Zoning Board of Appeals
Regular Meeting
October 12, 2023 – 7:00PM
102 Butler St, Saugatuck, MI

In person meeting

1. **Call to Order/Roll Call**
2. **Approval of Agenda**
3. **Approval of Minutes:**
   - **A.** August 10, 2023 Regular Meeting
4. **Public Comments**
5. **Unfinished Business:** None
6. **New Business:**
   - **A.** 750 Park St – Extend a lawful nonconforming use to occupy additional land or air space outside the building.
7. **Communications:**
8. **ZBA Member Comments**
9. **Public Comments**
10. **Adjourn** (Voice Vote)

This public meeting will be held in person at Saugatuck City Hall. Interested parties may attend in person or participate by using Zoom video/audio conference technology.

Join online by visiting:
https://us02web.zoom.us/j/2698572603

Join by phone by dialing:
(312) 626-6799 -or-
(646) 518-9805

Then enter "Meeting ID":
2698572603

Please send questions or comments regarding meeting agenda items prior to meeting to:
rcummins@saugatuckcity.com

Public Hearing Procedure

A. Hearing is called to order by the Chair
B. Summary by the Zoning Administrator
C. Presentation by the Applicant
D. Public comment regarding the application
   - Participants shall identify themselves by name and address
   - Comments/Questions shall be addressed to the Chair
   - Comments/Questions shall be limited to five minutes
1. Supporting comments (audience and letters)
2. Opposing comments (audience and letters)

3. General comments (audience and letters)
4. Repeat comment opportunity (Supporting, Opposing, General)

E. Public comment portion closed by the Chair
F. Commission Deliberation
G. Commission Action

Saugatuck Zoning Board of Appeals Meeting - *PROPOSED*
August 10, 2023, Minutes

The Saugatuck Zoning Board of Appeals
Met in regular session at 7:00 p.m.
City Hall, 102 Butler Street, Saugatuck, Michigan.

1. **Call to Order** by Chairman Kubasiak at 7:00 p.m.
   Attendance:
   Present: Vice Chair Bouck, Board Members Crawford, & Hundreiser.
   Absent: Chairman Kubasiak, Board Members Bont & McPolin.
   Others Present: Director of Planning, Zoning, & Project Management Ryan Cummins, & Deputy Clerk and DPW Administrative Assistant Sara Williams, City Attorney Jacob Witte

2. **Agenda Changes/Approval of Agenda:** Approved.
   Motion by Hundreiser, second by Crawford to approve the agenda for August 10, 2023, meeting as presented. Upon voice vote, motion carried 3-0.

3. **Approval of Minutes:**
   Motion by Crawford, second by Hundreiser, to approve the minutes from June 8, 2023, as submitted. Upon voice vote, motion carried 3-0.

4. **Public Comments:** None.

5. **Unfinished Business:** None**.**

6. **New Business:**
   A. 321 Water Street – Fence Height:
   1. <u>The Public Hearing was called to order by the Chair at 7:01 p.m.</u>

   2. <u>Summary by Director of Planning, Zoning & Project Management Ryan Cummins.</u>
   The applicant requests a dimensional variance to construct a fence at 321 Water Street to increase the height to six feet and ten inches (6'10") instead of the maximum six-foot (6') fence height, an increase of 10 inches (10"). The request relates to Section 154.143 (E)(4) of the Zoning Ordinance.

   Fences located within a rear or side yard shall not exceed six feet in height measured from the surface of the ground…

The property is located in the C-2 Water Street East (WSE) District zoning district. The corner lot is approximately 3,700 square feet, with commercial businesses on each side. The C-2 WSE allows a variety of uses: retail services, accommodations, restaurants, and residential dwellings.

3. Presentation by the Applicant:

Marilyn Migliore was in person to present her application for 321 Water Street. She is requesting to increase her fencing ten inches at the height of the peak. She is surrounded by mainly commercial properties. The Boardwalk is on one side, and on the other side and behind her home there are vacation rentals. The increase in the height of the fence would provide her with a little bit more privacy in addition to improving the overall look of her property. What she is trying to do is capture the look of the fencing on the gate on her driveway and recreate that look for her fencing around the backyard of her property and sort of replicate that look.

The builder for the applicant, Brad Northmond, said he is the one that will complete the work for Marilyn. He said that they are not constructing a fence, the support posts are already there. When the fence was put in originally, both sides of the fence are finished to all of the structures hidden from all sides from all angles and from any restaurants or business. Both sides of the fence are already finished today. He said that what they are proposing is just to replace the boards that are weathered and worn on the inside the fence with new material with the exception that in the middle of those sections, they're six foot 10 inches, which would match the fence gate. The gate is six foot 10 inches now.

4. Public comment regarding the application:
   a. Supporting comments: None.
   b. Opposing comments (audience and letters): None.
   c. General comments (audience and letters): None.
   d. Repeat comment opportunity (Supporting, Opposing, General): None.

5. Public comment portion closed by the Chair at 7:32 p.m.

6. Commission deliberation:

The board went into deliberation and discussed a dimensional variance to construct a fence at 321 Water Street to increase the height to six feet and ten inches (6'10") instead of the maximum six-foot (6') fence height, an increase of 10 inches (10"). The request relates to Section 154.143 (E)(4) of the Zoning Ordinance.

ZBA Findings of Fact: ***Note: Applicant must show practical difficulty by demonstrating that all four standards are met.***

Standard 1: *"That strict compliance with area, setbacks, frontage, height, bulk, or density would unreasonably prevent the owner from using the property for a permitted purpose or would render conformity unnecessarily burdensome." § 154.155(B)(1). Bouck, Crawford, & Hundreiser found this standard is met because:*

Commercial businesses are located on each side of the subject lot, and higher fences exist along the existing fence line on abutting properties. While a conforming fence could be built, the ZBA may consider conformity unnecessarily burdensome based on conditions and adjacent uses and structures.

Standard 2: *"That a variance would do substantial justice to the owner as well as to other property owners in the district, or whether a lesser relaxation would give substantial relief and be more consistent with justice to others." § 154.155(B)(2). Bouck, Crawford, and Hundreiser found this standard is met because:*

The request is not extreme (10") and is only enough to provide reasonable visual relief of the view of nearby businesses, structures, and higher fences. As such, a variance may give substantial relief to the applicant and allow for justice for neighboring property owners. Commercial businesses subject to site plan review may be approved to include fences higher than six feet (6'), so it is not uncommon to find higher fences in the downtown area, now or in the future. A lesser relaxation would defeat the purpose and need for the higher fence (visual screening).

Standard 3: *"That the plight of the owner is due to unique circumstances of the property and not to general neighborhood conditions." § 154.155(B)(3). Bouck, Crawford, and Hundreiser found this standard is met because:*

The site is unique based on its location in a commercial/mixed use zoning district, commercial uses on each side, and nonconforming fencing abutting the property lines.

Standard 4: *"That the problem is not self-created or based on personal financial circumstances." § 154.155(B)(4). Bouck, Crawford, and Hundreiser found this standard is met because:*

While the higher fence is desirable from the personal perspective of the applicant, they did not create the circumstances and characteristics of abutting land uses and structures. Additionally, the variance request has no relationship to the project cost.

7. Commission action: ZBA Decision (Approve):

Motion by Crawford, second by Hundreiser, to approve a variance to increase the allowable fence height to six feet and ten inches (6'10") instead of the maximum six-foot (6') fence height, an increase of 10 inches (10"), based on the positive findings documented in the staff memo provided to the ZBA for its August 10, 2023, meeting. This approval is contingent upon the construction of the fence being in substantial conformance with the location, design, and height as proposed and included in the ZBA variance applicant materials. Upon roll call vote, motion carried 3-0.

7. Communications: None.

8. ZBA Comments:

Vice Chair Bouck said that he had no other comments other than to thank everyone for coming to tonight's meeting and the preparation that goes into it.

9. Public Comments: None.

10. Adjournment: *Motion by Hundreiser, second by Crawford to adjourn. Motion carried unanimously. The meeting was adjourned at 7:42 pm by Vice-Chair Bouck.*

Respectfully Submitted,
Sara Williams
City Deputy Clerk

BACKGROUND REPORT
ZONING BOARD OF APPEALS OCTOBER 12, 2023

750 PARK STREET 03-57-009-052-01

AT&T WIRELESS

REQUEST: The applicant requests a dimensional variance to construct a new platform and additional equipment at 750 Park Street, which extends a lawful nonconforming use to occupy additional land or air space outside the building. The request relates to Section 154.174(D)(1) of the Zoning Ordinance.

> *Extending use within a structure. Any lawful nonconforming use may be extended throughout any internal parts of a building which were manifestly arranged or designed for such use at the effective date of this chapter, or amendment thereto, but no such use shall be extended to occupy any portion of a building which was not manifestly arranged or designed for the use at the effective date of this chapter, or amendment thereto, nor shall the use be extended to occupy any land or air space outside the building.*

BACKGROUND: The property is located in the Conservation, Recreation, and Camp Zoning District. The City-owned lot is just under 14 acres in size and is part of a network of parcels making up Mount Baldhead Park. The telecommunications facility infrastructure and tower were constructed prior to zoning requirements that prohibited the use in the Conservation, Recreation, and Camp Zoning District.

ZBA AUTHORITY: According to Section 154.155 (A), where there are practical difficulties or unnecessary hardship in the way of carrying out the strict letter of this chapter, the Zoning Board of Appeals ("Board") may, in passing on appeals, vary or modify any of the rules or provisions of the Zoning Ordinance relating to the construction, or structural changes in, equipment, or alteration of buildings or structures, or the use of land, buildings or structures, so that the intent of the ordinance is observed, public safety secured, and substantial justice done. Variances should only be approved in limited cases with unique circumstances and extraordinary conditions.

DIMENSIONAL VARIANCE: Section 154.155 (B) provides the standards that must be met in order for the Board to grant a dimensional (non-use) variance:

1. *That strict compliance with area, setbacks, frontage, height, bulk, or density would unreasonably prevent the owner from using the property for a permitted purpose, or would render conformity unnecessarily burdensome.*

Comment: The Board may consider conformity unnecessarily burdensome based on the historic use of Mount Baldhead as a telecommunications facility. In this case, there are no options whatsoever to expand in a conforming manner.

The overall project scope is minor compared to the size of the subject parcel. It would be unreasonable to prohibit additional equipment within the immediate vicinity of the tower facility and cellular antennas within the radar dome itself.

2. *That a variance would do substantial justice to the owner as well as to other property owners in the district, or whether a lesser relaxation would give substantial relief and be more consistent with justice to others.*

   Comment: The request is not extreme, as there will be no increase in tower size and a minimal increase in the ground equipment area. The variance will do substantial justice to the owner, the City of Saugatuck, and its constituents. The project will address the lack of cellular service and public safety concerns that result from these deficient conditions. Justice for nearby property owners will be ensured because the project and improvements will be unnoticeable, and countless residents and visitors will benefit from improved cellular services.

3. *That the plight of the owner is due to unique circumstances of the property and not to general neighborhood conditions.*

   Comment: The site is unique as it is a high point in the area that has always been recognized as appropriate and feasible for telecommunication services. The site is unlike any other telecommunication facility location in the vicinity due to its size and elevation.

4. *That the problem is not self-created or based on personal financial circumstances.*

   Comment: The problem is not self-created, as the use is considered a lawful nonconformity established prior to the current zoning restrictions. The priority of the project is not revenue-focused but for the purpose of public safety and general public benefit.

RECOMMENDATION: Pursuant to Section 154.155 (B), if the applicant is not able to meet all the required standards noted above, the Board must deny the request. If the Board finds that the practical difficulty is not unique but common to several properties in the area, the finding shall be transmitted by the Board to the Planning Commission, who will determine whether to initiate an amendment to the Zoning Code, per Section 154.156 (C). Any motion supporting or against the variance request must specifically reference the Board's findings concerning all applicable standards.

Based on unique conditions and circumstances, it could be argued that all findings are met, and the comments in this report may be used as a basis for the Boards's positive findings and referenced in their entirety. Preventing reasonable expansion of the facility could be considered unnecessarily burdensome and a practical difficulty, and we feel that the intent of the ordinance is observed, public safety secured, and substantial justice done.

Regardless of the decision, the minutes and written record of the decision must document the Board's findings and conclusions. As such, it is essential for the findings to be read aloud or referenced from this report during the meeting.

Possible motion:

I move to approve a dimensional variance to construct a new platform and additional equipment at 750 Park Street, which extends a lawful nonconforming use to occupy land or air space outside the building based on the positive findings documented in the staff memo provided to the Board for its October 12, 2023 meeting, as well as the following:

1. _____.
2. _____.
3. _____.
4. _____.

This approval is contingent upon the construction of the platform and equipment being in substantial conformance with the location, configuration, design, and height as proposed and included in the applicant's submitted materials.

Zoning Board of Appeals Application

LOCATION INFORMATION **APPLICATION NUMBER____-____**

Address 750 Park Street, Saugatuck, MI Parcel Number 57-009-052-01

APPLICANTS INFORMATION

Name AT&T Wireless, c/o Todd Wells Address / PO Box 280 N. Old Woodward Ave., Ste. 250

City Birmingham State MI Zip 48009 Phone 248-933-6800

Interest In Project Tenant E-Mail twells@swlawpc.com

Signature _____ Date 09-07-2023

OWNERS INFORMATION (IF DIFFERENT FROM APPLICANTS)

Name City of Saugatuck Address / PO Box 102 Butler Street

City Saugatuck State MI Zip 49453 Phone 269-857-2603

E-Mail rcummins@saugatuckcity.com

I hereby authorize that the applicant as listed above is authorized to make this application for proposed work as my agent and we agree to conform to all applicable laws and regulations of the City of Saugatuck. I additionally grant City of Saugatuck staff or authorized representatives thereof access to the property to inspect conditions, before, during, and after the proposed work is completed or to gather further information related to this request.

Signature _____ Date 9/14/23

CONTRACTORS/ DEVELOPERS INFORMATION (UNLESS PROPOSED WORK IS TO BE DONE BY THE PROPERTY OWNER)

Name Ericsson, Inc Contact Name Adam Larson

Address / PO Box 55 Monument Circle Suite 300 City Indianapolis

State IN Zip 46204 Phone 317-694-4646 Fax _____

E-Mail adam.larson@ericsson.com

License Number _____ Expiration Date _____

PROPERTY INFORMATION

Depth 1450 ft Width 450 ft Size 13.82 Acres Zoning District CRC Current Use Radar Dome

Check all that apply: Waterfront____ Historic District _____ Dunes X Vacant _____

Application Type: Interpretation____ Dimensional Variance X Use Variance _____

REQUESTED VARIANCE AND DESCRIPTION (ATTACH MORE SHEETS IF NECESSARY)

Zoning Requirement §154.174(D)(1) Proposed Variance Dimensional Variance

Zoning Requirement _____ Proposed Variance _____

Zoning Requirement _____ Proposed Variance _____

See attachment Exhibit "A".

Exhibit "A"

The City of Saugatuck has identified improving cellular telecommunications infrastructure as a top priority for fostering economic growth and improving public safety in the community.

Saugatuck's intention is to return the abandoned radar facility it purchased in 1969 to productive use without changing the outward appearance of the radar tower or the altering the appearance of the historic harbor community or its beachfront.

Saugatuck's popular Oval Beach attracts tens of thousands of visitors every year but suffers from poor or non-existent cellular coverage due to the environmentally sensitive freshwater dunes surrounding the beach and nearshore waters of Lake Michigan. There have been several public safety incidents along this section of lakeshore and emergency response activities have been hampered or delayed by the lack of cellular telecommunications infrastructure.

Several public and private entities have used the surplus radar tower for telecommunication purposes since the city purchased the facility and the city is working with AT&T on plans to conceal modern cellular antennas inside the radar tower's dome. In addition to improving overall cellular coverage for the public, the AT&T cellular equipment incorporates FirstNet technology which is a nationwide communications network created specifically for public safety agencies.

AT&T

AT&T SITE NUMBER: GRANMI5943
AT&T SITE NAME: SAUGATUCK
AT&T FA CODE: 15448500
AT&T PACE NUMBER: MRIND050522,MRIND054525,MRIND054513,MRIND054529,MRIND054545,MRIND054518,MRIND054532
SITE TYPE: SELF SUPPORT TOWER WITH RADOME

SITE ADDRESS: 750 PARK ST. SAUGATUCK, MI 49453
COUNTY: ALLEGAN
TOWER HEIGHT: 90'-0"

PROJECT: AT&T LTE

SITE INFORMATION

AT&T SITE NAME:	SAUGATUCK
SITE ADDRESS:	750 PARK ST. SAUGATUCK, MI 49453
COUNTY:	ALLEGAN
MAP/PARCEL #:	57-009-052-01 / 57-009-050-00
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	42° 39' 40.70" N
LONGITUDE:	86° 12' 32.90" W
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	+/- 805.1' AMSL (1A LETTER DATED 10/04/2022)
CURRENT ZONING:	CRC
JURISDICTION:	CITY OF SAUGATUCK
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	VB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	CITY OF SAUGATUCK PO BOX 86 SAUGATUCK, MI 49453
CARRIER/APPLICANT:	AT&T MOBILITY 16025 NORTHLAND DRIVE SOUTHFIELD, MI 48075
ELECTRIC PROVIDER:	CONSUMERS ENERGY CO. 800-477-5050
TELCO PROVIDER:	TBD TBD

PROJECT TEAM

A&E FIRM:	GPD GROUP PROFESSIONAL CORPORATION 520 SOUTH MAIN ST, SUITE 2531 AKRON, OH 44311 CONTACT: TRACI PREBLE, 317-299-3164

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
T-3	GENERAL NOTES
T-4	GENERAL NOTES
C-1	OVERALL SITE LAYOUT
C-1.1	COMPOUND LAYOUT
C-2	GENERATOR SPECIFICATIONS
C-3	EQUIPMENT SPECIFICATIONS
C-4	TOWER ELEVATION
C-5	ANTENNA PLAN VIEW
C-6	ANTENNA AND COAXIAL CABLE SCHEDULE
C-7.1	ALPHA PLUMBING DIAGRAM
C-7.2	BETA PLUMBING DIAGRAM
C-7.3	GAMMA PLUMBING DIAGRAM
C-8	EQUIPMENT SPECIFICATIONS
S-1	PLATFORM SPECIFICATIONS
E-1	OVERALL SITE ELECTRICAL PLAN
E-2	DETAILED ELECTRICAL PLAN
E-3	ONE LINE DIAGRAM, H-FRAME,AND TRENCH SECTION
E-4	PANEL SCHEDULE
E-5	ELECTRICAL NOTES
G-1	GROUNDING PLAN AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
G-4	GROUNDING SCHEMATIC & NOTES
G-5	GROUNDING SCHEMATIC & NOTES
SUR.	SURVEY
A.O.D	AREA OF VEGETATIVE DISTURBANCE

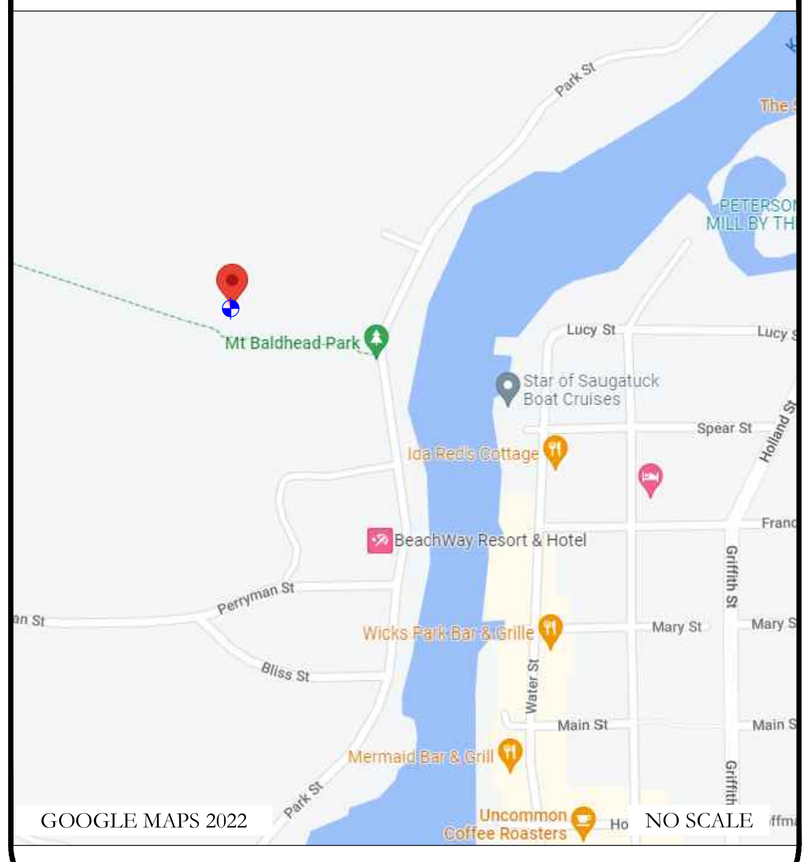
PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO PROPOSE AN ANTENNA MODIFICATION ON AN EXISTING WIRELESS SITE.

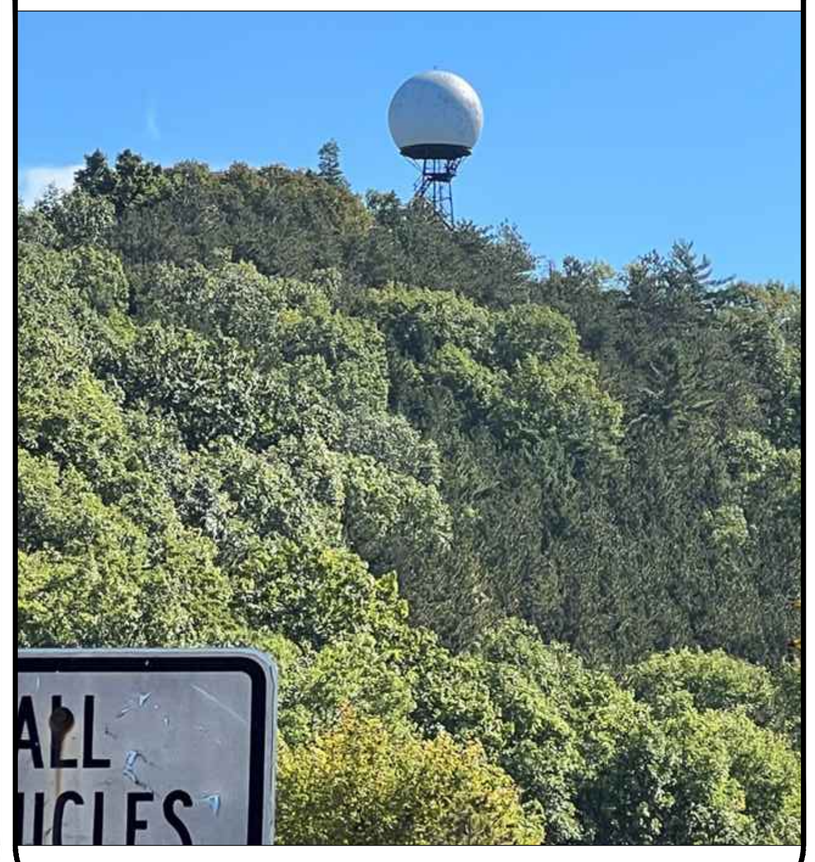
TOWER SCOPE OF WORK
- INSTALL (6) COMMSCOPE NNH4-65C-R6-V3 ANTENNAS
- INSTALL (3) NOKIA B12/14/29 AHLBBA RRUS
- INSTALL (3) NOKIA B25/66 AHFIB RRUS
- INSTALL (3) NOKIA B30 AHNA RRUS
- INSTALL (3) NOKIA B5 AHCA RRUS
- INSTALL (2) DC9-48-60-24-8C-EV DC/FIBER DEMARCATION BOXES
- INSTALL (3) FIBER TRUNKS
- INSTALL (9) DC TRUNKS

GROUND SCOPE OF WORK:
- INSTALLATION OF NEW GENERATOR & EQUIPMENT CABINETS
- INSTALLATION OF NEW PLATFORM
- INSTALLATION OF NEW FENCE AND GATE
- INSTALLATION OF NEW ELECTRICAL SERVICE

LOCATION MAP



SITE PHOTO



APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2015 MICHIGAN BUILDING CODE 2015 IBC W/ STATE AMENDMENTS
MECHANICAL	2015 MICHIGAN MECHANICAL CODE 2015 IMC W/ STATE AMENDMENTS
ELECTRICAL	NATIONAL ELECTRICAL CODE 2014 NEC W/ AMENDMENTS

DESIGN PACKAGE BASED ON THE RFDS
REVISION: V02
DATE: 09/23/2021

REFERENCE DOCUMENTS:

MOUNT ANALYSIS:

THE MOUNT ANALYSIS PERFORMED BY GPD GROUP PROFESSIONAL CORPORATION (PROJECT #2023723.16.307394.03 DATED 06/06/2023) FINDS THE MOUNT HAS SUFFICIENT CAPACITY TO CARRY THE PROPOSED LOADING CONFIGURATION ONCE THE RECOMMENDED MODIFICATIONS HAVE BEEN PERFORMED.

STRUCTURAL ANALYSIS:

THE TOWER STRUCTURAL ANALYSIS PERFORMED BY GPD GROUP PROFESSIONAL CORPORATION (PROJECT #2023723.16.307394.02 DATED 05/03/2023) FINDS THE TOWER HAS SUFFICIENT CAPACITY TO CARRY THE PROPOSED LOADING CONFIGURATION.

CALL MICHIGAN ONE CALL
(800) 482-7171
CALL 3 WORKING DAYS
BEFORE YOU DIG!

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
CHRISTOPHER J SCHEKS
ENGINEER
License No. 6201060804
LICENSED PROFESSIONAL ENGINEER
09/08/2023

CIVIL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-1
REVISION: L

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES, SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON ERICSSON TOWER SITE" AND LATEST VERSION OF TIA 1019 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
4. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.
5. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
6. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
13. NOTICE TO PROCEED– NO WORK TO COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.
14. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/TIA 1019 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA–1019 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR– ———————
   SUBCONTRACTOR– GENERAL CONTRACTOR (CONSTRUCTION)
   CARRIER– AT&T
   BUILDING OWNER– CITY OF SAUGATUCK
   OEM– ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR AND ERICSSON.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND ERICSSON PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
CHRISTOPHER J. SCHEKS
ENGINEER
License No. 6201060804
PROFESSIONAL ENGINEER
09/08/2023
SEAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-2

REVISION: L

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8"ø ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
4. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N. TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULLY CURED.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER.....2 IN.
   #5 AND SMALLER & WWF.....1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALLS.....3/4 IN.
   BEAMS AND COLUMNS.....1 1/2 IN.

5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
CHRISTOPHER J. SCHEKS
ENGINEER
License No. 6201060804
PROFESSIONAL ENGINEER
09/08/2023

STRUCTURAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-3

REVISION: L

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC. HILTI EPOXY ANCHORS ARE REQUIRED BY ERICSSON.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
21. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
22. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHIN ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL; SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
28. INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "AT&T".
29. ALL CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 AWG SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS, WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 TINNED SOLID IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

SYMBOLS:

SBB	SOLID GROUND BUS BAR
SNB	SOLID NEUTRAL BUS BAR
	SUPPLEMENTAL GROUND CONDUCTOR
	2-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
	SINGLE-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
	CHEMICAL GROUND ROD
	TEST WELL
	DISCONNECT SWITCH
M	METER
	EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)
	MECHANICAL CONNECTION
	GROUNDING WIRE

NEC INSULATOR COLOR CODE

DESCRIPTION	PHASE/CODE LETTER	WIRE COLOR
240/120 1Ø	LEG 1	BLACK
	LEG 2	RED
AC NEUTRAL	N	WHITE
GROUND (EGC)	G	GREEN
VDC POS	+	*RED-POLARITY MARK AT TERMINATION
VDC NEG	-	*BLACK-POLARITY MARK AT TERMINATION
240V OR 208V, 3Ø	PHASE A	BLACK
	PHASE B	RED(ORG. IF HI LEG)
	PHASE C	BLUE
480V, 3Ø	PHASE A	BROWN
	PHASE B	ORANGE OR PURPLE
	PHASE C	YELLOW

* SEE NEC 210.5(C)(1) AND (2)

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

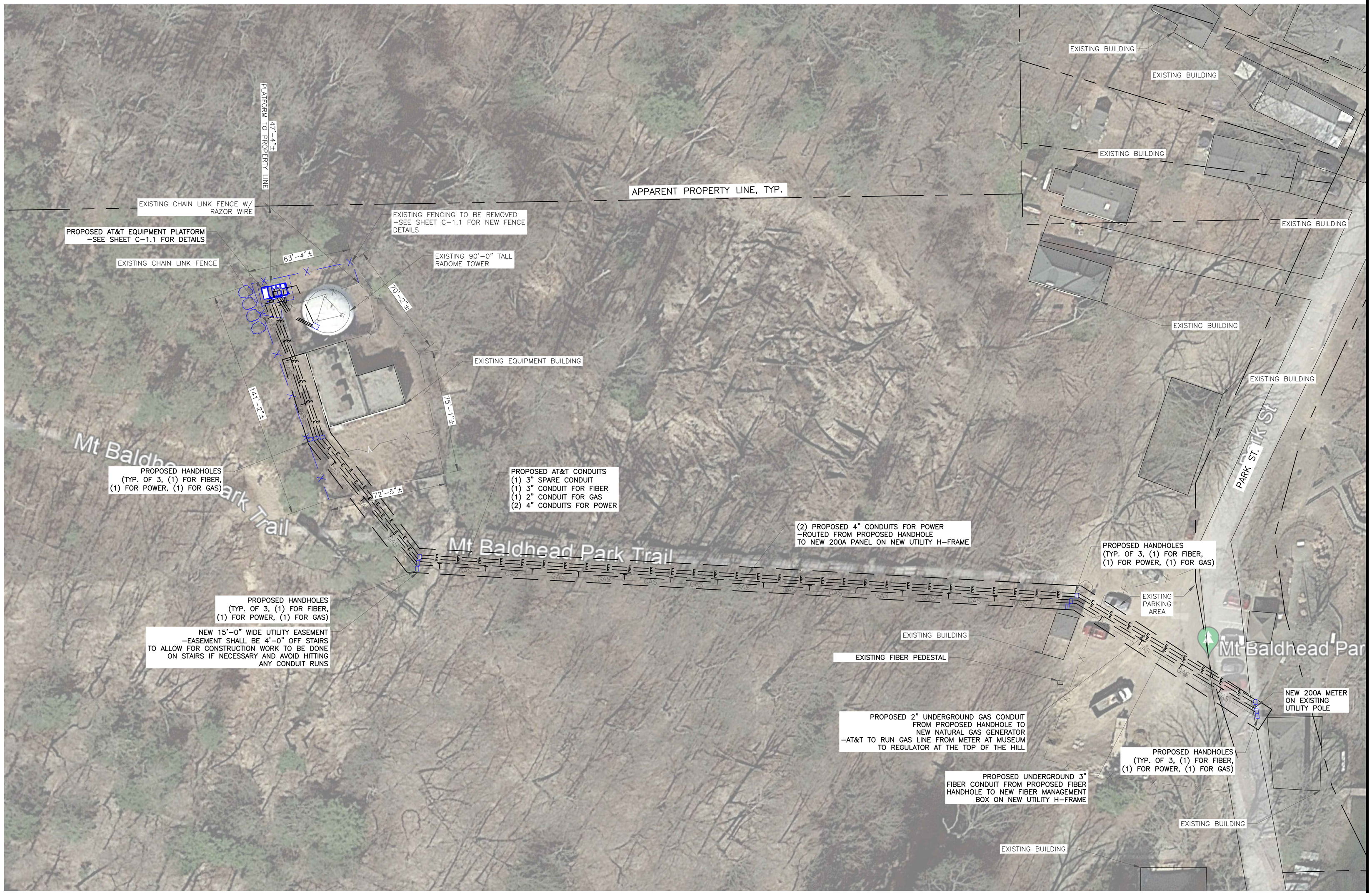
ELECTRICAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-4

REVISION: L

*NOTE: THIS SITE HAS VERY LIMITED VEHICULAR ACCESS. HELICOPTER INSTALLATION MAY BE REQUIRED



1 SITE LAYOUT

SCALE: 30' 15' 0 30' 1"=30'-0" (FULL SIZE) 1"=60'-0" (11x17)

N

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

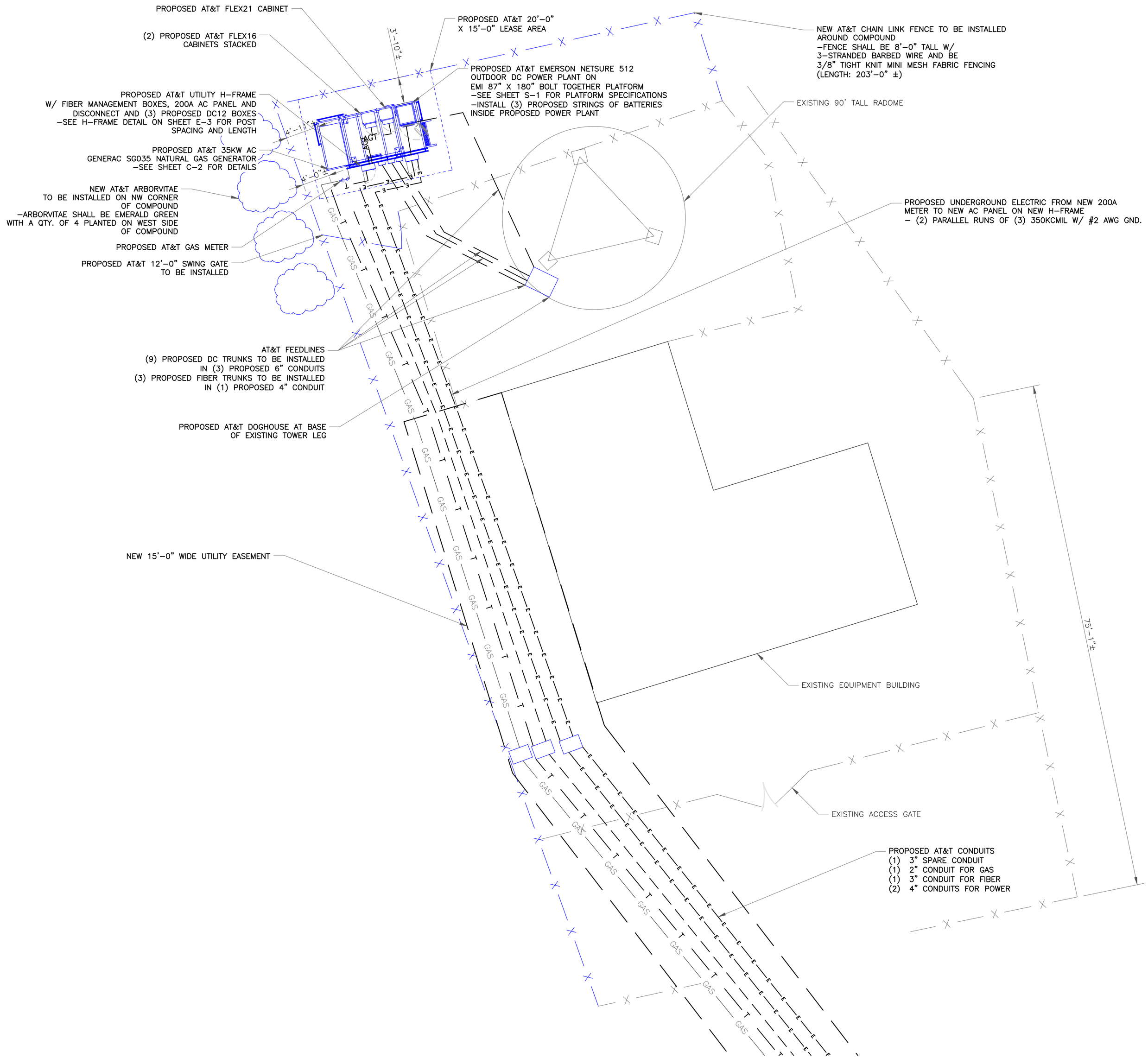
STATE OF MICHIGAN
CHRISTOPHER J SCHEKS
ENGINEER
License No. 6201060804
LICENSED PROFESSIONAL ENGINEER
09/08/2023

CIVIL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-1

REVISION: L



1 COMPOUND LAYOUT

SCALE: 8' 6' 4' 2' 0 8' 1/8"=1'-0" (FULL SIZE) 1/16"=1'-0" (11x17)

*NOTE: THIS SITE HAS VERY LIMITED VEHICULAR ACCESS. HELICOPTER INSTALLATION MAY BE REQUIRED

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

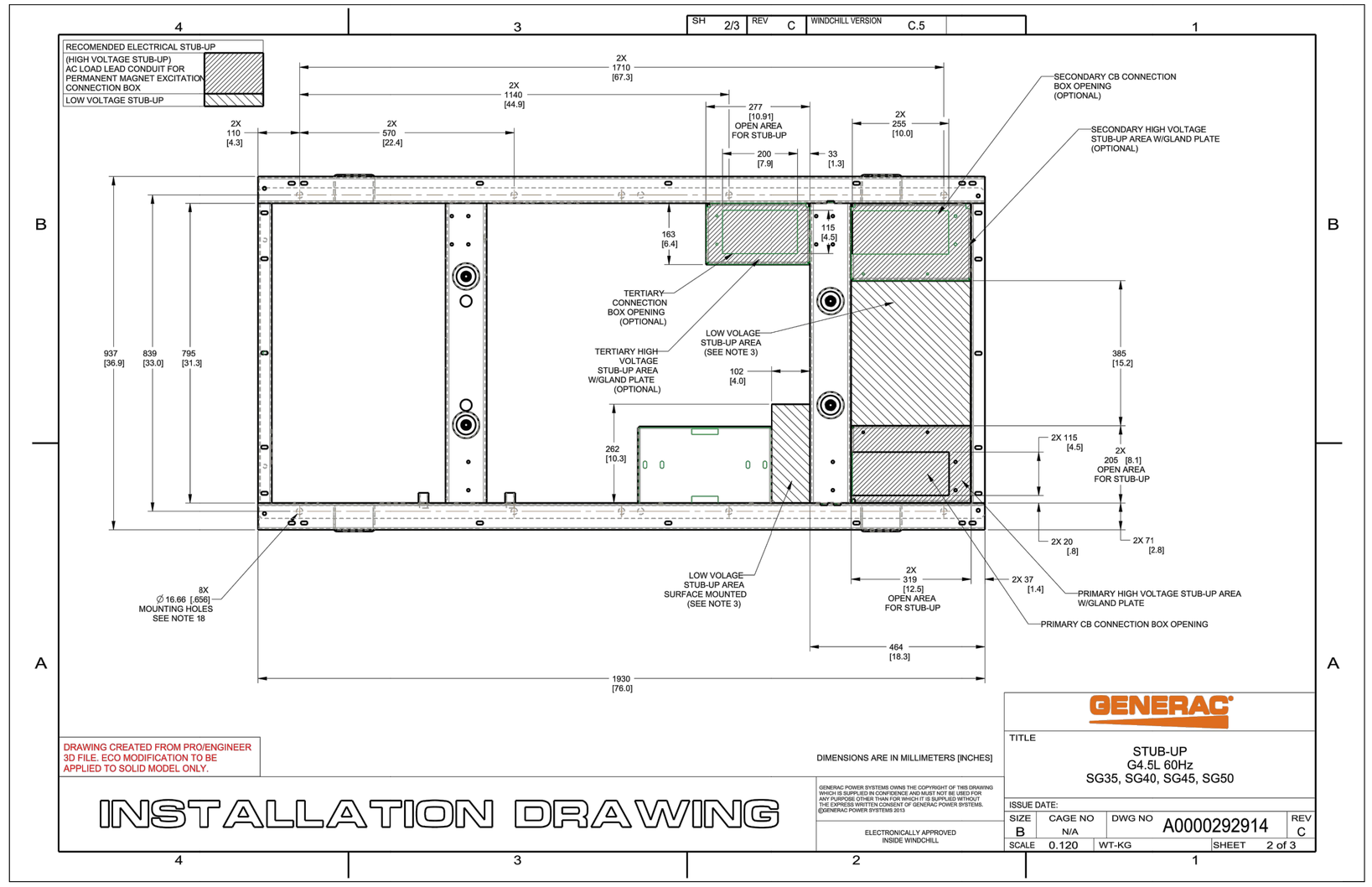
STATE OF MICHIGAN
CHRISTOPHER J SCHEKS
ENGINEER
License No. 6201060804
LICENSED PROFESSIONAL ENGINEER
09/08/2023

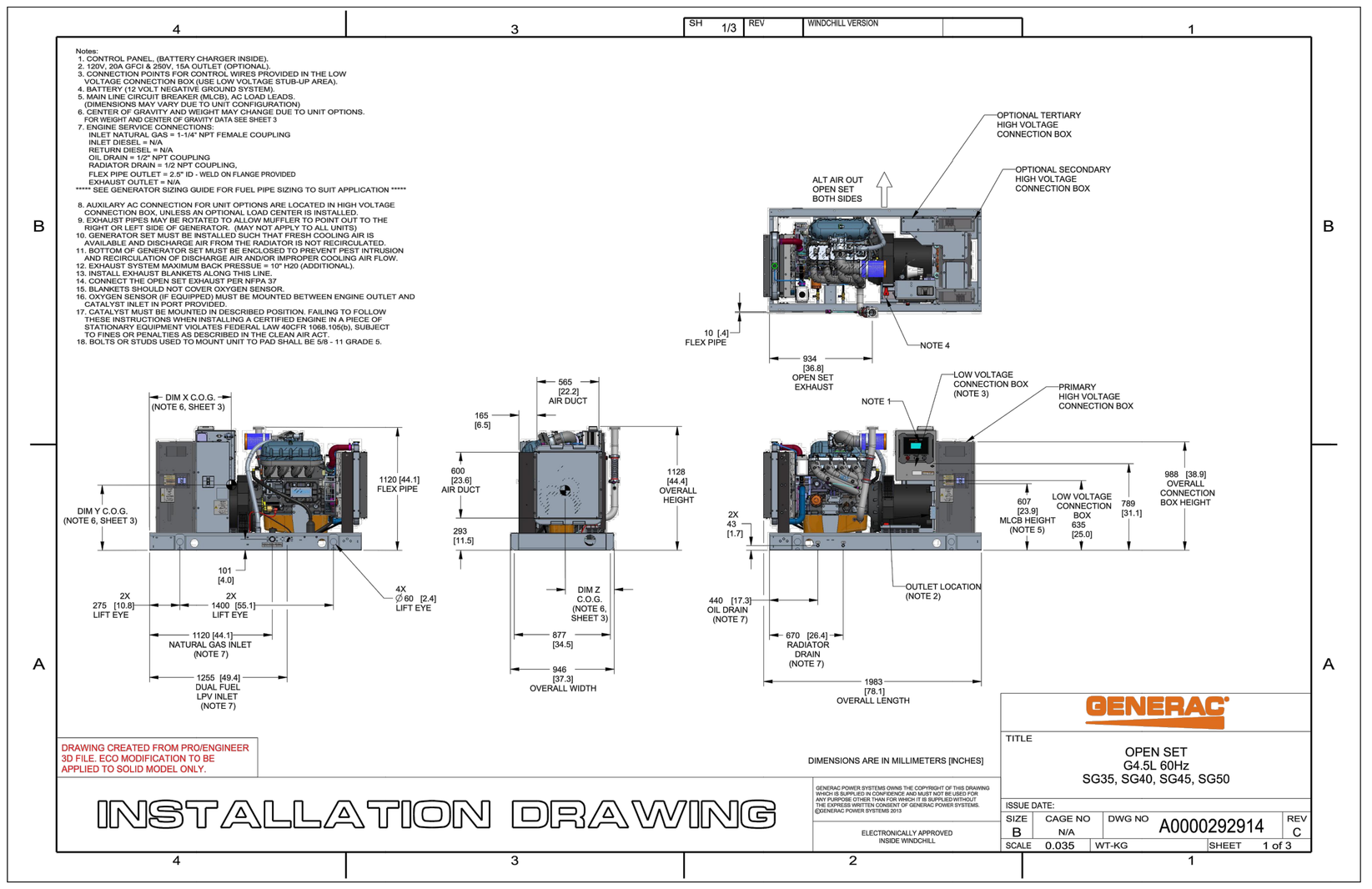
CIVIL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-1.1

REVISION: L





1 GENERAC SG035 4.5L SPECIFICATIONS
SCALE:

THESE DETAILS HAVE NOT BEEN REVIEWED BY THE STAMPING PARTY. THEREFORE, THE STAMPING PARTY MAKES NO REPRESENTATION(S) WITH RESPECT TO ITS CONTENTS, AND SHALL NOT BE LIABLE FOR SUCH. ANY RELIANCE ON THIS STAMP SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY WAIVES ANY AND ALL CLAIM(S) RELATED TO THE EXISTENCE OF THE STAMP OR OTHERWISE

SG035 | 4.5L | 35 kW

INDUSTRIAL SPARK-IGNITED GENERATOR SET

EPA Certified Stationary

GENERAC | INDUSTRIAL POWER

APPLICATION AND ENGINEERING DATA

DEMAND RESPONSE READY

ENGINE SPECIFICATIONS

General

Make	Generac
Cylinder #	4
Type	In-Line
Displacement - in^3 (L)	275.0 (4.5)
Bore - in (mm)	4.5 (114.3)
Stroke - in (mm)	4.25 (107.95)
Compression Ratio	9.94:1
Intake Air Method	Naturally Aspirated
Number of Main Bearings	5
Connecting Rods	Forged Steel, Fractured Split, Bushingless
Cylinder Head	Cast Iron
Cylinder Liners	Cast Iron
Ignition	Coil Near Plug Solid State Inductive
Piston Type	Cast Aluminum Flat Top
Crankshaft Type	Forged Steel
Lifter Type	Hydraulic
Intake Valve Material	Stainless Steel
Exhaust Valve Material	Stainless Steel
Hardened Valve Seats	High Steel Iron Alloy

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear Driving
Oil Filter Type	Full-Flow Spin-On Cartridge
Crankcase Capacity - qt (L)	21 (20)

Cooling System

Cooling System Type	Pressurized Closed
Fan Type	Pusher
Fan Speed - RPM	2,100
Fan Diameter - in (mm)	20 (508)

Fuel System

Fuel Type	Natural Gas, Propane
Fuel Injection	Electronic
Fuel Shut Off	Generac
NG Operating Fuel Pressure - in H_2O (kPa)	5 - 14 (1.2 - 3.5)
LP Operating Fuel Pressure - in H_2O (kPa)	7 - 14 (1.7 - 3.5)

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	35 A
Battery Size	See Battery Index 0161970SBY
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K0035124Y21
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5% (3-Phase Only)
Telephone Interference Factor (TIF)	<50
Standard Excitation	Synchronous Brushless
Bearings	Sealed Ball
Coupling	Direct via Flexible Disc
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Full Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	±0.25%

SPEC SHEET

4 of 6

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
CHRISTOPHER J SCHEKS
ENGINEER
License No. 6201060804
LICENSED PROFESSIONAL ENGINEER
09/08/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: 5 C-2

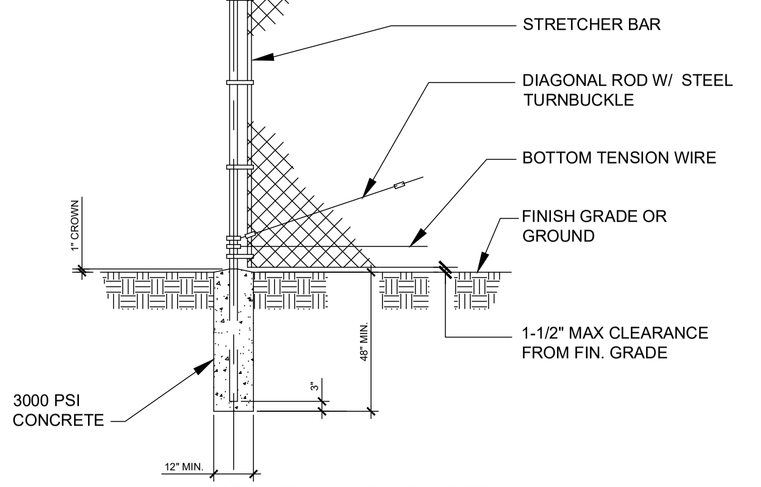
REVISION: L



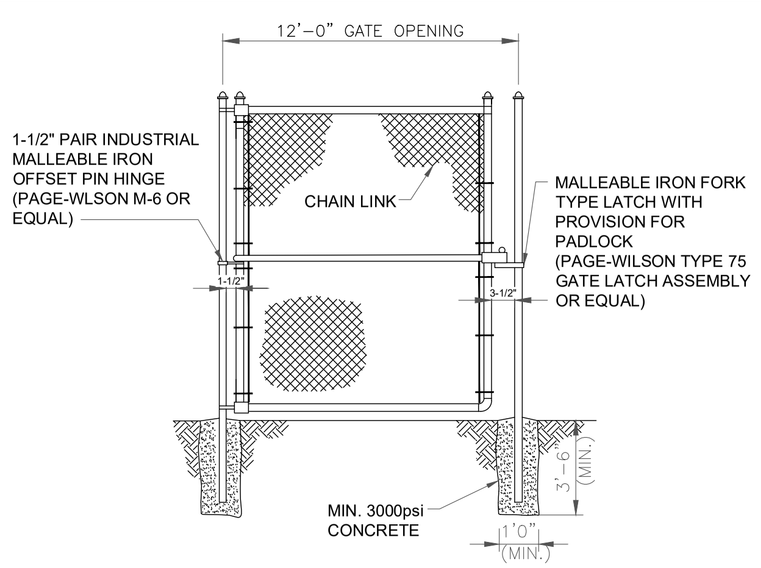
THIS DETAIL HAS NOT BEEN REVIEWED BY THE STAMPING PARTY. THEREFORE, THE STAMPING PARTY MAKES NO REPRESENTATION(S) WITH RESPECT TO ITS CONTENTS, AND SHALL NOT BE LIABLE FOR SUCH. ANY RELIANCE ON THIS STAMP SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY WAIVES ANY AND ALL CLAIM(S) RELATED TO THE EXISTENCE OF THE STAMP OR OTHERWISE

Dimensions and Expansion Options			Thermal Management Systems			
Exterior Dimensions		Rack Units	Air Conditioner	Heat Exchanger		
No plinth	25"W x 20"D x 30"H 635mm x 508mm x 762mm	16RU	2K BTU/hr 585W with 500W heater	39 W/°C 741W	70 W/°C 1330W	130 W/°C 2470W
4" plinth	25"W x 20"D x 34"H 635mm x 508mm x 864mm					
14" plinth	25"W x 20"D x 44"H 635mm x 508mm x 1118mm					
13" Battery Base	25"W x 20"D x 43"H 635mm x 508mm x 1092mm					

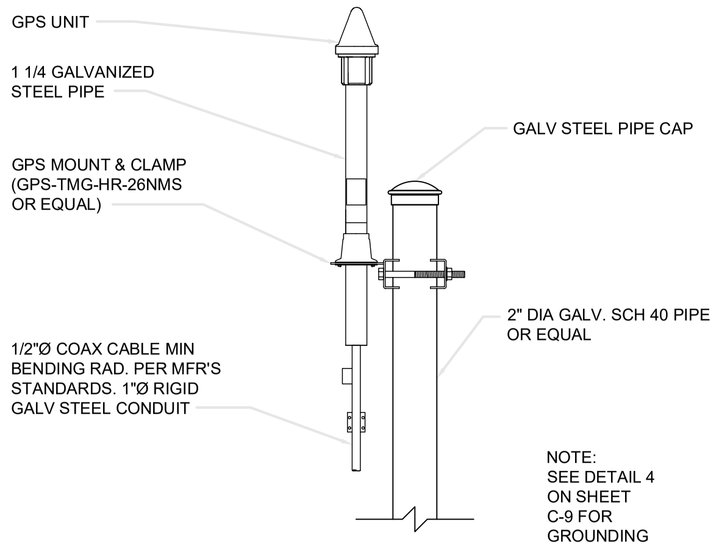
1 PURCELL FLX16 CABINET
SCALE:



4 FENCE POST DETAIL
SCALE:



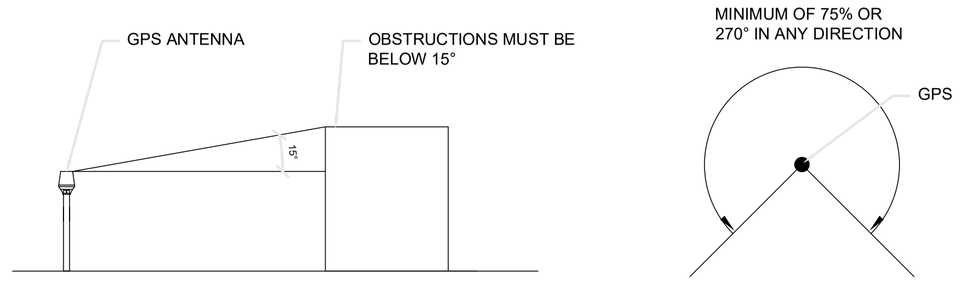
5 SWING GATE DETAIL
SCALE:



2 LTE GPS ANTENNA DETAIL
SCALE:

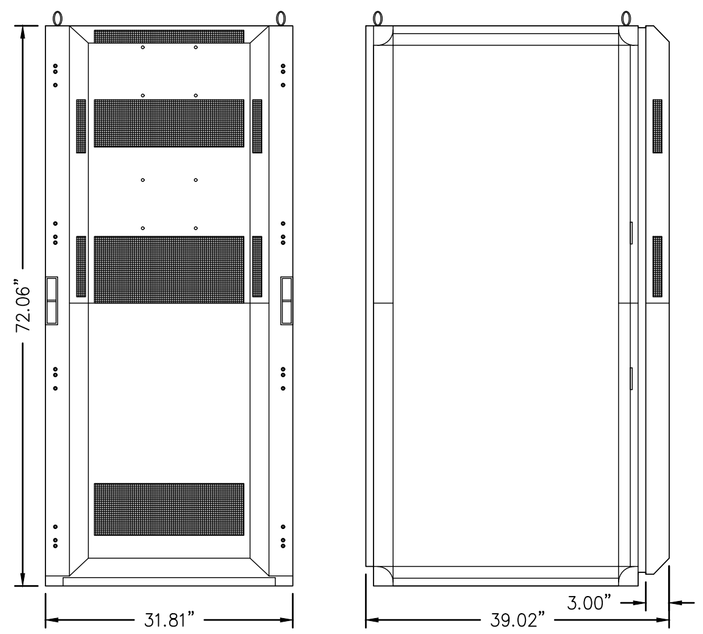
NOTES

1. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.
2. DO NOT SWEEP TEST GPS ANTENNA.
3. PLACE PROPOSED GPS ANTENNA A MIN. OF 10' (3 METER) HORIZONTALLY FROM ALL EXISTING TRANSMITTING ANTENNAS.
4. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 3/4" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 18") USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH EDGES IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.



3 GPS SPECIFICATIONS
SCALE:

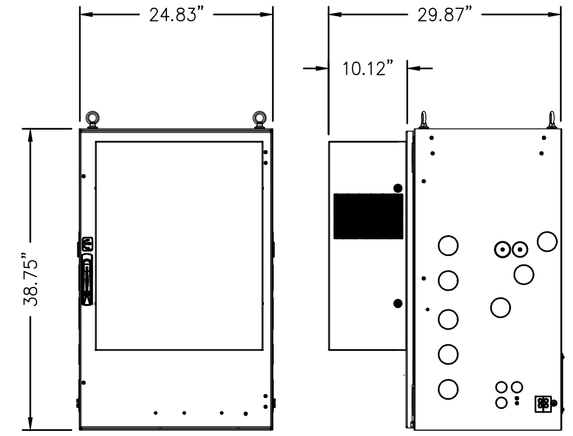
THIS DETAIL HAS NOT BEEN REVIEWED BY THE STAMPING PARTY. THEREFORE, THE STAMPING PARTY MAKES NO REPRESENTATION(S) WITH RESPECT TO ITS CONTENTS, AND SHALL NOT BE LIABLE FOR SUCH. ANY RELIANCE ON THIS STAMP SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY WAIVES ANY AND ALL CLAIM(S) RELATED TO THE EXISTENCE OF THE STAMP OR OTHERWISE



WEIGHT
314KG (690LB) (NO BATTERIES OR RECTIFIERS)
1040KG (2300LB) WITH FULL COMPLEMENT OF GNB BATTERIES
820KG (1800LB) WITH FULL COMPLEMENT OF SAFT BATTERIES

6 EMERSON NETSURE 512 DC POWER PLANT
SCALE:

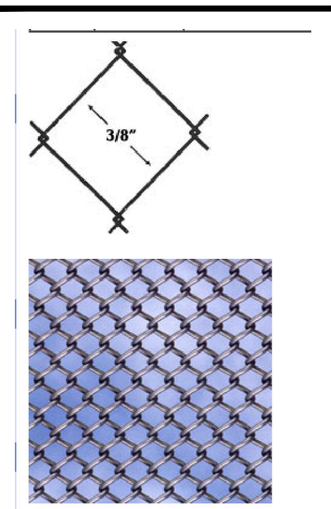
THIS DETAIL HAS NOT BEEN REVIEWED BY THE STAMPING PARTY. THEREFORE, THE STAMPING PARTY MAKES NO REPRESENTATION(S) WITH RESPECT TO ITS CONTENTS, AND SHALL NOT BE LIABLE FOR SUCH. ANY RELIANCE ON THIS STAMP SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY WAIVES ANY AND ALL CLAIM(S) RELATED TO THE EXISTENCE OF THE STAMP OR OTHERWISE



FRONT VIEW SIDE VIEW

WEIGHT
63.50KG (140LB) – EMPTY
136KG (300LB) – FULLY LOADED

6 PURCELL FLX21 CABINET
SCALE:



THIS DETAIL HAS NOT BEEN REVIEWED BY THE STAMPING PARTY. THEREFORE, THE STAMPING PARTY MAKES NO REPRESENTATION(S) WITH RESPECT TO ITS CONTENTS, AND SHALL NOT BE LIABLE FOR SUCH. ANY RELIANCE ON THIS STAMP SHALL BE AT THE RELYING PARTY(IES)'S OWN RISK AND HEREBY WAIVES ANY AND ALL CLAIM(S) RELATED TO THE EXISTENCE OF THE STAMP OR OTHERWISE

Height	Mesh	Type	Roll Size	Weight/ Foot	Price
24"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829
36"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829
48"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829
60"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829
72"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829
84"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829
96"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829
108"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829
120"	3/8" x 3/8"	Knuckle Knuckle	25'	-	Call: 800.878.7829

7 CHAIN LINK MINI MESH FABRIC FENCE
SCALE:

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
CHRISTOPHER J SCHEKS
ENGINEER
License No. 6201060804
PROFESSIONAL ENGINEER
09/08/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

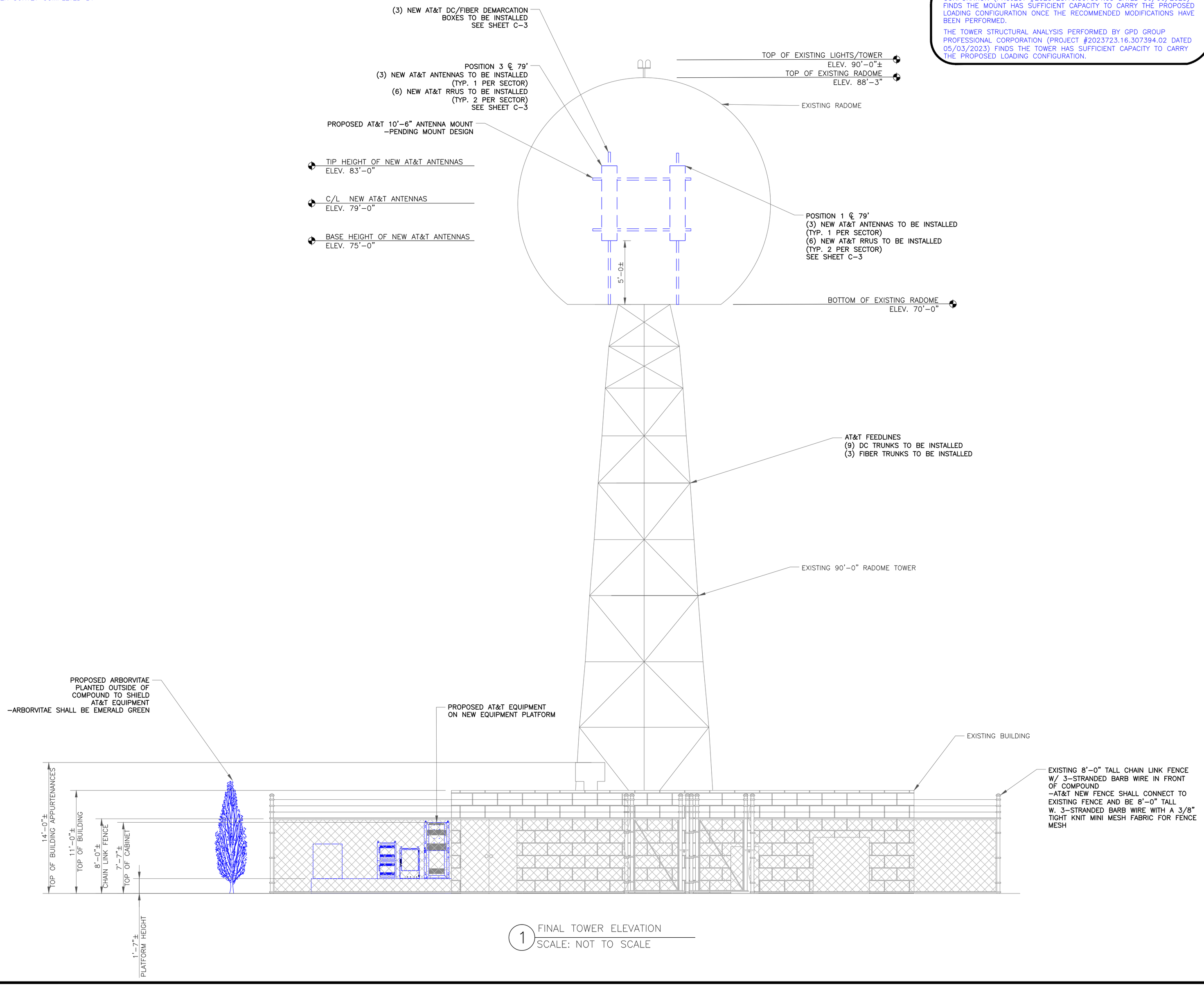
SHEET NUMBER: 5 C-3
REVISION: L

NOTE:

HEIGHT OF EXISTING RADOME PER SURVEY COMPLETED BY KEM-TEC DATED 03/02/2023

THE MOUNT ANALYSIS PERFORMED BY GPD GROUP PROFESSIONAL CORPORATION (PROJECT #2023723.16.307394.03 DATED 06/06/2023) FINDS THE MOUNT HAS SUFFICIENT CAPACITY TO CARRY THE PROPOSED LOADING CONFIGURATION ONCE THE RECOMMENDED MODIFICATIONS HAVE BEEN PERFORMED.

THE TOWER STRUCTURAL ANALYSIS PERFORMED BY GPD GROUP PROFESSIONAL CORPORATION (PROJECT #2023723.16.307394.02 DATED 05/03/2023) FINDS THE TOWER HAS SUFFICIENT CAPACITY TO CARRY THE PROPOSED LOADING CONFIGURATION.



1 FINAL TOWER ELEVATION
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

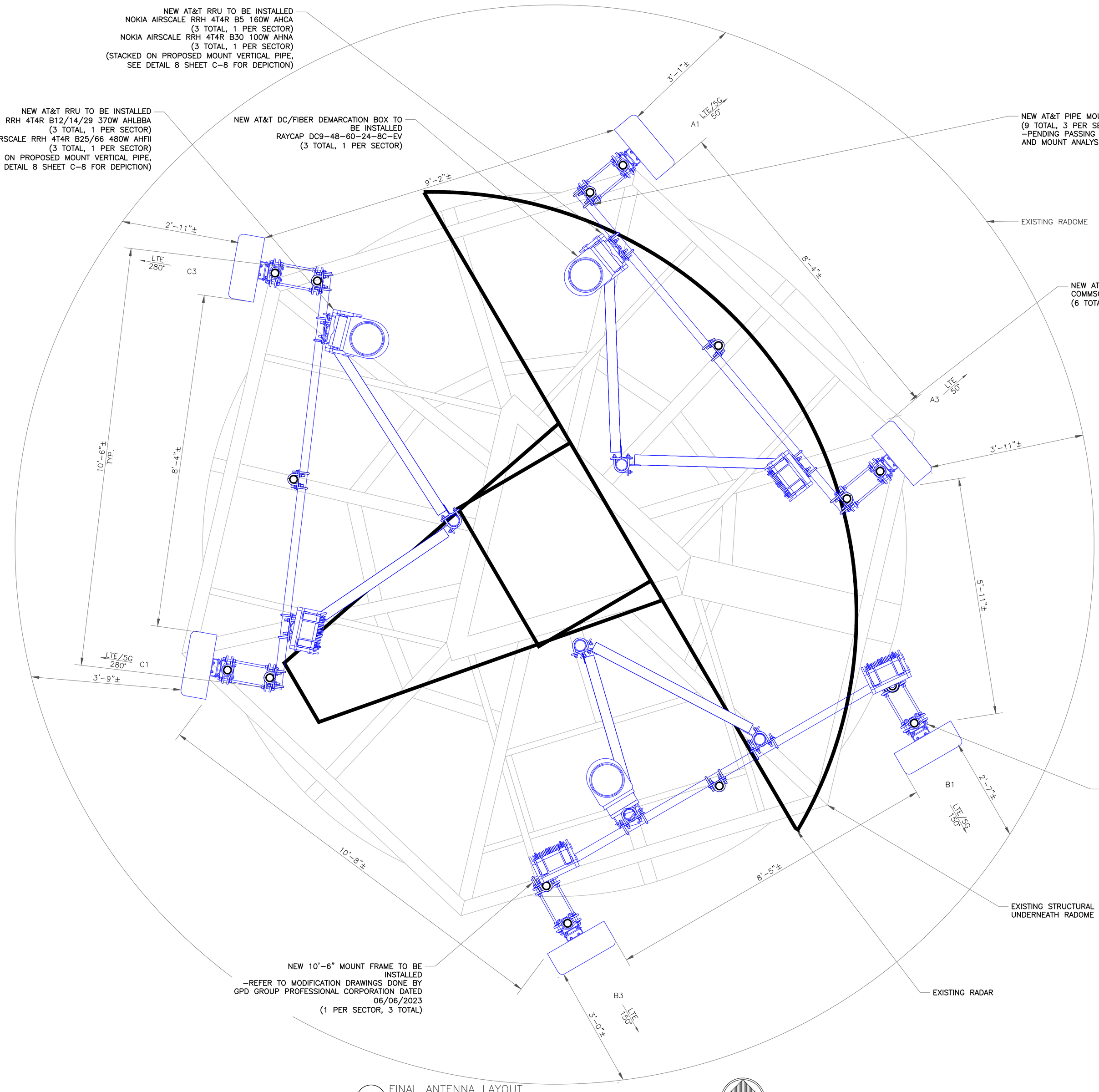
STATE OF MICHIGAN
CHRISTOPHER J SCHEKS
ENGINEER
License No. 6201060804
PROFESSIONAL ENGINEER
09/08/2023

CIVIL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-4

REVISION: L



NOTES:

ALL EXISTING EQUIPMENT AND EMPTY PIPES TO BE REMOVED FROM RADOME TOWER APART FROM THE ACTIVE MW ANTENNA
-EXISTING EQUIPMENT WAS REMOVED IN THE DRAWINGS FOR CLARITY

EXISTING RADAR TO BE REMOVED

1 FINAL ANTENNA LAYOUT
SCALE: 1' 6" 0 1' 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

N

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
CHRISTOPHER J. SCHEKS
ENGINEER
License No. 6201060804
PROFESSIONAL ENGINEER
09/08/2023

CIVIL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-5

REVISION: L

ANTENNA AND COAXIAL CABLE SCHEDULE

ALPHA

POSITION	TECH.	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT (LOW BAND/ HIGH BAND)	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY	DIPLEXER QTY ON TOWER	RAYCAP DEMARC SQUID	DC/ FIBER CABLES	RRUs QTY ON TOWER	DIPLEXERS QTY ON GROUND	RET HOMERUN
A1	5G 850, LTE WCS	NEW	50°	COMMSCOPE NNH4-65C-R6-V3	79'	0°	0°/0°	–	–	–	–	–	(1) DC9-48-60-24-8C-EV	(3) DC (PWRT-604-S) (1) FIBER (24 PAIR)	(1) B5 AHCA (1) B30 AHNA	–	–
A2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
A3	LTE 700, 1900, AWS	NEW	50°	COMMSCOPE NNH4-65C-R6-V3	79'	0°	0°/0°/0°	–	–	–	–	–	–	–	(1) B12/14/29 AHLBBA (1) B25/66 AHFII	–	–

BETA

B1	5G 850, LTE WCS	NEW	150°	COMMSCOPE NNH4-65C-R6-V3	79'	0°	0°/0°	–	–	–	–	–	(1) DC9-48-60-24-8C-EV	(3) DC (PWRT-604-S) (1) FIBER (24 PAIR)	(1) B5 AHCA (1) B30 AHNA	–	–
B2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B3	LTE 700, 1900, AWS	NEW	150°	COMMSCOPE NNH4-65C-R6-V3	79'	0°	0°/0°/0°	–	–	–	–	–	–	–	(1) B12/14/29 AHLBBA (1) B25/66 AHFII	–	–

GAMMA

C1	5G 850, LTE WCS	NEW	280°	COMMSCOPE NNH4-65C-R6-V3	79'	0°	0°/0°	–	–	–	–	–	(1) DC9-48-60-24-8C-EV	(3) DC (PWRT-606-S) (1) FIBER (24 PAIR)	(1) B5 AHCA (1) B30 AHNA	–	–
C2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
C3	LTE 700, 1900, AWS	NEW	280°	COMMSCOPE NNH4-65C-R6-V3	79'	0°	0°/0°/0°	–	–	–	–	–	–	–	(1) B12/14/29 AHLBBA (1) B25/66 AHFII	–	–

NOTE: RFDS BEING USED DATED 09/23/2021 V02

1 FINAL ANTENNA AND COAXIAL CABLE SCHEDULE
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
CHRISTOPHER J SCHEKS
ENGINEER
License No. 6201060804
PROFESSIONAL ENGINEER
09/08/2023

CIVIL

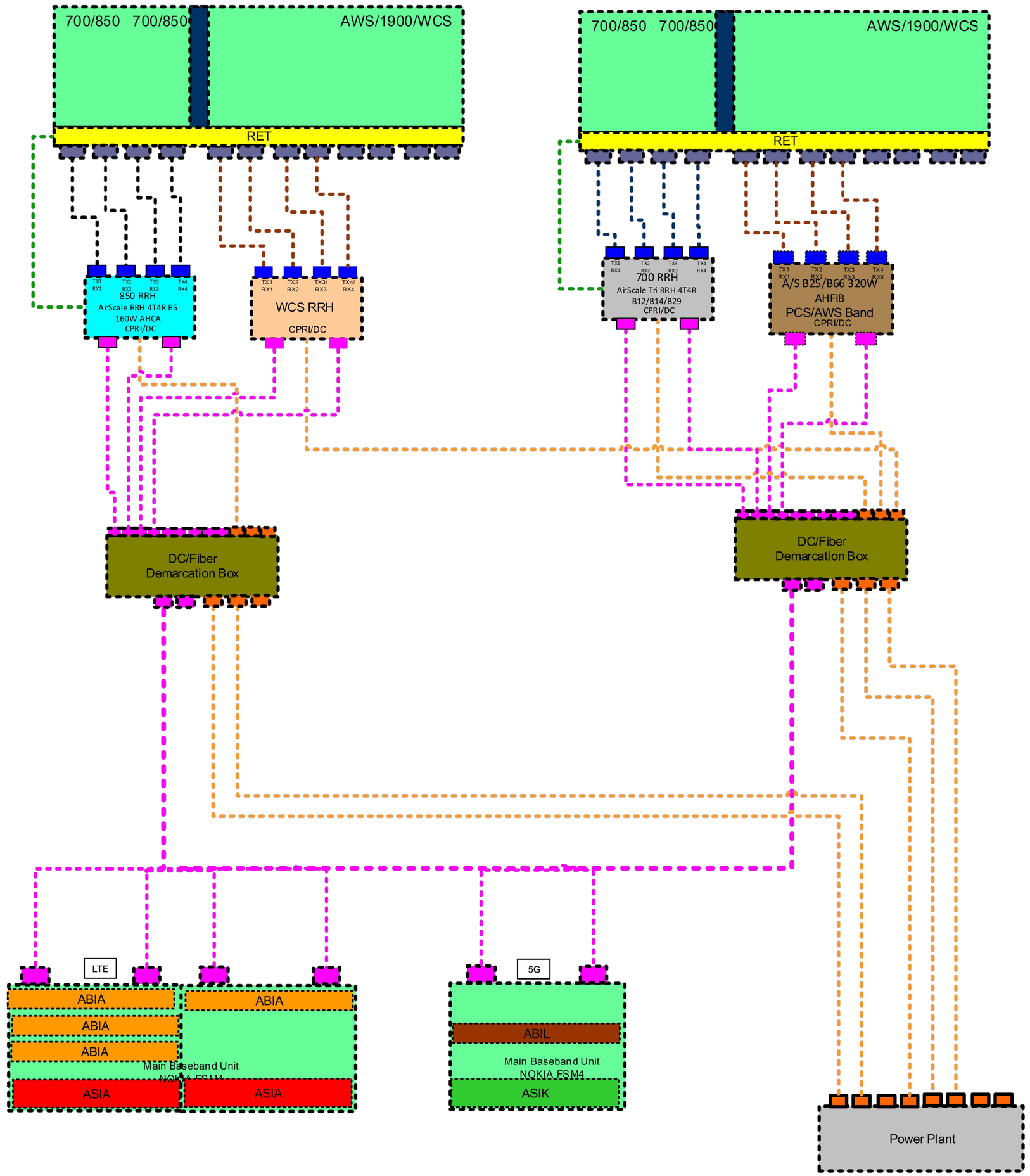
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-6

REVISION: L

Diagram - Sector	D	Diagram File Name - OML05943_SECTOR_A_AFTER.vsd					
Atoll Site Name -	GRANMI5943	Location Name -	GRANMI5943 SAUGATUCK	Market -	OUTSTATE MI	Market Cluster -	MICHIGAN/INDIANA
Comments:							

OML05943_SECTOR_A_AFTER



1 ALPHA SECTOR PLUMBING DIAGRAM
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

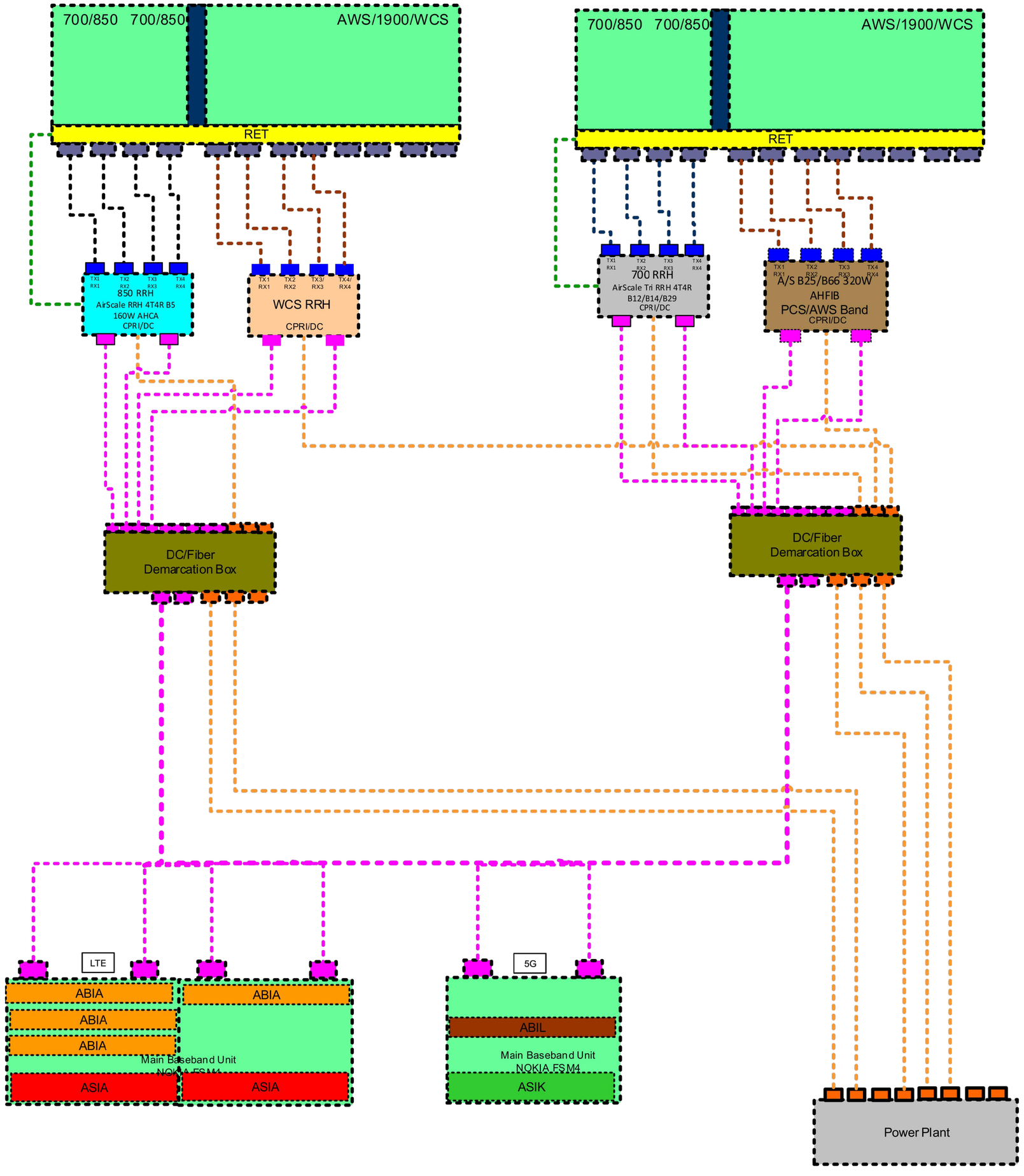
REFERENCE ONLY

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-7.1
REVISION: L

Diagram - Sector	E	Diagram File Name - OML05943_SECTOR_B_AFTER.vsd					
Atoll Site Name -	GRANMI5943	Location Name -	GRANMI5943 SAUGATUCK	Market -	OUTSTATE MI	Market Cluster -	MICHIGAN/INDIANA
Comments:							

OML05943_SECTOR_B_AFTER



1 BETA SECTOR PLUMBING DIAGRAM
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

REFERENCE ONLY

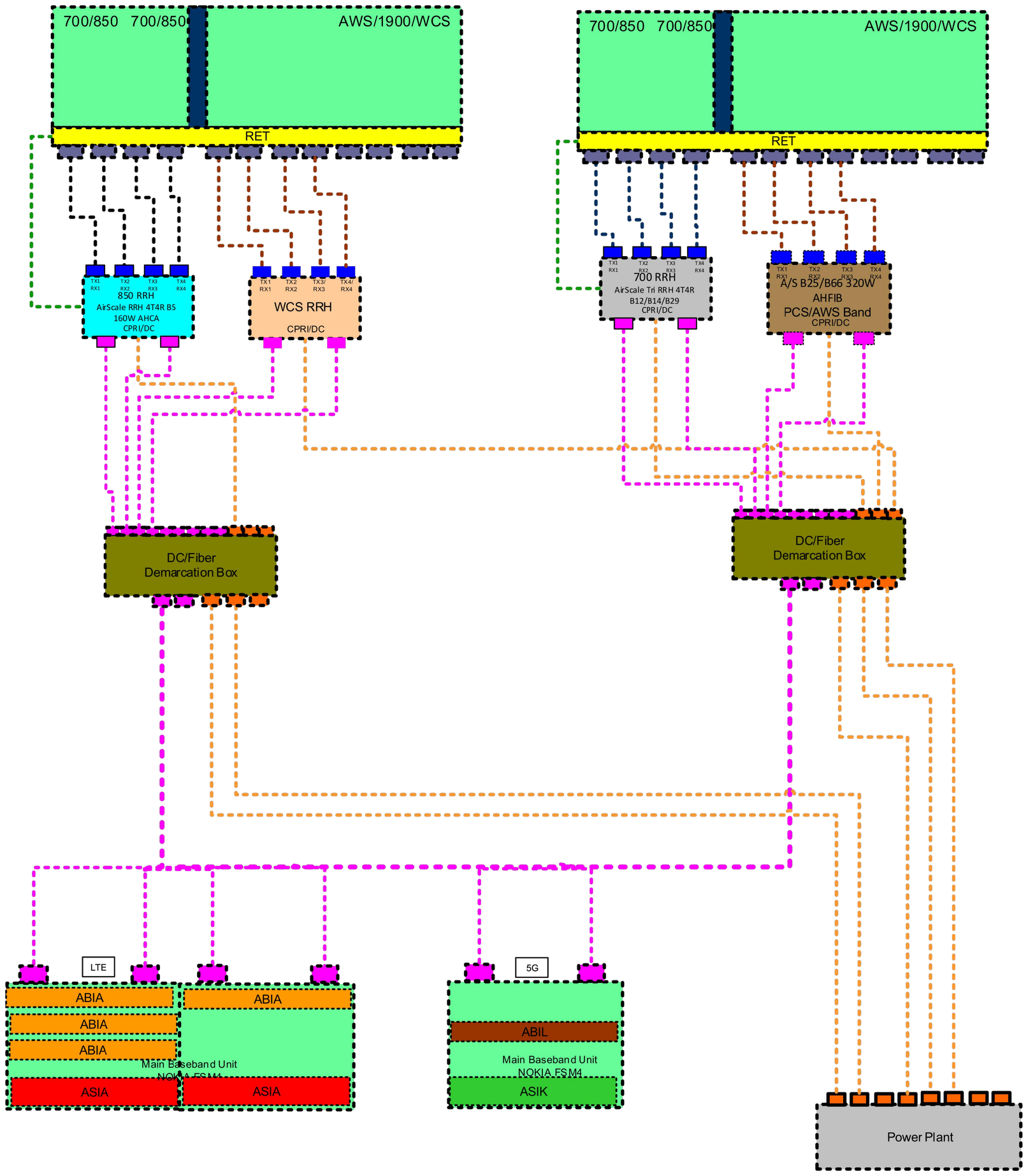
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-7.2

REVISION: L

Diagram - Sector	F	Diagram File Name - OML05943_SECTOR_C_AFTER.vsd					
Atoll Site Name -	GRANMI5943	Location Name -	GRANMI5943 SAUGATUCK	Market -	OUTSTATE MI	Market Cluster -	MICHIGAN/INDIANA
Comments:							

OML05943_SECTOR_C_AFTER



1 GAMMA SECTOR PLUMBING DIAGRAM
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

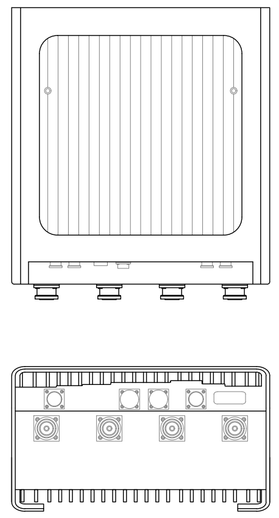
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

REFERENCE ONLY

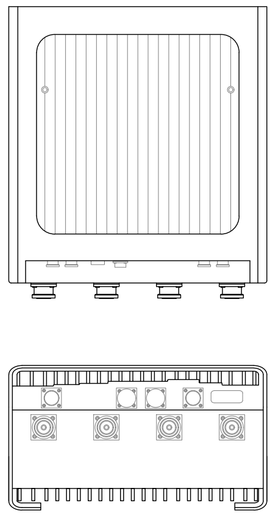
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-7.3
REVISION: L



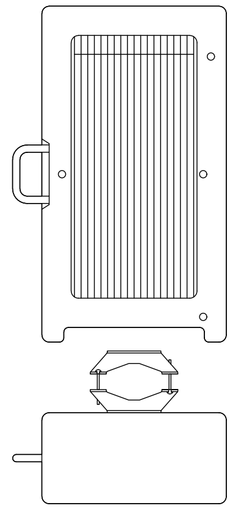
NOKIA – AIRSCALE RRH 4T4R B30 100W AHNA
WEIGHT (FULLY EQUIPPED): 39.02 LBS
SIZE (HxWxD): 13.3X12.1X5.5 IN.

1 NOKIA AHNA
SCALE: NOT TO SCALE



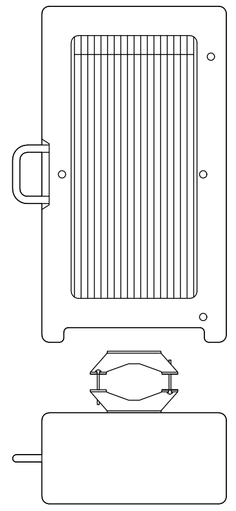
NOKIA – AIRSCALE RRH 4T4R B5 160W AHCA
WEIGHT (FULLY EQUIPPED): 35.27 LBS
SIZE (HxWxD): 13.3x11.6x6.5 IN.

2 NOKIA AHCA
SCALE: NOT TO SCALE



NOKIA AIRSCALE DUAL RRH 4T4R B25/66 480W AHFII
WEIGHT (FULLY EQUIPPED): 70.55 LBS
SIZE (HxWxD): 25.20x13.46x4.57 IN.
CONNECTOR TYPE: 4.3–10 FEMALE (4 TOTAL PORTS)

3 NOKIA AHFII
SCALE: NOT TO SCALE



NOKIA AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA
WEIGHT (FULLY EQUIPPED): 88.2 LBS
SIZE (HxWxD): 28.7x15.4x9.45 IN.
CONNECTOR TYPE: 4.3–10 FEMALE (4 TOTAL PORTS)

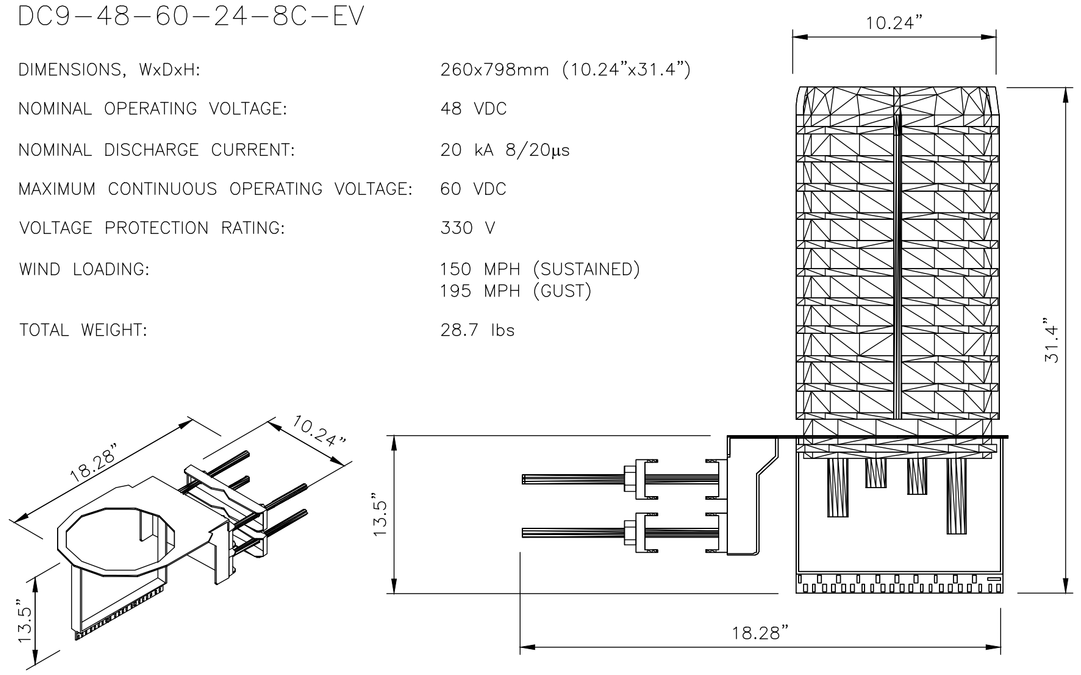
4 NOKIA AHLBBA
SCALE: NOT TO SCALE

5 DETAIL NOT USED
SCALE: NOT TO SCALE

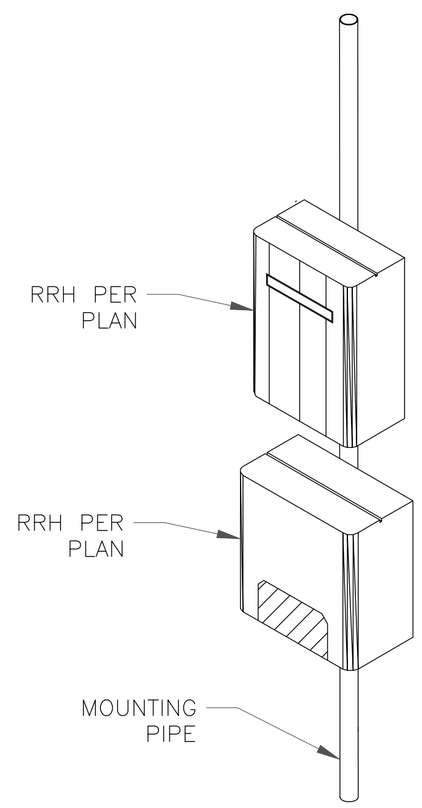
6 DETAIL NOT USED
SCALE: NOT TO SCALE

RAYCAP
DC9–48–60–24–8C–EV

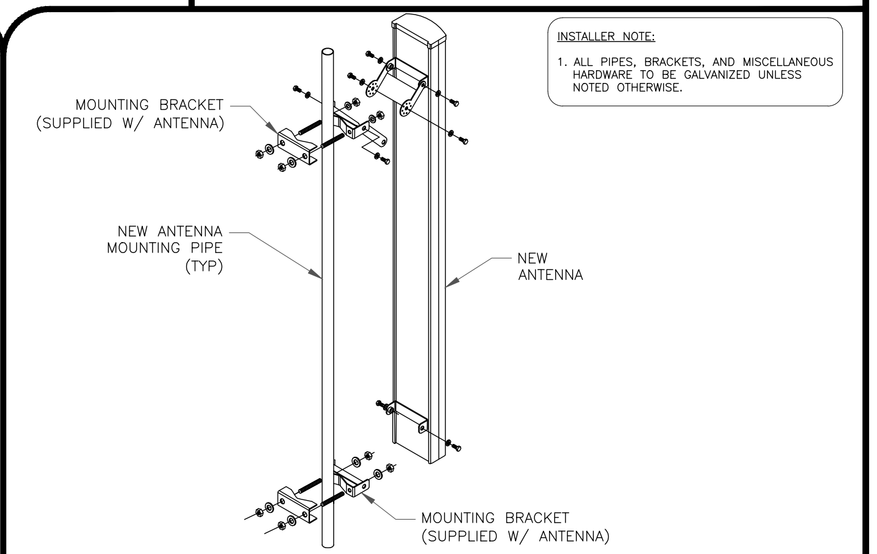
DIMENSIONS, WxDxH:	260x798mm (10.24"x31.4")
NOMINAL OPERATING VOLTAGE:	48 VDC
NOMINAL DISCHARGE CURRENT:	20 kA 8/20µs
MAXIMUM CONTINUOUS OPERATING VOLTAGE:	60 VDC
VOLTAGE PROTECTION RATING:	330 V
WIND LOADING:	150 MPH (SUSTAINED) 195 MPH (GUST)
TOTAL WEIGHT:	28.7 lbs



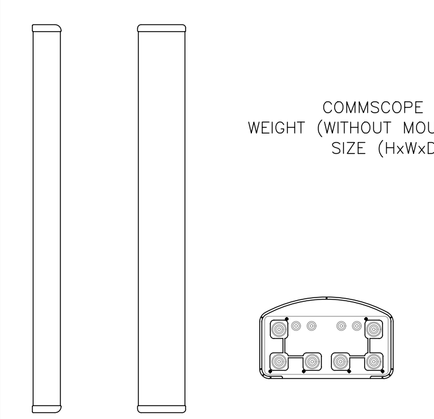
7 SQUID MOUNTING DETAIL
SCALE: NOT TO SCALE



8 STACKED RADIO DETAIL
SCALE:



9 MOUNTING DETAIL
SCALE: NOT TO SCALE



COMMSCOPE – NNH4–65C–R6–V3
WEIGHT (WITHOUT MOUNTING HARDWARE): 102.1 LBS
SIZE (HxWxD): 96.0x19.6x7.8 IN.

10 COMMSCOPE NNH4–65C–R6–V3
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

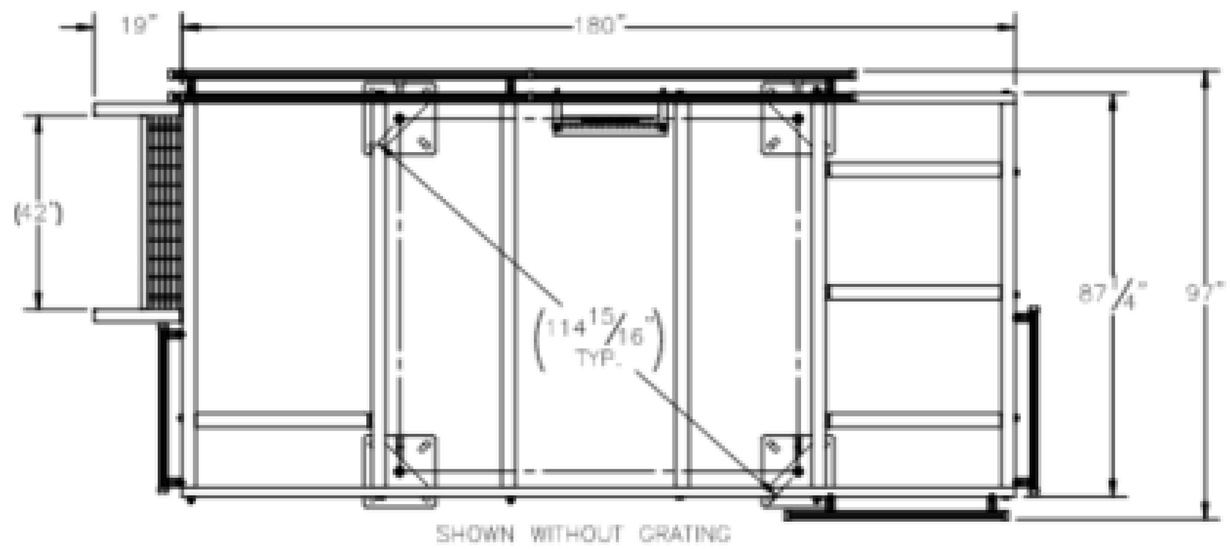
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

REFERENCE ONLY

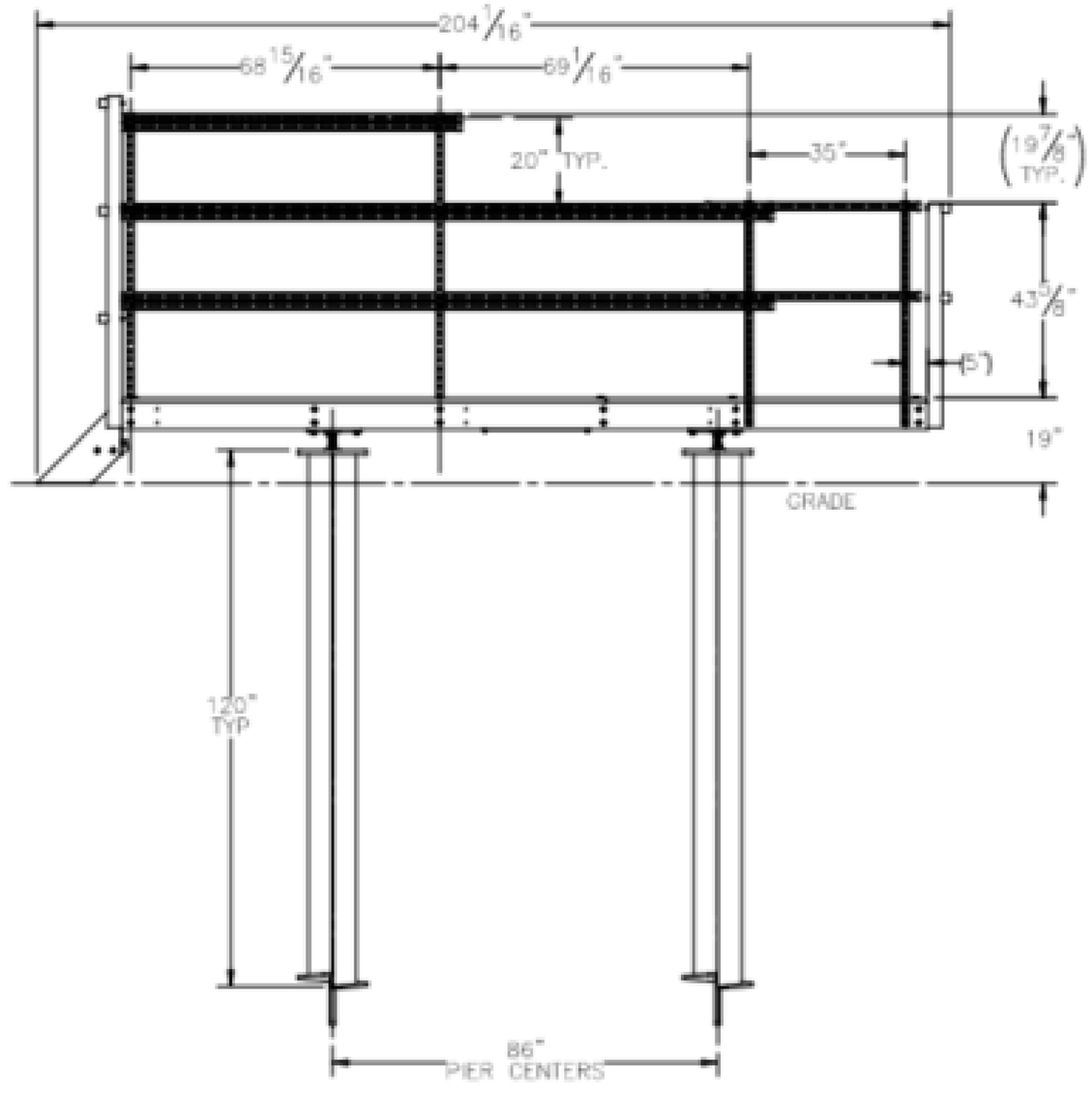
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

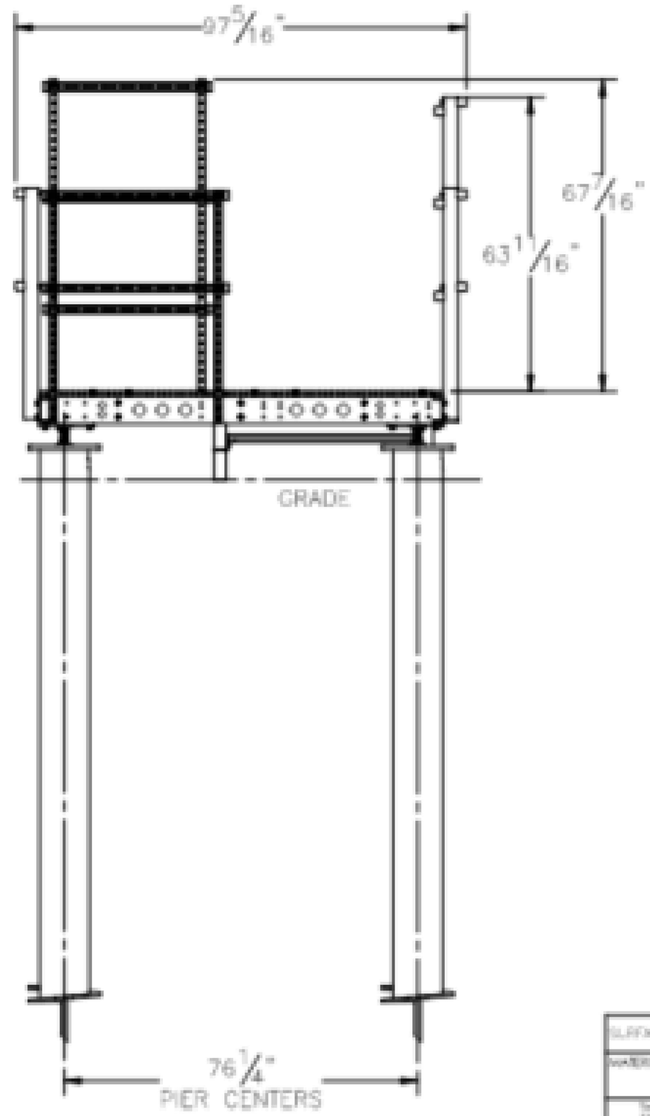
SHEET NUMBER: C-8
REVISION: L

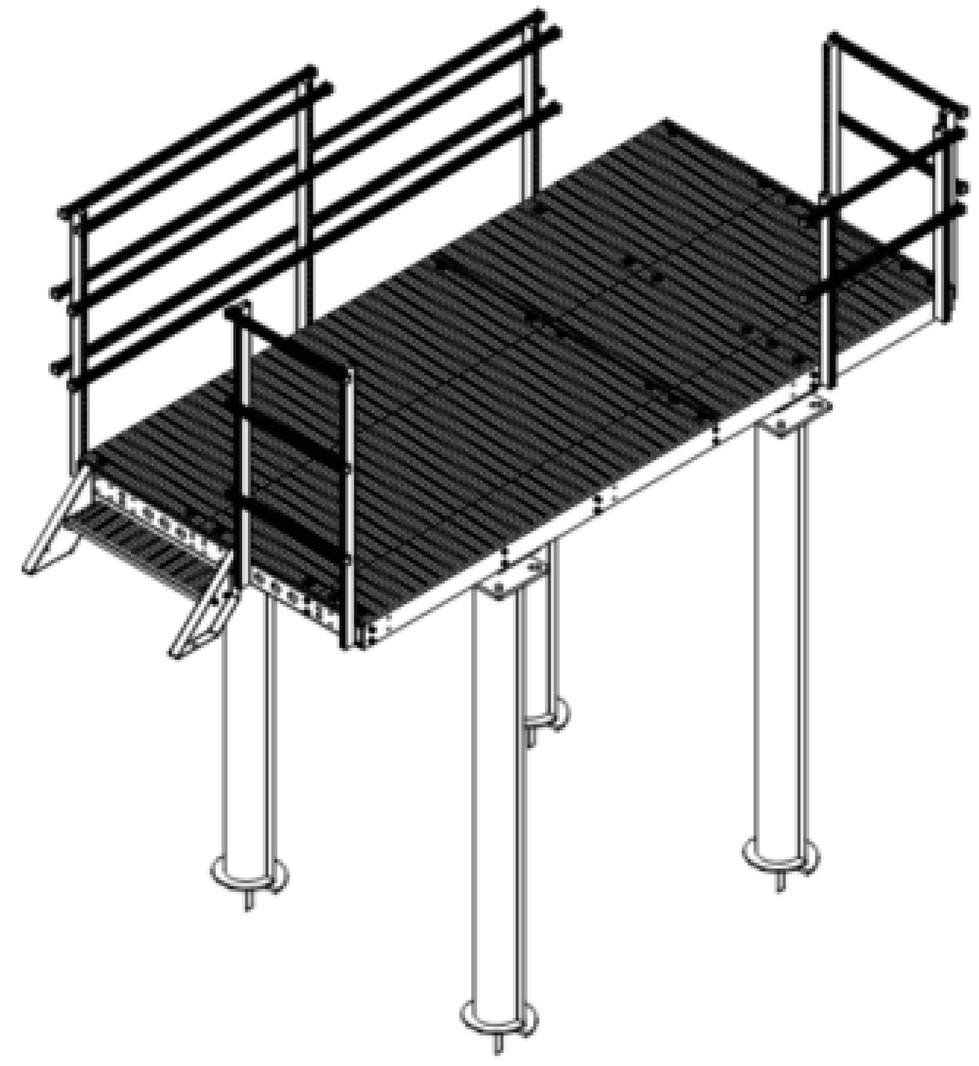
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF ELECTRO MECHANICAL INDUSTRIES, INC. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF ELECTRO MECHANICAL IND., IS PROHIBITED.



SHOWN WITHOUT GRATING







SALES DRAWING

SURFACE FINISH: √ UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	APPROVALS	DATE
MATERIAL: SEE PARTS LIST	TOLERANCES: FRACTIONS ±1/64, ANGLES ± 30', HOLES: DRILLED OR PUNCHED ±1/64, REAMED ±1/32	DRAWN: J. CRISSE	6/23/2023
THIRD ANGLE PROJECTION		CHECKER: J. BREEN	6/23/2023
		ENGINEER: J. BATEN	6/23/2023
NEXT ASSY: USED ON		PRODUCTION: J. SUNDERLAND	6/23/2023
APPLICATION:			

ELECTRO MECHANICAL INDUSTRIES, INC. 11321 HERMAN DRIVE HOUSTON, TEXAS 77065 1-800-453-0852

TITLE: 87" X 180" BOLT TOGETHER PLATFORM HELICAL MOUNTED

SIZE: B | DRAWING NO: 1000-0010-0465 | REV: 0

SCALE: 1:60 | WEIGHT: 3462.26 lbs. | SHEET 1 OF 1

1 PLATFORM SPECIFICATIONS
SCALE: NO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

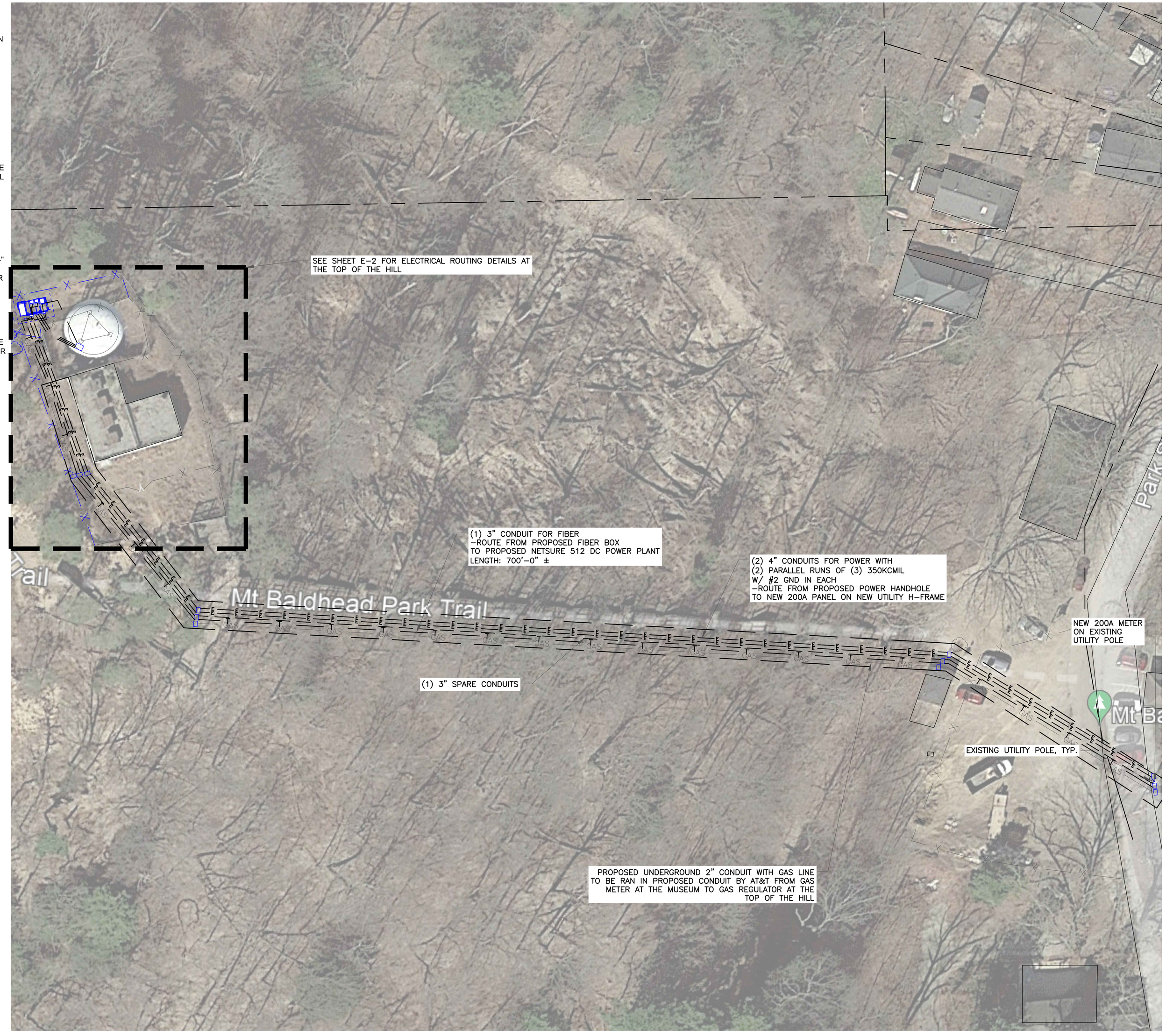
REFERENCE ONLY

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: S-1

REVISION: L

1. THE CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON THE PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.
2. ALL ELECTRICAL EQUIPMENT AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES, INDICATING THE CIRCUITS ORIGINATION AND ALL EQUIPMENT TERMINATIONS.
3. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS, CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
4. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS, AND CIRCUIT CONDUCTORS, AS REQUIRED FOR A COMPLETED SYSTEM AND SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
5. WHEN ADDITIONAL +24Vdc TO -48Vdc CONVERTERS ARE REQUIRED FOR LTE EQUIPMENT, ADDITIONAL +24Vdc RECTIFICATION & ADDITIONAL BATTERIES MAY BE REQUIRED TO BE ADDED TO THE EXISTING BATTERY STRING. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BREAKERS, RECTIFIERS, BATTERIES, CONDUIT, CABLE TRAY, & CONDUCTORS WHICH ARE REQUIRED FOR A COMPLETED, FUNCTIONING ELECTRICAL SYSTEM.
6. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.
7. PROPOSED TELCO WITH 25 PAIR ICKY-PICK CAT 5 CONDUCTOR IN (2) PROPOSED 4" SCH 40 PVC CONDUIT. CONTRACTOR TO COORDINATE WITH LOCAL TELEPHONE COMPANY. EACH 4" TELCO CONDUIT TO HAVE (2) 1-1/4" INTERDUCT CONDUITS FOR FIBER.
8. PROPOSED POWER IN (1) PROPOSED 3" SCH 40 IMC CONDUIT. CONTRACTOR TO COORDINATE W/ LOCAL UTILITY COMPANY.
9. CONTRACTOR SHALL COORDINATE WITH POWER AND TELEPHONE COMPANIES, AND PROVIDE ALL MATERIALS REQUIRED, AND PROVIDE TRENCH, BACKFILL & SITE RESTORATION. DEPTH OF CONDUITS PER N.E.C., LOCAL JURISDICTION AND POWER & TELE COMPANY, WHICH EVER IS MORE STRINGENT.



CONTRACTOR NOTE:

CONTRACTOR SHALL COORDINATE CONTROL & ALARM CONDUITS, WIRES & TERMINATION REQUIREMENTS FOR DIESEL GENERATOR PER MANUFACTURERS DRAWINGS

1 OVERALL ELECTRICAL SITE PLAN
SCALE: NO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

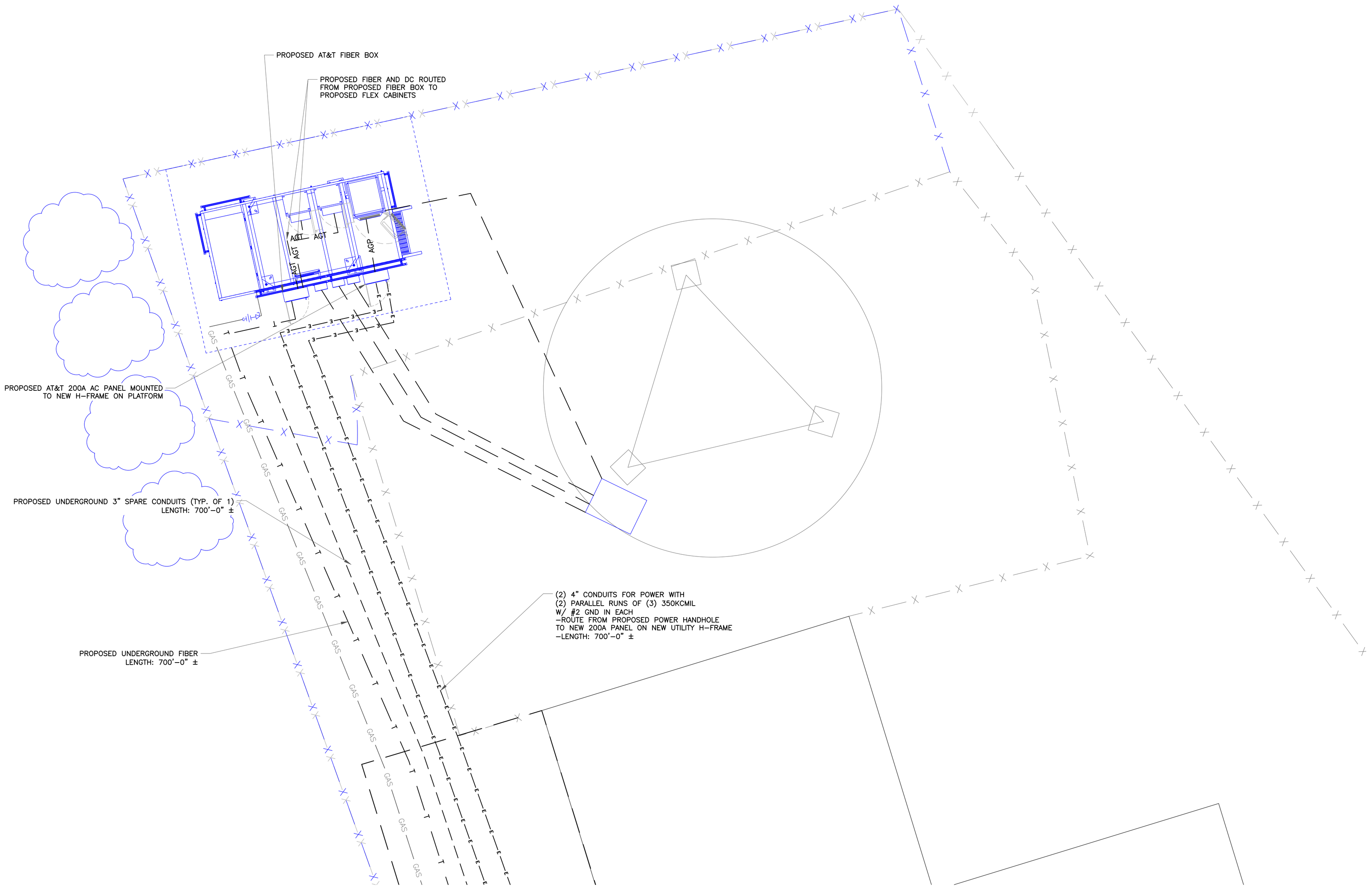
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P. SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: E-1
REVISION: L



1 TOP OF HILL ELECTRIAL PLAN
SCALE: NO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

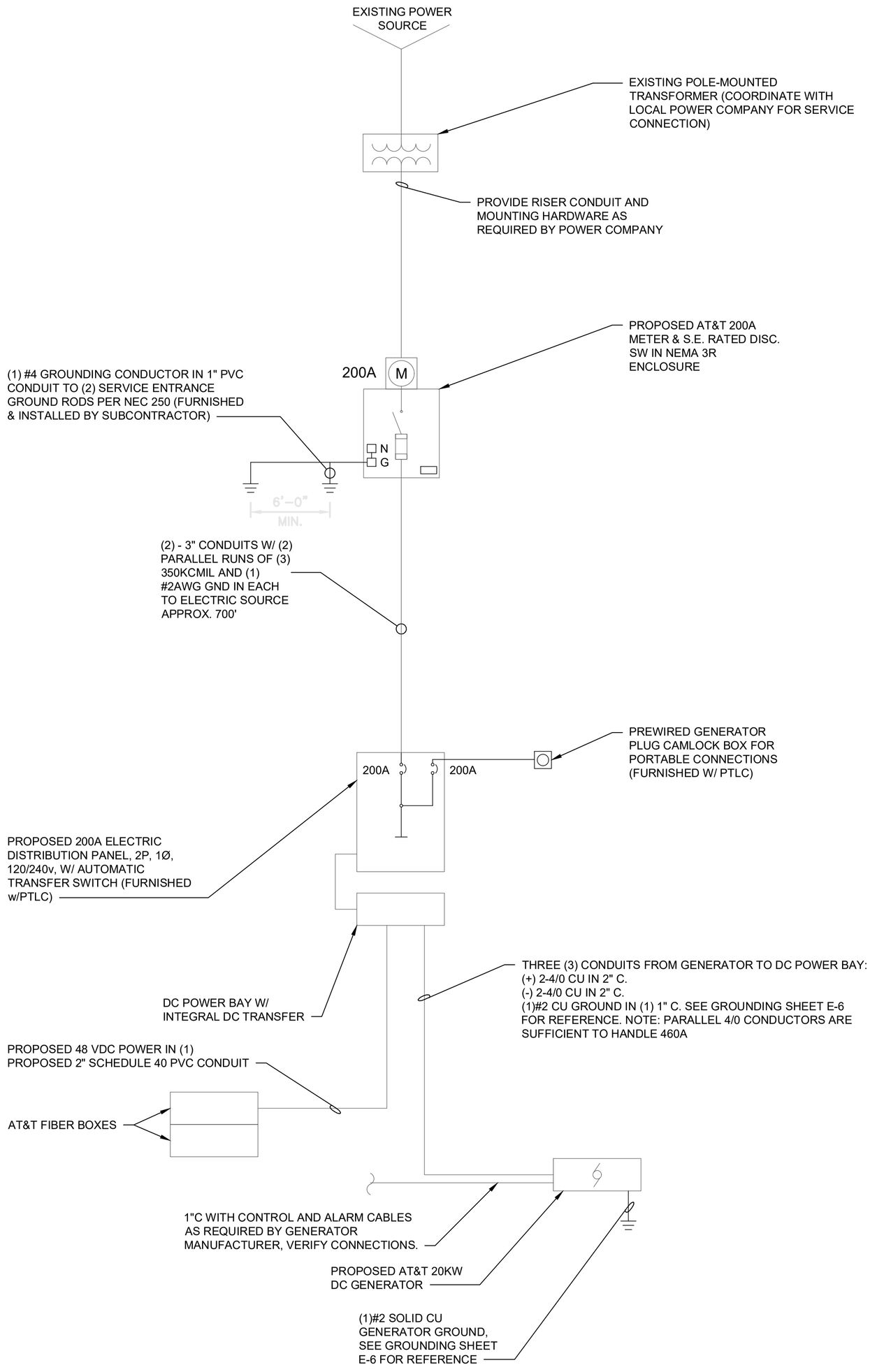
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: E-2

REVISION: L

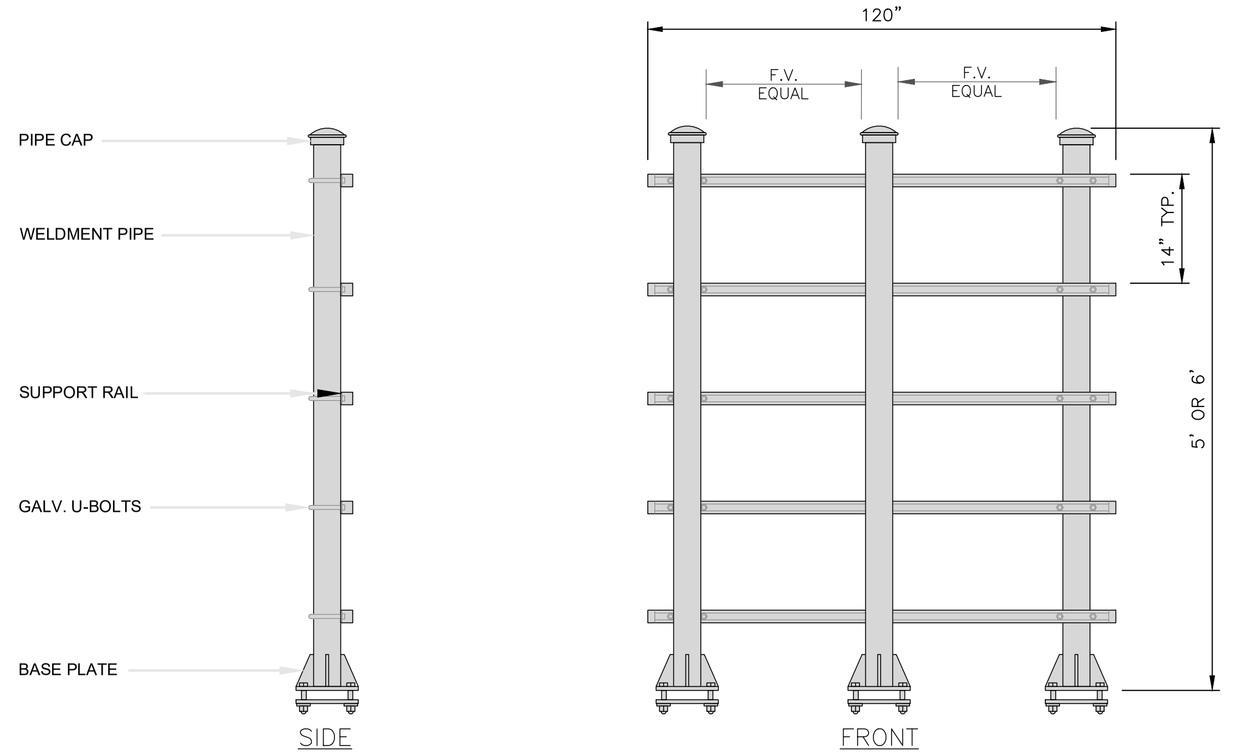


CONTRACTOR SHALL INSTALL PER LATEST EDITION OF THE NEC

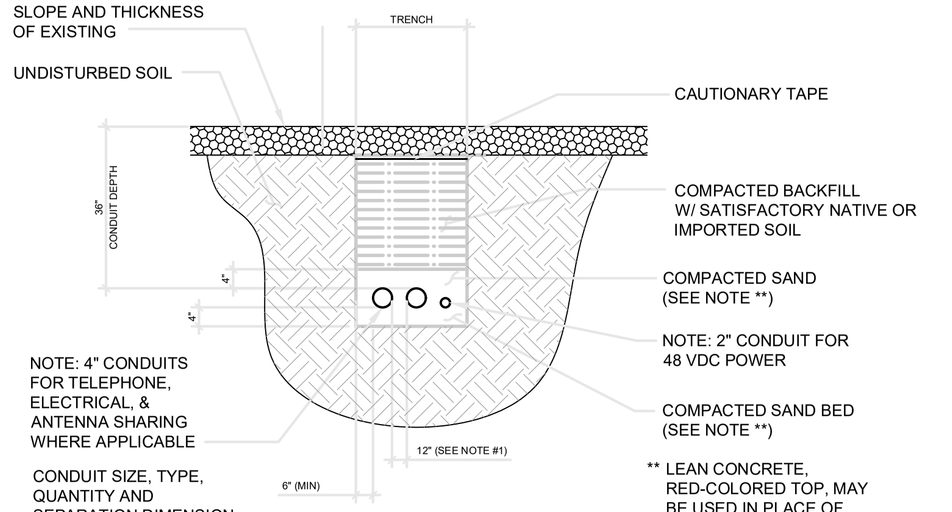
CONTRACTOR SHALL COORDINATE CONTROLS AND ALARMS, CONDUITS, WIRES AND TERMINATIONS FROM DC GENERATOR AS REQUIRED BY MANUFACTURER

1 ONE LINE DIAGRAM
SCALE: NO SCALE

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

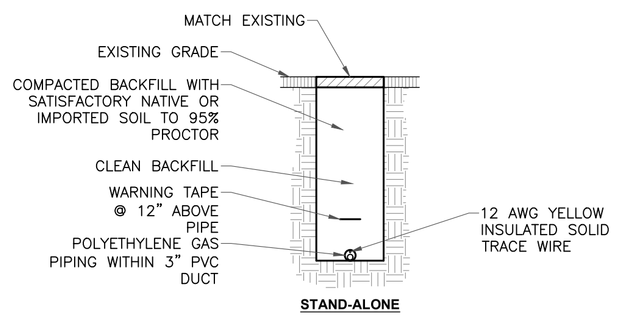


2 H-FRAME DETAIL
SCALE: NO SCALE

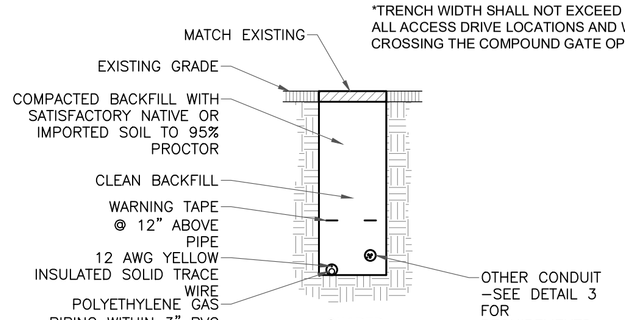


3 TRENCHING DETAIL
SCALE: NO SCALE

*TRENCH WIDTH SHALL NOT EXCEED 18" AT ALL ACCESS DRIVE LOCATIONS AND WHEN CROSSING THE COMPOUND GATE OPENING



*TRENCH WIDTH SHALL NOT EXCEED 18" AT ALL ACCESS DRIVE LOCATIONS AND WHEN CROSSING THE COMPOUND GATE OPENING



3 GAS TRENCHING DETAIL
SCALE: NO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: E-3
REVISION: L

VOLTAGE:	120/240V				PHASE:	1		WIRE:	3							
MAIN BREAKER:	200 AMP				BUSS RATING:	200 AMPS		AIC:	22K (VERIFY IN FIELD. SEE NOTE 29 ON SHEET E-3)							
MOUNT:	SURFACE				NEUTRAL BAR:	YES		GROUND BAR:	YES							
ENCLOSURE TYPE:	NEMA 3R				N to GROUND BOND:	NO										
PANEL STATUS:	PROPOSED				INTERNAL TVSS:	YES										

CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	RECTIFIER 1 & 2	25	2	ON	2150	1.00	2330		1.00	180	ON	1	20	GFCI	2
3				ON	2150	1.00		4300	1.00	2150	ON	2	25	RECTIFIER 7 & 8	4
5	RECTIFIER 3 & 4	25	2	ON	2150	1.00	4300		1.00	2150	ON				6
7				ON	2150	1.00		4300	1.00	2150	ON	2	25	RECTIFIER 9 & 10	8
9	RECTIFIER 5 & 6	25	2	ON	2150	1.00	4300		1.00	2150	ON				10
11				ON	2150	1.00		2150	1.00	0	OFF	2	30	SPARE	12
13	SPARE	30	2	OFF	0	1.00	0		1.00	0	OFF				14
15				OFF	0	1.00		0	1.00	0	N/A	---	---	---	16
17	---	---	---	N/A	0	1.00	0		1.00	0	N/A	---	---	---	18
19	---	---	---	N/A	0	1.00		0	1.00	0	N/A	---	---	---	20
21	---	---	---	N/A	0	1.00	0		1.00	0	N/A	---	---	---	22
23	---	---	---	N/A	0	1.00		0	1.00	0	N/A	---	---	---	24
25	---	---	---	N/A	0	1.00	0		1.00	0	N/A	---	---	---	26
27	---	---	---	N/A	0	1.00		0	1.00	0	N/A	---	---	---	28
29	---	---	---	N/A	0	1.00	0		1.00	0	N/A	---	---	---	30
							10930	10750	VA			TOTAL KVA	21.68		
EQUIPMENT CABINET SCHEDULE												AMPS	90.33		

1 MAIN PANEL SCHEDULE
SCALE: NO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P. SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: 4 E-4
REVISION: L

A. WORK INCLUDED:

THIS SPECIFICATION AND ACCOMPANYING DRAWING CONTEMPLATE THE PROVISIONS AND INSTALLATION, BY THE ELECTRICAL CONTRACTOR OF ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO INSTALL THE ELECTRICAL WORK COMPLETE IN CONNECTION WITH THIS AT&T MOBILITY SITE AND SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

1. THE PROVISIONS, INSTALLATION AND CONNECTION OF A GROUNDING ELECTRODE SYSTEM COMPLETE WITH A BUILDING AND SECONDARY GROUNDING, TOWER GROUNDING AND CONNECTIONS TO THE INCOMING ELECTRICAL DISTRIBUTION EQUIPMENT.

2. THE PROVISIONS AND INSTALLATION OF AN ELECTRICAL SERVICE AND ALL ASSOCIATED WIRE AND CONDUIT AS REQUIRED AND/OR INDICATED ON PLANS.

3. ALL UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC. (UNLESS OTHERWISE NOTED).

4. ALL CONDUITS SHALL BE LEFT WITH 200# TEST PULL WIRE. (UNLESS NOTED OTHERWISE) STUB & PLUG BOTH ENDS OF ALL SPARE CONDUITS UP AT 12" ABOVE GRADE.

5. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL THE ELECTRICAL SERVICE ENTRANCE CONDUCTORS AND CONDUIT AND MAKE THE CONNECTION TO THE SERVICE EQUIPMENT WITHIN THE BUILDING.

6. SUBCONTRACTOR SHALL NOTIFY ELECTRIC AND TELEPHONE SERVICES CONTACT AT START OF CONSTRUCTION (2 WEEKS MIN.):

POWER CO.: CONSUMERS ENERGY
CONTACT:
PHONE #:

TELEPHONE CO.:
CONTACT:
PHONE #:

7. ABOVE GRADE RISER CONDUIT SHALL BE GALVANIZED STEEL WITH MATCHING FITTINGS.

8. THE SUBCONTRACTOR SHALL PERFORM ALL WORK SHOWN ON THE BUILDING DRAWINGS NOTED "FIELD WORK" OR OTHERWISE NOTED AS WIRING TO BE COMPLETED IN THE FIELD.

9. ALL WIRE SHALL BE (COPPER, 600V THHW, 90°C) UNLESS NOTED OTHERWISE.

B. CODES, PERMITS AND FEES:

1. ALL REQUIRED PERMITS, LICENSES, INSPECTIONS AND APPROVALS SHALL BE SECURED AND ALL FEES FOR SAME PAID BY SUBCONTRACTOR.

2. THE INSTALLATION SHALL COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES; STATE, LOCAL AND NATIONAL, AND THE DESIGN, PERFORMANCE CHARACTERISTICS AND METHODS OF CONSTRUCTION OF ALL ITEMS AND EQUIPMENT, SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF THE VARIOUS APPLICABLE STANDARD SPECIFICATIONS OF THE FOLLOWING RECOGNIZED AUTHORITIES:

A.N.S.I. - AMERICAN NATIONAL STANDARDS INSTITUTE
I.E.E.E. - INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
N.E.C. - NATIONAL ELECTRIC CODE
N.E.M.A. - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N.F.P.A. - NATIONAL FIRE PROTECTION ASSOCIATION
U.L. - UNDERWRITERS LABORATORIES, INC.

3. THE SUBCONTRACTOR SHALL BE LICENSED TO PERFORM WORK IN THE STATE, CITY OR COUNTY OF THE PROJECT SITE AS REQUIRED.

4. UTILITY COMPANY COORDINATION
ELECTRICAL CONTRACTOR SHALL COMPLETE ALL WORK IN ACCORDANCE WITH THE RULES OF THE LOCAL UTILITY COMPANY. BEFORE SUBMITTING HIS BID, THE SUBCONTRACTOR SHALL CHECK WITH THE UTILITY COMPANIES SUPPLYING SERVICE TO THIS PROJECT AND SHALL DETERMINE FROM THEM ALL EQUIPMENT AND CHARGES WHICH THEY WILL REQUIRE AND SHALL INCLUDE THE COST IN HIS BID WHENEVER POSSIBLE.

5. UTILITIES:

THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE EXCAVATION AND PROPER BACKFILLING OF TRENCHES AND SUPPLY CONDUIT REQUIRED FOR UNDERGROUND TELEPHONE & ELECTRICAL UTILITIES. ALL TRENCHING SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE W/ASTM D-1557 IN 6" LIFTS.

THE ELECTRICAL TRENCH SHALL START AT THE NEW PREFABRICATED RADIO EQUIPMENT BUILDING AND END AT THE NEW METER BOARD STRUCTURE. THE SUBCONTRACTOR SHALL THEN STUB THE CONDUIT 5' OUTSIDE THE FENCE. THE ELECTRIC PROVIDER SHALL PROVIDE SERVICE TO THE NEW METER BOARD STRUCTURE. THE SUBCONTRACTOR SHALL PROPERLY BACKFILL THE TRENCHES AFTER SETTLEMENT AND RESTORE GRAVEL COMPOUND. CONTACT ELECTRIC PROVIDER SIX WEEKS PRIOR TO CONSTRUCTION FOR SERVICE AND COORDINATION OF ACCESS TO SITE.

THE SUBCONTRACTOR SHALL RUN THE TELEPHONE TRENCH AND CONDUIT FROM THE NEW PREFABRICATED RADIO EQUIPMENT BUILDING TO THE NEW TELCO METER BOARD STRUCTURE. THE SUBCONTRACTOR SHALL THEN RUN CONDUIT W/PULL STRING OUTSIDE THE FENCE IN THE UTILITY EASEMENT TO THE R.O.W. THE SUBCONTRACTOR SHALL STAKE THE LOCATIONS OF THE PULL BOXES. THE TELCO PROVIDER SHALL PROVIDE SERVICE TO THE METER BOARD STRUCTURE. THE SUBCONTRACTOR SHALL PROPERLY BACKFILL THE TRENCHES AFTER SETTLEMENT AND RESTORE THE GRAVEL COMPOUND.

2. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

3. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

4. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

6. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.

7. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA.

8. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPICITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANEL BOARD AND CIRCUIT ID'S).

9. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

10. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

11. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

16. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

17. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

18. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

19. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

20. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

21. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

22. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

23. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

25. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

26. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

27. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

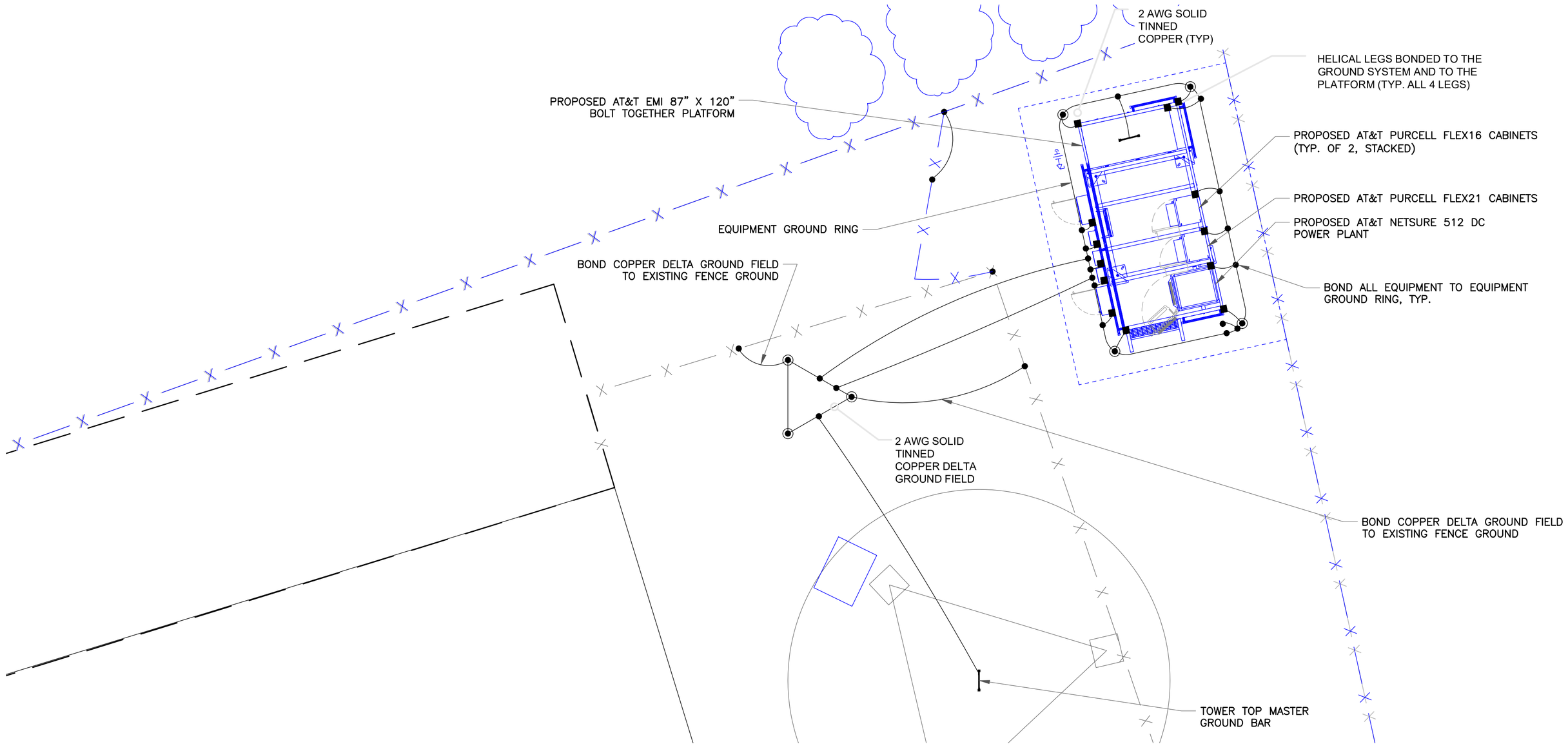
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P. SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: 4 E-5
REVISION: L



1 TOP OF HILL GROUNDING PLAN
SCALE: 4' 2' 0 4' 3/16"=1'-0" (FULL SIZE) 3/32"=1'-0" (11x17)

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY. FOR GROUNDING DETAILS SEE DRAWINGS G-2 THRU G-4
2. TESTING SHALL BE PERFORMED AT ALL SITES WHERE MODIFICATIONS OR ADDITIONS ARE MADE TO THE EXISTING GROUNDING SYSTEM AND SHALL BE IN ACCORDANCE WITH AT&T GROUNDING AND BONDING STANDARDS TP-76416. THE CONTRACTOR SHALL SUPPLY AT&T WITH RESULTS FROM PRE-CONSTRUCTION AND POST-CONSTRUCTION OHM TESTING (GROUNDING) RESULTS AND BE IN COMPLIANCE WITH AT&T GROUNDING AND BONDING STANDARDS TP-76416.
3. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A "FALL OF POTENTIAL" TEST ON THE PROPOSED SUPPLEMENTAL GROUNDING FIELD PRIOR TO FINAL CONNECTION OF THE GROUNDING SYSTEM TO EQUIPMENT. THE TEST SHALL BE PERFORMED BY A QUALIFIED AND CERTIFIED TESTING AGENT. PROVIDE INDEPENDENT TEST RESULTS TO THE PROJECT MANAGER FOR REVIEW. THE GROUNDING SYSTEM RESISTANCE TO EARTH GROUNDING SHALL NOT EXCEED (5) OHMS. IF THE GROUNDING TEST EXCEEDS THE MAXIMUM OF (5) OHMS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADDITIONAL GROUNDING RODS AND CONNECTIONS AS REQUIRED TO MEET THE (5) OHMS' MAXIMUM.
4. THE INSPECTOR HAVING JURISDICTION SHALL INSPECT ALL GROUNDING CONNECTIONS FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BEFORE BEING PERMANENTLY CONCEALED.
5. FOR ALL CONNECTIONS TO THE GROUNDING RING, SEE THE EQUIPMENT MANUFACTURER'S DRAWINGS.
6. WHEN AN EXISTING METER RACK IS BEING UTILIZED AND A NEW METER IS INSTALLED IN THE EXISTING METER RACK, THE GROUNDING RODS, AND GROUNDING CONDUCTORS OF THE EXISTING GROUNDING RING, SHALL BE EXTENDED TO THE PROPOSED GROUNDING RING AND BECOME A COMPLETE GROUNDING SYSTEM.
7. CONTRACTOR SHALL GROUND ALL EQUIPMENT INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. WHEN A CANOPY IS INSTALLED, THE CANOPY SHALL BE EFFECTIVELY GROUNDED AS REQUIRED BY AT&T GROUNDING AND BONDING STANDARDS TP-76416.
9. WHEN A SUPPORT PLATFORM STRUCTURE IS EMPLOYED, ROUTE GROUNDING CONDUCTORS UNDERNEATH AND ON THE SUPPORTING MEMBERS, USING APPROVED STRAPS AS REQUIRED IN AT&T GROUNDING AND BONDING ARTICLE 6.4.1.7 STATED IN TP-76416.
10. MAIN GROUNDING CONDUCTORS SHALL BE ROUTED AND BONDED TO ALL EFFECTIVE GROUNDING PATHS IN ACCORDANCE WITH AT&T GROUNDING AND BONDING SPECIFICATION 6.8.2 STATED IN TP-76416. THE NEW GROUNDING SYSTEM SHALL BE BONDED (2 PLACES) TO ALL EXISTING GROUNDING SYSTEMS, INCLUDING BUT NOT LIMITED TO BUILDING STEEL STRUCTURE, LIGHTNING PROTECTION SYSTEMS, BUILDING MAIN GROUNDING SYSTEM AND/OR MAIN WATER SUPPLY IF APPLICABLE.
11. CONNECTIONS TO THE BURIED GROUND RING SHALL BE EXOTHERMICALLY WELDED BY A CERTIFIED TECHNICIAN. CONNECTIONS TO ABOVE GROUND UNITS SHALL BE MAKE WITH EXOTHERMIC WELD, WHERE PRACTICAL, OR WITH 2 HOLE CONNECTIONS.
12. GROUND WIRE SHALL HAVE A MINIMUM BEND RADIUS OF 8" AND >90°.
13. ALL MECHANICAL GROUND CONNECTION SHALL HAVE AN ANTIOXIDANT COMPOUND APPLIED PRIOR TO INSTALLATION.
14. THE CONTRACTOR SHALL PROVIDE TWO (2) GROUND RODS SPACED AT A MINIMUM OF 6' APART TO SATISFY EQUIPMENT GROUNDING CONDUCTOR (EGC) PER NEC REQUIREMENTS.

2 GENERAL GROUNDING NOTES
SCALE: NOT TO SCALE

NOTE 1:

1. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING GROUNDING PRIOR TO TRENCHING.
2. CONTRACTOR SHALL MAINTAIN CONTINUITY OF EXISTING GROUND RING BY SPLICING (VIA CADWELD) ANY CUT OR BROKEN SECTIONS WITH 2 AWG SOLID TINNED COPPER TO EXISTING OR NEW GROUNDING.

NOTE 2:

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITY LINES PRIOR TO ANY EXCAVATION.
2. CONTRACTOR SHALL HAND DIG IN THE VICINITY OF ALL EXISTING LINES.

LEGEND

- INSPECTION PORT
- GROUND ROD - 5/8"x10' W/ CADWELD GROUND CONNECTION
- MECHANICAL CONNECTION
- CADWELD CONNECTION

3 DETAIL NOT USED
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

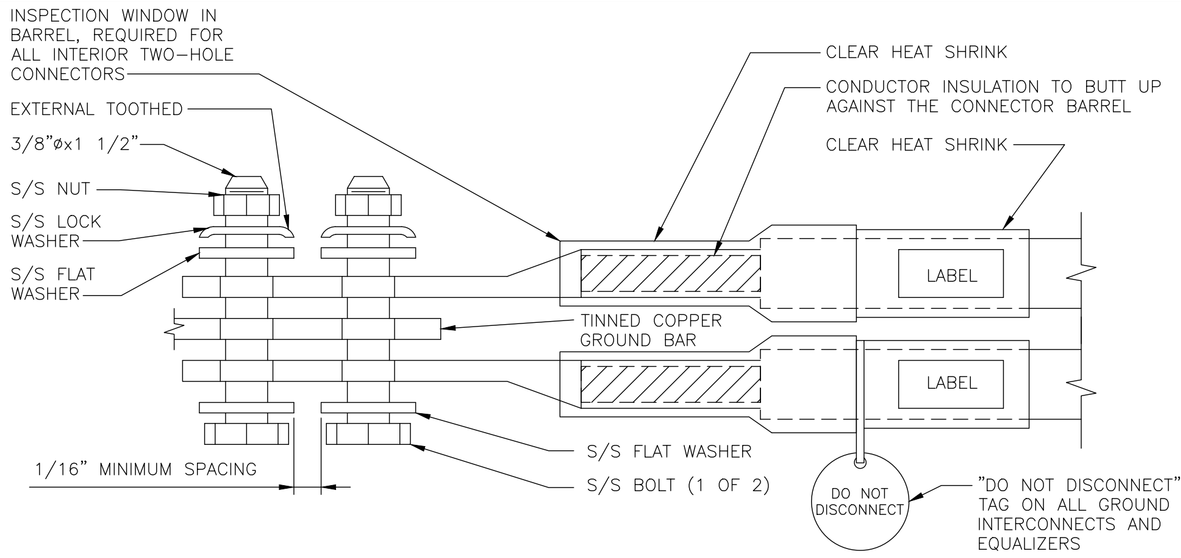
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

ELECTRICAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

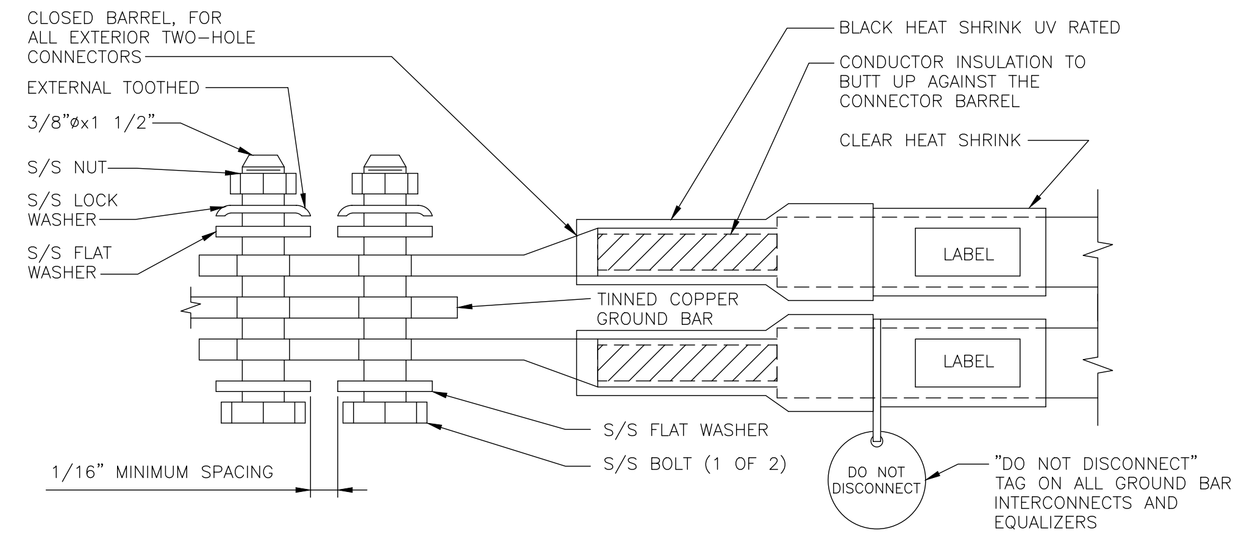
SHEET NUMBER: G-1
REVISION: L



NOTES:

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL GROUND BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
3. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
5. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUND BUS.
6. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUND TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
7. SUPPLIED AND INSTALLED BY CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).
10. BOLTS SHALL BE MADE "SNUG-TIGHT" PLUS 1/4 TURN.

1 INTERIOR TWO-HOLE LUG DETAIL
SCALE: NOT TO SCALE

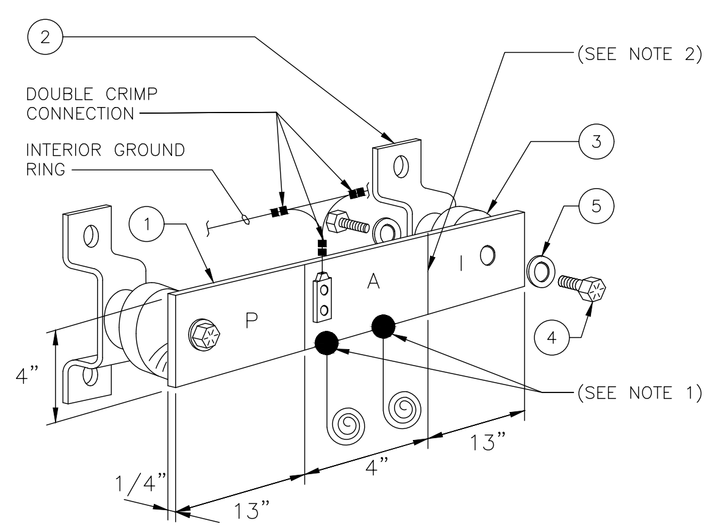


NOTES:

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL GROUND BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.
3. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
5. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUND BUS.
6. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUND TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
7. SUPPLIED AND INSTALLED BY CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).
10. BOLTS SHALL BE MADE "SNUG-TIGHT" PLUS 1/4 TURN.

2 EXTERIOR TWO-HOLE LUG DETAIL
SCALE: NOT TO SCALE

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO	REQUIRED	PART NUMBER	DESCRIPTION
1	1	1/4"x4"x30"	SOLID GROUND BAR
2	2	A-6056	WALL MOUNTING BRACKET
3	2	3061-4	INSULATORS
4	4	3012-1	5/8"-11x1" H.H.C.S.
5	4	3015-8	5/8" LOCKWASHER



EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PROTECTORS

(EC) CELL REFERENCE GROUND BAR (IF COLLOCATED)
(EC) GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
(EC) TELCO GROUND BAR (#2 AWG)
(EC) COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (3/0)
(EC) FIBER GROUND BAR (#2 AWG)
(EC) POWER ROOM REFERENCE GROUND BAR (#2 AWG)
(AT&T) RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS

(EC) INTERIOR GROUND RING (#2 AWG)
(EC) EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
(EC) METALLIC COLD WATER PIPE (IF AVAILABLE) (1/0 AWG)
(EC) BUILDING STEEL (IF AVAILABLE) (1/0 AWG)

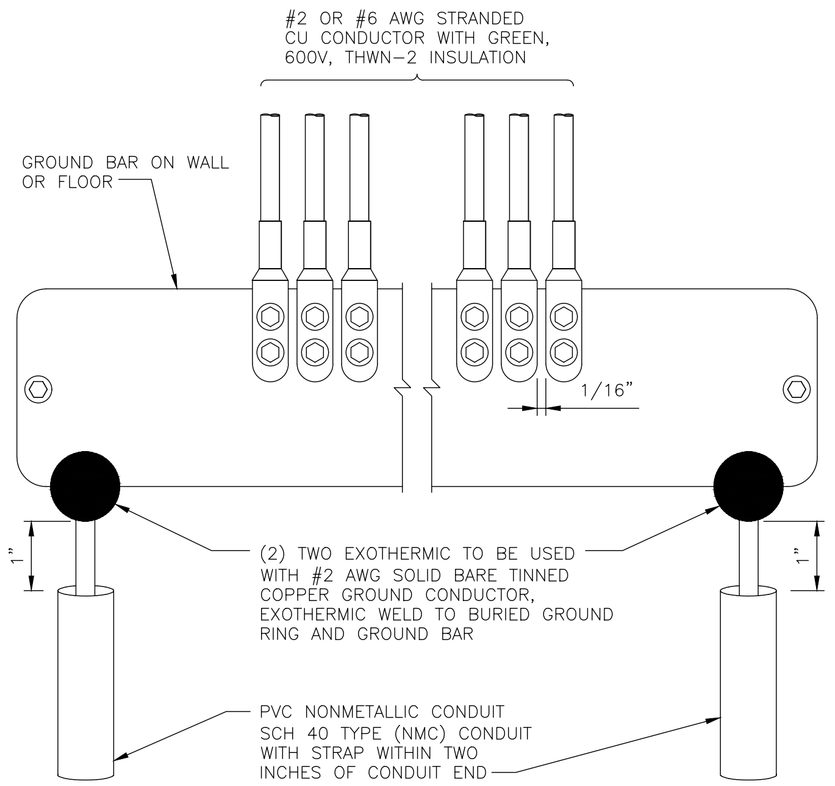
SECTION "I" – ISOLATED GROUND ZONE

(AT&T) ALL ISOLATED GROUND REFERENCE
(AT&T) GROUND WINDOW BAR

DETAIL NOTES:

1. EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. THE INSTALLER SHALL USE PERMAMENT MARKER TO DRAW THE LIKE BETWEEN SECTION AND LABEL EACH SECTION ("P", "A", "I" WITH 1" HIGH LETTERS

3 (MGB) REFERENCE GROUNDING BAR DETAIL
SCALE: NOT TO SCALE



4 GROUNDING BAR DETAIL
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

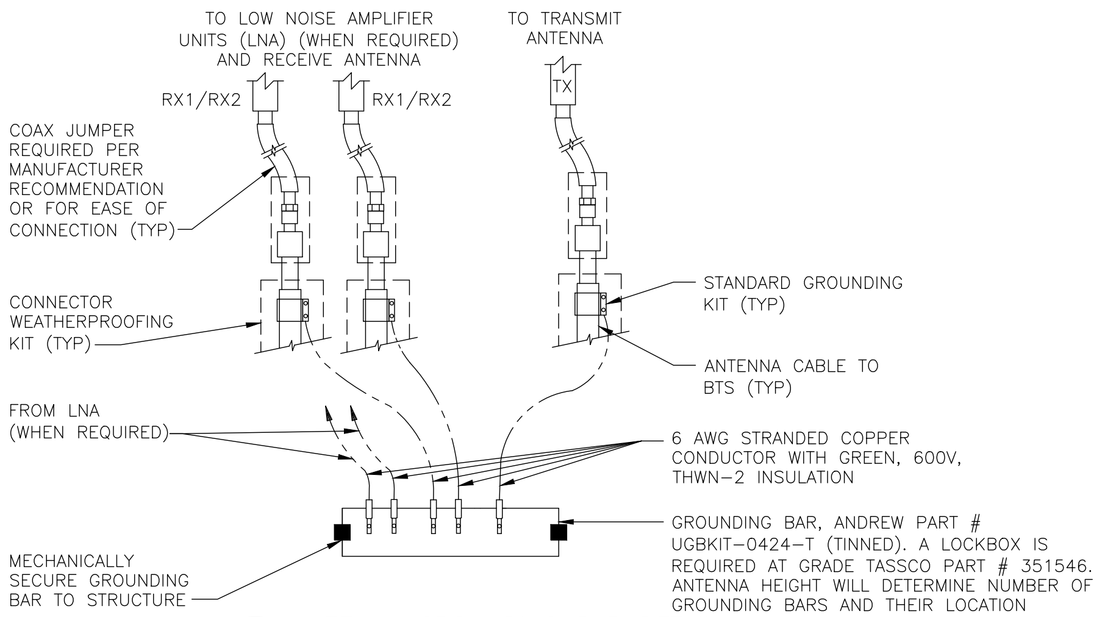
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P. SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

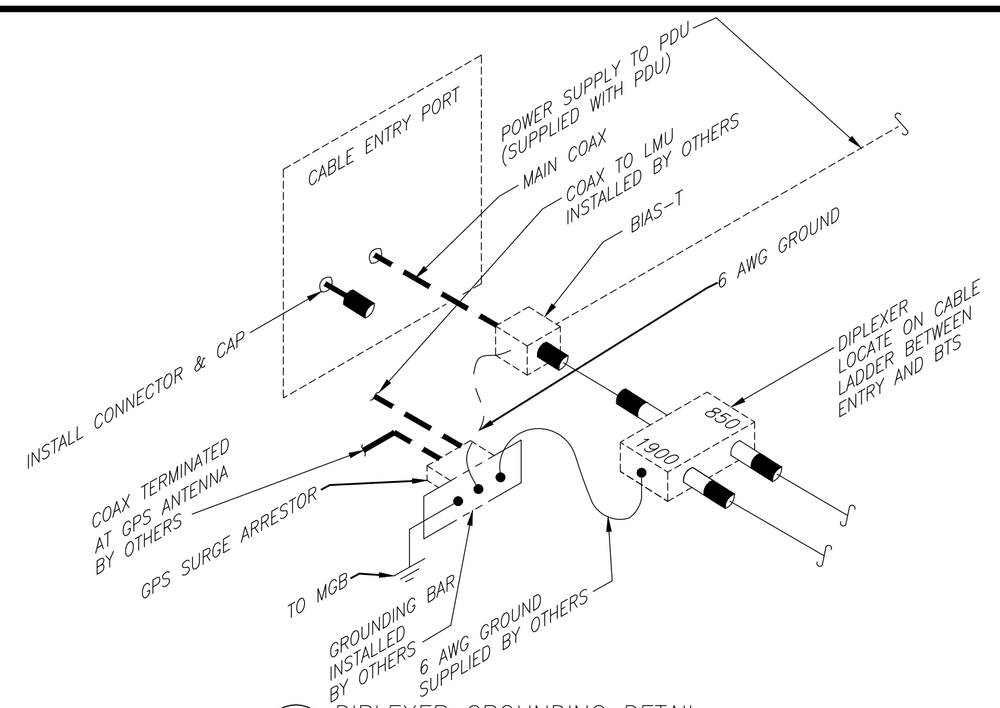
ELECTRICAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

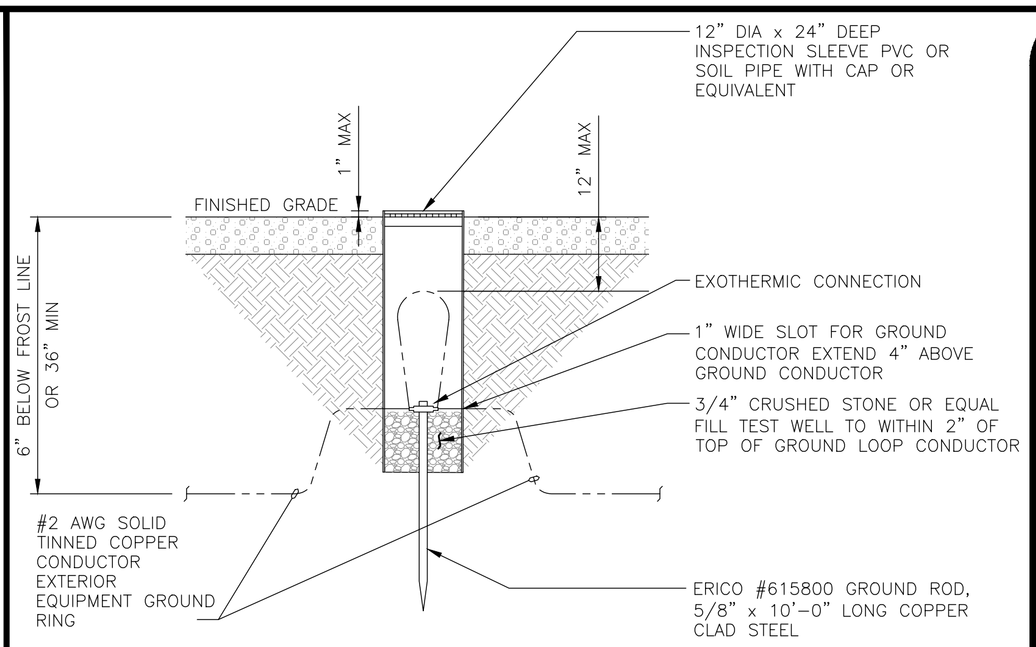
SHEET NUMBER: G-2
REVISION: L



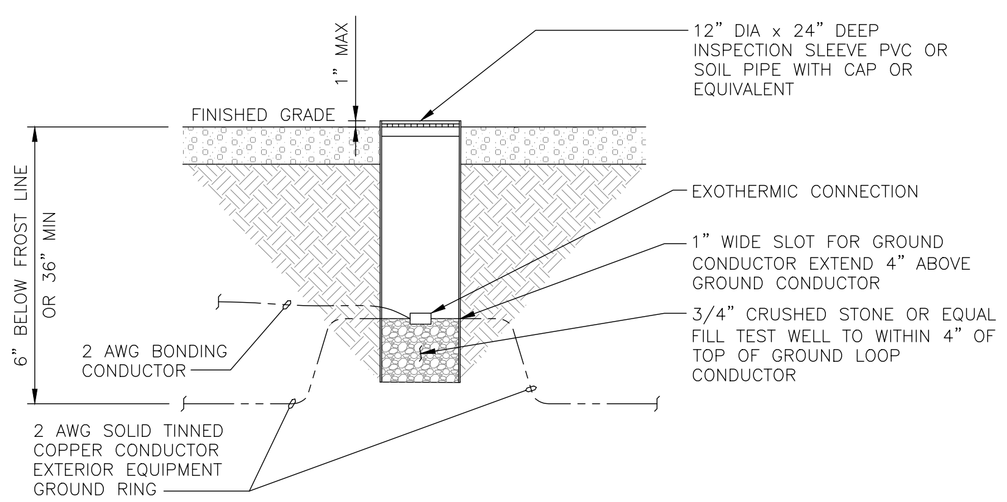
1 ANTENNA GROUNDING BAR DETAIL
SCALE: NOT TO SCALE



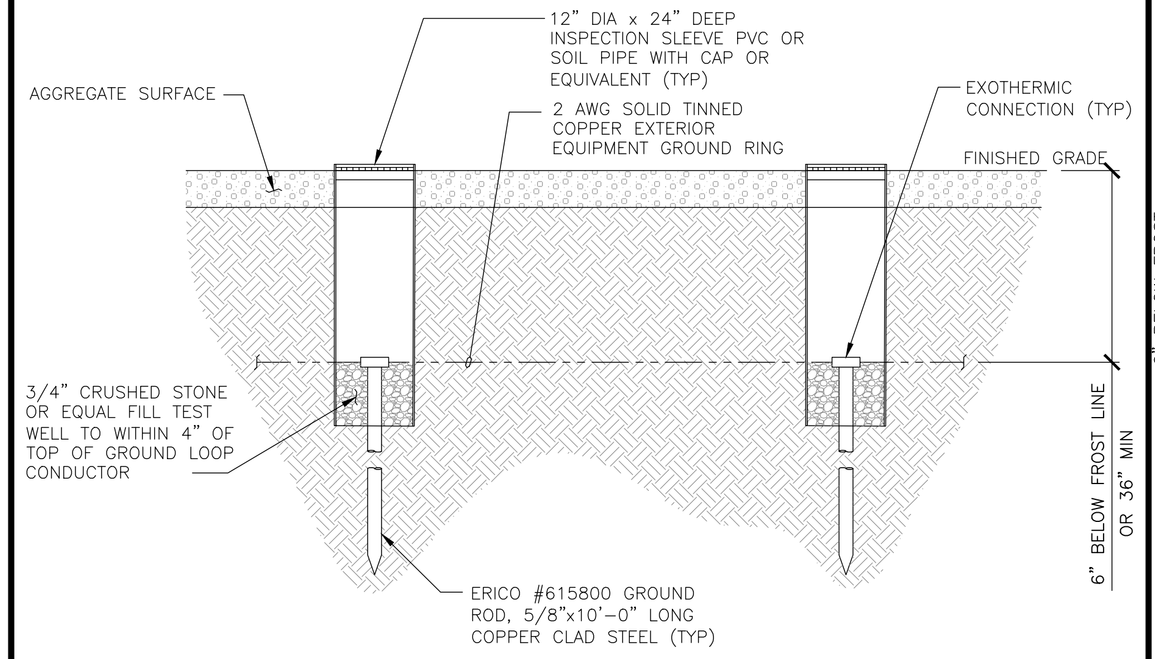
2 DIPLEXER GROUNDING DETAIL
SCALE: NOT TO SCALE



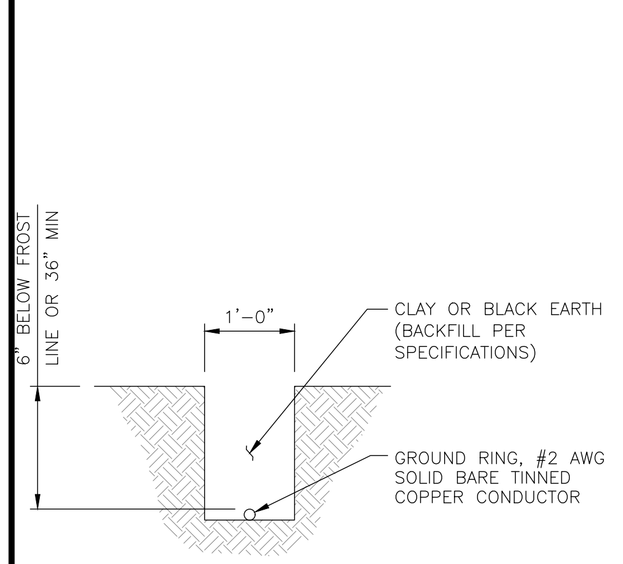
3 TEST GROUND ROD W/ INSPECTION SLEEVE
SCALE: NOT TO SCALE



4 EXOTHERMIC WITH INSPECTION SLEEVE
SCALE: NOT TO SCALE



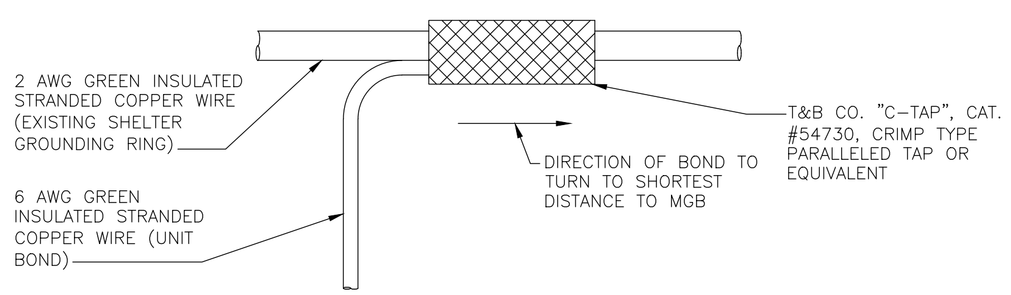
5 GROUNDING ROD WITH INSPECTION SLEEVE
SCALE: NOT TO SCALE



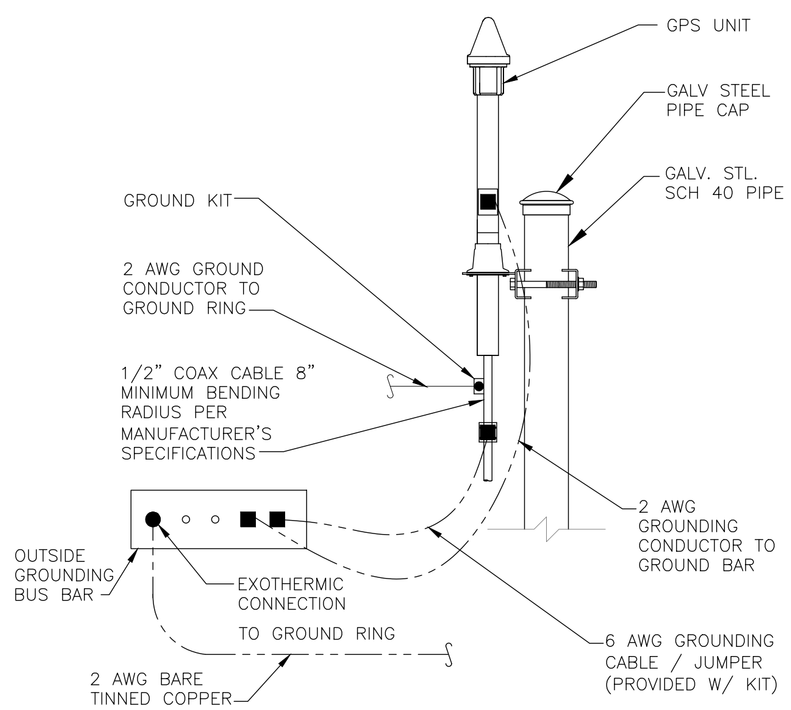
6 GROUNDING RING TRENCH DETAIL
SCALE: NOT TO SCALE

NOTE

1. A GEOTECHNICAL REPORT (LIST REPORT NAME OR NUMBER) WAS COMPLETED BY xxxx ON xx/xx/xx. THE CONTRACTOR SHALL REVIEW THE REPORT PRIOR TO BEGINING ANY WORK ON-SITE.



7 GROUNDING WIRE CONNECTION DETAIL
SCALE: NOT TO SCALE



8 LTE GPS ANTENNA GROUNDING DETAIL
SCALE: NOT TO SCALE

9 DETAIL NOT USED
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

3

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

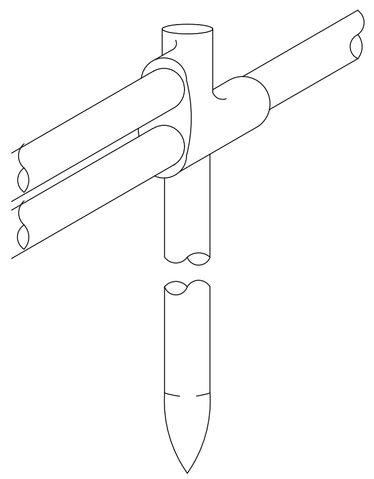
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P SCHAUB
LICENSED PROFESSIONAL ENGINEER
License No. 6201060461
09/08/2023

ELECTRICAL

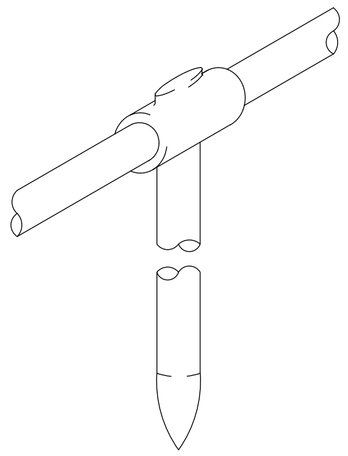
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: G-3
REVISION: L



CADWELL TYPE NC
THERMOWELD TYPE
CR-17

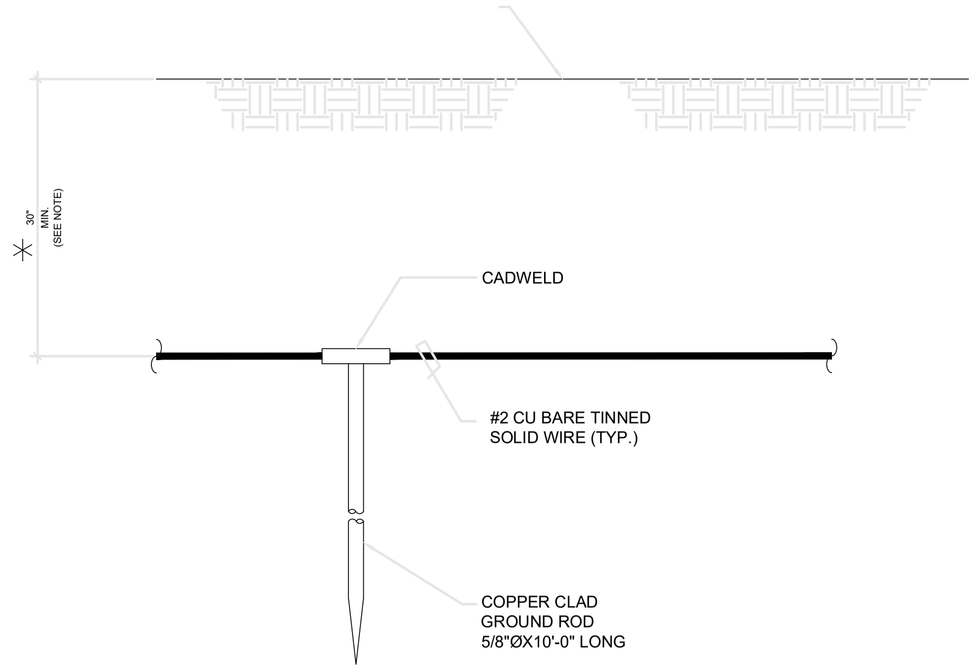
DOUBLE CABLE TO
GROUND ROD



CADWELL TYPE GT
THERMOWELD TYPE CR-2

HORIZONTAL TO GROUND
ROD

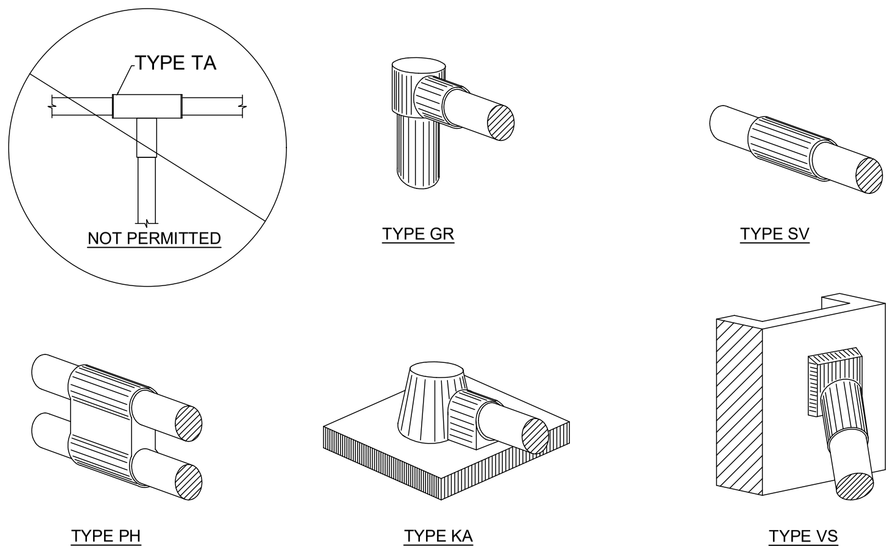
1 GROUND ROD
SCALE: NOT TO SCALE



* NOTE:
GROUND ROD SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

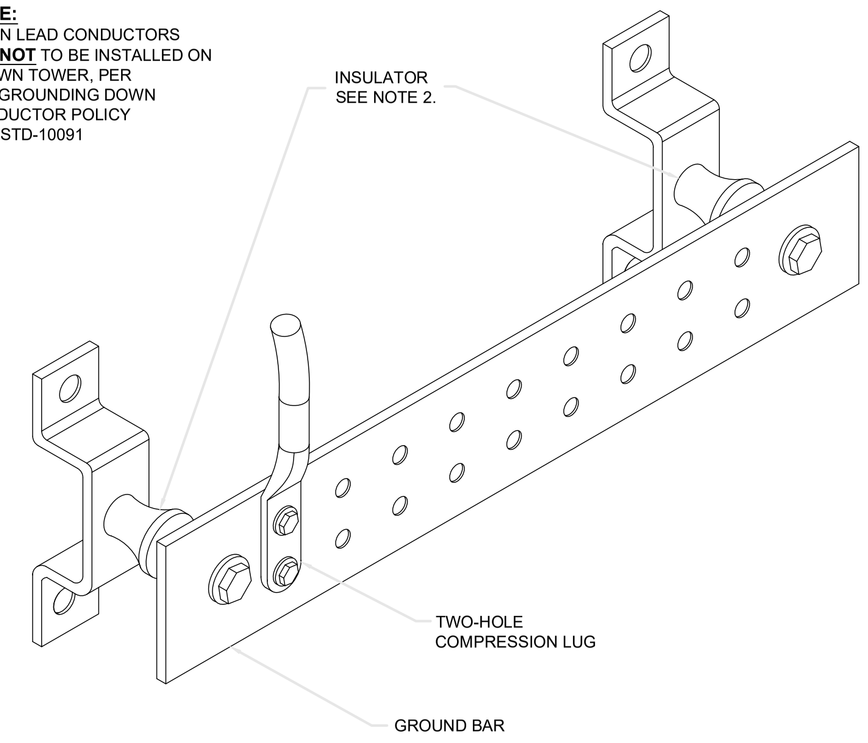
2 GROUND ROD DETAIL
SCALE: NOT TO SCALE

3 DETAIL NOT USED
SCALE: NOT TO SCALE



4 CADWELD (TYP.)
SCALE: NOT TO SCALE

NOTE:
DOWN LEAD CONDUCTORS ARE **NOT** TO BE INSTALLED ON CROWN TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091

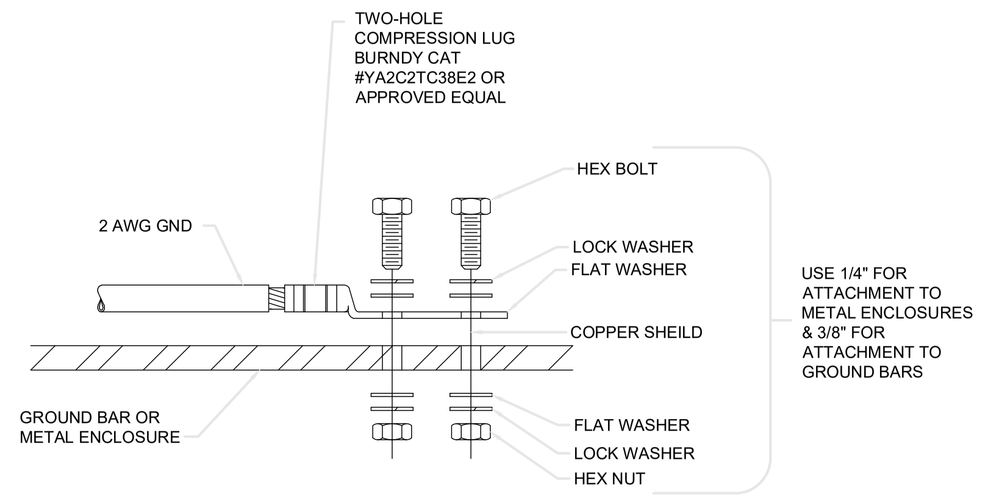


NOTES

1. SECURE TO INTERIOR OR EXTERIOR WALL w/ S.S. LAG HARGAR CAT # GBB-1442-G OR APPROVED EQUAL

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDINGS OR SHELTERS

5 GROUND BAR
SCALE: NOT TO SCALE



INSTALLATION NOTES:
1. BOLTS, WASHERS, AND NUTS SHALL BE STAINLESS STEEL.

2. SELECT BOLT LENGTH TO PROVIDE A MINIMUM OF TWO EXPOSED THREADS.

3. BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF LUG CONTACT.

4. APPLY COPPER-SHIELD COMPOUND TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS COMPOUND.

5. ALL METAL ELECTRICAL EQUIPMENT SHALL BE EXTERNALLY GROUNDED TO THE TOWER EGR. (PAINTED METAL SURFACES MUST HAVE SMALL SECTION OF PAINT REMOVED BEFORE INSTALLATION, AND SHALL BE SPRAYED LIGHTLY WITH CLEAR COAT LACQUER FINISH).

6 GROUNDING TO FLAT SURFACE (TYP.)
SCALE: NOT TO SCALE

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

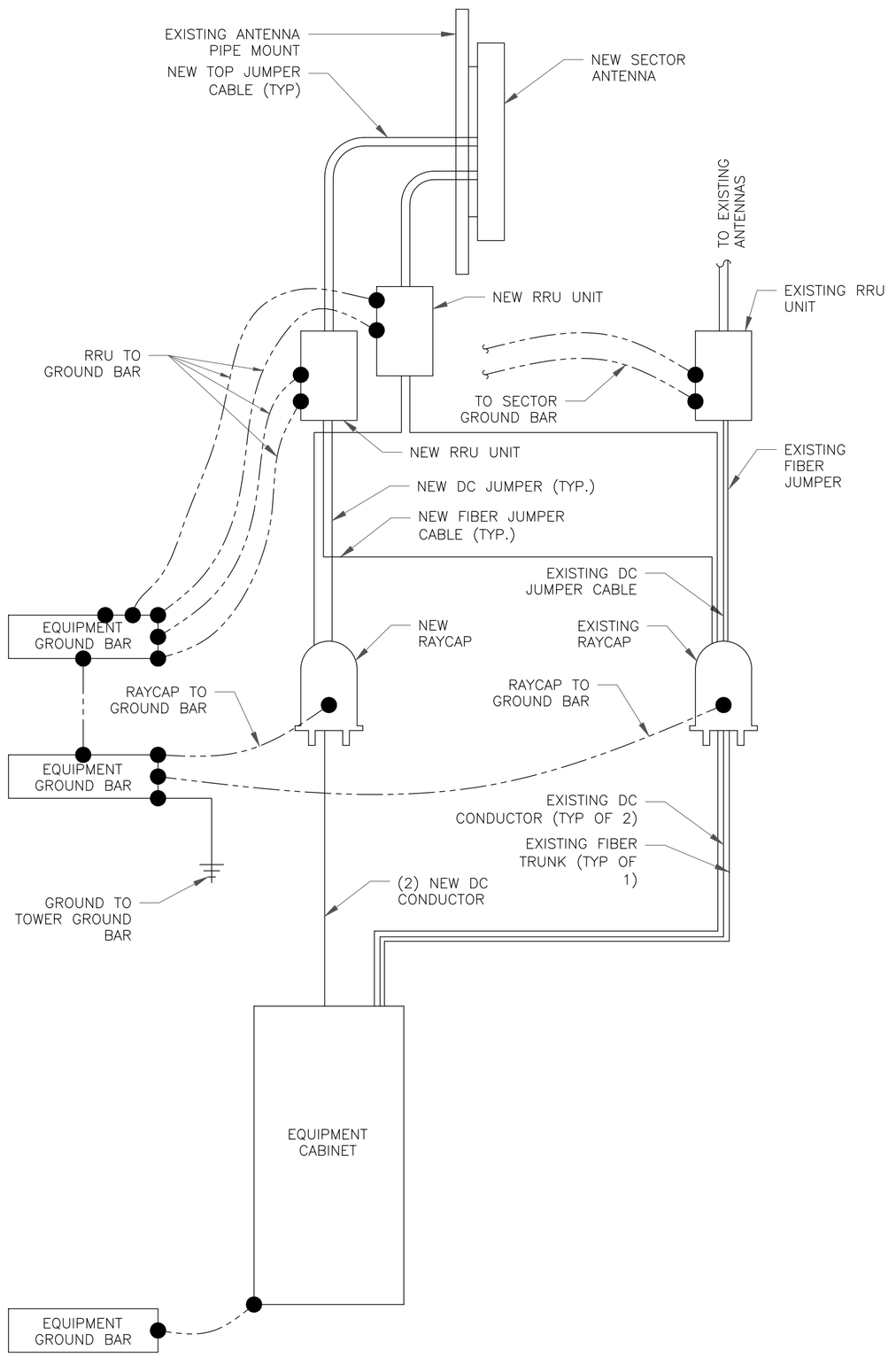
STATE OF MICHIGAN
STEVEN P. SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

ELECTRICAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: G-4

REVISION: L



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

1. CONTRACTOR SHALL HAVE A COMPLETE UNDERSTANDING OF THE CONTENTS OF AT&T STANDARD TP-76416.
2. ALL INSTALLATIONS SHALL BE FIELD VERIFIED.
3. ALL GROUNDING CONDUCTORS FROM PROPOSED AT&T MOBILITY EQUIPMENT TO GROUND BARS SHALL BE 6 AWG COPPER TINNED UNLESS NOTED OTHERWISE.
4. ALL GROUNDING CONDUCTORS FROM PROPOSED AT&T MOBILITY EQUIPMENT SUPPORT AND MOUNTING STRUCTURES TO GROUND BARS SHALL BE 2 AWG COPPER TINNED UNLESS NOTED OTHERWISE.
5. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
6. KOPR-SHIELD ANTI-OXIDATION COMPOUND SHALL BE USED ON ALL COMPRESSION GROUNDING CONNECTIONS.
7. ALL EXOTHERMIC CONNECTIONS SHALL BE INSTALLED UTILIZING THE PROPER CONNECTION/MOLD AND MATERIALS FOR THE PARTICULAR APPLICATION.
8. ALL BOLTED GROUNDING CONNECTIONS SHALL BE INSTALLED WITH AN EXTERNAL TOOTHED LOCK WASHER. GROUNDING BUS BARS MAY HAVE PRE-PUNCHED HOLES OR TAPPED HOLES. ALL HARDWARE SHALL BE SECURITY TORQUE HARDWARE 3/8" STAINLESS STEEL.
9. EXTERNAL GROUNDING CONDUCTOR SHALL NOT BE INSTALLED OR ROUTED THROUGH HOLES IN ANY METAL OBJECTS, CONDUITS, OR SUPPORTS TO PRECLUDE ESTABLISHING A MAGNETIC CHOKE POINT.
10. PLASTIC CLIPS SHALL BE USED TO FASTEN AND SUPPORT GROUNDING CONDUCTORS. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED.
11. CONTRACTOR SHALL REPAIR/PLACE EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.
12. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
13. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
14. CONTRACTOR SHALL GROUND ALL EQUIPMENT. INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

2 GENERAL GROUNDING NOTES
SCALE: NOT TO SCALE

NOTE:

NO AC OR DC POWER WORK IS WITHIN THE SCOPE OF THESE DRAWINGS. HOWEVER, SOME AC OR DC POWER CONSTRUCTION MIGHT BE ENCOUNTERED. IF SO REQUIRED, PRIOR TO ANY CONSTRUCTION, IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO VERIFY THE MAXIMUM DEMAND LOAD AND THAT NO POSSIBLE OVERLOADS WOULD BE INCURRED WITH ANY AC OR DC ELECTRICAL WORK OF THE EXISTING PANELS OR CONDUCTORS. IF OVERLOADS ARE ANTICIPATED, CONTACT ERICSSON BEFORE PROCEEDING WITH ANY WORK. ALL AC OR DC WORK DEPICTED WITHIN THESE DRAWINGS IS DIAGRAMMATICAL AND FOR REFERENCE PURPOSES ONLY. AC AND DC ELECTRICAL SCOPE OF WORK IS BY ERICSSON.

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

GPD GROUP
Professional Corporation
520 South Main Street
Akron, OH 44311
330.572.2100 Fax 330.572.2102

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

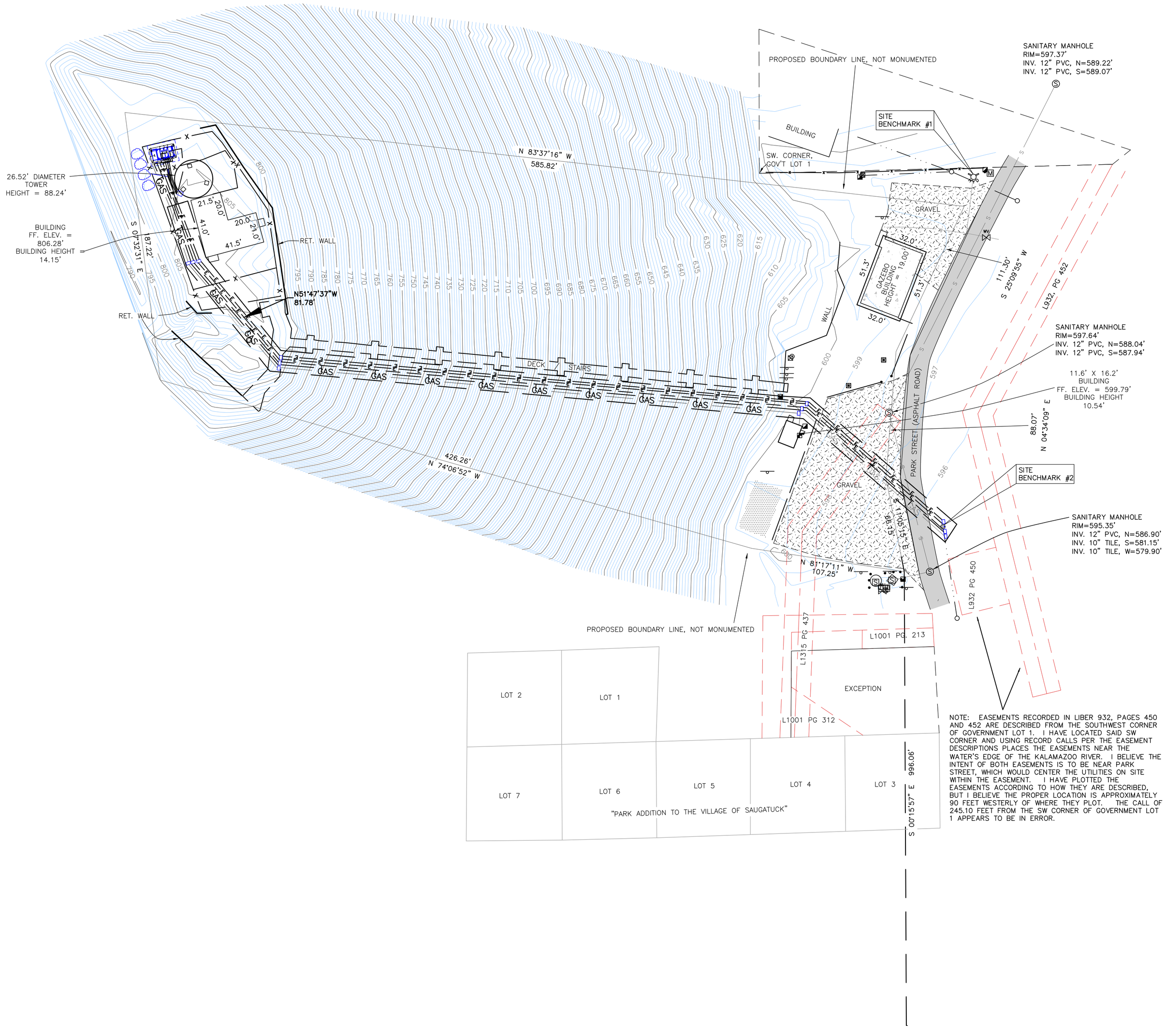
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

STATE OF MICHIGAN
STEVEN P. SCHAUB
ENGINEER
License No. 6201060461
LICENSED PROFESSIONAL ENGINEER
09/08/2023

ELECTRICAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: G-5
REVISION: L



1 SURVEY

SCALE: 1" 6" 0 1' 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

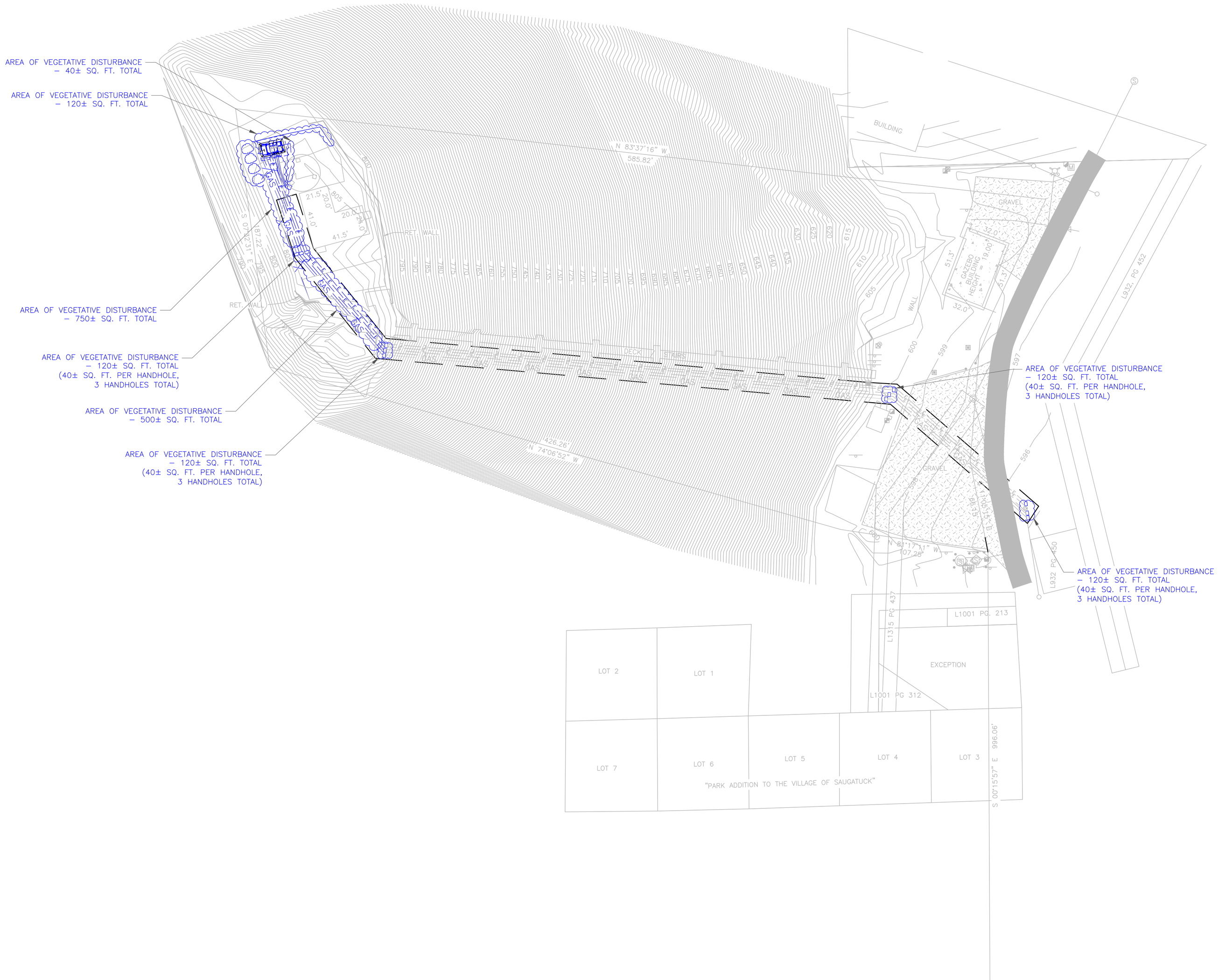
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

REFERENCE ONLY

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: SUR.

REVISION: L



1 AREA OF VEGETATIVE DISTURBANCE

SCALE: 1" 6" 0 1' — 3/4"=1'-0" (FULL SIZE), 3/8"=1'-0" (11x17)

AT&T
16025 NORTHLAND DRIVE
SOUTHFIELD, MI 48075

ERICSSON

AT&T SITE NUMBER:
GRANMI5943

750 PARK ST.
SAUGATUCK, MI 49453

EXISTING 90'-0" SELF SUPPORT TOWER WITH RADOME

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/21/2022	CRM	90% CDs FOR REVIEW	ES
B	10/26/2022	CRM	REV. PER COMMENTS	ES
C	12/15/2022	CRM	REV. PER COMMENTS	ES
D	01/06/2023	CRM	REV. PER COMMENTS	ES
E	01/10/2023	CRM	REV. PER COMMENTS	ES
F	03/31/2023	CRM	REV. PER COMMENTS	ES
G	05/16/2023	CRM	REV. PER COMMENTS	ES
H	06/05/2023	CRM	REV. PER COMMENTS	ES
I	06/27/2023	CRM	REV. PER COMMENTS	ES
J	07/05/2023	CRM	REV. PER COMMENTS	ES
K	08/23/2023	CRM	REV. PER COMMENTS	ES
L	09/08/2023	CRM	FOR ZONING	ES

REFERENCE ONLY

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: A.O.D **REVISION:** L