



PLANNING & INSPECTIONS DEPARTMENT

Joshua L. Grant, Manager

To: Board of County Commissioners

From: Jeremiah Combs, Planner

Date: July 15, 2024

Re: SUP #510
TowerCom IV-B, LLC, applicant
Parcel ID# 15097

The following information is for use by the Lincoln County Board of Commissioners at their meeting/public hearing on August 5, 2024.

Request

The applicant is requesting a special use permit for a wireless telecommunications tower in the R-S (Residential Suburban) district.

Site Area and Description

The request involves an 11.59-acre parcel located on the north side of Crouse School Road about 250 feet east of the intersection of N.C. 150 and Swanson Road in Howards Creek Township. The subject property is adjoined by property zoned R-S and R-T (Transitional Residential). Land uses in this area are primarily residential uses. This property is located within an area that is designated by the Lincoln County Land Use Plan as Rural Living, suitable for residential uses on large lots with small nodes of commercial activity concentrated at rural crossroads. The development pattern is characterized by large lots, abundant open space and a high degree of separation between buildings.

Additional Information

See the specific use standards in the Lincoln County Unified Development Ordinance for wireless telecommunications facilities on the following page.

Wireless Telecommunication Facility

- E. A map analysis showing a radius of five nautical miles from the center of the project with any airport operations in the area highlighted shall be submitted with the special use permit application. If a Federal Aviation Administration (FAA) regulated airport is located within the radius, all required information shall be submitted to the FAA for review. Proof of delivery of notification and date of delivery shall be submitted with the permit application.
- F. A decommissioning plan signed by the party responsible for decommissioning and the landowner shall be submitted with the permit application and shall be recorded with the Register of Deeds prior to final electrical inspection. The plan shall include the following information: defined conditions upon which decommissioning will be initiated, the anticipated manner in which the solar farm project will be decommissioned and the site restored, a timetable for completion of decommissioning, description of any agreement with the landowner regarding decommissioning, the party responsible for decommissioning, and plans for updating the decommissioning plan.
- G. A solar farm that ceases to produce energy on a continuous basis for 12 months shall be considered abandoned and the property owner and other responsible party shall be required to decommission the facility and restore the site to its prior condition within 12 months from the time that the facility is deemed to be abandoned, unless substantial evidence is presented to the Director of the intent to maintain and reinstate the operation of the facility.
- H. In the event the property owner and/or responsible party fail to timely decommission the solar farm facility as required above, Lincoln County and the Director shall be entitled to take all measures allowed by this UDO and the North Carolina General Statutes, including, but not limited to, the right to levy penalties as provided in §11.2.1, the right to obtain a permanent injunction ordering the removal of such solar farm facility, and the right to obtain a court order permitting Lincoln County to remove such solar farm facility

§4.3.8 Wireless Telecommunication Facility

- A. The proposed tower, antenna or accessory structure and equipment will be placed in a location and in a manner which will minimize the visual impact on the surrounding area. Accessory structures and equipment must meet all applicable standards of this UDO.
- B. Approval for a proposed tower within a radius of 10,500 feet from an existing tower or other suitable structure shall not be issued unless the applicant certifies that the existing tower or structure does not meet applicant's structural specifications or technical design requirements, or that a co-location agreement could not be obtained at a reasonable market rate and in a timely manner.
- C. Minimum tower setbacks shall be as follows:
 - 1. From all lot lines and public right-of-ways, a distance equal to the tower's fall zone, as certified by a licensed professional engineer in the State of North Carolina, plus 20 feet; and

2. From any residential use, a distance of its height plus 50 feet, unless the owner of the use waives this requirement by a notarized affidavit.
- D. The proposed tower must be designed to accommodate additional antennae equal in number to applicant's present and future requirements.
- E. Unless otherwise restricted, the height of a tower is limited per §2.2.1, Use Table. Antennae or equipment mounted on a building must meet the height requirements of §2.4.
- F. A tower must not be illuminated or contain any lighting unless otherwise required by State or Federal regulations.
- G. The color of a tower and its antennae shall be one that will blend to the greatest extent possible with the natural surroundings.
- H. No commercial signs or advertising shall be allowed on any tower, antennae, accessory structure or equipment.
- I. Existing towers may be replaced or modified providing that the existing height is not exceeded by more than 20 feet and the new or modified tower meets all of the above requirements except for the setback provisions.
- J. Any tower, antennae, accessory structure or equipment that is not used for communication purposes for more than 120 days shall be considered as abandoned and shall be removed by the owner within 60 days. The County shall require financial guarantees in accordance with §5.10 to guarantee removal of abandoned equipment in compliance with the requirements of this subsection.
- K. Telecommunication/transmission towers shall not be constructed unless the tower owner has general liability coverage of at least \$1,000,000. The owner of the tower shall provide the County with a certificate of insurance showing evidence of its coverage and the certificate shall contain a requirement that the insurance company notify the County 30 days prior to the cancellation, modification or failure to renew the insurance coverage required. Lapse of this insurance shall be deemed by the County to be sufficient grounds to revoke the applicable County permits.
- L. A combination of landscaped vegetative buffers, landscaped earthen berms or preservation of existing vegetation shall be provided around the perimeter of the site of any wireless telecommunications facility to effectively screen the view of the equipment compound from surrounding perspectives. The standard buffer shall consist of a mix of native trees and shrubs planted in a landscaped area at least ten (10) feet outside of the perimeter.
- M. All antenna support structures shall be enclosed by security fencing not less than eight (8) feet in height.

§4.4. Commercial Use Standards

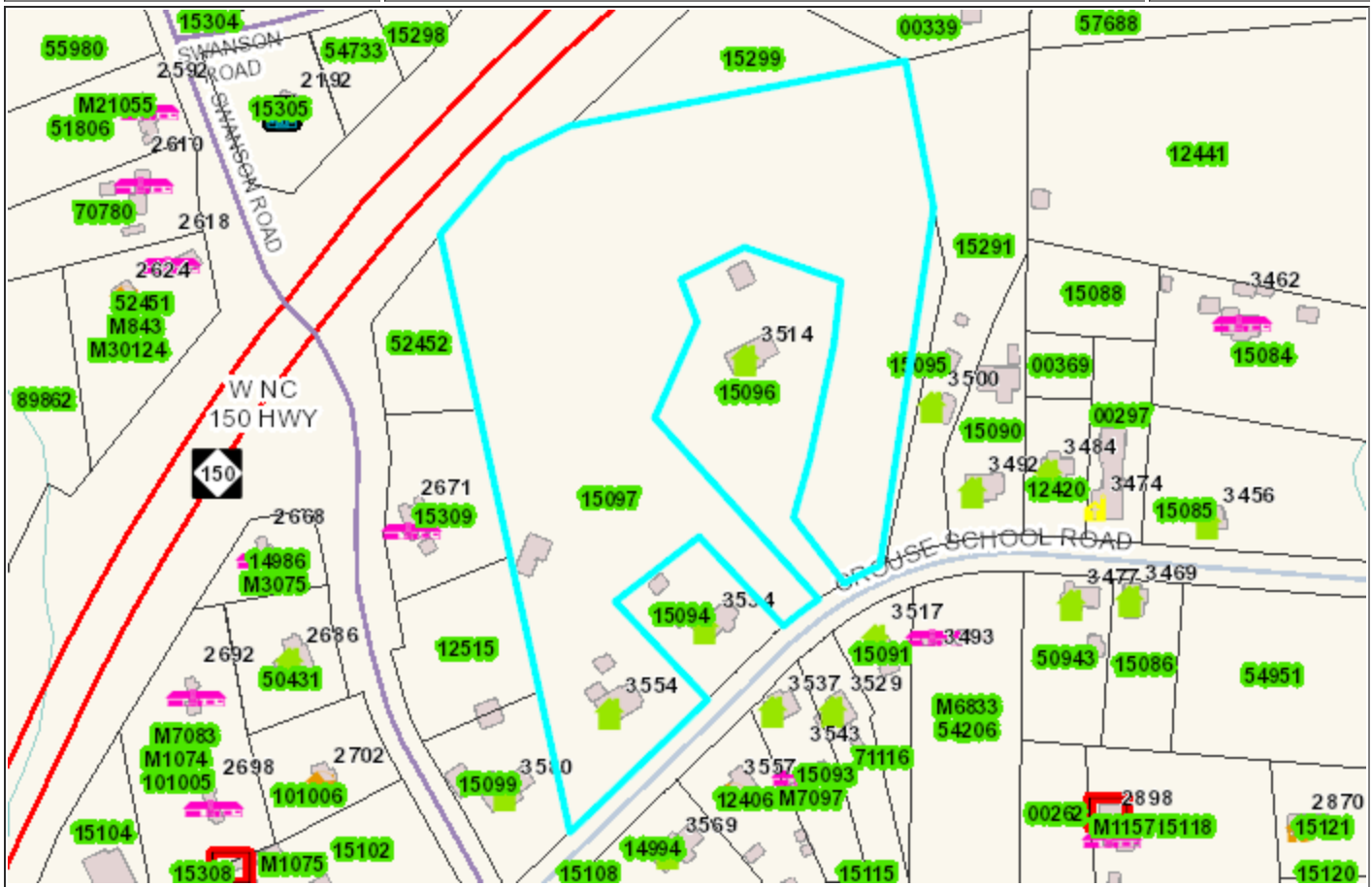
The following standards shall apply to all permitted uses and special uses, as set forth in the Permitted Land Use Table (see §2.2.1).



Lincoln County, NC

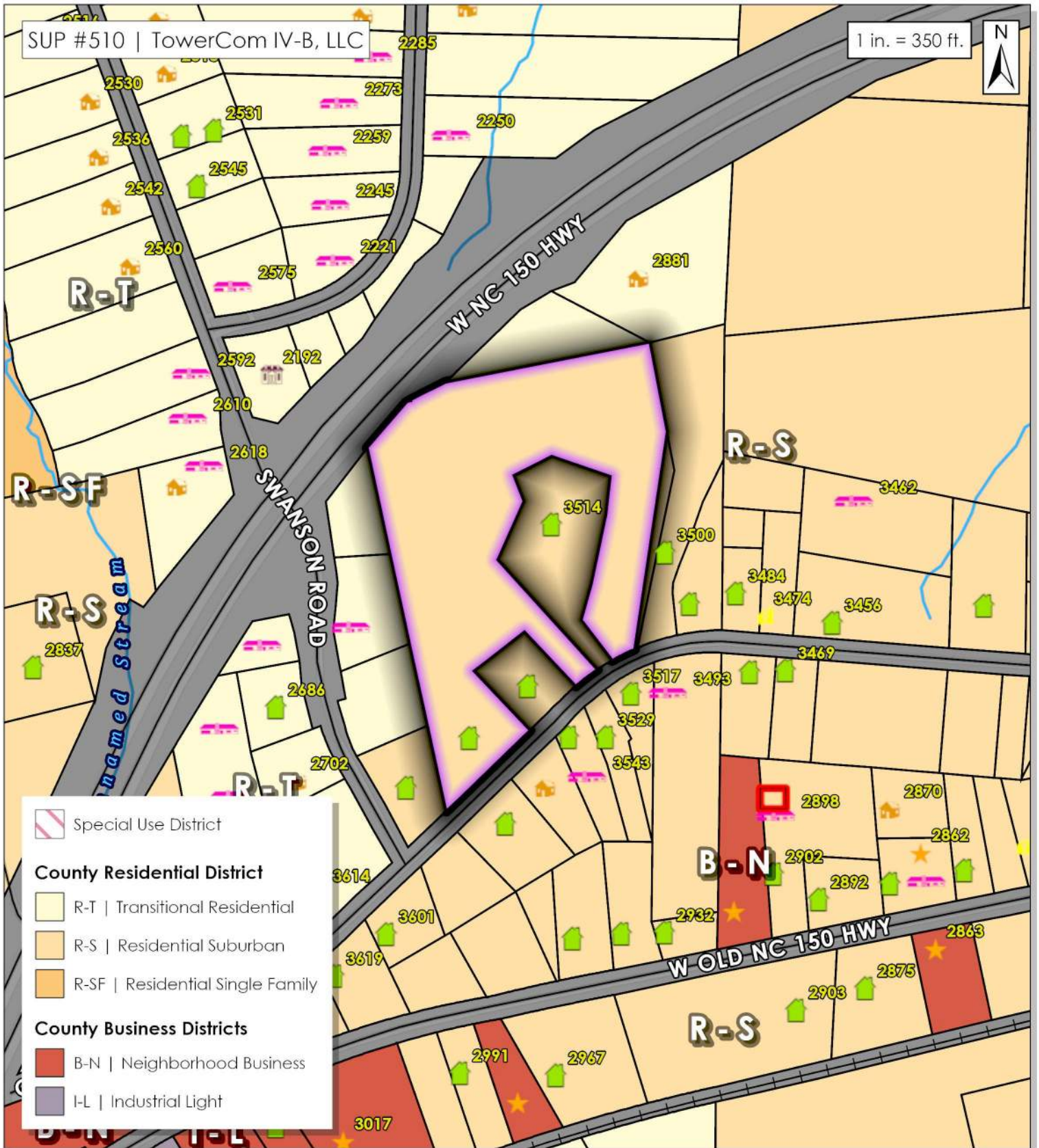
Office of the Tax Administrator, GIS Mapping Division

Lincoln County and its mapping contractors assume no legal responsibility for the information contained on this map. This map is not to be used for land conveyance. The map is based on NC State Plane Coordinate System 1983 NAD.
Date: 7/17/2024 Scale: 1 Inch = 300 Feet



15097

Parcel ID	15097	Owner	BRONOWICZ RICHARD N JR BRONOWICZ ANITA	
Map	3611	Mailing	3514 CROUSE SCHOOL RD	
Account	02455	Address	CROUSE, NC 28033-0000	
Deed	2607	Last Transaction	08/11/2016	Sale Price \$0
	402	Date		
Plat	16 400	Subdivision	GLENN L REEP AND MALINDA M REEP	Lot 2
Land Value	\$89,357	Improvement Value	\$141,300	Total Value \$230,657
Previous Parcel				
-----All values for Tax Year 2024 -----				
Description	#2 GLENN L REEP AND			Deed Acres 11.979
Address	3554 CROUSE SCHOOL RD			Tax Acres 11.589
Township	HOWARDS CREEK			CROUSE
Main Improvement	CONVENTIONAL			Value \$137,300
Main Sq Feet	1632	Stories	1	Year Built 1910
Zoning District	Calc Acres	Voting Precinct		Calc Acres
R-S	11.59	HC33		11.59
Watershed	11.59	Sewer District		11.59
Census County		Tract	Block	
109		070400	2036	1.38
109		070400	2033	10.21

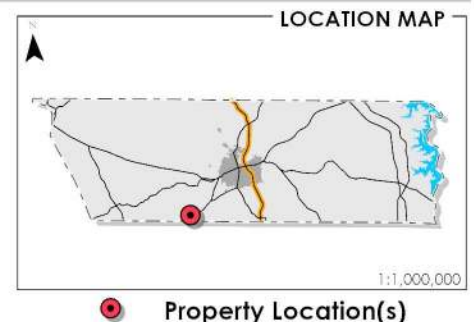


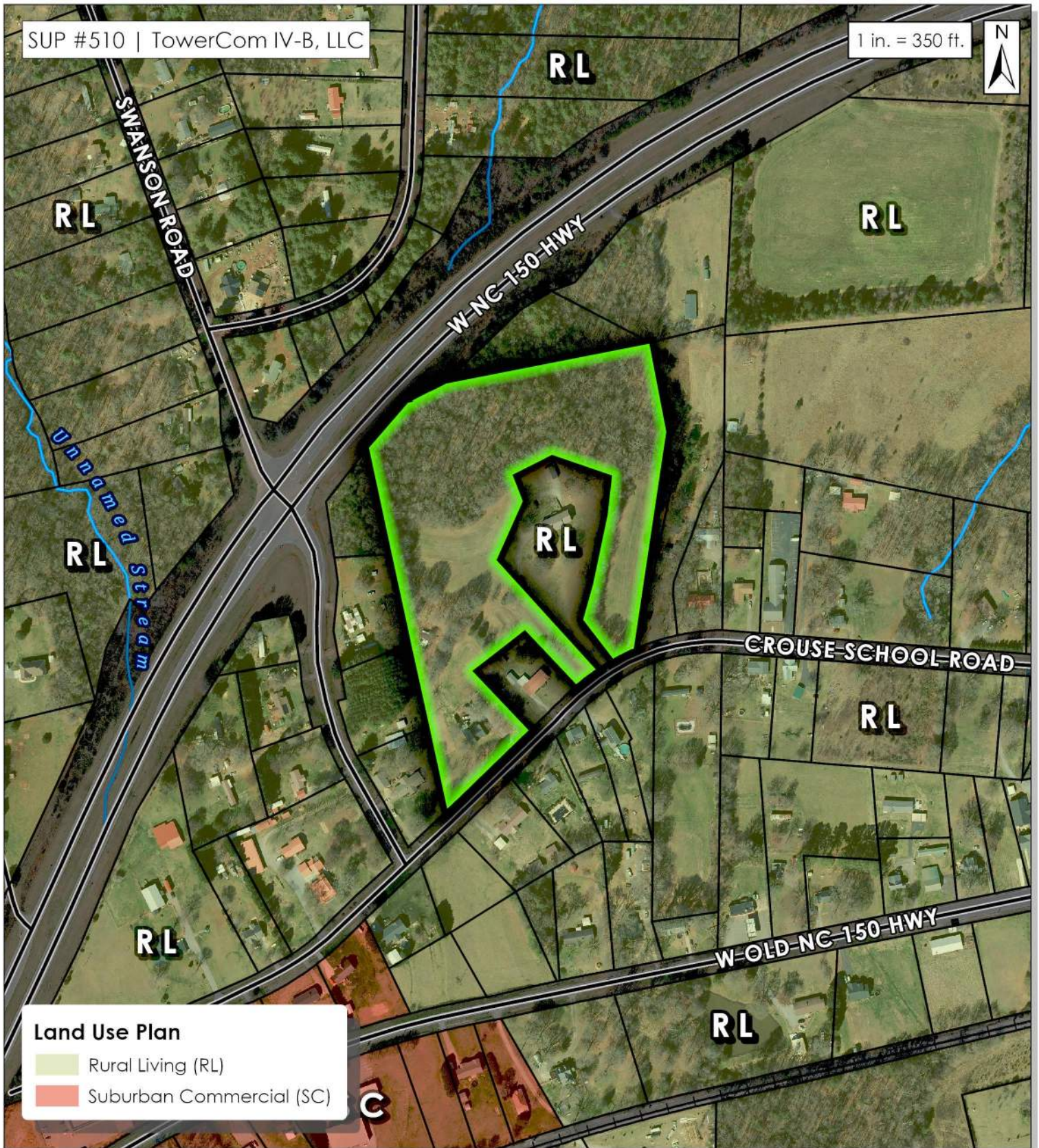
Lincoln County
Planning & Inspections
115 W. Main St
3rd Floor
Lincolnton, NC 28092

Parcel ID # 15097

Property Location(s)

See Attached Application for Parcel Information





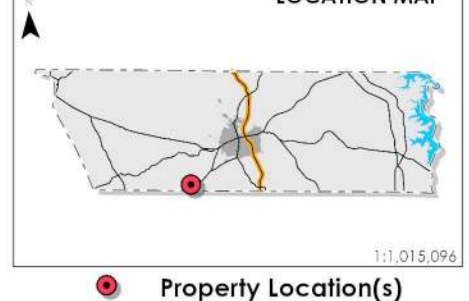
Lincoln County
Planning & Inspections
115 W. Main St
3rd Floor
Lincolnton, NC 28092

Parcel ID # Parcel ID # 15097

 - Property Location(s)

See Attached Application for Parcel Information

LOCATION MAP





Special Use Permit Application

Lincoln County Planning and Inspections Department
Zoning Administrator
115 W. Main St., Lincolnton, NC 28092
Phone: (704) 736-8440 Fax: (704) 732-9010

PART I

Applicant Name Jonathan L. Yates for TowerCom

Applicant Address 105 Broad Street, Third Floor Charleston, SC 29401

Applicant Phone Number 843-414-9754

Property Owner Name Richard N. and Anita Bronowicz

Property Owner Address 3514 Crouse School Road, Crouse, NC 28033

Property Owner Phone Number 704-363-4847

PART II

Property Location Crouse School Road, Crouse, NC 28033

Property ID (10 digits) 3611162707 Property size 11.59 Acres

Parcel # (5 digits) 15097 Deed Book(s) 2607 Page(s) 402-403

PART III

Existing Zoning District R-S

Briefly describe how the property is being used and any existing structures.

The property is presently vacant and there are no structures on the property.

Briefly explain the proposed use and/or structure which would require a Special Use Permit.

190 ft. Monopole-style wireless communications facility for Verizon Wireless and at least three additional broadband carriers

APPLICATION FEE (less than 2 acres \$250, 2+ acres \$500)
MUST BE RECEIVED BEFORE PROCESSING.

I hereby certify that all knowledge of the information provided for this application and attachments is true and correct to the best of my knowledge.

[Signature]
Applicant's Signature

06-19-24
Date

Application # _____ Date June 19, 2024

Applicant's Name Jonathan L. Yates for TowerCom

Applicant's Address 105 Broad Street, Third Floor Charleston, SC 29401

Property Location Crouse School Road, Crouse, NC 28033 Existing Zoning R-S

Proposed Special Use Monopole-style Telecommunications Facility

PROPOSED FINDINGS OF FACT

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan. YES _____ NO _____

FACTUAL REASONS CITED: The proposed use has been carefully located on the Bronowicz property and will enhance public health and safety by providing effective access to 911 First Responders: Fire; Police; and EMS.

2. The use meets all required conditions and specifications. YES _____ NO _____

FACTUAL REASONS CITED: All requirements of Section 4.3.8 Wireless Telecommunication Facility of the Lincoln County Unified Development Ordinance have been fully met as provided in the attached narrative.

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity. YES _____ NO _____

FACTUAL REASONS CITED: _____
The use will not substantially injure the value of adjoining or abutting property and many people deem wireless access as a public necessity. The facility will provide effective wireless infrastructure to the surrounding area for: voice; broadband; and first responder access.

4. The location and character of use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located and will be in general conformity with the Land Use Plan for the area in question. YES _____ NO _____

FACTUAL REASONS CITED: _____
The 190ft Monopole style facility is strategically located on the 11.5 acre Bronowicz property. Its entire purpose is to serve the surrounding area with wireless infrastructure which many people deem just as important as the other infrastructure presently serving the area. Due to its design and location, the facility will be in harmony with the area and will be in general conformity with the Lincoln County Land Use Plan as it is designated rural living.

HELLMAN YATES

ATTORNEYS AND COUNSELORS AT LAW

Jonathan L. Yates
Direct Voice 843 414-9754
JLY@HELLMANYATES.COM

Hellman & Yates, PA
105 Broad Street, Third Floor
Charleston, South Carolina 29401
v 843 266-9099
f 843 266-9188

June 19, 2024

VIA FEDERAL EXPRESS

Joshua Grant, MPA
Planning and Inspections Manager
Lincoln County Planning & Inspections
115 W. Main Street, 3rd Floor
Lincolnton, NC 28092
(704) 736-8440

Re: Application for construction of a 190-foot monopole-style wireless telecommunications facility to be located at Crouse School Road, Crouse, North Carolina 28033 (Tax/Pin #: 3611162707) on behalf of TowerCom.

Dear Mr. Grant,

Enclosed, please find the application of TowerCom for a proposed 190-foot monopole-style wireless telecommunications facility. The proposed facility will be on the property of Richard N. and Anita Bronowicz, Jr, which is located on Crouse School Road, Crouse, North Carolina 28033 and is designated as Lincoln County Tax # 3611162707. This is a very important facility for Verizon Wireless to improve coverage for both voice and advanced data in this section of Lincoln County, North Carolina. The proposed facility has been designed for Verizon Wireless and at least three additional broadband carriers.

We have taken the liberty of recasting the relevant sections of the Lincoln County Zoning Ordinance, with our answer to the relevant section in bold beneath. As will be evident from a review of the attached, TowerCom has not only met, but have exceeded, all of the necessary requirements for approval under the Lincoln County Zoning Ordinance.

§4.3.8 Wireless Telecommunication Facility

A. The proposed tower, antenna or accessory structure and equipment will be placed in a location and in a manner which will minimize the visual impact on the surrounding area. Accessory structures and equipment must meet all applicable standards of this UDO.

Please see the Site Plans and Drawings by North Carolina Professional Engineer Andrew Lamar Pitts attached hereto as Exhibit "1" and incorporated herein by reference.

B. Approval for a proposed tower within a radius of 10,500 feet from an existing tower or other suitable structure shall not be issued unless the applicant certifies that the existing tower or structure does not meet applicant's structural specifications or technical design requirements, or that a co-location agreement could not be obtained at a reasonable market rate and in a timely manner.

As shown on Sheet C-0 in Exhibit "1", and the Alternative Candidate Analysis by Robin Clement of TowerCom attached hereto as Exhibit "2" and incorporated herein by reference, there are no towers or suitable structures within 10,500 ft of the proposed facility. In fact, the closest tower is a TowerCom 200ft monopole 3.88 miles to the northeast.

C. Minimum tower setbacks shall be as follows:

1. From all lot lines and public right-of-ways, a distance equal to the tower's fall zone, as certified by a licensed professional engineer in the State of North Carolina, plus 20 feet; and

Please see the ANSI/ Fall Zone letter by North Carolina Professional Engineer Robert E. Beacom, attached hereto as Exhibit "3" and incorporated herein by reference. The tower will have a fall zone of 85ft which would require a 105ft setback. As shown on Sheet C1.1 in Exhibit "1", the proposed monopole-style facility meets these setback requirements as it is located at least 105ft from all property lines.

2. From any residential use, a distance of its height plus 50 feet, unless the owner of the use waives this requirement by a notarized affidavit.

The notarized Residential Use Setback Waiver Affidavit of Richard and Anita Bronowicz Jr. will be provided by a separate cover and attached hereto as Exhibit "4" and incorporated herein by reference.

D. The proposed tower must be designed to accommodate additional antennae equal in number to applicant's present and future requirements.

As shown on the Design Drawings by North Carolina Professional Engineer Robert E. Beacom, attached hereto as Exhibit "5" and incorporated herein by reference, the proposed facility has been designed for Verizon Wireless and at least three additional broadband carriers.

E. Unless otherwise restricted, the height of a tower is limited per §2.2.1, Use Table. Antennae or equipment mounted on a building must meet the height requirements of §2.4.

The monopole style facility will be 190ft tall.

F. A tower must not be illuminated or contain any lighting unless otherwise required by State or Federal regulations.

Please see the FAA Determination of No Hazard to Air Navigation attached hereto as Exhibit "6" and incorporated herein by reference. Due to its de minimis height, the FAA will not require the proposed facility to be illuminated.

G. The color of a tower and its antennae shall be one that will blend to the greatest extent possible with the natural surroundings.

Please see note #4 on Sheet C-13 in Exhibit "1", the proposed monopole style wireless telecommunications facility will be galvanized steel gray in color.

H. No commercial signs or advertising shall be allowed on any tower, antennae, accessory structure or equipment.

As shown on Sheet C-11 in Exhibit "1", the proposed monopole style wireless communications facility will only have the FCC required site identification and emergency signage.

I. Existing towers may be replaced or modified providing that the existing height is not exceeded by more than 20 feet and the new or modified tower meets all of the above requirements except for the setback provisions.

This provision is not applicable as this is an application for a new wireless telecommunications facility.

J. Any tower, antennae, accessory structure or equipment that is not used for communication purposes for more than 120 days shall be considered as abandoned and shall be removed by the owner within 60 days. The County shall require financial guarantees in accordance with §5.10 to guarantee removal of abandoned equipment in compliance with the requirements of this subsection.

Please see the Tower Removal Letter by Robin Clement of TowerCom and the Tower Removal Bond attached hereto as Exhibit "7" and incorporated herein by reference.

K. Telecommunication/transmission towers shall not be constructed unless the tower owner has general liability coverage of at least \$1,000,000. The owner of the tower shall provide the County with a certificate of insurance showing evidence of its coverage and the certificate shall contain a requirement that the insurance company notify the County 30 days prior to the cancellation, modification or failure to renew the insurance coverage required. Lapse of this insurance shall be deemed by the County to be sufficient grounds to revoke the applicable County permits.

Please see the Certificate of Liability Insurance attached hereto as Exhibit "8" and incorporated herein by reference.

L. A combination of landscaped vegetative buffers, landscaped earthen berms or preservation of existing vegetation shall be provided around the perimeter of the site of any wireless telecommunications facility to effectively screen the view of the equipment compound from surrounding perspectives. The standard buffer shall consist of a mix of native trees and shrubs planted in a landscaped area at least ten (10) feet outside of the perimeter.

TowerCom will utilize the existing vegetations on the Bronowicz property in lieu of new landscaping. However, new landscaping will be added if determined necessary by Lincoln County staff or the Board of Commissioners.

M. All antenna support structures shall be enclosed by security fencing not less than eight (8) feet in height.

Please see Sheets C-1.1 and C-7 of Exhibit "1". TowerCom will secure a 60ft by 60ft compound area with an 8ft fence topped with three stands of barbed wire for a total height of 9ft.

In addition, we have also enclosed the following documents: Photo Simulations by Gould Digital Imaging attached hereto as Exhibit "9" and incorporated herein by reference; Warranty Deed attached hereto as Exhibit "10" and incorporated herein by reference; Recorded Plat attached hereto as Exhibit "11" and incorporated herein by reference; Notarized Letter of Authorization attached hereto as Exhibit "12" and incorporated herein by reference.

Upon review, please let us know if we can provide any additional information or materials in support of our application. I can be reached at (843) 414-9754 or (843) 813-0103.

Thank you so much for all your help with this.

With warmest regards, I am

Very truly yours,

A handwritten signature in blue ink, reading "Jonathan L. Yates". The signature is written in a cursive style with a large, stylized "J" and "Y".

Jonathan L. Yates

JLY:jlc
Enclosures

CC: Jerimiah Combs

Exhibit “1”

K:\AT\Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:26 PM by: Drew Pitts

TOWERCOM

SWANSON

SITE ADDRESS (E-911 TBD)

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY
LATITUDE: 35° 25' 22.639" N
LONGITUDE: 81° 18' 45.344" W
TAX/PIN #: 3611162707
ZONING: R-S

LINCOLN COUNTY SHERIFF'S DEPARTMENT

700 JOHN HOWEL MEMORIAL DR
LINCOLNTON, NC 28092
PHONE: (704) 732-9050
ATTN.: CUSTOMER SERVICE

CROUSE VOLUNTEER FIRE DEPARTMENT

2765 NC-150
CROUSE, NC 28033
PHONE: (704) 735-2247
ATTN.: CUSTOMER SERVICE



VICINITY MAP



DRIVING DIRECTIONS

JURISDICTION:
LINCOLN COUNTY

STATE:
NORTH CAROLINA

TOWER TYPE:
MONOPOLE TOWER

TOWER HEIGHT:
190' (194' TO HIGHEST APPURTENANCE)

NUMBER OF CARRIERS:
0 EXISTING, 1 PROPOSED

USE:
PROPOSED TELECOMMUNICATIONS TOWER
AND UNMANNED EQUIPMENT

FLOOD INFO
SITE IS LOCATED WITHIN FEMA FLOOD MAP
AREA 3710361100J DATED 08/16/2007 WITHIN
FLOOD ZONE X.

PROJECT SUMMARY

DEVELOPER
TOWERCOM IV-B, LLC
5611 NC HWY 55, SUITE 201
DURHAM, NC 27713
PHONE: (919) 666-2904
ATTN: ROBIN CLEMENT

POWER COMPANY
DUKE ENERGY
PHONE: (800) 777-9898
ATTN.: CUSTOMER SERVICE

PROPERTY OWNER
RICHARD N. & ANITA BRONOWICZ, JR.
3514 CROUSE SCHOOL RD
CROUSE, NC 28033
PHONE: (704) 363-4847
ATTN.: RICHARD BRONOWICZ

CONSULTANT
KIMLEY-HORN AND ASSOCIATES, INC.
11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GEORGIA 30009
PHONE: (470) 571-1306
ATTN.: DREW PITTS

CONTACTS

SHEET NO.	SHEET TITLE
T1	COVER SHEET
T2	APPENDIX B - BUILDING CODE SUMMARY
--	SITE SURVEY (SHEET 1 OF 4)
--	SITE SURVEY (SHEET 2 OF 4)
--	SITE SURVEY (SHEET 3 OF 4)
--	SITE SURVEY (SHEET 4 OF 4)
N1	GENERAL NOTES
C0	OVERALL AERIAL PLAN
C1	OVERALL PARCEL PLAN
C1.1	OVERALL SITE PLAN
C1.2	DRIVEWAY PLAN
C2	SITE PLAN
C3	EQUIPMENT PAD LAYOUT
C4	EQUIPMENT RACK DETAIL - FRONT
C5	EQUIPMENT RACK DETAIL - REAR
C6	CONCRETE PAD FOUNDATION DETAILS
C7	FENCE, GATE, AND COMPOUND DETAILS
C8	GRADING AND EROSION CONTROL PLAN
C8.1	GRADING AND EROSION CONTROL PLAN
C8.2	GRADING AND EROSION CONTROL PLAN
C9	GRADING AND EROSION CONTROL DETAILS
C10	ACCESS ROAD DETAILS
C11	SITE SIGNAGE DETAILS
C12	WAVEGUIDE BRIDGE DETAILS
C13	ANTENNA AND TOWER ELEVATION DETAILS
E1	ELECTRICAL NOTES
E2	OVERALL UTILITY SERVICE ROUTING PLAN
E2.1	UTILITY SERVICE ROUTING PLAN
E3	METER RACK DETAILS
E4	ELECTRICAL SINGLE LINE DIAGRAM
E5	PANEL SCHEDULE
E6	ELECTRICAL DETAILS
E7	GROUNDING NOTES
E8	GROUNDING PLAN
E9	GROUNDING SINGLE LINE DIAGRAM
E10	GROUNDING DETAILS
E11	GROUNDING DETAILS

SHEET INDEX

LINCOLN COUNTY ZONING
115 W MAIN ST
LINCOLNTON, NC 28092
PHONE: (704) 736-84406
ATTN.: CUSTOMER SERVICE

PERMIT INFORMATION

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

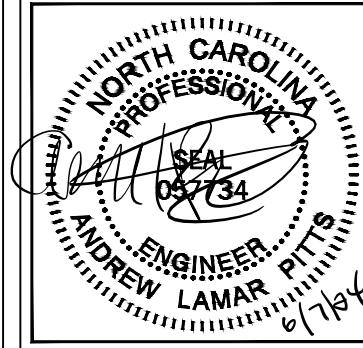
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

T1

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECor-CB.dwg 06/07/24 7:26 PM by: Drew.Pitts

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: **TOWERCOM IV-B, LLC - SWANSON**
Address: **CROUSE SCHOOL RD., CROUSE, NC 28033** Zip Code **28301**
Owner/Authorized Agent: **DREW PITTS** Phone # (**470**) **571 - 1306** E-Mail **drew.pitts**
Owned By: ☐ City/County ☒ Private ☐ State **Kimley-Horn**
Code Enforcement Jurisdiction: ☐ City ☒ County **LINCOLN** ☐ State

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				()	
Civil	KIMLEY-HORN & ASSOC.	DREW L. PITTS	057734	(470) 571-1306	drew.pitts@kimley-horn.com
Electrical	KIMLEY-HORN & ASSOC.	DREW L. PITTS	057734	(470) 571-1306	drew.pitts@kimley-horn.com
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
☐ 1st 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):** **TELECOMMUNICATIONS SITE**
RENOVATED: (date) _____ **PROPOSED OCCUPANCY(S) (Ch. 3):** **TELECOMMUNICATIONS SITE**
RISK 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.)

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3 rd Floor			
2 nd Floor			
Mezzanine			
1 st Floor			
Basement			
TOTAL			

ALLOWABLE AREA
Primary Occupancy Classification(s): 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 High-PH ☐ Institutional ☐ I-1 Condition ☐ I 1 ☐ 2 ☐ I-2 Condition ☐ I 1 ☐ 2 ☐ I-3 Condition ☐ I 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): _____
Incidental Uses (Table 509): _____
Special Uses (Chapter 4 – List Code Sections): _____
Special Provisions: (Chapter 5 – List Code Sections): _____
Mixed Occupancy: ☐ No ☐ Yes Separation: _____ Hr. Exception: _____

☐ Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

☐ Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

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

$$\text{_____} + \text{_____} + \text{.....} = \text{_____} \leq 1.00$$

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

- ¹ Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase $I_f = 100[F/P - 0.25] \times W/30 = \text{_____} (\%)$

² Unlimited area applicable under conditions of Section 507.
³ Maximum Building Area = total number of stories in the building x D (maximum⁴ stories) (506.2).
⁴ The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.

⁵ Frontage increase is based on the unsprinklered area value in Table 506.2.
N/A

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

⁶ Provide code reference if table "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
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							
Column Supporting Floors							
Roof Construction, including supporting beams and joists							
Roof Ceiling Assembly							
Column 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							

* Indicates section number permitting reduction

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.5)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)

LIFE SAFETY SYSTEM REQUIREMENTS
Emergency Lighting: ☐ No ☐ Yes
Exit Signs: ☐ No ☐ Yes
Fire Alarm: ☐ No ☐ Yes
Smoke Detection Systems: ☐ No ☐ Yes ☐ Partial _____
Carbon Monoxide Detection: ☐ No ☐ Yes

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 1006.2.1 & 1006.3.2(1))
☐ Dead end lengths (1020.4)
☐ Clear exit widths for each exit door
☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
☐ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☐ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks 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 1-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

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

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	PROVIDED	# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE UNITS PROVIDED
			REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESSIBLE	8' ACCESS AISLE	
TOTAL						

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)													
USE		WATER CLOSETS			URINALS	LAVATORIES			SHOWERS /TUBS	DRINKING FOUNTAINS			
		MALE	FEMALE	UNSEX		MALE	FEMALE	UNSEX		REGULAR	ACCESSIBLE		
SPACE	EXIST'G												
	NEW												
	REQ'D												

SPECIAL APPROVALS
Special approval: Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

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 (The remainder of this section is not applicable)

Exempt Building: ☐ No ☐ Yes (Provide code or statutory reference): _____
Climate Zone: ☐ 3A ☐ 4A ☐ 5A

Method of Compliance: Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive
(If "Other" specify source here)

THERMAL ENVELOPE (Prescriptive method only)

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: _____

NOTE: SCOPE OF WORK INCLUDES INSTALLATION OF CAST IN PLACE CONCRETE PAD, PREFABRICATED EQUIPMENT CABINETS AND GENERATOR. NO NEW BUILDING BEING CONSTRUCTED.

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_s) _____
Seismic (I_a) _____

Live Loads: Roof _____ psf
Mezzanine _____ psf
Floor _____ psf

Ground Snow Load: _____ psf

Wind Load: Basic Wind Speed _____ mph (ASCE-7)
Exposure Category _____

NOTE: STRUCTURAL ANALYSIS COMPLETED BY TOWER OWNER. SEE ANALYSIS BY OTHERS FOR ADDITIONAL STRUCTURAL DATA.

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_s _____ %g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data

Basic structural system
☐ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic

Analysis Procedure: 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 the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 IECC; 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

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

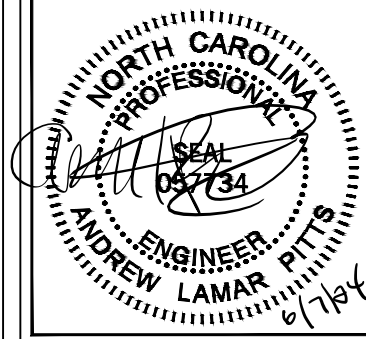
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: _____ DATE: _____ ISSUED FOR: _____ BY: _____

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: _____ CHECKED BY: _____

WTB

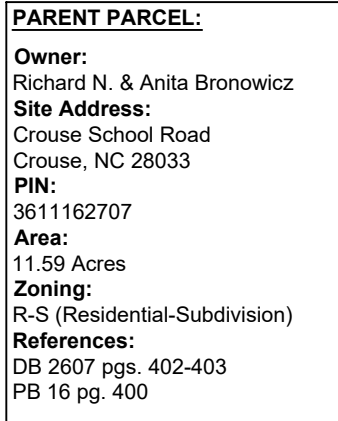
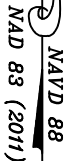
ALP

SHEET TITLE:

APPENDIX B -
BUILDING CODE
SUMMARY


SHEET NUMBER:

T2




GRAPHIC SCALE

75 0 75 150 300



(IN FEET)
1 inch = 150 ft.

Date _____

 = Concrete
  = Brick Walkway

 = Grass
  = Wall

AP = Antenna Pole
CB = Catch Basin
CTP = Crimped-top Pipe
DB = Deed Book
DI = Drop Inlet
FH = Fire Hydrant
FO = Fiber Optic
GV = Gas Valve
GW = Guy Wire
HH = Handhole
IPF = Iron Pipe Found (as noted)
IRF = Iron Rebar Found (as noted)
LP = Light Pole
MB = Miscellaneous Book
MON = 4"x4" Concrete R/W Monument
NF = Nail Found
PC = Plat Cabinet
PG = Page
PKF = PK Nail Found
POB = Point of Beginning
POC = Point of Commencement
R/W = Right-of-Way
TBM = Temporary Benchmark
TP = Telephone Pedestal
UP = Utility Pole
WM = Water Meter
WV = Water Valve

DRAWING ALTERATION

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF LICENSED ARCHITECT, PROFESSIONAL ENGINEER, LANDSCAPE ARCHITECT, OR LAND SURVEYOR TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY. ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.



REVISIONS					
No.	DATE	DESCRIPTION	BY	CHK	APP
1.	3-4-24	Revised Tower Location, per client	NHO	NHO	NHO
2.	3-26-24	Revised Tower Location, per client	NHO	NHO	NHO

DATES OF SURVEY: JANUARY 22nd, 29th & February 29th, 2024

License: # P-0339
320 Executive Court
Hillsborough, NC 27278
Voice: (919) 732-3883 Fax: (919) 732-6676
www.summitde.com

(Not Valid without all Sheets)

LEASED PREMISES

All that tract or parcel of land lying and being in the Town of Crouse, Howards Creek Township, Lincoln County, North Carolina, and being the same property conveyed to Richard N. Bronowicz Jr. and Anita R. Bronowicz by Deed recorded August 11, 2016, in Deed Book 2607, Page 402, in the Lincoln County Register of Deeds, and being more particularly described as follows:

To find the Point of Beginning, commencing at a #4 rebar found on the northeastern property line of said Bronowicz property with the southwestern property line of another Richard N. Bronowicz and Anita Bronowicz property, as described in Deed Book 997, Page 461, in the aforesaid records, having a North Carolina Grid North (NAD83) value of N: 616,698.9240' and E: 1,311,171.0940' and being labeled POINT OF COMMENCEMENT; thence with a tie-line N 30° 09' 18" W 135.44 feet to a point being the Point of Beginning for the 30-foot wide Non-Exclusive Access, Fiber & Utility Easement and the TRUE POINT OF BEGINNING for the Leased Premises; thence N 43° 09' 49" W 100.00 feet to a point; thence N 46° 50' 11" E 100.00 feet to a point; thence S 43° 09' 49" E 100.00 feet to a point; thence S 46° 50' 11" W 100.00 feet to the POINT OF BEGINNING.

Said described parcel containing 0.230 Acres (10,000.00 square feet), more or less and subject to any and all easements, reservations, restrictions and conveyances of record, being shown hereon for TowerCom IV-B, LLC.

30' NON-EXCLUSIVE ACCESS, FIBER & UTILITY EASEMENT

Together with a 30-foot wide Non-Exclusive Access, Fiber & Utility Easement lying and being in the Town of Crouse, Howards Creek Township, Lincoln County, North Carolina, and being the same property conveyed to Richard N. Bronowicz Jr. and Anita Bronowicz by Deed recorded August 11, 2016, in Deed Book 2607, Page 402, in the Lincoln County Register of Deeds, and being more particularly described as follows:

To find the Point of Beginning, commencing at a #4 rebar found on the northeastern property line of said Bronowicz property with the southwestern property line of another Richard N. Bronowicz and Anita Bronowicz property, as described in Deed Book 997, Page 461, in the aforesaid records, having a North Carolina Grid North (NAD83) value of N: 616,698.9240' and E: 1,311,171.0940' and being labeled POINT OF COMMENCEMENT; thence with a tie-line N 30° 09' 18" W 135.44 feet to a point being the Point of Beginning for the Leased Premises and the TRUE POINT OF BEGINNING for the 30-foot wide Non-Exclusive Access, Fiber & Utility Easement; thence S 46° 50' 11" W 30.00 feet to a point; thence N 43° 09' 49" W 31.76 feet to a point; thence S 43° 04' 33" W 103.78 feet to a point; thence with a curve to the left having a radius of 15.00 feet, length of 11.47 feet, Chord Bearing of S 19° 09' 18" W and Chord Distance of 11.20 feet to a point; thence with a curve to the left having a radius of 429.64 feet, length of 95.04 feet, Chord Bearing of S 09° 05' 47" E and Chord Distance of 94.84 feet to a point; thence with a curve to the left having a radius of 15.00 feet, length of 18.32 feet, Chord Bearing of S 50° 24' 47" E 17.20 feet to a point; thence with a curve to the left having a radius of 547.50 feet, length of 131.62 feet, Chord Bearing of N 87° 43' 13" E and Chord Distance of 131.31 feet to a point; thence S 87° 56' 27" E 45.02 feet to a point; thence with a curve to the right having a radius of 96.00 feet, length of 75.56 feet, Chord Bearing of S 65° 23' 38" E and Chord Distance of 73.62 feet to a point; thence S 42° 58' 58" E 267.02 feet to a #4 rebar found at the western Right of Way of Crouse School Road (having a 60' Public Right of Way); thence with said Right of Way with a curve to the left having a radius of 859.89 feet, length of 30.17 feet, Chord Bearing of S 53° 06' 20" W 30.17 feet to a point; thence leaving said Right of Way N 42° 58' 58" W and Chord Distance of 263.86 feet to a point; thence with a curve to the left having a radius of 66.00 feet, length of 51.98 feet, Chord Bearing of N 65° 22' 47" W and Chord Distance of 50.64 feet to a point; thence N 87° 56' 27" W 42.11 feet to a point; thence with a curve to the right having a radius of 577.50 feet, length of 135.85 feet, Chord Bearing of S 87° 52' 06" W and Chord Distance of 135.53 feet to a point; thence with a curve to the right having a radius of 45.00 feet, length of 54.95 feet, Chord Bearing of N 50° 24' 47" W and Chord Distance of 51.60 feet to a point; thence with a curve to the right having a radius of 459.64 feet, length of 101.67 feet, Chord Bearing of N 09° 05' 47" W and Chord Distance of 101.47 feet to a point; thence with a curve to the right having a radius of 45.00 feet, length of 35.09 feet, Chord Bearing of N 19° 34' 45" E and Chord Distance of 34.21 feet to a point; thence N 43° 04' 33" E 106.13 feet to a point; thence N 43° 09' 49" W 38.17 feet to a point; thence N 46° 50' 11" E 30.00 feet to a point; thence S 43° 09' 49" E 100.00 feet to the POINT OF BEGINNING.

Said described parcel containing 0.599 Acres (26,089.44 square feet), more or less and subject to any and all easements, reservations, restrictions and conveyances of record, being shown hereon for TowerCom IV-B, LLC.

SITE INFORMATION:

Leased Premises:

10,000.00 Square Feet (0.230 Acres)

Latitude at center of Premises:

N 35° 25' 22.639"(NAD83)(35.422955 N)

Longitude at center of Premises:

W 81° 18' 45.344"(NAD83)(-81.312595 W)

Elevation at center of Premises:


856.19' A.M.S.L.

COPYRIGHT © 2024
SUMMIT
DESIGN AND ENGINEERING

DRAWING ALTERATION

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF LICENSED ARCHITECT, PROFESSIONAL ENGINEER, LANDSCAPE ARCHITECT, OR LAND SURVEYOR TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY. ANY LICENSEE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.

PREPARED FOR




REVISIONS					
No.	DATE	DESCRIPTION	BY	CHK	APP
1.	3-4-24	Revised Tower Location, per client	NHO	NHO	NHO
2.	3-26-24	Revised Tower Location, per client	NHO	NHO	NHO

SPECIFIC PURPOSE SURVEY:

SWANSON

CROUSE SCHOOL ROAD
CROUSE, NC 28033
LINCOLN COUNTY

DATES OF SURVEY: JANUARY 22nd, 29th & February 29th, 2024



Creatively Inspired - Technically Executed

License: # P-0339
320 Executive Court
Hillsborough, NC 27278
Voice: (919) 732-3883 Fax: (919) 732-6676
www.summitde.com

SPECIFIC PURPOSE SURVEY

TOWER LEASED PREMISES SITE SHEET 3 OF 4

(Not Valid without all Sheets)

PARENT PARCEL

An interest in land, said interest being over a portion of the following described parent parcel:

All that certain lot or parcel of land situated in Howards Creek Township, Lincoln County, North Carolina, and more particularly described as follows:

BEING all and the full contents of Lot No. 2 of Exempt Recombination Glenn L. Reep and Malinda M. Reep, as shown on that certain plat recorded in Plat Book 16 at Page 400, in the Lincoln County Registry, to which reference is hereby made for a more complete descriptions of said lot by metes and bounds.

AND BEING the same property conveyed to Richard N. Bronowicz Jr. and Anita R. Bronowicz from Glenn L. Reep and Malinda M. Reep; Trustees of the Reep Revocable Living Trust dated Jan. 5, 2011 by North Carolina General Warranty Deed dated August 10, 2016 and recorded August 11, 2016 in Deed Book 2607, Page 402.

Tax Parcel No. 15097

TITLE EXCEPTIONS:

A Title Commitment was provided by Fidelity National Title Insurance Company, Commitment date of 01/08/2024 at 12:00 am, being Order No. 5000003836, Commitment No. 5000003836, for the Parent Parcel to determine the impacts of existing title exceptions listed below:

SPECIAL EXCEPTIONS:

7. Taxes for the year 2024 and subsequent years, a lien not yet due and payable.

[This Item is not a matter of surveying.]

8. Right of Way in favor of Department of Transportation, an agency of the State of North Carolina, its successors and assigns set forth in instrument recorded on April 27, 1998 in Deed Book 1042, Page 437.

[Right of Way describes the current Variable-width Public R/W along Lincoln Highway (West NC Highway #150), north of the Parent Parcel as shown.]

9. Matters as shown and noted on Plat recorded in Deed Book 16, Page 400.

[Plat describes the Parent Parcel as shown.]

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:26 PM by: Drew Pitts

1.00 GENERAL NOTES

- 1.01 ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE, LOCAL AND NATIONAL CODES, ORDINANCES AND OR REGULATIONS APPLICABLE TO THIS PROJECT.
- 1.02 THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE PROJECT MANAGER AND/OR ENGINEER AND BE RESOLVED BEFORE PROCEEDING WITH WORK. WHERE THERE IS A CONFLICT BETWEEN DRAWING AND TOWERCOM IV-B, LLC SPECIFICATIONS, THE TOWERCOM IV-B, LLC PROJECT ENGINEER SHOULD BE CONTACTED FOR CLARIFICATION.
- 1.03 ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE PROJECT MANAGER AND/OR ENGINEER SO THAT PROPER REVISIONS MAY BE MADE. MODIFICATION OF DETAILS OF CONSTRUCTION SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE PROJECT MANAGER AND/OR ENGINEER.
- 1.04 CONTRACTOR SHALL REVIEW AND BE FAMILIAR WITH SITE CONDITIONS AS SHOWN ON THE ATTACHED SITE PLAN AND/OR SURVEY DRAWINGS.
- 1.05 WAVEGUIDE BRIDGE AND EQUIPMENT CABINETS ARE SHOWN FOR REFERENCE ONLY. REFER TO SEPARATE DRAWINGS FOR SPECIFIC INFORMATION.
- 1.06 ALL FINISHED GRADES SHALL SLOPE MINIMUM 1/4 IN./FT. AWAY FROM EQUIPMENT IN ALL DIRECTIONS. CONTRACTOR SHALL SLOPE SWALES AS REQUIRED ALONG EXISTING TERRAIN TO DRAIN AWAY FROM COMPOUND AND ACCESS DRIVE.
- 1.07 THE PROPOSED TOWER AND TOWER FOUNDATIONS WERE DESIGNED BY OTHERS. TOWER INFORMATION PROVIDED ON THESE PLANS ARE PROVIDED FOR REFERENCE PURPOSES ONLY. NOTIFY ENGINEER OR PROJECT MANAGER OF ANY CONFLICTS OR DISCREPANCIES. CONTRACTOR TO OBTAIN COPY OF TOWER DESIGN DRAWINGS, IF AVAILABLE, FROM TOWERCOM IV-B, LLC PROJECT MANAGER TO CONFIRM COAX ROUTING AND ANTENNA MOUNT INFORMATION.
- 1.08 THE CONTRACTOR SHALL PROVIDE ADEQUATE EXCAVATION SLOPING, SHORING, BRACING, AND GUYS IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
- 1.09 UPON COMPLETION OF CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO THE EXISTING ACCESS ROAD AND COMPOUND GRAVEL AREAS. ANY NEW FILL MATERIALS SHALL BE COMPACTED.
- 1.10 THE CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION, HE IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND SHALL REQUEST A VERIFICATION AT THE CONSTRUCTION SITE OF THE LOCATIONS OF THEIR UNDERGROUND UTILITIES AND WHERE THEY MAY POSSIBLY CONFLICT WITH THE PLACEMENT OF IMPROVEMENTS AS SHOWN ON THESE PLANS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT WILL BE REQUIRED. TO NOTIFY "NORTH CAROLINA 811" 48 HOURS IN ADVANCE OF PERFORMING ANY WORK BY CALLING THE TOLL FREE NUMBER (800) 632-4949 (OR 811). ANY UTILITIES DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR, AT NO EXPENSE TO THE OWNER.
- 1.11 CONTRACTOR TO PROVIDE DUMPSTER AND PORTABLE TOILET FACILITY DURING CONSTRUCTION.
- 1.12 CONTRACTOR TO PROVIDE STYMIE LOCK OR EQUIVALENT AS APPROVED BY TOWERCOM IV-B, LLC PROJECT MANAGER.
- 1.13 CONTRACTOR TO PROVIDE ANY NECESSARY SIGNAGE PER TOWERCOM IV-B, LLC PROJECT MANAGER'S INSTRUCTIONS. SEE DETAIL ON SHEET C11.

2.00 EQUIPMENT FOUNDATION NOTES

- 2.01 FOUNDATIONS ARE DESIGNED FOR A PRESUMPTIVE ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF. CONTRACTOR SHALL VERIFY SOIL CONDITIONS AND BEARING CAPACITY PRIOR TO CONSTRUCTION.
- 2.02 EXCAVATE A MINIMUM 18" BELOW PROPOSED EQUIPMENT FOUNDATIONS OF EXPANSIVE, ORGANIC, UNCONSOLIDATED OR OTHERWISE UNACCEPTABLE MATERIAL AND REPLACE WITH WELL-COMPACTED MATERIAL ACCEPTABLE TO TOWERCOM IV-B, LLC.
- 2.03 CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE. ALL EXCAVATIONS NEAR THESE LINES TO BE CARRIED OUT WITH EXTREME CAUTION. COORDINATE ALL RELOCATIONS WITH THE PROPERTY OWNER.
- 2.04 CONTRACTOR TO CUT/FILL EXISTING COMPOUND SUBSOIL TO PROVIDE AN AREA AS LEVEL AS POSSIBLE FOR THE EQUIPMENT FOUNDATIONS. ALL FILL AREAS ARE TO BE FILLED WITH SUITABLE MATERIALS. FILL MATERIALS ARE TO BE PLACED, COMPACTED, AND TESTED IN MAXIMUM LAYERS OF 8". COMPACTION OF ALL FILL MATERIAL SHALL ACHIEVE 95 PERCENT OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D 698. ALL TESTS MUST MEET THE MINIMUM SPECIFIED SOIL BEARING CAPACITY. COMPACTION TESTING IS BY THE GEOTECHNICAL TESTING COMPANY DESIGNATED FOR THE PROJECT. SCHEDULING AND COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. REPORTS OF ALL TESTING ARE TO BE PROMPTLY DELIVERED OR FAXED TO THE TOWERCOM IV-B, LLC PROJECT MANAGER.
- 2.05 CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION TO ACI-318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
- 2.06 CONCRETE SHALL HAVE A SLUMP BETWEEN 3" AND 6".
- 2.07 FIBERS FOR CONCRETE SHALL BE FIBERMESH 650, 100 PERCENT VIRGIN POLYPROPYLENE FIBRILLATED FIBERS, e3 PATENTED TECHNOLOGY PATENTED TECHNOLOGY, CONTAINING NO REPROCESSED OLEFIN MATERIALS. THE FIBERS SHALL CONFORM TO ASTM C1116 TYPE III AND MANUFACTURED SPECIFICALLY FOR THE SECONDARY REINFORCEMENT OF CONCRETE.
- 2.08 THE FIBERS SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED MANUFACTURING FACILITY. UNLESS OTHERWISE STATED, FIBERMESH 650 MACRO-SYNTHETIC FIBERS SHALL BE ADDED TO THE CONCRETE AT THE BATCHING PLANT AT THE RECOMMENDED APPLICATION RATE OF 3 LBS/YD³ AND MIXED FOR A SUFFICIENT TIME (MINIMUM 5 MINUTES AT FULL MIXING SPEED) TO ENSURE UNIFORM DISTRIBUTION OF THE FIBERS THROUGHOUT THE CONCRETE. FIBROUS CONCRETE REINFORCEMENT SHALL BE MANUFACTURED BY FIBERMESH, 4019 INDUSTRY DRIVE, CHATTANOOGA, TN 37416 USA, TEL: 800 621-1273, WEBSITE: WWW.FIBERMESH.COM
- 2.09 AT THE REQUEST OF THE TOWERCOM IV-B, LLC PROJECT MANAGER, TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE CYLINDERS SHALL BE TAKEN FOR EACH DAY'S CONCRETE PLACEMENT. CYLINDERS SHALL BE TESTED IN ACCORDANCE WITH THE LATEST REVISION TO ASTM C39.
- 2.10 CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH ¾" x 45° CHAMFER, UNLESS OTHERWISE NOTED.
- 2.11 CONCRETE FORMWORK IS TO BE STRIPPED WITHIN 48 HOURS. VIBRATION OF THE CONCRETE MUST ASSURE THAT HONEYCOMBING WILL BE AT A MINIMUM. MECHANICAL VIBRATION OF ALL CONCRETE IS REQUIRED UNLESS OTHERWISE DIRECTED BY TOWERCOM IV-B, LLC PROJECT MANAGER. ABOVE GRADE CONCRETE IS TO BE RUBBED AND PATCHED TO ASSURE SMOOTH FINISH AT TIME OF FORMS REMOVAL. CONTRACTOR SHALL PROVIDE A BROOM FINISH ON THE TOP SURFACE OF THE EQUIPMENT FOUNDATION UNLESS OTHERWISE DIRECTED BY TOWERCOM IV-B, LLC PROJECT MANAGER.
- 2.12 TOPS OF CONCRETE FOUNDATION MUST BE WITHIN 0.02' OF ELEVATION REQUIRED.
- 2.13 TOP OF FOUNDATION FINISH TO BE LEVEL ±½" IN 10'.
- 2.14 TOP OF FOUNDATION TO HAVE MEDIUM BROOM FINISH.
- 2.15 CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR SHALL VERIFY PLACEMENT OF EQUIPMENT AND LOCATION OF CONDUIT FOR MANUFACTURER'S AND VENDORS SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION OF ALL UTILITIES.

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

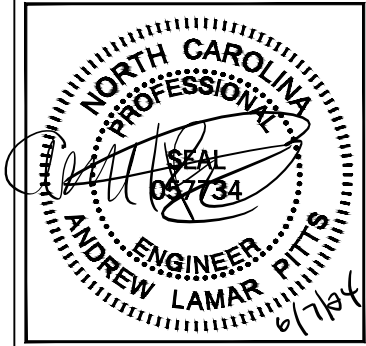
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV:____DATE:____ISSUED FOR:____BY:____

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY:____CHECKED BY:____

WTB

ALP

SHEET TITLE:

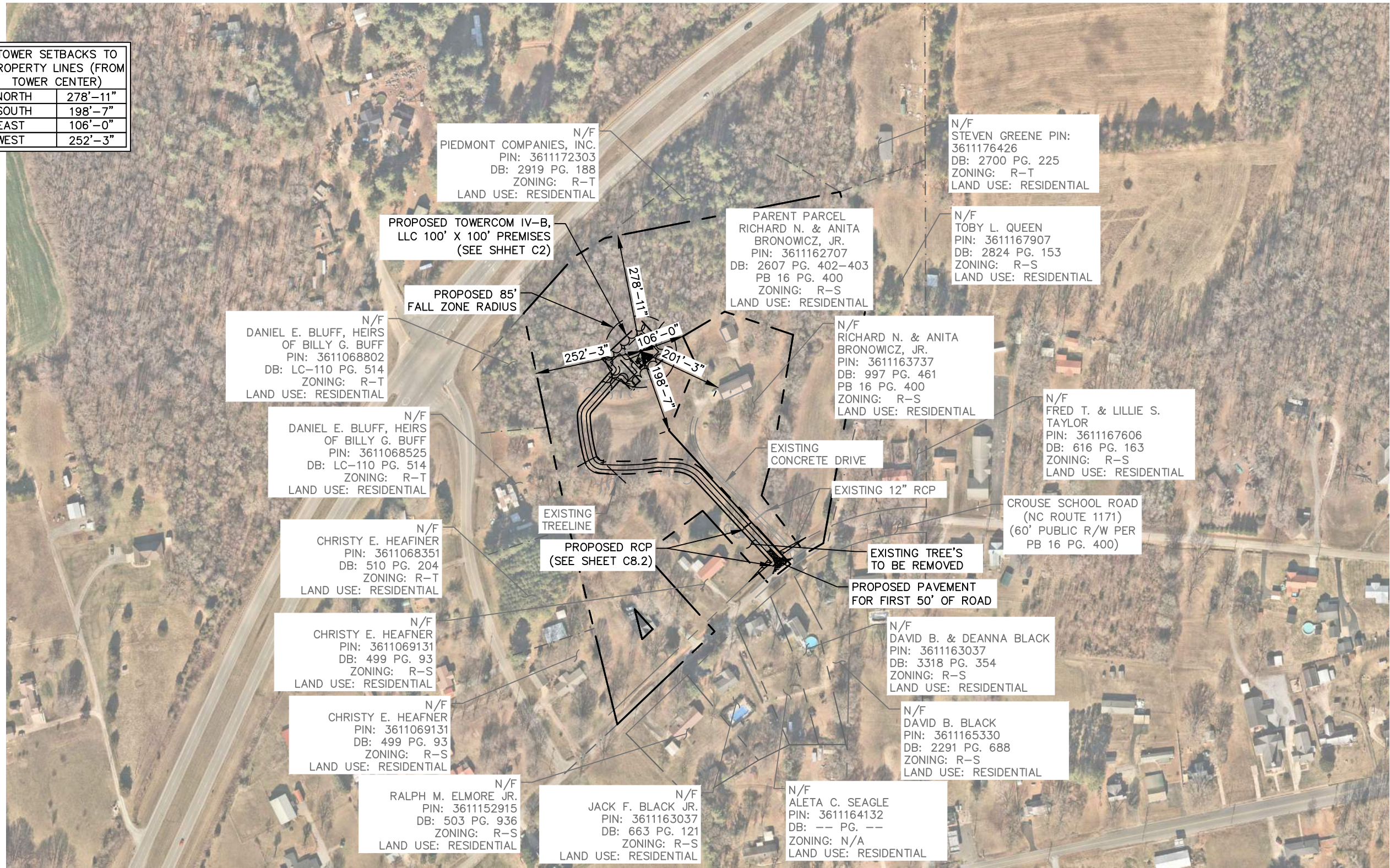
GENERAL NOTES

SHEET NUMBER:

N1

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:26 PM by: Drew.Pitts

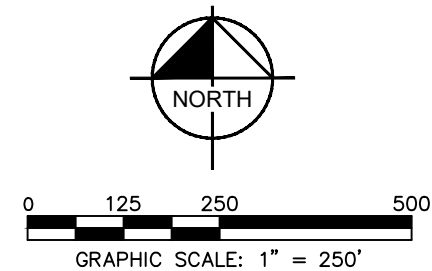
TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	278'-11"
SOUTH	198'-7"
EAST	106'-0"
WEST	252'-3"



- SURVEY NOTE:**
1. TOWERCOM IV-B, LLC STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
 2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY SUMMIT DESIGN AND ENGINEERING SERVICES DATED 03/28/24 AND SITE VISIT ON 01/26/24.
 3. EXISTING DENSE VEGETATION TO BE UTILIZED IN LIEU OF LANDSCAPING.

NEAREST TOWER NOTE:
PER THE FCC ASR, THE NEAREST EXISTING TELECOMMUNICATIONS TOWER IS A 200' MONOPOLE TOWER LOCATED APPROXIMATELY 3.88 MILES TO THE SOUTH EAST
ASR#: 1298303
OWNER: TOWERCOM IV, LLC
LATITUDE: ±35° 27' 25.2" N
LONGITUDE: ±81° 16' 1.6" W

1
C0
OVERALL AERIAL PLAN
SCALE: 1" = 250'



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

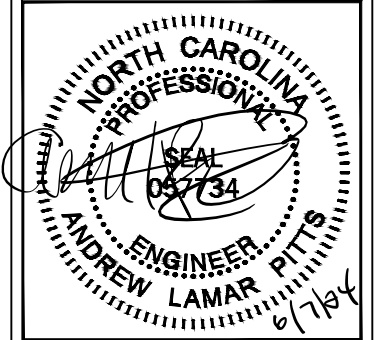
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

OVERALL AERIAL
PLAN

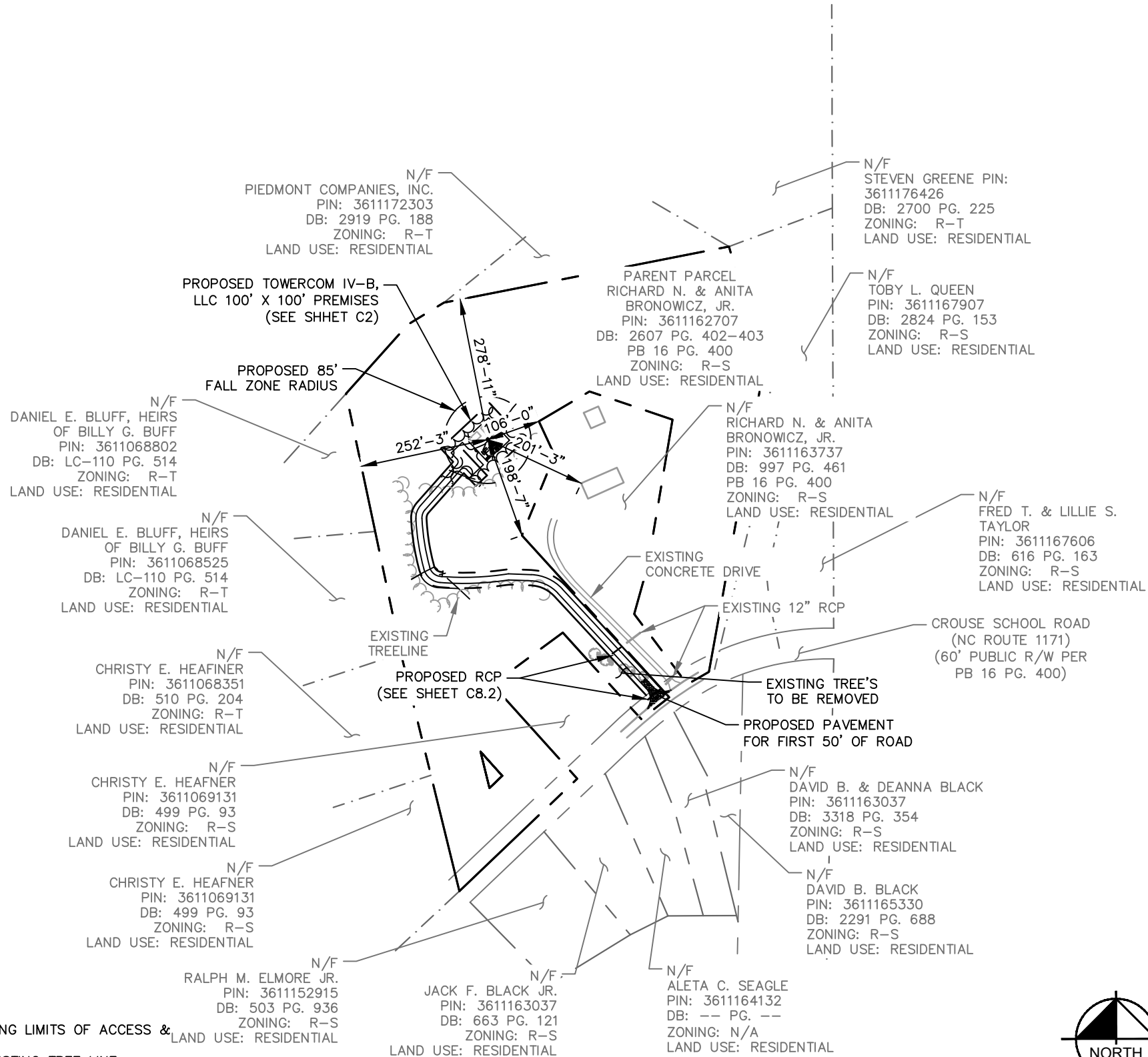
SHEET NUMBER:

C0

K:\ATL\Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:37 PM by: Drew Pitts

TOWER SETBACKS TO
PROPERTY LINES (FROM
TOWER CENTER)

NORTH	278'-11"
SOUTH	198'-7"
EAST	106'-0"
WEST	252'-3"



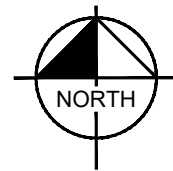
NOTE:

- CONTRACTOR TO RELOCATE EXISTING FENCE ALONG LIMITS OF ACCESS & UTILITY EASEMENT.
- LOD NOT TO ENCROACH A 20' BUFFER FROM EXISTING TREE LINE.
- EXISTING DENSE VEGETATION TO BE UTILIZED IN LIEU OF LANDSCAPING.

SURVEY NOTE:

- TOWERCOM IV-B, LLC STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
- PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY SUMMIT DESIGN AND ENGINEERING SERVICES DATED 03/28/24 AND SITE VISIT ON 01/26/24.

1 OVERALL PARCEL PLAN
C1 SCALE: 1" = 250'



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

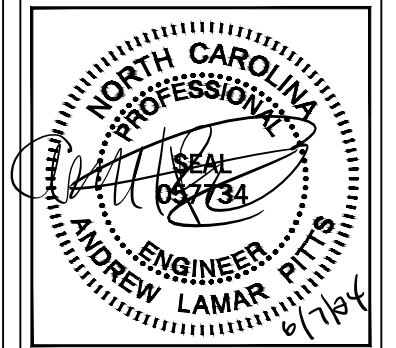
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

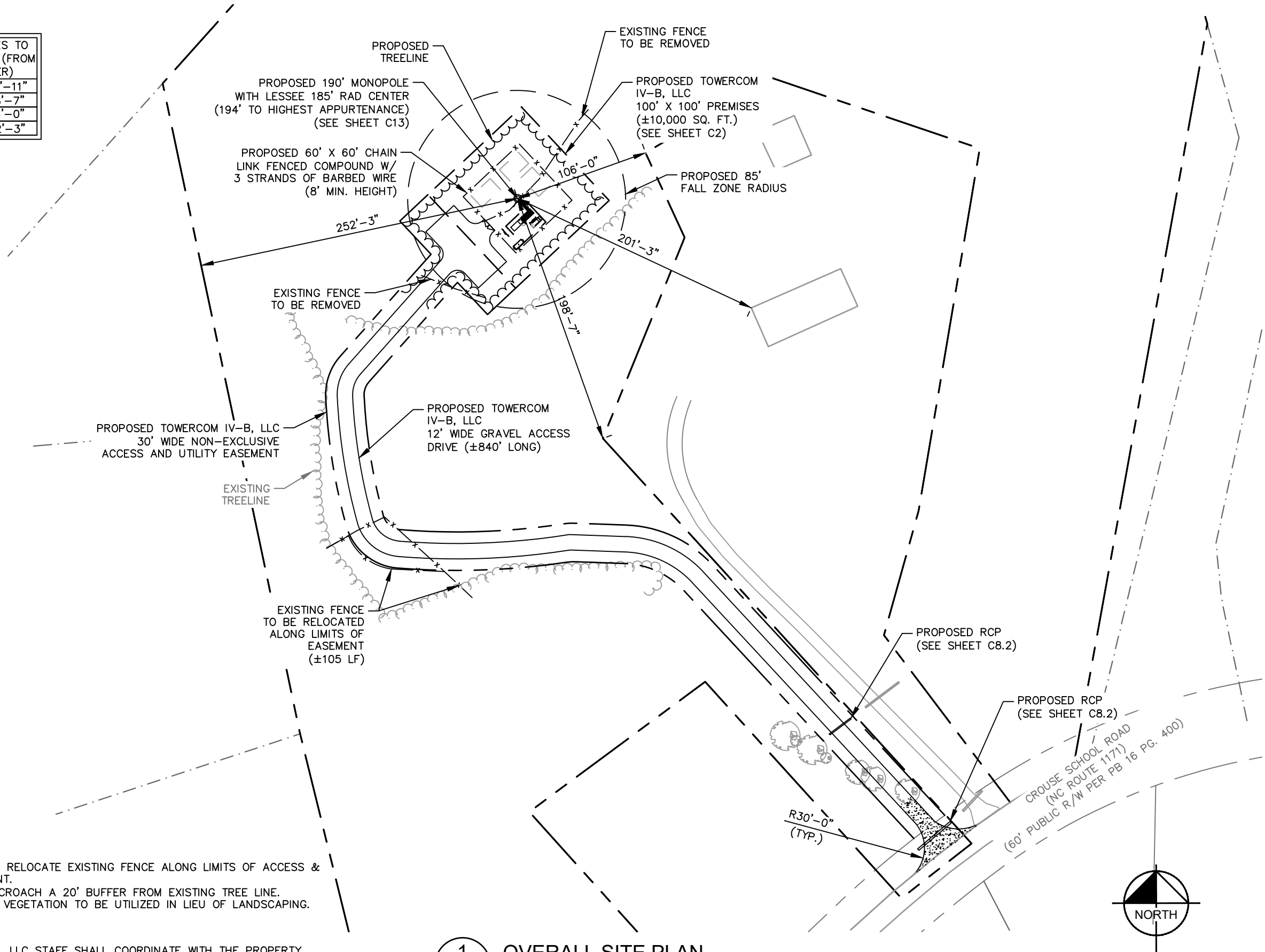
OVERALL PARCEL
PLAN

SHEET NUMBER:

C1

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:37 PM by: Drew Pitts

TOWER SETBACKS TO PROPERTY LINES (FROM TOWER CENTER)	
NORTH	278'-11"
SOUTH	198'-7"
EAST	106'-0"
WEST	252'-3"



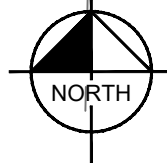
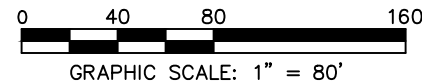
NOTE:

1. CONTRACTOR TO RELOCATE EXISTING FENCE ALONG LIMITS OF ACCESS & UTILITY EASEMENT.
2. LOD NOT TO ENCROACH A 20' BUFFER FROM EXISTING TREE LINE.
3. EXISTING DENSE VEGETATION TO BE UTILIZED IN LIEU OF LANDSCAPING.

SURVEY NOTE:

1. TOWERCOM IV-B, LLC STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY SUMMIT DESIGN AND ENGINEERING SERVICES DATED 03/28/24 AND SITE VISIT ON 01/26/24.

1 OVERALL SITE PLAN
C1.1 SCALE: 1" = 80'



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

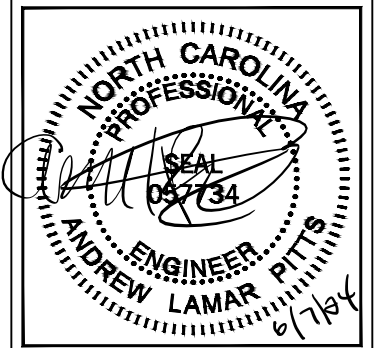
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

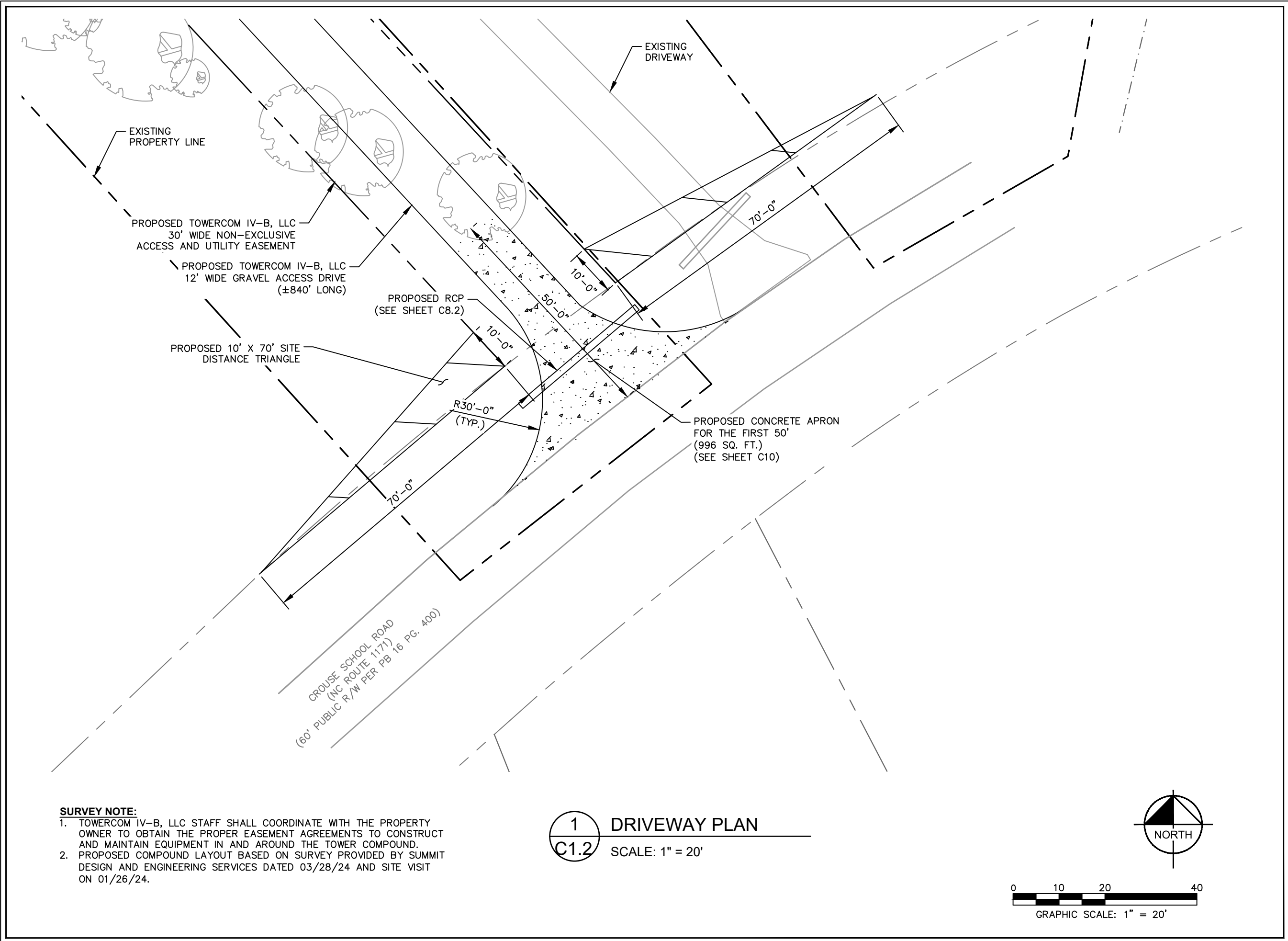
SHEET TITLE:

OVERALL SITE
PLAN

SHEET NUMBER:

C1.1

K:\ATL Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:26 PM by: Drew.Pitts



SURVEY NOTE:

1. TOWERCOM IV-B, LLC STAFF SHALL COORDINATE WITH THE PROPERTY OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY SUMMIT DESIGN AND ENGINEERING SERVICES DATED 03/28/24 AND SITE VISIT ON 01/26/24.

1 DRIVEWAY PLAN
C1.2 SCALE: 1" = 20'

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

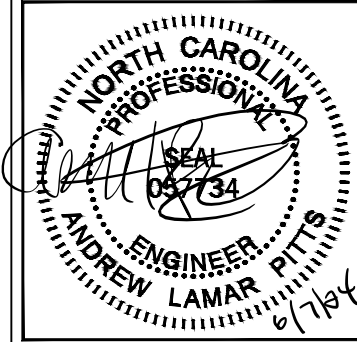
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

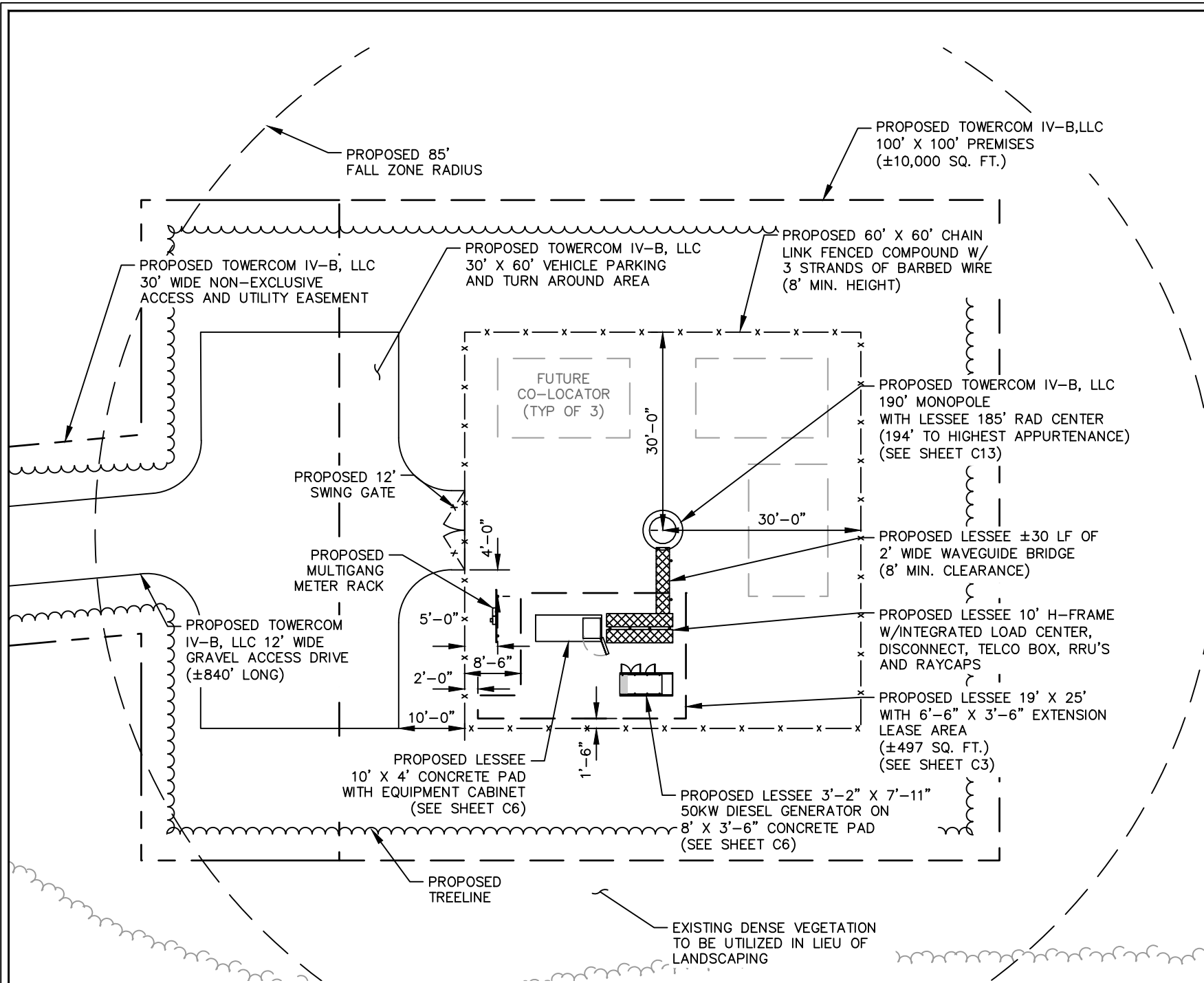
SHEET TITLE:

DRIVEWAY PLAN

SHEET NUMBER:

C1.2

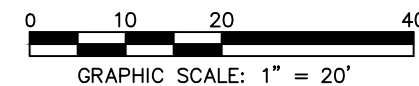
K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:26 PM by: Drew Pitts



1 SITE PLAN
C2 SCALE: 1" = 20'

SITE NOTES:

1. TOWERCOM IV-B, LLC STAFF SHALL COORDINATE WITH THE PROPERTY OWNER AND/OR TOWER OWNER TO OBTAIN THE PROPER EASEMENT AGREEMENTS TO CONSTRUCT AND MAINTAIN EQUIPMENT IN AND AROUND THE TOWER COMPOUND.
2. PROPOSED COMPOUND LAYOUT BASED ON SURVEY PROVIDED BY SUMMIT DESIGN AND ENGINEERING SERVICES DATED 03/28/24 AND SITE VISIT ON 01/26/24.
3. CONTRACTOR TO CONFIRM WITH TOWERCOM IV-B, LLC CONSTRUCTION MANAGER THAT THE SHELTER/EQUIPMENT SHOWN HAS BEEN ORDERED/SCHEDULED FOR DELIVERY TO THIS SITE.
4. THE BASIS OF EQUIPMENT DESIGN INCLUDES ONE (1) RF CABINET, ONE (1) FUTURE BATTERY CABINET, AND ONE (1) FUTURE EXPANSION CABINET.
5. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND MODIFYING SCOPE OF WORK TO ACCOMMODATE ANY CHANGES IN THE EXACT EQUIPMENT PROCURED BY TOWERCOM IV-B, LLC. COORDINATE ANY CHANGES WITH TOWERCOM IV-B, LLC CONSTRUCTION MANAGER.
6. ROUTE COAX/FIBER UP TOWER PER STRUCTURAL ANALYSIS BY TOWER OWNER.
7. TOWER DIMENSIONS SHOWN ON THIS PLAN ARE FOR TOWER CENTER LOCATION. CONTRACTOR TO OBTAIN COPY OF TOWER ERECTION DRAWINGS FROM TOWERCOM IV-B, LLC CONSTRUCTION MANAGER PRIOR TO DRILLING TOWER FOUNDATIONS. CASSIONS AND TOWER SHOWN ON THIS PLAN ARE ILLUSTRATIVE, SEE DESIGN DRAWING BY OTHERS. DO NOT SCALE.



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

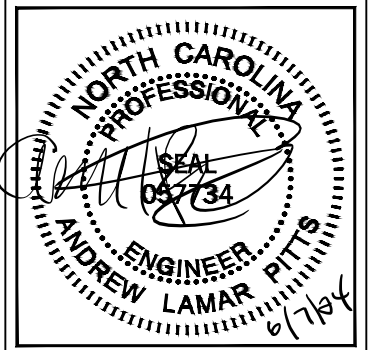
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

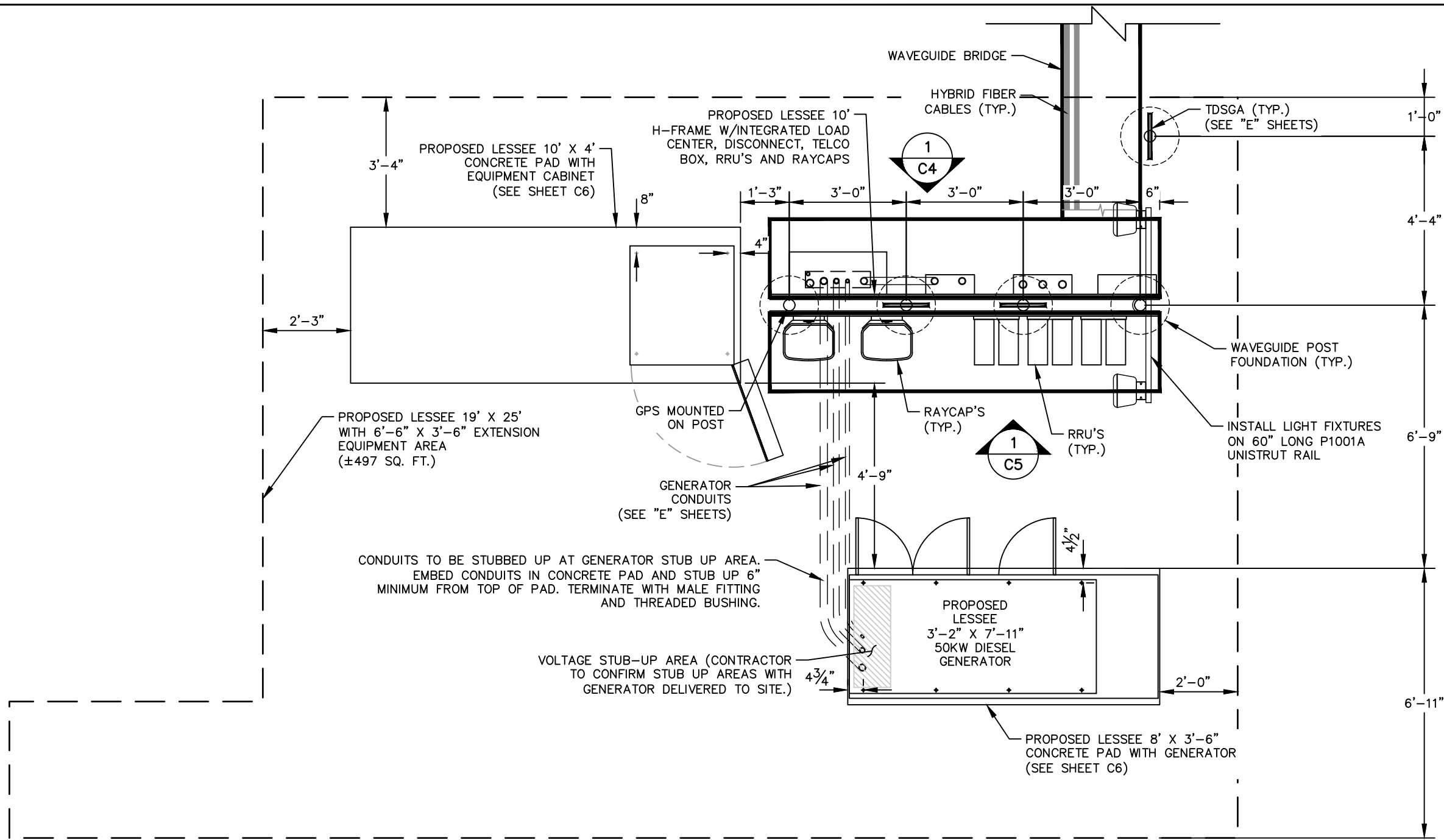
SHEET TITLE:

SITE PLAN

SHEET NUMBER:

C2

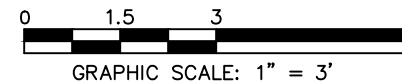
K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECor-GB.dwg 06/07/24 7:26 PM by: Drew.Pitts



1 EQUIPMENT PAD LAYOUT C3 SCALE: 1" = 3'

EQUIPMENT PAD/ROUTING NOTES:

- REFER TO THE SITE PLAN FOR EQUIPMENT PAD LOCATION AND ORIENTATION.
- RUN 2" FLEX TELCO CONDUIT FROM BOTTOM OF TELCO BOX TO SIDE OF RF CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
- RUN (2) 2" FLEX POWER CONDUIT AND (1) 1" ALARM CONDUIT FROM BOTTOM OF ILC TO SIDE OF RF CABINET WITH CHASE NIPPLES THROUGH FACTORY KNOCKOUTS.
- RUN 2" FLEX FIBER CONDUIT FROM BOTTOM OF OVP TO SIDE OF RF CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
- RUN (1) 1 1/2" FLEX POWER CONDUIT FOR EVERY (6) RRU CIRCUITS FROM BOTTOM OF OVP TO SIDE OF RF CABINET WITH CHASE NIPPLE THROUGH FACTORY KNOCKOUT.
- SUPPORT FLEX CONDUIT ON HORIZONTAL H-FRAME RAILS OR ON VERTICAL SITE STRUT SNT10 RAILS ADDED TO H-FRAME FOR CONDUIT/CABLE MANAGEMENT.
- RUN HYBRID CABLE FOR TOWER MOUNTED RRU'S OVERHEAD ON TRAPEZE SUSPENDED FROM WAVE GUIDE BRIDGE. SWEEP DOWN ONTO H-FRAME RAILS, THEN LOOP UNDER OVP AND CONNECT TO BOTTOM OF OVP. ATTACH GROUND KITS TO HYBRID CABLE BEFORE LOOPING UNDER OVP, AND BOND TO TDSGA GROUND BAR AT BASE OF H-FRAME.
- RUN COAX CABLE FOR GROUND MOUNTED RRU'S (IF USED) OVERHEAD ON TRAPEZE SUSPENDED FROM WAVE GUIDE BRIDGE. TERMINATE COAX ON ICE BRIDGE AND TRANSITION TO JUMPERS JUST BEFORE REACHING H-FRAME. ATTACH GROUND KITS TO COAX CABLE ON TOWER SIDE OF LAST ICE BRIDGE POST AND BOND TO TDSGA GROUND BAR NEAR TOP OF POST.
- GPS ANTENNA TO BE MOUNTED TO STANDARD HEIGHT POST WITH EXTENDED MOUNTING PIPE, USING COMMSCOPE GPS-U MOUNTING KIT. MOUNT AS NEAR AS PRACTICAL TO RBA84 CABINET.
- BOLT CABINETS AND GENERATOR TO SLAB USING FASTENERS SPECIFIED BY EQUIPMENT MANUFACTURER IN FACTORY PROVIDED MOUNTING HOLES.



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

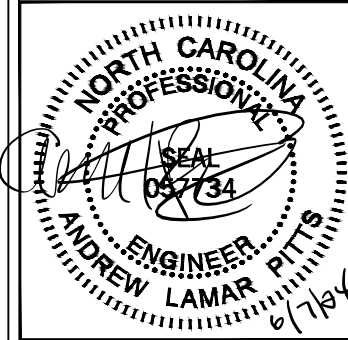
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB ALP

SHEET TITLE:

EQUIPMENT PAD
LAYOUT

SHEET NUMBER:

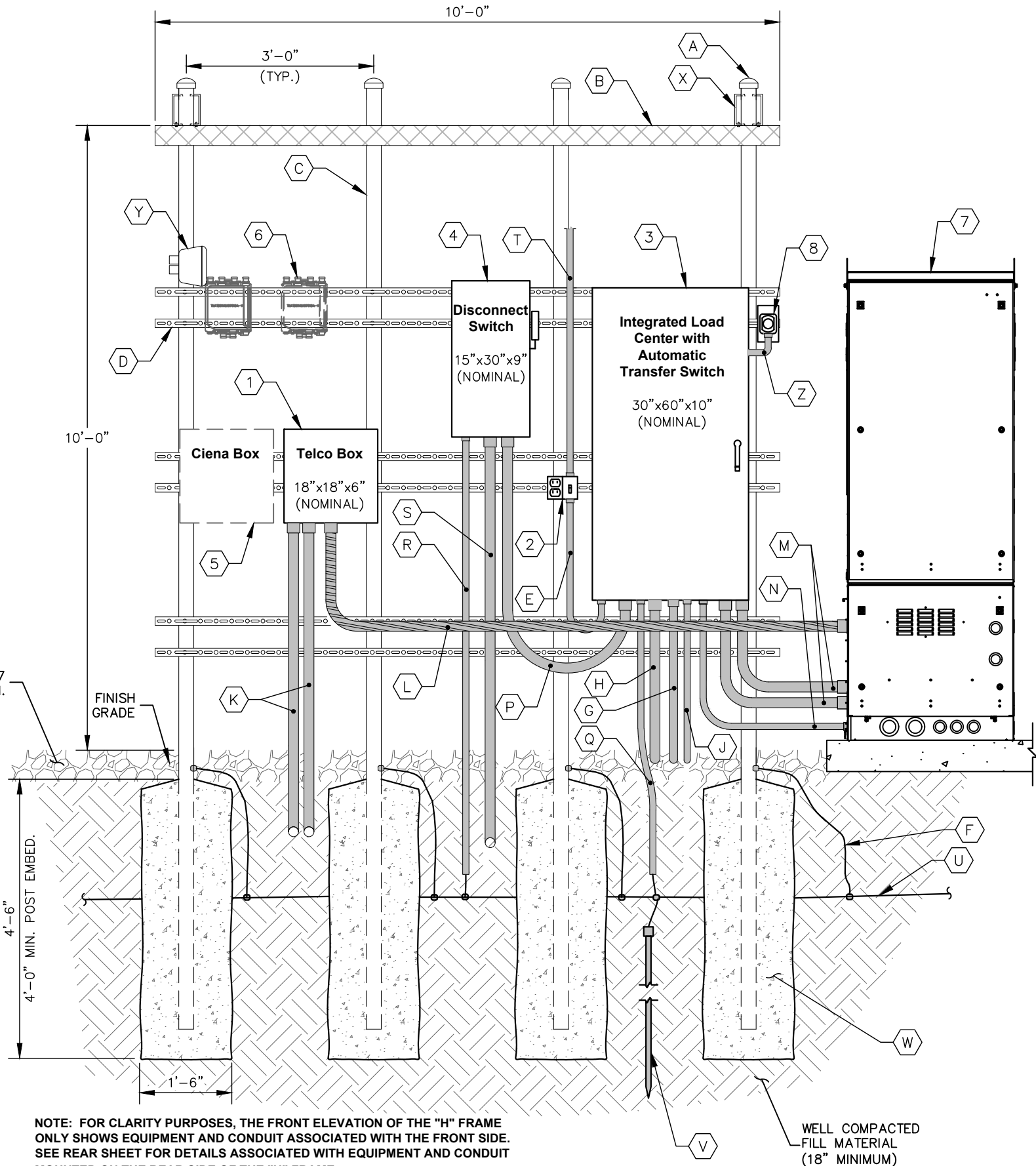
C3

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- (A) GALVANIZED RIGID STEEL CAP, TYPICAL.
- (B) ICE BRIDGE, SEE CIVIL SHEETS FOR ADDITIONAL DETAILS.
- (C) 3" GALVANIZED RIGID STEEL PIPE, TYPICAL.
- (D) 1½" X 1½" GALVANIZED STEEL CHANNEL (UNISTRUT #P1000) WITH PLASTIC END CAP (UNISTRUT #P2860), TYPICAL.
- (E) 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO LIGHTS/DUPLEX OUTLET.
- (F) ONE (1) #2 AWG BARE SOLID TINNED COPPER BONDING CONDUCTOR (BC) FROM H-FRAME VERTICAL PIPE TO GROUND RING, EXOTHERMIC WELD BOTH ENDS.
- (G) 1" PVC CONDUIT FOR ROUTING GENERATOR CONTROL AND ALARM SIGNAL CABLES TO THE GENERATOR.
- (H) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO THE GENERATOR.
- (J) 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO THE GENERATOR BATTERY CHARGER AND THE GENERATOR BLOCK HEATER.
- (K) TWO (2) 2" PVC TELCO CONDUITS, WITH TWO (2) PULL ROPES EACH.
- (L) 2" FLEX CONDUIT FOR TELCO CABLES TO RF CABINET. REFER TO ROUTING NOTES ON EQUIPMENT PAD LAYOUT.
- (M) (2) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO RF CABINET. REFER TO ROUTING NOTES ON EQUIPMENT PAD LAYOUT.
- (N) 1" PVC CONDUIT FROM INTEGRATED LOAD CENTER (ILC) TO RF CABINET FOR ALARM SIGNAL CABLE. REFER TO ROUTING NOTES ON EQUIPMENT PAD LAYOUT.
- (P) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE DISCONNECT SWITCH TO THE UTILITY BREAKER IN THE ILC.
- (Q) ¾" PVC CONDUIT WITH ONE (1) - #2 AWG BARE TINNED COPPER FROM GROUNDING LUG IN ILC TO GROUND ROD, EXOTHERMIC WELD TO GROUND ROD.
- (R) ¾" PVC CONDUIT WITH ONE (1) - #2 AWG BARE TINNED COPPER FROM GROUNDING LUG IN DISCONNECT SWITCH TO GROUND RING, EXOTHERMIC WELD TO GROUND RING.
- (S) 2" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE UTILITY COMPANY METER TO THE DISCONNECT SWITCH.
- (T) 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS TO AREA LIGHTS.
- (U) GROUND RING (SEE "E" SHEETS).
- (V) GROUND ROD, EXOTHERMIC WELD TO GROUND RING (SEE "E" SHEETS).
- (W) CONCRETE FOUNDATION FOR H-FRAME VERTICAL PIPE. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI. AND INCLUDE FIBERMESH 650.
- (X) WB-K210-B15 HORSEHEAD SUPPORT BRACKET (SEE "WAVEGUIDE BRIDGE DETAILS" SHEET). THRU BOLTS REQUIRED FOR ATTACHMENT IN LIEU OF FACTORY PROVIDED U-BOLTS.
- (Y) INSTALL LIGHT FIXTURES ON 60" LONG P1001A UNISTRUT RAIL (SEE "EQUIPMENT PAD LAYOUT" SHEET). ATTACH P1001A TO H-FRAME POST USING TWO (2) UB3 UNISTRUT CLAMPS. LIGHTS TO BE INSTALLED 7'-6" ABOVE GRADE.
- (Z) 1" PVC CONDUIT FOR ROUTING POWER CONDUCTORS FROM THE ILC TO THE EMERGENCY GENERATOR STOP SWITCH.

KEY NOTES - ELECTRICAL EQUIPMENT

- (1) NEMA 3R ENCLOSURE TELCO BOX WITH REMOVABLE FRONT PANEL, PVC, (18" X 18" X 6" NOMINAL).
- (2) 20 AMP GFCI DUPLEX RECEPTACLE AND TIMER SWITCH, ENERLITES HET06 SERIES (OR APPROVED EQUIVALENT) IN LOCKABLE NEMA 3R ENCLOSURE, 2 GANG BOX WITH RED DOT 2CKPM-W COVER.
- (3) 200 AMP, 120/240 VOLT, INTEGRATED LOAD CENTER WITH 42 SPACE PANEL AND AUTOMATIC TRANSFER SWITCH (30" X 60" X 10" NOMINAL).
- (4) SE RATED, 240 V, 200 AMP, 2-POLE, NON-FUSED DISCONNECT IN NEMA 3R ENCLOSURE.
- (5) CIENA ETHERNET IF REQUIRED (COORDINATE WITH VERIZON CONSTRUCTION MANAGER FOR ADDITIONAL CONDUIT AND WIRING REQUIREMENTS).
- (6) DIPLEXERS "AS NEEDED".
- (7) VERIZON RF CABINET - REAR VIEW.
- (8) EMERGENCY SHUTOFF SWITCH FOR GENERATOR MOUNTED ON 4" X 7" GALVANIZED J-BOX COVER PLATE.



1 EQUIPMENT RACK DETAILS - FRONT
C4 NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

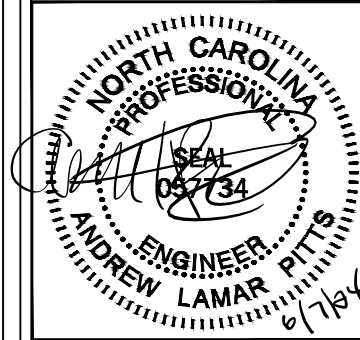
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

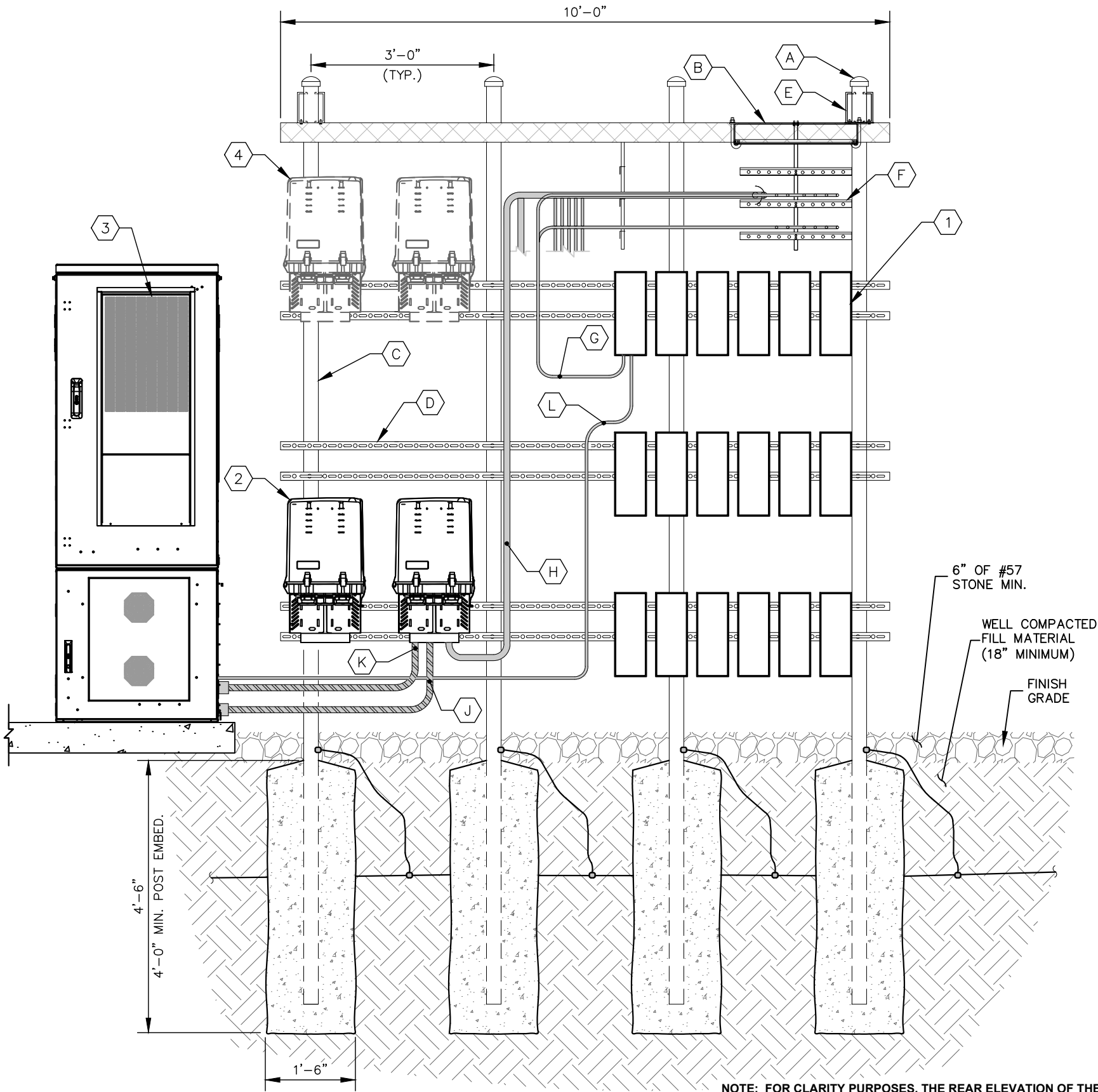
SHEET TITLE:

EQUIPMENT RACK
DETAIL - FRONT

SHEET NUMBER:

C4

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:27 PM by: Drew Pitts



NOTE: FOR CLARITY PURPOSES, THE REAR ELEVATION OF THE "H" FRAME ONLY SHOWS EQUIPMENT AND CONDUIT ASSOCIATED WITH THE REAR SIDE. SEE FRONT SHEET FOR DETAILS ASSOCIATED WITH EQUIPMENT AND CONDUIT MOUNTED ON THE FRONT SIDE OF THE "H" FRAME.

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- A GALVANIZED RIGID STEEL CAP, TYPICAL.
- B ICE BRIDGE, SEE CIVIL SHEETS FOR ADDITIONAL DETAILS.
- C 3" GALVANIZED RIGID STEEL PIPE, TYPICAL.
- D 1½" X 1½" GALVANIZED STEEL CHANNEL (UNISTRUT #P1000) WITH PLASTIC END CAP (UNISTRUT #P2860), TYPICAL.
- E WB-K210-B15 HORSEHEAD SUPPORT BRACKET (SEE "WAVEGUIDE BRIDGE DETAILS" SHEET). THRU BOLTS REQUIRED FOR ATTACHMENT IN LIEU OF FACTORY PROVIDED U-BOLTS.
- F ICE BRIDGE RUNNING TOWARDS TOWER (SEE "EQUIPMENT PAD LAYOUT" SHEET).
- G COAX JUMPER CABLES INTO BOTTOM OF RRU'S, TYPICAL.
- H HYBRID CABLES RUNNING INTO BOTTOM OF RAYCAPS, TYPICAL (SEE NOTE 7 ON "EQUIPMENT PAD LAYOUT" SHEET).
- J 1½" POWER FLEX CONDUIT RUNNING FROM BOTTOM OF RAYCAPS TO CABINET, TYPICAL (SEE "EQUIPMENT PAD LAYOUT" SHEET).
- K 2" FIBER FLEX CONDUIT RUNNING FROM BOTTOM OF RAYCAPS TO CABINET, TYPICAL (SEE "EQUIPMENT PAD LAYOUT" SHEET).
- L FIBER/POWER JUMPER TO RRU (TYP. FOR EACH RRU).

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 VERIZON RF RRU'S, IF GROUND MOUNTED (MODEL, QUANTITY OF, AND CONFIGURATION DETERMINED BY RF DESIGN).
- 2 VERIZON RAYCAPS (MODEL, QUANTITY OF, AND CONFIGURATION DETERMINED BY RF DESIGN).
- 3 VERIZON RF CABINET - FRONT VIEW.
- 4 FUTURE VERIZON RAYCAPS.

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

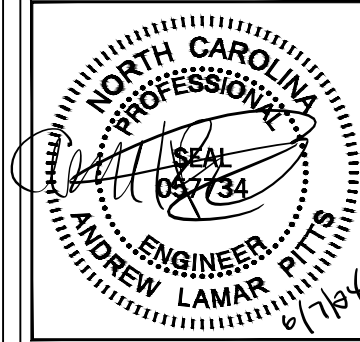
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

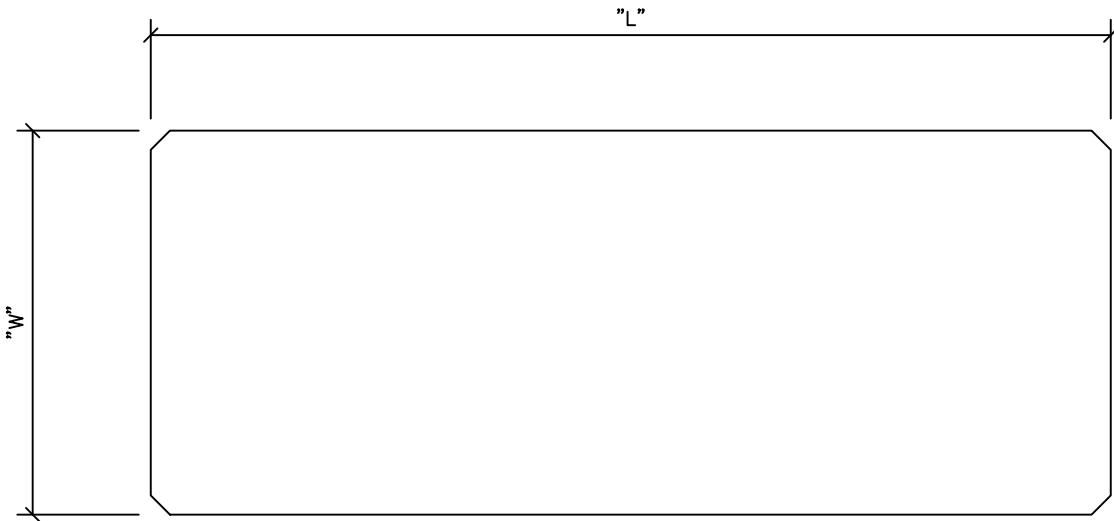
**EQUIPMENT RACK
DETAIL - REAR**

SHEET NUMBER:

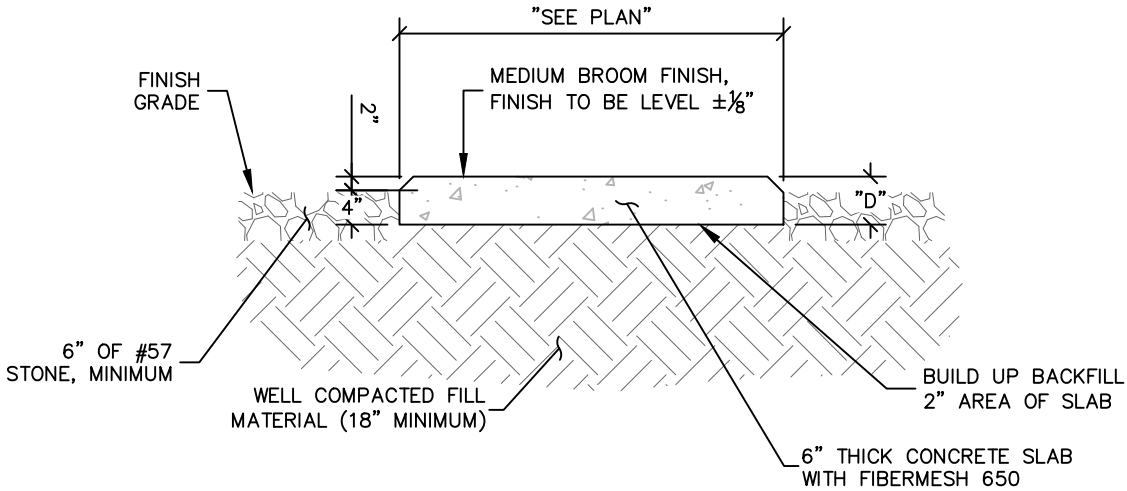
C5

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:27 PM by: Drew.Pitts

CONCRETE PAD SCHEDULE				
PAD TYPE	"L"	"W"	"D"	REINFORCEMENT
EQUIPMENT PAD	10'-0"	4'-0"	6"	SEE DETAIL 2/C6
GENERATOR PAD	8'-0"	3'-6"	6"	SEE DETAIL 2/C6



1 CONCRETE PAD PLAN
C6 NOT TO SCALE



2 CONCRETE PAD FOUNDATION SECTION
C6 NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

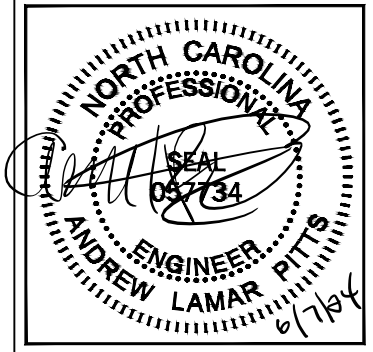
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

CONCRETE PAD
FOUNDATION
DETAILS

SHEET NUMBER:

C6

1. USE 3,000-PSI CONCRETE, FULLY CONSOLIDATED AROUND THE POST.

-
- Technical drawing of a gate assembly, showing side elevation and structural details. The drawing includes the following components and dimensions:
- Dimensions:**
 - Overall height: 8'-0" MIN.
 - Overall width: 12'-0"
 - Gate frame width: 6'-0"
 - Gate panel width: 6'-0"
 - Gate panel height: 2'-0"
 - Gate frame height: 10" (TYP.)
 - Gate frame width: 1'-0" (TYP.)
 - Gate panel width: 8'-0" O.C. (MAX.)
 - Gate panel height: 3'-0" (TYP.)
 - Structural Components:**
 - 3 STRANDS OF 12 GA. GALV. BARBED WIRE WITH 4-POINT BARBS
 - CONTRACTOR TO PROVIDE STYME LOCK OR APPROVED EQUIVALENT
 - 9 GA' 2"x2" FENCE FABRIC
 - 15/8" O.D. STANDARD GALV. PIPE
 - 2 3/8" O.D. STANDARD GALV. LINE POST
 - 27/8" O.D. STANDARD GALV. CORNER AND GATE POST
 - STEEL GALV. TENSION BAR
 - 15/8" O.D. STANDARD GALV. RAIL AND BRACE PIPE (TYP.)
 - 7 GA. GALV. TENSION WIRE
 - TENSION / BRACE BAND (TYP.)
 - FINISH GRADE
 - 1" GAP BETWEEN FENCE AND GRAVEL
 - SEE NOTES
 - Other Details:**
 - 3/8" STEEL TRUSS ROD AND TRUSS ROD TIGHTENER AT ALL CORNERS (TYP.)
 - INDUSTRIAL HINGE - 180° (TYP.)
 - 13/8" O.D. GALV. PIPE FOR MUSHROOM STOP
 - MUSHROOM STOP
 - COMMERCIAL FABRICATED 1.90" O.D. GATE FRAME
 - RAIL END CONNECTOR (TYP.)

1'-0" (TYP.)

CHAIN LINK FENCE

6" OF #57 STONE (TO LIMIT OF DISTURBANCE)

MIRAFI 500X (TO LIMIT OF DISTURBANCE)

LIMIT OF SURFACING

EXISTING GRADE

COMPACT SUBGRADE AND SURFACING TO PRODUCE AN UNYIELDING SURFACE

3-WIRE 45° BARBED WIRE
ARM W/ 3-STRANDS OF
BARBED WIRE (TYP.)

45°

TOP RAIL

CHAIN LINK
FENCE FABRIC

LINE POST
8'-0" O.C.
MAX.

FINISH GRADE

8'-0" MIN.

1" GAP BETWEEN
FENCE AND GRAVEL

1'-0"

The diagram illustrates a cross-section of a chain-link fence system. A vertical concrete wall is shown on the left, with a gravel base at the bottom. A chain-link fence fabric is attached to the wall, with a 1-inch gap between the fabric and the gravel. The fence fabric is supported by a line post, which is spaced at a maximum of 8 feet on center. The top of the fence fabric is connected to a top rail, which is a 3-wire 45-degree barbed wire arm. The top rail is shown at a 45-degree angle to the horizontal. The finish grade is indicated by a horizontal line. A dimension of 8 feet minimum is shown for the height of the fence fabric above the gravel. A dimension of 1 foot is shown for the distance from the gravel to the bottom of the fence fabric. A dimension of 1 foot is shown for the distance from the gravel to the bottom of the line post.

INSTALL MUSHROOM STOP WITH SLOT PARALLEL TO CLOSED GATES

FINISH GRADE

CONCRETE

24"

10"

2 MUSHROOM STOP
C7 NOT TO SCALE

3 SITE COMPOUND SURFACE DETAIL

C7 NOT TO SCALE

4 SECTION AT FENCE
C7 NOT TO SCALE

C7

K:\AT_ Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:27 PM by: Drew Pitts

NOTE:
CURRENT DESIGN ANTICIPATES APPROXIMATELY 23,482± SQ. FT. (0.54 ACRES) OF CLEARING AND GRADING FOR THE PROPOSED PROJECT. IF ADDITIONAL CLEARING IS REQUIRED BEYOND WHAT IS SHOWN IN THE PLANS THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR PROJECT MANAGER. IF DURING THE BID WALK OR CONSTRUCTION IT IS DETERMINED THAT MORE THAN (1) ACRE OF LAND IS TO BE DISTURBED FOR CONSTRUCTION AN EROSION AND SEDIMENTATION CONTROL PLAN MUST BE FILED 30 DAYS PRIOR TO CONSTRUCTION.

GRADING NOTES:

1. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEERS SPECIFICATIONS. FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
2. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
3. CONTRACTOR SHALL BLEND EARTHWORK SMOOTHLY TO TRANSITION BACK TO EXISTING GRADE.
4. PORTIONS OF THE SITE NOT SPECIFICALLY MENTIONED WITHIN THE GEOTECHNICAL REPORT SHALL BE COMPACTED TO 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY WITHIN 3 PERCENT OF OPTIMUM MOISTURE CONTENT.
5. FILL SHALL BE PLACED IN MAXIMUM 8 INCH LOOSE LIFTS.
6. UNDISTURBED AREAS WITHIN 30' INGRESS/EGRESS EASEMENT NOT NEEDED FOR UTILITY ROUTING TO BE LEFT UNDISTURBED.
7. GROUND WATER SHOULD BE REASONABLY EXPECTED. ANY DE-WATERING OR MOISTURE CONDITIONING IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE INCLUDED IN THE CONTRACT PRICE.
8. SEED ALL DISTURBED AREAS NOT TOPPED WITH GRAVEL PER SEEDING SCHEDULE ON DETAIL ON SHEET C9.
9. MAXIMUM CUT SLOPE = 2H:1V UNLESS OTHERWISE NOTED.
10. MAXIMUM FILL SLOPE = 3H:1V UNLESS OTHERWISE NOTED.

LEGEND

EXISTING CONTOURS ————

PROPOSED CONTOURS ————

LOD ———— LOD ———— LOD ————

SILT FENCE ———— SF ———— SF ————

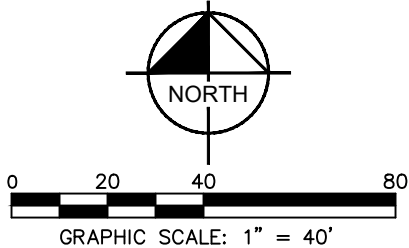
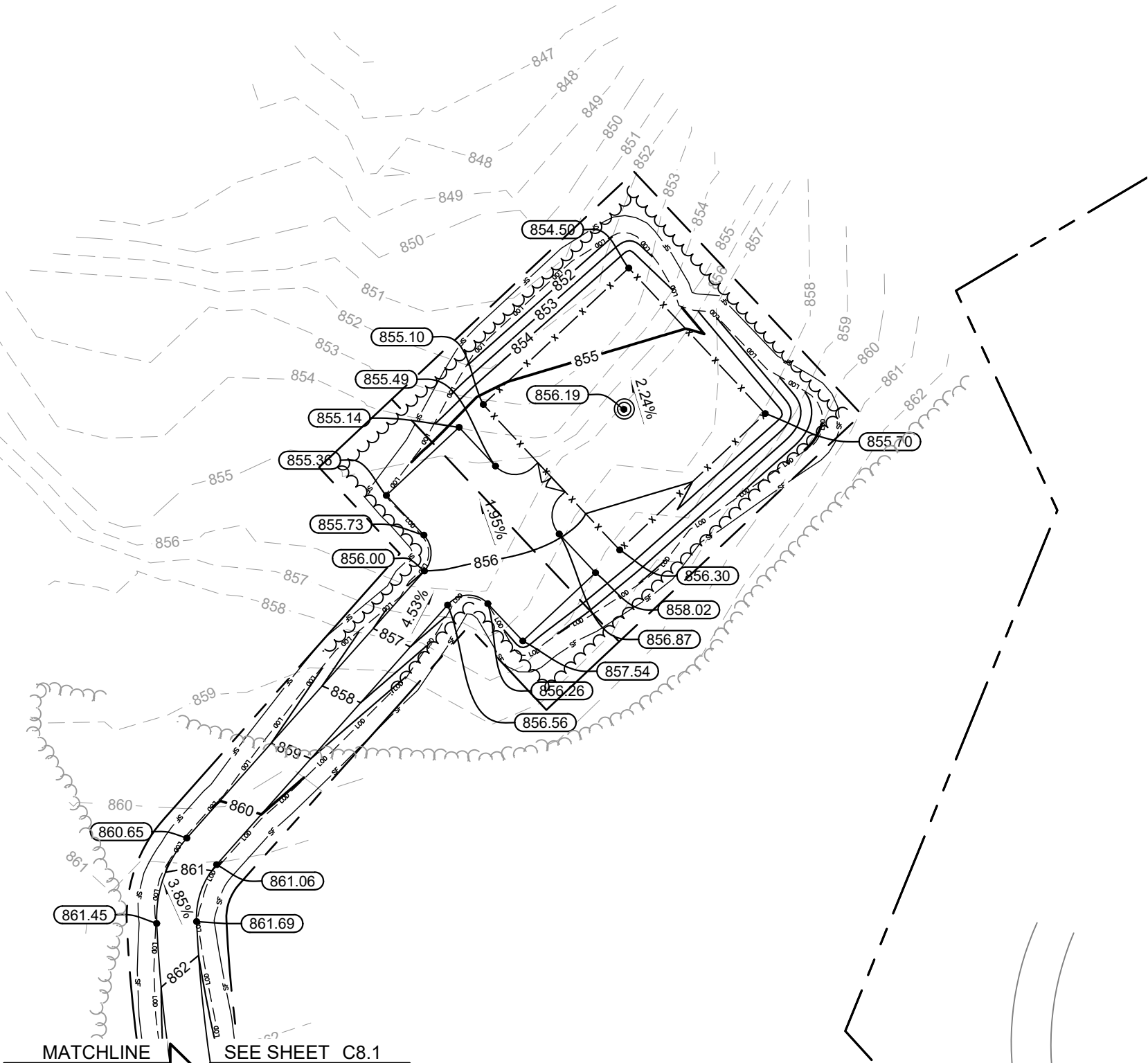
TPF ———— TPF ———— TPF ————

EXISTING SPOT ELEVATION x XXX

PROPOSED SPOT ELEVATION ● XXX

CUT/ FILL TABLE

CUT VOLUME:	323.39 CU. YD.
FILL VOLUME:	321.96 CU. YD.
NET VOLUME:	1.43 CU. YD. (CUT)



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

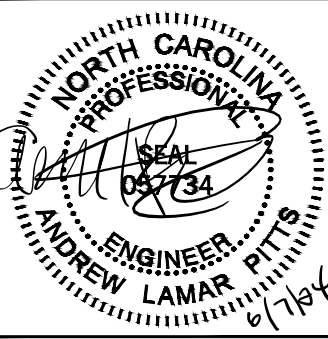
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

**GRADING AND
EROSION
CONTROL PLAN**

SHEET NUMBER:

C8

K:\AT_ Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:27 PM by: Drew.Pitts

NOTE:
CURRENT DESIGN ANTICIPATES APPROXIMATELY 23,482± SQ. FT. (0.54 ACRES) OF CLEARING AND GRADING FOR THE PROPOSED PROJECT. IF ADDITIONAL CLEARING IS REQUIRED BEYOND WHAT IS SHOWN IN THE PLANS THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR PROJECT MANAGER. IF DURING THE BID WALK OR CONSTRUCTION IT IS DETERMINED THAT MORE THAN (1) ACRE OF LAND IS TO BE DISTURBED FOR CONSTRUCTION AN EROSION AND SEDIMENTATION CONTROL PLAN MUST BE FILED 30 DAYS PRIOR TO CONSTRUCTION.

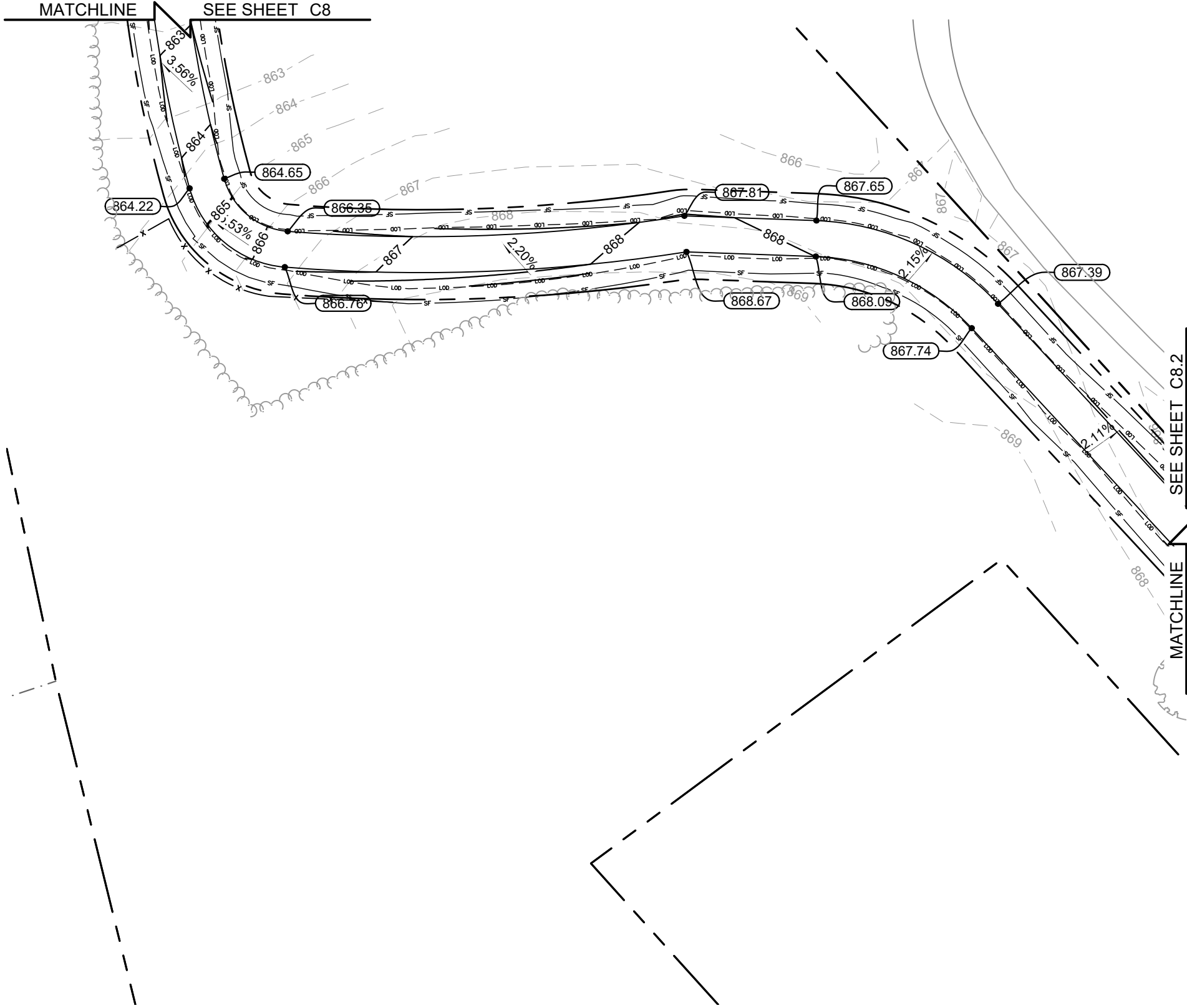
GRADING NOTES:

1. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEERS SPECIFICATIONS. FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
2. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
3. CONTRACTOR SHALL BLEND EARTHWORK SMOOTHLY TO TRANSITION BACK TO EXISTING GRADE.
4. PORTIONS OF THE SITE NOT SPECIFICALLY MENTIONED WITHIN THE GEOTECHNICAL REPORT SHALL BE COMPACTED TO 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY WITHIN 3 PERCENT OF OPTIMUM MOISTURE CONTENT.
5. FILL SHALL BE PLACED IN MAXIMUM 8 INCH LOOSE LIFTS.
6. UNDISTURBED AREAS WITHIN 30' INGRESS/EGRESS EASEMENT NOT NEEDED FOR UTILITY ROUTING TO BE LEFT UNDISTURBED.
7. GROUND WATER SHOULD BE REASONABLY EXPECTED. ANY DE-WATERING OR MOISTURE CONDITIONING IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE INCLUDED IN THE CONTRACT PRICE.
8. SEED ALL DISTURBED AREAS NOT TOPPED WITH GRAVEL PER SEEDING SCHEDULE ON DETAIL ON SHEET C9.
9. MAXIMUM CUT SLOPE = 2H:1V UNLESS OTHERWISE NOTED.
10. MAXIMUM FILL SLOPE = 3H:1V UNLESS OTHERWISE NOTED.

LEGEND

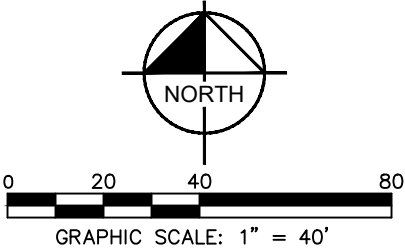
EXISTING CONTOURS ————
PROPOSED CONTOURS ————
LOD ——— LOD ———
SILT FENCE ——— SF ——— SF ———
TPF ——— TPF ——— TPF ———
EXISTING SPOT ELEVATION x XXX
PROPOSED SPOT ELEVATION ● XXX

MATCHLINE SEE SHEET C8



CUT/ FILL TABLE	
CUT VOLUME:	323.39 CU. YD.
FILL VOLUME:	321.96 CU. YD.
NET VOLUME:	1.43 CU. YD. (CUT)

1 GRADING & EROSION CONTROL PLAN
C8.1 SCALE: 1" = 40'



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

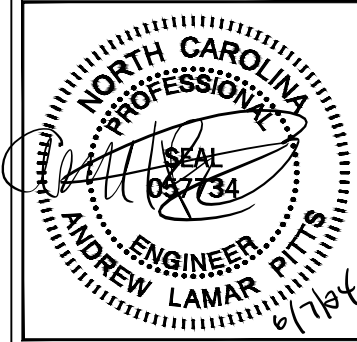
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB ALP

SHEET TITLE:

**GRADING AND
EROSION
CONTROL PLAN**

SHEET NUMBER:

C8.1

K:\AT_Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:27 PM by: Drew Pitts

NOTE:
CURRENT DESIGN ANTICIPATES APPROXIMATELY 23,482± SQ. FT. (0.54 ACRES) OF CLEARING AND GRADING FOR THE PROPOSED PROJECT. IF ADDITIONAL CLEARING IS REQUIRED BEYOND WHAT IS SHOWN IN THE PLANS THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND/OR PROJECT MANAGER. IF DURING THE BID WALK OR CONSTRUCTION IT IS DETERMINED THAT MORE THAN (1) ACRE OF LAND IS TO BE DISTURBED FOR CONSTRUCTION AN EROSION AND SEDIMENTATION CONTROL PLAN MUST BE FILED 30 DAYS PRIOR TO CONSTRUCTION.

GRADING NOTES:

1. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEERS SPECIFICATIONS. FILL MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
2. ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
3. CONTRACTOR SHALL BLEND EARTHWORK SMOOTHLY TO TRANSITION BACK TO EXISTING GRADE.
4. PORTIONS OF THE SITE NOT SPECIFICALLY MENTIONED WITHIN THE GEOTECHNICAL REPORT SHALL BE COMPACTED TO 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY WITHIN 3 PERCENT OF OPTIMUM MOISTURE CONTENT.
5. FILL SHALL BE PLACED IN MAXIMUM 8 INCH LOOSE LIFTS.
6. UNDISTURBED AREAS WITHIN 30' INGRESS/EGRESS EASEMENT NOT NEEDED FOR UTILITY ROUTING TO BE LEFT UNDISTURBED.
7. GROUND WATER SHOULD BE REASONABLY EXPECTED. ANY DE-WATERING OR MOISTURE CONDITIONING IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE INCLUDED IN THE CONTRACT PRICE.
8. SEED ALL DISTURBED AREAS NOT TOPPED WITH GRAVEL PER SEEDING SCHEDULE ON DETAIL ON SHEET C9.
9. MAXIMUM CUT SLOPE = 2H:1V UNLESS OTHERWISE NOTED.
10. MAXIMUM FILL SLOPE = 3H:1V UNLESS OTHERWISE NOTED.

LEGEND

EXISTING CONTOURS ————

PROPOSED CONTOURS ————

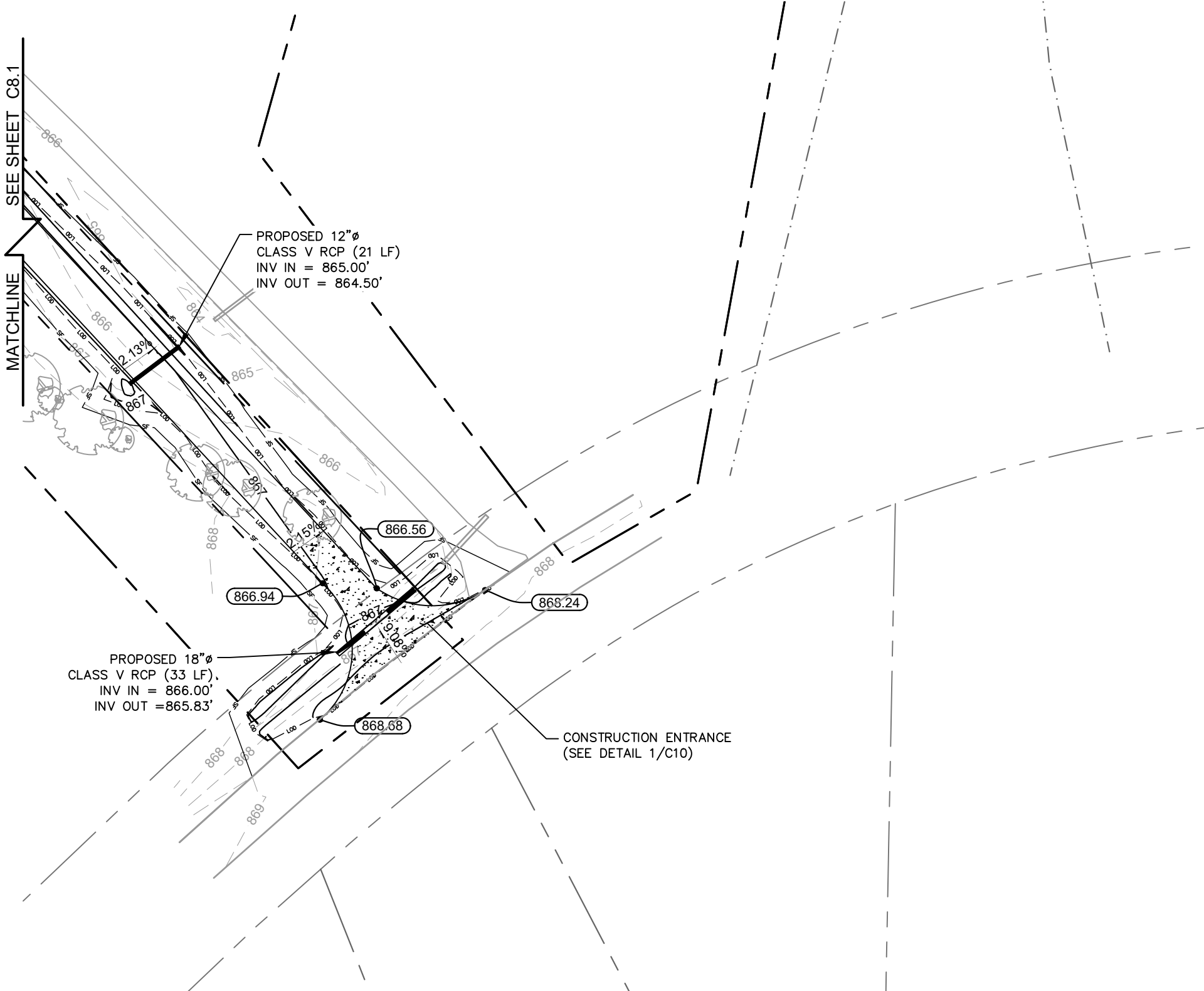
LOD ——— LOD ——— /// ——— LOD ——— ///

SILT FENCE ——— SF ——— SF ———

TPF ——— TPF ——— TPF ———

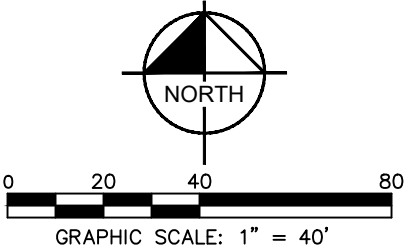
EXISTING SPOT ELEVATION x XXX

PROPOSED SPOT ELEVATION ● XXX



CUT/ FILL TABLE	
CUT VOLUME:	323.39 CU. YD.
FILL VOLUME:	321.96 CU. YD.
NET VOLUME:	1.43 CU. YD. (CUT)

1 GRADING & EROSION CONTROL PLAN
C8.2 SCALE: 1" = 40'



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

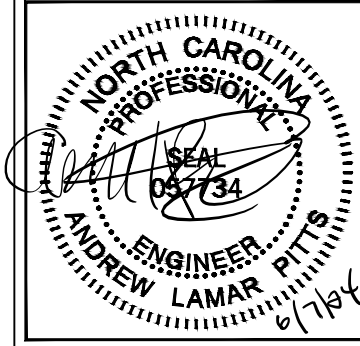
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

**GRADING AND
EROSION
CONTROL PLAN**

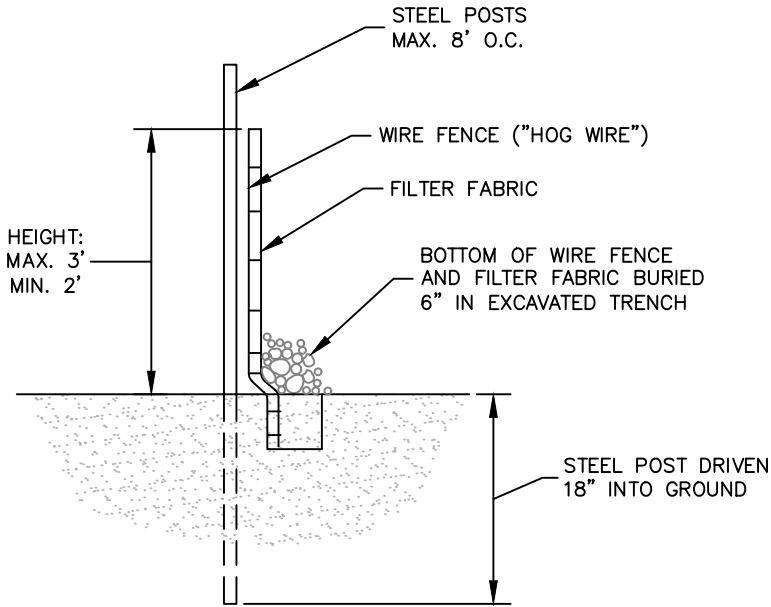
SHEET NUMBER:

C8.2

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:28 PM by: Drew Pitts

EROSION CONTROL NOTES:

1. EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE ADEQUATE TO MAINTAIN SEDIMENT ON SITE.
2. ALL EXCAVATED SOILS NOT NEEDED ON SITE FOR BACKFILL OPERATIONS SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE TAKEN OFF SITE AND LEGALLY DISPOSED OF.
3. SOIL REMAINING ON SITE SHALL HAVE SILT FENCE TIGHTLY PLACED AROUND THE ENTIRE CIRCUMFERENCE OF THE PILE.
4. PROVIDE EROSION CONTROLS AS NECESSARY TO PREVENT EXISTING SOILS FROM DRAINING OFF SITE OR INTO EXISTING DRAINAGE STRUCTURES.
5. ERECTION OF EROSION CONTROLS SHALL BE IN ACCORDANCE WITH STATE AND LOCAL EROSION CONTROL REGULATIONS.



SECTION

1 SEDIMENT FENCE (SILT FENCE)
C9 NOT TO SCALE

SEEDING SCHEDULE FOR WINTER / SPRING CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

Species	Rate (lb/acre)
Rye (grain)	120
Annual lespedeza (Kobe in Piedmont and Coastal Plain, Korean in Mountains)	50

Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

SEEDING DATES

Mountains--	Above 2500 ft:	Feb 15 - May 15
	Below 2500 ft.:	feb. 1 - May 1
Piedmont--	Jan. 1 - May 1	
Coastal Plain--	Dec. 1 - Apr. 15	

SOIL AMENDMENTS

Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

MULCH

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

MAINTENANCE

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

SEEDING SCHEDULE FOR SUMMER CONSTRUCTION ACTIVITIES

SEEDING MIXTURE

Species	Rate (lb/acre)
Common Bermudagrass	40-80 (1-2 lb/1,000 sq.ft.)

SEEDING DATES

Coastal Plain--Apr. 1 - July
Piedmont--Apr. 15 - June 30

SOIL AMENDMENTS

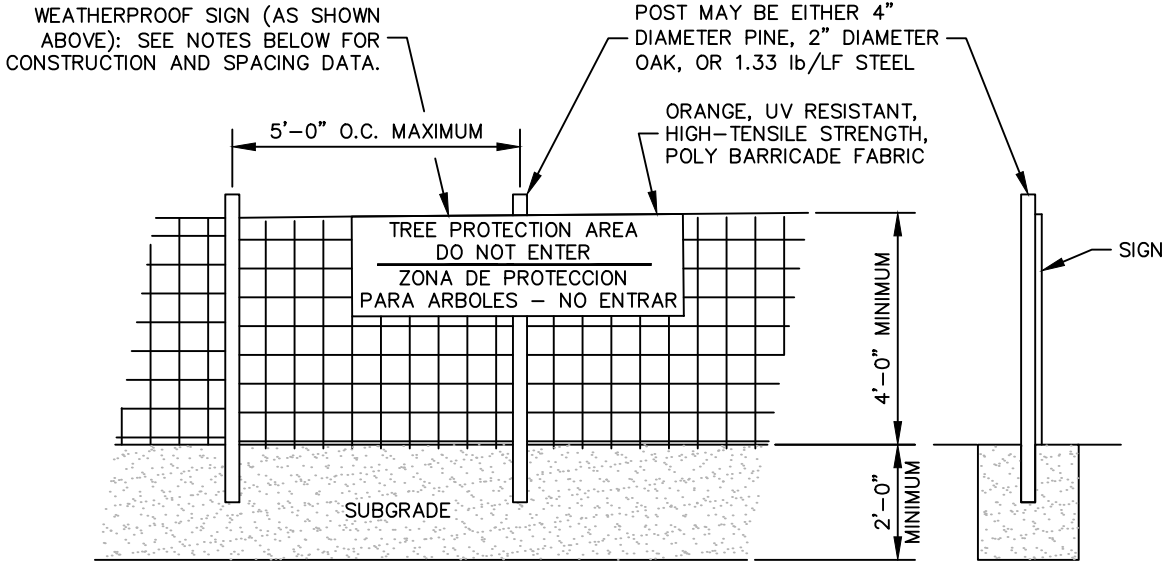
Apply lime and fertilizer according to soil tests, or apply 3,000 lb/acre ground agricultural limestone and 500 lb/acre 10-10-10 fertilizer.

MULCH

Use jute, excelsior matting, or other effective channel lining material to cover the bottom of channels and ditches. The lining should extend above the highest calculated depth of flow. On channel side slopes above this height, and in drainages not requiring temporary lining, apply 4,000 lb/acre grain straw and anchor straw by stapling netting over the top.

MAINTENANCE

A minimum of 3 weeks is required for establishment. Inspect and repair mulch frequently. Refertilize the following Apr. with 50 lb/acre nitrogen.



NOTES
INSTALL TREE PROTECTION FENCE AND SIGNAGE PRIOR TO CALLING FOR SITE INSPECTION. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT. ADDITIONAL SIGNS MAY BE REQUIRED BASED ON ACTUAL FIELD CONDITIONS.

2 TREE PROTECTION FENCE
C9 NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

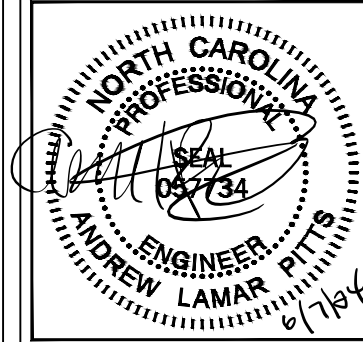
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB ALP

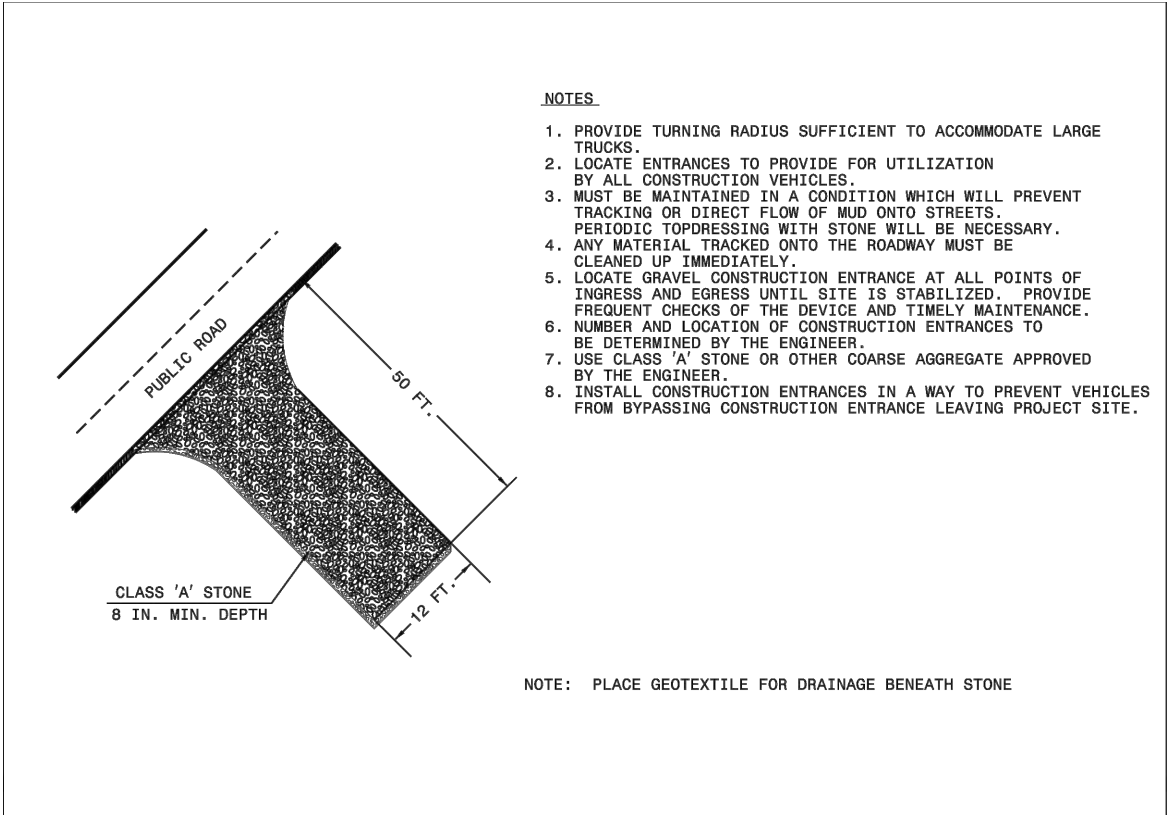
SHEET TITLE:

GRADING AND EROSION CONTROL DETAILS

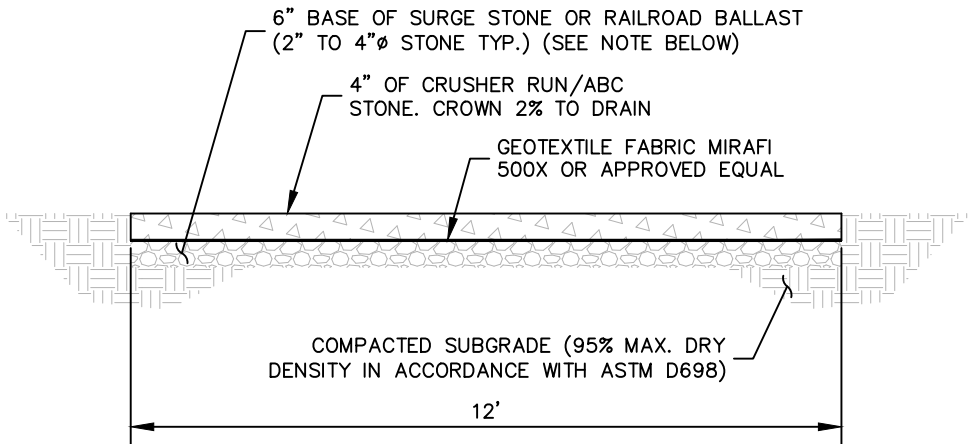
SHEET NUMBER:

C9

K:\ATL Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:28 PM by: Drew Pitts

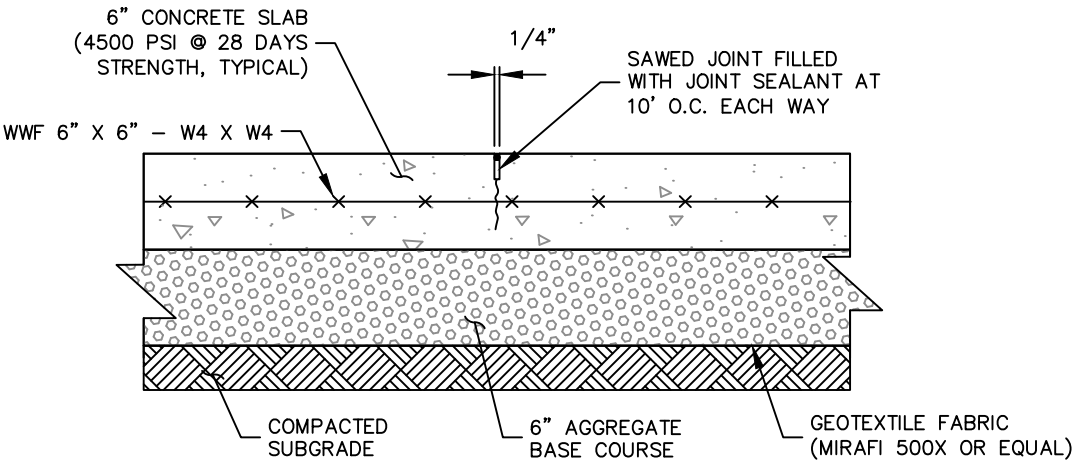


1 CONSTRUCTION ENTRANCE
C10 NOT TO SCALE



NOTE:
IF DETERMINED NECESSARY DURING GRADING AND CONSTRUCTION OF THE ACCESS ROAD BY THE TOWERCOM IV-B, LLC PROJECT MANAGER, THE CONTRACTOR SHALL INSTALL 6" BASE OF SURGE STONE OR RAILROAD BALLAST (2" TO 4"Ø STONE TYP.)

2 STANDARD ACCESS ROAD AND TURN-AROUND DETAIL
C10 NOT TO SCALE



JOINT SHALL BE SAWED IMMEDIATELY AFTER INITIAL SET, BEFORE CONCRETE BEGINS TO COOL, AS SOON AS CONCRETE SURFACE IS FIRM ENOUGH NOT TO BE DAMAGED BY THE BLADE, AND BEFORE RANDOM DRYING SHRINKAGE CRACKS CAN FORM.

3 CONCRETE DRIVEWAY DETAIL
C10 NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

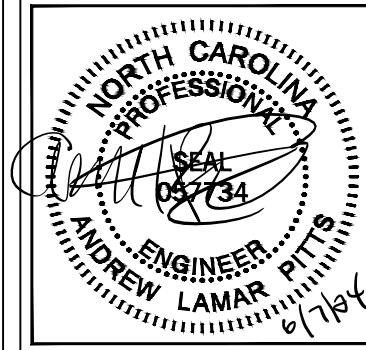
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

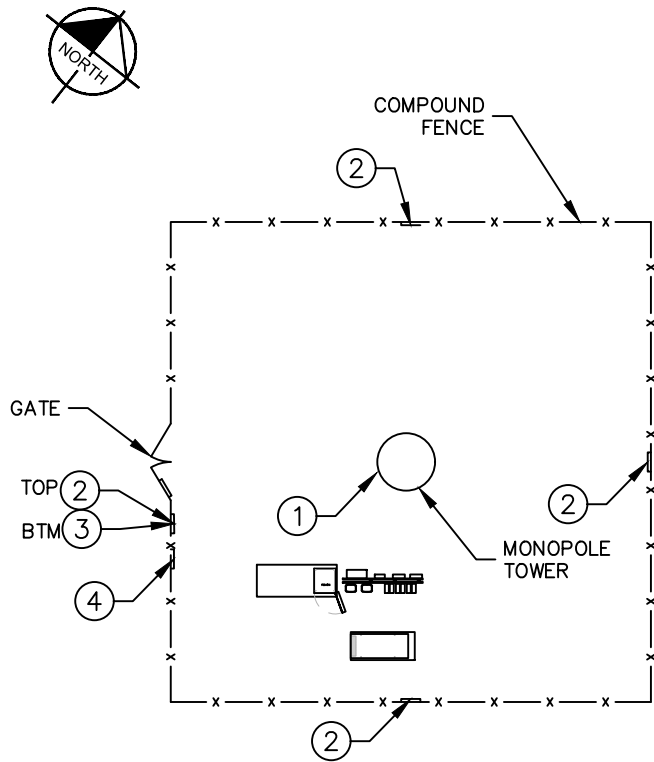
SHEET TITLE:

ACCESS ROAD
DETAILS

SHEET NUMBER:

C10

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECor-CB.dwg 06/07/24 7:29 PM by: Drew.Pitts



NOTE: SEE TYPICAL SIGNS AND SPECIFICATIONS
DETAIL ON THIS SHEET FOR SIGN DESIGNATIONS.

1 SIGN PLACEMENT PLAN VIEW
C11 NOT TO SCALE



1 CAUTION SIGN - 12" X 8"
-PLACED ON TOWER
-USE A DECAL ON MONOPOLE AND
METAL SIGN ON SELF-SUPPORT
TOWER OR GUYED TOWER



3 RF GUIDELINES SIGN - 12" X 8"
- PLACED ON FENCE

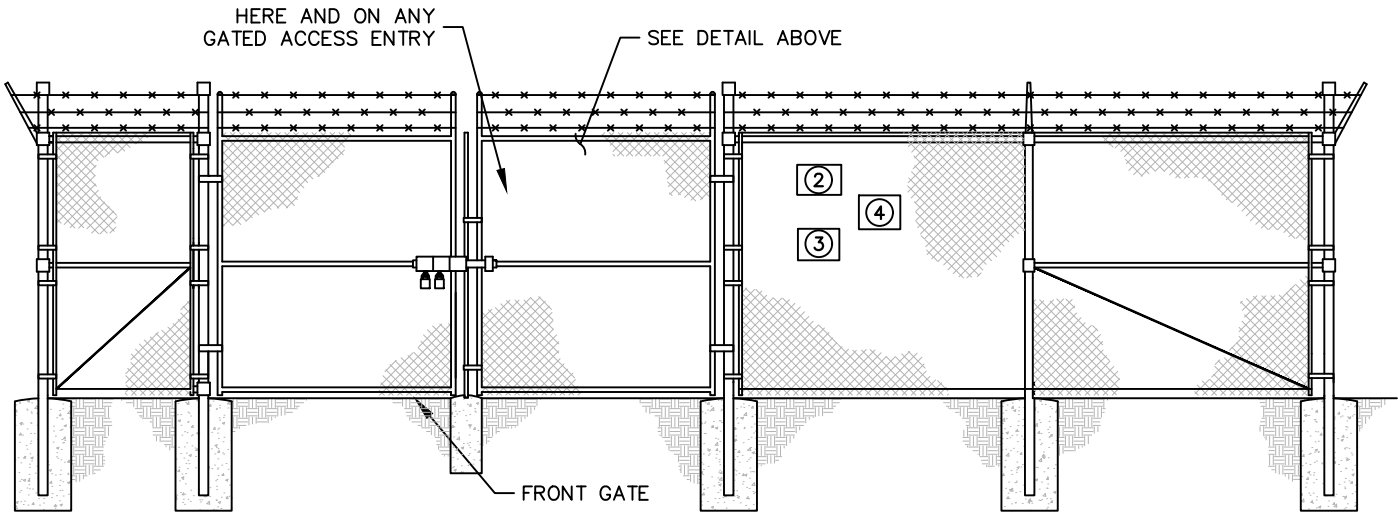


2 NO TRESPASSING SIGN 12" X 8"
12" HIGH X 8" WIDE ALUMINUM SIGN W/ 1/4" DRILLED HOLES IN EACH CORNER
THICKNESS: 0.05" (1/16") OR CLOSET STANDARD THICKNESS
(HUNG ON COMPOUND GATE)
(OPERATIONS PROVIDED)



4 TOWERCOM - SITE ID SIGN 18" X 24"
18" HIGH X 24" WIDE ALUMINUM SIGN W/ 1/4" DRILL HOLES IN EACH CORNER
THICKNESS: 0.05" (1/16") OR CLOSET STANDARD THICKNESS 18"
(HUNG ON COMPOUND GATE AND ACCESS ROAD GATE IF APPLICABLE)
(OPERATIONS PROVIDED)

2 TYPICAL SIGNS AND SPECIFICATIONS
C11 NOT TO SCALE



3 SIGN PLACEMENT FRONT GATE VIEW
C11 NOT TO SCALE

- SIGNAGE NOTES:
- SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL, AND PAINTED WITH LONG LASTING UV RESISTANT COATINGS.
 - SIGNS (EXCEPT WHERE NOTED OTHERWISE) SHALL BE MOUNTED TO THE TOWER, GATE, AND FENCE USING A MINIMUM OF 9 GAUGE ALUMINUM WIRE, HOG RINGS (AS UTILIZED IN FENCE INSTALLATIONS) OR BRACKETS WHERE NECESSARY. BRACKETS SHALL BE OF SIMILAR METAL AS THE STRUCTURE TO AVOID GALVANIC CORROSION.

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

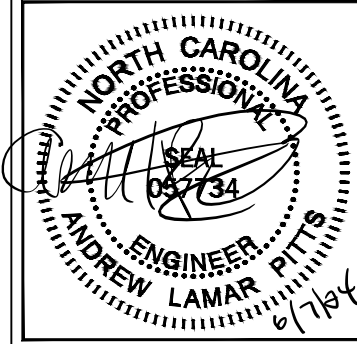
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

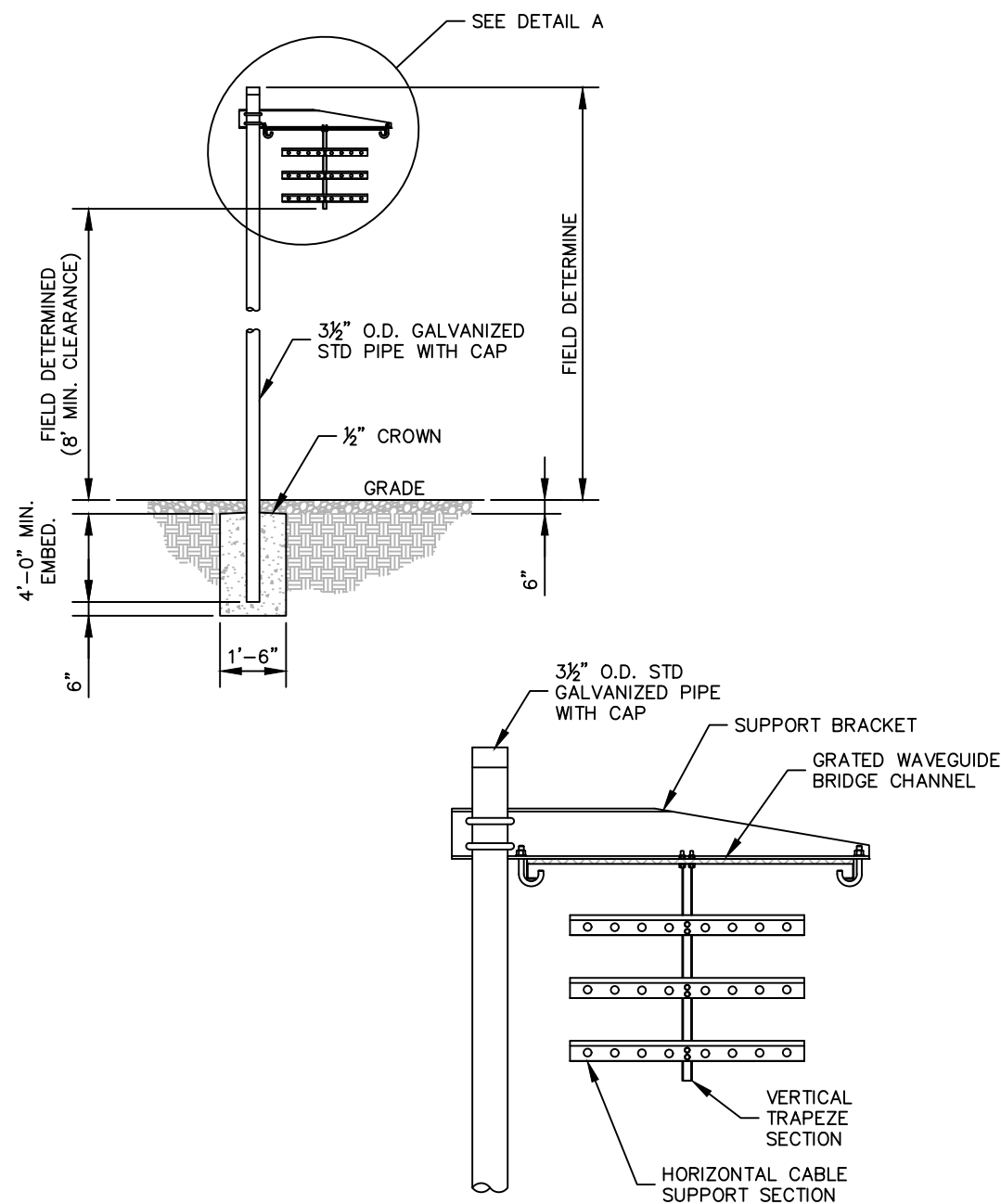
SHEET TITLE:

SITE SIGNAGE
DETAILS

SHEET NUMBER:

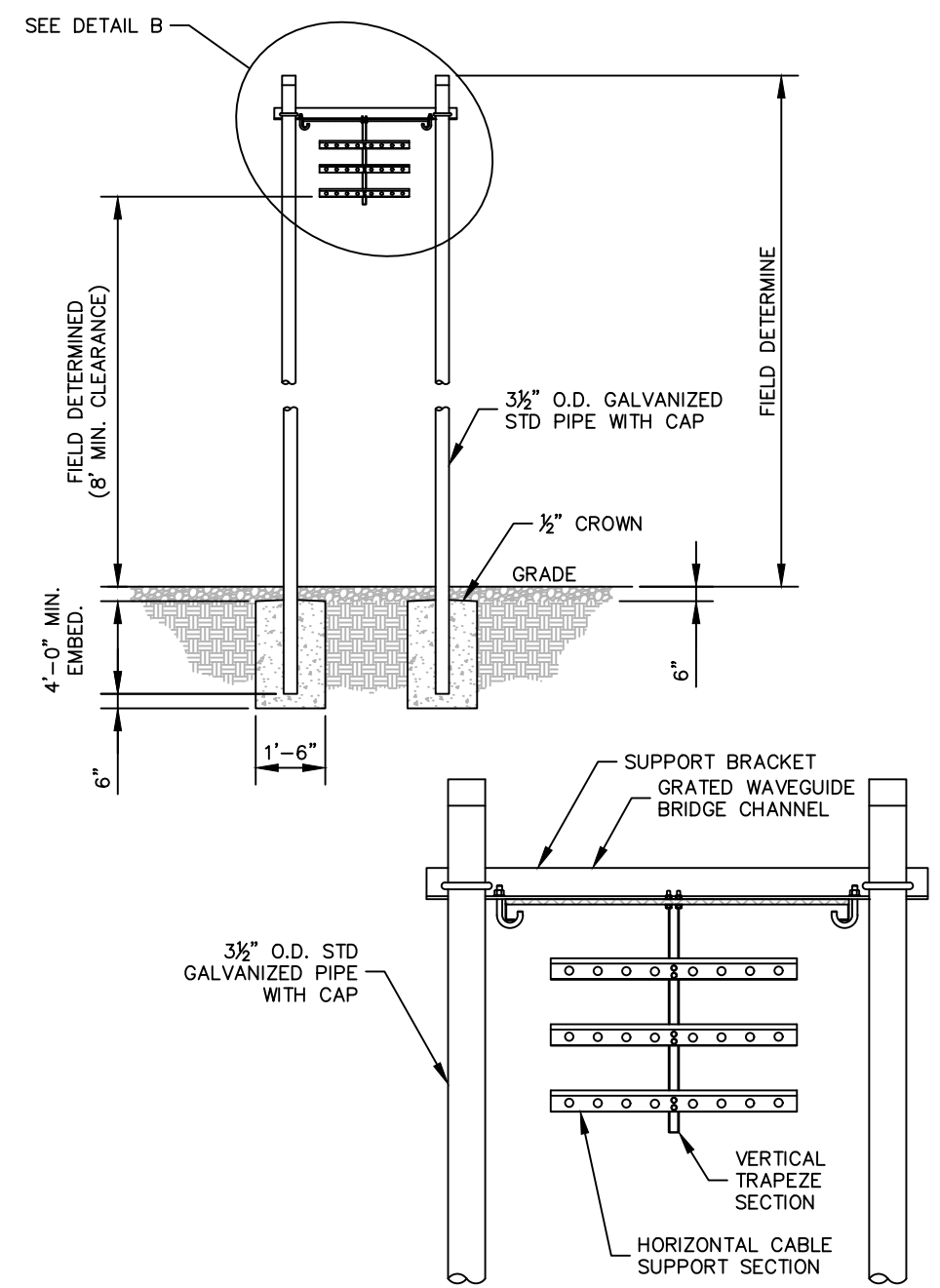
C11

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:29 PM by: Drew Pitts



NOTE:
1. ALL MATERIALS FURNISHED BY CONTRACTOR
UNLESS OTHERWISE NOTED.

1 WAVEGUIDE BRIDGE DETAIL
C12 NOT TO SCALE



NOTE:
1. ALL MATERIALS FURNISHED BY CONTRACTOR
UNLESS OTHERWISE NOTED.

2 WAVEGUIDE BRIDGE DETAIL (ALT DESIGN - 2 PIPE COLUMNS)
C12 NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

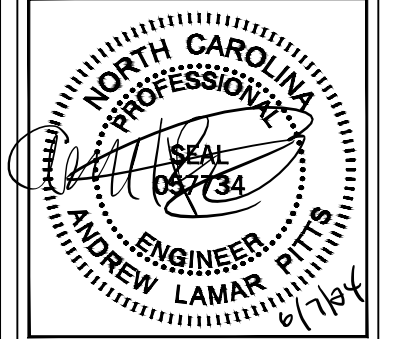
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

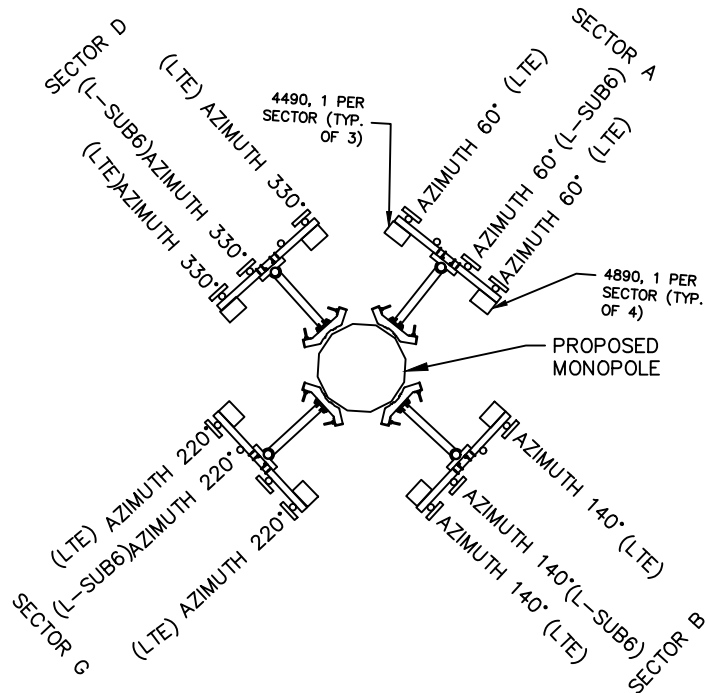
ALP

SHEET TITLE:

WAVEGUIDE
BRIDGE DETAILS

SHEET NUMBER:

C12

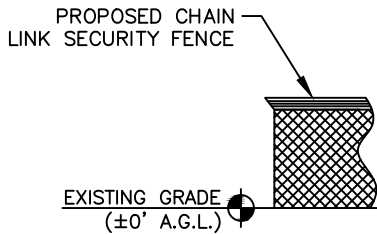


1 ANTENNA ORIENTATION PLAN
C13 (NOT TO SCALE, FOR ILLUSTRATIVE PURPOSES ONLY, SEE STRUCTURAL ANALYSIS BY OTHERS TO CONFIRM ANTENNA MOUNT TYPE)

NOTE:
REFER TO RFDS PROVIDED BY VERIZON.
CONTRACTOR TO CONTACT THE VERIZON WIRELESS
CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION
FOR THE CONSTRUCTION RFDS.

NOTES:
1. ALL INFORMATION ON THIS PAGE IS PROVIDED BY VERIZON WIRELESS AND/OR OTHERS AND IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL CONTACT THE VERIZON WIRELESS CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION FOR ALL DETAILED ANTENNA, AND COAX CABLE INFORMATION.
2. REFER TO STRUCTURAL ANALYSIS BY TOWER OWNER FOR ANALYSIS OF PROPOSED TOWER.
3. IT IS UNDERSTOOD THAT KIMLEY-HORN MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, FINDINGS, DESIGNS, RECOMMENDATIONS, SPECIFICATIONS, OPINION, OR PROFESSIONAL ADVICE RELATING TO THE STRUCTURAL ADEQUACY OF THE PROPOSED TOWER OR ATTACHMENT OF ANTENNAS OR OTHER APPURTENANCES.

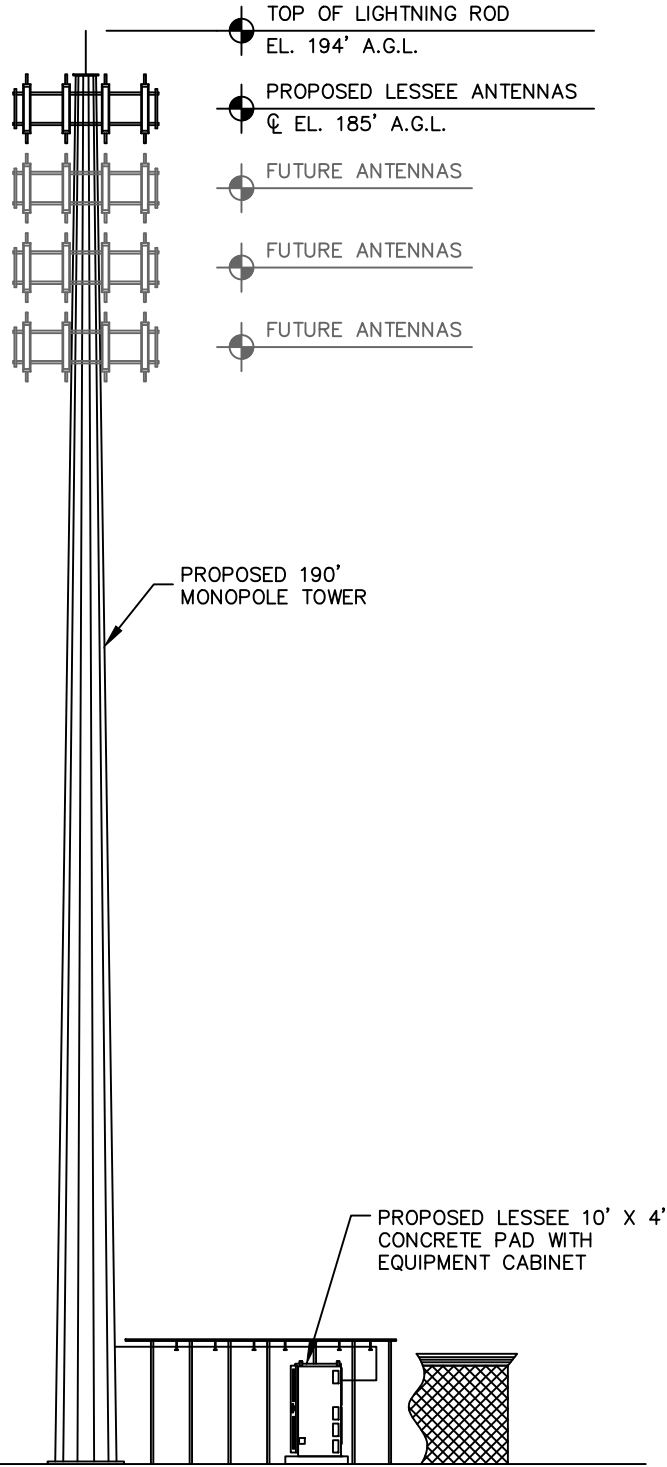
NOTE: GENERAL CONTRACTOR TO
INSTALL RAYCAP OVP, NUMBER
AND TYPE PER VERIZON
CONSTRUCTION MANAGER.



2 MONOPOLE TOWER ELEVATION
C13 NOT TO SCALE

- NOTES:
1. ALL PROPOSED ATTACHMENTS TO TOWER BASED ON TOWER DESIGN DRAWINGS BY OTHERS (SEE GENERAL NOTE 1.07, SHEET N1).
 2. THE TOWER ELEVATION SHOWN IS FOR REFERENCE ONLY.
 3. COAX/FIBER CABLE LENGTHS ARE APPROXIMATE. CONTRACTOR TO VERIFY CORRECT LENGTH IN FIELD AT TIME OF CONSTRUCTION.
 4. PROPOSED TOWER WILL BE GALVANIZED STEEL-GRAY IN COLOR.
 5. PROPOSED TOWER WILL HAVE NO ILLUMINATION.

TOP OF TOWER
EL. 190' A.G.L.



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:

FOR ILLUSTRATIVE
PURPOSES ONLY-
NO SIGNATURE
REQUIRED

KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

ANTENNA AND
TOWER ELEVATION
DETAILS

SHEET NUMBER:

C13

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECor-GB.dwg 06/07/24 7:29 PM by: Drew Pitts

ELECTRICAL NOTES

1.00 CODES, STANDARDS, & SPECIFICATIONS

- 1.01 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL MATERIALS AND LABOR RELATED DIRECTLY OR INDIRECTLY TO ALL ELECTRICAL WORK DOCUMENTED IN THESE DRAWINGS SHALL BE PROVIDED AND PERFORMED IN CONFORMANCE WITH ALL CURRENT GOVERNING CODES, STANDARDS, AND PROFESSIONAL STANDARD OF CARE TO INCLUDE THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), UNDERWRITERS LABORATORY (UL), NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA), AMERICAN STANDARDS ASSOCIATION (ASA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), AND THE NATIONAL ELECTRICAL CODE (NEC).
- 1.02 MATERIALS SHALL BE NEW AND SHALL CONFORM TO ALL APPLICABLE CURRENT GOVERNING STANDARDS ESTABLISHED FOR EACH ITEM BY ASTM, UL, NEMA, ASA, AND NFPA.
- 1.03 ALL ELECTRICAL WORK SHALL COMPLY WITH ALL APPLICABLE STATE, COUNTY, AND MUNICIPAL CODES AND ORDINANCES, AS WELL AS ALL CURRENT GOVERNING STANDARDS AND PRACTICES AS REQUIRED BY NEC, NEMA, ANSI, NFPA, UBC, UL, IEEE, AND THE LOCAL UTILITY COMPANY.
- 1.04 ALL ELECTRICAL GROUNDING SHALL COMPLY WITH THE CURRENT EDITION OF THE NEC.
- 1.05 CONTRACTOR SHALL MAINTAIN UL LISTED FIRE RATINGS AT ALL WALL PENETRATIONS.
- 1.06 CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 36" IN FRONT OF ALL ELECTRICAL EQUIPMENT AS REQUIRED BY NEC. MINIMUM CLEARANCE SHALL BE OBSERVED FOR BOTH THE FRONT AND THE REAR OF THE METER H-FRAME RACK AND THE EQUIPMENT H-FRAME RACK.

2.00 GENERAL

- 2.01 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND ASSOCIATED FEES RELATED TO THE PROJECT AND SHALL DELIVER A COPY OF ALL PERMITS TO THE VERIZON REPRESENTATIVE.
- 2.02 CONTRACTOR SHALL SCHEDULE AND SHOULD ATTEND ALL INSPECTIONS REQUIRED BY THE JURISDICTION HAVING AUTHORITY.
- 2.03 CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, ACCESSORIES, ETC., FOR A COMPLETE WORKING ELECTRICAL INSTALLATION.
- 2.04 ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A NEAT MANNER, AND SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
- 2.05 CONTRACTOR SHALL PROTECT ADJACENT EQUIPMENT AND FINISHES FROM DAMAGE AND SHALL REPAIR TO ORIGINAL CONDITION ANY ITEMS DAMAGED AS A RESULT OF THE WORK.
- 2.06 CONTRACTOR SHALL REPAIR ANY LANDSCAPING DISTURBED DURING CONSTRUCTION.
- 2.07 IF CONDUIT RUNS HAVE MORE THAN THREE (3) CONSECUTIVE 90 DEGREE TURNS, THE CONTRACTOR SHALL INSTALL PULL BOXES AS REQUIRED BY NEC.
- 2.08 CONTRACTOR SHALL INDICATE THE LOCATION OF ALL CAPPED UNDERGROUND SPARE CONDUIT ON THE RECORD DRAWINGS SUBMITTED TO THE OWNER.
- 2.09 CONTRACTOR SHALL COORDINATE EXACT ROUTING OF CONDUIT WITH OWNER. ALL CONDUIT SHALL BE ROUTED WITHIN 3 FEET, EITHER SIDE, OF PERIMETER FENCING.

3.00 MATERIALS

- 3.01 ALL EQUIPMENT AND MATERIALS SHOWN SHALL BE CONSIDERED NEW UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
- 3.02 FINAL CONNECTIONS OF EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT SUPPLIED BY VERIZON.
- 3.03 CONTRACTOR SHALL PROVIDE AN UPDATED PANELBOARD DIRECTORY FOR THE PANEL FROM WHICH THE NEW VERIZON EQUIPMENT CIRCUIT WILL BE CONNECTED. CONTRACTOR SHALL SUBMIT UPDATED DIRECTORY IN A PLASTIC COVER TO THE BUILDING OWNER FOR APPROVAL PRIOR TO INSTALLATION.
- 3.04 CONTRACTOR SHALL FIELD DETERMINE ACTUAL CONDUIT ROUTING AND SHALL OBTAIN APPROVAL FROM THE TOWER OWNER OF THE PROPOSED ROUTING PRIOR TO CONDUIT INSTALLATION.
- 3.05 ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION AND ALL TERMINATIONS SHALL BE RATED FOR AT LEAST 75 DEGREES CELSIUS.
- 3.06 ALL NEUTRAL CONDUCTORS SHALL HAVE WHITE INSULATION. ALL GROUND CONDUCTORS SHALL HAVE GREEN INSULATION. COLOR TAPE IDENTIFICATION OF THESE CONDUCTORS IS NOT PERMITTED.
- 3.07 CONTRACTOR SHALL SEAL ALL CONDUITS ENTERING AN ENCLOSURE WITH CONDUIT SEALANT THAT IS COMPATIBLE WITH THE INSULATION OF THE CONDUCTORS IN THE CONDUIT.
- 3.08 CONDUIT RUNS SHALL HAVE A CONTINUOUS DOWNWARD SLOPE AWAY FROM ALL EQUIPMENT TO PREVENT WATER INFILTRATION.
- 3.09 ALL CONDUIT SHALL BE SCHEDULE 40 PVC UNLESS NOTED OTHERWISE ON THE PLANS. WHEN CONDUIT IS ROUTED UNDER A ROADWAY, SCHEDULE 80 PVC CONDUIT SHALL BE UTILIZED. MANUFACTURED BEND RADII SHALL BE PER NEC.
- 3.10 CONTRACTOR SHALL PROVIDE TWO (2) 200 POUND TEST POLYETHYLENE PULL CORDS IN ALL CONDUITS AND ALL INNERDUCTS. PULL CORDS SHALL BE SECURED AT EACH END OF CONDUIT RUNS. ALL SPARE CONDUIT ENDS SHALL BE CAPPED WITH MANUFACTURED PVC FITTINGS.
- 3.11 CONTRACTOR SHALL BOND EACH METALLIC CONDUIT ENTERING A METALLIC ENCLOSURE WITH A #8 MIN AWG INSULATED COPPER BONDING JUMPER PER NEC. CONTRACTOR SHALL BOND ALL ELECTRICAL EQUIPMENT TO THE H-FRAME RACK ON WHICH EQUIPMENT IS MOUNTED WITH #8 MIN AWG INSULATED COPPER BONDING JUMPERS PER NEC.
- 3.12 CONTRACTOR SHALL IDENTIFY THE END OF ALL SPARE UNDERGROUND CONDUITS AND PROVIDE AND INSTALL 90 DEGREE ELBOWS WITH VERTICAL CONDUIT EXTENSIONS TO EXTEND 3" ABOVE FINISHED CRUSHED AGGREGATE GRADE. CONTRACTOR SHALL TERMINATE CONDUITS WITH MANUFACTURED CONDUIT CAPS THAT THE CONTRACTOR HAS PAINTED ORANGE.
- 3.13 CONTRACTOR SHALL PROVIDE AND INSTALL AN ENGRAVED PHENOLIC PLATE ON THE FRONT OF THE INTEGRATED LOAD CENTER. THE WORDING ON THE PLATE SHALL READ AS FOLLOWS: "MAXIMUM DRAW OF ALL RECTIFIERS AND EQUIPMENT ON THE LOAD CENTER CANNOT EXCEED 50kW. IF ADDITIONAL POWER IS REQUIRED, THE EXISTING 50kW GENERATOR MUST BE REPLACED."

4.00 PRE-CONSTRUCTION COORDINATION

- 4.01 CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND NOTE EXISTING CONDITIONS THAT MIGHT AFFECT THEIR WORK. ALL SUCH CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO BID.
- 4.02 THE CONTRACTOR SHALL PROVIDE A UTILITY LOCATOR AND SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 4.03 CONTRACTOR SHALL VERIFY, PRIOR TO ROUGH-IN, THAT SITE CONDITIONS ALLOW FOR THE PLACEMENT OF THE ELECTRICAL EQUIPMENT AS SHOWN ON THE PLANS.
- 4.04 CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRICAL UTILITY REGARDING THE EXACT LOCATION OF THE TRANSFORMER, ALL METERING REQUIREMENTS, AND CONDUIT ROUTING BETWEEN TRANSFORMER AND METER.
- 4.05 CONTRACTOR SHALL COORDINATE WITH LOCAL TELCO UTILITY REGARDING THE EXACT LOCATION OF THE TELCO SERVICE ENTRY POINT.
- 4.06 CONTRACTOR SHALL COORDINATE WITH AUTHORITY HAVING JURISDICTION REGARDING LOCAL FROST LINE REQUIREMENTS FOR RACEWAY MATERIAL SELECTION AND INSTALLATION.
- 4.07 CONTRACTOR SHALL PERFORM AN ARC FLASH ANALYSIS AT THE INTEGRATED LOAD CENTER AND PROVIDE ARC FLASH LABEL PER NEC.
- 4.08 ALL CIRCUIT BREAKERS AND EQUIPMENT SHALL HAVE A MINIMUM AIC RATING OF 10,000 AMPS. IF THE RATING OF THE UTILITY TRANSFORMER PROVIDING THE ELECTRICAL SERVICE IS GREATER THAN 75 kVA, THE CONTRACTOR SHALL PERFORM A SHORT CIRCUIT ANALYSIS TO DETERMINE THE REQUIRED AIC RATING FOR THE CIRCUIT BREAKERS AND EQUIPMENT. PRIOR TO PURCHASING EQUIPMENT, THE CONTRACTOR SHALL CONTACT THE ELECTRIC UTILITY AND OBTAIN IN WRITING THE MAXIMUM AVAILABLE FAULT CURRENT (AFC) AT THE UTILITY SERVICE POINT. PROVIDE MAX. AFC SIGNAGE AS REQUIRED PER NEC 110.24. THE CONTRACTOR SHALL ENSURE ALL ELECTRICAL EQUIPMENT, CIRCUIT BREAKERS, DISCONNECTS, FUSES, AND PANELBOARDS HAVE A FAULT CURRENT INTERRUPTING RATING GREATER THAN THE AVAILABLE FAULT CURRENT.

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

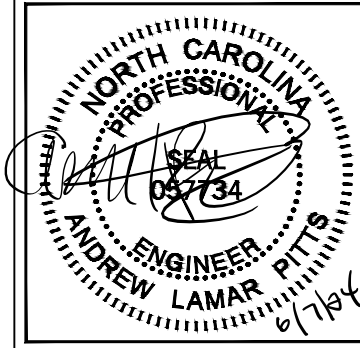
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

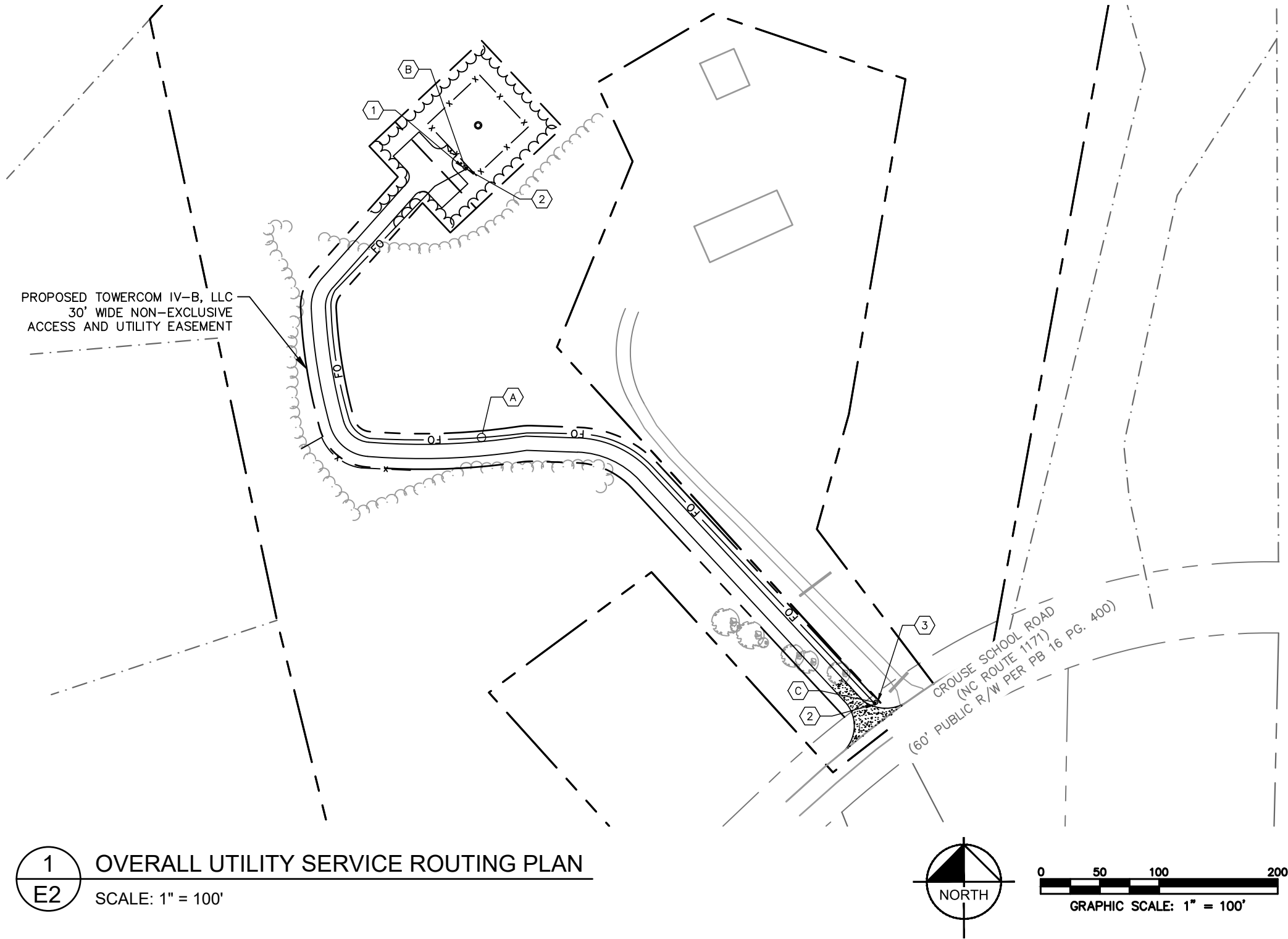
SHEET TITLE:

ELECTRICAL
NOTES

SHEET NUMBER:

E1

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECor-GB.dwg 06/07/24 7:29 PM by: Drew.Pitts



1 OVERALL UTILITY SERVICE ROUTING PLAN
E2 SCALE: 1" = 100'

KEY NOTES - ELECTRICAL EQUIPMENT

- 1 EXISTING LIT-FIBER HANDHOLE/PEDESTAL.
- 2 TRAFFIC RATED TELCO VAULT LABELED "VZW FIBER". (SPACED EVERY 500', AT MAJOR TRANSITIONS, AND AS NEEDED TO ALLOW DARK FIBER TO BE PULLED)(SEE NOTE 4.05 ON SHEET E1)
- 3 EXISTING ONE FIBER HANDHOLE (CONTRACTOR TO CONFIRM EXISTENCE AND LOCATION)

KEY NOTES - CONDUIT, CONDUCTORS, & MISC.

- A TWO (2) 2" PVC CONDUIT FOR "VZW FIBER" WITH TWO (2) PULL ROPES. (SEE DETAIL 2/E6); (APPROXIMATELY 806± LF); GENERAL CONTRACTOR TO CONFIRM NEED FOR CONDUITS TO RIGHT OF WAY AND HANDHOLE AT RIGHT OF WAY WITH VERIZON CONSTRUCTION MANAGER.
- B 4" PVC BRIDGE FIBER CONDUIT. (IF NO EXISTING LIT FIBER HANDHOLE/PEDESTAL IS PRESENT CONTRACTOR TO PROVIDER A 5' LONG CAPPED STUB BRIDGE CONDUIT).
- C 4" PVC BRIDGE FIBER CONDUIT. (IF NO EXISTING ONE FIBER HANDHOLE IS PRESENT, BRIDGE CONDUIT WILL BE BY OTHERS)

NOTES:

GENERAL CONTRACTOR IS TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER WHETHER INSTALLATION OF THE TWO (2) 2" CONDUITS TO THE RIGHT OF WAY WILL BE PART OF THE INITIAL CONSTRUCTION.

PROPOSED VERIZON TELCO VAULT WITHIN RIGHT OF WAY LOCATED APPROXIMATELY 35° 25' 18.2"N, 81° 18' 40.80"W BASED ON GOOGLE EARTH IMAGERY.

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

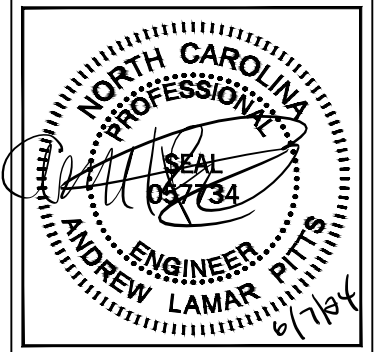
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

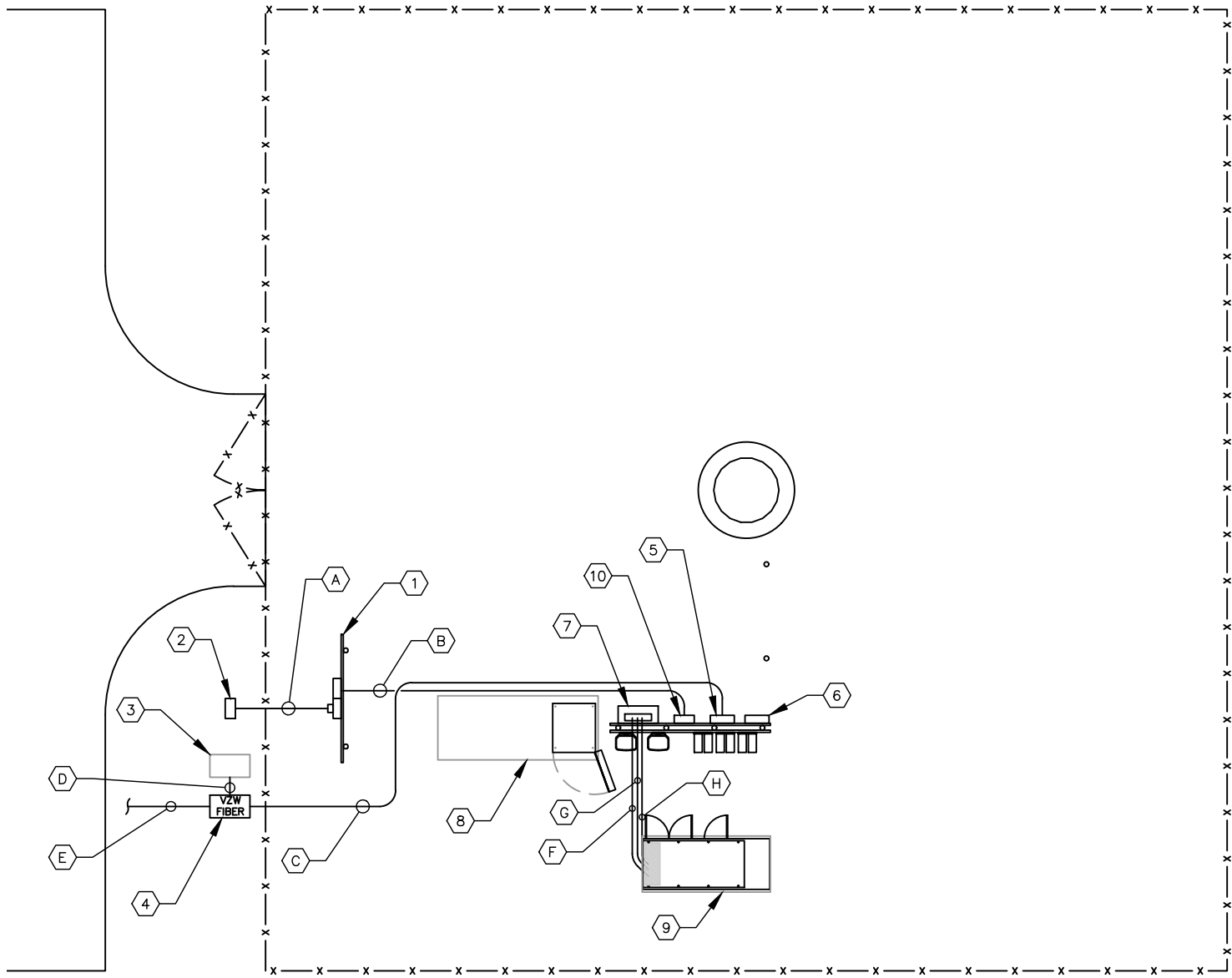
SHEET TITLE:

**OVERALL UTILITY
SERVICE ROUTING
PLAN**

SHEET NUMBER:

E2

K:\ATL Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:29 PM by: Drew Pitts



1
E2.1

UTILITY SERVICE ROUTING PLAN

SCALE: 1" = 10'

KEY NOTES - ELECTRICAL EQUIPMENT

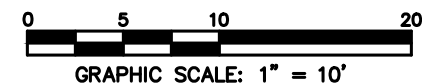
- UTILITY METER H-FRAME (SEE DETAIL 1/E3).
- POWER STUB UP (SEE NOTE 4.04 ON SHEET E1).
- EXISTING LIT FIBER HANDHOLE/PEDESTAL. (CONTRACTOR TO CONFIRM EXISTENCE AND LOCATION).
- TRAFFIC RATED TELCO VAULT LABELED "VZW FIBER". (SEE NOTE 4.05 ON SHEET E1)
- TELCO BOX (SEE SHEET C4).
- CIENA UNIT, IF NEEDED (SEE SHEET C4).
- INTEGRATED LOAD CENTER (SEE SHEET C4).
- VERIZON CONCRETE EQUIPMENT PAD (SEE SHEET C6).
- VERIZON CONCRETE GENERATOR PAD (SEE SHEET C6).
- DISCONNECT SWITCH (SEE SHEET C4).

KEY NOTES - CONDUIT, CONDUCTORS, & MISC.

- TWO (2) 4" PVC POWER CONDUITS FOR INCOMING SERVICE LATERALS FROM LOCAL UTILITY (SEE TRENCH DETAIL 2/E6).
- 2" PVC POWER CONDUIT FROM PROPOSED METER RACK TO EQUIPMENT RACK (SEE TRENCH DETAIL 2/E6).
- TWO (2) 2" PVC TELCO CONDUITS, WITH TWO (2) PULL ROPES EACH (SEE TRENCH DETAIL 2/E6).
- 4" PVC BRIDGE FIBER CONDUIT. (IF NO EXISTING LIT FIBER HANDHOLE/PEDESTAL IS PRESENT CONTRACTOR TO PROVIDE A 5' LONG CAPPED STUB BRIDGE CONDUIT).
- TWO (2) 2" PVC CONDUITS FROM RIGHT OF WAY W/TWO (2) PULL ROPES (SEE TRENCH DETAIL 2/E6 AND SHEET E2).
- 2" PVC CONDUIT FOR ROUTING POWER CONDUCTOR TO THE GENERATOR. (SEE TRENCH DETAIL 2/E6).
- 1" PVC CONDUIT FOR ROUTING GENERATOR CONTROL AND ALARM SIGNAL CABLES TO THE GENERATOR (SEE TRENCH DETAIL 2/E6).
- 1" PVC CONDUIT FOR ROUTING POWER CONDUCTOR TO THE GENERATOR BATTERY CHARGER AND THE GENERATOR BLOCK HEATER (SEE TRENCH DETAIL 2/E6).

NOTES:

GENERAL CONTRACTOR IS TO CONFIRM WITH VERIZON CONSTRUCTION MANAGER WHETHER INSTALLATION OF THE TWO (2) 2" CONDUITS TO THE RIGHT OF WAY WILL BE PART OF THE INITIAL CONSTRUCTION.



TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

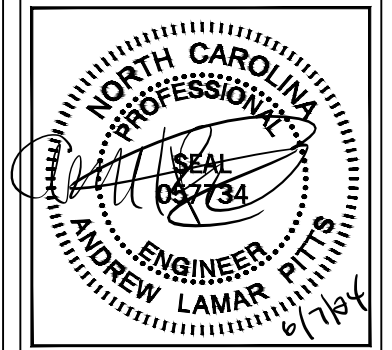
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

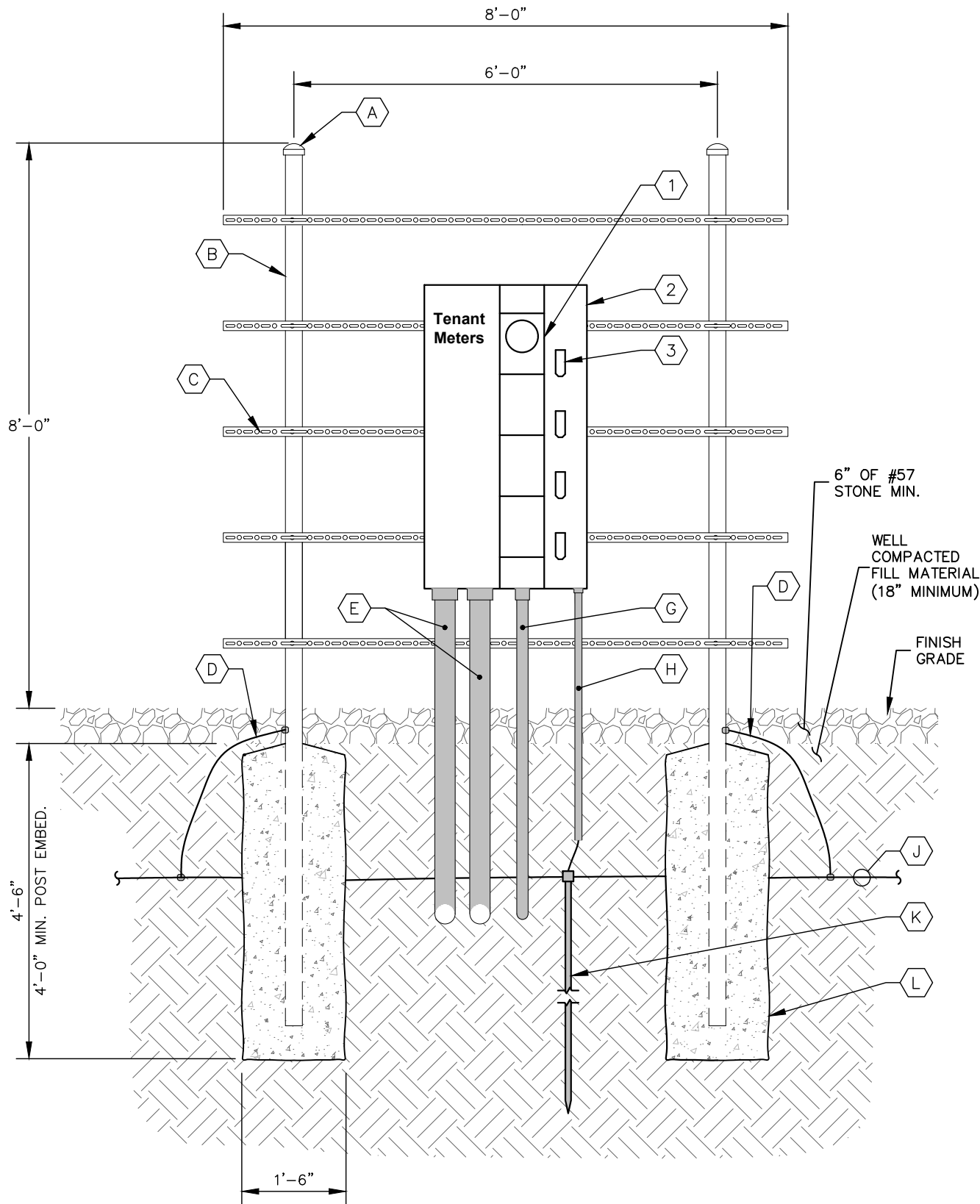
SHEET TITLE:

UTILITY SERVICE
ROUTING PLAN

SHEET NUMBER:

E2.1

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:30 PM by: Drew Pitts



1 METER RACK DETAILS
E3 NOT TO SCALE

KEY NOTES - CONDUIT, CONDUCTORS, & MISC

- (A) GALVANIZED RIGID STEEL CAP, TYPICAL.
- (B) 3" GALVANIZED RIGID STEEL PIPE, TYPICAL.
- (C) 1 $\frac{5}{8}$ " x 1 $\frac{5}{8}$ " GALVANIZED STEEL CHANNEL (UNISTRUT #P1000 OR APPROVED EQUIVALENT) WITH PLASTIC END CAP (UNISTRUT #P2860), TYPICAL.
- (D) ONE (1) #2 AWG BARE SOLID TINNED COPPER BONDING CONDUCTORS (BC) FROM H-FRAME VERTICAL PIPE TO GROUND RING, EXOTHERMIC WELD BOTH ENDS.
- (E) 4" PVC CONDUIT FOR INCOMING SERVICE LATERALS FROM LOCAL UTILITY, TYPICAL OF 2.
- (F) KEYNOTE NOT USED.
- (G) 2" PVC CONDUIT FOR ROUTING FEEDERS TO NON-FUSED DISCONNECT SWITCH.
- (H) $\frac{3}{4}$ " PVC CONDUIT WITH ONE (1) - 2/0 BARE STRANDED TINNED COPPER GROUNDING ELECTRODE CONDUCTOR (GEC) FROM GROUNDING LUG TO GROUND ROD, EXOTHERMIC WELD GEC TO GROUND ROD.
- (J) GROUND RING (SEE "E" SHEETS).
- (K) GROUND ROD, EXOTHERMIC WELD TO GROUND RING. (SEE "E" SHEETS).
- (L) CONCRETE FOUNDATION FOR H-FRAME VERTICAL PIPE. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI. AND INCLUDE FIBERMESH 650-3E.

KEY NOTES - ELECTRICAL EQUIPMENT

- (1) 200 AMP METER SOCKET IN NEMA 3R ENCLOSURE, TYPICAL OF 4. ONLY TOP SOCKET WILL RECEIVE METER UNDER THIS CONTRACT.
- (2) 800 AMP, 22KAIC, 4 GANG, SERVICE ENTRANCE RATED METER CENTER IN NEMA 3R ENCLOSURE. BOND TO RACK PER NEC.
- (3) 200 AMP, 2 POLE (22KAIC) DISCONNECT CIRCUIT BREAKER FOR TOP METER ONLY. CONTRACTOR SHALL MOUNT THE METER CENTER SUCH THAT THE TOP CIRCUIT BREAKER IS NO MORE THAN 6' ABOVE GRADE.

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

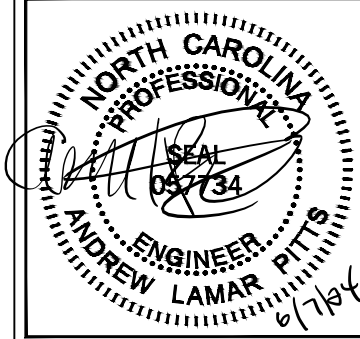
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

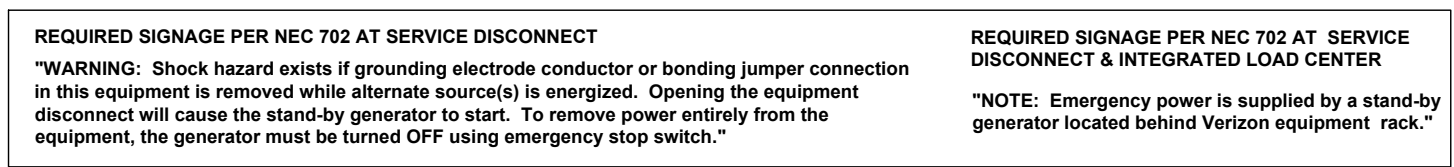
ALP

SHEET TITLE:

METER RACK
DETAILS

SHEET NUMBER:

E3



- 1 FURNISH AND INSTALL 800 AMP, 3-WIRE, SINGLE PHASE, 120/240 VOLT, 22KAIC, FOUR-SPACE MULTI-GANG METER CENTER WITH 200 AMP RATED METER SOCKETS IN NEMA 3R ENCLOSURE, SE RATED. CONTRACTOR SHALL FURNISH AND INSTALL 200 AMP CIRCUIT BREAKER AT METER BASE IF NOT ALREADY EXISTING.
- 2 20 AMP GFCI DUPLEX OUTLET RECEPTACLE AND TIMER SWITCH, ENERLITES HET06 SERIES (OR APPROVED EQUIVALENT) IN LOCKABLE NEMA 3R ENCLOSURE.
- 3 FURNISH AND INSTALL SE RATED 240 V, 200 AMP, 2 POLE, NON-FUSED DISCONNECT IN NEMA 3R ENCLOSURE.
- 4 200 AMP, 120/240 VOLT, ILC WITH 42 SPACE PANEL AND AUTOMATIC TRANSFER SWITCH. ALL CIRCUIT BREAKERS SHALL BE RATED 10KAIC MINIMUM. ILC IS FURNISHED BY VZW AND INSTALLED BY GENERAL CONTRACTOR.
- 5 FURNISH AND INSTALL TWO (2) AREA LIGHTS, (LITHONIA HFR-250M-TA120-DNA-LP1), (OR APPROVED EQUIVALENT).
- 6 50 KW GENERATOR, CONTRACTOR SHALL COORDINATE SPECIFIC GENERATOR CONFIGURATION WITH OWNER AND INSTALL THE GENERATOR IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. GENERATOR BREAKER SIZED AND PROVIDED BY GENERATOR MANUFACTURER.
- 7 EMERGENCY GENERATOR STOP SWITCH IN NEMA 3R ENCLOSURE WILL BE FURNISHED BY VERIZON AND INSTALLED BY GC.

E4

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:30 PM by: Drew.Pitts

PANEL SCHEDULE - VERIZON INTEGRATED LOAD CENTER											
Voltage: 240/120 Volts Phase, Wires: Single Phase, 3 Wire Mounting Type: Surface Enclosure Type: NEMA 3R						MCB Size: 200 Amps AIC Rating: 10,000 Amps min Bus Rating: 200 Amps Neutral Rating: 100%					
Load Served	Load (kVA)		Circuit Bkr Size	Ckt Nbr	Phase A B	Ckt Nbr	Circuit Bkr Size	Load (kVA)		Load Served	
	A	B						A	B		
RECTIFIER 1	1.78		2P-20	1		2	1P-20	0.58		AREA LIGHTS/GFCI	
		1.78		3		4	1P-20		1.50	GEN BLOCK HEATER	
RECTIFIER 2	1.78		2P-20	5		6	1P-20	0.30		GEN BATTERY CHARGER	
		1.78		7		8	-----		0.00	SPACE	
RECTIFIER 3	1.78		2P-20	9		10	1P-20	0.18		CAB DUPLEX OUTLET	
		1.78		11		12	-----		0.00	SPACE	
RECTIFIER 4	1.78		2P-20	13		14	2P-20	1.78		RECTIFIER 9	
		1.78		15		16			1.78		
RECTIFIER 5	1.78		2P-20	17		18	2P-20	1.78		RECTIFIER 10	
		1.78		19		20			1.78		
RECTIFIER 6	1.78		2P-20	21		22	2P-20	0.00		RECTIFIER 11 (SPARE)	
		1.78		23		24			0.00		
RECTIFIER 7	1.78		2P-20	25		26	2P-20	0.00		RECTIFIER 12 (SPARE)	
		1.78		27		28			0.00		
RECTIFIER 8	1.78		2P-20	29		30	-----	0.00		SPACE	
		1.78		31		32	-----		0.00	SPACE	
SPACE	0.00		-----	33		34	-----	0.00		SPACE	
SPACE		0.00	-----	35		36	-----		0.00	SPACE	
SPACE	0.00		-----	37		38	-----	0.00		SPACE	
TVSS (INTERNAL TO ILC)		0.00	2P-30	39		40	-----		0.00	SPACE	
	0.00			41		42	-----	0.00		SPACE	
Sub-Total (kVA)		14.24	14.24					4.62	5.06	Sub-Total (kVA)	
								A B			
								18.86 19.30			
								38.16		Total Connected (kVA)	
LOAD SUMMARY											
Load Description				Connected Load (kVA)		Demand Factor		Demand Load (kVA)			
				A	B			A	B		
RECTIFIERS/EQUIP				17.80	17.80	1.00		17.80	17.80		
LARGEST MOTOR				0.00	0.00	1.00		0.00	0.00		
ALL OTHER MOTORS				0.00	0.00	1.00		0.00	0.00		
LIGHTING				0.40	0.00	1.25		0.50	0.00		
DUPLEX RECEPTACLES				0.36	0.00	1.00		0.36	0.00		
TOTAL MISCELLANEOUS				0.30	1.50	1.00		0.30	1.50		
Total Power per Phase								18.96	19.30	kVA	
Total Demand Current per Phase								158.00	161.00	Amps	
Total Demand Power								38.26		kVA	

*NOTE: CIRCUIT LOAD AND DEMAND FACTOR PROVIDED BY VERIZON.

1

E5

PANEL SCHEDULE

NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

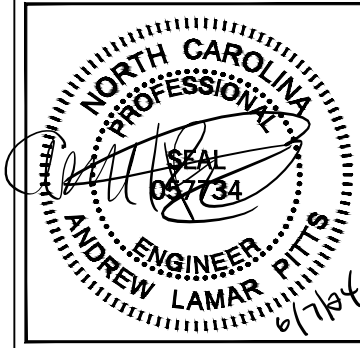
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

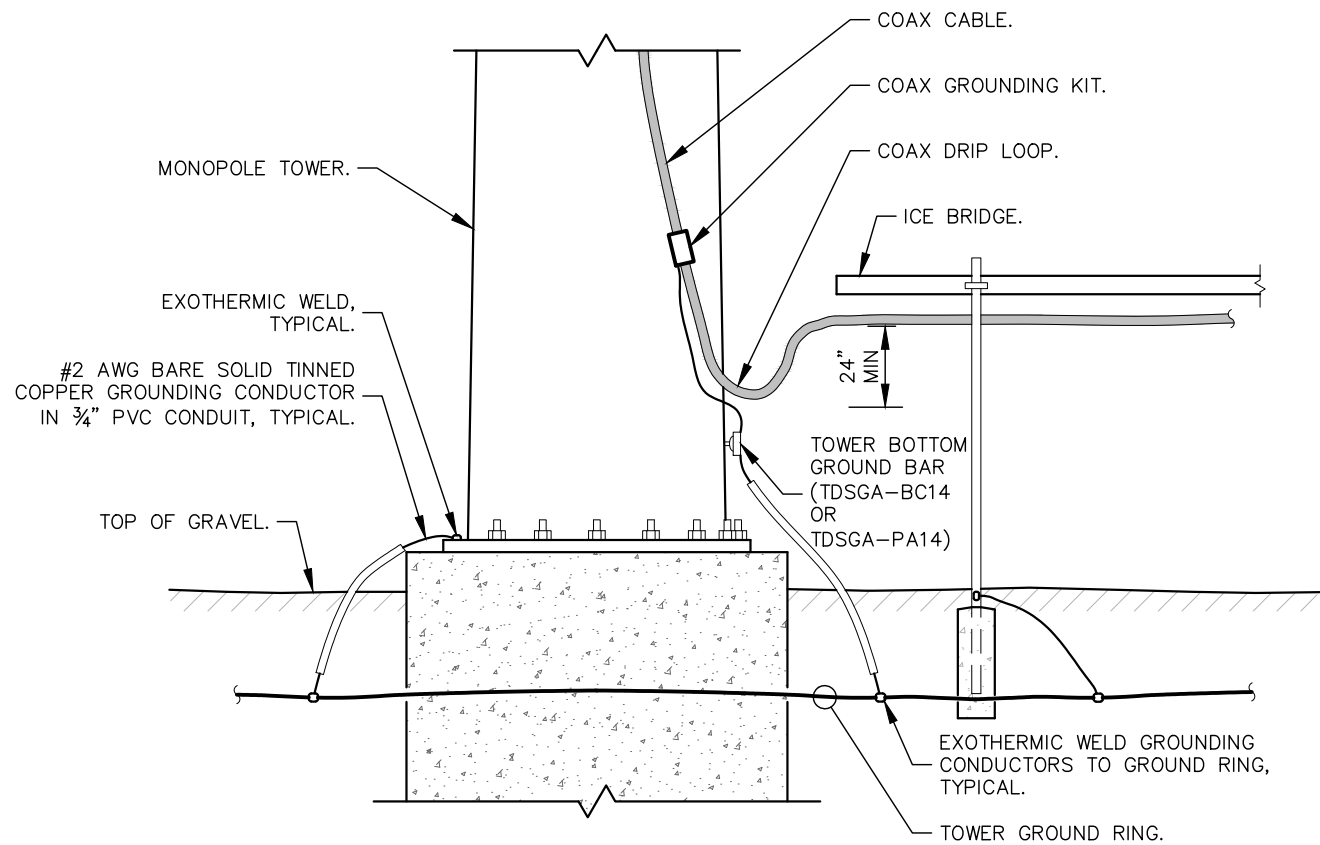
SHEET TITLE:

PANEL SCHEDULE

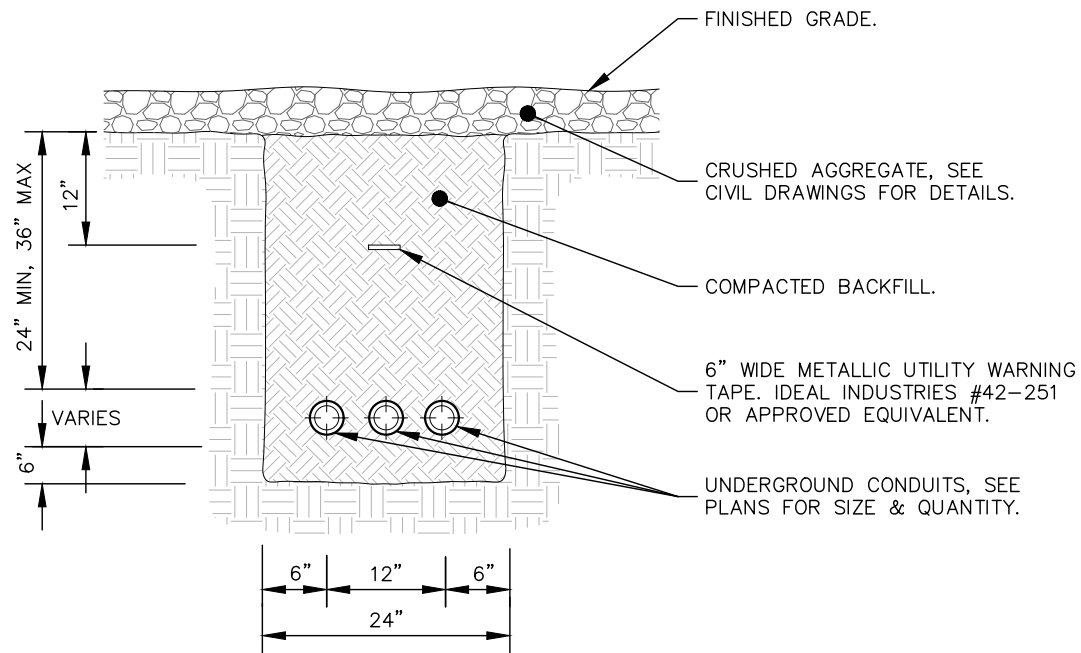
SHEET NUMBER:

E5

K:\ATL Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:31 PM by: Drew Pitts



1 DRIP LOOP DETAIL
E6 NOT TO SCALE



- NOTES:
1. IF GROUND SURFACE IS OTHER THAN NEWLY GRAVELED AREA. CONTRACTOR IS TO RESTORE TO ORIGINAL CONDITION.
 2. PROVIDE PVC CONDUIT BELOW GRADE EXCEPT AS NOTED BELOW.
 3. PROVIDE SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT & ELBOWS AT STUB UP LOCATIONS (I.E. POLES, EQUIPMENT, ETC.)
 4. PROVIDE SCHEDULE 80 PVC CONDUIT BELOW PARKING LOTS AND ROADWAYS.

2 TYPICAL TRENCH DETAIL
E6 NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

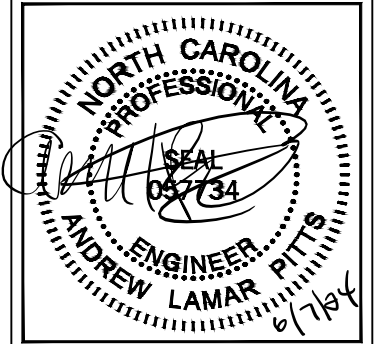
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

ELECTRICAL
DETAILS

SHEET NUMBER:

E6

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:31 PM by: Drew Pitts

GROUNDING NOTES

- THE GROUND RING SHALL CONSIST OF #2 AWG BARE SOLID TINNED COPPER (STC) CONDUCTOR, UNLESS NOTED OTHERWISE, BURIED AT 30" BELOW FINISHED GRADE (OR BELOW FROST LINE). LOCATE 24" MINIMUM AND 36" MAXIMUM FROM EQUIPMENT AREA AND FROM TOWER FOUNDATION. ALL CONNECTIONS SHALL BE MADE USING A PARALLEL TYPE EXOTHERMIC WELD, UNLESS NOTED OTHERWISE.
- INSTALL GROUND RODS AS SHOWN AND AS REQUIRED. GROUND RODS TO BE COPPER CLAD STEEL, 5/8" DIAMETER AND 10FT IN LENGTH. SPACING BETWEEN GROUND RODS SHALL BE 10FT MINIMUM AND 15FT MAXIMUM. TOP OF GROUND ROD TO BE 30" MINIMUM BELOW GRADE (OR BELOW FROST LINE). BOND TOP OF GROUND ROD TO GROUND WIRE WITH EXOTHERMIC WELD. DO NOT EXOTHERMICALLY WELD ANYTHING TO GROUND ROD EXCEPT GROUND WIRE WHICH PASSES OVER TOP OF GROUND ROD (CLAMPED CONNECTIONS TO GROUND ROD PER TOWER MANUFACTURERS DETAILS ARE ACCEPTABLE).
- EQUIPMENT GROUND RING SHALL HAVE A MINIMUM OF 4 GROUND RODS, INSTALLED AT THE CORNERS OF THE GROUND RING PLUS ADDITIONAL RODS AS REQUIRED TO COMPLY WITH THE SPACING REQUIREMENTS. TOWER GROUND RING SHALL HAVE A MINIMUM OF 3 GROUND RODS, EXCEPT USE 4 RODS AT A MONOPOLE TOWER. WHERE SPREAD TOWER FOOTING WOULD PREVENT GROUND RODS FROM BEING DRIVEN INTO SOIL ADJACENT TO TOWER, PROVIDE VERTICAL 1" DIAMETER PVC SLEEVES EMBEDDED IN FOOTING TO ALLOW INSTALLATION OF GROUND RODS.
- EQUIPMENT GROUND RING AND TOWER GROUND RING SHALL BE BONDED TOGETHER WITH TWO #2 STC GROUND LEADS, TYPICALLY ONE ON EACH SIDE OF ICE BRIDGE.
- BOND TOWER TO TOWER GROUND RING AT THREE LOCATIONS WITH #2 STC GROUND LEAD. SELF SUPPORT TOWERS SHALL HAVE EACH LEG BONDED TO GROUND RING, MONOPOLES AND GUYED TOWERS SHALL HAVE GROUND LEADS EQUALLY SPACED AROUND TOWER. EXOTHERMICALLY WELD GROUND LEADS TO TOP OF BASE PLATES, OR ATTACH TO TOWER USING TOWER MANUFACTURER PROVIDED DETAIL.
- PROVIDE #2 STC RADIALS FROM THE TOWER GROUND RING TO EACH FENCE CORNER POST. RADIALS SHALL HAVE GROUND RODS AS PER THE REQUIRED SPACING. THE GROUND ROD AT THE END OF EACH RADIAL SHALL BE 24" MAXIMUM FROM FENCE CORNER POST. EQUIPMENT AREA GROUND RING AND CONNECTING GROUND LEADS [BETWEEN EQUIPMENT AREA AND TOWER GROUND RINGS] MAY BE USED AS PART OF THE RADIAL GOING TO THE FENCE CORNER POST CLOSEST TO THE EQUIPMENT AREA.
- MINIMUM BEND RADIUS FOR #2 AWG GROUND WIRE IS 12", EXCEPT USE 24" FOR TOWER GROUND RINGS AND EQUIPMENT PAD GROUND RINGS.
- GROUND ALL EXTERIOR EXPOSED METAL OBJECTS. USE TWO HOLE LUGS FOR CONNECTION TO FLAT METAL SURFACES. USE ONLY STAINLESS STEEL HARDWARE ON ALL MECHANICAL CONNECTIONS. CLEAN ALL SURFACES (AND STRIP PAINTED SURFACES) TO BARE BRIGHT METAL PRIOR TO MAKING GROUND CONNECTIONS. APPLY ANTI-OXIDE COMPOUND TO ALL CONNECTIONS. APPLY ZINC RICH PAINT (COLD GALV.) TO ALL EXOTHERMIC WELDS, AND TO ANY METAL EXPOSED BY CLEANING, STRIPPING, GRINDING, CUTTING OR DRILLING.
- ALL GROUNDING CONDUCTORS ABOVE GRADE SHALL BE RUN IN 3/4" FLEXIBLE PVC CONDUIT. CONDUIT SHALL BEGIN WITHIN 3/4" OF ABOVE GROUND CONNECTION POINT, SHALL EXTEND 24" BELOW GRADE MINIMUM, AND SHALL BE FILLED WITH SEALANT AT ABOVE GROUND CONNECTION POINT. SECURE CONDUIT EVERY 24" ON VERTICAL RUNS AND EVERY 36" ELSEWHERE WITH NON-METALLIC TIES.
 - AT GUYED AND SELF SUPPORT TOWERS MOUNT TDSGA-PA14 TOWER BOTTOM GROUND BAR ON DEDICATED POST DIRECTLY BELOW COAX CABLES COMING OFF TOWER. POST TO BE 3.5" OD GALVANIZED SCHEDULE 40 PIPE WITH GALVANIZED PIPE CAP. TOP OF POST TO BE 78" ABOVE GRADE. EMBED POST 30" MINIMUM IN 12" DIAMETER BY 36" DEEP MINIMUM CONCRETE FOOTING WITH TOP OF FOOTING 6" BELOW GRADE. IF TOWER FOUNDATION OBSTRUCTS AUGERED FOOTING, USE POST WITH 10" SQUARE GALVANIZED STEEL FLANGE PLATE WELDED TO BOTTOM AND BOLT FLANGE TO TOP OF CONCRETE TOWER FOOTING.
 - AT MONOPOLE TOWERS CLAMP TDSGA-BC14 TOWER BOTTOM GROUND BAR DIRECTLY TO TOWER. IF RUNNING COAX INSIDE MONOPOLE, CLAMP ONTO BOTTOM LIP OF EXIT PORT. IF BANDING COAX TO OUTSIDE OF TOWER, CLAMP ONTO STEEL ANGLE WHICH IS Banded TO TOWER. BOND TDSGA-BC14 TO TOWER GROUND RING WITH TWO #2 STC LEADS LUGGED TO GROUND BAR AND EXOTHERMICALLY WELDED TO GROUND RING.
 - AT EQUIPMENT AREA, INSTALL TDSGA-PA14 EXTERIOR GROUND BAR (THRU-BOLTED STYLE) AT BASE OF (2) INTERIOR H-FRAME POSTS AND AT TOP OF ICE BRIDGE POST WHICH IS NEAREST TO (BUT CLOSER TO TOWER THAN) THE COAX CABLE TERMINATION. MOUNT GROUND BAR TO H-FRAME POSTS AT 6" ABOVE GRAVEL AND TO ICE BRIDGE POST AT 6FT ABOVE GRAVEL.
 - ALL ICE BRIDGE SECTIONS ARE TO BE JUMPERED TOGETHER WITH #2 WIRE, EITHER BARE TINNED COPPER OR GREEN INSULATED STRANDED. ICE BRIDGE SHALL BE GROUNDED AT EACH END WITH #2 STC WIRE LUGGED TO ICE BRIDGE AND EXOTHERMICALLY WELDED TO UPPER PORTION OF NEAREST ICE BRIDGE POST. ICE BRIDGE SECTIONS ABOVE H-FRAME SHALL BE BONDED TO EACH OTHER WITH JUMPERS AT EACH END - THIS ASSEMBLY WILL BE CONSIDERED AS A SINGLE ICE BRIDGE SECTION FOR GROUNDING PURPOSES.
 - BOND EACH ICE BRIDGE POST, H-FRAME POST OR DEDICATED GROUNDING POST TO BURIED GROUNDING SYSTEM WITH #2 STC LEAD EXOTHERMICALLY WELDED TO POST BELOW TOP OF GRAVEL AND EXOTHERMICALLY WELDED TO GROUND RING. EACH POST TO HAVE SEPARATE GROUND LEAD DIRECTLY TO GROUND RING - DO NOT DAISY CHAIN POSTS TOGETHER.
 - BOND EACH RF CABINET TO EQUIPMENT GROUND RING WITH #2 AWG TINNED SOLID BARE COPPER CONDUCTOR LUGGED TO CABINET BODY AND EXOTHERMICALLY WELDED TO GROUND RING. LUG TO CABINET BODY USING LOCATION AT WHICH STUDS ON CABINET CHASSIS HAVE DIRECT GROUND WIRE CONNECTION TO CABINET INTERNAL GROUND BAR. RUN CONDUIT AND CONDUCTOR ACROSS BACK OF CABINET (DO NOT RUN TOWARDS NEAREST CORNER OF CABINET AND THEN BEND GROUND WIRE SHARPLY), ACROSS CONCRETE PAD BELOW CABLE LADDER, THEN DOWN INTO GRAVEL AREA.
 - BOND EACH BATTERY CABINET TO GROUND RING WITH #2 AWG TINNED SOLID BARE COPPER CONDUCTOR LUGGED TO CABINET BODY AND EXOTHERMICALLY WELDED TO GROUND RING. RUN GROUND LEAD IN FLEX CONDUIT ALONG BACK OF RBA72 CABINET, ACROSS CONCRETE PAD BELOW CABLE LADDER, THEN DOWN INTO GRAVEL AREA. CONNECT TWO HOLE LUG TO BACK OF CABINET AT FACTORY PROVIDED GROUNDING STUDS.
 - BOND GENERATOR TO GROUND RING WITH #2 STC AT TWO DIAGONALLY OPPOSITE LOCATIONS BY DRILLING AND BOLTING TWO HOLE LUG TO FINS ON GENERATOR BASE STRUCTURE. GROUND LEADS SHOULD TAKE SHORTEST PATH ACROSS CONCRETE PAD TO GRAVEL AREA, THEN CONTINUE TO GROUND RING.
 - WHERE PROPANE TANK IS INSTALLED TO FUEL GENERATOR, BOND PROPANE TANK TO GROUND RING WITH A SINGLE #2 STC CLAMPED TO FILLER PIPE OF PROPANE TANK AND EXOTHERMICALLY WELDED TO GROUND RING. GROUND LEAD SHOULD RUN TO TANK SUPPORT AND TAKE SHORTEST PATH ACROSS CONCRETE PAD TO GRAVEL AREA, THEN CONTINUE TO GROUND RING. IF PROPANE TANK FUEL LINE IS METALLIC AND CROSSES EQUIPMENT GROUND RING, BOND FUEL LINE TO EQUIPMENT GROUND RING WHERE THE TWO LINES CROSS WITH A SINGLE #2 STC CLAMPED TO FUEL LINE AND EXOTHERMICALLY WELDED TO GROUND RING.
 - BOND GPS ANTENNA and GPS ANTENNA MOUNT TO TSDGA GROUND BAR AT BOTTOM OF H-FRAME POST WITH #2 GREEN INSULATED STRANDED GROUND WIRE.
 - PROVIDE TWO GROUND RODS OUTSIDE GATES OF COMPOUND. DISTANCE BETWEEN GROUND RODS SHALL MATCH WIDTH OF GATE OPENING, AND DISTANCE FROM FENCE SHALL MATCH LENGTH OF LONGEST INDIVIDUAL GATE LEAF. BOND GATE POSTS TOGETHER WITH #2 STC LEAD WHICH RUNS PAST AND CONNECTS TO GROUND RODS OUTSIDE GATES.
 - BOND EACH GATE POST WITH #2 STC TO NEAREST PORTION OF GROUNDING SYSTEM INSIDE COMPOUND.
 - BOND EACH GATE TO GATE POST WITH FLEXIBLE INSULATED OR BRAIDED #4/0 COPPER STRAP. EXOTHERMICALLY WELD STRAP TO BOTH GATE AND GATE POSTS.
 - ANY METAL FENCE POST WITHIN 6FT OF A GROUNDED METAL OBJECT SHALL BE BONDED TO THE NEAREST GROUND RING. ANY METAL FENCE WITHIN 6FT OF A GROUND RING SHALL HAVE THE LINE POSTS BONDED TO THE GROUND RING AT 20FT MAXIMUM INTERVALS AS MEASURED ALONG THE LENGTH OF THE FENCE.
 - WHERE GROUND BASED RRU'S, RAYCAP OVP'S OR DIPLEXERS ARE INSTALLED AT THE EQUIPMENT AREA, BOND EACH COMPONENT TO NEAREST TDSGA GROUND BAR BELOW THE COMPONENT WITH #2 GREEN INSULATED STRANDED GROUND WIRE. SINGLE HOLE LUG OR RING TYPE CONNECTOR IS SUITABLE FOR CONNECTION TO GROUNDING STUD ON EACH COMPONENT.
 - NOTIFY CM TO INSPECT GROUND RING BEFORE BACKFILLING. CONTRACTOR SHALL HIRE A 3RD PARTY TO PERFORM AN IEEE81 FALL OF POTENTIAL METHOD GROUND TEST. MAXIMUM ALLOWABLE RESISTANCE TO GROUND IS 5 OHMS. PROVIDE ADDITIONAL GROUND SYSTEM COMPONENTS AS REQUIRED TO ACHIEVE THIS VALUE.
 - REFER TO TOWER GROUNDING DIAGRAM AND NOTES FOR GROUND SYSTEM REQUIREMENTS ON THE TOWER.
 - GROUNDING OF ALL ELECTRICAL EQUIPMENT SHALL BE AS PER NEC, MUNICIPAL AND UTILITY COMPANY REQUIREMENTS.

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

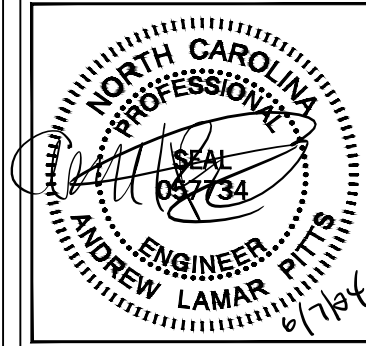
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

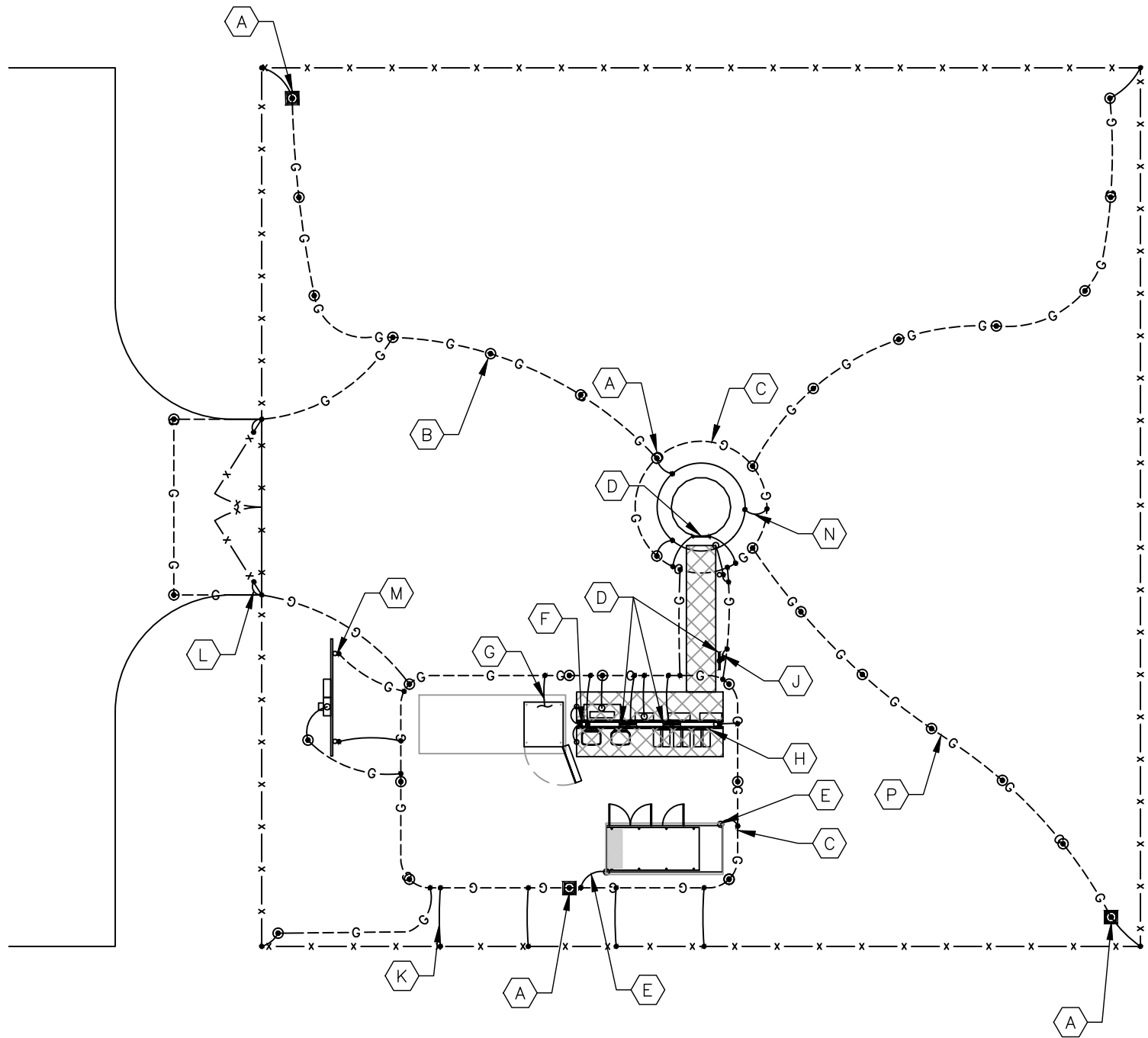
SHEET TITLE:

GROUNDING
NOTES

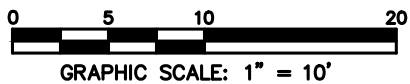
SHEET NUMBER:

E7

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-gb.dwg 06/07/24 7:31 PM by: Drew Pitts



1
E8
GROUNDING PLAN
SCALE: 1" = 10'



KEY NOTES - GROUNDING EQUIPMENT

- (A) GROUND ROD TEST WELL (SEE DETAIL 1/E10).
- (B) GROUND ROD, TYPICAL (SEE DETAIL 2/E10 AND NOTES 2 AND 3 ON E7).
- (C) TOWER AND EQUIPMENT GROUND RING (SEE NOTES 1, 3, 4, 5, 6 AND 7 ON E7).
- (D) TDSGA-PA14 OR TDSGA-BC14 WHERE APPLICABLE (SEE NOTES 10 AND 11 ON E7).
- (E) GENERATOR GROUNDING (SEE NOTE 16 ON E7).
- (F) GPS ANTENNA GROUNDING (SEE NOTE 18 ON E7).
- (G) RF CABINET GROUNDING (SEE NOTE 14 ON E7).
- (H) RRU'S AND OVP'S GROUNDING (SEE NOTE 23 ON E7).
- (J) ICE BRIDGE POST BOND TO GROUND RING, TYPICAL (SEE NOTES 12 AND 13 ON E7).
- (K) FENCE POST GROUNDING, TYPICAL (SEE NOTE 22 ON E7).
- (L) GATE GROUNDING, TYPICAL (SEE NOTES 19, 20 & 21 ON E7).
- (M) UTILITY H-FRAME GROUNDING, TYPICAL (SEE SHEET E3 AND NOTE 13 ON E7).
- (N) TOWER GROUNDING, TYPICAL (SEE NOTES 5, 6 & 25 ON E7).
- (P) GROUND RADIALS, TYPICAL (SEE NOTE 6 ON E7).
- (Q) REFER TO SHEETS E7, E9, E10 & E11 FOR GROUNDING NOTES, DETAILS, AND SPECIFICATIONS.

LEGEND:

- G---G--- GROUND RING
- G---G--- GROUND ROD EXOTHERMICALLY WELDED TO GROUND RING
- EXOTHERMIC WELD
- ⊙ GROUND ROD TEST WELL (SEE DETAIL 1/E10)
- MECHANICAL CONNECTION

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

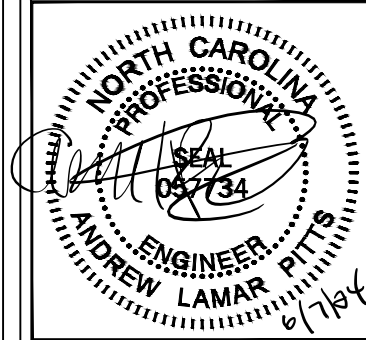
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

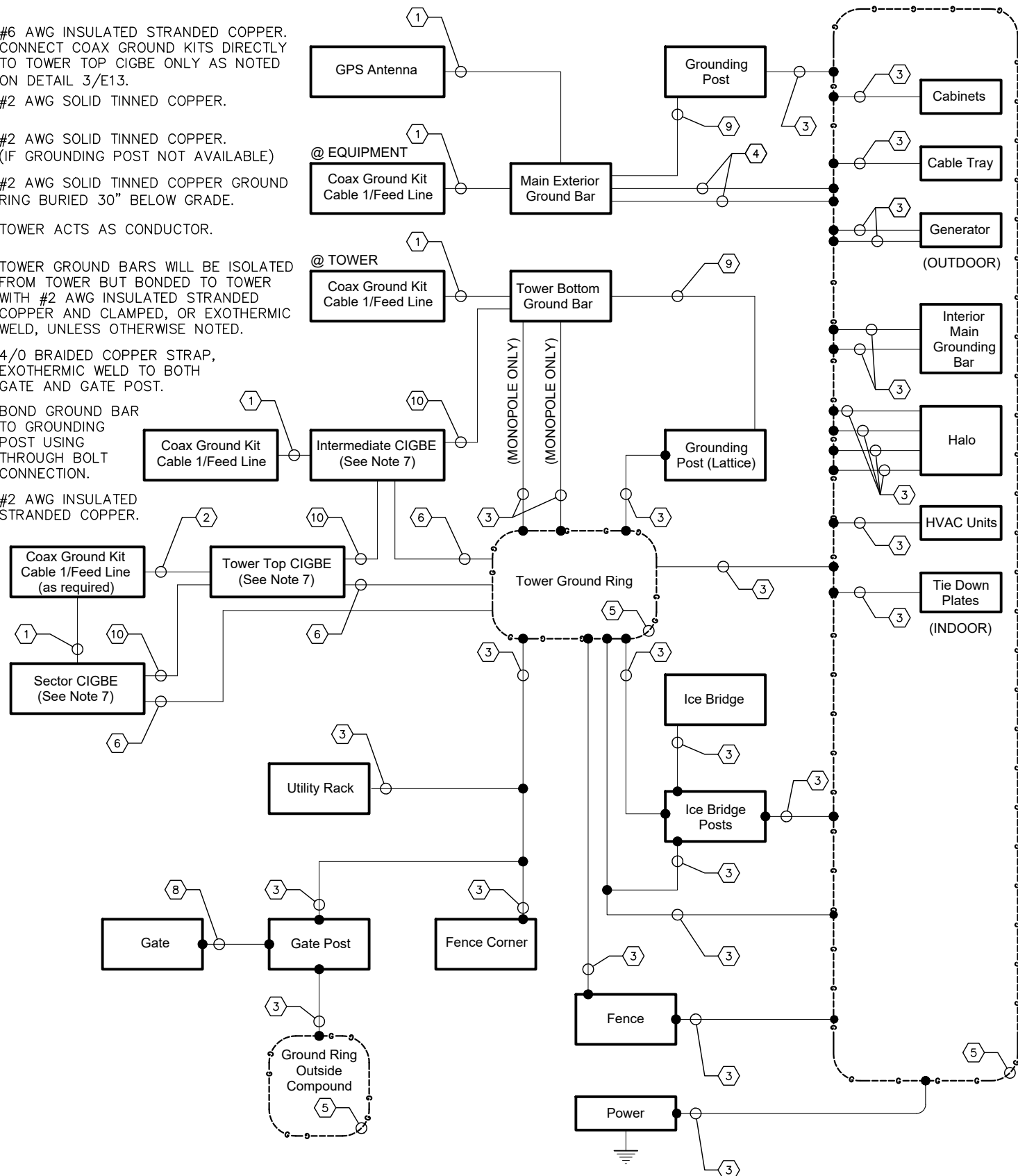
GROUNDING PLAN

SHEET NUMBER:

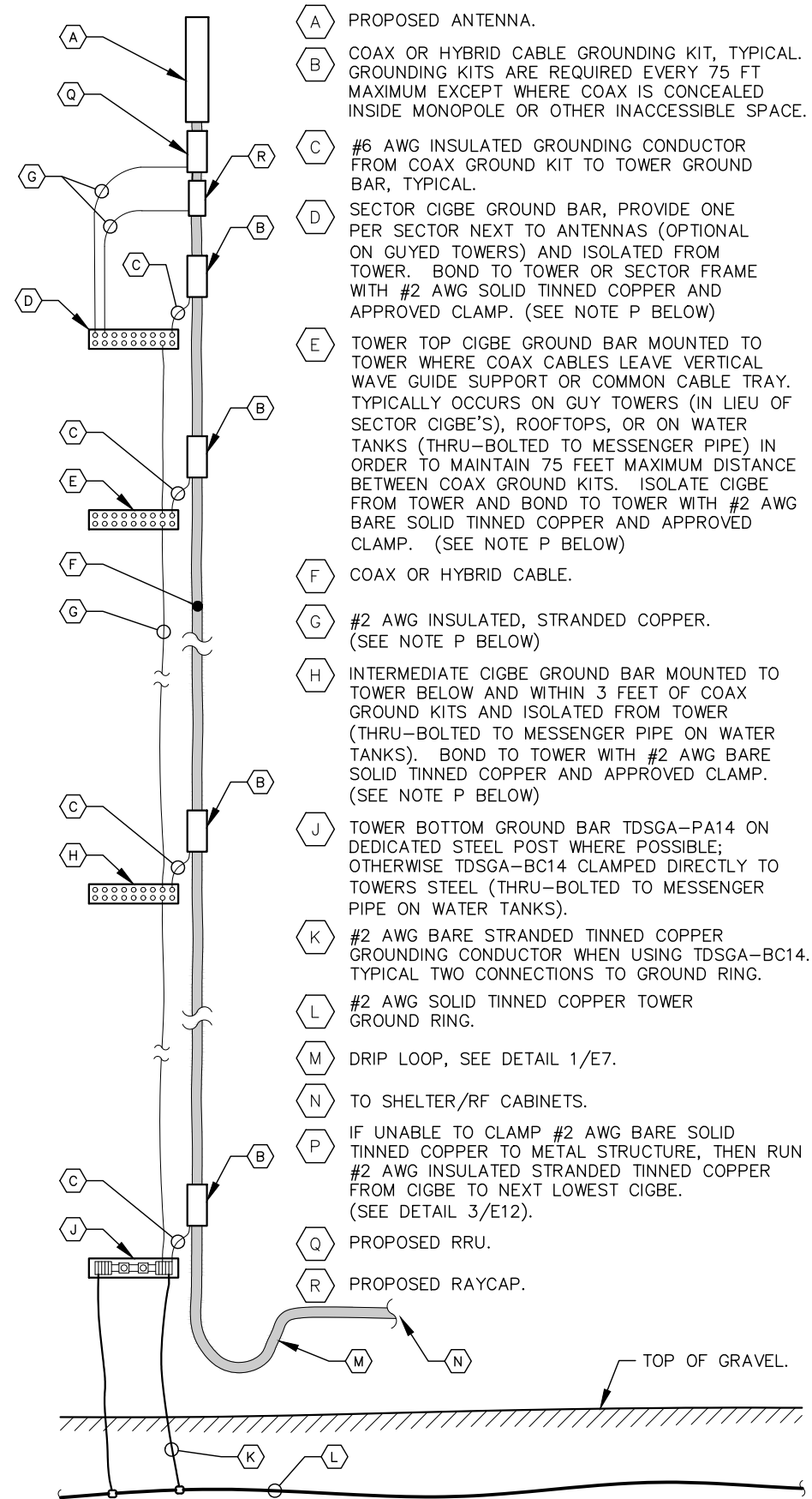
E8

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-CB.dwg 06/07/24 7:32 PM by: Drew Pitts

- 1 #6 AWG INSULATED STRANDED COPPER.
- 2 #6 AWG INSULATED STRANDED COPPER. CONNECT COAX GROUND KITS DIRECTLY TO TOWER TOP CIGBE ONLY AS NOTED ON DETAIL 3/E13.
- 3 #2 AWG SOLID TINNED COPPER.
- 4 #2 AWG SOLID TINNED COPPER. (IF GROUNDING POST NOT AVAILABLE)
- 5 #2 AWG SOLID TINNED COPPER GROUND RING BURIED 30" BELOW GRADE.
- 6 TOWER ACTS AS CONDUCTOR.
- 7 TOWER GROUND BARS WILL BE ISOLATED FROM TOWER BUT BONDED TO TOWER WITH #2 AWG INSULATED STRANDED COPPER AND CLAMPED, OR EXOTHERMIC WELD, UNLESS OTHERWISE NOTED.
- 8 4/0 BRAIDED COPPER STRAP, EXOTHERMIC WELD TO BOTH GATE AND GATE POST.
- 9 BOND GROUND BAR TO GROUNDING POST USING BOLT THROUGH BOLT CONNECTION.
- 10 #2 AWG INSULATED STRANDED COPPER.



1
E9
GROUNDING SINGLE LINE DIAGRAM
NOT TO SCALE



2
E9
COAX-TOWER GROUNDING SCHEMATIC
NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

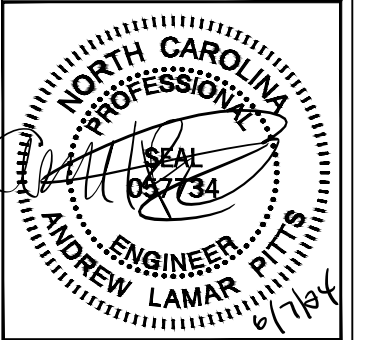
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

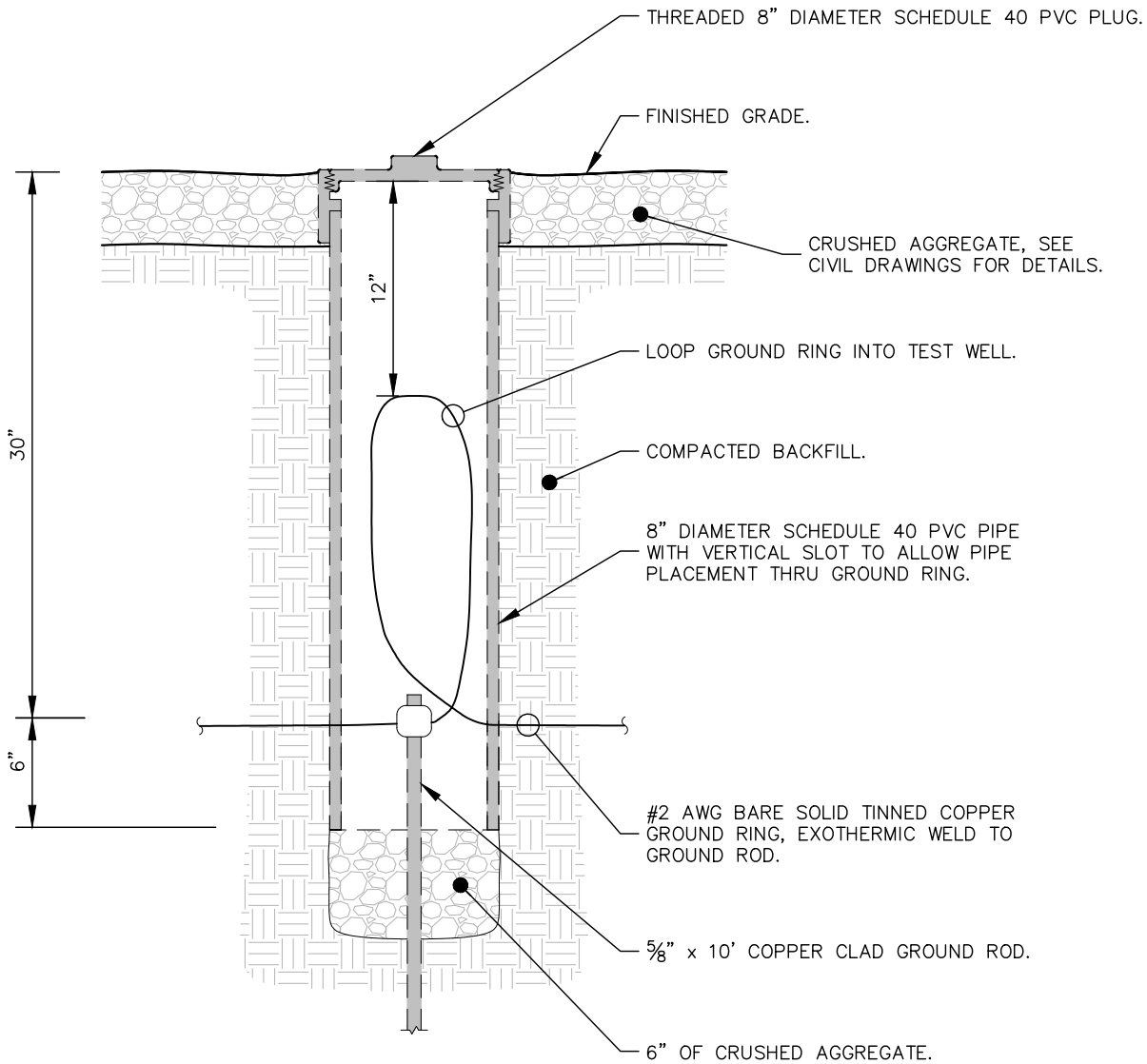
SHEET TITLE:

GROUNDING
SINGLE LINE
DIAGRAM

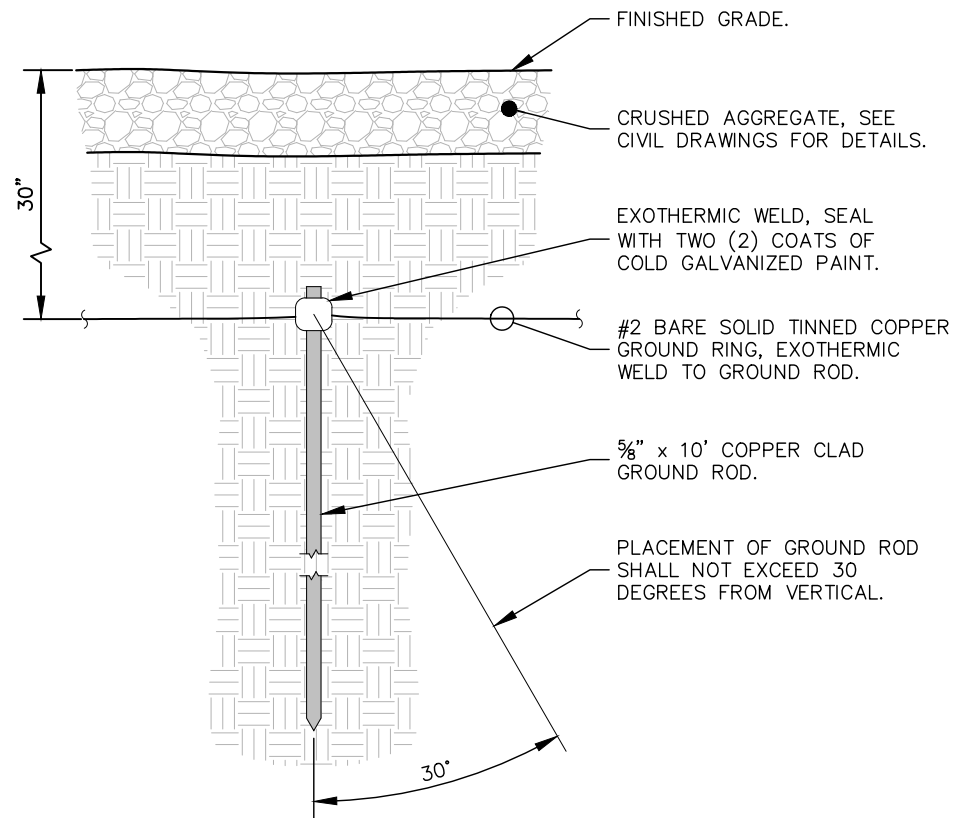
SHEET NUMBER:

E9

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:32 PM by: Drew Pitts



1 GROUND ROD TEST WELL DETAIL
E10 NOT TO SCALE



2 GROUND ROD INSTALLATION DETAIL
E10 NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

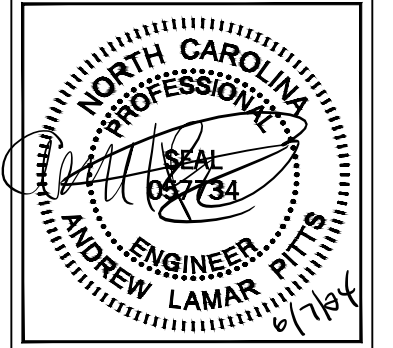
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

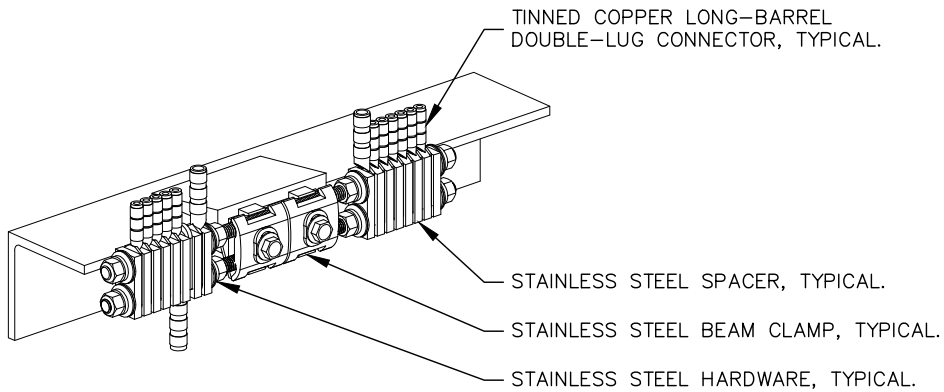
SHEET TITLE:

GROUNDING
DETAILS

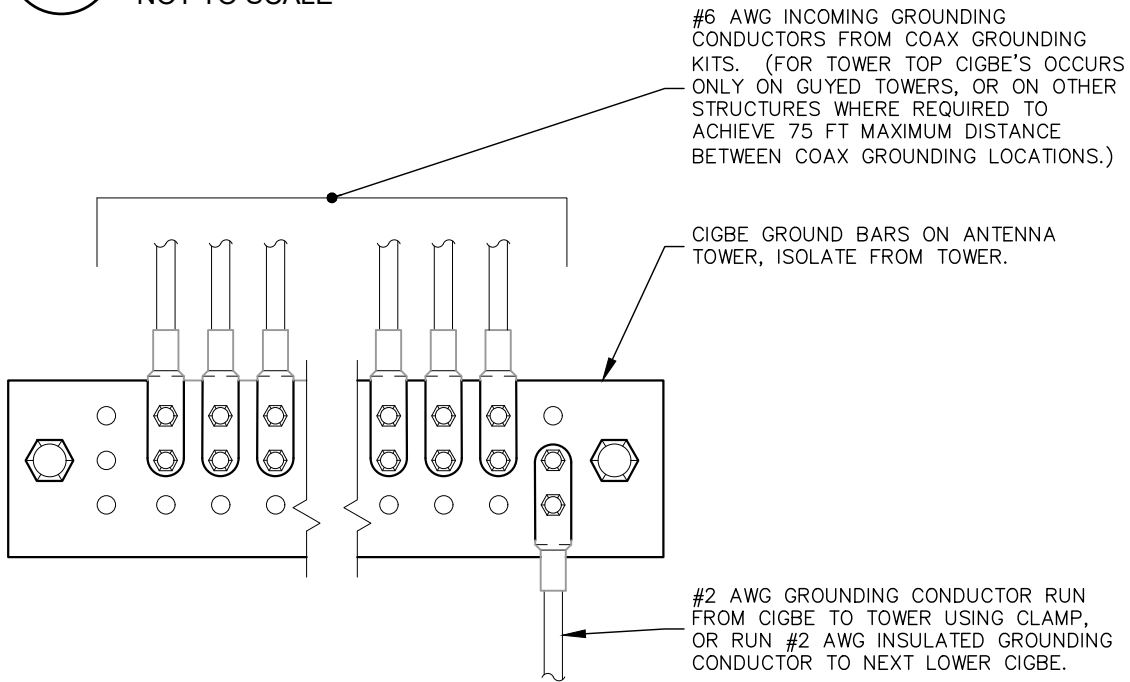
SHEET NUMBER:

E10

K:\ATL_Wireless\TowerCom\Swanson\CAD\GB\ECar-GB.dwg 06/07/24 7:32 PM by: Drew.Pitts



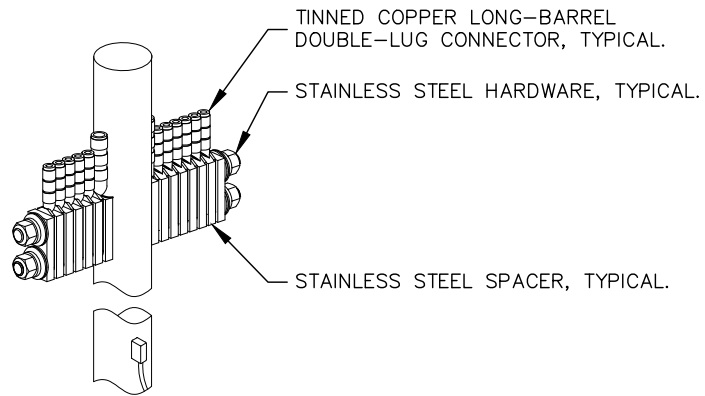
1 BAR NONE GROUNDED BEAM CLAMP (TDSGA-BC14)
E11 NOT TO SCALE



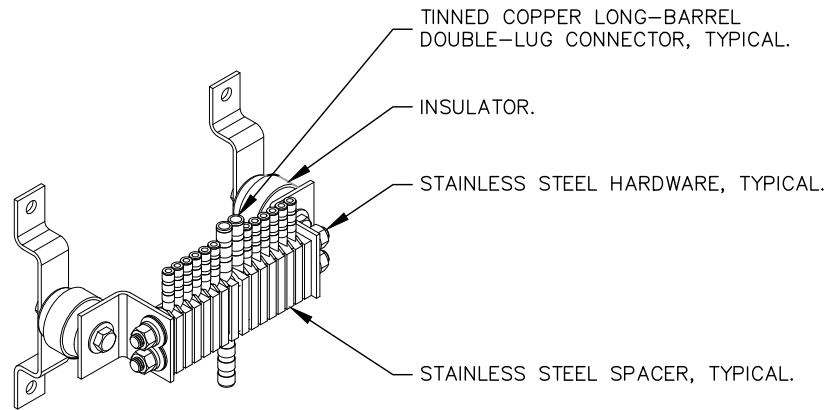
3 ANTENNA GROUND WIRE INSTALLATION DETAIL
E11 NOT TO SCALE

NOTES:

1. ALL CIGBE GROUND BARS ON TOWER ARE TO BE ERICO TDSGA. TYPICALLY USE TDSGA-WB17 ISOLATED FROM UNISTRUT BRACKET.
2. IF CIGBE CANNOT BE CONNECTED TO TOWER WITH #2 AWG GROUNDING CONDUCTOR, VIA CLAMP OR EXOTHERMIC WELD, THEN RUN #2 AWG BLACK GROUND LEAD FROM CIGBE DOWN TO NEXT LOWER CIGBE. SECURE GROUND LEAD WITH NON-METALIC TIES AT SAME SPACING AS COAX SUPPORTS.



2 BAR NONE POST MOUNTED (TDSGA-PA14)
E11 NOT TO SCALE



4 BAR NONE INSULATED (TDSGA-WB17)
E11 NOT TO SCALE

TOWERCOM

PROJECT INFORMATION:

SITE NAME:
SWANSON

CROUSE SCHOOL RD
CROUSE, NC 28033
LINCOLN COUNTY

PLANS PREPARED BY:

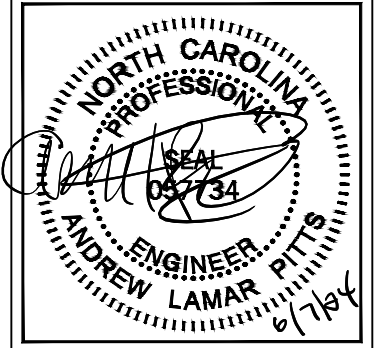
Kimley»Horn

11720 AMBER PARK DRIVE, SUITE 600
ALPHARETTA, GA 30009
PHONE: 770-619-4280
WWW.KIMLEY-HORN.COM
NC License F-0102

REV: DATE: ISSUED FOR: BY:

8			
7			
6			
5			
4			
3			
2			
1			
0	06/05/24	CONSTRUCTION	ALP

LICENSER:



KHA PROJECT NUMBER:

017177015

DRAWN BY: CHECKED BY:

WTB

ALP

SHEET TITLE:

**GROUNDING
DETAILS**

SHEET NUMBER:

E11

Exhibit “2”



June 13, 2024

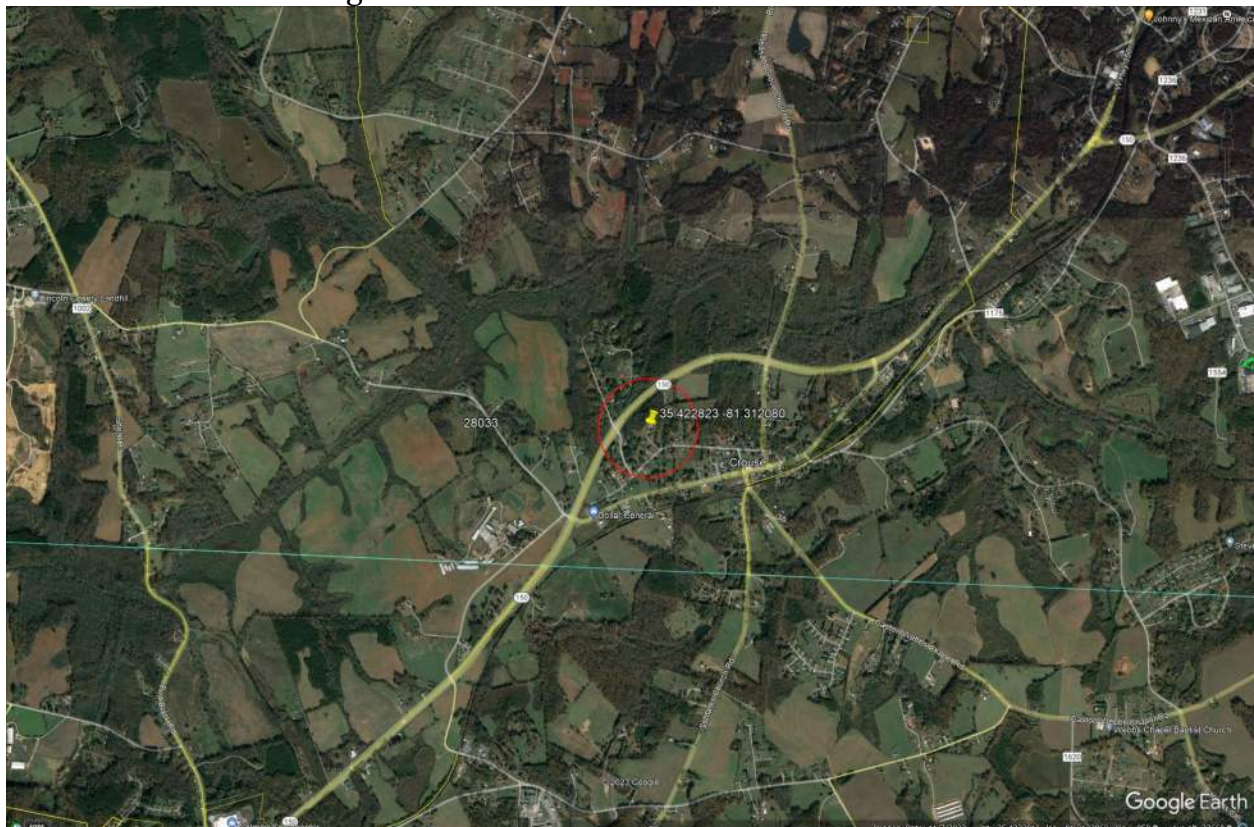
TowerCom: Swanson, Lincoln County, NC

Alternative Candidate Analysis

TowerCom submits this document to address alternative candidates it considered during its site selection process. Verizon has a specific search area in an area along the city of Crouse on the North Carolina Highway 150 with a requested antenna centerline of 250 ft.

Existing Structures in the Search Area

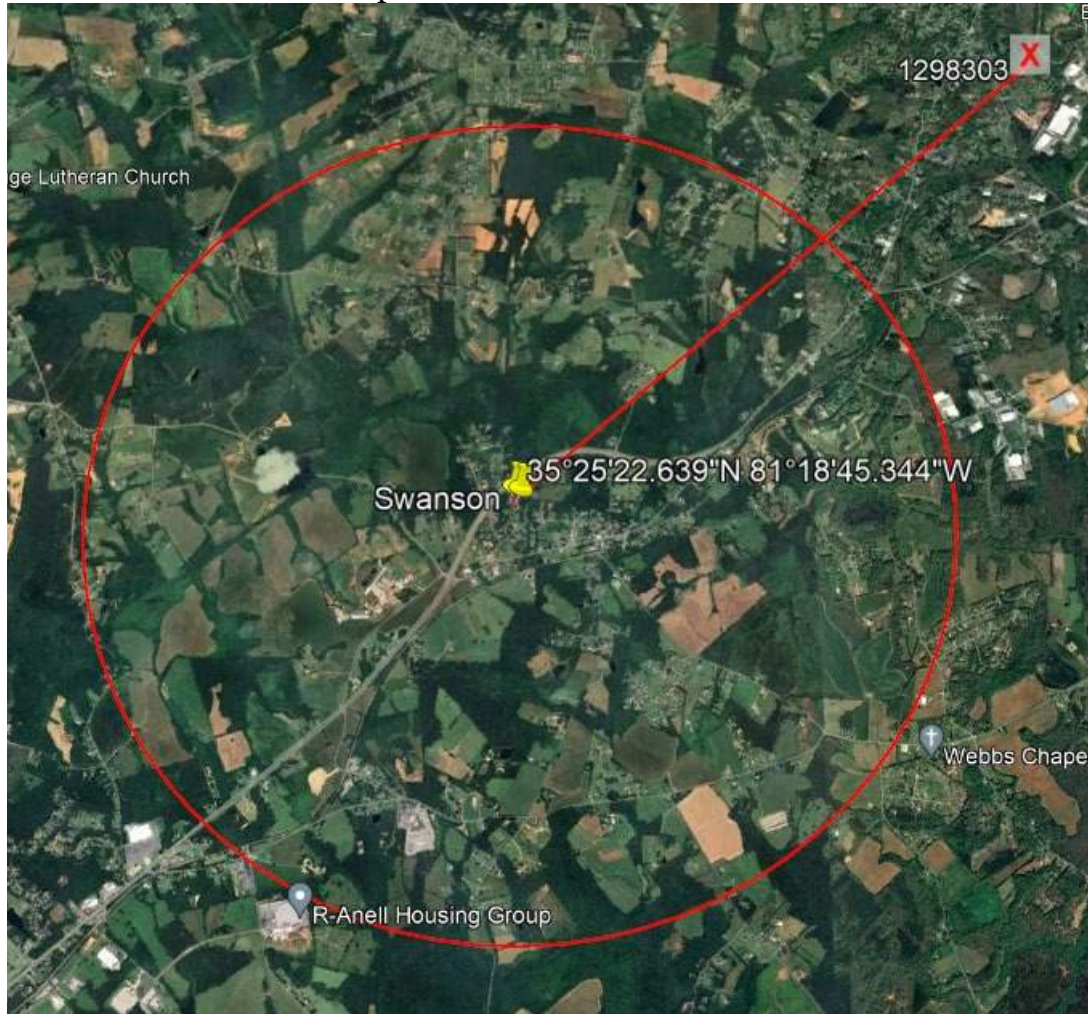
TowerCom was able to confirm there are no existing towers or other structures close to 250 ft. in height within the specified search ring nor within a reasonable distance outside of the search ring.





Existing Structures Outside of the Search Area

TowerCom then located the nearest existing telecommunication tower location and as shown on the attached map in a two-mile radius:



This map illustrates a two-mile radius from the proposed search ring area, and as shown on the map, there are no existing towers within the two-mile radius. The nearest existing telecommunication site is a TowerCom 200' monopole tower located 3.88 miles to the northeast. This existing site does not cover the intended area of North Carolina Highway 150 and Crouse.



Conclusion

As noted above, there are no existing structures of sufficient height within the described search ring, and as noted above, the closest existing tower is 3.88 miles away, and this tower will not allow Verizon to cover the intended coverage area. TowerCom has leased a property from a willing landlord whose property will be developed in accordance with Lincoln County regulations.

I certify that the foregoing is true and correct:



Robin Clement on Behalf of TowerCom

TOWERCOM Robin Clement, PMP | Director of Site Development
ON AIR. ON TIME. 241 Atlantic Blvd. | Suite 201 Direct | 919.666.2904
Neptune Beach, FL 32266 Cell | 919.302.5030
www.towercomenterprises.com

The email is intended solely for the person or entity to which it is addressed and may contain confidential and/or privileged information. Any review, dissemination, copying, printing, or other use of this email by persons or entities other than the addressee is prohibited. If you have received this email in error, please contact the sender immediately, and delete the material from your computer.

Exhibit “3”

May 31, 2024

Robin Clement
Towercom VI-B, LLC
5611 NC Hwy 55 Suite 201
Durham, NC 27713

Re: Proposed 190 ft Monopole for Swanson, NC

Dear Robin,

Upon receipt of order, we propose to design and supply the above referenced tower for a Basic Wind Speed of 109 mph with no ice and 30 mph + 1.5" ice, Risk Category II, Exposure Category C, and Topographic Category 1, in accordance with the Telecommunications Industry Association Standard ANSI/TIA-222-H, "Structural Standard for Antenna Supporting Structures and Antennas".

When designed according to this standard, the wind pressures and steel strength capacities include several safety factors, resulting in an overall minimum safety factor of 25%. Therefore, it is highly unlikely that the monopole will fail structurally in a wind event where the design wind speed is exceeded within the range of the built-in safety factors.

Should the wind speed increase beyond the capacity of the built-in safety factors, to the point of failure of one or more structural elements, the most likely location of the failure would be within the monopole shaft, above the base plate. Assuming that the wind pressure profile is similar to that used to design the monopole, the monopole will buckle at the location of the highest combined stress ratio within the monopole shaft. This is likely to result in the portion of the monopole above leaning over and remaining in a permanently deformed condition. ***Please note that this letter only applies to the above referenced monopole designed and manufactured by Sabre Towers & Poles.*** This would effectively result in a fall radius equal to 85 ft at ground level.

Sincerely,

Robert E. Beacom, P.E., S.E.
Engineering Manager



Exhibit “4”

To: Joshua L. Grant, MPA
Manager
Lincoln County Planning & Inspections
115 W. Main Street, 3rd Floor
Lincolnton, NC 28092
(704) 736-8440

Re: Residential Use Setback Waiver Affidavit

Dear Mr. Grant,

We, Richard N. Bronowicz, Jr. and Anita Bronowicz, as owners of parcel number 3611163737, hereby waive the setback requirement set forth by Section 4.3.8(C)(2) of the Lincoln County Unified Development Ordinance in respect to the proposed wireless telecommunications facility to be located on parcel number 3611162707 to allow the tower to be setback from any residential use on our property less than a distance of its height plus 50 feet.

BY: Richard N. Bronowicz, Jr.
Richard N. Bronowicz, Jr.

Date: 6-18-2024

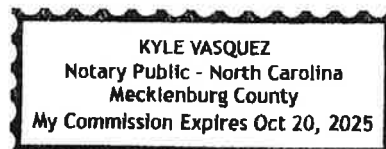
State of North Carolina

County of LINCOLN

I hereby certify that this 18th day of June, 2024, before me, a Notary Public for the state and Mecklenburg county aforesaid, personally appeared Richard Bronowicz, Jr. known to me or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument, and acknowledged that they executed the foregoing instrument, acting in their capacity as owner for purposes therein set forth.

Kyle Vasquez
Notary Public

My commission expires: 10-20-2025



BY: Anita Bronowicz
Anita Bronowicz

Date: 6-18-2024

State of North Carolina

County of LINCOLN

I hereby certify that this 18th day of June, 2024, before me, a Notary Public for the state and ~~mecklenburg~~ county aforesaid, personally appeared ~~Anita Bronowicz~~ known to me or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument, and acknowledged that they executed the foregoing instrument, acting in their capacity as _____ owner for purposes therein set forth.

Kyle Vasquez
Notary Public

My commission expires: 10-20-2025

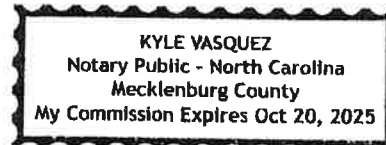


Exhibit “5”



Structural Design Report

190' Monopole
Site: Swanson, NC

Prepared for: TOWERCOM IV-B, LLC
by: Sabre IndustriesTM

Job Number: 543798

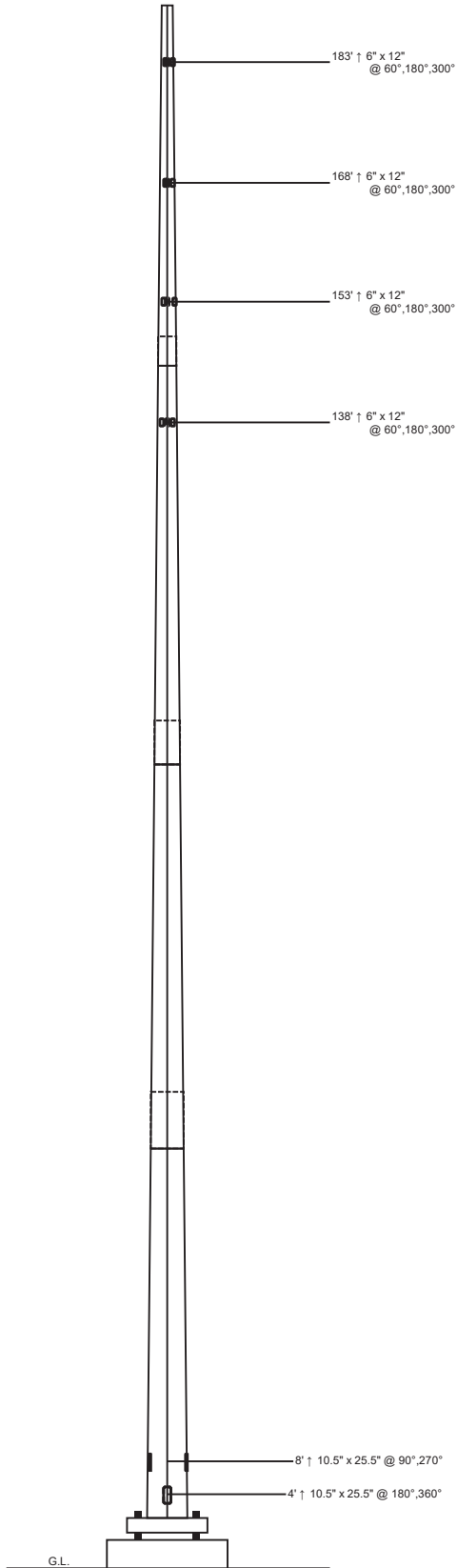
May 31, 2024

Monopole Profile.....	1
Foundation Design Summary (Preliminary) (Option 1).....	2
Foundation Design Summary (Preliminary) (Option 2).....	3
Pole Calculations.....	4-21
Foundation Calculations.....	22-30



5/31/24

Length (ft)	53'-3"	53'-6"	53'-6"	45'-0"
Number Of Sides	18	18	18	18
Thickness (in)	7/16"	3/8"	1/4"	1/4"
Lap Splice (ft)	7'-0"	5'-6"	A	A
Top Diameter (in)	47.63"	36.86"	25.58"	15.75"
Bottom Diameter (in)	60.97"	50.26"	38.98"	27.02"
Taper (in/ft)				
Grade				
Weight (lbs)	16257	11563	7427	2988
Overall Steel Height (ft)				



Designed Appurtenance Loading

Elev	Description	Tx-Line
185	(1) 42,000 Sq. Inches (12,000 lbs) (below top)	(12) 1 5/8"
170	(1) 30,000 Sq. Inches 8,000# (below top)	(12) 1 5/8"
155	(1) 20,000 sq. in. (4000 lbs) (below top)	(12) 1 5/8"
140	(1) 10,000 Sq. Inches – 3,000 lbs (below top)	(6) 1 5/8"

Design Criteria - ANSI/TIA-222-H

Wind Speed (No Ice)	109 mph
Wind Speed (Ice)	30 mph
Design Ice Thickness	1.50 in
Risk Category	II
Exposure Category	C
Topographic Factor Procedure	Method 1 (Simplified)
Topographic Category	1
Ground Elevation	852 ft
Seismic Importance Factor, I _e	1.00
0.2-sec Spectral Response, S _s	0.205 g
1-sec Spectral Response, S ₁	0.082 g
Site Class	D (DEFAULT)
Seismic Design Category	B
Basic Seismic Force-Resisting System	Telecommunication Tower (Pole: Steel)

Limit State Load Combination Reactions

Load Combination	Axial (kips)	Shear (kips)	Moment (ft-k)	Deflection (ft)	Sway (deg)
1.2 D + 1.0 W _o	82.12	39.27	6163.56	20.09	13.34
0.9 D + 1.0 W _o	61.55	39.43	5949.9	19.08	12.57
1.2 D + 1.0 D _i + 1.0 W _i	144.92	5.52	1068.2	4.01	2.73
1.2 D + 1.0 E _v + 1.0 E _h	84.95	2.02	385.92	1.41	0.95
0.9 D - 1.0 E _v + 1.0 E _h	58.48	2.06	368.56	1.31	0.87
1.0 D + 1.0 W _o (Service @ 60 mph)	68.41	10.59	1651.52	5.56	3.62

Base Plate Dimensions

Shape	Diameter	Thickness	Bolt Circle	Bolt Qty	Bolt Diameter
Round	73.75"	2.25"	68"	18	2.25"

Anchor Bolt Dimensions

Length	Diameter	Hole Diameter	Weight	Type	Finish
84"	2.25"	2.625"	2179.8	A615-75	Galv

Material List

Display	Value
A	3' - 9"

Notes

- 1) Antenna Feed Lines Run Inside Pole
- 2) All dimensions are above ground level, unless otherwise specified.
- 3) Weights shown are estimates. Final weights may vary.
- 4) Full Height Step Bolts
- 5) This tower design and, if applicable, the foundation design(s) shown on the following page(s) also meet or exceed the requirements of the 2015 International Building Code.
- 6) Tower Rating: 99.9%



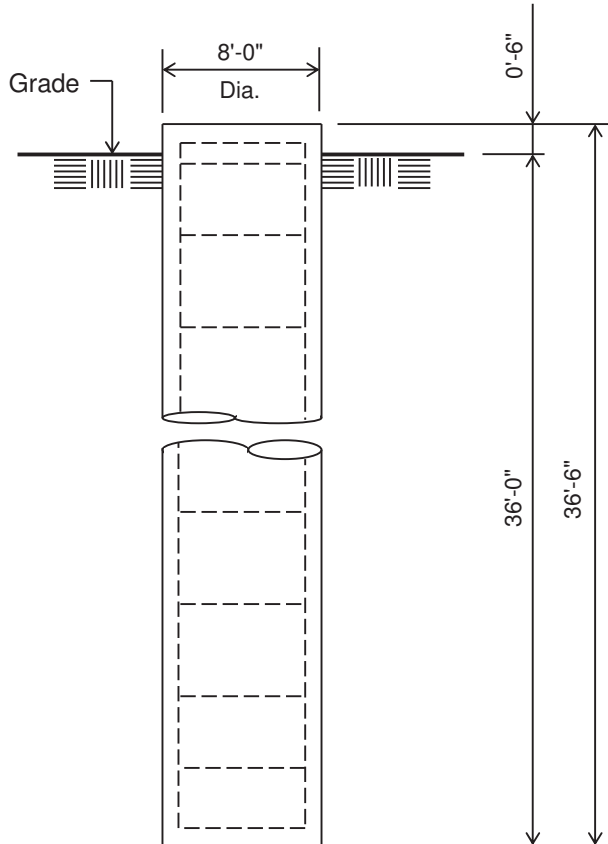
Sabre Industries
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 279-0814

Information contained herein is the sole property of Sabre Communications Corporation, constitutes a trade secret as defined by Iowa Code Ch. 550 and shall not be reproduced, copied or used in whole or part for any purpose whatsoever without the prior written consent of Sabre Communications Corporation.

Job: **543798**
Customer: TOWERCOM IV-B, LLC
Site Name: Swanson, NC
Description: 190' Monopole
Date: 5/31/2024 By: REB

Customer: TOWERCOM IV-B, LLC
Site: Swanson, NC
190' Monopole

PRELIMINARY -NOT FOR CONSTRUCTION-



ELEVATION VIEW

(67.95 Cu. Yds.)

(1 REQUIRED; NOT TO SCALE)

Notes:

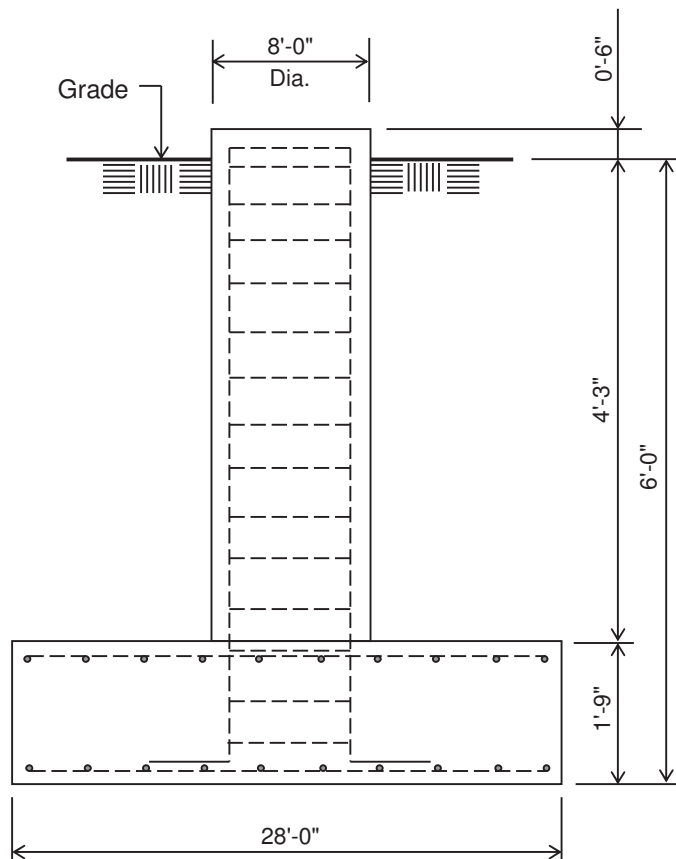
- 1) Concrete shall have a minimum 28-day compressive strength of 4,500 psi, in accordance with ACI 318-14.
- 2) Rebar to conform to ASTM specification A615 Grade 60.
- 3) All rebar to have a minimum of 3" concrete cover.
- 4) All exposed concrete corners to be chamfered 3/4".
- 5) The foundation design is based on presumptive clay soil as defined in ANSI/TIA-222-H-2017. It is recommended that a soil analysis of the site be performed to verify the soil parameters used in the design.
- 6) The bottom anchor bolt template shall be positioned as closely as possible to the bottom of the anchor bolts.

Rebar Schedule for Pier

Pier	(42) #9 vertical rebar w/ #5 ties, (2) within top 5" of pier, then 12" C/C
------	--

Customer: TOWERCOM IV-B, LLC
Site: Swanson, NC
190' Monopole

PRELIMINARY -NOT FOR CONSTRUCTION-



ELEVATION VIEW

(59.66 Cu. Yds.)
(1 REQUIRED; NOT TO SCALE)

Notes:

- 1) Concrete shall have a minimum 28-day compressive strength of 4,500 psi, in accordance with ACI 318-14.
- 2) Rebar to conform to ASTM specification A615 Grade 60.
- 3) All rebar to have a minimum of 3" concrete cover.
- 4) All exposed concrete corners to be chamfered 3/4".
- 5) The foundation design is based on presumptive clay soil as defined in ANSI/TIA-222-H-2017. It is recommended that a soil analysis of the site be performed to verify the soil parameters used in the design.
- 6) 4.25 ft of soil cover is required over the entire area of the foundation slab.
- 7) The bottom anchor bolt template shall be positioned as closely as possible to the bottom of the anchor bolts.

Rebar Schedule for Pad and Pier	
Pier	(50) #8 vertical rebar w/ hooks at bottom w/ #5 ties, (2) within top 5" of pier, then 4" C/C
Pad	(46) #10 horizontal rebar evenly spaced each way top and bottom (184 total)

=====

(USA 222-H) - Monopole Spatial Analysis (c)2017 Guymast Inc.

Tel: (416) 736-7453 Fax: (416) 736-4372 Web: www.guymast.com

Processed under license at:

Sabre Towers and Poles on: 31 may 2024 at: 16:25:50

=====

190' Monopole / Swanson, NC

* All pole diameters shown on the following pages are across corners.
See profile drawing for widths across flats.

POLE GEOMETRY

=====

ELEV	SECTION	No.	OUTSIDE	THICK	RESISTANCES	SPLICE	...OVERLAP...	w/t
ft	NAME	SIDE	DIAM	-NESS	*Pn *Mn	TYPE	LENGTH	RATIO
			in	in	kip ft-kip		ft	
189.0								
	A	18	15.99	0.250	913.8 289.0			9.9
			26.48	0.250	1498.0 794.3			
147.7			26.48	0.250	1498.0 794.3			
	A/B	18	26.94	0.375	2312.8 1236.5	SLIP	3.75	1.70
			26.94	0.375	2312.8 1236.5			
144.0								
	B	18	38.18	0.375	3258.1 2489.0			11.5
			38.18	0.375	3258.1 2489.0			
99.7								
	B/C	18	38.84	0.438	3900.6 3022.5	SLIP	5.50	1.73
			38.84	0.438	3900.6 3022.5			
94.2								
	C	18	49.24	0.438	4769.7 4708.8			14.6
			49.24	0.438	4769.7 4708.8			
53.2								
	C/D	18	50.16	0.438	4833.3 4862.2	SLIP	7.00	1.70
			50.16	0.438	4833.3 4862.2			
46.2								
	D	18	61.91	0.438	5560.7 6927.8			19.1
0.0								

POLE ASSEMBLY

=====

SECTION	BASE	.....	BOLTS	AT	BASE	OF	SECTION	.....	CALC
NAME	ELEV	NUMBER	TYPE		DIAM	STRENGTH	THREADS	IN	BASE
	ft				in	ksi	SHEAR	PLANE	ELEV
									ft
A	144.000	0	A325		0.00	92.0		0	144.000
B	94.250	0	A325		0.00	92.0		0	94.250
C	46.250	0	A325		0.00	92.0		0	46.250
D	0.000	0	A325		0.00	92.0		0	0.000

POLE SECTIONS

=====

SECTION	No. of	LENGTH	OUTSIDE	DIAMETER	BEND	MAT-	FLANGE	ID	FLANGE	WELD
NAME	SIDES		BOT	TOP	RAD	ERIAL	BOT	TOP	..GROUP	ID..
		ft	*	*		ID			BOT	TOP
			in	in	in					
A	18	45.00	27.44	15.99	0.625	1	0	0	0	0
B	18	53.50	39.59	25.98	0.625	2	0	0	0	0
C	18	53.50	51.03	37.43	0.625	3	0	0	0	0
D	18	53.25	61.91	48.37	0.625	4	0	0	0	0

* - Diameter of circumscribed circle

MATERIAL TYPES =====

TYPE OF SHAPE	TYPE NO	NO OF ELEM.	ORIENT	HEIGHT	WIDTH	.THICKNESS.		IRREGULARITY	
						WEB	FLANGE	.PROJECTION. % OF AREA	ORIENT
			& deg	in	in	in	in		deg
PL	1	1	0.0	27.44	0.25	0.250	0.250	0.00	0.0
PL	2	1	0.0	39.59	0.38	0.375	0.375	0.00	0.0
PL	3	1	0.0	51.03	0.44	0.438	0.438	0.00	0.0
PL	4	1	0.0	61.91	0.44	0.438	0.438	0.00	0.0

& - With respect to vertical

MATERIAL PROPERTIES =====

MATERIAL TYPE NO.	ELASTIC MODULUS ksi	UNIT WEIGHT pcf	.. STRENGTH ..		THERMAL COEFFICIENT /deg
			Fu ksi	Fy ksi	
1	29000.0	490.0	80.0	65.0	0.00001170
2	29000.0	490.0	80.0	65.0	0.00001170
3	29000.0	490.0	80.0	65.0	0.00001170
4	29000.0	490.0	80.0	65.0	0.00001170

* Only 5 condition(s) shown in full

* Some concentrated wind loads may have been derived from full-scale wind tunnel testing

LOADING CONDITION A =====

109 mph wind with no ice. Wind Azimuth: 0° (1.2 D + 1.0 Wo)

LOADS ON POLE =====

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	LOAD..AT AZI	LOAD AZI	.....FORCES.....		.....MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	184.500	0.00	0.0	0.0	0.0292	0.0151	0.0000	0.0000
C	184.000	0.00	0.0	0.0	0.0000	2.7556	0.0000	0.0000
C	184.000	0.00	0.0	0.0	10.3581	14.4000	0.0000	0.0000
C	175.000	0.00	0.0	0.0	0.0320	0.0168	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.0000	2.5309	0.0000	0.0000
C	169.000	0.00	0.0	0.0	7.2693	9.6000	0.0000	0.0000
C	165.000	0.00	0.0	0.0	0.0316	0.0168	0.0000	0.0000
C	155.000	0.00	0.0	0.0	0.0312	0.0168	0.0000	0.0000
C	154.000	0.00	0.0	0.0	0.0000	2.3063	0.0000	0.0000
C	154.000	0.00	0.0	0.0	4.7527	4.8000	0.0000	0.0000
C	145.000	0.00	0.0	0.0	0.0308	0.0168	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.0000	1.0408	0.0000	0.0000
C	139.000	0.00	0.0	0.0	2.3279	3.6000	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0303	0.0168	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0298	0.0168	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0293	0.0168	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0288	0.0168	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0282	0.0168	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0275	0.0168	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0268	0.0168	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0260	0.0168	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0251	0.0168	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0241	0.0168	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0228	0.0168	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0213	0.0168	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0191	0.0168	0.0000	0.0000
D	189.000	0.00	180.0	0.0	0.0392	0.0528	0.0000	0.0000
D	147.750	0.00	180.0	0.0	0.0577	0.0812	0.0000	0.0000

D	147.750	0.00	180.0	0.0	0.0599	0.2102	0.0000	0.0000
D	144.000	0.00	180.0	0.0	0.0599	0.2102	0.0000	0.0000
D	144.000	0.00	180.0	0.0	0.0614	0.1312	0.0000	0.0000
D	99.750	0.00	180.0	0.0	0.0775	0.1769	0.0000	0.0000
D	99.750	0.00	180.0	0.0	0.0793	0.3948	0.0000	0.0000
D	94.250	0.00	180.0	0.0	0.0793	0.3948	0.0000	0.0000
D	94.250	0.00	180.0	0.0	0.0801	0.2188	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0888	0.2682	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0890	0.5501	0.0000	0.0000
D	46.250	0.00	180.0	0.0	0.0890	0.5501	0.0000	0.0000
D	46.250	0.00	180.0	0.0	0.0892	0.2819	0.0000	0.0000
D	11.562	0.00	180.0	0.0	0.0818	0.3226	0.0000	0.0000
D	11.562	0.00	180.0	0.0	0.0821	0.3307	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0841	0.3389	0.0000	0.0000

LOADING CONDITION M

109 mph wind with no ice. Wind Azimuth: 0° (0.9 D + 1.0 Wo)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY RADIUS ft	LOAD AT AZI	LOAD AZI	FORCES		MOMENTS	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSIONAL ft-kip
C	184.500	0.00	0.0	0.0	0.0292	0.0113	0.0000	0.0000
C	184.000	0.00	0.0	0.0	0.0000	2.0667	0.0000	0.0000
C	184.000	0.00	0.0	0.0	10.3581	10.8000	0.0000	0.0000
C	175.000	0.00	0.0	0.0	0.0320	0.0126	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.0000	1.8982	0.0000	0.0000
C	169.000	0.00	0.0	0.0	7.2693	7.2000	0.0000	0.0000
C	165.000	0.00	0.0	0.0	0.0316	0.0126	0.0000	0.0000
C	155.000	0.00	0.0	0.0	0.0312	0.0126	0.0000	0.0000
C	154.000	0.00	0.0	0.0	0.0000	1.7297	0.0000	0.0000
C	154.000	0.00	0.0	0.0	4.7527	3.6000	0.0000	0.0000
C	145.000	0.00	0.0	0.0	0.0308	0.0126	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.0000	0.7806	0.0000	0.0000
C	139.000	0.00	0.0	0.0	2.3279	2.7000	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0303	0.0126	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0298	0.0126	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0293	0.0126	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0288	0.0126	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0282	0.0126	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0275	0.0126	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0268	0.0126	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0260	0.0126	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0251	0.0126	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0241	0.0126	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0228	0.0126	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0213	0.0126	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0191	0.0126	0.0000	0.0000
D	189.000	0.00	180.0	0.0	0.0392	0.0396	0.0000	0.0000
D	147.750	0.00	180.0	0.0	0.0577	0.0609	0.0000	0.0000
D	147.750	0.00	180.0	0.0	0.0599	0.1577	0.0000	0.0000
D	144.000	0.00	180.0	0.0	0.0599	0.1577	0.0000	0.0000
D	144.000	0.00	180.0	0.0	0.0614	0.0984	0.0000	0.0000
D	99.750	0.00	180.0	0.0	0.0775	0.1327	0.0000	0.0000
D	99.750	0.00	180.0	0.0	0.0793	0.2961	0.0000	0.0000
D	94.250	0.00	180.0	0.0	0.0793	0.2961	0.0000	0.0000
D	94.250	0.00	180.0	0.0	0.0801	0.1641	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0888	0.2011	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0890	0.4126	0.0000	0.0000
D	46.250	0.00	180.0	0.0	0.0890	0.4126	0.0000	0.0000
D	46.250	0.00	180.0	0.0	0.0892	0.2114	0.0000	0.0000
D	11.562	0.00	180.0	0.0	0.0818	0.2419	0.0000	0.0000
D	11.562	0.00	180.0	0.0	0.0821	0.2481	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0841	0.2542	0.0000	0.0000

LOADING CONDITION Y

30 mph wind with 1.5 ice. Wind Azimuth: 0° (1.2 D + 1.0 Di + 1.0 Wi)

LOADS ON POLE
=====

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD..AT AZI	LOAD AZIFORCES.....	MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	184.500	0.00	0.0	0.0	0.0177	0.0271	0.0000	0.0000
C	184.000	0.00	0.0	0.0	0.0000	2.7556	0.0000	0.0000
C	184.000	0.00	0.0	0.0	1.3440	35.7864	0.0000	0.0000
C	175.000	0.00	0.0	0.0	0.0194	0.0288	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.0000	2.5309	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.9399	23.7376	0.0000	0.0000
C	165.000	0.00	0.0	0.0	0.0191	0.0288	0.0000	0.0000
C	155.000	0.00	0.0	0.0	0.0187	0.0288	0.0000	0.0000
C	154.000	0.00	0.0	0.0	0.0000	2.3063	0.0000	0.0000
C	154.000	0.00	0.0	0.0	0.6122	11.8038	0.0000	0.0000
C	145.000	0.00	0.0	0.0	0.0183	0.0288	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.0000	1.0408	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.2986	8.7996	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0180	0.0288	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0175	0.0288	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0171	0.0288	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0167	0.0288	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0162	0.0288	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0156	0.0288	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0151	0.0288	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0144	0.0288	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0137	0.0288	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0130	0.0288	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0120	0.0288	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0109	0.0288	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0094	0.0288	0.0000	0.0000
D	189.000	0.00	180.0	0.0	0.0063	0.0932	0.0000	0.0000
D	147.750	0.00	180.0	0.0	0.0087	0.1399	0.0000	0.0000
D	147.750	0.00	180.0	0.0	0.0089	0.2713	0.0000	0.0000
D	144.000	0.00	180.0	0.0	0.0089	0.2713	0.0000	0.0000
D	144.000	0.00	180.0	0.0	0.0091	0.1937	0.0000	0.0000
D	137.679	0.00	180.0	0.0	0.0091	0.1937	0.0000	0.0000
D	137.679	0.00	180.0	0.0	0.0095	0.2044	0.0000	0.0000
D	131.357	0.00	180.0	0.0	0.0095	0.2044	0.0000	0.0000
D	131.357	0.00	180.0	0.0	0.0098	0.2151	0.0000	0.0000
D	99.750	0.00	180.0	0.0	0.0111	0.2572	0.0000	0.0000
D	99.750	0.00	180.0	0.0	0.0114	0.4776	0.0000	0.0000
D	94.250	0.00	180.0	0.0	0.0114	0.4776	0.0000	0.0000
D	94.250	0.00	180.0	0.0	0.0115	0.3027	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0125	0.3655	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0125	0.6490	0.0000	0.0000
D	46.250	0.00	180.0	0.0	0.0125	0.6490	0.0000	0.0000
D	46.250	0.00	180.0	0.0	0.0125	0.3816	0.0000	0.0000
D	11.562	0.00	180.0	0.0	0.0113	0.4248	0.0000	0.0000
D	11.562	0.00	180.0	0.0	0.0113	0.4297	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0116	0.4312	0.0000	0.0000

LOADING CONDITION AK

Seismic - Azimuth: 0° (1.2 D + 1.0 Ev + 1.0 Eh)

LOADS ON POLE
=====

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD..AT AZI	LOAD AZIFORCES.....	MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	184.500	0.00	0.0	0.0	0.0007	0.0157	0.0000	0.0000
C	184.000	0.00	0.0	0.0	0.1294	2.8562	0.0000	0.0000
C	184.000	0.00	0.0	0.0	0.6764	14.9256	0.0000	0.0000
C	175.000	0.00	0.0	0.0	0.0007	0.0174	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.1003	2.6233	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.3804	9.9504	0.0000	0.0000
C	166.500	0.00	0.0	0.0	0.1182	3.1861	0.0000	0.0000
C	165.000	0.00	0.0	0.0	0.0006	0.0174	0.0000	0.0000
C	155.000	0.00	0.0	0.0	0.0006	0.0174	0.0000	0.0000
C	154.000	0.00	0.0	0.0	0.0759	2.3905	0.0000	0.0000

C	154.000	0.00	0.0	0.0	0.1579	4.9752	0.0000	0.0000
C	145.000	0.00	0.0	0.0	0.0005	0.0174	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.0279	1.0789	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.0965	3.7314	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0004	0.0174	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0004	0.0174	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.1681	8.5777	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0003	0.0174	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0003	0.0174	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0002	0.0174	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0002	0.0174	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0001	0.0174	0.0000	0.0000
C	73.000	0.00	0.0	0.0	0.0965	13.5263	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0001	0.0174	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0001	0.0174	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0000	0.0174	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0000	0.0174	0.0000	0.0000
C	26.620	0.00	0.0	0.0	0.0160	16.8148	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0000	0.0174	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0000	0.0174	0.0000	0.0000
D	189.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000
D	0.000	0.00	180.0	180.0	0.0000	0.0000	0.0000	0.0000

LOADING CONDITION AL

Seismic - Azimuth: 0° (0.9 D - 1.0 Ev + 1.0 Eh)

LOADS ON POLE

LOAD TYPE	ELEV ft	APPLY. RADIUS ft	LOAD. AZI	AT AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	184.500	0.00	0.0	0.0	0.0	0.0007	0.0107	0.0000	0.0000
C	184.000	0.00	0.0	0.0	0.0	0.1294	1.9661	0.0000	0.0000
C	184.000	0.00	0.0	0.0	0.0	0.6764	10.2744	0.0000	0.0000
C	175.000	0.00	0.0	0.0	0.0	0.0007	0.0120	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.0	0.1003	1.8058	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.0	0.3804	6.8496	0.0000	0.0000
C	166.500	0.00	0.0	0.0	0.0	0.1182	2.1932	0.0000	0.0000
C	165.000	0.00	0.0	0.0	0.0	0.0006	0.0120	0.0000	0.0000
C	155.000	0.00	0.0	0.0	0.0	0.0006	0.0120	0.0000	0.0000
C	154.000	0.00	0.0	0.0	0.0	0.0759	1.6455	0.0000	0.0000
C	154.000	0.00	0.0	0.0	0.0	0.1579	3.4248	0.0000	0.0000
C	145.000	0.00	0.0	0.0	0.0	0.0005	0.0120	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.0	0.0279	0.7427	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.0	0.0965	2.5686	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0	0.0004	0.0120	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0	0.0004	0.0120	0.0000	0.0000
C	121.000	0.00	0.0	0.0	0.0	0.1681	5.9046	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0	0.0003	0.0120	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0	0.0003	0.0120	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0	0.0002	0.0120	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0	0.0002	0.0120	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0	0.0001	0.0120	0.0000	0.0000
C	73.000	0.00	0.0	0.0	0.0	0.0965	9.3112	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0	0.0001	0.0120	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0	0.0001	0.0120	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0	0.0000	0.0120	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0	0.0000	0.0120	0.0000	0.0000
C	26.620	0.00	0.0	0.0	0.0	0.0160	11.5749	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0	0.0000	0.0120	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0	0.0000	0.0120	0.0000	0.0000
D	189.000	0.00	180.0	180.0	0.0	0.0000	0.0000	0.0000	0.0000
D	0.000	0.00	180.0	180.0	0.0	0.0000	0.0000	0.0000	0.0000

(USA 222-H) - Monopole Spatial Analysis

(c) 2017

Guy mast Inc.

Tel: (416) 736-7453

Fax: (416) 736-4372

Web: www.guymast.com

Processed under license at:

Sabre Towers and Poles

on: 31 may 2024 at: 16:25:50

190' Monopole / Swanson, NC

MAXIMUM POLE DEFORMATIONS CALCULATED(w.r.t. wind direction)

MAST ELEV ft	DEFLECTIONS (ft)			ROTATIONS (deg)		
	HORIZONTAL ALONG	ACROSS	DOWN	TILT ALONG	ACROSS	TWIST
189.0	20.09C	-0.06C	3.19A	13.34C	0.03I	-0.01E
183.1	18.79C	-0.06C	2.89A	13.34C	0.03I	-0.01E
177.2	17.50C	-0.06C	2.59A	13.19C	0.03I	-0.01E
171.3	16.22C	-0.05C	2.30A	12.87C	0.03I	-0.01E
165.4	14.98C	-0.05C	2.02A	12.44C	0.03I	0.01Q
159.5	13.78C	-0.05C	1.77A	11.88C	0.03I	0.01X
153.6	12.64C	-0.05C	1.54A	11.24C	0.03I	0.01X
147.7	11.56C	-0.04C	1.33A	10.53C	-0.03C	0.01X
144.0	10.90C	-0.04C	1.21A	10.21C	-0.03C	0.01X
137.7	9.84C	-0.04C	1.03A	9.61C	-0.03C	0.01X
131.4	8.84C	-0.03C	0.86A	9.01C	-0.03C	0.01X
125.0	7.90C	-0.03C	0.72A	8.39C	-0.03C	0.01X
118.7	7.02C	-0.03C	0.60A	7.79C	-0.03C	0.01X
112.4	6.21C	-0.03C	0.49A	7.19C	-0.03C	0.00X
106.1	5.46C	-0.02C	0.40C	6.61C	-0.02C	0.00X
99.7	4.77C	-0.02C	0.32C	6.05C	-0.02C	0.00X
94.2	4.21C	-0.02C	0.27C	5.64C	-0.02C	0.00X
88.4	3.67C	-0.02C	0.21C	5.19C	-0.02C	0.00X
82.5	3.16C	-0.01C	0.17C	4.76C	-0.02C	0.00X
76.7	2.70C	-0.01C	0.13C	4.34C	-0.02C	0.00X
70.8	2.28C	-0.01C	0.10A	3.94C	-0.02C	0.00X
65.0	1.90C	-0.01C	0.08A	3.56C	-0.02C	0.00X
59.1	1.55C	-0.01C	0.06A	3.19C	-0.01C	0.00X
53.2	1.25C	-0.01C	0.04A	2.83C	-0.01C	0.00X
46.2	0.93C	0.00C	0.03A	2.42C	-0.01C	0.00X
40.5	0.70C	0.00I	0.02A	2.07C	-0.01C	0.00X
34.7	0.51C	0.00I	0.01A	1.74C	-0.01C	0.00X
28.9	0.35C	0.00I	0.01A	1.43C	0.01I	0.00X
23.1	0.22C	0.00I	0.00A	1.12C	0.01I	0.00X
17.3	0.12C	0.00I	0.00A	0.82C	0.00I	0.00X
11.6	0.05C	0.00I	0.00A	0.54C	0.00I	0.00X
5.8	0.01C	0.00I	0.00AA	0.27C	0.00I	0.00X

0.0	0.00A	0.00A	0.00A	0.00A	0.00A	0.00A
.....						
MAXIMUM POLE FORCES CALCULATED(w.r.t. to wind direction)						
=====						
MAST ELEV ft	TOTAL AXIAL kip	SHEAR.w.r.t. ALONG kip	WIND.DIR ACROSS kip	MOMENT.w.r.t. ALONG ft-kip	WIND.DIR ACROSS ft-kip	TORSION ft-kip
189.0	-0.03 D	0.02 I	-0.01 B	-0.04 R	-0.03 B	0.01 B
183.1	39.14 AF	10.64 I	-0.01 B	-13.08 A	0.04 B	-0.01 E
	39.14 AA	10.67 P	-0.03 X	-13.09 C	0.06 B	0.02 F
177.2	39.75 AA	10.92 P	-0.03 X	-96.16 D	0.19 X	-0.08 E
	39.75 AA	10.93 P	-0.03 E	-96.16 D	0.20 X	-0.08 E
171.3	40.42 AA	11.22 P	-0.03 E	-181.07 D	0.36 X	-0.17 E
	40.42 AD	11.24 L	0.07 W	-181.14 D	0.35 X	-0.17 E
165.4	67.38 AD	18.79 L	0.07 W	-301.35 D	-0.62 W	-0.23 E
	67.38 AD	18.80 U	0.08 W	-301.44 D	-0.60 W	-0.22 E
159.5	68.13 AD	19.12 U	0.08 W	-445.03 D	-1.05 W	-0.33 E
	68.13 AD	19.16 D	-0.05 T	-445.04 D	-1.07 W	-0.34 E
153.6	83.04 AD	24.25 D	-0.05 T	-592.25 D	-1.31 W	-0.47 E
	83.04 AD	24.30 U	-0.06 U	-592.31 D	-1.31 W	-0.48 E
147.7	83.85 AD	24.63 U	-0.06 U	-772.54 D	-1.63 W	-0.65 E
	83.85 AB	24.73 C	0.21 X	-772.74 D	-1.64 W	-0.64 E
144.0	84.89 AB	24.98 C	0.21 X	-888.02 D	-1.67 W	-0.82 E
	84.90 AA	24.99 L	-0.17 B	-887.92 D	-1.67 I	-0.82 E
137.7	95.96 AA	27.71 L	-0.17 B	-1088.71 L	-2.55 W	-0.80 E
	95.96 AA	27.72 I	-0.16 F	-1088.65 L	-2.56 W	-0.77 E
131.4	97.28 AA	28.16 I	-0.16 F	-1305.30 L	-2.67 W	-0.90 K
	97.28 AA	28.12 I	0.16 R	-1305.33 L	-2.67 W	-0.90 K
125.0	98.67 AA	28.54 I	0.16 R	-1523.24 D	3.50 B	-1.06 K
	98.69 AA	28.61 I	0.17 X	-1523.33 D	3.43 B	-1.07 K
118.7	100.13 AA	29.05 I	0.17 X	-1742.81 D	3.96 B	1.22 X
	100.13 AA	28.98 Q	-0.18 C	-1742.83 D	3.91 B	1.25 X
112.4	101.65 AA	29.46 Q	-0.18 C	-1962.82 D	4.46 B	1.42 X
	101.66 AA	29.50 Q	-0.20 C	-1962.91 D	4.56 B	1.41 X
106.1	103.20 AA	29.96 Q	-0.20 C	-2183.82 D	5.22 B	1.57 X
	103.20 AA	29.92 C	-0.17 C	-2184.01 D	5.34 B	1.58 X
99.7	104.83 AA	30.42 C	-0.17 C	-2406.45 C	6.35 B	1.67 X
	104.83 AA	30.45 C	-0.32 B	-2406.35 C	6.37 B	1.67 X
94.2	107.48 AA	30.91 C	-0.32 B	-2602.27 C	8.22 B	1.77 X
	107.48 AA	30.96 P	-0.21 C	-2602.29 C	8.26 B	1.79 X
88.4	109.28 AA	31.43 P	-0.21 C	-2812.59 C	9.57 B	1.88 X
	109.28 AA	31.46 X	-0.34 C	-2812.42 C	9.53 B	1.89 X

82.5	111.16 AA	31.97 X	-0.34 C	-3024.37 C	10.62 B	2.02 X
	111.16 AA	32.05 C	-0.36 C	-3024.27 C	10.66 B	2.02 X
76.7	113.07 AA	32.54 C	-0.36 C	-3238.56 C	11.78 C	2.08 X
	113.07 AA	32.64 X	0.39 I	-3238.52 C	11.91 C	2.09 X
70.8	115.05 AA	33.16 X	0.39 I	-3453.91 C	13.52 C	2.12 X
	115.05 AA	33.15 X	-0.27 U	-3453.89 C	13.41 C	2.13 X
65.0	117.09 AA	33.67 X	-0.27 U	-3670.18 C	15.00 C	2.24 X
	117.09 AA	33.65 X	-0.29 U	-3670.25 C	14.94 C	2.23 X
59.1	119.15 AA	34.16 X	-0.29 U	-3888.47 C	16.47 C	2.34 X
	119.15 AA	34.18 X	-0.27 U	-3888.48 C	16.47 C	2.34 X
53.2	121.30 AA	34.72 X	-0.27 U	-4108.09 C	17.51 C	2.44 X
	121.30 AA	34.85 X	-0.34 U	-4108.04 C	17.52 C	2.44 X
46.2	125.84 AA	35.47 X	-0.34 U	-4373.02 C	18.96 C	2.54 X
	125.84 AA	35.48 X	-0.32 U	-4373.06 C	18.98 C	2.54 X
40.5	128.09 AA	36.02 X	-0.32 U	-4593.46 C	20.09 C	2.60 X
	128.09 AA	36.01 X	-0.28 U	-4593.57 C	20.13 C	2.60 X
34.7	130.39 AA	36.54 X	-0.28 U	-4814.85 C	21.11 C	2.66 X
	130.39 AA	36.56 X	-0.31 U	-4814.96 C	21.12 C	2.66 X
28.9	132.70 AA	37.06 X	-0.31 U	-5037.38 C	22.25 C	2.71 X
	132.70 AA	36.97 X	0.29 I	-5037.38 C	22.24 C	2.71 X
23.1	135.08 AA	37.48 X	0.29 I	-5261.01 C	23.26 C	2.75 X
	135.08 AA	37.49 X	0.28 I	-5260.99 C	23.26 C	2.75 X
17.3	137.48 AA	37.98 X	0.28 I	-5485.49 C	24.44 C	2.78 X
	137.48 AA	37.98 X	0.30 E	-5485.49 C	24.43 C	2.77 X
11.6	139.94 AA	38.48 X	0.30 E	-5710.77 C	-26.00 I	2.79 X
	139.94 AA	38.48 X	0.29 E	-5710.79 C	-26.00 I	2.79 X
5.8	142.43 AA	38.95 X	0.29 E	-5936.84 C	-27.61 I	2.80 X
	142.43 AA	38.95 X	0.30 E	-5936.84 C	-27.61 I	2.80 X
	144.92 AA	39.43 X	0.30 E	-6163.56 C	-29.22 I	2.81 X

base	144.92 AA	-39.43 X	-0.30 E	6163.56 C	29.22 I	-2.81 X
reaction						

COMPLIANCE WITH 4.8.2 & 4.5.4
=====

ELEV ft	AXIAL	BENDING	SHEAR + TORSIONAL	TOTAL	SATISFIED	D/t (w/t)	MAX ALLOWED
189.00	0.00D	0.00R	0.00I	0.00I	YES	9.87A	45.2
183.11	0.04AF	0.04A	0.02I	0.06A	YES	10.92A	45.2
	0.04AA	0.04C	0.02P	0.06C	YES	10.92A	45.2
177.21	0.04AA	0.23D	0.02P	0.25D	YES	11.96A	45.2
	0.04AA	0.23D	0.02P	0.25D	YES	11.96A	45.2

171.32	0.03AA	0.38D	0.02P	0.39D	YES	13.00A	45.2
	0.03AD	0.38D	0.02L	0.39D	YES	13.00A	45.2
165.43	0.05AD	0.54D	0.03L	0.57D	YES	14.04A	45.2
	0.05AD	0.54D	0.03U	0.57D	YES	14.04A	45.2
159.54	0.05AD	0.70D	0.03U	0.73D	YES	15.08A	45.2
	0.05AD	0.70D	0.03D	0.73D	YES	15.08A	45.2
153.64	0.06AD	0.83D	0.03D	0.85D	YES	16.12A	45.2
	0.06AD	0.83D	0.03U	0.85D	YES	16.12A	45.2
147.75	0.06AD	0.97D	0.03U	1.00D	YES	17.16A	45.2
	0.04AB	0.65D	0.02C	0.66D	YES	11.32A	45.2
144.00	0.04AB	0.69D	0.02C	0.71D	YES	11.77A	45.2
	0.04AA	0.72D	0.02L	0.74D	YES	11.53A	45.2
137.68	0.04AA	0.78L	0.02L	0.80L	YES	12.28A	45.2
	0.04AA	0.78L	0.02I	0.80L	YES	12.28A	45.2
131.36	0.04AA	0.84L	0.02I	0.86D	YES	13.02A	45.2
	0.04AA	0.84L	0.02I	0.86D	YES	13.02A	45.2
125.04	0.04AA	0.88D	0.02I	0.90D	YES	13.76A	45.2
	0.04AA	0.88D	0.02I	0.90D	YES	13.76A	45.2
118.71	0.03AA	0.91D	0.02I	0.93D	YES	14.51A	45.2
	0.03AA	0.91D	0.02Q	0.93D	YES	14.51A	45.2
112.39	0.03AA	0.93D	0.02Q	0.95D	YES	15.25A	45.2
	0.03AA	0.93D	0.02Q	0.95D	YES	15.25A	45.2
106.07	0.03AA	0.95D	0.02Q	0.96D	YES	16.00A	45.2
	0.03AA	0.95D	0.02C	0.96D	YES	16.00A	45.2
99.75	0.03AA	0.97C	0.02C	0.98C	YES	16.74A	45.2
	0.03AA	0.82C	0.02C	0.84C	YES	14.30A	45.2
94.25	0.03AA	0.83C	0.02C	0.84C	YES	14.86A	45.2
	0.03AA	0.86C	0.02P	0.88C	YES	14.55A	45.2
88.39	0.03AA	0.86C	0.02P	0.88C	YES	15.15A	45.2
	0.03AA	0.86C	0.02X	0.88C	YES	15.15A	45.2
82.54	0.03AA	0.86C	0.02X	0.88C	YES	15.74A	45.2
	0.03AA	0.86C	0.02X	0.88C	YES	15.74A	45.2
76.68	0.03AA	0.86C	0.02X	0.88C	YES	16.33A	45.2
	0.03AA	0.86C	0.02X	0.88C	YES	16.33A	45.2
70.82	0.03AA	0.87C	0.01X	0.88C	YES	16.92A	45.2
	0.03AA	0.87C	0.01X	0.88C	YES	16.92A	45.2
64.96	0.03AA	0.87C	0.01X	0.88C	YES	17.51A	45.2
	0.03AA	0.87C	0.01X	0.88C	YES	17.51A	45.2
59.11	0.03AA	0.87C	0.01X	0.88C	YES	18.10A	45.2
	0.03AA	0.87C	0.01X	0.88C	YES	18.10A	45.2

53.25	0.03AA	0.87C	0.01X	0.89C	YES	18.69A	45.2
	0.03AA	0.87C	0.01X	0.89C	YES	18.69A	45.2
46.25	0.03AA	0.87C	0.01X	0.89C	YES	19.40A	45.2
	0.03AA	0.90C	0.01X	0.91C	YES	19.05A	45.2
40.47	0.03AA	0.90C	0.01X	0.91C	YES	19.63A	45.2
	0.03AA	0.90C	0.01X	0.91C	YES	19.63A	45.2
34.69	0.03AA	0.90C	0.01X	0.91C	YES	20.21A	45.2
	0.03AA	0.90C	0.01X	0.91C	YES	20.21A	45.2
28.91	0.03AA	0.90C	0.01X	0.91C	YES	20.80A	45.2
	0.03AA	0.90C	0.01X	0.91C	YES	20.80A	45.2
23.12	0.03AA	0.90C	0.01X	0.91C	YES	21.38A	45.2
	0.03AA	0.90C	0.01X	0.91C	YES	21.38A	45.2
17.34	0.03AA	0.89C	0.01X	0.91C	YES	21.97A	45.2
	0.03AA	0.89C	0.01X	0.91C	YES	21.97A	45.2
11.56	0.03AA	0.89C	0.01X	0.91C	YES	22.55A	45.2
	0.03AA	0.89C	0.01X	0.91C	YES	22.55A	45.2
5.78	0.03AA	0.89C	0.01X	0.91C	YES	23.13A	45.2
	0.03AA	0.89C	0.01X	0.91C	YES	23.13A	45.2
0.00	0.03AA	0.89C	0.01X	0.90C	YES	23.72A	45.2

MAXIMUM LOADS ONTO FOUNDATION (w.r.t. wind direction)

DOWN	SHEAR.w.r.t.WIND.DIR	MOMENT.w.r.t.WIND.DIR	TORSION
kip	ALONG	ALONG	
	ACROSS	ACROSS	
kip	ft-kip	ft-kip	ft-kip
144.92	39.43	0.30	-6163.56
AA	X	E	C
			I
			X

=====

=====

(USA 222-H) - Monopole Spatial Analysis (c)2017 Guymast Inc.

Tel: (416) 736-7453 Fax: (416) 736-4372 Web: www.guymast.com

Processed under license at:

Sabre Towers and Poles on: 31 may 2024 at: 16:26:09

=====

190' Monopole / Swanson, NC

 ***** Service Load Condition *****

* Only 1 condition(s) shown in full
 * Some concentrated wind loads may have been derived from full-scale wind tunnel testing

LOADING CONDITION A =====

60 mph wind with no ice. Wind Azimuth: 0° (1.0 D + 1.0 Wo)

LOADS ON POLE
=====

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD..AT AZI	LOAD AZIFORCES.....	MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	184.500	0.00	0.0	0.0	0.0079	0.0126	0.0000	0.0000
C	184.000	0.00	0.0	0.0	0.0000	2.2963	0.0000	0.0000
C	184.000	0.00	0.0	0.0	2.8082	12.0000	0.0000	0.0000
C	175.000	0.00	0.0	0.0	0.0087	0.0140	0.0000	0.0000
C	169.000	0.00	0.0	0.0	0.0000	2.1091	0.0000	0.0000
C	169.000	0.00	0.0	0.0	1.9708	8.0000	0.0000	0.0000
C	165.000	0.00	0.0	0.0	0.0086	0.0140	0.0000	0.0000
C	155.000	0.00	0.0	0.0	0.0085	0.0140	0.0000	0.0000
C	154.000	0.00	0.0	0.0	0.0000	1.9219	0.0000	0.0000
C	154.000	0.00	0.0	0.0	1.2885	4.0000	0.0000	0.0000
C	145.000	0.00	0.0	0.0	0.0083	0.0140	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.0000	0.8674	0.0000	0.0000
C	139.000	0.00	0.0	0.0	0.6311	3.0000	0.0000	0.0000
C	135.000	0.00	0.0	0.0	0.0082	0.0140	0.0000	0.0000
C	125.000	0.00	0.0	0.0	0.0081	0.0140	0.0000	0.0000
C	115.000	0.00	0.0	0.0	0.0079	0.0140	0.0000	0.0000
C	105.000	0.00	0.0	0.0	0.0078	0.0140	0.0000	0.0000
C	95.000	0.00	0.0	0.0	0.0076	0.0140	0.0000	0.0000
C	85.000	0.00	0.0	0.0	0.0075	0.0140	0.0000	0.0000
C	75.000	0.00	0.0	0.0	0.0073	0.0140	0.0000	0.0000
C	65.000	0.00	0.0	0.0	0.0071	0.0140	0.0000	0.0000
C	55.000	0.00	0.0	0.0	0.0068	0.0140	0.0000	0.0000
C	45.000	0.00	0.0	0.0	0.0065	0.0140	0.0000	0.0000
C	35.000	0.00	0.0	0.0	0.0062	0.0140	0.0000	0.0000
C	25.000	0.00	0.0	0.0	0.0058	0.0140	0.0000	0.0000
C	15.000	0.00	0.0	0.0	0.0052	0.0140	0.0000	0.0000
D	189.000	0.00	180.0	0.0	0.0106	0.0440	0.0000	0.0000
D	147.750	0.00	180.0	0.0	0.0156	0.0676	0.0000	0.0000
D	147.750	0.00	180.0	0.0	0.0162	0.1752	0.0000	0.0000
D	144.000	0.00	180.0	0.0	0.0162	0.1752	0.0000	0.0000
D	144.000	0.00	180.0	0.0	0.0166	0.1094	0.0000	0.0000
D	99.750	0.00	180.0	0.0	0.0210	0.1474	0.0000	0.0000
D	99.750	0.00	180.0	0.0	0.0215	0.3290	0.0000	0.0000
D	94.250	0.00	180.0	0.0	0.0215	0.3290	0.0000	0.0000
D	94.250	0.00	180.0	0.0	0.0217	0.1823	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0241	0.2235	0.0000	0.0000
D	53.250	0.00	180.0	0.0	0.0241	0.4584	0.0000	0.0000
D	46.250	0.00	180.0	0.0	0.0241	0.4584	0.0000	0.0000
D	46.250	0.00	180.0	0.0	0.0242	0.2349	0.0000	0.0000
D	11.562	0.00	180.0	0.0	0.0222	0.2688	0.0000	0.0000
D	11.562	0.00	180.0	0.0	0.0223	0.2756	0.0000	0.0000
D	0.000	0.00	180.0	0.0	0.0228	0.2824	0.0000	0.0000

=====

MAXIMUM POLE DEFORMATIONS CALCULATED(w.r.t. wind direction)

=====

MAST ELEV ft	.....DEFLECTIONS (ft).....			.....ROTATIONS (deg).....		
	HORIZONTAL ALONG	ACROSS	DOWN	TILT ALONG	ACROSS	TWIST
189.0	5.56E	0.02I	0.25E	3.62E	0.01I	0.00B
183.1	5.19E	0.02I	0.22E	3.62E	0.01I	0.00B
177.2	4.82E	0.02I	0.20E	3.58E	0.01I	0.00B
171.3	4.46E	0.02I	0.18E	3.49E	0.01I	0.00B
165.4	4.11E	0.02I	0.16E	3.37E	0.01I	0.00B
159.5	3.77E	0.02I	0.14E	3.21E	0.01I	0.00B
153.6	3.45E	0.02I	0.12E	3.04E	0.01I	0.00B
147.7	3.15E	0.02I	0.10E	2.84E	0.01I	0.00B
144.0	2.97E	0.01I	0.09E	2.75E	0.01I	0.00B
137.7	2.67E	0.01I	0.08E	2.59E	0.01I	0.00B

131.4	2.40E	0.01I	0.07E	2.43E	0.01I	0.00B
125.0	2.14E	0.01I	0.06E	2.26E	0.01I	0.00B
118.7	1.90E	0.01I	0.05E	2.10E	0.01I	0.00B
112.4	1.68E	0.01I	0.04E	1.93E	0.01I	0.00B
106.1	1.47E	0.01I	0.03E	1.78E	0.01I	0.00B
99.7	1.29E	0.01I	0.03E	1.62E	0.01I	0.00B
94.2	1.13E	0.01I	0.02E	1.51E	0.01I	0.00B
88.4	0.99E	0.01I	0.02E	1.39E	0.01I	0.00B
82.5	0.85E	0.00I	0.01E	1.28E	0.01I	0.00B
76.7	0.73E	0.00I	0.01E	1.16E	0.01I	0.00B
70.8	0.61E	0.00I	0.01E	1.06E	0.01I	0.00B
65.0	0.51E	0.00I	0.01E	0.95E	0.01I	0.00B
59.1	0.42E	0.00I	0.01E	0.85E	0.00I	0.00B
53.2	0.33E	0.00I	0.00E	0.76E	0.00I	0.00B
46.2	0.25E	0.00I	0.00E	0.65E	0.00I	0.00B
40.5	0.19E	0.00I	0.00E	0.56E	0.00I	0.00B
34.7	0.14E	0.00I	0.00E	0.47E	0.00I	0.00B
28.9	0.09E	0.00I	0.00E	0.38E	0.00I	0.00B
23.1	0.06E	0.00I	0.00E	0.30E	0.00I	0.00B
17.3	0.03E	0.00I	0.00E	0.22E	0.00I	0.00B
11.6	0.01E	0.00I	0.00D	0.14E	0.00I	0.00B
5.8	0.00E	0.00I	0.00D	0.07E	0.00I	0.00B
0.0	0.00A	0.00A	0.00A	0.00A	0.00A	0.00A

MAXIMUM POLE FORCES CALCULATED(w.r.t. to wind direction)
=====

MAST ELEV ft	TOTAL AXIAL kip	SHEAR.w.r.t.WIND.DIR ALONG kip	WIND.DIR ACROSS kip	MOMENT.w.r.t.WIND.DIR ALONG ft-kip	WIND.DIR ACROSS ft-kip	TORSION ft-kip
189.0	0.00 D	0.00 L	0.00 L	-0.02 L	0.01 L	0.00 L
183.1	14.58 D	2.88 C	0.00 L	-3.56 D	-0.01 L	0.00 L
177.2	14.59 D	2.89 C	-0.01 F	-3.56 D	0.01 K	0.00 I
171.3	14.87 D	2.95 C	-0.01 F	-26.09 D	-0.04 I	0.00 B
165.4	14.87 D	2.96 L	-0.01 F	-26.10 D	-0.04 I	0.00 K
159.5	15.20 D	3.04 L	-0.01 F	-49.10 L	0.07 F	-0.01 C
153.6	15.19 I	3.05 L	-0.01 B	-49.10 L	0.07 F	-0.01 C
147.7	25.63 I	5.10 L	-0.01 B	-81.75 L	0.12 F	-0.01 B
141.8	25.63 I	5.09 L	0.01 K	-81.77 L	-0.12 I	-0.01 B
135.9	25.99 I	5.18 L	0.01 K	-120.65 L	0.14 F	-0.02 B
130.0	25.99 F	5.19 L	0.01 K	-120.66 L	0.15 F	-0.02 B
124.1	32.30 F	6.58 L	0.01 K	-160.38 L	-0.16 I	-0.03 B

	32.30 D	6.58 L	-0.02 B	-160.37 L	-0.17 I	-0.02 B
	32.68 D	6.67 L	-0.02 B	-209.05 L	-0.25 I	-0.03 B
147.7	32.68 E	6.69 L	0.04 I	-209.06 L	0.21 L	-0.03 B
	33.35 E	6.76 L	0.04 I	-240.11 L	-0.38 I	-0.04 B
144.0	33.38 D	6.75 D	0.05 I	-240.08 L	-0.33 I	-0.04 B
	37.95 D	7.49 D	0.05 I	-293.81 L	-0.72 I	-0.06 B
137.7	37.96 D	7.46 D	-0.04 K	-293.82 L	-0.69 I	-0.06 B
	38.72 D	7.58 D	-0.04 K	-351.80 L	-0.91 I	-0.07 B
131.4	38.71 D	7.63 E	0.06 C	-351.80 L	-0.90 I	-0.07 B
	39.49 D	7.74 E	0.06 C	-409.98 L	-1.11 I	-0.08 B
125.0	39.51 D	7.78 E	-0.06 K	-409.92 L	-1.13 I	-0.08 B
	40.32 D	7.90 E	-0.06 K	-468.42 E	-1.40 I	-0.09 B
118.7	40.32 D	7.87 E	0.05 C	-468.44 L	-1.41 I	-0.09 B
	41.18 D	8.00 E	0.05 C	-527.49 E	-1.71 I	-0.10 B
112.4	41.18 D	8.01 E	0.06 C	-527.51 E	-1.68 I	-0.10 B
	42.06 D	8.14 E	0.06 C	-586.99 E	-2.06 I	-0.10 B
106.1	42.06 D	8.15 E	-0.07 K	-586.99 E	-2.06 I	-0.10 B
	42.99 D	8.29 E	-0.07 K	-646.79 E	-2.47 I	-0.11 B
99.7	42.99 D	8.28 A	0.06 I	-646.80 E	-2.47 I	-0.11 B
	44.81 D	8.41 A	0.06 I	-699.14 E	-2.86 I	-0.11 B
94.2	44.81 D	8.40 E	-0.06 F	-699.14 E	-2.88 I	-0.11 B
	45.90 D	8.53 E	-0.06 F	-755.40 E	-3.16 I	-0.12 B
88.4	45.90 D	8.53 A	0.06 I	-755.45 E	-3.20 I	-0.12 B
	47.03 D	8.66 A	0.06 I	-811.98 E	-3.56 I	-0.13 B
82.5	47.03 D	8.70 E	0.08 I	-811.94 E	-3.58 I	-0.13 B
	48.19 D	8.83 E	0.08 I	-869.19 E	-4.07 I	-0.13 B
76.7	48.19 D	8.80 E	-0.10 L	-869.14 E	-4.08 I	-0.13 B
	49.39 D	8.94 E	-0.10 L	-926.62 E	-4.43 I	-0.14 B
70.8	49.39 D	8.89 L	-0.09 L	-926.66 E	-4.43 I	-0.14 B
	50.63 D	9.03 L	-0.09 L	-984.18 E	-4.83 I	-0.14 B
65.0	50.63 D	9.04 E	-0.08 L	-984.22 E	-4.84 I	-0.14 B
	51.88 D	9.18 E	-0.08 L	-1042.21 E	-5.21 I	-0.15 B
59.1	51.88 D	9.18 E	-0.09 L	-1042.24 E	-5.21 I	-0.15 B
	53.19 D	9.33 E	-0.09 L	-1100.73 E	-5.58 I	-0.15 B
53.2	53.19 D	9.34 E	-0.08 L	-1100.74 E	-5.59 I	-0.15 B
	56.40 D	9.51 E	-0.08 L	-1171.36 E	-6.03 I	-0.16 B
46.2	56.40 D	9.53 E	-0.07 L	-1171.35 E	-6.04 I	-0.16 B
	57.78 D	9.68 E	-0.07 L	-1230.33 E	-6.41 I	-0.16 B
40.5	57.78 D	9.65 E	0.07 I	-1230.31 E	-6.41 I	-0.16 B
	59.21 D	9.80 E	0.07 I	-1289.55 E	-6.85 I	-0.17 B
34.7	59.21 D	9.79 E	0.08 I	-1289.56 E	-6.84 I	-0.17 B

28.9	60.65 D	9.93 E	0.08 I	-1349.11 E	-7.31 I	-0.17 B
	60.65 D	9.91 E	0.10 I	-1349.12 E	-7.32 I	-0.17 B
23.1	62.13 D	10.05 E	0.10 I	-1408.91 E	-7.88 I	-0.17 B
	62.13 D	10.06 E	0.09 I	-1408.92 E	-7.89 I	-0.17 B
17.3	63.64 D	10.19 E	0.09 I	-1469.11 E	-8.39 I	-0.17 B
	63.64 D	10.20 E	0.09 I	-1469.11 E	-8.39 I	-0.17 B
11.6	65.19 D	10.33 E	0.09 I	-1529.64 E	-8.93 I	-0.18 B
	65.19 D	10.33 E	0.09 I	-1529.63 E	-8.93 I	-0.18 B
5.8	66.79 D	10.46 E	0.09 I	-1590.44 E	-9.46 I	-0.18 B
	66.79 D	10.46 E	0.10 I	-1590.43 E	-9.46 I	-0.18 B
	68.41 D	10.59 E	0.10 I	-1651.52 E	-10.02 I	-0.18 B
<hr/>						
base reaction	68.41 D	-10.59 E	-0.10 I	1651.52 E	10.02 I	0.18 B
<hr/>						

COMPLIANCE WITH 4.8.2 & 4.5.4

=====

ELEV	AXIAL	BENDING	SHEAR +	TOTAL	SATISFIED	D/t (w/t)	MAX
ft			TORSIONAL				ALLOWED
189.00	0.00D	0.00L	0.00L	0.00L	YES	9.87A	45.2
183.11	0.01D	0.01D	0.01C	0.02D	YES	10.92A	45.2
	0.01D	0.01D	0.01C	0.02D	YES	10.92A	45.2
177.21	0.01D	0.06D	0.01C	0.08D	YES	11.96A	45.2
	0.01D	0.06D	0.01L	0.08D	YES	11.96A	45.2
171.32	0.01D	0.10L	0.01L	0.12L	YES	13.00A	45.2
	0.01I	0.10L	0.01L	0.12L	YES	13.00A	45.2
165.43	0.02I	0.15L	0.01L	0.17L	YES	14.04A	45.2
	0.02I	0.15L	0.01L	0.17L	YES	14.04A	45.2
159.54	0.02I	0.19L	0.01L	0.21L	YES	15.08A	45.2
	0.02F	0.19L	0.01L	0.21L	YES	15.08A	45.2
153.64	0.02F	0.22L	0.01L	0.25L	YES	16.12A	45.2
	0.02D	0.22L	0.01L	0.25L	YES	16.12A	45.2
147.75	0.02D	0.26L	0.01L	0.28L	YES	17.16A	45.2
	0.01E	0.18L	0.01L	0.19L	YES	11.32A	45.2
144.00	0.01E	0.19L	0.01L	0.20L	YES	11.77A	45.2
	0.01D	0.19L	0.01D	0.21L	YES	11.53A	45.2
137.68	0.02D	0.21L	0.01D	0.23L	YES	12.28A	45.2
	0.02D	0.21L	0.01D	0.23L	YES	12.28A	45.2
131.36	0.01D	0.23L	0.01D	0.24L	YES	13.02A	45.2
	0.01D	0.23L	0.01E	0.24L	YES	13.02A	45.2
125.04	0.01D	0.24L	0.01E	0.25L	YES	13.76A	45.2
	0.01D	0.24L	0.01E	0.25L	YES	13.76A	45.2

118.71	0.01D	0.24E	0.01E	0.26E	YES	14.51A	45.2
	0.01D	0.24L	0.01E	0.26L	YES	14.51A	45.2
112.39	0.01D	0.25E	0.01E	0.26E	YES	15.25A	45.2
	0.01D	0.25E	0.01E	0.26E	YES	15.25A	45.2
106.07	0.01D	0.25E	0.01E	0.27E	YES	16.00A	45.2
	0.01D	0.25E	0.01E	0.27E	YES	16.00A	45.2
99.75	0.01D	0.26E	0.01E	0.27E	YES	16.74A	45.2
	0.01D	0.22E	0.00A	0.23E	YES	14.30A	45.2
94.25	0.01D	0.22E	0.00A	0.23E	YES	14.86A	45.2
	0.01D	0.23E	0.00E	0.24E	YES	14.55A	45.2
88.39	0.01D	0.23E	0.00E	0.24E	YES	15.15A	45.2
	0.01D	0.23E	0.00A	0.24E	YES	15.15A	45.2
82.54	0.01D	0.23E	0.00A	0.24E	YES	15.74A	45.2
	0.01D	0.23E	0.00E	0.24E	YES	15.74A	45.2
76.68	0.01D	0.23E	0.00E	0.24E	YES	16.33A	45.2
	0.01D	0.23E	0.00E	0.24E	YES	16.33A	45.2
70.82	0.01D	0.23E	0.00E	0.24E	YES	16.92A	45.2
	0.01D	0.23E	0.00L	0.24E	YES	16.92A	45.2
64.96	0.01D	0.23E	0.00L	0.24E	YES	17.51A	45.2
	0.01D	0.23E	0.00E	0.24E	YES	17.51A	45.2
59.11	0.01D	0.23E	0.00E	0.24E	YES	18.10A	45.2
	0.01D	0.23E	0.00L	0.24E	YES	18.10A	45.2
53.25	0.01D	0.23E	0.00L	0.24E	YES	18.69A	45.2
	0.01D	0.23E	0.00E	0.24E	YES	18.69A	45.2
46.25	0.01D	0.23E	0.00E	0.25E	YES	19.40A	45.2
	0.01D	0.24E	0.00E	0.25E	YES	19.05A	45.2
40.47	0.01D	0.24E	0.00E	0.25E	YES	19.63A	45.2
	0.01D	0.24E	0.00E	0.25E	YES	19.63A	45.2
34.69	0.01D	0.24E	0.00E	0.25E	YES	20.21A	45.2
	0.01D	0.24E	0.00E	0.25E	YES	20.21A	45.2
28.91	0.01D	0.24E	0.00E	0.25E	YES	20.80A	45.2
	0.01D	0.24E	0.00E	0.25E	YES	20.80A	45.2
23.12	0.01D	0.24E	0.00E	0.25E	YES	21.38A	45.2
	0.01D	0.24E	0.00E	0.25E	YES	21.38A	45.2
17.34	0.01D	0.24E	0.00E	0.25E	YES	21.97A	45.2
	0.01D	0.24E	0.00E	0.25E	YES	21.97A	45.2
11.56	0.01D	0.24E	0.00E	0.25E	YES	22.55A	45.2
	0.01D	0.24E	0.00E	0.25E	YES	22.55A	45.2
5.78	0.01D	0.24E	0.00E	0.25E	YES	23.13A	45.2
	0.01D	0.24E	0.00E	0.25E	YES	23.13A	45.2

0.00	0.01D	0.24E	0.00E	0.25E	YES	23.72A	45.2
------	-------	-------	-------	-------	-----	--------	------

MAXIMUM LOADS ONTO FOUNDATION (w.r.t. wind direction)

DOWN	SHEAR.w.r.t.WIND.DIR		MOMENT.w.r.t.WIND.DIR		TORSION
	ALONG	ACROSS	ALONG	ACROSS	
kip	kip	kip	ft-kip	ft-kip	ft-kip
68.41	10.59	0.10	-1651.52	-10.02	-0.18
D	E	I	E	I	B

Seismic Load Effects
Equivalent Lateral Force Procedure
ANSI/TIA-222-H

Parameters	Description	h _i (ft.)	w _i (kips)	W _n (kips)	Vertical Distribution of Seismic Forces				0.9 D - 1.0 E _v (kips)
					$\frac{w_i h_i^k}{\sum w_i h_i^k}$	$\frac{F_x \text{ or } E_h}{\sum}$ (kips)	$\frac{E_v}{\sum}$ (kips)	$\frac{1.2 D + 1.0 E_v}{\sum}$ (kips)	
Risk Category R	II	184.50	0.0126	0.0000	428.9072	0.0007	0.0006	0.0157	0.0107
	1.500	184.00	12.0000	12.0000	406,272.0000	0.6764	0.5256	14.9256	10.2744
	S _s	184.00	2.2963	0.0000	77,743.5328	0.1294	0.1006	2.8562	1.9661
Site Class D (default)	0.205	175.00	0.0140	0.0000	428.7500	0.0007	0.0006	0.0174	0.0120
	0.082	169.00	8.0000	8.0000	228,488.0000	0.3804	0.3504	9.9504	6.8496
	T _L (sec)	169.00	2.1091	0.0000	60,238.0051	0.1003	0.0924	2.6233	1.8058
F _a	8.000	166.50	2.5616	0.0000	71,013.3156	0.1182	0.1122	3.1861	2.1932
	1.600	165.00	0.0140	0.0000	381.1500	0.0006	0.0006	0.0174	0.0120
	2.400	155.00	0.0140	0.0000	336.3500	0.0006	0.0006	0.0174	0.0120
S _{MS}	0.328	154.00	4.0000	4.0000	94,864.0000	0.1579	0.1752	4.9752	3.4248
	0.197	154.00	1.9219	0.0000	45,579.7804	0.0759	0.0842	2.3905	1.6455
	0.219	145.00	0.0140	0.0000	294.3500	0.0005	0.0006	0.0174	0.0120
S _{DS}	0.131	139.00	3.0000	3.0000	57,963.0000	0.0965	0.1314	3.7314	2.5686
	0.598	139.00	0.8674	0.0000	16,759.0354	0.0279	0.0380	1.0789	0.7427
	1.000	135.00	0.0140	0.0000	255.1500	0.0004	0.0006	0.0174	0.0120
I _e	1.500	125.00	0.0140	0.0000	218.7500	0.0004	0.0006	0.0174	0.0120
	0.030	121.00	6.8963	0.0000	100,968.7283	0.1681	0.3021	8.5777	5.9046
	29,000	115.00	0.0140	0.0000	185.1500	0.0003	0.0006	0.0174	0.0120
C _s	374	105.00	0.0140	0.0000	154.3500	0.0003	0.0006	0.0174	0.0120
	39,004	95.00	0.0140	0.0000	126.3500	0.0002	0.0006	0.0174	0.0120
	19,689	85.00	0.0140	0.0000	101.1500	0.0002	0.0006	0.0174	0.0120
W _t (kips)	386.4	75.00	0.0140	0.0000	78.7500	0.0001	0.0006	0.0174	0.0120
	68.297	73.00	10.8750	0.0000	57,952.8750	0.0965	0.4763	13.5263	9.3112
	27.000	65.00	0.0140	0.0000	59.1500	0.0001	0.0006	0.0174	0.0120
W _L (kips)	41.297	55.00	0.0140	0.0000	42.3500	0.0001	0.0006	0.0174	0.0120
	2268	45.00	0.0140	0.0000	28.3500	0.0000	0.0006	0.0174	0.0120
	0.198	35.00	0.0140	0.0000	17.1500	0.0000	0.0006	0.0174	0.0120
f ₁ (Hertz)	5.057	26.62	13.5189	0.0000	9,579.8224	0.0160	0.5921	16.8148	11.5749
	2.0000	25.00	0.0140	0.0000	8.7500	0.0000	0.0006	0.0174	0.0120
	2.049	15.00	0.0140	0.0000	3.1500	0.0000	0.0006	0.0174	0.0120
Seismic Design Category B	Σ		68.30	27.0000	1,230,570.15	2.05	2.99	84.95	58.48

Round Base Plate and Anchor Rods, per ANSI/TIA 222-H

Pole Data

Diameter: 60.970 in (flat to flat)
Thickness: 0.4375 in
Yield (Fy): 65 ksi
of Sides: 18 "0" IF Round
Strength (Fu): 80 ksi

Reactions

Moment, Mu: 6163.56 ft-kips
Axial, Pu: 82.12 kips
Shear, Vu: 39.27 kips

Anchor Rod Data

Quantity: 18
Diameter: 2.25 in
Rod Material: A615
Strength (Fu): 100 ksi
Yield (Fy): 75 ksi
BC Diam. (in): 68 BC Override:

Plate Data

Diameter (in): 73.75 Dia. Override:
Thickness: 2.25 in
Yield (Fy): 50 ksi
Eff Width/Rod: 10.75 in
Drain Hole: 2.625 in. diameter
Drain Location: 28.25 in. center of pole to center of drain hole
Center Hole: 48.5 in. diameter

Anchor Rod Results

(per 4.9.9)

Maximum Put: 238.29 Kips
 Φt^*Rnt : 243.75 Kips
Vu: 2.18 Kips
 Φv^*Rnv : 149.10 Kips
Tension Interaction Ratio: 0.96
Maximum Puc: 246.27 Kips
 Φc^*Rnc : 268.39 Kips
Vu: 2.18 Kips
 Φc^*Rnvc : 120.77 Kips
Compression Interaction Ratio: 0.92
Maximum Interaction Ratio: **95.6% Pass**

Base Plate Results

Base Plate (Mu/Z): 40.5 ksi
Allowable Φ^*Fy : 45.0 ksi (per AISC)
Base Plate Interaction Ratio: **90.1% Pass**

=====

LFile for Windows, Version 2019-11.009

Analysis of Individual Files and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
© 1985-2019 by Ensoft, Inc.
All Rights Reserved

=====

This copy of LFile is being used by:

Sabre
Sioux City, IA

Serial Number of Security Device: 160777296

This copy of LFile is licensed for exclusive use by:

Sabre Communications Corporation

Use of this program by any entity other than Sabre Communications Corporation
is a violation of the software license agreement.

Files Used for Analysis

Path to file locations:
\Program Files (x86)\Ensoft\Lpile2019\files\

Name of input data file:
543798.lp11d

Name of output report file:
543798.lp11o

Name of plot output file:
543798.lp11p

Name of runtime message file:
543798.lp11r

Date and Time of Analysis

Date: May 31, 2024

Time: 16:26:03

Problem Title

Site : Swanson, NC

Tower : 190' Monopole

Prepared for : TOWERCOM IV-B, LLC

Job Number : 543798

Engineer : REB

Program Options and Settings

Computational Options:

- Conventional Analysis
- Engineering Units Used for Data Input and Computations:
- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- Maximum number of iterations allowed = 999
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 100.0000 in
- Number of pile increments = 100

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Input of side resistance moment along pile not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Report only summary tables of pile-head deflection, maximum bending moment, and maximum shear force in output report file.
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

- Number of pile sections defined = 1
- Total length of pile = 36.500 ft
- Depth of ground surface below top of pile = 0.5000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	96.0000
2	36.500	96.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

- Section 1 is a round drilled shaft, bored pile, or CIDH pile
- Length of section = 36.500000 ft
- Shaft Diameter = 96.000000 in
- Shear capacity of section = 0.0000 lbs

Ground Slope and Pile Batter Angles

- Ground Slope Angle = 0.000 degrees
- = 0.000 radians
- Pile Batter Angle = 0.000 degrees
- = 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 1 layers

Layer 1 is stiff clay without free water

Distance from top of pile to top of layer	=	0.500000	ft
Distance from top of pile to bottom of layer	=	60.500000	ft
Effective unit weight at top of layer	=	110.000000	pcf
Effective unit weight at bottom of layer	=	110.000000	pcf
Undrained cohesion at top of layer	=	1000.000000	psf
Undrained cohesion at bottom of layer	=	1000.000000	psf
Epsilon-50 at top of layer	=	0.010000	
Epsilon-50 at bottom of layer	=	0.010000	

(Depth of the lowest soil layer extends 24.000 ft below the pile tip)

Summary of Input Soil Properties

Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	E50 or krm
1	Stiff Clay w/o Free Water	0.5000 60.5000	110.0000 110.0000	1000.0000 1000.0000	0.010000 0.010000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 2

Load Analysis No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length	Run
1	1	V = 52360. lbs	M = 98616960. in-lbs	109493.	No	
Yes						
2	1	V = 10590. lbs	M = 19818240. in-lbs	68410.	No	
Yes						

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with
specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

File Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	36.500000 ft
Shaft Diameter	=	96.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	3.625000 in
Number of Reinforcing Bars	=	42 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	7238. sq. in.
Total Area of Reinforcing Steel	=	41.971778 sq. in.
Area Ratio of Steel Reinforcement	=	0.58 percent
Edge-to-Edge Bar Spacing	=	5.420000 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	7.23
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = $0.85 F_c A_c + F_y A_s$	=	30043.992 kips
Tensile Load for Cracking of Concrete	=	-3308.822 kips
Nominal Axial Tensile Capacity	=	-2518.307 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.128000	0.999328	43.811000	0.000000
2	1.128000	0.999328	43.321667	6.529691
3	1.128000	0.999328	41.864600	12.913519
4	1.128000	0.999328	39.472347	19.008880
5	1.128000	0.999328	36.198347	24.679615
6	1.128000	0.999328	32.115736	29.799048
7	1.128000	0.999328	27.315712	34.252819
8	1.128000	0.999328	21.905500	37.941439
9	1.128000	0.999328	16.005956	40.782510
10	1.128000	0.999328	9.748865	42.712567
11	1.128000	0.999328	3.274000	43.688496
12	1.128000	0.999328	-3.274000	43.688496
13	1.128000	0.999328	-9.748865	42.712567
14	1.128000	0.999328	-16.005956	40.782510
15	1.128000	0.999328	-21.905500	37.941439
16	1.128000	0.999328	-27.315712	34.252819
17	1.128000	0.999328	-32.115736	29.799048
18	1.128000	0.999328	-36.198347	24.679615
19	1.128000	0.999328	-39.472347	19.008880
20	1.128000	0.999328	-41.864600	12.913519
21	1.128000	0.999328	-43.321667	6.529691
22	1.128000	0.999328	-43.811000	0.000000
23	1.128000	0.999328	-43.321667	-6.529691
24	1.128000	0.999328	-41.864600	-12.913519
25	1.128000	0.999328	-39.472347	-19.008880
26	1.128000	0.999328	-36.198347	-24.679615
27	1.128000	0.999328	-32.115736	-29.799048
28	1.128000	0.999328	-27.315712	-34.252819
29	1.128000	0.999328	-21.905500	-37.941439
30	1.128000	0.999328	-16.005956	-40.782510
31	1.128000	0.999328	-9.748865	-42.712567
32	1.128000	0.999328	-3.274000	-43.688496
33	1.128000	0.999328	3.274000	-43.688496
34	1.128000	0.999328	9.748865	-42.712567
35	1.128000	0.999328	16.005956	-40.782510
36	1.128000	0.999328	21.905500	-37.941439
37	1.128000	0.999328	27.315712	-34.252819
38	1.128000	0.999328	32.115736	-29.799048
39	1.128000	0.999328	36.198347	-24.679615
40	1.128000	0.999328	39.472347	-19.008880
41	1.128000	0.999328	41.864600	-12.913519
42	1.128000	0.999328	43.321667	-6.529691

NOTE: The positions of the above rebars were computed by LPILE

Minimum spacing between any two bars not equal to zero = 5.420 inches
between bars 1 and 42.

Ratio of bar spacing to maximum aggregate size = 7.23

Concrete Properties:

Compressive Strength of Concrete	=	4500. psi
Modulus of Elasticity of Concrete	=	3823676. psi
Modulus of Rupture of Concrete	=	-503.115295 psi
Compression Strain at Peak Stress	=	0.002001
Tensile Strain at Fracture of Concrete	=	-0.0001152
Maximum Coarse Aggregate Size	=	0.750000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 2

Number	Axial Thrust Force kips
1	68.410
2	109.493

Summary of Results for Nominal Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	68.410	107064.643	0.00300000
2	109.493	108594.669	0.00300000

Note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.75).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding bending stiffnesses computed for common resistance factor values used for reinforced concrete sections.

Axial Load No.	Resist. Factor	Nominal Ax. Thrust kips	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2
1	0.65	68.410000	107065.	44.466500	69592.	2.6102E+09
2	0.65	109.493333	108595.	71.170667	70587.	2.6535E+09
1	0.75	68.410000	107065.	51.307500	80298.	2.5154E+09
2	0.75	109.493333	108595.	82.120000	81446.	2.5582E+09
1	0.90	68.410000	107065.	61.569000	96358.	1.6104E+09
2	0.90	109.493333	108595.	98.544000	97735.	1.6409E+09

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case No.	Load Type 1	Pile-head Load 1	Load Type 2	Pile-head Load 2	Axial Loading lbs	Pile-head Deflection inches	Pile-head Rotation radians	Max Shear in Pile lbs	Max Moment in Pile in-lbs
1	V, lb	52360.	M, in-lb	9.86E+07	109493.	15.4431	-0.06354	-477695.	1.00E+08
2	V, lb	10590.	M, in-lb	1.98E+07	68410.	0.04287	-2.89E-04	-88394.	2.00E+07

Maximum pile-head deflection = 15.4431111085 inches
Maximum pile-head rotation = -0.0635385348 radians = -3.640490 deg.
The analysis ended normally.

IBC 1807.3.2.1

Moment (ft·k)	6,163.56	
Shear (k)	39.27	
Caisson diameter (ft)	8	
Caisson height above ground (ft)	0.5	
Caisson height below ground (ft)	29	
Lateral soil pressure (lb/ft ²)	300.00	
Ground to application of force, h (ft)	157.45	
Applied lateral force, P (lb)	39,270	
Lateral soil bearing pressure, S ₁ (lb/ft)	2,900.00	
Diameter, b (ft)	8	
A	3.96	$= (2.34P)/(S_1 b)$
Minimum depth of embedment, d (ft)	28.13	$= 0.5A[1 + (1 + (4.36h / A))^{1/2}]$

MAT FOUNDATION DESIGN BY SABRE INDUSTRIES

190' Monopole TOWERCOM IV-B, LLC Swanson, NC (543798) 05/31/24 REB

Overall Loads:

Factored Moment (ft-kips)	6163.56
Factored Axial (kips)	82.12
Factored Shear (kips)	39.27
Bearing Design Strength (ksf)	3.75
Water Table Below Grade (ft)	999
Width of Mat (ft)	28
Thickness of Mat (ft)	1.75
Depth to Bottom of Slab (ft)	6
Quantity of Bolts in Bolt Circle	18
Bolt Circle Diameter (in)	68
Effective Anchor	
Bolt Embedment (in)	66.5
Diameter of Pier (ft)	8
Ht. of Pier Above Ground (ft)	0.5
Ht. of Pier Below Ground (ft)	4.25
Quantity of Bars in Mat	46
Bar Diameter in Mat (in)	1.27
Area of Bars in Mat (in ²)	58.27
Spacing of Bars in Mat (in)	7.31
Quantity of Bars Pier	50
Bar Diameter in Pier (in)	1
Tie Bar Diameter in Pier (in)	0.625
Spacing of Ties (in)	4
Area of Bars in Pier (in ²)	39.27
Spacing of Bars in Pier (in)	5.51
f'c (ksi)	4.5
fy (ksi)	60
Unit Wt. of Soil (kcf)	0.11
Unit Wt. of Concrete (kcf)	0.15

Volume of Concrete (yd³) 59.66**Two-Way Shear Action:**

Average d (in)	16.73
ϕv_c (ksi)	0.183
$\phi v_c = \phi(2 + 4/\beta_c)f_c^{1/2}$	0.302
$\phi v_c = \phi(\alpha_s d/b_o + 2)f_c^{1/2}$	0.183
$\phi v_c = \phi 4f_c^{1/2}$	0.201
Shear perimeter, b_o (in)	407.23
β_c	1

One-Way Shear:

ϕV_c (kips)	565.6
-------------------	-------

Stability:

Overturning Design Strength (ft-k)	8228.7
------------------------------------	--------

Max. Net Bearing Press. (ksf)	3.47
-------------------------------	------

Allowable Bearing Pressure (ksf)	2.50
Safety Factor	2.00
Ultimate Bearing Pressure (ksf)	5.00
Bearing Φ_s	0.75

Minimum Pier Diameter (ft)	8.00
Equivalent Square b (ft)	7.09
Square Pier? (Y/N)	N

Recommended Spacing (in)	5 to 12
--------------------------	---------

Minimum Pier A_s (in ²)	36.19
Recommended Spacing (in)	5 to 12

v_u (ksi)	0.143
-------------	-------

J (in ³)	1.185E+07
c + d (in)	101.81
0.40M _{sc} (ft-kips)	2540.0

V_u (kips)	409.8
--------------	-------

Total Applied M (ft-k)	6418.8
------------------------	--------

Pier-Slab Transfer by Flexure:

b_{slab} (ft)	13.25		
ϕM_n (ft-kips)	3814.4	$0.60M_{sc}$ (ft-kips)	3810.1

Pier Design:

ϕV_n (kips)	1276.2	V_u (kips)	39.3
$\phi V_c = \phi 2(1 + N_u / (2000 A_g)) f'_c{}^{1/2} b_w d$	746.1		
V_s (kips)	706.9	*** $V_s \max = 4 f'_c{}^{1/2} b_w d$ (kips)	1978.3
Maximum Spacing (in)	7.62	(Only if Shear Ties are Required)	
Actual Hook Development (in)	15.46	Req'd Hook Development l_{dh} (in) - Tension	12.52
		Req'd Hook Development l_{dc} (in) - Compression	13.50

Flexure in Slab:

ϕM_n (ft-kips)	4030.3	M_u (ft-kips)	2915.8
a (in)	2.72		
Steel Ratio	0.01037		
β_1	0.825		
Maximum Steel Ratio (ρ_t)	0.0197		
Minimum Steel Ratio	0.0018		
Rebar Development in Pad (in)	117.00	Required Development in Pad (in)	34.08

Condition	1 is OK, 0 Fails
Maximum Soil Bearing Pressure	1
Pier Area of Steel	1
Pier Shear	1
Interaction Diagram	1
Two-Way Shear Action	1
One-Way Shear Action	1
Overturning	1
Flexure	1
Steel Ratio	1
Length of Development in Pad	1
Hook Development	1
Anchor Bolt Pullout	1
Anchor Bolt Punching Shear	1

Exhibit “6”



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-ASO-6681-OE
Prior Study No.
2024-ASO-5200-OE

Issued Date: 05/02/2024

George Davis
TowerCom (GD)
5611 NC HWY 55
Suite 201
Durham, NC 27713

**** 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:	Monopole Swanson
Location:	Crouse, NC
Latitude:	35-25-22.64N NAD 83
Longitude:	81-18-45.34W
Heights:	856 feet site elevation (SE) 194 feet above ground level (AGL) 1050 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:

Emissions from this site must be in compliance with the parameters set by collaboration between the FAA and telecommunications companies and reflected in the FAA 5G C band compatibility evaluation process (such as power, frequencies, and tilt angle). Operational use of this frequency band is not objectionable provided the Wireless Providers (WP) obtain and adhere to the parameters established by the FAA 5G C band compatibility evaluation process. **Failure to comply with this condition will void this determination of no hazard.**

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 11/02/2025 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 of No Hazard is granted provided the following conditional statement is included in the proponent's construction permit or license to radiate:

Upon receipt of notification from the Federal Communications Commission that harmful interference is being caused by the licensee's (permittee's) transmitter, the licensee (permittee) shall either immediately reduce the power to the point of no interference, cease operation, or take such immediate corrective action as is necessary to eliminate the harmful interference. This condition expires after 1 year of interference-free operation.

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, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, 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 includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

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.

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 (816) 329-2525, or natalie.schmalbeck@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-ASO-6681-OE.

Signature Control No: 616854633-620485200

(DNE)

Natalie Schmalbeck
Technician

Attachment(s)
Additional Information
Frequency Data
Map(s)

cc: FCC

BASIS FOR DECISION

Part 77 authorizes the FAA to evaluate a structure or object's potential electromagnetic effects on air navigation, communication facilities, and other surveillance systems. It also authorizes study of impact on arrival, departure, and en route procedures for aircraft operating under visual or instrument flight rules, as well as the impact on airport traffic capacity at existing public use airports. Broadcast in the 3.7 to 3.98 GHz frequency (5G C band) currently causes errors in certain aircraft radio altimeters and the FAA has determined they cannot be relied upon to perform their intended function when experiencing interference from wireless broadband operations in the 5G C band. The FAA has adopted Airworthiness Directives for all transport and commuter category aircraft equipped with radio altimeters that prohibit certain operations when in the presence of 5G C band

This determination of no hazard is based upon those mitigations implemented by the FAA and operators of transport and commuter category aircraft, and helicopters operating in the vicinity of your proposed location. It is also based on telecommunication industry and FAA collaboration on acceptable power levels and other parameters as reflected in the FAA 5G C band evaluation process.

The FAA 5G C band compatibility evaluation is a data analytics system used by FAA to evaluate operational hazards related to aircraft design. The FAA 5G C band compatibility evaluation process refers to the process in which the telecommunication companies and the FAA have set parameters, such as power output, locations, frequencies, and tilt angles for antenna that mitigate the hazard to aviation. As the telecommunication companies and FAA refine the tools and methodology, the allowable frequencies and power levels may change in the FAA 5G C band compatibility evaluation process. Therefore, your proposal will not have a substantial adverse effect on the safe and efficient use of the navigable airspace by aircraft provided the equipment and emissions are in compliance with the parameters established through the FAA 5G C band compatibility evaluation process.

Any future changes that are not consistent with the parameters listed in the FAA 5G C band compatibility evaluation process will void this determination of no hazard.

Frequency Data for ASN 2024-ASO-6681-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	42	dBW
6	7	GHz	55	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
929	932	MHz	3500	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1756	1780	MHz	3280	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W
3450	3550	MHz	3280	W
3550	3700	MHz	50	W
3700	3980	MHz	3280	W
27500	28350	MHz	31623	W
29100	29250	MHz	31623	W
31000	31300	MHz	31623	W

38600

40000

MHz

31623

W

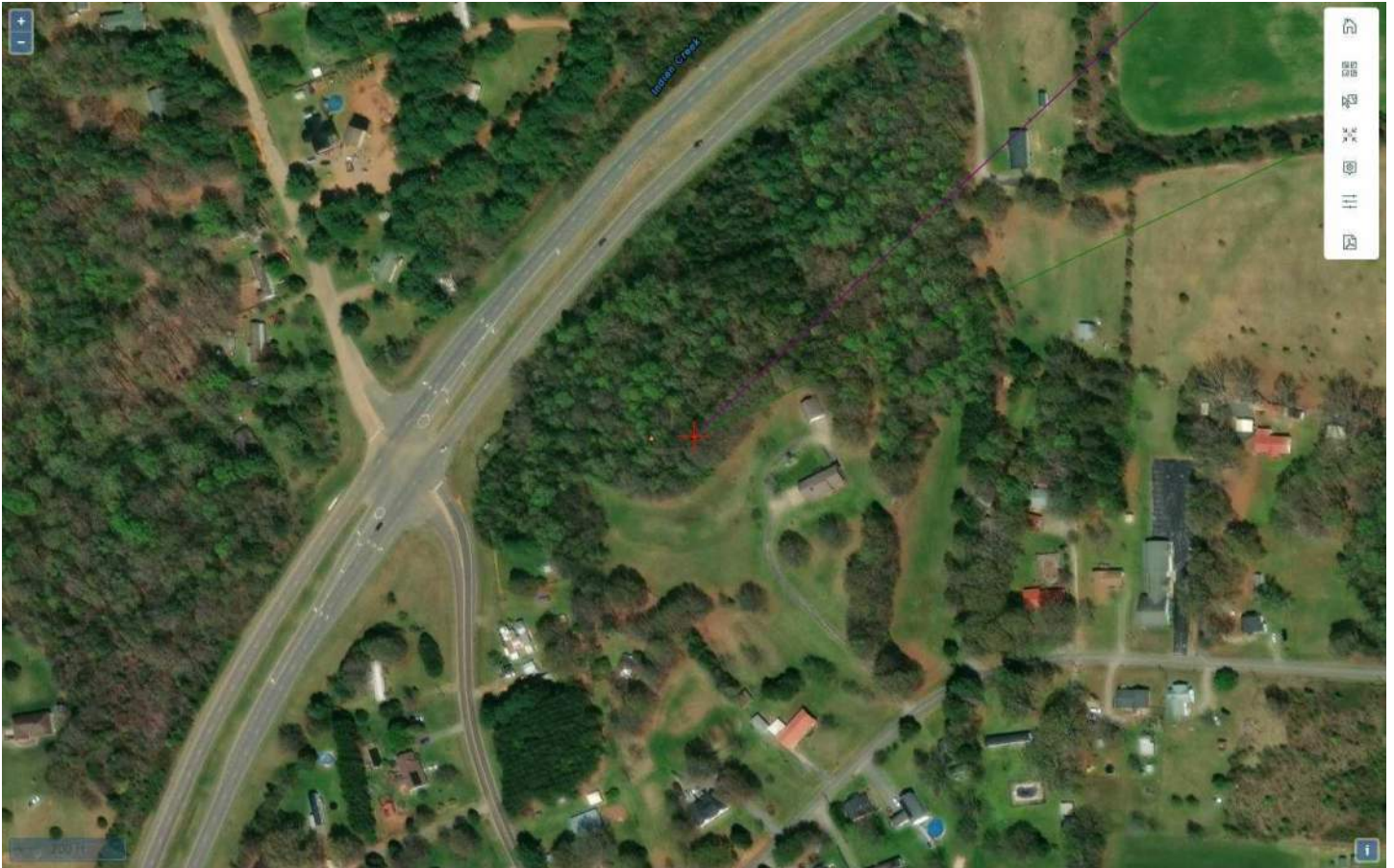


Exhibit “7”



Via Supplemental Information to Zoning Application

May 31, 2024

Joshua L. Grant, MPA
Planning and Inspections Manager
Lincoln County Planning & Inspections
115 W. Main Street, 3rd Floor
Lincolnton, NC 28092
(704) 736-8440

Re: Application for construction of a 190-foot monopole-style wireless telecommunications facility located off of Crouse School Road, Crouse, NC 28033 (Parcel ID # 3611162707) on behalf of TowerCom- Tower Removal Letter

Dear Mr. Grant,

Please accept the signed statement below as confirming Section 4.3.8(J) of the Lincoln County Unified Development Ordinance:

TowerCom, its successors and assigns, provide this statement declaring itself, its successors and assigns of being financially responsible to assure the proposed communications tower, which is no longer used for communications purposes for a continuous period of one hundred-twenty (120) days, will be dismantled and removed within sixty (60) days following cessation of use.

Please contact me should you have any questions.

Thank you,
Robin Clement
Director of Site Development

Exhibit “8”



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

5/20/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION** IS **WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Higginbotham 2670 Union Ave. Ext. Suite 100 Memphis TN 38112	CONTACT NAME: Dalton Howell PHONE (A/C, No, Ext): 901-321-1000 E-MAIL ADDRESS: dhowell@higginbotham.com FAX (A/C, No): 901-321-1099
INSURED Southcoast Capital Management Corp. 241 Atlantic Blvd Suite 201 Neptune Beach FL 32266	INSURER(S) AFFORDING COVERAGE INSURER A: The Charter Oak Fire Insurance INSURER B: The Travelers Indemnity Co of America INSURER C: Federal Insurance Company INSURER D: Fireman's Fund Insurance Company INSURER E: INSURER F:
	NAIC # 25615 25666 20281 21873

COVERAGES**CERTIFICATE NUMBER:** 856164255**REVISION NUMBER:** 1

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:	Y		630-1899C216-COF23	10/13/2023	10/13/2024	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 0 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 Gen Agg p/Desg Loc \$ 25,000,000
B	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY			BA-7N028775-23-14-G	10/13/2023	10/13/2024	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
D	<input type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 0			USL00247823U	10/13/2023	10/13/2024	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000 \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y / N <input type="checkbox"/>	N / A				PER STATUTE E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
C	Excess Liability			79816063	10/13/2023	10/13/2024	Aggregate Limit Excess of \$ 10,000,000 \$ 10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The certificate holder is named as Additional Insured as respects the General Liability as required by written contract directly with the named insured executed prior to loss per form Commercial General Liability Coverage Form CGT100 0219 subject to policy terms and conditions.

Site Address: Towercom IV-B, LLC - Crouse School Rd, Crouse, NC 28033 Lincoln County

Named Insured Includes: TowerCom IV-B LLC

30 days notice of cancellation applies except for 10 days for nonpayment of premium for the General Liability.

CERTIFICATE HOLDER**CANCELLATION**

Lincoln County
353 N Generals Blvd
Lincolnton NC 28092

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

© 1988-2015 ACORD CORPORATION. All rights reserved.

Exhibit “9”

SWANSON SITE SIMULATION MAP



+ Site
● Photograph #

Google Earth

Image © 2024 Airbus



TOWERCOM

SWANSON

Crouse School Rd, Crouse, NC 28033

**190ft. MONOPOLE
SIMULATION**

View #1 from NC Highway 150
approximately 1,825ft. northeast of site

Existing View





TOWERCOM

SWANSON

Crouse School Rd, Crouse, NC 28033

**190ft. MONOPOLE
NOT VISIBLE**

View #2 from Crouse School Road
approx. 990ft. east-southeast of site



TOWERCOM

SWANSON

Crouse School Rd, Crouse, NC 28033

**190ft. MONOPOLE
SIMULATION**

View #3 from Crouse School Road
approx. 700ft. south-southeast of site





TOWERCOM

SWANSON

Crouse School Rd, Crouse, NC 28033

**190ft. MONOPOLE
NOT VISIBLE**

View #4 from Crouse School Road
approx. 1,020ft. south-southwest of site



TOWERCOM

SWANSON

Crouse School Rd, Crouse, NC 28033

**190ft. MONOPOLE
SIMULATION**

View #5 from W Old NC Highway 150
approximately 1,375ft. south of site

Existing View





TOWERCOM

SWANSON

Crouse School Rd, Crouse, NC 28033

**190ft. MONOPOLE
SIMULATION**

View #6 from NC Highway 150
approximately 1,825ft. northeast of site

Existing View



Exhibit “10”

BK 2607 PG 402 - 403 (2)

This document presented and filed:

08/11/2016 11:18:55 AM

DEED

Fee \$26.00 Transfer Tax \$0.00

551033



Lincoln County North Carolina
Danny R. Hester, Register of Deeds

\$26⁽²⁾

NORTH CAROLINA GENERAL WARRANTY DEED

Mail to: Richard N. Bronowicz Jr. and Anita R. Bronowicz, 3514 Crouse School Road, Crouse,
NC 28033

This instrument was prepared by: ✓ Thomas J. Wilson, PA

Revenue: \$ -0-

THIS DEED made this 10th day of August, 2016 by and between

GLENN L. REEP and wife,
MALINDA M. REEP;
Trustees of the REEP REVOCABLE LIVING TRUST DATED Jan. 5, 2011

, hereinafter referred to as GRANTOR;

RICHARD N. BRONOWICZ JR. and wife,
ANITA R. BRONOWICZ

, hereinafter referred to as GRANTEE.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns and shall include singular, plural, masculine, feminine, or neuter as required by context.

WITNESS, that the Grantor, for valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of _____, Howards Creek Township, Lincoln County, North Carolina, and more particularly described as follows:

BEING all and the full contents of Lot No. 2 of Exempt Recombination Glenn L. Reep and Malinda M. Reep, as shown on that certain plat recorded in Plat Book 16 at Page 400, in the Lincoln County Registry, to which reference is hereby made for a more complete descriptions of said lot by metes and bounds.

NO TITLE SEARCH WAS REQUESTED OR PERFORMED IN THE PREPARATION OF THIS DEED.

The property hereinabove described was acquired by Grantor by instrument recorded in Book 2228, Page 631.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever, other than the following exceptions:

IN WITNESS WHEREOF, the Grantor has duly executed the foregoing as of the day and year first above written.

Glenn L. Reep
Trustee of the Reep
 _____ (SEAL)

Glenn L. Reep, Trustee of the Reep
 Revocable Living Trust Dated Jan. 05, 2011

Malinda M. Reep
Trustee of the Reep
 _____ (SEAL)

Malinda M. Reep, Trustee of the Reep
 Revocable Living Trust Dated Jan. 05, 2011

STATE OF NORTH CAROLINA

COUNTY OF LINCOLN

I, the undersigned Notary Public of the County of State aforesaid, certify that Glenn L. Reep and wife, Malinda M. Reep personally appeared before me this day and acknowledged that they are the Trustees of the Reep Revocable Living Trust Dated Jan. 05, 2011 and that by authority duly given as the act of each entity, they signed the foregoing instrument in its name on its behalf as its act and deed. Witness my hand and Notarial stamp or seal this 10th day of August 2016.

Linda B. Houck

 Notary Public

My commission expires: 12-17-2019



Exhibit “11”



Exhibit “12”

To: Joshua L. Grant, MPA
Manager
Lincoln County Planning & Inspections
115 W. Main Street, 3rd Floor
Lincolnton, NC 28092
(704) 736-8440

Re: Letter of Authorization

Dear Mr. Grant,

We, Richard Bronowicz and Anita Bronowicz, as owners, hereby give TowerCom and their attorney Jonathan Yates authorization to apply and sign for all Zoning and building permits in respect to the proposed wireless telecommunications facility to be located on parcel number 3611162707.

Sincerely,

BY: Richard Bronowicz
Date: 6-14-2024

BY: Anita Bronowicz
Date: 6-14-2024

State of North Carolina

County of Lincoln

I hereby certify that this 14 day of June 2024, before me, a Notary Public for the state and Lincoln county aforesaid, personally appeared Richard + Anita Bronowicz, known to me or satisfactorily proven to be the person whose name is subscribed to the foregoing instrument, and acknowledged that they executed the foregoing instrument, acting in their capacity as _____ owner for purposes therein set forth.

Penny M Skipper
Notary Public

My commission expires: May 16, 2029

PENNY M SKIPPER Notary Public, North Carolina Cleveland County My Commission Expires May 16, 2029
