Truro Planning Board Agenda

Remote Meeting

Wednesday, September 7, 2022 – 5:00 pm

www.truro-ma.gov

11:30 AM

Open Meeting

This will be a remote public meeting. Citizens can view the meeting on Channel 18 in Truro and on the web on the "Truro TV Channel 18" button under "Helpful Links" on the homepage of the Town of Truro website (www.truro-ma.gov). Click on the green "Watch" button in the upper right corner of the page. Please note that there may be a slight delay (approx. 15-30 seconds) between the meeting and the television broadcast/live stream.

Citizens can join the meeting to listen and provide public comment by entering the meeting link; clicking on the Agenda's highlighted link; clicking on the meeting date in the Event Calendar; or by calling in toll free at 1-877-309-2073 and entering the access code 869-324-725# when prompted. Citizens will be muted upon entering the meeting until the public comment portion of the hearing. If you are joining the meeting while watching the television broadcast/live stream, please lower or mute the volume on your computer or television during public comment so that you may be heard clearly. Citizens may also provide written comment via postal mail or by emailing Liz Sturdy, Planning Department Administrator, at *esturdy@truro-ma.gov*.

Meeting link: https://meet.goto.com/869324725

Public Comment Period

The Commonwealth's Open Meeting Law limits any discussion by members of the Board of an issue raised to whether that issue should be placed on a future agenda. Speakers are limited to no more than 5 minutes.

1. **Planner Report**

2. **Chair Report**

Board Action/Review

2022-005/PB – Regan McCarthy seeks approval of Form A – Application for Determination that Plan Does Not Require Approval (ANR) pursuant to Section 2.2 of the Town of Truro Rules and Regulations Governing the Subdivision of Land with respect to property at 35A Higgins Hollow Road, Truro MA, Atlas Map 47, Parcel 2, Registry of Deeds title reference: Book 20807, Page 42. [*Material in 8/24/2022 packet*]

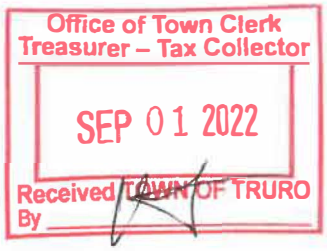
- Request to Continue to September 21, 2022 Meeting

Board Action/Review

2022-009/SPR – Crown Castle, on property located at 344 Route 6 (Atlas Map 39, Parcel 172). Applicant seeks a Special Permit under Section 40.5 of the Truro Zoning Bylaw, and as an Eligible Facilities Request for a minor modification under Section 64091 and the rules of the Federal Communications Commission ("FCC"), to modify an existing tower: remove or replace antennas, ancillary equipment, and ground equipment as per plans for an existing carrier on an existing wireless communication facility; and replace equipment on existing concrete pad. Such modification will not substantially change the physical dimensions of such tower or base station. The modification does not constitute a substantial change to the existing tower under 47 C.F.R. §1.6100.

Development of Warrant Articles

- Outreach



Minutes

- April 7, 2021
- May 26, 2021

Next Meeting: Wednesday, September 21, 2022 at 5:00 pm

Adjourn

SENIE & ASSOCIATES, P.C.
ATTORNEYS AT LAW

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August 30 2022

Ms. Barbara Carboni, Town Planner/Land Use Counsel
Anne Greenbaum, Chair, Truro Planning Board
Elizabeth Sturdy, Planning Board Administrative Assistant
Town of Truro
24 Town Hall Road
P.O. Box 2030
Truro, MA 02666

Barbara Carboni bcarboni@truro-ma.gov; Elizabeth Sturdy <ESturdy@truro-ma.gov>
(508) 214-0928

Re: 35A Higgins Hollow Road – Application for Perimeter Plan Endorsement

Dear Ms. Carboni, Ms. Greenbaum, Ms. Sturdy and Members of the Truro Planning Board:

For a number of reasons related to making a clear presentation to the full Planning Board on the above-referenced matter, I request that this item be shifted to the Board's meeting on September 21, 2022. I confirm that any time frames that apply to the Board's action on this submission are considered extended accordingly.

I also request that you advise us as to whether we should expect a site visit by Planning Board members and staff. I am aware that in 2021 there was a site visit, but I believe there are new board members who may not have seen the site and gotten an on-the-ground perspective. If you believe this is appropriate, we will be happy to accommodate a site visit by the full Board, or its new members. Nothing has changed on the site since the 2021. Please advise at your earliest convenience.

Please feel free to call (cell 508-330-6640) or email me with any questions or concerns.

Thank you.

Sincerely,

Christopher Senie

TOWN OF TRURO

PLANNING BOARD
Meeting Minutes
April 7, 2021 – 5:00 pm
REMOTE PLANNING BOARD WORK SESSION

Members Present (Quorum): Anne Greenbaum (Chair); Steve Sollog (Vice Chair); Jack Riemer (Clerk); R. Bruce Boleyn; Peter Herridge; Rich Roberts

Members Absent: Paul Kiernan

Other Participants: Barbara Carboni – Town Planner/Land Use Counsel; Liz Sturdy – Truro Office Assistant; Ben Zehnder (Attorney for Willian T. Burdick and Richard C. Vanison - Applicants); Sue Areson (Select Board Member); Chris Lucy (§40.2 Accessory Dwelling Unit Article Petitioner)

Remote meeting convened at 5:02 pm, Wednesday, April 7, 2021, by Chair Greenbaum who announced that this was a remote meeting which is being broadcast live on Truro TV Channel 18 and is being recorded. Interim Town Planner and Counsel Carboni also provided information as to how the public may call into the meeting or provide written comment. Members introduced themselves.

Public Comment Period

Public comment, for things not on the agenda, was opened by Chair Greenbaum and there were no individuals who made public comments.

Public Hearing

Prior to the Public Hearing, Chair Greenbaum made a statement to reaffirm that the Planning Board was not anti-affordable housing or opposed to the Cloverleaf project despite what some members of the community have stated.

Chair Greenbaum then led the review and discussion of Zoning Bylaw Amendments with the Members along with the assistance of Town Planner/Land Use Counsel Carboni and Truro Office Assistant Sturdy. Members of the public were given the opportunity to provide comment or ask questions. There were none.

Chair Greenbaum announced that Members would vote on each Zoning Bylaw Amendment and whether to recommend at Town Meeting.

Zoning Bylaw Amendments - pursuant to G.L. c.40A - amend the following sections of the Town of Truro Zoning Bylaws:

• Citizen-Petitioned Article to Warrant: §40.2 Accessory Dwelling Unit: to allow property owners to build ADU's "by right".

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Boleyn seconded the motion.
So voted, 6-0, motion carries.

• § 10.4 Definitions: to add a definition for food trucks and remove the definition for affordable accessory dwelling units (subsequently replaced with accessory dwelling units).

Member Herridge made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Boleyn seconded the motion.
So voted, 6-0, motion carries.

• §30.2 Use Table: add food trucks to the use table as a Special Permit use in all zones and grandfather existing locations.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Boleyn seconded the motion.
So voted, 6-0, motion carries.

• §30.9 Parking: provides a process for the modification of parking requirements.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Boleyn seconded the motion.
So voted, 6-0, motion carries.

• §40.2 Accessory Dwelling Unit: allow reduction or waiver of parking requirements; alter or remove application requirements and allow for substitution of documents; remove language about appeals; correct reference to the General Bylaws.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Riemer seconded the motion.
So voted, 5-1, motion carries.

• §40.2 Accessory Dwelling Unit: eliminates submitted requirements that are not germane to the jurisdiction of the Planning Board in their review of ADU permit applications.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Boleyn seconded the motion.
So voted, 6-0, motion carries.
• §40.2 Accessory Dwelling Unit: eliminates the need for ADU permit applications to include building elevation plans for proposals where there are no exterior changes to a building proposed.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Herridge seconded the motion.
So voted, 6-0, motion carries.

• §40.2 Accessory Dwelling Unit: recognizes that a town cannot deny appeal rights through stating such in a zoning bylaw.

Member Herridge made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Boleyn seconded the motion.
So voted, 6-0, motion carries.

• §40.2 Accessory Dwelling Unit: corrects a scrivener's error referencing the General Bylaws and removes an obsolete definition for Affordable Accessory Dwelling Units.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Herridge seconded the motion.
So voted, 6-0, motion carries.

• §40.2 Accessory Dwelling Unit: a citizen petitioned article that was created to allow homeowners to build or convert an existing building to one (1) accessory dwelling unit on their property with the provision that it be rented year-round as opposed to seasonally.

Vice Chair Sollog made a motion that the Planning Board recommend approval of Article N to Town Meeting.
Chair Greenbaum seconded the motion.
So voted, 0-6, motion fails to carry.

Chair Greenbaum then recognized Mr. Lucy to explain the "red changes" in the language for this citizen petitioned article. Member Riemer suggested that this voted be tabled to a later Planning Board workshop. Member Herridge agreed with Member Reimer. Chair Greenbaum announced that the Planning Board would not vote on the "red changes".

• §70.3 Commercial Development: reduce the number of required copies of applications.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Herridge seconded the motion.
So voted, 6-0, motion carries.

• § 70.4 Residential Development: reduce the number of required copies of applications.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Herridge seconded the motion.
So voted, 6-0, motion carries.

• § 70.6 Recording of Decision: alter the procedure for the submittal of recorded decisions.

Member Herridge made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Vice Chair Sollog seconded the motion.
So voted, 6-0, motion carries.

• §70.9 Waiver of Site Plan Review: allow waivers for new structures; clarify conflicting language regarding Residential Site Plan Review; and alter submittal procedures.

Vice Chair Sollog made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Herridge seconded the motion.
So voted, 6-0, motion carries.

• §40.6 Growth Management. A. Purpose: extend the December 31, 2021, expiration date for another three (3) years until December 31, 2024.

Member Herridge made a motion that the Planning Board recommend approval of this bylaw amendment to Town Meeting.
Member Riemer seconded the motion.
So voted, 6-0, motion carries.

Member Riemer made a motion to close the public hearing.
Vice Chair Sollog seconded the motion.
So voted, 6-0, motion carries.

Public Hearing - Continued

2020-006/SPR - Anne Labouisse Peretz; William T. Burdick & Richard C. Vanison, Trustees, Dune House Norn. Tr. for property located at 112 North Pamet Road (Atlas Map 48, Parcel 1). Applicants seek a Residential Site Plan Review under Section 70 of the Truro Zoning Bylaw for demolition and removal of existing single-family dwelling in the Seashore Zoning District and construction of new smaller dwelling at a new location, set back from the coastal bank. The existing dwelling is at risk of sudden destruction due to storm-driven coastal bank erosion in its current location.

Chair Greenbaum announced a requested continuance by the Applicant until April 21, 2021, and Planning Board action on May 5, 2021.

Vice Chair Sollog made a motion to continue the matter of 2020-006/SPR until April 21, 2021.
Member Boleyn seconded the motion.
So voted, 6-0, motion carries.

Planner Report

Town Planner/Land Use Counsel Carboni reported that she is settling into her role effective April 1, 2021. Town Planner/Land Use Counsel Carboni added that she is also working on scheduling a workshop with the Cape Cod Commission on DRI. Chair Greenbaum and Town Planner/Land Use Counsel Carboni

discussed scheduling a virtual workshop to discuss the Housing Choice legislation, as well as a potential discussion on the ADU articles, on April 28, 2021, from 5:00 pm – 6:15 pm.

Minutes

Chair Greenbaum led the review of the March 17, 2021, meeting minutes for corrections or edits. There were no corrections or edits made.

Vice Chair Sollog made a motion to approve the minutes from March 17, 2021, as written.
Member Roberts seconded the motion.
So voted, 6-0, motion carries.

Member Riemer made a motion to adjourn at 7:05 pm.
Member Herridge seconded the motion.
So voted, 6-0, motion carries.

Respectfully submitted,

Alexander O. Powers
Board/Committee/Commission Support Staff

TOWN OF TRURO

PLANNING BOARD
Meeting Minutes
May 26, 2021 – 5:00 pm
REMOTE PLANNING BOARD WORK SESSION

Members Present (Quorum): Anne Greenbaum (Chair); Steve Sollog (Vice Chair); Jack Riemer (Clerk); Paul Kiernan; R. Bruce Boleyn; Peter Herridge; Rich Roberts

Members Absent:

Other Participants: Barbara Carboni – Town Planner/Land Use Counsel; Liz Sturdy – Truro Office Assistant

Remote meeting convened at 5:02 pm, Wednesday, May 26, 2021, by Chair Greenbaum who announced that this was a remote meeting which is being broadcast live on Truro TV Channel 18 and is being recorded. Interim Town Planner and Counsel Carboni also provided information as to how the public may call into the meeting or provide written comment. Members introduced themselves.

Public Comment Period

Public comment, for things not on the agenda, was opened by Chair Greenbaum and there were no individuals who made public comments.

Work Session

Chair Greenbaum opened the Work Session with an announcement that Town Planner/Land Use Counsel Carboni has scheduled a DRI Workshop with the Cape Cod Commission on June 2, 2021, at 5:00 pm for the Members of the Planning Board and for a limited number of Members from the Walsh Property Committee. Invitations for attendees will be coordinated among Chair Greenbaum and the co-chairs of the Walsh Property Committee.

Chair Greenbaum led the Work Session with a focus on Truro housing issues with the Members and Town Planner/Land Use Counsel Carboni. Members discussed the following:

- An update on different housing options which were discussed, following a meeting with Habitat for Humanity and the Massachusetts Department of Housing and Community Development (DHCD), as to what can be done to develop more housing in Truro with ***"Accessory Apartments"*** and how these would affect the ADU Bylaw.

- The Local Action Unit (LAU) approval process.

- A goal should be to add units to the Town's Subsidized Housing Inventory (SHI).

- Reviewed several conditions which would prohibit unit additions to the SHI.

- Commonwealth of Massachusetts regulations and any overlap situations which may affect the current local ADU Bylaw.

- Septic systems which could bring illegal apartments into compliance with the ADU Bylaw.

- Illegal apartments which would be too expensive to be made legal.

- Reluctance of residents who may have illegal apartments to come forward and take the actions to become legal and affordable.

- Impact of population density in the National Seashore District v. the Residential District for the funding and planning for proper infrastructure and water supply in Truro.

- Review of previous Assessor's Buildout Report with data regarding current lots which are vacant and where a single-family home could be built (approximately 350 lots).

Chair Greenbaum then led the review and discussion of the document entitled "Potential Ways to Change Bylaws to Increase/Diversify Housing" dated May 7, 2021, written by Town Planner/Land Use Counsel Carboni as she reviewed current Truro Bylaws. Members discussed the following items which could be done to increase/diversify the housing stock in Truro:

1. Inclusionary zoning
    a. Suggested focus on young working families in Truro to create more affordable housing for the Affordable Rental Housing Overlay District (ARHOD).

2. Section 40.1.B

3. Overlay District – Increased Density

4. Rezoning – "Waivers" for affordable units
    a. May consider seasonal workforce renters and seniors

5. Revision of Section 40.3

6. Over-shop housing/mixed use

Chair Greenbaum and Members then discussed other suggestions offered by Town staff or members of the public during previous Planning Board meetings:

- Create some form of inclusionary zoning when cottage (cabin) colony requests change to condominiums to include affordable units.

- Allow ADU to be owner by different owner – condo set up

- Allow smaller homes, or smaller lots, with deed restricted affordability

- Emily Beebe (Truro Health/Conservation Agent) requested that the Planning Board consider modifications to the Zoning Bylaws to create an allowance for existing multifamily structures, possibly with a license/permit process that will give the Town a better inspectional/regulatory handle on year-round apartments.

- Change the duplex regulations to allow more than 600 sq. ft. in 2nd unit

Chair Greenbaum thanked the Members for their input and noted that the Planning Board will continue to receive input from the members of the public on the topics discussed this evening.

Vice Chair Sollog made a motion to adjourn at 6:25 pm.
Member Kiernan seconded the motion.
So voted, 7-0, motion carries.

Respectfully submitted,

Alexander O. Powers
Board/Committee/Commission Support Staff

Town of Truro Planning Board

P.O. Box 2030, Truro, MA 02666

APPLICATION FOR TELECOMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES SITE PLAN REVIEW

To the Town Clerk and the Planning Board of the Town of Truro, MA Date 8/18/22

The undersigned hereby files an application with the Truro Planning Board for the following:

☑ ***Site Plan Review*** pursuant to §40.5 of the Truro Zoning Bylaw

1. General Information

Description of Property and Proposed Project Remove 6 antennas, mounts, and all cabling for equipment at 97' level on the tower. Replace 4 antennas, add 5 antennas and upgrade equipment at 169' level on the tower. Replace equipment on existing concrete pad

Property Address 344 Route 6 Map(s) and Parcel(s) 39-172

Registry of Deeds title reference: Book _____, Page _____, or Certificate of Title Number _____ and Land Ct. Lot # _____ and Plan # _____

Applicant's Name Crown Castle

Applicant's Legal Mailing Address 1800 W. Park Drive, Westborough, MA 01581

Applicant's Phone(s), Fax and Email 781-970-0053 jeff.barbadora@crowncastle.com

Applicant is one of the following: *(please check appropriate box)*

*Written Permission of the owner is required for submittal of this application.

☒ Tower Owner ☐ Prospective Buyer* ☐ Other*

Owner's Name and Address 1800 W. Park Drive, Westborough, MA 01581

Representative's Name and Address Timothy Greene, TerraSearch, 157 Riverside Drive, Norwell, MA 02061

Representative's Phone(s), Fax and Email 617-877-2950 tgreene@terrasearchllc.com

2. Waiver(s) Request – The Planning Board may, upon the request of the applicant, pursuant to §70.3.E, waive requirements of §40.5, provided that in the opinion of the Planning Board such a waiver would not be detrimental to the public interest, cause the Town any expense, or be inconsistent with the intent and purpose of this Bylaw. A request for a waiver by the applicant shall be accompanied by a reasonable explanation as to why the waiver is being requested. If multiple waivers are requested, the applicant shall explain why each waiver is requested.

- The applicant is ***advised*** to consult with the Building Commissioner, Planning Department, Conservation Department, and/or Health Department prior to submitting this application.

Signature(s)

Timothy Greene — Jeff Barbadora

Applicant(s)/Representative *Printed* Name(s) — Owner(s) *Printed* Name(s) or written permission

Applicant(s)/Representative *Signature(s)* — Owner(s) *Signature(s)* or written permission

Your signature on this application authorizes the Members of the Planning Board and town staff to visit and enter upon the subject property.

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Route 6 Applicant Name: Crown Castle Date: 8/18/22

No.	Requirement	Included	Not Included	Explanation, if needed
B. Requirements				
1	All building permits for a communications structure, building or appurtenance shall require a special permit from the Planning Board.	✓		
2	The minimum distance from the perimeter of the communications structure to any property line shall be the height of the structure including any antennas or appurtenances, plus ten (10) feet. The minimum distance from any guy wire, anchor or brace to any property line shall be the length of the guy wire or brace plus ten (10) feet. The setbacks for a communications building shall comply with the setback requirements of the zoning district.			N/A Existing Site
3	The communications structure, building or appurtenance shall be installed, maintained and operated in accordance with all applicable federal, state, county and local codes, standards and regulations and shall be designed to withstand sustained winds and gusts of a category 5 hurricane. If Federal Aviation Administration (FAA) or Federal Communications Commission (FCC) regulations are changed, then the owner or operator shall bring the structure, building and appurtenances into compliance with the new regulations within six (6) months of the effective date of such regulations or earlier if a more stringent compliance schedule is included in the regulation. Failure to comply with any new regulations shall be grounds for the removal of non-complying structures, buildings and appurtenances at the owner's expense.	✓		
4	The height of the communications structure (tower) shall be no greater than one hundred and fifty (150 feet) above ground level.			N/A Existing Site
5	Communication antennas shall be located on pre-existing structures unless the applicant demonstrates that there are no feasible pre-existing structures. The installation shall preserve the character of such pre-existing structures.	✓		
6	If the applicant has demonstrated that there are no feasible pre-existing structures to support antennas and appurtenances for the intended use, then any communications structure, building or appurtenance may be sited on public land.			N/A

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Route 6 Applicant Name: Crown Castle Date: 8/18/22.

No.	Requirement	Included	Not Included	Explanation, if needed
7	To the extent lawful and feasible, all service providers shall co-locate on a single tower. Towers shall be designed to structurally accommodate the maximum number of foreseeable users (within a ten-year period) technically practicable. The applicant is required to document all co-location tenants and provide a tower design indicating types and location of all facilities.			N/A Existing Site
8	New facilities or structures shall be considered only upon a finding by the Planning Board that existing or approved facilities or structures cannot accommodate the wireless communications equipment planned for the proposed tower.			
9	The installation of a communications structure, building or appurtenance shall be designed to minimize visual impact; the maximum amount of natural vegetation shall be preserved; details of construction and finish shall blend with the surroundings; additional vegetative screening shall be employed where practical and particularly to screen abutting residential property whether developed or not. A detailed landscape plan will be required with the application.			
10	Location and siting of facilities and structures shall be consistent with any regional location and siting criteria established by the Cape Cod Commission.			
11	Under normal operating conditions, noise emanating from the communications structure, building or appurtenance shall not be greater at the boundary of the lot on which it is sited than would otherwise exist in the absence of these facilities.			
12	No hazardous waste shall be discharged on the site. Any storage of fuel shall be in compliance with the Board of Health regulations. Documentation shall be provided for the contents of all communications buildings and/or cabinets.			
13	All run-off of storm water from communications structures, buildings, and appurtenances, driveways and parking areas shall be contained on site; the amount of impervious surface on the site shall be minimized.			
14	Lighting, when required and permitted by the FAA or the Planning Board, shall be directed inward so as not to project onto surrounding properties.			

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Route 6 Applicant Name: Crown Castle Date: 8/10/22

No.	Requirement	Included	Not Included	Explanation, if needed
15	All structures, buildings or appurtenances must be secured to control access. Fencing materials shall be consistent with the character of abutting properties, with a locked gate and proper warning signals. A sign must be displayed indicating the name of the owner(s) and a 24 hour contact number. Only signs limited to safety will be allowed. Fencing is not required for antennas or other appurtenances mounted on a pre-existing structure.			N/A Existing Site
16	As a condition of approval of the application the applicant shall agree, by execution of a covenant, to remove within six months any communications structure and building which has not operated for four consecutive months unless the cause is major damage which prohibits operation. In the event that major damage has rendered the facility inoperative, repair or removal of the facility shall begin within six months and be completed within an additional six months. Failure to comply with the conditions of the covenant shall be grounds for the removal of structures, buildings and appurtenances. Complete restoration of the site shall be at the owner(s) expense, secured by a bond from a recognized financial institution. The covenant shall include, also at the owner(s) expense, provision for liability insurance for any damage to any abutting property whether developed or not.			
17	At least forty-five (45) days before submitting an application for a special permit for the installation of a communications structure, building or appurtenance the applicant shall consult with the Planning Board. The purpose of the consultation is to facilitate the permitting process by the exchange of information between the applicant and the Planning Board, and for the applicant to obtain a detailed description of the information and documentation required, in writing, by the Planning Board, in order to clarify and resolve concerns of the Board and minimize potential problems with the application.			
18	The Planning Board shall hold a public hearing within sixty-five (65) days of the filing of an application and shall issue a decision within ninety (90) days following the date of the public hearing.			
19	The applicant shall submit the following written information to the Planning Board:			

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Route 6 Applicant Name: Crown Castle Date: 8/18/22.

No.	Requirement	Included	Not Included	Explanation, if needed
19.a.	A survey of all sites for the installation of communications structures, buildings or appurtenances which are feasible for providing the intended services. The survey shall include a rationale for the selection of a prime and at least one alternative site. All sites in Truro shall be located on the appropriate sheet(s) of the Truro Assessor's Atlas;			N/A Existing Site
19.b.	A survey of all pre-existing structures which are capable of supporting the equipment necessary to provide the intended service and a technical report which demonstrates why any such structure cannot be used by the applicant;			
19.c.	The radiation pattern of all proposed antennas showing the frequency and intensity of radiation at ground level and at 30 feet above ground level. At the expense of the applicant, Electro Magnetic Field (EMF) readings shall be provided to the Board of Health yearly and immediately after any addition to the facility;			
19.d.	The sound level in decibels at ground level, at 30 feet above ground level and at the top of the facility and 10, 50, 100 and 500 feet from the communications structure, building or appurtenances for wind velocities between calm and 100 miles per hour with all equipment operating at normal levels, including before condition measured, after condition prediction and cumulative condition (with co-location) prediction;			
19.e.	A delineation of the Assessor's Atlas of all areas in Truro which will not be served by the proposed installation for the prime and an alternative site;			
19.f.	A statement of the services to be supported by the proposed communications structure, building or appurtenance;			
19.g.	Plans of special design features and materials, including landscaping, to minimize the visual impact of proposed communications structures, buildings and appurtenances. Site plans, elevations and fall zone should be included;			
19.h.	A certification that the applicant has complied with all federal (including FAA), state and regional requirements to provide the proposed service and demonstration of compliance with the FCC guidelines for EMF's under National Environmental Policy Act (NEPA), including copies of the FCC Form 600, plus Environmental Assessment/Environmental Impact Statements as applicable;			

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Route 6 **Applicant Name:** Crown Castle **Date:** 8/18/22

No.	Requirement	Included	Not Included	Explanation, if needed
19.i.	Within thirty (30) days after the application filing, the applicant shall arrange to fly a three-foot-diameter balloon at the primary and an alternate site at the maximum height of the proposed installation. The date and location of the flights shall be advertised at least 14 days, but not more than 21 days before the flights, in a newspaper with a general circulation in Truro. Photos shall be provided from all strategic viewing points, per agreement with the Planning Board prior to flight.			N/A Existing Site
20	If a communications structure, building or appurtenance is to be installed on a pre-existing private structure or on land or a structure owned, prior to the effective date of the bylaw, by the Commonwealth of Massachusetts, or on land or a structure owned by the Town of Truro, the applicant shall submit the following written information to the Planning Board:			
20.a.	A draft contract, including requirements for removal of all structures and for complete site restoration in the case of discontinued use, between the applicant and the owner (if different from the applicant).			
20.b.	A description of the proposed facility at the proposed prime and alternate sites including:			
	i) Height of the facility and its associated equipment and antennas;			
	ii) Access roads and power supplies;			
	iii) Type, size and number of transmitters;			
	iv) A list of all fuels to be used on the site and a detailed description of how each shall be contained.			
20.c.	A site plan (scale not less than 1 inch=40 feet), showing the proposed facility, fall zones, existing and proposed contour elevations, 100-year flood zones, water resources, Zones of Contribution, waterways, wetlands and all associated equipment and structures on the site, including elevations of all equipment and structures with sufficient detail to delineate the external finish of all structures and equipment; and			
20.d.	A landscape plan showing the proposed site before and after development, including topography and screening proposed to protect abutters.			
21	For all applications other than those set forth in § 40.5.B.20 above, the applicant shall submit the following written information to the Planning Board:			

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Route 6 Applicant Name: Crown Castle Date: 8/18/22

No.	Requirement	Included	Not Included	Explanation, if needed
21.a.	A statement of the purpose for which the application is made.	✓		
21.b.	The exact legal name of each person seeking a special permit and the address and telephone number or principal place of business of each such person.	✓		
21.c.	The name, title, address and telephone number of the attorney or other person to whom correspondence or communications in regard to the application are to be addressed. Notice, orders, and other papers may be served upon the person so named, and such service shall be deemed to be service upon the applicant;	✓		
21.d.	A statement of the need for the proposed facility with as much specific information as is practicable to demonstrate the need, including description of the proposed system and how the proposed facility would eliminate or alleviate any existing deficiency or limitation, including all co-location facilities;			N/A Existing Site
21.e.	A statement of the benefits expected from the proposed facility with as much information as is practicable;			
21.f.	A description of the proposed facility at the proposed prime and alternate sites including:			
	i) Height of the facility and its associated equipment and antennas;			
	ii) Access roads and power supplies;			
	iii) Special design features and materials, including landscape plans;			
	iv) Type, size and number of transmitters and receivers, as well as the signal frequency, power output, and power density at the tower base, site boundary, and building where people might be exposed to the maximum power densities from the facility;			
	v) A map showing any fixed facilities with which the proposed facility would interact;			
	vi) The coverage signal strength, and integration of the proposed facility with any adjacent fixed facility, to be accompanied by a network plan showing interfaces with any adjacent service areas;			
	vii) A forecast of when maximum capability would be reached for the proposed facility and for facilities that would be integrated with the proposed facility;			
	viii) Documentation of contents of communications buildings and/or cabinets.			

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Rte 6 Applicant Name: Crown Castle Date: 8/18/22

No.	Requirement	Included	Not Included	Explanation, if needed
21.g.	A description of the proposed prime and alternative site, including:			N/A
	i) The most recent U.S.G.S. topographic quadrangle map (scale 1 inch = 2,000 feet) marked to show the site of the facility and any significant changes within a one-mile-radius of the site;			Existing Site
	ii) A map (scale not less than 1 inch = 200 feet) of the lot or tract on which the facility is proposed to be located, showing the acreage and dimensions of such site, the name and location of adjacent public and private roads or the nearest public road, and the names of abutting owners and portions of their lands abutting the site;			
	iii) A site plan (scale not less than 1 inch = 40 feet), showing the proposed facility, fall zones, existing and proposed contour elevations, 100-year flood zones, water resources, Zones of Contribution, waterways, wetlands and all associated equipment and structures on the site, including elevations of all equipment and structures with sufficient detail to delineate the external finish of all structures and equipment;			
	iv) Where relevant, a terrain profile showing the proposed facility and access road and existing and proposed grades; and			
	v) The most recent aerial photograph (scale not less than 1 inch = 1,000 feet) showing the proposed site, access roads and all abutting properties.			
21.h.	A statement explaining mitigation measures for the proposed facility including:			
	i) Construction techniques designed specifically to minimize adverse effects on natural areas and sensitive areas;			
	ii) Special design features made specifically to avoid or minimize adverse effects on natural areas and sensitive areas;			
	iii) Establishment of vegetation proposed near residential, recreation, and scenic areas;			
	iv) Special design features made specifically so that the proposed structures, buildings and appurtenances shall blend with pre-existing structures and buildings;			
	v) Methods for preservation of vegetation for wildlife habitat and screening;			

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Route 6 Applicant Name: Crown Castle Date: 8/18/22

No.	Requirement	Included	Not Included	Explanation, if needed
	vi) A list of all fuels to be used on the site and a detailed description of how each shall be contained; and			N/A
	vii) A statement describing any hazardous materials or wastes (including quantities) to be used or generated on the site.			Existing Site
21.i.	A description of the existing and planned land uses of the proposed prime and alternative sites and surrounding areas;			
21.j.	A description of the scenic, natural, historic, and recreational characteristics of the proposed prime and alternative sites and surrounding areas;			
21.k.	Sight-line graphs to the proposed prime and alternative sites from visually impacted areas (a site from which the facility can be seen) such as residential developments, recreational areas, and historic sites;			
21.l.	A list describing the type and height of all existing and proposed communication structures, buildings and appurtenances within a ten-mile radius within the search area, or within any other area from which use of the proposed prime or alterative structure might be feasible from a location standpoint for purposes of the application;			
21.m.	A description of efforts to share existing and proposed structures, or consolidate telecommunications antennas of public and private services onto the proposed facility;			
21.n.	A description of the technical alternatives and a statement containing justification for the proposed facility;			
21.o.	A description of rejected sites with a U.S.G.S. topographic quadrangle map (scale 1 inch = 2,000 feet) marked to show the location of rejected sites;			
21.p.	A detailed description and justification for the site selected, including a description of siting criteria and the process by which other possible sites were considered and eliminated including but not limited to, environmental effects, cost differential, coverages lost or gained, potential interference with other facilities, and signal loss due to topographical features compared to the proposed prime and alternate sites;			
21.q.	A statement describing hazards to human health, if any, with supporting data and references to regulatory standards;			
21.r.	A statement of the estimated costs for site acquisition and construction of a facility at the prime and alternative sites;			

40.5 - COMMUNICATION STRUCTURES, BUILDINGS AND APPURTENANCES - Applicant

Address: 344 Route 6 **Applicant Name:** Crown Castle **Date:** 8/18/22

No.	Requirement	Included	Not Included	Explanation, if needed
21.s.	A schedule showing the proposed program of site acquisition, construction, completion, operation and relocation or removal of the existing facilities for the prime and alternative sits;			N/A
21.t.	A copy of any filing or application that the applicant has been required to make together with any decision with regard to such filing or application;			N/A
21.u.	A landscape plan showing the proposed site and location before and after development, including topography screening proposed to protect abutters;			N/A
21.v.	Plans which show location and siting at a prime and at an alternate site; and			N/A
21.w.	A technical report which demonstrates that the maximum height of the installation is the minimum feasible to provide the intended service.			N/A
22	All written information submitted in accordance with the requirements listed in any previous section of this bylaw shall be certified by an appropriate licensed professional.			N/A
23	The Planning Board may also refer applications to the Board of Health, the Zoning Board of Appeals, and the Conservation Commission for review.			N/A
24	The Planning Board shall not approve any application that does not comply with all the requirements of this bylaw. The Board does, however, have the right to waive any part of this bylaw, when in its opinion, such a waiver would not be detrimental to the public interest, cause the Town any expense, or be inconsistent with the intent and purpose of this bylaw.			
25	Any permit issued by the Planning Board for a communications facility shall be valid for the applicant only; it may not be reassigned, leased or sold.			
26	Municipal and private, non-commercial uses are exempted from this bylaw.			
27	The Planning Board shall act in accordance with the standards and requirements set forth herein and in accordance with the Massachusetts General Laws.			
28	The invalidity of any section of this bylaw shall not invalidate any other section.			

Elizabeth Sturdy

From: Tim Greene <tgreene@terrasearchllc.com>
Sent: Monday, August 22, 2022 4:31 PM
To: Elizabeth Sturdy
Cc: Barbara Carboni
Subject: RE: 344 rte 6

Crown Castle respectfully requests a waiver from Truro Bylaw §40.5 granted by the Planning Board with respect to prior applications for modification of equipment in regrads to its application to modify equipment on the existing tower.

Thanks

Timothy W. Greene
Managing Director
TerraSearch
617-877-2950

1800 W Park Dr r2nd Floor
Westborough, Town of, MA 01581

Phone: (781) 970-0053
www.crowncastle.com

August 11, 2022

MA - TOWN OF TRURO
Building Department
24 TOWN HALL ROAD
TRURO, MA 02666

Via Mail

************NOTICE OF ELIGIBLE FACILITIES REQUEST************

RE: Request for Minor Modification to Existing Wireless Facility – Section 6409
Site Address: 344 ROUTE 6, NORTH TRURO, MA 02652
Crown Site Number: 841273 / Crown Site Name: TRURO
Customer Site Number: 4HY0568A / Application Number: 623577

Attention Building Department:

On behalf of Sprint Spectrum Realty Company, LLC ("Sprint PCS" or "Applicant"), Crown Castle USA Inc. ("Crown Castle") is pleased to submit this request to modify the existing wireless facility noted above through the collocation, replacement and/or removal of the Applicant's equipment as an eligible facilities request for a minor modification under Section 6409[1] and the rules of the Federal Communications Commission ("FCC").[2]

Section 6409 mandates that state and local governments must approve any eligible facilities request for the modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station. Under Section 6409, to toll the review period, if the reviewing authority determines that the application is incomplete, it must provide written notice to the applicant within 30 days, which clearly and specifically delineates all missing documents or information reasonably related to whether the request meets the federal requirements.[3] Additionally, if a state or local government, fails to issue any approvals required for this request within 60 days, these approvals are deemed granted. The FCC has clarified that the 30-day and 60-day deadlines begins when an applicant: (1) takes the first step required under state or local law; and (2) submits information sufficient to inform the jurisdiction that this modification qualifies under the federal law[4]. Please note that with the submission of this letter and enclosed items, the thirty and sixty-day review periods have started. Based on this filing, the deadline for written notice of incomplete application is September 10, 2022, and the deadline for issuance of approval is October 10, 2022.

[1] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6409 (2012) (codified at 47 U.S.C. § 1455).
[2] *Acceleration of Broadband Deployment by Improving Wireless Facility Siting Policies,* 29 FCC Rcd. 12865 (2014) (codified at 47 CFR § 1.6100); and *Implementation of State & Local Governments' Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012*, WT Docket No. 19-250 (June 10, 2020).
[3] *See* 47 CFR § 1.6100 (c)(3). [4] *See* 2020 Upgrade Order at paragraph 16.

1800 W Park Dr r2nd Floor
Westborough, Town of, MA 01581

Phone: (781) 970-0053
www.crowncastle.com

The proposed scope of work for this project includes:
Add or replace antennas, ancillary equipment and ground equipment as per plans for an existing carrier on an existing wireless communication facility.

At the end of this letter is a checklist of the applicable substantial change criteria under Section 6409. Additionally, please find enclosed the following information in support of this request:

(1) Crown Castle agent of T-Mobile;
(2) Construction Drawings;
(3) Structural Analysis; and
(4) Section 6409 Substantial Change Checklist.

As these documents indicate, (i) the modification involves the collocation, removal or replacement of transmission equipment; and (ii) such modification will not substantially change the physical dimensions of such tower or base station. As such, it is an "eligible facilities request" as defined in the FCC's rules to which the 60-day deadline for approval applies. Accordingly, Applicant requests all authorization necessary for this proposed minor modification under Section 6409.

Our goal is to work with you to obtain approvals earlier than the deadline. We will respond promptly to any request for related information you may have in connection with this request. Please let us know how we can work with you to expedite the approval process. We look forward to working with you on this important project, which will improve wireless telecommunication services in your community using collocation on existing infrastructure. If you have any questions, please do not hesitate to contact me.

Regards,

Jeff Barbadora

Jeff Barbadora
Site Acquisition Specialist
Crown Castle, Agent for Applicant
(781) 970-0053
Jeff.Barbadora@crowncastle.com

1800 W Park Dr r2nd Floor
Westborough, Town of, MA 01581

Phone: (781) 970-0053
www.crowncastle.com

Section 6409 Substantial Change Checklist
Towers Outside of the Public Right of Way

The Federal Communications Commission has determined that a modification substantially changes the physical dimension of a wireless tower or base station under 47 U.S.C. § 1455(a) if it meets one of six enumerated criteria under 47 C.F.R. § 1.6100.

Criteria for Towers Outside the Public Rights of Way

YES/NO **NO**	Does the modification increase the height of the tower by more than the greater of: (a) 10% (b) or, the height of an additional antenna array plus separation of up to 20 feet from the top of the nearest existing antenna?
YES/NO **NO**	Does the modification add an appurtenance to the body of the tower that would protrude from the edge of the tower more than 20 feet or more than the width of the tower structure at the level of the appurtenance, whichever is greater?
YES/NO **NO**	Does the modification involve the installation of more than the standard number of new equipment cabinets for the technology involved or add more than four new equipment cabinets?
YES/NO **NO**	Does the modification entail any excavation or deployment outside the current site by more than 30 feet in any direction, not including any access or utility easements?
YES/NO **NO**	Does the modification defeat the concealment elements of the eligible support structure?
YES/NO **NO**	Does the modification violate conditions associated with the siting approval with the prior approval the tower or base station other than as specified in 47 C.F.R. § 1.6100(c)(7)(i) – (iv)?

If all questions in the above section are answered "NO," then the modification does not constitute a substantial change to the existing tower under 47 C.F.R. § 1.6100.

RECEIVED
AUG 17 2022
ASSESSOR'S OFFICE
TOWN OF TRURO

TOWN OF TRURO

Assessors Office
Certified Abutters List
Request Form

DATE: 8/17/22

NAME OF APPLICANT: Crown Castle

NAME OF AGENT (if any): TerraSearch

MAILING ADDRESS: 157 Riverside Drive, Norwell, MA 02061

CONTACT: HOME/CELL 617-877-2950 **EMAIL** tgreene@terrasearchllc.com

PROPERTY LOCATION: 344 Route 6
(street address)

PROPERTY IDENTIFICATION NUMBER: MAP 39 **PARCEL** 172-A **EXT.** _____
(*if condominium*)

ABUTTERS LIST NEEDED FOR:
(*please check **all** applicable*)

FEE: $15.00 per checked item
(*Fee must accompany the application unless other arrangements are made*)

___ Board of Health[5]
___ Cape Cod Commission
___ Conservation Commission[4]
___ Licensing
Type: _____

Planning Board (PB)
_X_ Special Permit[1]
___ Site Plan[2]
___ Preliminary Subdivision[3]
___ Definitive Subdivision[3]
___ Accessory Dwelling Unit (ADU)[2]

Zoning Board of Appeals (ZBA)
___ Special Permit[1]
___ Variance[1]

___ Other _____ ***(Fee: Inquire with Assessors)***
(*Please Specify*)

Note: Per M.G.L., processing may take up to 10 calendar days. Please plan accordingly.

THIS SECTION FOR ASSESSORS OFFICE USE ONLY

Date request received by Assessors: Aug 17, 2022
Date completed: Aug 17, 2022
List completed by: Laura Geiges
Date paid: 8/17/2022 Cash/Check Credit card
Ref. Code ... 547713
Transaction Code ... 7574602

---

[1]Abutters, owners of land directly opposite on any public or private street or way, and abutters to the abutters within 300 feet of the property line.

[2]Abutters to the subject property, abutters to the abutters, and owners of properties across the street from the subject property.

[3]Landowners immediately bordering the proposed subdivision, landowners immediately bordering the immediate abutters, and landowners located across the streets and ways bordering the proposed subdivision. Note: For Definitive Subdivision only, responsibility of applicant to notify abutters and produce evidence as required.

[4]All abutters within 300 feet of parcel, except Beach Point between Knowles Heights Road and Provincetown border, in which case it is all abutters within 100 feet. Note: Responsibility of applicant to notify abutters and produce evidence as required.

[5]Abutters sharing any boundary or corner in any direction – including land across a street, river or stream. Note: Responsibility of applicant to notify abutters and produce evidence as required.

TRURO ASSESSORS OFFICE
PO Box 2012 Truro, MA 02666
Telephone: (508) 214-0921
Fax: (508) 349-5506

Date: August 17, 2022

To: TerraSearch

From: Assessors Department

Certified Abutters List: 344 Route 6 (Map 39 Parcel 172)

Planning Board, Special Permit

Attached is a combined list of abutters for 344 Route 6 (Map 39 Parcel 172).

The current owner is the Town of Truro.

The names and addresses of the abutters are as of August 12, 2022 according to the most recent documents received from the Barnstable County Registry of Deeds.

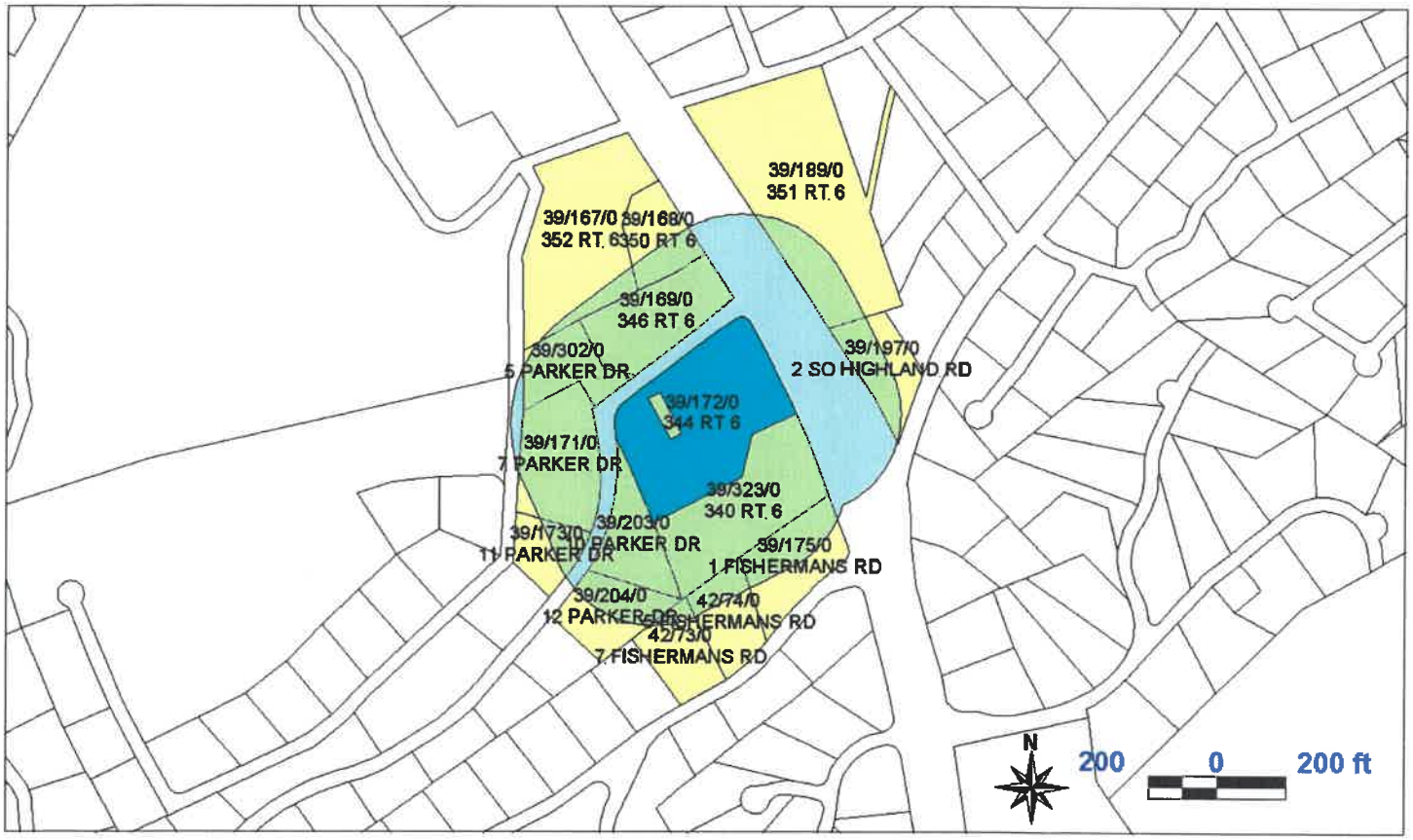
Certified by: _____

Laura Geiges
Assistant Assessor / Data Collector

344 Route 6
Map 39 Parcel 172
Planning Board, Special Permit

TOWN OF TRURO, MA
BOARD OF ASSESSORS
P.O. BOX 2012, TRURO MA 02666

Abutters List Within 300 feet of Parcel 39/172/0



Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
1291	39-167-0-R	TRI-S PROPERTIES LLC	352 RT 6	PO BOX 1081	TRURO	MA	02666-1081
1292	39-168-0-R	SEAMENS BANK	350 RT 6	PO BOX 74	NO TRURO	MA	02652
1293	39-169-0-R	SEAMENS BANK	346 RT 6	PO BOX 74	NO TRURO	MA	02652
1294	39-171-0-R	WESTVIEW COURT REALTY TRUST C/O TRIBUNA JR MICHAEL A	7 PARKER DR	192 MILTON ST	QUINCY	MA	02170
1295	39-172-0-E	TOWN OF TRURO	344 RT 6	PO BOX 2030	TRURO	MA	02666-2030
1296	39-172-A-R	SOUTHWESTERN BELL MOBILE SYSTE D/B/A CINGULAR WRLS-AT&T SVCS	344 RT 6	ATTN: TOWER PROPERTY TAX TEAM 754 PEACHTREE ST, 16TH FLR	ATLANTA	GA	30308
1297	39-173-0-R	DAMICO CAROLANN	11 PARKER DR	PO BOX 423	NO TRURO	MA	02652-0423
1299	39-175-0-R	KINSELLA EDWARD J ET AL	1 FISHERMANS RD	PO BOX 284	GREENBUSH	MA	02040
1310	39-189-0-E	TOWN OF TRURO	351 RT 6	PO BOX 2030	TRURO	MA	02666-2030
1318	39-197-0-R	QUIST JAYSON C & LAZARUS BURT	2 SO HIGHLAND RD	PO BOX 609	NO TRURO	MA	02652
1324	39-203-0-R	COHEN JENNIFER S	10 PARKER DR	110 W 96TH ST #11A	NEW YORK	NY	10025
1325	39-204-0-R	MOSS FRED & MARTHA TRUST TRS: MOSS FREDERICK & MARTHA	12 PARKER DR	4200 RIDGE RD	DALLAS	TX	75229-6332
1421	39-302-0-R	PRIDEAUX-BRUNE DIANA & MAHONEY ANNE	5 PARKER DR	10 MUSEUM WAY, UNIT 1929	CAMBRIDGE	MA	02141
6429	39-323-0-E	TOWN OF TRURO	340 RT 6	PO BOX 2030	TRURO	MA	02666-2030
1644	42-73-0-R	MCCOLLOUGH DAWN M	7 FISHERMANS RD	PO BOX 1245	EAST ORLEANS	MA	02643

LG 8/17/2022

Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
1645	42-74-0-R	NOLETTE JENNIFER M	5 FISHERMANS RD	PO BOX 832	NORTH TRURO	MA	02652

LG 8/17/2022

39-167-0-R

TRI-S PROPERTIES LLC
PO BOX 1081
TRURO, MA 02666-1081

39-168-0-R

SEAMENS BANK
PO BOX 74
NO TRURO, MA 02652

39-169-0-R

SEAMENS BANK
PO BOX 74
NO TRURO, MA 02652

39-171-0-R

WESTVIEW COURT REALTY TRUST
C/O TRIBUNA JR MICHAEL A
192 MILTON ST
QUINCY, MA 02170

39-172-0-E

TOWN OF TRURO
PO BOX 2030
TRURO, MA 02666-2030

39-172-A-R

SOUTHWESTERN BELL MOBILE SYSTE
D/B/A CINGULAR WRLS-AT&T SVCS
ATTN: TOWER PROPERTY TAX TEAM
754 PEACHTREE ST, 16TH FLR
ATLANTA, GA 30308

39-173-0-R

DAMICO CAROLANN
PO BOX 423
NO TRURO, MA 02652-0423

39-175-0-R

KINSELLA EDWARD J ET AL
PO BOX 284
GREENBUSH, MA 02040

39-189-0-E

TOWN OF TRURO
PO BOX 2030
TRURO, MA 02666-2030

39-197-0-R

QUIST JAYSON C & LAZARUS BURT
PO BOX 609
NO TRURO, MA 02652

39-203-0-R

COHEN JENNIFER S
110 W 96TH ST #11A
NEW YORK, NY 10025

39-204-0-R

MOSS FRED & MARTHA TRUST
TRS: MOSS FREDERICK & MARTHA
4200 RIDGE RD
DALLAS, TX 75229-6332

39-302-0-R

PRIDEAUX-BRUNE DIANA &
MAHONEY ANNE
10 MUSEUM WAY, UNIT 1929
CAMBRIDGE, MA 02141

39-323-0-E

TOWN OF TRURO
PO BOX 2030
TRURO, MA 02666-2030

42-73-0-R

MCCOLLOUGH DAWN M
PO BOX 1245
EAST ORLEANS, MA 02643

42-74-0-R

NOLETTE JENNIFER M
PO BOX 832
NORTH TRURO, MA 02652

LG 8/17/2022

Date: **July 08, 2022**

B+T Group
1717 S, Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Subject:	**Structural Analysis Report**	
Carrier Designation:	**Site Number:**	4HY0568A
	Site Name:	BS13XC597
Crown Castle Designation:	**BU Number:**	841273
	Site Name:	TRURO
	JDE Job Number:	723038
	Work Order Number:	2132475
	Order Number:	623577 Rev. 1
Engineering Firm Designation:	**B+T Group Project Number:**	100736.009.01
Site Data:	**344 Route 6, North Truro, Barnstable County, MA** **Latitude *42° 1' 18"*, Longitude *-70° 4' 30"*** **170 Foot - Self Support Tower**	

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 139 mph as required by the Massachusetts State Building Code, Ninth Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Dominique Jones

Respectfully submitted by: B+T Engineering, Inc.

Peter Smith, P.E.

tnxTower Report - version 8.1.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 170 ft. Self-Support tower designed by Sabre and mapped by GPD Group.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	139 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
168.0	169.0	3	Ericsson	4003_840590966_TMO	3	1-5/8
		3	Ericsson	AIR 6419 B41_TMO		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	Radio 4480_TMOV2		
		3	Rfs Celwave	APXVLL19P_43-C-A20_TMO		
	168.0	3	Site Pro1	VFA12-HD Mount		
71.0	73.0	1	Pctel	GPS-TMG-HR-26N	1	1/2
	71.0	1	--	Side Arm Mount [SO 601-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
170.0	174.0	1	Decibel	DB806-XC	1	1/2
160.0	162.0	1	Shively Labs	6813-2 HW	1	1-5/8
	160.0	1	--	Side Arm Mount [SO 305-1]		
151.0	151.0	4	Powerwave Tech.	P65.15.XL.0	2	1-1/4
		2	--	Sector Mount [SM 602-1]		
145.0	145.0	6	Ericsson	RRUS 11	12 4 2	1-5/8 5/8 3/8
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 32 B66		
		6	Kaelus	DBC0061F1V51-2		
		3	Kathrein	800 10122		
		12	Kathrein	860 10025		
		3	Kmw Comm.	AM-X-CD-16-65-00T-RET		
		6	Powerwave Tech.	LGP21401		
		3	Quintel Tech.	QS66512-2		
		2	Raycap	DC6-48-60-18-8F		
		1	--	Sector Mount [SM 702-3]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
139.0	139.0	1	--	Pipe Mount [PM 601-1]	1	EW52
	138.0	1	Andrew	PAR6-59A		
130.0	131.0	3	Alcatel Lucent	RRH2X60-AWS	19	1-5/8
		3	Commscope	HBXX-6516DS-A2M		
		3	Commscope	LNX-6514DS-A1M		
		3	Commscope	SBNHH-1D65B		
		2	CSS	X7C-665-2		
		1	CSS	X7C-680-2		
		2	Rfs Celwave	DB-B1-6C-12AB-0Z		
	130.0	1	--	Sector Mount [SM 702-3]		
122.0	122.0	1	--	Commscope MTC3975083 (3)	1	1-1/2
		3	Fujitsu	TA08025-B604		
		3	Fujitsu	TA08025-B605		
		3	Jma Wireless	MX08FRO665-21		
		1	Raycap	RDIDC-9181-PF-48		
104.0	117.0	1	Rfs Celwave	PD220-5	10 8	7/8 3/8
	116.0	1	Telewave	ANT150F6		
	114.0	1	Sinclair	SRL-210C-4		
	113.0	1	Decibel	DB540K-F		
	112.0	2	Rfs Celwave	AO8610-5T0		
	107.0	1	Kathrein	K751221		
	106.0	2	Commscope	VHLPX4-11W-6WH		
		1	Rfs Celwave	10191		
		1	Telewave	ANT150F2		
	104.0	1	--	Sabre 30' Specialty Platform		
96.0	97.0	3	Ericsson	ERICSSON AIR 21 B4A B2P	3 6 2	1-1/4 7/8 3/8
		3	Ericsson	RADIO 4449 B12/B71		
		3	Ericsson	RRUS 11 B2		
		3	Rfs Celwave	APXVAARR24_43-U-NA20		
		3	Rfs Celwave	ATM1900D-1A20		
	96.0	1	--	Sector Mount [SM 403-3]		
87.0	87.0	1	Scala	PR-950	1	1/2
		1	--	Side Arm Mount [SO 201-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	4287353	CCI Sites
Foundation Drawing	4468581	CCI Sites
Geotech Report	4287355	CCI Sites
Crown CAD Package	Date: 06/28/2022	CCI Sites

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) The tower and structures were maintained in accordance with the - TIA-222 standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	170 - 160	Leg	Sabre 3.5" x 0.216"	1	-6.781	86.635	7.8	Pass
T2	160 - 140	Leg	Sabre 4.5" x 0.438"	19	-34.927	210.881	16.6	Pass
T3	140 - 120	Leg	Sabre 6.625" x 0.432"	40	-80.429	360.255	22.3	Pass
T4	120 - 100	Leg	Sabre 8.625" x 0.5"	62	-135.480	569.808	23.8	Pass
T5	100 - 80	Leg	Sabre 10.750" x 0.500"	83	-194.757	702.092	27.7	Pass
T6	80 - 60	Leg	Sabre 12.75" x 0.5"	99	-260.309	859.488	30.3	Pass
T7	60 - 40	Leg	Sabre 16" x 0.5"	114	-326.624	1110.690	29.4	Pass
T8	40 - 20	Leg	Sabre 18" x 0.5"	129	-392.433	1263.528	31.1	Pass
T9	20 - 0	Leg	Sabre 18" x 0.5"	144	-439.213	1289.925	34.0	Pass
T1	170 - 160	Diagonal	L2x2x3/8	12	-2.783	18.112	15.4	Pass
T2	160 - 140	Diagonal	L3x3x3/8	22	-7.381	40.506	18.2	Pass
T3	140 - 120	Diagonal	L3 1/2x3 1/2x3/8	44	-10.707	51.321	20.9	Pass
T4	120 - 100	Diagonal	L3 1/2x3 1/2x1/2	68	-13.031	53.678	24.3	Pass
T5	100 - 80	Diagonal	L5x5x1/2	89	-17.503	105.471	16.6	Pass
T6	80 - 60	Diagonal	L5x5x5/8	104	-18.689	116.354	16.1	Pass
T7	60 - 40	Diagonal	L5x5x5/8	119	-20.028	101.338	19.8	Pass
T8	40 - 20	Diagonal	L5x5x5/8	134	-22.101	87.432	25.3	Pass
T9	20 - 0	Diagonal	L5x5x5/8	160	-29.020	123.179	23.6	Pass
T9	20 - 0	Horizontal	2L3 1/2x3 1/2x1/4x3/8	159	-20.836	40.214	51.8	Pass
T1	170 - 160	Top Girt	L2 1/2x2 1/2x3/16	4	-0.245	8.385	2.9	Pass
T9	20 - 0	Redund Horz 1 Bracing	L3x3x5/16	161	-7.617	43.079	17.7	Pass
T9	20 - 0	Redund Diag 1 Bracing	L3x3x1/4	162	-4.838	23.979	20.2	Pass
T9	20 - 0	Inner Bracing	L3x3x3/16	166	-0.030	5.612	0.6	Pass
							Summary	
						Leg (T9)	34.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Diagonal (T8)	25.3	Pass
						Horizontal (T9)	51.8	Pass
						Top Girt (T1)	2.9	Pass
						Redund Horz 1 Bracing (T9)	17.7	Pass
						Redund Diag 1 Bracing (T9)	20.2	Pass
						Inner Bracing (T9)	0.6	Pass
						Bolt Checks	63.4	Pass
						Rating =	63.4	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	25.1	Pass
1,2	Base Foundation (Structure)	Base	10.1	Pass
1,2	Base Foundation (Soil Interaction)	Base	57.1	Pass

Structure Rating (max from all components) =	63.4%

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

T-MOBILE SITE NUMBER: 4HY0568A
T-MOBILE SITE NAME: HY568/CINGULAR TRURO
SITE TYPE: SELF SUPPORT TOWER
TOWER HEIGHT: 170'-0"
BUSINESS UNIT #: 841273
SITE ADDRESS: 344 ROUTE 6 NORTH TRURO, MA 02652
COUNTY: BARNSTABLE
JURISDICTION: TOWN OF TRURO

T-MOBILE ANCHOR SITE CONFIGURATION: 67E5D998E Outdoor

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	TRURO
SITE ADDRESS:	344 ROUTE 6 NORTH TRURO, MA 02652
COUNTY:	BARNSTABLE
MAP/PARCEL #:	39_172_A
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	42.021878°
LONGITUDE:	-70.074877°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	110'
CURRENT ZONING:	GR6
JURISDICTION:	TOWN OF TRURO
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	SOUTHWESTERN BELL MOBILE SYSTE ATTN: TOWER PROPERTY TAX TEAM 754 PEACHTREE ST, 16TH FLR ATLANTA, GA 30308
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054
ELECTRIC PROVIDER:	NSTAR ELECTRIC 1-888-633-3797
TELCO PROVIDER:	COMCAST 800-934-6489

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS MARVIN.PHILLIPS@BTGRP.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277 CATHERINE COVINGTON - PROJECT MANAGER CATHERINE.COVINGTON@CROWNCASTLE.COM MICHAEL RULEY - CONSTRUCTION MANAGER MICHAEL.RULEY@CROWNCASTLE.COM

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2 TO C-2.1	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
ATTACHED	MOUNT SPECS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

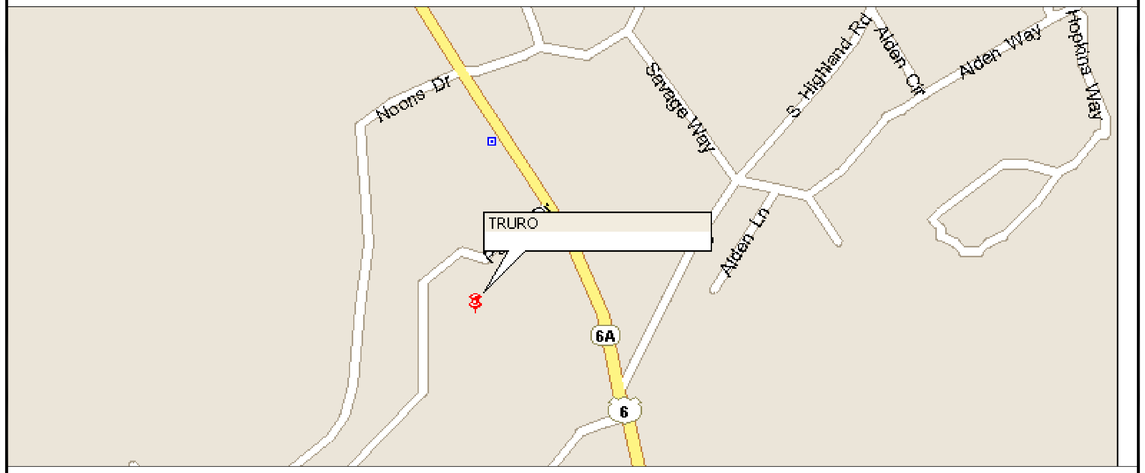
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE ALL EXISTING T-MOBILE EQUIPMENT FROM TOWER POST INTEGRATION OF NEW EQUIPMENT
- REMOVE (4) ANTENNAS
- REMOVE (6) RRHs
- REMOVE (4) SPRINT HYBRID CABLE
- INSTALL (9) ANTENNAS
- INSTALL (6) RRHs
- INSTALL (3) 1-5/8" HYBRID CABLE
- INSTALL MOUNT AS PER MOUNT REPLACEMENT ANALYSIS DATED 7/1/2022

GROUND SCOPE OF WORK:
- SPRINT EQUIPMENT TO BE REMOVED AT A FUTURE DATE BY OTHERS
- REMOVE (1) RBS 2106 CABINET
- REMOVE (6) DTRU/TRX RRU
- REMOVE CABLE TRAY
- INSTALL (1) 10'-0" ICE BRIDGE
- INSTALL (1) FIBER SLACK BOX
- INSTALL (1) 6160 AC V1 CABINET
- INSTALL (1) B160 BATTERY CABINET
- INSTALL (1) RP 6651 ,(1) RBS 6601, (1) DUG20, (2) PSU 4813 VR4A (KIT), (1) XMU MULTIPLEXER, (1) CSR IXRE V2 (GEN2)

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

LOCATION MAP



NO SCALE

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2020 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	7/8/22
MOUNT ANALYSIS:	INFINIGY
DATED:	7/1/22
RFDS REVISION:	7
DATED:	6/2/22
ORDER ID:	623577
REVISION:	0

CALL MASSACHUSETTS ONE CALL (888) 344-7233 CALL 3 WORKING DAYS BEFORE YOU DIG!

APPROVALS

APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.		
LAND USE PLANNER		
T-MOBILE		
OPERATIONS		
RF		
NETWORK		
BACKHAUL		
CONSTRUCTION MANAGER		

THE PARTIES ABOVE HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL CONSTRUCTION DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND ANY CHANGES AND MODIFICATIONS THEY MAY IMPOSE.

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER: **4HY0568A**

BU #: **841273**
TRURO

344 ROUTE 6
NORTH TRURO, MA
02652

EXISTING
170'-0" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/22/22	YX	PRELIMINARY REVIEW	CV
0	8/3/22	YX	CONSTRUCTION	LR

COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No.56245
REGISTERED PROFESSIONAL ENGINEER
8/3/22

B&T ENGINEERING, INC.

SHEET NUMBER: T-1

REVISION: 0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T–MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER.......................40 ksi
   #5 BARS AND LARGER.......................60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH......................3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 BARS AND LARGER.......................2"
   #5 BARS AND SMALLER.......................1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   SLAB AND WALLS.......................3/4"
   BEAMS AND COLUMNS.......................1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T–MOBILE".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

T‧‧Mobile‧‧‧
4 SYLVAN WAY
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CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER: **4HY0568A**

BU #: **841273**
TRURO

344 ROUTE 6
NORTH TRURO, MA
02652

EXISTING
170'-0" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/22/22	YX	PRELIMINARY REVIEW	CV
0	8/3/22	YX	CONSTRUCTION	LR

B&T ENGINEERING, INC.

SHEET NUMBER: T-2

REVISION: 0

1 OVERALL SITE PLAN

SCALE: 40' 20' 0 40' 1"=40'-0" (FULL SIZE) 1"=80'-0" (11x17)

N

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.

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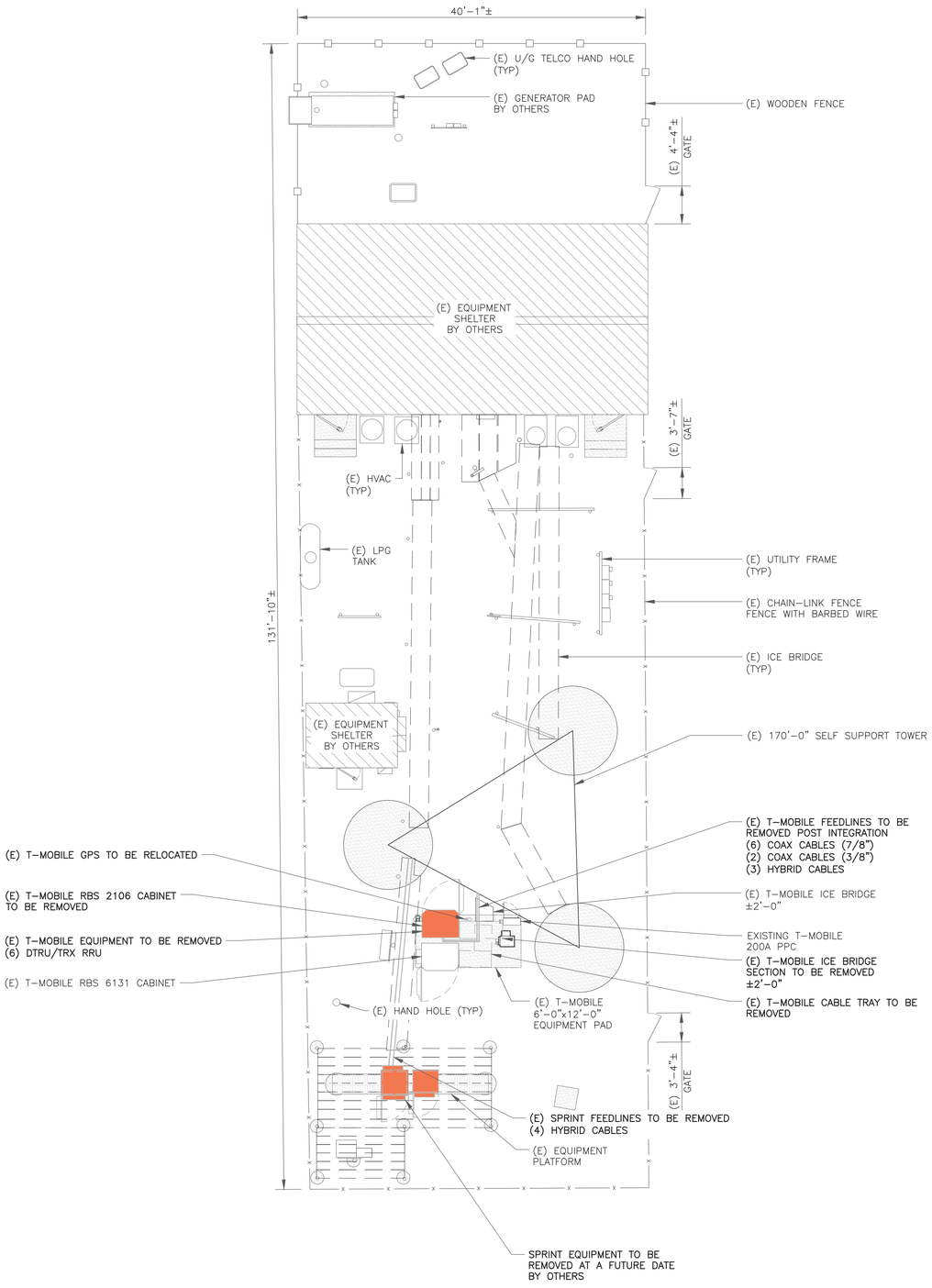
COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No. 56545
REGISTERED PROFESSIONAL ENGINEER
8/3/22

B&T ENGINEERING, INC.

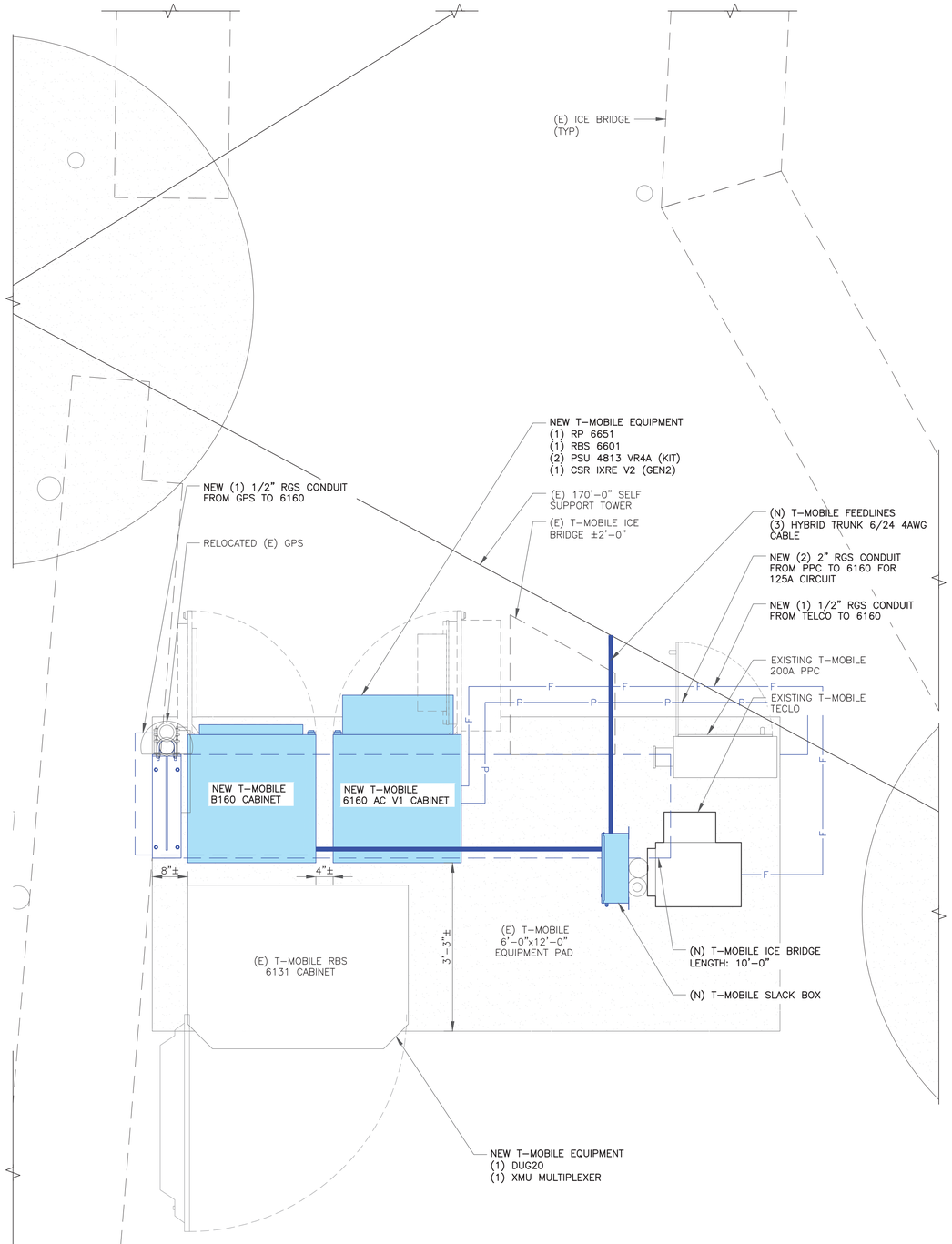
SHEET NUMBER: C-1.1

REVISION: 0



1 SITE PLAN

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



2 ENLARGED SITE PLAN

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

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TRURO

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EXISTING
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TOWER

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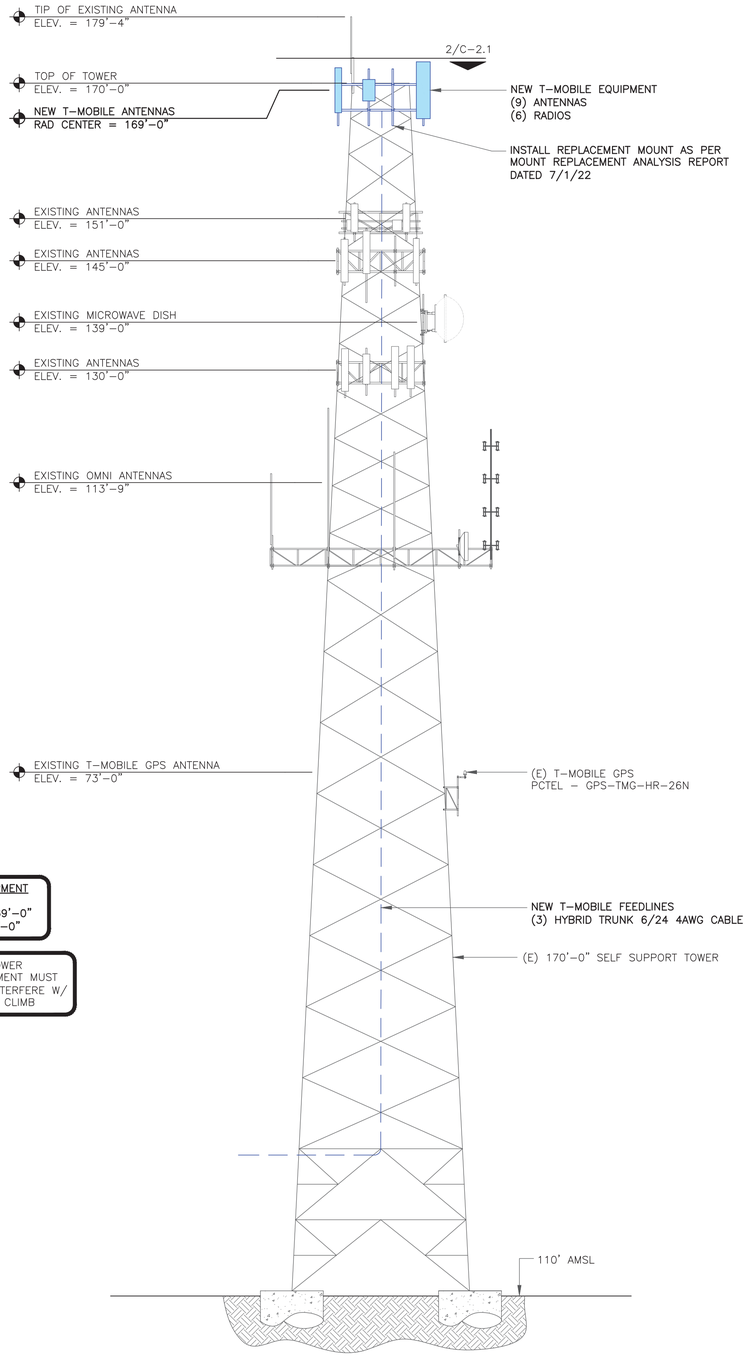
COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No. 56845
REGISTERED PROFESSIONAL ENGINEER
8/3/22

B&T ENGINEERING, INC.

SHEET NUMBER: C-1.2

REVISION: 0



T-MOBILE EQUIPMENT

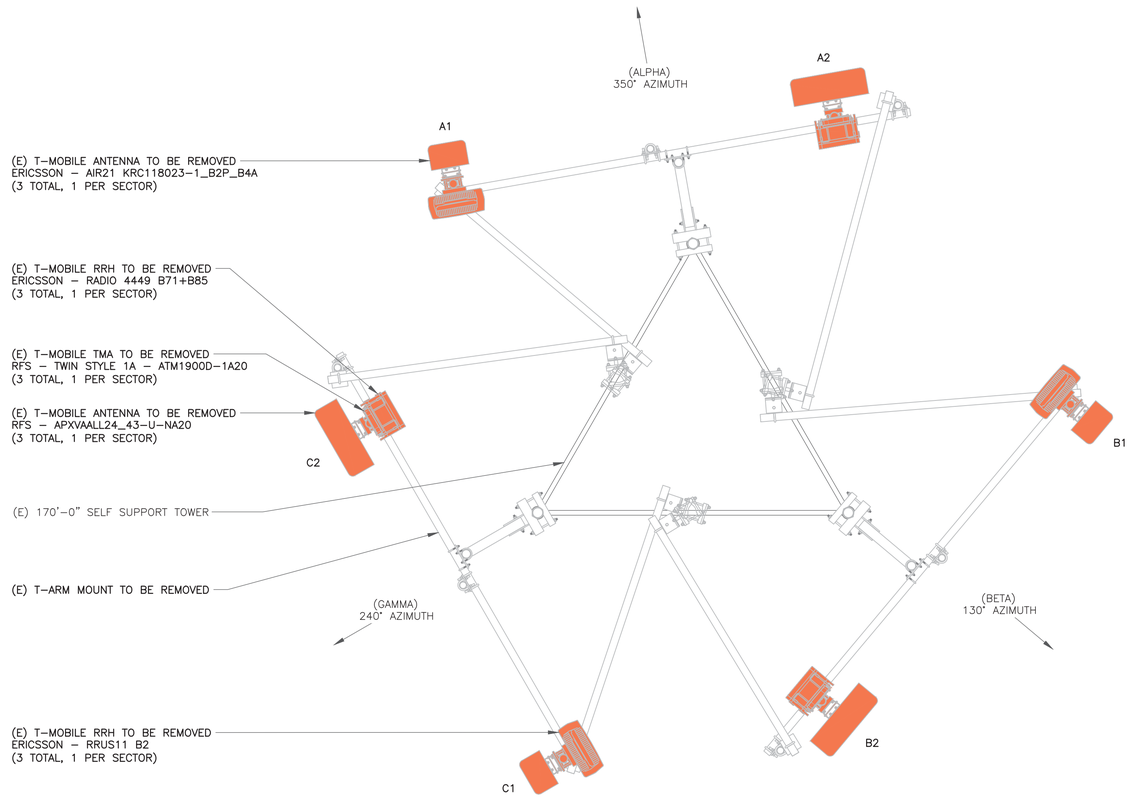
ANTENNA CL: 169'-0"
MOUNT CL: 168'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB

1 FINAL ELEVATION
SCALE: NOT TO SCALE

INSTALLER NOTE:

EXISTING LOADING TO BE REMOVED POST INTEGRATION OF NEW EQUIPMENT.



2 EXISTING ANTENNA LAYOUT AT 97'-0"
SCALE: NOT TO SCALE

N

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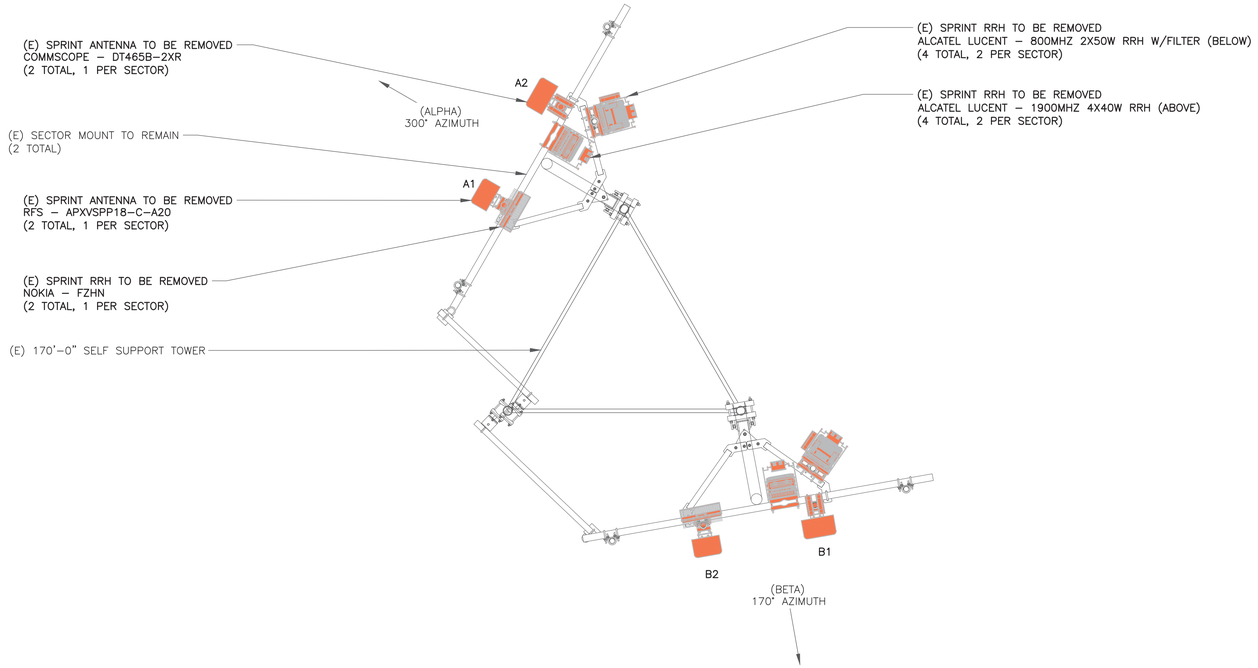
B&T ENGINEERING, INC.

SHEET NUMBER: C-2

REVISION: 0

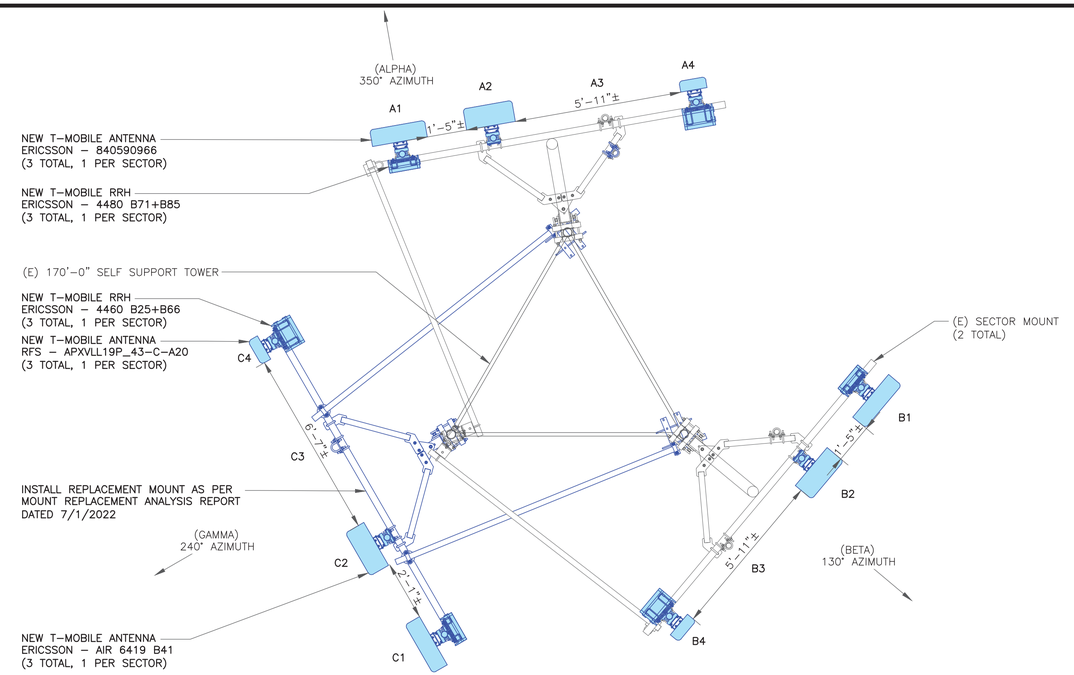


1 EXISTING ANTENNA LAYOUT AT 169'-0"
SCALE: NOT TO SCALE

N

INSTALLER NOTE:

NO PROPOSED LOADING TO BE ADDED UNTIL MOUNT SWAP IS COMPLETE. CONTRACTOR TO INSTALL MOUNT PER MANUFACTURER'S SPECIFICATIONS.



2 FINAL ANTENNA LAYOUT AT 169'-0"
SCALE: NOT TO SCALE

N

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COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No.56245
REGISTERED PROFESSIONAL ENGINEER
8/3/22

B&T ENGINEERING, INC.

SHEET NUMBER: C-2.1

REVISION: 0

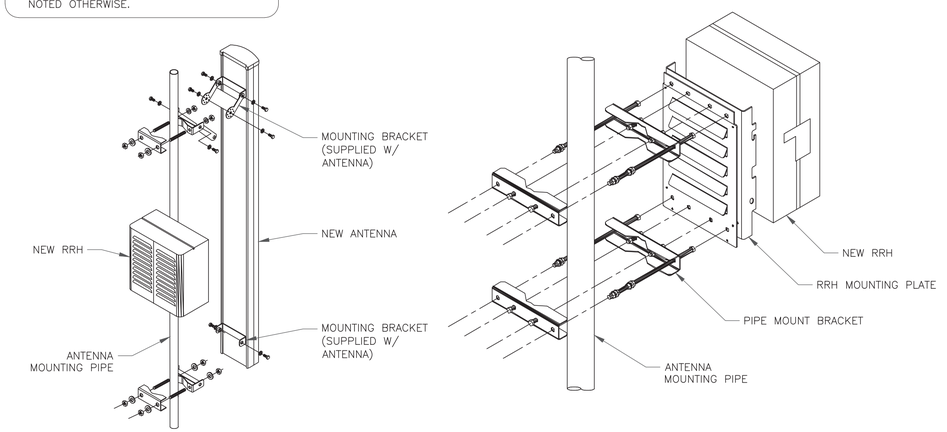
RF SYSTEM SCHEDULE

SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A1	L600/L700/N600	ERICSSON	840590966	350°	0°	–	169'-0"	(1) ERICSSON – RADIO 4480 B71+B85	(1) HYBRID TRUNK 6/24 4AWG CABLE
	A2	L2500/N2500	ERICSSON	AIR 6419 B41	350°	0°	–	169'-0"	–	
	A3	–	–	–	–	–	–	–	–	
	A4	G1900/L1900/L2100	RFS	APXVLL19P_43-C-A20	350°	0°	–	169'-0"	(1) ERICSSON – RADIO 4460 B25+B66	
BETA	B1	L600/L700/N600	ERICSSON	840590966	130°	0°	–	169'-0"	(1) ERICSSON – RADIO 4480 B71+B85	(1) HYBRID TRUNK 6/24 4AWG CABLE
	B2	L2500/N2500	ERICSSON	AIR 6419 B41	130°	0°	–	169'-0"	–	
	B3	–	–	–	–	–	–	–	–	
	B4	G1900/L1900/L2100	RFS	APXVLL19P_43-C-A20	130°	0°	–	169'-0"	(1) ERICSSON – RADIO 4460 B25+B66	
GAMMA	C1	L600/L700/N600	ERICSSON	840590966	240°	0°	–	169'-0"	(1) ERICSSON – RADIO 4480 B71+B85	(1) HYBRID TRUNK 6/24 4AWG CABLE
	C2	L2500/N2500	ERICSSON	AIR 6419 B41	240°	0°	–	169'-0"	–	
	C3	–	–	–	–	–	–	–	–	
	C4	G1900/L1900/L2100	RFS	APXVLL19P_43-C-A20	240	0°	–	169'-0"	(1) ERICSSON – RADIO 4460 B25+B66	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER: **4HY0568A**

BU #: **841273**
TRURO

344 ROUTE 6
NORTH TRURO, MA
02652

EXISTING
170'-0" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/22/22	YX	PRELIMINARY REVIEW	CV
0	8/3/22	YX	CONSTRUCTION	LR

COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No. 56549
REGISTERED PROFESSIONAL ENGINEER
8/3/22

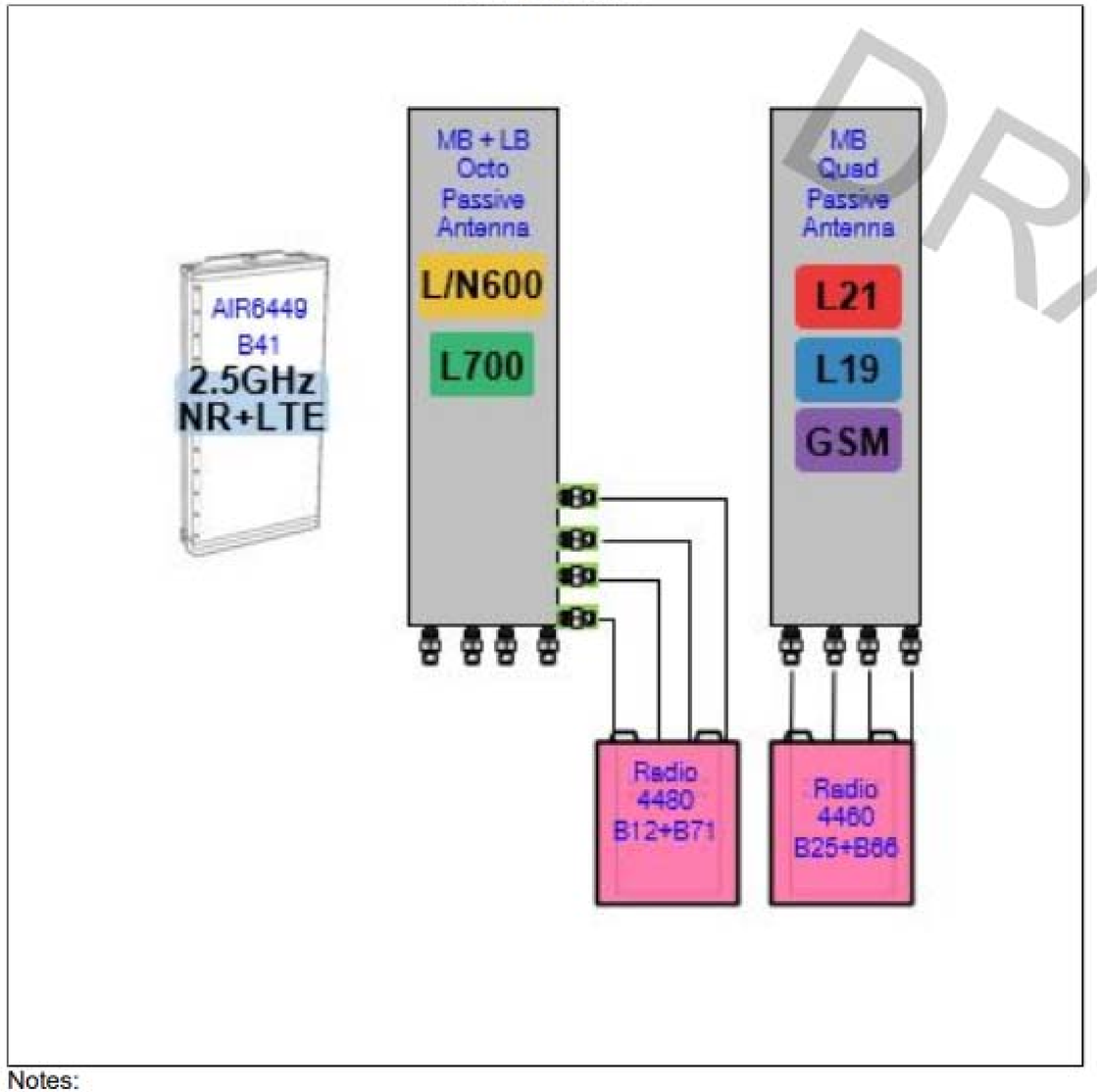
B&T ENGINEERING, INC.

SHEET NUMBER: C-3

REVISION: 0

Section 3 - Proposed Template Images

67E5A998E.JPG



Notes:

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

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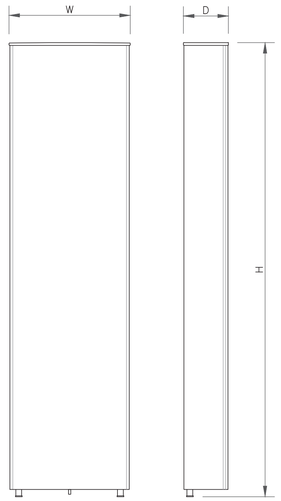
0	8/3/22	YX	CONSTRUCTION	LR

COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No.56245
REGISTERED PROFESSIONAL ENGINEER
8/3/22

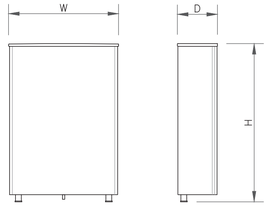
B&T ENGINEERING, INC.

SHEET NUMBER: C-4
REVISION: 0



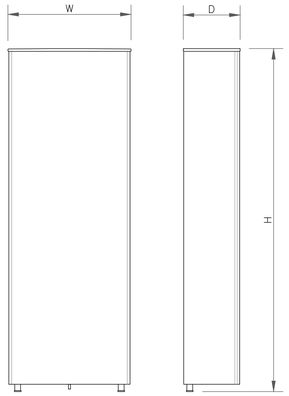
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	840590966
WIDTH	23.50"
DEPTH	7.10"
HEIGHT	95.90"
WEIGHT	135.80 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



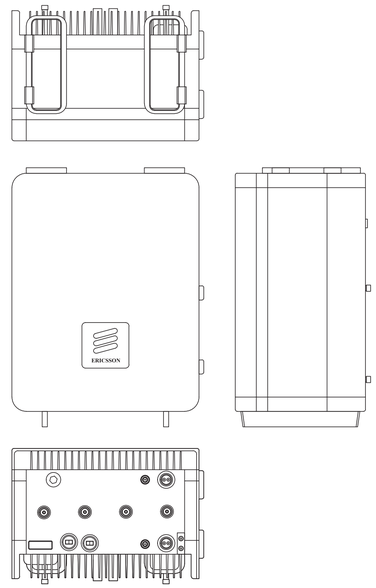
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR 6419 B41
WIDTH	20.91"
DEPTH	9.02"
HEIGHT	35.25"
WEIGHT	96.50 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



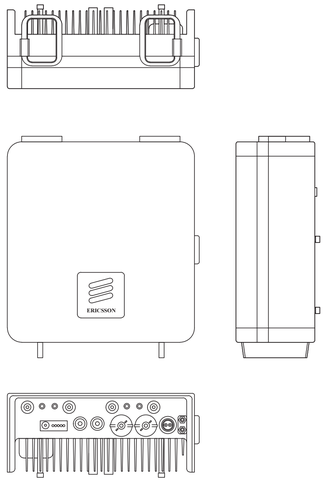
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVLL19P_43-C-A20
WIDTH	11.30"
DEPTH	4.60"
HEIGHT	75.80"
WEIGHT	48.39 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



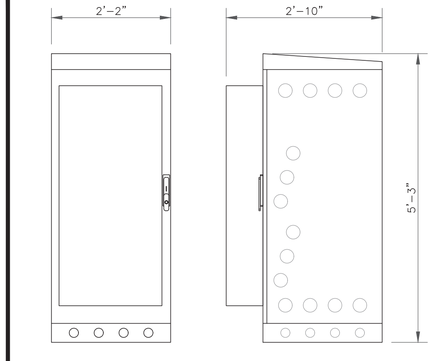
ERICSSON – RADIO 4460
WEIGHT: 109 LBS
SIZE (HxWxD): 17.0x15.1x11.9 IN.

4 ERICSSON – RADIO 4460
SCALE: NOT TO SCALE



ERICSSON – RADIO 4480
WEIGHT: 92.6 LBS
SIZE (HxWxD): 21.8x15.7x7.5 IN.

5 ERICSSON – RADIO 4480
SCALE: NOT TO SCALE



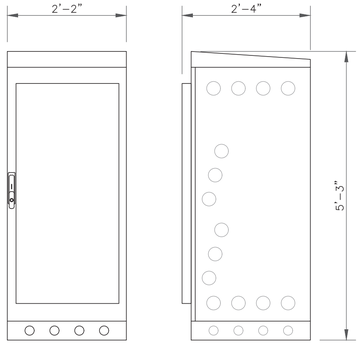
EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 34.0"
(1600.0mm x 660.0mm x 864.0mm)

WEIGHT (EMPTY): 320 LBS (145 kg)

WEIGHT (FULLY LOADED): 1,500 LBS (681 kg)

6 ERICSSON – 6160
SCALE: NOT TO SCALE



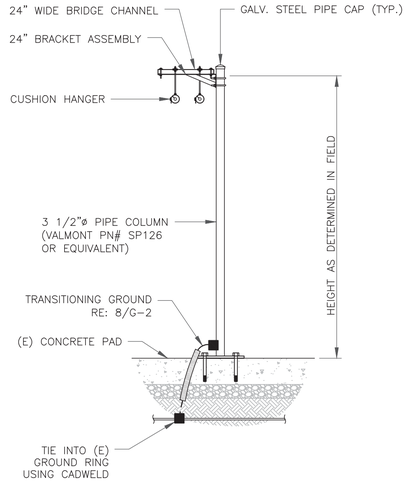
EQUIPMENT NOTES:

HEIGHTxWIDTHxDEPTH: 63.0" x 26.0" x 28.0"
(1600.0mm x 660.0mm x 711.0mm)

WEIGHT (EMPTY): 295 LBS (134 kg)

WEIGHT (FULLY LOADED): 2,000 LBS (908 kg)

7 ERICSSON – B160
SCALE: NOT TO SCALE



8 ICE BRIDGE DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE
NUMBER: **4HY0568A**

BU #: **841273**
TRURO

344 ROUTE 6
NORTH TRURO, MA
02652

EXISTING
170'-0" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/22/22	YX	PRELIMINARY REVIEW	CV
0	8/3/22	YX	CONSTRUCTION	LR

COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No. 56845
REGISTERED PROFESSIONAL ENGINEER
8/3/22

B&T ENGINEERING, INC.

SHEET NUMBER: C-5

REVISION: 0

FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
SURGE	2	60A	1	2	20A	1	REC
			3	4	40A	2	BOOSTER
BTS–1	2	50A	5	6			
			7	8	125A	2	6160
GFCI	1	20A	9	10			
			11	12			
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			

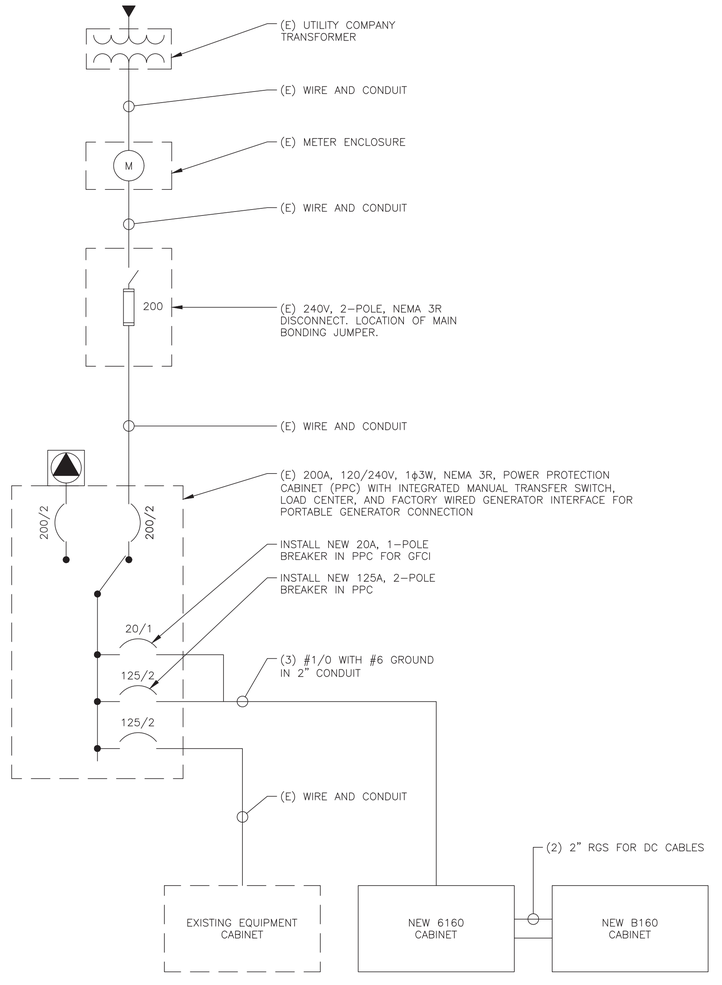
RATED VOLTAGE: ■120/240 □_____, 1 PHASE, 3 WIRE	BRANCH POLES: □12 ■24 □30 □42	APPROVED MF'RS
RATED AMPS: □100 ■200 □400 □_____,	CABINET: ■SURFACE □FLUSH	NEMA □1 ■3R □4X
□MAIN LUGS ONLY ■MAIN 200 AMPS ■BREAKER □FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
□FUSED ■CIRCUIT BREAKER BRANCH DEVICES	□_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS / GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL		

REPLACE BREAKER IN POSITIONS 8 AND 10 WITH A NEW 2P 125A BREAKER
INSTALL NEW 1P 20A BREAKER IN POSITION 9
INSTALL NEW WIRING FOR NEW 6160 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 125A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T–MOBILE PANEL DETAIL
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN–2, XHHW, OR XHHW–2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE–LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER: **4HY0568A**

BU #: **841273**
TRURO

344 ROUTE 6
NORTH TRURO, MA
02652

EXISTING
170'-0" SELF SUPPORT
TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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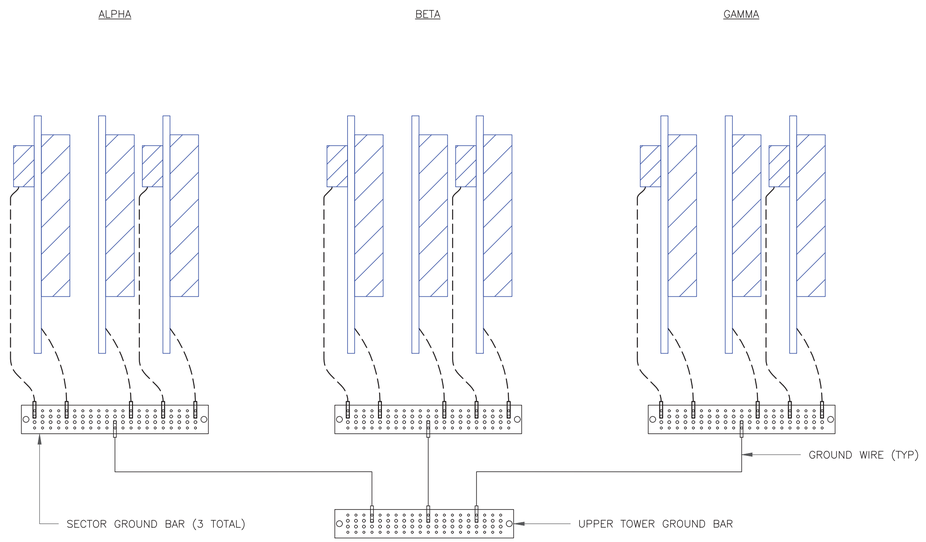
0	8/3/22	YX	CONSTRUCTION	LR

B&T ENGINEERING, INC.

SHEET NUMBER: E-1

REVISION: 0



NOTE:

ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER: **4HY0568A**

BU #: **841273**
TRURO

344 ROUTE 6
NORTH TRURO, MA
02652

EXISTING
170'-0" SELF SUPPORT
TOWER

ISSUED FOR:

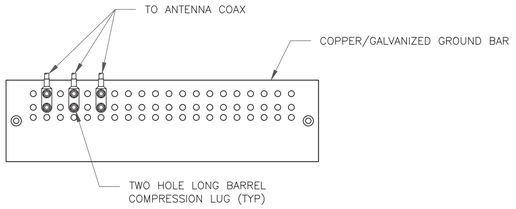
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/22/22	YX	PRELIMINARY REVIEW	CV
0	8/3/22	YX	CONSTRUCTION	LR

COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No. 56245
REGISTERED PROFESSIONAL ENGINEER
8/3/22

B&T ENGINEERING, INC.

SHEET NUMBER: G-1

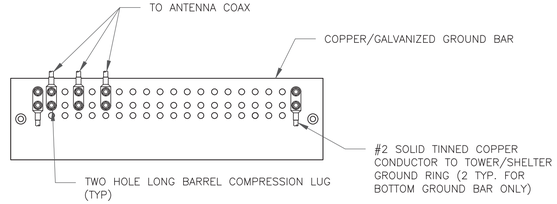
REVISION: 0



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

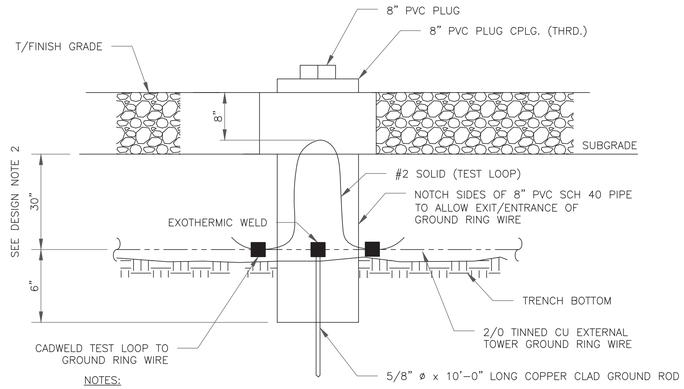
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

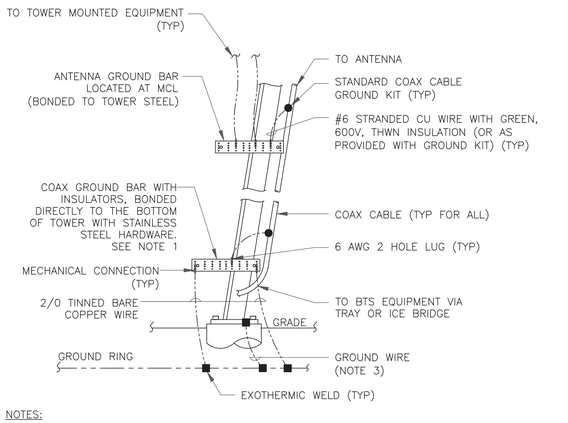
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

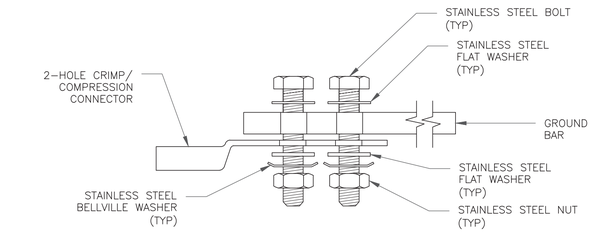
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



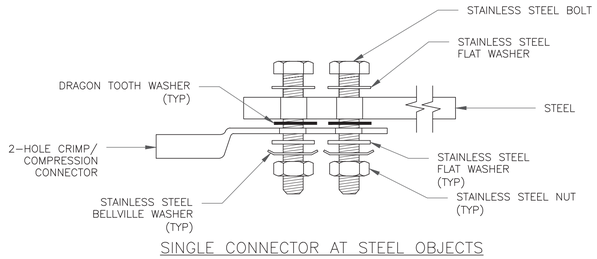
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

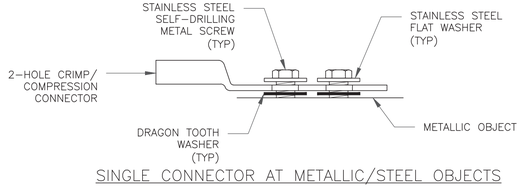
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

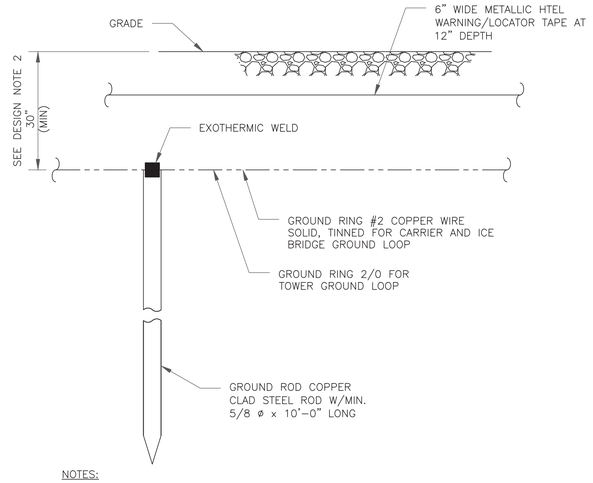


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
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T-MOBILE SITE NUMBER: **4HY0568A**

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TRURO

344 ROUTE 6
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02652

EXISTING
170'-0" SELF SUPPORT
TOWER

ISSUED FOR:

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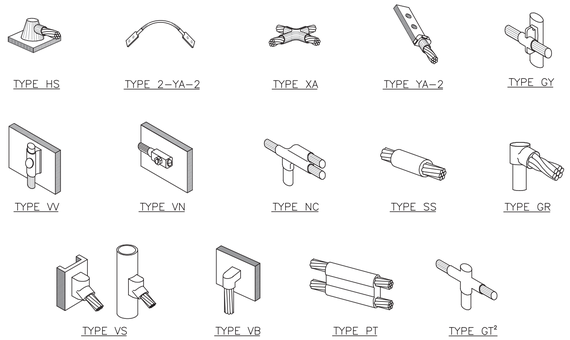
A	7/22/22	YX	PRELIMINARY REVIEW	CV
0	8/3/22	YX	CONSTRUCTION	LR

B&T ENGINEERING, INC.

SHEET NUMBER: G-2

REVISION: 0

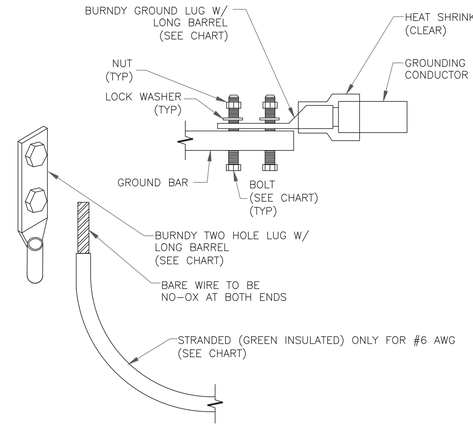


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

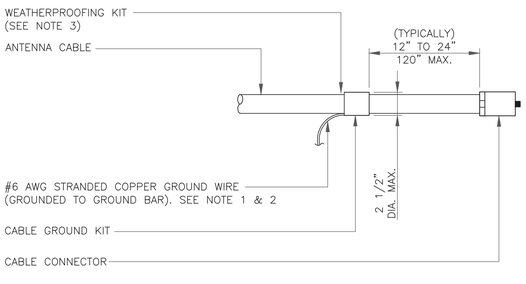
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

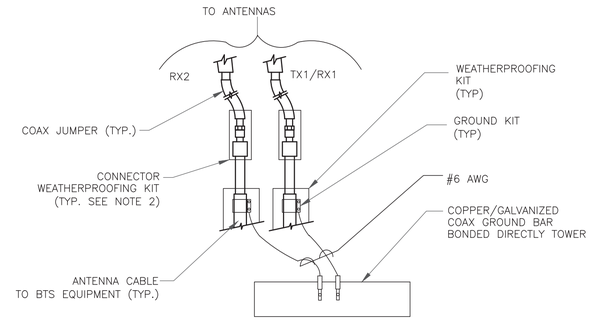
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

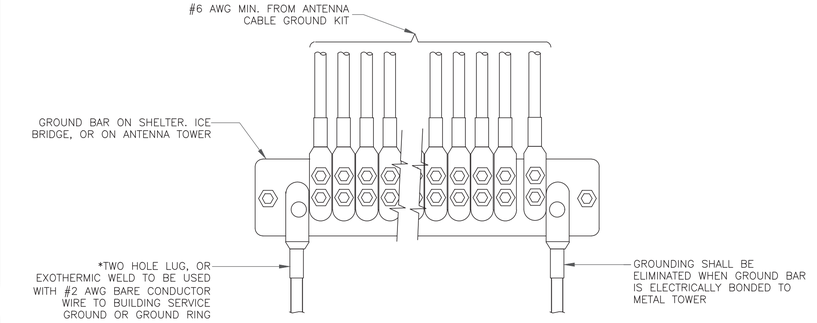
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



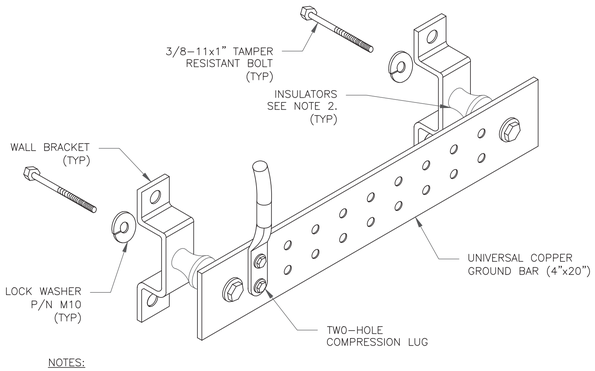
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



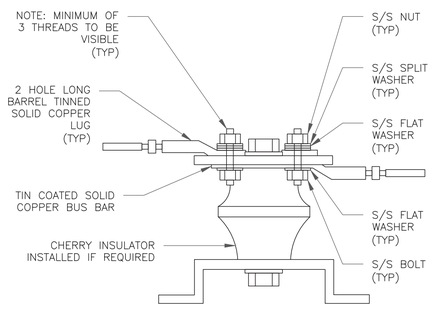
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



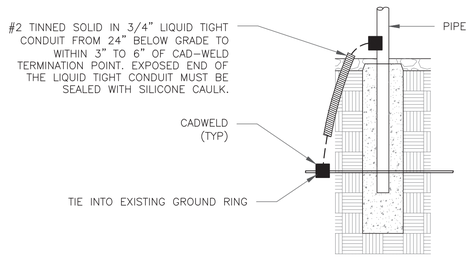
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE
3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER: **4HY0568A**

BU #: **841273**
TRURO

344 ROUTE 6
NORTH TRURO, MA
02652

EXISTING
170'-0" SELF SUPPORT
TOWER

ISSUED FOR:

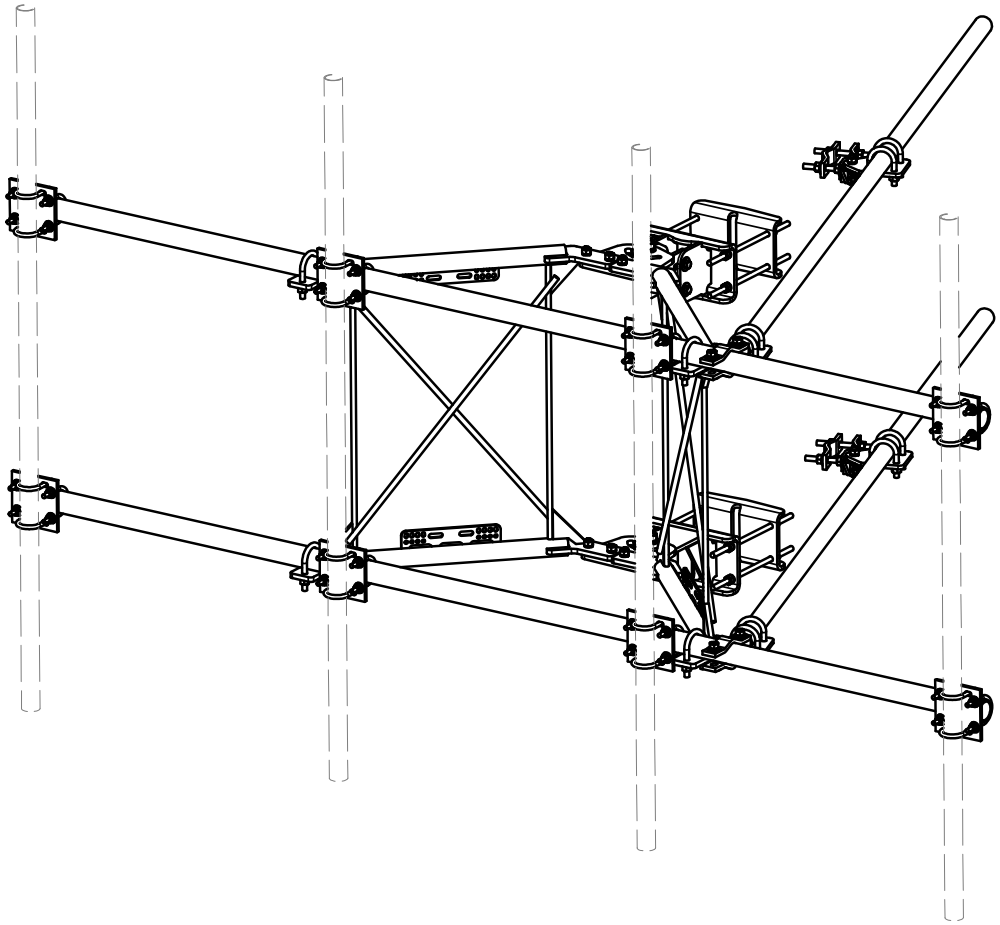
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/22/22	YX	PRELIMINARY REVIEW	CV
0	8/3/22	YX	CONSTRUCTION	LR

COMMONWEALTH OF MASSACHUSETTS
PETER D. SMITH
No.56845
REGISTERED PROFESSIONAL ENGINEER
8/3/22

B&T ENGINEERING, INC.

SHEET NUMBER: G-3

REVISION: 0



PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFAW	SUPPORT ARM		71.41	142.81
2	1	X-HDCAMTBW	CLAMP WELDMENT FOR BCAM-HD		33.86	33.86
3	1	X-MHTPHD	MULTI-HOLE TAPER PLATE WELDMENT		36.24	36.24
4	2	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	31.77
5	2	X-LCBP4	BENT BACKING PLATE	13 in	19.00	38.01
6	1	X-HDCAMSS	ANGLE ADJUSTMENT WELDMENT FOR BCAM-HD		16.39	16.39
7	4	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	23.49
8	1	X-HDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM-HD		2.58	2.58
9	4	X-TBCA	TIE BACK CLIP ANGLE		2.01	8.02
10	8	SCX2	CROSSOVER PLATE	7 in	4.80	38.37
11	4	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	14.37
12	8	DCP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	18.90
13	2	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.75	81.50
14	2	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	153.87
15	4	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	1.92
16	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
17	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
18	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
19	8	G58R-18	5/8" x 18" THREADED ROD (HDG.)	18 in	0.40	3.19
20	4	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	4.18
21	4	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	2.79
22	4	X-UB5300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	4.60
23	8	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	8.00
24	2	G5807	5/8" x 7" HDG HEX BOLT GR5 FULL THREAD	7 in	0.70	1.41
25	1	G5806	5/8" x 6" HDG HEX BOLT GR5 FULL THREAD	6 in	0.62	0.62
26	8	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	3.55
27	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
28	8	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	2.50
29	25	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	1.76
30	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
31	71	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	9.22
32	32	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	23.64
33	16	X-UB1212	1/2" X 2" X 3" X 1-1/4" U-BOLT (HDG.)		0.60	9.56
34	64	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.18
35	64	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.89
36	64	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.58
					TOTAL WT. #	738.06

REVISION HISTORY

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
D	UPDATED BCAM VERSION 1 TO BCAM VERSION 2		CEK	6/29/2018
C	UPDATED PIN LEG CONNECTION TO B-CAM CONNECTION		CEK	12/7/2017
B	CHANGED TIE-BACK BACK CONNECTION		CEK	7/31/2017
A	CHANGED TIE-BACK FRONT CONNECTION		CEK	2/2/2017

TOLERANCE NOTES

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ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION
12' 6" HEAVY DUTY
V-FRAME ASSEMBLY
WITH TWO STIFF ARMS

SITE PRO 1
A valmont COMPANY

Engineering Support Team:
1-888-753-7446

Locations:
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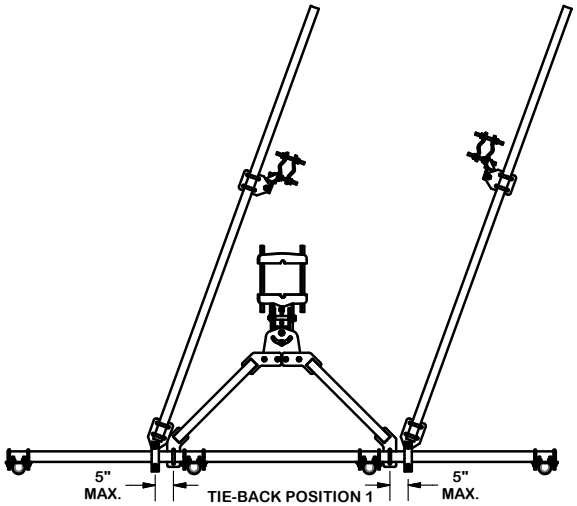
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

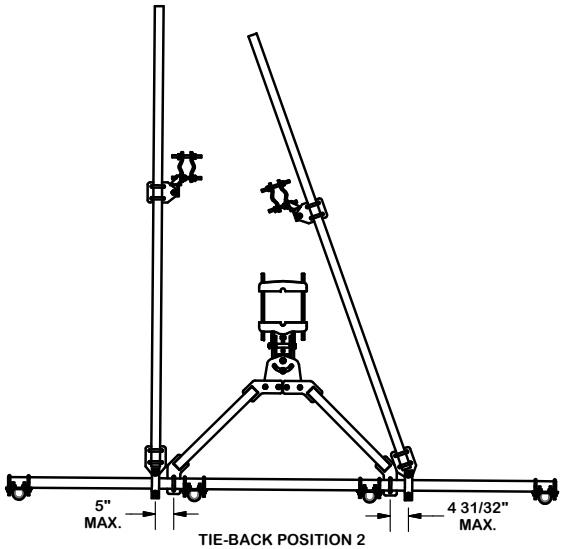
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 1/25/2017		VFA12-HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD

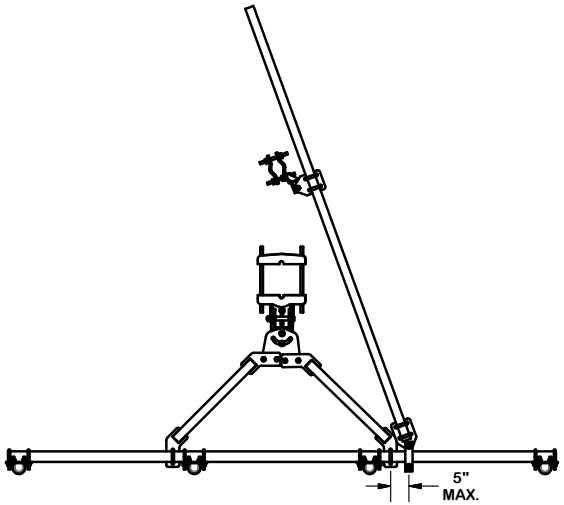
TIE-BACK POSITIONS



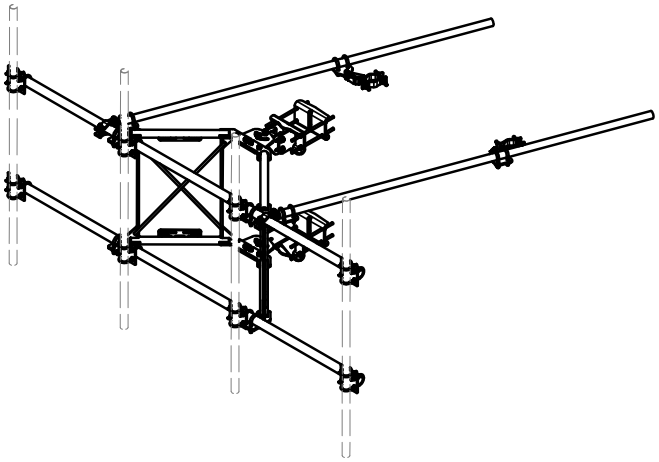
TIE-BACK POSITION 1
-20° / +20° TOP PARALLEL

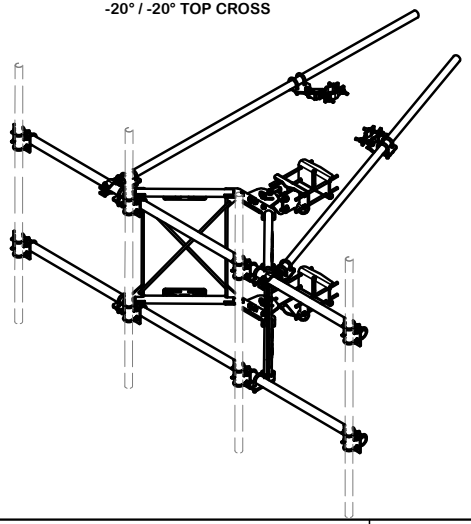


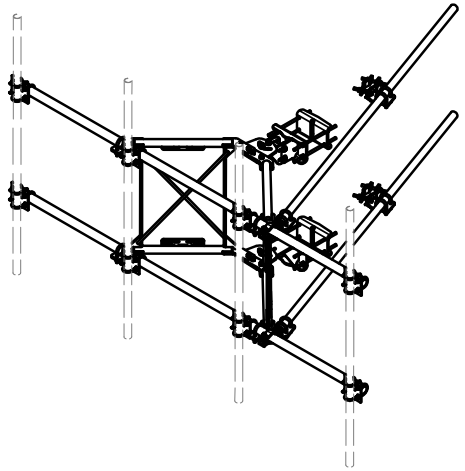
TIE-BACK POSITION 2
-20° / -20° TOP CROSS



TIE-BACK POSITION 3
-20° SAME SIDE STACKED







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REVISION HISTORY

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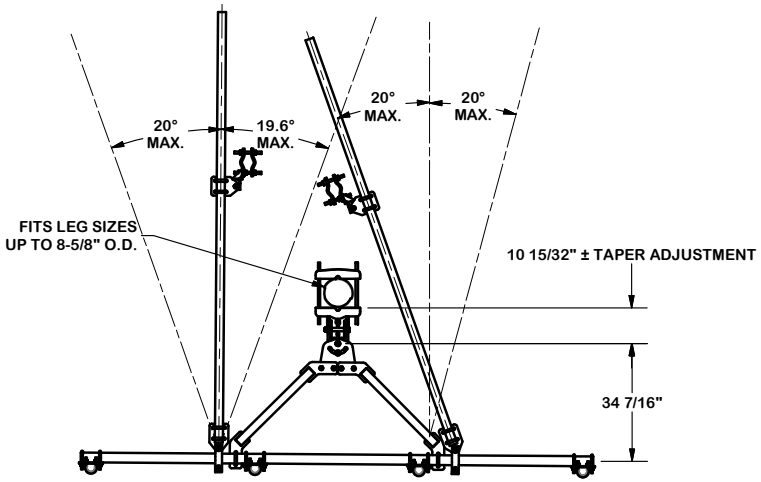
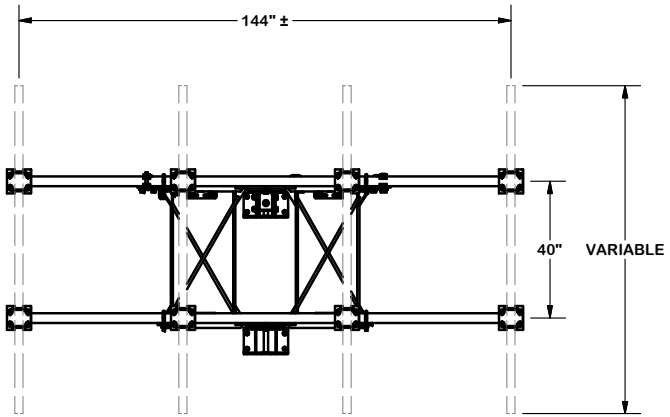
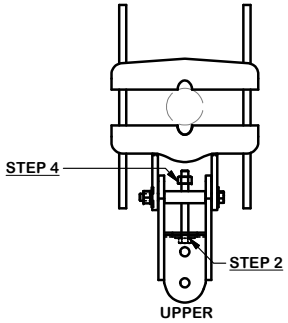
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD

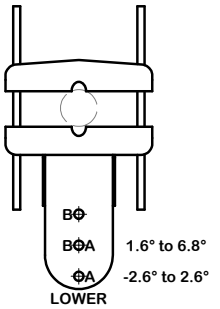


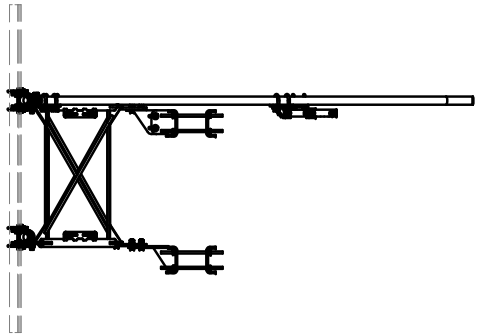


ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
   - HOLE A = -2.6° TO 2.6°
   - HOLE B = 1.6° TO 6.8°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 100 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.







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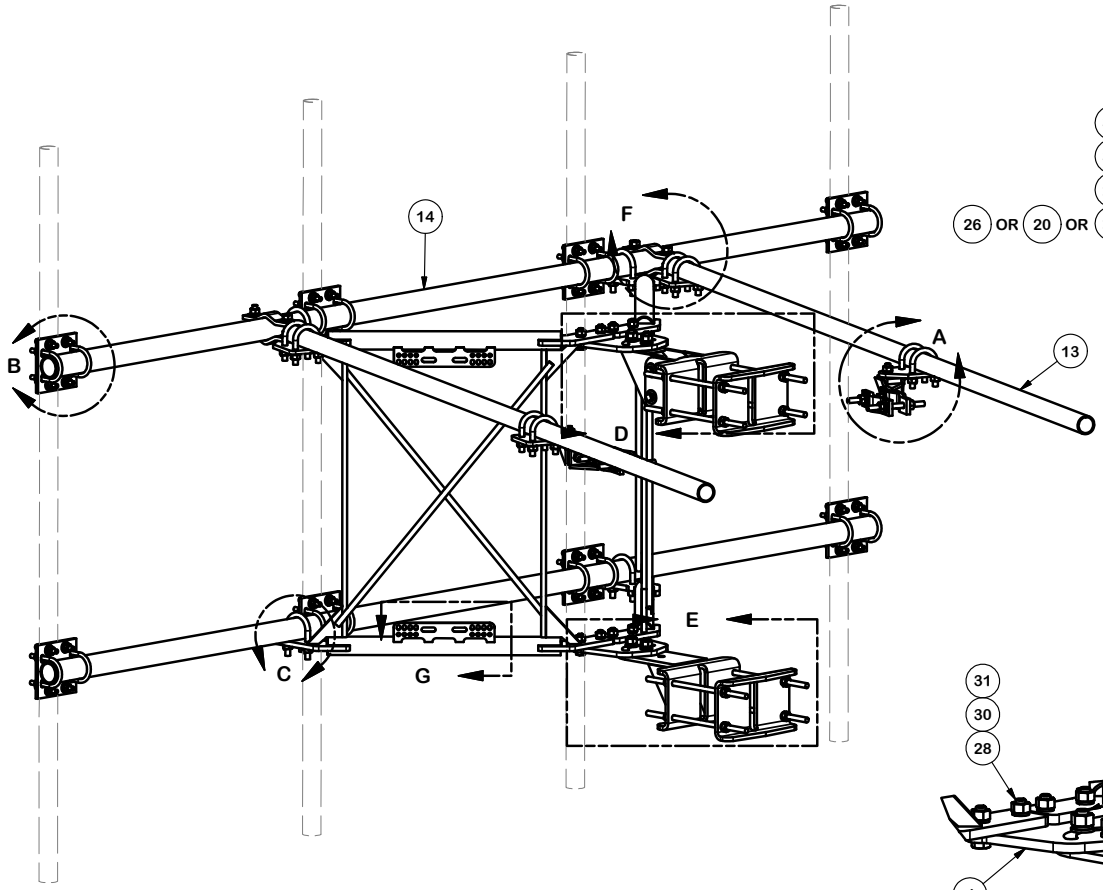
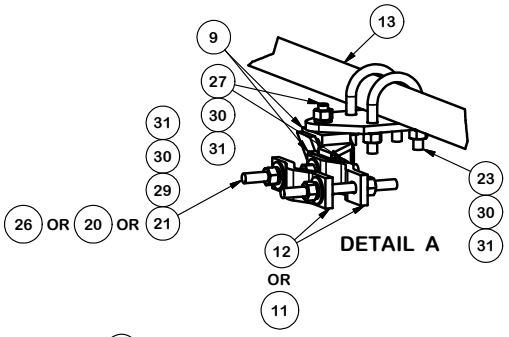
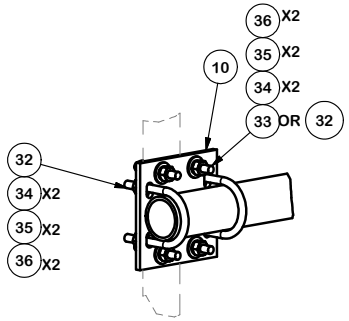
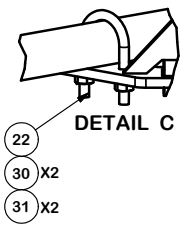




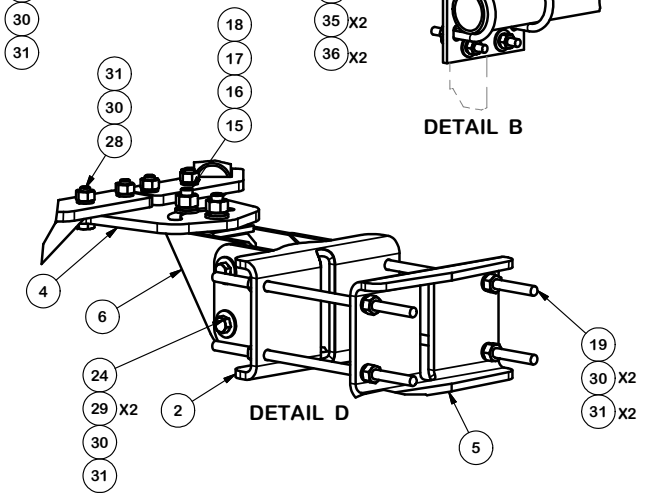
DETAIL A



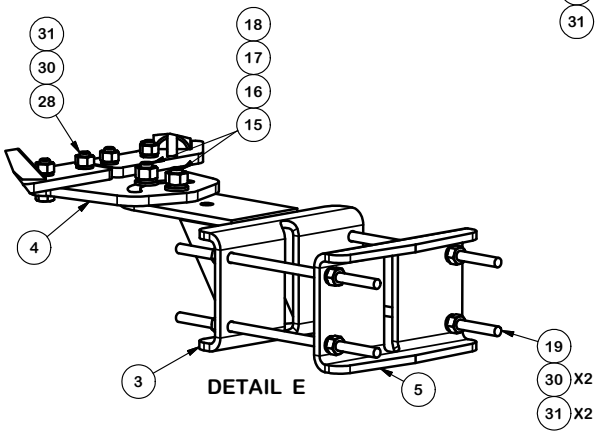
DETAIL B



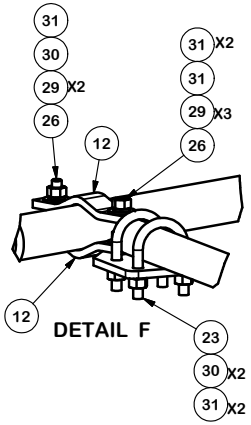
DETAIL C



DETAIL D



DETAIL E

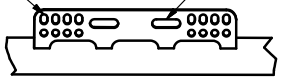


DETAIL F

7/16" LUG HOLES

REVIEW CARRIER STANDARDS FOR PROPER SURFACE PREPARTION AND ASSEMBLY OF ELECTRICAL CONNECTIONS

9/16" SLOTTED HOLE FOR EQUIPMENT PIPE U-BOLT



DETAIL G

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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REVISION HISTORY

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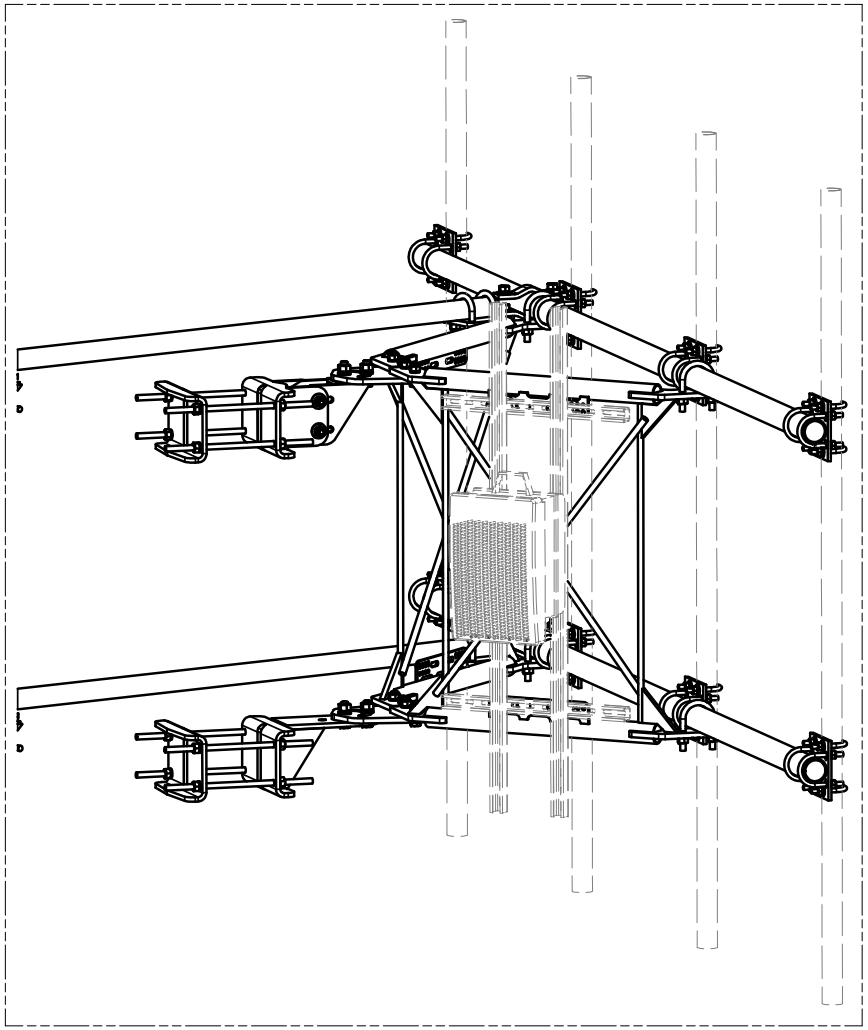
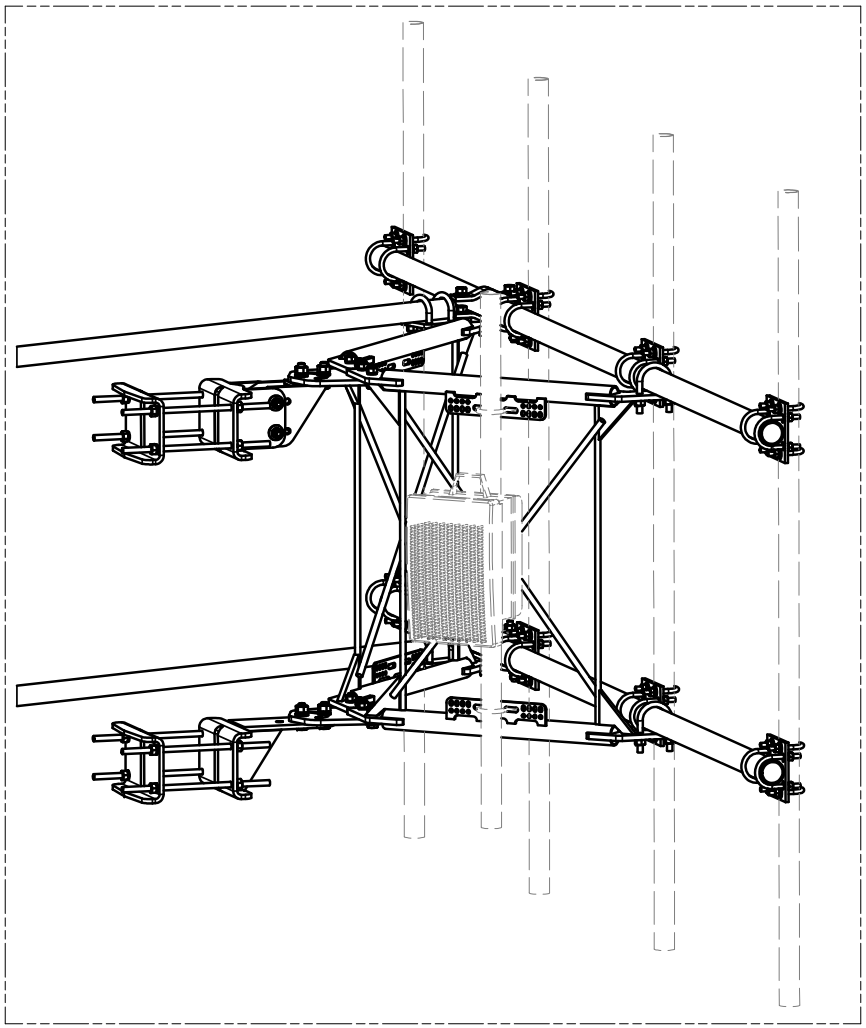
	CEK 1/25/2017		VFA12-HD

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 12/13/2017	VFA12-HD



UNISTRUT AND HARDWARE
SOLD SEPARATELY.

REQUIRES 3/8" HARDWARE



EQUIPMENT PIPE AND HARDWARE
SOLD SEPARATELY.

REQUIRES 1/2" HARDWARE
AND 2-3/8" TO 4-1/2" O.D. PIPE

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
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