CITY OF MURFREESBORO
BOARD OF ZONING APPEALS

Regular Meeting, March 25, 2026, at 1:00 p.m.
City Hall, 111 West Vine Street, Council Chambers, 1st Floor

A G E N D A

1. Call to order

2. Determination of a quorum

3. Public Comments

4. Consideration of minutes for the regular meeting on February 25, 2026

5. Old Business

   a. **Application Z-25-010 by Mr. Adrian Quintero**, representing SBA, is requesting to amend the conditions of approval for the existing special use permit for the existing 150-foot-tall wireless telecommunications tower on property located at 2117 North Thompson Lane in a Heavy Industrial (H-I) zone. The applicant is requesting to remove the previous condition of approval that all antennae mounted to this tower are required to be of "stealth" construction. (Project Planners: Matthew Blomeley and Richard Donovan)

6. New Business

   Special Use Permits

   a. **Application Z-26-003 by Mr. Mina Awad,** is requesting a special use permit in order to establish and operate a cigar lounge in a Commercial Highway (CH) zone on property located at 1630 South Church Street. (Project Planner: Marc Shackelford-Rowell)

   b. **Application Z-26-004 by Ms. Colleen Fogle,** is requesting a special use permit in order to construct and establish an accessory apartment in a Residential Single-Family (RS-15) zone on property located at 1711 Spiroff Drive. (Project Planner: Stephen Anthony)

7. Staff Reports and Other Business

   a. Proposed amendments to 2026 BZA meeting and submittal deadline calendar.

8. Adjourn

MINUTES

OF THE CITY OF MURFREESBORO

BOARD OF ZONING APPEALS

City Hall, 111 W. Vine Street, Council Chambers

February 25, 2026, 1:00 PM

Members Present:

Davis Young, Chair

Robert Batcheller

Scott Kimberly

Tim Tipps

Staff Present:

Matthew Blomeley, Asst. Planning Director

Stephen Anthony, Planner

Marc Shackelford-Rowell, Planner

John Tully, Assistant City Attorney

Ashley Fulghum, Recording Assistant

Members Absent:

Ken Halliburton, Vice-Chair

1. **Call to Order:**

   Chair Young called the meeting to order.

2. **Determination of a quorum:**

   Chair Young determined that a quorum was present.

3. **Public Comments:**

   None

4. **Consideration of Minutes:**

   Mr. Tim Tipps moved to approve the December 18, 2025 BZA meeting minutes; the motion was seconded by Mr. Scott Kimberly and carried in favor by the following vote:

   Aye: Robert Batcheller

   Scott Kimberly

   Tim Tipps

   Davis Young

   Nay: None

5. New Business:

a. Application [Z-26-002] by Ms. Jordan Rodriguez, requesting a special use permit in order to construct and establish an accessory apartment in a Single-Family Residential (RS-15) zone on property located at 1531 Cason Trail.

Mr. Marc Shackelford-Rowell presented the Staff Comments regarding this item, a copy of which is maintained in the permanent files of the Planning Department and is incorporated into these minutes by reference.

Mr. Matthew Blomeley showed the Commission the plot plan, the front elevations, and the floor plan that was submitted with this application. Mr. Shackelford-Rowell read the recommended conditions of approval into the record, as follows:

1. The owner(s) of the property for this accessory apartment unit shall occupy at least one of the dwelling units on the premises and members of the family or their invited guests shall occupy the other dwelling unit. In no event shall either of the units be used as a rental unit to non-family members.
2. Prior to applying for building permits, the applicant shall complete and record the "Restriction on Use of Land" document prepared by the City Legal Department, which shall limit the use of the accessory apartment to only what is allowed by the Zoning Ordinance.
3. Extend the driveway to accommodate more vehicle parking.
4. Create a walkway that connects the driveway to the accessory apartment.
5. Separate utility meters or service connections, including, but not limited to, electricity, gas, water, or sewer, shall not be installed for the accessory apartment.
6. A separate mailbox or mail receptacle shall not be installed or designated for the accessory apartment, nor will the accessory apartment be assigned a separate address.
7. The applicant shall obtain all necessary permits with the Building and Codes Department and shall comply with all code requirements.

Ms. Jordan Rodriguez and her parents, who will be residing in the accessory apartment, were present to answer questions.

Chair Young asked if the conditions that the Board has not seen before were added to prevent something. Mr. Blomeley confirmed that statement and explained that the department has learned from experience that a separate address or separate utility meters would make the accessory apartment resemble a separate dwelling unit and would set it up for rental purposes, which is not allowed by the Zoning Ordinance.

Mr. Scott Kimberly inquired about the walkway not being shown on the plan submitted by the applicant. Mr. Blomeley stated that the walkway would be added to the plan if so conditioned by the BZA in its approval.

Mr. Kimberly asked if the fence would be aesthetically consistent with the neighborhood. Mr. Shackelford-Rowell explained that the fence would be consistent with the neighborhood and is subject to the fence permitting process. Mr. Blomeley added that the applicants have indicated that it will be a privacy fence. Mr. Tony Rodriguez stated that they will be replacing the current fence with a privacy fence.

Mr. Tim Tipps asked if the Planning Department was going to stipulate what type of walkway could be installed. Mr. Blomeley replied that the department had not specified that.

Mr. Kimberly inquired about the fence being a recommended condition. Mr. John Tully responded that it could be made a condition of approval.

Mr. Tipps asked about front facing accessory apartments. Mr. Blomeley read and explained the standard.

Mr. Tipps asked about setting a precedent for requiring a privacy fence. Mr. Tully responded that it would not necessarily do so because every property is unique.

Chair Young opened the public hearing.

There being no one to speak for or against the request, Chair Young closed the public hearing.

Mr. Scott Kimberly moved to approve the special use permit subject to all recommended conditions of approval noted in the staff report with the added condition of a privacy fence in between the accessory apartment and Cason Trail; the motion was seconded by Mr. Tim Tipps and carried by the following vote:

Aye: Robert Batcheller

Scott Kimberly

Tim Tipps

Davis Young

Nay: None

b. Application [Z-26-001] by Mr. Matt Taylor of SEC, Inc., representing TT of G Murfreesboro, Inc., requesting a special use permit in order to construct and establish a motor vehicle sales use in a Commercial Highway (CH) zone on property located along the south side of John R Rice Boulevard just east of Fortress Boulevard (Tax Map 79, Parcel 10012).

Mr. Stephen Anthony presented the Staff Comments regarding this item, a copy of which is maintained in the permanent files of the Planning Department and is incorporated into these minutes by reference. Mr. Anthony read the recommended conditions of approval into the record, as follows:

1. BZA approval does not imply approval of the Site Plan. A site plan shall be submitted for review and approval, subject to compliance with the Murfreesboro Zoning Ordinance and Design Guidelines.

Mr. Matt Taylor was present to answer questions.

Chair Young inquired about this application coming before the Board. Mr. Blomeley responded that the property is zoned Commercial Highway and motor vehicle sales uses are only allowed by a special use permit in the CH zone.

Chair Young asked about the screening proposed for the southern part of the property next to the residential use. Mr. Kimberly asked about the Type E buffer. Mr. Blomeley explained the different types of landscape buffers.

The Board, Staff, and Applicant discussed the outdoor display area.

Mr. Kimberly asked for clarification on the inventory storage and inventory display areas. Mr. Anthony stated that the inventory display area is at the front of the building and the inventory storage area is the back lot.

Mr. Tipps asked if there had been any feedback from the residential neighbors. Mr. Anthony, Mr. Blomeley, and Mr. Taylor all responded that they had not received any calls or feedback.

Chair Young opened the public hearing.

There being no one to speak for or against the request, Chair Young closed the public hearing.

Mr. Robert Batcheller moved to approve the special use permit subject to all recommended conditions of approval noted in the staff report; the motion was seconded by Mr. Tim Tipps and carried by the following vote:

Aye: Robert Batcheller

Scott Kimberly

Tim Tipps

Davis Young

Nay: None

6. Staff Reports and Other Business:

Mr. Blomeley spoke about training opportunities.

Mr. Blomeley let the Board know that the department is expecting to receive a few applications for the March meeting.

7. Adjourn:

There being no further business, Chair Young adjourned the meeting at 1:33pm.

_____ _____

CHAIRMAN SECRETARY

MURFREESBORO BOARD OF ZONING APPEALS

STAFF REPORT

MARCH 25, 2025

PROJECT PLANNERS: MATTHEW BLOMELEY AND RICHARD DONOVAN

Application: Z-25-010
Location: 2117 North Thompson Lane
Applicant: Adrian Quintero, representing SBA
Zoning: Heavy Industrial District (H-I)
Requests: An amendment to the conditions of a special use permit to allow a 150-foot tall wireless telecommunications tower

At the May 28, 2025 meeting of the Board of Zoning Appeals, the Board considered a request to modify the conditions of approval of a special use permit for a wireless telecommunications tower at 2117 North Thompson Lane. The applicant sought to modify the condition that all antennae were to be of stealth construction. Historically, since this tower was erected, the antennae have been located inside of the tower pole and not visible. The applicant's 2025 application sought to utilize a wide exterior antennae mount. At that meeting, the BZA expressed concerns about the visual impact of the wider mount, considering the tower's proximity to two major arterial roadways and several neighborhoods. At that meeting, the Board voted to defer action and directed the applicant to explore other options for mounting the antennae, after which Staff conferred with the applicant on alternatives.

SBA has submitted revised plans with a different type of antennae mount than what was proposed in May 2025. The mount is still located on the exterior of the tower, but it is closer to the tower than what was previously proposed. As previously mentioned, the bottom 99' of the existing tower will remain, and the top 49' will be reconstructed to accommodate the exterior mounts. According to the applicant, the lightning rod on top of the 148'-tall tower will be designed so that the tower will not exceed the previously-approved 150' height. Also included in the agenda materials is the original staff report from May 2025 that contains additional history and additional analysis by Richard Donovan, as well as the original materials and exhibits from that meeting. Following the 2025 agenda materials are the updated materials and exhibits from this month for the Board's consideration, including a photo simulation of how the tower will look with the proposed antennae mount.

If the Board wishes to approve the requested amendment to the SUP, staff recommends the following conditions of approval be required:

RECOMMENDED CONDITIONS OF APPROVAL (Note: conditions 1-4 below are from the original staff report; conditions 5-6 are new):

1. The applicant shall obtain all necessary permits and inspections for the proposed tower and associated structures *and mounts*.
2. Prior to applying for a building permit, the applicant shall obtain approval of a Site Plan for the proposed development from the Murfreesboro Planning Department. Improvements depicted on the approved site plan shall be constructed simultaneously with the tower, including but not limited to required fencing and landscaping, *if needed or required*.
3. The maximum height of the monopole and telecommunication antenna structures and all appurtenances or accessory equipment shall not exceed a total of 150 feet.
4. Discontinuance: In the event of discontinuance of the Telecommunication Facility, the facility owner shall comply with the requirements of City of Murfreesboro Zoning Ordinance, Chapter 31 for notification, declaration, and removal of the wireless facility.
5. The approval of this special use permit amendment shall apply to up to three exterior antennae mounts on this tower.
6. Prior to the issuance of building permits, a structural analysis shall be submitted to the Building and Codes Department for review and approval. A separate updated structural analysis shall be submitted for review and approval with each permit application for subsequent exterior mounts.

The applicant will be in attendance to respond to any questions the Board may have.

Z-25-010

2117 North Thompson Lane

2025

BZA Staff Report and Agenda Materials

MURFREESBORO BOARD OF ZONING APPEALS

STAFF REPORT

May 28, 2025

PROJECT PLANNER: RICHARD DONOVAN

Application: Z-25-010
Location: 2117 North Thompson Lane
Applicant: Jacob Highland, representing SBA
Zoning: Heavy Industrial District (HI) District
Requests: An amendment to the conditions of a special use permit to allow a 150-foot tall wireless telecommunications tower

The applicant is requesting to amend the conditions of a special use permit to remove the condition that all antennae mounted to this tower are required to be of stealth construction. The Board of Zoning Appeals has issued approvals for this location in August 1999 for the original 125-foot wireless telecommunication tower and in February of 2022 for a height variance to increase the height to 150 feet. The applicant proposes to maintain the total height of the tower at 150 feet. Ninety-nine feet of the existing monopole tower will remain in place, with a 49-foot non-stealth section and a 2-foot lightning rod replacing the remaining portion. The existing tower allows for and has co-locations of three telecommunication carriers which will remain on the proposed tower. Associated ground equipment, an equipment fence enclosure (8-foot height fence), dense shrubbery for screening, and driveway access with one parking stall will remain in place with the updated tower. Any extensions of height for future equipment above 150 feet would have to be approved by the BZA with a new special use permit.

The property is an irregularly shaped lot located on the western side of N. Thompson Lane. A wireless telecommunication tower is situated in a triangular area at the northernmost portion of the site. Adjacent properties to the north and west are owned by the City of Murfreesboro, including the former General Electric site, which is zoned Heavy Industrial (HI). To the east, the property shares a boundary with Heavy Machines, which is also zoned HI. Across N. Thompson Lane, the land is zoned Commercial Highway (CH) and is occupied by a mix of uses, including auto body and auto sales businesses, retail shops, a veterinary clinic, and the Murfreesboro Fire Department Headquarters. To the south of the subject property is a Circle K convenience store with fuel pumps, also zoned Heavy Industrial (HI).

Relevant Zoning Ordinance Section

The following are the relevant sections from the Murfreesboro Zoning Ordinance that apply to wireless telecommunications towers:

Section 9(C): General Standards of Applicability
Section 9(D)(cccc): Additional Standards for Wireless communication towers and antennas
Section 31 Wireless: Telecommunications Towers and Antennas

The Standards of General Applicability relating to Special Use Permits, Standards for Telecommunication Towers, and the Standards set forth in Section 31, are listed below with analysis from staff on how the proposed use meets the standards.

Standards of General Applicability with Staff analysis.

(1) The proposed building or use will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other matters affecting the public health, safety, and general welfare:

Staff has reviewed the application and associated documents and believes that this standard has been met because the site is unmanned and will provide parking on the site for regular monitoring and maintenance personnel. The required utilities are already present on the property.

(2) The proposed building or use will be constructed, arranged, and operated so as to be compatible with the immediate vicinity and not to interfere with the development and use of adjacent property in accordance with the applicable district regulations:

Staff has reviewed the application and associated documents and believes that this standard has been met because the height does not exceed that of the existing tower and the applicant is proposing to replace a portion of the tower with a non-stealth tower. This facility should not interfere with the development or use of adjacent property. The facility is unmanned and is only visited occasionally for maintenance and upkeep.

(3) The proposed buildings or use will be served adequately by essential public facilities and services such as highways, streets, parking spaces, drainage structures, refuse disposal, fire protection, water, and sewers; or that the persons or agencies responsible for the establishment of the proposed use will provide adequately for such services:

Staff has reviewed the application and associated documents and believes that this standard has been met because existing services, including utilities and parking, are provided as part of the existing facility.

(4) The proposed building or use will not result in the destruction, loss, or damage of any feature determined by the BZA to be significant natural, scenic, or historic importance:

Staff has reviewed the application and associated documents and believes that this standard has been met because no features of significant natural, or scenic importance have been identified on the subject property or in the immediate vicinity. The applicant has also included a Tennessee Historical Commission State Historic Preservation Office (SHPO) report that states the tower will not adversely affect a nearby historic property as the tower height is not being increased and that the office has no objection to proposed changes to the tower.

(5) The proposed building or use complies with all additional standards imposed on it by the particular provision of this section authorizing such use:

Staff has reviewed the application and believes that it complies with the additional standards of the Zoning Ordinance listed below.

Additional Standards for Wireless Communications Towers and Antennas with Staff Analysis.

(1) Towers shall not be located in the approach or landing zone of an airport or heliport;

Staff believes that this standard has been met as the applicant is currently operating the existing tower at 150 feet and have indicated in their analysis that the tower would not exceed the 100:1 slope surface or fail the FCC slope surface for the Murfreesboro Municipal Airport.

(2) The application for a special use permit shall be accompanied by the written recommendations of appropriate state and federal agencies;

Staff believes that this standard has been met as the applicant is currently operating the existing tower at 150 feet and have indicated in their analysis that the tower would need to exceed 200 feet before FAA approval was needed. The applicant has also included a SHPO report that states the tower will not adversely affect a nearby historic property as the tower height is not being increased and that the office has no objection to proposed changes to the tower.

(3) In the event any tower is to be equipped with hazard lights, the use of white strobe lights shall be restricted to daylight hours;

Staff believes that this standard has been met as applicant has indicated that FAA is not requiring any lighting on the tower and that none will be installed.

(4) The BZA may place restrictions on the manner (and color) in which the tower can be painted, within the parameters of applicable state and federal regulations;

Staff believes that this standard has been met as the applicant has indicated that they do not intend to paint the tower and it will be galvanized metal.

(5) The BZA may require additional standards be met in order to assure compatibility of the proposed use with adjoining properties, subject to T.C.A. §13-24-301 et seq.

Staff believes that this standard has been met as the applicant indicates that they will comply with any additional standards required by the BZA.

(6) The applicant must demonstrate compliance with Section 31(E).

Staff believes that the application complies with Section 31(E). See below.

Section 31(E) Standards

(1) Antenna-supporting structures must be set back a distance equal to its height from any property line. The City Engineer may modify the setback requirement if the applicant demonstrates that the antenna-supporting structure can withstand the wind load for the design storm event applicable to Murfreesboro as provided in the most recent version of ANSI/TIA/EIA-222, Structural Standards for Steel Antenna Towers and Antenna Support Structures, which document is hereby incorporated by reference, or if the applicant demonstrates that the fall zone of the tower is less than the tower's height.

Staff believes that this standard has been met because the existing tower is in the current location and extended to the 150 feet height under the February 2022 amendment to the special use permit.

(2) A fence not less than eight (8) feet in height from finished grade must be installed so as to enclose the base of the antenna- supporting structure and associated equipment enclosures. Access to the antenna-supporting structure must be controlled by a locked gate.

Staff believes that this standard has been met as an 8ft tall chain link fence currently encloses the base of the antenna-supporting structure and associated equipment enclosures.

(3) A landscaping and vegetative buffer shall be installed to reduce visibility from the public ROW and the surrounding properties. A natural vegetative buffer may be substituted for the buffering and landscaping requirements subject to the approval of the Development Services Division and the BZA to ensure that it is sufficient to provide the required screening.

Staff believes this standard has been met, as a mature tree line screens the site from NW Broad Street, and the site is tucked behind Heavy Machines, shielding it from North Thompson Lane.

(4) The application shall show that the FAA has approved the height of the tower and has issued any license necessary to operate the tower.

Staff believes that this standard has been met as the applicant is currently operating the existing tower at 150 feet and have indicated in their analysis that the tower would need to exceed 200 feet before FAA approval was needed.

(5) No lights, signals, or other illumination are permitted on any antenna-supporting structure or ancillary appurtenances unless the applicant demonstrates that lighting is required by the FAA or the FCC.

Staff believes that this standard has been met as the applicant has indicated that no such items are required by the FAA or FCC per their letter.

(6) Antenna-supporting structures must be designed to accommodate future collocation for at least three (3) antennae. As a condition of approval under this Section, the applicant must submit a shared use plan.

Staff believes that this standard has been met because the existing antenna support structure supports three (3) antennae and will continue to support three (3) after modification.

(7) The maximum height of respective antenna-supporting structures shall be as determined by the Board of Zoning Appeals as a part of the special use permit process. However, no special use permit shall grant authority for such a structure to exceed the maximum height requirements denoted in the Airport Overlay District regulations.

Staff believes that this standard has been met as the applicant is currently operating the existing tower at 150 feet and have indicated in their analysis that the tower would need to exceed 200 feet before FAA approval was needed.

Staff Comments

Based on the application materials and plans submitted, the 150-foot-tall telecommunications facility meets the requirements outlined in the general standards of applicability for a special use permit, the additional standards for a telecommunication tower, and the standards required by the Murfreesboro Zoning Ordinance, Wireless Telecommunications Towers and Antennas Section 31(E).

If the Board wishes to approve the requested amendment to the SUP, staff recommends the following conditions of approval be required:

RECOMMENDED CONDITIONS OF APPROVAL:

1. The applicant shall obtain all necessary permits and inspections for the proposed tower and associated structures.
2. Prior to applying for building permit, applicant shall obtain approval of a Site Plan for the proposed development to the Murfreesboro Planning Department. Improvements depicted on the approved site plan shall be constructed simultaneously with the tower, including but not limited to required fencing and landscaping.
3. The maximum height of the monopole and telecommunication antenna structures and all appurtenances or accessory equipment shall not exceed a total of 150 feet.
4. Discontinuance: In the event of discontinuance of the Telecommunication Facility, the facility owner shall comply with the requirements of City of Murfreesboro Zoning Ordinance, Chapter 31 for notification, declaration, and removal of the wireless facility.

The applicant will be in attendance to respond to any questions the Board may have.

Attached Exhibits:

1. Site Plan and Elevations
2. Application
3. Applicant letter
4. SHPO Letter
5. Site Specific Obstruction Evaluation Report

Chair Davis Young

Nay: None

c. Application [Z-25-010] by Mr. Jacob Highland, representing SBA, requesting to amend a special use permit for an existing 150-foot-tall wireless telecommunications tower in a Heavy Industrial (HI) zone on property located at 2117 N Thompson Lane.

Mr. Richard Donovan presented the Staff Comments regarding this item, a copy of which is maintained in the permanent files of the Planning Department and is incorporated into these minutes by reference.

Mr. Batcheller asked why the tower was stealthed. Mr. Donovan responded that it was due to staff recommendations. Mr. Blomeley gave insight into staff's reasoning behind stealthing the tower when it was built. He added that staff has since evolved their thinking. A tower with no antenna on it is not much different than one with an array of antenna on it. Technology has also changed and more data is being handled by the antenna than in 1999.

Mr. Batcheller asked if the unstealthing is specifically for T-Mobile or the other providers. Mr. Jeff Taylor with SBA responded that it is for T-Mobile at this time.

Mr. Batcheller asked if there is a design between the stealth tower and a traditional tower. Mr. Taylor responded in the negative. The tower is either stealth or a traditional one.

Chair Young opened the public hearing.

Ms. Christina Lambert of 2160 N Thompson Lane spoke in opposition to the request.

Mr. Murphy Thomas of 2111 Shannon Drive spoke about concerns over the aesthetics of the tower. He inquired about what unstealthing will do and if AT&T service will be upgraded.

Ms. Deborah Mayson with SBA addressed Mr. Thomas' concerns. She stated that unstealthing the tower could increase coverage.

There being no one else to speak for or against the request, Chair Young closed the public hearing.

The Board, Staff and applicant discussed the aesthetics of telecommunications towers and the increased coverage with unstealthing the tower.

Mr. Robert Batcheller moved to defer the special use permit; the motion was seconded by Mr. Tim Tipps and carried by the following vote:

Aye: Robert Batcheller

Misty Lavender

Tim Tipps

Chair Davis Young

Nay: Vice-Chair Ken Halliburton

6. Staff Reports and Other Business:

None

7. Adjourn:

There being no further business, Chair Young adjourned the meeting at 2:49pm.

_____ _____

CHAIRMAN SECRETARY

T-Mobile

ANCHOR PROJECT

T-MOBILE Site #

9NV1648A

T-MOBILE Site Name

THOMPSON

SBA Site #

TN01807-B-04

Site Address

2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129
(RUTHERFORD COUNTY)

SBA Site Name

SWANSON

SCOPE OF WORK

THE SCOPE OF WORK CONSISTS OF:

- REMOVE (3) EXISTING ANTENNAS
- REMOVE (6) EXISTING TMAS
- REMOVE (1) EXISTING CANISTER MOUNT
- INSTALLATION OF (1) NEW VALMONT RMQP-4126 + PRK1245 + HRK12 LOW PROFILE PLATFORM MOUNT
- INSTALLATION OF (3) NEW ERICSSON 840590966 ANTENNAS
- INSTALLATION OF (3) NEW NOKIA AEHC ANTENNAS
- INSTALLATION OF (3) NEW NOKIA AHFIIS RRUS
- INSTALLATION OF (3) NEW NOKIA AHLOB RRUS
- REMOVAL OF (3) EXISTING COAX CABLES
- INSTALLATION OF (2) NEW HYBRID 6X24 4AWG HYBRID CABLES
- REMOVAL OF EXISTING SITE SUPPORT CABINETS ALONG WITH (2) FSMF BASEBANDS & (1) ESMB BASEBAND SUBMODULE
- REMOVAL OF ALL EXISTING RADIOS
- INSTALLATION OF (1) NEW T MOBILE DELTA HPL3 600A CABINET WITH (1) NEW ASIA BASEBAND, (2) NEW ASIL BASEBANDS, (2) NEW ABIA SUBMODULES, (3) ABIL SUBMODULES, (1) NEW ABIO SUBMODULE, (2) AMIA BASEBAND SUBRACKS & (1) NEW CSR IXRE V2 (GEN2) ROUTER
- INSTALLATION OF (1) NEW T MOBILE DELTA LB3 BATTERY CABINET (4 STRINGS)

DRIVING DIRECTIONS

DRIVING DIRECTIONS FROM T-MOBILE OFFICE AT:
5209 LINBAR DRIVE SUITE 625, TN 37211

1. GET ON I-24 E FROM EZELL RD 3 MIN (1.0 MI)
2. CONTINUE ON I-24 E TO MURFREESBORO. TAKE EXIT 55A-B FROM I-840 E 18 MIN (20.1 MI)
3. CONTINUE ON US-41 S/US-70S E TO YOUR DESTINATION 5 MIN (2.4 MI)

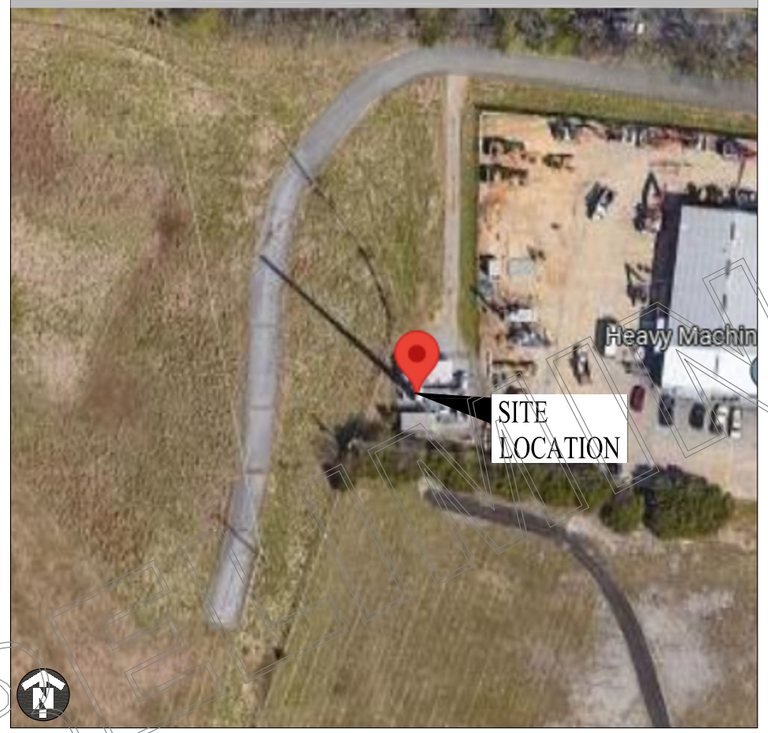
DESTINATION WILL BE ON THE LEFT
26 MINUTES (23.6 MILES)

PROFESSIONAL LICENSURE

I CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF THE GOVERNING LOCAL BUILDING CODE.

LICENSED PROFESSIONAL
EXPIRES: MM/DD/YYYY

AERIAL MAP



SITE

SHEET INDEX

NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
A-1	COMPOUND PLAN
A-1A	EXISTING & PROPOSED EQUIPMENT LAYOUT
A-2	ELEVATION & DETAILS
A-2A	EXISTING & PROPOSED ANTENNA PLANS
A-3	ANTENNA & CABLE SCHEDULE
A-3A	RFDS DIAGRAM
A-4	DETAILS
A-5	DETAILS
A-6	ANTENNA MOUNT
A-6A	ANTENNA MOUNT
A-6B	ANTENNA MOUNT
A-6C	ANTENNA MOUNT SPEC
E-1	AC PANEL SCHEDULE & ONE LINE DIAGRAM
EG-1	PROPOSED SITE GROUNDING DIAGRAM
SP-1	GENERAL NOTES AND SPECIFICATIONS

GENERAL NOTES:

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS AT THE PROJECT SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

FOR SITES WHERE A CRANE IS NECESSARY, THE CONTRACTOR SHALL CONFIRM AN UNOBSTRUCTED ROUTE FOR THE CRANE FROM PUBLIC ROAD TO TOWER SITE PRIOR TO CONSTRUCTION. NO AERIAL OBSTRUCTIONS UNDER FIFTEEN FEET ABOVE GRADE, INCLUDING AERIAL UTILITY LINES, ARE ALLOWED ALONG SAID CRANE ROUTE.

GC SHALL CONTACT THE A&E FIRM PRIOR TO BIDWALK AND CONSTRUCTION START TO CONFIRM THAT DRAWINGS ARE THE MOST RECENT SET.

PROJECT INFORMATION

Site Information:

LATITUDE:	35.882139 (N 35° 52' 55.74") (NAD 83)
LONGITUDE:	-86.424083 (W 86° 25' 26.73") (NAD 83)
FCC #:	1204116
GROUND ELEVATION:	±570' (AMSL IN FEET)
ZONING:	N/A
JURISDICTION:	RUTHERFORD COUNTY
TAX ID:	080-011.00-000
PROPERTY OWNER:	SWANSON IRREVOCABLE FAMILY TRUST
STRUCTURE TYPE:	150'-0" STEALTH MONOPOLE
POWER PROVIDER:	MURFREESBORO ELECTRIC
TELCO PROVIDER:	AT&T

TENANT ENTITY:	T-MOBILE SOUTH LLC 12920 SOUTHEAST 38TH ST., BELLEVUE, WA 980061350 CONTACT : JIM FAIRCHILD CR.SBA@T-MOBILE.COM
VENDOR : (PROJECT MANAGEMENT)	SBA 9125-A SOUTHERN PINE BOULEVARD, CHARLOTTE, NC 28273 CONTACT : DEB HITCHCOCK DHITCHCOCK@SBASITE.COM
ENGINEER:	BC ARCHITECTS ENGINEERS, PLC 5661 COLUMBIA PIKE, SUITE 200 FALLS CHURCH, VA 22041 CONTACT: BRIAN M. QUINN, AIA BQUINN@BCPLC.COM
TOWER OWNER:	SBA COMMUNICATIONS 8051 CONGRESS AVENUE BOCA RATON, FL 33487
CONSTRUCTION:	T-MOBILE CHAI CHAIWAN CHAITHIA.CHAIWAN@TMOBILE.COM

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

CODES:

1. INTERNATIONAL BUILDING CODE 2018
2. NATIONAL ELECTRIC CODE (NEC) 2017
3. AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION
5. TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL TOWER AND ANTENNA SUPPORTING STRUCTURES
6. TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

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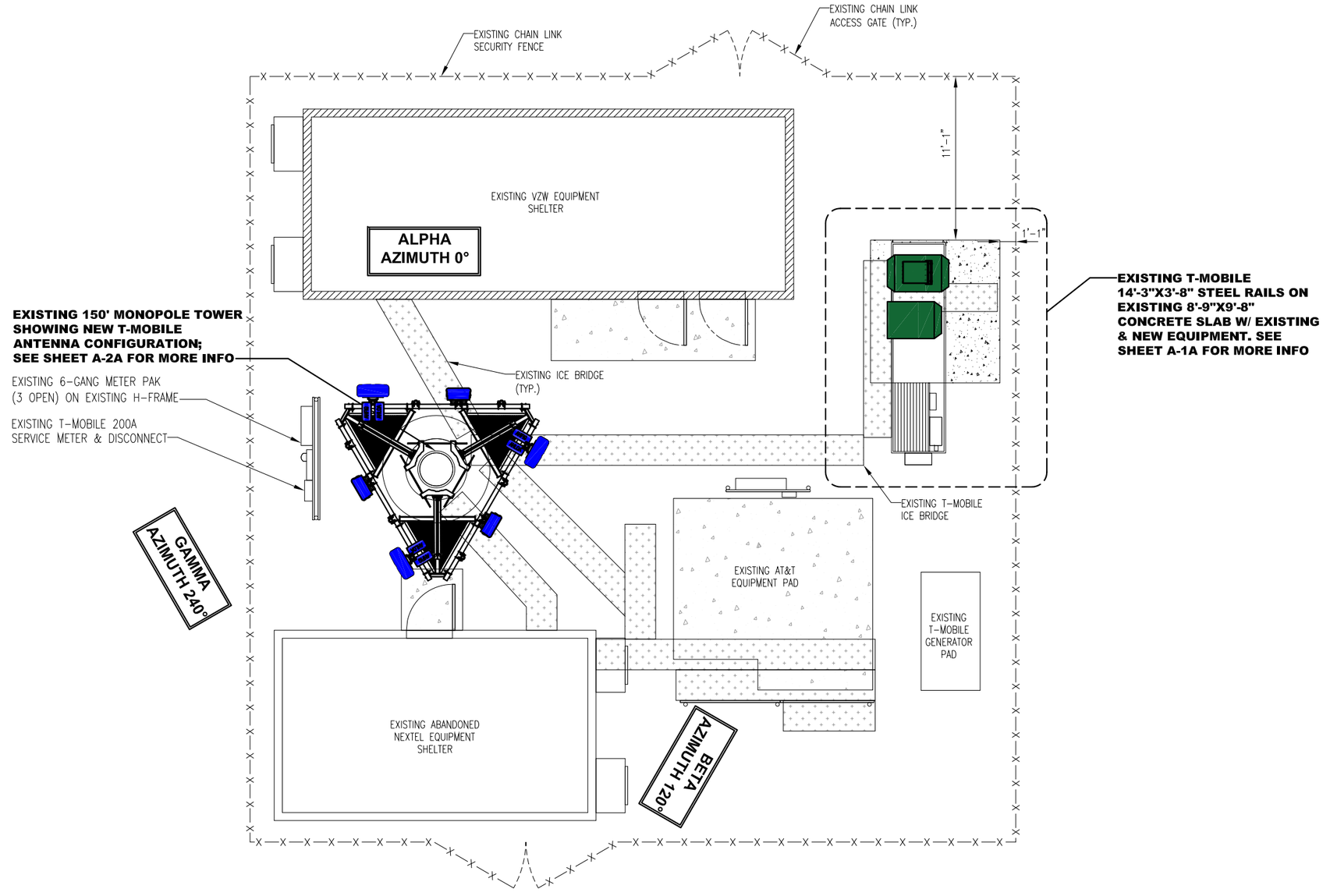
REGISTERED ENGINEER
AGRICULTURE
7.23.24
COMMERCE
No. 105940
STATE OF TENNESSEE

9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

TITLE SHEET

T-1



1 COMPOUND PLAN
SCALE: 1/8"=1'-0" (1/4"=1'-0" IF 24X36 SHEET SIZE)

N

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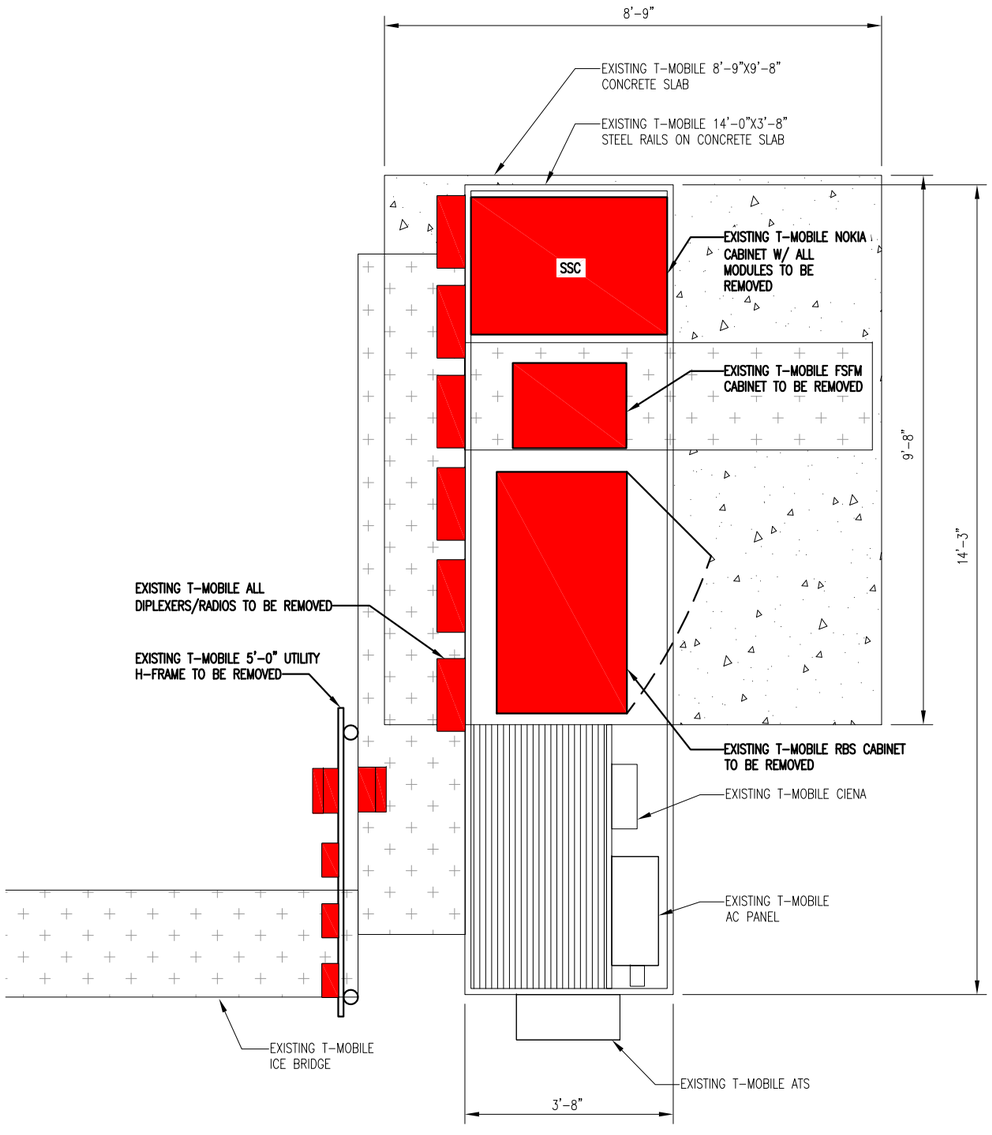
COMPOUND PLAN

A-1

07-24-24 MALLA 14:02:54 C:/Users/malla/BC Dropbox/Server/BC Files/Drawings - 2022/SBA/T-Mobile/TNKY Market/9NV1648A - TN01807-B-04/CD's - REV 0/A1A.dwg

LEGEND

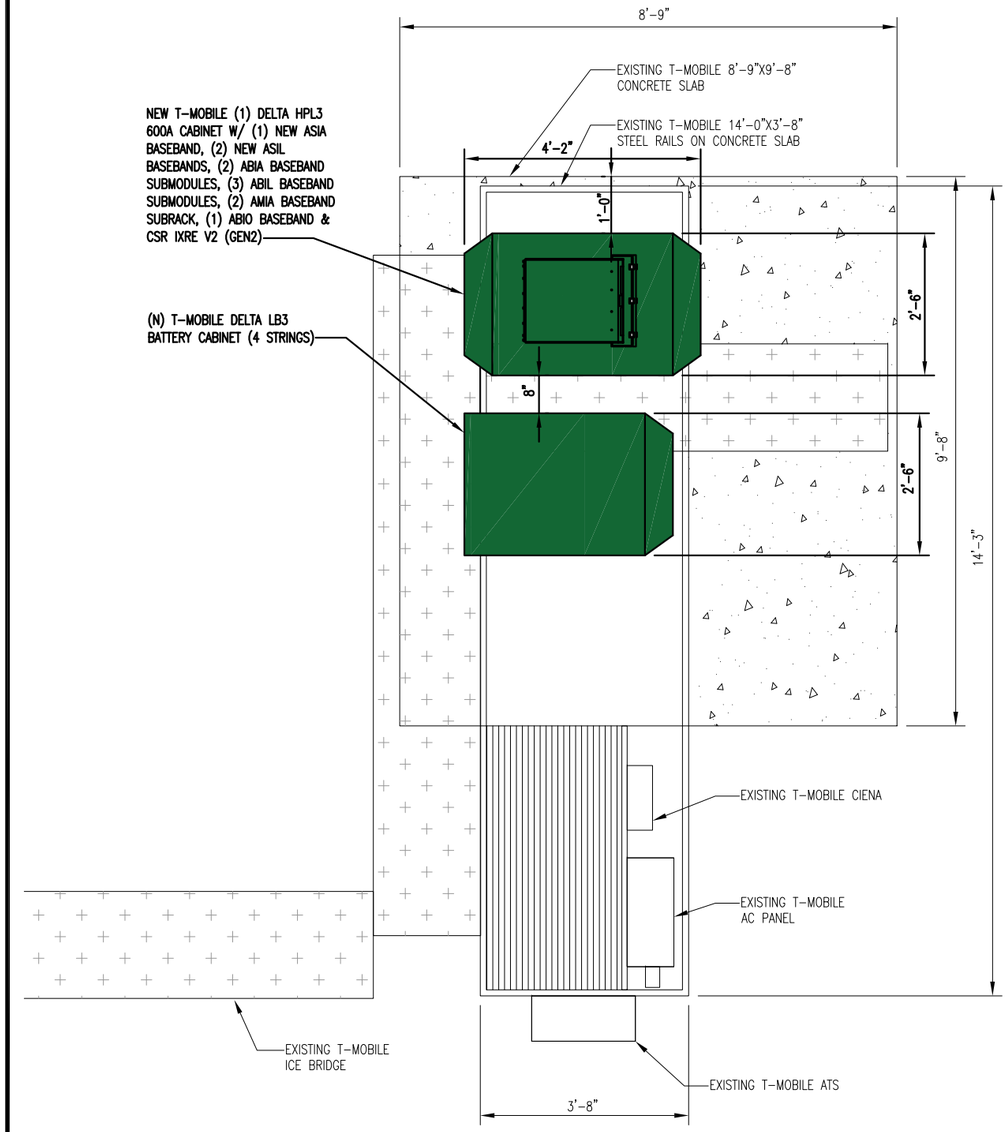
EXISTING CABINET / MODULE TO BE REMOVED



1 EXISTING EQUIPMENT LAYOUT
SCALE: 3/8"=1'-0" (3/4"=1'-0" IF 24X36 SHEET SIZE)

LEGEND

NEW CABINET/MODULE TO BE INSTALLED



2 PROPOSED EQUIPMENT LAYOUT
SCALE: 3/8"=1'-0" (3/4"=1'-0" IF 24X36 SHEET SIZE)

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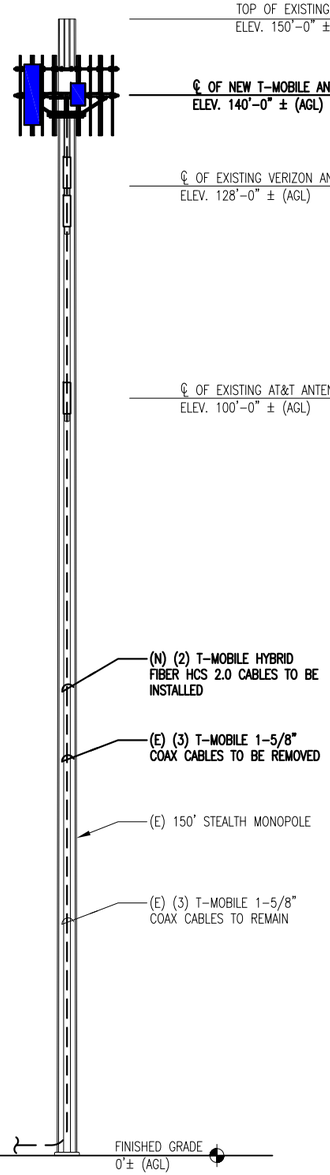
EXISTING & PROPOSED ENLARGED EQUIPMENT LAYOUT

A-1A

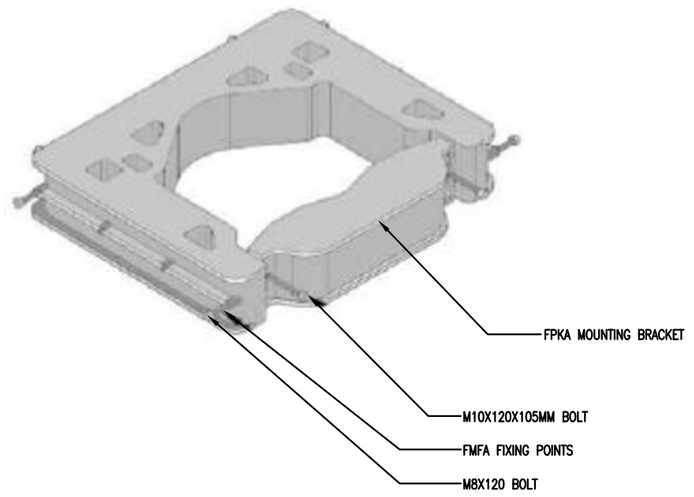
NOTE:
NEW MOUNT HAVE ALREADY BEEN INSTALLED AS PER THE APPLICATION



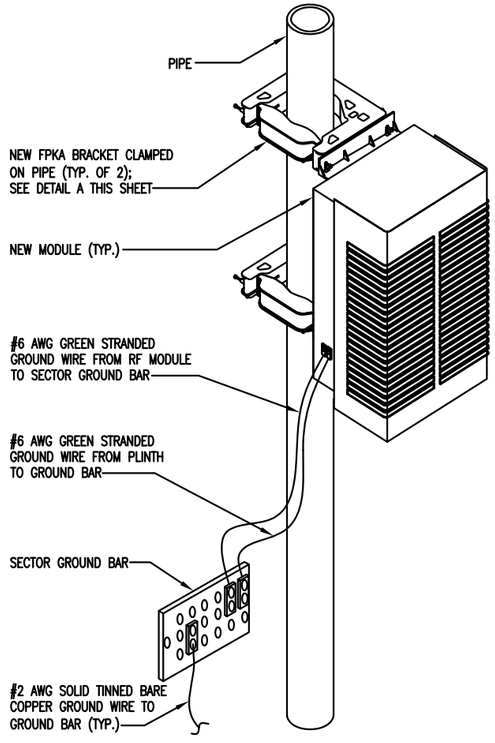
1 TOWER ELEVATION
SCALE: 1"=20' (1"=10' IF 24X36 SHEET SIZE)

SPECIAL NOTES

1. GC TO VERIFY ALL HEIGHTS AND AZIMUTHS IN FIELD PRIOR TO CONSTRUCTION. GC SHALL NOTIFY T-MOBILE AND ENGINEER OF DISCREPANCIES IMMEDIATELY.
2. STRUCTURAL/ DESIGN & ANALYSIS SHALL BE PERFORMED & APPROVED BY TOWER OWNER AND MANUFACTURER
3. **STRUCTURAL ANALYSIS PERFORMED BY OTHERS.**
4. **MOUNT ANALYSIS PERFORMED BY OTHERS.**
5. CONTRACTOR TO THOROUGHLY REVIEW THE TOWER STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO TOWER UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.



2 FPKA BRACKET DETAIL
N.T.S.



3 TYPICAL AHLOA UNIT MOUNTING DETAIL
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ELEVATION & DETAILS

A-2

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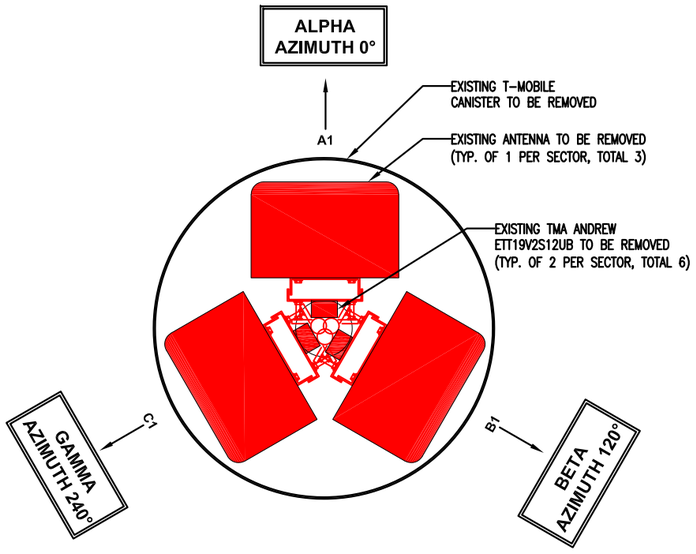
LEGEND

EXISTING EQUIPMENT TO BE REMOVED



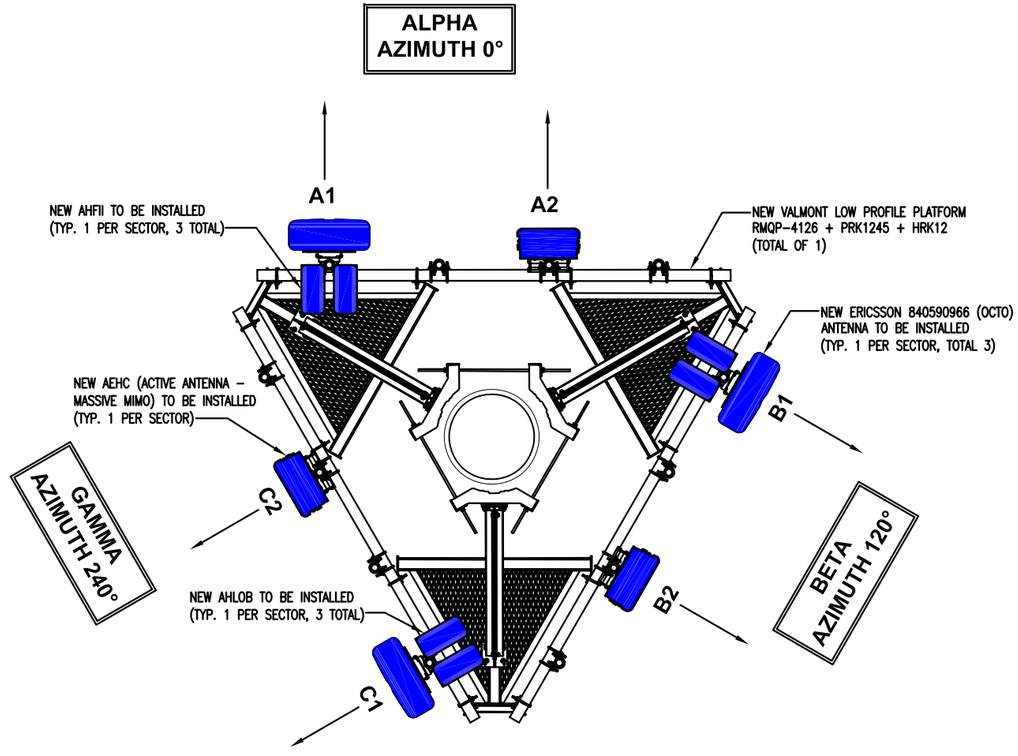
1 EXISTING T-MOBILE ANTENNA CONFIGURATION
SCALE: 1"=1'-0" (1 1/2"=1'-0" IF 24X36 SHEET SIZE)

LEGEND

NEW EQUIPMENT TO BE INSTALLED

SPECIAL NOTES:
STRUCTURAL ANALYSIS PERFORMED BY OTHERS.
MOUNT ANALYSIS PERFORMED BY OTHERS.
CONTRACTOR TO THOROUGHLY REVIEW THE TOWER & MOUNT STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO MOUNT UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.

NOTE:
NEW MOUNT HAVE ALREADY BEEN INSTALLED AS PER THE APPLICATION



2 NEW T-MOBILE ANTENNA CONFIGURATION
SCALE: 1/4=1'-0" (1/2"=1'-0" IF 24X36 SHEET SIZE)

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EXISTING & PROPOSED ANTENNA PLANS

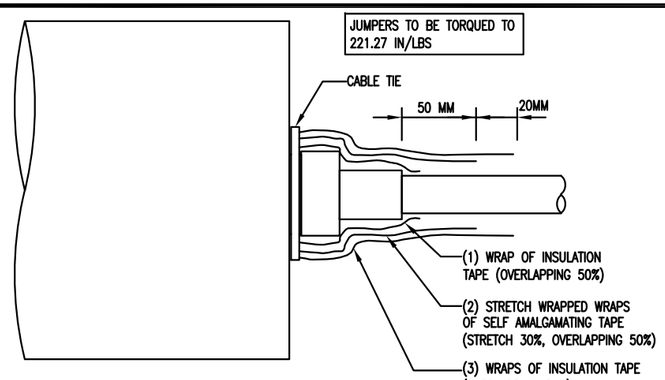
A-2A

NEW AND EXISTING ANTENNA AND CABLE SCHEDULE

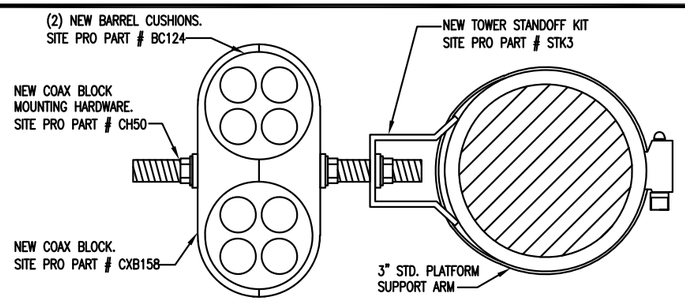
SECTOR	POS.	AZIMUTH	RAD CENTER	TECHNOLOGY	ANTENNA	STATUS	RRU TYPE	STATUS	DIPLEXER/ODU	CABLE STATUS	COAX CABLE LENGTH	JUMPER LENGTH
ALPHA	A1	0°	140'	N1900 G1900 N2100 N600 L1900 L600 L2100 L700	(1) ERICSSON - 840590966 (OCTO)	NEW	(1) AHLOB	NEW	–	(2) NEW 1.8" HCS 2.0 HYBRID CABLES TO BE INSTALLED (3) EXISTING 1-5/8" COAX CABLES TO BE REMOVED (3) EXISTING 1-5/8" COAX CABLES TO REMAIN	(±170')	≤ 15'–0"
							(1) AHFII	NEW				
	A2	0°	140'	N2500	(1) AEHC MASSIVE MIMO	NEW	–	–	–			≤ 15'–0"
BETA	B1	120°	140'	N1900 G1900 N2100 N600 L1900 L600 L2100 L700	(1) ERICSSON - 840590966 (OCTO)	NEW	(1) AHLOB	NEW	–			≤ 15'–0"
							(1) AHFII	NEW				
	B2	120°	140'	N2500	(1) AEHC MASSIVE MIMO	NEW	–	–	–			≤ 15'–0"
GAMMA	C1	240°	140'	N1900 G1900 N2100 N600 L1900 L600 L2100 L700	(1) ERICSSON - 840590966 (OCTO)	NEW	(1) AHLOB	NEW	–			≤ 15'–0"
							(1) AHFII	NEW				
	C2	240°	140'	N2500	(1) AEHC MASSIVE MIMO	NEW	–	–	–			≤ 15'–0"

(*) SHARED WITH ALL SECTORS

IMPORTANT NOTE: PLEASE REFER TO LATEST RFDS SHEET FOR NSN CONFIGURATION. GC TO CAP ALL UNUSED PORTS.



1 RF JUMPER CONNECTION DETAIL
N.T.S.

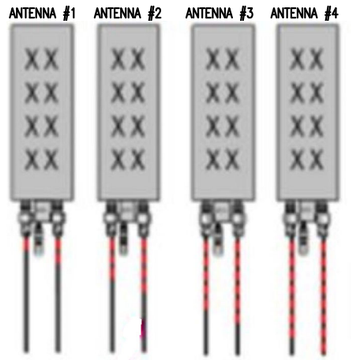


2 RF JUMPER MOUNTING DETAIL
N.T.S.

COAX COLOR CODING
- ANTENNAS WILL BE LABELED (BACK OF ANTENNA VIEW) RIGHT TO LEFT 1–X PORTS
- COAX/JUMPER LINES WILL BE IDENTIFIED BY SECTOR COLOR AND BY NUMBER OF BANDS AROUND THE COAX/JUMPER

SECTOR A	RED
SECTOR B	GREEN
SECTOR C	BLUE
SECTOR D	YELLOW
SECTOR E	WHITE
SECTOR F	PURPLE
LMU	BROWN+SECTOR COLOR BANDS (1 & 2)
FIBER ID	GRAY
UNUSED COAX	PINK
MICROWAVE	ORANGE
DWE T–1'S + GPS DOWNLINK CABLE	ID W/LABEL MAKER

FRONT OF THE ANTENNA



EXAMPLE: COAX WITH FOUR BANDS OF RED TAPE WILL REPRESENT ALPHA SECTOR AND THE 4TH PORT OF ANTENNA

ANTENNA AND COAXIAL CABLE SCHEDULE

1. ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.
2. CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLE SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS.

3 TAGGING COLOR AND NOTES
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ANTENNA & CABLE SCHEDULE

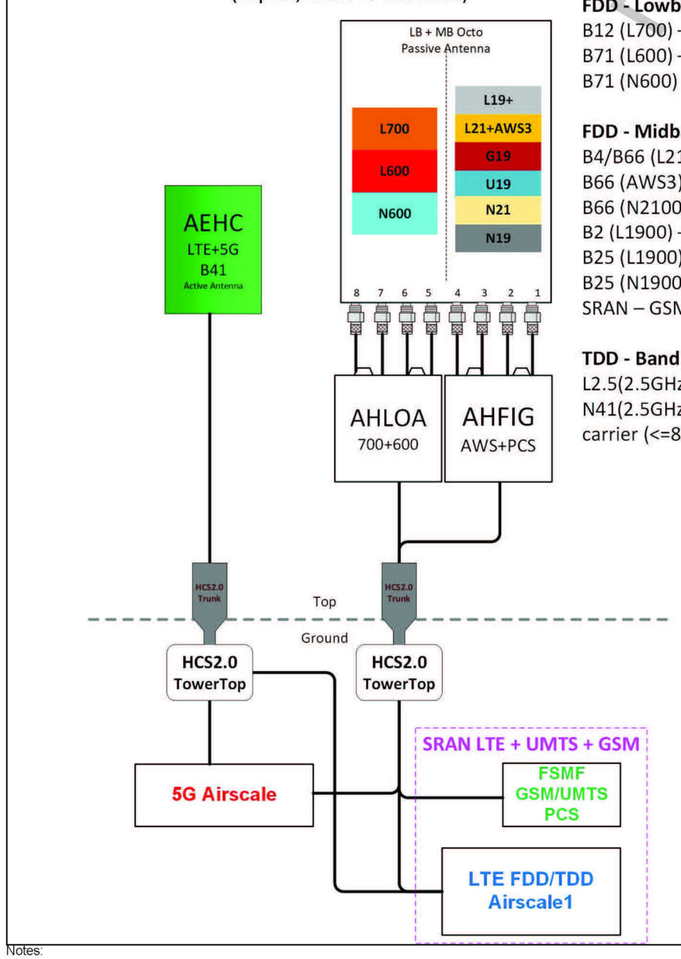
A-3

Section 3 - Proposed Template Images

56791EZ_SR.jpg

Configuration 56791EZ_SR

* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.



FDD - Lowband
B12 (L700) – 5 MHz
B71 (L600) – 10 MHz
B71 (N600) – 15 MHz

FDD - Midband
B4/B66 (L2100) – 20 MHz
B66 (AWS3) – 5MHz
B66 (N2100) – 20MHz
B2 (L1900) – 20 MHz
B25 (L1900) – 20 MHz
B25 (N1900) – 20MHz
SRAN – GSM/UMTS PCS

TDD - Band 41
L2.5(2.5GHz)– 60 MHz
N41(2.5GHz) – 100MHz +2nd carrier (<=80MHz)

Notes:

1 RFDS DIAGRAM
SCALE: N.T.S.

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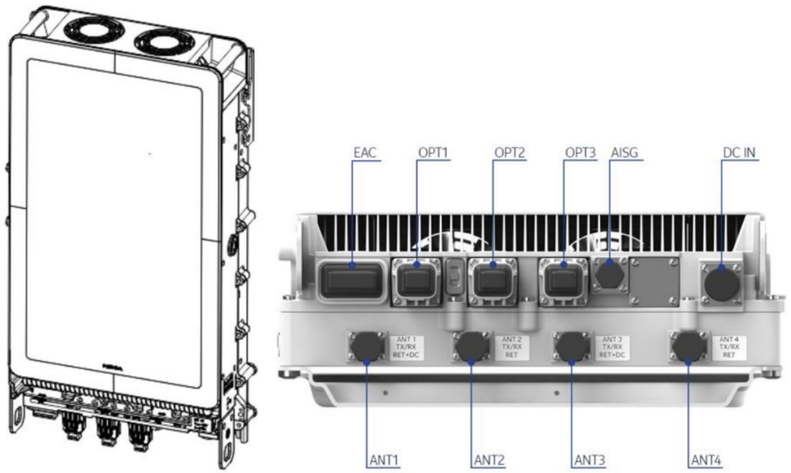
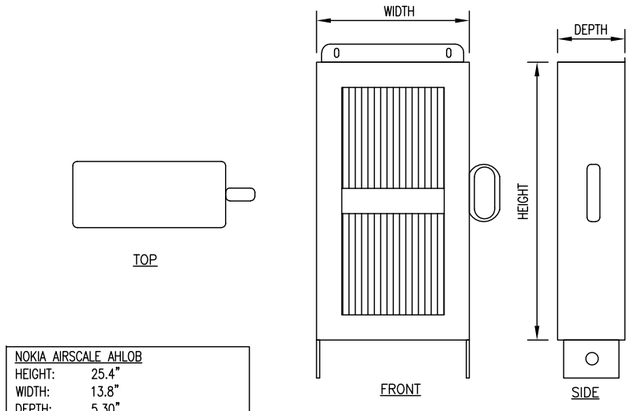
RFDS DIAGRAM

A-3A



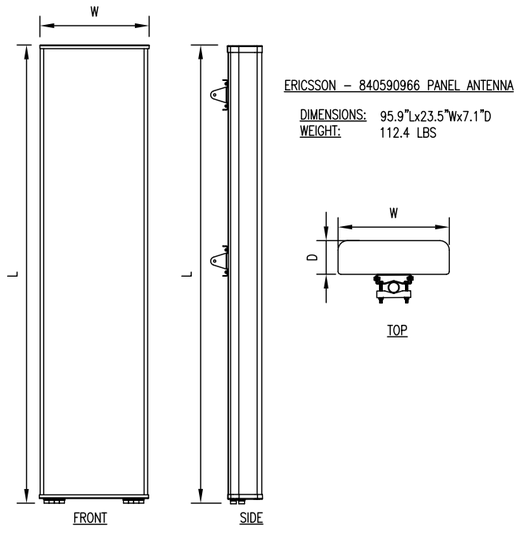
Dimension HxWxD (Core)	25.2" x 13.5" x 4.5"
Dimension HxWxD (with bracket and fan unit)	26.6" x 14.5" x 5.7"
Weight (Core Only)	70.6 lbs
Frequency Band	Band 25: DL 1930–1995MHz, UL 1850–1915MHz Band 66: DL 2110–2200MHz, UL 1710–1780MHz
Instantaneous Bandwidth	Band 25/ Band 66 – full band
Technology	LTE, 5GNR
Rx Diversity	2-Way or 4-way
TX MIMO	2TX or 4TX
RF Power Range	4x80W in any band while 4x40W in other band (4x120W Total)
RF Ports	4 ports of 4.3-10 (F)
Supporting BW	NR: 5, 10, 15, 20, 30* MHz LTE: 1.4*, 3*, 5, 10, 15, 20 MHz *) Not supported in current SW

1 AHFII (RRU) DETAIL
N.T.S.



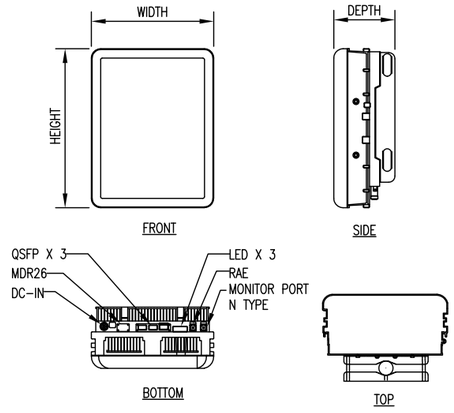
NOKIA AIRSCALE AHLOB
HEIGHT: 25.4"
WIDTH: 13.8"
DEPTH: 5.30"
WEIGHT: 82.7 LBS

2 AHLOB (RRU) DETAIL
N.T.S.



ERICSSON – 840590966 PANEL ANTENNA
DIMENSIONS: 95.9"Lx23.5"Wx7.1"D
WEIGHT: 112.4 LBS

3 ERICSSON – 840590966 ANTENNA DETAIL
N.T.S.



NOKIA – AEHC ANTENNA
HEIGHT: 35.4"
WIDTH: 22.8"
DEPTH: 8.3"
WEIGHT: 99.2 LBS

4 NOKIA – AEHC ANTENNA DETAIL
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NEW EQUIPMENT SPECIFICATIONS

A-4

1 DELTA HPL3 600A CABINET DETAIL
N.T.S.

2 DELTA LB3 BATTERY CABINET (4 STRINGS) DETAIL
N.T.S.

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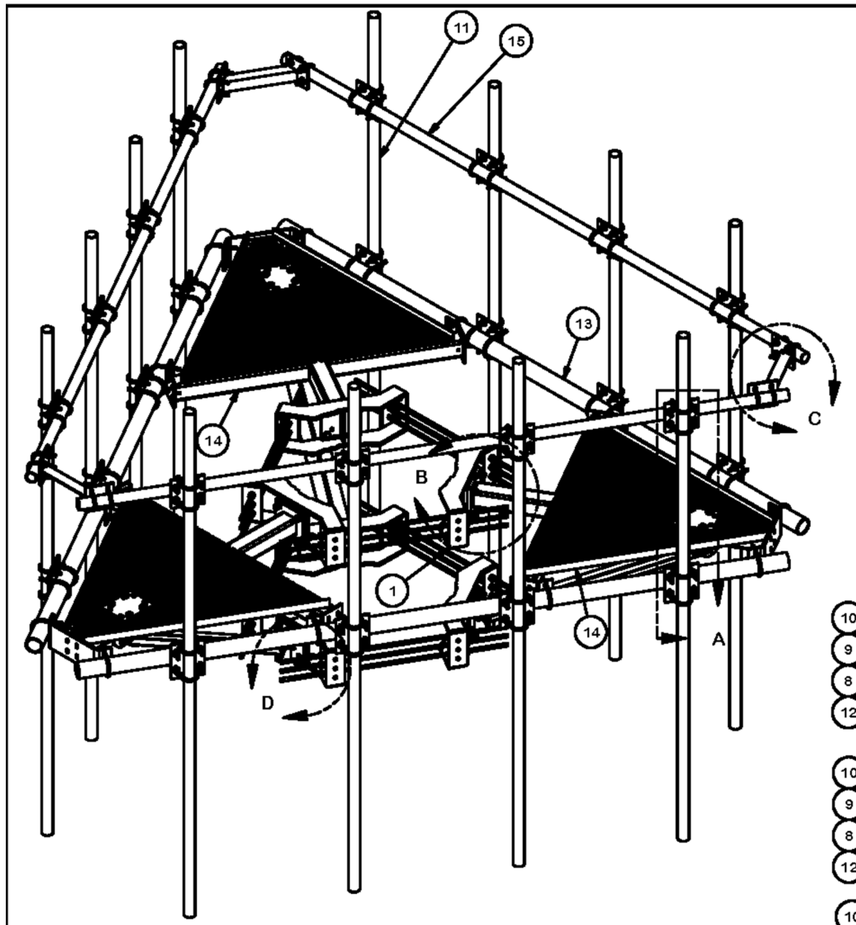
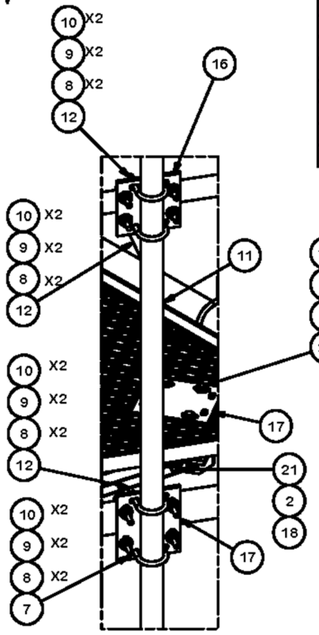
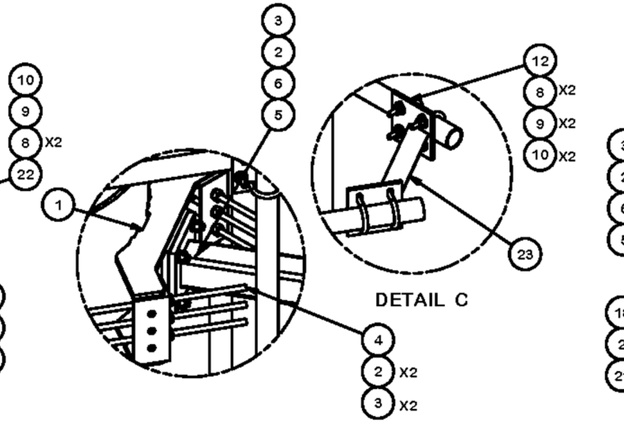
DETAILS

A-5





DETAIL A



DETAIL B

DETAIL C

DETAIL D

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.79
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
4	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
5	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.54
6	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
7	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
8	264	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.00
9	252	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.50
10	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.05
11	12	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	489.03
12	84	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	52.51
13	3	P3150	3-1/2" X 150" (3" SCH 40) GALVANIZED PIPE	150 in	94.80	284.40
14	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
15	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
16	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
17	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
18	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
19	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
20	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
21	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
22	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
23	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2566.09

TOLERANCE NOTES

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LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-3/8" ANTENNA MOUNTING
PIPES, AND SUPPORT RAIL

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4488	JET 5/25/2021	5/25/2021	RMQP-4126-HK	1 OF 3
CLASS 81 / SUB 02	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC	DWG. NO.: RMQP-4126-HK	

T-Mobile

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BC architects engineers
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SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487-1307

DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

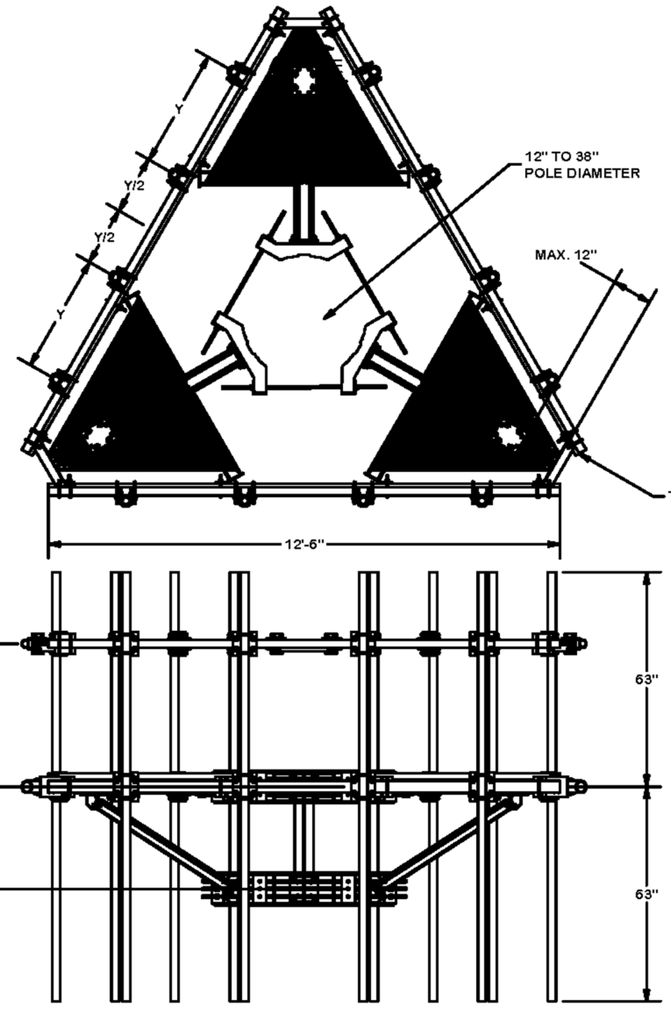
No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM

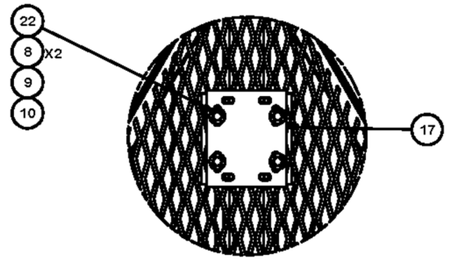
CHRISTOPHER D. MORIN
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 105940
STATE OF TENNESSEE
7.23.24

9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

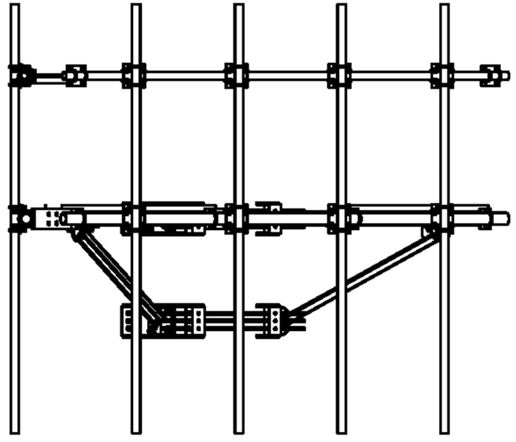
ANTENNA
MOUNT SPEC.

A-6





DETAIL E



TOLERANCE NOTES

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DESCRIPTION
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PIPES, AND SUPPORT RAIL

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	JET 5/25/2021	5/25/2021	RMQP-4126-HK

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC	RMQP-4126-HK

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CHECKED BY: SS	APPROVED BY: BMQ

No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM

CHRISTOPHER D. MORIN
REGISTERED ENGINEER
AGRICULTURE
7.23.24
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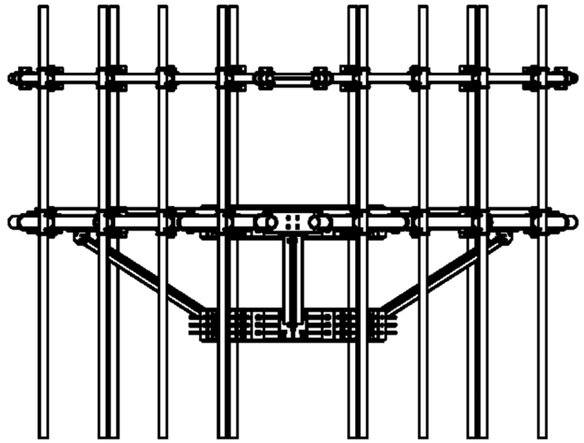
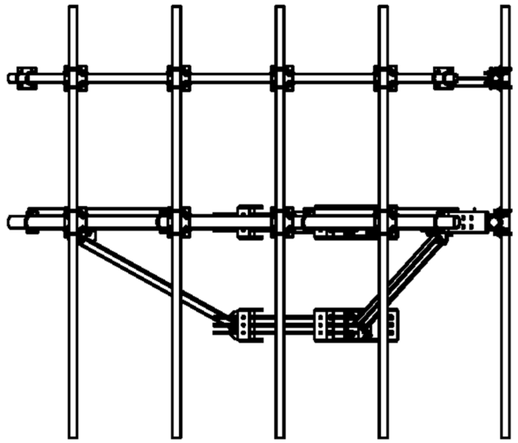
No. 105940
STATE OF TENNESSEE

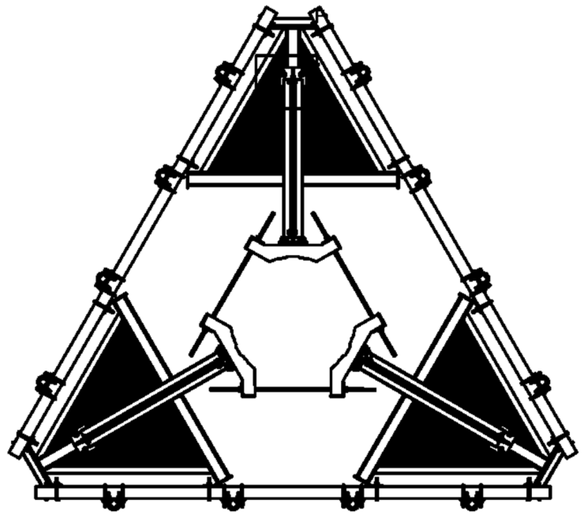
9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

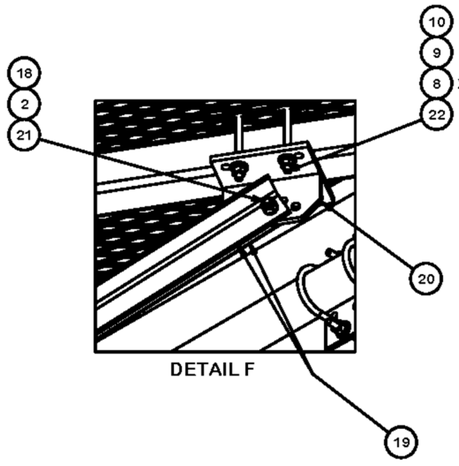
ANTENNA
MOUNT SPEC.

A-6A









DETAIL F

TOLERANCE NOTES

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ALL OTHER MACHINING *(± 0.030")*
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DESCRIPTION
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PIPES, AND SUPPORT RAIL

GPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4488	JET 5/25/2021	5/25/2021	RMQP-4126-HK

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC	RMQP-4126-HK

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BOCA RATON, FL 33487-1307

DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

No.	Revision/Issue	Date	Initial
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7.23.24
COMMERCE
No. 105940
STATE OF TENNESSEE

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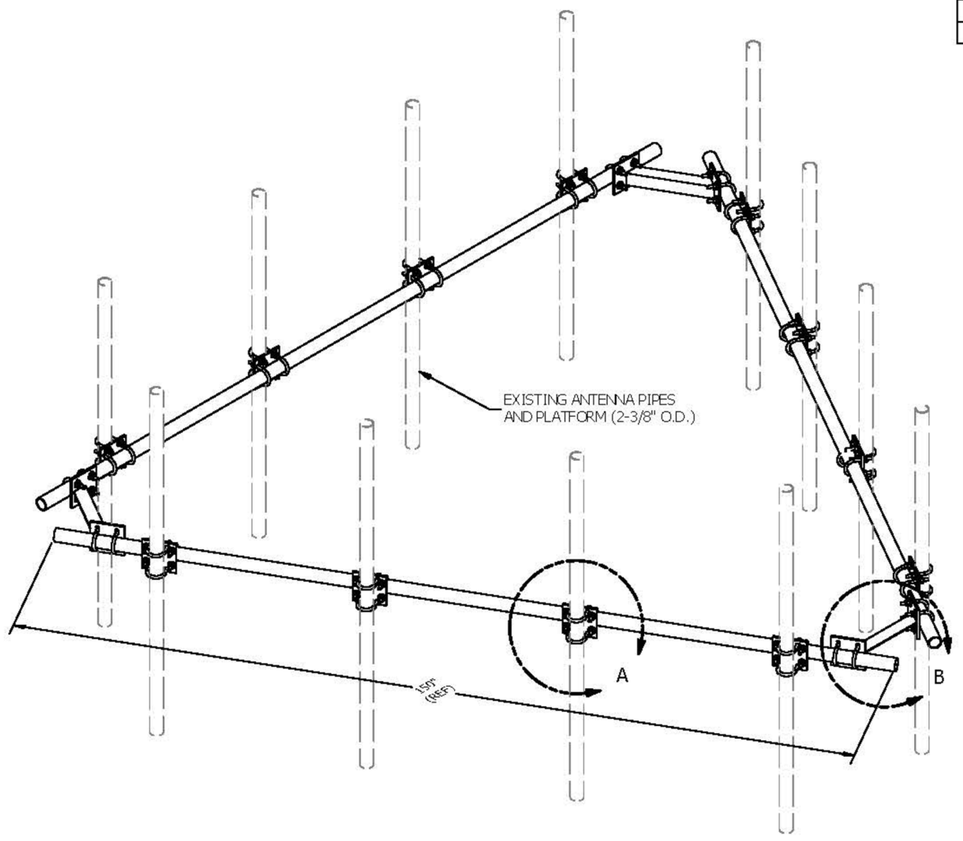
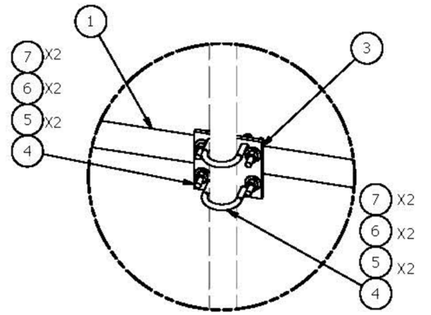
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

ANTENNA
MOUNT SPEC.

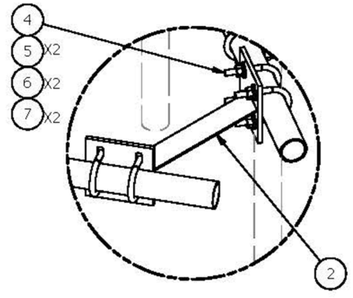
A-6B

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	44.50
4	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	37.51
5	120	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	4.09
6	120	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
					TOTAL WT. #	272.43





DETAIL A



DETAIL B

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP		CEK	7/10/2014

REVISION HISTORY

TOLERANCE NOTES

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ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION	HANDRAIL KIT FOR 12'-6" FACE		
CPD NO.	DRAWN BY KC8 5/30/2012	ENG. APPROVAL	PART NO. HRK12
CLASS 81 / SUB 01	DRAWING USAGE CUSTOMER	CHECKED BY BMC 7/13/2014	DWG. NO. HRK12

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PAGE 1 OF 1

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BOCA RATON, FL 33487-1307

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CHECKED BY: SS	APPROVED BY: BMQ

No.	Revision/Issue	Date	Initial
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CHRISTOPHER D. MORIN
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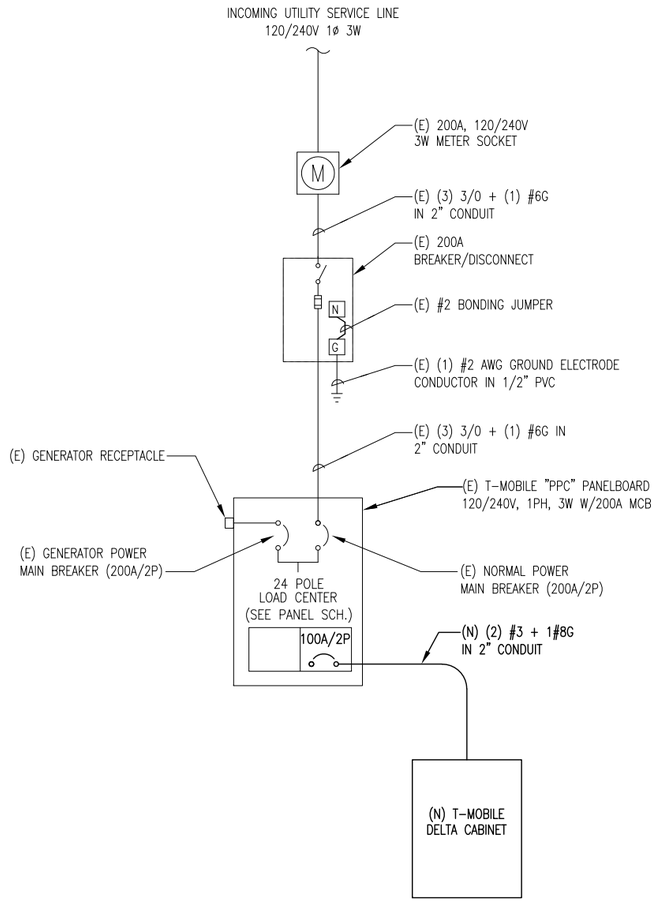
7.23.24
COMMERCE
No. 105940
STATE OF TENNESSEE

9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

ANTENNA
MOUNT SPEC.

A-6C



1 ONE LINE DIAGRAM
SCALE: N.T.S.

200 A MCB						Voltage:	240						
AC PANEL SCHEDULE						1 ϕ 3 W							
Breaker Pos #	**Description**	**State (On/Off)**	**Use ***	**Amp**	**Load**	**Phase A**	**Phase B**	**Load**	**Amp**	**State (On/Off)**	**Use ***	**Description**	**Breaker Pos #**
1	*TVSS*	*ON*	*2P*	*60*	1	**181**		180	*20*	*ON*	*1P*	*PPC GFCI*	**2**
3					1		**301**	300	*20*	*ON*	*1P*	*LIGHT*	**4**
5	*FCOA*	*OFF*	*2P*	*50*		**180**		180	*20*	*ON*	*1P*	*GFCI*	**6**
7							**0**		*100*	**OFF**	*2P*	*SSC*	**8**
9	**DELTA HPL3**	**ON**	**2P**	**100**	9600	**9600**							**10**
11					9600		**9900**	300	*20*	*ON*	*1P*		**12**
13						**300**		300	*20*	*ON*	*1P*		**14**
15							**0**						**16**
17						**0**							**18**
19							**0**						**20**
21						**0**							**22**
23							**0**						**24**
						10261	10201						

NEW AC LOADS ADDED

CONNECTED LOAD (KVA):	20.46		
DEMAND CALCULATIONS:			
CONTINUOUS LOAD @ 125%	1.13		
NON CONTINUOUS LOAD @ 100%	0.36		
MECHANICAL LOADS @ 125%	0.00		
EXISTING LOADS @ 125%	0.00		
NEW LOADS @ 125%	24.00		
TOTAL PANEL CAPACITY (KVA)	48.00	200.00	TOTAL PANEL CAPACITY (A)
TOTAL LOADING ON PANEL (KVA)	25.49	106.20	TOTAL LOADING ON PANEL (A)
TOTAL SPARE CAPACITY (KVA)	22.51	93.80	TOTAL SPARE CAPACITY (A)

NOTE: PANEL BOARD IS NOT OVERLOADED.

2 AC PANEL SCHEDULE
SCALE: N.T.S.

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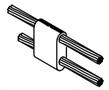
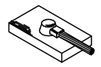
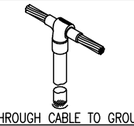
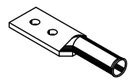
AC PANEL SCHEDULE
& ONE LINE DIAGRAM

E-1

CADWELD CONNECTIONS OR APPROVED EQUAL		BURNDY CONNECTIONS OR APPROVED EQUAL
 PARALLEL HORIZONTOL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTOL CABLES TYPE PT	 HORIZONTOL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTOL PIPE TYPE HS	 "C" CONNECTOR HYPRESS TYPE YGHC
 THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT	 VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS	 BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2
 HORIZONTOL SPLICE SPLICE OF HORIZONTOL CABLES	 VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	 COPPER LUGS TWO HOLE-LONG BARREL LENGTH TYPE YA-2

CADWELD DETAILS

GROUNDING NOTES:

1.) UNDERGROUND AND OVERHEAD UTILITY LENGTHS TO BE DETERMINED FROM SITE PLAN.
2.) SEE ELECTRICAL SPECIFICATIONS SECTION 16000 FOR ALL ELECTRICAL AND GROUNDING INSTALLATION REQUIREMENTS.
3.) FOR ORIENTATION OF SITE LAYOUT SEE SITE PLAN, DRAWING.
4.) UDA CABINET FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
5.) GROUND KITS PROVIDED BY OWNER SHALL BE RETROFITTED TO ACCOMMODATE 2 HOLE LUG CONNECTION AND APPROPRIATE LENGTH.
6.) CONTRACTOR RESPONSIBLE TO PROVIDE OWNER CERTIFICATION OF RESISTIVITY TESTING.
7.) GROUND RODS TO BE INSTALLED AT 10' CENTERS.
8.) ALL GROUND LEADS TO BE SLEEVED IN 34"Ø SCHEDULE 40 PVC CONDUIT AND SEALED W/ SILICON.
9.) GROUND BARS SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
10.) ALL BENDS IN GROUNDING SYSTEM MUST BE SMOOTH AND WELL ROUNDED AND MAINTAIN BENDING RADIUS.
11.) SEE SITE PLAN FOR COAXIAL ROUTING THIS SHEET IS INTENDED FOR GROUNDING CLARITY ONLY AND IS SCHEMATIC IN DETAIL.
12.) GROUND KITS SHALL BE INSTALLED BETWEEN 8"-18" OF ALL CONNECTORS.
13.) TOWER FOUNDATION DESIGN BY OWNER, INSTALLED BY CONTRACTOR.
14.) ADDITIONAL GROUND KITS TO BE PLACED AT 100' WHEN ANTENNA CENTERLINE IS 200' OR ABOVE.
15.) ALL CONDUITS TO BE SEALED W/ SILICONE TO PROVIDE A WATER TIGHT SEAL.

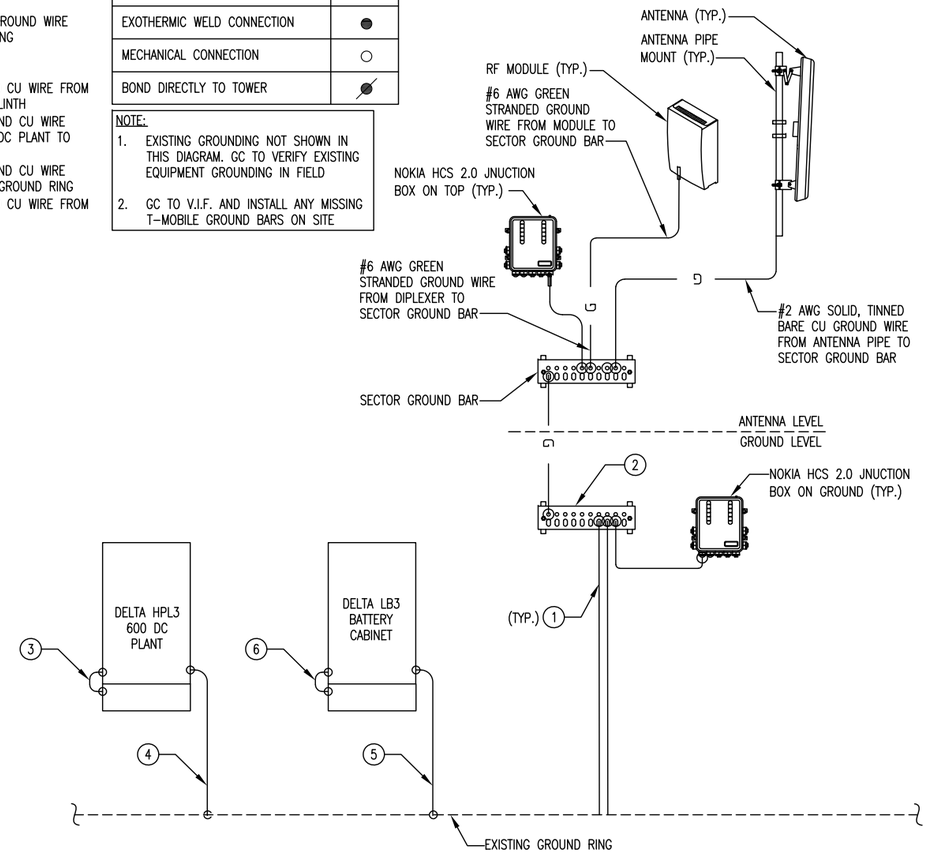
KEY NOTES:

1. #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM GROUND BAR TO GROUND RING (2 REQUIRED).
2. EXISTING GROUND BAR
3. #6 AWG GREEN STRANDED GROUND CU WIRE FROM DELTA HPL3 600A DC PLANT TO PLINTH
4. #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM GENERIC DELTA HPL3 600A DC PLANT TO GROUND RING
5. #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM DELTA BATTERY CABINET TO GROUND RING
6. #6 AWG GREEN STRANDED GROUND CU WIRE FROM DELTA BATTERY CABINET TO PLINTH

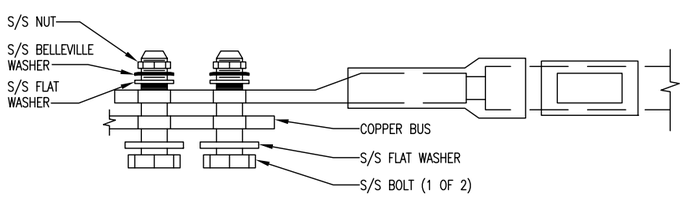
SYMBOLS LEGEND:

GROUND BAR	
EXOTHERMIC WELD CONNECTION	●
MECHANICAL CONNECTION	○
BOND DIRECTLY TO TOWER	⊘

NOTE:
1. EXISTING GROUNDING NOT SHOWN IN THIS DIAGRAM. GC TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD
2. GC TO V.I.F. AND INSTALL ANY MISSING T-MOBILE GROUND BARS ON SITE

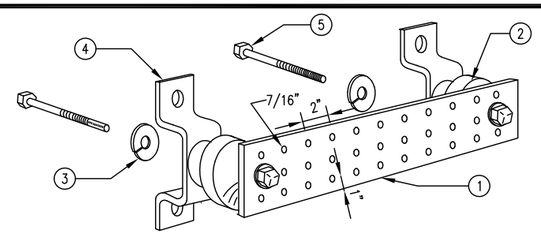


1 TYPICAL GROUNDING DIAGRAM
SCALE: N.T.S.



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

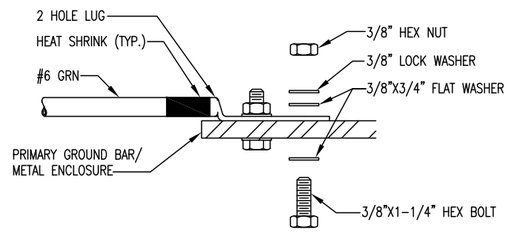
2 STANDARD LUG CONNECTION OF GROUND LEADS TO GROUND BAR DETAIL
SCALE: N.T.S.



LEGEND:

1. GROUND BAR, 4"X 20"X1/4", CONFIRM w/T-MOBILE PROJECT MANAGER THE APPROVED BUSS MFR. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2. INSULATORS, CONFIRM THE APPROVED BUSS MFR. w/T-MOBILE
3. 5/8" LOCKWASHERS, CONFIRM w/T-MOBILE THE APPROVED BUSS MFR. (NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT)
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056 OR APPROVED EQUIVALENT (CONFIRM w/T-MOBILE THE APPROVED BUSS MFR.)
5. 5/8-11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1 OR APPROVED EQUIVALENT (CONFIRM w/T-MOBILE THE APPROVED BUSS MFR.)

3 GROUNDING-STANDARD GROUND BAR DETAIL
SCALE: N.T.S.



INSTALLATION NOTES:

1. SELECT BOLT LENGTH TO PROVIDE A MINIMUM OF TWO EXPOSED THREADS.
2. BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF LUG CONTACT AND REMOVE OXIDATION FROM OUTDOOR WEATHERED BARS.
3. APPLY ANTI-OXIDANT COMPOUND TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS COMPOUND.
4. USE SOLID COPPER WIRE AND MECHANICAL 2-HOLE LUG FOR ALL EXTERIOR GROUNDING.

4 MECHANICAL GROUND CONNECTION
SCALE: N.T.S.

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No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM

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7.23.24
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PROPOSED SITE GROUNDING DIAGRAM

EG-1

GENERAL NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL:

   A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   B. AC/TELCO INTERFACE BOX(PPC)
   C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   D. TOWERS, MONOPOLE
   E. TOWER LIGHTING
   F. GENERATORS & LIQUID PROPANE TANK
   G. ANTENNA STANDARD BRACKETS, FRAMES, AND PIPES FOR MOUNTING.
   H. ANTENNAS (INSTALLED BY OTHERS)
   I. TRANSMISSION LINE
   J. TRANSMISSION LINE JUMPERS
   K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   L. TRANSMISSION LINE GROUND KITS
   M. HANGERS
   N. HOISTING GRIPS
   O. BTS EQUIPMENT

2. CONTRACTOR TO FURNISH AND INSTALL THE FOLLOWING:

   THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUNDS STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS.

   IT IS THE RESPONSIBILITY OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.

3. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED, INSURED, STORED, UNCRATED, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL THE APPURTENCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING UP.

4. ALL EQUIPMENT FURNISHED AND WORK PERFORMED UNDER THE CONTRACT DOCUMENTS SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE, UNLESS NOTED OTHERWISE. ANY FAILURE OF EQUIPMENT OR WORK DUE TO DEFECTS IN MATERIALS OR WORKMANSHIP SHALL BE CORRECTED BY THE CONTRACTOR AT NO COST TO THE OWNER.

5. ALL WORK, MATERIAL, AND EQUIPMENT SHALL COMPLY WITH ALL REQUIREMENTS OF THE LATEST EDITIONS AND INTERIM AMENDMENTS OF THE NATIONAL ELECTRICAL CODE (NEC). NATIONAL ELECTRICAL SAFETY CODE, OSHA, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES. ALL ELECTRICAL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE NEW (EXCEPT WHERE OTHERWISE NOTED) AND SHALL COMPLY WITH THE REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES (U.L.) AND BEAR THE U.L. LABEL.

6. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO THE OWNER OR HIS ARCHITECT/ENGINEER.

7. THE CONTRACTOR SHALL SUPPORT, BRACE AND SECURE EXISTING STRUCTURE AS REQUIRED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES DURING CONSTRUCTION. FIELD VERIFY ALL EXISTING DIMENSIONS WHICH AFFECT THE NEW CONSTRUCTION.

8. THE CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF THE WORK TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN INSPECTED BY THE GOVERNING AUTHORITIES. ANY WORK THAT IS ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION AND TEST SHALL BE UNCOVERED AT THE CONTRACTOR'S EXPENSE; AFTER IT HAS BEEN INSPECTED, THE CONTRACTOR SHALL RESTORE THE WORK TO ITS ORIGINAL CONDITION AT HIS OWN EXPENSE.

9. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS, AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ARCHITECT/ENGINEER AND OWNER (T-MOBILE) ASSUME NO RESPONSIBILITY WHATEVER AS TO THE ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL SAID UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING AFFECTED UTILITIES

10. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHOULD BE IMMEDIATELY REPORTED TO THE

GENERAL NOTES (CONT'D):

PROJECT MANAGER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS OWN RISK AND EXPENSE.

11. CONTRACTORS SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, DEBRIS, WEEDS, BRUSH, OR ANY OTHER DEPOSITS REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE BY THE CONTRACTOR.

12. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY THE CONTRACTOR WITH LOCAL GAS, ELECTRIC, TELEPHONE, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

13. DURING CONSTRUCTION, THE CONTRACTOR SHALL AT ALL TIMES MAINTAIN THE UTILITIES OF THE BUILDING/SITE WITHOUT INTERRUPTION. SHOULD IT BE NECESSARY TO INTERRUPT ANY SERVICE OR UTILITY, THE CONTRACTOR SHALL SECURE PERMISSION IN WRITING FROM THE BUILDING/PROPERTY OWNER FOR SUCH INTERRUPTION, AT LEAST 72 HOURS IN ADVANCE. ANY INTERRUPTION SHALL BE MADE WITH A MINIMUM AMOUNT OF INCONVENIENCE TO THE BUILDING/PROPERTY OWNER AND ANY SUCH SHUTDOWN TIME SHALL BE COORDINATED WITH THE BUILDING/PROPERTY OWNER.

14. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION.

15. CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS BUILT DRAWINGS TO T-MOBILE'S PROJECT ENGINEER.

16. GC WILL NOT START THE CONSTRUCTION UNTIL AFTER THEY RECEIVE THE PRE-CONSTRUCTION PACKAGE AND HAVE A PRE-CONSTRUCTION WALK WITH THE PROJECT MANAGER.

DIVISION 2 – SITE WORK:

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.

   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 THE PROJECT MANAGER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT LIMITED TO:

   A. FALL PROTECTION
   B. CONFINED SPACE
   C. ELECTRICAL SAFETY
   D. TRENCHING AND EXCAVATION

2. REMOVE FROM SITE/OWNER'S PROPERTY ALL WASTE MATERIALS, UNUSED EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED UNSATISFACTORY, CONTAMINATED OR DANGEROUS TRASH AND DEBRIS, AND DISPOSE OF IN A LEGAL MANNER.

3. 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 ENGINEERING.

4. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE BUILDING OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED, AND COVERED WITH MULCH .

5. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, AS REQUIRED DURING CONSTRUCTION.

   CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND CONSTRUCTION STAKING. CONTRACTOR SHALL ESTABLISH GRADE AND LINE STAKES PRIOR TO CONSTRUCTION.

   BC ARCHITECTS ENGINEERS DOES NOT GUARANTEE OR WARRANT THAT THE AFOREMENTIONED EASEMENTS ARE SUFFICIENT FOR CONSTRUCTION TRAFFIC. GC SHALL CONSULT WITH A T-MOBILE REPRESENTATIVE AND LANDLORD WITH EXACT LOGISTICS TO FACILITATE CONTRACTIBILITY OF THE SITE AND DELIVERY OF CRITICAL MATERIALS SUCH AS THE TOWER, STEEL, CONCRETE AND CRANES TO THE PROPOSED LEASE AREA. GC SHALL RESTORE SITE TO ORIGINAL CONDITIONS AND REPLACE ANY AND ALL DISTURBED TREES OR LANDSCAPING.

   BC ARCHITECTS ENGINEERS IS NOT RESPONSIBLE FOR THE MAINTENANCE AND/OR OPERATIONAL FEASIBILITY.

   SCOPE OF WORK FOR THESE PLANS DOES NOT INVOLVE VALUE ENGINEERING AS WELL AS MAINTAINABILITY OPERATIONS OF THE SITE, ACCESS OR UTILITIES.

DIVISION 3 – CONCRETE:

1. MINIMUM ALLOWABLE CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH THE AMERICAN SOCIETY FOR TESTING AND MATERIALS METHODS STANDARDS ASTM C172, ASTM C31 AND ASTM C39 UNLESS OTHERWISE NOTED.

2. CONCRETE FOR ALL FOUNDATIONS: 540 LBS PER CUBIC YARD OF CONCRETE. MINIMUM CEMENT CONTENT FOR 1-INCH MAXIMUM SIZE AGGREGATE, SLUMP RANGE 3 INCHES TO 5 INCHES, TOTAL AIR CONTENT 4 PERCENT TO 7 PERCENT BY VOLUME. AIR ENTRAINING ADMIXTURE REQUIRED TO CONTROL TOTAL AIR CONTENT, WATER REDUCING ADMIXTURE PERMITTED TO OBTAIN SLUMP OVER 3-INCHES.

3. ALL CONCRETE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI 318) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND (ACI 301) STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE.

4. REBAR SHALL BE ASTM A-615 DEFORMED TYPE WITH MINIMUM YIELD STRENGTH OF 60,000 PSI (40,000 PSI GRADE MAY BE USED FOR TIES & STIRRUPS).

   WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185

5. DETAILING SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE OF DETAILING REINFORCED CONCRETE STRUCTURES (ACI STD-315 LATEST EDITION).

6. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4".UNLESS OTHERWISE NOTED.

7. REINFORCING STEEL SHALL BE ACCURATELY PLACED AND ADEQUATELY SECURED IN POSITION. LOCATION OF REINFORCEMENT SHALL BE INDICATED ON THE DRAWINGS. THE FOLLOWING MINIMUM COVER (INCHES) FOR REINFORCEMENT SHALL BE PROVIDED, EXCEPT AS NOTED ON DRAWINGS.

   MINIMUM COVER (INCHES)
   CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.... 3"
   EXPOSED TO EARTH OR WEATHER:
   #6 THROUGH #18....2"
   #5 BAR AND SMALLER....1-1/2"

8. TESTS
   CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.
   A. FIVE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER PIER FOUNDATION. TWO SHALL BE TESTED @ THREE DAYS, TWO @ TWENTY-EIGHT DAYS. THE FIFTH CYLINDER SHALL BE KEPT SEPARATELY, IF REQUIRED TO BE USED IN THE FUTURE.
   B. ONE ADDITIONAL TEST CYLINDER SHALL BE TAKEN DURING COLD WEATHER AND CURED ON SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
   C. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.

9. PLACING CONCRETE
   A. THE ENGINEER SHALL BE NOTIFIED NOT LESS THAT 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT, UNLESS INSPECTION IS WAIVED IN EACH CASE, PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER. CONCRETE SHALL NOT BE PLACED UNTIL ALL FORMWORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE T-MOBILE REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND T-MOBILE HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING.
   B. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.

10. PROTECTION
    A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
    B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
    C. ALL CONCRETE SHALL BE WATER CURED BY CONTINUOUS (NOT PERIODIC) FINE MIST SPRAYING OR SPRINKLING ALL EXPOSED SURFACES. WATER SHALL BE CLEAN AND FREE FROM ACID, ALKALI, SALTS, OIL SEDIMENT, AND ORGANIC MATTER. SUCCESSFUL CURING SHALL BE OBTAINED BY USE OF AN AMPLE WATER SUPPLY UNDER PRESSURE IN PIPES, WITH ALL NECESSARY APPLIANCES OF SPRINKLERS, AND SPRAYING DEVICES.

ELECTRICAL NOTES:

1. ELECTRICAL DESIGN SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. STRUCTURAL DESIGN SHALL BE PERFORMED BY GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL AND STATE CODES AND NATIONAL ELECTRICAL CODE.
2. ALL SUGGESTED ELECTRICAL ELEMENTS (SUCH AS BREAKER SIZES, WIRE SIZES, CONDUITS SIZES ARE FOR ZONING PURPOSES ONLY. IT IS THE RESPONSIBILITY TO OF THE ELECTRICAL CONTRACTOR TO CONFIRM COMPLIANCE WITH LOCAL ELECTRICAL CODES AND PASS ALL APPLICABLE AND NECESSARY INSPECTIONS. IN SOME EVENTS,

ELECTRICAL NOTES (CONT'D):

IT MAY BE NECESSARY TO PERFORM AN ELECTRICAL LOAD STUDY TO VERIFY THE CAPACITY OF THE EXISTING SERVICE. THIS IS NOT THE RESPONSIBILITY OF BC ARCHITECTS ENGINEERS. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

3. CONTRACTOR SHALL FIELD LOCATE ALL BELOW GRADE GROUND LINES AND UTILITY LINES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR RELOCATION OF ALL UTILITIES AND GROUND LINES THAT MAY BECOME DISTURBED OR CONFLICTING IN THE COURSE OF CONSTRUCTION.

DIVISION 5 – STRUCTURAL STEEL:

1. DETAIL, FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH THE LATEST AISC MANUAL OF STEEL CONSTRUCTION (ASD), AWS D1.1, AND THE BASIC BUILDING CODE. STRUCTURAL STEEL SHALL BE AS FOLLOWS:
   A. ASTM A36, GRADE 36; ROLLED STEEL, RODS, PLATES, U-BOLTS AND ANCHOR BOLTS.
   B. ASTM A325 BOLTS, BEARING TYPE
   C. ALL STEEL SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.
2. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
3. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND T- MOBILE PROJECT MANAGER IN WRITING
4. TIGHTEN HIGH STRENGTH BOLTS TO A SNUG TIGHT CONDITION WHERE ALL PLIES IN A JOINT ARE IN FIRM CONTACT BY EITHER
   A. A FEW IMPACTS OF A IMPACT WRENCH
   B. THE FULL EFFORT OF A PERSON USING A SPUD WRENCH
5. WELDING
   A. ALL WELDING SHALL BE DONE BY A CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED.
   B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM A-233, E70 SERIES. BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
   C. FIELD WELDING SHALL BE DONE AS PER AWSD1.1 REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE.
6. PROTECTION
   A. UPON COMPLETION OF ERECTION INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS, OR GALVANIZED BREAKS WITH ZINC BASED PAINT. COLOR TO MATCH THE GALVANIZING PROCESS.

DIVISION 13 – SPECIAL CONSTRUCTION ANTENNA INSTALLATION

1. WORK INCLUDED:
   A. ANTENNAS AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR INTERMS OF COORDINATION AND SITE ACCESS. ERECTION SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
   B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
   C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
   D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINIUM WAVEGUIDE.
   E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYSER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER (FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED. FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
   F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
   G. ANTENNA AND COAXIAL CABLE GROUNDING:
      1. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTOR/SPLICE WEATHER PROOFING KIT #221213 OR EQUAL.
      2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

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CHECKED BY: SS	APPROVED BY: BMQ

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CHRISTOPHER D. MORIN
REGISTERED ENGINEER
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7.23.24
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STATE OF TENNESSEE

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MURFREESBORO, TN 37129

GENERAL NOTES & SPECIFICATIONS

SP-1

PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

1. CONSTRUCTION TYPE II-B (TABLE 601)
2. GROUP U OCCUPANCY (SECTION 312.1 UNOCCUPIED TOWER SITE)

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 99' SABRE MONOPOLE TOWER W/ PROPOSED 49' SECTION

PROPOSED CARRIER: T-MOBILE

SITE: TN01807-B-SBA / SWANSON

COORDINATES (LATITUDE: 35.882149°, LONGITUDE: -86.424061°)

CONSTRUCTION CLASS

THE CONSTRUCTION PLAN FOR THIS SITE WOULD BE A MINIMUM OF A CLASS IV AND THE CONTRACTOR SHALL MAKE FINAL DETERMINATION

PLEASE NOTE THIS SET OF DRAWINGS IS FOR INSTALLATION AND ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	0
A-1A	ADDITIONAL DETAILS	0
A-2	MONOPOLE SECTION INSTALLATION DETAILS	0
A-3	MONOPOLE SECTION INSTALLATION DETAILS	0
A-4	MONOPOLE SECTION INSTALLATION DETAILS	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. 154025, DATED 12/17/2024.

TES
A CONGRUEX® COMPANY
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(800)-487-SITE

TES JOB NO:
154683

CUSTOMER SITE NO:
TN01807-B-SBA
CUSTOMER SITE NAME:
SWANSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

KYLE WYANT
REGISTERED ENGINEER
XVI
AGRICULTURE
COMMERCE
No. 128004
STATE OF TENNESSEE

DRAWN BY: LC | CHECKED BY: AS/JRL

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	03/19/25

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T-1
REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE						
63	69	STEP BOLT	Step Bolt 5/8" Dia x 7 1/2" Long	---	A-2, A-3, A-4	F-C	0.0	0.0	w/ (2) Nut-LKW ea. (Galvanized)
			Following Items are Non-standard Parts						
1	1	FP-24	FLANGE PLATE PL 1 1/2" X 3'-0" DIA A572-50	---	A-2	FP-24	278.91	278.9	GALVANIZED
1	1	MPS-24-20W	MONOPOLE SECTION WELDMENT (PIPE HSS24.000X0.375 X 20'-0") (42 KSI) A500 GR-B	---	A-2	MPS-24-20W	2604	2604.0	GALVANIZED
48	51	---	BOLT 1" X 4 3/4" A325	---	A-2, A-3, A-4	---	1.8	91.8	(1)HHN-FW GALVANIZED
3	3	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON	---	A-2, A-3, A-4	---	---	---	---
1	1	MPS-18-20W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 20'-0") (42 KSI) A500 GR-B	---	A-3	MPS-18-20W	2004.45	2004.5	GALVANIZED
1	1	MPS-18-9W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 9'-0") (42 KSI) A500 GR-B	---	A-4	MPS-18-9W	955.50	955.5	GALVANIZED
2	3	---	BOLT 1" X 3 1/2" A325	---	A-4	---	1.52	4.56	(1)HHN-FW GALVANIZED
1	1	CPL-18	TOP CAP PLATE PL 3/16" X 2'-0 1/2" DIA A36	---	A-4	FP-18	25	25.0	GALVANIZED
1	1	T1807KT	SIX SECTOR CHAIN MOUNT KIT (KENWOOD OR EQUIV.)	---	A-1A	---	---	---	GALVANIZED
2	2	T1805KT	THREE SECTOR CHAIN MOUNT KIT (KENWOOD OR EQUIV.)	---	A-1A	---	---	---	GALVANIZED
12	12	MP-1	2" PST PIPE (2.375" O.D. X 0.154" THICKNESS) X 8'-0" A53, GR-B	---	A-1A	---	30.14	361.68	GALVANIZED
1	1	PV-CMX-SS-150-BOG-MP	CLIMBMAXX KIT - MONOPOLE (BOLT-STYLE CABLE GUIDES) - 150FT STAINLESS STEEL	---	A-1	---	---	---	---
1	1	C30-086-006	5/8" DIA X 6'-0" COPPER-CLAD LIGHTNING ROD (SABRE OR EQUIV.)	---	A-1A	---	---	---	---
4	4	---	LANCO RC-300 OR HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV (GALLON)	---	A-1A	---	---	---	PROVIDED BY CONTRACTOR

ALL APLXXXX, LPXXXX AND RLPXXXX ARE PATENTED PRODUCTS AND CANNOT BE FABRICATED BY THIRD PARTIES. THESE PARTS ARE AVAILABLE FROM:
METROSITE, LLC.
180 IND PARK BLVD COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

TOTAL WEIGHT (LBS) = 6325.9

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	03/19/25

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA–222–H, ANSI/ASSP A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN–OF–THE–NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN–OF–THE–NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG–TIGHT CONDITION.
4. THE SNUG–TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO–BOLT SHALL BE INSTALLED PER ICC ESR–3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC–2018 SECTION 1705.2 FOR STEEL CONSTRUCTION & TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

TABLE 8.2 NUT ROTATION FROM SNUG–TIGHT CONDITION FOR TURN–OF–NUT PRETENSIONING [a,b]

BOLT LENGTH [c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS $12d_b$, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT–LBS
2. HB16 HOLLO BOLT: 140 FT–LBS
3. HB20 HOLLO BOLT: 221 FT–LBS
4. M20 AJAX BOLT: 280 FT–LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE–FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972–483–0607.

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0	FIRST ISSUE	LC	03/19/25

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN–1
REV #: 0

NOTES:

1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.

2. TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

INSTALLATION NOTE:

VERTICAL ALIGNMENT IS REQUIRED FOR ALL THE SECTION PROJECTS, TOWERS OR POLES

SCOPE OF WORK

1. TEMPORARILY RELOCATE (3) EXISTING AMPHENOL CUUX063X25 – PANEL ANTENNAS AT ±100'–0" ELEV. AND ASSOCIATED EQUIPMENT USING PROVIDED 3–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1805KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY AT&T) RE–ROUTE EXISTING (6) 7/8" COAX, (1) 3/4" DC, & (1) 3/8" FIBER FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 1 ON SHEET A–1A FOR AZIMUTHS.
   NOTE:
   CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH AT&T.

2. TEMPORARILY RELOCATE (3) EXISTING ANTEL BXA–70063–4CF–6–FP – PANEL ANTENNAS AT ±123'–0" ELEV., (3) EXISTING ANTEL BXA–171036–8CF–2–FP – PANEL ANTENNAS AT ±128'–0" ELEV., AND ASSOCIATED EQUIPMENT USING PROVIDED 6–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1807KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY VERIZON) RE–ROUTE EXISTING (6) 7/8" COAX FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 2 ON SHEET A–1A FOR AZIMUTHS.
   NOTE:
   CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH VERIZON.

3. TEMPORARILY RELOCATE (3) EXISTING ANDREW TMBX–6517–R2M – PANEL ANTENNAS AT ±144'–0" ELEV. AND ASSOCIATED EQUIPMENT USING PROVIDED 3–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1805KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY T–MOBILE)
   RE–ROUTE EXISTING (6) 7/8" COAX FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 3 ON SHEET A–1A FOR AZIMUTHS. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH T–MOBILE.
   NOTE:
   T–MOBILE WILL BE HANDLING THEIR OWN RELOCATION WORK BACK TO THEIR ORIGINAL/NEW ELEVATION.

4. A. REMOVE EXISTING TOP CAP, FLAG TRUCK, & ALL ASSOCIATED HARDWARE AT ±148'–0" ELEV.
   B. REMOVE ALL EXISTING DECOMMISSIONED/ABANDONED EQUIPMENT AND MOUNTS AT ±132'–0" ELEV. & ±136'–0" ELEV.
   C. REMOVE EXISTING CANISTERS/SPINES FROM ±99'–0" ELEV TO ±148'–0" ELEV.
   D. CUT AND REMOVE EXISTING INTERNAL FLANGE PLATE AT ±99'–0" ELEV. AND INSTALL NEW FIELD WELDED FLANGE PLATE (FP–24) FOR NEW MONOPOLE SECTION AT ±99'–0" ELEV. SEE SHEET A–2 FOR DETAILS.

5. INSTALL NEW (1) HSS24.000X0.375 X 20'–0" (MPS–24–20W) SECTION ON TOP OF EXISTING MONOPOLE FROM ±99'–0" ELEV. TO ±119'–0" ELEV. SEE SHEET A–2 FOR DETAILS.

6. INSTALL NEW (1) HSS18.000X0.375 X 20'–0" (MPS–18–20W) EXTENSION ON TOP OF NEW MONOPOLE EXTENSION FROM ±119'–0" ELEV. TO ±139'–0" ELEV. SEE SHEET A–3 FOR DETAILS.

7. INSTALL NEW (1) HSS18.000X0.375 X 9'–0" (MPS–18–9W) EXTENSION ON TOP OF NEW MONOPOLE EXTENSION FROM ±139'–0" ELEV. TO ±148'–0" ELEV. SEE SHEET A–4 FOR DETAILS.

8. INSTALL NEW LIGHTNING ROD AT TOP OF THE NEW MONOPOLE SECTION AND FIELD CUT IT DOWN IF REQUIRED TO MEET FAA HEIGHT APPROVAL. SEE DETAIL 4 ON SHEET A–1A.

9. INSTALL NEW PERFECT VISION SAFETY CLIMB SYSTEM (PV–CMX–SS–150–BOG–MP) TO TOP OF NEW POLE SECTION. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

10. RELOCATE EXISTING AT&T ANTENNAS BACK TO ORIGINAL ELEVATION AT ±100'–0" ELEV. REROUTE EXISTING LINES TO INSIDE THE POLE. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WITH AT&T.

11. RELOCATE EXISTING VERIZON ANTENNAS BACK TO ORIGINAL ELEVATION AT ±128'–0" ELEV. REROUTE EXISTING LINES TO INSIDE THE POLE. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WITH VERIZON.

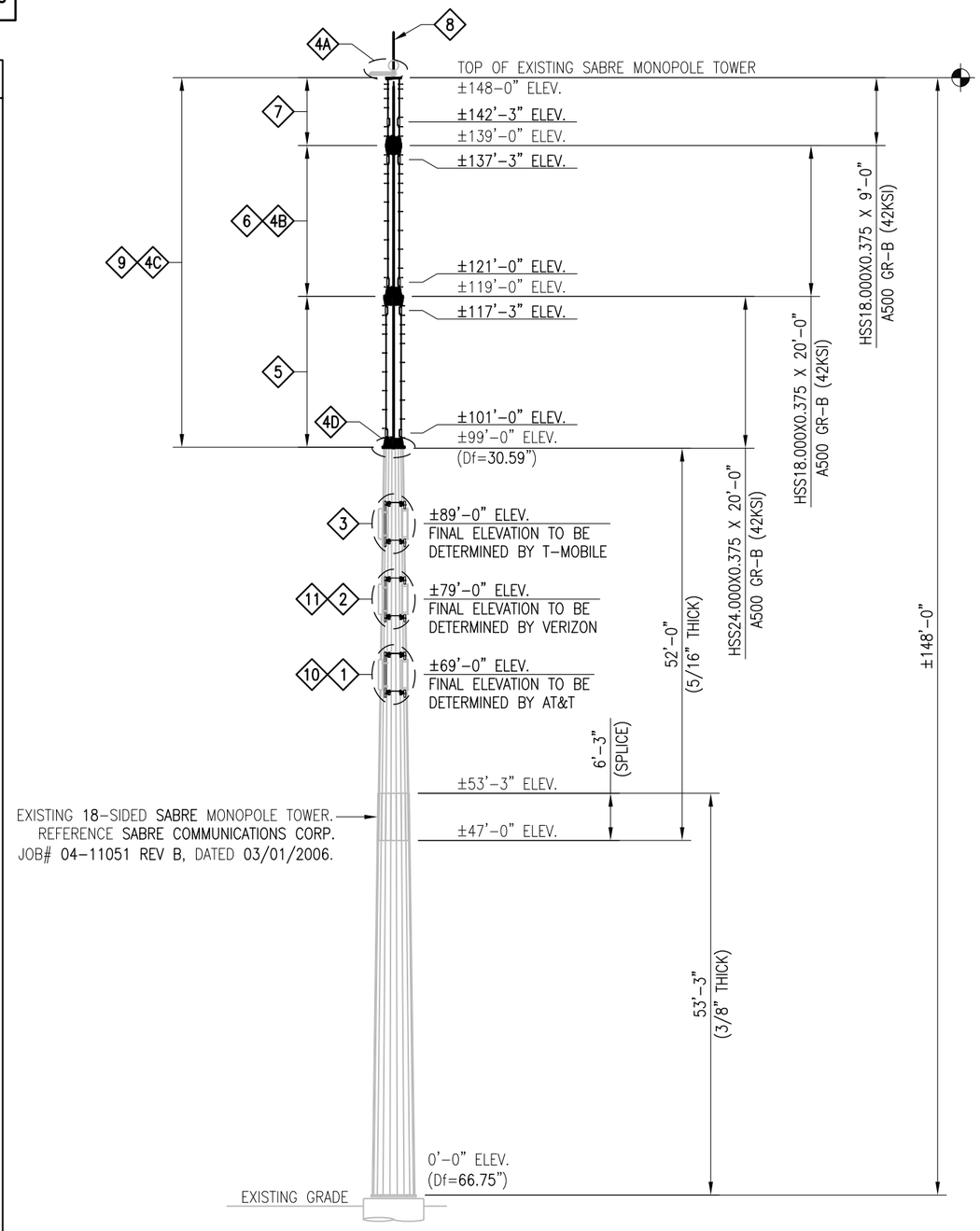
12. CONTRACTOR TO FIELD MATCH AND PAINT ALL NEW MODIFICATIONS.

13. APPLY FOUNDATION COATING

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN–UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

FIELD NOTE:

CONTRACTOR TO PAINT ALL NEW MODIFICATION MEMBERS TO MATCH EXISTING TOWER COLOR.



ELEVATION VIEW

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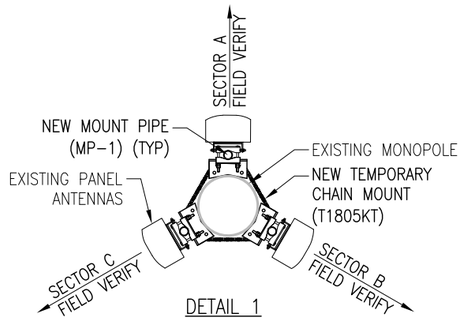
SHEET TITLE:

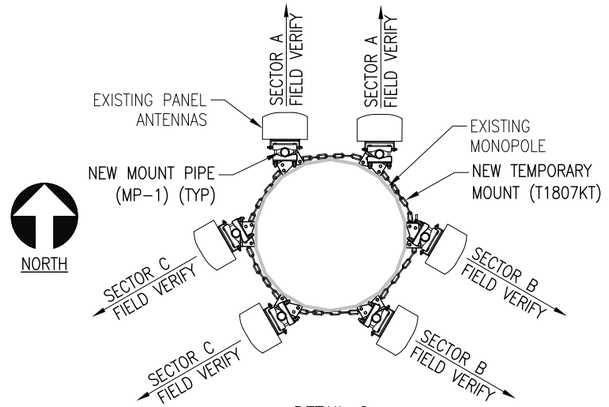
TOWER PROFILE

SHEET NUMBER: A–1

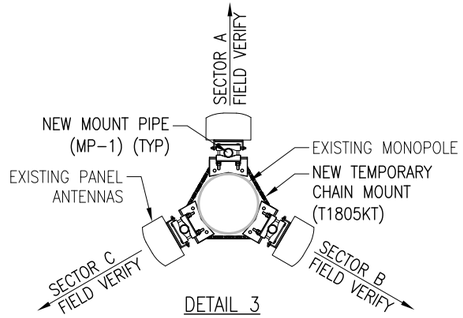
REV #: 0



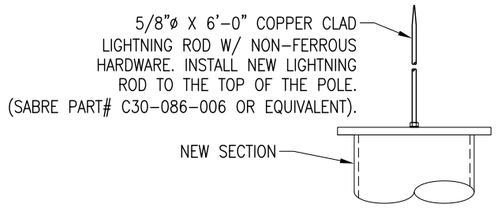
DETAIL 1
(TEMPORARY MOUNT AZIMUTHS)
(AT&T @ ±69'-0" ELEV.)



DETAIL 2
(TEMPORARY MOUNT AZIMUTHS)
(VERIZON @ ±79'-0" ELEV.)



DETAIL 3
(TEMPORARY MOUNT AZIMUTHS)
(T-MOBILE @ ±89'-0" ELEV.)



DETAIL 4

FOUNDATION PHOTO

FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.

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ADDITION DETAILS

SHEET NUMBER: A-1A
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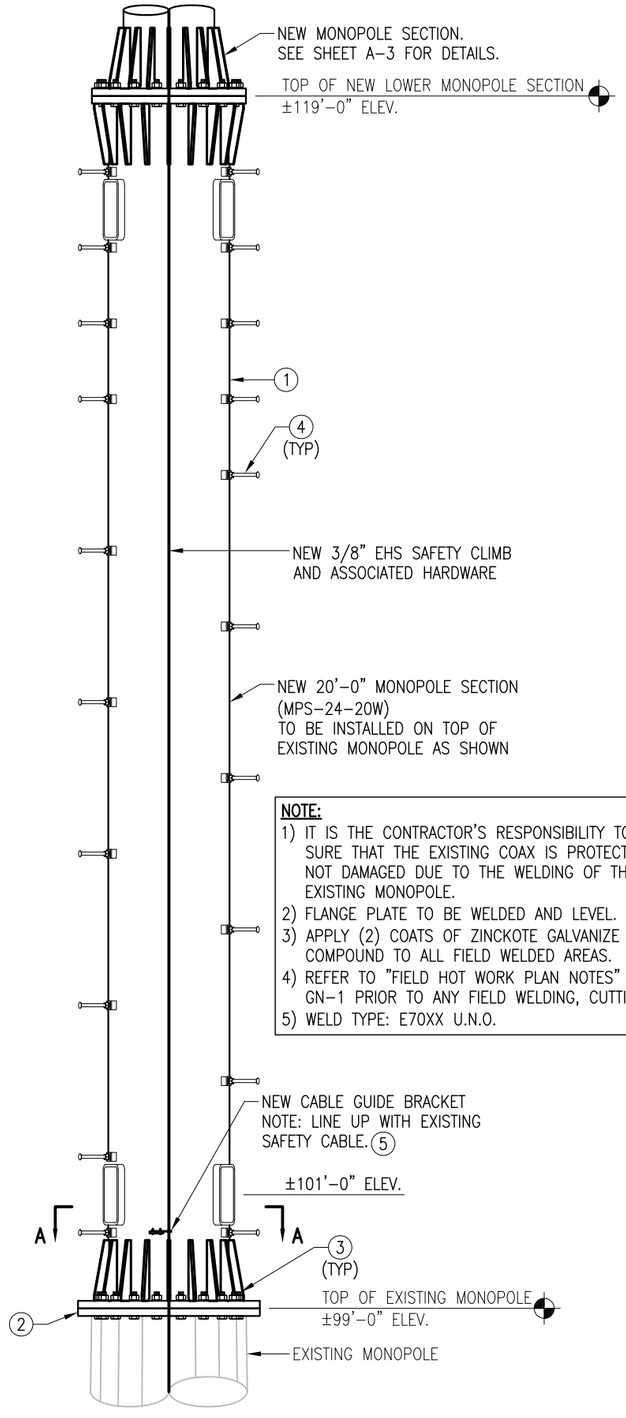
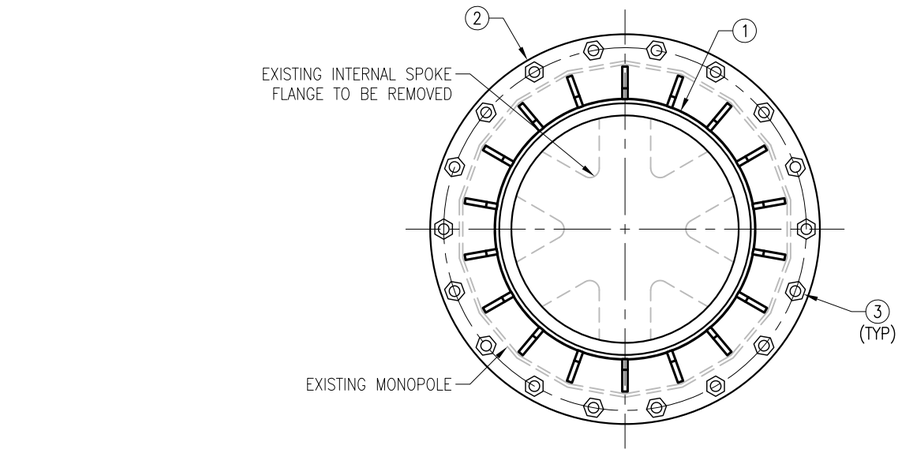
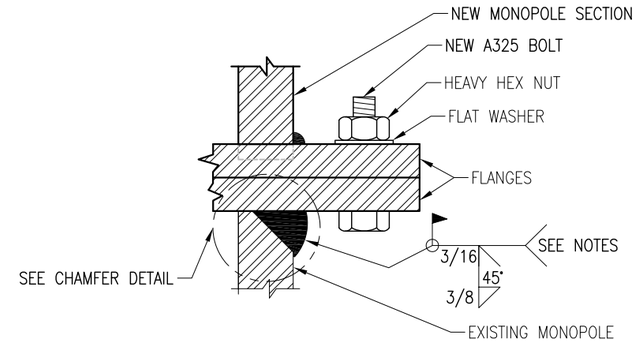


ELEVATION VIEW
(±99'-0" TO ±119'-0" ELEV.)

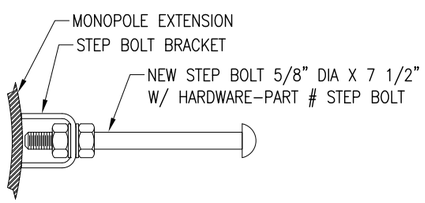
NOTE:
1) IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE THAT THE EXISTING COAX IS PROTECTED AND NOT DAMAGED DUE TO THE WELDING OF THE EXISTING MONOPOLE.
2) FLANGE PLATE TO BE WELDED AND LEVEL.
3) APPLY (2) COATS OF ZINCKOTE GALVANIZE COMPOUND TO ALL FIELD WELDED AREAS.
4) REFER TO "FIELD HOT WORK PLAN NOTES" ON SHEET GN-1 PRIOR TO ANY FIELD WELDING, CUTTING, ETC.
5) WELD TYPE: E70XX U.N.O.



SECTION "A-A"



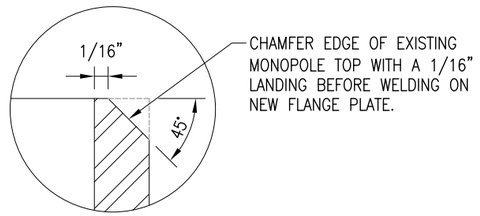
NEW FLANGE PLATE AND
BOLT INSTALLATION DETAIL



STEP BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES ON SHEET GN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH THIS CONNECTION.



CHAMFER DETAIL

ITEM NO.	QTY.	PART NO.	DESCRIPTION
5	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
4	26	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
3	18	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	FP-24	FLANGE PLATE PL 1 1/2" X 3'-0" DIA A572-50
1	1	MPS-24-20W	MONOPOLE SECTION WELDMENT (PIPE HSS24.000X0.375 X 20'-0") (42 KSI) A500 GR-B

TES
A CONGRUEX® COMPANY
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
154683

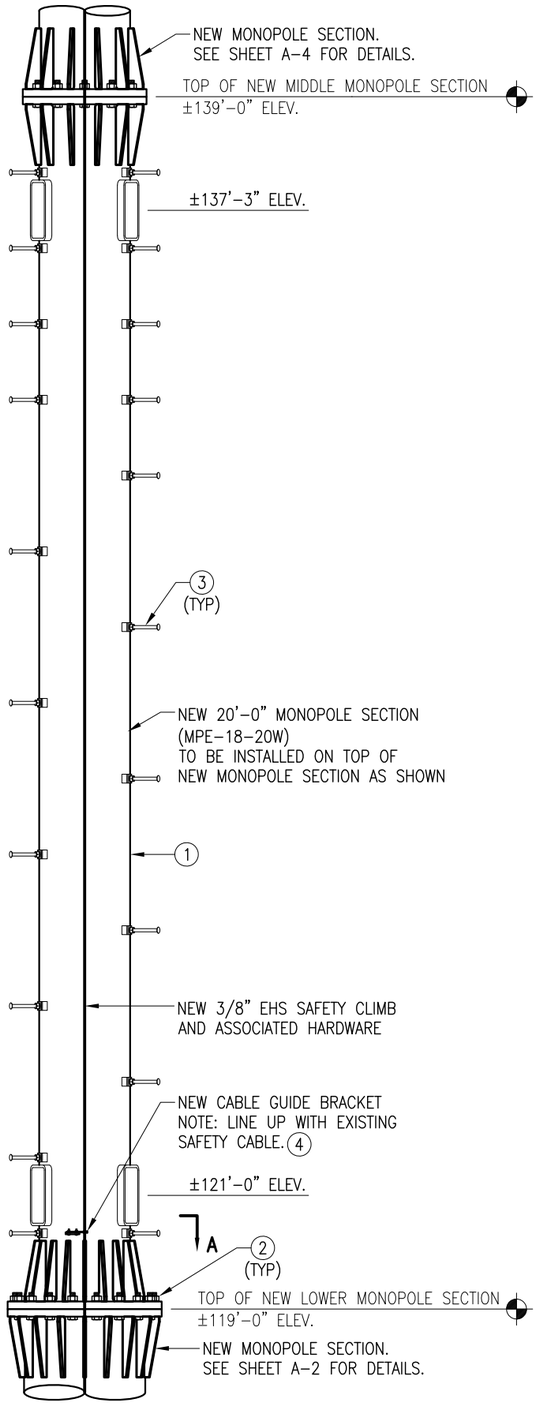
CUSTOMER SITE NO:
TN01807-B-SBA
CUSTOMER SITE NAME:
SWANSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

DRAWN BY: LC | CHECKED BY: AS/JRL

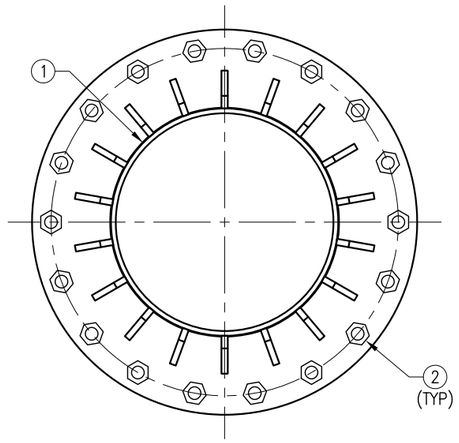
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	03/19/25

SHEET TITLE:
MONOPOLE SECTION INSTALLATION DETAILS

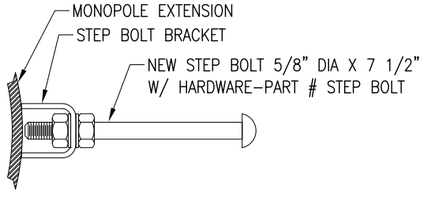
SHEET NUMBER: A-2
REV #: 0



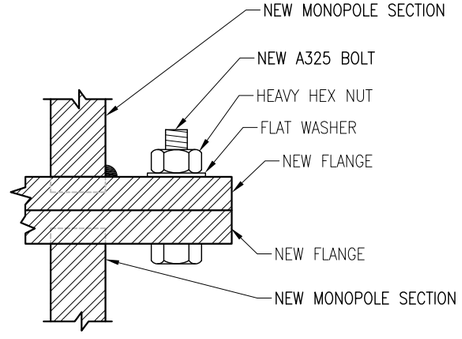
ELEVATION VIEW
(±119'-0" TO ±139'-0" ELEV.)



SECTION "A-A"



STEP BOLT INSTALLATION DETAIL



NEW FLANGE PLATE WELD AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET GN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
4	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
3	23	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
2	18	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
1	1	MPS-18-20W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 20'-0") (42 KSI) A500 GR-B

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PHONE: (972) 483-0607

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
154683

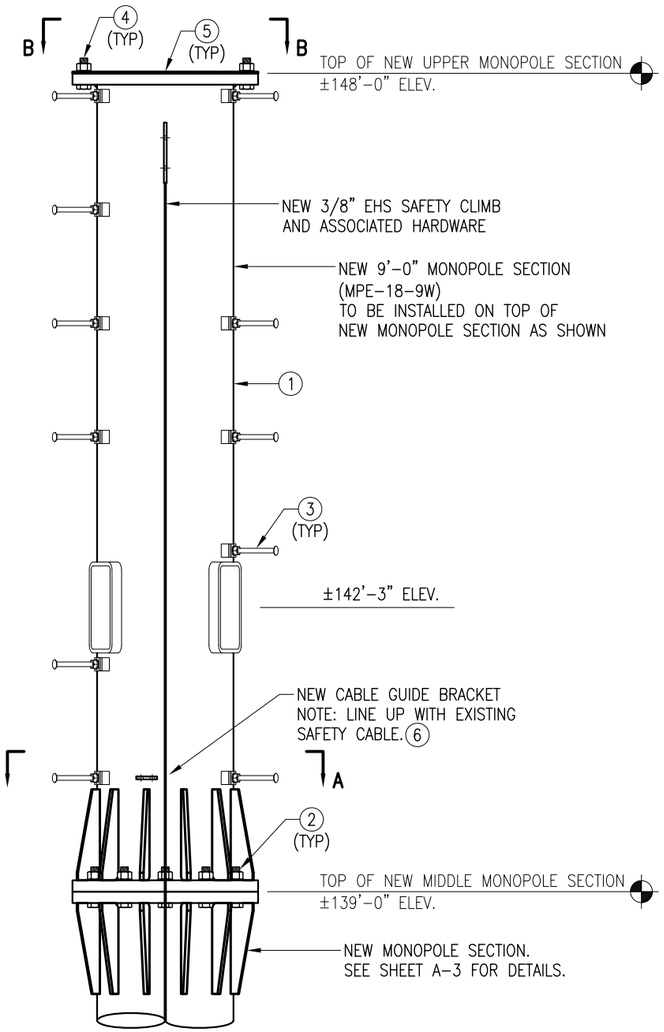
CUSTOMER SITE NO:
TN01807-B-SBA
CUSTOMER SITE NAME:
SWANSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

DRAWN BY: LC | CHECKED BY: AS/JRL

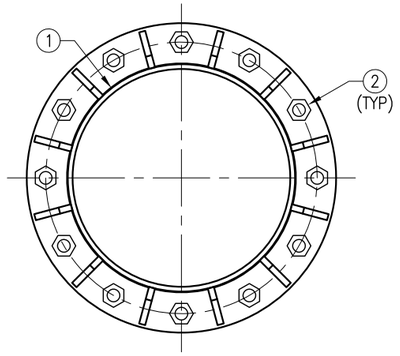
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	03/19/25

SHEET TITLE:
MONOPOLE SECTION INSTALLATION DETAILS

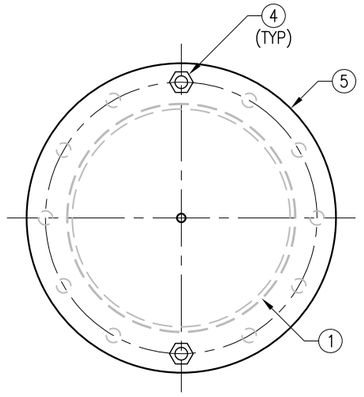
SHEET NUMBER: A-3
REV #: 0



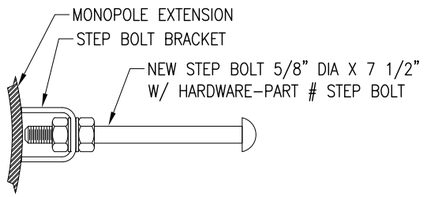
ELEVATION VIEW
(±139'-0" TO ±148'-0" ELEV.)



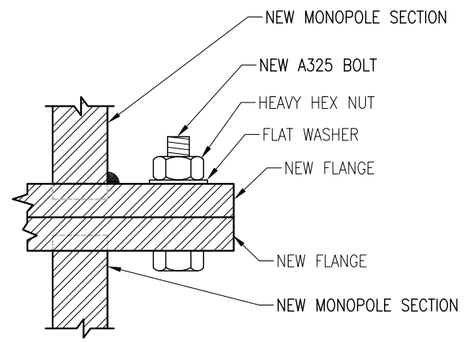
SECTION "A-A"



SECTION "B-B"



STEP BOLT INSTALLATION DETAIL



NEW FLANGE PLATE WELD AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET GN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
6	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
5	1	CPL-18	TOP CAP PLATE PL 3/16" X 2'-0 1/2" DIA A36
4	2	---	BOLT 1" X 3 1/2" A325 W/ NUT-FW EA.
3	14	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
2	12	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
1	1	MPS-18-9W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 9'-0") (42 KSI) A500 GR-B

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SBA
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(800)-487-SITE

TES JOB NO:
154683

CUSTOMER SITE NO:
TN01807-B-SBA
CUSTOMER SITE NAME:
SWANSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

DRAWN BY: LC | CHECKED BY: AS/JRL

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	03/19/25

SHEET TITLE:
MONOPOLE SECTION
INSTALLATION DETAILS

SHEET NUMBER: A-4
REV #: 0

City of Murfreesboro **BOARD OF ZONING APPEALS**	**HEARING REQUEST APPLICATION**

Location/Street Address: 2117 North Thompson Lane			
Tax Map: 075080	Group: 01100	Parcel: 001	Zoning District: H-I

Applicant: Jacob Highland	E-Mail: jhighland@sbasite.com	
Address: 9125-A Southern Pine Blvd.		Phone: 336-404-3093
City: Charlotte	State: NC	Zip: 28273

Property Owner: SWANSON IRREVOCABLE FAMILY TRUST		
Address: 1188 Park Ave		Phone: (615) 896-0000
City: Murfreesboro	State: TN	Zip: 37129

Request: Unstealth existing cell tower to open antenna array. No change to tower height or to footprint of compound.

Zoning District: H-I

Applicant Signature: Jacob Highland Date:

Received By:	Receipt #:
Application #:	Date:

Murfreesboro Board of Zoning Appeals

City of MURFREESBORO TENNESSEE

HEARING APPLICATION AND GENERAL INFORMATION

INTRODUCTION:

The **Board of Zoning Appeals** hears appeals of the requirements of the Zoning and Sign Ordinances, appeals from administrative decisions, and requests for Special Exception uses listed on Chart 1 of the Zoning Ordinance.

VARIANCES:

Required yard and height variances may be granted in accordance with Section 10 of the Zoning Ordinance in cases where the strict application of the ordinance imposes hardship or practical difficulty on the property owner due to the unusual character of the property, which makes compliance extraordinarily difficult or impossible. *Financial hardships will not be considered.*

Variances of the Sign Ordinance may be granted in cases where the strict application of the ordinance imposes hardship or practical difficulties as a result of unusual characteristics of the applicant's property, which make compliance extraordinarily difficult or impossible. *Financial hardships will not be considered.*

SPECIAL USE PERMITS:

Special use permits may be granted in accordance with Sections 8 and 9 of the Zoning Ordinance for uses specified in Chart 1 of the Zoning Ordinance.

APPEALS FROM ADMINISTRATIVE DECISIONS:

The Board of Zoning Appeals has authority to hear appeals from any order, requirement, decision, or determination by any department, office, or bureau responsible for the administration of the Zoning or Sign Ordinances.

APPLICATION PROCESS:

The owner or other party having contractual interest in the affected property must file an application with the Board's secretary no later than 3:00 PM on the submittal deadline date on the official BZA Calendar.

The applicant must submit the following:

1. A completed application (included on this brochure).

2. A $350 application fee; or in the case of a special meeting, a $450 application fee (checks to be made payable to the City of Murfreesboro).

3. Supporting materials which should include:

-- For special use permits, a site plan indicating the location of all existing and proposed structures, parking spaces, access points, fences, driveways, and property lines. Home occupation requests should include a statement of the proposed hours of operation, the volume of traffic anticipated, and the nature of the business. Day-care centers should include a statement from the Department of Human Services that such center can be licensed by the State.

-- For yard variance requests, a site plan showing all existing and proposed structures, property lines, and the distance between structures and the property lines.

-- For appeals from administrative decisions, a statement indicating the order, requirement, decision, or determination being appealed and a statement setting forth the applicant's argument.

-- Additional information may be required at the discretion of the Board's Secretary.

MEETING TIME AND PLACE:

The **Board of Zoning Appeals** meets once a month at 1:00 PM in the Council Chambers located in the City Hall Building at 111 West Vine Street. See BZA Calendar for meeting dates.

MEMBERSHIP

Davis Young, Chairman Ken Halliburton, Vice-Chair Robert Batcheller	Misty Lavender Tim Tipps

STAFF

Richard Donovan, Principal Planner
Teresa Stevens, Sign Administrator
John Tully, Assistant City Attorney
Ashley Fulghum, Recording Assistant

SBA Communications Corporation
9125-A Southern Pine Boulevard
Charlotte, NC 28273

T 704.527.0003
F 704.527.8988

sbasite.com

May 5, 2025

RE: BZA Application – Compliance with Additional Standards
2117 N. Thompson Ln. Murfreesboro, TN 37129 (Site: 9NV1648A | TN01807-B-04)

To Whom This May Concern

This letter is to inform you that SBA Communications will comply with the following standards as noted in the City of Murfeesboro, TN ordinance

(cccc) Wireless communication towers and antennas (altogether "towers") shall be subject to the following additional standards:

[1] towers shall not be located in the approach or landing zone of an airport or heliport;

- The nearest known airport is located greater than 3 miles from the site location.

[2] the application for a special use permit shall be accompanied by the written recommendations of appropriate state and federal agencies;

- SHPO approval document included in email submittal.

[3] in the event any tower is to be equipped with hazard lights, the use of white strobe lights shall be restricted to daylight hours;

- Not applicable. No lighting is re uired per FAA re uirements.

[4] the BZA may place restrictions on the manner (and color) in which the tower can be painted, within the parameters of applicable state and federal regulations; and,

- The tower is not currently painted. The tower will have a galvani ed steel finish.

[5] the BZA may require additional standards be met in order to assure compatibility of the proposed use with adjoining properties, subject to T.C.A. §13-24-301 et seq.

- Not applicable. The proposed use will not be changing.

(E) Standards. The standards for the establishment of all proposed wireless communications facilities are stated below. The Board of Zoning Appeals shall assure that all requirements have been met prior to the issuance of the Special Use Permit.

(1) Antenna-supporting structures must be setback a distance equal to its height from any property line. The City Engineer may modify the setback requirement if the applicant demonstrates that the antenna-supporting structure can withstand the wind load for the design storm event applicable to Murfreesboro as provided in the most recent version of ANSI/TIA/EIA-222, Structural Standards for Steel Antenna Towers and Antenna Support Structures, which document is hereby incorporated by reference, or if the applicant demonstrates that the fall zone of the tower is less than the tower's height.

- This is an existing tower and will comply with all setback re□uirements and structural standards. The overall height will not be increased. We will perform a TIA inspection on the tower once the upgrades are completed.

(2) A fence not less than eight (8) feet in height from finished grade must be installed so as to enclose the base of the antenna- supporting structure and associated equipment enclosures. Access to the antenna-supporting structure must be controlled by a locked gate.

- The existing fence currently installed should already meet these standards, but will be brought into compliance if found to be a lower height.

(3) A landscaping and vegetative buffer shall be installed to reduce visibility from the public ROW and the surrounding properties. A natural vegetative buffer may be substituted for the buffering and landscaping requirements subject to the approval of the Development Services Division and the BZA to ensure that it is sufficient to provide the required screening.

- The existing landscaping and the existing building provides ade□uate screening to the public ROW.

(4) The application shall show that the FAA has approved the height of the tower and has issued any license necessary to operate the tower.

- All necessary FAA documentation will provided by applicant**.**

(5) No lights, signals, or other illumination are permitted on any antenna-supporting structure or ancillary appurtenances unless the applicant demonstrates that lighting is required by the FAA or the FCC.

- This tower is not lit, nor is lighting re□uired by the FAA or FCC.

(6) Antenna-supporting structures must be designed to accommodate future collocation for at least three (3) antennae. As a condition of approval under this Section, the applicant must submit a shared use plan.

- There are currently (3) tenants on this existing tower, and they will remain after the tower modification.

(7) The maximum height of respective antenna-supporting structures shall be as determined by the Board of Zoning Appeals as a part of the special use permit process. However, no special use permit shall grant authority for such a structure to exceed the maximum height requirements denoted in the Airport Overlay District regulations.

- No increase to the tower height is proposed.

Respectfully,

Jacob Highland
SBA Network Services, LLC
336.404.3093
jhighland@sbasite.com

(C) *Standards of general applicability*. An applicant for a special permit shall present evidence at the public hearing on such special permit, which evidence must establish. Please respond to how your use will comply with each of the following:

(1) that the proposed building or use will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other matters affecting the public health, safety, and general welfare;

The existing and proposed use will remain the same and should not have any adverse effects or jeopardize the character of the neighborhood. Traffic conditions, parking and utilities will not be impacted as only 1-2 vehicles will be on site at a time.

(2) that the proposed building or use will be constructed, arranged, and operated so as to be compatible with the immediate vicinity and not to interfere with the development and use of adjacent property in accordance with the applicable district regulations;

The existing and proposed use will remain the same. Development and use of adjacent properties will not be impacted.

(3) that the proposed buildings or use will be served adequately by essential public facilities and services such as highways, streets, parking spaces, drainage structures, refuse disposal, fire protection, water and sewers; or that the persons or agencies responsible for the establishment of the proposed use will provide adequately for such services;

The proposal for a full antenna array will help to improve cellular coverage in the area and support existing infrastructure.

(4) that the proposed building or use will not result in the destruction, loss, or damage of any feature determined by the BZA to be of significant natural, scenic, or historic importance; and,

The tower is in compliance with SHPO and has not been determined by the FCC to have an effect on any historic properties.

(5) that the proposed building or use complies with all additional standards imposed on it by the particular provision of this section authorizing such use.

The proposal will comply with all additional standards. There is no proposed change to the tower height or to the footprint of the existing compound.

8051 Congress Ave
Boca Raton, FL 33487

T + 561.995.7670
F + 561.995.7626

sbasite.com

NPA - Collocation Compliance Statement

Site Name/#: Swanson / TN01807-B @ 2117 North Thompson Lane, Murfreesboro, TN 37129, Structure# 1

To Whom It May Concern:

In order to facilitate the collocation process for the above referenced site(s), SBA Towers, LLC ("Owner") hereby makes the following representations, that to the best of its knowledge:

The tower is a structure built for the sole or primary purpose of supporting FCC-licensed antennas and their associated facilities.

Tower construction was completed **after** March 16, 2001.

The Section 106 review process for the tower set forth in 36 CFR Part 800 and any associated environmental reviews required by the FCC have been completed.

The above referenced tower has **not** been determined by the FCC to have an effect on one or more historic properties, unless such effect has been found to be not adverse through a no adverse effect finding, or if found to be adverse or potentially adverse, has been resolved, such as through a conditional no adverse effect determination, a Memorandum of Agreement, a programmatic agreement, or otherwise in compliance with Section 106 and Subpart B of 36 CFR 800; or

The tower is **not** the subject of a pending environmental review or related proceeding before the FCC involving compliance with Section 106 of the National Historic Preservation Act; or

Owner has **not** received written or electronic notification that the FCC is in receipt of a complaint from a member of the public, a SHPO, or the Advisory Council on Historic Preservation, that the collocation has an adverse effect on one or more historic properties.

Sincerely,

By: 

Name: Angie Becella

Title: Compliance Specialist

TN01807-B
1805749
SWANSON

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

January 31, 2006

Mr. James A. Duncan
Terracon
5217 Linbar Drive
Nashville, Tennessee, 37211

RE: FCC, CELL SITE/2115 NW BROAD STREET, MURFREESBORO, RUTHERFORD COUNTY

Dear Mr. Duncan:

In response to your request, received on Thursday, January 26, 2006, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800. You may wish to familiarize yourself with these procedures (Federal Register, December 12, 2000, pages 77698-77739) if you are unsure about the Section 106 process. You may also find additional information concerning the Section 106 process and the Tennessee SHPO's documentation requirements at www.state.tn.us/environment/hist/sect106.shtm.

Based on available information, we concur that the project as currently proposed will NOT ADVERSELY AFFECT ANY NATIONAL REGISTER OF HISTORIC PLACES-LISTED PROPERTY SO LONG AS THE FOLLOWING CONDITION (S) ARE MET:

The conditions enumerated in your letter of January 25, 2006 to this office are applied to this project.

Unless project plans change, and so long as the condition is met, this office has no objection to the implementation of this project. Should project plans change, please contact this office to determine what additional action, if any, is necessary. Questions and comments may be directed to Joe Garrison (615) 532-1550-103. Your cooperation is appreciated.

Sincerely,

Herbert L. Harper
Executive Director and
Deputy State Historic
Preservation Officer

HLH/jyg

Laura Elston

From: TN Help <tnhelp@service-now.com>
Sent: Wednesday, September 4, 2024 11:28 AM
To: Laura Elston
Subject: Modiciations to Existing Tower at 2117 North Thompson Lane; TCNS# 283216 - Project # SHPO0005584

Follow Up Flag: Follow up
Flag Status: Flagged

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

2024-09-04 10:27:26 CDT

Laura Elston
Trileaf Corporation
l.elston@trileaf.com

RE: Federal Communications Commission (FCC), Modifications to Existing Tower at 2117 North Thompson Lane; TCNS# 283216, Project#: SHPO0005584, Murfreesboro, Rutherford County, TN

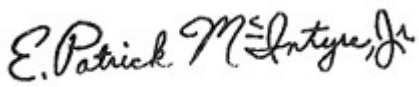
Dear Laura Elston:

Pursuant to your request, this office has reviewed documentation concerning the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Based on the information provided, we find that the project area contains a cultural resource eligible for listing in the National Register of Historic Places. We further find that the project as currently proposed will not adversely affect this historic property as the undertaking involves changes to an existing tower and does not increase the height of that tower.

This office has no objection to the implementation of this project as currently planned. If project plans are changed or previously unevaluated archaeological resources are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Include the Project # if you need to submit any additional information regarding this undertaking. Questions and comments may be directed to Casey Lee, who drafted this response, at Casey.Lee@tn.gov, +16152533163. We appreciate your cooperation.

Sincerely,



E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

Ref:MSG15292873_xngwdWYGHvqmzf6wYhD

SBA Communications Corporation
8051 Congress Avenue
Boca Raton, FL 33487-1307

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F + 561.995.7626

sbasite.com

Site Specific Obstruction Evaluation Report

Date: May 23, 2025

Study Site Name: TN 01807-B Swanson

Study Site Latitude:	35°	52’	55.74”
Study Site Longitude:	086°	25’	26.73”

Surface Elevation: 573’ AMSL (Above Mean Sea Level)

Structure Height: 150’ AGL (Above Ground Level)

Total Height: 723’ AMSL

This study is conducted in accordance with Federal Aviation Regulations (FAR) Part 77 and the Federal Communications Commission (FCC) Rules Part 17.

Affect:

The study site is located 13,879’ or 2.28 NM West from the approach end of runway 18. The study site is located 13,865’ or 2.28 NM West-Northwest from the airport reference point (ARP) of Murfreesboro Municipal Airport, a public use, instrumented airport. The existing structure **would not** affect VFR flight operations at this airport.

Private use airports or heliports do not meet FAR PART 77 criteria, and the FAA would not consider them in its study of the existing structure. In the interest of flight safety SBA considers private use airports in every study. SBA found no evidence of private use airports, which affect this study site.

FAA Notice (FAR PART 77.9 (a)): The existing 150’ AGL structure **does not exceed** this 200’ AGL surface. FAA notice of proposed construction **is not required.**

FAR PART 77.9 (b) (1) (2) (3): The existing 150’ AGL structure **does not exceed** the imaginary 100□1 slope surface or fail the FCC slope surface for the Murfreesboro Municipal Airport. FAA notice of proposed construction **is not required.**

Obstructions Standards of FAR PART 77.19, and FAR 77.17 (Ref: FAR PART 77.19 (a) (1), (2), (3), and FAR PART 77.17): The existing 150’ AGL structure **does not exceed** obstruction standards for the Murfreesboro Municipal Airport.

AM Broadcast Station Affect: SBA found no evidence of AM Broadcast Stations that would affect the study site. FCC regulations re□uire the responsible party to show that a new or significantly modified tower would not negatively affect an AM station (FCC13-115).

Conclusion/Recommendations:

The existing 150’ AGL/723’ AMSL structure would not be considered an obstruction to air navigation by the FAA. FAA notice of proposed construction **is not required.** If filed, the FAA would no doubt approve such a proposal without an extended study.

Reference the above recommendation:

- **FAA notice is not required. Maximum no notice height is 165’ AGL/738’ AMSL.**
- **Marking and Lighting is not required. Maximum no notice height is 200’ AGL.**
- **Extended study is not required.**
- **The existing structure would not be considered a hazard to IFR flight operations.**
- **The existing structure is not within AM Broadcast Station interference radius. FCC regulations require the responsible party to show that a new or significantly modified tower would not negatively affect an AM station (FCC13-115).**
- **The existing structure would not affect flight operations at private use airports or heliports.**

For □uestions or concerns contact Clint Papenfuss at (561) 226-9481.

Clinton T. Papenfuss
SBA Airspace Analyst

Date□5□23□25
Study Name□TN 01807-B Swanson


N
W
E
S
TN 01807-B Swanson
Name: TN 01807-B Swanson
Study Site: 35-52-55.74 N/086-25-26.73 W NAD 83
Scale: 24,000:1 1 inch = 2,000 feet
Feet
0 1,000 2,000 4,000 6,000 8,000
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, Copyright:© 2013 National Geographic Society, i-cubed

Z-25-010

2117 North Thompson Lane

2026

Updated BZA Agenda Materials And Exhibits

SBA Communications Corporation
9125-A Southern Pine Boulevard
Charlotte, NC 28273

T + 704.527.0003
F + 704.527.8988

sbasite.com

March 11, 2026

RE: Narrative Explanation
2117 North Thompson Lane. Murfreesboro, TN 37129 (T-Mobile Site: 9NV1648A | SBA ID: TN01807-B-04)

To Whom This May Concern:

Based on direction from staff and the examples provided, we have revised our design to better align with the Board's request for alternatives to a traditional exposed array. As requested, we have updated the design to incorporate a flush-mounted antenna solution consistent with the photo examples that were shared.

To help provide clarity on the long-term configuration of the structure, we want to note that the other two carriers on the tower may also transition to a similar flush-mounted installation in the future. In that scenario, the structure could ultimately accommodate up to three mounts utilizing this same style.

We have revised the engineering documentation and site plan to reflect the new configuration, and we have prepared updated photo simulations to illustrate the appearance of the proposed T-Mobile installation from both NW Broad and N Thompson Lane, as requested.

Respectfully,

Adrian Quintero
SBA Network Services, LLC
704.527.0003
aquintero@sbasite.com

EXISTING VEIW

PROPOSED VEIW

BC architects engineers

SBA

T-Mobile

SITE ADDRESS: 2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

COUNTY: RUTHERFORD COUNTY

T-MOBILE SITE #: 9NV1648A

T-MOBILE SITE NAME: THOMPSON

SBA SITE #:TN01807-B-04

FCC: 1204116

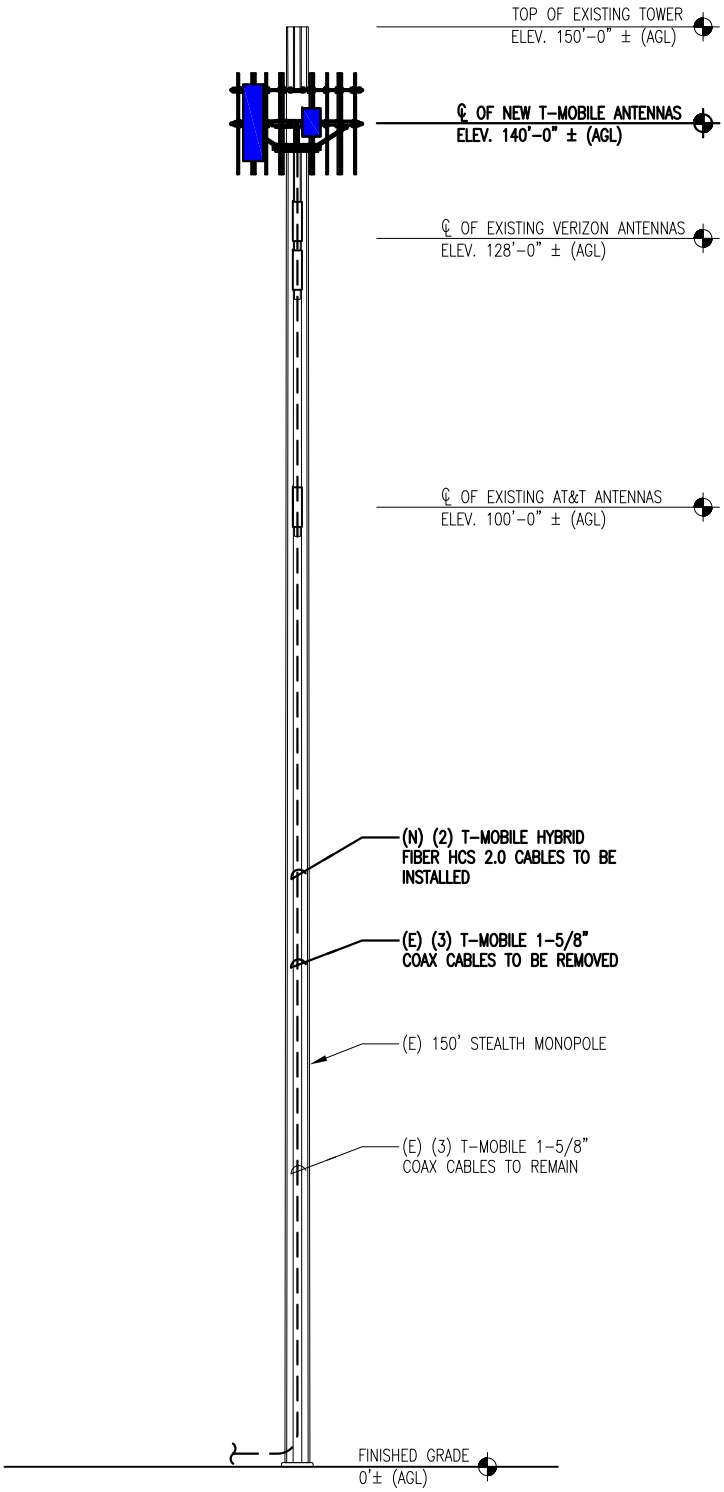
Similar to Existing

Similar to Previously Proposed 2025

NOTE:
NEW MOUNT HAVE ALREADY BEEN INSTALLED AS PER THE APPLICATION

SPECIAL NOTES

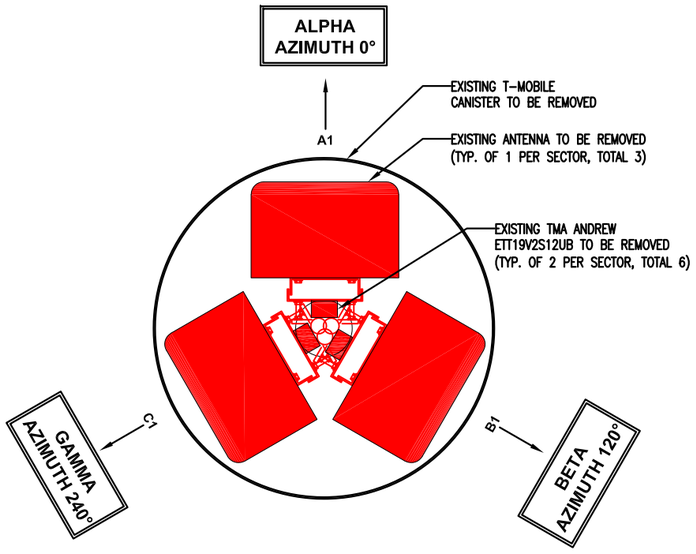
1. GC TO VERIFY ALL HEIGHTS AND AZIMUTHS IN FIELD PRIOR TO CONSTRUCTION. GC SHALL NOTIFY T-MOBILE AND ENGINEER OF DISCREPANCIES IMMEDIATELY.
2. STRUCTURAL/ DESIGN & ANALYSIS SHALL BE PERFORMED & APPROVED BY TOWER OWNER AND MANUFACTURER
3. **STRUCTURAL ANALYSIS PERFORMED BY OTHERS.**
4. **MOUNT ANALYSIS PERFORMED BY OTHERS.**
5. CONTRACTOR TO THOROUGHLY REVIEW THE TOWER STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO TOWER UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.



1 TOWER ELEVATION
SCALE: 1"=20' (1"=10' IF 24X36 SHEET SIZE)

LEGEND

EXISTING EQUIPMENT TO BE REMOVED



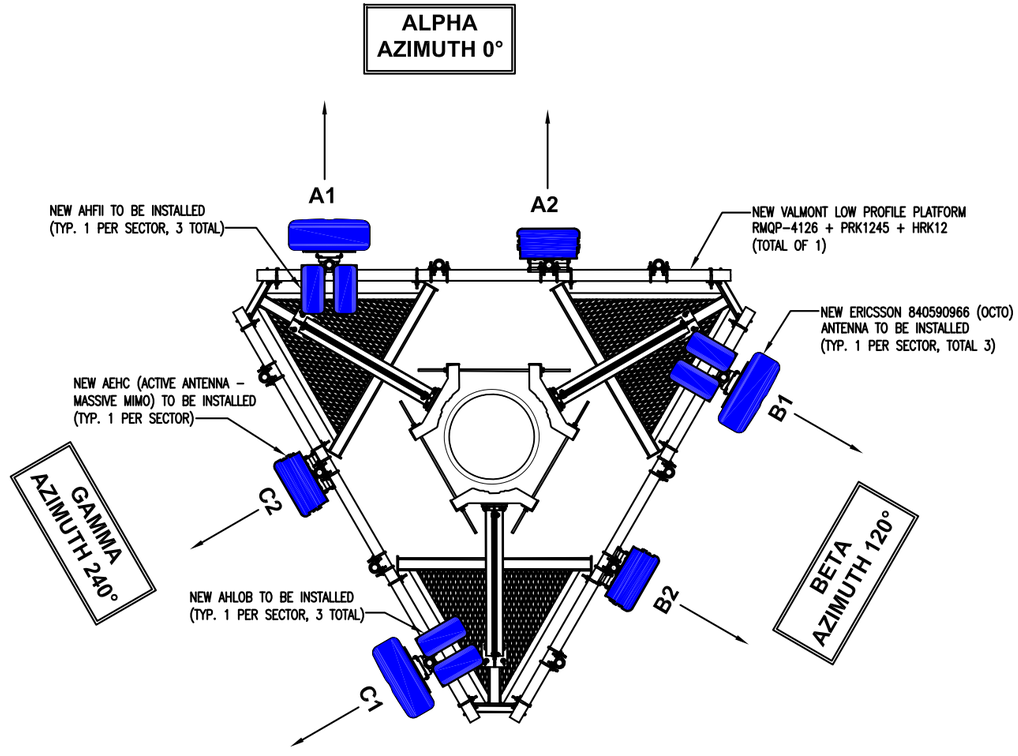
1 EXISTING T-MOBILE ANTENNA CONFIGURATION
SCALE: 1"=1'-0" (1 1/2"=1'-0" IF 24X36 SHEET SIZE)

LEGEND

NEW EQUIPMENT TO BE INSTALLED

SPECIAL NOTES:
STRUCTURAL ANALYSIS PERFORMED BY OTHERS.
MOUNT ANALYSIS PERFORMED BY OTHERS.
CONTRACTOR TO THOROUGHLY REVIEW THE TOWER & MOUNT STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO MOUNT UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.

NOTE:
NEW MOUNT HAVE ALREADY BEEN INSTALLED AS PER THE APPLICATION



2 NEW T-MOBILE ANTENNA CONFIGURATION
SCALE: 1/4=1'-0" (1/2"=1'-0" IF 24X36 SHEET SIZE)

T-MOBILE
5209 LINBAR DRIVE
SUITE 625
NASHVILLE, TN 37211

BC architects engineers
5661 COLUMBIA PIKE, SUITE 200
FALLS CHURCH, VA 22041-2868
TEL: (703) 671-6000
FAX: (703) 671-6300

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487-1307

DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM

CHRISTOPHER D. MORIN
REGISTERED ENGINEER
AGRICULTURE
7.23.24
COMMERCE
No. 105940
STATE OF TENNESSEE

9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

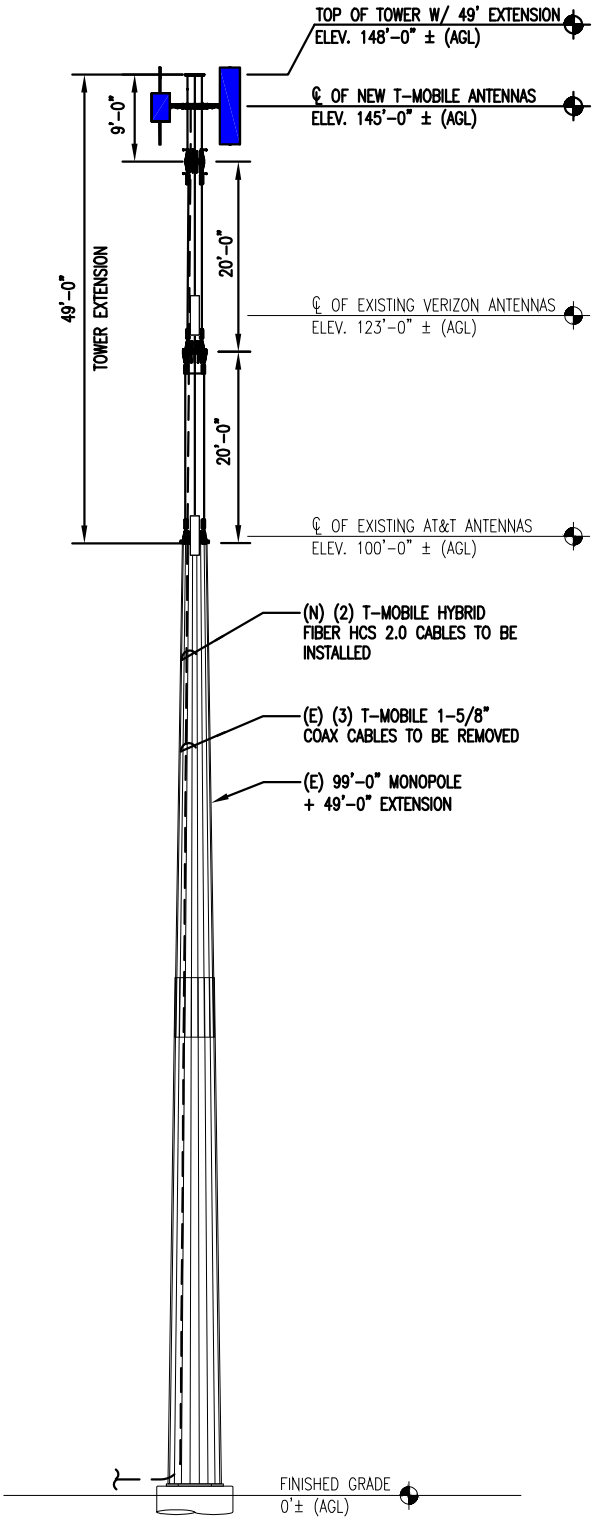
EXISTING & PROPOSED ANTENNA PLANS

A-2A

Similar to Newly Proposed 2026

NOTE:
TOWER MODIFICATIONS REQUIRED.
REFER TO THE MODIFICATION AND DESIGN DRAWINGS BY TES (CONGRUEX) DATED 02/10/2026.
PROPOSED MODIFICATION DESIGN DRAWINGS ARE BASED ON TES JOB# 164298R1

NOTE:
REMOVAL OF ALL EXISTING CANISTERS AND INSTALLATION OF NEW 49'-0" TOWER EXTENSION



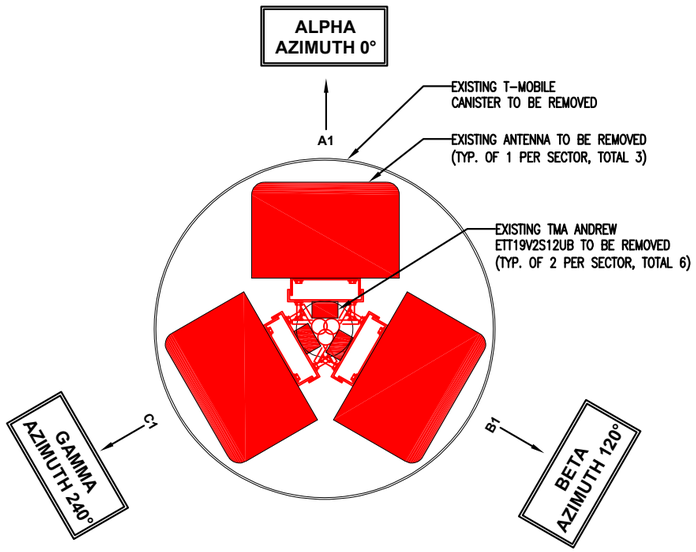
SPECIAL NOTES

1. GC TO VERIFY ALL HEIGHTS AND AZIMUTHS IN FIELD PRIOR TO CONSTRUCTION. GC SHALL NOTIFY T-MOBILE AND ENGINEER OF DISCREPANCIES IMMEDIATELY.
2. STRUCTURAL/ DESIGN & ANALYSIS SHALL BE PERFORMED & APPROVED BY TOWER OWNER AND MANUFACTURER
3. **CONDITIONALLY PASSING STRUCTURAL ANALYSIS PERFORMED BY TES (CONGRUEX) DATED 01/30/2026.**
4. **MOUNT ANALYSIS PERFORMED BY OTHERS.**
5. CONTRACTOR TO THOROUGHLY REVIEW THE TOWER STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO TOWER UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.

1 TOWER ELEVATION
SCALE: 1"=20' (1"=10' IF 24X36 SHEET SIZE)

LEGEND

EXISTING EQUIPMENT TO BE REMOVED



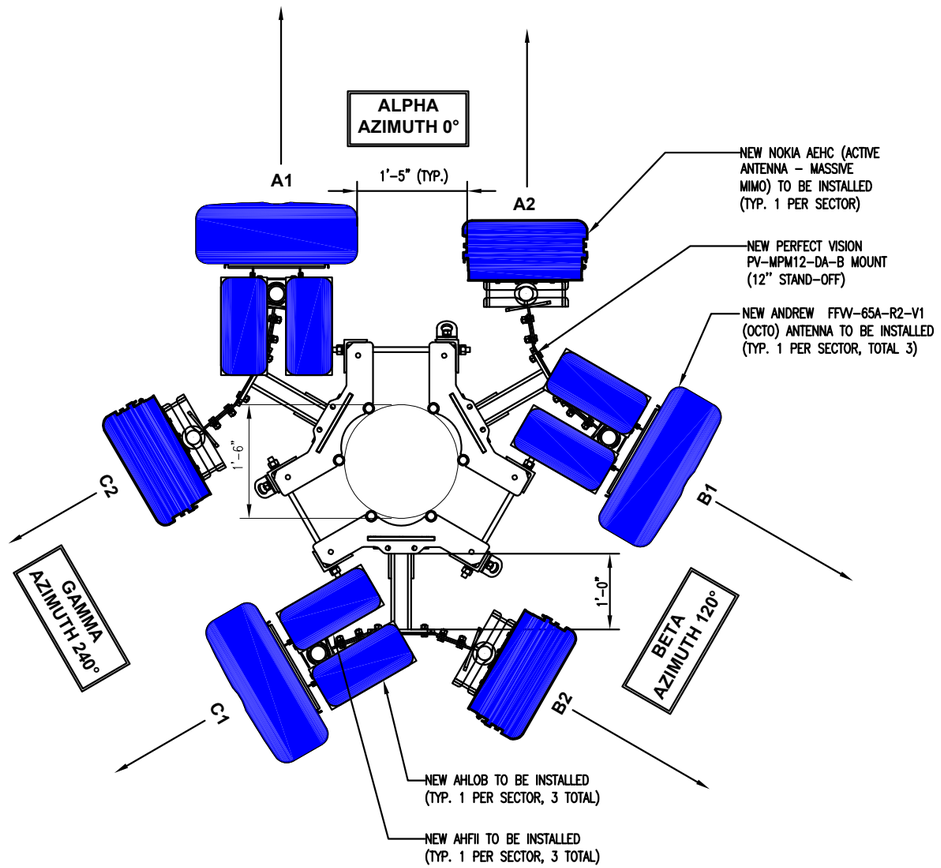
1 EXISTING T-MOBILE ANTENNA CONFIGURATION
SCALE: 1"=1'-0" (2"=1'-0" IF 24X36 SHEET SIZE)

LEGEND

NEW EQUIPMENT TO BE INSTALLED

NOTE:
REMOVAL OF ALL EXISTING CANISTERS AND INSTALLATION OF NEW 49'-0" TOWER EXTENSION

SPECIAL NOTES:
CONDITIONALLY PASSING STRUCTURAL ANALYSIS PERFORMED BY TES (CONGRUEX) DATED 01/30/2026.
MOUNT ANALYSIS PERFORMED BY OTHERS.
CONTRACTOR TO THOROUGHLY REVIEW THE TOWER & MOUNT STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO MOUNT UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.



2 NEW T-MOBILE ANTENNA CONFIGURATION
SCALE: 1/2=1'-0" (1"=1'-0" IF 24X36 SHEET SIZE)

T-MOBILE
5209 LINBAR DRIVE
SUITE 625
NASHVILLE, TN 37211

BC architects engineers
5661 COLUMBIA PIKE, SUITE 200
FALLS CHURCH, VA 22041-2868
TEL: (703) 671-6000
FAX: (703) 671-6300

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487-1307

DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM
1	FINALS (NEW MOUNT & APP)	03/09/26	SS

BRIAN QUINN
REGISTERED ARCHITECT
AGRICULTURE
COMMERCE
No.108996
STATE OF TENNESSEE
3.9.26

9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

EXISTING & PROPOSED ANTENNA PLANS

A-2A

T-MOBILE Site #

9NV1648A

T-MOBILE Site Name

THOMPSON

SBA Site #

TN01807-B-04

ANCHOR PHASE 3 PROJECT

Site Address

2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129
(RUTHERFORD COUNTY)

SBA Site Name

SWANSON

SCOPE OF WORK

THE SCOPE OF WORK CONSISTS OF:

- REMOVE (3) EXISTING ANTENNAS
- REMOVE (6) EXISTING TMAS
- REMOVE ALL EXISTING CANISTER MOUNTS
- INSTALLATION OF (1) NEW LIFE DOUBLE ANTENNA MOUNT W/ 12" STANDOFF PERFECT VISION PV-MPM-DA
- INSTALLATION OF (3) NEW ANDREW FFVV-65A-R2-V1 ANTENNAS
- INSTALLATION OF (3) NEW NOKIA AEHC ANTENNAS
- INSTALLATION OF (3) NEW NOKIA AHFIIS RRUS
- INSTALLATION OF (3) NEW NOKIA AHLOB RRUS
- REMOVAL OF (3) EXISTING COAX CABLES
- INSTALLATION OF (2) NEW HYBRID 6X24 4AWG HYBRID CABLES
- REMOVAL OF EXISTING SITE SUPPORT CABINETS ALONG WITH (2) FSMF BASEBANDS & (1) ESMB BASEBAND SUBMODULE
- REMOVAL OF ALL EXISTING RADIOS
- INSTALLATION OF (1) NEW T MOBILE DELTA HPL3 600A CABINET WITH (1) NEW ASIA BASEBAND, (2) NEW ASIL BASEBANDS, (2) NEW ABIA SUBMODULES, (3) ABIL SUBMODULES, (1) NEW ABIO SUBMODULE, (2) AMIA BASEBAND SUBRACKS & (1) NEW CSR IXRE V2 (GEN2) ROUTER
- INSTALLATION OF (1) NEW T MOBILE DELTA LB3 BATTERY CABINET (4 STRINGS)

NOTE:
TOWER MODIFICATIONS REQUIRED.
REFER TO THE MODIFICATION AND DESIGN DRAWINGS BY TES (CONGRUEX) DATED 02/10/2026.
PROPOSED MODIFICATION DESIGN DRAWINGS ARE BASED ON TES JOB# 164298R1

DRIVING DIRECTIONS

DRIVING DIRECTIONS FROM T-MOBILE OFFICE AT:
5209 LINBAR DRIVE SUITE 625, TN 37211

1. GET ON I-24 E FROM EZELL RD 3 MIN (1.0 MI)
2. CONTINUE ON I-24 E TO MURFREESBORO. TAKE EXIT 55A-B FROM I-840 E 18 MIN (20.1 MI)
3. CONTINUE ON US-41 S/US-70S E TO YOUR DESTINATION 5 MIN (2.4 MI)

DESTINATION WILL BE ON THE LEFT
26 MINUTES (23.6 MILES)

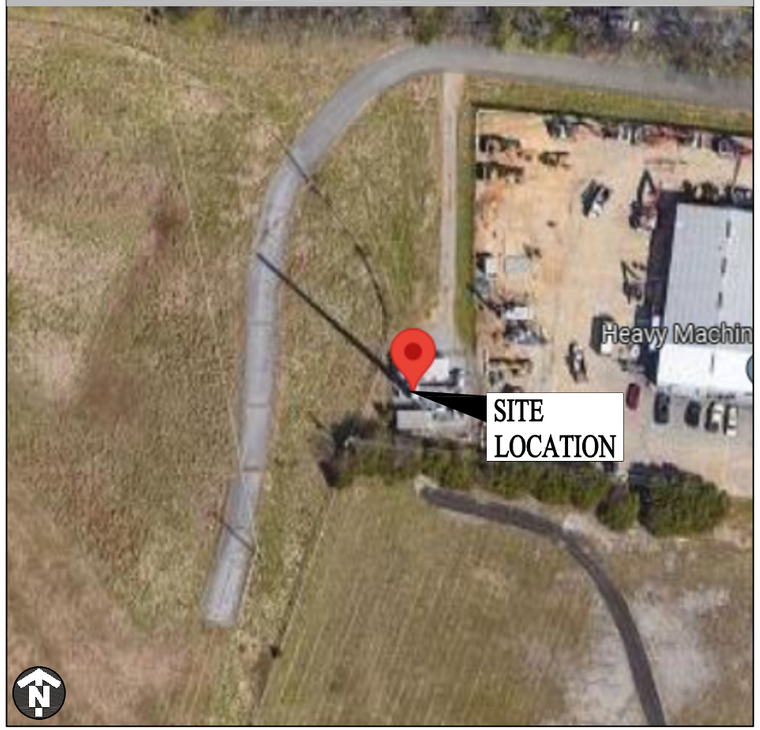
PROFESSIONAL LICENSURE

I CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF THE GOVERNING LOCAL BUILDING CODE.

BRIAN QUINN REGISTERED ARCHITECT AGRICULTURE 3.9.26 COMMERCE No.108936 STATE OF TENNESSEE

LICENSED PROFESSIONAL
EXPIRES: 12/31/2027

AERIAL MAP



SITE

SHEET INDEX

NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
A-1	COMPOUND PLAN
A-1A	EXISTING & PROPOSED EQUIPMENT LAYOUT
A-2	ELEVATION & DETAILS
A-2A	EXISTING & PROPOSED ANTENNA PLANS
A-3	ANTENNA & CABLE SCHEDULE
A-3A	RFDS DIAGRAM
A-4	DETAILS
A-5	DETAILS
A-6	ANTENNA MOUNT
A-6A	ANTENNA MOUNT
A-6B	ANTENNA MOUNT
E-1	AC PANEL SCHEDULE & ONE LINE DIAGRAM
EG-1	PROPOSED SITE GROUNDING DIAGRAM
SP-1	GENERAL NOTES AND SPECIFICATIONS
-	MODIFICATION AND DESIGN DRAWINGS FOR TOWER BY OTHERS

GENERAL NOTES:
CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS AT THE PROJECT SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

FOR SITES WHERE A CRANE IS NECESSARY, THE CONTRACTOR SHALL CONFIRM AN UNOBSTRUCTED ROUTE FOR THE CRANE FROM PUBLIC ROAD TO TOWER SITE PRIOR TO CONSTRUCTION. NO AERIAL OBSTRUCTIONS UNDER FIFTEEN FEET ABOVE GRADE, INCLUDING AERIAL UTILITY LINES, ARE ALLOWED ALONG SAID CRANE ROUTE.

GC SHALL CONTACT THE A&E FIRM PRIOR TO BIDWALK AND CONSTRUCTION START TO CONFIRM THAT DRAWINGS ARE THE MOST RECENT SET.

PROJECT INFORMATION

Site Information:

LATITUDE:	35.882139 (N 35° 52' 55.74") (NAD 83)
LONGITUDE:	-86.424083 (W 86° 25' 26.73") (NAD 83)
FCC #:	1204116
GROUND ELEVATION:	±570' (AMSL IN FEET)
ZONING:	N/A
JURISDICTION:	RUTHERFORD COUNTY
TAX ID:	080-011.00-000
PROPERTY OWNER:	SWANSON IRREVOCABLE FAMILY TRUST
STRUCTURE TYPE:	99'-0" MONOPOLE + 49'-0" EXTENSION
POWER PROVIDER:	MURFREESBORO ELECTRIC
TELCO PROVIDER:	AT&T

TENANT ENTITY:	**T-MOBILE SOUTH LLC** **12920 SOUTHEAST 38TH ST.,** **BELLEVUE, WA 980061350** **CONTACT : KEITH MCCOMBS** **KEITH.MCCOMBS@T-MOBILE.COM**
VENDOR : (PROJECT MANAGEMENT)	SBA **8125-A SOUTHERN PINE BOULEVARD,** **CHARLOTTE, NC 28273** **CONTACT : DEB HITCHCOCK** **DHITCHCOCK@SBASITE.COM**
ENGINEER:	BC ARCHITECTS ENGINEERS, PLC **5661 COLUMBIA PIKE, SUITE 200 FALLS CHURCH, VA 22041** **CONTACT: BRIAN M. QUINN, AIA** **BQUINN@BCPLC.COM**
TOWER OWNER:	SBA COMMUNICATIONS **8051 CONGRESS AVENUE** **BOCA RATON, FL 33487**
CONSTRUCTION:	SBA CODY STEVENS CSTEVENS@SBASITE.COM

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

CODES:

1. INTERNATIONAL BUILDING CODE 2018
2. NATIONAL ELECTRIC CODE (NEC) 2017
3. AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION
5. TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL TOWER AND ANTENNA SUPPORTING STRUCTURES
6. TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS

811 Know what's **below.** **Call** before you dig. www.call811.com

CALL DIGGERS HOTLINE FOR UNDERGROUND UTILITIES PRIOR TO DIGGING

811 OR 1-800-382-5544

T-MOBILE
5209 LINBAR DRIVE
SUITE 625
NASHVILLE, TN 37211

BC architects engineers
5661 COLUMBIA PIKE, SUITE 200
FALLS CHURCH, VA 22041-2868
TEL: (703) 671-6000
FAX: (703) 671-6300

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487-1307

DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

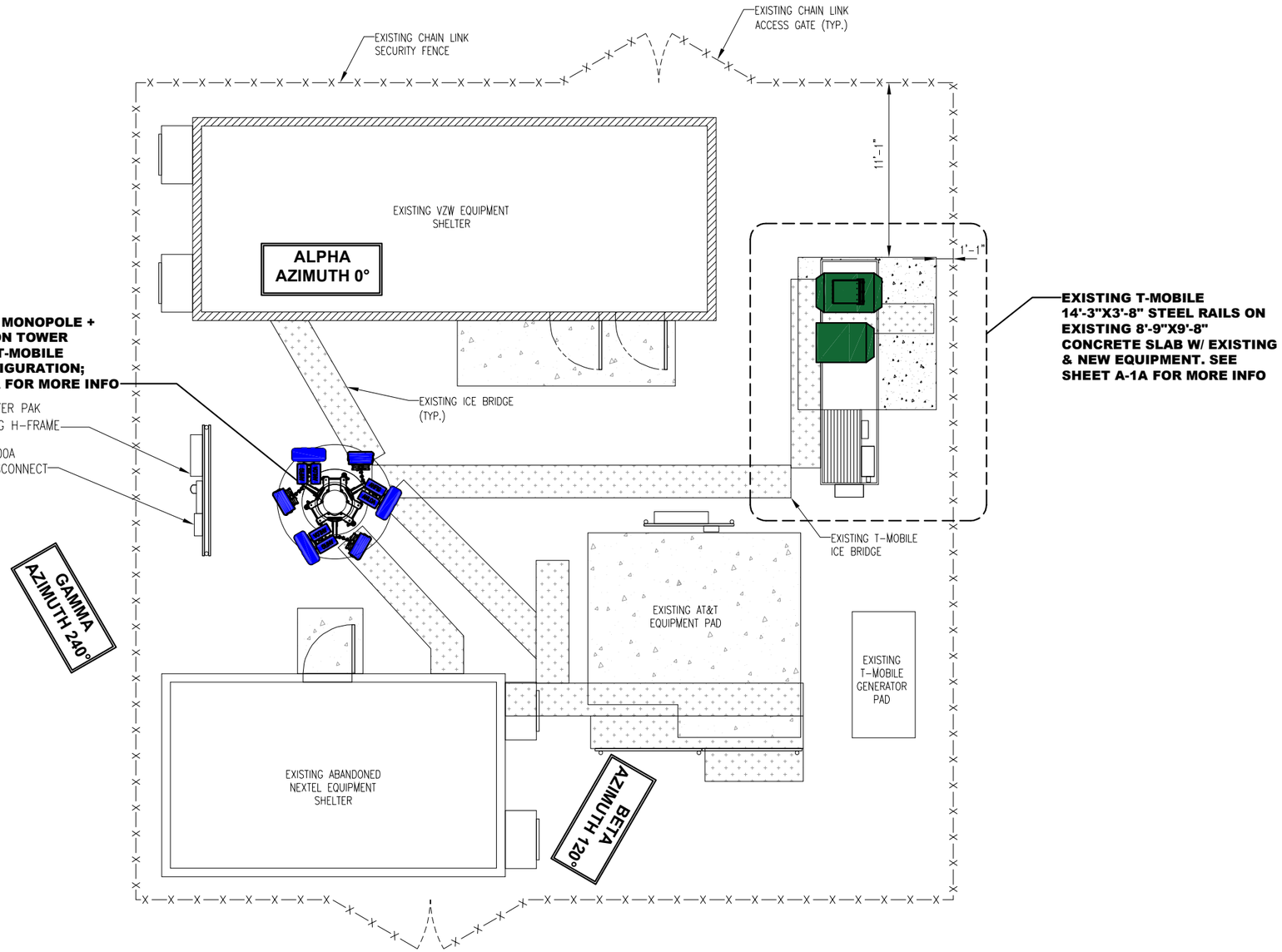
No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM
1	FINALS (NEW MOUNT & APP)	03/09/26	SS

BRIAN QUINN REGISTERED ARCHITECT AGRICULTURE 3.9.26 COMMERCE No.108936 STATE OF TENNESSEE

9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

TITLE SHEET

T-1



1 COMPOUND PLAN
SCALE: 1/8"=1'-0" (1/4"=1'-0" IF 24X36 SHEET SIZE)

N

T-MOBILE
5209 LINBAR DRIVE
SUITE 625
NASHVILLE, TN 37211

BC architects engineers
5661 COLUMBIA PIKE, SUITE 200
FALLS CHURCH, VA 22041-2868
TEL: (703) 671-6000
FAX: (703) 671-6300

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487-1307

DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

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1	FINALS (NEW MOUNT & APP)	03/09/26	SS

BRIAN QUINN REGISTERED ARCHITECT AGRICULTURE COMMERCE No.108936 STATE OF TENNESSEE
3.9.26

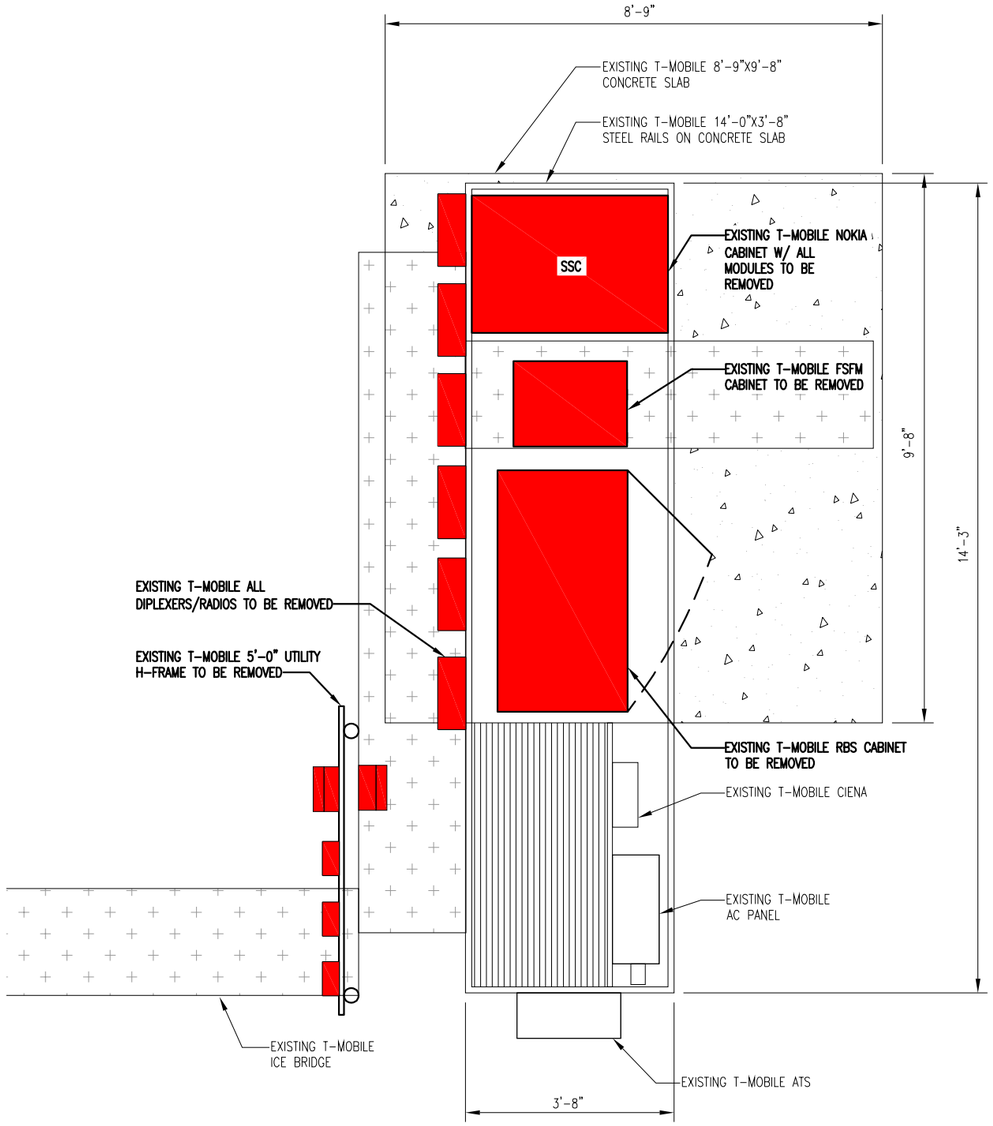
9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

COMPOUND PLAN

A-1

LEGEND

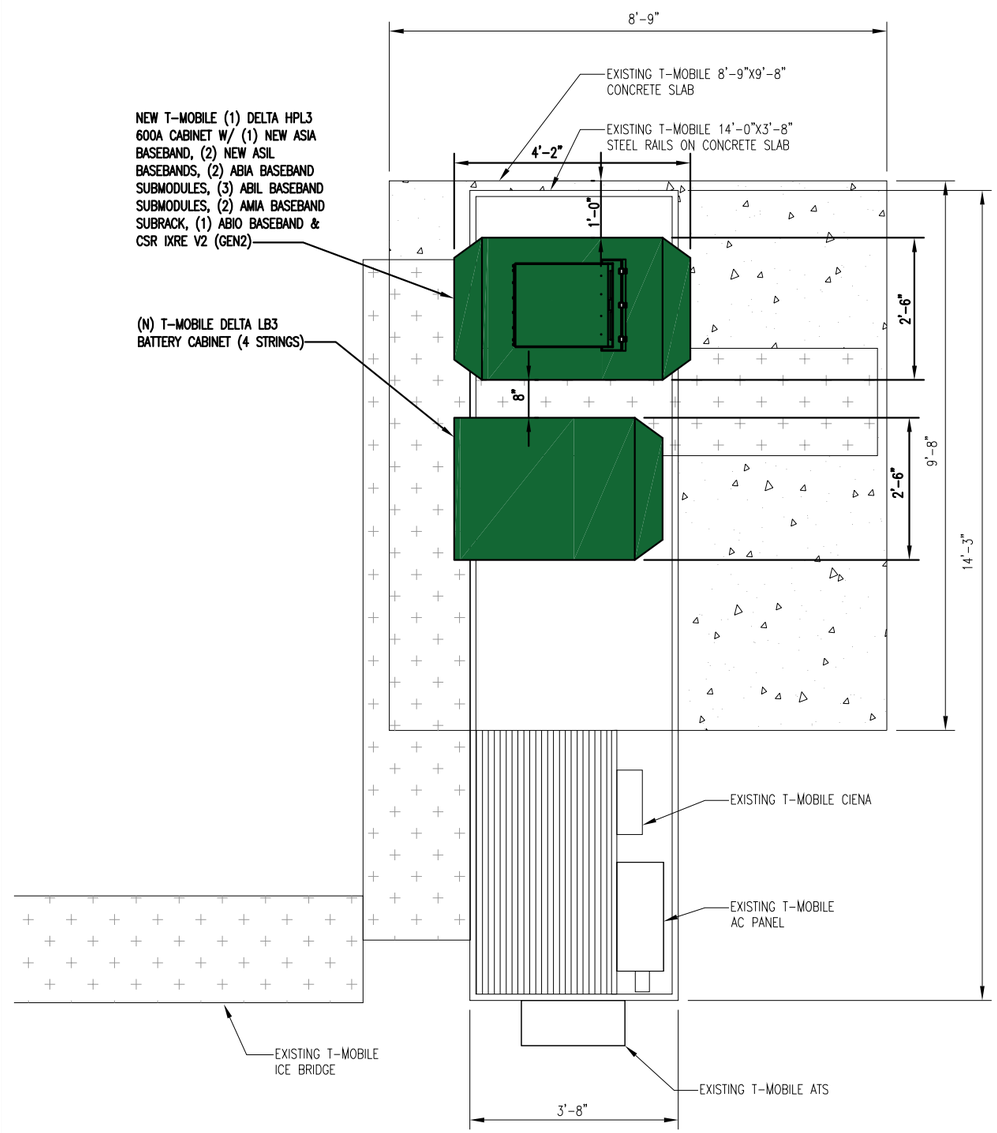
EXISTING CABINET / MODULE TO BE REMOVED



1 EXISTING EQUIPMENT LAYOUT
SCALE: 3/8"=1'-0" (3/4"=1'-0" IF 24X36 SHEET SIZE)

LEGEND

NEW CABINET/MODULE TO BE INSTALLED



2 PROPOSED EQUIPMENT LAYOUT
SCALE: 3/8"=1'-0" (3/4"=1'-0" IF 24X36 SHEET SIZE)

T-MOBILE
5209 LINBAR DRIVE
SUITE 625
NASHVILLE, TN 37211

BC architects engineers
5661 COLUMBIA PIKE, SUITE 200
FALLS CHURCH, VA 22041-2868
TEL: (703) 671-6000
FAX: (703) 671-6300

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487-1307

DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM
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BRIAN QUINN
REGISTERED ARCHITECT
AGRICULTURE
COMMERCE
3.9.26
No.108936
STATE OF TENNESSEE

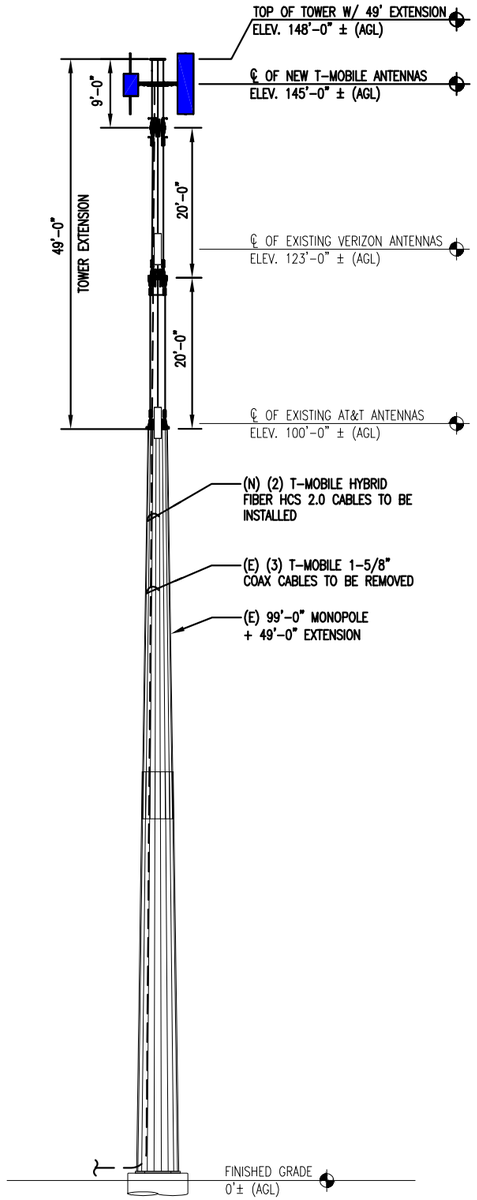
9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

EXISTING & PROPOSED ENLARGED EQUIPMENT LAYOUT

A-1A

NOTE:
TOWER MODIFICATIONS REQUIRED.
REFER TO THE MODIFICATION AND DESIGN DRAWINGS BY TES (CONGRUEX) DATED 02/10/2026.
PROPOSED MODIFICATION DESIGN DRAWINGS ARE BASED ON TES JOB# 164298R1

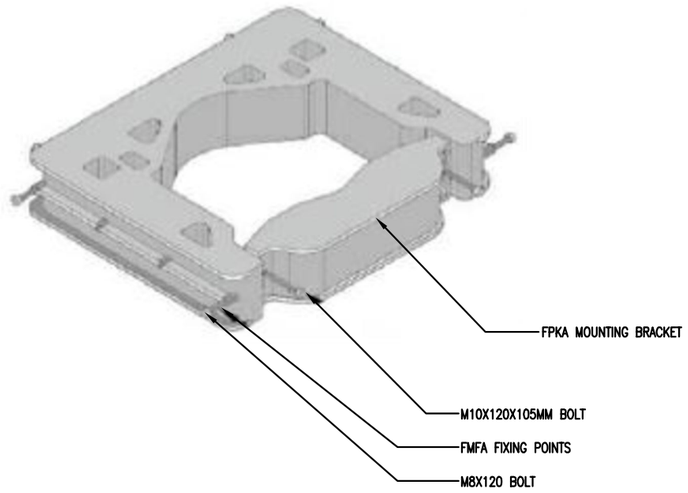
NOTE:
REMOVAL OF ALL EXISTING CANISTERS AND INSTALLATION OF NEW 49'-0" TOWER EXTENSION



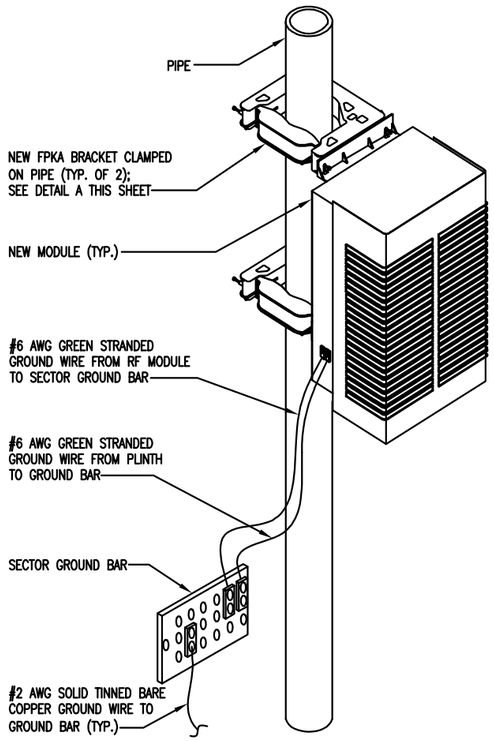
1 TOWER ELEVATION
SCALE: 1"=20' (1"=10' IF 24X36 SHEET SIZE)

SPECIAL NOTES

1. GC TO VERIFY ALL HEIGHTS AND AZIMUTHS IN FIELD PRIOR TO CONSTRUCTION. GC SHALL NOTIFY T-MOBILE AND ENGINEER OF DISCREPANCIES IMMEDIATELY.
2. STRUCTURAL/ DESIGN & ANALYSIS SHALL BE PERFORMED & APPROVED BY TOWER OWNER AND MANUFACTURER
3. **CONDITIONALLY PASSING STRUCTURAL ANALYSIS PERFORMED BY TES (CONGRUEX) DATED 01/30/2026.**
4. **MOUNT ANALYSIS PERFORMED BY OTHERS.**
5. CONTRACTOR TO THOROUGHLY REVIEW THE TOWER STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO TOWER UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.



2 FPKA BRACKET DETAIL
N.T.S.



3 TYPICAL AHLOA UNIT MOUNTING DETAIL
N.T.S.

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BC architects engineers
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No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM
1	FINALS (NEW MOUNT & APP)	03/09/26	SS

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COMMERCE
3.9.26
No.108936
STATE OF TENNESSEE

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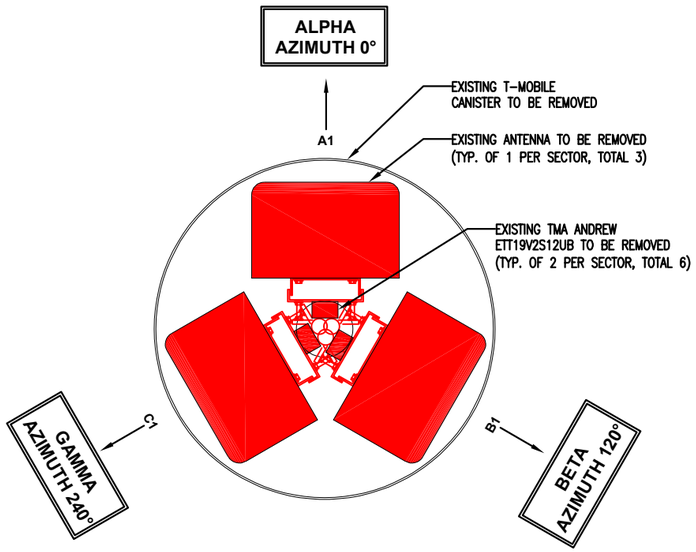
ELEVATION & DETAILS

A-2

LEGEND

EXISTING EQUIPMENT TO BE REMOVED



1 EXISTING T-MOBILE ANTENNA CONFIGURATION
SCALE: 1"=1'-0" (2"=1'-0" IF 24X36 SHEET SIZE)

LEGEND

NEW EQUIPMENT TO BE INSTALLED

NOTE:
REMOVAL OF ALL EXISTING CANISTERS AND INSTALLATION OF NEW 49'-0" TOWER EXTENSION

SPECIAL NOTES:
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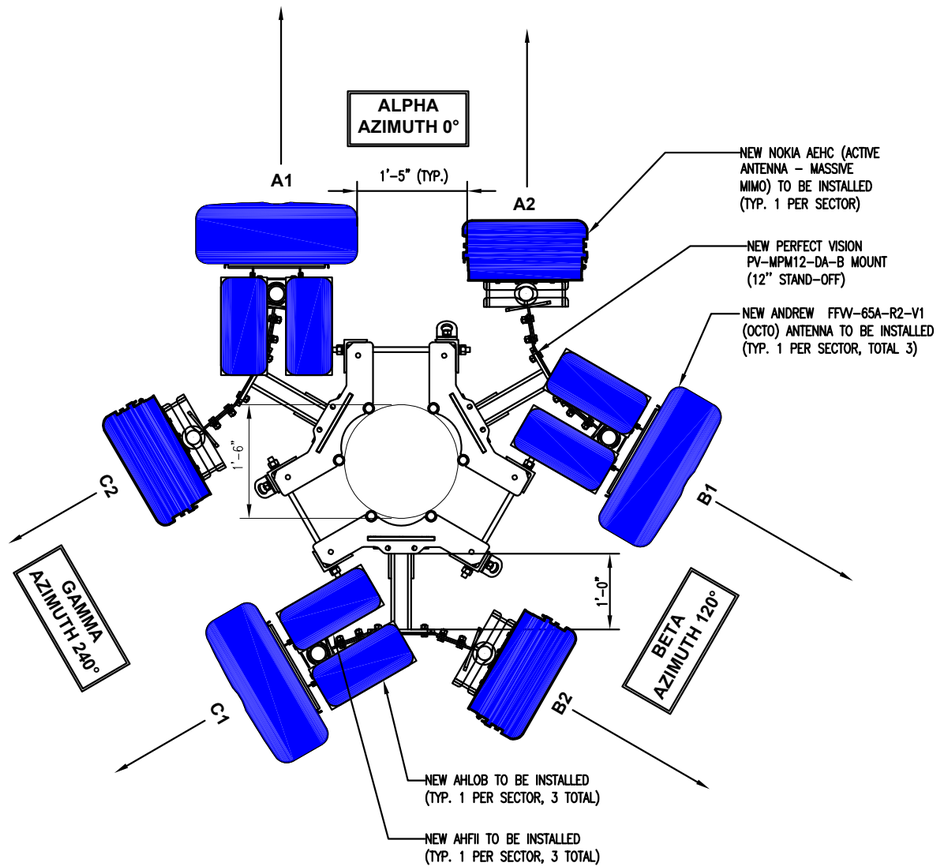
MOUNT ANALYSIS PERFORMED BY OTHERS.
CONTRACTOR TO THOROUGHLY REVIEW THE TOWER & MOUNT STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO MOUNT UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.



2 NEW T-MOBILE ANTENNA CONFIGURATION
SCALE: 1/2=1'-0" (1"=1'-0" IF 24X36 SHEET SIZE)

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EXISTING & PROPOSED ANTENNA PLANS

A-2A

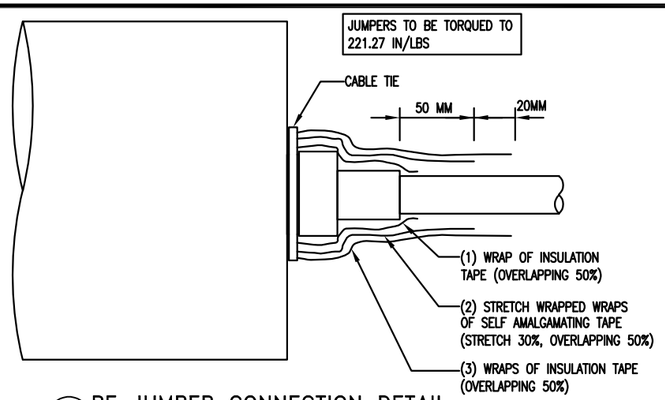
NEW AND EXISTING ANTENNA AND CABLE SCHEDULE

SECTOR	POS.	AZIMUTH	RAD CENTER	TECHNOLOGY	ANTENNA	STATUS	RRU TYPE	STATUS	DIPLEXER/ODU	CABLE STATUS	COAX CABLE LENGTH	JUMPER LENGTH
ALPHA	A1	0°	145'	N1900 G1900 N2100 N600 L1900 L600 L2100 L700	(1) ANDREW - FFVV-65A-R2-V1 (OCTO)	NEW	(1) AHLOB	NEW	–	(2) NEW 1.8" HCS 2.0 HYBRID CABLES TO BE INSTALLED (3) EXISTING 1-5/8" COAX CABLES TO BE REMOVED	(±170')	≤ 15'–0"
							(1) AHFII	NEW				
	A2	0°	145'	N2500	(1) AEHC MASSIVE MIMO	NEW	–	–	–			≤ 15'–0"
BETA	B1	120°	145'	N1900 G1900 N2100 N600 L1900 L600 L2100 L700	(1) ANDREW - FFVV-65A-R2-V1 (OCTO)	NEW	(1) AHLOB	NEW	–			≤ 15'–0"
							(1) AHFII	NEW				
	B2	120°	145'	N2500	(1) AEHC MASSIVE MIMO	NEW	–	–	–			≤ 15'–0"
GAMMA	C1	240°	145'	N1900 G1900 N2100 N600 L1900 L600 L2100 L700	(1) ANDREW - FFVV-65A-R2-V1 (OCTO)	NEW	(1) AHLOB	NEW	–			≤ 15'–0"
							(1) AHFII	NEW				
	C2	240°	145'	N2500	(1) AEHC MASSIVE MIMO	NEW	–	–	–			≤ 15'–0"

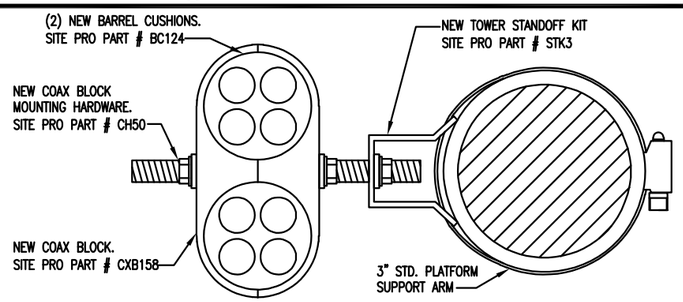
(*) SHARED WITH ALL SECTORS

IMPORTANT NOTE: PLEASE REFER TO LATEST RFDS SHEET FOR NSN CONFIGURATION. GC TO CAP ALL UNUSED PORTS.

LEASE RIGHTS	(3) EXISTING 1-5/8" COAX CABLES TO REMAIN



1 RF JUMPER CONNECTION DETAIL
N.T.S.



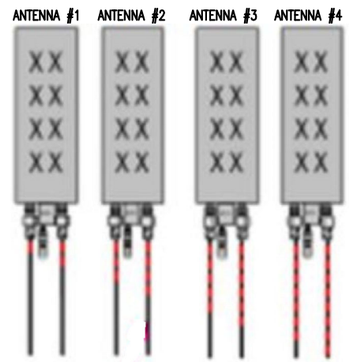
2 RF JUMPER MOUNTING DETAIL
N.T.S.

COAX COLOR CODING

- ANTENNAS WILL BE LABELED (BACK OF ANTENNA VIEW) RIGHT TO LEFT 1–X PORTS
- COAX/JUMPER LINES WILL BE IDENTIFIED BY SECTOR COLOR AND BY NUMBER OF BANDS AROUND THE COAX/JUMPER

SECTOR A	RED
SECTOR B	GREEN
SECTOR C	BLUE
SECTOR D	YELLOW
SECTOR E	WHITE
SECTOR F	PURPLE
LMU	BROWN+SECTOR COLOR BANDS (1 & 2)
FIBER ID	GRAY
UNUSED COAX	PINK
MICROWAVE	ORANGE
DWE T–1'S + GPS DOWNLINK CABLE	ID W/LABEL MAKER

FRONT OF THE ANTENNA



EXAMPLE: COAX WITH FOUR BANDS OF RED TAPE WILL REPRESENT ALPHA SECTOR AND THE 4TH PORT OF ANTENNA

ANTENNA AND COAXIAL CABLE SCHEDULE

1. ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.
2. CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLE SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS.

3 TAGGING COLOR AND NOTES
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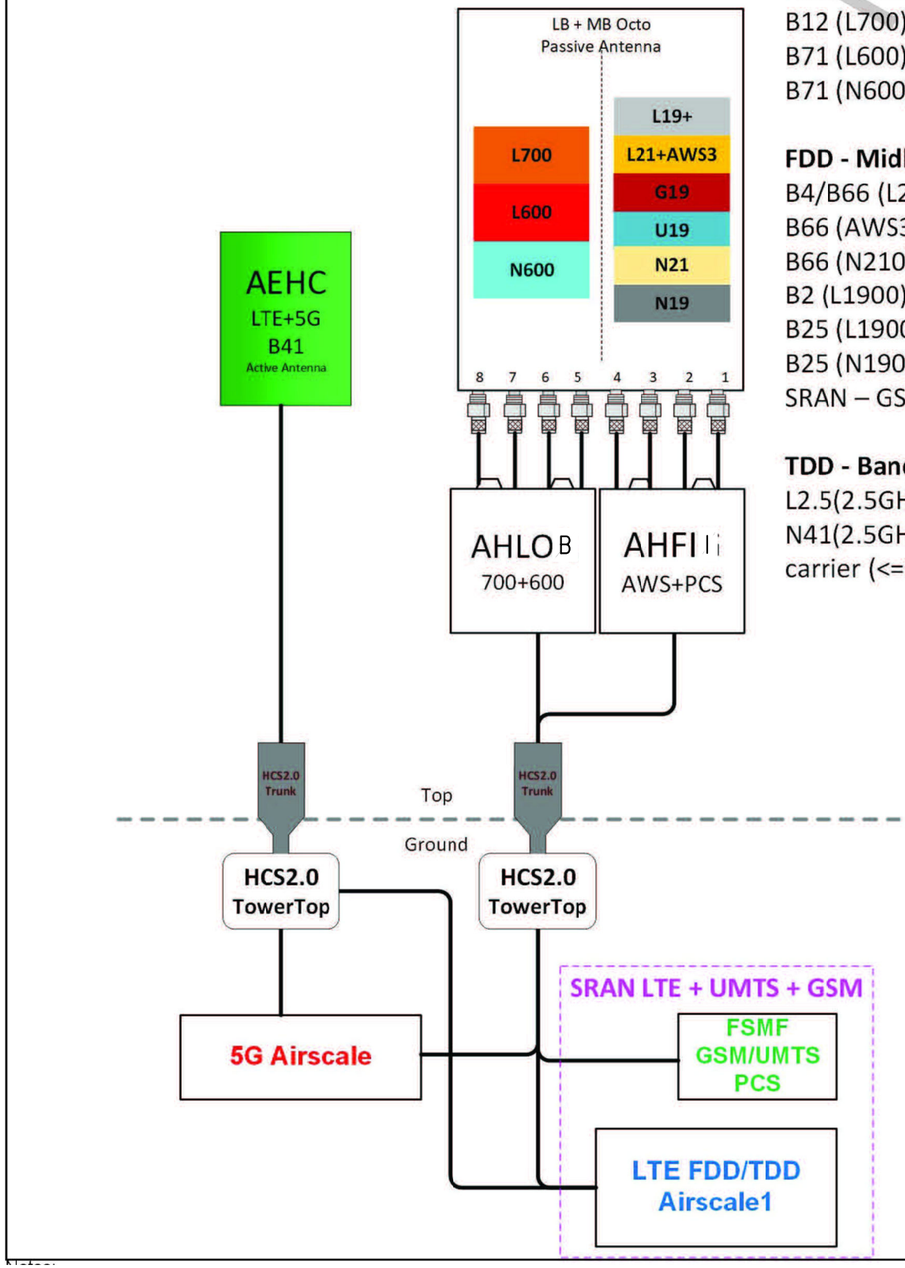
ANTENNA & CABLE SCHEDULE

A-3

Configuration 56791EZ_SR

* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.

(Alpha, Beta & Gamma)



FDD - Lowband
B12 (L700) – 5 MHz
B71 (L600) – 10 MHz
B71 (N600) – 15 MHz

FDD - Midband
B4/B66 (L2100) – 20 MHz
B66 (AWS3) – 5MHz
B66 (N2100) – 20MHz
B2 (L1900) – 20 MHz
B25 (L1900) – 20 MHz
B25 (N1900) – 20MHz
SRAN – GSM/UMTS PCS

TDD - Band 41
L2.5(2.5GHz)– 60 MHz
N41(2.5GHz) – 100MHz +2nd carrier (<=80MHz)

1 RFDS DIAGRAM
SCALE: N.T.S.

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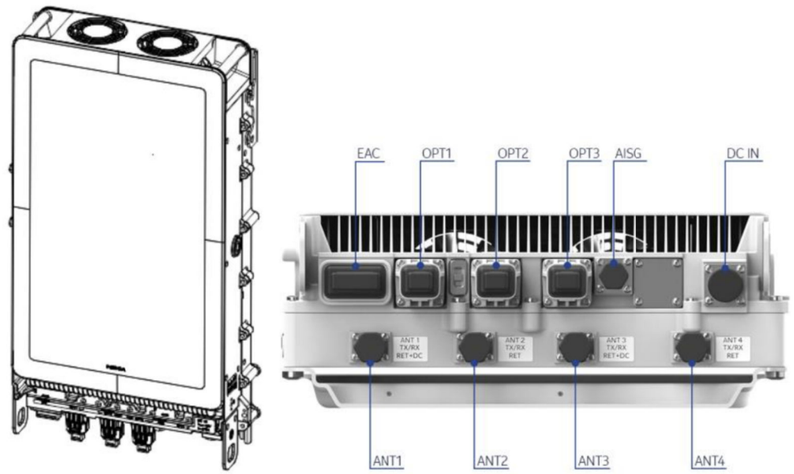
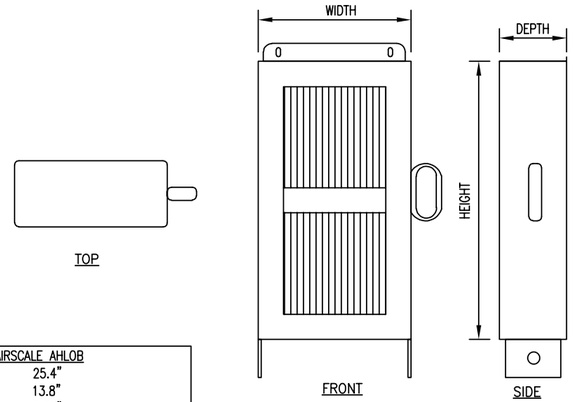
RFDS DIAGRAM

A-3A



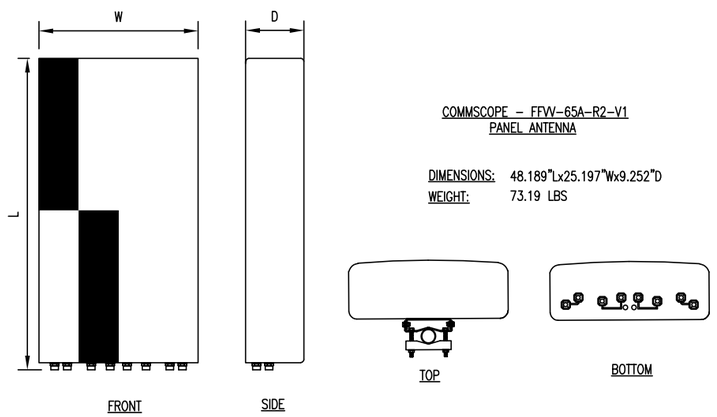
Dimension HxWxD (Core)	25.2" x 13.5" x 4.5"
Dimension HxWxD (with bracket and fan unit)	26.6" x 14.5" x 5.7"
Weight (Core Only)	70.6 lbs
Frequency Band	Band 25: DL 1930–1995MHz, UL 1850–1915MHz Band 66: DL 2110–2200MHz, UL 1710–1780MHz
Instantaneous Bandwidth	Band 25/ Band 66 – full band
Technology	LTE, 5GNR
Rx Diversity	2-Way or 4-way
TX MIMO	2TX or 4TX
RF Power Range	4x80W in any band while 4x40W in other band (4x120W Total)
RF Ports	4 ports of 4.3-10 (F)
Supporting BW	NR: 5, 10, 15, 20, 30* MHz LTE: 1.4*, 3*, 5, 10, 15, 20 MHz *) Not supported in current SW

1 AHFII (RRU) DETAIL
N.T.S.



NOKIA AIRSCALE AHLOB
HEIGHT: 25.4"
WIDTH: 13.8"
DEPTH: 5.30"
WEIGHT: 82.7 LBS

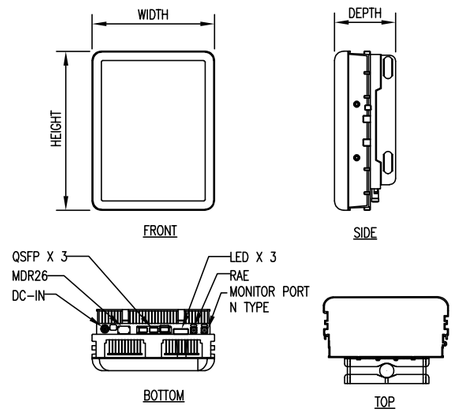
2 AHLOB (RRU) DETAIL
N.T.S.



COMMSCOPE – FFVV-65A-R2-V1
PANEL ANTENNA

DIMENSIONS: 48.189"Lx25.197"Wx9.252"D
WEIGHT: 73.19 LBS

3 ANDREW – FFVV-65A-R2-V1 ANTENNA DETAIL
N.T.S.



NOKIA – AEHC ANTENNA
HEIGHT: 35.4"
WIDTH: 22.8"
DEPTH: 8.3"
WEIGHT: 99.2 LBS

4 NOKIA – AEHC ANTENNA DETAIL
N.T.S.

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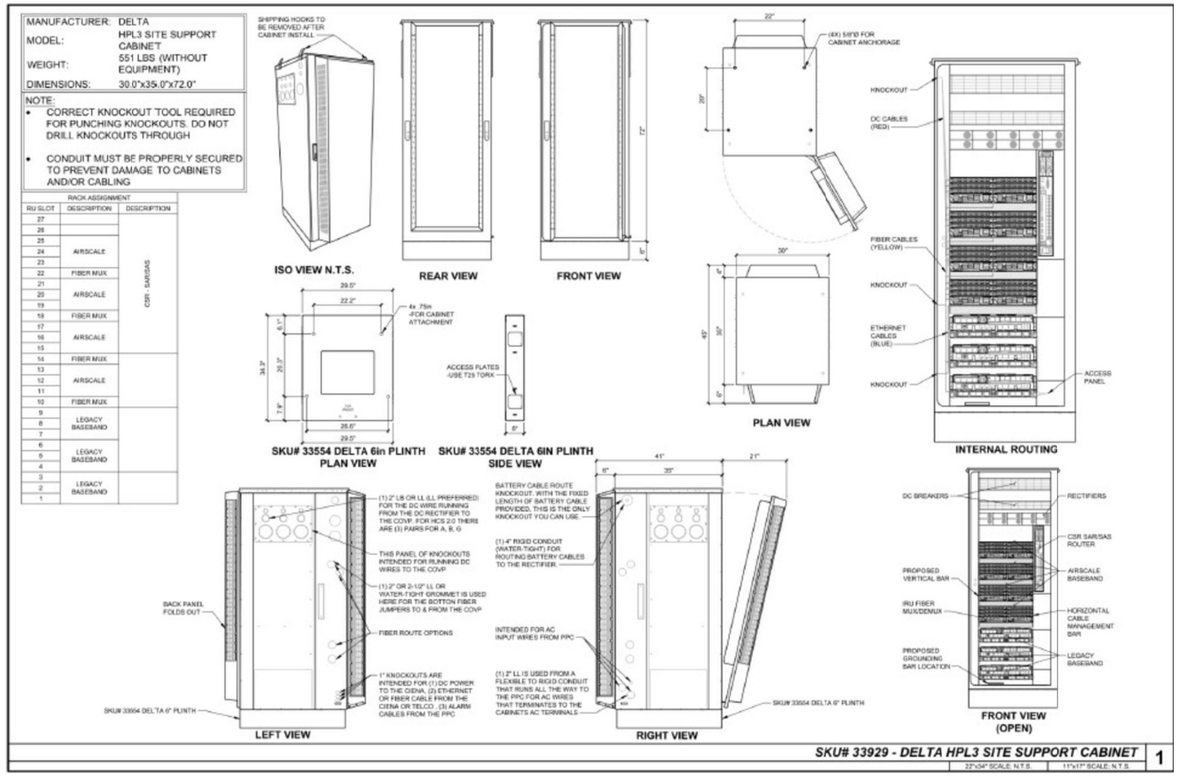
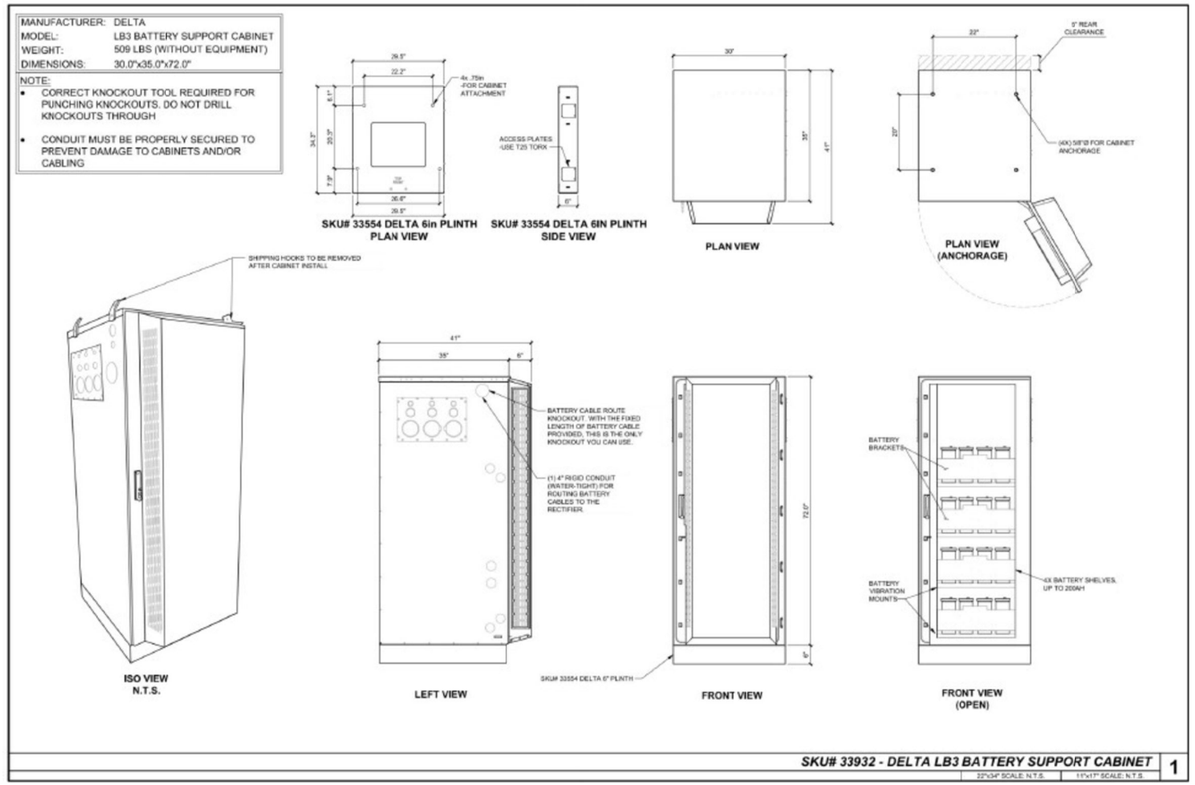
NEW EQUIPMENT SPECIFICATIONS

A-4



1 DELTA HPL3.1 600A CABINET DETAIL
N.T.S.



2 DELTA LB3 BATTERY CABINET (4 STRINGS) DETAIL
N.T.S.

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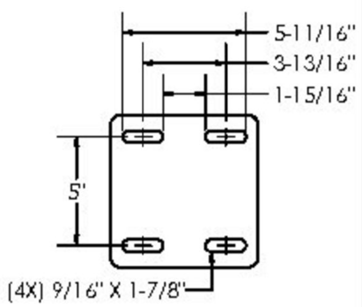
DETAILS

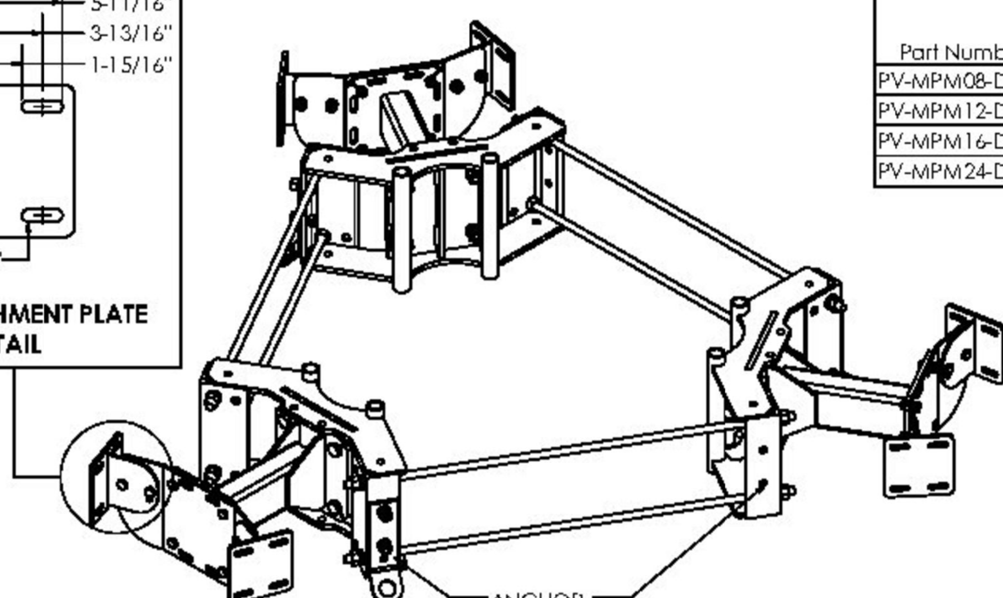
A-5

PV-MPM-DA

L.I.F.E MOUNT™ MONOPOLE DOUBLE ANTENNA MOUNT



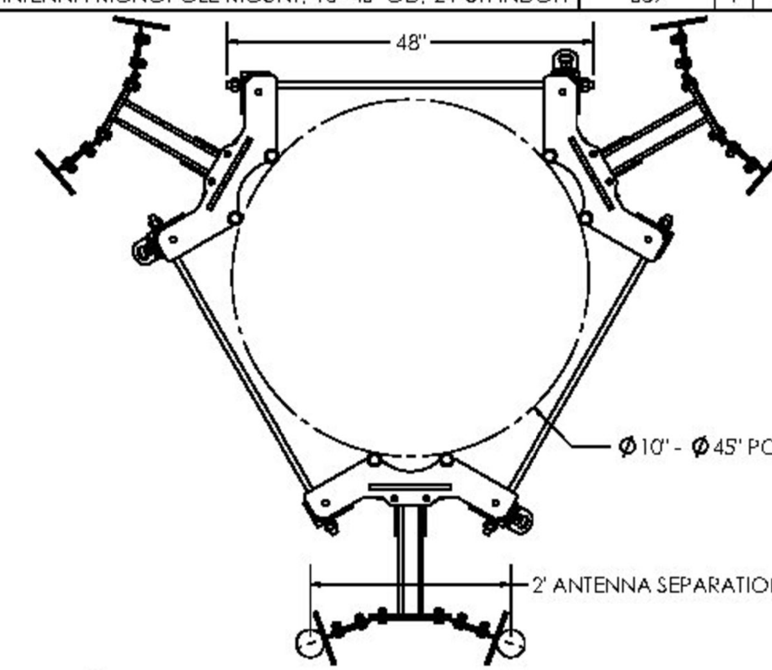
PIPE ATTACHMENT PLATE DETAIL



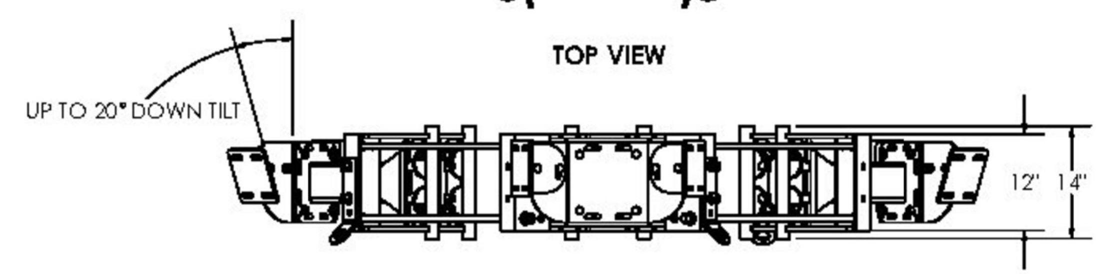
PV-MPM-DA
WEIGHT: SEE TABLE 1

Table 1: Mount Configurations

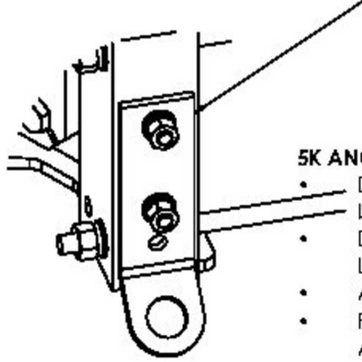
Part Number	Description	Weight (lbs)	Included Parts: PV-RM1045-GS	PV-TA8-FPB-HD	PV-TA12-FPB-HD	PV-TA16-FPB-HD	PV-TA24-FPB-HD	PV-DAP	PV-LPP-GS-ACC2
PV-MPM08-DA-B	L.I.F.E MOUNT™ DUAL ANTENNA MONOPOLE MOUNT, 10"-45" OD, 8" STANDOFF	525	1	3	-	-	-	3	3
PV-MPM12-DA-B	L.I.F.E MOUNT™ DUAL ANTENNA MONOPOLE MOUNT, 10"-45" OD, 12" STANDOFF	537	1	-	3	-	-	3	3
PV-MPM16-DA-B	L.I.F.E MOUNT™ DUAL ANTENNA MONOPOLE MOUNT, 10"-45" OD, 16" STANDOFF	543	1	-	-	3	-	3	3
PV-MPM24-DA-B	L.I.F.E MOUNT™ DUAL ANTENNA MONOPOLE MOUNT, 10"-45" OD, 24" STANDOFF	567	1	-	-	-	3	3	3



TOP VIEW



FRONT VIEW



5K ANCHOR ATTACHMENT NOTES:

- DO NOT INSTALL ANCHORS UNTIL AFTER RING MOUNT IS PROPERLY INSTALLED ON TOWER.
- DO NOT USE ANCHORS AS A RIGGING / LIFTING POINT.
- ANCHOR SPEC: UTS 5,000 LBF
- FOLLOW MANUFACTURER SPECIFICATIONS FOR ANCHOR INSTALLATION & MAINTENANCE

ANCHOR DETAIL

SHEET 1 OF 3	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4	PV MPM08 DA ADDED TO CONFIGURATIONS	5/18/22
		SERIES 06_T-ARMS	3	UPDATE TO COLLARS	5/15/19
5/3/2023	SCALE 1:14	TYPE PV-DA_Double Antenna	2	INCLUDES HD26226	10/14/16
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE±1/4°, BEND±2° ALL OTHERS: ±1/16"		BY INT	1	L.I.F.E MOUNT™ UPDATE	2/23/16
		CHECKED DJN	0	INITIAL RELEASE	11/13/15
		STATUS APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION.

L.I.F.E Mount™ MONOPOLE DOUBLE ANTENNA MOUNT

DOCUMENT NUMBER: MPM-ENG-02-R4 | REV: 4

C:_PVMSteel\Catalog\SW Working Files\Engineering Details\

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ANTENNA
MOUNT SPEC.

A-6

Table 2: Collar Overview

Part Number	Drawing Document #	Series[1]	Compatible Poles	Sectors	Mount Connection Bolt Pattern	Mount Connection Bolt Size	Limiting Pole Thickness[2]	Recommended All Thread Installation Torque[3]			Recommended Max Moment[4]		
								Pole Thick ≤ 3/16"	Pole Thick = 1/4"	Pole Thick ≥ 3/8"	Pole Thick ≤ 3/16"	Pole Thick = 1/4"	Pole Thick ≥ 3/8"
			[in]		[in]	[in]	[in]	[ft-lbs]	[ft-lbs]	[ft-lbs]	[kip-ft]	[kip-ft]	[kip-ft]
PV-RM1045-GS	RMGS-ENG-01	Guardian	ϕ10 - ϕ45	3	7 x 7	3/4 A325X	5/16"	90	120	150	8	12.5	*

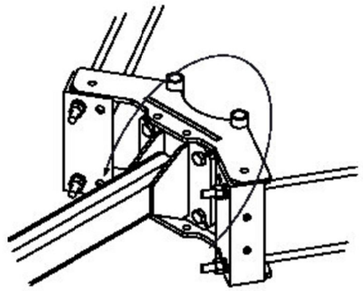
NOTES:

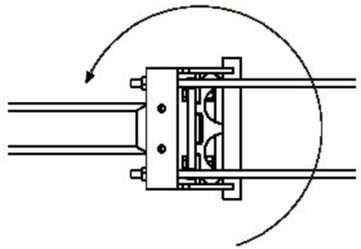
1. SERIES:
   - GUARDIAN:
     - USED FOR HEAVY DUTY MOUNTING APPLICATIONS, SUCH AS LOW PROFILE PLATFORMS, SQUARE PLATFORMS, & MULTI-SECTOR T-ARMS.
     - COMPATIBLE WITH 5K ATTACHMENT ACCESSORY
     - L.I.F.E. MOUNT™ RATED

2. LIMITING POLE THICKNESS:
   - ON POLES WITH THICKNESS EQUAL TO OR GREATER THAN THE CHARTED VALUE, THE LIMITING FACTOR SHALL BE THE STANDOFF ARM / GLOBAL STRENGTH OF THE MOUNT.
   - ON POLES WITH THICKNESS LESS THAN THE CHARTED VALUE, THE LIMITING FACTOR OF THE CONNECTION SHALL BE THE LOCALIZED STRENGTH OF THE POLE. IN THESE CASES, IT IS RECOMMENDED THAT FURTHER ANALYSIS IS CONDUCTED TO ENSURE THE POLE HAS ADEQUATE STRENGTH AT THE COLLAR CONNECTION.
     - ADDITIONAL COLLARS WITH KICKER OR OTHER REINFORCEMENT KITS SHALL BE ADDED UNDER SCENARIOS WHERE THE POLE DOES NOT HAVE ADEQUATE STRENGTH AT THE COLLAR.

3. INSTALLATION TORQUE
   - TABULATED VALUES ARE APPLICABLE ONLY UNDER THE FOLLOWING CONDITIONS
     - THREADED RODS AND NUTS ARE CLEAN & DRY.
     - THREADED RODS AND NUTS ARE AS PROVIDED FROM PERFECTVISION. REUSED OR SUBSTITUTED HARDWARE IS NOT ACCEPTABLE.
   - THREADED ROD TORQUE SHALL BE CHECKED DURING INITIAL INSTALLATION OF COLLAR AND AFTER ALL APPURTENANCES AND EQUIPMENT ARE INSTALLED.
   - OVERTIGHTENING MAY CAUSE DAMAGE TO POLE.
   - VALUES MAY BE INTERPOLATED IF REQUIRED.

4. RECOMMENDED MAX MOMENT:
   - RECOMMENDED MAXIMUM MOMENT AT COLLAR TO POLE CONNECTION IN ORDER TO AVOID DAMAGE / LOCAL FAILURE TO POLE.
   - EXPERIMENTALLY DETERMINED USING 50KSI POLES.
   - EOR MAY OVERRIDE THESE RECOMMENDED VALUES BASED ON A SITE SPECIFIC ANALYSIS.
   - MDS COLLARS SHALL NOT BE USED FOR APPLICATIONS REQUIRING A MOMENT CONNECTION.
   - *CONDITIONS SHALL MEAN THAT THE LIMITING FACTOR IN DETERMINING THE MAXIMUM MOMENT SHALL BE THE STRENGTH OF THE STANDOFF ARM / GLOBAL STRENGTH OF THE MOUNT.





MAX MOMENT DIRECTION

SHEET: 2 OF 3	INTERFACE PROJECTION	CATEGORY: 02_Monopole	4	PV MPM08 DA ADDED TO CONFIGURATIONS	5/18/22
5/3/2023	SCALE: 1:12	SERIES: 06_T-ARMS	3	UPDATE TO COLLARS	5/15/19
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE±1/4°, BEND±2° ALL OTHERS: ±1/16"		TYPE: PV-DA_Double Antenna	2	INCLUDES #D26226	10/14/16
		BY: INT	1	L.I.F.E MOUNT™ UPDATE	2/23/16
		CHECKED: DJN	0	INITIAL RELEASE	11/13/15
		STATUS: APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION.

L.I.F.E Mount™ MONOPOLE DOUBLE ANTENNA MOUNT

DOCUMENT NUMBER: MPM-ENG-02-R4 REV: 4

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DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM
1	FINALS (NEW MOUNT & APP)	03/09/26	SS

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REGISTERED ARCHITECT
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No. 108936
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3.9.26

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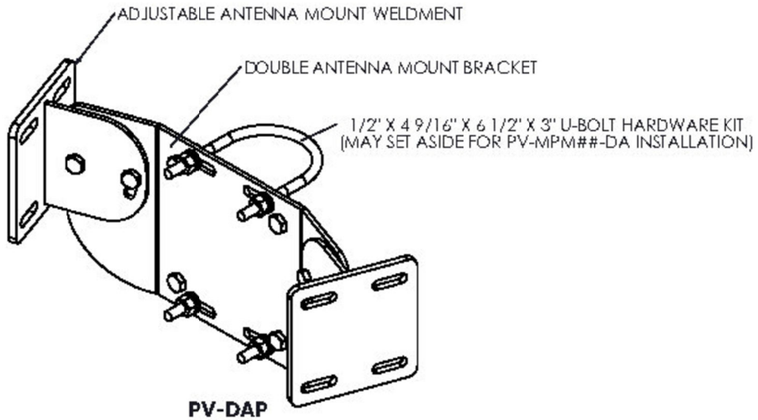
ANTENNA MOUNT SPEC.

A-6A

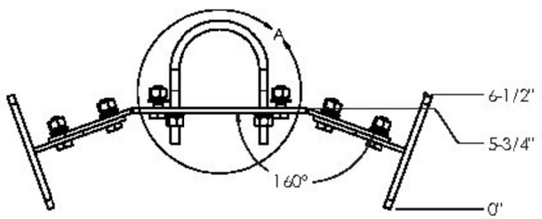
PV-DAP

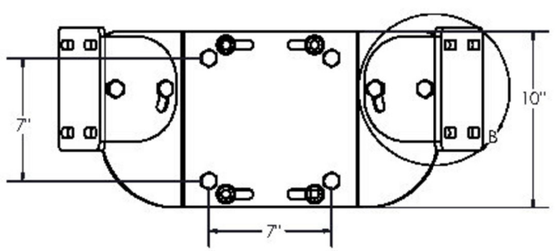
DOUBLE ANTENNA MOUNT

TABLE 3: COMPATIBLE T-ARMS	
STANDOFF LENGTH	FACE MOUNT STYLE MODEL
8 INCHES	PV-TA8-FPB-HD
12 INCHES	PV-TA12-FPB-HD
16 INCHES	PV-TA16-FPB-HD
24 INCHES	PV-TA24-FPB-HD

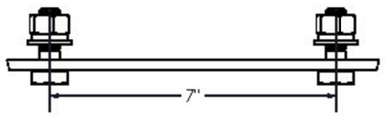


PV-DAP



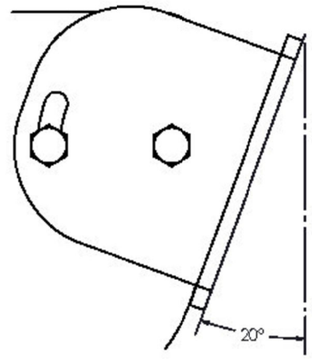


DIMENSION DETAILS

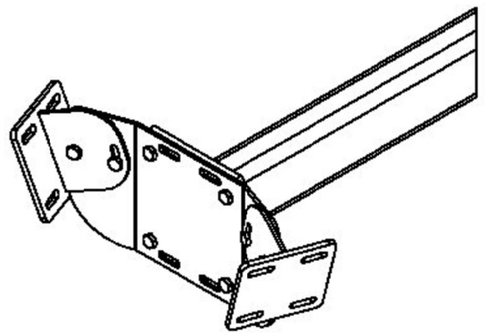


DETAIL A
SCALE 1 : 3

TOWER MOUNTING DETAILS
BOLTS SPACED TO BE MOUNTED TO FACE MOUNT T-ARM
(U-BOLTS HIDDEN - NOT NECESSARY FOR INSTALLATION)



ANTENNA MOUNT DETAILS
UP TO 20 DEGREES ADJUSTABLE DOWNSHIFT
SLOTTED FOR 2 3/8" TO 4 1/2" OD PIPE



FACE MOUNT T-ARM

SHEET: 3 OF 3	CATEGORY: 02_Monopole	4	PV MPM08 DA ADDED TO CONFIGURATIONS	5/18/22	PERFECTVISION
	SERIES: 06_T-ARMS	3	UPDATE TO COLLARS	5/15/19	
DATE: 5/3/2023	SCALE: 1:6	TYPE: PV-DA_Double Antenna	2	INCLUDES HD2x226	10/14/16
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +-1/16". -1/32" ANGULAR: PROFILE±1/4°, BEND±2° ALL OTHERS: ±1/16"	BY: INT	1	U.F.E.MOUNT™ UPDATE	2/23/16	U.F.E.Mount™ MONOPOLE DOUBLE ANTENNA MOUNT
	CHECKED: DJN	0	INITIAL RELEASE	11/13/15	DOCUMENT NUMBER: MPM-ENG-02-R4 REV: 4
	STATUS: APPROVED	REV	DESCRIPTION	DATE	

C:_PV\Client Cad\pv\SW Working files\Engineering Details\

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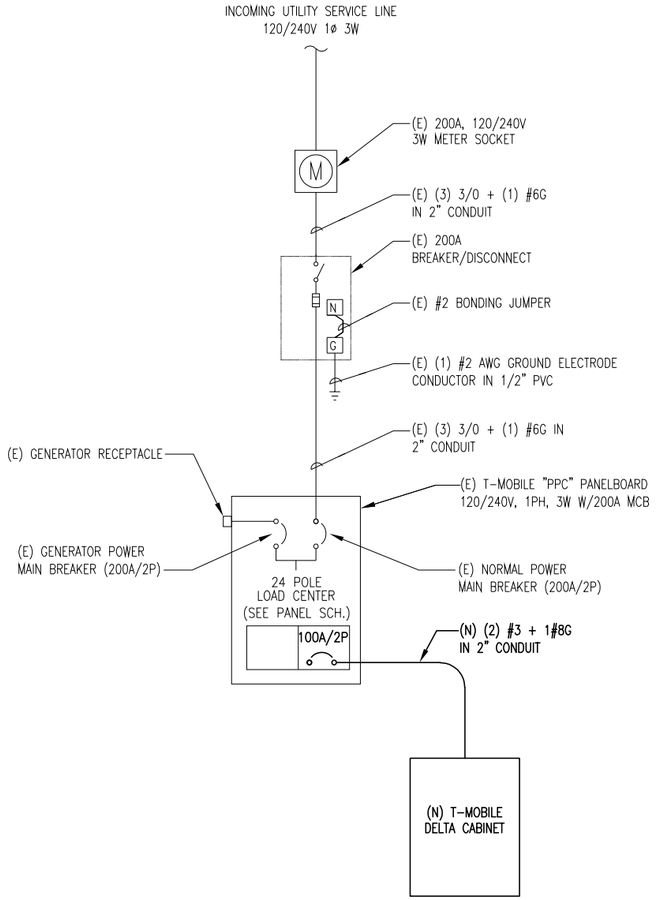
ANTENNA
MOUNT SPEC.

A-6B



1 ONE LINE DIAGRAM
SCALE: N.T.S.

200 A MCB					Voltage:	240							
AC PANEL SCHEDULE					1 ϕ 3 W								
Breaker Pos #	**Description**	**State (On/Off)**	**Use ***	**Amp**	**Load**	**Phase A**	**Phase B**	**Load**	**Amp**	**State (On/Off)**	**Use ***	**Description**	**Breaker Pos #**
1	*TVSS*	*ON*	*2P*	*60*	1	**181**		180	*20*	*ON*	*1P*	*PPC GFCI*	**2**
3					1		**301**	300	*20*	*ON*	*1P*	*LIGHT*	**4**
5	*FCOA*	*OFF*	*2P*	*50*		**180**		180	*20*	*ON*	*1P*	*GFCI*	**6**
7							**0**		*100*	**OFF**	*2P*	*SSC*	**8**
9	**DELTA HPL3**	**ON**	**2P**	**100**	9600	**9600**							**10**
11					9600		**9900**	300	*20*	*ON*	*1P*		**12**
13						**300**		300	*20*	*ON*	*1P*		**14**
15							**0**						**16**
17						**0**							**18**
19							**0**						**20**
21						**0**							**22**
23							**0**						**24**
						10261	10201						

NEW AC LOADS ADDED

CONNECTED LOAD (KVA):	20.46		
DEMAND CALCULATIONS:			
CONTINUOUS LOAD @ 125%	1.13		
NON CONTINUOUS LOAD @ 100%	0.36		
MECHANICAL LOADS @ 125%	0.00		
EXISTING LOADS @ 125%	0.00		
NEW LOADS @ 125%	24.00		
TOTAL PANEL CAPACITY (KVA)	48.00	200.00	TOTAL PANEL CAPACITY (A)
TOTAL LOADING ON PANEL (KVA)	25.49	106.20	TOTAL LOADING ON PANEL (A)
TOTAL SPARE CAPACITY (KVA)	22.51	93.80	TOTAL SPARE CAPACITY (A)

NOTE: PANEL BOARD IS NOT OVERLOADED.

2 AC PANEL SCHEDULE
SCALE: N.T.S.

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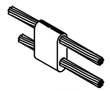
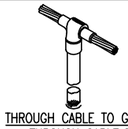
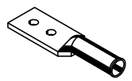
AC PANEL SCHEDULE
& ONE LINE DIAGRAM

E-1

CADWELD CONNECTIONS OR APPROVED EQUAL		BURNDY CONNECTIONS OR APPROVED EQUAL
 PARALLEL HORIZONTOL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTOL CABLES TYPE PT	 HORIZONTOL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTOL PIPE TYPE HS	 "C" CONNECTOR HYPRESS TYPE YGHC
 THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT	 VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS	 BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2
 HORIZONTOL SPLICE SPLICE OF HORIZONTOL CABLES	 VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	 COPPER LUGS TWO HOLE-LONG BARREL LENGTH TYPE YA-2

CADWELD DETAILS

GROUNDING NOTES:

1.) UNDERGROUND AND OVERHEAD UTILITY LENGTHS TO BE DETERMINED FROM SITE PLAN.
2.) SEE ELECTRICAL SPECIFICATIONS SECTION 16000 FOR ALL ELECTRICAL AND GROUNDING INSTALLATION REQUIREMENTS.
3.) FOR ORIENTATION OF SITE LAYOUT SEE SITE PLAN, DRAWING.
4.) UDA CABINET FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
5.) GROUND KITS PROVIDED BY OWNER SHALL BE RETROFITTED TO ACCOMMODATE 2 HOLE LUG CONNECTION AND APPROPRIATE LENGTH.
6.) CONTRACTOR RESPONSIBLE TO PROVIDE OWNER CERTIFICATION OF RESISTIVITY TESTING.
7.) GROUND RODS TO BE INSTALLED AT 10' CENTERS.
8.) ALL GROUND LEADS TO BE SLEEVED IN 34"Ø SCHEDULE 40 PVC CONDUIT AND SEALED W/ SILICON.
9.) GROUND BARS SUPPLIED BY OWNER AND INSTALLED BY CONTRACTOR.
10.) ALL BENDS IN GROUNDING SYSTEM MUST BE SMOOTH AND WELL ROUNDED AND MAINTAIN BENDING RADIUS.
11.) SEE SITE PLAN FOR COAXIAL ROUTING THIS SHEET IS INTENDED FOR GROUNDING CLARITY ONLY AND IS SCHEMATIC IN DETAIL.
12.) GROUND KITS SHALL BE INSTALLED BETWEEN 8"-18" OF ALL CONNECTORS.
13.) TOWER FOUNDATION DESIGN BY OWNER, INSTALLED BY CONTRACTOR.
14.) ADDITIONAL GROUND KITS TO BE PLACED AT 100' WHEN ANTENNA CENTERLINE IS 200' OR ABOVE.
15.) ALL CONDUITS TO BE SEALED W/ SILICONE TO PROVIDE A WATER TIGHT SEAL.

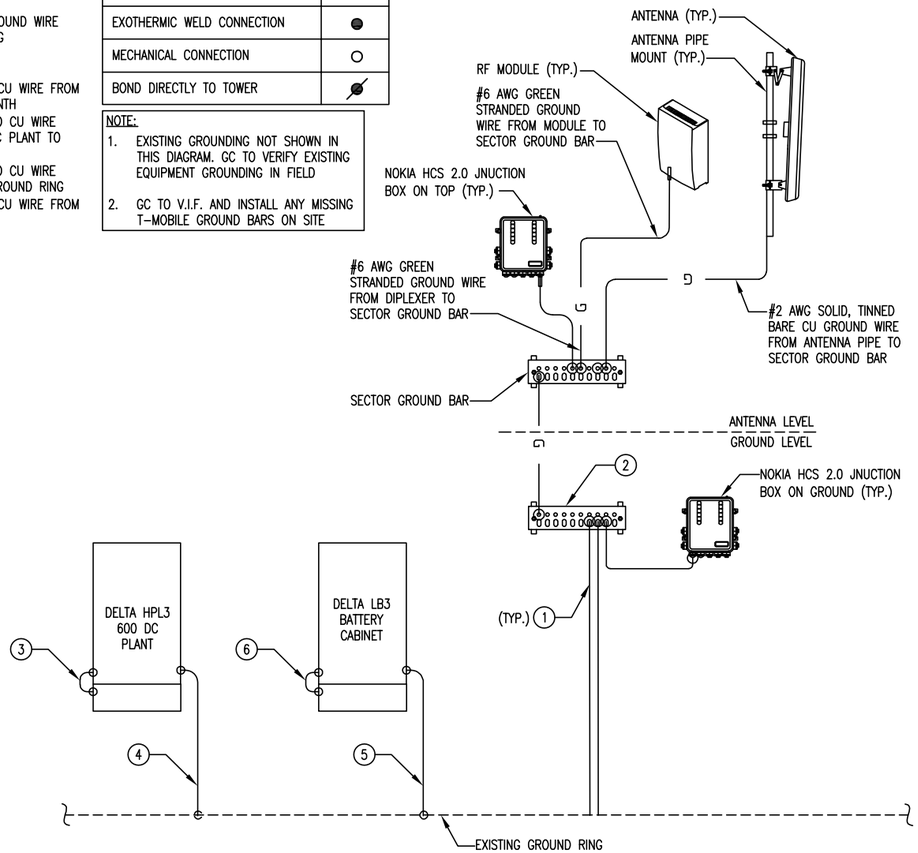
KEY NOTES:

1. #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM GROUND BAR TO GROUND RING (2 REQUIRED).
2. EXISTING GROUND BAR
3. #6 AWG GREEN STRANDED GROUND CU WIRE FROM DELTA HPL3 600A DC PLANT TO PLINTH
4. #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM GENERIC DELTA HPL3 600A DC PLANT TO GROUND RING
5. #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM DELTA BATTERY CABINET TO GROUND RING
6. #6 AWG GREEN STRANDED GROUND CU WIRE FROM DELTA BATTERY CABINET TO PLINTH

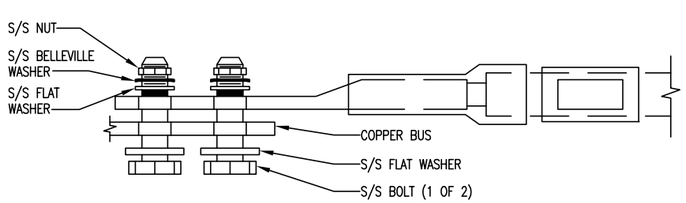
SYMBOLS LEGEND:

GROUND BAR	
EXOTHERMIC WELD CONNECTION	●
MECHANICAL CONNECTION	○
BOND DIRECTLY TO TOWER	⊘

NOTE:
1. EXISTING GROUNDING NOT SHOWN IN THIS DIAGRAM. GC TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD
2. GC TO V.I.F. AND INSTALL ANY MISSING T-MOBILE GROUND BARS ON SITE

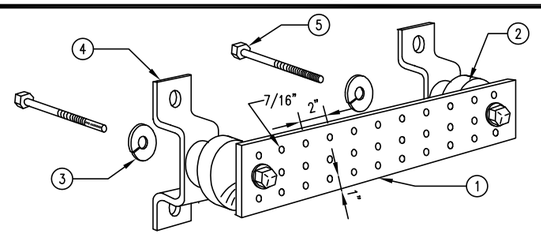


1 TYPICAL GROUNDING DIAGRAM
SCALE: N.T.S.



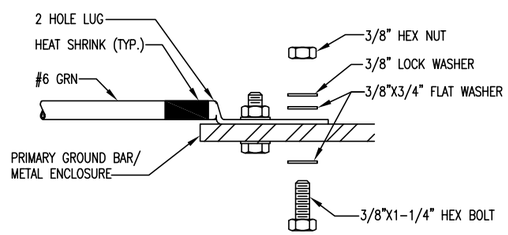
NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

2 STANDARD LUG CONNECTION OF GROUND LEADS TO GROUND BAR DETAIL
SCALE: N.T.S.



LEGEND:
1. GROUND BAR, 4"X 20"X1/4", CONFIRM w/T-MOBILE PROJECT MANAGER THE APPROVED BUSS MFR. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2. INSULATORS, CONFIRM THE APPROVED BUSS MFR. w/T-MOBILE
3. 5/8" LOCKWASHERS, CONFIRM w/T-MOBILE THE APPROVED BUSS MFR. (NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT)
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056 OR APPROVED EQUIVALENT (CONFIRM w/T-MOBILE THE APPROVED BUSS MFR.)
5. 5/8-11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1 OR APPROVED EQUIVALENT (CONFIRM w/T-MOBILE THE APPROVED BUSS MFR.)

3 GROUNDING-STANDARD GROUND BAR DETAIL
SCALE: N.T.S.



INSTALLATION NOTES:
1. SELECT BOLT LENGTH TO PROVIDE A MINIMUM OF TWO EXPOSED THREADS.
2. BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF LUG CONTACT AND REMOVE OXIDATION FROM OUTDOOR WEATHERED BARS.
3. APPLY ANTI-OXIDANT COMPOUND TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS COMPOUND.
4. USE SOLID COPPER WIRE AND MECHANICAL 2-HOLE LUG FOR ALL EXTERIOR GROUNDING.

4 MECHANICAL GROUND CONNECTION
SCALE: N.T.S.

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PROPOSED SITE GROUNDING DIAGRAM

EG-1

GENERAL NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL:

   A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   B. AC/TELCO INTERFACE BOX(PPC)
   C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   D. TOWERS, MONOPOLE
   E. TOWER LIGHTING
   F. GENERATORS & LIQUID PROPANE TANK
   G. ANTENNA STANDARD BRACKETS, FRAMES, AND PIPES FOR MOUNTING.
   H. ANTENNAS (INSTALLED BY OTHERS)
   I. TRANSMISSION LINE
   J. TRANSMISSION LINE JUMPERS
   K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   L. TRANSMISSION LINE GROUND KITS
   M. HANGERS
   N. HOISTING GRIPS
   O. BTS EQUIPMENT

2. CONTRACTOR TO FURNISH AND INSTALL THE FOLLOWING:

   THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUNDS STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS.

   IT IS THE RESPONSIBILITY OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.

3. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED, INSURED, STORED, UNCRATED, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL THE APPURTENCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING UP.

4. ALL EQUIPMENT FURNISHED AND WORK PERFORMED UNDER THE CONTRACT DOCUMENTS SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE, UNLESS NOTED OTHERWISE. ANY FAILURE OF EQUIPMENT OR WORK DUE TO DEFECTS IN MATERIALS OR WORKMANSHIP SHALL BE CORRECTED BY THE CONTRACTOR AT NO COST TO THE OWNER.

5. ALL WORK, MATERIAL, AND EQUIPMENT SHALL COMPLY WITH ALL REQUIREMENTS OF THE LATEST EDITIONS AND INTERIM AMENDMENTS OF THE NATIONAL ELECTRICAL CODE (NEC). NATIONAL ELECTRICAL SAFETY CODE, OSHA, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES. ALL ELECTRICAL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE NEW (EXCEPT WHERE OTHERWISE NOTED) AND SHALL COMPLY WITH THE REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES (U.L.) AND BEAR THE U.L. LABEL.

6. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO THE OWNER OR HIS ARCHITECT/ENGINEER.

7. THE CONTRACTOR SHALL SUPPORT, BRACE AND SECURE EXISTING STRUCTURE AS REQUIRED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES DURING CONSTRUCTION. FIELD VERIFY ALL EXISTING DIMENSIONS WHICH AFFECT THE NEW CONSTRUCTION.

8. THE CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF THE WORK TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN INSPECTED BY THE GOVERNING AUTHORITIES. ANY WORK THAT IS ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION AND TEST SHALL BE UNCOVERED AT THE CONTRACTOR'S EXPENSE; AFTER IT HAS BEEN INSPECTED, THE CONTRACTOR SHALL RESTORE THE WORK TO ITS ORIGINAL CONDITION AT HIS OWN EXPENSE.

9. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS, AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ARCHITECT/ENGINEER AND OWNER (T-MOBILE) ASSUME NO RESPONSIBILITY WHATEVER AS TO THE ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL SAID UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING AFFECTED UTILITIES

10. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHOULD BE IMMEDIATELY REPORTED TO THE

GENERAL NOTES (CONT'D):

PROJECT MANAGER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS OWN RISK AND EXPENSE.

11. CONTRACTORS SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, DEBRIS, WEEDS, BRUSH, OR ANY OTHER DEPOSITS REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE BY THE CONTRACTOR.

12. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY THE CONTRACTOR WITH LOCAL GAS, ELECTRIC, TELEPHONE, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

13. DURING CONSTRUCTION, THE CONTRACTOR SHALL AT ALL TIMES MAINTAIN THE UTILITIES OF THE BUILDING/SITE WITHOUT INTERRUPTION. SHOULD IT BE NECESSARY TO INTERRUPT ANY SERVICE OR UTILITY, THE CONTRACTOR SHALL SECURE PERMISSION IN WRITING FROM THE BUILDING/PROPERTY OWNER FOR SUCH INTERRUPTION, AT LEAST 72 HOURS IN ADVANCE. ANY INTERRUPTION SHALL BE MADE WITH A MINIMUM AMOUNT OF INCONVENIENCE TO THE BUILDING/PROPERTY OWNER AND ANY SUCH SHUTDOWN TIME SHALL BE COORDINATED WITH THE BUILDING/PROPERTY OWNER.

14. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION.

15. CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS BUILT DRAWINGS TO T-MOBILE'S PROJECT ENGINEER.

16. GC WILL NOT START THE CONSTRUCTION UNTIL AFTER THEY RECEIVE THE PRE-CONSTRUCTION PACKAGE AND HAVE A PRE-CONSTRUCTION WALK WITH THE PROJECT MANAGER.

DIVISION 2 – SITE WORK:

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.

   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 THE PROJECT MANAGER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT LIMITED TO:

   A. FALL PROTECTION
   B. CONFINED SPACE
   C. ELECTRICAL SAFETY
   D. TRENCHING AND EXCAVATION

2. REMOVE FROM SITE/OWNER'S PROPERTY ALL WASTE MATERIALS, UNUSED EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED UNSATISFACTORY, CONTAMINATED OR DANGEROUS TRASH AND DEBRIS, AND DISPOSE OF IN A LEGAL MANNER.

3. 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 ENGINEERING.

4. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE BUILDING OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED, AND COVERED WITH MULCH .

5. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, AS REQUIRED DURING CONSTRUCTION.

   CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND CONSTRUCTION STAKING. CONTRACTOR SHALL ESTABLISH GRADE AND LINE STAKES PRIOR TO CONSTRUCTION.

   BC ARCHITECTS ENGINEERS DOES NOT GUARANTEE OR WARRANT THAT THE AFOREMENTIONED EASEMENTS ARE SUFFICIENT FOR CONSTRUCTION TRAFFIC. GC SHALL CONSULT WITH A T-MOBILE REPRESENTATIVE AND LANDLORD WITH EXACT LOGISTICS TO FACILITATE CONTRACTIBILITY OF THE SITE AND DELIVERY OF CRITICAL MATERIALS SUCH AS THE TOWER, STEEL, CONCRETE AND CRANES TO THE PROPOSED LEASE AREA. GC SHALL RESTORE SITE TO ORIGINAL CONDITIONS AND REPLACE ANY AND ALL DISTURBED TREES OR LANDSCAPING.

   BC ARCHITECTS ENGINEERS IS NOT RESPONSIBLE FOR THE MAINTENANCE AND/OR OPERATIONAL FEASIBILITY.

   SCOPE OF WORK FOR THESE PLANS DOES NOT INVOLVE VALUE ENGINEERING AS WELL AS MAINTAINABILITY OPERATIONS OF THE SITE, ACCESS OR UTILITIES.

DIVISION 3 – CONCRETE:

1. MINIMUM ALLOWABLE CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH THE AMERICAN SOCIETY FOR TESTING AND MATERIALS METHODS STANDARDS ASTM C172, ASTM C31 AND ASTM C39 UNLESS OTHERWISE NOTED.

2. CONCRETE FOR ALL FOUNDATIONS: 540 LBS PER CUBIC YARD OF CONCRETE. MINIMUM CEMENT CONTENT FOR 1-INCH MAXIMUM SIZE AGGREGATE, SLUMP RANGE 3 INCHES TO 5 INCHES, TOTAL AIR CONTENT 4 PERCENT TO 7 PERCENT BY VOLUME. AIR ENTRAINING ADMIXTURE REQUIRED TO CONTROL TOTAL AIR CONTENT, WATER REDUCING ADMIXTURE PERMITTED TO OBTAIN SLUMP OVER 3-INCHES.

3. ALL CONCRETE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN CONCRETE INSTITUTE (ACI 318) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND (ACI 301) STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE.

4. REBAR SHALL BE ASTM A-615 DEFORMED TYPE WITH MINIMUM YIELD STRENGTH OF 60,000 PSI (40,000 PSI GRADE MAY BE USED FOR TIES & STIRRUPS).

   WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185

5. DETAILING SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE OF DETAILING REINFORCED CONCRETE STRUCTURES (ACI STD-315 LATEST EDITION).

6. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4".UNLESS OTHERWISE NOTED.

7. REINFORCING STEEL SHALL BE ACCURATELY PLACED AND ADEQUATELY SECURED IN POSITION. LOCATION OF REINFORCEMENT SHALL BE INDICATED ON THE DRAWINGS. THE FOLLOWING MINIMUM COVER (INCHES) FOR REINFORCEMENT SHALL BE PROVIDED, EXCEPT AS NOTED ON DRAWINGS.

   MINIMUM COVER (INCHES)
   CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.... 3"
   EXPOSED TO EARTH OR WEATHER:
   #6 THROUGH #18....2"
   #5 BAR AND SMALLER....1-1/2"

8. TESTS

   CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.
   A. FIVE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER PIER FOUNDATION. TWO SHALL BE TESTED @ THREE DAYS, TWO @ TWENTY-EIGHT DAYS. THE FIFTH CYLINDER SHALL BE KEPT SEPARATELY, IF REQUIRED TO BE USED IN THE FUTURE.
   B. ONE ADDITIONAL TEST CYLINDER SHALL BE TAKEN DURING COLD WEATHER AND CURED ON SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
   C. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.

9. PLACING CONCRETE
   A. THE ENGINEER SHALL BE NOTIFIED NOT LESS THAT 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT, UNLESS INSPECTION IS WAIVED IN EACH CASE, PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER. CONCRETE SHALL NOT BE PLACED UNTIL ALL FORMWORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE T-MOBILE REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND T-MOBILE HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING.
   B. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.

10. PROTECTION
    A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
    B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
    C. ALL CONCRETE SHALL BE WATER CURED BY CONTINUOUS (NOT PERIODIC) FINE MIST SPRAYING OR SPRINKLING ALL EXPOSED SURFACES. WATER SHALL BE CLEAN AND FREE FROM ACID, ALKALI, SALTS, OIL SEDIMENT, AND ORGANIC MATTER. SUCCESSFUL CURING SHALL BE OBTAINED BY USE OF AN AMPLE WATER SUPPLY UNDER PRESSURE IN PIPES, WITH ALL NECESSARY APPLIANCES OF SPRINKLERS, AND SPRAYING DEVICES.

ELECTRICAL NOTES:

1. ELECTRICAL DESIGN SHALL BE PERFORMED BY ELECTRICAL CONTRACTOR. STRUCTURAL DESIGN SHALL BE PERFORMED BY GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL ENSURE THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL AND STATE CODES AND NATIONAL ELECTRICAL CODE.
2. ALL SUGGESTED ELECTRICAL ELEMENTS (SUCH AS BREAKER SIZES, WIRE SIZES, CONDUITS SIZES ARE FOR ZONING PURPOSES ONLY. IT IS THE RESPONSIBILITY TO OF THE ELECTRICAL CONTRACTOR TO CONFIRM COMPLIANCE WITH LOCAL ELECTRICAL CODES AND PASS ALL APPLICABLE AND NECESSARY INSPECTIONS. IN SOME EVENTS,

ELECTRICAL NOTES (CONT'D):

IT MAY BE NECESSARY TO PERFORM AN ELECTRICAL LOAD STUDY TO VERIFY THE CAPACITY OF THE EXISTING SERVICE. THIS IS NOT THE RESPONSIBILITY OF BC ARCHITECTS ENGINEERS. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

3. CONTRACTOR SHALL FIELD LOCATE ALL BELOW GRADE GROUND LINES AND UTILITY LINES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR RELOCATION OF ALL UTILITIES AND GROUND LINES THAT MAY BECOME DISTURBED OR CONFLICTING IN THE COURSE OF CONSTRUCTION.

DIVISION 5 – STRUCTURAL STEEL:

1. DETAIL, FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH THE LATEST AISC MANUAL OF STEEL CONSTRUCTION (ASD), AWS D1.1, AND THE BASIC BUILDING CODE. STRUCTURAL STEEL SHALL BE AS FOLLOWS:
   A. ASTM A36, GRADE 36; ROLLED STEEL, RODS, PLATES, U-BOLTS AND ANCHOR BOLTS.
   B. ASTM A325 BOLTS, BEARING TYPE
   C. ALL STEEL SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.
2. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
3. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND T- MOBILE PROJECT MANAGER IN WRITING
4. TIGHTEN HIGH STRENGTH BOLTS TO A SNUG TIGHT CONDITION WHERE ALL PLIES IN A JOINT ARE IN FIRM CONTACT BY EITHER
   A. A FEW IMPACTS OF A IMPACT WRENCH
   B. THE FULL EFFORT OF A PERSON USING A SPUD WRENCH
5. WELDING
   A. ALL WELDING SHALL BE DONE BY A CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED.
   B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM A-233, E70 SERIES. BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
   C. FIELD WELDING SHALL BE DONE AS PER AWSD1.1 REQUIREMENTS VISUAL INSPECTION IS ACCEPTABLE.

6. PROTECTION
   A. UPON COMPLETION OF ERECTION INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS, OR GALVANIZED BREAKS WITH ZINC BASED PAINT. COLOR TO MATCH THE GALVANIZING PROCESS.

DIVISION 13 – SPECIAL CONSTRUCTION ANTENNA INSTALLATION

1. WORK INCLUDED:
   A. ANTENNAS AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR INTERMS OF COORDINATION AND SITE ACCESS. ERECTION SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
   B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
   C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
   D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINIUM WAVEGUIDE.
   E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYSER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER (FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED. FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
   F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
   G. ANTENNA AND COAXIAL CABLE GROUNDING:
      1. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTOR/SPLICE WEATHER PROOFING KIT #221213 OR EQUAL.
      2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

T-MOBILE
5209 LINBAR DRIVE
SUITE 625
NASHVILLE, TN 37211

BC architects engineers
5661 COLUMBIA PIKE, SUITE 200
FALLS CHURCH, VA 22041-2868
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BOCA RATON, FL 33487-1307

DRAWN BY: MM	CHECKED BY: SS
CHECKED BY: SS	APPROVED BY: BMQ

No.	Revision/Issue	Date	Initial
0	FINALS	07/23/24	MM
1	FINALS (NEW MOUNT & APP)	03/09/26	SS

BRIAN QUINN
REGISTERED ARCHITECT
AGRICULTURE
COMMERCE
No.108936
STATE OF TENNESSEE
3.9.26

9NV1648A
THOMPSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

GENERAL NOTES
& SPECIFICATIONS

SP-1

PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

1. CONSTRUCTION TYPE II-B (TABLE 601)
2. GROUP U OCCUPANCY (SECTION 312.1 UNOCCUPIED TOWER SITE)

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 99' SABRE MONOPOLE TOWER W/ PROPOSED 49' SECTION

PROPOSED CARRIER: T-MOBILE

SITE: TN01807-B-SBA / SWANSON

COORDINATES (LATITUDE: 35.882149°, LONGITUDE: -86.424061°)

CONSTRUCTION CLASS

THE CONSTRUCTION PLAN FOR THIS SITE WOULD BE A MINIMUM OF A CLASS IV AND THE CONTRACTOR SHALL MAKE FINAL DETERMINATION

PLEASE NOTE THIS SET OF DRAWINGS IS FOR INSTALLATION AND ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
TBOM	BILL OF MATERIALS	0
TGN-1	GENERAL NOTES	0
TA-1	TOWER PROFILE	0
TA-1A	ADDITIONAL DETAILS	0
TA-2	MONOPOLE SECTION INSTALLATION DETAILS	0
TA-3	MONOPOLE SECTION INSTALLATION DETAILS	0
TA-4	MONOPOLE SECTION INSTALLATION DETAILS	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. 164298R1, DATED 12/09/2025.

TES
A CONGRUEX® COMPANY
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

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8051 CONGRESS AVENUE
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
164750

CUSTOMER SITE NO:
TN01807-B-SBA
CUSTOMER SITE NAME:
SWANSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

KYLE WYANT
REGISTERED ENGINEER
XVI
AGRICULTURE
COMMERCE
No. 128004
STATE OF TENNESSEE

DRAWN BY: LC | CHECKED BY: AS/JRL

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: TT-1
REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE						
63	69	STEP BOLT	Step Bolt 5/8" Dia x 7 1/2" Long	---	A-2, A-3, A-4	F-C	0.0	0.0	w/ (2) Nut-LKW ea. (Galvanized)
			Following Items are Non-standard Parts						
1	1	FP-24	FLANGE PLATE PL 1 1/2" X 3'-2" DIA A572-50	---	A-2	FP-24	328.68	328.7	GALVANIZED
1	1	MPS-24-20W	MONOPOLE SECTION WELDMENT (PIPE HSS24.000X0.375 X 20'-0") (42 KSI) A500 GR-B	---	A-2	MPS-24-20W	2642.85	2642.9	GALVANIZED
48	51	---	BOLT 1" X 4 3/4" A325	---	A-2, A-3, A-4	---	1.8	91.8	(1)HHN-FW GALVANIZED
3	3	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON	---	A-2, A-3, A-4	---	---	---	---
1	1	MPS-18-20W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 20'-0") (42 KSI) A500 GR-B	---	A-3	MPS-18-20W	1991.85	1991.9	GALVANIZED
1	1	MPS-18-9W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 9'-0") (42 KSI) A500 GR-B	---	A-4	MPS-18-9W	935.55	935.55	GALVANIZED
2	3	---	BOLT 1" X 3 1/2" A325	---	A-4	---	1.52	4.56	(1)HHN-FW GALVANIZED
1	1	CPL-18	TOP CAP PLATE PL 3/16" X 2'-0" DIA A36	---	A-4	FP-18	24.65	24.7	GALVANIZED
1	1	T1807KT	SIX SECTOR CHAIN MOUNT KIT (KENWOOD OR EQUIV.)	---	A-1A	---	---	---	GALVANIZED
2	2	T1805KT	THREE SECTOR CHAIN MOUNT KIT (KENWOOD OR EQUIV.)	---	A-1A	---	---	---	GALVANIZED
12	12	MP-1	2" PST PIPE (2.375" O.D. X 0.154" THICKNESS) X 8'-0" A53, GR-B	---	A-1A	---	30.14	361.68	GALVANIZED
1	1	PV-CMX-SS-150-BOG-MP	CLIMBMAXX KIT - MONOPOLE (BOLT-STYLE CABLE GUIDES) - 150FT STAINLESS STEEL	---	A-1	---	---	---	---
1	1	C30-086-006	5/8" DIA X 6'-0" COPPER-CLAD LIGHTNING ROD (SABRE OR EQUIV.)	---	A-1A	---	---	---	---
4	4	---	LANCO RC-300 OR HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV (GALLON)	---	A-1A	---	---	---	PROVIDED BY CONTRACTOR

ALL APLXXXX, LPXXXX AND RLPXXXX ARE PATENTED PRODUCTS AND CANNOT BE FABRICATED BY THIRD PARTIES. THESE PARTS ARE AVAILABLE FROM:

METROSITE, LLC.
180 IND PARK BLVD COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

TOTAL WEIGHT (LBS) = **6381.6**

TES
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TES JOB NO:
164750

CUSTOMER SITE NO:
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SWANSON
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KYLE WYANT
REGISTERED ENGINEER
XVI
AGRICULTURE
COMMERCE
No. 128004
STATE OF TENNESSEE

DRAWN BY: LC | CHECKED BY: AS/JRL

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: TBOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-H, ANSI/ASSP A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2018 SECTION 1705.2 FOR STEEL CONSTRUCTION & TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING [a,b]

BOLT LENGTH [c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS $12d_b$, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.

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DRAWN BY: LC | CHECKED BY: AS/JRL

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: TGN-1
REV #: 0

NOTES:

1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.

2. TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

INSTALLATION NOTE:

VERTICAL ALIGNMENT IS REQUIRED FOR ALL THE SECTION PROJECTS, TOWERS OR POLES

SCOPE OF WORK

1. TEMPORARILY RELOCATE (3) EXISTING AMPHENOL CUUX063X25 – PANEL ANTENNAS AT ±100'–0" ELEV. AND ASSOCIATED EQUIPMENT USING PROVIDED 3–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1805KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY AT&T) RE–ROUTE EXISTING (6) 7/8" COAX, (1) 3/4" DC, & (1) 3/8" FIBER FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 1 ON SHEET TA–1A FOR AZIMUTHS.
   NOTE:
   CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH AT&T.

2. TEMPORARILY RELOCATE (3) EXISTING ANTEL BXA–70063–4CF–6–FP – PANEL ANTENNAS AT ±123'–0" ELEV., (3) EXISTING ANTEL BXA–171036–8CF–2–FP – PANEL ANTENNAS AT ±128'–0" ELEV., AND ASSOCIATED EQUIPMENT USING PROVIDED 6–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1807KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY VERIZON) RE–ROUTE EXISTING (6) 7/8" COAX FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 2 ON SHEET TA–1A FOR AZIMUTHS.
   NOTE:
   CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH VERIZON.

3. TEMPORARILY RELOCATE (3) EXISTING ANDREW TMBX–6517–R2M – PANEL ANTENNAS AT ±144'–0" ELEV. AND ASSOCIATED EQUIPMENT USING PROVIDED 3–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1805KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY T–MOBILE)
   RE–ROUTE EXISTING (6) 7/8" COAX FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 3 ON SHEET TA–1A FOR AZIMUTHS. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH T–MOBILE.
   NOTE:
   T–MOBILE WILL BE HANDLING THEIR OWN RELOCATION WORK BACK TO THEIR ORIGINAL/NEW ELEVATION.

4. A. REMOVE EXISTING TOP CAP, FLAG TRUCK, & ALL ASSOCIATED HARDWARE AT ±148'–0" ELEV.
   B. REMOVE ALL EXISTING DECOMMISSIONED/ABANDONED EQUIPMENT AND MOUNTS AT ±132'–0" ELEV. & ±136'–0" ELEV.
   C. REMOVE EXISTING CANISTERS/SPINES FROM ±99'–0" ELEV TO ±148'–0" ELEV.
   D. CUT AND REMOVE EXISTING INTERNAL FLANGE PLATE AT ±99'–0" ELEV. AND INSTALL NEW FIELD WELDED FLANGE PLATE (FP–24) FOR NEW MONOPOLE SECTION AT ±99'–0" ELEV. SEE SHEET TA–2 FOR DETAILS.

5. INSTALL NEW (1) HSS24.000X0.375 X 20'–0" (MPS–24–20W) SECTION ON TOP OF EXISTING MONOPOLE FROM ±99'–0" ELEV. TO ±119'–0" ELEV. SEE SHEET TA–2 FOR DETAILS.

6. INSTALL NEW (1) HSS18.000X0.375 X 20'–0" (MPS–18–20W) SECTION ON TOP OF NEW MONOPOLE SECTION FROM ±119'–0" ELEV. TO ±139'–0" ELEV. SEE SHEET TA–3 FOR DETAILS.

7. INSTALL NEW (1) HSS18.000X0.375 X 9'–0" (MPS–18–9W) SECTION ON TOP OF NEW MONOPOLE SECTION FROM ±139'–0" ELEV. TO ±148'–0" ELEV. SEE SHEET TA–4 FOR DETAILS.

8. INSTALL NEW LIGHTNING ROD AT TOP OF THE NEW MONOPOLE SECTION AND FIELD CUT IT DOWN IF REQUIRED TO MEET FAA HEIGHT APPROVAL. SEE DETAIL 4 ON SHEET TA–1A.

9. INSTALL NEW PERFECT VISION SAFETY CLIMB SYSTEM (PV–CMX–SS–150–BOG–MP) TO TOP OF NEW POLE SECTION. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

10. RELOCATE EXISTING AT&T ANTENNAS BACK TO ORIGINAL ELEVATION AT ±100'–0" ELEV. REROUTE EXISTING LINES TO INSIDE THE POLE. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WITH AT&T.

11. RELOCATE EXISTING VERIZON ANTENNAS BACK TO ORIGINAL ELEVATION AT ±128'–0" ELEV. REROUTE EXISTING LINES TO INSIDE THE POLE. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WITH VERIZON.

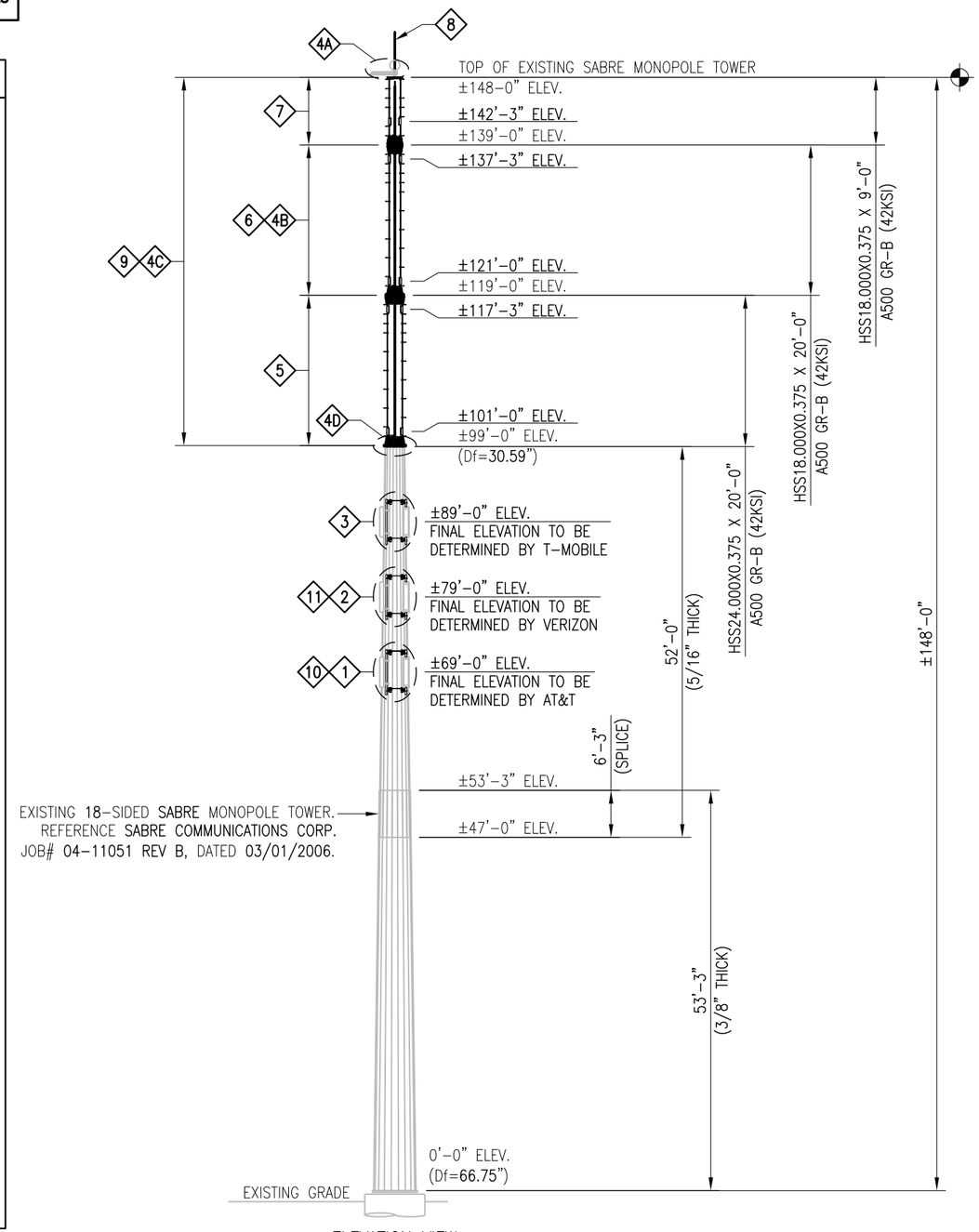
12. CONTRACTOR TO FIELD MATCH AND PAINT ALL NEW MODIFICATIONS.

13. APPLY FOUNDATION COATING

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN–UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

FIELD NOTE:

CONTRACTOR TO PAINT ALL NEW MODIFICATION MEMBERS TO MATCH EXISTING TOWER COLOR.



ELEVATION VIEW

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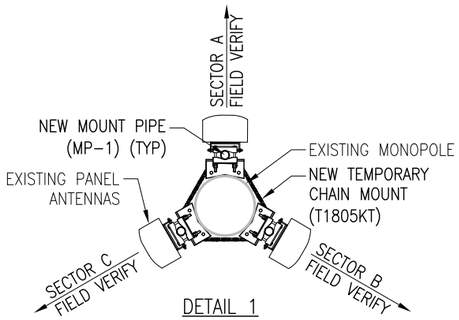
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

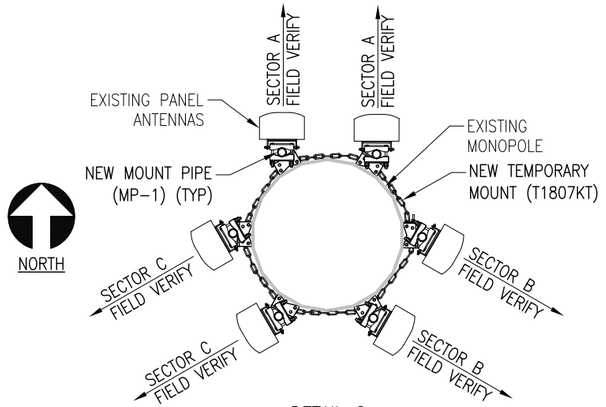
SHEET TITLE:

TOWER PROFILE

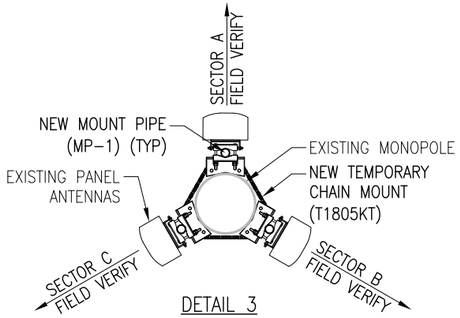
SHEET NUMBER:	REV #:
TA–1	0



DETAIL 1
(TEMPORARY MOUNT AZIMUTHS)
(AT&T @ ±69'-0" ELEV.)



DETAIL 2
(TEMPORARY MOUNT AZIMUTHS)
(VERIZON @ ±79'-0" ELEV.)

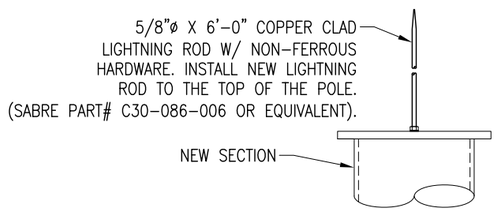


DETAIL 3
(TEMPORARY MOUNT AZIMUTHS)
(T-MOBILE @ ±89'-0" ELEV.)

FOUNDATION PHOTO

FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.



DETAIL 4

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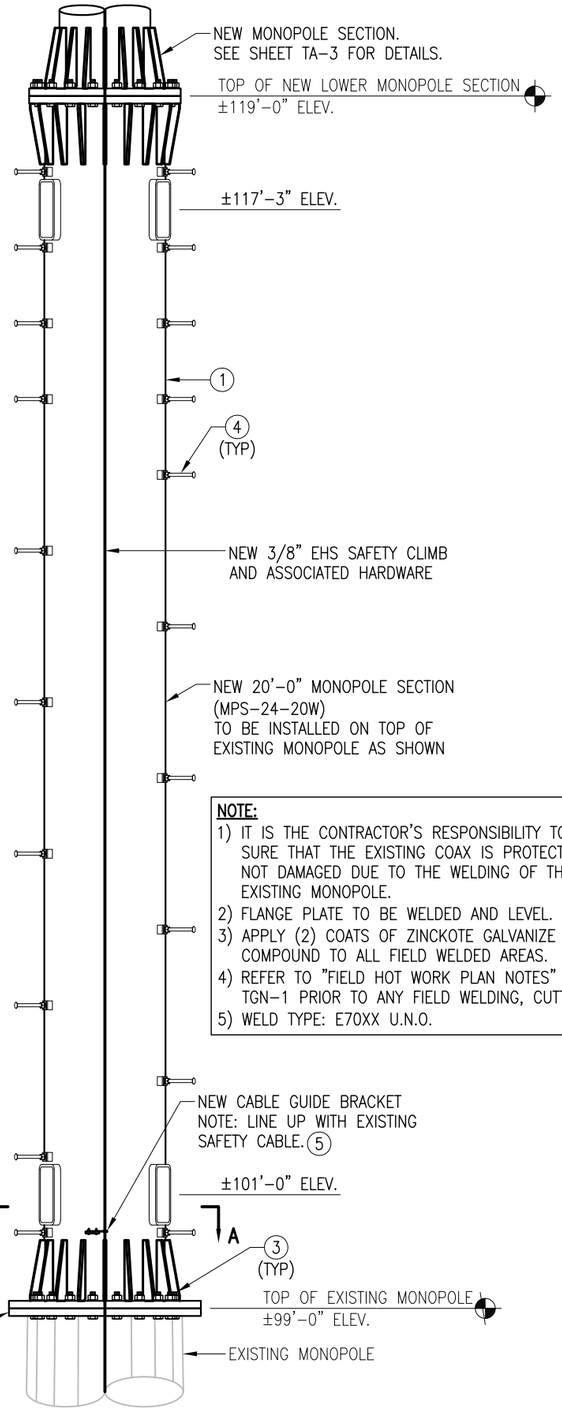
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

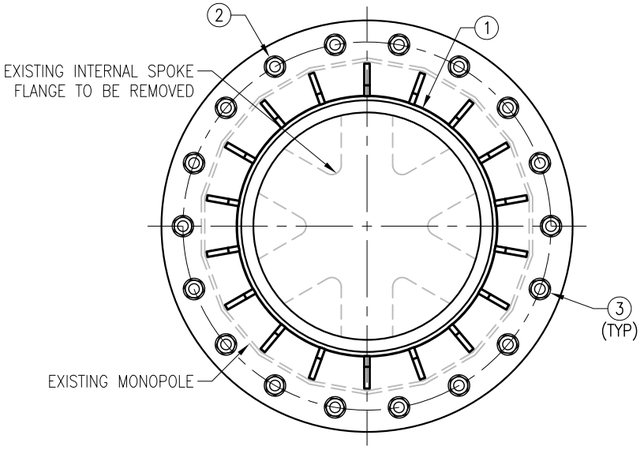
SHEET TITLE:
ADDITION DETAILS

SHEET NUMBER: TA-1A
REV #: 0

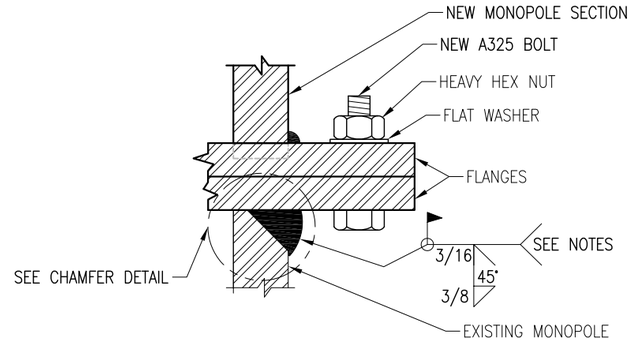


ELEVATION VIEW
(±99'-0" TO ±119'-0" ELEV.)

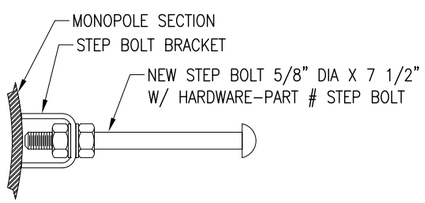
NOTE:
1) IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE THAT THE EXISTING COAX IS PROTECTED AND NOT DAMAGED DUE TO THE WELDING OF THE EXISTING MONOPOLE.
2) FLANGE PLATE TO BE WELDED AND LEVEL.
3) APPLY (2) COATS OF ZINCKOTE GALVANIZE COMPOUND TO ALL FIELD WELDED AREAS.
4) REFER TO "FIELD HOT WORK PLAN NOTES" ON SHEET TGN-1 PRIOR TO ANY FIELD WELDING, CUTTING, ETC.
5) WELD TYPE: E70XX U.N.O.



SECTION "A-A"



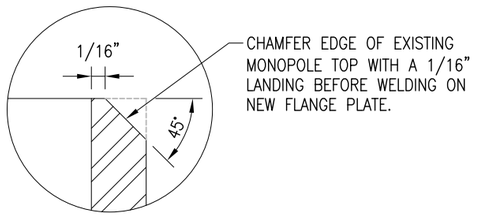
NEW FLANGE PLATE AND
BOLT INSTALLATION DETAIL



STEP BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES ON SHEET TGN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH THIS CONNECTION.



CHAMFER DETAIL

ITEM NO.	QTY.	PART NO.	DESCRIPTION
5	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
4	26	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
3	18	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	FP-24	FLANGE PLATE PL 1 1/2" X 3'-2" DIA A572-50
1	1	MPS-24-20W	MONOPOLE SECTION WELDMENT (PIPE HSS24.000X0.375 X 20'-0") (42 KSI) A500 GR-B

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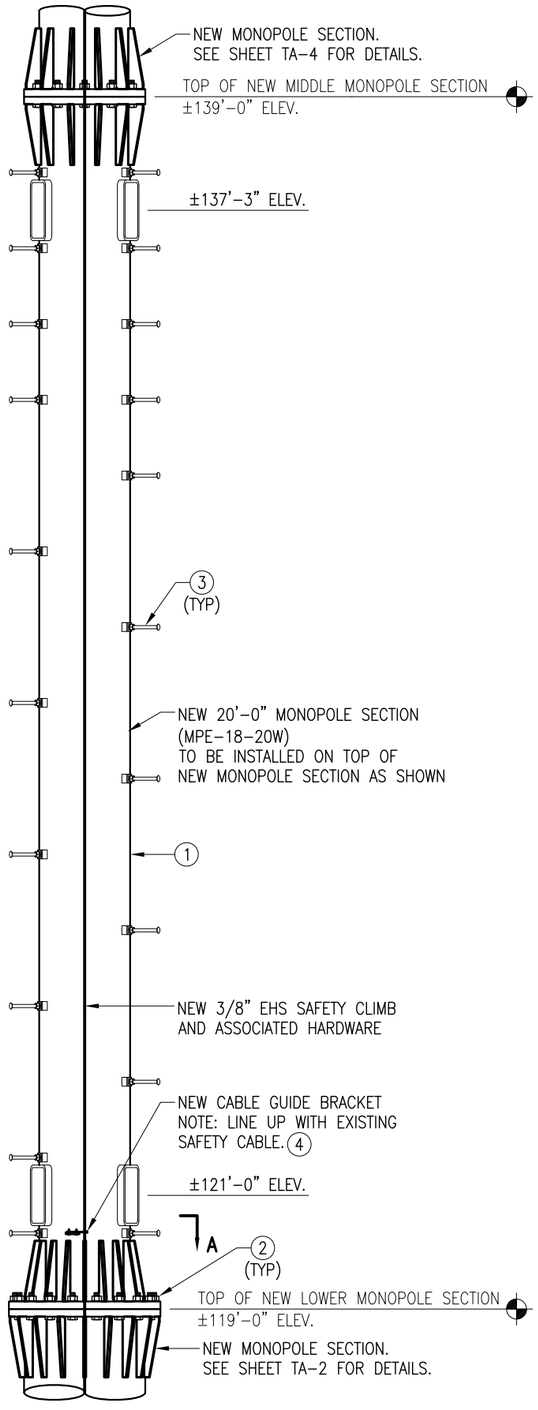
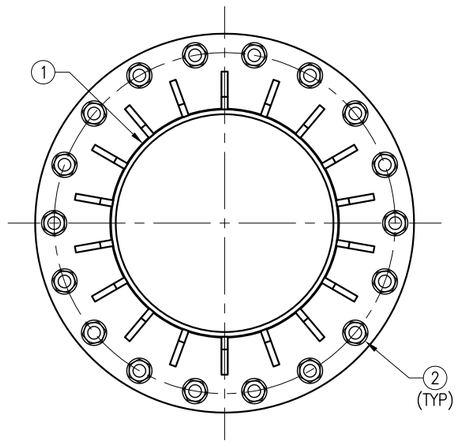
SHEET TITLE:
MONOPOLE SECTION INSTALLATION DETAILS

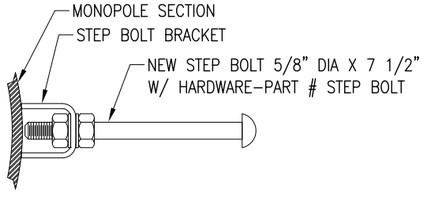
SHEET NUMBER: TA-2
REV #: 0



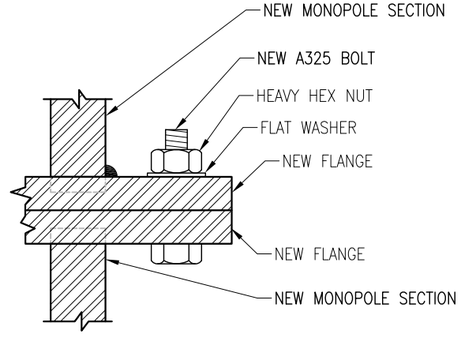
ELEVATION VIEW
(±119'-0" TO ±139'-0" ELEV.)



SECTION "A-A"



STEP BOLT INSTALLATION DETAIL



NEW FLANGE PLATE WELD AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET TGN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
4	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
3	23	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
2	18	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
1	1	MPS-18-20W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 20'-0") (42 KSI) A500 GR-B

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TES JOB NO:
164750

CUSTOMER SITE NO:
TN01807-B-SBA
CUSTOMER SITE NAME:
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2117 NORTH THOMPSON LANE
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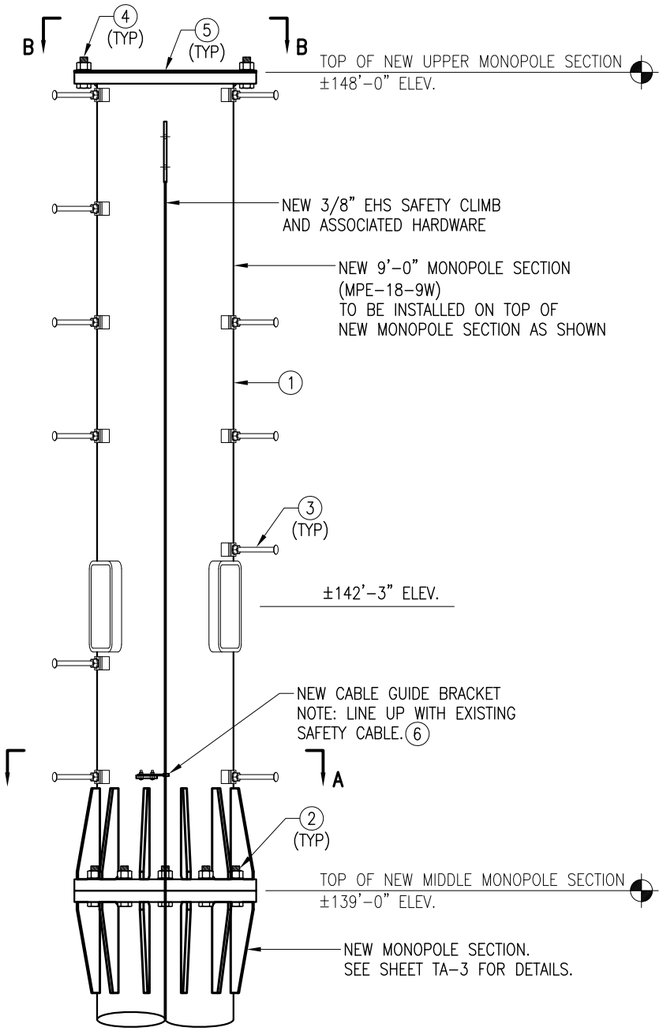
KYLE WYANT
REGISTERED ENGINEER
XVI
AGRICULTURE
COMMERCE
No. 128004
STATE OF TENNESSEE

DRAWN BY: LC | CHECKED BY: AS/JRL

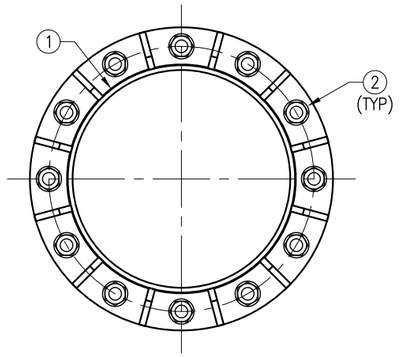
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
MONOPOLE SECTION INSTALLATION DETAILS

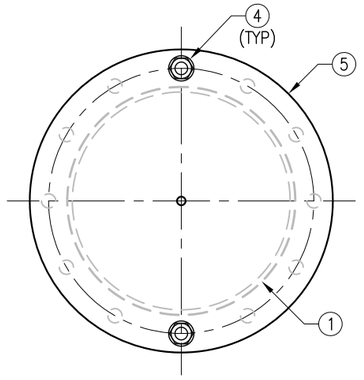
SHEET NUMBER: TA-3
REV #: 0



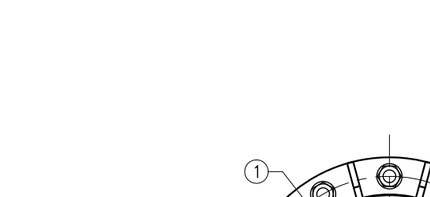
ELEVATION VIEW
(±139'-0" TO ±148'-0" ELEV.)



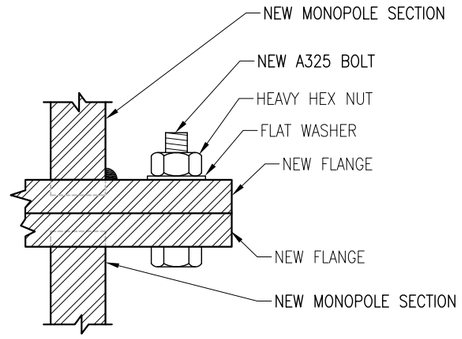
SECTION "A-A"



SECTION "B-B"



STEP BOLT INSTALLATION DETAIL



NEW FLANGE PLATE WELD AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET TGN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
6	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
5	1	CPL-18	TOP CAP PLATE PL 3/16" X 2'-0" DIA A36
4	2	---	BOLT 1" X 3 1/2" A325 W/ NUT-FW EA.
3	14	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
2	12	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
1	1	MPS-18-9W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 9'-0") (42 KSI) A500 GR-B

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
MONOPOLE SECTION
INSTALLATION DETAILS

SHEET NUMBER: TA-4
REV #: 0

PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

1. CONSTRUCTION TYPE II-B (TABLE 601)
2. GROUP U OCCUPANCY (SECTION 312.1 UNOCCUPIED TOWER SITE)

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 99' SABRE MONOPOLE TOWER W/ PROPOSED 49' SECTION

PROPOSED CARRIER: T-MOBILE

SITE: TN01807-B-SBA / SWANSON

COORDINATES (LATITUDE: 35.882149°, LONGITUDE: -86.424061°)

CONSTRUCTION CLASS

THE CONSTRUCTION PLAN FOR THIS SITE WOULD BE A MINIMUM OF A CLASS IV AND THE CONTRACTOR SHALL MAKE FINAL DETERMINATION

PLEASE NOTE THIS SET OF DRAWINGS IS FOR INSTALLATION AND ASSEMBLY ONLY. FABRICATION DETAIL DRAWINGS ARE NOT PROVIDED AND MUST BE COMPLETED BY THE STEEL FABRICATOR SELECTED. TES CAN PROVIDE THE FABRICATION DETAIL DRAWINGS FOR AN ADDITIONAL FEE.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
TBOM	BILL OF MATERIALS	0
TGN-1	GENERAL NOTES	0
TA-1	TOWER PROFILE	0
TA-1A	ADDITIONAL DETAILS	0
TA-2	MONOPOLE SECTION INSTALLATION DETAILS	0
TA-3	MONOPOLE SECTION INSTALLATION DETAILS	0
TA-4	MONOPOLE SECTION INSTALLATION DETAILS	0

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. 164298R1, DATED 12/09/2025.

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
TITLE SHEET

SHEET NUMBER: TT-1
REV #: 0

BILL OF MATERIALS

QUANTITY COUNTED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTIONS	LENGTH	SHEET LIST (INSTALLATION)	SHEET LIST (FABRICATE)	PIECE WEIGHT (LBS)	WEIGHT (LB)	NOTES
			MATERIAL & HARDWARE						
63	69	STEP BOLT	Step Bolt 5/8" Dia x 7 1/2" Long	---	A-2, A-3, A-4	F-C	0.0	0.0	w/ (2) Nut-LKW ea. (Galvanized)
			Following Items are Non-standard Parts						
1	1	FP-24	FLANGE PLATE PL 1 1/2" X 3'-2" DIA A572-50	---	A-2	FP-24	328.68	328.7	GALVANIZED
1	1	MPS-24-20W	MONOPOLE SECTION WELDMENT (PIPE HSS24.000X0.375 X 20'-0") (42 KSI) A500 GR-B	---	A-2	MPS-24-20W	2642.85	2642.9	GALVANIZED
48	51	---	BOLT 1" X 4 3/4" A325	---	A-2, A-3, A-4	---	1.8	91.8	(1)HHN-FW GALVANIZED
3	3	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON	---	A-2, A-3, A-4	---	---	---	---
1	1	MPS-18-20W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 20'-0") (42 KSI) A500 GR-B	---	A-3	MPS-18-20W	1991.85	1991.9	GALVANIZED
1	1	MPS-18-9W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 9'-0") (42 KSI) A500 GR-B	---	A-4	MPS-18-9W	935.55	935.55	GALVANIZED
2	3	---	BOLT 1" X 3 1/2" A325	---	A-4	---	1.52	4.56	(1)HHN-FW GALVANIZED
1	1	CPL-18	TOP CAP PLATE PL 3/16" X 2'-0" DIA A36	---	A-4	FP-18	24.65	24.7	GALVANIZED
1	1	T1807KT	SIX SECTOR CHAIN MOUNT KIT (KENWOOD OR EQUIV.)	---	A-1A	---	---	---	GALVANIZED
2	2	T1805KT	THREE SECTOR CHAIN MOUNT KIT (KENWOOD OR EQUIV.)	---	A-1A	---	---	---	GALVANIZED
12	12	MP-1	2" PST PIPE (2.375" O.D. X 0.154" THICKNESS) X 8'-0" A53, GR-B	---	A-1A	---	30.14	361.68	GALVANIZED
1	1	PV-CMX-SS-150-BOG-MP	CLIMBMAXX KIT - MONOPOLE (BOLT-STYLE CABLE GUIDES) - 150FT STAINLESS STEEL	---	A-1	---	---	---	---
1	1	C30-086-006	5/8" DIA X 6'-0" COPPER-CLAD LIGHTNING ROD (SABRE OR EQUIV.)	---	A-1A	---	---	---	---
4	4	---	LANCO RC-300 OR HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV (GALLON)	---	A-1A	---	---	---	PROVIDED BY CONTRACTOR

ALL APLXXXX, LPXXXX AND RLPXXXX ARE PATENTED PRODUCTS AND CANNOT BE FABRICATED BY THIRD PARTIES. THESE PARTS ARE AVAILABLE FROM:

METROSITE, LLC.
180 IND PARK BLVD COMMERCE, GA 30529
OFFICE: (706) 335-7045
FAX: (706) 335-7056

NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THIS SHEET, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

TOTAL WEIGHT (LBS) = **6381.6**

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CUSTOMER SITE NO:
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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: TBOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA-222-H, ANSI/ASSP A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINCKOTE GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN-OF-THE-NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN-OF-THE-NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG-TIGHT CONDITION.
4. THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO-BOLT SHALL BE INSTALLED PER ICC ESR-3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC-2018 SECTION 1705.2 FOR STEEL CONSTRUCTION & TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

TABLE 8.2 NUT ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT PRETENSIONING [a,b]

BOLT LENGTH [c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS $12d_b$, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT-LBS
2. HB16 HOLLO BOLT: 140 FT-LBS
3. HB20 HOLLO BOLT: 221 FT-LBS
4. M20 AJAX BOLT: 280 FT-LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE-FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972-483-0607.

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: TGN-1
REV #: 0

NOTES:

1. TEMPORARILY RELOCATE ANY EXISTING COAX ATTACHED TO THE MONOPOLE AND ANY OTHER MEMBERS WHERE OBSTRUCTION WITH THE PROPOSED MODIFICATION MAY OCCUR.

2. TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

INSTALLATION NOTE:

VERTICAL ALIGNMENT IS REQUIRED FOR ALL THE SECTION PROJECTS, TOWERS OR POLES

SCOPE OF WORK

1. TEMPORARILY RELOCATE (3) EXISTING AMPHENOL CUUX063X25 – PANEL ANTENNAS AT ±100'–0" ELEV. AND ASSOCIATED EQUIPMENT USING PROVIDED 3–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1805KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY AT&T) RE–ROUTE EXISTING (6) 7/8" COAX, (1) 3/4" DC, & (1) 3/8" FIBER FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 1 ON SHEET TA–1A FOR AZIMUTHS.
   NOTE:
   CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH AT&T.

2. TEMPORARILY RELOCATE (3) EXISTING ANTEL BXA–70063–4CF–6–FP – PANEL ANTENNAS AT ±123'–0" ELEV., (3) EXISTING ANTEL BXA–171036–8CF–2–FP – PANEL ANTENNAS AT ±128'–0" ELEV., AND ASSOCIATED EQUIPMENT USING PROVIDED 6–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1807KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY VERIZON) RE–ROUTE EXISTING (6) 7/8" COAX FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 2 ON SHEET TA–1A FOR AZIMUTHS.
   NOTE:
   CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH VERIZON.

3. TEMPORARILY RELOCATE (3) EXISTING ANDREW TMBX–6517–R2M – PANEL ANTENNAS AT ±144'–0" ELEV. AND ASSOCIATED EQUIPMENT USING PROVIDED 3–SECTOR CHAIN MOUNT AND MOUNT PIPES (T1805KT & MP–1) BELOW NEW FLANGE AT ±99'–0" ELEV. (FINAL LOCATION TO BE DETERMINED BY T–MOBILE)
   RE–ROUTE EXISTING (6) 7/8" COAX FROM INSIDE THE POLE & INSTALL TEMPORARILY TO THE OUTSIDE OF THE POLE. SEE DETAIL 3 ON SHEET TA–1A FOR AZIMUTHS. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WORK WITH T–MOBILE.
   NOTE:
   T–MOBILE WILL BE HANDLING THEIR OWN RELOCATION WORK BACK TO THEIR ORIGINAL/NEW ELEVATION.

4. A. REMOVE EXISTING TOP CAP, FLAG TRUCK, & ALL ASSOCIATED HARDWARE AT ±148'–0" ELEV.
   B. REMOVE ALL EXISTING DECOMMISSIONED/ABANDONED EQUIPMENT AND MOUNTS AT ±132'–0" ELEV. & ±136'–0" ELEV.
   C. REMOVE EXISTING CANISTERS/SPINES FROM ±99'–0" ELEV TO ±148'–0" ELEV.
   D. CUT AND REMOVE EXISTING INTERNAL FLANGE PLATE AT ±99'–0" ELEV. AND INSTALL NEW FIELD WELDED FLANGE PLATE (FP–24) FOR NEW MONOPOLE SECTION AT ±99'–0" ELEV. SEE SHEET TA–2 FOR DETAILS.

5. INSTALL NEW (1) HSS24.000X0.375 X 20'–0" (MPS–24–20W) SECTION ON TOP OF EXISTING MONOPOLE FROM ±99'–0" ELEV. TO ±119'–0" ELEV. SEE SHEET TA–2 FOR DETAILS.

6. INSTALL NEW (1) HSS18.000X0.375 X 20'–0" (MPS–18–20W) SECTION ON TOP OF NEW MONOPOLE SECTION FROM ±119'–0" ELEV. TO ±139'–0" ELEV. SEE SHEET TA–3 FOR DETAILS.

7. INSTALL NEW (1) HSS18.000X0.375 X 9'–0" (MPS–18–9W) SECTION ON TOP OF NEW MONOPOLE SECTION FROM ±139'–0" ELEV. TO ±148'–0" ELEV. SEE SHEET TA–4 FOR DETAILS.

8. INSTALL NEW LIGHTNING ROD AT TOP OF THE NEW MONOPOLE SECTION AND FIELD CUT IT DOWN IF REQUIRED TO MEET FAA HEIGHT APPROVAL. SEE DETAIL 4 ON SHEET TA–1A.

9. INSTALL NEW PERFECT VISION SAFETY CLIMB SYSTEM (PV–CMX–SS–150–BOG–MP) TO TOP OF NEW POLE SECTION. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

10. RELOCATE EXISTING AT&T ANTENNAS BACK TO ORIGINAL ELEVATION AT ±100'–0" ELEV. REROUTE EXISTING LINES TO INSIDE THE POLE. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WITH AT&T.

11. RELOCATE EXISTING VERIZON ANTENNAS BACK TO ORIGINAL ELEVATION AT ±128'–0" ELEV. REROUTE EXISTING LINES TO INSIDE THE POLE. CONTRACTOR TO COORDINATE ALL ANTENNA RELOCATION WITH VERIZON.

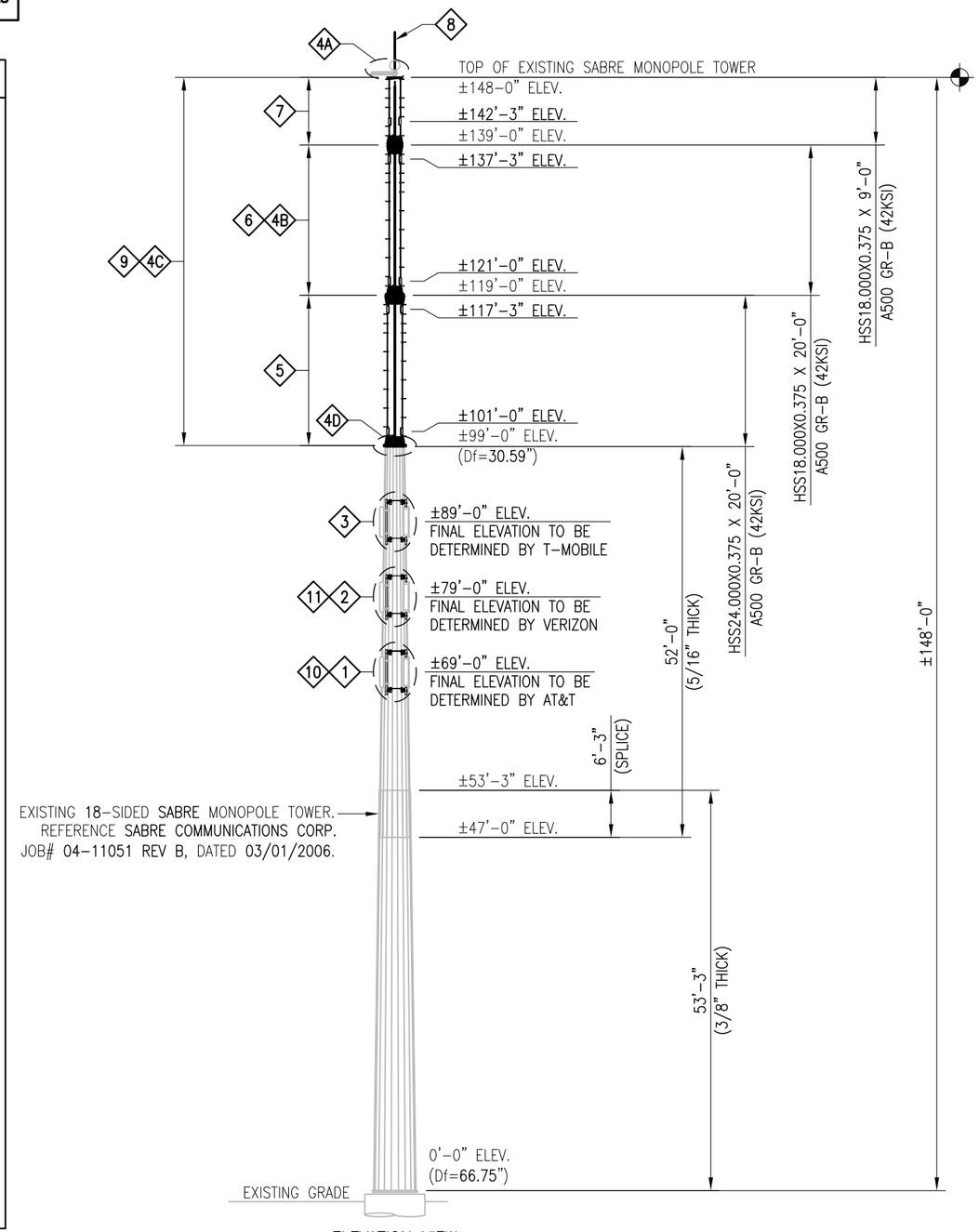
12. CONTRACTOR TO FIELD MATCH AND PAINT ALL NEW MODIFICATIONS.

13. APPLY FOUNDATION COATING

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN–UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

FIELD NOTE:

CONTRACTOR TO PAINT ALL NEW MODIFICATION MEMBERS TO MATCH EXISTING TOWER COLOR.



ELEVATION VIEW

TES
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BOCA RATON, FL 33487
(800)–487–SITE

TES JOB NO:
164750

CUSTOMER SITE NO:
TN01807–B–SBA

CUSTOMER SITE NAME:
SWANSON

2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

KYLE WYANT
REGISTERED ENGINEER
XVI
AGRICULTURE
COMMERCE
No. 128004
STATE OF TENNESSEE

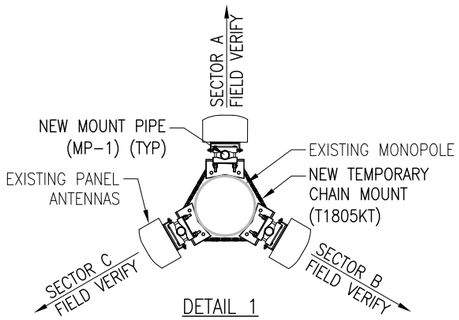
DRAWN BY: LC	CHECKED BY: AS/JRL

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

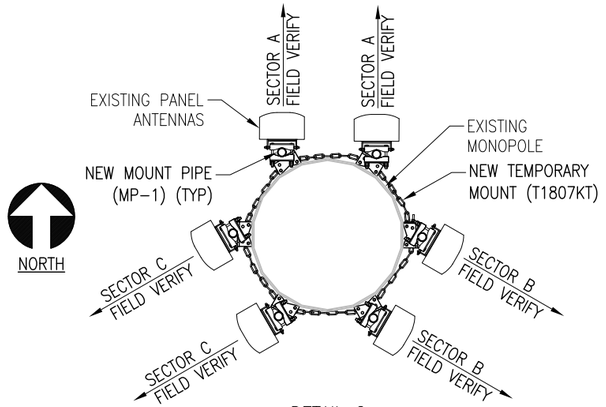
SHEET TITLE:

TOWER PROFILE

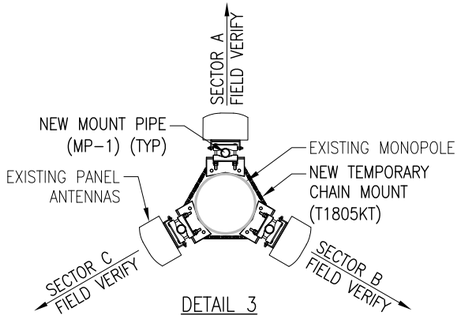
SHEET NUMBER:	REV #:
TA–1	0



DETAIL 1
(TEMPORARY MOUNT AZIMUTHS)
(AT&T @ ±69'-0" ELEV.)



DETAIL 2
(TEMPORARY MOUNT AZIMUTHS)
(VERIZON @ ±79'-0" ELEV.)

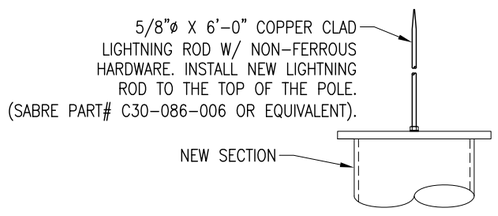


DETAIL 3
(TEMPORARY MOUNT AZIMUTHS)
(T-MOBILE @ ±89'-0" ELEV.)

FOUNDATION PHOTO

FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.



DETAIL 4

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(800)-487-SITE

TES JOB NO:
164750

CUSTOMER SITE NO:
TN01807-B-SBA
CUSTOMER SITE NAME:
SWANSON
2117 NORTH THOMPSON LANE
MURFREESBORO, TN 37129

KYLE WYANT
REGISTERED ENGINEER
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AGRICULTURE
COMMERCE
No. 128004
STATE OF TENNESSEE

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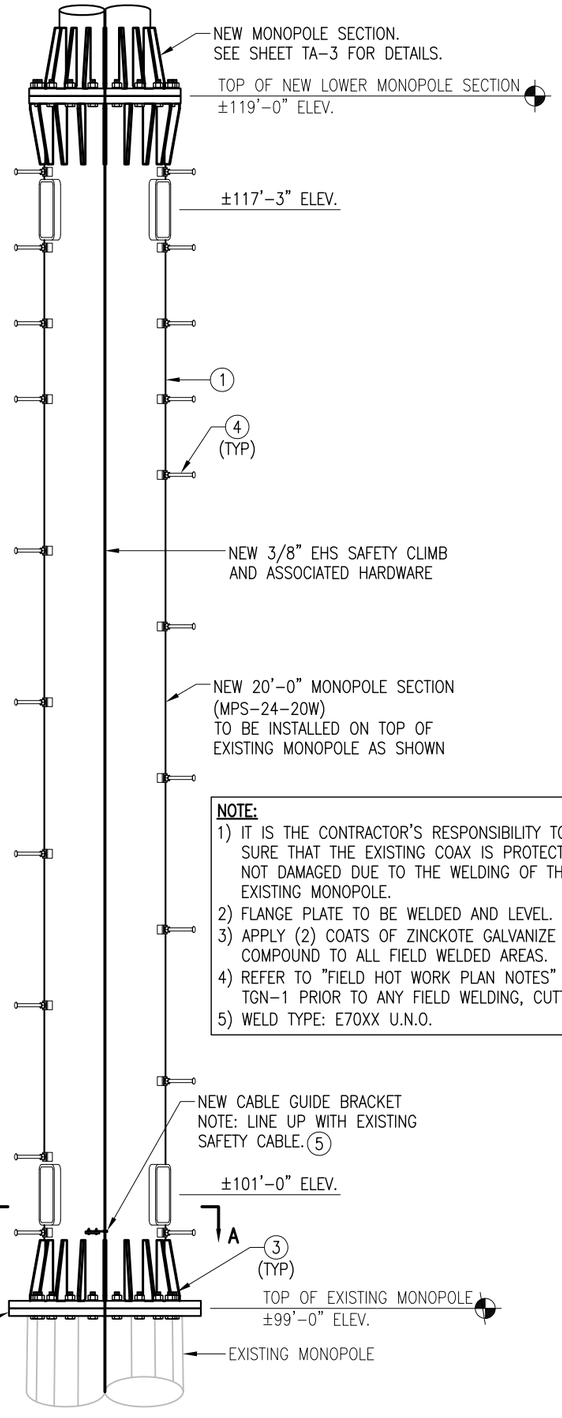
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

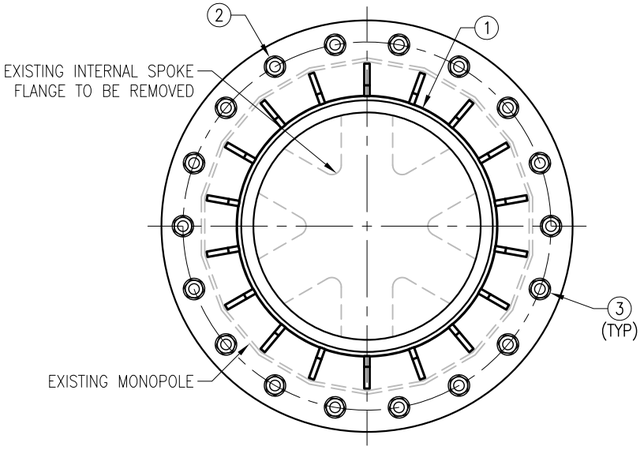
SHEET TITLE:
ADDITION DETAILS

SHEET NUMBER: TA-1A
REV #: 0

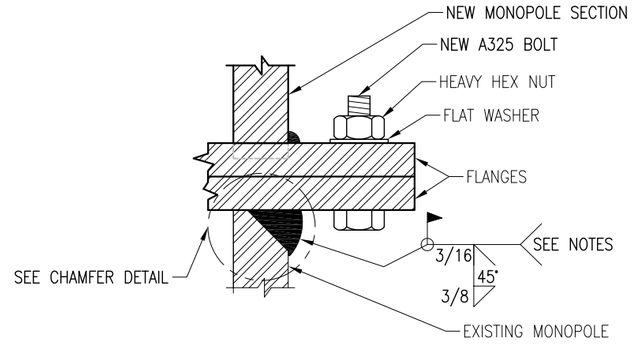


ELEVATION VIEW
(±99'-0" TO ±119'-0" ELEV.)

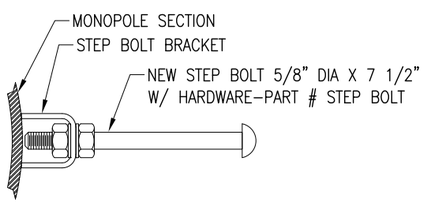
NOTE:
1) IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE THAT THE EXISTING COAX IS PROTECTED AND NOT DAMAGED DUE TO THE WELDING OF THE EXISTING MONOPOLE.
2) FLANGE PLATE TO BE WELDED AND LEVEL.
3) APPLY (2) COATS OF ZINCKOTE GALVANIZE COMPOUND TO ALL FIELD WELDED AREAS.
4) REFER TO "FIELD HOT WORK PLAN NOTES" ON SHEET TGN-1 PRIOR TO ANY FIELD WELDING, CUTTING, ETC.
5) WELD TYPE: E70XX U.N.O.



SECTION "A-A"



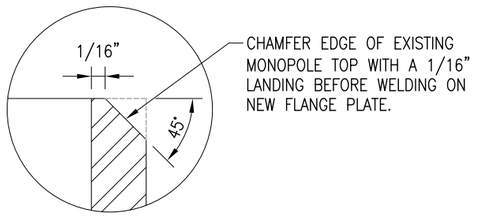
NEW FLANGE PLATE AND
BOLT INSTALLATION DETAIL



STEP BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES ON SHEET TGN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH THIS CONNECTION.



CHAMFER DETAIL

ITEM NO.	QTY.	PART NO.	DESCRIPTION
5	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
4	26	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
3	18	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
2	1	FP-24	FLANGE PLATE PL 1 1/2" X 3'-2" DIA A572-50
1	1	MPS-24-20W	MONOPOLE SECTION WELDMENT (PIPE HSS24.000X0.375 X 20'-0") (42 KSI) A500 GR-B

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(800)-487-SITE

TES JOB NO:
164750

CUSTOMER SITE NO:
TN01807-B-SBA
CUSTOMER SITE NAME:
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2117 NORTH THOMPSON LANE
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KYLE WYANT
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No. 128004
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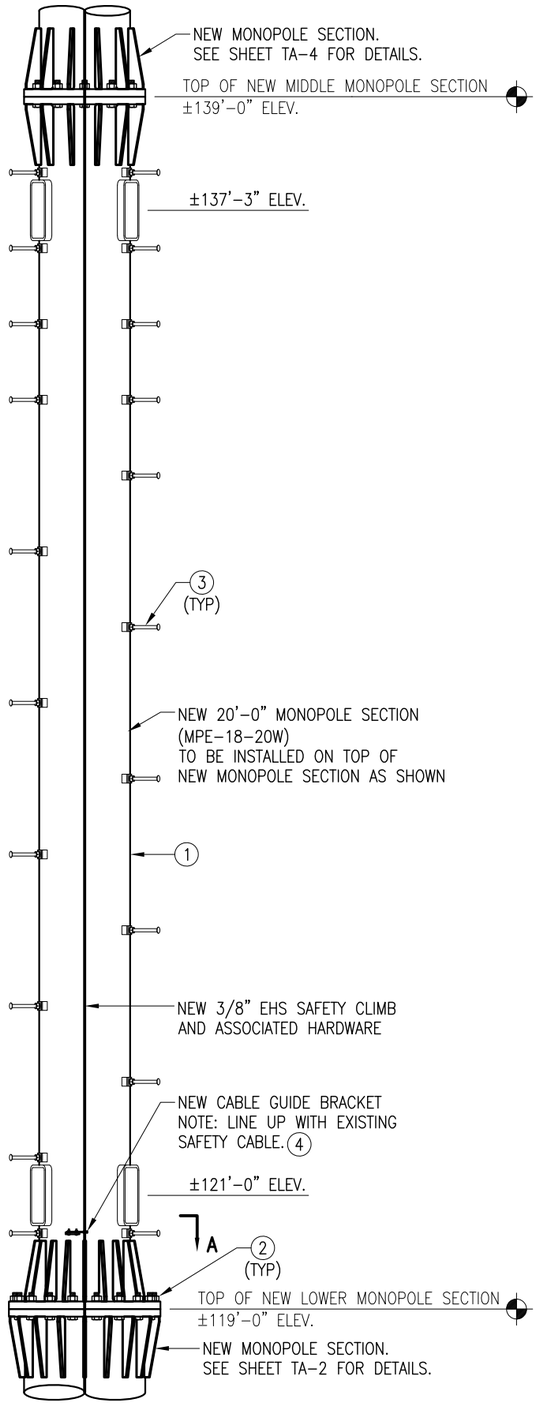
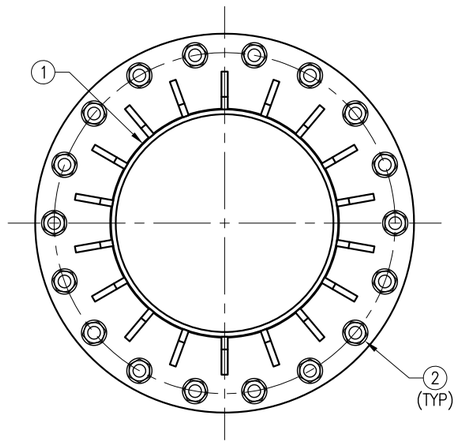
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
MONOPOLE SECTION INSTALLATION DETAILS

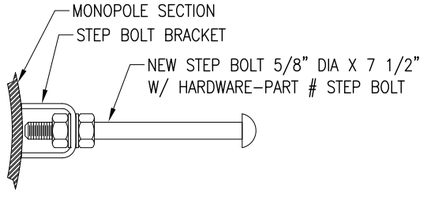
SHEET NUMBER: TA-2
REV #: 0



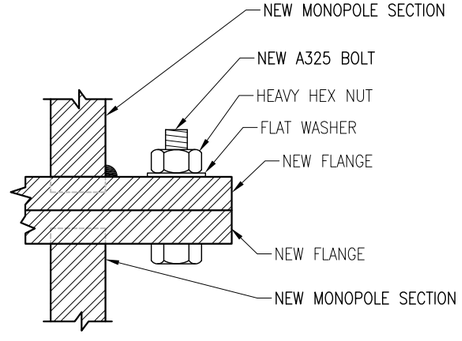
ELEVATION VIEW
(±119'-0" TO ±139'-0" ELEV.)



SECTION "A-A"



STEP BOLT INSTALLATION DETAIL



NEW FLANGE PLATE WELD AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET TGN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
4	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
3	23	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
2	18	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
1	1	MPS-18-20W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 20'-0") (42 KSI) A500 GR-B

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TES JOB NO:
164750

CUSTOMER SITE NO:
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CUSTOMER SITE NAME:
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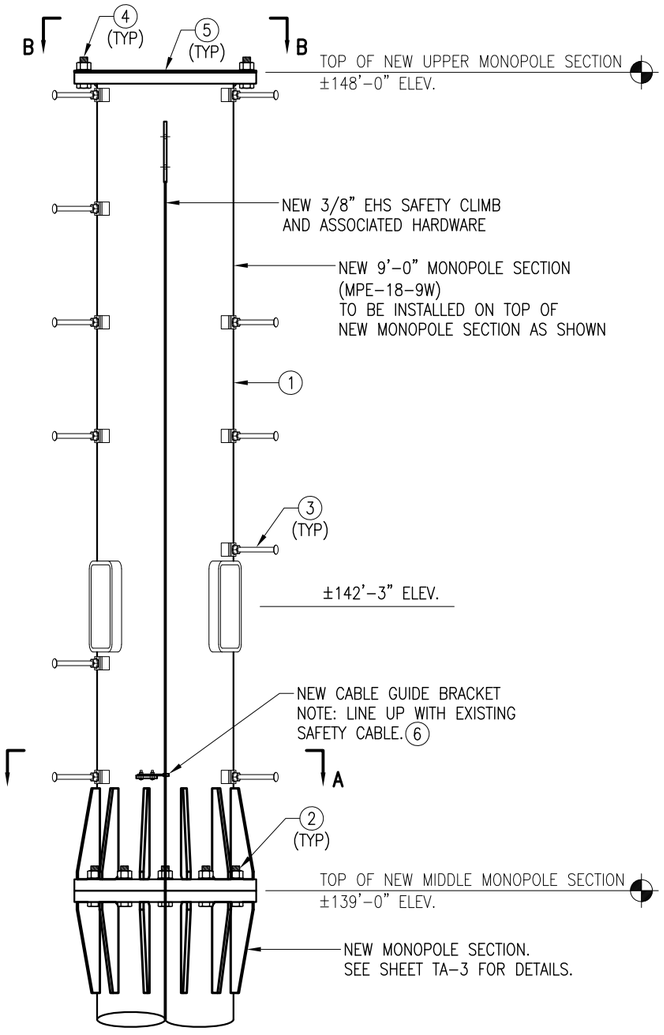
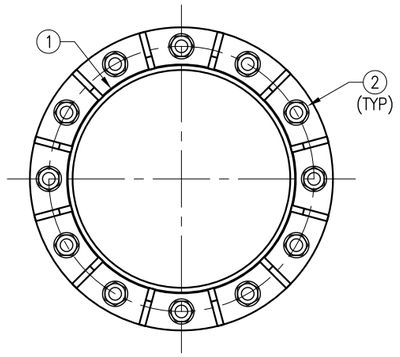
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
MONOPOLE SECTION INSTALLATION DETAILS

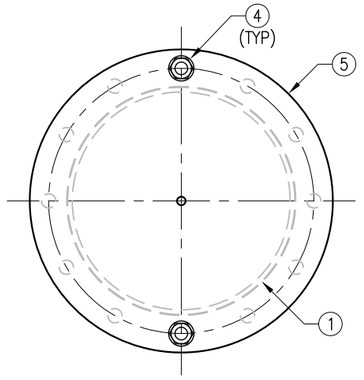
SHEET NUMBER: TA-3
REV #: 0



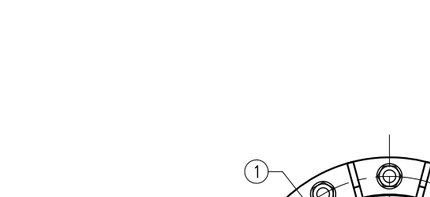
ELEVATION VIEW
(±139'-0" TO ±148'-0" ELEV.)



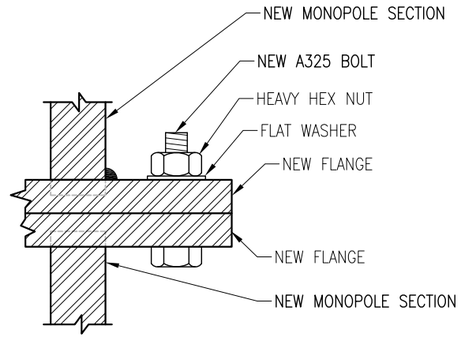
SECTION "A-A"



SECTION "B-B"



STEP BOLT INSTALLATION DETAIL



NEW FLANGE PLATE WELD AND
BOLT INSTALLATION DETAIL

NOTE:
TIGHTEN FLANGE BOLTS PER NOTES
ON SHEET TGN-1. TABLE 8.2.

FIELD NOTE:
DO NOT USE A LOCKWASHER WITH
THIS CONNECTION.

ITEM NO.	QTY.	PART NO.	DESCRIPTION
6	1	PV-CMX-CG-BO	CLIMB-MAXX UNIVERSAL LOCKING WIRE ROPE GUIDE, BOLT ON
5	1	CPL-18	TOP CAP PLATE PL 3/16" X 2'-0" DIA A36
4	2	---	BOLT 1" X 3 1/2" A325 W/ NUT-FW EA.
3	14	STEP BOLTS	STEP BOLT 5/8" X 7 1/2" W/ (2) NUT-LKW EA.
2	12	---	BOLT 1" X 4 3/4" A325 W/ NUT-FW EA.
1	1	MPS-18-9W	MONOPOLE SECTION WELDMENT (PIPE HSS18.000X0.375 X 9'-0") (42 KSI) A500 GR-B

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TES JOB NO:
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CUSTOMER SITE NO:
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STATE OF TENNESSEE

DRAWN BY: LC | CHECKED BY: AS/JRL

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LC	02/10/26

SHEET TITLE:
MONOPOLE SECTION
INSTALLATION DETAILS

SHEET NUMBER: TA-4
REV #: 0

Tower Engineering Solutions, LLC
1320 Greenway Drive, Suite 600, Irving, Texas 75038
Phone: (972) 483-0607, Fax: (972) 975-9615

Conditionally Passing Structural Analysis Report

Structure Information	*Tower Type*	*Existing 148 ft Monopole*
Customer Information	*Name*	SBA Communications Corp
	Site Number	TN01807-B
	Site Name	Swanson
Carrier Information	*Name*	*T-Mobile*
	Site ID / Name	*9NV1648A / Thompson*
	App #	*185716-5*
Site Information	*Address:*	*2117 North Thompson Lane Murfreesboro, Tennessee 37129, Rutherford County*
	Latitude:	*35.882149°*
	Longitude:	*-86.424091°*

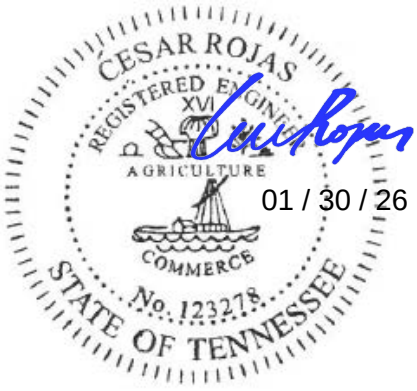
Analysis Result:

Max Structural Usage: **39.5% [Pass w/ Modification]**

Max Foundation Usage**: 21.0% [Pass]**

Pre-Mod Installation: Not Approved

Report Prepared By: Ali Saidi



Introduction

The purpose of this report is to summarize the analysis results on the 148 ft Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information, including the proposed modification by TES, were considered completed and are included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Document Type	Remarks
Tower Drawings	Sabre Communication Corporation, Job No.# 04-11051 Rev B dated 03/01/2006 Monopole mapping report by FDH, Job No.# 1306061500 dated 05/14/2013
Foundation Drawing	Sabre Communication Corporation, Job No.# 04-11051 Rev B dated 03/01/2006
Geotechnical Report	Arcadis Geraghity & Miller,
Mount Analysis	TES Project Number: 153764 dated November 21, 2024
Existing Modification	N/A
Failing Structural Analysis	TES Project # 164298R1 dated Dec 09, 2025
Proposed Modification	TES Project # 164750

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the TIA-222-H. In accordance with this standard, the structure was analyzed using TESPoles, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Codes and Standards	ANSI/TIA-222-H / 2018 IBC	
Wind Parameters	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	105.0 mph
	Ice Wind Speed (3-sec. Gust):	30 mph
	Design Ice Thickness:	1.50”
	Service Load Wind Speed:	60 mph + 0” Radial ice
	Exposure Category:	C
	Risk Category:	II
	Ground Elevation Factor (K_e):	0.980
Topographic Parameters	Method:	Method 1
	Feature Type:	Flat
	Crest Height (H):	0 ft
	Length of Feature (L):	0.0 ft
	Distance to crest (x):	0.0 ft
Seismic Parameters:	S_S	0.249 g
	S_1	0.125 g

This structural analysis is based upon the tower being classified as a Risk Category II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	144.0	3	Andrew TMBX-6517-R2M Panel	Platform	(6) 7/8"	T-Mobile
5	128.0	3	Antel BXA-171063-8CF-2-FP -Panel	Platform	(6) 7/8"	Verizon
6	123.0	3	Antel BXA-70063-4CF-6-FP - Panel			
7		3	JMA DBC-67C-U-2SF - Diplexer			
8	100.0	3	Amphenol CUUX063x19x00 - Panel	Platform	(6) 7/8" (1) 3/4" DC (1) 3/8" Fiber	AT&T
9		3	Commscope CBC71726T-DS-43 - Diplexer			
10		1	Raycap DC6-48-60-18-8F - COVP			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	145	3	Andrew FFVV-65A-R2-V1 - Panel	LIFE Double Antenna Mount w/ 12" standoff (1) PerfectVision PV-MPM-DA	(3) 1 5/8" Andrew (2) 1.8" Hybrid Trunk 6/24 4 AWG	T-Mobile
2		3	Nokia AEHC - Panel			
3		3	Nokia AHFII AirScale RRH 4T4R B25/66 480W - RRU			
4		3	Nokia AHLOB AirScale Dual RRH 4T4R B12/71 240W - RRU			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

Tower Component	Utilization %	Pass / Fail
Pole Shaft	36.2%	Pass
Anchor Bolt	23.9%	Pass
Base Plate	24.3%	Pass
Serviceability	16.6%	Pass
Flange Connections	39.5%	Pass
Structure Rating – *(Controlling Utilization of all Components)*	**39.5%**	

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	1491.8	17.2	37.8

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Service Load Condition (Rigidity)

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.604 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222-H Standard after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 164750

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed T-Mobile equipment loading can be installed prior to the completion of the required modifications.

Since the proposed equipment will be installed on the proposed conversion, the Carrier cannot install their proposed loading prior to the mods completion.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a comprehensive structural analysis.

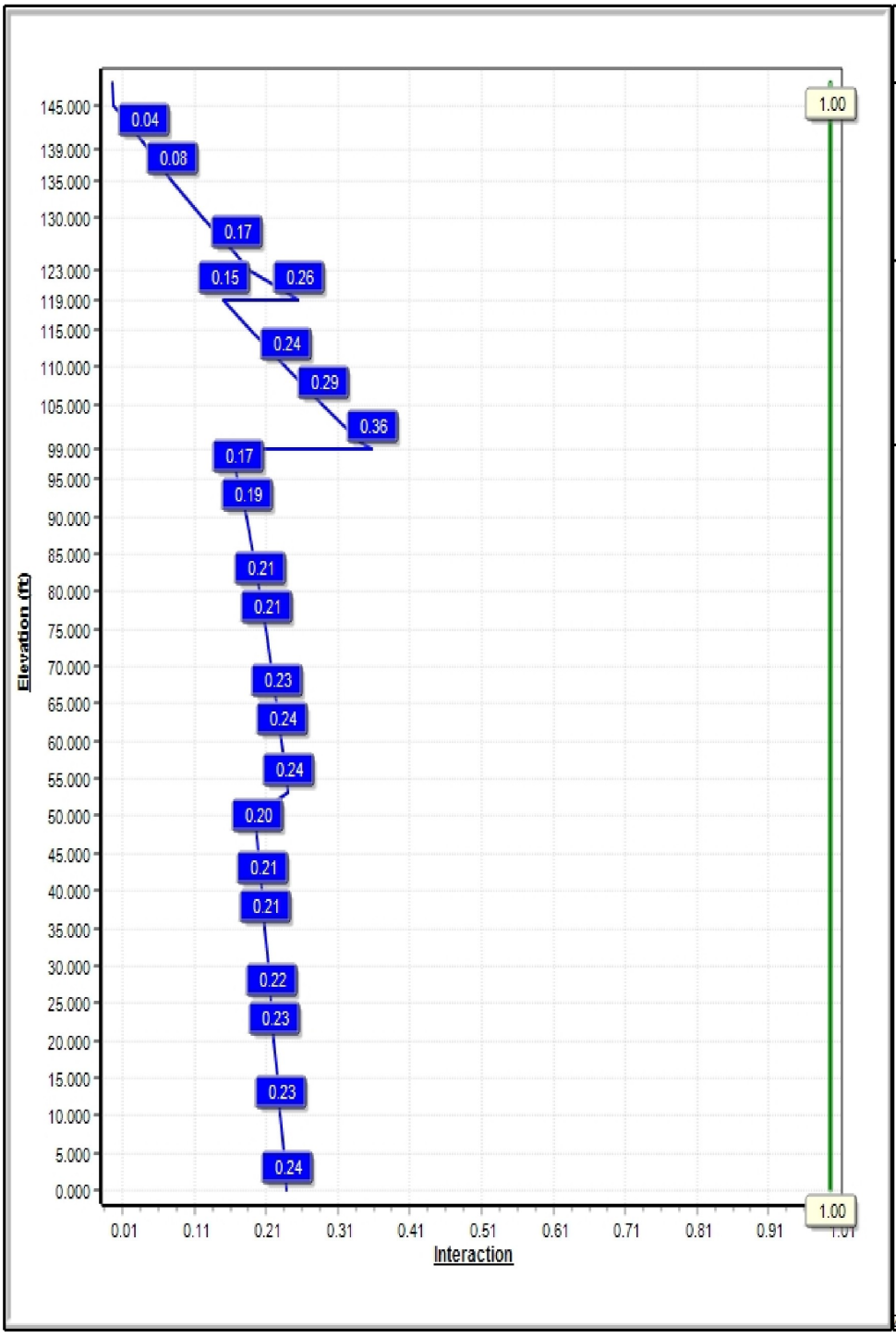
Usage Diagram - Max Ratio 36.20% at 99.0ft

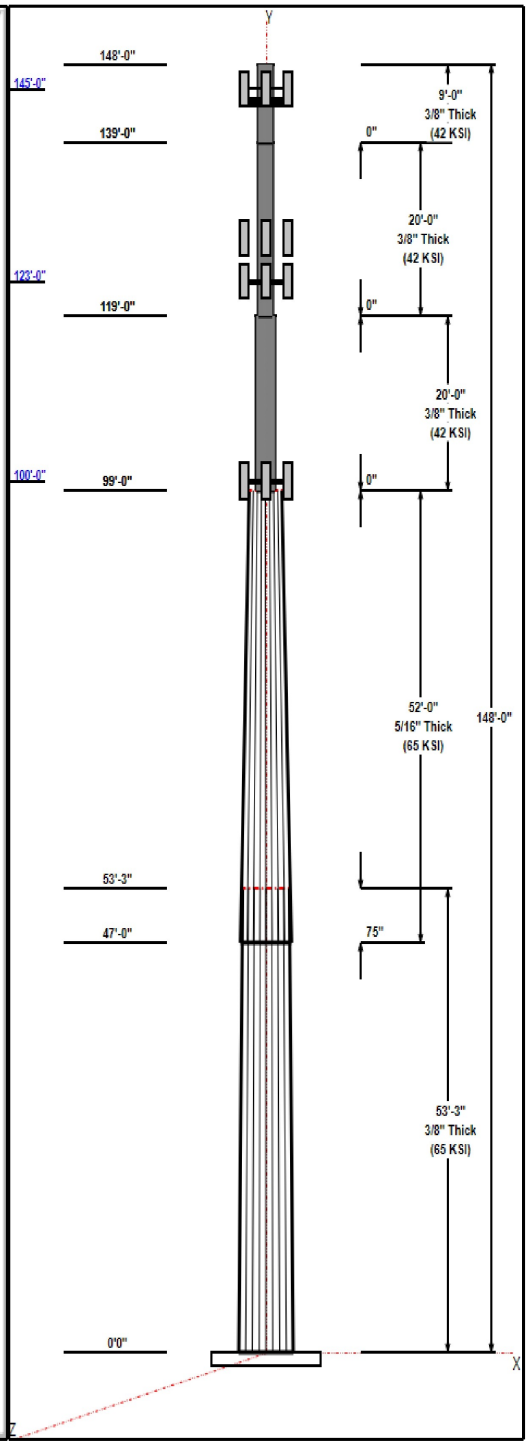
Structure:	TN01807-B-SBA	**Code:**	EIA/TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

Tower Engineering Solutions

Dead Load Factor:	1.20	Wind Speed:	105.00	**Iterations:**	23
Wind Load Factor:	1.00	Ice Thickness:	1.50		

Load Case : 1.2D + 1.0W 105 mph Wind at 60°





Structure: TN01807-B-SBA

Type:	Custom	**Base Shape:**	18 Sided	1/30/2026	
Site Name:	Swanson	**Taper:**	0.37106	1.9.2.7.447	
Height:	148.00 (ft)	**Wind Speed:**	105.00		
Base Elev:	0.00 (ft)	**Ice Thickness:**	1.50	Page: 2	

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	48.91	66.75	0.372		0.37106	65
2	52.00	30.59	49.63	0.314	Slip	0.37106	65
3	20.00	24.00	24.00	0.375	Butt	0.00000	42
4	20.00	18.00	18.00	0.375	Butt	0.00000	42
5	9.00	18.00	18.00	0.375	Butt	0.00000	42

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
145.00	145.00	3	FFVV-65A-R2-V1	T-Mobile
145.00	145.00	1	PV-MPM-DA	T-Mobile
145.00	145.00	3	AEHC	T-Mobile
145.00	145.00	3	AHFII AirScale RRH 4T4R	T-Mobile
145.00	145.00	3	AHLOB AirScale Dual	T-Mobile
123.00	123.00	1	Platform w/ Hand Rails	Verizon
123.00	123.00	3	JMA DBC-67C-U-2SF	Verizon
123.00	128.00	3	Antel	Verizon
123.00	123.00	3	Antel	Verizon
100.00	100.00	1	Platform w/ Hand Rails	AT&T
100.00	100.00	3	Amphenol	AT&T
100.00	100.00	3	CBC71726T-DS-43	AT&T
100.00	100.00	1	Raycap DC6-48-60-18-8F	AT&T

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	145.00	Inside	1 5/8" Andrew	T-Mobile
0.00	145.00	Inside	1.8" Hybrid Fiber HCS	T-Mobile
0.00	128.00	Inside	7/8"	Verizon
0.00	100.00	Inside	3/4" DC	AT&T
0.00	100.00	Inside	3/8" Fiber	AT&T
0.00	100.00	Inside	7/8"	AT&T
0.00	99.00	Outside	Safety Cable	
0.00	99.00	Outside	Step bolts (ladder)	

Anchor Bolts

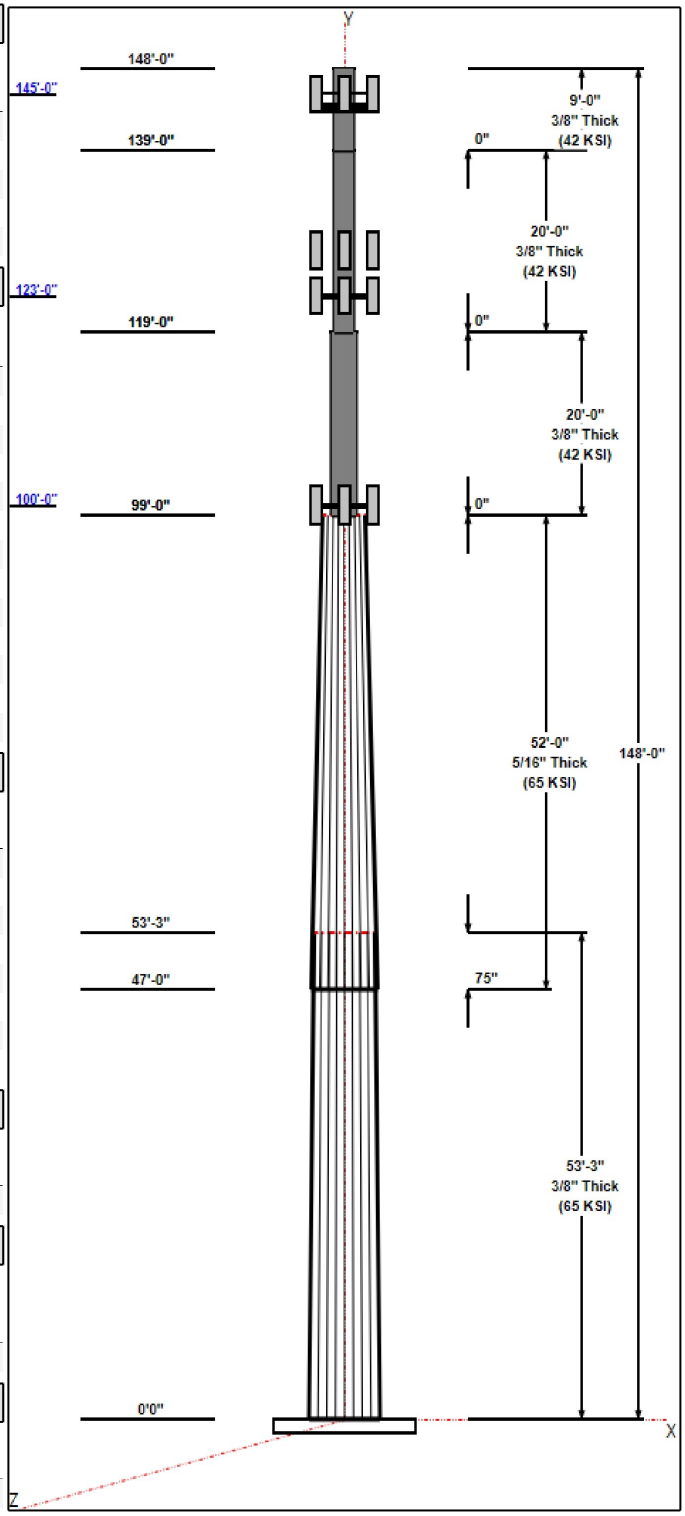
Qty	Specifications	Grade (ksi)	Arrangement
16	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	72.0	60.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 105 mph Wind	1491.8	17.2	37.8
1.2D + 1.0W 105 mph Wind at 30°	1291.9	14.9	37.8
1.2D + 1.0W 105 mph Wind at 60°	745.9	8.6	37.8
1.2D + 1.0W 105 mph Wind at 90°	0.0	0.0	37.8
1.2D + 1.0W 105 mph Wind at 120°	745.9	8.6	37.8
1.2D + 1.0W 105 mph Wind at 150°	1291.9	14.9	37.8



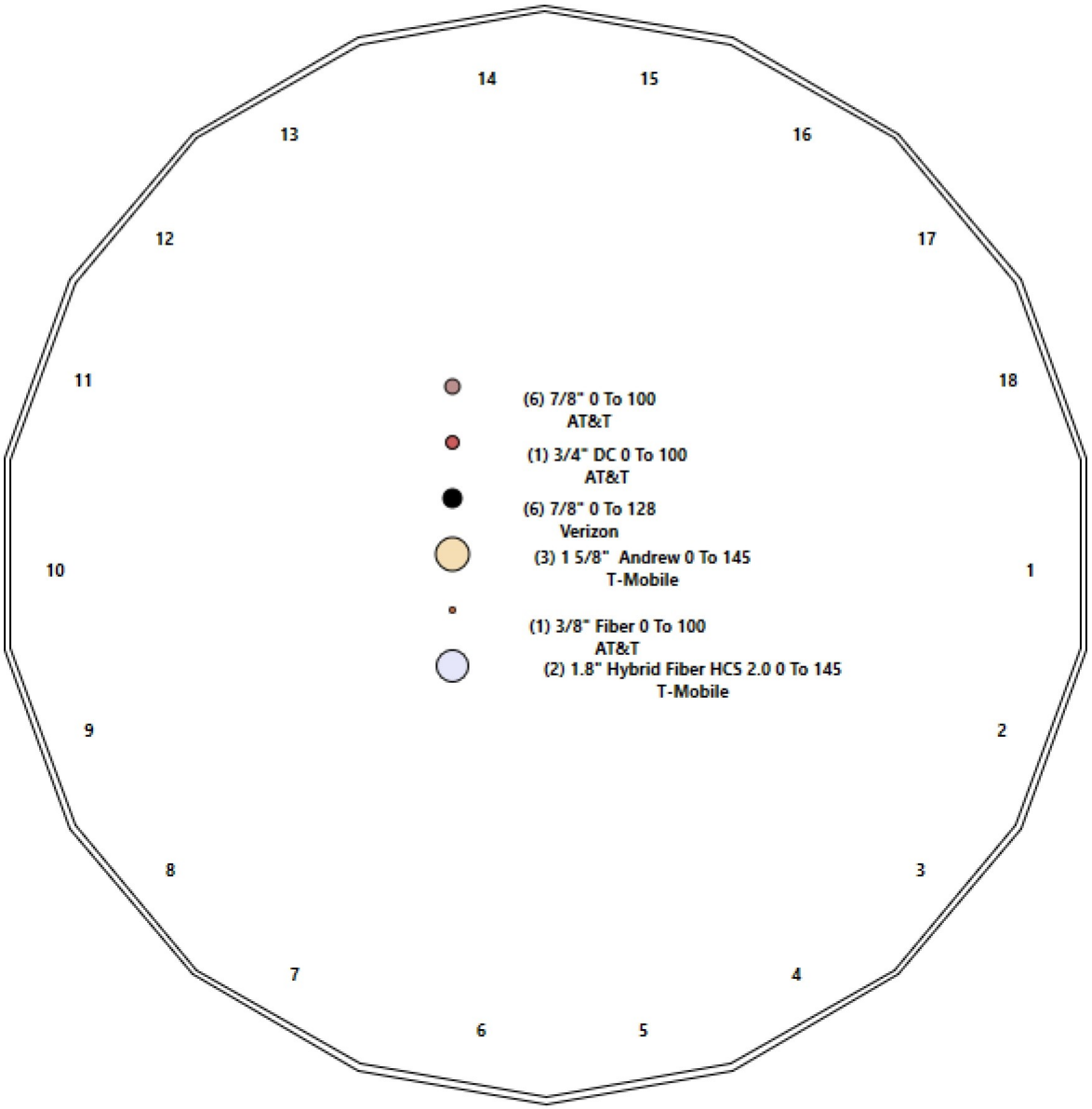
1.2D + 1.0W 105 mph Wind at 180°	1491.8	17.2	37.8
1.2D + 1.0W 105 mph Wind at 210°	1291.9	14.9	37.8
1.2D + 1.0W 105 mph Wind at 240°	745.9	8.6	37.8
1.2D + 1.0W 105 mph Wind at 270°	0.0	0.0	37.8
1.2D + 1.0W 105 mph Wind at 300°	745.9	8.6	37.8
1.2D + 1.0W 105 mph Wind at 330°	1291.9	14.9	37.8
0.9D + 1.0W 105 mph Wind	1484.4	17.2	28.3
0.9D + 1.0W 105 mph Wind at 30°	1285.7	14.9	28.3
0.9D + 1.0W 105 mph Wind at 60°	742.3	8.6	28.3
0.9D + 1.0W 105 mph Wind at 90°	0.0	0.0	28.3
0.9D + 1.0W 105 mph Wind at 120°	742.3	8.6	28.3
0.9D + 1.0W 105 mph Wind at 150°	1285.7	14.9	28.3
0.9D + 1.0W 105 mph Wind at 180°	1484.4	17.2	28.3
0.9D + 1.0W 105 mph Wind at 210°	1285.7	14.9	28.3
0.9D + 1.0W 105 mph Wind at 240°	742.3	8.6	28.3
0.9D + 1.0W 105 mph Wind at 270°	0.0	0.0	28.3
0.9D + 1.0W 105 mph Wind at 300°	742.3	8.6	28.3
0.9D + 1.0W 105 mph Wind at 330°	1285.7	14.9	28.3
1.2D + 1.0Di + 1.0Wi 30 mph Wind	212.2	2.4	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	183.7	2.1	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	106.1	1.2	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	0.0	0.0	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	106.1	1.2	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	183.7	2.1	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	212.2	2.4	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	183.7	2.1	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	106.1	1.2	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	0.0	0.0	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	106.1	1.2	56.2
1.2D + 1.0Di + 1.0Wi 30 mph Wind at	183.7	2.1	56.2
1.0D + 1.0W 60 mph Wind	434.4	5.0	31.5
1.0D + 1.0W 60 mph Wind at 30°	376.2	4.3	31.5
1.0D + 1.0W 60 mph Wind at 60°	217.2	2.5	31.5
1.0D + 1.0W 60 mph Wind at 90°	0.0	0.0	31.5
1.0D + 1.0W 60 mph Wind at 120°	217.2	2.5	31.5
1.0D + 1.0W 60 mph Wind at 150°	376.2	4.3	31.5
1.0D + 1.0W 60 mph Wind at 180°	434.4	5.0	31.5
1.0D + 1.0W 60 mph Wind at 210°	376.2	4.3	31.5
1.0D + 1.0W 60 mph Wind at 240°	217.2	2.5	31.5
1.0D + 1.0W 60 mph Wind at 270°	0.0	0.0	31.5
1.0D + 1.0W 60 mph Wind at 300°	217.2	2.5	31.5
1.0D + 1.0W 60 mph Wind at 330°	376.2	4.3	31.5
1.2D + 1.0Ev + 1.0Eh	239.0	2.1	1.6
0.9D + 1.0Ev + 1.0Eh	239.0	2.1	1.6

Structure: TN01807-B-SBA - Coax Line Placement

Type: Monopole
Site Name: Swanson
Height: 148.00 (ft)

1/30/2026
1.9.2.7.447

Tower Engineering Solutions



Shaft Properties

Structure:	TN01807-B-SBA		**Code:**	TIA-222-H	1/30/2026
Site Name:	Swanson		**Exposure:**	C	1.9.2.7.447
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.3720	65		0.00	12,087
2	18	52.000	0.3140	65	Slip	75.00	6,995
3	R	20.000	0.3750	42	Flange	0.00	1,894
4	R	20.000	0.3750	42	Flange	0.00	1,413
5	R	9.000	0.3750	42	Flange	0.00	636
					Total Shaft Weight:		**23,026**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	66.75	0.00	78.37	43627.45	30.23	179.44	48.91	53.25	55.04	15113.9	20.86	131.4	0.371061
2	49.63	47.00	49.15	15102.11	26.46	158.06	30.59	99.00	29.92	3406.77	15.62	97.42	0.371061
3	24.00	99.00	27.83	1943.30	0.00	64.00	24.00	119.00	27.83	1943.30	0.00	64.00	0.000000
4	18.00	119.0	20.76	806.88	0.00	48.00	18.00	139.00	20.76	806.88	0.00	48.00	0.000000
5	18.00	139.0	20.76	806.88	0.00	48.00	18.00	148.00	20.76	806.88	0.00	48.00	0.000000

Load Summary

Structure:	TN01807-B-SBA		**Code:**	EIA_H	1/30/2026
Site Name:	Swanson		**Exposure:**	C	1.9.2.7.447
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 6

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	145.00	FFVV-65A-R2-V1	3	28.00	9.60	0.76	293.83	10.876	0.76	0.00	0.00
2	145.00	PV-MPM-DA	1	1310.00	27.60	1.00	2585.96	62.163	1.00	0.00	0.00
3	145.00	AEHC	3	99.00	6.80	0.70	264.24	7.850	0.70	0.00	0.00
4	145.00	AHFII AirScale RRH 4T4R B25/66	3	70.55	3.22	0.67	136.08	3.964	0.67	0.00	0.00
5	145.00	AHLOB AirScale Dual RRH 4T4R	3	82.70	2.92	0.67	154.51	3.633	0.67	0.00	0.00
6	123.00	Platform w/ Hand Rails (flat)	1	2000.00	40.00	1.00	4053.11	60.531	1.00	0.00	0.00
7	123.00	JMA DBC-67C-U-2SF	3	6.70	0.35	0.67	23.80	0.625	0.67	0.00	0.00
8	123.00	Antel BXA-171063-8CF-2-FP	3	10.50	2.94	0.84	74.76	4.566	0.84	0.00	5.00
9	123.00	Antel BXA-70063-4CF-6-FP	3	9.90	4.72	0.73	109.75	6.532	0.73	0.00	0.00
10	100.00	Platform w/ Hand Rails (flat)	1	2000.00	40.00	1.00	4011.04	60.110	1.00	0.00	0.00
11	100.00	Amphenol CUUX063x19x00	3	29.80	5.44	0.83	171.85	6.427	0.83	0.00	0.00
12	100.00	CBC71726T-DS-43	3	4.00	0.45	0.67	12.92	0.929	0.67	0.00	0.00
13	100.00	Raycap DC6-48-60-18-8F	1	31.80	0.92	0.67	91.17	1.341	0.67	0.00	0.00
		Totals:	**31**	**6,365.25**			**14,466.42**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
0.00	145.00	(3) 1 5/8" Andrew	0.00	Inside
0.00	145.00	(2) 1.8" Hybrid Fiber HCS 2.0	0.00	Inside
0.00	128.00	(6) 7/8"	0.00	Inside
0.00	100.00	(1) 3/4" DC	0.00	Inside
0.00	100.00	(1) 3/8" Fiber	0.00	Inside
0.00	100.00	(6) 7/8"	0.00	Inside
0.00	99.00	(1) Safety Cable	0.38	Outside
0.00	99.00	(2) Step bolts (ladder)	1.26	Outside

Shaft Section Properties

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3720	66.750	78.372	43627.4	30.23	179.44	65.8	1287.	0.0
5.00		0.3720	64.895	76.181	40070.5	29.35	174.45	66.9	1216.	1314.8
10.00		0.3720	63.039	73.990	36712.4	28.47	169.46	67.9	1147.	1277.5
15.00		0.3720	61.184	71.800	33547.3	27.59	164.47	68.9	1079.	1240.2
20.00		0.3720	59.329	69.609	30569.5	26.71	159.49	70.0	1014.	1203.0
25.00		0.3720	57.473	67.419	27773.4	25.83	154.50	71.0	951.8	1165.7
30.00		0.3720	55.618	65.228	25153.3	24.95	149.51	72.1	890.8	1128.4
35.00		0.3720	53.763	63.038	22703.3	24.07	144.52	73.1	831.7	1091.2
40.00		0.3720	51.908	60.847	20417.8	23.19	139.54	74.1	774.7	1053.9
45.00		0.3720	50.052	58.657	18291.1	22.31	134.55	75.2	719.8	1016.6
47.00	Bot - Section 2	0.3720	49.310	57.781	17483.6	21.96	132.55	75.6	698.4	396.2
50.00		0.3720	48.197	56.466	16317.4	21.43	129.56	76.2	666.8	1079.2
53.25	Top - Section 1	0.3140	47.311	46.837	13070.2	25.16	150.67	0.0	0.0	1141.2
55.00		0.3140	46.662	46.190	12535.8	24.79	148.60	72.2	529.1	277.0
60.00		0.3140	44.806	44.341	11089.9	23.75	142.69	73.5	487.5	770.1
65.00		0.3140	42.951	42.492	9759.6	22.71	136.79	74.7	447.5	738.7
70.00		0.3140	41.096	40.643	8540.2	21.67	130.88	75.9	409.3	707.2
75.00		0.3140	39.240	38.794	7426.8	20.62	124.97	77.1	372.8	675.8
80.00		0.3140	37.385	36.945	6414.7	19.58	119.06	78.4	338.0	644.3
85.00		0.3140	35.530	35.096	5499.0	18.54	113.15	79.6	304.8	612.8
90.00		0.3140	33.674	33.247	4674.8	17.50	107.24	80.8	273.4	581.4
95.00		0.3140	31.819	31.398	3937.5	16.46	101.33	82.0	243.7	549.9
99.00	Top - Section 2	0.3140	30.335	29.919	3406.8	15.62	96.61	82.5	221.2	417.3
99.00	Bot - Section 3	0.3750	24.000	27.833	1943.3	13.08	80.89	42.0	161.9	
100.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	94.7
105.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
110.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
115.00		0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	473.5
119.00	Top - Section 3	0.3750	24.000	27.833	1943.3	0.00	64.00	42.0	161.9	378.8
119.00	Bot - Section 4	0.3750	18.000	20.764	806.9	0.00	64.00	42.0	89.7	
120.00		0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	70.7
123.00		0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	212.0
125.00		0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	141.3
130.00		0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	353.3
135.00		0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	353.3
139.00	Top - Section 4	0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	282.6
139.00	Bot - Section 5	0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	
140.00		0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	70.7
145.00		0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	353.3
148.00		0.3750	18.000	20.764	806.9	0.00	48.00	42.0	89.7	212.0
										23025.6

Wind Loading - Shaft

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

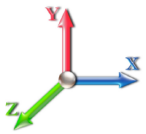
Tower Engineering Solutions

Load Case: 1.2D + 1.0W 105 mph Wind at 60° - Controlling Direction

Iterations 23

Dead Load Factor 1.20 **Ice Thickness:** 0.00

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	22.325	24.56	541.17	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	22.325	24.56	526.13	0.730	0.000	5.00	27.849	20.33	499.3	0.0	1577.7
10.00		1.00	0.85	22.325	24.56	511.09	0.730	0.000	5.00	27.064	19.76	485.2	0.0	1533.0
15.00		1.00	0.85	22.325	24.56	496.05	0.730	0.000	5.00	26.279	19.18	471.1	0.0	1488.3
20.00		1.00	0.90	23.688	26.06	495.47	0.730	0.000	5.00	25.494	18.61	484.9	0.0	1443.6
25.00		1.00	0.95	24.827	27.31	491.38	0.730	0.000	5.00	24.709	18.04	492.6	0.0	1398.8
30.00		1.00	0.98	25.799	28.38	484.73	0.730	0.000	5.00	23.924	17.46	495.6	0.0	1354.1
35.00		1.00	1.01	26.650	29.31	476.23	0.730	0.000	5.00	23.139	16.89	495.2	0.0	1309.4
40.00		1.00	1.04	27.410	30.15	466.30	0.730	0.000	5.00	22.354	16.32	492.0	0.0	1264.7
45.00		1.00	1.07	28.098	30.91	455.24	0.730	0.000	5.00	21.569	15.75	486.7	0.0	1219.9
47.00	Bot - Section 2	1.00	1.08	28.356	31.19	450.55	0.730	0.000	2.00	8.408	6.14	191.4	0.0	475.5
50.00		1.00	1.09	28.728	31.60	443.26	0.730	0.000	3.00	12.458	9.09	287.4	0.0	1295.0
53.25	Top - Section 1	1.00	1.11	29.111	32.02	435.04	0.730	0.000	3.25	13.177	9.62	308.0	0.0	1369.4
55.00		1.00	1.12	29.310	32.24	433.46	0.730	0.000	1.75	6.958	5.08	163.8	0.0	332.4
60.00		1.00	1.14	29.852	32.84	420.06	0.730	0.000	5.00	19.350	14.13	463.8	0.0	924.2
65.00		1.00	1.16	30.359	33.40	406.07	0.730	0.000	5.00	18.565	13.55	452.6	0.0	886.4
70.00		1.00	1.17	30.837	33.92	391.58	0.730	0.000	5.00	17.780	12.98	440.3	0.0	848.7
75.00		1.00	1.19	31.288	34.42	376.62	0.730	0.000	5.00	16.995	12.41	427.0	0.0	810.9
80.00		1.00	1.21	31.716	34.89	361.26	0.730	0.000	5.00	16.210	11.83	412.8	0.0	773.2
85.00		1.00	1.22	32.123	35.34	345.53	0.730	0.000	5.00	15.425	11.26	397.9	0.0	735.4
90.00		1.00	1.24	32.512	35.76	329.46	0.730	0.000	5.00	14.640	10.69	382.2	0.0	697.7
95.00		1.00	1.25	32.884	36.17	313.09	0.730	0.000	5.00	13.855	10.11	365.9	0.0	659.9
99.00	Top - Section 2	1.00	1.26	33.171	36.49	299.78	0.730	0.000	4.00	10.519	7.68	280.2	0.0	500.8
100.00	Appurtenance(s)	1.00	1.27	33.241	36.57	233.82	0.600	0.000	1.00	2.000	1.20	43.9	0.0	113.6
105.00		1.00	1.28	33.585	36.94	235.03	0.600	0.000	5.00	10.000	6.00	221.7	0.0	568.2
110.00		1.00	1.29	33.915	37.31	236.18	0.600	0.000	5.00	10.000	6.00	223.8	0.0	568.2
115.00		1.00	1.30	34.234	37.66	237.29	0.600	0.000	5.00	10.000	6.00	225.9	0.0	568.2
119.00	Top - Section 3	1.00	1.31	34.481	37.93	238.14	0.600	0.000	4.00	8.000	4.80	182.1	0.0	454.6
120.00		1.00	1.32	34.542	38.00	178.77	0.600	0.000	1.00	1.500	0.90	34.2	0.0	84.8
123.00	Appurtenance(s)	1.00	1.32	34.722	38.19	179.23	0.600	0.000	3.00	4.500	2.70	103.1	0.0	254.4
125.00		1.00	1.33	34.840	38.32	179.54	0.600	0.000	2.00	3.000	1.80	69.0	0.0	169.6
130.00		1.00	1.34	35.129	38.64	180.28	0.600	0.000	5.00	7.500	4.50	173.9	0.0	423.9
135.00		1.00	1.35	35.409	38.95	181.00	0.600	0.000	5.00	7.500	4.50	175.3	0.0	423.9
139.00	Top - Section 4	1.00	1.36	35.628	39.19	181.55	0.600	0.000	4.00	6.000	3.60	141.1	0.0	339.1
140.00		1.00	1.36	35.681	39.25	181.69	0.600	0.000	1.00	1.500	0.90	35.3	0.0	84.8
145.00	Appurtenance(s)	1.00	1.37	35.946	39.54	182.36	0.600	0.000	5.00	7.500	4.50	177.9	0.0	423.9
148.00		1.00	1.37	36.101	39.71	182.76	0.600	0.000	3.00	4.500	2.70	107.2	0.0	254.4
								Totals:	**148.00**			**10,890.2**		**27,630.7**

Discrete Appurtenance Forces

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

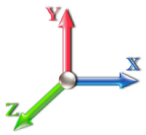
Tower Engineering Solutions

Load Case: 1.2D + 1.0W 105 mph Wind at 60° - Controlling Direction

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	145.00	AHLOB AirScale Dual	3	35.946	39.541	0.54	0.80	4.70	297.72	0.000	0.000	-92.83	0.00	0.00
2	145.00	AHFII AirScale RRH 4T4R	3	35.946	39.541	0.54	0.80	5.18	253.98	0.000	0.000	-102.37	0.00	0.00
3	145.00	AEHC	3	35.946	39.541	0.56	0.80	11.42	356.40	0.000	0.000	-225.86	0.00	0.00
4	145.00	PV-MPM-DA	1	35.946	39.541	0.75	0.75	20.70	1572.00	0.000	0.000	-409.25	0.00	0.00
5	145.00	FFVV-65A-R2-V1	3	35.946	39.541	0.61	0.80	17.51	100.80	0.000	0.000	-346.19	0.00	0.00
6	123.00	Antel	3	34.722	38.194	0.55	0.75	7.75	35.64	0.000	0.000	-148.05	0.00	0.00
7	123.00	Antel	3	35.015	38.516	0.63	0.75	5.56	37.80	0.000	5.000	-107.01	0.00	-535.05
8	123.00	JMA DBC-67C-U-2SF	3	34.722	38.194	0.50	0.75	0.53	24.12	0.000	0.000	-10.08	0.00	0.00
9	123.00	Platform w/ Hand Rails	1	34.722	38.194	1.00	1.00	40.00	2400.00	0.000	0.000	-763.89	0.00	0.00
10	100.00	Raycap DC6-48-60-18-8F	1	33.241	36.566	0.50	0.75	0.46	38.16	0.000	0.000	-8.45	0.00	0.00
11	100.00	CBC71726T-DS-43	3	33.241	36.566	0.50	0.75	0.68	14.40	0.000	0.000	-12.40	0.00	0.00
12	100.00	Amphenol	3	33.241	36.566	0.62	0.75	10.16	107.28	0.000	0.000	-185.74	0.00	0.00
13	100.00	Platform w/ Hand Rails	1	33.241	36.566	1.00	1.00	40.00	2400.00	0.000	0.000	-731.31	0.00	0.00
							Totals:		**7,638.30**			**-3,143.41**		

Total Applied Force Summary

Structure:	TN01807-B-SBA		**Code:**	TIA-222-H	1/30/2026
Site Name:	Swanson		**Exposure:**	C	1.9.2.7.447
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

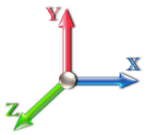
Tower Engineering Solutions

Load Case: 1.2D + 1.0W 105 mph Wind at 60° - Controlling Direction

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		-249.63	-1679.33	0.00	0.00
10.00		-242.59	-1634.61	0.00	0.00
15.00		-235.55	-1589.89	0.00	0.00
20.00		-242.47	-1545.16	0.00	0.00
25.00		-246.31	-1500.44	0.00	0.00
30.00		-247.81	-1455.72	0.00	0.00
35.00		-247.59	-1410.99	0.00	0.00
40.00		-246.01	-1366.27	0.00	0.00
45.00		-243.33	-1321.55	0.00	0.00
47.00		-95.72	-516.10	0.00	0.00
50.00		-143.69	-1356.00	0.00	0.00
53.25		-154.01	-1435.49	0.00	0.00
55.00		-81.88	-367.94	0.00	0.00
60.00		-231.92	-1025.78	0.00	0.00
65.00		-226.29	-988.03	0.00	0.00
70.00		-220.13	-950.28	0.00	0.00
75.00		-213.49	-912.53	0.00	0.00
80.00		-206.42	-874.78	0.00	0.00
85.00		-198.94	-837.03	0.00	0.00
90.00		-191.10	-799.28	0.00	0.00
95.00		-182.93	-761.53	0.00	0.00
99.00		-140.09	-582.04	0.00	0.00
100.00	(8) attachments	-959.84	-2690.99	0.00	0.00
105.00		-110.83	-629.58	0.00	0.00
110.00		-111.92	-629.58	0.00	0.00
115.00		-112.97	-629.58	0.00	0.00
119.00		-91.03	-503.66	0.00	0.00
120.00		-17.10	-97.05	0.00	0.00
123.00	(10) attachments	-1080.59	-2788.72	0.00	-535.05
125.00		-34.49	-194.11	0.00	0.00
130.00		-86.94	-477.77	0.00	0.00
135.00		-87.64	-466.54	0.00	0.00
139.00		-70.54	-373.23	0.00	0.00
140.00		-17.66	-93.31	0.00	0.00
145.00	(13) attachments	-1265.45	-3047.44	0.00	0.00
148.00		-53.61	-254.36	0.00	0.00
	Totals:	**-8,588.53**	**-37,786.70**	**0.00**	**-535.05**

Linear Appurtenance Segment Forces (Factored)

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H		1/30/2026
Site Name:	Swanson	**Exposure:**	C		1.9.2.7.447
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II		Page: 11

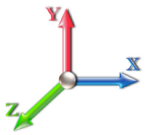
Tower Engineering Solutions

Load Case: 1.2D + 1.0W 105 mph Wind at 60° - Controlling Direction

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	22.325	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.025	0.000	22.325	0.00	12.48
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	22.325	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.025	0.000	22.325	0.00	12.48
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	22.325	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.026	0.000	22.325	0.00	12.48
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	23.688	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.027	0.000	23.688	0.00	12.48
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	24.827	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.028	0.000	24.827	0.00	12.48
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	25.799	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.029	0.000	25.799	0.00	12.48
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	26.650	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.030	0.000	26.650	0.00	12.48
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	27.410	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.031	0.000	27.410	0.00	12.48
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.032	0.000	28.098	0.00	1.64
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.032	0.000	28.098	0.00	12.48
47.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.033	0.000	28.356	0.00	0.66
47.00	Step bolts (ladder)	Yes	2.00	0.000	1.26	0.21	0.00	0.033	0.000	28.356	0.00	4.99
50.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.033	0.000	28.728	0.00	0.98
50.00	Step bolts (ladder)	Yes	3.00	0.000	1.26	0.32	0.00	0.033	0.000	28.728	0.00	7.49
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.034	0.000	29.111	0.00	1.06
53.25	Step bolts (ladder)	Yes	3.25	0.000	1.26	0.34	0.00	0.034	0.000	29.111	0.00	8.11
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.034	0.000	29.310	0.00	0.57
55.00	Step bolts (ladder)	Yes	1.75	0.000	1.26	0.18	0.00	0.034	0.000	29.310	0.00	4.37
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	29.852	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.035	0.000	29.852	0.00	12.48
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	30.359	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.037	0.000	30.359	0.00	12.48
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.038	0.000	30.837	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.038	0.000	30.837	0.00	12.48
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.040	0.000	31.288	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.040	0.000	31.288	0.00	12.48
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.042	0.000	31.716	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.042	0.000	31.716	0.00	12.48
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.044	0.000	32.123	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.044	0.000	32.123	0.00	12.48
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.047	0.000	32.512	0.00	1.64
90.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.047	0.000	32.512	0.00	12.48
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.049	0.000	32.884	0.00	1.64
95.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.049	0.000	32.884	0.00	12.48
99.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.052	0.000	33.171	0.00	1.31
99.00	Step bolts (ladder)	Yes	4.00	0.000	1.26	0.42	0.00	0.052	0.000	33.171	0.00	9.98
									Totals:		**0.0**	**279.5**

Calculated Forces

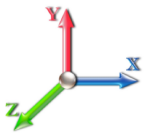
Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 105 mph Wind at 60° - Controlling Direction

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-37.78	-8.60	0.00	-745.90	-1291.9	1491.80	4644.45	1375.42	7574.85	6357.47	0.00	0.000	0.000	0.243
5.00	-36.09	-8.36	0.00	-702.92	-1217.4	1405.84	4585.55	1336.98	7157.33	6100.43	0.03	0.047	0.000	0.238
10.00	-34.44	-8.13	0.00	-661.11	-1145.0	1322.22	4522.57	1298.53	6751.64	5842.65	0.10	0.096	0.000	0.234
15.00	-32.84	-7.91	0.00	-620.45	-1074.6	1240.90	4455.52	1260.09	6357.78	5584.61	0.23	0.145	0.000	0.230
20.00	-31.28	-7.68	0.00	-580.90	-1006.1	1161.80	4384.38	1221.65	5975.77	5326.77	0.41	0.196	0.000	0.225
25.00	-29.77	-7.44	0.00	-542.51	-939.64	1085.01	4309.17	1183.20	5605.58	5069.61	0.64	0.249	0.000	0.221
30.00	-28.30	-7.21	0.00	-505.29	-875.17	1010.57	4229.88	1144.76	5247.23	4813.59	0.93	0.302	0.000	0.217
35.00	-26.88	-6.97	0.00	-469.26	-812.77	938.51	4146.51	1106.31	4900.72	4559.19	1.28	0.357	0.000	0.212
40.00	-25.50	-6.73	0.00	-434.43	-752.43	868.84	4059.06	1067.87	4566.04	4306.88	1.68	0.414	0.000	0.208
45.00	-24.17	-6.49	0.00	-400.78	-694.15	801.54	3967.54	1029.43	4243.20	4057.13	2.15	0.472	0.000	0.204
47.00	-23.65	-6.40	0.00	-387.80	-671.67	775.58	3929.79	1014.05	4117.38	3958.05	2.35	0.497	0.000	0.202
50.00	-22.29	-6.26	0.00	-368.61	-638.42	737.19	3871.93	990.98	3932.20	3810.40	2.68	0.534	0.000	0.199
53.25	-20.85	-6.10	0.00	-348.28	-603.20	696.53	3027.11	821.99	3205.17	2930.61	3.06	0.574	0.000	0.245
55.00	-20.47	-6.03	0.00	-337.60	-584.71	675.18	3003.11	810.63	3117.21	2866.94	3.27	0.597	0.000	0.243
60.00	-19.44	-5.80	0.00	-307.48	-532.53	614.92	2931.80	778.18	2872.64	2686.07	3.94	0.670	0.000	0.236
65.00	-18.44	-5.58	0.00	-278.48	-482.29	556.91	2856.41	745.73	2638.06	2507.10	4.68	0.745	0.000	0.229
70.00	-17.48	-5.37	0.00	-250.58	-433.96	501.11	2776.94	713.28	2413.47	2330.52	5.50	0.822	0.000	0.222
75.00	-16.56	-5.16	0.00	-223.75	-387.49	447.45	2693.39	680.83	2198.87	2156.78	6.40	0.901	0.000	0.214
80.00	-15.68	-4.96	0.00	-197.96	-342.83	395.88	2605.76	648.38	1994.26	1986.36	7.39	0.982	0.000	0.206
85.00	-14.84	-4.76	0.00	-173.19	-299.92	346.33	2514.05	615.93	1799.64	1819.74	8.47	1.064	0.000	0.196
90.00	-14.03	-4.57	0.00	-149.40	-258.71	298.74	2418.27	583.48	1615.01	1657.37	9.63	1.148	0.000	0.186
95.00	-13.27	-4.39	0.00	-126.54	-219.12	253.04	2318.40	551.03	1440.37	1499.74	10.87	1.232	0.000	0.175
99.00	-12.69	-4.25	0.00	-108.99	-188.72	217.93	2222.82	525.07	1307.85	1369.50	11.94	1.300	0.000	0.165
99.00	-12.69	-4.25	0.00	-108.99	-188.72	217.93	1052.07	315.62	44251.0	624.04	11.94	-0.650	0.000	0.362
100.00	-10.03	-3.26	0.00	-104.74	-181.37	209.44	1052.07	315.62	44251.0	624.04	12.21	1.318	0.000	0.346
105.00	-9.39	-3.16	0.00	-88.43	-153.10	176.80	1052.07	315.62	44251.0	624.04	13.67	1.459	0.000	0.293
110.00	-8.76	-3.04	0.00	-72.65	-125.78	145.25	1052.07	315.62	44251.0	624.04	15.26	1.577	0.000	0.241
115.00	-8.13	-2.93	0.00	-57.43	-99.42	114.81	1052.07	315.62	44251.0	624.04	16.96	1.672	0.000	0.192
119.00	-7.62	-2.83	0.00	-45.71	-79.14	91.40	1052.07	315.62	44251.0	624.04	18.39	1.732	0.000	0.154
119.00	-7.62	-2.83	0.00	-45.71	-79.14	91.40	784.88	235.46	24628.5	367.00	18.39	-0.866	0.000	0.259
120.00	-7.52	-2.82	0.00	-42.88	-74.24	85.73	784.88	235.46	24628.5	367.00	18.76	1.745	0.000	0.244
123.00	-4.80	-1.70	0.00	-33.90	-58.68	67.77	784.88	235.46	24628.5	367.00	19.88	1.827	0.000	0.191
125.00	-4.60	-1.66	0.00	-30.51	-52.81	60.99	784.88	235.46	24628.5	367.00	20.65	1.873	0.000	0.172
130.00	-4.13	-1.57	0.00	-22.21	-38.44	44.39	784.88	235.46	24628.5	367.00	22.67	1.965	0.000	0.126
135.00	-3.67	-1.47	0.00	-14.36	-24.86	28.71	784.88	235.46	24628.5	367.00	24.76	2.030	0.000	0.083
139.00	-3.30	-1.40	0.00	-8.47	-14.65	16.92	784.88	235.46	24628.5	367.00	26.48	2.062	0.000	0.050
139.00	-3.30	-1.40	0.00	-8.47	-14.65	16.92	784.88	235.46	24628.5	367.00	26.48	-1.031	0.000	0.050
140.00	-3.20	-1.38	0.00	-7.07	-12.23	14.13	784.88	235.46	24628.5	367.00	26.91	2.068	0.000	0.043
145.00	-0.25	-0.06	0.00	-0.17	-0.30	0.35	784.88	235.46	24628.5	367.00	29.08	2.080	0.000	0.001
148.00	0.00	-0.05	0.00	0.00	0.00	0.00	784.88	235.46	24628.5	367.00	30.39	2.080	0.000	0.000

Wind Loading - Shaft

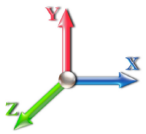
Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind - Controlling Direction **Iterations** 20

Dead Load Factor 1.20 **Ice Thickness:** 1.50

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	1.822	2.00	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	1.822	2.00	0.00	1.200	1.242	5.00	28.884	34.66	69.5	509.4	2087.1
10.00		1.00	0.85	1.822	2.00	0.00	1.200	1.331	5.00	28.173	33.81	67.8	531.4	2064.4
15.00		1.00	0.85	1.822	2.00	0.00	1.200	1.386	5.00	27.434	32.92	66.0	537.9	2026.1
20.00		1.00	0.90	1.934	2.13	0.00	1.200	1.427	5.00	26.683	32.02	68.1	537.5	1981.0
25.00		1.00	0.95	2.027	2.23	0.00	1.200	1.459	5.00	25.925	31.11	69.4	533.1	1931.9
30.00		1.00	0.98	2.106	2.32	0.00	1.200	1.486	5.00	25.162	30.19	70.0	526.1	1880.2
35.00		1.00	1.01	2.175	2.39	0.00	1.200	1.509	5.00	24.397	29.28	70.1	517.1	1826.5
40.00		1.00	1.04	2.238	2.46	0.00	1.200	1.529	5.00	23.629	28.35	69.8	506.6	1771.3
45.00		1.00	1.07	2.294	2.52	0.00	1.200	1.547	5.00	22.859	27.43	69.2	495.0	1714.9
47.00	Bot - Section 2	1.00	1.08	2.315	2.55	0.00	1.200	1.554	2.00	8.926	10.71	27.3	196.0	671.5
50.00		1.00	1.09	2.345	2.58	0.00	1.200	1.564	3.00	13.239	15.89	41.0	291.3	1586.3
53.25	Top - Section 1	1.00	1.11	2.376	2.61	0.00	1.200	1.574	3.25	14.029	16.84	44.0	310.0	1679.4
55.00		1.00	1.12	2.393	2.63	0.00	1.200	1.579	1.75	7.418	8.90	23.4	165.2	497.6
60.00		1.00	1.14	2.437	2.68	0.00	1.200	1.592	5.00	20.677	24.81	66.5	458.1	1382.2
65.00		1.00	1.16	2.478	2.73	0.00	1.200	1.605	5.00	19.902	23.88	65.1	443.4	1329.8
70.00		1.00	1.17	2.517	2.77	0.00	1.200	1.617	5.00	19.127	22.95	63.6	428.2	1276.9
75.00		1.00	1.19	2.554	2.81	0.00	1.200	1.628	5.00	18.352	22.02	61.9	412.5	1223.5
80.00		1.00	1.21	2.589	2.85	0.00	1.200	1.639	5.00	17.576	21.09	60.1	396.5	1169.6
85.00		1.00	1.22	2.622	2.88	0.00	1.200	1.649	5.00	16.799	20.16	58.1	380.0	1115.4
90.00		1.00	1.24	2.654	2.92	0.00	1.200	1.658	5.00	16.022	19.23	56.1	363.2	1060.9
95.00		1.00	1.25	2.684	2.95	0.00	1.200	1.667	5.00	15.244	18.29	54.0	346.1	1006.0
99.00	Top - Section 2	1.00	1.26	2.708	2.98	0.00	1.200	1.674	4.00	11.635	13.96	41.6	265.7	766.5
100.00	Appurtenance(s)	1.00	1.27	2.714	2.98	0.00	1.200	1.676	1.00	2.279	2.74	8.2	52.6	166.2
105.00		1.00	1.28	2.742	3.02	0.00	1.200	1.684	5.00	11.403	13.68	41.3	264.2	832.5
110.00		1.00	1.29	2.769	3.05	0.00	1.200	1.692	5.00	11.410	13.69	41.7	265.5	833.8
115.00		1.00	1.30	2.795	3.07	0.00	1.200	1.699	5.00	11.416	13.70	42.1	266.8	835.0
119.00	Top - Section 3	1.00	1.31	2.815	3.10	0.00	1.200	1.705	4.00	9.137	10.96	33.9	214.2	668.8
120.00		1.00	1.32	2.820	3.10	0.00	1.200	1.707	1.00	1.784	2.14	6.6	41.1	125.9
123.00	Appurtenance(s)	1.00	1.32	2.834	3.12	0.00	1.200	1.711	3.00	5.355	6.43	20.0	123.6	378.0
125.00		1.00	1.33	2.844	3.13	0.00	1.200	1.714	2.00	3.571	4.29	13.4	82.5	252.1
130.00		1.00	1.34	2.868	3.15	0.00	1.200	1.720	5.00	8.934	10.72	33.8	207.3	631.2
135.00		1.00	1.35	2.891	3.18	0.00	1.200	1.727	5.00	8.939	10.73	34.1	208.1	632.0
139.00	Top - Section 4	1.00	1.36	2.908	3.20	0.00	1.200	1.732	4.00	7.155	8.59	27.5	167.0	506.2
140.00		1.00	1.36	2.913	3.20	0.00	1.200	1.733	1.00	1.789	2.15	6.9	41.8	126.6
145.00	Appurtenance(s)	1.00	1.37	2.934	3.23	0.00	1.200	1.739	5.00	8.949	10.74	34.7	209.7	633.7
148.00		1.00	1.37	2.947	3.24	0.00	1.200	1.743	3.00	5.371	6.45	20.9	126.1	380.5
								Totals:	**148.00**			**1,647.5**		**39,051.4**

Discrete Appurtenance Forces

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

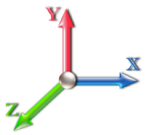
Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind - Controlling Direction

Iterations 20

Dead Load Factor 1.20

Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	145.00	AHLOB AirScale Dual	3	2.934	3.228	0.54	0.80	5.84	453.14	0.000	0.000	-18.86	0.00	0.00
2	145.00	AHFII AirScale RRH 4T4R	3	2.934	3.228	0.54	0.80	6.37	370.91	0.000	0.000	-20.57	0.00	0.00
3	145.00	AEHC	3	2.934	3.228	0.56	0.80	13.19	740.81	0.000	0.000	-42.57	0.00	0.00
4	145.00	PV-MPM-DA	1	2.934	3.228	0.75	0.75	46.62	2557.96	0.000	0.000	-150.49	0.00	0.00
5	145.00	FFVV-65A-R2-V1	3	2.934	3.228	0.61	0.80	19.84	898.29	0.000	0.000	-64.03	0.00	0.00
6	123.00	Antel	3	2.834	3.118	0.55	0.75	10.73	247.88	0.000	0.000	-33.45	0.00	0.00
7	123.00	Antel	3	2.858	3.144	0.63	0.75	8.63	174.17	0.000	5.000	-27.13	0.00	-135.66
8	123.00	JMA DBC-67C-U-2SF	3	2.834	3.118	0.50	0.75	0.94	75.41	0.000	0.000	-2.94	0.00	0.00
9	123.00	Platform w/ Hand Rails	1	2.834	3.118	1.00	1.00	60.53	3853.11	0.000	0.000	-188.73	0.00	0.00
10	100.00	Raycap DC6-48-60-18-8F	1	2.714	2.985	0.50	0.75	0.67	79.83	0.000	0.000	-2.01	0.00	0.00
11	100.00	CBC71726T-DS-43	3	2.714	2.985	0.50	0.75	1.40	33.36	0.000	0.000	-4.18	0.00	0.00
12	100.00	Amphenol	3	2.714	2.985	0.62	0.75	12.00	533.42	0.000	0.000	-35.83	0.00	0.00
13	100.00	Platform w/ Hand Rails	1	2.714	2.985	1.00	1.00	60.11	3811.04	0.000	0.000	-179.43	0.00	0.00
							Totals:		**13,829.32**			**-770.22**		

Total Applied Force Summary

Structure:	TN01807-B-SBA		**Code:**	TIA-222-H	1/30/2026
Site Name:	Swanson		**Exposure:**	C	1.9.2.7.447
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 15

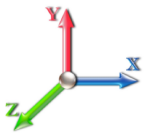
Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind - Controlling Direction

Iterations 20

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		-69.49	-2215.80	0.00	0.00
10.00		-67.78	-2196.41	0.00	0.00
15.00		-66.00	-2160.37	0.00	0.00
20.00		-68.11	-2116.92	0.00	0.00
25.00		-69.36	-2069.16	0.00	0.00
30.00		-69.95	-2018.53	0.00	0.00
35.00		-70.06	-1965.82	0.00	0.00
40.00		-69.79	-1911.52	0.00	0.00
45.00		-69.21	-1855.96	0.00	0.00
47.00		-27.27	-728.01	0.00	0.00
50.00		-40.98	-1671.38	0.00	0.00
53.25		-44.01	-1771.85	0.00	0.00
55.00		-23.43	-547.47	0.00	0.00
60.00		-66.51	-1525.27	0.00	0.00
65.00		-65.11	-1473.44	0.00	0.00
70.00		-63.56	-1421.04	0.00	0.00
75.00		-61.87	-1368.14	0.00	0.00
80.00		-60.07	-1314.79	0.00	0.00
85.00		-58.15	-1261.04	0.00	0.00
90.00		-56.13	-1206.92	0.00	0.00
95.00		-54.02	-1152.47	0.00	0.00
99.00		-41.59	-883.92	0.00	0.00
100.00	(8) attachments	-229.61	-4641.37	0.00	0.00
105.00		-41.27	-893.80	0.00	0.00
110.00		-41.70	-895.11	0.00	0.00
115.00		-42.11	-896.38	0.00	0.00
119.00		-33.95	-717.88	0.00	0.00
120.00		-6.64	-138.14	0.00	0.00
123.00	(10) attachments	-272.29	-4765.33	0.00	-135.66
125.00		-13.41	-276.65	0.00	0.00
130.00		-33.82	-685.03	0.00	0.00
135.00		-34.11	-674.65	0.00	0.00
139.00		-27.47	-540.25	0.00	0.00
140.00		-6.88	-135.09	0.00	0.00
145.00	(13) attachments	-331.19	-5697.36	0.00	0.00
148.00		-20.90	-380.48	0.00	0.00
	Totals:	**-2,417.74**	**-56,173.75**	**0.00**	**-135.66**

Linear Appurtenance Segment Forces (Factored)

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H		1/30/2026
Site Name:	Swanson	**Exposure:**	C		1.9.2.7.447
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II		Page: 16

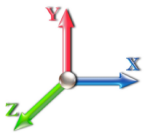
Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind - Controlling Direction

Iterations 20

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	1.19	0.00	0.025	0.000	1.822	0.00	12.93
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.56	0.00	0.025	0.000	1.822	0.00	28.27
10.00	Safety Cable	Yes	5.00	0.000	0.38	1.27	0.00	0.025	0.000	1.822	0.00	14.46
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.63	0.00	0.025	0.000	1.822	0.00	30.10
15.00	Safety Cable	Yes	5.00	0.000	0.38	1.31	0.00	0.026	0.000	1.822	0.00	15.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.68	0.00	0.026	0.000	1.822	0.00	31.28
20.00	Safety Cable	Yes	5.00	0.000	0.38	1.35	0.00	0.027	0.000	1.934	0.00	16.21
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.71	0.00	0.027	0.000	1.934	0.00	32.18
25.00	Safety Cable	Yes	5.00	0.000	0.38	1.37	0.00	0.028	0.000	2.027	0.00	16.83
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.74	0.00	0.028	0.000	2.027	0.00	32.90
30.00	Safety Cable	Yes	5.00	0.000	0.38	1.40	0.00	0.029	0.000	2.106	0.00	17.35
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.76	0.00	0.029	0.000	2.106	0.00	33.51
35.00	Safety Cable	Yes	5.00	0.000	0.38	1.42	0.00	0.030	0.000	2.175	0.00	17.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.78	0.00	0.030	0.000	2.175	0.00	34.05
40.00	Safety Cable	Yes	5.00	0.000	0.38	1.43	0.00	0.031	0.000	2.238	0.00	18.21
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.80	0.00	0.031	0.000	2.238	0.00	34.52
45.00	Safety Cable	Yes	5.00	0.000	0.38	1.45	0.00	0.032	0.000	2.294	0.00	18.58
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.81	0.00	0.032	0.000	2.294	0.00	34.95
47.00	Safety Cable	Yes	2.00	0.000	0.38	0.58	0.00	0.033	0.000	2.315	0.00	7.49
47.00	Step bolts (ladder)	Yes	2.00	0.000	1.26	0.73	0.00	0.033	0.000	2.315	0.00	14.04
50.00	Safety Cable	Yes	3.00	0.000	0.38	0.88	0.00	0.033	0.000	2.345	0.00	11.35
50.00	Step bolts (ladder)	Yes	3.00	0.000	1.26	1.10	0.00	0.033	0.000	2.345	0.00	21.21
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.96	0.00	0.034	0.000	2.376	0.00	12.43
53.25	Step bolts (ladder)	Yes	3.25	0.000	1.26	1.19	0.00	0.034	0.000	2.376	0.00	23.13
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.52	0.00	0.034	0.000	2.393	0.00	6.73
55.00	Step bolts (ladder)	Yes	1.75	0.000	1.26	0.64	0.00	0.034	0.000	2.393	0.00	12.50
60.00	Safety Cable	Yes	5.00	0.000	0.38	1.49	0.00	0.035	0.000	2.437	0.00	19.51
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.85	0.00	0.035	0.000	2.437	0.00	36.04
65.00	Safety Cable	Yes	5.00	0.000	0.38	1.50	0.00	0.037	0.000	2.478	0.00	19.78
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.86	0.00	0.037	0.000	2.478	0.00	36.35
70.00	Safety Cable	Yes	5.00	0.000	0.38	1.51	0.00	0.038	0.000	2.517	0.00	20.03
70.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.87	0.00	0.038	0.000	2.517	0.00	36.64
75.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.040	0.000	2.554	0.00	20.27
75.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.88	0.00	0.040	0.000	2.554	0.00	36.92
80.00	Safety Cable	Yes	5.00	0.000	0.38	1.52	0.00	0.042	0.000	2.589	0.00	20.49
80.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.89	0.00	0.042	0.000	2.589	0.00	37.18
85.00	Safety Cable	Yes	5.00	0.000	0.38	1.53	0.00	0.044	0.000	2.622	0.00	20.71
85.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.90	0.00	0.044	0.000	2.622	0.00	37.43
90.00	Safety Cable	Yes	5.00	0.000	0.38	1.54	0.00	0.047	0.000	2.654	0.00	20.91
90.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.91	0.00	0.047	0.000	2.654	0.00	37.67
95.00	Safety Cable	Yes	5.00	0.000	0.38	1.55	0.00	0.049	0.000	2.684	0.00	21.11
95.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	1.91	0.00	0.049	0.000	2.684	0.00	37.89
99.00	Safety Cable	Yes	4.00	0.000	0.38	1.24	0.00	0.052	0.000	2.708	0.00	17.01
99.00	Step bolts (ladder)	Yes	4.00	0.000	1.26	1.54	0.00	0.052	0.000	2.708	0.00	30.45
										Totals:	**0.0**	**1,054.8**

Calculated Forces

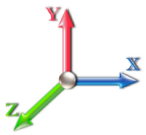
Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 30 mph Wind - Controlling Direction

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-56.17	-2.42	0.00	-212.17	0.00	212.17	4644.45	1375.42	7574.85	6357.47	0.00	0.000	0.000	0.045
5.00	-53.96	-2.36	0.00	-200.07	0.00	200.07	4585.55	1336.98	7157.33	6100.43	0.00	0.007	0.000	0.045
10.00	-51.76	-2.30	0.00	-188.28	0.00	188.28	4522.57	1298.53	6751.64	5842.65	0.01	0.014	0.000	0.044
15.00	-49.60	-2.24	0.00	-176.80	0.00	176.80	4455.52	1260.09	6357.78	5584.61	0.03	0.021	0.000	0.043
20.00	-47.48	-2.17	0.00	-165.63	0.00	165.63	4384.38	1221.65	5975.77	5326.77	0.06	0.028	0.000	0.042
25.00	-45.41	-2.11	0.00	-154.77	0.00	154.77	4309.17	1183.20	5605.58	5069.61	0.09	0.035	0.000	0.041
30.00	-43.39	-2.04	0.00	-144.23	0.00	144.23	4229.88	1144.76	5247.23	4813.59	0.13	0.043	0.000	0.040
35.00	-41.43	-1.98	0.00	-134.02	0.00	134.02	4146.51	1106.31	4900.72	4559.19	0.18	0.051	0.000	0.039
40.00	-39.52	-1.91	0.00	-124.14	0.00	124.14	4059.06	1067.87	4566.04	4306.88	0.24	0.059	0.000	0.039
45.00	-37.66	-1.84	0.00	-114.59	0.00	114.59	3967.54	1029.43	4243.20	4057.13	0.31	0.067	0.000	0.038
47.00	-36.93	-1.82	0.00	-110.90	0.00	110.90	3929.79	1014.05	4117.38	3958.05	0.34	0.071	0.000	0.037
50.00	-35.26	-1.78	0.00	-105.45	0.00	105.45	3871.93	990.98	3932.20	3810.40	0.38	0.076	0.000	0.037
53.25	-33.49	-1.73	0.00	-99.67	0.00	99.67	3027.11	821.99	3205.17	2930.61	0.44	0.082	0.000	0.045
55.00	-32.94	-1.71	0.00	-96.64	0.00	96.64	3003.11	810.63	3117.21	2866.94	0.47	0.085	0.000	0.045
60.00	-31.42	-1.65	0.00	-88.07	0.00	88.07	2931.80	778.18	2872.64	2686.07	0.56	0.096	0.000	0.044
65.00	-29.94	-1.59	0.00	-79.82	0.00	79.82	2856.41	745.73	2638.06	2507.10	0.67	0.106	0.000	0.042
70.00	-28.52	-1.53	0.00	-71.87	0.00	71.87	2776.94	713.28	2413.47	2330.52	0.78	0.117	0.000	0.041
75.00	-27.15	-1.47	0.00	-64.23	0.00	64.23	2693.39	680.83	2198.87	2156.78	0.91	0.129	0.000	0.040
80.00	-25.84	-1.41	0.00	-56.89	0.00	56.89	2605.76	648.38	1994.26	1986.36	1.06	0.140	0.000	0.039
85.00	-24.58	-1.35	0.00	-49.84	0.00	49.84	2514.05	615.93	1799.64	1819.74	1.21	0.152	0.000	0.037
90.00	-23.37	-1.30	0.00	-43.07	0.00	43.07	2418.27	583.48	1615.01	1657.37	1.37	0.164	0.000	0.036
95.00	-22.22	-1.25	0.00	-36.57	0.00	36.57	2318.40	551.03	1440.37	1499.74	1.55	0.176	0.000	0.034
99.00	-21.33	-1.20	0.00	-31.58	0.00	31.58	2222.82	525.07	1307.85	1369.50	1.71	0.186	0.000	0.033
99.00	-21.33	-1.20	0.00	-31.58	0.00	31.58	1052.07	315.62	44251.0	624.04	1.71	-0.186	0.000	0.071
100.00	-16.69	-0.96	0.00	-30.37	0.00	30.37	1052.07	315.62	44251.0	624.04	1.74	0.189	0.000	0.065
105.00	-15.80	-0.92	0.00	-25.56	0.00	25.56	1052.07	315.62	44251.0	624.04	1.95	0.209	0.000	0.056
110.00	-14.90	-0.88	0.00	-20.94	0.00	20.94	1052.07	315.62	44251.0	624.04	2.18	0.226	0.000	0.048
115.00	-14.01	-0.84	0.00	-16.52	0.00	16.52	1052.07	315.62	44251.0	624.04	2.43	0.240	0.000	0.040
119.00	-13.29	-0.80	0.00	-13.16	0.00	13.16	1052.07	315.62	44251.0	624.04	2.63	0.249	0.000	0.034
119.00	-13.29	-0.80	0.00	-13.16	0.00	13.16	784.88	235.46	24628.5	367.00	2.63	-0.249	0.000	0.053
120.00	-13.15	-0.80	0.00	-12.36	0.00	12.36	784.88	235.46	24628.5	367.00	2.68	0.251	0.000	0.050
123.00	-8.39	-0.51	0.00	-9.83	0.00	9.83	784.88	235.46	24628.5	367.00	2.85	0.262	0.000	0.037
125.00	-8.11	-0.49	0.00	-8.81	0.00	8.81	784.88	235.46	24628.5	367.00	2.96	0.269	0.000	0.034
130.00	-7.43	-0.46	0.00	-6.35	0.00	6.35	784.88	235.46	24628.5	367.00	3.25	0.282	0.000	0.027
135.00	-6.75	-0.42	0.00	-4.06	0.00	4.06	784.88	235.46	24628.5	367.00	3.55	0.291	0.000	0.020
139.00	-6.21	-0.39	0.00	-2.38	0.00	2.38	784.88	235.46	24628.5	367.00	3.79	0.296	0.000	0.014
139.00	-6.21	-0.39	0.00	-2.38	0.00	2.38	784.88	235.46	24628.5	367.00	3.79	-0.296	0.000	0.014
140.00	-6.08	-0.38	0.00	-1.99	0.00	1.99	784.88	235.46	24628.5	367.00	3.85	0.297	0.000	0.013
145.00	-0.38	-0.02	0.00	-0.07	0.00	0.07	784.88	235.46	24628.5	367.00	4.17	0.299	0.000	0.001
148.00	0.00	-0.02	0.00	0.00	0.00	0.00	784.88	235.46	24628.5	367.00	4.35	0.299	0.000	0.000

Wind Loading - Shaft

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

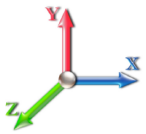
Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind at 90° - Controlling Direction

Iterations 21

Dead Load Factor 1.00 **Ice Thickness:** 0.00

Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	6.523	7.17	309.24	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	6.523	7.17	300.65	0.730	0.000	5.00	27.849	20.33	145.9	0.0	1314.8
10.00		1.00	0.85	6.523	7.17	292.05	0.730	0.000	5.00	27.064	19.76	141.8	0.0	1277.5
15.00		1.00	0.85	6.523	7.17	283.45	0.730	0.000	5.00	26.279	19.18	137.6	0.0	1240.2
20.00		1.00	0.90	6.921	7.61	283.12	0.730	0.000	5.00	25.494	18.61	141.7	0.0	1203.0
25.00		1.00	0.95	7.254	7.98	280.79	0.730	0.000	5.00	24.709	18.04	143.9	0.0	1165.7
30.00		1.00	0.98	7.537	8.29	276.99	0.730	0.000	5.00	23.924	17.46	144.8	0.0	1128.4
35.00		1.00	1.01	7.786	8.56	272.13	0.730	0.000	5.00	23.139	16.89	144.7	0.0	1091.2
40.00		1.00	1.04	8.008	8.81	266.46	0.730	0.000	5.00	22.354	16.32	143.7	0.0	1053.9
45.00		1.00	1.07	8.209	9.03	260.14	0.730	0.000	5.00	21.569	15.75	142.2	0.0	1016.6
47.00	Bot - Section 2	1.00	1.08	8.285	9.11	257.46	0.730	0.000	2.00	8.408	6.14	55.9	0.0	396.2
50.00		1.00	1.09	8.393	9.23	253.29	0.730	0.000	3.00	12.458	9.09	84.0	0.0	1079.2
53.25	Top - Section 1	1.00	1.11	8.505	9.36	248.60	0.730	0.000	3.25	13.177	9.62	90.0	0.0	1141.2
55.00		1.00	1.12	8.563	9.42	247.69	0.730	0.000	1.75	6.958	5.08	47.8	0.0	277.0
60.00		1.00	1.14	8.722	9.59	240.03	0.730	0.000	5.00	19.350	14.13	135.5	0.0	770.1
65.00		1.00	1.16	8.870	9.76	232.04	0.730	0.000	5.00	18.565	13.55	132.2	0.0	738.7
70.00		1.00	1.17	9.009	9.91	223.76	0.730	0.000	5.00	17.780	12.98	128.6	0.0	707.2
75.00		1.00	1.19	9.141	10.06	215.21	0.730	0.000	5.00	16.995	12.41	124.7	0.0	675.8
80.00		1.00	1.21	9.266	10.19	206.44	0.730	0.000	5.00	16.210	11.83	120.6	0.0	644.3
85.00		1.00	1.22	9.385	10.32	197.45	0.730	0.000	5.00	15.425	11.26	116.2	0.0	612.8
90.00		1.00	1.24	9.499	10.45	188.27	0.730	0.000	5.00	14.640	10.69	111.7	0.0	581.4
95.00		1.00	1.25	9.607	10.57	178.91	0.730	0.000	5.00	13.855	10.11	106.9	0.0	549.9
99.00	Top - Section 2	1.00	1.26	9.691	10.66	171.30	0.730	0.000	4.00	10.519	7.68	81.9	0.0	417.3
100.00	Appurtenance(s)	1.00	1.27	9.712	10.68	133.61	0.600	0.000	1.00	2.000	1.20	12.8	0.0	94.7
105.00		1.00	1.28	9.812	10.79	134.30	0.600	0.000	5.00	10.000	6.00	64.8	0.0	473.5
110.00		1.00	1.29	9.909	10.90	134.96	0.600	0.000	5.00	10.000	6.00	65.4	0.0	473.5
115.00		1.00	1.30	10.002	11.00	135.59	0.600	0.000	5.00	10.000	6.00	66.0	0.0	473.5
119.00	Top - Section 3	1.00	1.31	10.074	11.08	136.08	0.600	0.000	4.00	8.000	4.80	53.2	0.0	378.8
120.00		1.00	1.32	10.092	11.10	102.15	0.600	0.000	1.00	1.500	0.90	10.0	0.0	70.7
123.00	Appurtenance(s)	1.00	1.32	10.144	11.16	102.42	0.600	0.000	3.00	4.500	2.70	30.1	0.0	212.0
125.00		1.00	1.33	10.179	11.20	102.59	0.600	0.000	2.00	3.000	1.80	20.2	0.0	141.3
130.00		1.00	1.34	10.263	11.29	103.02	0.600	0.000	5.00	7.500	4.50	50.8	0.0	353.3
135.00		1.00	1.35	10.345	11.38	103.43	0.600	0.000	5.00	7.500	4.50	51.2	0.0	353.3
139.00	Top - Section 4	1.00	1.36	10.409	11.45	103.74	0.600	0.000	4.00	6.000	3.60	41.2	0.0	282.6
140.00		1.00	1.36	10.425	11.47	103.82	0.600	0.000	1.00	1.500	0.90	10.3	0.0	70.7
145.00	Appurtenance(s)	1.00	1.37	10.502	11.55	104.21	0.600	0.000	5.00	7.500	4.50	52.0	0.0	353.3
148.00		1.00	1.37	10.547	11.60	104.43	0.600	0.000	3.00	4.500	2.70	31.3	0.0	212.0
								Totals:	**148.00**			**3,181.7**		**23,025.6**

Discrete Appurtenance Forces

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

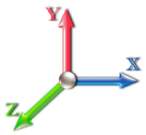
Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind at 90° - Controlling Direction

Iterations 21

Dead Load Factor 1.00

Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	145.00	AHLOB AirScale Dual	3	10.502	11.552	0.54	0.80	4.70	248.10	0.000	0.000	0.00	0.00	0.00
2	145.00	AHFII AirScale RRH 4T4R	3	10.502	11.552	0.54	0.80	5.18	211.65	0.000	0.000	0.00	0.00	0.00
3	145.00	AEHC	3	10.502	11.552	0.56	0.80	11.42	297.00	0.000	0.000	0.00	0.00	0.00
4	145.00	PV-MPM-DA	1	10.502	11.552	0.75	0.75	20.70	1310.00	0.000	0.000	0.00	0.00	0.00
5	145.00	FFVV-65A-R2-V1	3	10.502	11.552	0.61	0.80	17.51	84.00	0.000	0.000	0.00	0.00	0.00
6	123.00	Antel	3	10.144	11.159	0.55	0.75	7.75	29.70	0.000	0.000	0.00	0.00	0.00
7	123.00	Antel	3	10.230	11.253	0.63	0.75	5.56	31.50	0.000	5.000	0.00	0.00	0.00
8	123.00	JMA DBC-67C-U-2SF	3	10.144	11.159	0.50	0.75	0.53	20.10	0.000	0.000	0.00	0.00	0.00
9	123.00	Platform w/ Hand Rails	1	10.144	11.159	1.00	1.00	40.00	2000.00	0.000	0.000	0.00	0.00	0.00
10	100.00	Raycap DC6-48-60-18-8F	1	9.712	10.683	0.50	0.75	0.46	31.80	0.000	0.000	0.00	0.00	0.00
11	100.00	CBC71726T-DS-43	3	9.712	10.683	0.50	0.75	0.68	12.00	0.000	0.000	0.00	0.00	0.00
12	100.00	Amphenol	3	9.712	10.683	0.62	0.75	10.16	89.40	0.000	0.000	0.00	0.00	0.00
13	100.00	Platform w/ Hand Rails	1	9.712	10.683	1.00	1.00	40.00	2000.00	0.000	0.000	0.00	0.00	0.00
							Totals:		**6,365.25**			**0.00**		

Total Applied Force Summary

Structure:	TN01807-B-SBA		**Code:**	TIA-222-H	1/30/2026
Site Name:	Swanson		**Exposure:**	C	1.9.2.7.447
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 20

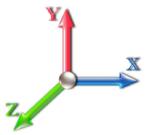
Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind at 90° - Controlling Direction

Iterations 21

Dead Load Factor 1.00

Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		0.00	-1399.44	0.00	0.00
10.00		0.00	-1362.18	0.00	0.00
15.00		0.00	-1324.91	0.00	0.00
20.00		0.00	-1287.64	0.00	0.00
25.00		0.00	-1250.37	0.00	0.00
30.00		0.00	-1213.10	0.00	0.00
35.00		0.00	-1175.83	0.00	0.00
40.00		0.00	-1138.56	0.00	0.00
45.00		0.00	-1101.29	0.00	0.00
47.00		0.00	-430.08	0.00	0.00
50.00		0.00	-1130.00	0.00	0.00
53.25		0.00	-1196.25	0.00	0.00
55.00		0.00	-306.62	0.00	0.00
60.00		0.00	-854.82	0.00	0.00
65.00		0.00	-823.36	0.00	0.00
70.00		0.00	-791.90	0.00	0.00
75.00		0.00	-760.44	0.00	0.00
80.00		0.00	-728.98	0.00	0.00
85.00		0.00	-697.52	0.00	0.00
90.00		0.00	-666.06	0.00	0.00
95.00		0.00	-634.61	0.00	0.00
99.00		0.00	-485.03	0.00	0.00
100.00	(8) attachments	0.00	-2242.49	0.00	0.00
105.00		0.00	-524.65	0.00	0.00
110.00		0.00	-524.65	0.00	0.00
115.00		0.00	-524.65	0.00	0.00
119.00		0.00	-419.72	0.00	0.00
120.00		0.00	-80.88	0.00	0.00
123.00	(10) attachments	0.00	-2323.93	0.00	0.00
125.00		0.00	-161.75	0.00	0.00
130.00		0.00	-398.15	0.00	0.00
135.00		0.00	-388.79	0.00	0.00
139.00		0.00	-311.03	0.00	0.00
140.00		0.00	-77.76	0.00	0.00
145.00	(13) attachments	0.00	-2539.54	0.00	0.00
148.00		0.00	-211.97	0.00	0.00
	Totals:	**0.00**	**-31,488.91**	**0.00**	**0.00**

Linear Appurtenance Segment Forces (Factored)

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

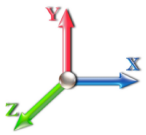
Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind at 90° - Controlling Direction

Iterations 21

Dead Load Factor 1.00

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	6.523	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.025	0.000	6.523	0.00	10.40
10.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.025	0.000	6.523	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.025	0.000	6.523	0.00	10.40
15.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.026	0.000	6.523	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.026	0.000	6.523	0.00	10.40
20.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.027	0.000	6.921	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.027	0.000	6.921	0.00	10.40
25.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.028	0.000	7.254	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.028	0.000	7.254	0.00	10.40
30.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.029	0.000	7.537	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.029	0.000	7.537	0.00	10.40
35.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.030	0.000	7.786	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.030	0.000	7.786	0.00	10.40
40.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.031	0.000	8.008	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.031	0.000	8.008	0.00	10.40
45.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.032	0.000	8.209	0.00	1.37
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.032	0.000	8.209	0.00	10.40
47.00	Safety Cable	Yes	2.00	0.000	0.38	0.06	0.00	0.033	0.000	8.285	0.00	0.55
47.00	Step bolts (ladder)	Yes	2.00	0.000	1.26	0.21	0.00	0.033	0.000	8.285	0.00	4.16
50.00	Safety Cable	Yes	3.00	0.000	0.38	0.10	0.00	0.033	0.000	8.393	0.00	0.82
50.00	Step bolts (ladder)	Yes	3.00	0.000	1.26	0.32	0.00	0.033	0.000	8.393	0.00	6.24
53.25	Safety Cable	Yes	3.25	0.000	0.38	0.10	0.00	0.034	0.000	8.505	0.00	0.89
53.25	Step bolts (ladder)	Yes	3.25	0.000	1.26	0.34	0.00	0.034	0.000	8.505	0.00	6.76
55.00	Safety Cable	Yes	1.75	0.000	0.38	0.06	0.00	0.034	0.000	8.563	0.00	0.48
55.00	Step bolts (ladder)	Yes	1.75	0.000	1.26	0.18	0.00	0.034	0.000	8.563	0.00	3.64
60.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.035	0.000	8.722	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.035	0.000	8.722	0.00	10.40
65.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.037	0.000	8.870	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.037	0.000	8.870	0.00	10.40
70.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.038	0.000	9.009	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.038	0.000	9.009	0.00	10.40
75.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.040	0.000	9.141	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.040	0.000	9.141	0.00	10.40
80.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.042	0.000	9.266	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.042	0.000	9.266	0.00	10.40
85.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.044	0.000	9.385	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.044	0.000	9.385	0.00	10.40
90.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.047	0.000	9.499	0.00	1.37
90.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.047	0.000	9.499	0.00	10.40
95.00	Safety Cable	Yes	5.00	0.000	0.38	0.16	0.00	0.049	0.000	9.607	0.00	1.37
95.00	Step bolts (ladder)	Yes	5.00	0.000	1.26	0.53	0.00	0.049	0.000	9.607	0.00	10.40
99.00	Safety Cable	Yes	4.00	0.000	0.38	0.13	0.00	0.052	0.000	9.691	0.00	1.09
99.00	Step bolts (ladder)	Yes	4.00	0.000	1.26	0.42	0.00	0.052	0.000	9.691	0.00	8.32
									Totals:		**0.0**	**232.9**

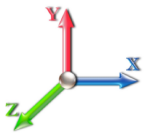
Calculated Forces

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Load Case: 1.0D + 1.0W 60 mph Wind at 90° - Controlling Direction

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-31.49	0.00	0.00	0.00	-434.44	434.44	4644.45	1375.42	7574.85	6357.47	0.00	0.000	0.000	0.075
5.00	-30.09	0.00	0.00	0.00	-409.33	409.33	4585.55	1336.98	7157.33	6100.43	0.01	0.014	0.000	0.074
10.00	-28.72	0.00	0.00	0.00	-384.91	384.91	4522.57	1298.53	6751.64	5842.65	0.03	0.028	0.000	0.072
15.00	-27.40	0.00	0.00	0.00	-361.17	361.17	4455.52	1260.09	6357.78	5584.61	0.07	0.042	0.000	0.071
20.00	-26.11	0.00	0.00	0.00	-338.09	338.09	4384.38	1221.65	5975.77	5326.77	0.12	0.057	0.000	0.069
25.00	-24.86	0.00	0.00	0.00	-315.68	315.68	4309.17	1183.20	5605.58	5069.61	0.19	0.072	0.000	0.068
30.00	-23.64	0.00	0.00	0.00	-293.97	293.97	4229.88	1144.76	5247.23	4813.59	0.27	0.088	0.000	0.067
35.00	-22.47	0.00	0.00	0.00	-272.96	272.96	4146.51	1106.31	4900.72	4559.19	0.37	0.104	0.000	0.065
40.00	-21.33	0.00	0.00	0.00	-252.65	252.65	4059.06	1067.87	4566.04	4306.88	0.49	0.120	0.000	0.064
45.00	-20.23	0.00	0.00	0.00	-233.04	233.04	3967.54	1029.43	4243.20	4057.13	0.63	0.137	0.000	0.063
47.00	-19.80	0.00	0.00	0.00	-225.48	225.48	3929.79	1014.05	4117.38	3958.05	0.68	0.145	0.000	0.062
50.00	-18.67	0.00	0.00	0.00	-214.30	214.30	3871.93	990.98	3932.20	3810.40	0.78	0.155	0.000	0.061
53.25	-17.47	0.00	0.00	0.00	-202.45	202.45	3027.11	821.99	3205.17	2930.61	0.89	0.167	0.000	0.075
55.00	-17.16	0.00	0.00	0.00	-196.23	196.23	3003.11	810.63	3117.21	2866.94	0.95	0.174	0.000	0.074
60.00	-16.31	0.00	0.00	0.00	-178.68	178.68	2931.80	778.18	2872.64	2686.07	1.15	0.195	0.000	0.072
65.00	-15.48	0.00	0.00	0.00	-161.80	161.80	2856.41	745.73	2638.06	2507.10	1.36	0.217	0.000	0.070
70.00	-14.69	0.00	0.00	0.00	-145.56	145.56	2776.94	713.28	2413.47	2330.52	1.60	0.239	0.000	0.068
75.00	-13.93	0.00	0.00	0.00	-129.95	129.95	2693.39	680.83	2198.87	2156.78	1.86	0.262	0.000	0.065
80.00	-13.20	0.00	0.00	0.00	-114.95	114.95	2605.76	648.38	1994.26	1986.36	2.15	0.286	0.000	0.063
85.00	-12.50	0.00	0.00	0.00	-100.54	100.54	2514.05	615.93	1799.64	1819.74	2.46	0.309	0.000	0.060
90.00	-11.83	0.00	0.00	0.00	-86.71	86.71	2418.27	583.48	1615.01	1657.37	2.80	0.334	0.000	0.057
95.00	-11.20	0.00	0.00	0.00	-73.43	73.43	2318.40	551.03	1440.37	1499.74	3.16	0.358	0.000	0.054
99.00	-10.71	0.00	0.00	0.00	-63.23	63.23	2222.82	525.07	1307.85	1369.50	3.47	0.378	0.000	0.051
99.00	-10.71	0.00	0.00	0.00	-63.23	63.23	1052.07	315.62	44251.0	624.04	3.47	0.000	0.000	0.112
100.00	-8.47	0.00	0.00	0.00	-60.76	60.76	1052.07	315.62	44251.0	624.04	3.55	0.383	0.000	0.105
105.00	-7.95	0.00	0.00	0.00	-51.29	51.29	1052.07	315.62	44251.0	624.04	3.97	0.424	0.000	0.090
110.00	-7.42	0.00	0.00	0.00	-42.13	42.13	1052.07	315.62	44251.0	624.04	4.44	0.458	0.000	0.075
115.00	-6.90	0.00	0.00	0.00	-33.30	33.30	1052.07	315.62	44251.0	624.04	4.93	0.486	0.000	0.060
119.00	-6.48	0.00	0.00	0.00	-26.51	26.51	1052.07	315.62	44251.0	624.04	5.35	0.503	0.000	0.049
119.00	-6.48	0.00	0.00	0.00	-26.51	26.51	784.88	235.46	24628.5	367.00	5.35	0.000	0.000	0.081
120.00	-6.40	0.00	0.00	0.00	-24.86	24.86	784.88	235.46	24628.5	367.00	5.45	0.507	0.000	0.076
123.00	-4.08	0.00	0.00	0.00	-19.65	19.65	784.88	235.46	24628.5	367.00	5.78	0.531	0.000	0.059
125.00	-3.92	0.00	0.00	0.00	-17.69	17.69	784.88	235.46	24628.5	367.00	6.00	0.544	0.000	0.053
130.00	-3.52	0.00	0.00	0.00	-12.87	12.87	784.88	235.46	24628.5	367.00	6.59	0.571	0.000	0.040
135.00	-3.13	0.00	0.00	0.00	-8.33	8.33	784.88	235.46	24628.5	367.00	7.20	0.590	0.000	0.027
139.00	-2.82	0.00	0.00	0.00	-4.91	4.91	784.88	235.46	24628.5	367.00	7.70	0.599	0.000	0.017
139.00	-2.82	0.00	0.00	0.00	-4.91	4.91	784.88	235.46	24628.5	367.00	7.70	0.000	0.000	0.017
140.00	-2.74	0.00	0.00	0.00	-4.10	4.10	784.88	235.46	24628.5	367.00	7.82	0.600	0.000	0.015
145.00	-0.21	0.00	0.00	0.00	-0.10	0.10	784.88	235.46	24628.5	367.00	8.45	0.604	0.000	0.001
148.00	0.00	0.00	0.00	0.00	0.00	0.00	784.88	235.46	24628.5	367.00	8.83	0.604	0.000	0.000

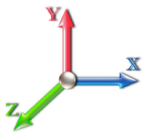
Seismic Segment Forces (Factored)

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.27	**Iterations**	20
Dead Load Factor	0.00	**Seismic Load Factor**	1.00	**Sd1**	0.20	**Ss**	0.25
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.53	**SA**	0.10	**S1**	0.13
						Seismic Importance Factor	1.00



Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		1314.7	2.50	69.84	0.26	
10.00		1277.5	7.50	67.86	1.60	
15.00		1240.2	12.50	65.88	3.61	
20.00		1202.9	17.50	63.90	6.04	
25.00		1165.6	22.50	61.92	8.74	
30.00		1128.4	27.50	59.94	11.61	
35.00		1091.1	32.50	57.96	14.54	
40.00		1053.8	37.50	55.98	17.45	
45.00		1016.6	42.50	54.00	20.27	
47.00	Bot - Section 2	396.21	46.00	21.05	4.74	
50.00		1079.1	48.50	57.33	28.01	
53.25	Top - Section 1	1141.2	51.63	60.62	34.19	
55.00		276.98	54.13	14.71	3.41	
60.00		770.14	57.50	40.91	21.13	
65.00		738.68	62.50	39.24	22.67	
70.00		707.22	67.50	37.57	23.98	
75.00		675.77	72.50	35.90	25.06	
80.00		644.31	77.50	34.23	25.87	
85.00		612.85	82.50	32.55	26.42	
90.00		581.39	87.50	30.88	26.70	
95.00		549.93	92.50	29.21	26.69	
99.00	Top - Section 2	417.29	97.00	22.17	18.16	
100.00	Appurtenance(s)	2227.9	99.50	118.35	318.84	
105.00		473.54	102.50	25.15	24.67	
110.00		473.54	107.50	25.15	26.73	
115.00		473.54	112.50	25.15	28.86	
119.00	Top - Section 3	378.83	117.00	20.12	21.17	
120.00		70.66	119.50	3.75	1.29	
123.00	Appurtenance(s)	2293.2	121.50	121.82	468.71	
125.00		141.31	124.00	7.51	4.43	
130.00		353.28	127.50	18.77	21.75	
135.00		353.28	132.50	18.77	23.20	
139.00	Top - Section 4	282.62	137.00	15.01	16.85	
140.00		70.66	139.50	3.75	1.68	
145.00	Appurtenance(s)	2504.0	142.50	133.01	711.07	
148.00		211.97	146.50	11.26	11.62	
	Totals:	**29,390.8**		**1,561.2**	**2,052.0**	**Total Wind:** **-17,177.1**

Calculated Forces

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H		1/30/2026
Site Name:	Swanson	**Exposure:**	C		1.9.2.7.447
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II		Page: 24

Tower Engineering Solutions

Load Case: 1.2D + 1.0Ev + 1.0Eh

Iterations 20

Gust Response Factor	1.10			**Sds**	0.27			**Ss**	0.25
Dead Load Factor	0.00	**Seismic Load Factor**	1.00	**Sd1**	0.20			**S1**	0.13
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.53	**SA**	0.10			**Seismic Importance Factor**	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-1.56	2.05	0.00	238.97	0.00	238.97	4644.45	1375.42	7574.85	6357.47		0.00	0.00	0.038
5.00	-1.49	2.05	0.00	228.71	0.00	228.71	4585.55	1336.98	7157.33	6100.43		0.00	0.01	0.038
10.00	-1.42	2.05	0.00	218.45	0.00	218.45	4522.57	1298.53	6751.64	5842.65		0.02	0.02	0.038
15.00	-1.36	2.05	0.00	208.20	0.00	208.20	4455.52	1260.09	6357.78	5584.61		0.04	0.02	0.038
20.00	-1.29	2.04	0.00	197.97	0.00	197.97	4384.38	1221.65	5975.77	5326.77		0.07	0.03	0.037
25.00	-1.23	2.03	0.00	187.77	0.00	187.77	4309.17	1183.20	5605.58	5069.61		0.11	0.04	0.037
30.00	-1.17	2.02	0.00	177.61	0.00	177.61	4229.88	1144.76	5247.23	4813.59		0.15	0.05	0.037
35.00	-1.11	2.01	0.00	167.50	0.00	167.50	4146.51	1106.31	4900.72	4559.19		0.21	0.06	0.037
40.00	-1.06	1.99	0.00	157.47	0.00	157.47	4059.06	1067.87	4566.04	4306.88		0.28	0.07	0.037
45.00	-1.00	1.97	0.00	147.53	0.00	147.53	3967.54	1029.43	4243.20	4057.13		0.36	0.08	0.037
47.00	-0.98	1.96	0.00	143.59	0.00	143.59	3929.79	1014.05	4117.38	3958.05		0.40	0.09	0.037
50.00	-0.92	1.94	0.00	137.70	0.00	137.70	3871.93	990.98	3932.20	3810.40		0.45	0.09	0.036
53.25	-0.86	1.90	0.00	131.41	0.00	131.41	3027.11	821.99	3205.17	2930.61		0.52	0.10	0.045
55.00	-0.85	1.90	0.00	128.08	0.00	128.08	3003.11	810.63	3117.21	2866.94		0.56	0.10	0.045
60.00	-0.81	1.88	0.00	118.59	0.00	118.59	2931.80	778.18	2872.64	2686.07		0.67	0.12	0.044
65.00	-0.77	1.85	0.00	109.20	0.00	109.20	2856.41	745.73	2638.06	2507.10		0.81	0.13	0.044
70.00	-0.73	1.83	0.00	99.93	0.00	99.93	2776.94	713.28	2413.47	2330.52		0.95	0.15	0.043
75.00	-0.69	1.81	0.00	90.77	0.00	90.77	2693.39	680.83	2198.87	2156.78		1.12	0.16	0.042
80.00	-0.66	1.78	0.00	81.74	0.00	81.74	2605.76	648.38	1994.26	1986.36		1.30	0.18	0.041
85.00	-0.62	1.75	0.00	72.84	0.00	72.84	2514.05	615.93	1799.64	1819.74		1.50	0.20	0.040
90.00	-0.59	1.73	0.00	64.07	0.00	64.07	2418.27	583.48	1615.01	1657.37		1.71	0.22	0.039
95.00	-0.56	1.70	0.00	55.43	0.00	55.43	2318.40	551.03	1440.37	1499.74		1.95	0.23	0.037
99.00	-0.54	1.68	0.00	48.63	0.00	48.63	2222.82	525.07	1307.85	1369.50		2.15	0.25	0.036
99.00	-0.54	1.68	0.00	48.63	0.00	48.63	1052.07	315.62	44251.0	624.04		2.15	0.25	0.078
100.00	-0.42	1.36	0.00	46.95	0.00	46.95	1052.07	315.62	44251.0	624.04		2.21	0.25	0.076
105.00	-0.40	1.34	0.00	40.13	0.00	40.13	1052.07	315.62	44251.0	624.04		2.49	0.28	0.065
110.00	-0.37	1.31	0.00	33.43	0.00	33.43	1052.07	315.62	44251.0	624.04		2.80	0.31	0.054
115.00	-0.35	1.28	0.00	26.87	0.00	26.87	1052.07	315.62	44251.0	624.04		3.14	0.33	0.043
119.00	-0.33	1.26	0.00	21.74	0.00	21.74	1052.07	315.62	44251.0	624.04		3.42	0.35	0.035
119.00	-0.33	1.26	0.00	21.74	0.00	21.74	784.88	235.46	24628.5	367.00		3.42	0.35	0.060
120.00	-0.32	1.26	0.00	20.48	0.00	20.48	784.88	235.46	24628.5	367.00		3.50	0.35	0.056
123.00	-0.20	0.79	0.00	16.69	0.00	16.69	784.88	235.46	24628.5	367.00		3.73	0.37	0.046
125.00	-0.20	0.79	0.00	15.11	0.00	15.11	784.88	235.46	24628.5	367.00		3.88	0.38	0.041
130.00	-0.18	0.77	0.00	11.17	0.00	11.17	784.88	235.46	24628.5	367.00		4.30	0.41	0.031
135.00	-0.16	0.74	0.00	7.35	0.00	7.35	784.88	235.46	24628.5	367.00		4.73	0.42	0.020
139.00	-0.14	0.73	0.00	4.38	0.00	4.38	784.88	235.46	24628.5	367.00		5.09	0.43	0.012
139.00	-0.14	0.73	0.00	4.38	0.00	4.38	784.88	235.46	24628.5	367.00		5.09	0.43	0.012
140.00	-0.14	0.72	0.00	3.65	0.00	3.65	784.88	235.46	24628.5	367.00		5.18	0.43	0.010
145.00	-0.01	0.01	0.00	0.03	0.00	0.03	784.88	235.46	24628.5	367.00		5.63	0.43	0.000
148.00	0.00	0.01	0.00	0.00	0.00	0.00	784.88	235.46	24628.5	367.00		5.90	0.43	0.000

Seismic Segment Forces (Factored)

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H	1/30/2026	
Site Name:	Swanson	**Exposure:**	C	1.9.2.7.447	
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 0.9D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.27	**Iterations**	20
Dead Load Factor	0.00	**Seismic Load Factor**	1.00	**Sd1**	0.20	**Ss**	0.25
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.53	**SA**	0.10	**S1**	0.13
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		1314.7	2.50	69.84	0.26	
10.00		1277.5	7.50	67.86	1.60	
15.00		1240.2	12.50	65.88	3.61	
20.00		1202.9	17.50	63.90	6.04	
25.00		1165.6	22.50	61.92	8.74	
30.00		1128.4	27.50	59.94	11.61	
35.00		1091.1	32.50	57.96	14.54	
40.00		1053.8	37.50	55.98	17.45	
45.00		1016.6	42.50	54.00	20.27	
47.00	Bot - Section 2	396.21	46.00	21.05	4.74	
50.00		1079.1	48.50	57.33	28.01	
53.25	Top - Section 1	1141.2	51.63	60.62	34.19	
55.00		276.98	54.13	14.71	3.41	
60.00		770.14	57.50	40.91	21.13	
65.00		738.68	62.50	39.24	22.67	
70.00		707.22	67.50	37.57	23.98	
75.00		675.77	72.50	35.90	25.06	
80.00		644.31	77.50	34.23	25.87	
85.00		612.85	82.50	32.55	26.42	
90.00		581.39	87.50	30.88	26.70	
95.00		549.93	92.50	29.21	26.69	
99.00	Top - Section 2	417.29	97.00	22.17	18.16	
100.00	Appurtenance(s)	2227.9	99.50	118.35	318.84	
105.00		473.54	102.50	25.15	24.67	
110.00		473.54	107.50	25.15	26.73	
115.00		473.54	112.50	25.15	28.86	
119.00	Top - Section 3	378.83	117.00	20.12	21.17	
120.00		70.66	119.50	3.75	1.29	
123.00	Appurtenance(s)	2293.2	121.50	121.82	468.71	
125.00		141.31	124.00	7.51	4.43	
130.00		353.28	127.50	18.77	21.75	
135.00		353.28	132.50	18.77	23.20	
139.00	Top - Section 4	282.62	137.00	15.01	16.85	
140.00		70.66	139.50	3.75	1.68	
145.00	Appurtenance(s)	2504.0	142.50	133.01	711.07	
148.00		211.97	146.50	11.26	11.62	
	Totals:	**29,390.8**		**1,561.2**	**2,052.0**	**Total Wind:** **-17,177.1**

Calculated Forces

Structure:	TN01807-B-SBA	**Code:**	TIA-222-H		1/30/2026
Site Name:	Swanson	**Exposure:**	C		1.9.2.7.447
Height:	148.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II		Page: 26

Tower Engineering Solutions

Load Case: 0.9D + 1.0Ev + 1.0Eh

Gust Response Factor	1.10			**Sds**	0.27			**Iterations**	20
Dead Load Factor	0.00	**Seismic Load Factor**	1.00	**Sd1**	0.20			**Ss**	0.25
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.53	**SA**	0.10			**S1**	0.13
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-1.56	2.05	0.00	238.97	0.00	238.97	4644.45	1375.42	7574.85	6357.47		0.00	0.00	0.038
5.00	-1.49	2.05	0.00	228.71	0.00	228.71	4585.55	1336.98	7157.33	6100.43		0.00	0.01	0.038
10.00	-1.42	2.05	0.00	218.45	0.00	218.45	4522.57	1298.53	6751.64	5842.65		0.02	0.02	0.038
15.00	-1.36	2.05	0.00	208.20	0.00	208.20	4455.52	1260.09	6357.78	5584.61		0.04	0.02	0.038
20.00	-1.29	2.04	0.00	197.97	0.00	197.97	4384.38	1221.65	5975.77	5326.77		0.07	0.03	0.037
25.00	-1.23	2.03	0.00	187.77	0.00	187.77	4309.17	1183.20	5605.58	5069.61		0.11	0.04	0.037
30.00	-1.17	2.02	0.00	177.61	0.00	177.61	4229.88	1144.76	5247.23	4813.59		0.15	0.05	0.037
35.00	-1.11	2.01	0.00	167.50	0.00	167.50	4146.51	1106.31	4900.72	4559.19		0.21	0.06	0.037
40.00	-1.06	1.99	0.00	157.47	0.00	157.47	4059.06	1067.87	4566.04	4306.88		0.28	0.07	0.037
45.00	-1.00	1.97	0.00	147.53	0.00	147.53	3967.54	1029.43	4243.20	4057.13		0.36	0.08	0.037
47.00	-0.98	1.96	0.00	143.59	0.00	143.59	3929.79	1014.05	4117.38	3958.05		0.40	0.09	0.037
50.00	-0.92	1.94	0.00	137.70	0.00	137.70	3871.93	990.98	3932.20	3810.40		0.45	0.09	0.036
53.25	-0.86	1.90	0.00	131.41	0.00	131.41	3027.11	821.99	3205.17	2930.61		0.52	0.10	0.045
55.00	-0.85	1.90	0.00	128.08	0.00	128.08	3003.11	810.63	3117.21	2866.94		0.56	0.10	0.045
60.00	-0.81	1.88	0.00	118.59	0.00	118.59	2931.80	778.18	2872.64	2686.07		0.67	0.12	0.044
65.00	-0.77	1.85	0.00	109.20	0.00	109.20	2856.41	745.73	2638.06	2507.10		0.81	0.13	0.044
70.00	-0.73	1.83	0.00	99.93	0.00	99.93	2776.94	713.28	2413.47	2330.52		0.95	0.15	0.043
75.00	-0.69	1.81	0.00	90.77	0.00	90.77	2693.39	680.83	2198.87	2156.78		1.12	0.16	0.042
80.00	-0.66	1.78	0.00	81.74	0.00	81.74	2605.76	648.38	1994.26	1986.36		1.30	0.18	0.041
85.00	-0.62	1.75	0.00	72.84	0.00	72.84	2514.05	615.93	1799.64	1819.74		1.50	0.20	0.040
90.00	-0.59	1.73	0.00	64.07	0.00	64.07	2418.27	583.48	1615.01	1657.37		1.71	0.22	0.039
95.00	-0.56	1.70	0.00	55.43	0.00	55.43	2318.40	551.03	1440.37	1499.74		1.95	0.23	0.037
99.00	-0.54	1.68	0.00	48.63	0.00	48.63	2222.82	525.07	1307.85	1369.50		2.15	0.25	0.036
99.00	-0.54	1.68	0.00	48.63	0.00	48.63	1052.07	315.62	44251.0	624.04		2.15	0.25	0.078
100.00	-0.42	1.36	0.00	46.95	0.00	46.95	1052.07	315.62	44251.0	624.04		2.21	0.25	0.076
105.00	-0.40	1.34	0.00	40.13	0.00	40.13	1052.07	315.62	44251.0	624.04		2.49	0.28	0.065
110.00	-0.37	1.31	0.00	33.43	0.00	33.43	1052.07	315.62	44251.0	624.04		2.80	0.31	0.054
115.00	-0.35	1.28	0.00	26.87	0.00	26.87	1052.07	315.62	44251.0	624.04		3.14	0.33	0.043
119.00	-0.33	1.26	0.00	21.74	0.00	21.74	1052.07	315.62	44251.0	624.04		3.42	0.35	0.035
119.00	-0.33	1.26	0.00	21.74	0.00	21.74	784.88	235.46	24628.5	367.00		3.42	0.35	0.060
120.00	-0.32	1.26	0.00	20.48	0.00	20.48	784.88	235.46	24628.5	367.00		3.50	0.35	0.056
123.00	-0.20	0.79	0.00	16.69	0.00	16.69	784.88	235.46	24628.5	367.00		3.73	0.37	0.046
125.00	-0.20	0.79	0.00	15.11	0.00	15.11	784.88	235.46	24628.5	367.00		3.88	0.38	0.041
130.00	-0.18	0.77	0.00	11.17	0.00	11.17	784.88	235.46	24628.5	367.00		4.30	0.41	0.031
135.00	-0.16	0.74	0.00	7.35	0.00	7.35	784.88	235.46	24628.5	367.00		4.73	0.42	0.020
139.00	-0.14	0.73	0.00	4.38	0.00	4.38	784.88	235.46	24628.5	367.00		5.09	0.43	0.012
139.00	-0.14	0.73	0.00	4.38	0.00	4.38	784.88	235.46	24628.5	367.00		5.09	0.43	0.012
140.00	-0.14	0.72	0.00	3.65	0.00	3.65	784.88	235.46	24628.5	367.00		5.18	0.43	0.010
145.00	-0.01	0.01	0.00	0.03	0.00	0.03	784.88	235.46	24628.5	367.00		5.63	0.43	0.000
148.00	0.00	0.01	0.00	0.00	0.00	0.00	784.88	235.46	24628.5	367.00		5.90	0.43	0.000

Final Analysis Summary

Structure:	TN01807-B-SBA		**Code:**	TIA-222-H	1/30/2026
Site Name:	Swanson		**Exposure:**	C	1.9.2.7.447
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 27

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.0W 105 mph Wind	17.2	0.00	37.78	0.00	0.00	1491.78
1.2D + 1.0W 105 mph Wind at 30°	14.9	8.60	37.78	745.90	0.00	1291.94
1.2D + 1.0W 105 mph Wind at 60°	8.6	14.89	37.78	1291.94	0.00	745.90
1.2D + 1.0W 105 mph Wind at 90°	0.0	17.19	37.78	1491.78	0.00	0.00
1.2D + 1.0W 105 mph Wind at 120°	8.6	14.89	37.78	1291.94	0.00	745.90
1.2D + 1.0W 105 mph Wind at 150°	14.9	8.60	37.78	745.90	0.00	1291.94
1.2D + 1.0W 105 mph Wind at 180°	17.2	0.00	37.78	0.00	0.00	1491.78
1.2D + 1.0W 105 mph Wind at 210°	14.9	8.60	37.78	745.90	0.00	1291.94
1.2D + 1.0W 105 mph Wind at 240°	8.6	14.89	37.78	1291.94	0.00	745.90
1.2D + 1.0W 105 mph Wind at 270°	0.0	17.19	37.78	1491.78	0.00	0.00
1.2D + 1.0W 105 mph Wind at 300°	8.6	14.89	37.78	1291.94	0.00	745.90
1.2D + 1.0W 105 mph Wind at 330°	14.9	8.60	37.78	745.90	0.00	1291.94
0.9D + 1.0W 105 mph Wind	17.2	0.00	28.33	0.00	0.00	1484.43
0.9D + 1.0W 105 mph Wind at 30°	14.9	8.59	28.33	742.28	0.00	1285.67
0.9D + 1.0W 105 mph Wind at 60°	8.6	14.89	28.33	1285.67	0.00	742.28
0.9D + 1.0W 105 mph Wind at 90°	0.0	17.19	28.33	1484.43	0.00	0.00
0.9D + 1.0W 105 mph Wind at 120°	8.6	14.89	28.33	1285.67	0.00	742.28
0.9D + 1.0W 105 mph Wind at 150°	14.9	8.59	28.33	742.28	0.00	1285.67
0.9D + 1.0W 105 mph Wind at 180°	17.2	0.00	28.33	0.00	0.00	1484.43
0.9D + 1.0W 105 mph Wind at 210°	14.9	8.59	28.33	742.28	0.00	1285.67
0.9D + 1.0W 105 mph Wind at 240°	8.6	14.89	28.33	1285.67	0.00	742.28
0.9D + 1.0W 105 mph Wind at 270°	0.0	17.19	28.33	1484.43	0.00	0.00
0.9D + 1.0W 105 mph Wind at 300°	8.6	14.89	28.33	1285.67	0.00	742.28
0.9D + 1.0W 105 mph Wind at 330°	14.9	8.59	28.33	742.28	0.00	1285.67
1.2D + 1.0Di + 1.0Wi 30 mph Wind	2.4	0.00	56.17	0.00	0.00	212.17
1.2D + 1.0Di + 1.0Wi 30 mph Wind	2.1	1.21	56.17	106.08	0.00	183.74
1.2D + 1.0Di + 1.0Wi 30 mph Wind	1.2	2.10	56.17	183.74	0.00	106.08
1.2D + 1.0Di + 1.0Wi 30 mph Wind	0.0	2.42	56.17	212.17	0.00	0.00
1.2D + 1.0Di + 1.0Wi 30 mph Wind	1.2	2.10	56.17	183.74	0.00	106.08
1.2D + 1.0Di + 1.0Wi 30 mph Wind	2.1	1.21	56.17	106.08	0.00	183.74
1.2D + 1.0Di + 1.0Wi 30 mph Wind	2.4	0.00	56.17	0.00	0.00	212.17
1.2D + 1.0Di + 1.0Wi 30 mph Wind	2.1	1.21	56.17	106.08	0.00	183.74
1.2D + 1.0Di + 1.0Wi 30 mph Wind	1.2	2.10	56.17	183.74	0.00	106.08
1.2D + 1.0Di + 1.0Wi 30 mph Wind	0.0	2.42	56.17	212.17	0.00	0.00
1.2D + 1.0Di + 1.0Wi 30 mph Wind	1.2	2.10	56.17	183.74	0.00	106.08
1.2D + 1.0Di + 1.0Wi 30 mph Wind	2.1	1.21	56.17	106.08	0.00	183.74
1.0D + 1.0W 60 mph Wind	5.0	0.00	31.49	0.00	0.00	434.44
1.0D + 1.0W 60 mph Wind at 30°	4.3	2.51	31.49	217.22	0.00	376.23
1.0D + 1.0W 60 mph Wind at 60°	2.5	4.35	31.49	376.23	0.00	217.22
1.0D + 1.0W 60 mph Wind at 90°	0.0	5.02	31.49	434.44	0.00	0.00
1.0D + 1.0W 60 mph Wind at 120°	2.5	4.35	31.49	376.23	0.00	217.22
1.0D + 1.0W 60 mph Wind at 150°	4.3	2.51	31.49	217.22	0.00	376.23
1.0D + 1.0W 60 mph Wind at 180°	5.0	0.00	31.49	0.00	0.00	434.44
1.0D + 1.0W 60 mph Wind at 210°	4.3	2.51	31.49	217.22	0.00	376.23
1.0D + 1.0W 60 mph Wind at 240°	2.5	4.35	31.49	376.23	0.00	217.22
1.0D + 1.0W 60 mph Wind at 270°	0.0	5.02	31.49	434.44	0.00	0.00
1.0D + 1.0W 60 mph Wind at 300°	2.5	4.35	31.49	376.23	0.00	217.22

Final Analysis Summary

Structure:	TN01807-B-SBA		**Code:**	TIA-222-H	1/30/2026
Site Name:	Swanson		**Exposure:**	C	1.9.2.7.447
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.0D + 1.0W 60 mph Wind at 330°	4.3	2.51	31.49	217.22	0.00	376.23
1.2D + 1.0Ev + 1.0Eh	2.1	0.00	1.56	0.00	0.00	238.97
0.9D + 1.0Ev + 1.0Eh	2.1	0.00	1.56	0.00	0.00	238.97

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.0W 105 mph Wind	-12.69	-8.49	0.00	-217.93	0.00	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 30°	-12.69	-7.36	0.00	-188.75	-108.94	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 60°	-12.69	-4.25	0.00	-108.99	-188.72	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 90°	-12.69	0.00	0.00	0.00	-217.93	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 120°	-12.69	4.25	0.00	108.99	-188.72	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 150°	-12.69	7.36	0.00	188.75	-108.94	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 180°	-12.69	8.49	0.00	217.93	0.00	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 210°	-12.69	7.36	0.00	188.75	108.94	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 240°	-12.69	4.25	0.00	108.99	188.72	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 270°	-12.69	0.00	0.00	0.00	217.93	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 300°	-12.69	-4.25	0.00	-108.99	188.72	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
1.2D + 1.0W 105 mph Wind at 330°	-12.69	-7.36	0.00	-188.75	108.94	217.93	2222.82	525.07	1307.85	1369.50	99.00	0.362
0.9D + 1.0W 105 mph Wind	-9.47	-8.42	0.00	-215.56	0.00	215.56	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 30°	-9.47	-7.29	0.00	-186.72	-107.77	215.59	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 60°	-9.47	-4.21	0.00	-107.81	-186.69	215.59	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 90°	-9.47	0.00	0.00	0.00	-215.56	215.56	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 120°	-9.47	4.21	0.00	107.81	-186.69	215.59	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 150°	-9.47	7.29	0.00	186.72	-107.77	215.59	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 180°	-9.47	8.42	0.00	215.56	0.00	215.56	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 210°	-9.47	7.29	0.00	186.72	107.77	215.59	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 240°	-9.47	4.21	0.00	107.81	186.69	215.59	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 270°	-9.47	0.00	0.00	0.00	215.56	215.56	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 300°	-9.47	-4.21	0.00	-107.81	186.69	215.59	2222.82	525.07	1307.85	1369.50	99.00	0.355
0.9D + 1.0W 105 mph Wind at 330°	-9.47	-7.29	0.00	-186.72	107.77	215.59	2222.82	525.07	1307.85	1369.50	99.00	0.355
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	-1.20	0.00	-31.58	0.00	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	-1.04	0.00	-27.35	-15.79	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	-0.60	0.00	-15.79	-27.35	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	0.00	0.00	0.00	-31.58	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	0.60	0.00	15.79	-27.35	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	1.04	0.00	27.35	-15.79	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	1.20	0.00	31.58	0.00	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	1.04	0.00	27.35	15.79	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	0.60	0.00	15.79	27.35	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	0.00	0.00	0.00	31.58	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	-0.60	0.00	-15.79	27.35	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.2D + 1.0Di + 1.0Wi 30 mph Wind	-21.33	-1.04	0.00	-27.35	15.79	31.58	2222.82	525.07	1307.85	1369.50	99.00	0.071
1.0D + 1.0W 60 mph Wind	-10.71	-2.47	0.00	-63.23	0.00	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 30°	-10.71	-2.14	0.00	-54.76	-31.61	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)						
1.0D + 1.0W 60 mph Wind at 60°	-10.71	-1.23	0.00	-31.62	-54.76	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 90°	-10.71	0.00	0.00	0.00	-63.23	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 120°	-10.71	1.23	0.00	31.62	-54.76	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 150°	-10.71	2.14	0.00	54.76	-31.61	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 180°	-10.71	2.47	0.00	63.23	0.00	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 210°	-10.71	2.14	0.00	54.76	31.61	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 240°	-10.71	1.23	0.00	31.62	54.76	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 270°	-10.71	0.00	0.00	0.00	63.23	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 300°	-10.71	-1.23	0.00	-31.62	54.76	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.0D + 1.0W 60 mph Wind at 330°	-10.71	-2.14	0.00	-54.76	31.61	63.23	2222.82	525.07	1307.85	1369.50	99.00	0.112
1.2D + 1.0Ev + 1.0Eh	-0.54	1.68	0.00	48.63	0.00	48.63	2222.82	525.07	1307.85	1369.50	99.00	0.078
0.9D + 1.0Ev + 1.0Eh	-0.54	1.68	0.00	48.63	0.00	48.63	2222.82	525.07	1307.85	1369.50	99.00	0.078

0.166

Base Plate Summary

Structure:	TN01807-B-SB		**Code:**	TIA-222-H	1/30/2026
Site Name:	Swanson		**Exposure:**	C	1.9.2.7.447
Height:	148.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 30

Tower Engineering Solutions

Reactions	
Original Design	
Moment (kip-ft):	1229.00
Axial (kip):	33.40
Shear (kip):	16.10
Analysis (1.2D + 1.0W 60° Wind)	
Moment (kip-ft):	1491.80
Axial (kip):	37.78
Shear (kip):	17.19

Base Plate	
Yield (ksi):	60.00
Width (in):	72.00
Style:	Clipped
Polygon Sides:	4.00
Clip Length (in):	15.00
Effective Len (in):	9.19
Moment (kip-in):	227.79
Allow Stress (ksi):	81.00
Applied Stress (ksi):	19.44
Stress Ratio:	0.24

Anchor Bolts	
Bolt Circle:	74.00
Number Bolts:	16.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Clustered
Cluster Dist (in):	6.00
Start Angle (deg):	45.00
Compression	
Force (kip):	62.84
Allowable (kip):	268.39
Ratio:	0.23
Tension	
Force (kip):	58.12
Allowable (kip):	243.75
Ratio:	0.24

Pier Foundation Design For Monopole

Customer Name:	**T-Mobile**	**EIA/TIA Standard:**	TIA-222-H
Site Name:		**Structure Height (Ft.):**	148
Site Number:	TN01807-B-SBA	**Engineer Name:**	ali.saidi
Engr. Number:	164750	**Date:**	1/30/2026

Foundation Info Obtained from: Drawings/Calculations

Acceptable overstress 5.0%

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Factored):

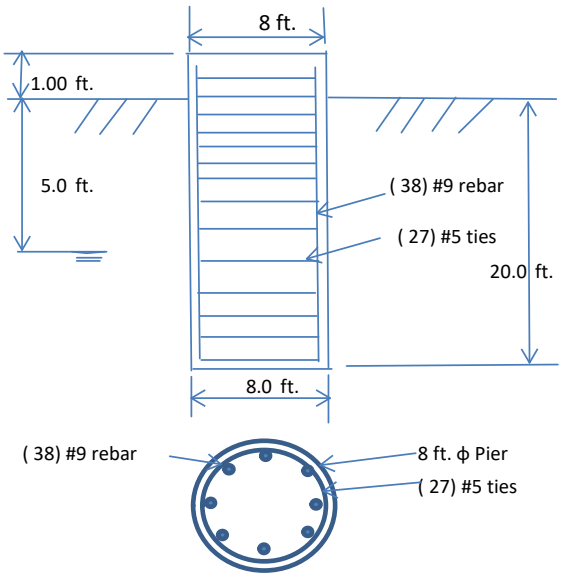
Axial Load (Kips):	37.8	Shear Force (Kips):	17.2
		Moment (Kips-ft):	1491.8

Foundation Geometries:

Diameter of Pier (ft.):	8.0	Depth of Base B. G. S. :	20.0	ft.
Pier Height A. G. (ft.):	1.00			

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield:	60	ksi
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	38	Tie Spacing:	12.0	in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0	pcf
		No		



Monopole Pier Foundation

Soil Design Parameters:

Water Table B.G.S. (ft):	5.0	Unit weight of water:	62.4	psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30	(°)
Skin Frictions are to be obtained from:		Soil Report		

Depth of Layers (ft) Top	Bottom	γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types					
0.0	3.0	120	0	0	0	0	Clay					
3.0	5.0	120	0	2300	0	990	Clay					
5.0	7.0	132	0	2200	1800	9600	Clay					
7.0	11.0	119	23	1100	600	10500	Clay					
11.0	18.5	124	0	2200	1800	9600	Sand					
18.5	19.5	147	0	2000	1800	3000	Sand					
19.5	24.5	155	38	8500	900	30000	Sand					
24.5	29.5											

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75	
Total Dry Soil Volume from Conical Failure (cu. Ft.):	2834	Dry Soil Weight from Conical Failure:	340	Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	2810	Buoyant Soil Weight from Conical Failure (K	272	Kips
Total Dry Concrete Volume (cu. Ft.):	302	Total Dry Concrete Weight:	45.2	Kips
Total Buoyant Concrete Volume (cu. Ft.):	754.0	Total Buoyant Concrete Weight:	66.05	Kips
Total Effective Concrete Weight (Kips):	111.3	Total Effective Soil Weight:	120.6	Kips

Total Effective Vertical Load on Base (Kips): 48

TES Engr. Number: 164750 Page 2/2 Date: 1/30/2026

Check Soil Capacities:

					Usage	
Foundation Overturning Resistance (kips-ft.):	12868	>	Design Factored Moment (kips-ft):	1759	0.14	OK!
Foundation Axial Capacity (kips)	1541	>	Design Factored Axial Load (Kips)	48	0.03	OK!

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
Reinforcing Concrete Pier:					Usage	
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	7411.8	>	Design Factored Moment (Mu, K-Ft):	1559.4	0.21	OK!
Calculated Shear Capacity (Kips):	879.8	>	Design Factored Shear (Kips):	165.3	0.19	OK!
Calculated Tension Capacity (Tn, Kips):	2052.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12730	>	Design Factored Axial Load (Pu Kips):	37.8	0.00	OK!
Moment & Axial Strength Combination:	0.21	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.	
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is too small			

MURFREESBORO BOARD OF ZONING APPEALS
STAFF REPORT
MARCH 25, 2026
PROJECT PLANNER: MARC SHACKELFORD-ROWELL

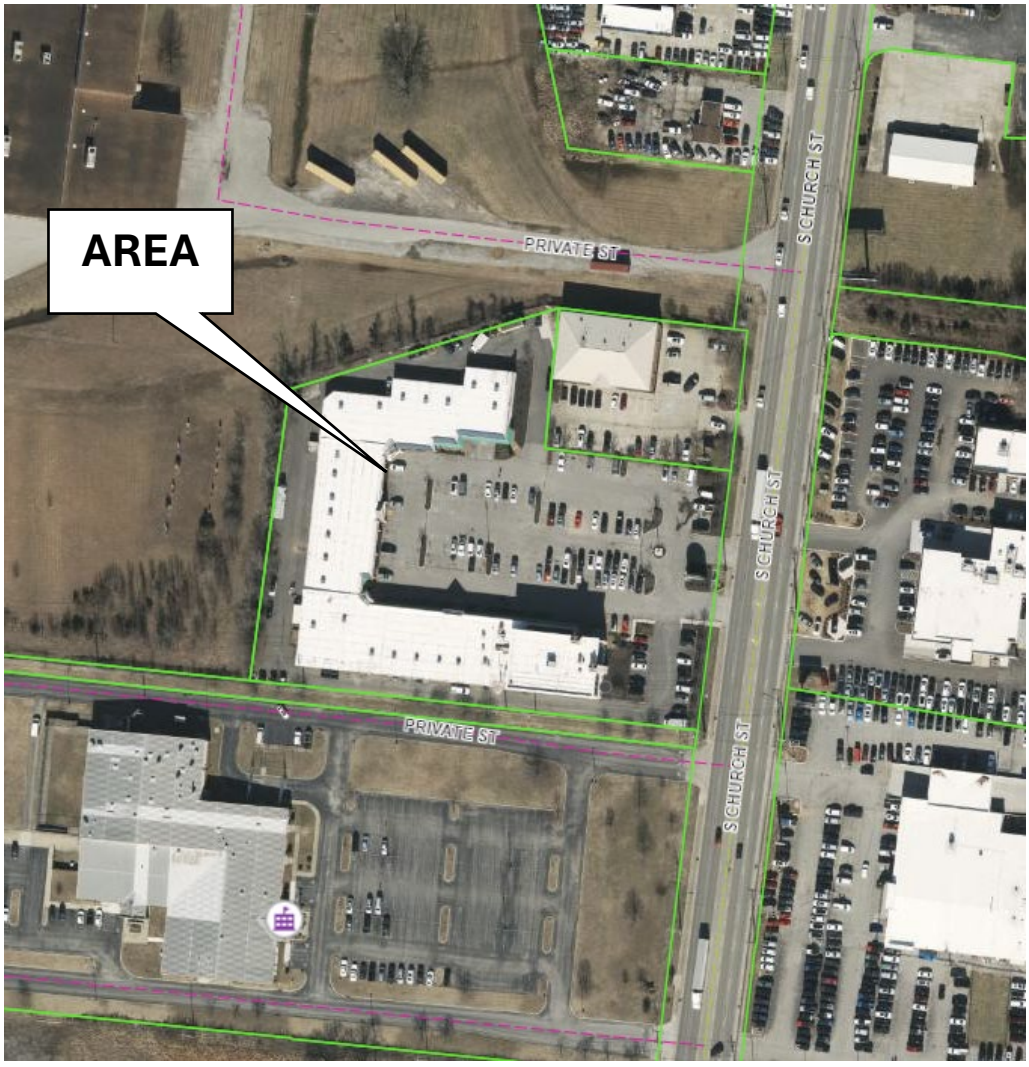
Application: Z-26-003

Location: 1630 South Church Street

Applicant: Mina Awad

Zoning: CH (Commercial Highway District)

Requests: Application Z-26-003 by Mr. Mina Awad, is requesting a special use permit in order to establish and operate a cigar lounge



Overview

Special Use Permit Request

The applicant, Mina Awad, is requesting a special use permit (SUP) to establish and operate a cigar lounge at 1630 South Church Street. The applicant proposes to occupy a tenant space in an existing multi-tenant commercial development. The tenant space is 3,249 square-feet located in a one-story building. The property is zoned CH and is in the South Church Centre commercial development located on the west side of South Church Street south of Middle Tennessee Boulevard.

This segment of South Church Street is developed primarily with intense commercial uses, zoned CH, L-I (Light Industrial District), and H-I (Heavy Industrial District). Surrounding land uses included the Rutherford County Juvenile Justice Center to the south, the former Samsonite factory to the west, an office building to the north, and two car dealerships across South Church Street to the east.

As depicted in the application site plan, the tenant buildout will occupy one of the spaces in a commercial plaza, and the entirety of the tenant improvements are in the interior of the building. Cigar lounges require mechanical upgrades to the building to ensure internal air and ventilation standards are met. The applicant has submitted those plans to be reviewed by the Building and Dodes Department. In the materials the applicant has provided, he has included the hours of operation, which are generally 10:00 AM to either 9:00 or 10:00 PM. He has indicated that he expects an average of 19 customer visits per day. He has also indicated that there will be no sale of food or alcohol at the business, nor will there be any live entertainment.

Relevant Zoning Ordinance Sections

Chart 1 of the City of Murfreesboro Zoning Ordinance allows cigar lounges with approval of a Special Use Permit in the CH district. City of Murfreesboro Zoning Ordinance Section 9(C) sets forth the Standards of General Applicability for all special use permit applications. The following are also the relevant sections from the Zoning Ordinance that apply to accessory apartments:

Section 2, Definitions:

> *Cigar Lounge: An establishment where the principal use is the sale of cigars to patrons who smoke cigars on- or off-site and where any sale of food or alcohol is accessory to the use.*

The Standards of General Applicability are listed below with analysis from staff on how the proposed cigar lounge meets the standards.

(1) that the proposed building or use will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other matters affecting the public health, safety, and general welfare;

The proposed cigar lounge is not anticipated to create any substantial or undue adverse effects on adjacent properties, neighborhood character, traffic conditions, parking availability, utility services, or overall public health and safety. The use operates at a relatively low intensity, with limited patron turnover and traffic volumes comparable to other specialty commercial tenants. Adequate on-site parking is available to accommodate expected demand. All smoking activity will occur indoors, supported by upgraded mechanical and filtration systems designed to maintain appropriate air quality and prevent impacts to neighboring suites. Based on these factors, the proposed use appears consistent with the surrounding commercial context and does not present adverse impacts.

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(2) that the proposed building or use will be constructed, arranged, and operated so as to be compatible with the immediate vicinity and not to interfere with the development and use of adjacent property in accordance with the applicable district regulations;

The proposed use is compatible with the commercial character of the CH district and the surrounding properties along South Church Street. Consistent with a standard tenant-buildout application, all proposed improvements are internal to the existing building. Many nearby properties are zoned CH or LI and typically generate higher traffic volumes and parking demand than the proposed cigar lounge, further supporting the compatibility of this use within the corridor.

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(3) that the proposed buildings or use will be served adequately by essential public facilities and services such as highways, streets, parking spaces, drainage structures, refuse disposal, fire protection, water and sewers; or that the persons or agencies responsible for the establishment of the proposed use will provide adequately for such services;

The site is fully served by existing infrastructure, including:

- Direct access to public streets
- Adequate on-site parking
- Municipal water and sewer service
- Stormwater drainage facilities
- Licensed commercial refuse service
- Fire protection services

The applicant will comply with all applicable building, fire, life-safety, and occupancy regulations. Tenant buildout applications are subject to comprehensive plan review by all relevant City departments. Should any portion of the submitted plans fail to meet required standards, the project will either be denied or conditioned to ensure full compliance with the applicable codes and standards.

4) that the proposed building or use will not result in the destruction, loss, or damage of any feature determined by the BZA to be of significant natural, scenic, or historic importance; and,

This standard is not applicable in this case, as the property is not located within a historic district, scenic corridor, or any area containing natural or cultural features identified by the BZA as having special significance. In addition, the proposed use is located within an existing commercial structure and does not involve land disturbance, demolition, or alteration of any natural, scenic, or historic features.

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(5) that the proposed building or use complies with all additional standards imposed on it by the particular provision of this section authorizing such use.

There are no additional special use permit standards in the Zoning Ordinance specific to cigar lounges.

Staff Recommendation:

The proposed use is expected to function as a low-intensity commercial establishment with minimal traffic generation and sufficient on-site parking. The only potentially harmful characteristic, cigar smoke, will be addressed through a commercial-grade ventilation and air-exchange system that meets City code requirements for smoking lounges. With these measures in place, Staff recommends approval of this Special Use Permit subject to the following conditions:

Recommended Conditions of Approval:

1. The applicant shall obtain all necessary permits with the Building and Codes Department and shall comply with all code requirements.
2. Planning shall be notified if there are any significant operational changes, including, but not limited to, changes in volume of customer trips, changes in proposed accessory uses, etc… Upon receipt of this information, the Planning Director shall determine if any amendment to the special use permit is warranted.

Attached Exhibits

A. Application
B. Procedure form
C. Site plan
D. Floor plan

maps.murfreesborotn.gov/PublicGIS/

Murfreesboro GIS *Creating A Better Quality of Life* Maps & Apps Gallery

zoning 2/3

1648 s church

ArcGIS World Geocoding Service

1648 S Church St, Murfreesboro, TN, 37130, USA

1648 Des Church Rd, Tracy City, TN, 37387, USA

1648 Church St, Christiana, TN, 37037, USA

1648 Church St, Nashville, TN, 37203, USA

1648 Church Rd, Austin, KY, 42123, USA

PRIVATE ST

S CHURCH ST

CH

PRIVATE ST

S CHURCH ST

100ft

City of Murfreesboro **BOARD OF ZONING APPEALS**	**HEARING REQUEST APPLICATION**

Location/Street Address: 1630 S Church Street, Murfreesboro, TN 37130			
Tax Map: 102	Group:	Parcel: 04501	Zoning District: CH

Applicant: Mina Awad	E-Mail: [redacted]	
Address: 3711 Rivermont Way		Phone: (615) 609-5832
City: Murfreesboro	State: TN	Zip: 37153

Property Owner: 1630 south church corporation		
Address: 2826 darlington pointe		Phone: (917) 496-5187
City: Duluth	State: Georgia	Zip: 30097

Request: request for a special use permit to operate a cigar lounge/ shop

Zoning District: CH

Applicant Signature: Mina Awad Date: 02/09/2026

Received By:	Receipt #:
Application #:	Date:

Murfreesboro Board of Zoning Appeals

City of MURFREESBORO TENNESSEE

HEARING APPLICATION AND GENERAL INFORMATION

Response to Standards of General Applicability
Proposed Use: Indoor Cigar Lounge
Location: 1630 South Church Street, Murfreesboro, TN
Zoning District: CH (Commercial Highway)
Pursuant to Section (C) Standards of General Applicability, the Applicant respectfully submits the following:

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(1) No Substantial or Undue Adverse Effect
The proposed cigar lounge will not create a substantial or undue adverse effect on adjacent properties, neighborhood character, traffic, parking, utilities, or public health and safety.
The use is a low-volume, lounge-style establishment with seated patrons rather than high-turnover retail or bar traffic. No live entertainment, outdoor amplified sound, or event-based operations are proposed. Hours of operation will be consistent with surrounding commercial uses.
All smoking will occur indoors within a controlled environment utilizing a commercial-grade HVAC and air filtration system designed to prevent smoke migration to adjacent tenant spaces.
The property provides adequate on-site parking consistent with zoning requirements. Traffic impact is expected to be comparable to other specialty retail uses within the CH district.

---

(2) Compatibility with Immediate Vicinity
The proposed use is compatible with the commercial character of the CH district and surrounding properties along South Church Street.
The exterior of the building will remain consistent with existing commercial architecture. Signage will comply with the municipal code. The interior build-out will not alter the building footprint or create external impacts. The lounge is a quiet, adult-oriented use that will not interfere with the development or use of adjacent properties.

---

(3) Adequate Public Facilities and Services

The site is fully served by existing infrastructure, including:

- Direct access to public streets
- Adequate on-site parking
- Municipal water and sewer service
- Stormwater drainage facilities
- Licensed commercial refuse service
- Fire protection services

The Applicant will comply with all applicable building, fire, life-safety, and occupancy regulations.

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(4) No Impact to Natural, Scenic, or Historic Features

The proposed use is located within an existing commercial structure and does not involve land disturbance, demolition, or alteration of any natural, scenic, or historic features.

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(5) Compliance with Additional Standards

The proposed cigar lounge will comply with all applicable zoning, building, fire, health, and accessibility regulations, including any additional conditions imposed by the Board of Zoning Appeals.

The Applicant respectfully submits that the proposed use satisfies all required standards and requests approval of the Special Permit.

(D)Procedure. (1) The owner or other person having a contractual interest in the property which is the site of the proposed special use shall file an application for a special use permit with the Zoning Administrator, which application shall be accompanied by a nonrefundable fee established from time to time by the Council and shall contain the following information:

(a) Mina Awad (Golden Ash Cigar LLC), 1630 S Church St Suite 115, Murfreesboro, TN 37130, Cell: 615-609-5832;
(b) Mina Awad is the owner of Golden Ash Cigar LLC and the proposed use is to operate a cigar shop/lounge ;
(c) a site plan of the site of the proposed special use drawn at a scale to allow adequate review. Site plans for developments of less than one hundred fifty acres will be at a scale of not less than one hundred feet to the inch. For development between one hundred fifty and one thousand acres, site plans will be at least two hundred feet to the inch. Site plans shall contain the following information: [1] property boundary lines and dimensions, available utilities, and easements, roadways, rail lines and public rights-of-way crossing and/or adjacent to the subject property; [2] the proposed height, dimensions and arrangement of buildings on a site; [3] the type and location of landscaping proposed for the site; [4] the location of points of ingress to and egress from the site; [5] the location of existing and proposed driveways, parking lots, and loading areas; [6] any proposed regrading of the site and any topographical or physical features of the site including watercourses.
(d) address of the site of the proposed special use; 1630 S Church Street, Murfreesboro, TN 37130
(e) unless modified less restrictively by the Department, a vicinity map showing the property which is the site of the proposed special use and all parcels of property within a five hundred-foot radius. Such vicinity maps shall show any and all streets, roads, or alleys and shall indicate the owner's name and dimensions of each parcel of property shown;
(f) zoning classification of the property which is the site of the proposed special use; CH (Commercial Highway)
(g) the proposed special use to be located on such property with a description of the manner in which the special use will be conducted or operated, including, but not limited to, the following:
[1] the hours and days of operation;

Hours:

Sunday	12 Am-6pm
Monday	10 AM–9 PM
Tuesday	10 AM–9 PM
Wednesday	10 AM–9 PM
Thursday	10 AM–9 PM
Friday	10 AM–10 PM
Saturday	10 AM–10 PM

[2] the duration of the proposed special use; Indefinitely or until Golden Ash Cigar is Closed or sold as a business

[3] the number of expected customers, patrons, clients, or patients that will be expected to utilize any proposed facility or participate in any program connected with the proposed special use; an average of 19 customers per business day
and,

[4] the projected traffic that will be expected to be generated by the proposed special use;
(h) the potentially harmful characteristics of the proposed special use for the zoning district in which it is proposed to be located and the manner in which the applicant proposes to eliminate or minimize them.

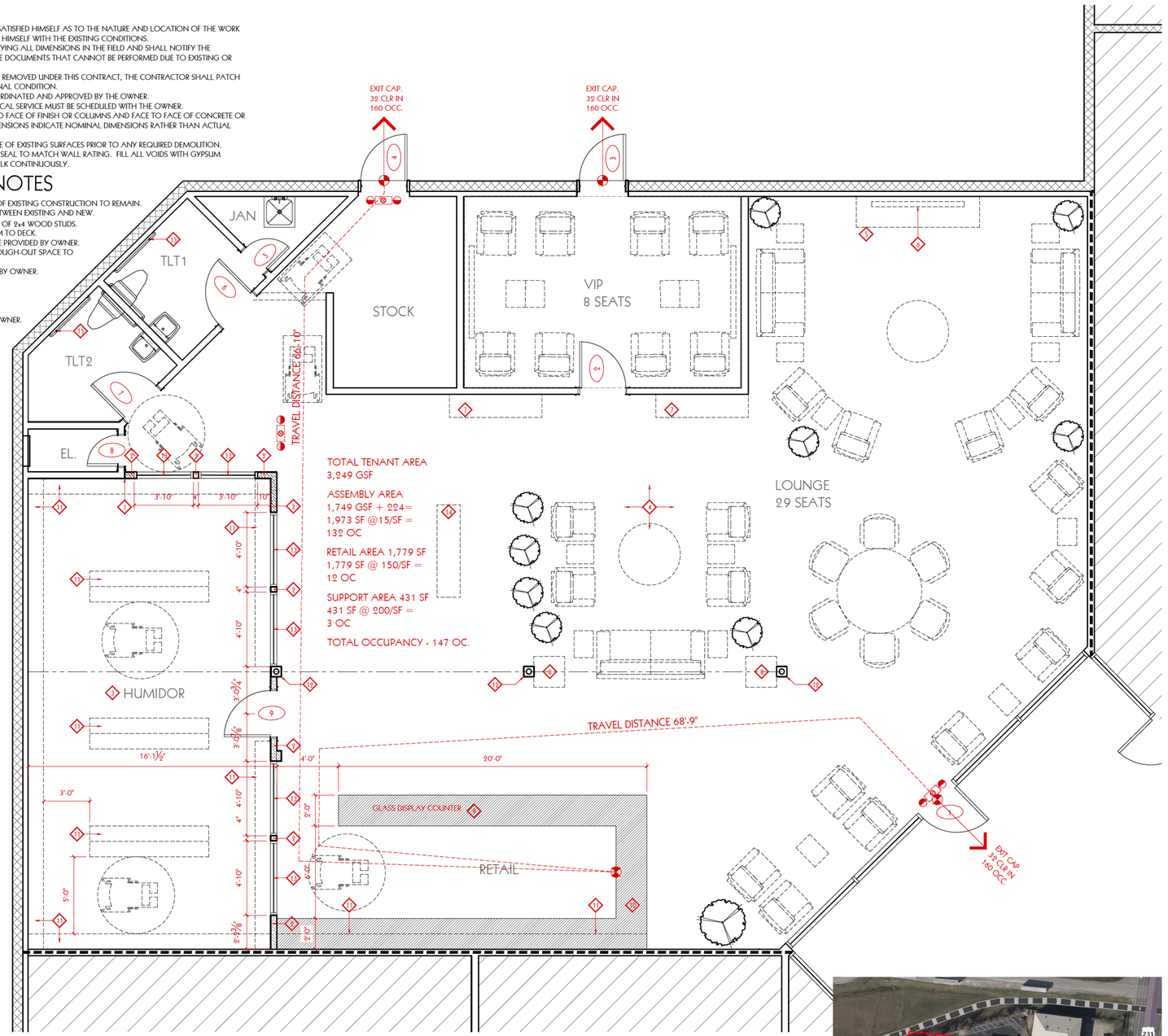
A. The only traffic to be expected is customers for an average of 19 per day. No harmful characteristics other than cigar smoke that will be cleaned and ventilated from the proposed space. Also there will be an air exchange system installed and approved by Murfreesboro City codes that will introduce free air into the space with approximately 5,416 CFM and meet all city codes under the smoking lounge rules.

GENERAL NOTES

1. THE CONTRACTOR ACKNOWLEDGES THAT HE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK AND THAT HE HAS VISITED THE SITE TO FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS IN THE FIELD AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR WORK IN THE DOCUMENTS THAT CANNOT BE PERFORMED DUE TO EXISTING OR CONTRADICTORY CONDITIONS.
3. IF EXISTING ITEMS AND/OR CONSTRUCTION MUST BE REMOVED UNDER THIS CONTRACT, THE CONTRACTOR SHALL PATCH AS INDICATED OR AS NECESSARY TO MATCH ORIGINAL CONDITION.
4. PROJECT SCHEDULING AND PHASING MUST BE COORDINATED AND APPROVED BY THE OWNER.
5. ANY SHUT DOWN OF THE ELECTRICAL OR MECHANICAL SERVICE MUST BE SCHEDULED WITH THE OWNER.
6. DIMENSIONS FOR NEW CONSTRUCTION ARE FACE TO FACE OF FINISH OR COLUMNS AND FACE TO FACE OF CONCRETE OR MASONRY WALLS UNLESS OTHERWISE NOTED. DIMENSIONS INDICATE NOMINAL DIMENSIONS RATHER THAN ACTUAL DIMENSIONS.
7. DIMENSIONS FOR EXISTING WORK ARE FACE TO FACE OF EXISTING SURFACES PRIOR TO ANY REQUIRED DEMOLITION.
8. EXTEND ALL FIRE RATED WALL TO DECK ABOVE AND SEAL TO MATCH WALL RATING. FILL ALL VOIDS WITH GYPSUM AND/OR SAFING MATERIALS AS REQUIRED AND CAULK CONTINUOUSLY.

ARCHITECTURAL KEYNOTES

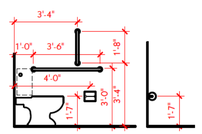
1. ALIGN NEW CONSTRUCTION WITH EDGE OR FACE OF EXISTING CONSTRUCTION TO REMAIN. PROVIDE SMOOTH, UNDETECTABLE TRANSITION BETWEEN EXISTING AND NEW.
2. NEW WALL TO BE 5/8" GYPSUM BOARD ON EACH SIDE OF 2x4 WOOD STUDS. EXTEND WALL TO ROOF DECK ABOVE. SEAL GYPSUM TO DECK.
3. NEW HUMIDIFICATION SYSTEM FOR HUMIDOR TO BE PROVIDED BY OWNER.
4. NEW SMOKE EXHAUST AND FRESH-AIR SYSTEM THROUGH-OUT SPACE TO SUPPLEMENT EXISTING HVAC SYSTEM.
5. NEW FREESTANDING ELECTRIC VENT-LESS FIREPLACE BY OWNER.
6. WALL MOUNTED TELEVISION BY OWNER
7. CIGAR LOCKERS BY OWNER.
8. FLOOR MOUNTED GLASS DISPLAY CASES.
9. GLASS DISPLAY COUNTER BY OWNER.
10. PLASTIC LAMINATED TRANSACTION COUNTER BY OWNER.
11. SHELVING BY OWNER.
12. EXISTING STRUCTURAL COLUMNS AND GYPSUM WRAP TO REMAIN,
13. NEW TEMPERED GLASS WINDOWS (FIXED) IN WOOD FRAMES
14. CLOTHING RACK BY OWNER.
15. ADD 18" LONG VERTICAL GRAB BAR.



C16 OVERALL TENANT AREA PLAN

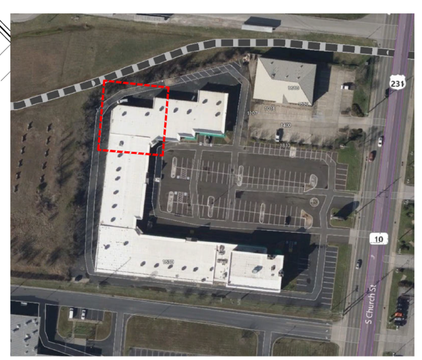
SCALE: 1" = 4' (1/4" = 1'-0")

EXISTING HVAC SYSTEM TO REMAIN. SUPPLEMENTAL SMOKE TREATMENT, EXHAUST AND FRESH AIR INTAKE TO BE ADDED TO OVERALL SYSTEM. HUMIDIFICATION TO BE ADDED TO HUMIDOR SPACE. ALL PLUMBING TO REMAIN WITHOUT CHANGES. SPRINKLER CONTRACTOR TO VERIFY ANY HEAD ADJUSTMENTS IF NEEDED.



A16 VERTICAL GRAB BAR

NOT TO SCALE



A07 VICINITY MAP

NOT TO SCALE

SUITES 109
1630 SOUTH CHURCH STREET

FIRE PROTECTION AND EXIT NOTES

PROJECT DESCRIPTION:

THIS PROJECT IS THE INTERIOR RENOVATION OF AN EXISTING RETAIL BUILDING. THE SPACE IS TO BE USED FOR AS A CIGAR LOUNGE WITH SEATING FOR 40 (+/-) OCCUPANTS. ONLY ONE NEW SPACE (HUMIDORO IS BEING ADDED TO THE EXISTING LAYOUT. EXISTING DEMISING WALLS TO REMAIN. PARKING BASED ON RETAIL.

A. APPLICABLE CODES - MURFREESBORO, TENNESSEE (RUTHERFORD COUNTY)

2018 INTERNATIONAL BUILDING CODE
2018 NTERNATIONAL FIRE CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL ELECTRICAL CODE
2018 INTERNATIONAL FUEL GAS CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE
2008 NATIONAL ELECTRIC CODE, NFPA 70
2009 ANSI - A117.1 ACCESSIBILITY AND USABILITY CODE
LOCAL ADMENDMENTS

APPLICABLE CODES - STATE OF TENNESSEE

2018 INTERNATIONAL BUILDING CODE (EXCLUDING CHAPTERS 11 & BSECTION 3411)
2018 INTERNATIONAL FIRE CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 NFPA 101 LIFE SAFETY CODE
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
2012 INTERNATIONAL EXISTING BUILDING CODE
2008 NATIONAL ELECTRIC CODE, NFPA 70
2015 INTERNATIONAL ENERGY CODE

CODE OFFICIALS
CITY OF MURFREESBORO
KEVIN JONES
111 VINE STREET
MURFREESBORO, TN 37133
615-893-3750

FIRE MARSHAL
CITY OF MURFREESBORO
290 NW BROAD STREET
MURFREESBORO, TN 37130
615-893-1422

B. OCCUPANCY

IBC - A2 - ASSEMBLY (TAVERN / LOUNGE)
NFPA- NOT APPLICABLE

C. CONSTRUCTION TYPE

IBC - TYPE II - FULLY SPRINKLERED
NFPA- NOT APPLICABLE

D. SEISMIC ZONE

FIRE MARSHAL
RUTHERFORD COUNTY
2785 BARFIELD ROAD
MURFREESBORO, TN 37128
615-8674626

E. BUILDING HEIGHT AND AREA (TABLE 5030 IBC)

BUILDING AREA (ALLOWABLE)		BUILDING AREA (PROPOSED)	
AREA (per level)	9,500 SF	RESTAURANT	3,249 GSF
HEIGHT	2 STORY		
TOTAL AREA	19,000 SF	TOTAL AREA	3,249 GSF

ALLOWABLE AREA AFTER APPLYING OPEN AREA MODIFICATIONS - NA

BUILDING HEIGHT ALLOWED - 2 STORY (TABLE 503 IBC)
BUILDING HEIGHT PROPOSED - 1 STORY

F. OCCUPANCY LOAD (TABLE 1004.1.1 IBC)

REFER TO FLOOR PLAN

DOOR SCHEDULE

EXISTING TO REMAIN (ETR)

PR. NO.	DOOR INFORMATION					FRAME INFO.		RATINGS		H.W.	COMMENTS
	WIDTH	HEIGHT	THICK	MATL	TYPE	MATL	TYPE	LABEL	MIN.		
1	3'-0"	7'-0"	1-3/4"	ALGL	SF	AL	SF				1, 9, 13
2	3'-0"	7'-0"	1-3/4"	SCWD	6P	WD	S9				13
3	3'-0"	7'-0"	1-3/4"	MTL	FL	HM	S4				1, 9, 13
4	3'-0"	7'-0"	1-3/4"	MTL	FL	HM	S4				1, 9, 13
5	3'-0"	6'-8"	1-3/4"	SCWD	6P	WD	S9				13
6	3'-0"	6'-8"	1-3/4"	SCWD	6P	WD	S9				10
7	3'-0"	6'-8"	1-3/4"	SCWD	6P	WD	S9				10
8	3'-0"	6'-8"	1-3/4"	SCWD	6P	WD	S9				13
9	3'-0"	6'-8"	1-3/4"	SCWD	FV	WD	S9	-		-	13

DOOR / FRAME / HARDWARE COMMENTS (ALL DOOR HARDWARE TO BE LEVER HANDLE UNLESS NOTED OTHERWISE)

1. WEATHERSTRIP WITH THRESHOLD
2. CLOSER (MATCH HARDWARE FINISH)
3. MAGNETIC HOLD OPEN DEVICE
4. 180 DEGREE HINGES WITH WALL BUMPERS.
5. VIEW PORT (PEEP HOLE)
6. ENTRY FROM STAIR WITH KEY ONLY
7. PANIC BAR HARDWARE
8. PANIC BAR HARDWARE WITH ALARM (DELAYED EGRESS)
9. PROVIDE DEAD-BOLT LOCK
10. PRIVACY (BATH) LOCK
11. PRIVACY (BEDROOM) LOCK
19. PASSAGE (CLOSET) HARDWARE
13. PRIVACY LOCK, KEYED TO MASTER KEY
14. PRIVACY LOCK, KEYED SEPERATELY
15. KEYPAD ENTRY SYSTEM (COORD WITH TENANT)
16. PUSH / PULL PLATES
17.
18.

GENERAL DOOR NOTES

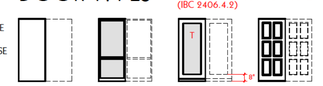
1. ALL DOOR HARDWARE TO BE LEVER (APPROVED TO BE ADA COMPLIANT) HANDLES UNLESS OTHERWISE NOTED.
2. ALL DOOR LATCHES TO CLOSETS, STORAGE AREAS, KITCHENS, AND OTHER SIMILAR SPACES OR AREAS SHALL BE SUCH THAT OCCUPANTS CAN OPEN THE DOOR FROM INSIDE THE SPACE OR AREA. (NFPA 101, 16.2.9.2.4)
3. EVERY BATHROOM DOOR LOCK SHALL BE DESIGNED TO ALLOW OPENING OF THE LOCKED DOOR FROM THE OUTSIDE BY OPENING DEVISE THAT SHALL BE READILY ACCESSIBLE TO THE STAFF. (NFPA 101, 16.9.2.9.5)
4. CLOSURES AND POSITIVE LATCHING HARDWARE ARE REQUIRED ON FIRE RATED DOOR ASSEMBLIES AND DOORS IN SMOKE PARTITIONS AND BARRIERS. (IBC 716.5.9)

FRAME TYPES

ALL FRAMES TO BE HOLLOW METAL UNLESS OTHERWISE NOTED.

DOOR TYPES

GLAZING WITHIN 24 INCHES OF DOORS AND LESS THAN 60 INCHES ABOVE THE WALKING SURFACE MUST BE SAFETY GLAZING. (IBC 2406.4.2)



ABBREVIATIONS

SF - STOREFRONT	HM - HOLLOW METAL	V - VISION GLASS	T - TEMPERED GLASS
SS - STAINLESS STEEL	WD - WOOD	S - SPANDREL GLASS	A- ART GLASS
AL - ALUMINUM	FG - FIBERGLASS	O - OBSCURE GLASS	
SCWD - SOLID CORE WOOD		WDCL - VINYL CLAD WOOD	

WALL LEGEND

- EXISTING NON-RATED WALL TO REMAIN.
- EXISTING RATED WALL (2 HR) TO REMAIN. VERIFY THAT ALL PENETRATIONS ARE SEALED WITH FIRE CAULK OR OTHER APPROVED METHOD TO MAINTAIN THE NOTED RATING.
- EXISTING CONCRETE MASONRY UNIT WALL AND RELATED ATTACHMENTS TO REMAIN.
- NEW ⅝" GYPSUM BOARD ON EACH SIDE OF 2x4 WOOD STUDS. EXTEND STUDS AND GYPSUM BOARD TO EXTEND TO EXISTING ROOF DECK.

GOLDEN ASH

A CIGAR LOUNGE

SUITE 115
1630 SOUTH CHURCH ST.
MURFREESBORO, TN 37129

PROJ. NO.: 2025017

DATE: 12.12.25

A	CD/ CLIENT REVIEW
	12.15.25

PICKLESIMER ROBERTS INC
ARCHITECTURE

MICHAEL W. PICKLESIMER
REGISTERED ARCHITECT
NO. 0202029
STATE OF TENNESSEE
12.15.25

615.714.3753 (C)

233 FALDO DRIVE
MURFREESBORO, TN 37128

OVERALL TENANT AREA PLAN

A1.10

AIR DISTRIBUTION SCHEDULE

SYMBOL	MFGR. & MODEL #	DEVICE	FACE	SIZE	VOLUME CONTROL	COLLAR SIZE	REMARKS
Q	PRICE MOD. 80F	RETURN FILTER REGISTER	EGGCRATE	24" x 24"	-	10" DIA.	SEE NOTES
R	PRICE MOD. 80F	RETURN FILTER REGISTER	EGGCRATE	24" x 24"	-	16" x 16"	SEE NOTES
S	PRICE MOD. SCD	SUPP. DIFF.	LOUVERED	24" x 24"	O.B.D.	12" DIA	SEE NOTES

NOTES:
1. AIR DEVICE COLORS SHALL MATCH COLOR OF SURFACE TO WHICH THEY ARE ATTACHED.
2. PROVIDE NECK COLLARS FOR BRANCH DUCT CONNECTION.
3. PROVIDE LAY-IN TYPE BORDER FOR CEILING WITH ACOUSTICAL TILE

This should be sized for 132 occ according to the

FRESH AIR CALCULATIONS

HUMIDOR / RETAIL: 816 SQ.FT.
IMC TABLE 403.3.1.1:
15 PEOPLE PER 1,000 SQ.FT. = 13 PEOPLE (INCLUDES STAFF)
FRESH AIR REQUIRED: 7.5 CFM PER PERSON + 0.12 CFM PER SQ.FT.
FRESH AIR CALCULATED: 196 CFM

LOUNGE AREAS: SEATING FOR 37 PEOPLE + 2 STAFF = 39 PEOPLE
FRESH AIR REQUIRED: 60 CFM PER PERSON
FRESH AIR CALCULATED: 2,340 CFM

TOTAL REQUIRED FRESH AIR: 2,536 CFM

FRESH AIR DELIVERED BY ENERGY RECOVERY VENTILATOR: 2,540 CFM

GENERAL MECHANICAL SPECIFICATIONS

SCOPE OF WORK AS ILLUSTRATED BY THESE DOCUMENTS: INSTALL AND MAKE OPERATIVE AN ENERGY RECOVERY VENTILATOR TO FACILITATE THE MAINTENANCE OF VENTILATION AS REQUIRED BY 2024 INTERNATIONAL MECHANICAL CODE, CHAPTER 4. ERV IS TO DELIVER PRE-CONDITIONED AIR DIRECTLY INTO SPACE WITH A PORTION DELIVERED INTO RETURN AIR STREAM OF EXISTING PACKAGED ROOF TOP UNITS. CONTRACTOR IS DIRECTED TO FIELD VERIFY THAT EXISTING RTUs AND RESTROOM EXHAUST ARE FUNTIONING PROPERLY.

FURNISH, INSTALL, PROVIDE AND MAKE OPERATIVE ALL EQUIPMENT, MATERIALS, SUPERVISION, LABOR AND ANY AND ALL ITEMS NECESSARY FOR THE PROPER INSTALLATION OF A CORRECTLY FUNCTIONING MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EQUALS SHALL BE ACCEPTED FOR EQUIPMENT UNLESS OTHERWISE NOTED.

ORDINANCES, PERMITS AND CODES: THE WORKMANSHIP AND MATERIALS COVERED BY THESE SPECIFICATIONS SHALL CONFORM TO ALL REGULATIONS OF ALL THE AUTHORITIES HAVING JURISDICTION.

THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, CONNECTION AND INSPECTION FEES AS REQUIRED FOR THE COMPLETE INSTALLATION OF THE MECHANICAL SYSTEM.

THE LOCATION OF DUCTS, PIPE AND EQUIPMENT, AS SHOWN ON THE DRAWINGS, IS DIAGRAMMATIC AND SCHEMATIC AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE HIS OWN WORKING LAYOUT TO ELIMINATE ALL STRUCTURAL AND ARCHITECTURAL CONFLICTS IN THE BUILDING.

VERIFY ALL MEASUREMENTS AT THE SITE AND COORDINATE ALL WORK SO THAT IT DOES NOT INTERFERE WITH THE WORK OF THE OTHER TRADES.

INSULATION: ANY NEW INSULATION, INCLUDING JACKET, OR FACING AND ADHESIVE USED TO ADHERE FACING OR JACKET TO THE INSULATION SHALL HAVE A COMPOSITE FIRE AND SMOKE HAZARD RATING TESTED BY THE PROCEDURE RECOMMENDED BY ASTM E-84, NFPA 225 OR U.L. 723, NOT EXCEEDING: FLAME SPREAD 25, SMOKE DEVELOPED 50. ALL INSULATION ACCESSORIES SHALL ALSO HAVE THE RATING LISTED ABOVE.

ANY NEW SUPPLY, RETURN & OUTSIDE AIR DUCT SHALL BE INSULATED EXTERNALLY WITH 2 INCH THICK, R-5, 0.75 PSF DENSITY FIBERGLASS INSULATION INCLUDING A VAPOR BARRIER.

EXHAUST DUCT IS NOT REQUIRED TO BE INSULATED

ANY NEW DUCTWORK SHALL BE CONSTRUCTED OF THE BEST BLOOM GALVANIZED SHEETS, FREE FROM BLISTER AND IMPERFECTIONS, AND WITH GAUGES, JOINTS, BRACING AND SUPPORTS IN STRICT ACCORDANCE WITH SMACNA STANDARDS. DUCT SIZES SHOWN ON THE DRAWINGS ARE NET INSIDE CLEAR. SCREWS SHALL BE CADMIUM PLATED. ROUND DUCT RUN-OUTS SHALL BE MIN. 26 GA. SHEET METAL. HANGERS SHALL BE 1" x ⅛" GALV. BAND 4' ON CENTER

ANY NEW FLEXIBLE DUCT SHALL BE THERMAFLEX TYPE M-KA OR EQUAL, AND BE U.L. LISTED AND COMPLY WITH NFPA STANDARD NO. 90A. MAXIMUM LENGTH SHALL BE 5 FEET LONG. INSULATION SHALL BE 2" THICK (FLEX. TO BE USED IN CONCEALED LOCATIONS ONLY)

PROVIDE FLEXIBLE NEOPRENE DUCT CONNECTORS ON THE DISCHARGE AND ENTERING SIDES OF ALL NEW VIBRATING EQUIPMENT TO WHICH DUCTWORK IS ATTACHED.

DUCT SIZES SHOWN ON DRAWINGS ARE INSIDE CLEAR DIMENSIONS

ALL PIPING, DUCTS, VENTS, ETC EXTENDING THRU THE WALL AND/OR ROOF SHALL BE FLASHED AND COUNTERFLASHED IN A WATERPROOF MANNER.

INSTALL DOUBLE THICKNESS TURNING VANES AT EACH CHANGE IN DIRECTION OF THE RECTANGULAR DUCT.

INSTALL MANUAL VOLUME DAMPERS AT EACH BRANCH RUN-OUT.

ERV UNIT SHALL BE BALANCED TO WITHIN 5% OF THE DESIGN AIR QUANTITY. BALANCE DIFFUSERS AND REGISTERS TO QUANTITIES SHOWN ON DRAWINGS.

HVAC CONTRACTOR SHALL CHANGE-OUT THE EQUIPMENT FILTERS AT THE TIME OF POSSESSION OF THE PROJECT BY THE OWNER, USING ONLY NEW FILTERS OF PROPER SIZE AND TYPE.

HVAC CONTRACTOR SHALL LEAVE HIS WORK IN PERFECT WORKING CONDITION AND SHALL GUARANTEE SAME FOR A PERIOD OF TWELVE (12) MONTHS FROM DATE OF FINAL ACCEPTANCE

IT IS THE INTENT OF THESE DRAWINGS TO COVER ALL WORK FOR A COMPLETE FIRST CLASS MECHANICAL INSTALLATION ANY EQUIPMENT, TRIM HARDWARE AND/OR DEVICES USUALLY UTILIZED IN THIS CLASS OF WORK, THOUGH NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, BUT WHICH MAY BE NECESSARY FOR THE SATISFACTORY COMPLETION OF THE WORK (AS DETERMINED BY THE CONSTRUCTION MANAGER) SHALL BE FURNISHED AND INSTALLED BY THE HVAC CONTRACTOR AS PART OF HIS TOTAL WORK

ENERGY RECOVERY UNIT SCHEDULE

IDENTIFICATION	ERV
MANUFACTURER	RENEWAIRE
MODEL NUMBER	HE3XINV
CORE	THREE L125-G5
OUTSIDE AIR SUPPLY (FA)	
00028	2540
E.S.P. (IN W.C.)	0.75
FILTER RATING (MERV)	MERV-8
EXHAUST AIR (EA)	
CFM	2540
E.S.P. (IN W.C.)	0.75
FILTER RATING (MERV)	MERV-8
ELECTRICAL DATA:	
VOLTAGE/PHASE	208 - 230 / 1
SUPPLY AIR MOTOR (HP)	3.0
EXHAUST AIR MOTOR (HP)	3.0
MCA /MOCP (EACH MOTOR)	32.9 / 45
WEIGHT	675

ACCESSORIES REQUIRED:
- FUSED DISCONNECT
- MOTORIZED DAMPER ON OUTSDIE AIR INTAKE THAT IS HELD OPEN WHEN ERV FANS ARE ENERGIZED

REMARKS:
- ERV SHALL OPERATE CONTINUOUSLY DURING OCCUPIED HOURS TO PROVIDE REQUIRED FRESH AIR
- ERV SHALL BE ENERGIZED AFTER RTUs ARE ENERGIZED.
- EACH RTU FAN MODE SHALL BE IN "ON" POSITION DURING OCCUPIED HOURS.
- MOTORIZED DAMPER ON OUTSIDE AIR INTAKE SHALL CLOSE 100% DURING UNOCCUPIED HOURS.

INDOOR AIR CLEANER UNIT SCHEDULE

IDENTIFICATION	IACU-1, IACU-2
MANUFACTURER	UNITED AIR SPECIALISTS
MODEL NUMBER	SE 50 'SMOKEETER'
WEIGHT (LBS)	138
AIRFLOW (CFM)	600 - 1,500
ELECTRICAL DATA:	
VOLTAGE/PHASE	120 / 1
FAN MOTOR (HP)	1/2
AMPS	7
MOUNTING	CEILING

ACCESSORIES REQUIRED:
- REMOTE SWITCH ASSEMBLY
- WASHABLE ALUMINUM MESH PRE-FILTER
- ACTIVATED CARBON AFTER-FILTER

REMARKS:
- FIELD COORDINATE UNIT SUPPORT FROM STRUCTURE
- FIELD VERIFY FINAL LOCATION OF REMOTE SWITCHES WITH OWNER.

GOLDEN ASH

A CIGAR LOUNGE

SUITE 115
1630 SOUTH CHURCH ST.
MURFREESBORO, TN 37129

PROJ. NO.: 2025017

DATE: 01.23.2026

HARPETH PARK ENGINEERING LLC
PHONE: (615) 814-6001 JOB# 126003

PICKLESIMER ROBERTS INC
ARCHITECTURE

E. CHRISTOPHER GRESHAM
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 130092
STATE OF TENNESSEE
1-23-26

615.714.3753 (C)

233 FALDO DRIVE
MURFREESBORO, TN 37128

MECHANICAL SCHEDULES & SPECS

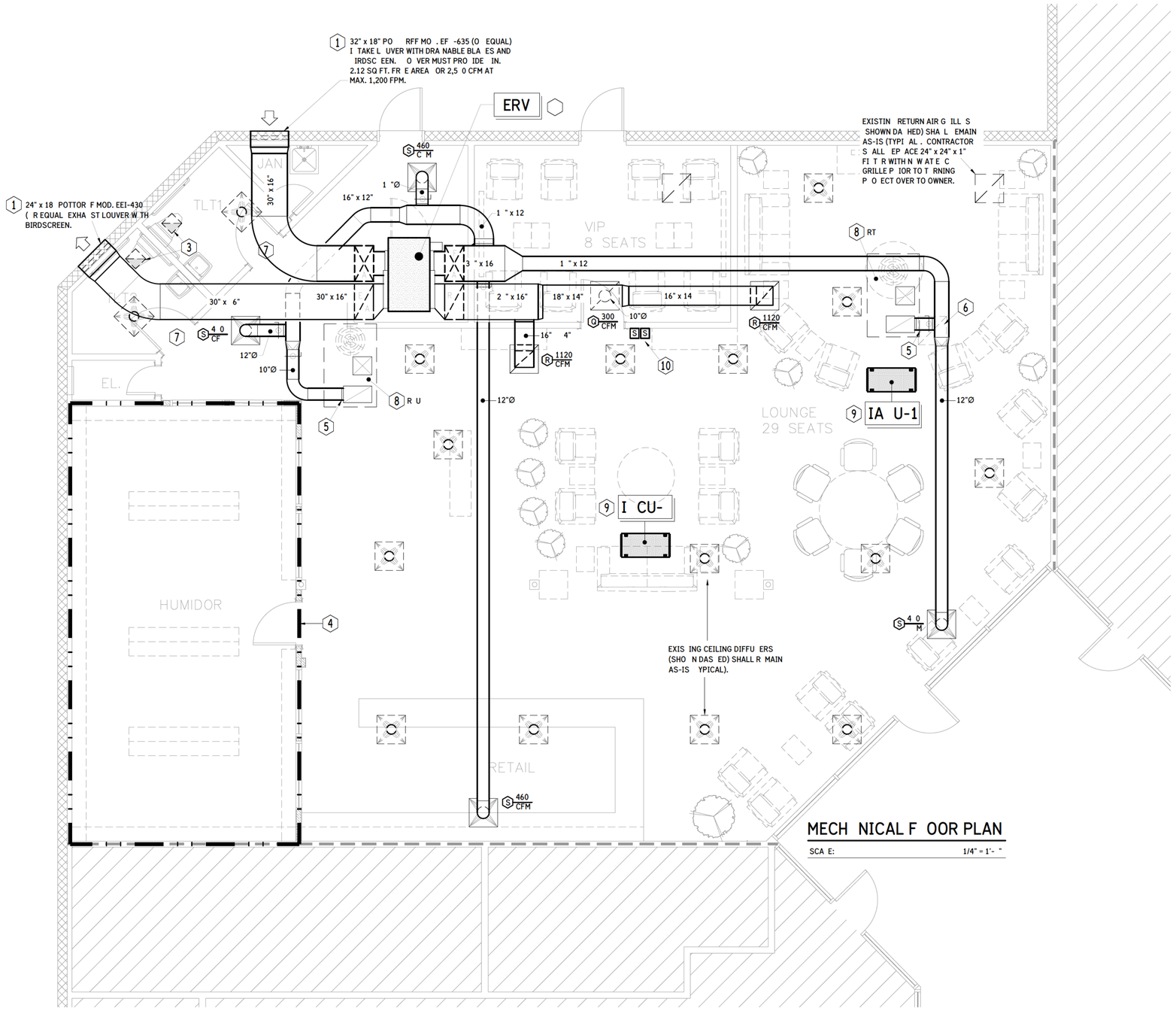
M1.00

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	NEW CEILING DIFFUSER
	EXISTING CEILING DIFFUSER
	NEW CEILING RETURN FILTER GRILLE
	EXISTING CEILING RETURN FILTER GRILLE
	EXISTING CEILING MTD EXHAUST FAN
	RECTANGULAR TO ROUND DUCT TRANSITION
	MANUAL VOLUME DAMPER
R 950 CFM	AIR DISTRIBUTION IDENTIFICATION (REFER TO AIR DISTRIBUTION SCHED LE)
ERV	EQUIPMENT LABEL (SEE MECH. SCHEDULE FOR INFO.)
	AIR FLOW DIRECTION

MECHANICAL DRAWING NOTES

1. FIELD VERIFY EXACT LOCATION OF LOUVER INSTALLATION IN EXTERIOR WALL ABOVE CEILING LEVEL TO AVOID CONFLICT WITH OTHER TRADES. LOUVER SHALL BE PAINTED TO MATCH COLOR OF EXTERIOR WALL SURFACE (FIELD COORD
2. ENERGY RECOVERY VENTILATOR IS MOUNTED (WITH VIBRATION ISOLATION PADS) OVER DOOR EXHAUST AIR, OUTSIDE AIR, ROOFTOP AIR AND FRESH AIR CONNECTIONS TRANSITION TO 30" x 16" DUCTS AND TURN UP ADJACENT TO UNITHEN EXTEND UP TO ABOVE CEILING. INSTALL UNIT IN A MANNER TO PROVIDE MIN. 30" CLEARANCE ON MAINTENANCE ACCESS SIDE.
3. CONTRACTORS SHALL FIELD VERIFY THAT EXISTING RESTROOM EXHAUST AIR, OUTSIDE AIR, ROOFTOP AIR AND FRESH AIR CONNECTIONS ARE ACHIEVING PROPERLY INSTALLED AT CEILING AND FUNCTIONING TO PROVIDE MIN. 70 CFM EXHAUST WHERE RESTROOMS ARE OCCUPIED. VERIFY THAT EXHAUST DUCTS ARE CLEAR OF ANY OBSTRUCTIONS AND PROPERLY ISCHARGE TO BUILDING EXTERIOR, AS REQUIRED.
4. HVAC AND HUMIDITY CONTROL FOR HUMIDOR SPACE TO BE PROVIDED BY HUMIDOR MANUFACTURER INSTALLER. ANY EXISTING CEILING DIFFUSERS RETURN AIR GRILLES LOCATED WITHIN THIS SPACE SHALL BE REMOVED AND BRANCH LINES CAPPED AIR-TIGHT.
5. CONNECT NEW 12" DIA FRESH AIR DUCT TO EXISTING RTU AIR DUCT AT THIS APPROXIMATE LOCATION - FIELD VERIFY EXACT SIZE AND LOCATION OF RETURN DUCT.
6. EXISTING RTU N AIR GRILLE AT THIS APPROX. LOCATION SHALL BE REMOVED AND RANCH LINE CAPPED AND RUSED FOR CONNECTION TO SERV FRESH AIR DUCT.
7. FIELD VERIFY THAT RESTROOM DOORS ARE UNDERCUT A MIN 3/4" FOR AIRFLOW
8. EXISTING ROOFTOP PACKAGED HEAT PUMP TO REMAIN AS-IS. CONTRACTOR SHALL SERVICE UNIT AND VERIFY PROPER OPERATION ADD MINIMUM BALANCING DAMPERS TO RETURN AIR RANCH LINES IF NECESSARY TO BALANCE FRESH AIR CONNECTION (350 CFM).
9. FILTERED IR CLEANER (SMOKEETER) SUSPENDED BELOW CEILING FIELD VERIFY FINAL LOCATION WITH OWNER. FIELD CORDINATE SUPPORT FROM STRUCTURE ABOVE CEILING WITH MANUFACTURER REQUIREMENTS.
10. WALL MOUNTED REMOTE SWITCH ASSEMBLIES FOR IAQ UNITS (SMOKEETERS INSTALLED AT 52" A.F.F. - FIELD COORDINATE FINAL LOCATION WITH OWNER.



MECHANICAL FLOOR PLAN

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

GOLDEN ASH

A CIGAR LOUNGE

SUITE
HURCH ST.
MURFREESBORO, TN 37129

PROJ. NO. 202501

DATE: 01.13.2026

HARPETH PARK ENGINEERING LLC
PHONE: (615) 848-4460 126003

PICKLESIMER ROBERT INC
ARCHITECTURE

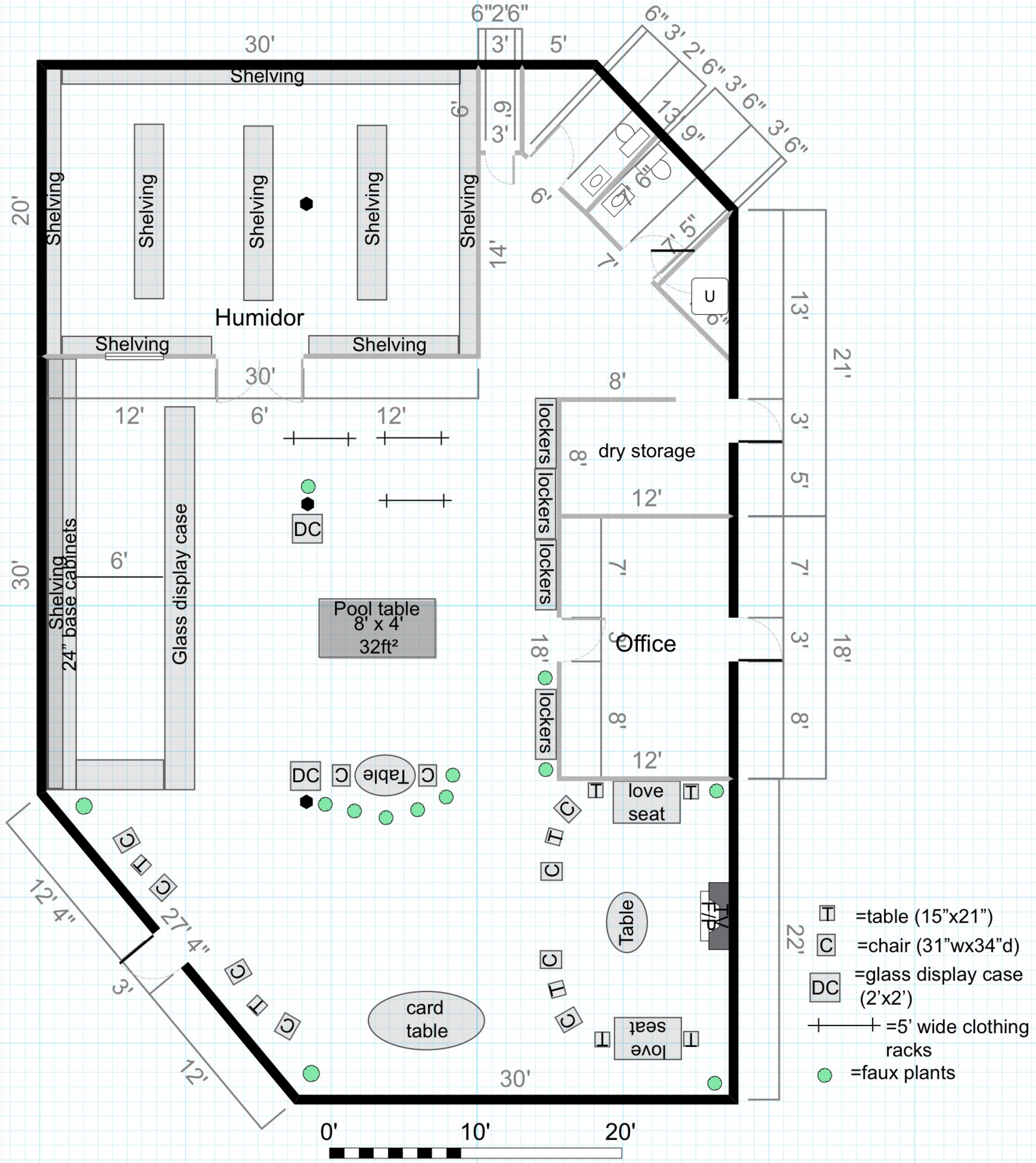
E. CHRISTOPHER GRESHAM
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 103005
1/23/26

615.714.3753 (C)

233 FALLON DRIVE
MURFREESBORO, TN 37128

MECHANICAL FLOOR PLAN

M2.00


6"
2'6"
30'
3'
5'
6"
3'
2'6"
3'6"
3'6"
3'6"
Shelving
6'
9"
3'
13'
9"
6'
6"
7'
5"
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20'
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14'
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Humidor
Shelving
Shelving
30'
8'
12'
6'
12'
lockers
lockers
lockers
8'
dry storage
3'
5'
12'
7'
7'
DC
30'
Shelving
24" base cabinets
6'
Glass display case
Pool table
8' x 4'
32ft²
18'
Office
3'
18'
lockers
8'
8'
12'
DC
C
Table
C
T
love
seat
T
C
T
C
C
T
C
12' 4"
27' 4"
3'
12'
C
T
C
C
T
C
C
T
C
Table
TV
F/P
love
seat
T
T
22'
30'
card
table
0'
10'
20'
T =table (15"x21")
C =chair (31"wx34"d)
DC =glass display case (2'x2')
=5' wide clothing racks
=faux plants

MURFREESBORO BOARD OF ZONING APPEALS
STAFF REPORT
MARCH 25, 2026
PROJECT PLANNER: STEPHEN ANTHONY

Application: Z-26-004

Location: 1711 Spiroff Drive

Applicant: Colleen Fogle

Zoning: RS-15 (Residential Single-Family – 15,000 square-foot minimum lot size)

Requests: A special use permit to construct and establish an accessory apartment

Overview

Special Use Permit Request

The applicant, Colleen Fogle, is requesting a special use permit (SUP) in order to construct and establish an accessory apartment at 1711 Spiroff Drive adjacent to the new home. The accessory apartment will be occupied by the applicant's aging parent. The gross floor area of the accessory apartment is 831 square-feet and is located adjacent to where the garage currently is within the principal structure. The property is zoned RS-15 and is in the Riverview Cove single-family residential subdivision. The structure in question, with the accessory apartment, was issued a building permit several months ago and construction commenced. During an inspection, City Staff observed the construction of the accessory apartment, and it was determined that the Planning Department inadvertently omitted communicating the SUP requirements to the applicant before the permit was issued.

As shown on the rear side of the EagleView aerial, the accessory apartment will be located at the rear right-hand corner of the principal structure. The proposed net floor area of the accessory apartment is 693.2 square feet. It includes a kitchen, living area, one bath, one bedroom, a laundry room, and a closet. The accessory apartment has one exterior entrance on the rear of the house. The proposed accessory apartment is integrated into the principal structure and will not be noticeable from the street. Additional access will be provided to the accessory apartment via a door within the 1-car garage.

As proposed, the accessory apartment complies with the applicable bulk development standards:

	Zoning Ordinance	**Proposed Accessory Apartment**
Maximum Floor Area for accessory apartment	700 square feet	693.2 square feet
Maximum Building Height	35 feet	Within home that meets the 35' standard
Minimum Building Setbacks for principal structure	- 40 feet from front property line - 12.5 feet from side property lines - 30 feet from rear property line	- 40.3 feet from front property line - 12.5 feet from left side (east) property line - 12.5 feet from right side (west) property line - 30.3 feet away from rear property line

In addition, it is recommended that the applicant be required to complete and record the standard "Restriction on Use of Land" document prepared by the City Attorney. This document states that the accessory apartment can only be occupied by a family member or an invited guest and may not, under any circumstances, be used as a rental unit. Recording it memorializes the restriction to put future buyers or owners on notice of the zoning regulations.

Relevant Zoning Ordinance Section

Chart 1 of the City of Murfreesboro Zoning Ordinance allows accessory apartments with approval of a Special Use Permit in the RS-15 district. City of Murfreesboro Zoning Ordinance Section 9(D)(2)(a) sets forth Standards for Accessory Apartments in addition to the Standards of General Applicability, Section 9(C). The following are also the relevant sections from the Zoning Ordinance that apply to accessory apartments:

Section 25, Temporary and Accessory Structures, Subsection E:

> *(2): in all residential districts, attached accessory structures and uses shall maintain the same setbacks as required for the principal structures*
>
> *(4): no accessory structure shall exceed the height limitations of the district in which such structure is located*

Section 2, Definitions:

> *Accessory Apartment: A secondary dwelling unit either in or added to an existing single family detached dwelling, or in a separate accessory structure on the same lot of record with its own separate exterior entry door, with provisions for cooking and food preparation (including sink and electrical outlets to accommodate kitchen appliances such as refrigerator, oven, or stove), sanitation (including toilet, sink, and shower or bathtub), and sleeping. Such a dwelling shall be accessory to the main dwelling.*

The Standards of General Applicability relating to Special Use Permits and Standards for Accessory Apartments are listed below with analysis from staff on how the proposed accessory apartment meets the standards.

Standards of General Applicability with Staff Analysis:

(1) The proposed building or use will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other matters affecting the public health, safety, and general welfare:

- As currently proposed, the plan for the accessory apartment complies with the minimum bulk development standards for accessory structures and accessory apartments. The structure will have adequate parking on site, and no changes to utility facilities are needed. The traffic conditions would remain the same and the proposed use would not affect the safety and general welfare of the neighborhood. Additionally, staff believes that the proposed accessory apartment will not have any adverse effect on the character of the neighborhood as the structure will be integrated into the overall design of the principal structure.

(2) The proposed building or use will be constructed, arranged, and operated so as to be compatible with the immediate vicinity and not to interfere with the development and use of adjacent property in accordance with the applicable district regulations:

- Staff believes this standard has been met. As depicted on the proposed plans, the principal structure and accessory apartment comply with the minimum bulk development standards. The proposed accessory apartment is not proposed as a rental

and is to be used for a family member and would not interfere with adjacent properties or generate traffic.

(3) The proposed building or use will be served adequately by essential public facilities and services such as highways, streets, parking spaces, drainage structures, refuse disposal, fire protection, water and sewers; or that the persons or agencies responsible for the establishment of the proposed use will provide adequately for such services:

- Staff believes this standard has been met. The proposed accessory apartment will be served adequately by essential public facilities because they currently exist and already serve the property.

(4) The proposed building or use will not result in the destruction, loss, or damage of any feature determined by the BZA to be significant natural, scenic, or historic importance:

- Staff is not aware of any such features on-site that will be impacted by this use.

(5) The proposed building or use complies with all additional standards imposed on it by the particular provision of this section authorizing such use:

- Additional standards for Accessory Apartment uses are listed below.

Additional Standards for Accessory Apartment Uses with Staff Analysis:

1.) Only one accessory apartment shall be allowed upon a lot zoned for single family purposes;

- The applicant has confirmed that only one accessory apartment will be on the lot at 1711 Spiroff Drive.

2.) Except for bona fide temporary absences, the owner(s) of the residence or lot upon or in which the accessory unit is created shall occupy at least one of the dwelling units on the premises and members of the family or their invited guests shall occupy the other dwelling unit. In no event shall either of the units be used as a rental unit to non-family members;

- The applicant has confirmed that she will reside on the property in the principal dwelling unit and their parent will reside in the accessory apartment also located within the principal structure. The applicant has agreed to record a "Restriction on Use of Land", as recommended by the Planning Department for all accessory apartments.

3.) The accessory apartment shall be designed so that to the degree reasonably feasible, the appearance of the building remains that of a one-family residence. In general, any new entrances in an existing structure shall be located on the side or in the rear of the building;

- As depicted on the current plans, the design is compliant with the minimum bulk development standards for a principal structure, Minimum Yard Requirements and Land Use Intensity Ratios. The structure has a 40.3-foot front setback and 30.3-foot rear setback, a 12.5-foot left side (east) setback, and a 12.5-foot right side (west) setback. The only exterior entrance to the accessory apartment will be located at the rear of the house.

4.) **If attached to or located within the principal structure, the accessory apartment shall be designed and constructed to allow it to be part of the principal structure at such time as the use of the accessory apartment discontinues or approval of the special permit lapses;**

- The proposed accessory apartment is located within the principal structure. If the accessory apartment use was discontinued or the special use permit lapses, the accessory apartment could be incorporated as part of the principal structure.

5.) **The design and size of the accessory apartment shall conform to all applicable standards in the health, building and other codes;**

- As it is currently depicted, the accessory apartment will be 693.2 square feet in floor area. Note that based on the city's definition of floor area, the closet and the laundry room are not included in the floor area calculations. If approved, the applicant is required to obtain all necessary building permits to construct the accessory apartment. The applicant has confirmed that the design and construction will conform to all applicable standards in the health, building, and other codes. The structure complies with the setback requirements for the principal structure and will not exceed 35 feet in height.

6.) **The accessory apartment shall not exceed seven hundred square feet of floor area;**

- The accessory apartment will be 693.2 square feet in floor area and will not exceed 700 square feet of floor area noted in the standard above. The total gross floor area of the accessory apartment is 831 square feet, but based on the City's definition of floor area, areas of common special purpose used by the occupants of the premises, such as laundry and storage (closets), are excluded from the calculation of floor area.

7.) **The BZA may condition approval upon the special use permit lapsing at such time as the ownership of the property is transferred; and:**

- Staff recommends that, rather than the above, the BZA instead condition approval on the recording of a "Restriction on Use of Land", prepared by the City Attorney, which requires that the accessory apartment only be occupied by a family member or an invited guest and cannot in any circumstances be used as rental unit.

8.) **The BZA may require additional standards be met in order to assure compatibility of the proposed use with adjoining properties and to maintain the integrity of the single-family zoning district;**

- The applicant understands that the BZA may require additional standards to be met in order to ensure compatibility.

Staff Recommendation:

Staff recommends approval of the special use permit, based on the request meeting the minimum development standards of the ordinance, as presented in the application documents, and with the following conditions:

Recommended Conditions of Approval:

1. The owner(s) of the property for this accessory apartment unit shall occupy at least one of the dwelling units on the premises and members of the family or their invited guests shall occupy the other dwelling unit. In no event shall either of the units be used as a rental unit to non-family members.
2. Prior to the issuance of a certificate of occupancy, the applicant shall complete and record the "Restriction on Use of Land" document prepared by the City Attorney, which shall limit the use of the accessory apartment to only what is allowed by the Zoning Ordinance.
3. Separate utility meters or service connections, including, but not limited to, electricity, gas, water, or sewer, shall not be installed or requested for the accessory apartment.
4. A separate mailbox or mail receptacle shall not be installed or designated for the accessory apartment, nor will the accessory apartment to assigned a separate address.
5. The applicant shall obtain all necessary permits with the Building and Codes Department and shall comply with all code requirements.

Attached Exhibits

A. Application
B. Procedure form
C. Floor plan

City of Murfreesboro BOARD OF ZONING APPEALS	HEARING REQUEST APPLICATION

Location/Street Address: 1711 Spiroff Drive			
Tax Map:	Group:	Parcel:	Zoning District: RS15

Applicant: Colleen Fogle	E-Mail: [redacted]	
Address: 304 Robert Rose Drive	Phone: 615-663-5750	
City: Murfreesboro	State: TN	Zip: 37130

Property Owner: Colleen Fogle		
Address: 304 Robert Rose Drive	Phone: 615-663-5750	
City: Murfreesboro	State: TN	Zip: 37130

Request: ~~Mother in Law suite attached~~

Zoning District: RS15

Applicant Signature: Colleen Fogle Date: 03/11/2026

Received By:	Receipt #:
Application #:	Date:

Murfreesboro Board of Zoning Appeals

City of MURFREESBORO TENNESSEE

HEARING APPLICATION AND GENERAL INFORMATION

Board of Zoning Appeals Procedure Form

Request for Accessory Apartment

This form only pertains to *special use permit requests for the Board of Zoning Appeals*. The information contained in this document shall not be considered exhaustive and shall only serve to summarize the details of the special use permit request for the Board of Zoning Appeals and Planning Department staff. **Additional information may be requested during the review process as determined by the zoning administrator.**

Date: 03/10/2026

Applicant name & title: Colleen Fogle Planner name: Ben Newman

Application request: "Mother in Law" suite in new construction home

Purpose of request: I have designed a "mother in law" suite for an aging parent. This will not be rented, advertised or any other rental. I will be living in the home and don't want a rental unit.

Section 8 – Procedure for Uses Requiring Special Use Permits

a) Name, address, and telephone number of the *applicant*
   Colleen Fogle 615-663-5750 304 Robert Rose Drive, Murfreesboro TN 37130

b) Nature and extent of applicant's ownership interest in subject property
   I own 100% of this property

c) Site plan to be submitted for review by City Staff and Board of Zoning Appeals
   a. Site plan has already been submitted and approved by the City of Murfreesboro

d) Address of the site of the proposed special use
   a. 1711 Spiroff Drive

e) Vicinity map showing the property of the proposed special use and all parcels within a five-hundred-foot radius
   - Residential Subdivision plat is on file

f) Zoning classification the property of the proposed special use
   RS15

g) The property of the proposed special use shall have the following characteristics:

1) Hours and days of operation
Not applicable

2) Duration of the proposed special use
Not applicable

3) Number of expected patrons that will be expected to utilize the property of the proposed special use
1

4) Projected traffic that will be expected to be generated by the proposed special use
Not applicable...no additional traffic

h) Potentially harmful characteristics of the proposed special use for the zoning district in which it is proposed and the manner in which the applicant proposes to eliminate or minimize them

No mitigating factors. This is a residential home.

Section 9 – Standards for Special Use Permits

Standards for General Applicability.

An applicant for a special use permit shall present evidence at the public hearing on such special permit. Please explain how you will comply with the following standards:

1) that the proposed building or use will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other matters affecting the public health, safety, and general welfare;
There are no factors causing issue with any homeowner. We are submitting to adhere to all Murfreesboro requirements and ordinances.

2) that the proposed building or use will be constructed, arranged, and operated so as to be compatible with the immediate vicinity and not to interfere with the development and use of adjacent property in accordance with the applicable district regulations;
This is not an additional structure. It is attached to the home and consistent with construction of adjacent neighbors.

3) that the proposed buildings or use will be served adequately by essential public facilities and services such as highways, streets, parking spaces, drainage structures, refuse disposal, fire protection, water and sewers; or that the persons or agencies responsible for the establishment of the proposed use will provide adequately for such services;
The structure is already accounted in square footage of the permit, sewer service bathrooms and water supply.

4) that the proposed building or use will not result in the destruction, loss, or damage of any feature determined by the BZA to be of significant natural, scenic, or historic importance; and,
The lot is a RS-15 lot and consistent to all other homes.

5) that the proposed building or use complies with all additional standards imposed on it by the particular provision of this section authorizing such use.
This home has already passed Murfreesboro Building and Codes and the Riverview ARC.

Standards for (a) Accessory Apartments

Please explain how you will comply with the following standards:

[1] only one accessory apartment shall be allowed upon a lot zoned for single family purposes;
This is for an aging parent. It is not an apartment and will not be rented.

[2] except for bona fide temporary absences, the owner(s) of the residence or lot upon or in which the accessory unit is created shall occupy at least one of the dwelling units on the premises and members of the family or their invited guests shall occupy the other dwelling unit. In no event shall either of the units be used as a rental unit to non-family members;
I will be living in the home and do not want anyone living in the home I do not know.

[3] the accessory apartment shall be designed so that to the degree reasonably feasible, the appearance of the building remains that of a one-family residence. In general, any new entrances in an existing structure shall be located on the side or in the rear of the building;

Site plan is attached and the plans have already been approved by the Riverview Cove Architecture Review Committee.

[4] if attached to or located within the principal structure, the accessory apartment shall be designed and constructed to allow it to be part of the principal structure at such time as the use of the accessory apartment discontinues or approval of the special permit lapses;

Plans have been submitted and site plan submitted.

[5] the design and size of the accessory apartment shall conform to all applicable standards in the health, building, and other codes;

[6] the accessory apartment shall not exceed seven hundred square feet of floor area;
The structure does not exceed 700SF

[7] the BZA may condition approval upon the special use permit lapsing at such time as the ownership of the property is transferred; and,

[8] the BZA may require additional standards be met in order to assure compatibility of the proposed use with adjoining properties and to maintain the integrity of the single family zoning district.

Date: 3-11-26 Applicant signature: Colleen Fogle

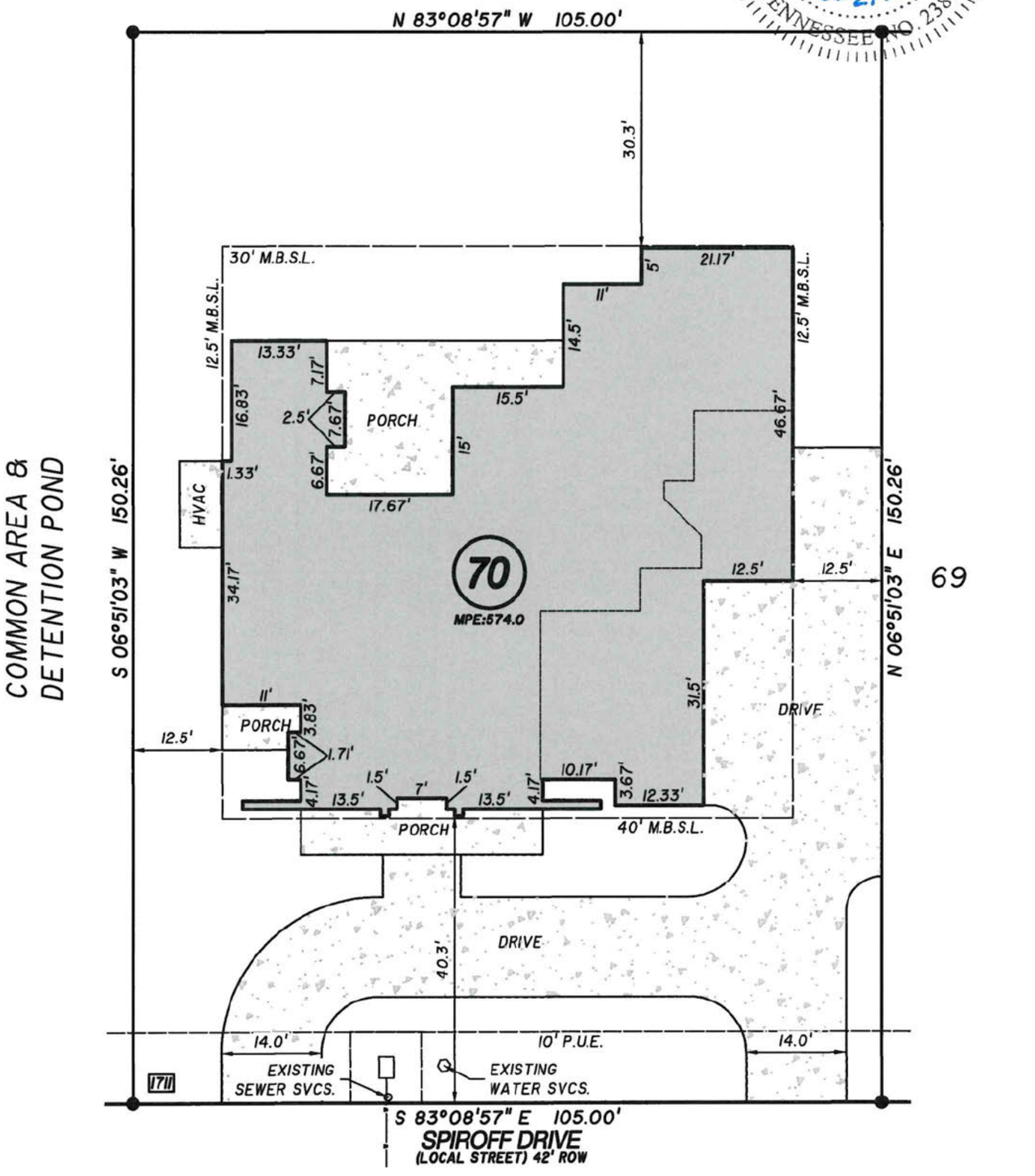
SEC, Inc.
SITE ENGINEERING CONSULTANTS
ENGINEERING · SURVEYING · LAND PLANNING
LANDSCAPE ARCHITECTURE
850 MIDDLE TENNESSEE BOULEVARD MURFREESBORO, TENNESSEE 37129
PHONE: (615) 890-7901 WWW.SEC-CIVIL.COM FAX: (615) 895-2567

ALL DIMENSIONS ARE THE SAME AS THOSE ON A FOUNDATION PLAN PROVIDED BY RUSTY RUTLEDGE.

DAVID A. PARKER
REGISTERED LAND SURVEYOR
XVI
AGRICULTURE
COMMERCE
TENNESSEE NO. 2381
10-27-25

CONTACT: SHANE McFARLAND
SHANE McFARLAND CONSTRUCTION
323 NORTH WALNUT ST
MURFREESBORO, TN 37130
EMAIL: [redacted]

COMMON AREA & DETENTION POND



SITE DATA
LOT AREA = 15,777 SQ. FT.
PROPOSED BUILDING AREA = 4,545 SQ. FT.
BUILDING COVERAGE RATIO:
4,545/15,777 = 28.81%

0 20 40
feet

PLOT PLAN
RIVERVIEW COVE SUBDIVISION

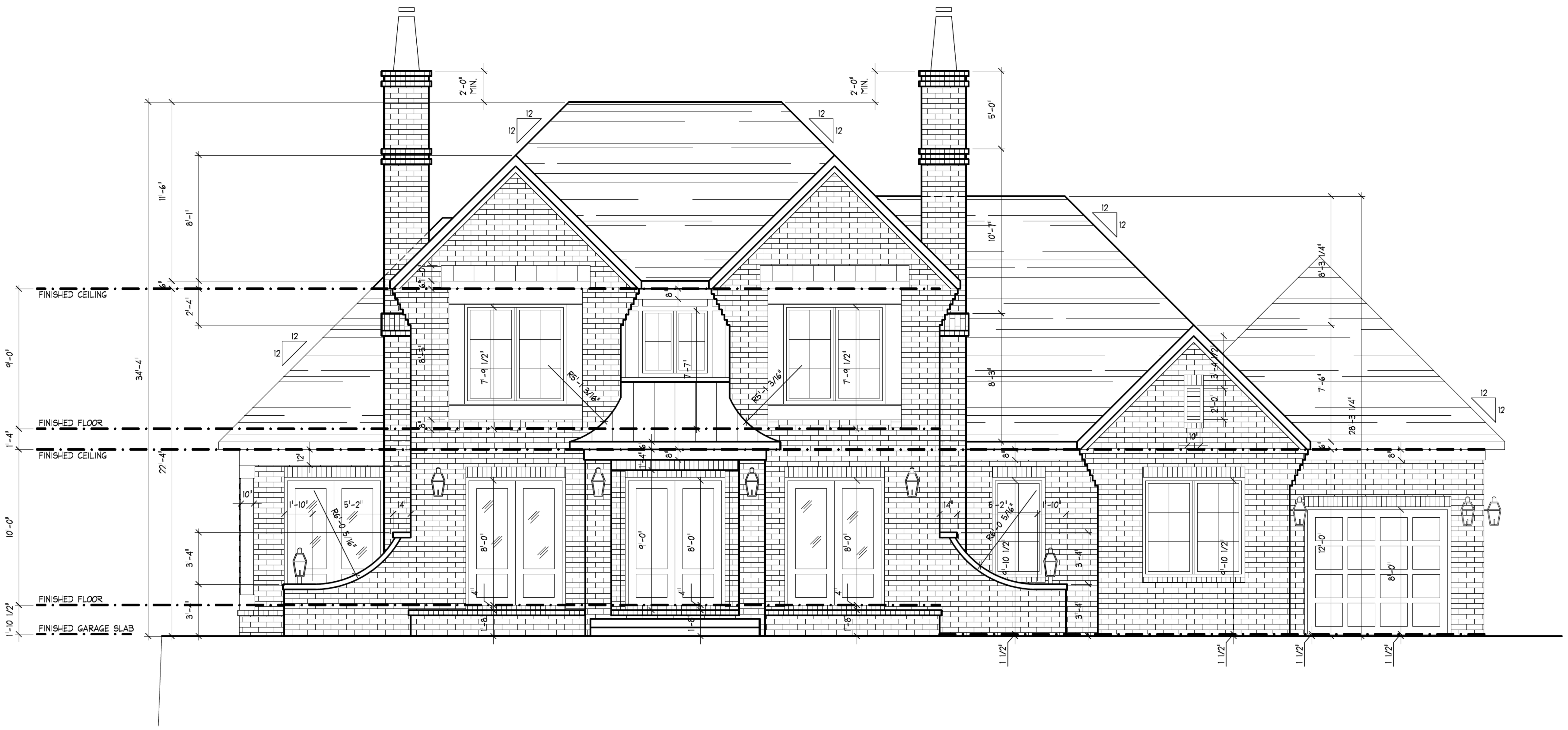
SECTION 2, LOT 70
1711 SPIROFF DRIVE
MAP 80A, GROUP E, PARCEL 26.00
P.BK. 52, PG. 67-68 R.O.R.C.

north

DATE: 10/27/2025
REV:

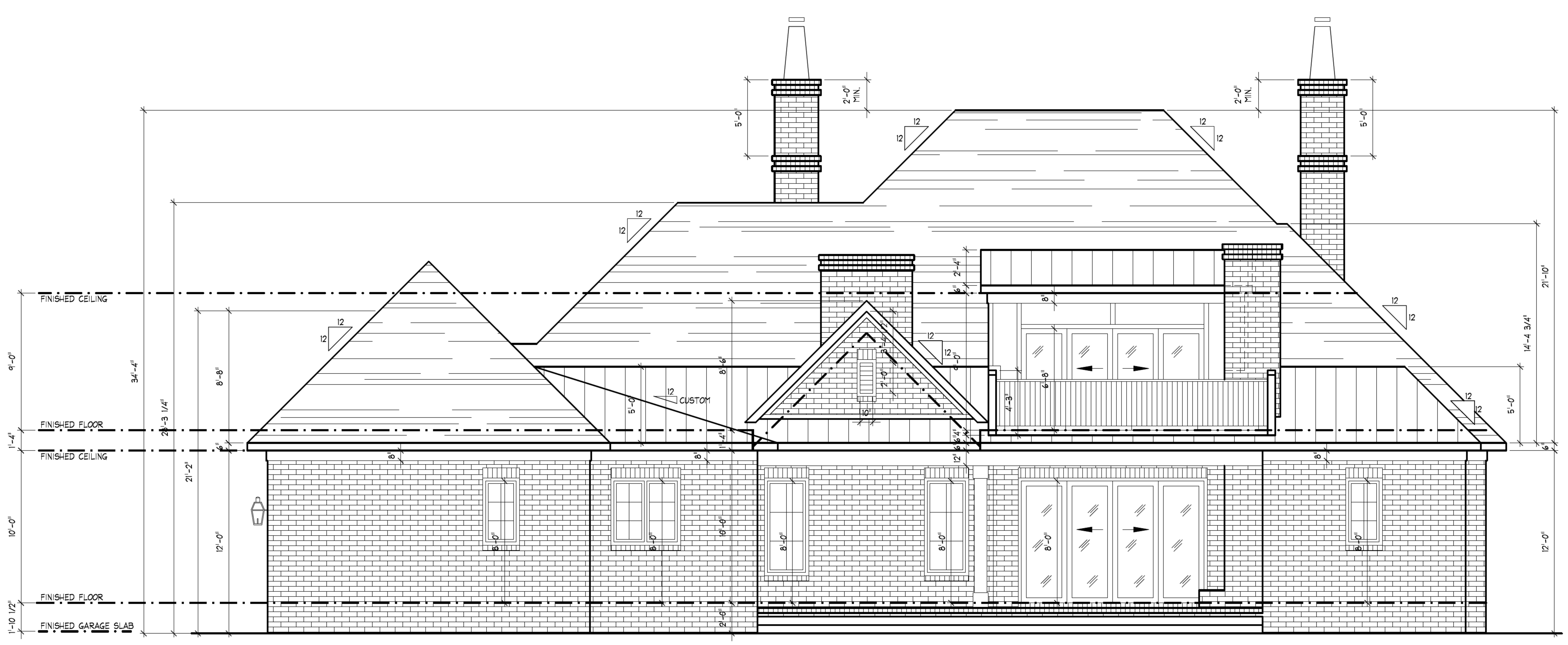
DRAWN BY: WCC
S.E.C. # 20250.16

P:\20250 Riverview Cove\Survey\Plot Plans\Section 2 (Lots 45-82)\20250-Riverview Cove S2.dwg



FRONT ELEVATION

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



REAR ELEVATION

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

SQUARE FOOTAGE

1ST FLOOR - MAIN HOUSE	2,550 SF
1ST FLOOR - IN-LAW SUITE	831 SF
2ND FLOOR	1,516 SF
TOTAL	4,897 SF
GARAGE, 2-CAR	660 SF
GARAGE, 1-CAR	329 SF
PORCH, FRONT ENTRY	223 SF
PORCH, REAR/COVERED	495 SF
PORCH, PRIMARY/COVERED	70 SF
BALCONY, 2ND FLOOR	377 SF

SHEET LEGEND

DESIGNED BY BRANDY LAUER,
DESIGN THREADS, LLC

DESIGNER WILL NOT BE RESPONSIBLE FOR CHANGES MADE BY THE HOMEOWNER OR CONTRACTOR WITHOUT FURTHER CONSULTATION.
ANY DISCREPANCIES IN THESE PLANS DISCOVERED BY THE CONTRACTOR SHOULD BE ADDRESSED WITH THE DESIGNER IMMEDIATELY, PRIOR TO CONSTRUCTION. IN THE CASE THAT THE CONTRACTOR MAKES A DECISION TO PROCEED WITHOUT CONTACTING THE DESIGNER, DESIGN THREADS WILL NOT BE HELD LIABLE FOR ANY COSTS INCURRED.

DESIGN THREADS, LLC
"Design with a personal touch"

4669 WINDROW ROAD
ROCKVALE, TENNESSEE
37153

[redacted]

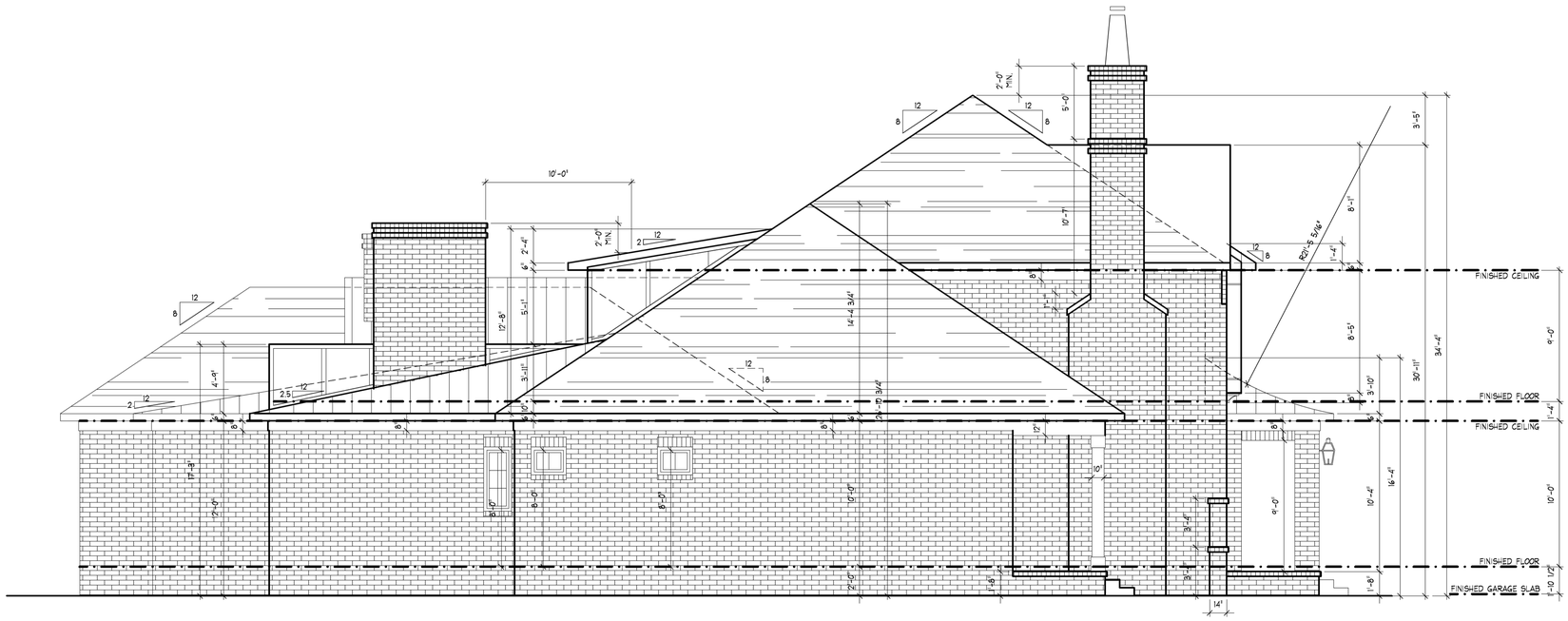
DESCRIPTION	DATE
ISSUED FOR PRICING & REVIEW	10/20/2025
ISSUED FOR CONSTRUCTION	10/20/2025
REV-1	10/29/2025

COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

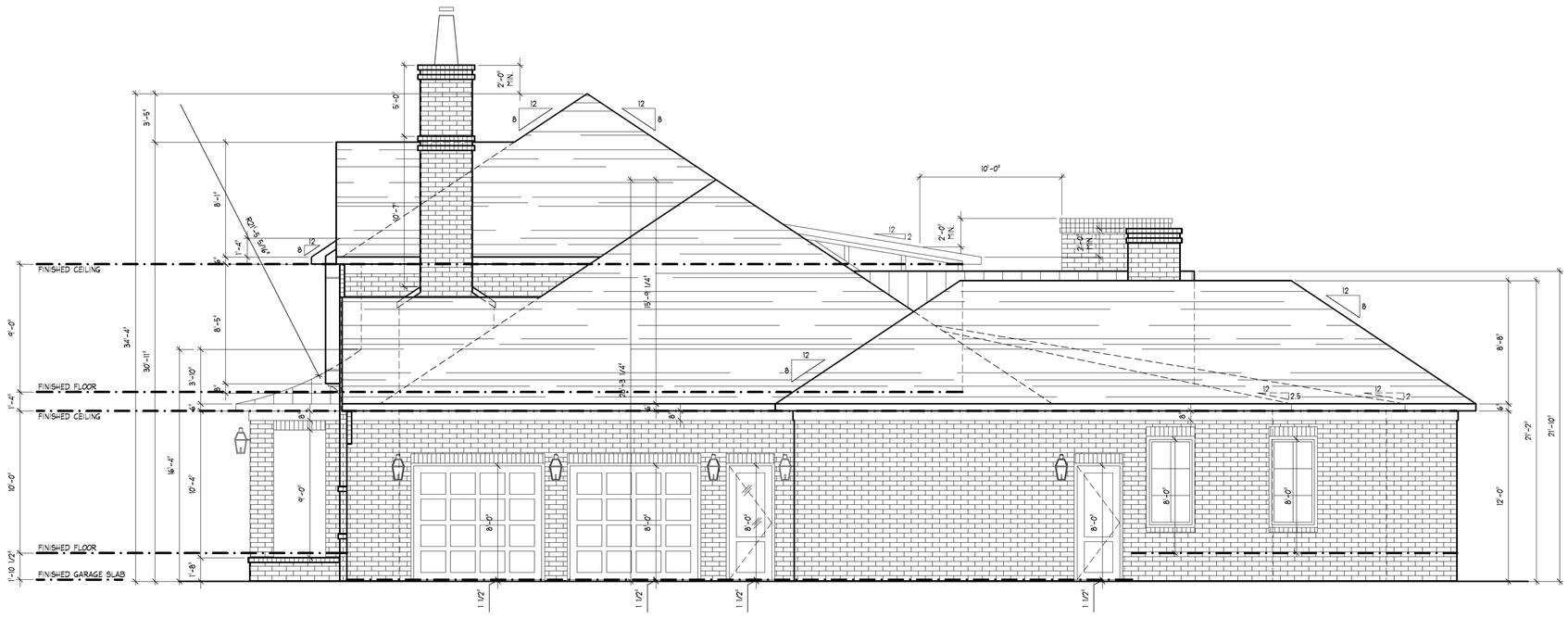
EXTERIOR ELEVATIONS

A1.1



LEFT SIDE ELEVATION

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



RIGHT SIDE ELEVATION

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

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"Design with a personal touch"

4669 WINDROW ROAD
ROCKVALE, TENNESSEE
37153

(615) 481-6661

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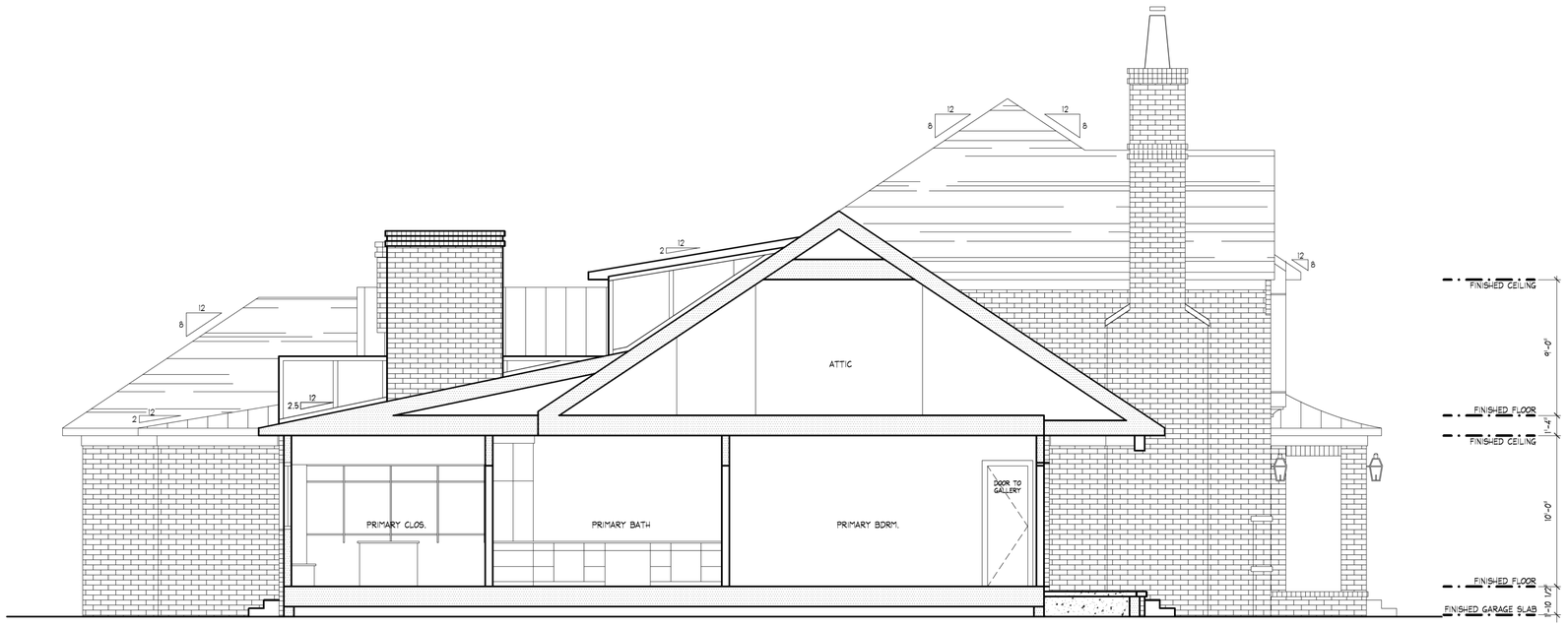
COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

EXTERIOR ELEVATIONS

A1.2



1 SECTION/DETAIL

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

2 SECTION/DETAIL

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

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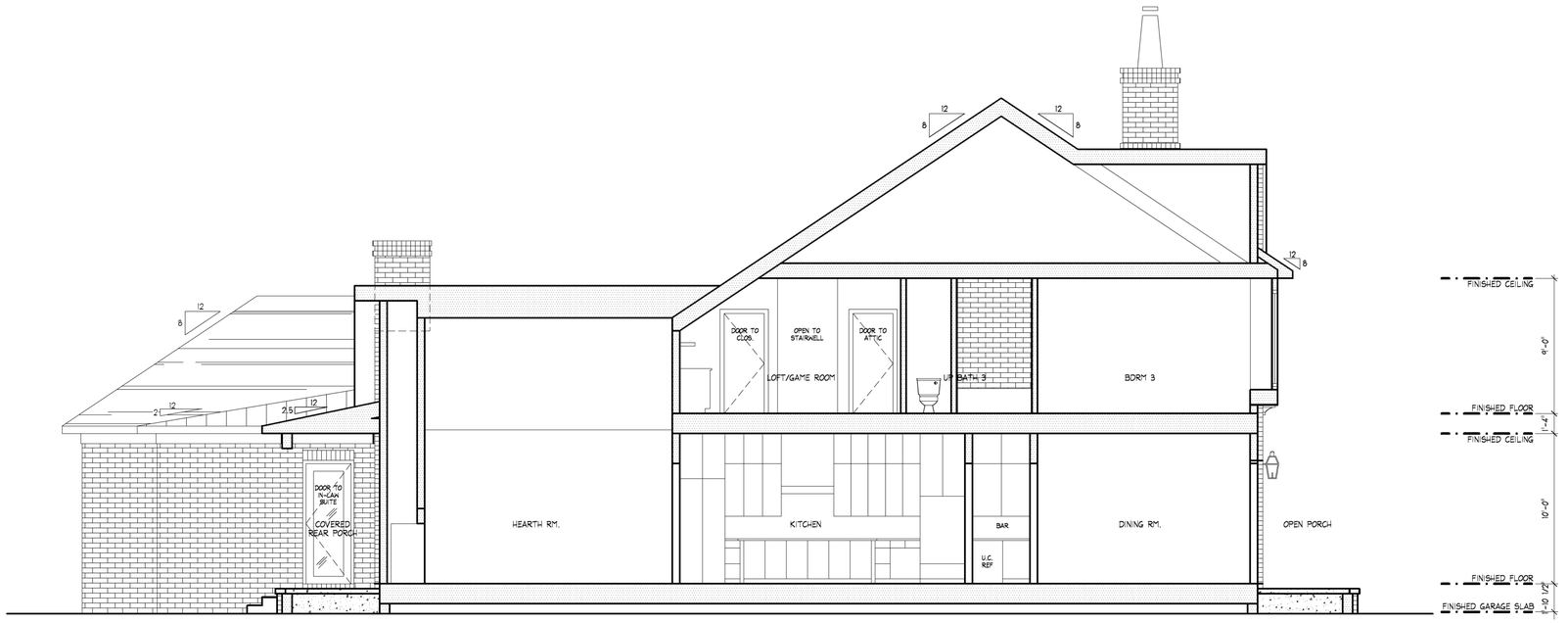
COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

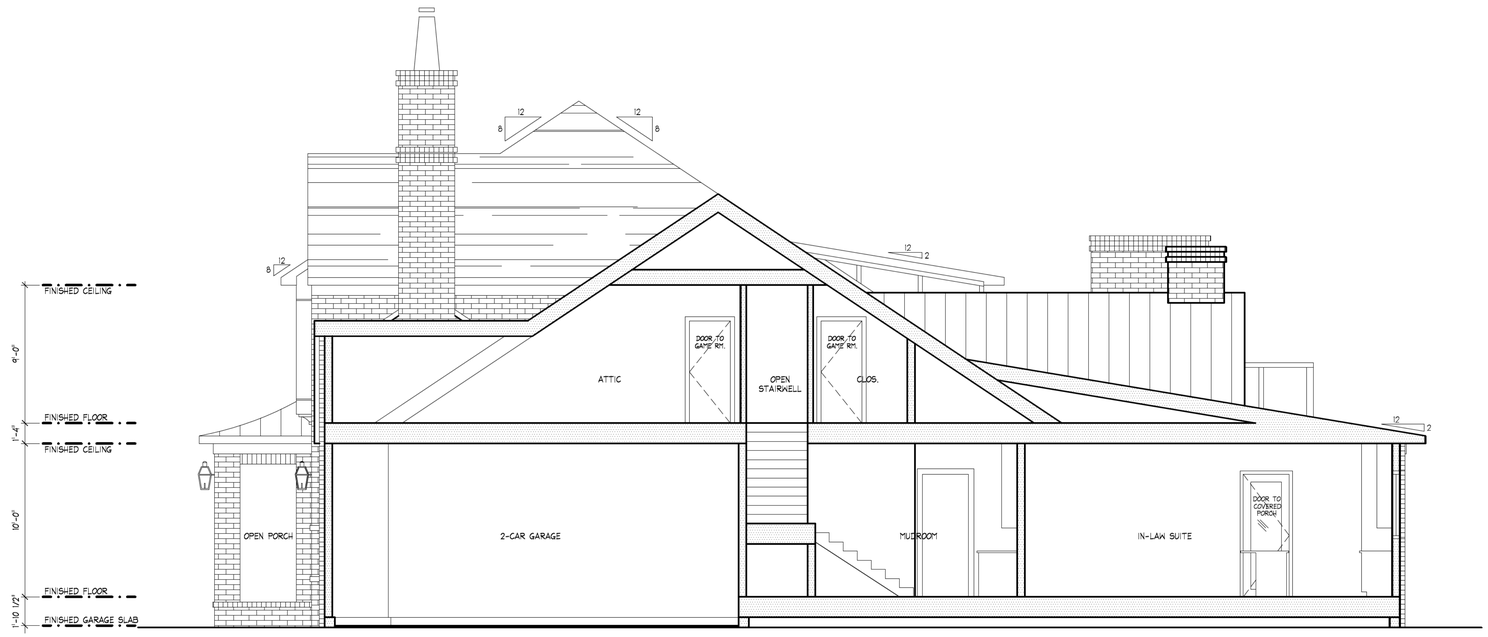
SECTIONS/ DETAILS

A1.3



3 SECTION/DETAIL

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



4 SECTION/DETAIL

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

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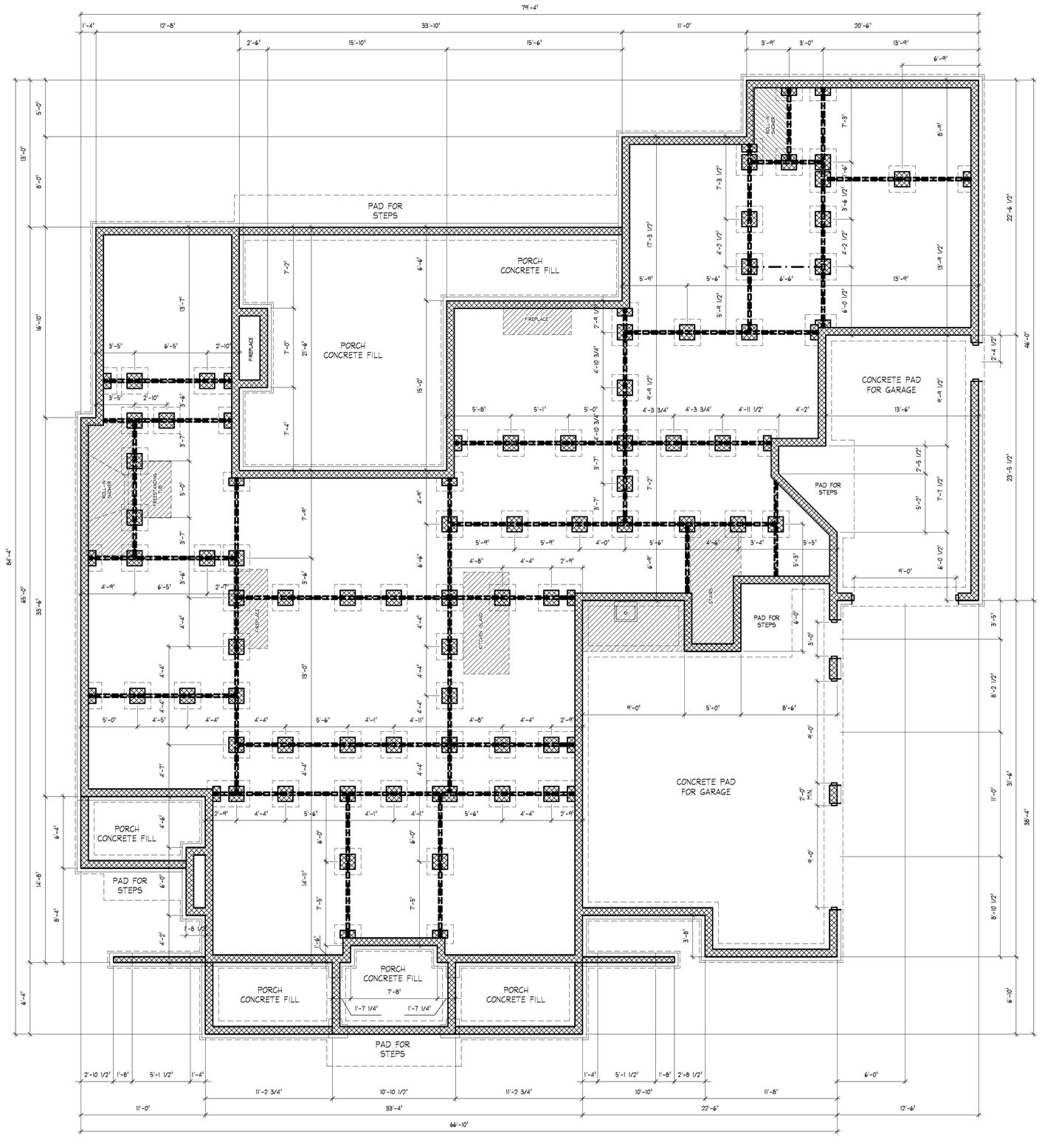
COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

SECTIONS/ DETAILS

A1.4



FOUNDATION LEGEND:

8" CMU BLOCK FOUNDATION WALLS

FOUNDATION NOTES:

1. LOCATION OF SUPPORT PIERS TO BE CONFIRMED BY LICENSED CONTRACTOR. CONTRACTOR TO ACCOMODATE FOR GRADE AND FRAMING REQUIRMENTS. PROVIDE ADEQUATE SUPPORT FOR 1ST AND 2ND FLOORS OF RESIDENCE.
2. DRIVEWAY, SIDEWALKS, AND PATIOS TO BE FINALIZED WITH LANDSCAPING DESIGN.
3. PROVIDE ACCESS TO CRAWL SPACE, HVAC EQUIPMENT, ETC. THROUGH FOUNDATION WALLS AS NEEDED.

FOUNDATION PLAN

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

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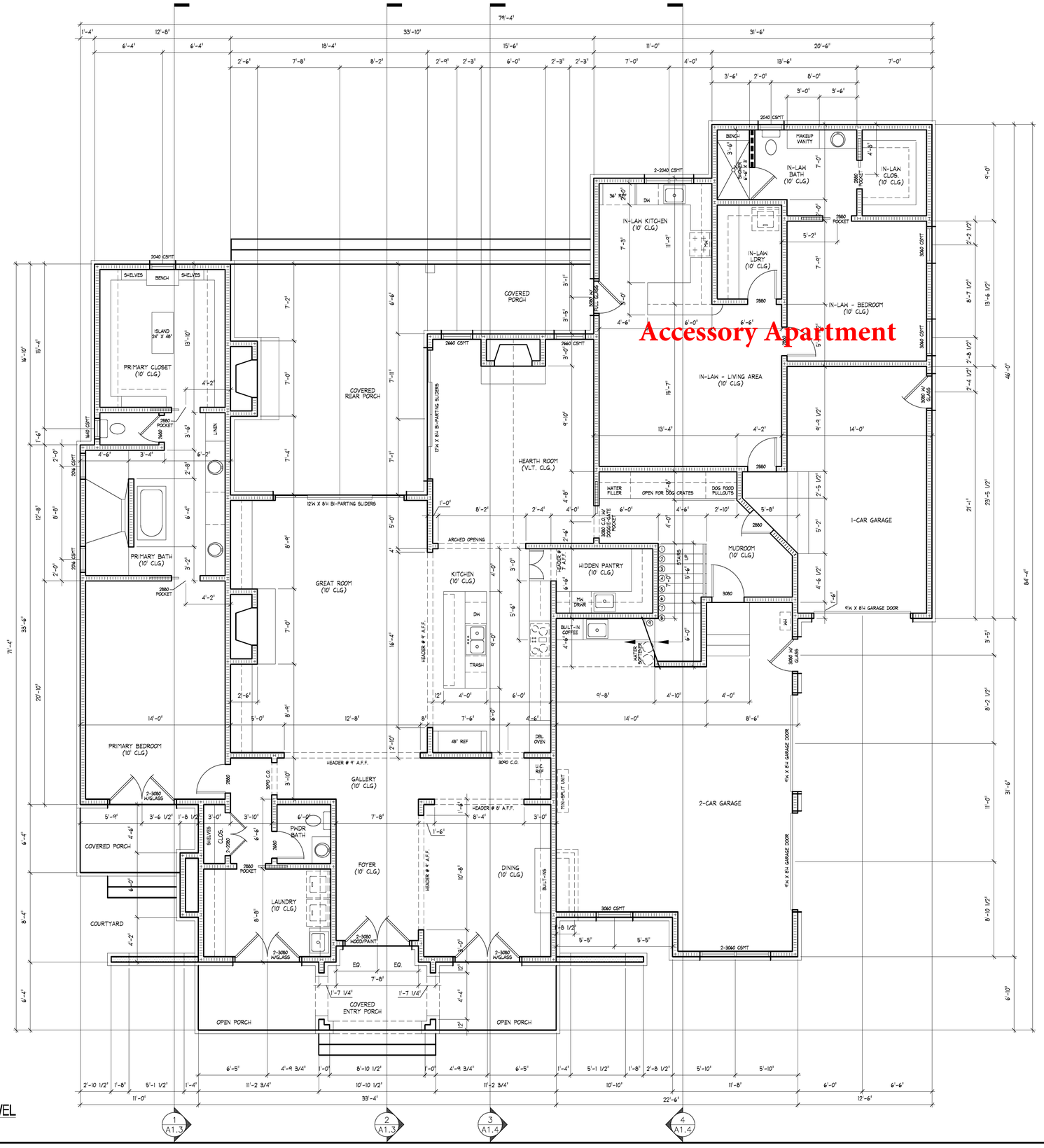
COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

FOUNDATION PLAN

A2.1



WALL LEGEND:

- FULL HEIGHT 4" WOOD STUD WALLS W/ 1/2" DRYWALL ON EACH SIDE
- FULL HEIGHT 6" WOOD STUD WALLS W/ 1/2" DRYWALL ON EACH SIDE
- 42"H (CONFIRM HEIGHT W/ HOMEOWNER) X 6" WOOD STUD WALLS W/ 1/2" DRYWALL ON EACH SIDE
- 6" WOOD FRAMED WALL WRAPPED W/ OSB FOR SLOPED BRICK WING-WALLS (SEE EXTERIOR ELEVATIONS FOR DETAILS)

DIMENSIONED FLOORPLAN, MAIN LEVEL

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

DESIGN THREADS, LLC

"Design with a personal touch"

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ROCKVALE, TENNESSEE
37153

[redacted]

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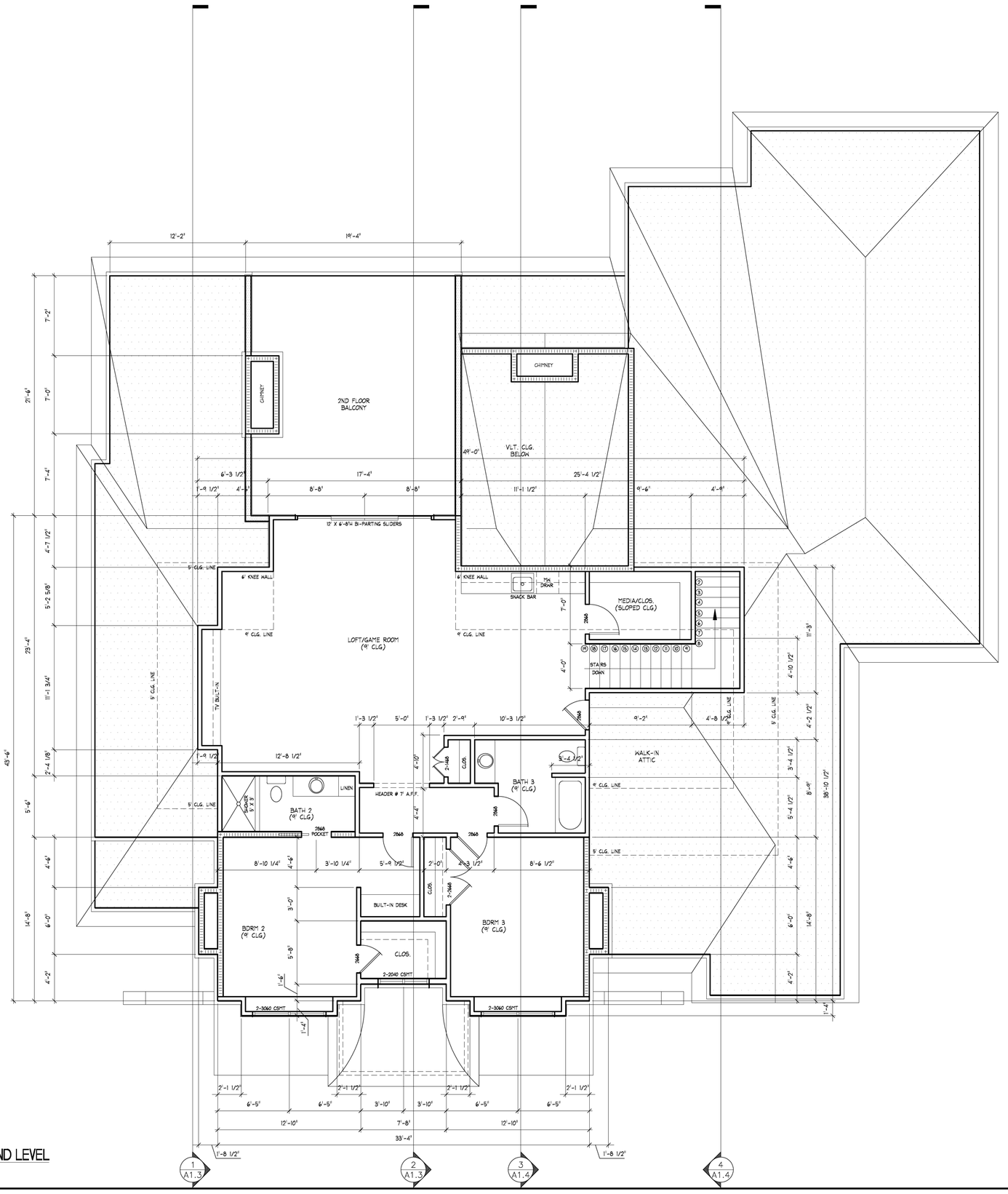
COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

DIMENSIONED FLOORPLAN MAIN LEVEL

A2.2



DIMENSIONED FLOORPLAN, SECOND LEVEL

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

WALL LEGEND:

- FULL HEIGHT 4" WOOD STUD WALLS W/ 1/2" DRYWALL ON EACH SIDE
- FULL HEIGHT 6" WOOD STUD WALLS W/ 1/2" DRYWALL ON EACH SIDE
- 42"H (CONFIRM HEIGHT W/ HOMEOWNER) X 6" WOOD STUD WALLS W/ 1/2" DRYWALL ON EACH SIDE
- 6" WOOD FRAMED WALL WRAPPED W/ OSB FOR BALCONY WING WALLS (SEE EXTERIOR ELEVATIONS FOR DETAILS)

DESIGN THREADS, LLC

"Design with a personal touch"

4669 WINDROW ROAD
ROCKVALE, TENNESSEE
37153

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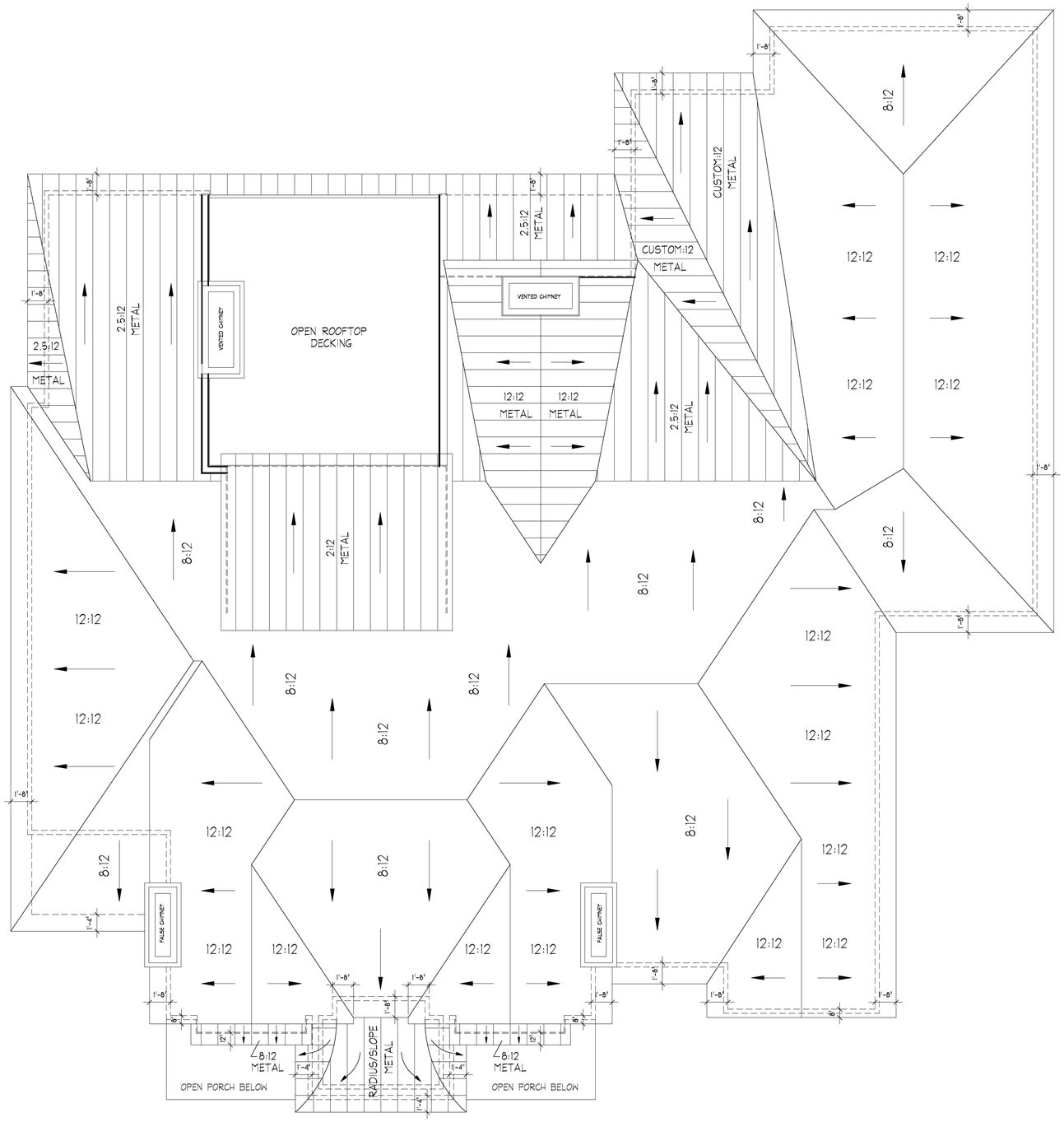
COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

DIMENSIONED FLOORPLAN SECOND LEVEL

A2.3



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

DESIGN THREADS, LLC
"Design with a personal touch"
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37153
[redacted]

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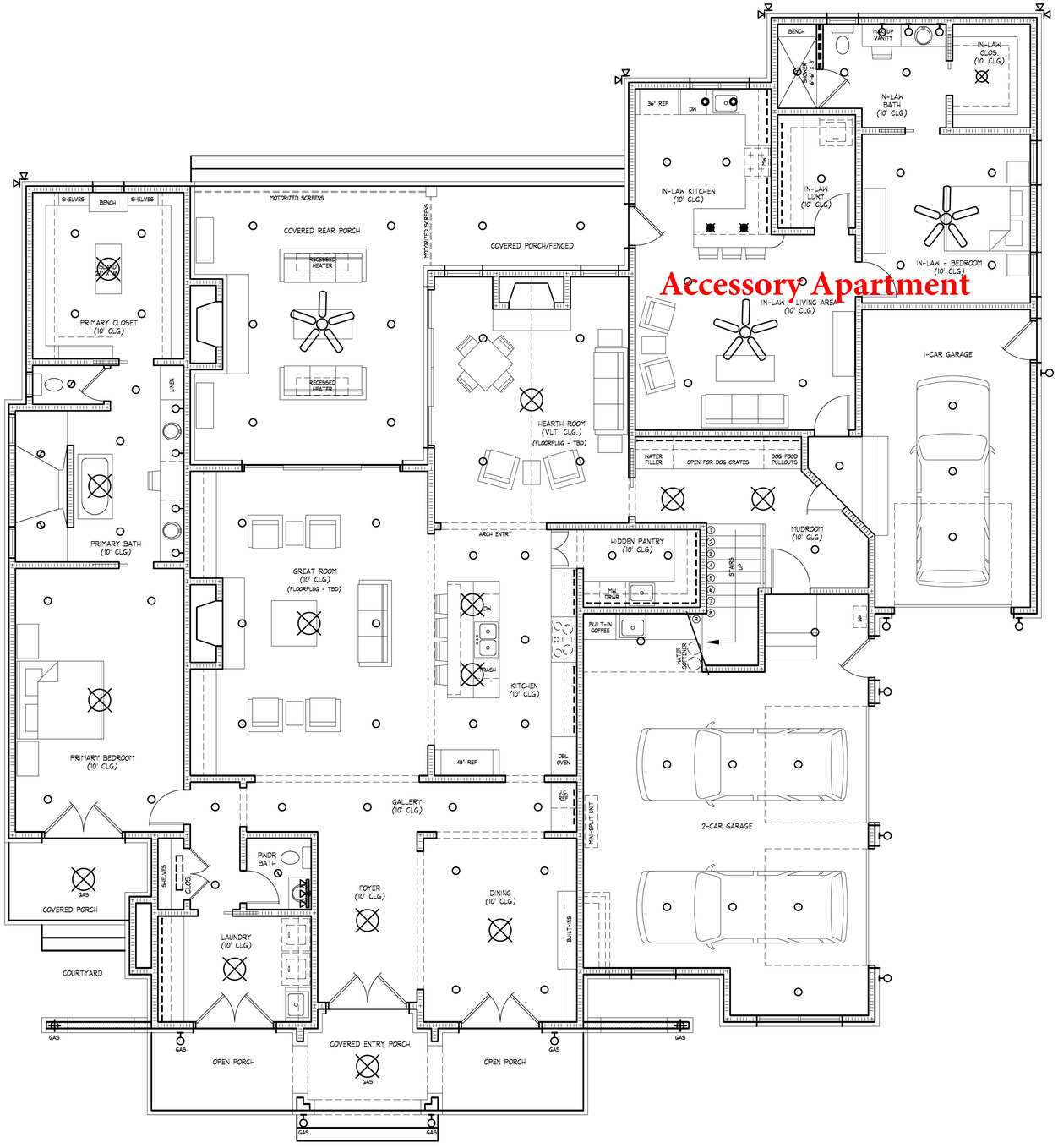
COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

ROOF PLAN

A2.4



REFLECTED CEILING LEGEND

- $ — WALL SWITCH MOUNTED AT 46" A.F.F. (D-DIMMER, 3-WAY SWITCH)
- 4" RECESSED INCANDESCENT DOWNLIGHT
- 6" RECESSED INCANDESCENT DOWNLIGHT
- EXTERIOR PORCH LIGHT OR WALL SCONCE
- EXTERIOR POST MOUNT LANTERN
- RECESSED CAN, LIGHT/EXHAUST FAN COMBO
- CEILING FAN/LIGHT COMBINATION
- SUSPENDED CEILING FIXTURE (CHANDELIER) HEIGHT TO BE DETERMINED IN FIELD.
- SURFACE-MOUNTED LIGHT FIXTURE.
- SUSPENDED PENDANT FIXTURE, HEIGHT TO BE DETERMINED IN FIELD.
- UNDER-COUNTER TASK LIGHTING
- VANITY LIGHT, HEIGHT TO BE DETERMINED IN FIELD.
- L.E.D. STRIP-LIGHT FIXTURE.
- EXTERIOR CORNER FLOODLIGHTS

REFLECTED CEILING LEGEND

1. ALL CEILING FIXTURES TO BE MOUNTED IN THE CENTER OF THE ROOM, UNLESS NOTED OR DIMENSIONED OTHERWISE.
2. L.E.D. LIGHTING IN CLOSETS TO BE MOUNTED ABOVE THE DOOR.
3. VANITY LIGHTING TO BE CENTERED ABOVE THE SINK BELOW, HEIGHT TO BE DETERMINED IN THE FIELD BY THE HOMEOWNER.
4. LIGHT SWITCHES TO BE MOUNTED AT STANDARD HEIGHT AND AS CLOSE TO THE DOOR CASING AS POSSIBLE.
5. ALL ELECTRICAL AND LOW VOLTAGE OUTLETS TO BE LOCATED ON SITE BY HOMEOWNER AND BUILDER TO MEET LOCAL BUILDING CODES.
6. ALL THERMOSTAT LOCATIONS TO BE CENTERED ABOVE A LIGHT SWITCH TO AVOID BEING PLACED IN THE CENTER OF A WALL.
7. RECESSED CAN LIGHTS TO BE PLACED AT WALK-THROUGH WITH THE HOMEOWNER.

REFLECTED CEILING PLAN, MAIN LEVEL

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

DESIGN THREADS, LLC
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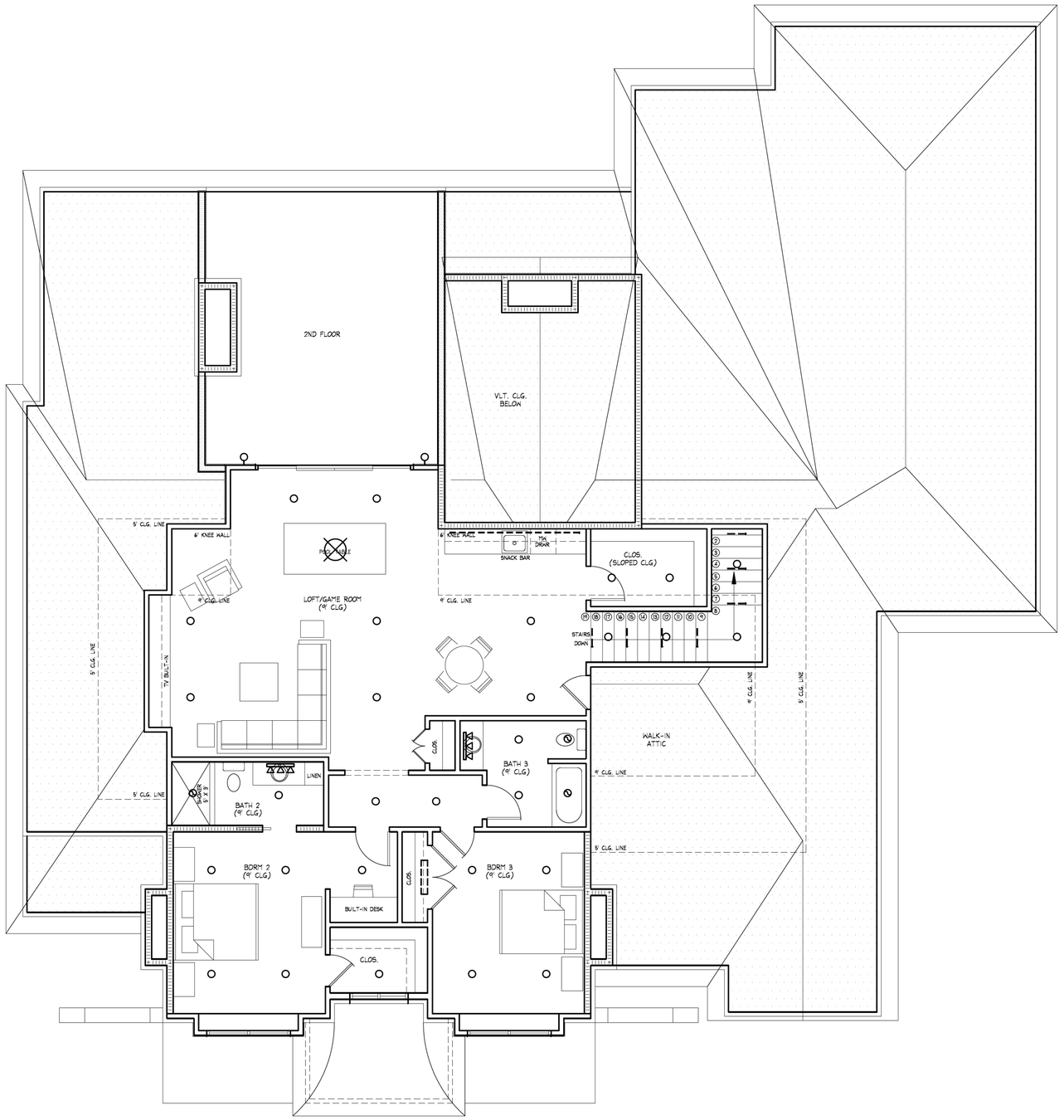
COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

REFLECTED CEILING PLAN
MAIN LEVEL

A3.1



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- UNDER-COUNTER TASK LIGHTING
- VANITY LIGHT, HEIGHT TO BE DETERMINED IN FIELD.
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REFLECTED CEILING PLAN, SECOND LEVEL

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

DESIGN THREADS, LLC
"Design with a personal touch"
4669 WINDROW ROAD
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37153
(615) 491-6661 [redacted]

DESCRIPTION	DATE
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COLLEEN FOGLE RESIDENCE

RIVERVIEW COVE, LOT 70
SPIROFF DRIVE, MURFREESBORO, TN

REFLECTED CEILING PLAN
SECOND LEVEL

A3.2

CITY OF MURFREESBORO
2026 BOARD OF ZONING APPEALS (BZA) CALENDAR
(Draft Amendment – March 2026)

Pre-application Meeting Request Due (3:00 PM)	**Monthly Submittal Deadline (3:00 PM)**	**BZA Meeting Date (1:00 PM)**
January 5	January 12	January 28
February 2	February 9	February 25
March 2	March 9	March 25
March 30	April 6	April 22
May 4	May 11	May 27
May 22 (Friday)	***June 1***	June 24
June 22	***June 29 (9:00 AM)***	July 22
August 3	August 10	August 26
August 28 (Friday)	***September 4 (Friday)***	***September 23***
October 5	October 12	October 28
October 23 (Friday)	***October 30 (Friday)***	***November 19 (Thursday)***
November 19 (Thursday)	***November 30***	December 17 (Thursday)