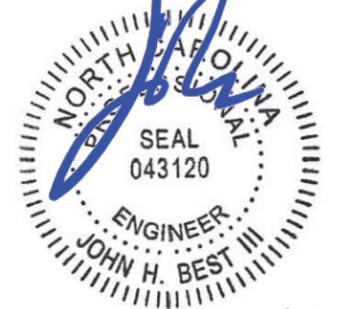
2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS  
326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794



November 21, 2019

8	11-21-19	CONSTRUCTION
7	11-05-19	CONSTRUCTION
6	10-24-19	CONSTRUCTION
5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: JKW CHECKED BY: JKW

SHEET TITLE:

**APPENDIX B**

SHEET NUMBER: <b>T-6</b>	REVISION: <b>8</b>
	TEP #: 141883

**PROJECT NOTES:**

1. ALL REFERENCES MADE TO OWNER IN THESE DOCUMENTS SHALL BE CONSIDERED APC OR ITS DESIGNATED REPRESENTATIVE.
2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING TO HAVE SUFFICIENT EXPERIENCE AND ABILITY, IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF NORTH CAROLINA.
3. THE STRUCTURE SHALL BE DESIGNED IN ACCORDANCE WITH ANSI/TIA-222-G-2-2009 AND CONFORM TO THE REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE, 2018 EDITION.
4. WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE, 2018 EDITION.
5. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
6. ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
7. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
8. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. CONTRACTOR SHALL NOT SCALE CONTRACT DRAWINGS IN LIEU OF FIELD VERIFICATION. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE PROCEDURES.
9. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK. RENTAL CHARGES, SAFETY, PROTECTION, AND MAINTENANCE OF RENTED EQUIPMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
11. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE OWNER PROJECT MANAGER.
12. BILL OF MATERIALS AND PART NUMBERS LISTED ON CONSTRUCTION DRAWINGS ARE INTENDED TO AID CONTRACTOR/OWNER. CONTRACTOR/OWNER SHALL VERIFY PARTS AND QUANTITIES WITH MANUFACTURER PRIOR TO BIDDING AND/OR ORDERING MATERIALS.
13. ALL PERMITS THAT MUST BE OBTAINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
14. 24 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER.
15. THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. AFTER REWORKING, IF THE MATERIAL REMAINS UNSUITABLE, THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL. ALL SUBGRADES SHALL BE PROOFROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFT MATERIAL SHALL BE REWORKED OR REPLACED.
16. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL PIPES, DITCHES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURE IN OPERABLE CONDITION.
17. THE OWNER SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHILE WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.

12

18. ANY BUILDINGS WITHIN THE PROPOSED FENCED TOWER COMPOUND ARE INTENDED TO SHELTER EQUIPMENT WHICH WILL ONLY BE PERIODICALLY MAINTAINED AND ARE NOT INTENDED FOR HUMAN OCCUPANCY.
19. TEMPORARY FACILITIES FOR PROTECTION OF TOOLS AND EQUIPMENT SHALL CONFORM TO LOCAL REGULATIONS AND SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
20. THE CONTRACTOR AND ITS SUBCONTRACTORS SHALL CARRY LIABILITY INSURANCE IN THE AMOUNTS AND FORM IN ACCORDANCE WITH OWNER SPECIFICATIONS. CERTIFICATES DEMONSTRATING PROOF OF COVERAGE SHALL BE PROVIDED TO OWNER PRIOR TO THE START OF THE WORK ON THE PROJECT.
21. THE CONTRACTOR SHALL CONTACT ALL APPLICABLE UTILITY SERVICES TO VERIFY LOCATIONS OF EXISTING UTILITIES AND REQUIREMENTS FOR NEW UTILITY CONNECTIONS PRIOR TO EXCAVATING.
22. THE CONTRACTOR SHALL MAINTAIN THE JOB CLEAR OF TRASH AND DEBRIS. ALL WASTE MATERIALS SHALL BE REMOVED FROM THE SITE PRIOR TO SUBSTANTIAL COMPLETION AND PRIOR TO FINAL ACCEPTANCE. THE CONTRACTOR SHALL FURNISH ONE 55 GALLON BARREL, AND TRASH BAGS, AND SHALL REMOVE TRASH, DEBRIS, ETC., ON A DAILY BASIS.
23. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS PRIOR TO SUBMITTING THE PROPOSAL. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON THESE DRAWINGS WITH THOSE AT THE SITE. ANY VARIATION WHICH REQUIRES PHYSICAL CHANGE SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER PROJECT ENGINEER FOR FACILITIES/CONSTRUCTION.
24. THE CONTRACTOR SHALL GUARANTEE THE WORK PERFORMED ON THE PROJECT BY THE CONTRACTOR AND ANY OR ALL OF THE SUBCONTRACTORS WHO PERFORMED WORK FOR THE CONTRACTOR ON THIS PROJECT. THE GUARANTEE SHALL BE FOR A FULL YEAR FOLLOWING ISSUANCE OF THE FINAL PAYMENT OF RETAINAGE. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.

**UTILITY NOTES**

1. APPLY FOR THE UTILITY SERVICE (ELECTRIC) NO LATER THAN THE NEXT BUSINESS DAY FOLLOWING AWARD OF CONTRACT. COORDINATE WITH THE ELECTRIC UTILITY COMPANY FOR EXACT TRANSFORMER LOCATION, METERING REQUIREMENTS, AND THE SERVICE ROUTING. COORDINATE WITH THE TELEPHONE UTILITY COMPANY FOR EXACT TELEPHONE REQUIREMENTS AND ROUTING OF SERVICE.
2. ALL UTILITY RELATED WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE UTILITY REQUIREMENTS. FIELD VERIFY EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL CONTACT UTILITIES AND LOCATOR SERVICE A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION. (NC ONE-CALL 1-800-632-4949).
4. CONTRACTOR SHALL PROVIDE TRENCHING AND CONDUITS AS SHOWN OR AS REQUIRED BY LOCAL UTILITY.
5. NO PENETRATIONS TO THE TOWER FOUNDATION OF ANY KIND.

PLANS PREPARED FOR:



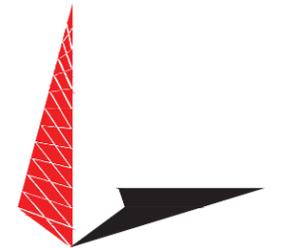
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS  
326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794



January 30, 2020

13	01-30-20	CONSTRUCTION
12	01-28-20	CONSTRUCTION
11	01-27-20	CONSTRUCTION
10	01-06-20	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: ANG CHECKED BY: MWS

SHEET TITLE:  
**PROJECT NOTES**

SHEET NUMBER: **N-1** REVISION: **13**  
TEP #: 141883

**NOTES:**

1. 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 JULY 2, 2018.
2. VERTICAL INFORMATION SHOWN, BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88) IN FEET.
3. ALL DISTANCES ARE GROUND UNLESS OTHERWISE NOTED.
4. THE TOWER IS LOCATED IN ZONE "X." AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN ACCORDING TO FEMA COMMUNITY PANEL #3710449900K, DATED FEBRUARY 19, 2014.
5. SEE SHEETS C-1A & C-1C FOR PROPERTY DETAILS.
6. THERE ARE NO EXISTING TELECOMMUNICATIONS OR UTILITY TRANSMISSION TOWERS WITHIN 1800' OF THE PROPOSED TOWER.

7. EXISTING PARCEL MAY CONTINUE TO BE USED FOR RETAIL/COMMERCIAL PURPOSES. PROPOSED REZONING TO ALLOW FOR CELL TOWER USE IN ADDITION TO OTHER ALLOWED USES.

CURRENT 2019-708  
2/5/2020

PLANS PREPARED FOR:



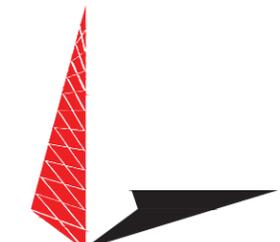
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

2447 EAST JOHN STREET  
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REV	DATE	ISSUED FOR:

DRAWN BY: SAT CHECKED BY: MWS

SHEET TITLE:

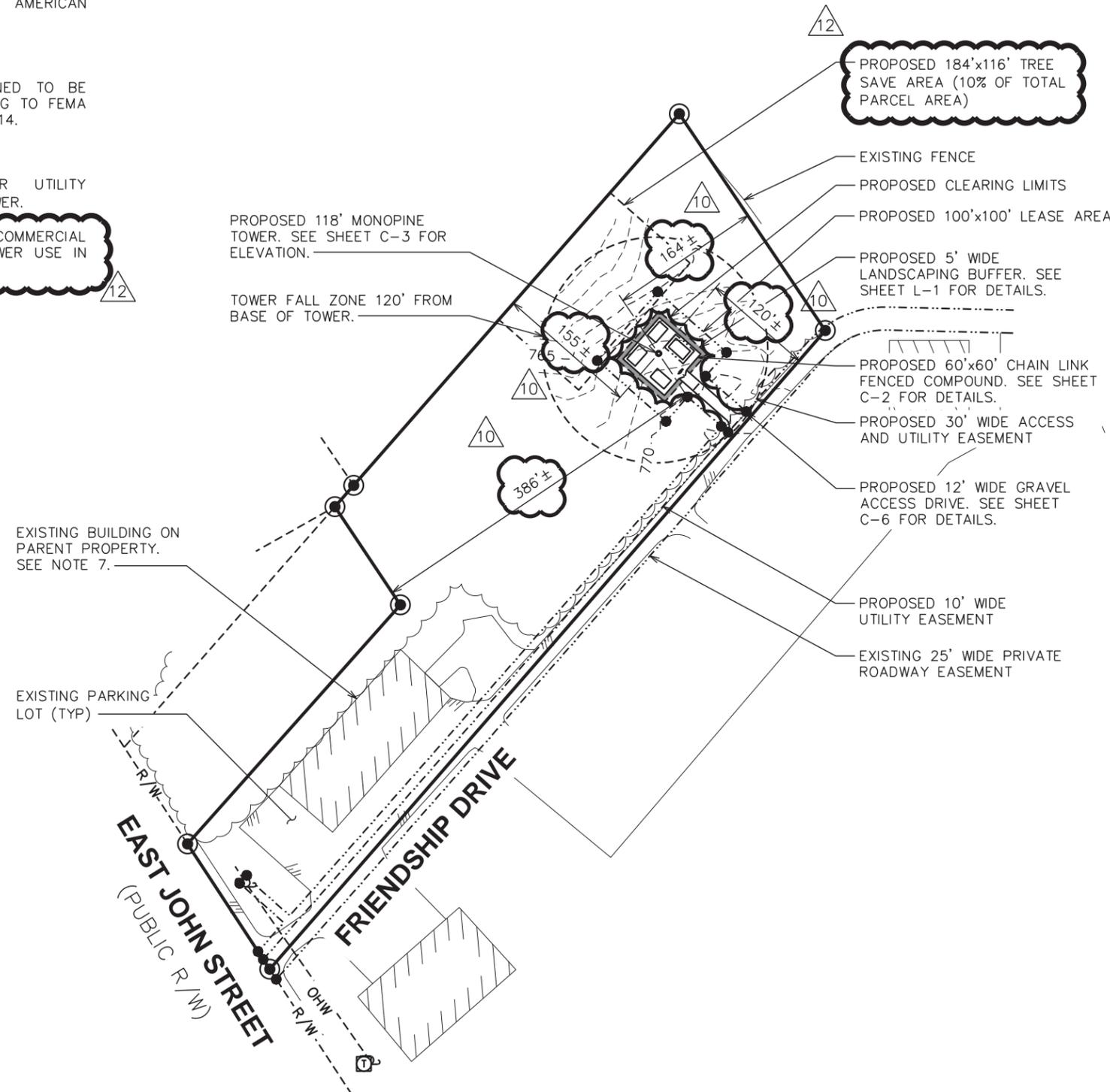
**SITE PLAN**

SHEET NUMBER: REVISION:

**C-1**

**13**

TEP #: 141883

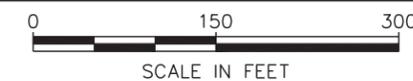


**LEGEND**

- EXIST. PROPERTY LINE
- - - ADJ. PROPERTY LINE
- ⊕ EXIST. UTILITY POLE
- ⊙ EXIST. LIGHT POLE
- ⊙ EXIST. HYDRANT
- ⊙ EXIST. TELCO PEDESTAL
- ⊙ PROPERTY CORNER
- LEASE/EASE. CORNER
- - -200- - - EXIST. CONTOUR LINE
- /// EDGE OF PAVEMENT
- - -OHW- - - OVERHEAD WIRE
- - -R/W- - - RIGHT-OF-WAY
- X - CHAIN LINK FENCE
- ~ ~ ~ EXISTING TREE LINE

**SITE PLAN**

SCALE: 1" = 150'



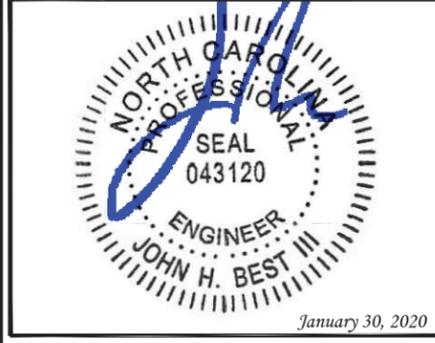
**NOTES:**

1. ALL ADJACENT PARCELS ARE BASED ON MECKLENBURG & UNION COUNTY GIS AND AERIAL MAPS/PROPERTY LOCATOR.
2. SEE SHEET C-1B & C-1C FOR PROPERTY INFORMATION.

PLANS PREPARED FOR:  
**APC Towers**  
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:  
**NC-1512  
FRIENDSHIP DRIVE**  
2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
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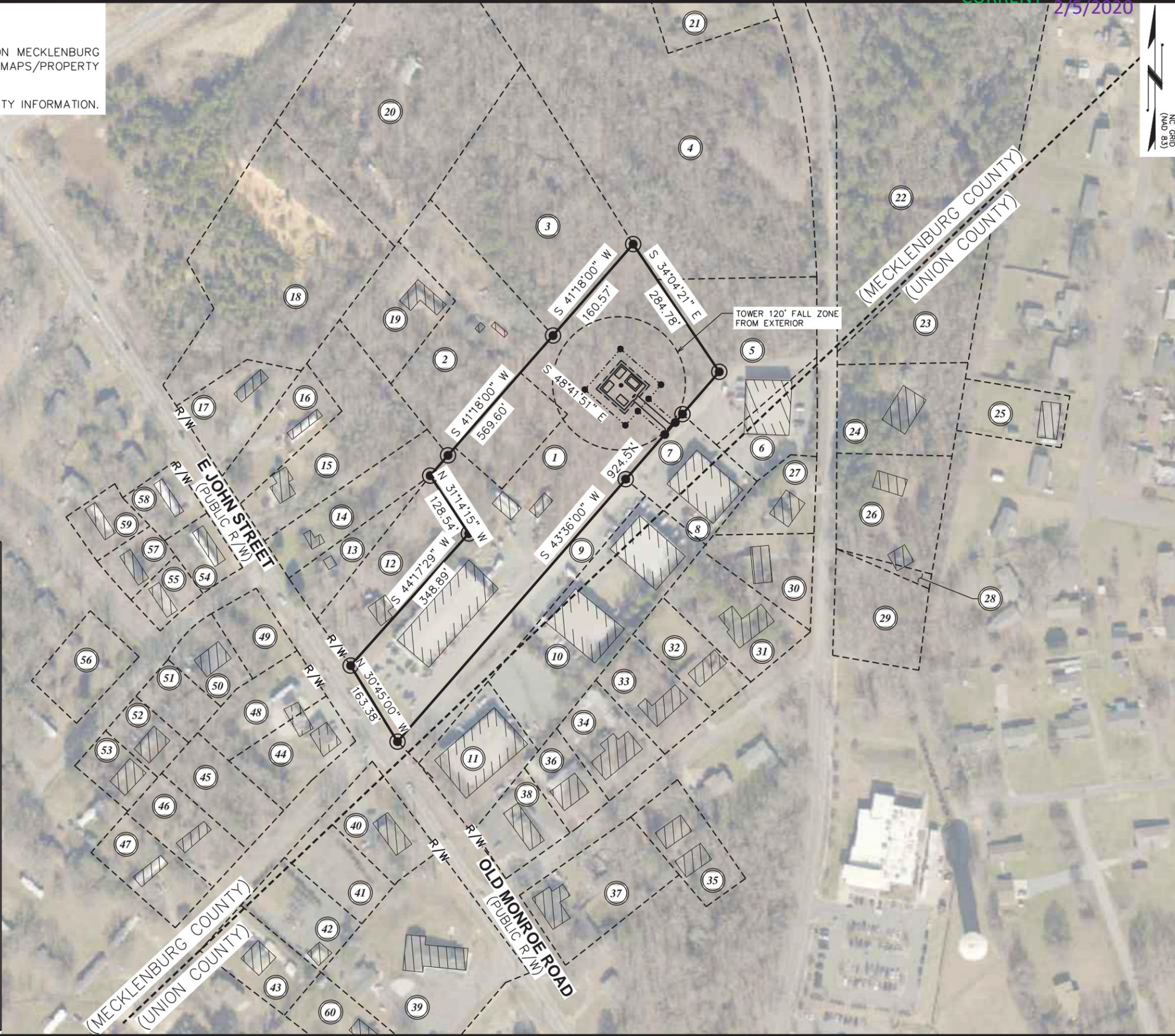
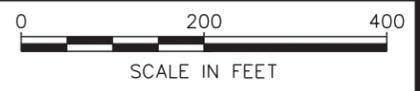
DRAWN BY: SAT | CHECKED BY: MWS

SHEET TITLE:  
**PROPERTY VICINITY MAP**

SHEET NUMBER: **C-1A** | REVISION: **13**  
TEP #: 141883

LEGEND	
	EXIST. PROPERTY LINE
	ADJ. PROPERTY LINE
	EXIST. UTILITY POLE
	EXIST. LIGHT POLE
	EXIST. HYDRANT
	EXIST. TELCO PEDESTAL
	PROPERTY CORNER
	LEASE/EASE. CORNER
	EXIST. CONTOUR LINE
	EDGE OF PAVEMENT
	OVERHEAD WIRE
	RIGHT-OF-WAY
	CHAIN LINK FENCE
	EXISTING TREE LINE

**PROPERTY VICINITY MAP**  
SCALE: 1" = 200'



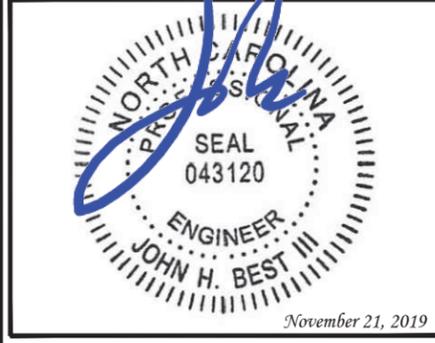
CURRENT 2019-708  
2/5/2020

PROPERTY INFORMATION						
NO.	PIN	N/F PROPERTY OWNER	DEED BOOK	PAGE	STREET ADDRESS	COUNTY
1	21505125	COUCHELL FAMILY PROPERTIES LLC	16898	439	2447 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
2	21505124	HOWARD L. & WILLAREE M. SLOAN	06088	810	2337 MONROE RD. MATTHEWS, NC 28105	MECKLENBURG
3	21505115	OREN J. SLOAN JR.	N/A	N/A	2335 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
4	21505132	JUDY T. DRAKE	2179	240	CAMPUS RIDGE RD. MATTHEWS, NC 28105	MECKLENBURG
5	21505129	VENTURE ENTREPRENEURS LLC	20925	891	3940 CAMPUS RIDGE RD. MATTHEWS, NC 28105	MECKLENBURG
6	07126006D	VENTURE ENTREPRENEURS LLC	4270	365	3950 CAMPUS RIDGE DR. MATTHEWS, NC 28105	UNION
7	21505113	VENTURE ENTREPRENEURS LLC	20925	891	2505 E. JOHN ST. MATTHEWS, NC 28104	MECKLENBURG
8	07126001B	VENTURE ENTREPRENEURS LLC	4270	365	4420 FRIENDSHIP DR. MATTHEWS, NC 28105	UNION
9	21505130	LARRY D. & SUSAN B. HARRILL	8027	269	2505 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
10	07126001	LDH RENTAL PROPERTIES LLC	5876	513	4410 FRIENDSHIP DR. MATTHEWS, NC 28105	UNION
11	07126001A	LDH RENTAL PROPERTIES LLC	1774	500	2505 OLD MONROE RD. MATTHEWS, NC 28105	UNION
12	21505112	ROKTAI PROPERTY DEVELOPMENT LLC	28706	193	2441 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
13	21505111	2425 EAST JOHN ST LLC	19185	280	2433 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
14	21505110	2425 EAST JOHN ST LLC	19185	280	2425 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
15	21505109	BERBICE ENTERPRISE LLC	27406	288	2349 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
16	21505122	BERBICE ENTERPRISE LLC	27406	288	2341 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
17	21505107	2309 EAST JOHN ST LLC	19543	628	2319 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
18	21505123	2309 EAST JOHN ST LLC	19543	628	2327 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
19	21505114	HOWARD L. & WILLAREE M. SLOAN	02024	467	2339 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
20	21505108	SENIOR PROPERTIES LLC	21174	469	2333 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
21	21505116	CHERYL DRAKE-BOWERS & JUDY TENNANT DRAKE	33649	241	3908 CAMPUS RIDGE RD. MATTHEWS, NC 28105	MECKLENBURG
22	21505202	JUDY TENNANT DRAKE	N/A	N/A	CAMPUS RIDGE RD. MATTHEWS, NC 28105	MECKLENBURG
23	07126006	JUDY T. DRAKE	N/A	N/A	POTTER RD. MATTHEWS, NC 28105	UNION
24	07126006F	CHERYL L. DRAKE-BOWERS & HUGH HAWES	N/A	N/A	3939 CAMPUS RIDGE RD. STALLINGS, NC 28104	UNION
25	07126056	HUMPHREY CHRISTOPHER ALAN	1706	692	2432 COMMUNITY PARK DR. STALLINGS, NC 28104	UNION
26	07126006E	LEIGHTON SR. & THOMAS DRAKE	4594	384	4001 RIDGE RD. MATTHEWS, NC 28105	UNION
27	07126006A	MICHAEL M. STEPHENS	3157	293	4020 RIDGE RD. MATTHEWS, NC 28105	UNION
28	07126006G	LEIGHTON SR. & THOMAS DRAKE	4594	384	4010 RIDGE RD. MATTHEWS, NC 28105	UNION
29	07126007F	PAUL K. & MARY P. LAZAROU	4397	753	CAMPUS RIDGE RD. STALLINGS, NC 28104	UNION
30	07126006C	JOHN Y. & KATHERINE PENNINGER	N/A	N/A	4024 CAMPUS RIDGE RD. MATTHEWS, NC 28105	UNION

PLANS PREPARED FOR:  
**APC Towers**  
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PROJECT INFORMATION:  
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FRIENDSHIP DRIVE**  
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REV	DATE	ISSUED FOR:

DRAWN BY: ANG CHECKED BY: MWS

SHEET TITLE:  
**PROPERTY INFORMATION**

SHEET NUMBER: **C-1B** REVISION: **8**  
TEP #: 141883

CURRENT 2019-708  
2/5/2020

PROPERTY INFORMATION						
NO.	PIN	N/F PROPERTY OWNER	DEED BOOK	PAGE	STREET ADDRESS	COUNTY
31	07126002	TAMI LINN OSMER MIZE	7102	747	217 ANNE ST. STALLINGS, NC 28104	UNION
32	07126002G	DUNG H. TONG	5902	786	209 ANN ST. MATTHEWS, NC 28104	UNION
33	07126002H	BRADFORD A. KROLL	3906	639	201 ANN ST. MATTHEWS, NC 28104	UNION
34	07126002I	JERRY, MACK, & LYNDA PRESSLEY	N/A	N/A	117 ANN ST. MATTHEWS, NC 28104	UNION
35	07126002D	SAFELITE ELECTRIC	4742	169	116 ANN ST. MATTHEWS, NC 28104	UNION
36	07126002J	AJC LLC	5472	276	109 ANN ST. MATTHEWS, NC 28104	UNION
37	07126002B	JEFFREY R. & TERESA A. CARROLL	N/A	N/A	2525 OLD MONROE RD. STALLINGS, NC 28104	UNION
38	07126002A	F & B LLC	5398	407	2509 OLD MONROE RD. STALLINGS, NC 28104	UNION
39	07144034	EASTWOOD FOREST BAPTIST CHURCH	N/A	N/A	112 AURORA BLVD. MATTHEWS, NC 28104	UNION
40	07144032	RONNIE H. & MARY F. CHAPMAN	N/A	N/A	2500 OLD MONROE RD. STALLINGS, NC 28104	UNION
41	07144031	WELDON D. POWELL	0914	0033	FRIENDSHIP DR. MATTHEWS, NC 28104	UNION
42	07144030	WELDON D. POWELL	0935	0099	FRIENDSHIP DR. MATTHEWS, NC 28104	UNION
43	07144029	MYRTLE H. POWELL	N/A	N/A	309 FRIENDSHIP DR. MATTHEWS, NC 28104	UNION
44	22722721	EAST JOHN SYSTEMS LLC	29672	501	2448 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
45	22722720	CAROLINA WATER SERVICE INC. OF NORTH CAROLINA	04962	380	4610 FRIENDSHIP DR. MATTHEWS, NC 28105	MECKLENBURG
46	22722719	JEFFREY CLEGG PRESSLEY	07458	549	4620 FRIENDSHIP DR. MATTHEWS, NC 28105	MECKLENBURG
47	22722718	JEFFREY C. PRESSLEY & EDWARD E. SUGGS	21026	404	4700 FRIENDSHIP DR. MATTHEWS, NC 28105	MECKLENBURG
48	22722722	EAST JOHN SYSTEMS LLC	29672	501	2442 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
49	22722701	EAST JOHN SYSTEMS LLC	1560	242	4501 FORESTMONT DR. MATTHEWS, NC 28105	MECKLENBURG
50	22722702	JEFFREY C. PRESSLEY	04750	090	4511 FORESTMONT DR. MATTHEWS, NC 28105	MECKLENBURG
51	22722703	JEFFREY C. PRESSLEY	04750	090	4601 FORESTMONT DR. MATTHEWS, NC 28105	MECKLENBURG
52	22722704	DELL S THORPE	09705	870	4609 FORESTMONT DR. MATTHEWS, NC 28105	MECKLENBURG
53	22722705	TNW PROPERTIES INC	14984	311	4623 FORESTMONT DR. MATTHEWS, NC 28105	MECKLENBURG
54	22722606	RM MATTHEWS LLC	18103	512	2348 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
55	22722605	SAMMY BENJAMINE & PATRICIA LOUISE FLOW	09860	294	13935 HARDWOOD PL. MATTHEWS, NC 28105	MECKLENBURG
56	22722505	MARCELO CELESTINO FLORES	04673	751	4610 FORESTMONT DR. MATTHEWS, NC 28105	MECKLENBURG
57	22722604	TNW PROPERTIES INC	18626	264	13929 HARDWOOD PL. MATTHEWS, NC 28105	MECKLENBURG
58	22722607	RM MATTHEWS LLC	18103	509	2330 E. JOHN ST. MATTHEWS, NC 28105	MECKLENBURG
59	22722603	RM MATTHEWS LLC	32300	553	13921 HARDWOOD PL. MATTHEWS, NC 28105	MECKLENBURG
60	07126002B	JEFFREY R. & TERESA A. CARROLL	1061	177	2525 OLD MONROE RD. STALLINGS, NC 28104	UNION

PLANS PREPARED FOR:



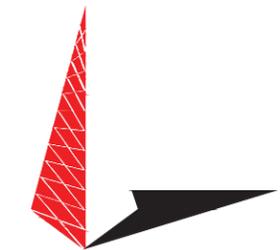
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS  
326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
www.tepgroup.net

N.C. LICENSE # C-1794



8	11-21-19	CONSTRUCTION
7	11-05-19	CONSTRUCTION
6	10-24-19	CONSTRUCTION
5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: ANG CHECKED BY: MWS

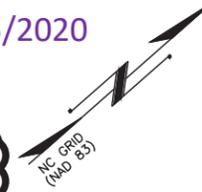
SHEET TITLE:

**PROPERTY  
INFORMATION**

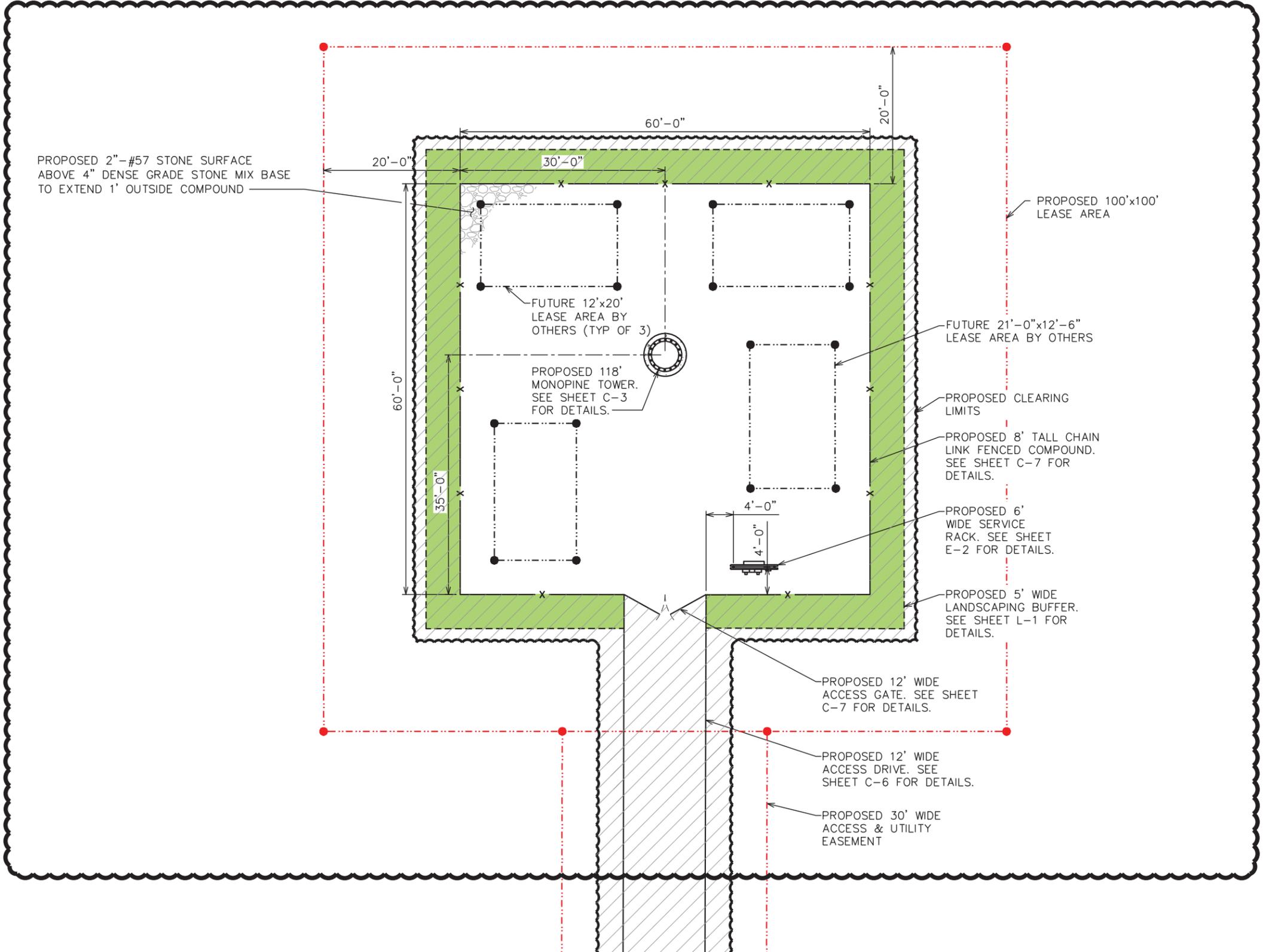
SHEET NUMBER: <b>C-1C</b>	REVISION: <b>8</b>
TEP #:	141883

**PROPERTY INFORMATION**

CURRENT 2019-708  
2/5/2020



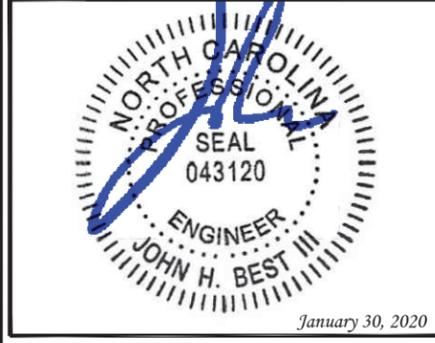
12



PLANS PREPARED FOR:  
**APC Towers**  
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:  
**NC-1512  
FRIENDSHIP DRIVE**  
2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:  
  
**TOWER ENGINEERING PROFESSIONALS**  
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RALEIGH, NC 27603-5263  
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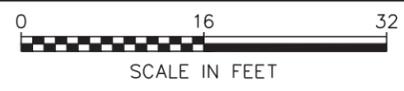
13	01-30-20	CONSTRUCTION
12	01-28-20	CONSTRUCTION
11	01-27-20	CONSTRUCTION
10	01-06-20	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: SAT CHECKED BY: MWS

SHEET TITLE:  
**COMPOUND DETAIL**

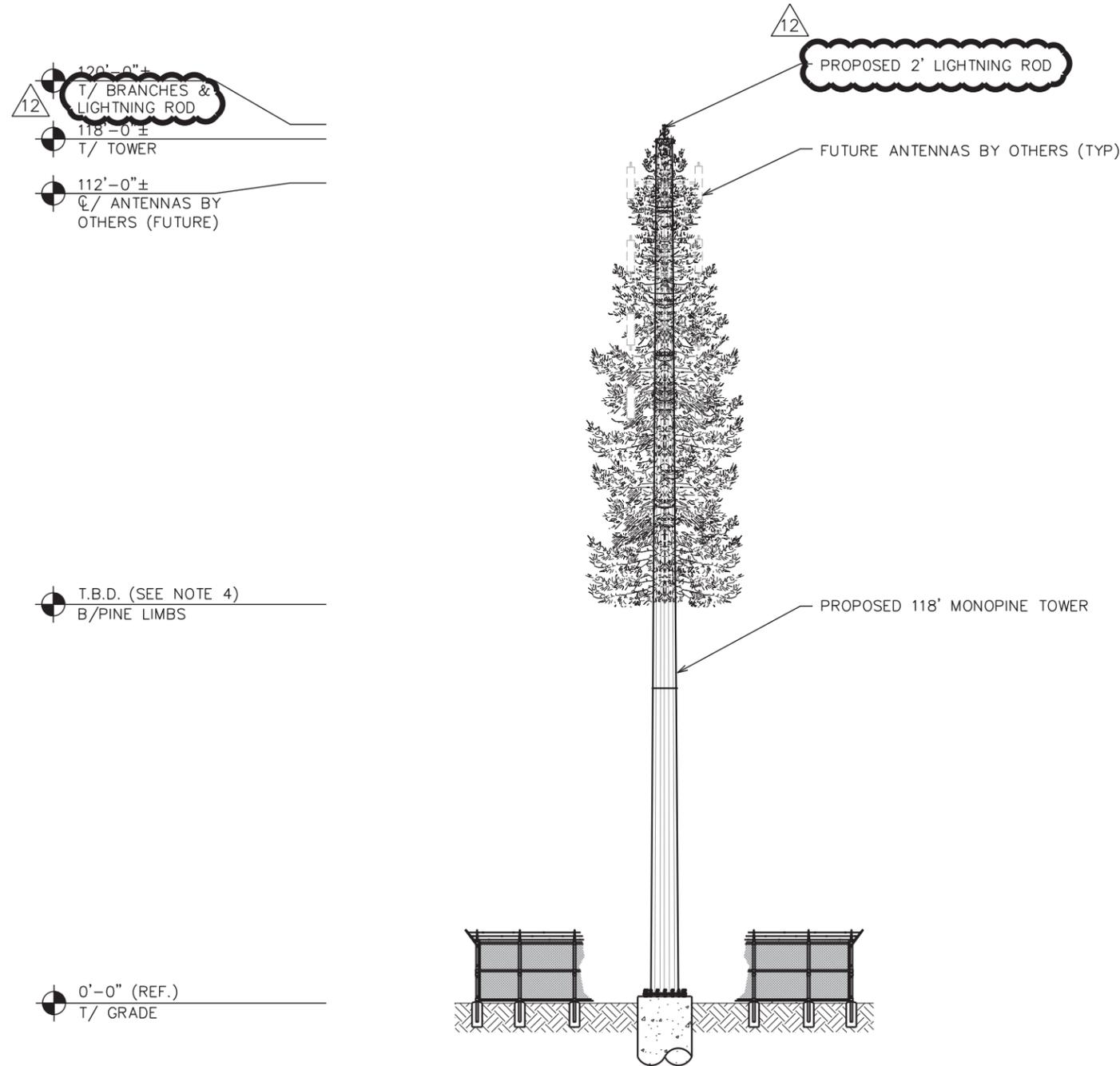
SHEET NUMBER: **C-2** REVISION: **13**  
TEP #: 141883

**COMPOUND DETAIL**  
SCALE: 1/16" = 1'-0"



**NOTES:**

1. PROPOSED CABLES TO BE RUN AS PER SPECIFICATIONS OF PASSING STRUCTURAL ANALYSIS. IF PROPOSED COAX TO BE RUN INSIDE TOWER USING HOISTING GRIPS (AS DIRECTED BY TOWER MANUFACTURER).
2. TOWER SHALL BE CONSTRUCTED OF GALVANIZED STEEL OR PAINTED PER APPLICABLE STANDARDS OF THE FAA OR OTHER APPLICABLE FEDERAL OR STATE AGENCY.
3. TOWER ELEVATION SHOWN FOR REFERENCE ONLY. VERIFY ACTUAL TOWER DESIGN & LOADING WITH TOWER DRAWINGS FROM MANUFACTURER AND/OR PASSING STRUCTURAL ANALYSIS PRIOR TO CONSTRUCTION.
4. PROPOSED BOTTOM OF PINE LIMBS ON TOWER SHALL BE AT OR BELOW THE EXISTING TREE LINE ELEVATION FOR THE SITE.



PLANS PREPARED FOR:



8601 SIX FORKS ROAD, SUITE 250  
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PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

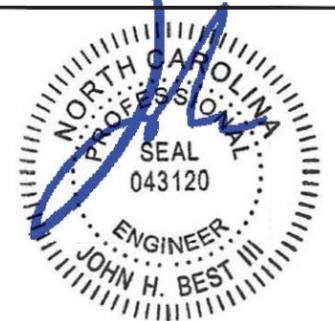
2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
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January 30, 2020

13	01-30-20	CONSTRUCTION
12	01-28-20	CONSTRUCTION
11	01-27-20	CONSTRUCTION
10	01-06-20	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: ANG CHECKED BY: MWS

SHEET TITLE:

**TOWER  
ELEVATION**

SHEET NUMBER: REVISION:

**C-3**

**13**

TEP #: 141883

**TOWER ELEVATION**

SCALE: 1" = 20'



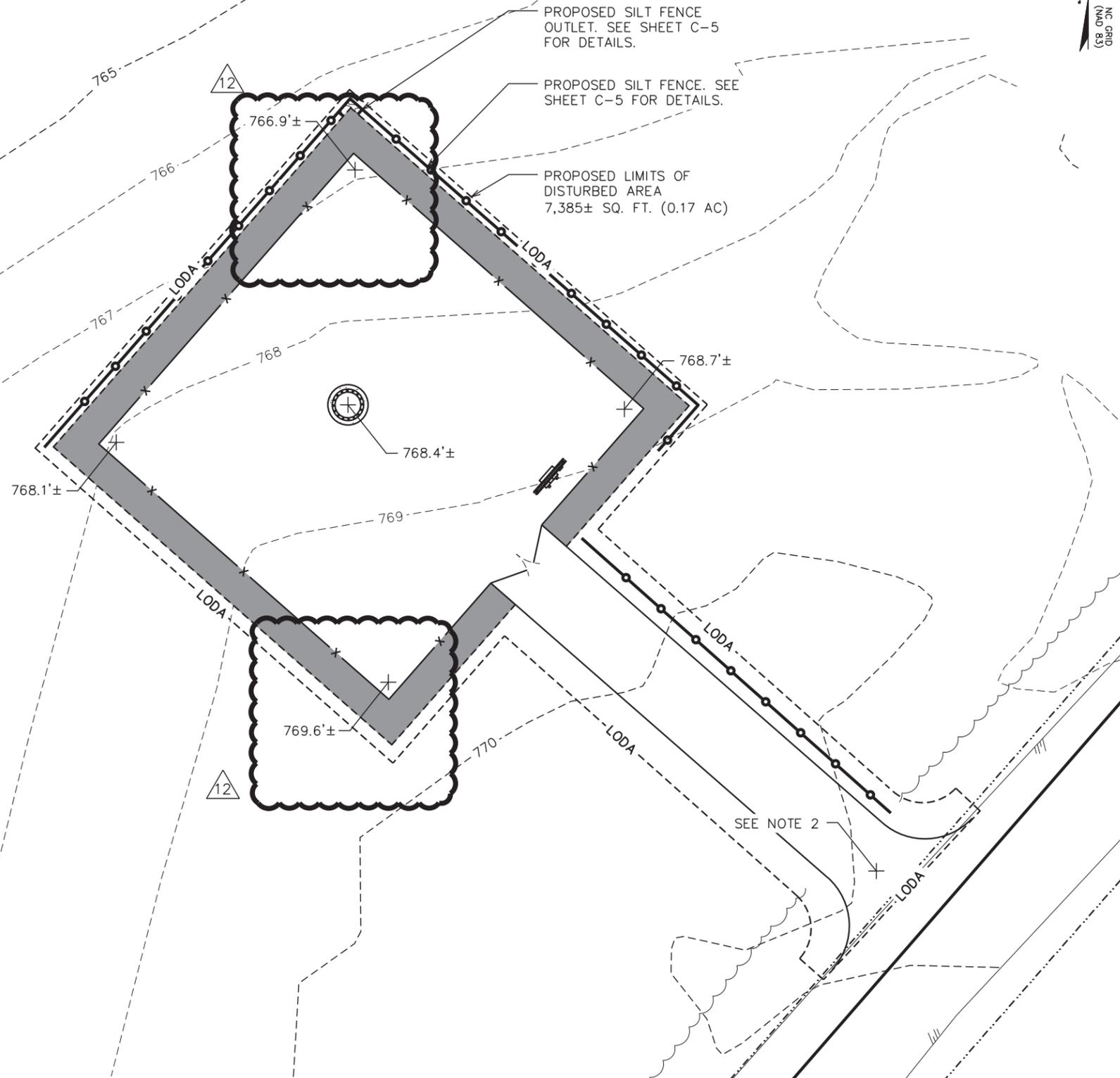
**GRADING NOTES:**

1. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ACROSS COMPOUND.
2. CONTRACTOR TO ENSURE POSITIVE DRAINAGE FROM EXISTING SHALLOW SWALE ACROSS PROPOSED ACCESS DRIVE AND NOT ACROSS FRIENDSHIP DRIVE.

CURRENT 2019-708  
2/5/2020

LEGEND	
SILT FENCE	
LIMITS OF DISTURBED AREA	-- LODA --

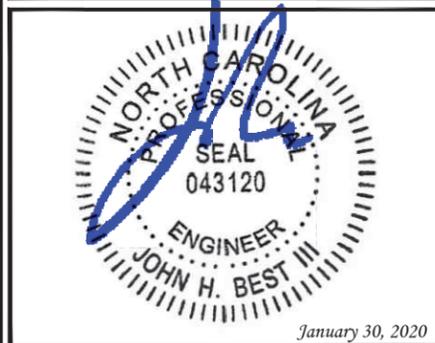
PARENT PROPERTY DATA TABLE	
PARENT PARCEL AREA:	4.87 ACRES±
EXISTING IMPERVIOUS:	1.02 ACRES± (20.9%)
PROPOSED IMPERVIOUS:	0.12 ACRES± (2.5%)
TOTAL IMPERVIOUS:	1.14 ACRES± (23.4%)
TOTAL PROPOSED DISTURBED AREA:	0.17 ACRES± (3.5%)



PLANS PREPARED FOR:  
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FRIENDSHIP DRIVE**  
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11	01-27-20	CONSTRUCTION
10	01-06-20	CONSTRUCTION
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DRAWN BY: SAT CHECKED BY: MWS

SHEET TITLE:  
**GRADING & EROSION CONTROL PLAN**

SHEET NUMBER: <b>C-4</b>	REVISION: <b>13</b>
	TEP #: 141883

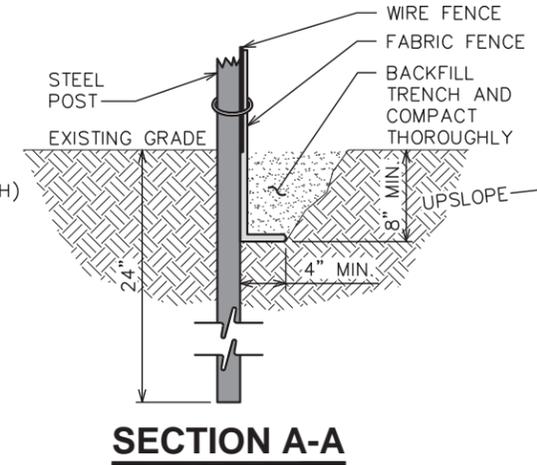
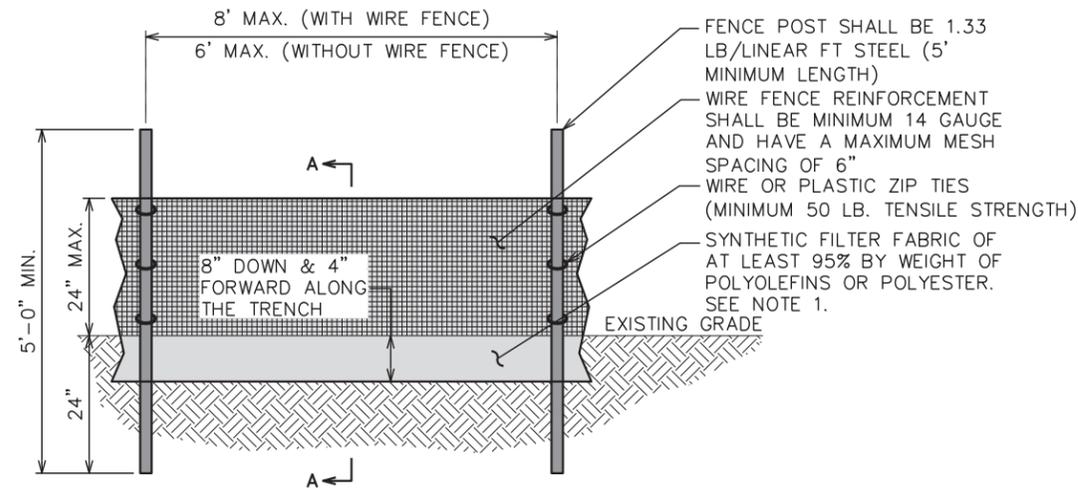
**GRADING & EROSION CONTROL PLAN**  
SCALE: 1" = 20'



CURRENT 2019-708  
2/5/2020

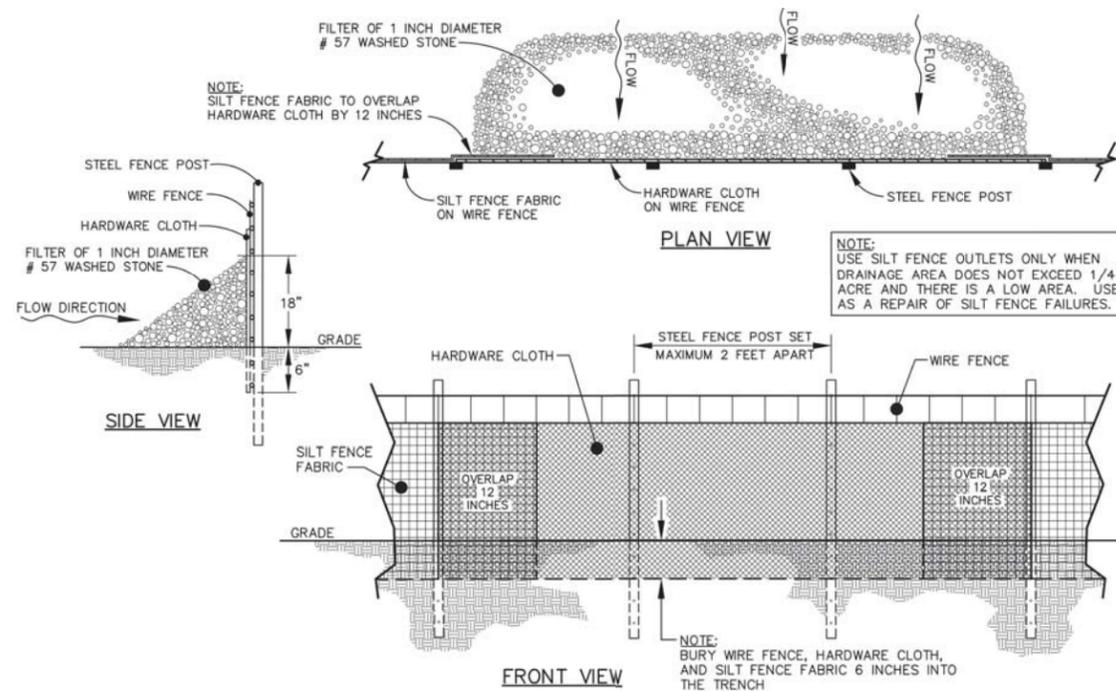
**NOTES:**

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. PACE 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.



**SILT FENCE DETAIL**

SCALE: N.T.S.



**STANDARD SILT FENCE OUTLET DETAIL**

SCALE: N.T.S.

PLANS PREPARED FOR:



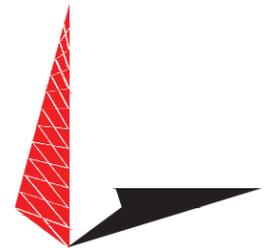
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

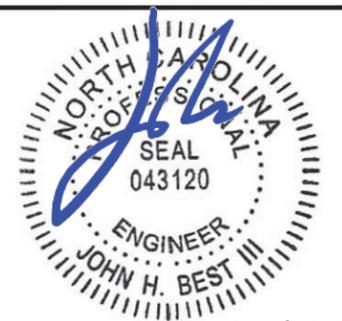
2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:



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RALEIGH, NC 27603-5263  
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8	11-21-19	CONSTRUCTION
7	11-05-19	CONSTRUCTION
6	10-24-19	CONSTRUCTION
5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: ANG CHECKED BY: MWS

SHEET TITLE:  
**SILT FENCE DETAILS**

SHEET NUMBER: <b>C-5</b>	REVISION: <b>8</b>
	TEP #: 141883

CURRENT 2019-708  
2/5/2020

PLANS PREPARED FOR:



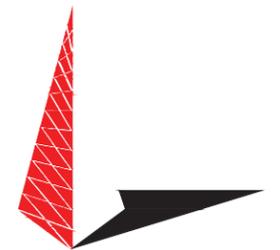
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
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N.C. LICENSE # C-1794



November 21, 2019

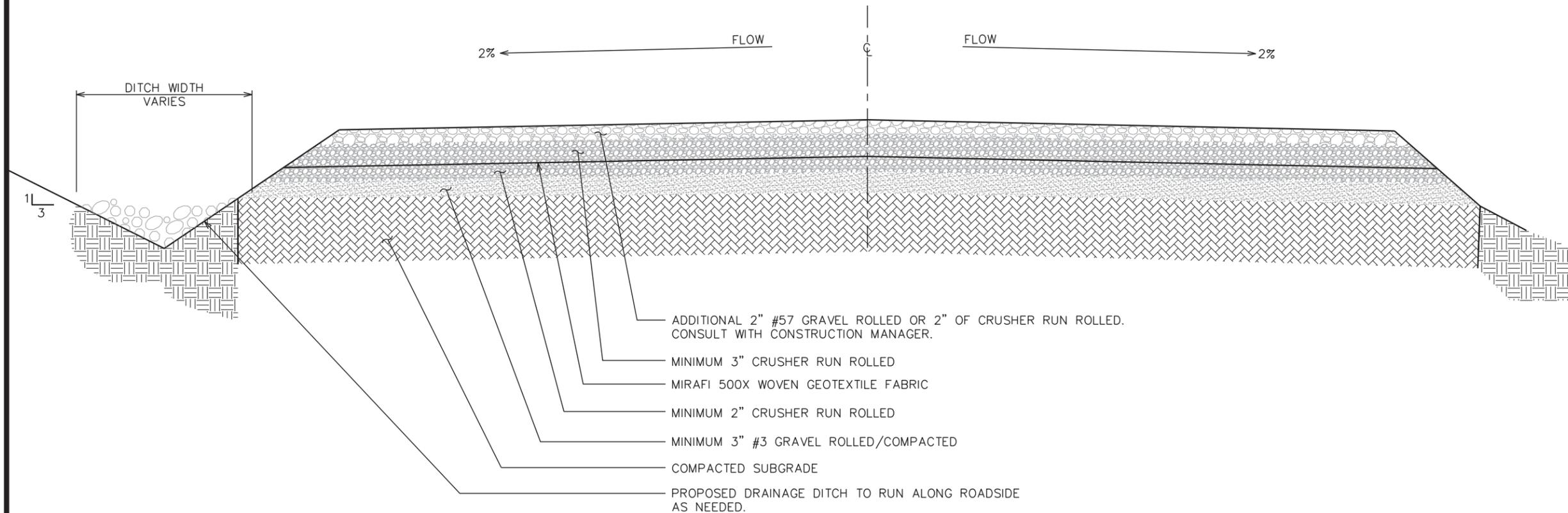
8	11-21-19	CONSTRUCTION
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5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: ANG CHECKED BY: MWS

SHEET TITLE:

**ACCESS  
ROAD DETAILS**

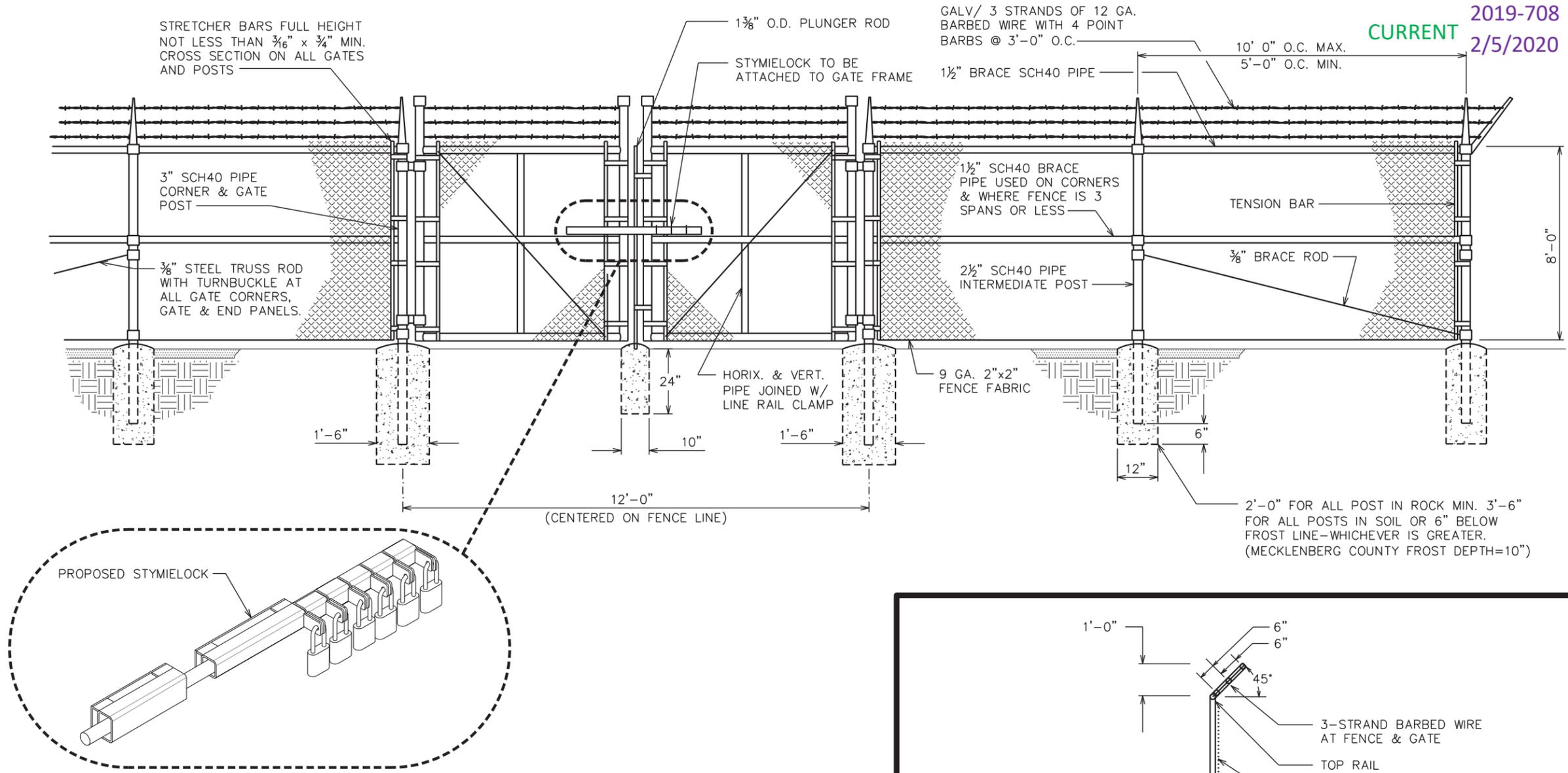
SHEET NUMBER: <b>C-6</b>	REVISION: <b>8</b>
	TEP #: 141883



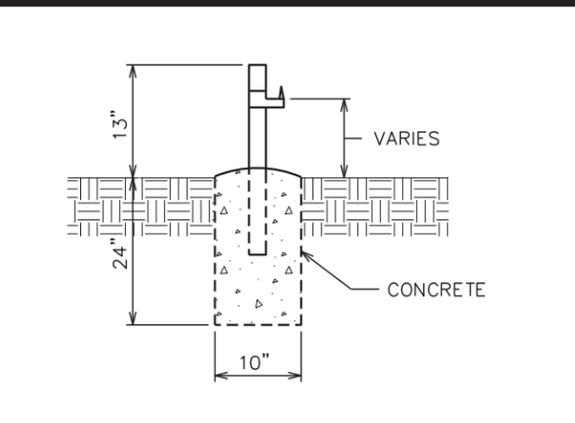
**STANDARD ROAD SECTION**

SCALE: N.T.S.

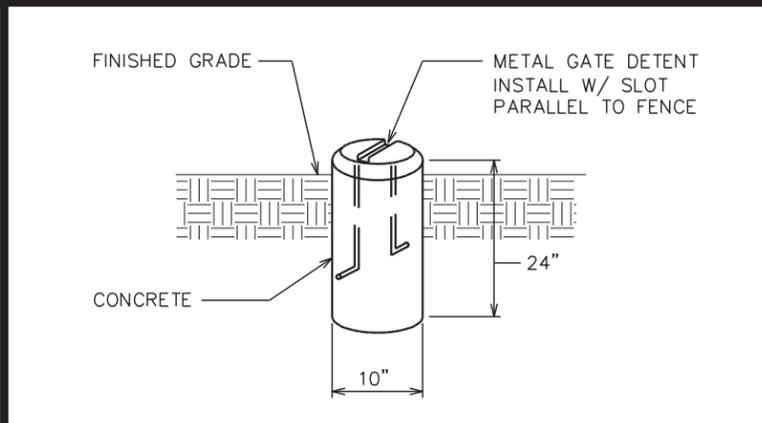
2019-708  
CURRENT  
2/5/2020



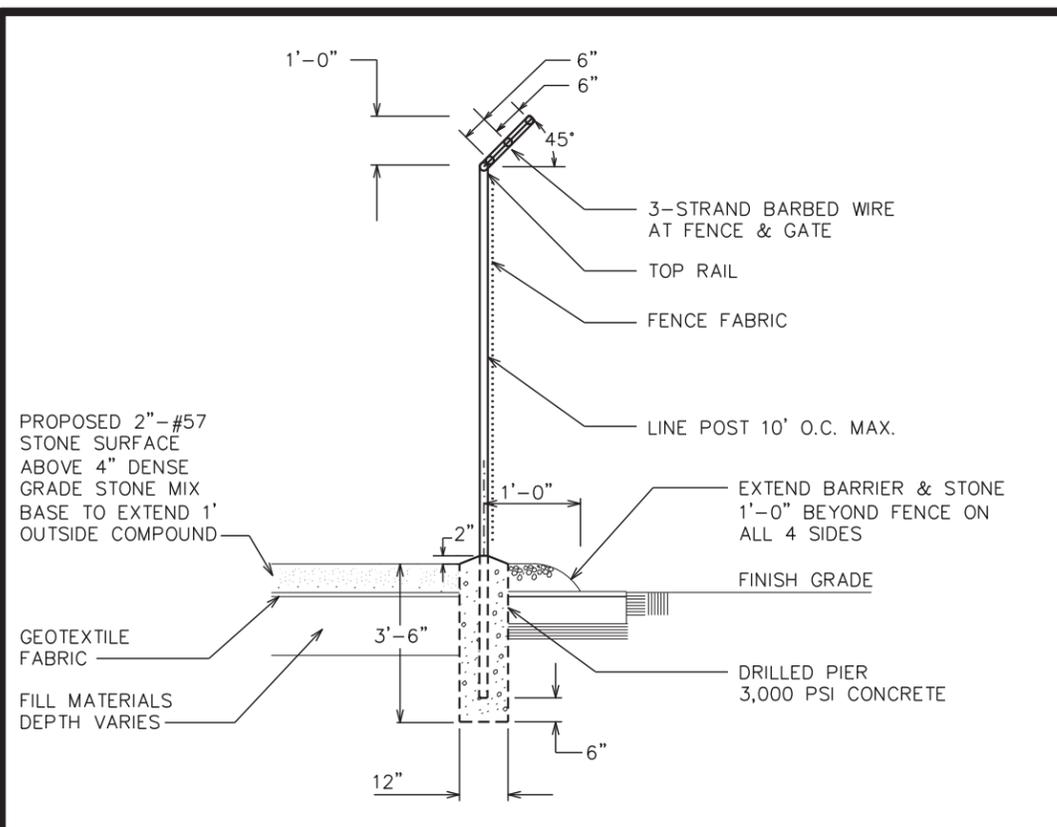
**TYPICAL FENCE ELEVATION**  
SCALE: N.T.S.



**GATE STOP / KEEPER DETAIL**  
SCALE: N.T.S.



**GATE DETENT DETAIL**  
SCALE: N.T.S.

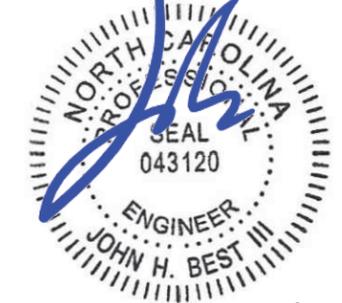


**FENCE / BARBED WIRE ARM DETAIL**  
SCALE: N.T.S.

PLANS PREPARED FOR:  
**APC Towers**  
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:  
**NC-1512  
FRIENDSHIP DRIVE**  
2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

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**TOWER ENGINEERING PROFESSIONALS**  
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November 21, 2019

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5	08-01-19	CONSTRUCTION

DRAWN BY: ANG CHECKED BY: MWS

SHEET TITLE:  
**FENCE  
DETAILS**

SHEET NUMBER:  
**C-7**

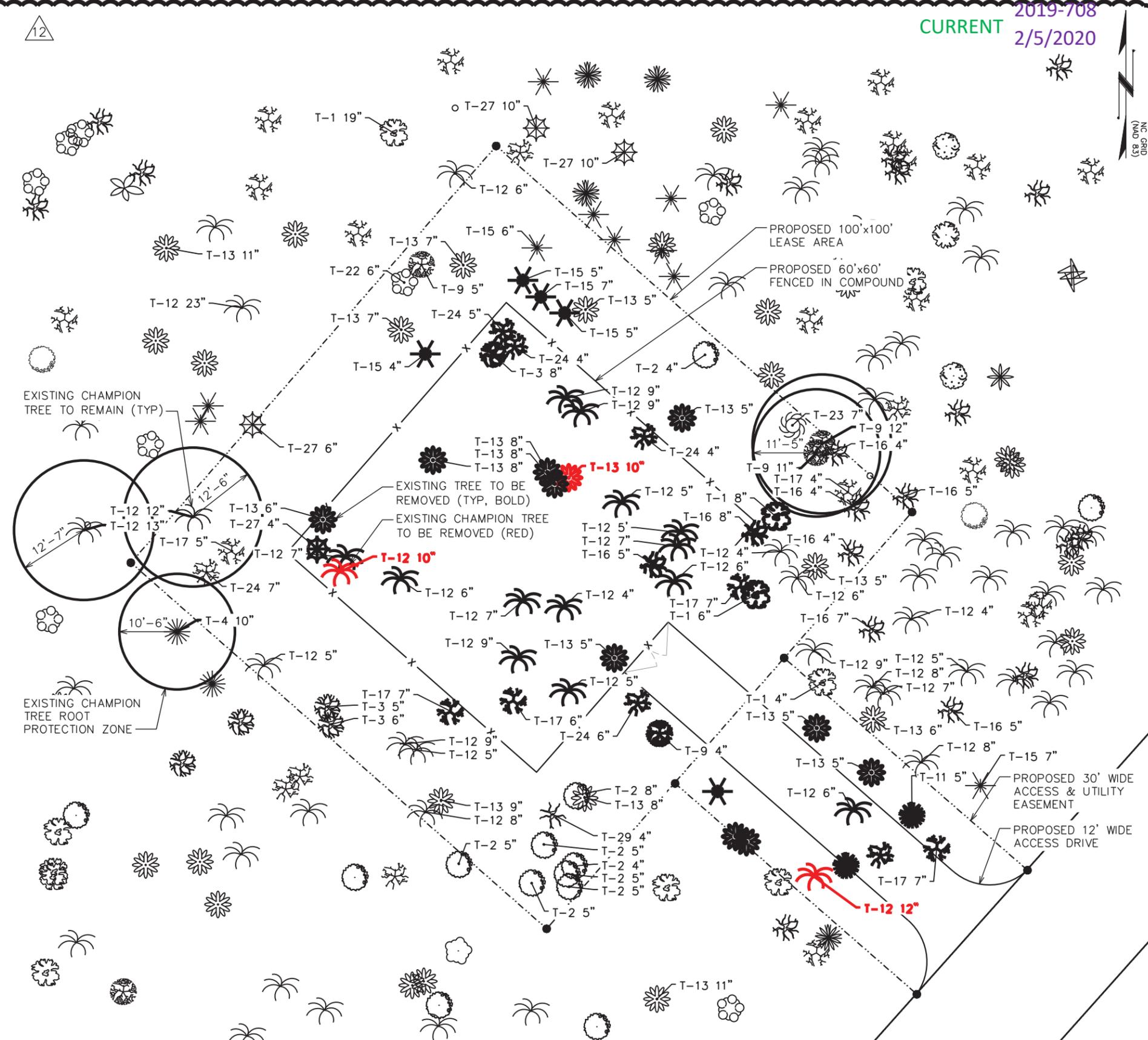
REVISION:  
**8**

TEP #: 141883

TREE TABLE		
SYMBOL	TREE #	TREE TYPE
	T-1	RED MAPLE
	T-2	PIGNOT HICKORY
	T-3	MOCKERNUT HICKORY
	T-9	SCARLET OAK
	T-11	WILLOW OAK
	T-13	NORTHERN RED OAK
	T-15	SHORTLEAF PINE
	T-16	BLACK CHERRY
	T-17	SWEET GUM
	T-22	TULIPTREE
	T-23	DOGWOOD
	T-24	BLACKGUM
	T-27	LOBLOLLY PINE
	T-29	AMERICAN BEECH

**NOTES:**

- BOLD TREES ARE TO BE REMOVED
- RED, BOLD TREES ARE CHAMPION TREES TO BE REMOVED
- CIRCLES SHOW ROOT PROTECTION ZONE AROUND CHAMPION TREES TO REMAIN

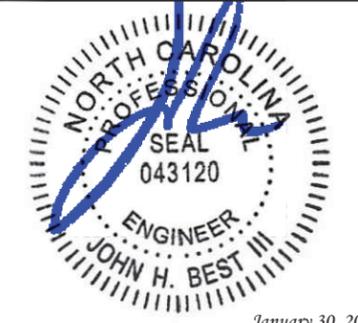


2019-708  
CURRENT 2/5/2020

PLANS PREPARED FOR:  
**APC Towers**  
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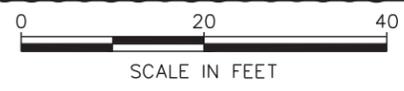
REV	DATE	ISSUED FOR:
13	01-30-20	CONSTRUCTION
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DRAWN BY: SAT CHECKED BY: MWS

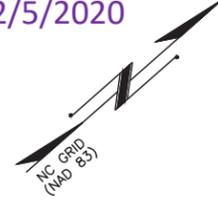
SHEET TITLE:  
**TREE PROTECTION PLAN**

SHEET NUMBER: **C-8** REVISION: **13**  
TEP #: 141883

**TREE PROTECTION PLAN**  
SCALE: 1" = 20'



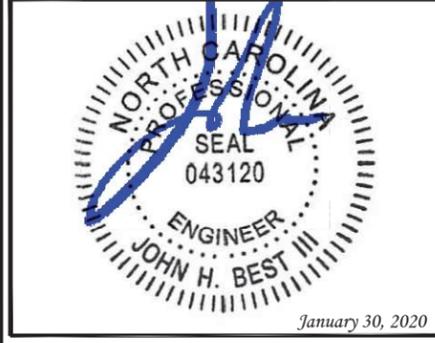
CURRENT 2019-708  
2/5/2020



PLANS PREPARED FOR:  
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10	01-06-20	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: SAT | CHECKED BY: JKW

SHEET TITLE:  
**LANDSCAPING  
PLAN**

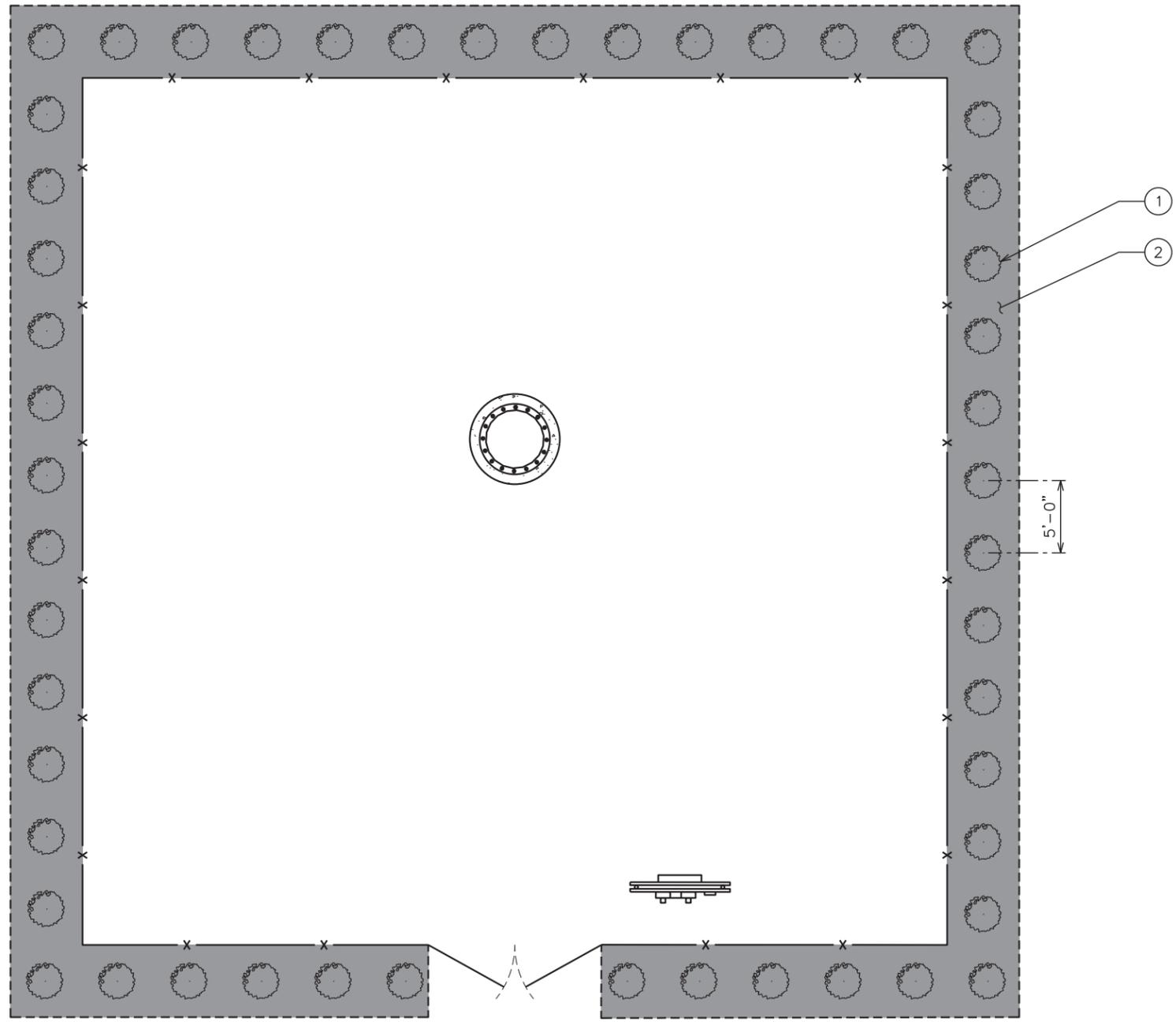
SHEET NUMBER:  
**L-1**

REVISION:  
**13**  
TEP #: 141883

**PLANTING SCHEDULE**

ITEM	QTY.	BOTANICAL NAME	COMMON NAME	HEIGHT @ PLANTING	HEIGHT @ MATURITY	CALIPER/SPREAD	SPACING	REMARKS
<b>EVERGREEN TREES</b>								
①	48	Thuja Standishi x Plicata	GREEN GIANT ARBORVITAE	6'-0"	50'-0" (MIN)	-	5'-0"	SHOWN AS 
<b>MULCH</b>								
②	-	-	-	-	-	-	-	APPLY 3"-4" DEEP FROM THE TRUNKLINE TO THE DRIPLINE. FOR GROUND COVER - APPLY 1"-2" DEEP.

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**LANDSCAPING PLAN**  
SCALE: 1' = 10'



**LANDSCAPE NOTES:**

1. TOPSOIL TO BE PROVIDED BY SITE CONTRACTOR IN ROUGH GRADE TO WITHIN 1" OF FINISH GRADE.
2. EACH PLANT TO BE IN GOOD CONDITION AFTER SHEARING AND PRUNING.
3. EACH PLANT TO BE FREE FROM DISEASE, INSECT INFESTATION, AND MECHANICAL INJURIES, AND IN ALL RESPECTS BE SUITABLE FOR FIELD PLANTING.
4. ALL PLANTS TO BE FULLY GUARANTEED (LABOR AND MATERIALS) FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF INSTALLATION.
5. ALL PLANTS SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1-1973 IN REGARD TO SIZING, GROWING, AND B&B SPECIFICATIONS.
6. THE CONTRACTOR SHALL PROTECT ALL EXISTING TREES AND SHRUBS WITHIN THE CONSTRUCTION AREA IDENTIFIED AS "TO REMAIN" FROM DAMAGE BY EQUIPMENT AND CONSTRUCTION ACTIVITIES.

CURRENT 2019-708  
2/5/2020

PLANS PREPARED FOR:



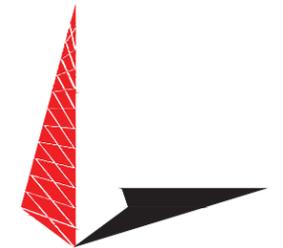
8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
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PLANS PREPARED BY:



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DRAWN BY: GLB CHECKED BY: JKW

SHEET TITLE:

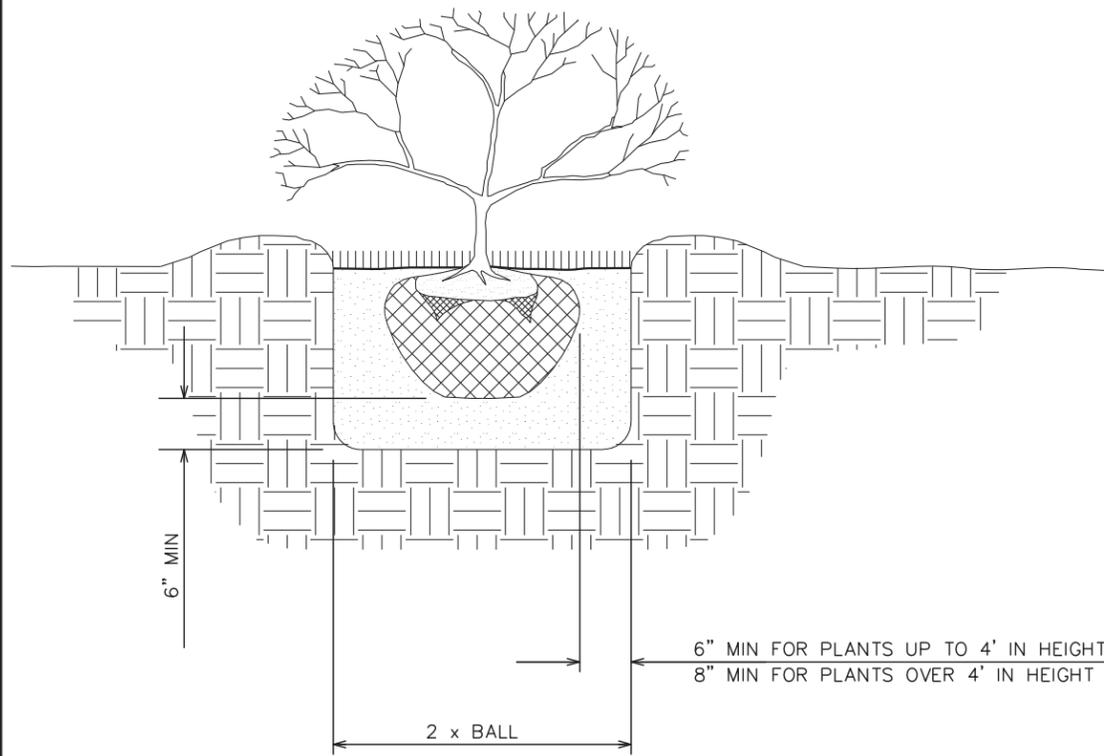
**LANDSCAPING  
DETAILS**

SHEET NUMBER: REVISION:

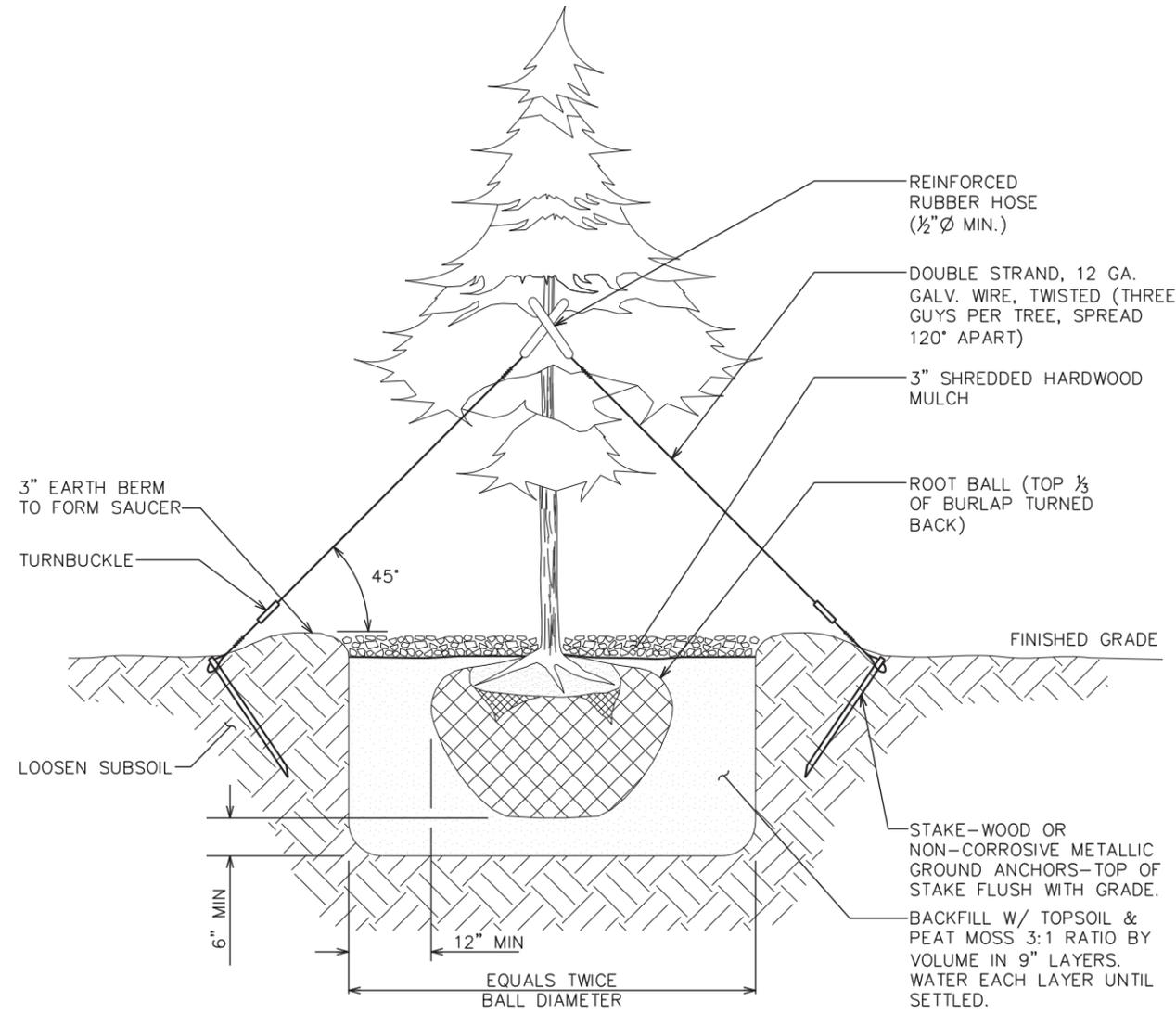
**L-2**

**8**

TEP #: 141883



**SHRUB PLANTING DETAIL**



**TREE PLANTING DETAIL**

**LANDSCAPING DETAILS**

SCALE: N.T.S.

CURRENT 2019-708  
2/5/2020

**SCOPE:**

1. PROVIDE LABOR, MATERIALS, INSPECTION, AND TESTING TO PROVIDE CODE COMPLIANCE FOR ELECTRIC, TELEPHONE, AND GROUNDING/LIGHTNING SYSTEMS.

**CODES:**

1. THE INSTALLATION SHALL COMPLY WITH APPLICABLE LAWS AND CODES. THESE INCLUDE BUT ARE NOT LIMITED TO THE LATEST ADOPTED EDITIONS OF:
  - A. THE NATIONAL ELECTRICAL SAFETY CODE
  - B. THE NATIONAL ELECTRIC CODE – NFPA-70
  - C. REGULATIONS OF THE SERVING UTILITY COMPANY
  - D. LOCAL AND STATE AMENDMENTS
  - E. THE INTERNATIONAL ELECTRIC CODE – IEC (WHERE APPLICABLE)
2. PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR.
3. AFTER COMPLETION AND FINAL INSPECTION OF THE WORK, THE OWNER SHALL BE FURNISHED A CERTIFICATE OF COMPLETION AND APPROVAL.

**TESTING:**

1. UPON COMPLETION OF THE INSTALLATION, OPERATE AND ADJUST THE EQUIPMENT AND SYSTEMS TO MEET SPECIFIED PERFORMANCE REQUIREMENTS. THE TESTING SHALL BE DONE BY QUALIFIED PERSONNEL.

**GUARANTEE:**

1. IN ADDITION TO THE GUARANTEE OF THE EQUIPMENT BY THE MANUFACTURER, EACH PIECE OF EQUIPMENT SPECIFIED HEREIN SHALL ALSO BE GUARANTEED FOR DEFECTS OF MATERIAL OR WORKMANSHIP OCCURRING DURING A PERIOD OF ONE (1) YEAR FROM FINAL ACCEPTANCE OF THE WORK BY THE OWNER AND WITHOUT EXPENSE TO THE OWNER.
2. THE WARRANTEE CERTIFICATES & GUARANTEES FURNISHED BY THE MANUFACTURERS SHALL BE TURNED OVER TO THE OWNER.

**UTILITY CO-ORDINATION:**

1. CONTRACTOR SHALL COORDINATE WORK WITH THE POWER AND TELEPHONE COMPANIES AND SHALL COMPLY WITH THE SERVICE REQUIREMENTS OF EACH UTILITY COMPANY.

**EXAMINATION OF SITE:**

1. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE JOB AND SHALL FAMILIARIZE HIMSELF WITH THE CONDITIONS AFFECTING THE PROPOSED ELECTRICAL INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. FAILURE TO COMPLY WITH THE INTENT OF THIS SECTION WILL IN NO WAY RELIEVE THE CONTRACTOR OF PERFORMING THE WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM OR SYSTEMS.

**CUTTING, PATCHING AND EXCAVATION:**

1. COORDINATION OF SLEEVES, CHASES, ETC., BETWEEN SUBCONTRACTORS WILL BE REQUIRED PRIOR TO THE CONSTRUCTION OF ANY PORTION OF THE WORK. CUTTING AND PATCHING OF WALLS, PARTITIONS, FLOORS, AND CHASES IN CONCRETE, WOOD, STEEL OR MASONRY SHALL BE DONE AS PROVIDED ON THE DRAWINGS.
2. NECESSARY EXCAVATIONS AND BACKFILLING INCIDENTAL TO THE ELECTRICAL WORK SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWING.
3. SEAL PENETRATIONS THROUGH RATED WALLS, FLOORS, ETC., WITH APPROVED METHOD AS LISTED BY UL.

**RACEWAYS / CONDUITS GENERAL:**

1. CONDUITS SHALL BE INSTALLED IN LISTED RACEWAYS. CONDUIT SHALL BE RIGID STEEL, EMT, SCH40 PVC, OR SCH80PVC AS INDICATED ON THE DRAWINGS. THE RACEWAY SYSTEM SHALL BE COMPLETE BEFORE INSTALLING CONDUITS.
2. EXTERIOR RACEWAYS AND GROUNDING SLEEVES SHALL BE SEALED AT POINTS OF ENTRANCE AND EXIT. THE RACEWAY SYSTEM SHALL BE BONDED PER NEC.

**EXTERIOR CONDUIT:**

1. EXPOSED CONDUIT SHALL BE NEATLY INSTALLED AND RUN PARALLEL OR PERPENDICULAR TO STRUCTURAL ELEMENTS. SUPPORTS AND MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED STEEL.
2. THE CONDUIT SHALL BE RIGID STEEL AT GRADE TRANSITIONS OR WHERE EXPOSED TO DAMAGE.
3. UNDERGROUND CONDUITS SHALL BE RIGID STEEL, SCH40 PVC, OR SCH80 PVC AS INDICATED ON THE DRAWINGS.
4. BURIAL DEPTH OF CONDUITS SHALL BE AS REQUIRED BY CODE FOR EACH SPECIFIC CONDUIT TYPE AND APPLICATION, BUT SHALL NOT BE LESS THAN THE FROST DEPTH AT THE SITE.
5. CONDUIT ROUTES ARE SCHEMATIC. CONTRACTOR SHALL FIELD VERIFY ROUTES BEFORE BID. COORDINATE ROUTE WITH WIRELESS CARRIER AND/OR BUILDING OWNER.

**INTERIOR CONDUIT:**

1. CONCEALED CONDUIT IN WALLS OR INTERIOR SPACES ABOVE GRADE MAY BE EMT OR PVC.
2. CONDUIT RUNS SHALL USE APPROVED COUPLINGS AND CONNECTORS. PROVIDE INSULATED BUSHING FOR ALL CONDUIT TERMINATIONS. CONDUIT RUNS IN A WET LOCATION SHALL HAVE WATERPROOF FITTINGS.
3. PROVIDE SUPPORTS FOR CONDUITS IN ACCORDANCE WITH NEC REQUIREMENTS. CONDUITS SHALL BE SIZED AS REQUIRED BY NEC.

**EQUIPMENT:**

1. DISCONNECT SWITCHES SHALL BE SERVICE ENTRANCE RATED, HEAVY DUTY TYPE.
2. CONTRACTOR SHALL VERIFY MAXIMUM AVAILABLE FAULT CURRENT AND COORDINATE INSTALLATION WITH THE LOCAL UTILITY BEFORE STARTING WORK. CONTRACTOR WILL VERIFY THAT EXISTING CIRCUIT BREAKERS ARE RATED FOR MORE THAN AVAILABLE FAULT CURRENT AND REPLACE AS NECESSARY.
3. NEW CIRCUIT BREAKERS SHALL BE RATED TO WITHSTAND THE MAXIMUM AVAILABLE FAULT CURRENT AS DETERMINED BY THE LOCAL UTILITY.

**CONDUCTORS:**

1. FURNISH AND INSTALL CONDUCTORS SPECIFIED IN THE DRAWINGS. CONDUCTORS SHALL BE COPPER AND SHALL HAVE TYPE THWN (MIN) (75° C) INSULATION, RATED FOR 600 VOLTS.
2. THE USE OF ALUMINUM CONDUCTORS SHALL BE LIMITED TO THE SERVICE FEEDERS INSTALLED BY THE UTILITY.
3. CONDUCTORS SHALL BE PROVIDED AND INSTALLED AS FOLLOWS:
  - A. MINIMUM WIRE SIZE SHALL BE #12 AWG.
  - B. CONDUCTORS SIZE #8 AND LARGER SHALL BE STRANDED. CONDUCTORS SIZED #10 AND #12 MAY BE SOLID OR STRANDED.
  - C. CONNECTION FOR #10 AWG #12 AWG SHALL BE BY TWISTING TIGHT AND INSTALLING INSULATED PRESSURE OR WIRE NUT CONNECTIONS.
  - D. CONNECTION FOR #8 AWG AND LARGER SHALL BE BY USE OF STEEL CRIMP-ON SLEEVES WITH NYLON INSULATOR.
3. CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC STANDARDS.

**UL COMPLIANCE:**

1. ELECTRICAL MATERIALS, DEVICES, CONDUCTORS, APPLIANCES, AND EQUIPMENT SHALL BE LABELED/LISTED BY UL OR ACCEPTED BY JURISDICTION (I.E., LOCAL COUNTY OR STATE) APPROVED THIRD PARTY TESTING AGENCY.

**GROUNDING:**

1. ELECTRICAL NEUTRALS, RACEWAYS AND NON-CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT AND ASSOCIATED ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250. THIS SHALL INCLUDE NEUTRAL CONDUCTORS, CONDUITS, SUPPORTS, CABINETS, BOXES, GROUND BUSSES, ETC. THE NEUTRAL CONDUCTOR FOR EACH SYSTEM SHALL BE GROUNDED AT A SINGLE POINT.
2. PROVIDE GROUND CONDUCTOR IN RACEWAYS PER NEC.
3. PROVIDE BONDING AND GROUND TO MEET NFPA 780 – "LIGHTNING PROTECTION" AS A MINIMUM.
4. PROVIDE GROUNDING SYSTEM AS INDICATED ON THE DRAWINGS, AS REQUIRED BY THE NATIONAL ELECTRIC CODE, RADIO EQUIPMENT MANUFACTURERS, AND MOTOROLA R56 (AS APPLICABLE).

ABBREVIATIONS AND LEGEND			
A	– AMPERE	PNLBD	– PANELBOARD
AFG	– ABOVE FINISHED GRADE	PVC	– RIGID NON-METALLIC CONDUIT
ATS	– AUTOMATIC TRANSFER SWITCH	RGS	– RIGID GALVANIZED STEEL CONDUIT
AWG	– AMERICAN WIRE GAUGE	SW	– SWITCH
BCW	– BARE COPPER WIRE	TGB	– TOWER GROUND BAR
BFG	– BELOW FINISHED GRADE	UL	– UNDERWRITERS LABORATORIES
BKR	– BREAKER	V	– VOLTAGE
C	– CONDUIT	W	– WATTS
CKT	– CIRCUIT	XFMR	– TRANSFORMER
DISC	– DISCONNECT	XMTR	– TRANSMITTER
EGR	– EXTERNAL GROUND RING		
EMT	– ELECTRIC METALLIC TUBING		
FSC	– FLEXIBLE STEEL CONDUIT		
GEN	– GENERATOR		
GPS	– GLOBAL POSITIONING SYSTEM		
GRD	– GROUND		
IGB	– ISOLATED GROUND BAR		
IGR	– INTERIOR GROUND RING (HALO)		
KW	– KILOWATTS		
NEC	– NATIONAL ELECTRIC CODE		
PCS	– PERSONAL COMMUNICATION SYSTEM		
PH	– PHASE		
PNL	– PANEL		

----	<b>E</b>	----	UNDERGROUND ELECTRICAL CONDUIT
----	<b>T</b>	----	UNDERGROUND TELEPHONE CONDUIT
			KILOWATT-HOUR METER
-----		-----	UNDERGROUND BONDING AND GROUNDING CONDUCTOR.
			GROUND ROD
			CADWELD
			GROUND ROD WITH INSPECTION WELL

PLANS PREPARED FOR:



8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512 STALLINGS**

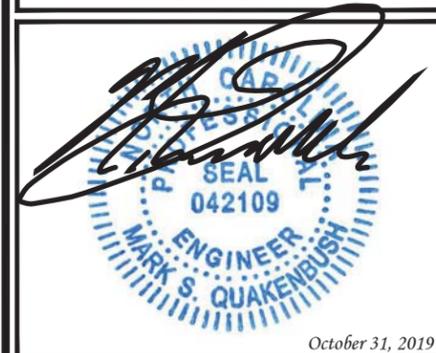
FRIENDSHIP DRIVE  
MORNING STAR TOWNSHIP, NC 28104  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS  
326 TRYON ROAD  
RALEIGH, NC 27603-5263  
OFFICE: (919) 661-6351  
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N.C. LICENSE # C-1794



October 31, 2019

7	10-31-19	CONSTRUCTION
6	10-24-19	CONSTRUCTION
5	08-01-19	CONSTRUCTION
4	09-18-18	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: ANG CHECKED BY: MWS

SHEET TITLE:  
**ELECTRICAL NOTES**

SHEET NUMBER: **E-1** REVISION: **7**  
TEP #: 141883

**NOTES:**

- ① WATT-HOUR SOCKETS/SERVICE DISCONNECT MEANS. UTILITY COMPANY TO PROVIDE METERS. PROVIDE IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS.
- ② ALL NEW STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 G90 AFTER FABRICATION.
- ③ FIELD ABRASIONS SHALL BE TOUCH UP PAINTED WITH ZINC RICH GALVANIZING REPAIR IN ACCORDANCE WITH ASTM A780.
- ④ ALL EXPOSED ENDS OF CONDUIT SHALL HAVE WEATHERPROOF CAPS.
- ⑤ PROVIDE 200LB. TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT. STUB CONDUITS INTO ENCLOSURE AND LABEL.
- ⑥ THE POWER COMPANY SHALL TERMINATE THE POWER CABLES (SUPPLIED AND INSTALLED BY THE POWER COMPANY) AT THE UTILITY METERS LOCATED ON THE EQUIPMENT RACK.
- ⑦ CONTRACTOR TO VERIFY RACK DIMENSIONS AND STRUT SPACING RELATIVE TO METER BASE MODEL NUMBER.
- ⑧ GROUNDING ELECTRODE CONDUCTOR IS SIZED FOR SINGLE 200A SERVICE ONLY. IF METER BANK SHARES A COMMON NEUTRAL/GROUND POINT, CONTRACTOR WILL INSTALL (1) 3/0 COPPER GEC INSTEAD.

CURRENT 2019-708  
2/5/2020

PLANS PREPARED FOR:



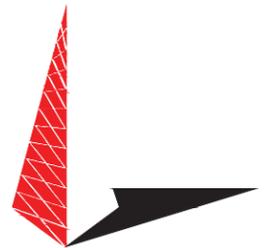
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(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

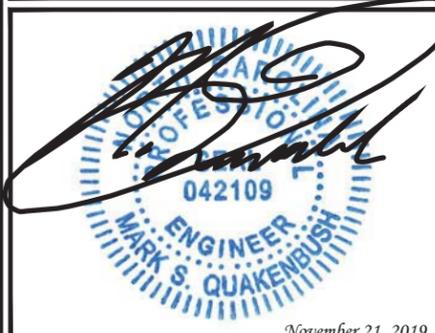
2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:

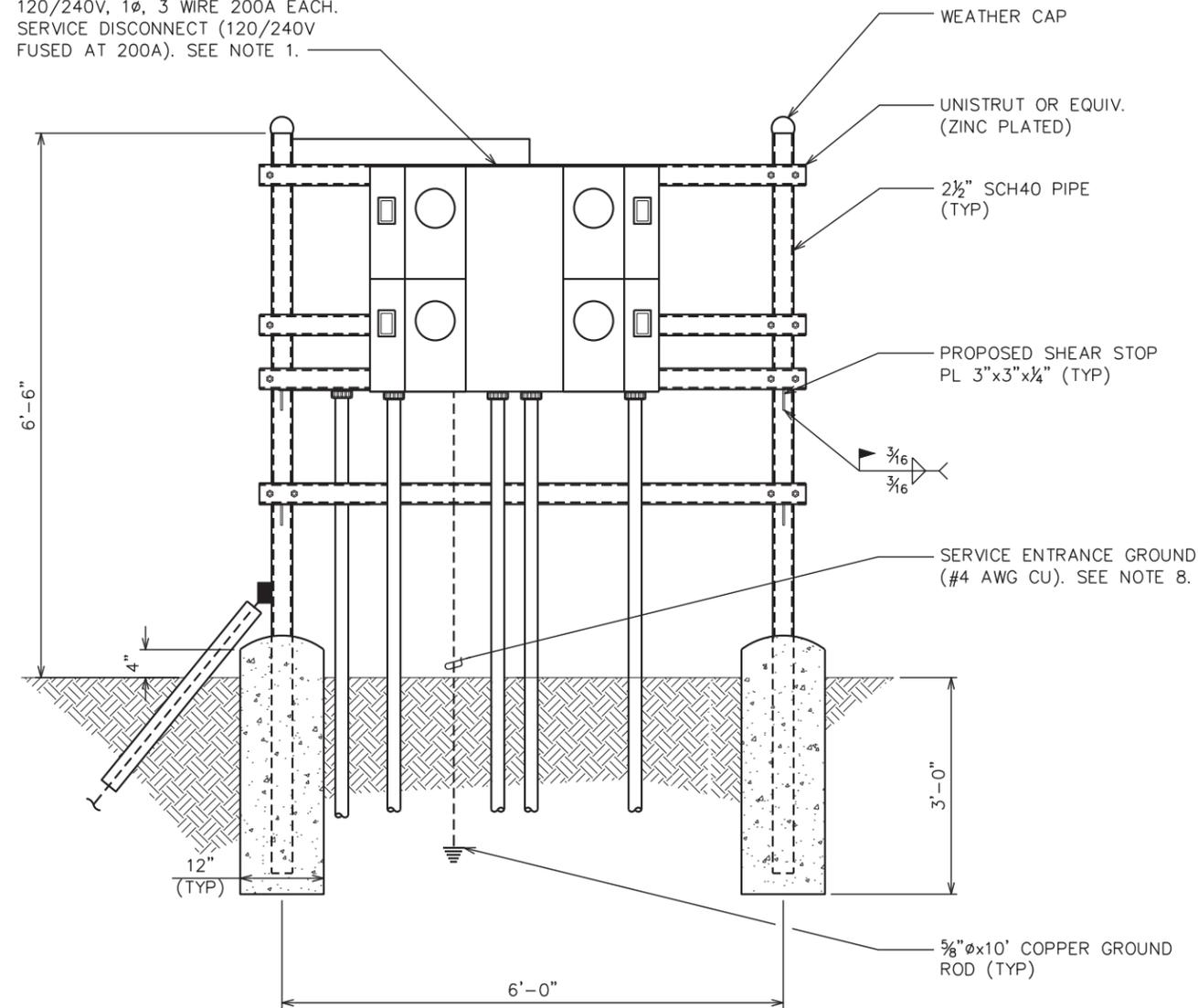


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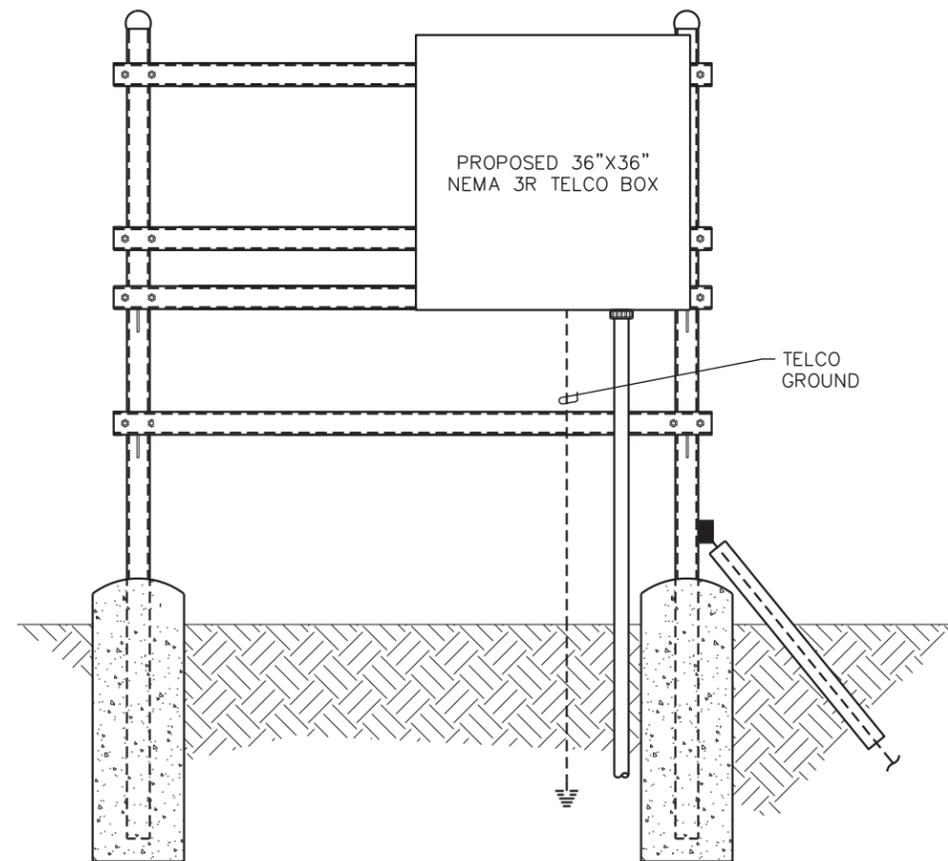
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PROPOSED 4-GANG METER RACK.  
120/240V, 1Ø, 3 WIRE 200A EACH.  
SERVICE DISCONNECT (120/240V  
FUSED AT 200A). SEE NOTE 1.



**SERVICE RACK - FRONT**



**SERVICE RACK - REAR**

**SERVICE RACK**

SCALE: N.T.S.

8	11-21-19	CONSTRUCTION
7	11-05-19	CONSTRUCTION
6	10-24-19	CONSTRUCTION
5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

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SHEET TITLE:

**SERVICE RACK  
DETAILS**

SHEET NUMBER: REVISION:

**E-2**

**8**

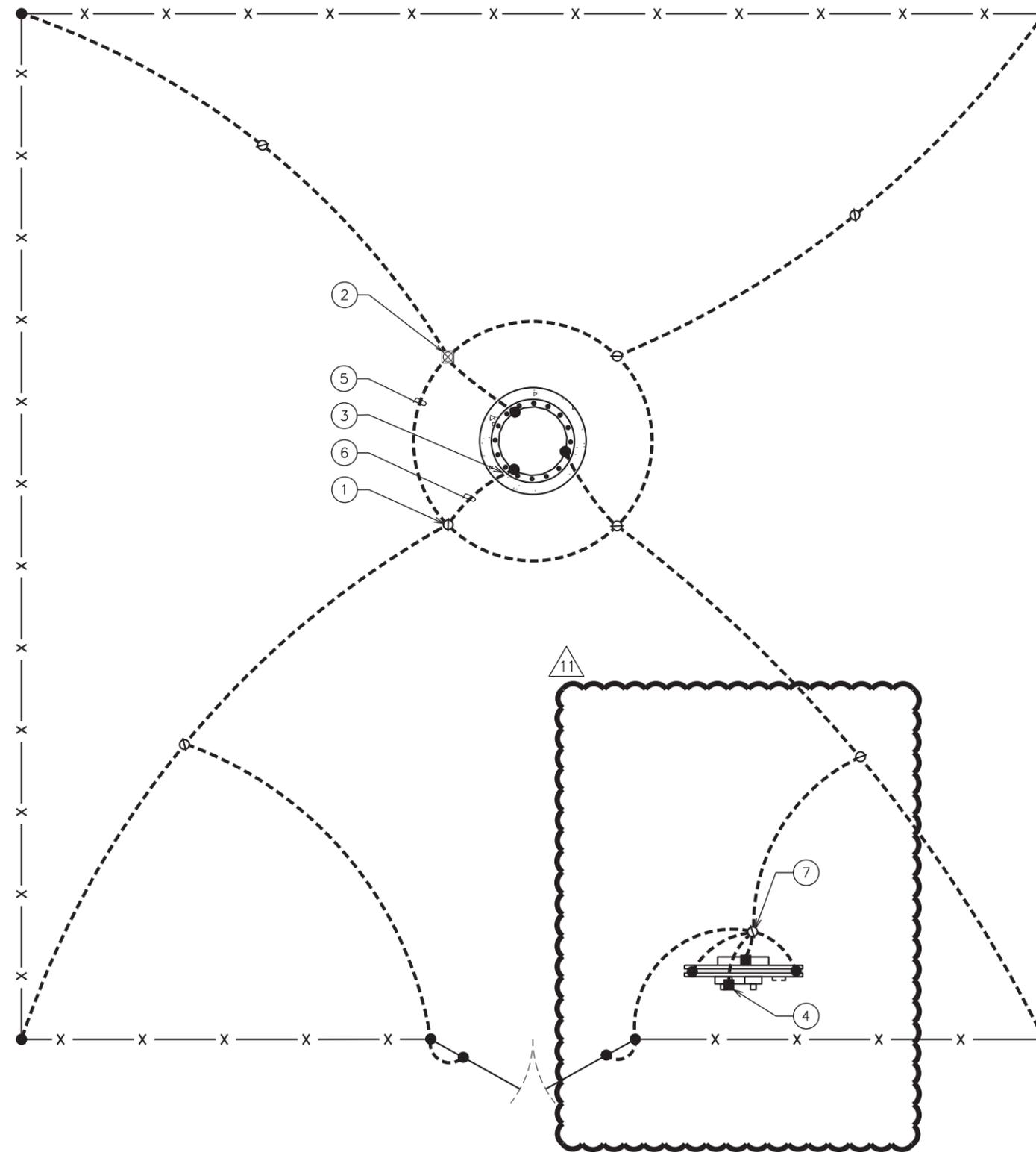
TEP #: 141883

**GROUNDING NOTES:**

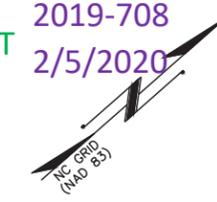
1. CONTRACTOR SHALL VERIFY THAT GROUNDING ELECTRODES SHALL BE CONNECTED IN A RING USING #2 AWG BARE TINNED COPPER WIRE. THE TOP OF THE GROUND RODS AND THE RING CONDUCTOR SHALL BE 30 INCHES BELOW FINISHED GRADE. GROUNDING ELECTRODES SHALL BE DRIVEN ON 20'-0" CENTERS (PROVIDE AND INSTALL AS REQUIRED. REQUIRED PER PLAN BELOW).
2. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250.30.
3. GROUND RING CONNECTION CONDUCTORS SHALL BE OF EQUAL LENGTH, MATERIAL, AND BONDING TECHNIQUE.
4. CONTRACTOR SHALL ENSURE GROUND RING IS WITHIN 12 TO 36 INCHES OF THE EQUIPMENT PAD. PROVIDE AND INSTALL GROUNDING CONNECTIONS SHOWN BELOW AS NEEDED PER EXISTING SITE GROUNDING SYSTEM. CONTRACTOR SHALL VERIFY EXISTING SITE GROUNDING CONDITIONS BEFORE STARTING WORK OR PURCHASING EQUIPMENT.
5. BOND GROUND BAR TO EXTERNAL GROUND RING WITH 1 RUN OF #2 BARE, TINNED, SOLID COPPER CONDUCTOR IN PVC. CONNECT BAR END WITH 2 HOLE LUG, AND "CADWELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
6. ALL DOWN CONDUCTORS MUST GO DOWN.
7. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.

**DRAWING NOTES:**

- 1 GROUND ROD 5/8"x10' LONG (TYP)
- 2 GROUND ROD WITH INSPECTION WELL (TYP)
- 3 CADWELD (TYP)
- 4 2-HOLE LUG MECHANICAL CONNECTION (TYP)
- 5 PROPOSED TOWER GROUND RING
- 6 GROUND LEAD FROM TOWER TO TOWER GROUND RING (TYP OF 3)
- 7 PROPOSED SERVICE ENTRANCE GROUND ROD



CURRENT 2019-708  
2/5/2020



PLANS PREPARED FOR:



8601 SIX FORKS ROAD, SUITE 250  
RALEIGH, NC 27615  
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PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

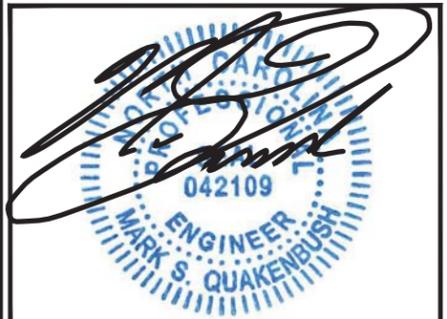
2447 EAST JOHN STREET  
MATTHEWS, NC 28105  
(MECKLENBURG COUNTY)

PLANS PREPARED BY:



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13	01-30-20	CONSTRUCTION
12	01-28-20	CONSTRUCTION
11	01-27-20	CONSTRUCTION
10	01-06-20	CONSTRUCTION
REV	DATE	ISSUED FOR:

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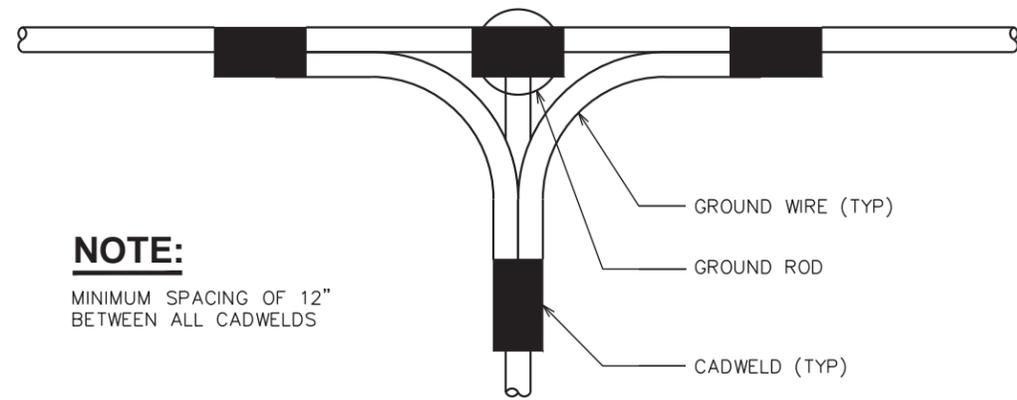
SHEET TITLE:  
**GROUNDING PLAN**

SHEET NUMBER: <b>E-3</b>	REVISION: <b>13</b>
	TEP #: 141883

**TOWER GROUNDING PLAN**

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

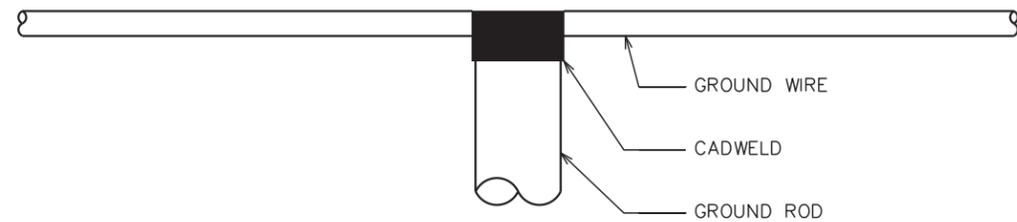




**NOTE:**

MINIMUM SPACING OF 12"  
BETWEEN ALL CADWELDS

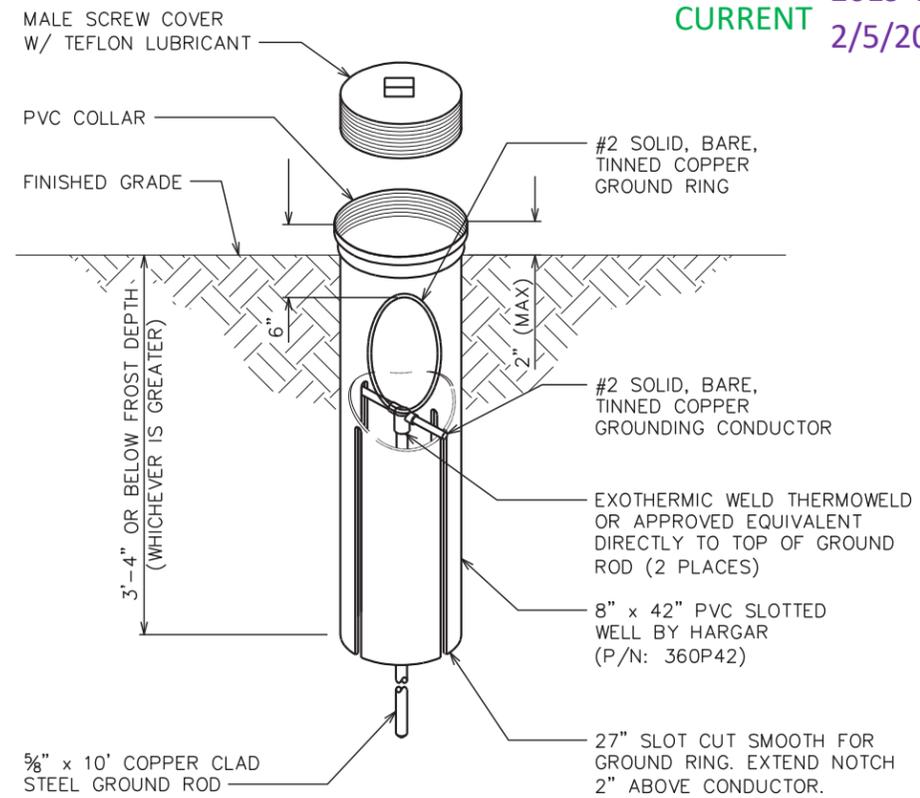
**TOP VIEW**



**SIDE VIEW**

**CADWELD GROUNDING DETAIL**

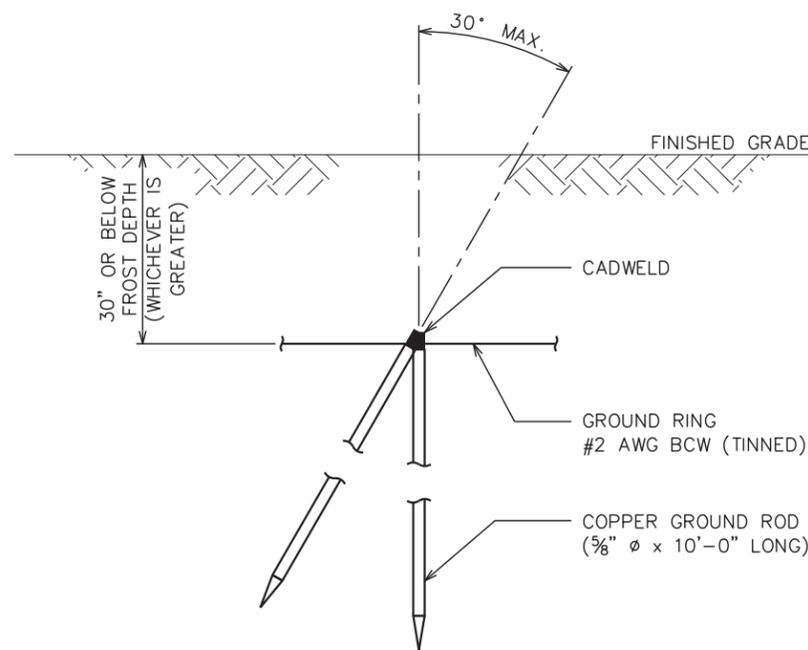
SCALE: N.T.S.



CURRENT 2019-708  
2/5/2020

**GROUND ROD WITH INSPECTION WELL DETAIL**

SCALE: N.T.S.



**COPPER-CLAD STEEL GROUND ROD DETAIL**

SCALE: N.T.S.

PLANS PREPARED FOR:



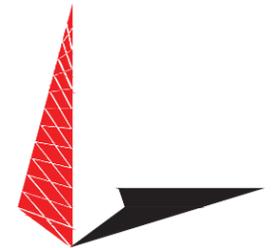
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RALEIGH, NC 27615  
(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

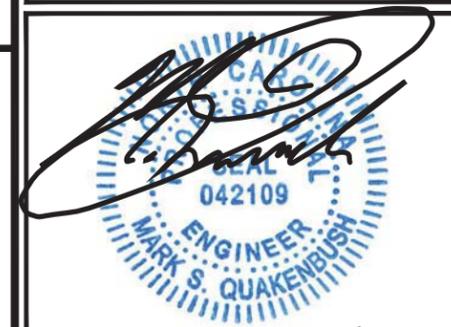
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SHEET TITLE:

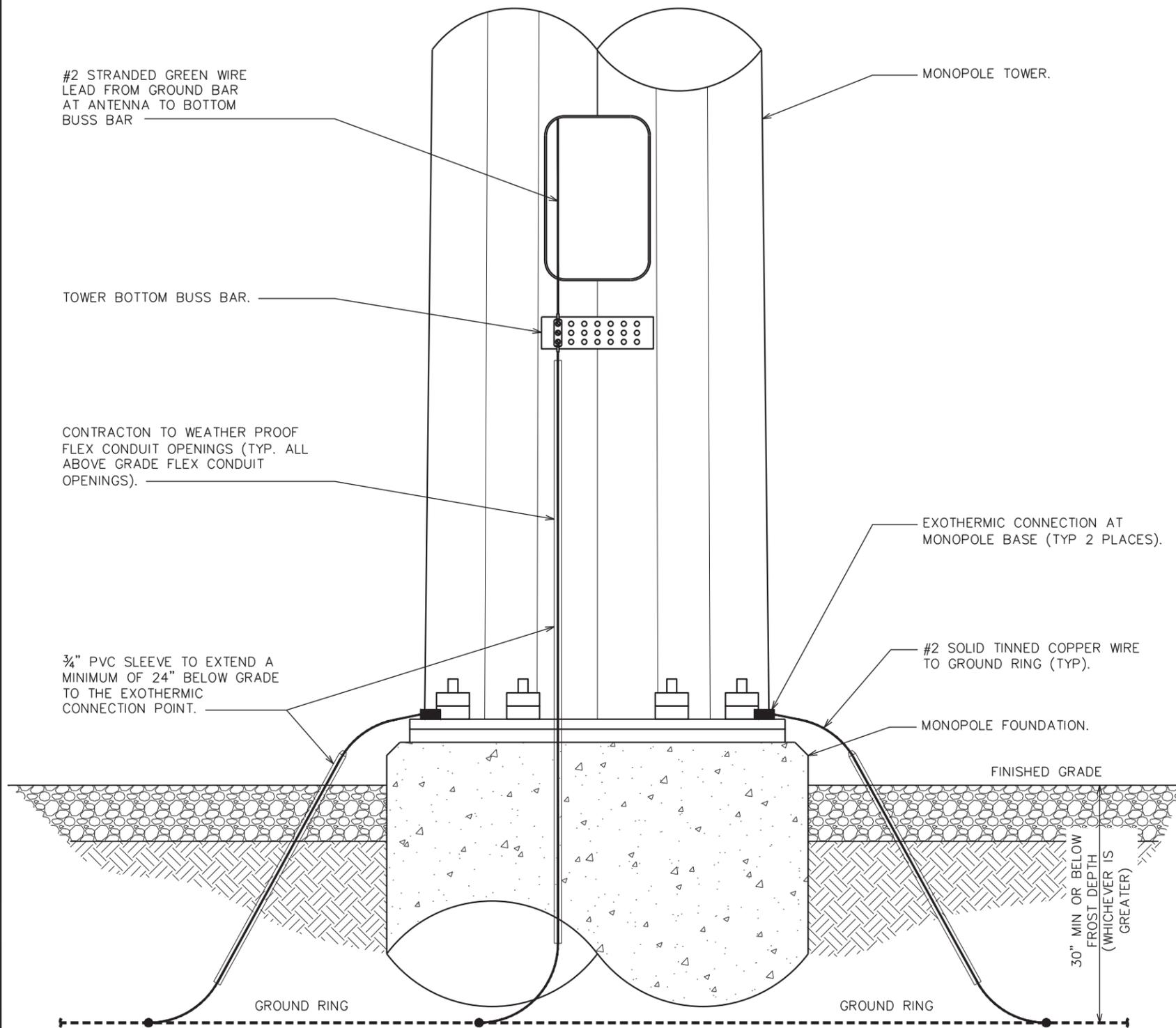
**GROUNDING  
DETAILS I**

SHEET NUMBER: REVISION:

**E-4**

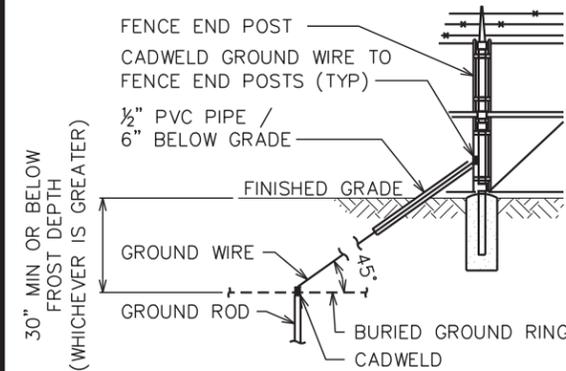
**8**

TEP #: 141883



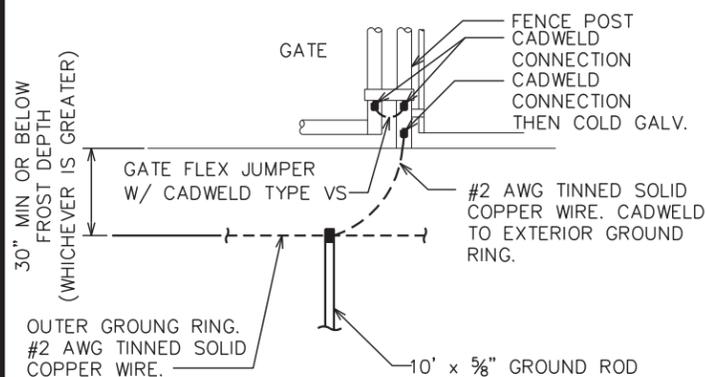
**TOWER GROUNDING DETAIL**

SCALE: N.T.S.



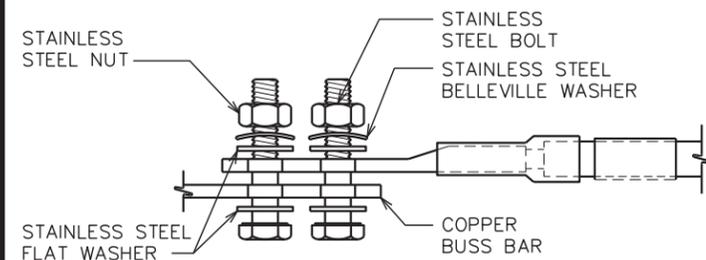
**FENCE GROUNDING DETAIL**

SCALE: N.T.S.



**TYP. GATE POST GROUNDING DETAIL**

SCALE: N.T.S.



**NOTES:**

1. ALL HARDWARE SHALL BE 18-8 STAINLESS STEEL, INCLUDING THE BELLEVILLE WASHERS. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN THE LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

**LUG DETAILS**

SCALE: N.T.S.

PLANS PREPARED FOR:



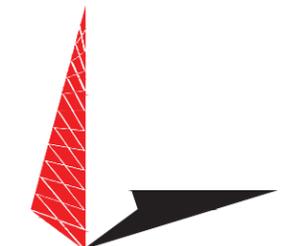
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(919) 324-1922

PROJECT INFORMATION:

**NC-1512  
FRIENDSHIP DRIVE**

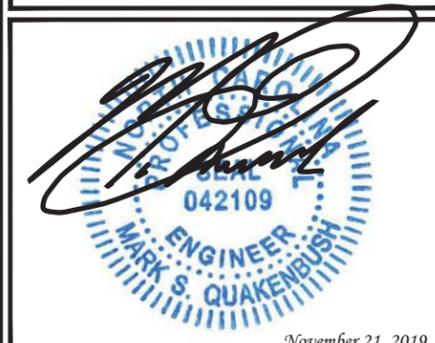
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6	10-24-19	CONSTRUCTION
5	08-01-19	CONSTRUCTION
REV	DATE	ISSUED FOR:

DRAWN BY: ANG CHECKED BY: MWS

SHEET TITLE:

**GROUNDING  
DETAILS II**

SHEET NUMBER:

**E-5**

REVISION:

**8**

TEP #: 141883