NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
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November 17, 2020

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
796 Woodin Street, Hamden CT 06514
Latitude: 41.351214
Longitude: -72.962575
T-Mobile Site#: CTNH400A-NSD

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile plans to install antennas and related equipment at the tower site located at 796 Woodin Street, Hamden, Connecticut.

T-Mobile will install three (3) 600/700/1900 MHz antenna, three (3) 2100 MHz antenna, three (3) 2500 MHz antenna, and nine (9) RRUs at the 110-foot level of the existing 120 foot tower. Three (3) hybrid lines will also be installed. T-Mobile's equipment cabinets will be placed within T-Mobile's 200 sq ft lease area. Included are plans by Hudson Design Group dated October 27, 2020. **Exhibit C**. Also included is a structural analysis prepared by Hudson Design Group, dated October 9, 2020, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as **Exhibit D.**

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Curt Balzano Leng and Daniel Kops, Town Planner of the Town of Hamden, as well as the tower owner (Tarpon Tower) and property owner (Gabrielle Scirocco).

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the support tower is 120-feet; T-Mobile's proposed antennas will be located at a center line height of 110-feet.

2. The proposed modifications will not result in the increase of the site boundary as depicted on the attached site plan.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 5.17% as evidenced by **Exhibit E.**

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Connecticut General Statutes 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, T-Mobile respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting T-Mobile's proposed loading. The structural analysis is included as **Exhibit D**.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in Hamden. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation. Further, a letter of authorization is included as **Exhibit F**, authorizing T-Mobile to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of T-Mobile equipment at the 110-foot level of the existing 120-foot tower would have an insignificant visual impact on the area around the tower. T-Mobile's ground equipment would be installed within the existing facility compound. T-Mobile's shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by **Exhibit E**, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. T-Mobile will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the lease has been provided by the owner to assist T-Mobile with this tower sharing application.

E. Public Safety Concerns. As discussed above, the guyed tower is structurally capable of supporting T-Mobile's proposed loading. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing guyed tower. T-Mobile's intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Hamden.

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 2, Sturbridge MA 01566
Email: Victoria@northeastsitesolutions.com

Attachments

cc: Mayor Curt Balzano Leng, as elected official
Daniel Kops, Hamden Town Planner
Tarpon Tower - as tower owner
Gabrielle Scirocco - property owner

Exhibit A

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

December 6, 2019

Vincent M. Marino, Esq.
Cohen and Wolf, P.C.
657 Orange Center Road
Orange, CT 06477

RE: **DOCKET NO. 486** - Tarpon Towers II, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut.

Dear Attorney Marino:

By its Decision and Order dated December 5, 2019, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Sincerely,

Melanie A. Bachman, Esq.
Executive Director

MAB/RDM/lm

Enclosures (4)

c: Parties and Intervenors
State Documents Librarian (via email)

STATE OF CONNECTICUT)

: **ss. New Britain, Connecticut** **December 6, 2019**

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Melanie A. Bachman
Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 486 has been forwarded by Certified First Class Return Receipt Requested mail, on December 6, 2019, to all parties and intervenors of record as listed on the attached service list, dated October 17, 2019.

ATTEST:

Lisa A. Mathews
Office Assistant
Connecticut Siting Council

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

CERTIFICATE

OF

ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

DOCKET NO. 486

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Tarpon Towers II, LLC for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on December 5, 2019.

By order of the Council,

Melanie A. Bachman, Executive Director

December 5, 2019

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Document Service	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	☒ E-mail	Tarpon Towers, II LLC	Vincent M. Marino, Esq. Cohen and Wolf, P.C. 657 Orange Center Road Orange, CT 06477 Phone: (203) 298-4066 vmarino@cohenandwolf.com
Intervenor (Approved 8/15/19)	☒ E-mail	Cellco Partnership d/b/a Verizon Wireless	Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103-3597 Phone: (860) 275-8200 kbaldwin@rc.com

DOCKET NO. 486 - Tarpon Towers II, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut.	}	Connecticut Siting Council December 5, 2019

Findings of Fact

Introduction

1. Tarpon Towers II, LLC (Tarpon), in accordance with provisions of Connecticut General Statutes (C.G.S.) § 16-50g, et seq, applied to the Connecticut Siting Council (Council) on July 15, 2019 for a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of wireless telecommunications facility at 796 Woodin Street in Hamden, Connecticut. (Tarpon 1, p. 1)

2. Tarpon is a Delaware Partnership with an administrative office located at 1001 3rd Avenue West, Suite 420, Bradenton, Florida. Tarpon would construct, maintain and own the proposed facility and would be the Certificate Holder. (Tarpon 1, p. 4)

3. The intervenor in this proceeding is Cellco partnership d/b/a Verizon Wireless (Cellco). Pursuant to C.G.S. §22a-19, SBA Communications Corporation d/b/a MCM Acquisition 2017, LLC (SBA) was granted intervenor status and CEPA intervenor status. On October 16, 2019, SBA withdrew intervenor status in this proceeding. (Transcript 1, September 12, 2019, 3:00 p.m. [Tr. 1], pp. 1, 6-9; SBA Withdrawal of Intervention letter dated October 16, 2019)

4. The purpose of the proposed facility is to allow Cellco to remove its existing facility located on a 250-foot lattice tower at 1055 Wintergreen Lane in Hamden due to interference issues, thereby allowing Cellco to provide enhanced wireless service in the Hamden area. (Council Administrative Notice Nos. 32, 33, & 34; Tarpon 1, pp. 1-2; Cellco 2, response 1)

5. Pursuant to C.G.S. § 16-50*l* (b), the applicant provided public notice of the filing of the application that was published in the New Haven Register on July 11, 2019. (Tarpon 3, response 1)

6. Pursuant to C.G.S. § 16-50*l* (b), notice of the application was provided to all abutting property owners by certified mail. (Tarpon 3, response 2)

7. On July 12, 2019, Tarpon provided notice to all federal, state and local officials and agencies listed in C.G.S. § 16-50*l* (b). This included notice to the City of New Haven, located within 2,500 feet of the proposed site. (Tarpon 1, Attachment B)

8. On July 17, 2019, the Council deemed the application incomplete as bulk copies of Town of Hamden (Town) Zoning and Inland Wetland regulations, and the Town Plan of Conservation and Development were not provided. Additionally, the application (Attachment A) did not contain the Council's most recent version of its Application Guide. (Record)

9. On July 18, 2019, Tarpon submitted bulk copies of the Town Zoning and Inland Wetland regulations, and the Town Plan of Conservation and Development. On July 24, 2019, Tarpon submitted a revised Application Attachment A. (Tarpon 2; Record)

Procedural Matters

10. Upon receipt of the application, the Council sent a letter to the Town of Hamden and the City of New Haven, which is within 2,500 feet of the proposed facility, on July 16, 2019, as notification that the application was received and is being processed, in accordance with C.G.S. § 16-50gg. (Record)

11. During a regular Council meeting on August 15, 2019, the application was deemed complete pursuant to Regulations of Connecticut State Agencies (R.C.S.A.) § 16-50*l*-1a and the public hearing schedule was approved by the Council. (Record)

12. Pursuant to C.G.S. § 16-50m, the Council published legal notice of the date and time of the public hearing in the New Haven Register on August 20, 2019. (Record)

13. Pursuant to C.G.S. § 16-50m, on August 16, 2019, the Council sent letters to the Town and the City of New Haven to provide notification of the scheduled public hearing in Hamden on September 19, 2019, and to invite the municipalities to participate. (Record)

14. On August 28, 2019, the Council held a pre-hearing conference on procedural matters for parties and intervenors to discuss the requirements for pre-filed testimony, exhibit lists, administrative notice lists, expected witness lists, filing of pre-hearing interrogatories and the logistics of the public inspection of the proposed site at the Office of the Council, 10 Franklin Square, New Britain, Connecticut. (Record)

15. In compliance with R.C.S.A. § 16-50j-21, the Applicant installed a four-foot by six-foot sign at the entrance to the subject property on August 30, 2019. The sign presented information regarding the project and the Council's public hearing. (Tarpon 5)

16. The Council and its staff conducted an inspection of the proposed site on September 19, 2019, beginning at 2:00 p.m. During the field inspection, the applicant flew a four-foot diameter red balloon to simulate the height of the proposed tower approximately 15 feet from the proposed tower location due to a dense tree canopy at the proposed tower location. Weather conditions during the balloon flight were favorable and the balloon was flown from 7:45 AM to 6:00 PM for the convenience of the public. (Council's Hearing Notice dated August 16, 2019; Tr. 1, p. 30)

17. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public hearing on September 19, 2019, beginning with the evidentiary session at 3:00 p.m. and continuing with the public comment session at 6:30 p.m. at the Memorial Town Hall, Legislative Council Chambers, 2372 Whitney Avenue, Hamden, Connecticut. (Council's Hearing Notice dated August 16, 2019; Tr. 1, p. 1; Transcript 2, September 19 – 6:30 p.m. [Tr. 2], p. 1)

18. The Council continued the public evidentiary hearing on October 22, 2019, at the Council's office at 10 Franklin Square, New Britain, Connecticut. (Council's Continued Hearing Memo dated September 20, 2019; Transcript 3, October 22 – 1:00 p.m. [Tr. 3], p. 1)

State Agency Comment

19. Pursuant to C.G.S. § 16-50j (g), on August 16, 2019, the following state agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Energy and Environmental Protection (DEEP); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Agriculture (DOAg); Department of Transportation (DOT); Connecticut Airport Authority (CAA); Department of Emergency Services and Public Protection (DESPP); and State Historic Preservation Office (SHPO). (Record)

20. The Council received a response from the DOT's Bureau of Engineering and Construction on August 7, 2019 indicating that the DOT had no comments. (DOT Comments received August 7, 2019)

21. The Council received a response from the CEQ on August 30, 2019 recommending additional viewshed photographs and adherence to the Town's wetland regulations (refer to Attachment A). (CEQ Comments received August 30, 2019)

22. The following agencies did not respond with comment on the application: DEEP, DPH, PURA, OPM, DECD, DOAg, CAA, DESPP, and SHPO. (Record)

23. While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies. (*Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007)).

Municipal Consultation

24. Tarpon commenced the 90-day pre-application municipal consultation process by submitting copies of the technical report to the Mayor of Hamden, Curt Leng, on December 13, 2018. At the request of the Town, a public information meeting was held on March 7, 2019. Two residents from a property abutting the site attended the meeting. No Town officials attended the meeting. (Tarpon 1, p. 30)

25. Tarpon submitted a technical report to the City of New Haven on March 13, 2019 as New Haven is within 2,500 feet of the project site. On April 17, 2019, Tarpon representatives attended a City Plan Commission meeting, on May 8, 2019, a Tarpon representative attended a New Haven Westville-West Hills Management Team meeting. Additionally, at the request of the City, Tarpon attempted to set up an information meeting for residents of a housing authority property by contacting the appropriate representative, but no response was received. (Tarpon 1, pp. 30-31)

26. The tower would be capable of supporting municipal emergency communications equipment at no cost to the Town. (Tarpon 1, p. 18)

Public Need for Service

27. In 1996, the United States Congress recognized a nationwide need for high quality wireless telecommunications services, including cellular telephone service. Through the Federal Telecommunications Act of 1996, Congress seeks to promote competition, encourage technical innovations, and foster lower prices for telecommunications services. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)

28. In issuing cellular licenses, the Federal government has preempted the determination of public need for cellular service by the states, and has established design standards to ensure technical integrity and nationwide compatibility among all systems. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)

29. Section 253 of the Telecommunications Act of 1996 prohibits any state or local statute or regulation, or other state or local legal requirement from prohibiting or having the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)

30. Section 704 of the Telecommunications Act of 1996 prohibits local and state entities from discriminating among providers of functionally equivalent services and from prohibiting or having the effect of prohibiting the provision of personal wireless services. This section also requires state or local governments to act on applications within a reasonable period of time and to make any denial of an application in writing supported by substantial evidence in a written record. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)

31. Section 704 of the Telecommunications Act of 1996 also prohibits any state or local entity from regulating telecommunications towers on the basis of the environmental effects of radio frequency emissions, which include effects on human health and wildlife, to the extent that such towers and equipment comply with FCC's regulations concerning such emissions. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)

32. Section 706 of the Telecommunications Act of 1996 requires each state commission with regulatory jurisdiction over telecommunications services to encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans, including elementary and secondary schools, by utilizing regulating methods that promote competition in the local telecommunications market and remove barriers to infrastructure investment. (Council Administrative Notice Item No. 4 – Telecommunications Act of 1996)

33. In December 2009, President Barack Obama recognized cell phone towers as critical infrastructure vital to the United States. The Department of Homeland Security, in collaboration with other federal stakeholders, state, local, and tribal governments, and private sector partners, has developed the National Infrastructure Protection Plan (NIPP) to establish a framework for securing resources and maintaining resilience from all hazards during an event or emergency. (Council Administrative Notice Item No. 11 –Presidential Proclamation 8460, Critical Infrastructure Protection)

34. In February 2012, Congress adopted the Middle Class Tax Relief and Job Creation Act (also referred to as the Spectrum Act) to advance wireless broadband service for both public safety and commercial users. The Act established the First Responder Network Authority to oversee the construction and operation of a nationwide public safety wireless broadband network. Section 6409 of the Act contributes to the twin goals of commercial and public safety wireless broadband deployment through several measures that promote rapid deployment of the network facilities needed for the provision of broadband wireless services. (Council Administrative Notice Item No. 8 – Middle Class Tax Relief and Job Creation Act of 2012)

35. In June 2012, President Barack Obama issued an Executive Order to accelerate broadband infrastructure deployment declaring that broadband access is a crucial resource essential to the nation's global competitiveness, driving job creation, promoting innovation, expanding markets for American businesses and affording public safety agencies the opportunity for greater levels of effectiveness and interoperability. (Council Administrative Notice Item No. 23 – FCC Wireless Infrastructure Report and Order; Council Administrative Notice Item No. 12 – Presidential Executive Order 13616, Accelerating Broadband Infrastructure Development)

36. Pursuant to Section 6409(a) of the Spectrum Act, a state or local government may not deny and shall approve any request for collocation, removal or replacement of equipment on an existing wireless tower provided that this does not constitute a substantial change in the physical dimensions of the tower. (Council Administrative Notice Item No. 8 – Middle Class Tax Relief and Job Creation Act of 2012; Council Administrative Notice Item No. 23 – FCC Wireless Infrastructure Report and Order)

37. According to state policy, if the Council finds that a request for shared use of a facility by a municipality or other person, firm, corporation or public agency is technically, legally, environmentally and economically feasible, and the Council finds that the request for shared use of a facility meets public safety concerns, the Council shall issue an order approving such shared use to avoid the unnecessary proliferation of towers in the state. (Conn. Gen. Stat. §16-50aa)

38. On August 16, 2019, the Council sent correspondence to other telecommunications carriers requesting that carriers interested in locating on the proposed facility in the foreseeable future to notify the Council by September 12, 2019. No carriers responded to the Council's solicitation. (Record)

39. T-Mobile has executed a lease with Tarpon to locate at the 100-foot level of the tower. T-Mobile did not intervene in this proceeding, and therefore, the exact details of their installation are not known at this time. (Tarpon 4, response 11; Tr. 1, pp. 25-26)

Cellco's Existing and Proposed Wireless Service

40. Cellco is currently located on an existing 250-foot lattice tower located on West Rock Ridge with an address of 1055 Wintergreen Avenue, Hamden. Cellco refers to this site in their wireless network as their *Hamden* facility. (Tarpon 1, p. 1; Cellco 2, response 1)

41. Wireless service is provided from the tower by three antenna sectors, referred to as the alpha sector, beta sector, and gamma sector. The sectors are arranged on the tower in a triangular pattern, with each sector providing wireless coverage to a certain geographic area (refer to Figure 7 - antenna plan). (Tarpon 12, Sheet A-2)

42. The existing lattice tower, owned by SBA, is located north of the Route 15 tunnel and is at a ground elevation of 445 feet above mean sea level (amsl). (Tarpon 1, p. 1; Tarpon 4, response 10; Record)

43. Cellco is located at the 170-foot level of the existing lattice tower, with an overall antenna height of 615 feet amsl. (Tarpon 1, p. 1)

44. Due to the high overall ground elevation (445 feet amsl) of the *Hamden* facility in relation to the surrounding low lying terrain, 50-70 feet amsl in southern Hamden and New Haven, the *Hamden* facility is causing interference with other existing Cellco facilities. To resolve the interference issues, Cellco would locate at the 120-foot level at the proposed site, and decommission the existing *Hamden* facility on West Rock Ridge (refer to Figure 1). (Tarpon 1, pp. 1-2; Cellco 2, response 1; Council Administrative Notice No. 75)

45. The network interference is a capacity issue with the existing *Hamden* facility where the wireless signals at their operating frequencies are traveling much farther than desired. Due to unimpeded line of sight of the signals, given the overall height of the *Hamden* facility, these signals are dominant, picking up much more wireless traffic than surrounding Cellco facilities, causing the *Hamden* facility to currently operate beyond its designed capacity. (Tr. 3, pp. 14-15, 19-20, 30)

46. Over-propagation of the *Hamden* facility also degrades the signal of other adjacent sites, causing reduced capacity at these sites as well as a decrease in signal quality. (Tr. 3, pp. 15, 25-26, 33)

47. Interference issues can be measured through data volume and network throughput speeds. High volume leads to less capacity and eventually sector exhaustion if not relieved in some way. Signal degradation leads to slower throughput data speeds, and a reduced customer experience. A throughput speed of less than 3 to 5 megahertz per second is unacceptable. (Tr. 3, pp. 26-29, 41-42)

48. Cellco has already made adjustments at the *Hamden* facility to reduce the interference, such as modifying antenna tilt, and using different antennas, but these adjustments have not resolved the issue and there are no other feasible alternatives to improve network performance. (Tr. 3, pp. 17-18, 30-31, 36-37)

49. Relocating the *Hamden* facility off West Rock Ridge to the proposed site would increase capacity by replacing one sector (beta sector) that is handling a lot of network traffic with three sectors. Additionally, since the dominant signal would be removed, wireless traffic would also be distributed among other surrounding Cellco facilities. (Tr. 3, pp. 31-33, 37-38)

50. Existing Cellco facilities that are experiencing interference from the *Hamden* facility include *Hamden 4* at 1732 Dixwell Avenue, *Hamden 2 CT* at 265 Benham Street, and *New Haven North 2 CT* at 1204 Whitney Avenue. The interference occurs at the 700 MHz, 850 MHz and 2100 MHz frequencies (beta sector). (Cellco 2, response 1; Tr. 3. pp. 18-19)

51. The interference issue was initially identified by Cellco in the Docket 310 proceeding on an application from Omnipoint Communications, Inc. for a new tower facility at 190 Wintergreen Avenue in Hamden Connecticut. The application was subsequently withdrawn in April 2006. In the proceeding, Cellco indicated that in a correctly designed wireless system, a facility would ideally hand off to adjacent sites. In this instance, the service from the *Hamden* facility overshoots the adjacent sites to areas covered by other Cellco facilities that are much farther away. (Council Administrative Notice No. 34; Record)

52. If Cellco only removed the beta sector from the *Hamden* facility to resolve the interference issue, and did not develop the new proposed site, gaps in coverage would result in the Hamden area. (Tr. 3, pp. 64-65)

53. Cellco would deploy 700 MHz, 850 MHz, 1900 MHz and 2100 MHz licensed frequencies at the proposed site. All of the frequencies are Long Term Evolution (LTE) voice and data service

compatible. Currently, the existing *Hamden* facility does not support 850 MHz or 1900 MHz LTE services (refer to Figures 2, 3, 4 & 5). (Tarpon 1, Exhibit F; Cellco 2, response 2; Tr. 3, pp. 19, 21)

54. Propagation models indicate the proposed facility would provide an approximate service footprint of approximately 46 square miles at 700 MHz, 33 square miles at 850 MHz, 14 square miles at 1900 MHz and 8 square miles at 2100 MHz. (Tarpon 1, p. 7; Cellco 2, response 4)

55. The lower frequencies, such as 700 MHz, are used for overall coverage whereas the higher frequencies, such as 2100 MHz, are used more for capacity. Cellco is allocated more bandwidth within the higher frequencies than the lower frequencies. (Tr. 3, pp. 52-53)

56. Coverage enhancements as a result of the relocation of the Hamden facility to the proposed site include coverage within the Route 15 tunnel in West Rock Ridge. The existing service gap within the tunnel is 0.1 mile in length. Minor areas of coverage would also be improved at the higher frequencies on Route 15 and local roads near the proposed site. (Cellco 2, response 3, Tr. 3, pp. 12, 22)

57. Decommissioning the existing *Hamden* facility on West Rock Ridge would reduce coverage to the Woodbridge area. (Tarpon 1, Exhibit F, Tr. 3, pp. 23-24)

58. Cellco is currently searching for a new location for a facility to serve the eastern portion of Woodbridge. The topography of West Rock Ridge would effectively block coverage from a new Woodbridge facility from extending into Hamden. (Tr. 3, pp. 38-39)

59. Cellco may delay the decommissioning of the existing *Hamden* facility by keeping one or two sectors oriented towards Woodbridge until a suitable site in Woodbridge is found and developed. (Tr. 3, pp. 57-59)

Site Selection

60. Tarpon began a site search in the south western portion of Hamden in 2014. Tarpon consulted with wireless carrier radio frequency engineers to determine a need for a tower in this area. (Tarpon 1, p. 17; Tarpon 3, Attachment 4)

61. Cellco examined the existing structures within the proposed site area and determined none would be suitable for their network needs. It is easier and faster for Cellco to locate on an existing structure than to develop a new raw land site. Cellco's ideal location for a new facility is restricted geographically because the new facility must be close to the existing Hamden facility (Tarpon 1, Exhibit G; Tr. 1, pp. 54-55)

62. After determining there were no suitable structures within the search area, Tarpon searched for properties suitable for tower development. Tarpon investigated seven parcels from 2015 to 2019, one of which was selected for site development. The six rejected parcels and the reasons for their rejection are as follows:
    a) South Central Regional Water Property, Hamden – owner indicated there was a lack of suitable space for a tower;
    b) Wintergreen School, Hamden – Town not interested in leasing space;
    c) 230 Wintergreen Lane, Hamden – church property, outreach to owner unsuccessful;
    d) 47 Woodin Street, Hamden – parcel adjacent to Route 15, no interest from owner;
    e) 985 Wintergreen Avenue – no interest from owner; and

f) 95 Building Brook Road – no interest from owner.
(Tarpon 1, Attachment G; Tarpon 3, Attachment 4; Tarpon 4, response 12; Tr. 1, pp. 57-58)

63. The proposed tower can provide reliable service to a large area of multiple square miles, whereas alternatives like small cells or a distributed antenna systems can only provide service to specific areas such as a shopping mall or building. For this area, the number of required small cells for comparable coverage would be too great and there is a lack of existing infrastructure to support numerous small cell facilities. (Tarpon 1, p. 16; Tr. 3, pp. 40-41)

64. In the Spring of 2015, Cellco reactivated a search for a new Hamden site after the Docket 310 application was withdrawn, identifying 4 potential candidates, but subsequently suspended its search after learning about the proposed Tarpon site. (Council Administrative Notice Item No. 34; Cellco 2, response 6)

Facility Description

65. The proposed site is located on an approximately 6.7-acre parcel at 796 Woodin Street, zoned Residential R-2 (refer to Figure 6). (Tarpon 1, pp. 3, 6)

66. The subject property is located on the south side of Old Woodin Street, an informal 500-foot extension of Woodin Street that dead ends at the Wilbur Cross Parkway. The property is developed with a residence, several sheds and barns and a small pasture with the remaining areas consisting of forestland. (Tarpon 1, Attachment E, Attachment F, Attachment K)

67. The tower site is located in the southern portion of the property, at an existing elevation of approximately 113 feet amsl. (Tarpon 1, p. 3; Tarpon 12)

68. Land use immediately surrounding the subject parcel is residential to the east and north. The Wilbur Cross Parkway abuts the parcel to the west. The West Rock Nature Center abuts the site to the south. (Tarpon 12)

69. The proposed facility would consist of a 120-foot monopole, designed to support four levels of platform-mounted antennas as well as municipal emergency services antennas (refer to Figure 7). (Tarpon 1, p. 18, Attachment E)

70. Cellco would install 9 panel antennas and 6 remote radio units on an antenna platform at a centerline height of 120 feet agl. The total height of the facility with antennas would be 124 feet agl. (Tarpon 12)

71. A 70-foot by 40-foot fenced equipment compound within a 75-foot by 75-foot lease area would be established at the base of the tower, enclosed by an eight-foot tall chain link fence (refer to Figure 8). (Tarpon 12)

72. Cellco would lease a 157 square foot area within the compound to install radio equipment cabinets and an H-frame utility board on a concrete pad. (Tarpon 12)

73. Cellco would also install a generator on a concrete pad and a separate 500 gallon propane fuel tank within the compound. (Tarpon 12)

74. Tarpon's lease with T-Mobile indicates T-Mobile would install radio equipment on a concrete pad within the compound. (Tr. 1, p. 25)

75. The compound is located on a sloping terrain in the south-central portion of the property. Site grading to a create a compound ground elevation of 116 feet amsl would require 163 cubic yards of cut and 604 cubic yards of fill, for a net fill of 441 cubic yards. (Tarpon 12)

76. Access to the proposed site would be from a new 700-foot long, 12-foot wide gravel access drive extending south from Woodin Street along the north property boundary, then turning gradually to the southeast to the compound. A wood kennel building would be relocated to install the access drive. (Tarpon 12)

77. Although the proposed access road is on gently sloping terrain, swales would be installed to collect stormwater that would discharge to upland areas. (Tarpon 12)

78. Utilities would be installed underground along the access drive to the compound from a utility pole on Woodin Street. (Tarpon 12)

79. The nearest property boundary from the proposed tower is approximately 124 feet to the southwest (West Rock Nature Center). (Tarpon 1, Attachment E; Tarpon 12)

80. There are approximately 46 residential structures within 1,000 feet of the proposed tower site. The nearest residence is located at 13 Great Pasture Road, approximately 615 feet northeast of the tower site at 784 Woodin Street. (Tarpon 12)

81. Site preparation and engineering would commence following Council approval of a Development and Management Plan (D&M Plan) and are expected to be completed within four to five weeks. Installation of the tower and associated equipment is expected to take an additional eight weeks. After the equipment installation, cell site integration and system testing is expected to require about two additional weeks. (Tarpon 1, p. 33)

82. The estimated cost of the proposed facility, not including Cellco's equipment, is:

Tower and Foundation	$95,000
Site Development	150,000
Utility Installation	45,000
	$290,000

(Tarpon 1, pp. 32-33)

83. Tarpon would recover tower construction costs through tower lease agreements with wireless carriers that would co-locate on the tower. (Tarpon 4, response 15)

Public Safety

84. The Wireless Communications and Public Safety Act of 1999 (911 Act) was enacted by Congress to promote and enhance public safety by making 9-1-1 the universal emergency assistance number, by furthering deployment of wireless 9-1-1 capabilities, and by encouraging construction and operation of seamless ubiquitous and reliable networks for wireless services. (Council Administrative Notice Item No. 6 - Wireless Communications and Public Safety Act of 1999)

85. Wireless carriers have voluntarily begun supporting text-to-911 services nationwide in areas where municipal Public Safety Answering Points (PSAP) support text-to-911 technology. Text-to-911 will extend emergency services to those who are deaf, hard of hearing, have a speech disability, or are in situations where a voice call to 911 may be dangerous or impossible. However, even after a carrier upgrades its network, a user's ability to text to 911 is limited by the ability of the local 911 call center to accept a text message. The FCC does not have the authority to regulate 911 call centers; therefore, it cannot require them to accept text messages. (Council Administrative Notice Item No. 21 – FCC Text-to-911: Quick Facts & FAQs; Tarpon 1, p. 14)

86. Pursuant to the Warning, Alert and Response Network Act of 2006, "Wireless Emergency Alerts" (WEA) is a public safety system that allows customers who own enabled mobile devices to receive geographically-targeted, text messages alerting them of imminent threats to safety in their area. WEA complements the existing Emergency Alert System that is implemented by the FCC and FEMA at the federal level through broadcasters and other media service providers, including wireless carriers. (Council Administrative Notice No. 5 – FCC WARN Act)

87. Pursuant to CGS §16-50p(a)(3)(G), the tower would be constructed in accordance with the American National Standards Institute "Structural Standards for Steel Antenna Towers and Antenna Support Structures" Revision G, the 2018 State Building Code, National Electrical Code (NFPA 70), and the 2018 Connecticut State Fire Safety Code. (Tarpon 4, response 19)

88. The proposed tower would not constitute an obstruction or hazard to air navigation and would not require any obstruction marking or lighting. (Tarpon 1, Exhibit O)

89. To deter unauthorized entry, the fenced compound would be accessed through a locked gate. (Tarpon 4, response 18)

90. The tower radius would remain within the boundaries of the site property. (Tarpon 12)

91. The cumulative worst-case maximum power density from the radio frequency emissions from the operation of all approved antennas and Cellco's proposed antennas is 24.7 percent of the standard for the General Public/Uncontrolled Maximum Permissible Exposure, as adopted by the FCC, at the base of the proposed tower. This calculation was based on methodology prescribed by the FCC Office of Engineering and Technology Bulletin No. 65E, Edition 97-01 (August 1997) that assumes all antennas in a sector would be pointed at the base of the tower and all channels would be operating simultaneously, which creates the highest possible power density levels. Under normal operation, the antennas would be oriented outward, directing radio frequency emissions away from the tower, thus resulting in significantly lower power density levels in areas around the tower. (Tarpon 1, Attachment J; Cellco 2, response 7; Council Administrative Notice Item No. 2 – FCC OET Bulletin No. 65)

Emergency Backup Power

92. In response to two significant storm events in 2011, Governor Malloy formed a Two Storm Panel (Panel) that was charged with an objective review and evaluation of Connecticut's approach to the prevention, planning and mitigation of impacts associated with emergencies and natural disasters that can reasonably be anticipated to impact the state. (Final Report of the Two Storm Panel, Council Administrative Notice Item No. 51

93. In response to the findings and recommendations of the Panel, and in accordance with C.G.S. §16-50*ll*, the Council, in consultation and coordination with DEEP, DESPP and PURA, studied the feasibility of requiring backup power for telecommunications towers and antennas as the reliability of such telecommunications service is considered to be in the public interest and necessary for the public health and safety. (Council Administrative Notice Item No. 31 – Council Docket No. 432)

94. Commercial Mobile Radio Service (CMRS) providers are licensed by and are under the jurisdiction and authority of the FCC. At present, no standards for backup power for CMRS providers have been promulgated by the FCC. Every year since 2006, AT&T, Sprint, T-Mobile, and Verizon have certified their compliance with the CTIA Business Continuity/Disaster Recovery Program and the Communications Security, Reliability and Interoperability Council standards and best practices to ensure network reliability during power outages. (Council Administrative Notice Item No. 31 – Council Docket No. 432)

95. Cellco proposes to install a 30-kilowatt propane-fueled generator for its own use. It could run for approximately 4.75 days under normal cell tower loading conditions before refueling of the associated 500 gallon tank is necessary. A battery unit would also be installed that can provide up to 4 hours of emergency power in the event the generator does not start or runs out of fuel. (Cellco 2, response 8)

96. The emergency generator would be tested periodically for a half-hour period. Fuel levels in the tank would be continually monitored and provisions would be made to ensure enough fuel is present in the tank to supply emergency operations in advance of predicted storm events. (Tr. 3, pp. 42-43)

97. Other carriers that locate at the site would be responsible for their own emergency power supply. It is anticipated that T-Mobile would have a 25-kilowatt diesel-fueled generator with a built-in double-walled belly tank for their emergency power needs. (Tr. 1, pp. 27-28, 41, 72, 83-84)

98. According to R.C.S.A. §22a-69-1.8, noise created as a result of, or relating to, an emergency, such as an emergency backup generator, is exempt from the State Noise Control Regulations. (R.C.S.A. §22a-69-1.8)

99. Pursuant to R.C.S.A. §22a-174-3b, emergency generators could be managed to comply with DEEP's "permit by rule" criteria, and, therefore, would be exempt from general air permit requirements. (R.C.S.A. §22a-174-3b)

Environmental Considerations

100. There are no prime agricultural soils on the site property. (Tarpon 4, response 20)

101. The proposed site is located within a half-mile of the Heroes Tunnel, a 1,200-foot long, horseshoe-shaped twin barrel highway tunnel built for the Wilbur Cross Parkway to pass through West Rock Ridge. The tunnel, completed in 1949, is eligible for listing on the National Register of Historic Places. The SHPO reviewed the project and determined the proposed tower would not have an adverse effect on the tunnel. (Tarpon 1, p. 21, Exhibit K)

102. Tarpon conducted an archeological resource review, including subsurface testing, of the site and submitted the results to SHPO. SHPO indicated no other archeological survey work is necessary. (Tarpon 1, pp. 20-21)

103. Development of the proposed site would require the removal of 38 trees with a diameter of six inches or greater at breast height. (Tarpon 12)

104. Connecticut is within the range of the northern long-eared bat (NLEB), a federally-listed threatened species and state-listed endangered species. There are no known NLEB hibernacula or known maternity roost trees near the project area and thus the proposed facility is not likely to adversely impact the NLEB. The United States Fish and Wildlife Service (USFWS) did not respond to the Cellco NLEB submittal, and in accordance with USFWS rules, the project site is thus deemed in compliance and no further action is necessary. (Tarpon 1, Attachment K)

105. Development of the proposed site would not impact any species listed on DEEP's Natural Diversity Database. (Tarpon 1, Attachment K)

106. The site parcel is located approximately 2.9 miles from the East Rock Important Bird Area (IBA), one of 28 Connecticut Audubon Society designated areas with known bird concentrations. (Council Administrative Notice Item No. 73)

107. The design of the proposed facility would comply with USFWS guidelines for minimizing the potential impact of telecommunications towers to bird species. The guidelines recommend that towers be less than 199 feet tall, avoid the use of aviation tower lighting, and avoid guy-wires as tower supports, among others. (Tarpon 1, Attachment K)

108. The Inland Wetlands and Watercourses Act (IWWA), CGS §22a-36, *et seq.*, contains a specific legislative finding that the inland wetlands and watercourses of the state are an indispensable and irreplaceable but fragile natural resource with which the citizens of the state have been endowed, and the preservation and protection of the wetlands and watercourses from random, unnecessary, undesirable and unregulated uses, disturbance or destruction is in the public interest and is essential to the health, welfare and safety of the citizens of the state. (CGS §22a-36, et seq.)

109. The IWWA grants regulatory agencies with the authority to regulate upland review areas in its discretion if it finds such regulations necessary to protect wetlands or watercourses from activity that will likely affect those areas. (CGS §22a-42a)

110. The IWWA forbids regulatory agencies from issuing a permit for a regulated activity unless it finds on the basis of the record that a feasible and prudent alternative does not exist. (CGS §22a-41)

111. During the proceeding, Tarpon shifted the compound area approximately 22 feet to the northwest from its original location to enlarge the overall buffer to the adjacent wetland area. The proposed tower is in the same location. Tarpon also reduced the size of the compound from 70 feet by 70 feet to 70 feet by 40 feet to reduce disturbance to areas adjacent to wetlands. (Tarpon 1, Attachment E; Tarpon 4, response 26; Tarpon 12; Tr. 1, pp. 14-16, 49)

112. Development of the site would not directly impact any wetlands. The compound site is located between two wetland areas that are part of one large wetland complex (Wetland 1). The compound construction area is approximately 4 feet from the long, narrow wetland seep area at its closest point. (Tarpon 13 - Wetland Evaluation Report)

113. Wetland 1 consists of a large hillside seep forested wetland system with two interior watercourses. It is generally located along the eastern portion of the property but has several small 'finger' seeps that extend towards the center and west side of the property. The northern portion of this wetland system has experienced varying degrees of disturbance associated with clearing, filling, cutting, and manure/vegetation piles associated with the subject property's residential and agricultural activities. (Tarpon 1, Attachment M)

114. No vernal pools were identified on the subject property. (Tarpon 1, Attachment M)

115. Further re-location of the site to the upland area to the northwest is not feasible due to the landowner's intention of developing this area into a pasture and a horse paddock for rescue animals. (Tarpon 4, response 23)

116. Tarpon would implement a Wetland Protection Plan during construction which includes, but is not limited to, contractor awareness training, construction isolation procedures and periodic inspection by an environmental monitor. (Tarpon 13 – Wetland Protection Program)

117. The proposed site is not within a DEEP designated Aquifer Protection area. (Tarpon 4, response 24)

118. Construction of the proposed project would comply with the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control.* (Tarpon 1, p. 29; Tarpon 13 - Wetland Evaluation Report)

119. The site is located in the Federal Emergency Management Agency Zone X, an area outside of the 500-year flood zone. (Tarpon 1, Attachment K)

120. Tarpon does not anticipate the need for blasting at the proposed site. (Tarpon 4, response 17)

121. Operation of the proposed facility would not cause any significant noise, air, or water impacts. (Tarpon 1, p. 22)

122. Construction noise is exempt from the State of Connecticut Noise Control Regulations §22a-69-1.8(g), which includes, but is not limited to, "physical activity at a site necessary or incidental to the erection, placement, demolition, assembling, altering, blasting, cleaning, repairing, installing, or equipping of buildings or other structures, public or private highways, roads, premises, parks, utility lines, or other property." (R.C.S.A. §22a-69-1.8(g))

Visibility

123. The proposed tower would be visible year-round from approximately 21 acres within a two-mile radius of the site (refer to Figure 11). The tower would be seasonally visible (leaf-off) from an additional approximately 47 acres within a two-mile radius of the site (Figures 9 & 10). (Tarpon 1, Exhibit M)

124. Generally, year-round views of portions of the facility would be limited to areas within an approximate 0.5-mile radius of the subject property. Within this area, year-round visibility of the upper portion of the tower would be possible from some residential areas along Wintergreen Avenue and Wilmont Road. (Tarpon 1, Exhibit M)

125. The residential properties immediately east of the proposed site would have seasonal views of portions of the tower. The tree canopy is generally dense to the rear of these properties as well as on the host property, limiting views. It is possible an isolated year-round view of the upper portion of the tower would occur from select areas on these nearby properties. (Tarpon 1, Exhibit M, Tr. 1 pp. 35-36)

126. Seasonal views of the tower would occur from a hiking trail on the abutting West Rock Nature Center property. (Tarpon 1, Exhibit M; Tr. 1, pp. 32-34)

127. West Rock Ridge State Park is located approximately 0.25-mile northwest of the proposed tower at its closet point. The park contains numerous hiking trails and a recreational water body, Lake Wintergreen. Seasonal views of the tower are expected from certain areas of the park, especially to the south of the tower where several hiking trails ascend the ridgeline. (Tarpon 1, Exhibit M)

128. The upper most 10 to 15-foot portion of the tower may be visible from the western section of Lake Wintergreen, approximately 0.4 miles to the northwest. No visibility is expected from the western shoreline of the lake. The existing towers on West Rock Ridge are visible from the waters of Lake Wintergreen. (Tr. 1, pp. 39-40)

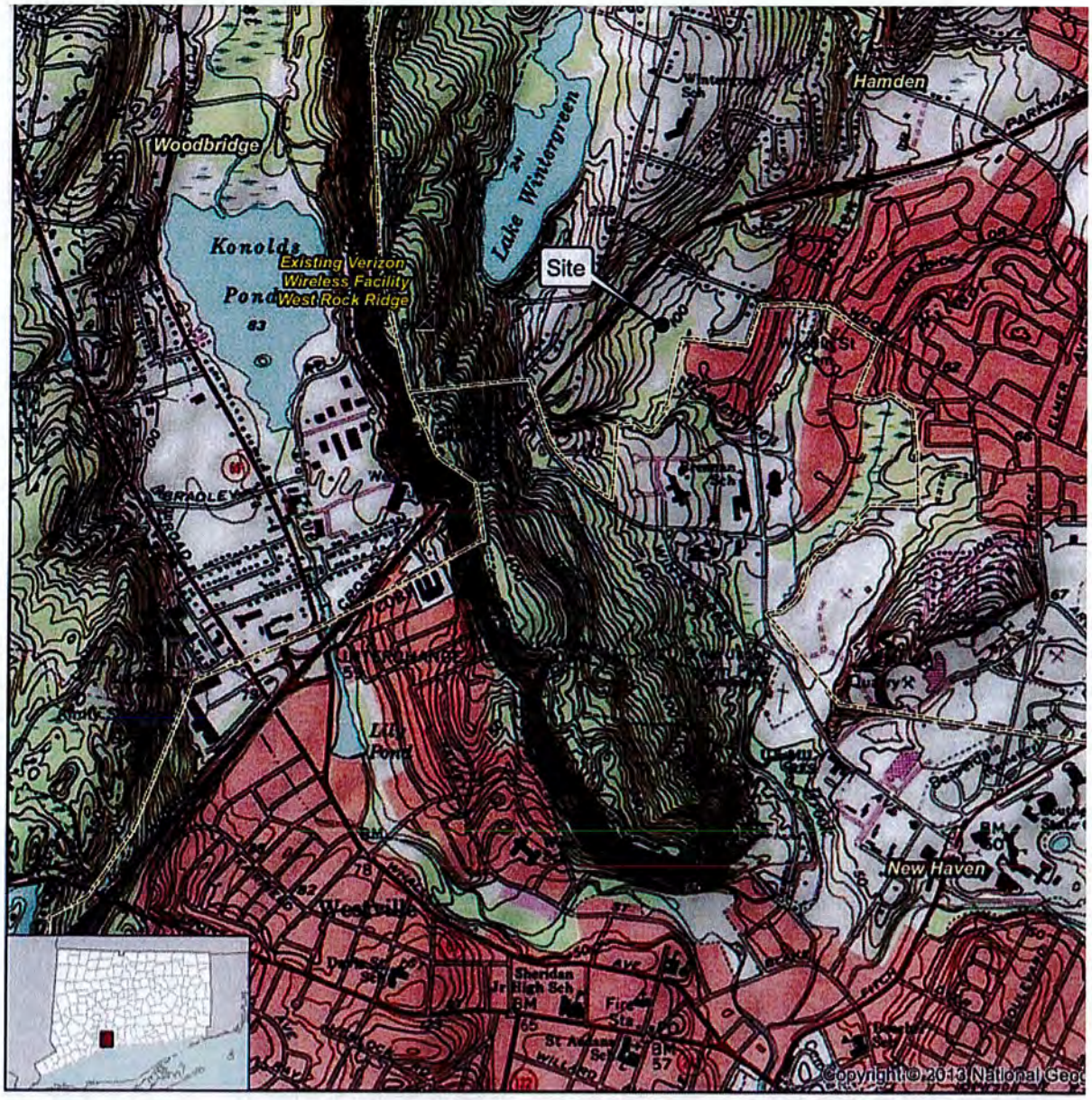
129. The tower would have a galvanized finish. A camouflage paint scheme is not proposed. (Tr. 1, pp. 60-61)

130. Pursuant to CGS § 16-50p(a)(3)(F), no public schools or commercial child day care facilities are located within 250 feet of the site. The nearest two schools, both 0.43 miles from the site in Hamden, are the Clarence Rogers School to the south and the Wintergreen Interdistrict Magnet School to the north. The nearest commercial child day care facility is 0.81 miles to the northeast at 195 Wilmont Road in New Haven. (Tarpon 1, Exhibit M)

131. There are no local or state-designated scenic roads located within the two-miles of the site. (Tarpon 1, Exhibit M; Tarpon 1b, Hamden Plan of Conservation and Development, p. 56)

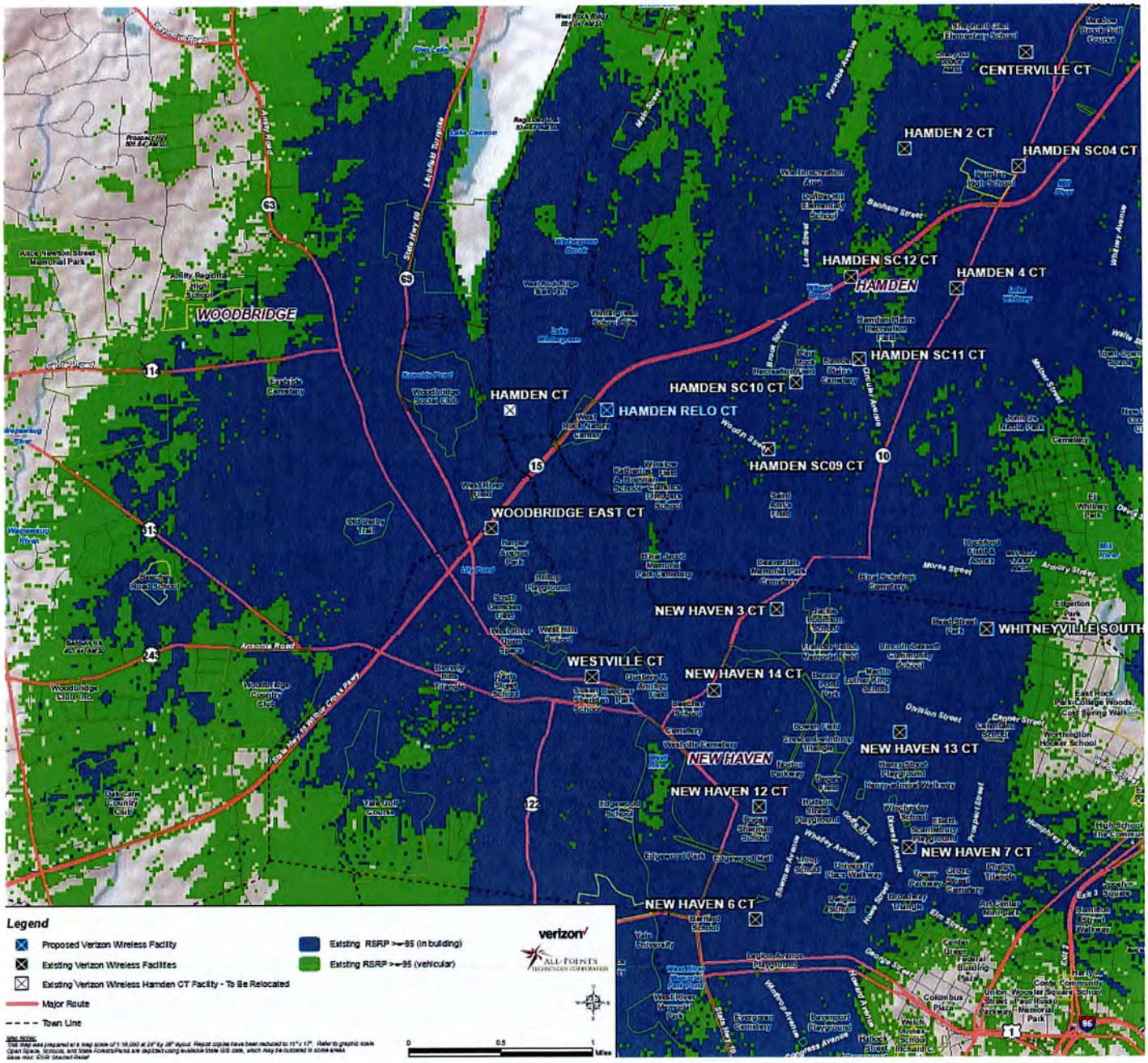
132. The Town of Hamden has designated scenic viewpoints at the intersection of Main Street and Wintergreen Avenue, approximately 0.6 mile north of the site. The scenic views are oriented towards West Rock Ridge to the north and northwest, away from the tower. (Tarpon 1b, Hamden Plan of Conservation and Development, p. 53)

Figure 1 – Proposed Site Location and existing Cellco *Hamden* facility



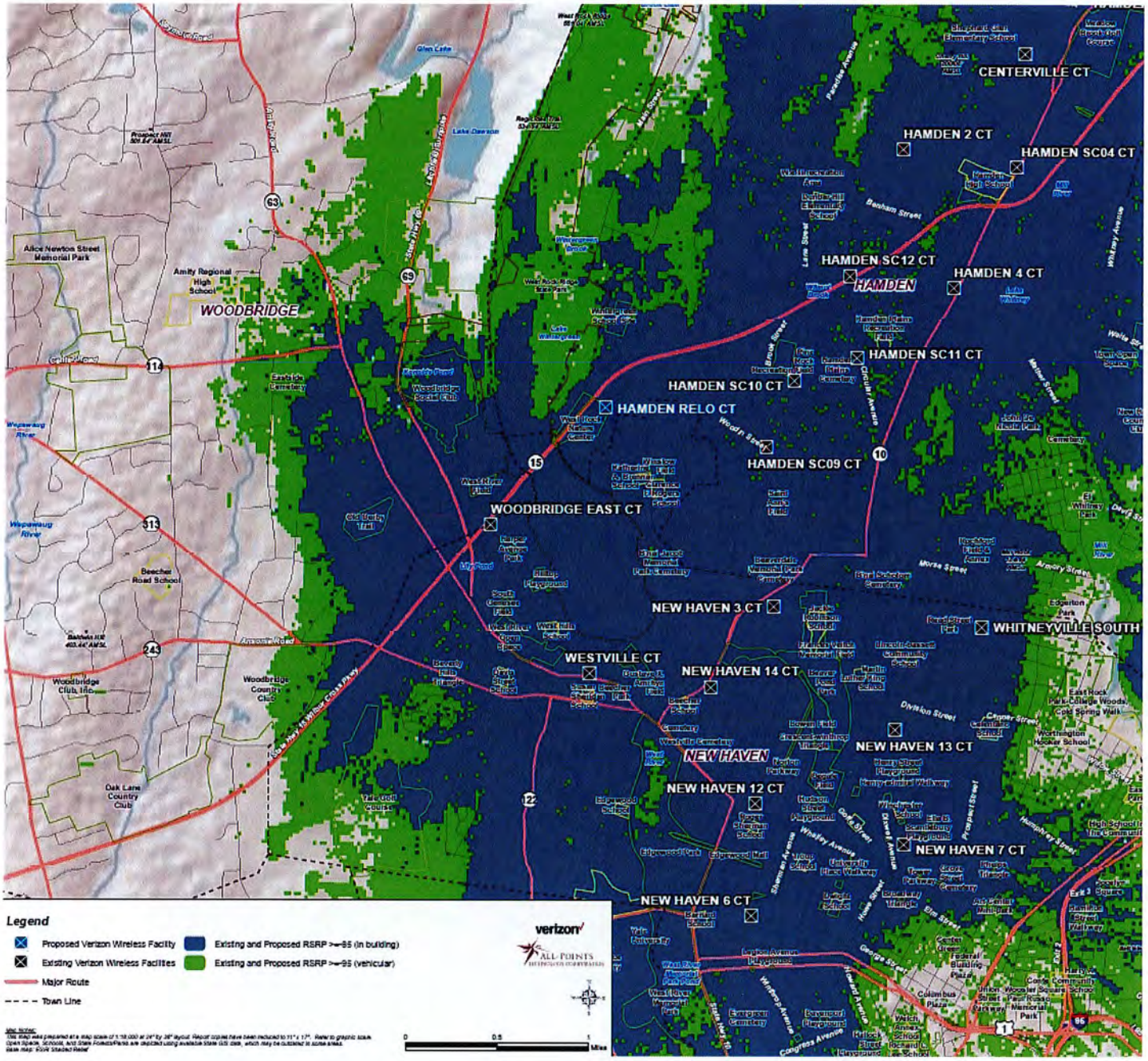
(Tarpon 4, Attachment 1)

Figure 2 – Existing 700 MHz Coverage



Existing Cellco facilities that are experiencing interference include *Hamden 4* at 1732 Dixwell Avenue, *Hamden 2 CT* at 265 Benham Street (both shown above), and *New Haven North 2 CT* at 1204 Whitney Avenue (not shown). The interference occurs at the 700 MHz, 850 MHz and 2100 MHz frequencies. (Tarpon 1, Attachment F; Cellco 2, response 1; Tr. 3. pp. 18-19)

Figure 3 – Existing 700 MHz service with Proposed Site



Note degradation of reliable service in the Woodbridge area, west of the proposed site and West Rock Ridge. A new Cellco facility would be eventually be developed to service the Woodbridge area. (Tarpon 1, Exhibit F, Tr. 3, pp. 23-24, 38-39)

Figure 4 – Existing 1900 MHz service

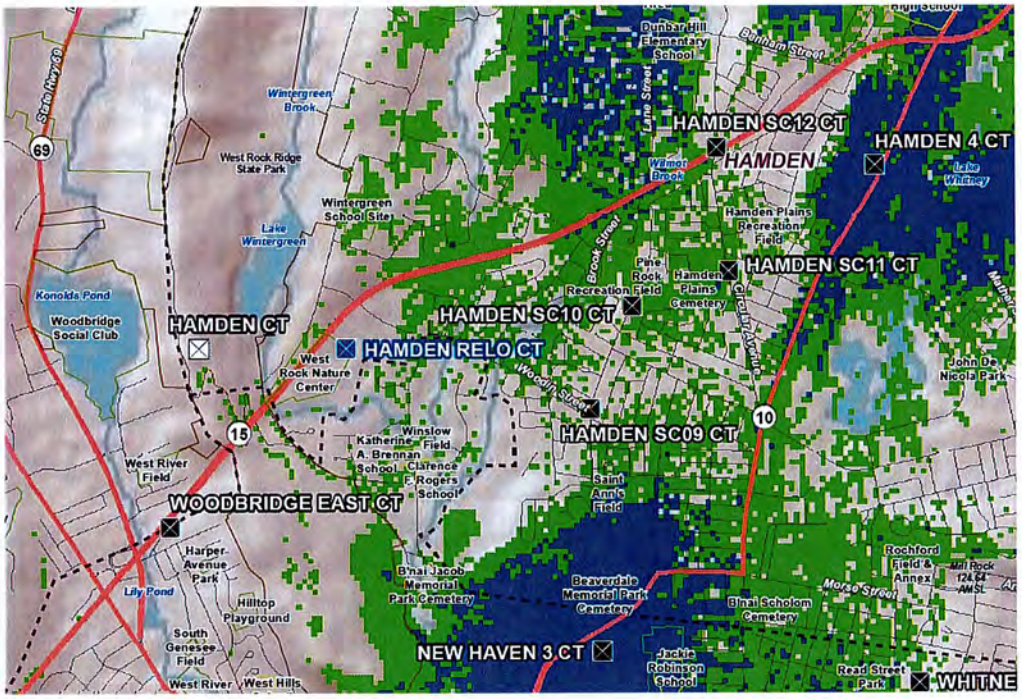


Figure 5 – Existing and Proposed 1900 MHz service

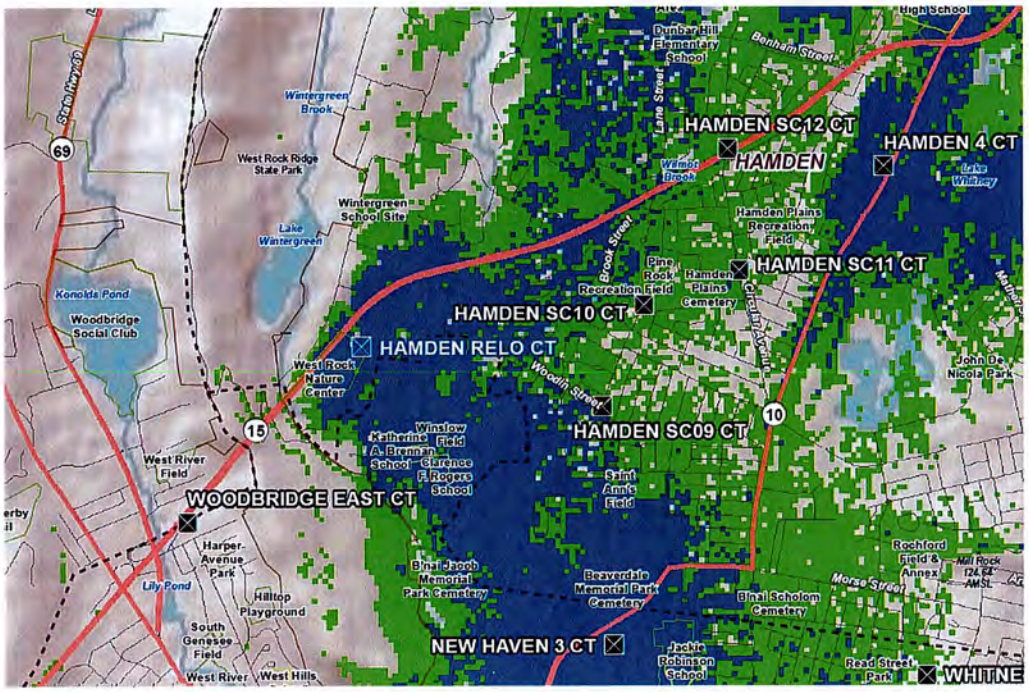
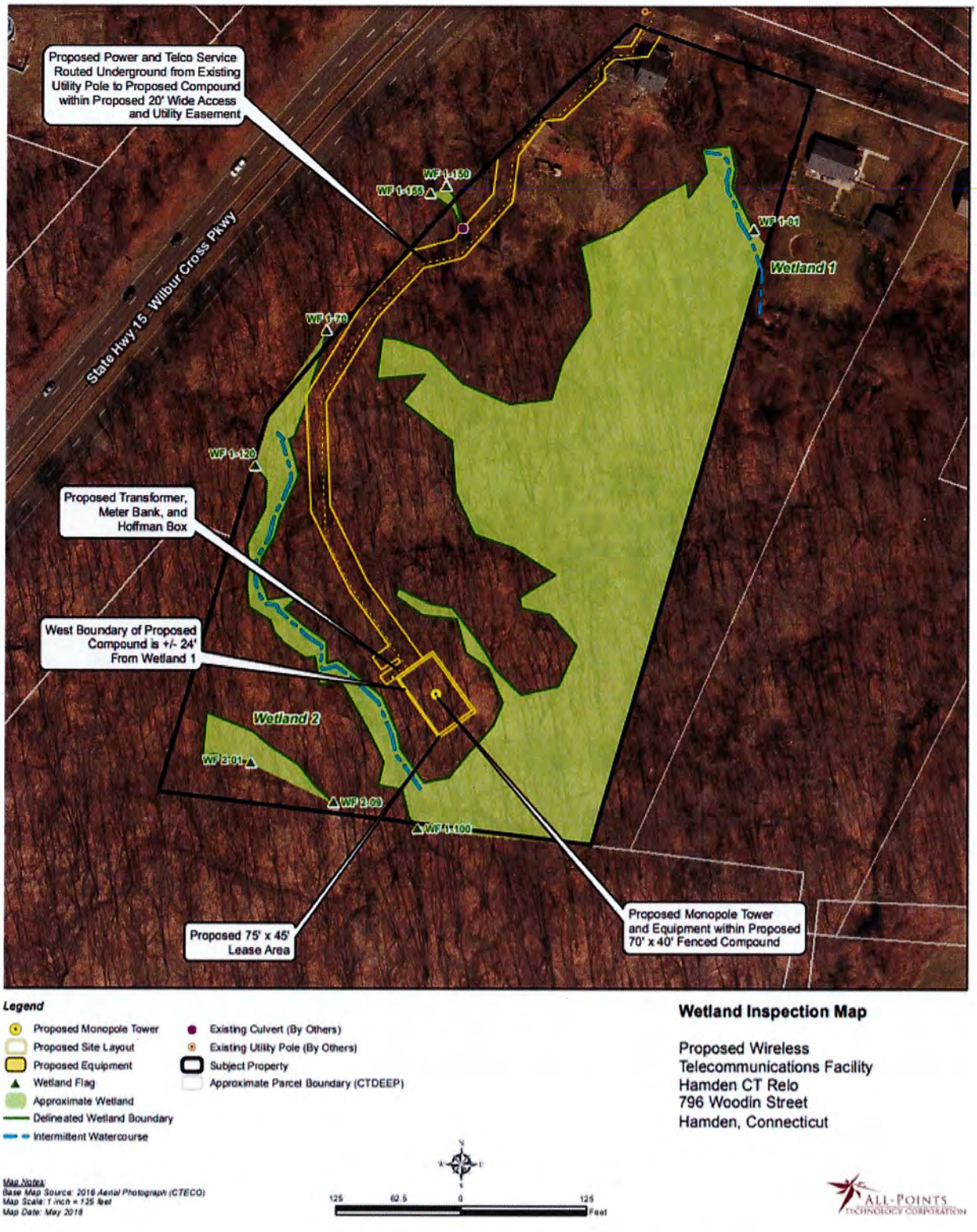
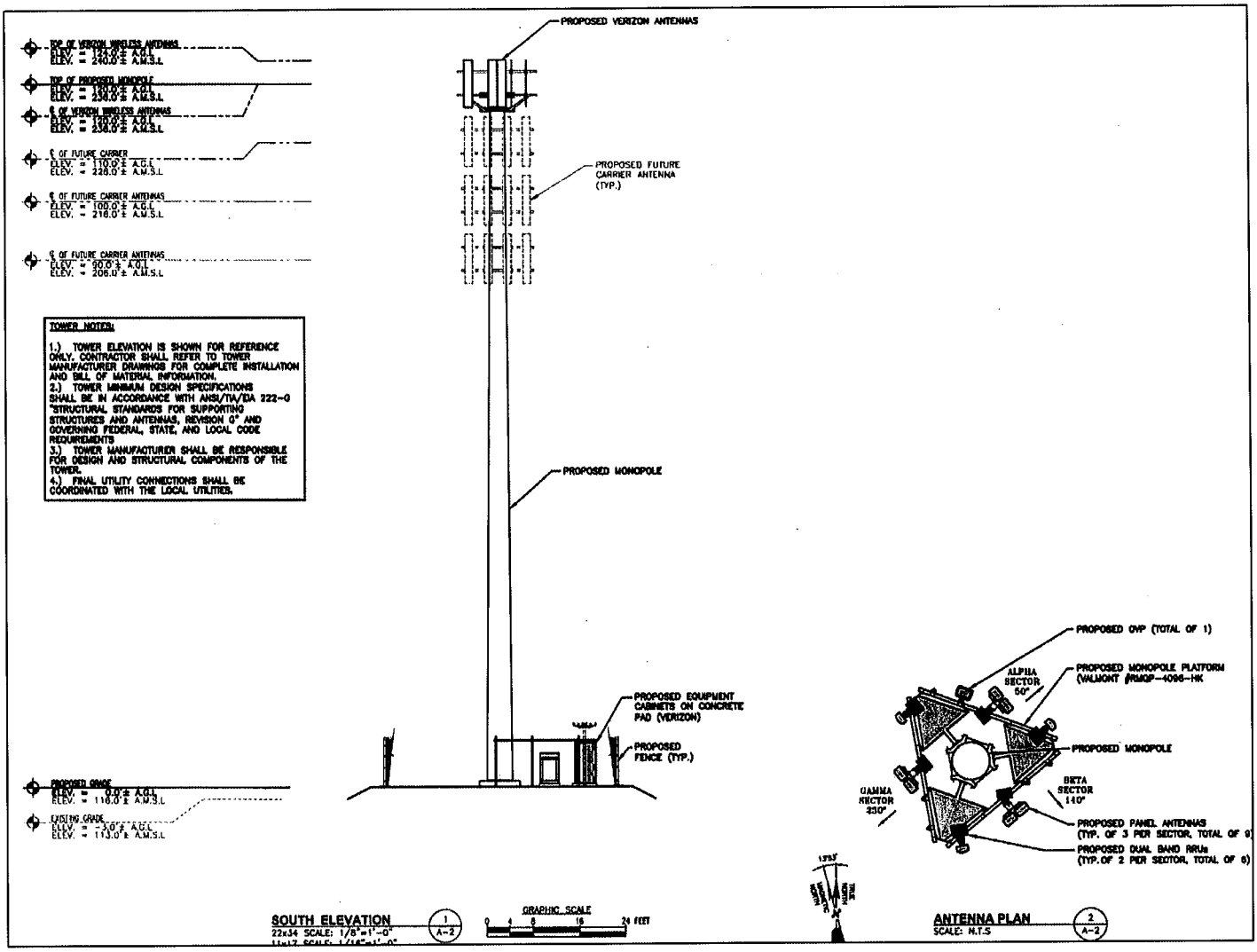


Figure 6 – Site Location*



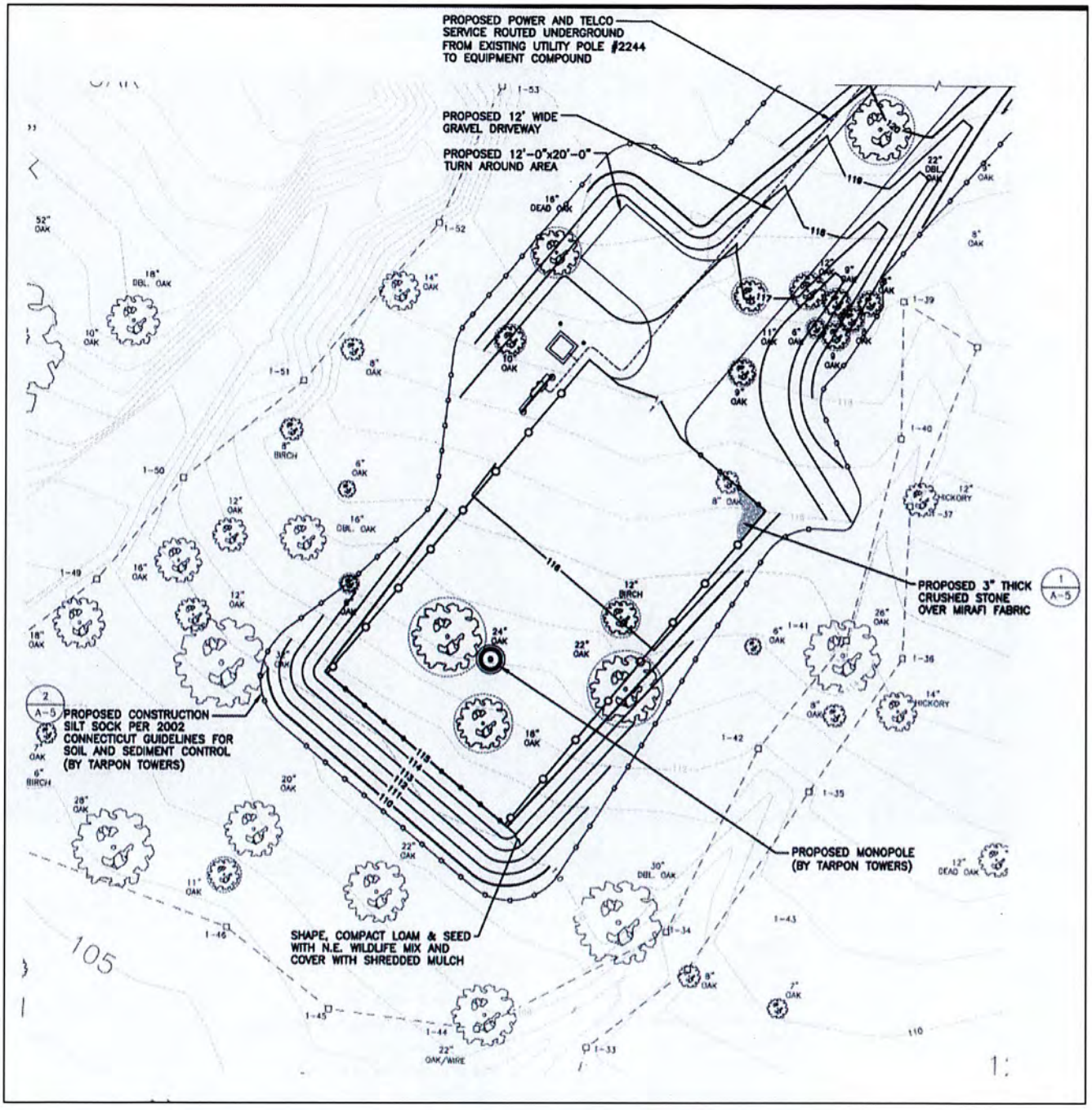
* Compound location shown has been subsequently modified, shifted to the northwest by 22 feet. Tower location has not changed. (Tarpon 1, p. 4; Tarpon 12)

Figure 7 - Tower Profile



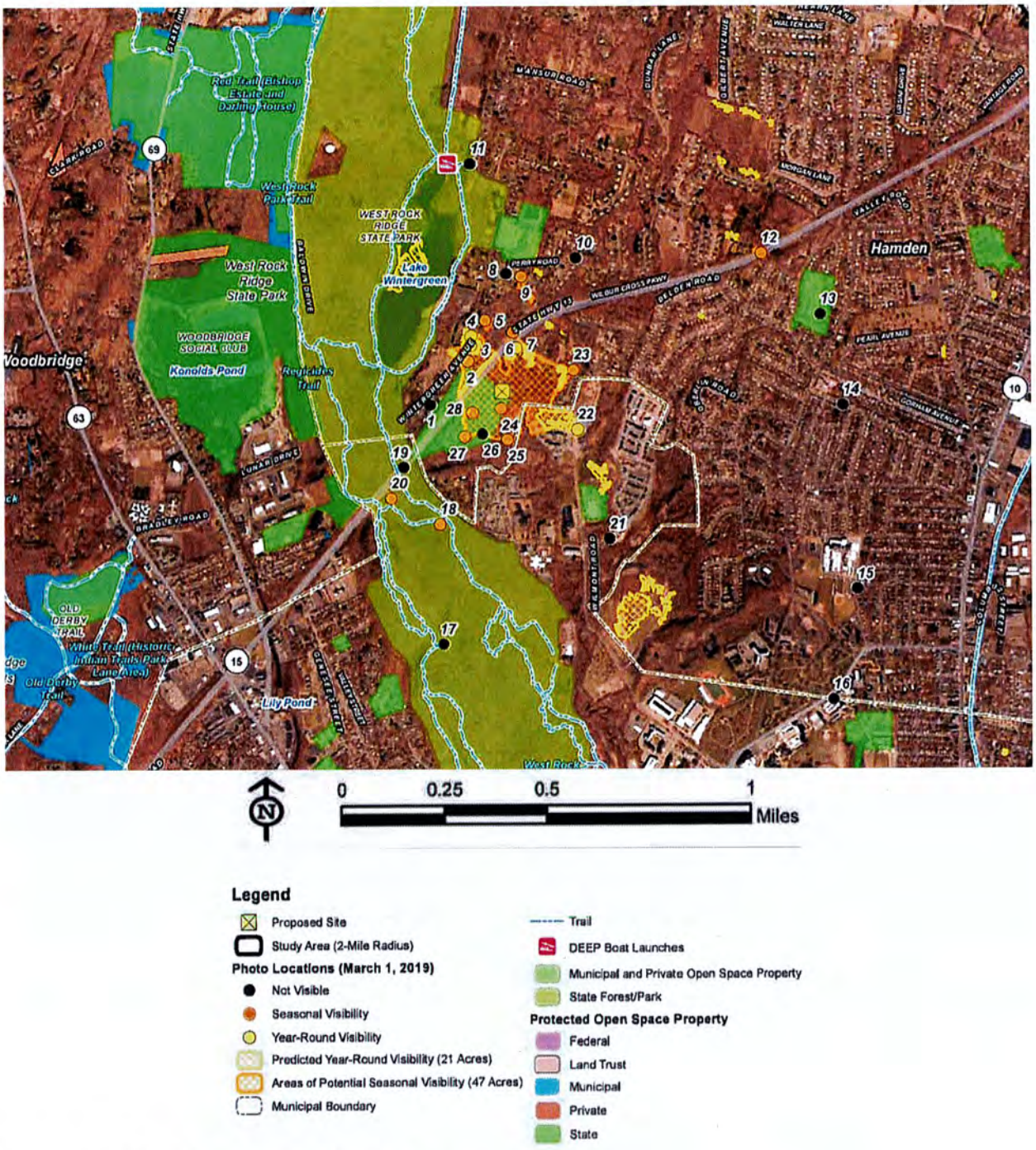
(Tarpon 12)

Figure 8 – Compound Site Plan



(Tarpon 12)

Figure 9 – Visibility Analysis



See next page for photo location description.
(Tarpon 12)

Figure 10 – Photo-locations on Visibility Analysis map

Photograph Locations

View	Location	Orientation	Distance to Site	Visibility
1	Carbonella Drive	Northeast	±0.23 Mile	Not Visible
2	Wintergreen Avenue	Southeast	±0.16 Mile	Seasonal
3	Wintergreen Avenue	Southeast	±0.18 Mile	Year-Round
4	Wintergreen Avenue	Southeast	±0.20 Mile	Seasonal
5	Woodin Street	Southeast	±0.23 Mile	Seasonal
6	Woodin Street	South	±0.19 Mile	Seasonal
7	Woodin Street (At Host Property)	South	±0.14 Mile	Year-Round
8	Perry Road	South	±0.37 Mile	Not Visible
9	Perry Road*	South	±0.36 Mile	Balloon visible through trees
10	Perry Road	Southwest	±0.47 Mile	Not Visible
11	Main Street (At Entrance to West Rock Ridge)	Southeast	±0.71 Mile	Not Visible
12	Wintergreen Avenue (Overlooking Wilbur Cross Parkway)*	Southwest	±0.90 Mile	Balloon visible through trees
13	Pine Rock Recreation Field	Southwest	±1.02 Miles	Not Visible
14	Helen Street	West	±1.06 Miles	Not Visible
15	Fairview Avenue	Northwest	±1.25 Miles	Not Visible
16	Fitch Street (SCSU Parking Garage Rooftop)	Northwest	± 1.38 Miles	Not Visible
17	West Rock – Judge's Cave	Northeast	±0.80 Mile	Not Visible
18	West Rock*	Northeast	± 0.44 Mile	Balloon visible through trees
19	West Rock – Overlooking Wilbur Cross Parkway	Northeast	± 0.38 Mile	Not Visible
20	West Rock*	Northeast	± 0.48 Mile	Balloon visible through trees
21	Brookside Avenue	Northwest	±0.55 Mile	Not Visible
22	Wilmot Road	Northwest	±0.26 Mile	Year-Round
23	Woodin Street at Fawn Ridge Road*	Southwest	±0.23 Mile	Balloon visible through trees
24	West Rock Nature Center	North	± 256 Feet	Seasonal
25	West Rock Nature Center	North	±0.14 Mile	Seasonal
26	West Rock Nature Center	North	± 0.14 Mile	Not Visible
27	West Rock Nature Center*	Northeast	± 0.18 Mile	Balloon visible through trees
28	West Rock Nature Center*	Northeast	± 0.11 Mile	Balloon visible through trees

ATTACHMENT A

CEQ Comments to Council, dated August 29, 2019

STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

August 29, 2019

Melanie Bachman, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: DOCKET NO. 486 - Tarpon Towers II, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden.

Dear Ms. Bachman:

The Council on Environmental Quality ("the Council") has reviewed the application submitted in Docket 486 for a Certificate of Environmental Compatibility and Public Need. The Council offers the following recommendations for consideration by the Connecticut Siting Council.

1. Visual Impact

The Council has observed a deficiency in the application for Docket 486. Though the Viewshed Analysis Map (Appendix H) identifies the northwest shore of Lake Wintergreen as having "Predicted Year-Round Visibility", the application does not provide photo simulations from that area as required in the Siting Council's Application Guide (2012), V.G.1. *"Visibility Analyses of the proposed site area and any alternative site areas including, but not limited to:...5. If proposed in close proximity to a shoreline, including lakes and rivers, photographic documentation from open waters, where possible."*

Additionally, the Viewshed Analysis Map shows the area of "Predicted Year-Round Visibility" as abutting, though not overlapping, the recreational trail in West Rock Ridge State Park which is immediately west of Lake Wintergreen. Because Section 16-50p(a)(3)(B) of the Public Utility Environmental Standards Act requires the Siting Council to consider "the nature of the probable environmental impact of the facility ..., including a specification of every significant adverse effect, including, but not limited to, ... (iv) scenic, historic and recreational values", a photo simulation during leaf-off conditions is appropriate, considering the recreational significance of West Rock Ridge State Park. This addition to the application would also satisfy the requirement in section of V.G.1 in the Siting Council's Application Guide, described above.

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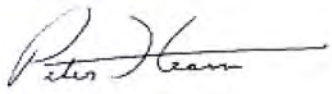
2. Inland Wetlands

The Council notes that the proposed site contains a significant area of inland wetlands. The proposed fill for the pad for the proposed tower will be as close as 5-10 feet from these wetlands (flags 1-44 and 1-45). Construction will require clearing of the trees and stumps and the addition of up to six feet of fill at the southern-most edge of the tower pad. Though not controlling in this instance, the Town of Hamden's Inland Wetlands and Watercourses Regulations (Regulations) call for a "Disturbance Buffer Zone" to separate construction, development or other regulated activities from harming a regulated area (wetland). The Town's Regulations require "at a minimum, a Non-Disturbance Buffer Zone encompassing the land area one hundred (100) feet from any wetland or watercourse as a condition of granting wetlands permits unless the applicant demonstrates through substantial evidence in the record that such activity within the 100-foot non-disturbance area does not pose an impact to the regulated area." The Council recommends that the Town's appropriate precautions for construction in wetlands be required conditions for the construction of this tower.

Thank you for your consideration of these comments. Please do not hesitate to contact the Council if you have any questions.

Sincerely,



Peter Hearn

Executive Director

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DOCKET NO. 486 - Tarpon Towers II, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		December 5, 2019

Opinion

On July 15, 2019, Tarpon Towers II, LLC (Tarpon) applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of a 120-foot wireless telecommunications facility located at the 796 Woodin Street in Hamden, Connecticut. Cellco Partnership d/b/a Verizon Wireless (Cellco) was an intervenor to the proceeding. The purpose of the proposed facility is to resolve Cellco's existing wireless network interference issues and to enhance Cellco's coverage in the Hamden – New Haven area.

The United States Congress recognized a nationwide need for high quality wireless services through the adoption of the Federal Telecommunications Act of 1996 and directed the Federal Communications Commission (FCC) to establish a market structure for system development and develop technical standards for network operations. The FCC preempts state or local regulation on matters that are exclusively within the jurisdiction and authority of the FCC, including, but not limited to, network operations and radio frequency emissions. Preservation of state or local authority extends only to placement, construction and modifications of telecommunications facilities based on matters not directly regulated by the FCC, such as environmental impacts. The Council's statutory charge is to balance the need for development of proposed wireless telecommunications facilities with the need to protect the environment.

Cellco is currently located at the 170-foot level of an existing 250-foot lattice tower on West Rock Ridge with an address of 1055 Wintergreen Lane in Hamden, and refers to this site as their *Hamden* facility. This existing tower, owned by SBA Communications Corporation, is located at a ground elevation of 445 feet above mean sea level (amsl), much higher than surrounding terrain to the east and northeast that has a ground elevation of 50-70 feet amsl.

Due to the high overall ground elevation of Cellco's existing *Hamden* facility antennas, wireless coverage from the *Hamden* facility has an unimpeded line of sight across the low-lying terrain to the east and northeast. Due to the lack of attenuation, the coverage serving this geographic area is dominant and carries more wireless traffic than desired, causing the *Hamden* facility to operate beyond its designed capacity. To resolve the interference issue, Cellco would locate at a lower elevation at the proposed site (113 feet amsl) and decommission the *Hamden* facility.

Cellco has already made adjustments at the *Hamden* facility to reduce network interference, such as modifying antenna tilt, and using different antennas, but these adjustments have not resolved the issue and there are no other feasible alternatives to improve network performance. Simply decommissioning its existing *Hamden* facility without a replacement facility would create large coverage gaps to the surrounding area.

Cellco would deploy 700 MHz, 850 MHz, 1900 MHz and 2100 MHz licensed frequencies at the proposed site. All of the frequencies are Long Term Evolution (LTE) voice and data service compatible. Once the proposed site is operational, Cellco would decommission its existing *Hamden* facility, most likely in

phases so as to ensure there is adequate service to portions of Woodbridge, as service from the proposed site would be effectively blocked by West Rock Ridge and would not reach areas of Woodbridge that are currently served by the *Hamden* facility.

Coverage enhancements as a result of the relocation of its *Hamden* facility to the proposed site include reliable coverage within the Route 15 tunnel through West Rock Ridge and coverage improvements to several small areas of Route 15 and to local roads near the proposed site.

The proposed site is located in the southern portion of an approximate 6.7-acre parcel, zoned residential. Land use immediately surrounding the subject parcel is residential to the east and north, the Wilbur Cross Parkway (Route 15) to the west and the West Rock Nature Center site to the south. The nearest property boundary is approximately 124 feet to the southwest.

The proposed facility would consist of a 120-foot monopole, designed to support four levels of platform-mounted antennas. A 70-foot by 40-foot fenced equipment compound within a 75-foot by 75-foot lease area would be established at the base of the tower, enclosed by an eight-foot tall chain link fence.

Cellco would install 9 panel antennas and 6 remote radio units on an antenna platform at a centerline height of 120 feet agl. Although T-Mobile did not intervene in the proceeding, Tarpon indicated T-Mobile has an executed lease to locate at the 100-foot level of the proposed tower. T-Mobile would file a tower share request after a Development and Management Plan is approved by the Council.

Cellco would install radio equipment, an emergency generator and a 500 gallon propane fuel tank within the compound. Access to the proposed site would be from a new 700-foot long, 12-foot wide gravel access drive extending south from Woodin Street, generally. Utilities would be installed underground along the access drive to the compound from a utility pole on Woodin Street along the north property boundary.

Cellco's emergency power system consists of a battery cabinet and a 30-kW propane fueled generator. The emergency power system can run for approximately 4.75 days under normal cell tower loading conditions before refueling of the associated tank is necessary.

Development of the site would not directly impact any wetlands. The compound site is located between two wetland areas that are part of one large wetland complex. The compound construction area is approximately four feet from a narrow wetland seep area at its closest point. In order to enlarge the overall buffer to adjacent wetlands, Tarpon shifted the compound footprint 22 feet to the northwest and reduced the size of the compound from 70 feet by 70 feet to 70 feet by 40 feet. Relocation of the compound site further north towards an existing pasture and away from wetlands would impede potential future use of that area of the property by the landowner. The proposed project would be constructed in compliance with the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control.*

Approximately 38 trees with a diameter of six inches or greater at breast height would be removed to construct the site. Development of the proposed site would not impact any species listed on the Department of Energy and Environmental Protection's Natural Diversity Database. No prime agricultural soils would be disturbed by the project.

The Wilbur Cross Parkway Heroes Tunnel, built in 1949 through West Rock Ridge and eligible for listing on the National Register of Historic Places, is approximately 0.4 mile southwest of the proposed site. The State Historic Preservation Office reviewed the project and determined the proposed tower would have no adverse effect on the tunnel.

Generally, year-round views of portions of the tower would be limited to areas within an approximate 0.5-mile radius of the subject property. Within this area, year-round visibility of the upper portion of the tower would be possible from some residential areas along Wintergreen Avenue and Wilmont Road. A wooded buffer would limit views of the proposed tower from the residential properties immediately northeast of the proposed site along Woodin Street. Leaf-off views are expected from these properties although it is possible an isolated year-round view of the upper portion of the tower may occur from a few areas. There would be no adverse visual impact to West Rock Ridge State Park, located 0.25 miles northwest of the site, or from the abutting West Rock Nature Center property to the south where some seasonal views of the tower are possible.

According to a methodology prescribed by the FCC Office of Engineering and Technology Bulletin No. 65E, Edition 97-01 (August 1997), the radio frequency power density levels of Cellco's antennas would be 24.7 percent of the FCC's General Public/Uncontrolled Maximum Permissible Exposure, as measured at the base of the tower. This is conservatively based on all antennas of a given sector pointing down to the ground and emitting maximum power. This percentage is well below federal standards established for the frequencies used by wireless companies. If federal standards change, the Council will require that the tower be brought into compliance with such standards. The Council will require that the power densities be recalculated in the event other carriers add antennas to the tower. The Telecommunications Act of 1996 prohibits any state or local agency from regulating telecommunications towers on the basis of the environmental effects of radio frequency emissions to the extent that such towers and equipment comply with FCC's regulations concerning such emissions. Regarding potential harm to wildlife from radio emission; this, like the matter of potential hazard to human health, is a matter of federal jurisdiction. The Council's role is to ensure that the tower meets federal permissible exposure limits.

Based on the record in this proceeding, the Council finds that the effects associated with the construction, operation, and maintenance of the telecommunications facility at the proposed site, including effects on the natural environment, ecological balance, public health and safety, scenic, historic, and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with policies of the State concerning such effects, and are not sufficient reason to deny this application. Therefore, the Council will issue a Certificate to Tarpon Towers II, LLC for the construction, maintenance, and operation of a 120-foot monopole telecommunications facility at 796 Woodin Street, Hamden, Connecticut.

DOCKET NO. 486 - Tarpon Towers II, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut.	}	Connecticut
	}	Siting
	}	Council

December 5, 2019

Decision and Order

Pursuant to Connecticut General Statutes §16-50p, and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment, ecological balance, public health and safety, scenic, historic, and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Tarpon Towers II, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 796 Woodin Street, Hamden, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole at a height of 120 feet above ground level to provide the proposed wireless services, sufficient to accommodate the antennas of Cellco Partnership d/b/a Verizon Wireless and other entities, both public and private. The height of the tower may be extended after the date of this Decision and Order pursuant to regulations of the Federal Communications Commission.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) final site plan(s) for development of the facility that employ the governing standard in the State of Connecticut for tower design in accordance with the currently adopted International Building Code and include specifications for the tower, tower foundation, antennas and equipment compound including, but not limited to, fencing, radio equipment, access road, utility installation and emergency backup generator;
    b) construction plans for site clearing, grading, landscaping, water drainage and stormwater control, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; and
    c) proposed hours and days of the week for construction activities.

3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be

submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall provide the Council with a copy of necessary permits from any other state or federal agency with concurrent jurisdiction prior to the commencement of construction.

6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Hamden.

9. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council within 90 days from the one year period of cessation of service. The Certificate Holder may submit a written request to the Council for an extension of the 90 day period not later than 60 days prior to the expiration of the 90 day period.

10. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

12. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

13. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the

entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

14. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

15. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

16. This Certificate may be surrendered by the Certificate Holder upon written notification and acknowledgment by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated October 17, 2019, and notice of issuance published in the New Haven Register.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

VIA ELECTRONIC MAIL

December 6, 2019

TO: Classified/Legal Supervisor
486191206
The New Haven Register
100 Gando Drive
New Haven, CT 06513
nhlegals@hearstmediact.com

FROM: Lisa A. Mathews, Office Assistant LAM

RE: **DOCKET NO. 486** - Tarpon Towers II, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut.

Please publish the attached legal notice for one day on the first day possible from receipt of this notice.

Please send an affidavit of publication and invoice to my attention.

Thank you.

LM

NOTICE

Pursuant to General Statutes § 16-50p (a), the Connecticut Siting Council (Council) announces that, on December 5, 2019, the Council issued Findings of Fact, an Opinion, and a Decision and Order approving an application from Tarpon Towers II, LLC for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut. This application record is available for public inspection in the Council's office, Ten Franklin Square, New Britain, Connecticut.

CERTIFICATION

The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in **DOCKET NO. 486** - Tarpon Towers II, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 796 Woodin Street, Hamden, Connecticut, and voted as follows to approve the proposed site:

Council Members	Vote Cast
Robert Silvestri, Presiding Officer	Abstain
Chairman Marissa Paslick Gillett Designee: Zachary Alexander	Yes
Commissioner Katie Dykes Designee: Robert Hannon	Yes
Edward Edelson	Yes
Michael Harder	Yes
Daniel P. Lynch, Jr.	Yes
John Morissette	Abstain

Dated at New Britain, Connecticut, December 5, 2019.

Exhibit B

796 WOODIN ST

Location	796 WOODIN ST	**Mblu**	2322/ 110/ / /
Acct#		**Owner**	SCIROCCO GABRIELLE
Assessment	$152,390	**Appraisal**	$217,700
PID	5042	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$103,100	$114,600	$217,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$72,170	$80,220	$152,390

Owner of Record

Owner	SCIROCCO GABRIELLE	**Sale Price**	$135,000
Co-Owner		**Certificate**	
Address	796 WOODIN ST HAMDEN, CT 06514	**Book & Page**	4185/ 80
		Sale Date	11/24/2014
		Instrument	14

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
SCIROCCO GABRIELLE	$135,000		4185/ 80	14	11/24/2014
FEDERAL NATIONAL MORTGAGE ASSOCIATION	$1		4113/ 129		01/07/2014
DAVIS JUSTIN L JR & STEPHANIE KETTER&SV	$0		2674/ 155		02/26/2004
DAVIS STEPHANIE KETTER	$0		2668/ 195		02/17/2004
DAVIS JUSTIN L JR & STEPHANIE KETTER &	$0		2213/ 282		03/27/2002

Building Information

Building 1 : Section 1

Year Built:	1940
Living Area:	2,172

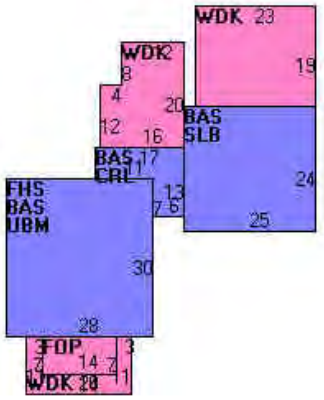
Building Percent Good: 67

Building Attributes	
Field	**Description**
Style	Cape Cod
Model	Residential
Grade:	C
Stories:	1 1/2 Stories
Occupancy	1
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	
Roof Structure:	Gable
Roof Cover	Asphalt
Interior Wall 1	Plastered
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Gas
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	3
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	7
Bath Style:	Average
Kitchen Style:	Average
Whirlpool	

Building Photo

(http://images.vgsi.com/photos/HamdenCTPhotos//\00\03\31/55.JPG)

Building Layout



(http://images.vgsi.com/photos/HamdenCTPhotos//Sketches/5042_5042.jp

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,584	1,584
FHS	Half Story, Finished	840	588
CRL	Crawl Space	0	0
FOP	Porch, Open	98	0
SLB	Slab	0	0
UBM	Basement, Unfinished	840	0
WDK	Deck, Wood	847	0
		4,209	2,172

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	1010
Description	Single Fam M01
Zone	R2
Neighborhood	70
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	6.81
Frontage	0
Depth	0
Assessed Value	$80,220
Appraised Value	$114,600

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD1	SHED FRAME			364 S.F.	$2,200	1

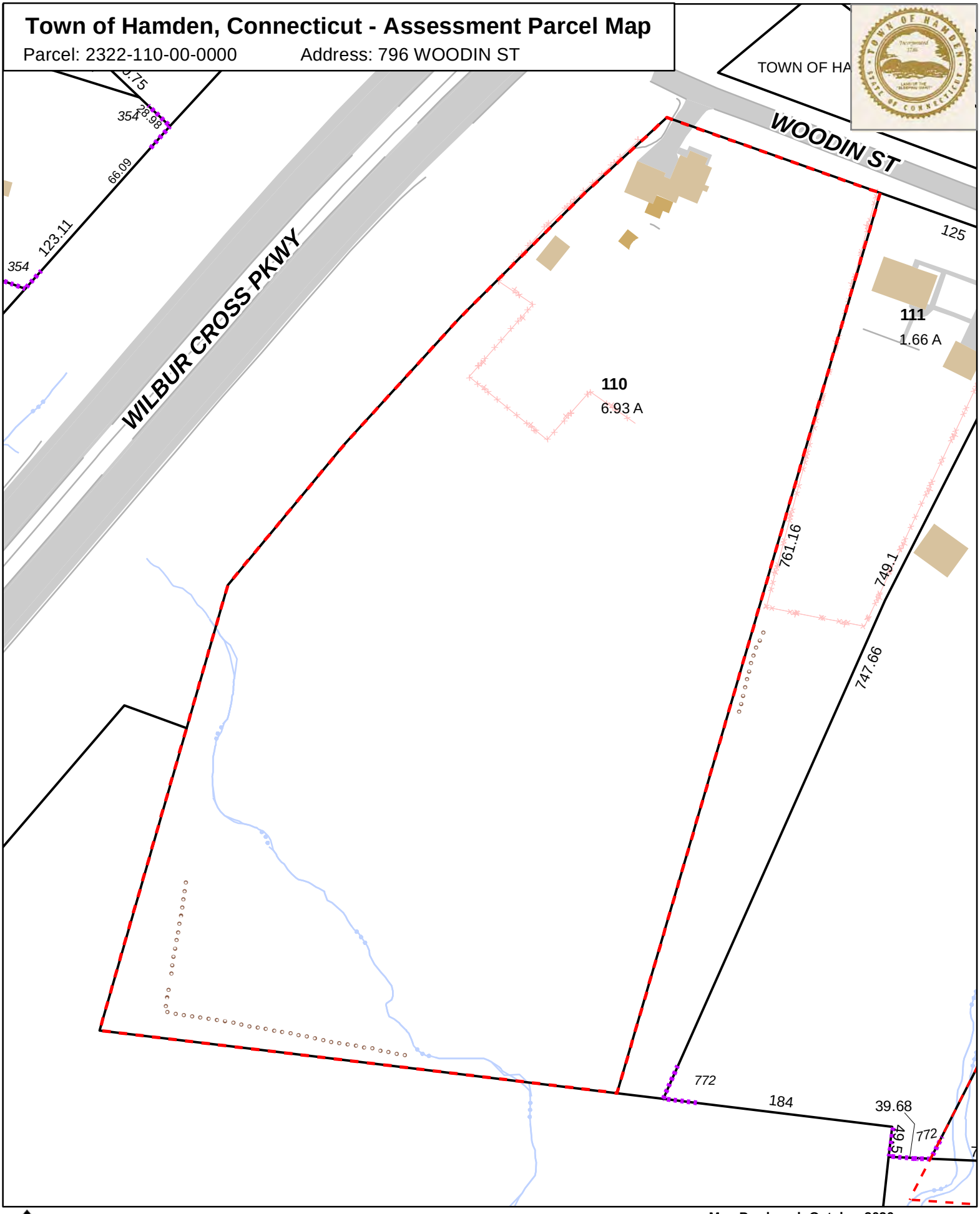
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$103,100	$114,600	$217,700
2018	$103,100	$114,600	$217,700
2017	$103,100	$114,600	$217,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$72,170	$80,220	$152,390
2018	$72,170	$80,220	$152,390
2017	$72,170	$80,220	$152,390

Town of Hamden, Connecticut - Assessment Parcel Map

Parcel: 2322-110-00-0000 Address: 796 WOODIN ST



N

Approximate Scale: **1 inch = 100 feet**

0 50 100 150 200 Feet

Map Produced: October 2020

Exhibit C

SITE NAME: CTNH400A

796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SITE NUMBER: CTNH400A

RF DESIGN GUIDELINE: 67D5A998C 6160 (GSM ONLY)

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A: ANTENNA//RADIO	ACCESS NOT PERMITTED
SECTOR B: ANTENNA/RADIO	ACCESS NOT PERMITTED
SECTOR C: ANTENNA/RADIO	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

GENERAL NOTES

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T–MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T–MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT SUMMARY

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY T–MOBILE EQUIPMENT MODERNIZATION
ZONING JURISDICTION:	BASED ON INFORMATION PROVIDED BY T–MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE–EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).
SITE ADDRESS:	796 WOODIN STREET HAMDEN, CT 06514
LATITUDE:	41° 21' 4.37" N
LONGITUDE:	72° 57' 45.27" W
JURISDICTION:	TOWN OF HAMDEN, CT
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1–800–922–4455
OR CALL 811

UNDERGROUND SERVICE ALERT

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	1
GN–1	GENERAL NOTES	1
C–1	SITE PLAN	1
A–1	COMPOUND & EQUIPMENT PLAN	1
A–2	ANTENNA PLAN & ELEVATION	1
A–3	TOWER EQUIPMENT DETAILS	1
A–4	GROUND EQUIPMENT DETAILS	1
A–5	MOUNTING DETAILS	1
SN–1	SPECIAL INSPECTIONS NOTES	1
E–1	ONE–LINE DIAGRAM & GROUNDING DETAILS	1
G–1	GROUNDING SCHEMATIC & RISER DIAGRAM	1
G–2	GROUNDING DETAILS & NOTES	1

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET BUILDING 4
STURBRIDGE, CT 01566
PHONE: 203-275-6669

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

CONSTRUCTION DRAWINGS ARE VALID FOR ONE YEAR AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: RP

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	10/27/20	ISSUED FOR CONSTRUCTION	VP
0	09/25/20	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH400A

SITE NAME:
CTNH400A

SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SHEET TITLE
TITLE SHEET
(NSD & ANCHOR 2020)

SHEET NUMBER
T-1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. 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.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. 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.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – NORTHEAST SITE SOLUTIONS
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T-MOBILE

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
    BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)
    LIGHTNING CODE: REFER TO ELECTRICAL DRAWINGS

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

    MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

    EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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STATE OF CONNECTICUT
DANIEL P. HAMM
No.24178
LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

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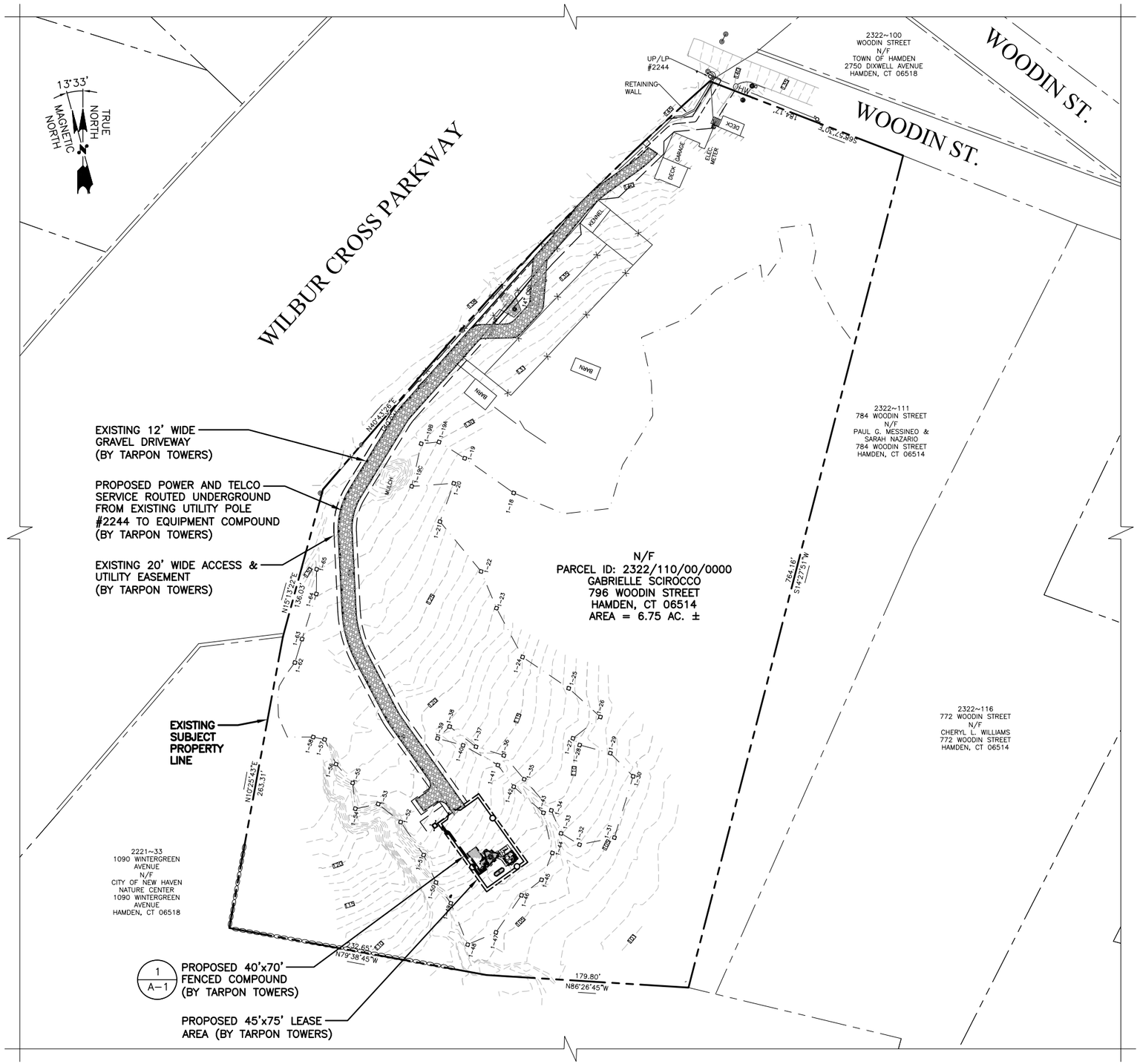
SITE NUMBER:
CTNH400A

SITE NAME:
CTNH400A

SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SHEET TITLE
GENERAL NOTES
(NSD & ANCHOR 2020)

SHEET NUMBER
GN-1



SITE PLAN

22x34 SCALE: 1"=50'-0"
11x17 SCALE: 1"=100'-0"

1 / C-1

0 25' 50' 100' 150'

NOTE:
LOCUS/SITE PLAN PREPARED BY HUDSON DESIGN GROUP, LLC. FROM GIS, ASSESSORS DATA AND OTHER SOURCES, ACCESSED 04/14/18, AND DOES NOT REPRESENT AN ACTUAL FIELD OR BOUNDARY SURVEY.

NOTE:

WETLAND INSPECTION REPORT BY ALL-POINTS TECHNOLOGY CORPORATION DATED APRIL 14, 2018.

LEGEND

- PROPERTY LINE-SUBJECT PARCEL
- PROPERTY LINE-ABUTTERS
- TOWN BOUNDARY LINE
- CONTOUR LINE
- DELINEATED WETLAND LINE
- (E) BUILDING
- XXX-XX ASSESSORS MAP-BLOCK-LOT NO.
- (E) TREE LINE

GENERAL NOTES:

1. PROPERTY OWNER: GABRIELLE SCIROCCO, 796 WOODIN STREET, HAMDEN, CT 06514
2. SITE NAME: CTNH400A
3. SITE ADDRESS: 796 WOODIN STREET, HAMDEN, CT 06514
4. APPLICANT: T-MOBILE NORTHEAST LLC, 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002
5. JURISDICTION: TOWN OF HAMDEN, CT
6. TAX ID PARCEL NUMBER: 2322/110/00/0000
7. ZONING JURISDICTION: R2 (RESIDENTIAL R2 ZONE)
8. FEMA FLOOD HAZARD DESIGNATION: ZONE X
9. PROPERTY LINE INFORMATION (WHEN APPLICABLE) WAS PREPARED USING TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUCTED AS A BOUNDARY SURVEY.
10. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY:
    DIG SAFE SYSTEM (MA, ME, NH, RI, VT): GENERAL RESIDENTIAL, AGRICULTURAL, RURAL 1-888-344-7233
    CALL BEFORE YOU DIG (CT): 1-800-922-4455
11. THE WIRELESS TELECOMMUNICATION FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
12. THE WIRELESS TELECOMMUNICATION FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. (THERE IS NO HANDICAP ACCESS REQUIRED).

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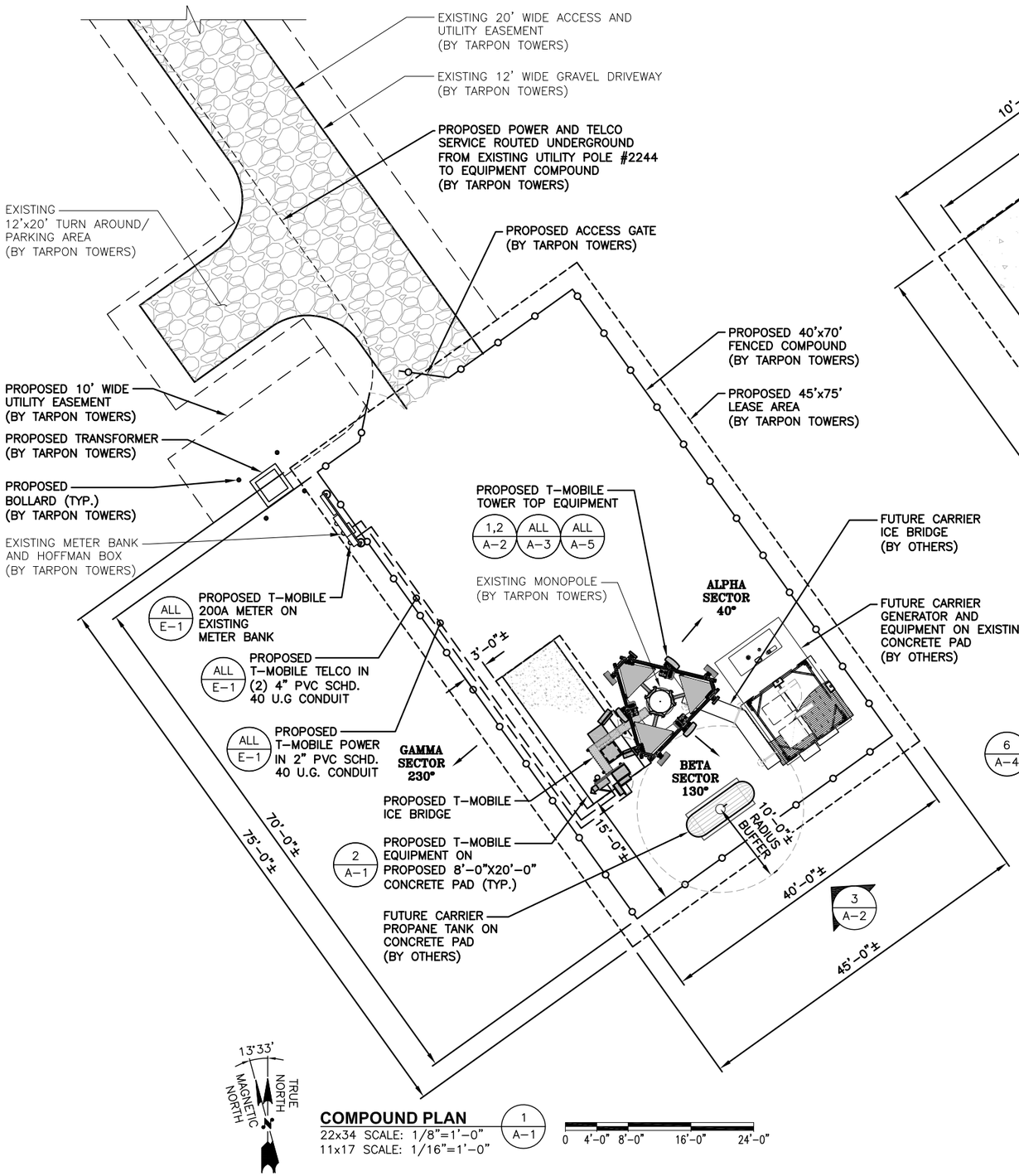
SHEET TITLE
SITE PLAN
(NSD & ANCHOR 2020)

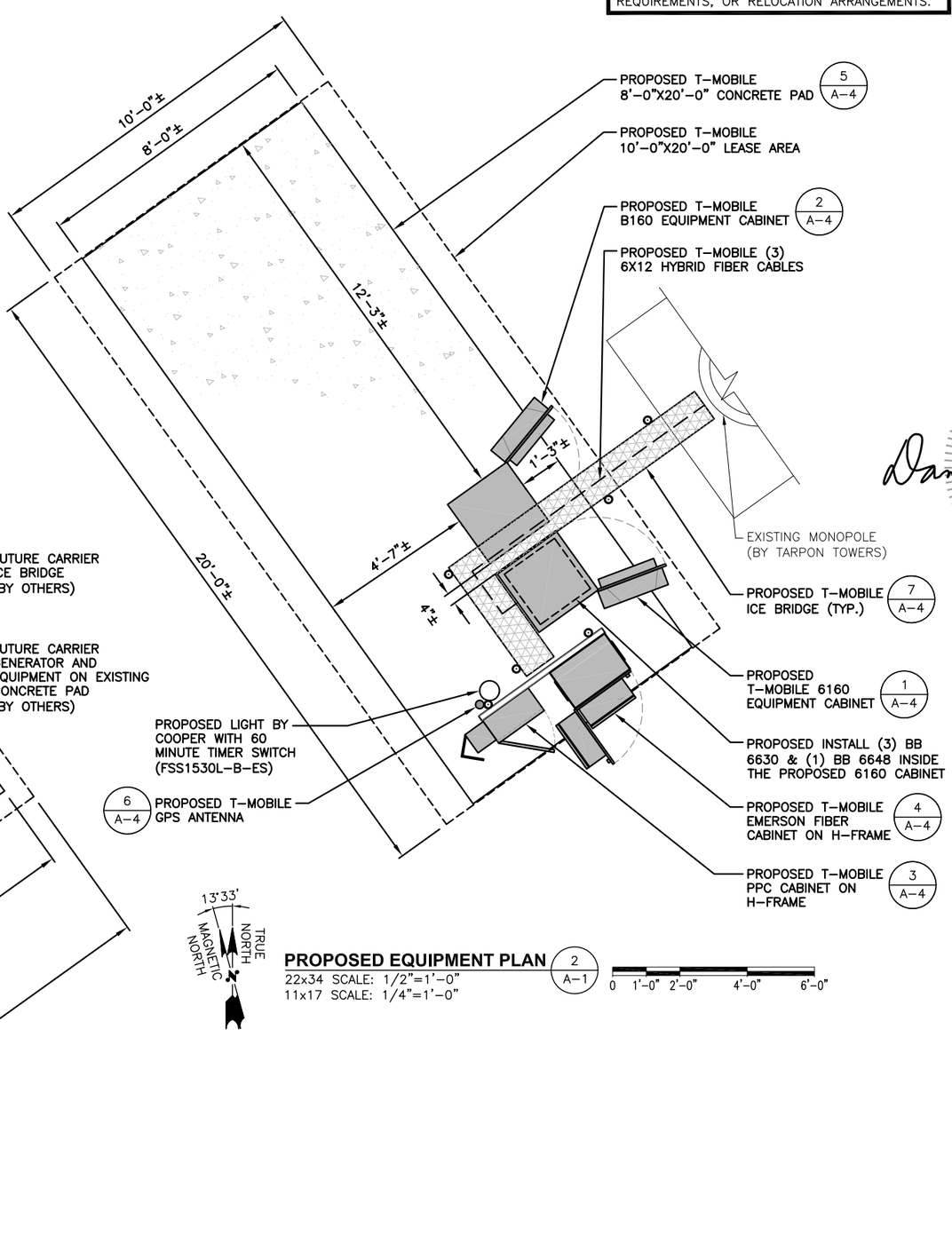
SHEET NUMBER
C-1

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO STRUCTURAL ANALYSIS PROVIDED BY HDG, DATED: OCTOBER 09, 2020 AND MOUNT STRUCTURAL ANALYSIS PROVIDED BY HDG, DATED: OCTOBER 23, 2020 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.



COMPOUND PLAN 1 A-1
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"
0 4'-0" 8'-0" 16'-0" 24'-0"



PROPOSED EQUIPMENT PLAN 2 A-1
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
0 1'-0" 2'-0" 4'-0" 6'-0"

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NEW HAVEN COUNTY

SHEET TITLE
COMPOUND & EQUIPMENT PLAN
(NSD & ANCHOR 2020)

SHEET NUMBER
A-1

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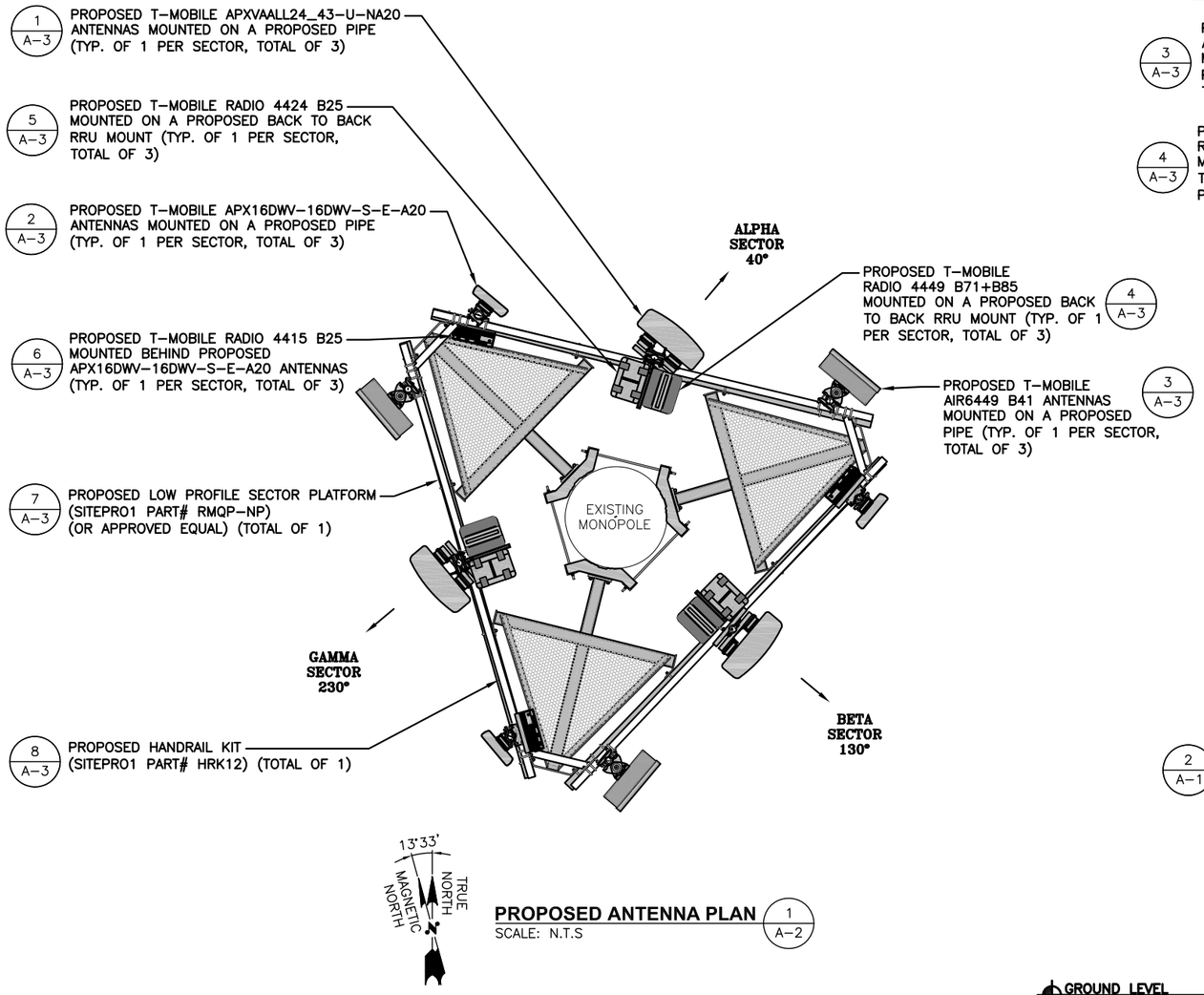
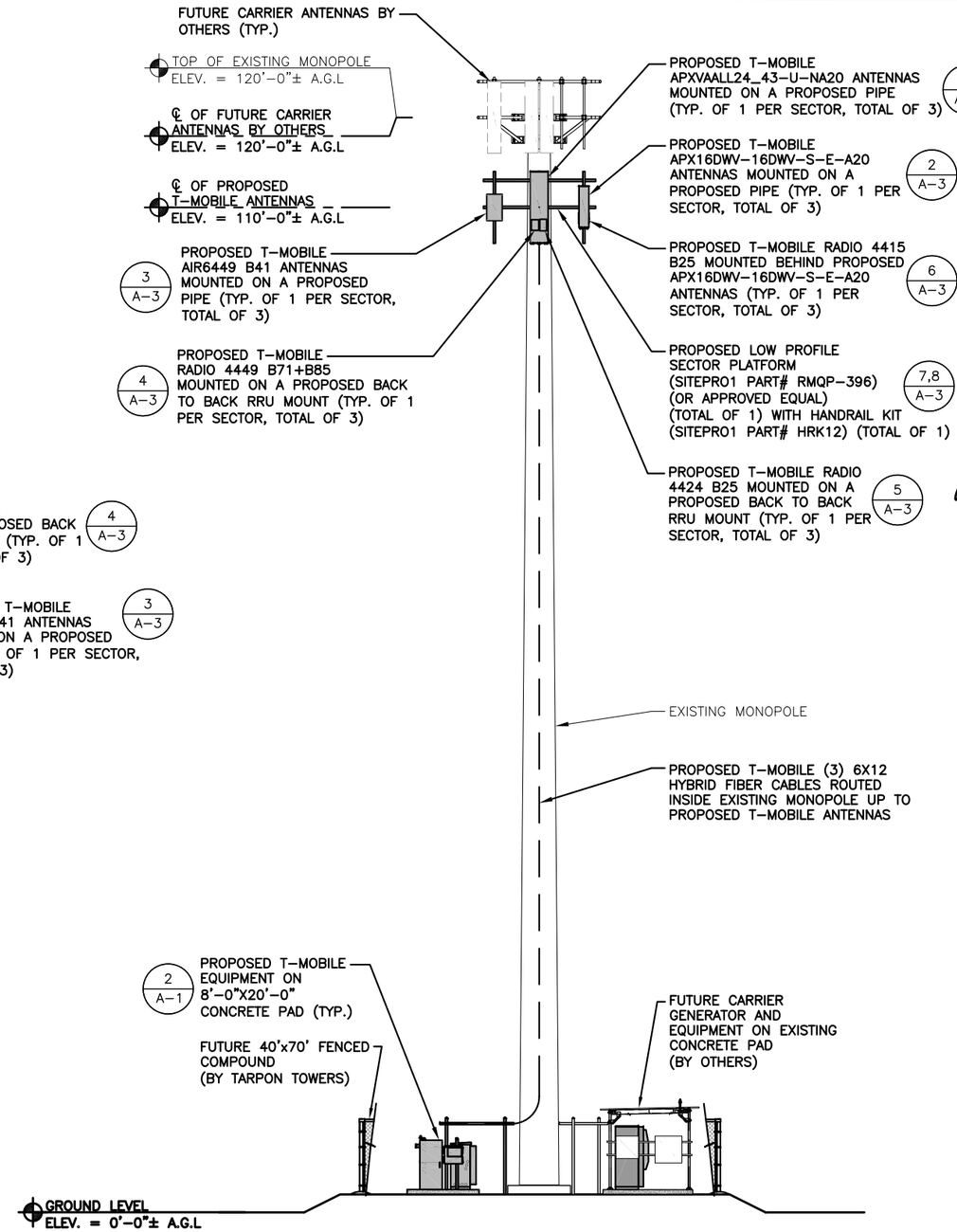


PROPOSED ANTENNA PLAN 1 A-2
SCALE: N.T.S



ELEVATION 2 A-2
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"
0 4'-0" 8'-0" 16'-0" 24'-0"

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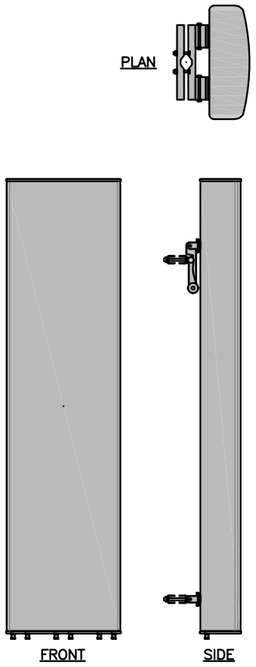
SHEET TITLE
ANTENNA PLAN & ELEVATION
(NSD & ANCHOR 2020)

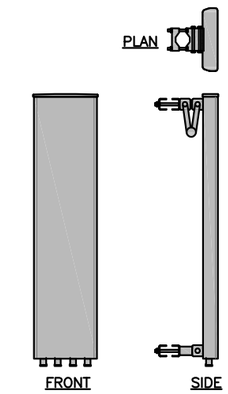
SHEET NUMBER
A-2

L600+L700 ANTENNA DIMENSIONS	
MODEL #	**APXVAALL24_43-U-NA20 (OCTA)**
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24"
DEPTH	8.7"
WEIGHT	128 LBS



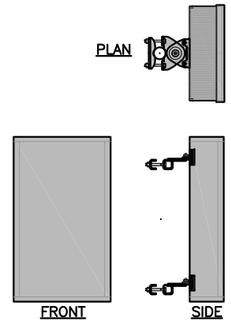
L600+L700 ANTENNA DETAIL 1 / A-3
SCALE: N.T.S

L2100 ANTENNA DIMENSIONS	
MODEL #	**APX16DWV-16DWV-S-E-A20**
MANUF.	RFS
HEIGHT	55.9"
WIDTH	13.3"
DEPTH	3.2"
WEIGHT	55 LBS



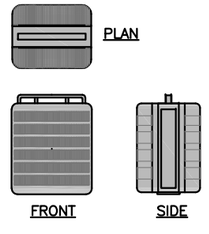
L2100 ANTENNA DETAIL 2 / A-3
SCALE: N.T.S

L25+N25 ANTENNA DIMENSIONS	
MODEL #	**AIR 6449 B41**
MANUF.	ERICSSON
HEIGHT	33.1"
WIDTH	20.6"
DEPTH	8.6"
WEIGHT	104 LBS



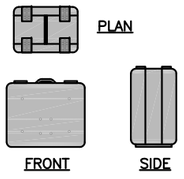
L25+N25 ANTENNA DETAIL 3 / A-3
SCALE: N.T.S

RADIO DIMENSIONS	
MODEL #	**RADIO 4449 B71+B85 (WITH FILTER)**
MANUF.	ERICSSON
HEIGHT	17.9"
WIDTH	13.2"
DEPTH	9.44"
WEIGHT	71 LBS



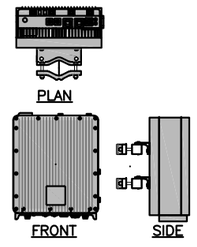
RADIO DETAIL 4 / A-3
SCALE: N.T.S

RADIO DIMENSIONS	
MODEL #	**RADIO 4424 B25**
MANUF.	ERICSSON
HEIGHT	16.5"
WIDTH	13.5"
DEPTH	9.6"
WEIGHT	88 LBS

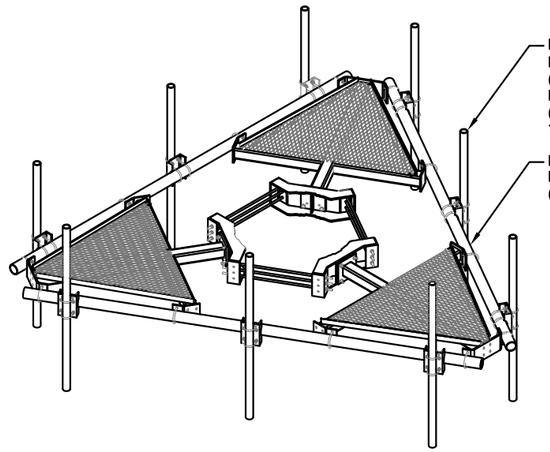


RADIO DETAIL 5 / A-3
SCALE: N.T.S

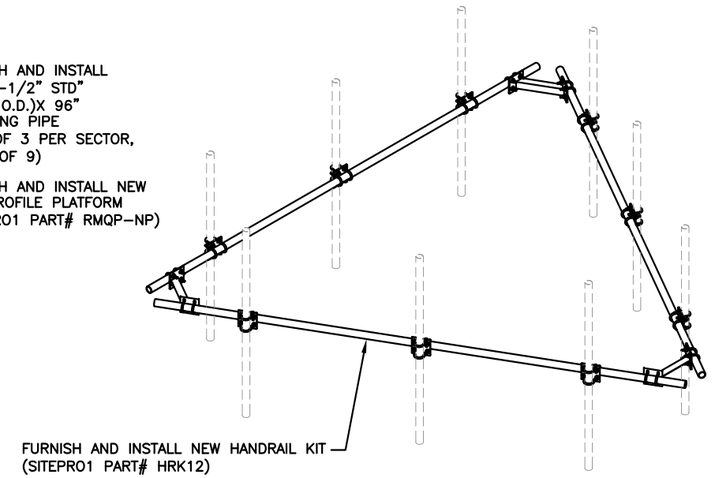
RADIO 4415 DIMENSIONS	
MODEL #	**RADIO 4415 B66A RADIO 4415 B25**
MANUF.	ERICSSON
WIDTH	13.47"
DEPTH	6.30"
HEIGHT	16.54"
WEIGHT	49.6 LBS



RADIO DETAIL 6 / A-3
SCALE: N.T.S



LOW PROFILE PLATFORM KIT DETAIL 7 / A-3
SCALE: N.T.S



HANDRAIL KIT DETAIL 8 / A-3
SCALE: N.T.S

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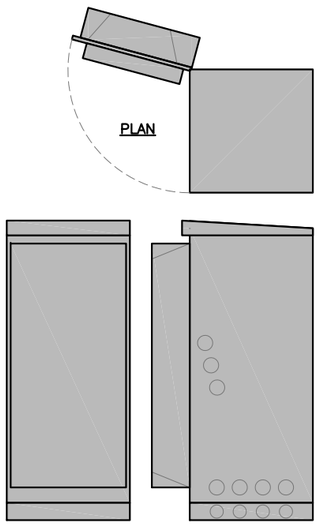
NEW HAVEN COUNTY

SHEET TITLE
TOWER EQUIPMENT DETAILS
(NSD & ANCHOR 2020)

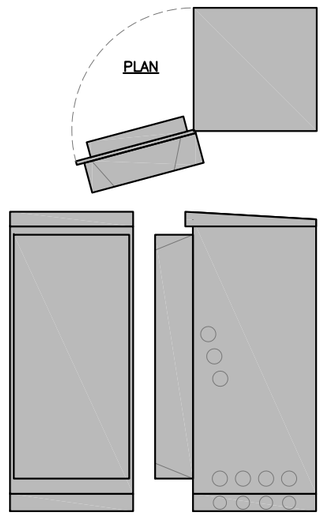
SHEET NUMBER
A-3

CABINET DIMENSIONS	
MODEL #	**6160 SITE SUPPORT CABINET**
MANUF.	ERICSSON
WIDTH	26"
DEPTH (W/ DOOR)	34"
HEIGHT	63.25"
WEIGHT	680 LBS
(INSTALL PER MANUFACTURER'S INSTALLATION GUIDELINES)	



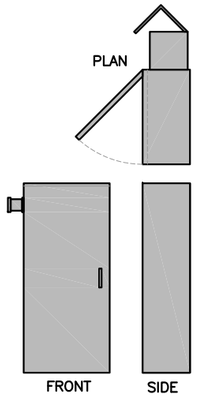
SITE SUPPORT CABINET DETAIL (1 / A-4)
SCALE: N.T.S

CABINET DIMENSIONS	
MODEL #	**B160 BATTERY CABINET**
MANUF.	ERICSSON
WIDTH	26"
DEPTH (W/ DOOR)	34"
HEIGHT	63.25"
WEIGHT	1771 LBS
(INSTALL PER MANUFACTURER'S INSTALLATION GUIDELINES)	



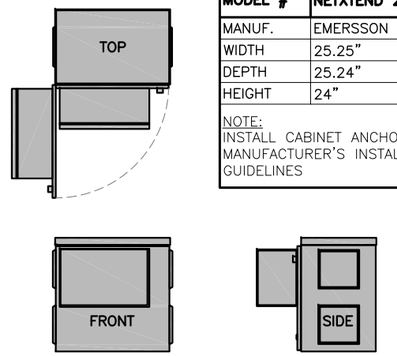
BATTERY CABINET DETAIL (2 / A-4)
SCALE: N.T.S

PPC DIMENSIONS	
MODEL #	**CS2S2-W736**
MANUF.	EMERSON
WIDTH	30"
DEPTH	10"
HEIGHT	66"
WEIGHT	150 LBS
NOTE: INSTALL CABINET ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES	

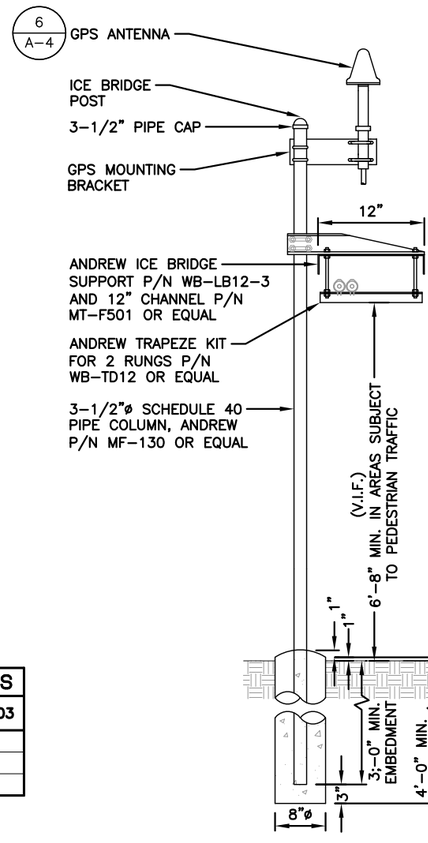


POWER PROTECTION CABINET (PPC) (3 / A-4)
SCALE: N.T.S

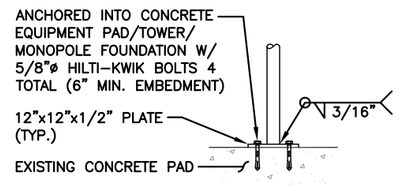
AAV FIBER CABINET DIMENSIONS	
MODEL #	**NETXTEND 2416**
MANUF.	EMERSSON
WIDTH	25.25"
DEPTH	25.24"
HEIGHT	24"
NOTE: INSTALL CABINET ANCHORS PER MANUFACTURER'S INSTALLATION GUIDELINES	

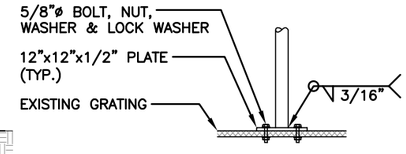


EMERSON FIBER CABINET (AAV) (4 / A-4)
SCALE: N.T.S

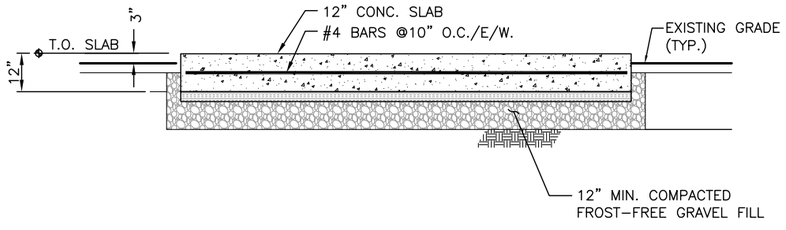


COAX ICE BRIDGE DETAIL (7 / A-4)
SCALE: N.T.S





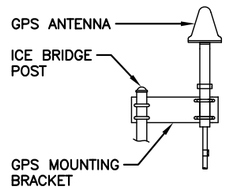
NOTE:
ALL STEEL IS GALVANIZED. ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.



NEW CONC. PAD NOTES:
- REINF. W/ #4's @ 10" O.C. EA. WAY (MID-DEPTH).
- REINF. SHALL BE ASTM A615-GRADE 60. SECURE IN PLACE.
- REINFORCEMENT IN EQUIPMENT SLAB TO BE WELDED AND BONDED TO GROUND RING

CONCRETE PAD DETAIL (5 / A-4)
SCALE: N.T.S

GPS DIMENSIONS	
MODEL #	**CCAH32ST03**
MANUF.	NAIS
HEIGHT	3.9"
WIDTH	3.5"



GPS ANTENNA MOUNTING DETAIL (6 / A-4)
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
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STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

CONSTRUCTION DRAWINGS ARE VALID FOR ONE YEAR AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: RP

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	10/27/20	ISSUED FOR CONSTRUCTION	VP
0	09/25/20	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH400A

SITE NAME:
CTNH400A

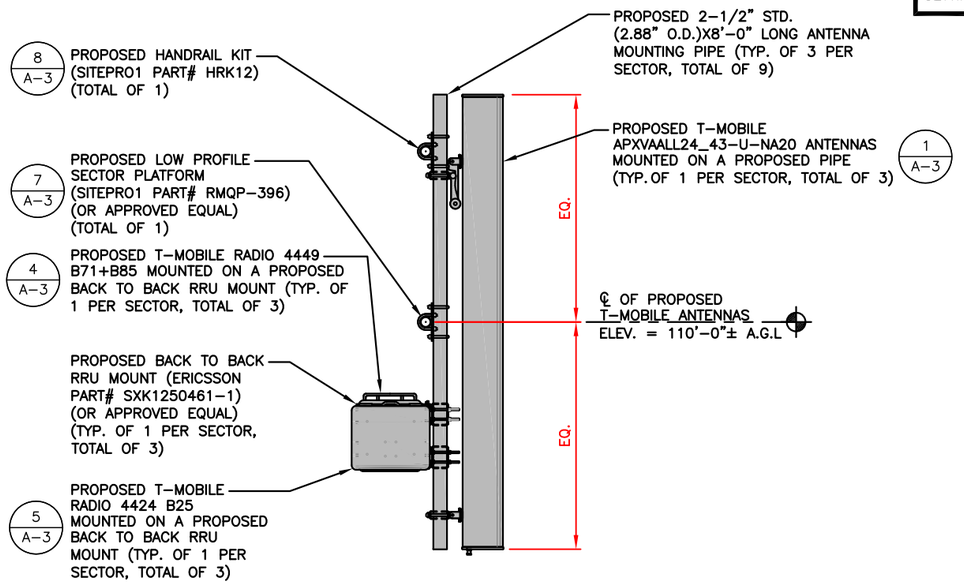
SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SHEET TITLE
GROUND EQUIPMENT DETAILS
(NSD & ANCHOR 2020)

SHEET NUMBER
A-4

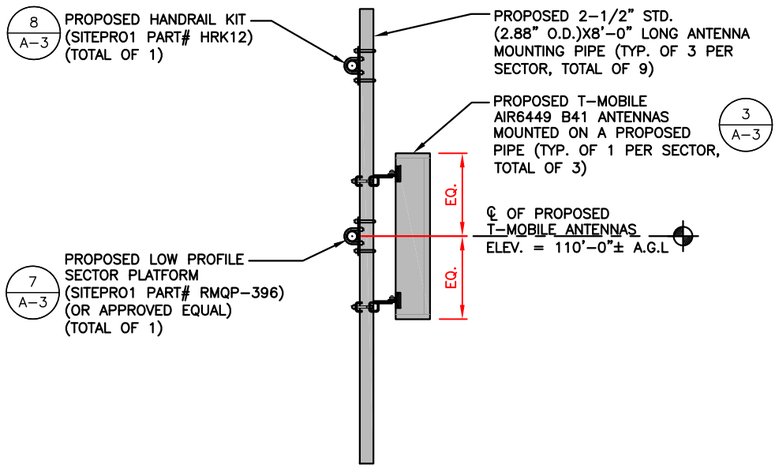
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

STRUCTURAL NOTES:
PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO STRUCTURAL ANALYSIS PROVIDED BY HDG, DATED: OCTOBER 09, 2020 AND MOUNT STRUCTURAL ANALYSIS PROVIDED BY HDG, DATED: OCTOBER 23, 2020 TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.



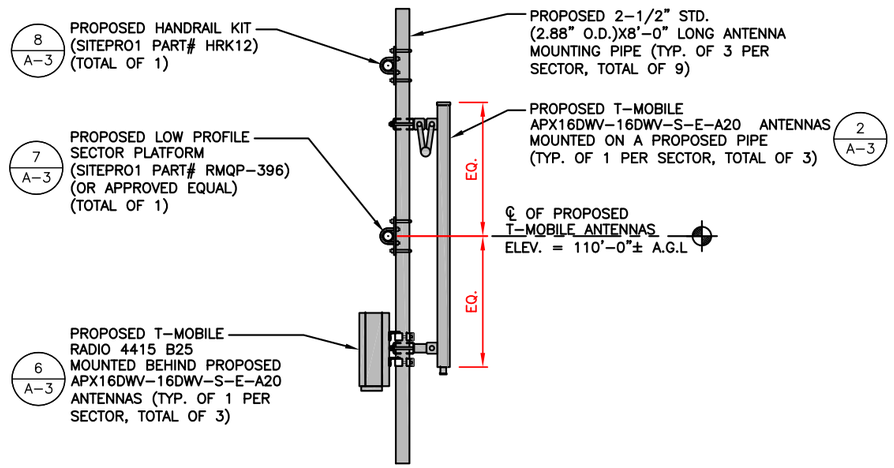
PROPOSED L600+L700
ANTENNA MOUNTING DETAIL 1 A-5
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED L25+N25
ANTENNA MOUNTING DETAIL 2 A-5
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED L21 ANTENNA
MOUNTING DETAIL 3 A-5
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

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SITE NAME:
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SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SHEET TITLE
MOUNTING DETAILS
(NSD & ANCHOR 2020)

SHEET NUMBER
A-5

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS NOTED OTHERWISE, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-70 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
BEFORE CONSTRUCTION	
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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SITE NAME:
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SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SHEET TITLE
SPECIAL INSPECTIONS NOTES
(NSD & ANCHOR 2020)

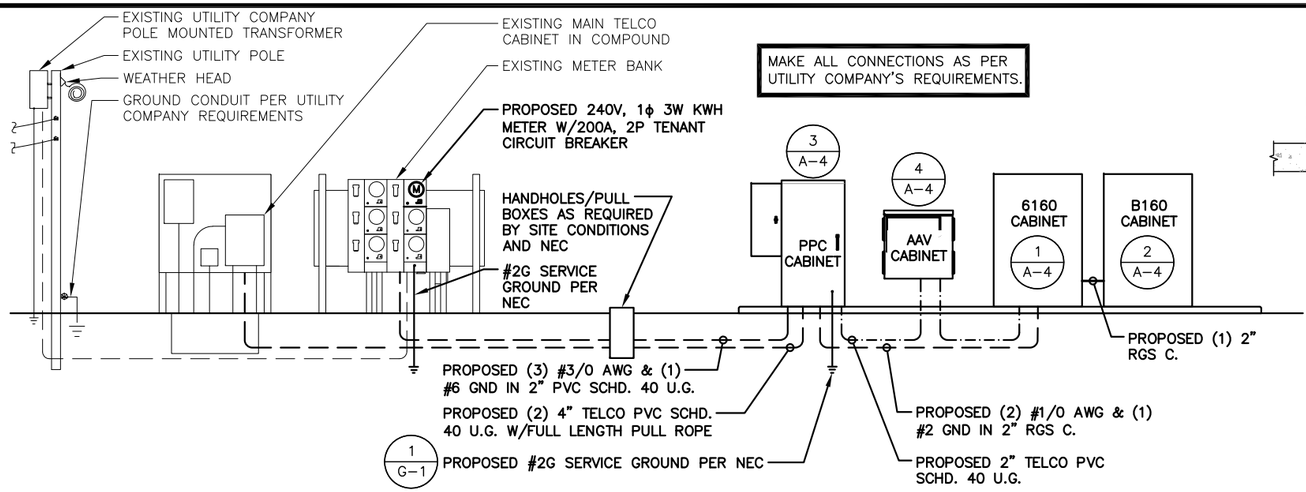
SHEET NUMBER
SN-1

ELECTRICAL NOTES

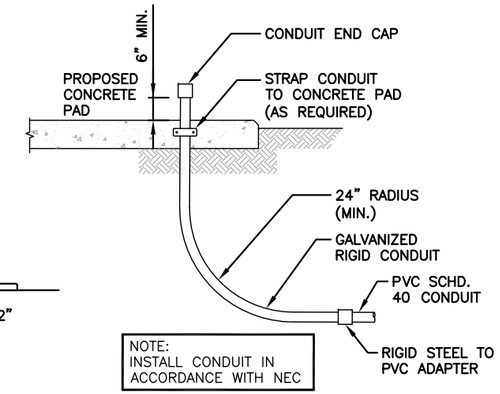
1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW OR THHN INSULATION.
8. RUN ELECTRICAL CONDUIT AND CABLE BETWEEN ELECTRICAL METER BANK AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT AND CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A–3. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BGR	BURIED GROUND RING
BTCW	BARE TINNED SOLID COPPER WIRE
GND	GROUND
⏚	GROUND
GFI	GROUND FAULT INTERRUPTER
H.P	HORSE POWER
MGB	MASTER GROUND BAR
	○ MECHANICAL CONNECTION
	● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	#6G AWG INSULATED STRANDED
———	COAXIAL CABLE/HYBRID CABLE
⊙	5/8"x8' COPPER CLAD STAINLESS STEEL GROUND ROD
⊛	GROUND ROD WITH TEST WELL
●—●—	● EXOTHERMIC (CAD WELD) OR
	○ MECHANICAL (COMPRESSION TYPE) CONNECTION
NEC	NATIONAL ELECTRIC CODE
ø	PHASE
PPC	POWER PROTECTION CABINET
P	POLE
PVC	POLYVINYL CHLORIDE
UL	UNDERWRITER LABORATORIES
⊗	OMNI–DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL



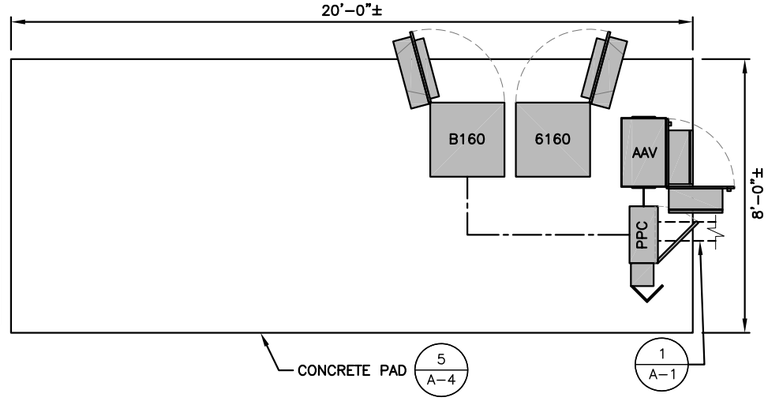
POWER RISER DIAGRAM (1 E–1)
SCALE: N.T.S



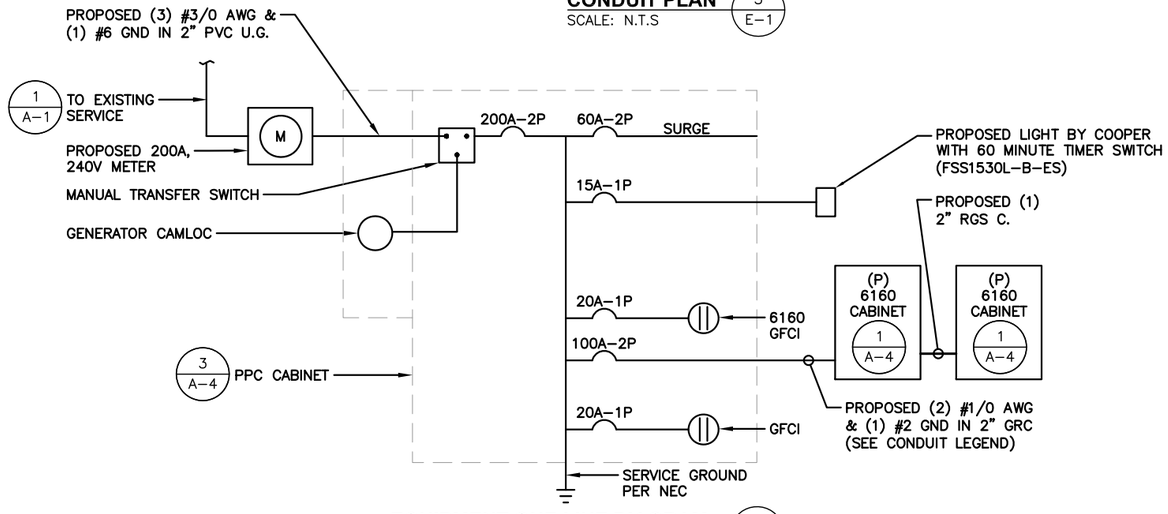
CONDUIT SWEEP DETAIL (2 E–1)
SCALE: N.T.S

CONDUIT LEGEND

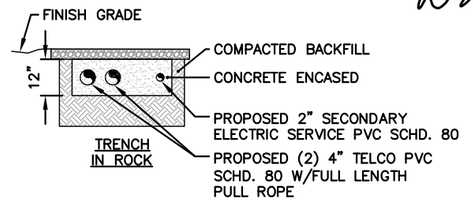
———	2"ø GRC INETRCONNECT KIT, –48V DC, ON CONCRETE PAD, (1) CONDUIT PPC TO RAC, ANCHOR AT 3' INTERVALS, GROUNDING BOND AT EACH END
———	2"ø RGS CONDUIT, AC–POWER, BELOW CONCRETE PAD, (1) CONDUIT PPC TO 6160
———	2"ø RGS, TELCO, BELOW CONCRETE PAD, (1) CONDUIT PPC TO RAC

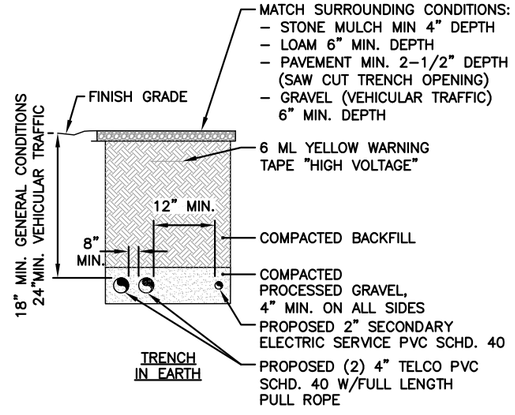


CONDUIT PLAN (3 E–1)
SCALE: N.T.S



EQUIPMENT ONE LINE DIAGRAM (4 E–1)
SCALE: N.T.S





SPECIAL WORK NOTE:
EXISTING UNDERGROUND UTILITY LOCATIONS ARE UNKNOWN. WHERE DIRECTED OR REQUIRED, HAND–EXCAVATE PROPOSED UTILITY TRENCHING

BURIED CONDUIT DETAIL (5 E–1)
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
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PHONE: 203-275-6669

HUDSON Design Group LLC
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STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR ONE YEAR AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: RP

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	10/27/20	ISSUED FOR CONSTRUCTION	VP
0	09/25/20	ISSUED FOR REVIEW	VP

SITE NUMBER:
CTNH400A

SITE NAME:
CTNH400A

SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SHEET TITLE
ONE–LINE DIAGRAM & GROUNDING DETAILS
(NSD & ANCHOR 2020)

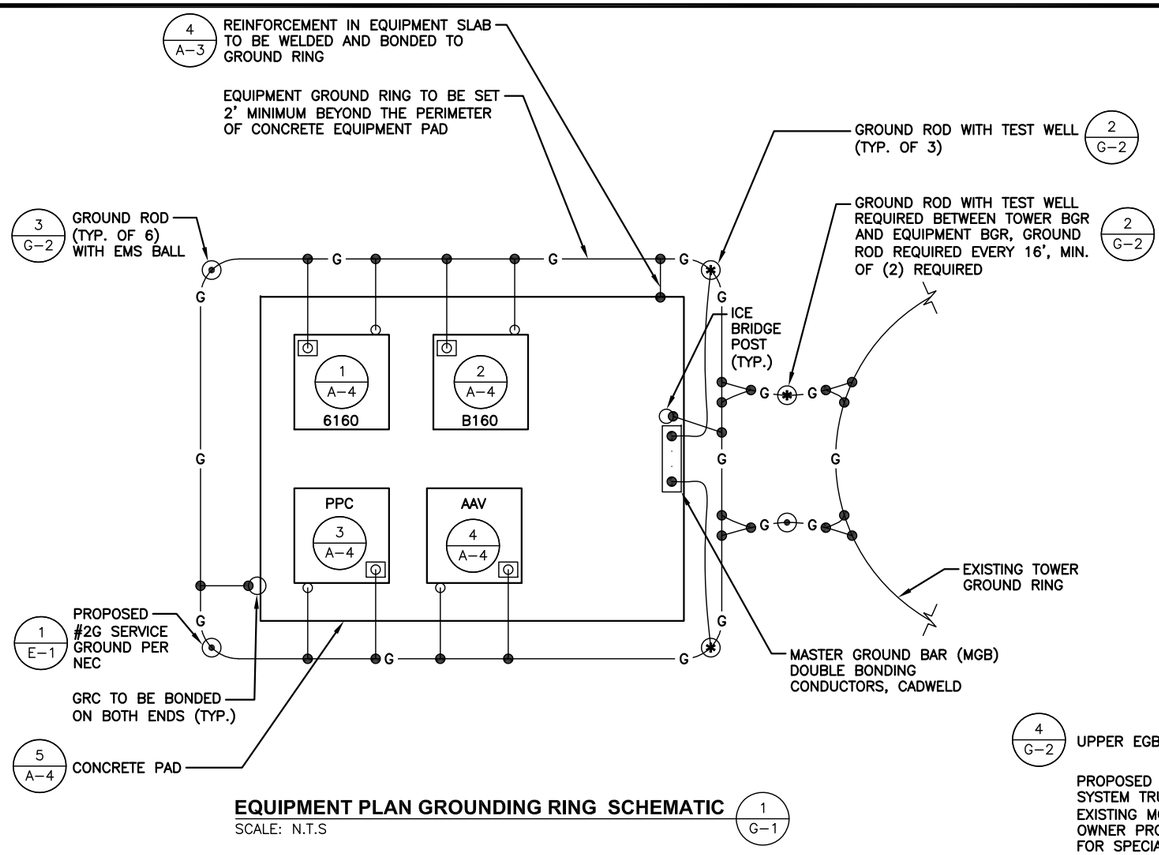
SHEET NUMBER
E-1

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW OR THHN INSULATION.
8. RUN ELECTRICAL CONDUIT AND CABLE BETWEEN ELECTRICAL METER BANK AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT AND CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A–3. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

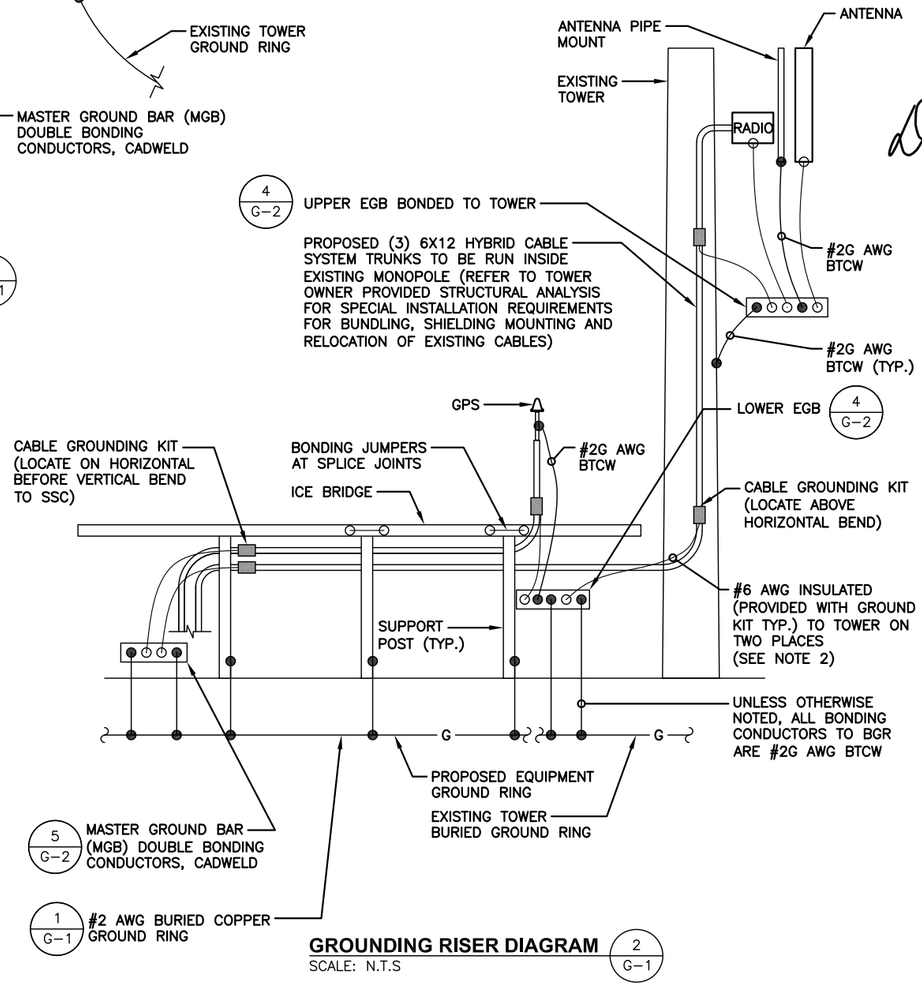
LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BGR	BURIED GROUND RING
BTCW	BARE TINNED SOLID COPPER WIRE
GND	GROUND
⏚	GROUND
GFI	GROUND FAULT INTERRUPTER
H.P	HORSE POWER
MGB	MASTER GROUND BAR
	○ MECHANICAL CONNECTION
	● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
———	EXPOSED WIRING
———	#6G AWG INSULATED STRANDED
———	COAXIAL CABLE/HYBRID CABLE
⊙	5/8"x8' COPPER CLAD STAINLESS STEEL GROUND ROD
✱	GROUND ROD WITH TEST WELL
●—●—●	● EXOTHERMIC (CAD WELD) OR
	○ MECHANICAL (COMPRESSION TYPE) CONNECTION
NEC	NATIONAL ELECTRIC CODE
ø	PHASE
PPC	POWER PROTECTION CABINET
P	POLE
PVC	POLYVINYL CHLORIDE
UL	UNDERWRITER LABORATORIES
⊠	OMNI–DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL



EQUIPMENT PLAN GROUNDING RING SCHEMATIC 1/G–1
SCALE: N.T.S

NOTE:
1. BASE BID TO INCLUDE INSTALLATION OF A BURIED GROUND RING AND (6) GROUND RODS OR SINGLE XIT HORIZONTAL CHEMICAL ROD AS DETERMINED BY FIELD CONDITIONS. ADDITIONAL RODS AS REQUIRED TO ACHIEVE 5 OHMS RESISTANCE.
2. MAXIMUM VERTICAL/HORIZONTAL DISTANCE BETWEEN CABLE GROUNDING KITS SHALL NOT EXCEED 100 FEET. INSTALL ADDITIONAL KITS AS REQUIRED BY FIELD CONDITIONS.
3. ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S GUIDELINES.
4. ALL ABOVE–GRADE DOWNLEADS TO BGR SHALL BE INSTALLED IN 1" NON–METALLIC CONDUIT SECURED EVERY 2' WITH NON–METALLIC CLIPS.



GROUNDING RISER DIAGRAM 2/G–1
SCALE: N.T.S

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STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

CONSTRUCTION DRAWINGS ARE VALID FOR ONE YEAR AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: RP

APPROVED BY: DPH

SUBMITTALS

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0	09/25/20	ISSUED FOR REVIEW	VP

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SITE NAME:
CTNH400A

SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SHEET TITLE
GROUNDING SCHEMATIC & RISER DIAGRAM
(NSD & ANCHOR 2020)

SHEET NUMBER
G-1

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
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6. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW OR THHN INSULATION.
8. RUN ELECTRICAL CONDUIT AND CABLE BETWEEN ELECTRICAL METER BANK AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT AND CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-3. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
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LEGEND

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KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BGR	BURIED GROUND RING
BTCW	BARE TINNED SOLID COPPER WIRE
GND	GROUND
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H.P	HORSE POWER
MGB	MASTER GROUND BAR
	○ MECHANICAL CONNECTION
	● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
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⊛	GROUND ROD WITH TEST WELL
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	○ MECHANICAL (COMPRESSION TYPE) CONNECTION
NEC	NATIONAL ELECTRIC CODE
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PPC	POWER PROTECTION CABINET
P	POLE
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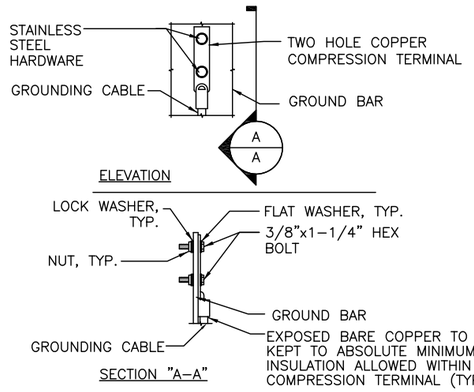
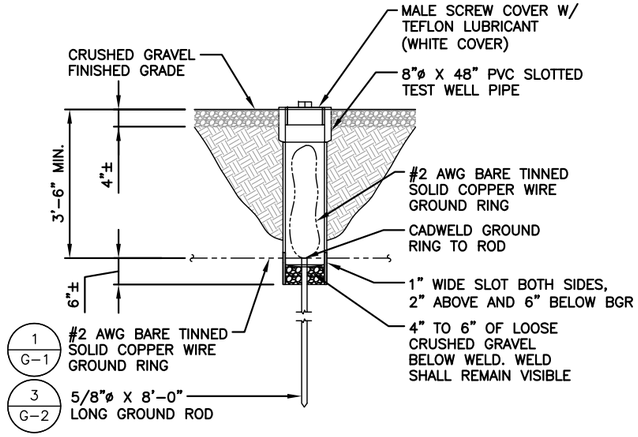
UL	UNDERWRITER LABORATORIES
⊠	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL



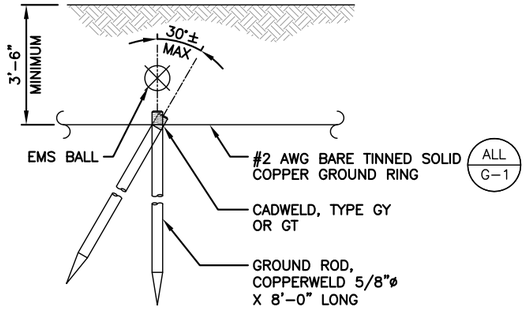
NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL (1 / G-2)
SCALE: N.T.S



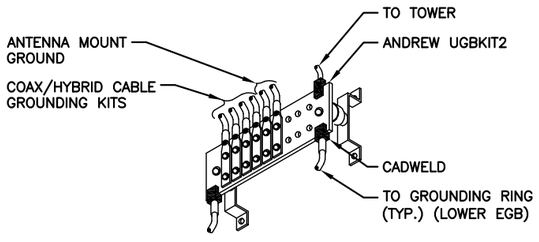
NOTE:
1. PROPOSED BGR TO BE INSTALLED 3'-6" MIN. BELOW GRADE OR BELOW LOCAL FROST DEPTH, WHICHEVER IS GREATER.
2. ONE TEST WELL SHALL BE PROVIDED BETWEEN THE TOWER GROUND LOOP AND TWO ON THE EQUIPMENT GROUND LOOP

GROUND ROD TEST WELL DETAIL (2 / G-2)
SCALE: N.T.S

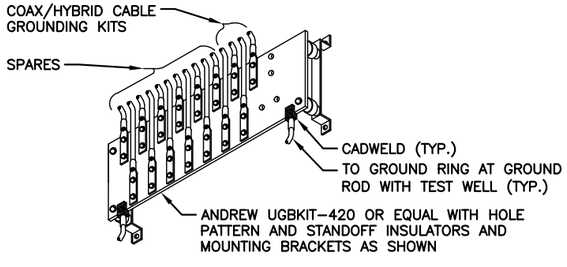


NOTE:
1. PROPOSED BGR TO BE INSTALLED 3'-6" MIN. BELOW GRADE OR BELOW LOCAL FROST DEPTH, WHICHEVER IS GREATER.
2. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 30 DEGREES FROM THE VERTICAL.

GROUND ROD DETAIL (3 / G-2)
SCALE: N.T.S



EQUIPMENT GROUND BAR (EGB) (4 / G-2)
SCALE: N.T.S



MASTER GROUND BAR (MGB) (5 / G-2)
SCALE: N.T.S

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STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

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SITE NAME:
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SITE ADDRESS:
796 WOODIN STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

SHEET TITLE
GROUNDING DETAILS & NOTES
(NSD & ANCHOR 2020)

SHEET NUMBER
G-2

Exhibit D

STRUCTURAL ANALYSIS REPORT

For

SITE NAME: CTNH400A

796 WOODIN STREET
HAMDEN, CT 06514

Antennas Mounted to the Monopole

Prepared for:

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

T-Mobile

Dated: October 9, 2020

Prepared by:

HDG | HUDSON Design Group LLC

45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com

STATE OF CONNECTICUT
GI KAI WANG
No. 28220
LICENSED PROFESSIONAL ENGINEER

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by T-Mobile to conduct a structural evaluation of the 120' monopole supporting the proposed T-Mobile's antennas located at elevation 110' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of T-Mobile's proposed antennas listed below.

Record drawings of the existing monopole prepared by TAPP, dated December 30, 2019, were available and obtained for our use.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing monopole and foundation **are in conformance** with the ANSI/TIA-222-G Standard for the loading considered under the criteria listed in this report. The monopole structure is rated at **73.7%** - (Base Plate at EL.1' Controlling).

HUDSON Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	Lightning Rod	122'	Top of Monopole
Verizon	(6) JAHH-45C-R3B Antennas	120'	RMQP-4096-HK Platform
Verizon	(3) B5/B13 RRH-BR0O4C	120'	RMQP-4096-HK Platform
Verizon	(3) B2/B66A RRH-BRO49	120'	RMQP-4096-HK Platform
Verizon	(3) CBC78T-DS-43-2X	120'	RMQP-4096-HK Platform
Verizon	(1) OVP Box	120'	RMQP-4096-HK Platform
Verizon (Reserved)	(3) JAHH-45C-R3B Antennas	120'	RMQP-4096-HK Platform
T-Mobile	***(3) AIR6449 B41 Antennas***	***110'***	***RMQP-396 w/handrail***
T-Mobile	***(3) APXVAALL24_43-U-NA20 Antennas***	***110'***	***RMQP-396 w/handrail***
T-Mobile	***(3) APX16DWV-16DWVS-E-A20 Antennas***	***110'***	***RMQP-396 w/handrail***
T-Mobile	***(3) Radio 4449 B71+B85***	***110'***	***RMQP-396 w/handrail***
T-Mobile	***(3) Radio 4424 B25***	***110'***	***RMQP-396 w/handrail***
T-Mobile	***(3) Radio 4415 B25***	***110'***	***RMQP-396 w/handrail***

Proposed T-Mobile Appurtenances shown in Bold.

T-MOBILE EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
T-Mobile	***(3) 6X12 Fiber Cables***	***110'***	Inside Monopole

Proposed T-Mobile Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	43.1 %	67.0 – 120.0	PASS	
Pole Section-L2	46.0 %	33.5 – 67.0	PASS	
Pole Section-L3	51.2 %	1.0 – 33.5	PASS	
Base Plates	**73.7 %**	1.0	PASS	**Controlling**

FOUNDATION COMPARISON SUMMARY:

	Design Reactions	Proposed Reactions	Pass/Fail	Comments
AXIAL	**45 k**	34.7 k	PASS	
SHEAR	**42 k**	24.5 k	PASS	
MOMENT	**4527 ft-k**	2324 ft-k	PASS	

HUDSON Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

2. 2018 Connecticut State Building Code

   City/Town: Hamden
   County: New Haven
   Basic Wind Speed: 97 mph
   Structure Class: II
   Exposure Category: C
   Topographic Category: 1
   Ice Thickness: 0.75 inch

3. Approximate height above grade to proposed antennas: 110'

ASSUMPTIONS:

1. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

2. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

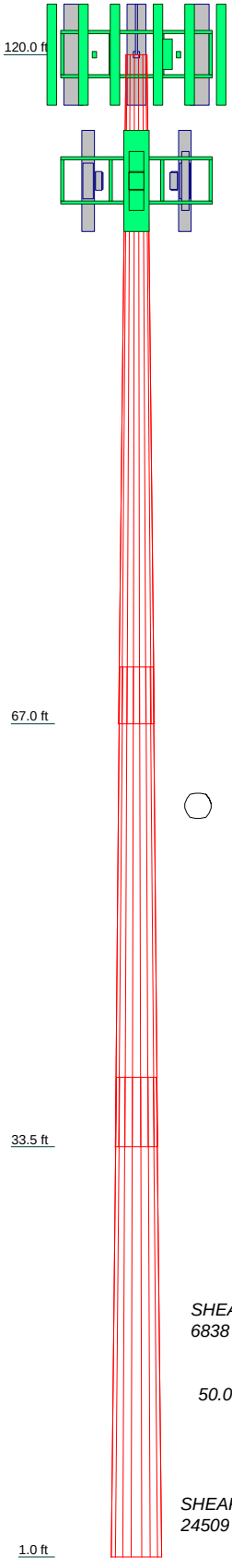
SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas and radios be mounted on the proposed steel platform supported by the monopole.

HUDSON
Design Group LLC

TNX INPUT/OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	53.00	18	0.3750	4.50	20.4128	33.2006	A572-65	5673.8
2	38.00	18	0.4375	5.50	31.3648	40.5334		6376.4
3	38.00	18	0.4375		38.3314	47.5000		7627.3
								19677.5



ALL REACTIONS ARE FACTORED

AXIAL 55025 lb

SHEAR 6838 lb *MOMENT 634600 lb-ft*

TORQUE 85 lb-ft
50.0 mph WIND - 0.7500 in ICE

AXIAL 34690 lb

SHEAR 24509 lb *MOMENT 2324247 lb-ft*

TORQUE 369 lb-ft
REACTIONS - 97.0 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	122	AIR6449 B41 w/ Mount Pipe	110
(2) JAHH-45C-R3B w/ Mount Pipe (VERIZON)	120	AIR6449 B41 w/ Mount Pipe	110
		AIR6449 B41 w/ Mount Pipe	110
(2) JAHH-45C-R3B w/ Mount Pipe	120	APXVAALL24_43-U-NA20 w/mount pipe	110
(2) JAHH-45C-R3B w/ Mount Pipe	120		
JAHH-45C-R3B w/ Mount Pipe	120	APXVAARR24_43-U-NA20 w/mount pipe	110
JAHH-45C-R3B w/ Mount Pipe	120		
JAHH-45C-R3B w/ Mount Pipe	120	APXVAARR24_43-U-NA20 w/mount pipe	110
B5/B13 RRH-BRO4C	120		
B5/B13 RRH-BRO4C	120	APX16DWV-16DWVS-E-A20 w/mount pipe	110
B5/B13 RRH-BRO4C	120		
B2/B66A RRH-BRO49	120	APX16DWV-16DWVS-E-A20 w/mount pipe	110
B2/B66A RRH-BRO49	120		
B2/B66A RRH-BRO49	120	APX16DWV-16DWVS-E-A20 w/mount pipe	110
CBC78T-DS-43-2X	120	Radio 4449 B71+B85	110
CBC78T-DS-43-2X	120	Radio 4449 B71+B85	110
CBC78T-DS-43-2X	120	Radio 4449 B71+B85	110
RxxDC-6627-PF-48	120	Radio 4424 B25	110
RMQP-4096-HK Platform	120	Radio 4424 B25	110
Radio 4415 B25	110	Radio 4424 B25	110
Radio 4415 B25	110	Radio 4415 B25	110
RMQP-396 w/handrail (T-MOBILE - Proposed)	110		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97.0 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.0 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 73.7%

Hudson Design Group LLC
45 Beechwood Drive
North Andover, MA 01845
Phone: (P) 978.557.5553
FAX: (F) 978.336.5586

Job: ***CTNH400A HAMDEN, CT***			
Project: ***120 ft Monopole***			
Client: T-MOBILE	Drawn by: kw	App'd:	
Code: TIA-222-G	Date: 10/09/20	Scale: NTS	
Path: C:\CTNH400A\CTNH400A.eri		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 97.0 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56.0 pcf.
A wind speed of 50.0 mph is used in combination with ice.
Temperature drop of 50.0 °F.
Deflections calculated using a wind speed of 60.0 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	120.00-67.00	53.00	4.50	18	20.4128	33.2006	0.3750	1.5000	A572-65 (65 ksi)
L2	67.00-33.50	38.00	5.50	18	31.3648	40.5334	0.4375	1.7500	A572-65 (65 ksi)
L3	33.50-1.00	38.00		18	38.3314	47.5000	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	20.6699	23.8500	1209.8339	7.1134	10.3697	116.6701	2421.2598	11.9273	2.9327	7.82
	33.6549	39.0707	5318.8000	11.6531	16.8659	315.3581	10644.5986	19.5390	5.1833	13.822
L2	32.8837	42.9465	5189.7957	10.9792	15.9333	325.7193	10386.4203	21.4773	4.7502	10.858
	41.0912	55.6782	11308.9512	14.2340	20.5910	549.2190	22632.7829	27.8444	6.3639	14.546
L3	40.2027	52.6204	9546.1748	13.4523	19.4723	490.2429	19104.9107	26.3152	5.9763	13.66
	48.1653	65.3522	18287.2083	16.7072	24.1300	757.8619	36598.4793	32.6823	7.5900	17.349

Monopole Base Plate Data

Base Plate Data	
Base plate is square	
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	16
Embedment length	72.0000 in
f'_c	4.0 ksi
Grout space	3.0000 in
Base plate grade	A572-50
Base plate thickness	2.5000 in
Bolt circle diameter	55.0000 in
Outer diameter	61.0000 in
Inner diameter	36.0000 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Area

Description	*Face or Leg*	*Allow Shield*	*Exclude From Torque Calculation*	*Component Type*	*Placement* *ft*	*Total Number*		C_AA_A *ft²/ft*	*Weight* *plf*
6X12 Fiber Cable (T-MOBILE - Proposed) **********	B	No	No	Inside Pole	110.00 - 1.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.54 0.54 0.54
1 5/8 Fiber Cable (VERIZON)	B	No	No	Inside Pole	120.00 - 1.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.04 1.04 1.04

Discrete Tower Loads

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral ft* *Vert ft* *ft*	*Azimuth Adjustment* °	*Placement* *ft*		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* *lb*
Lightning Rod ******	A	From Leg	0.00 0.00 0.00	0.0000	122.00	No Ice 1/2" Ice 1" Ice	0.75 1.25 1.75	0.75 1.25 1.75	10.00 40.00 70.00
RMQP-396 w/handrail (T-MOBILE - Proposed)	A	None		0.0000	110.00	No Ice 1/2" Ice 1" Ice	33.00 43.00 53.00	33.00 43.00 53.00	2300.00 2800.00 3300.00
AIR6449 B41 w/ Mount Pipe	A	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	6.45 7.02 7.53	3.92 4.64 5.25	125.90 180.90 241.81
AIR6449 B41 w/ Mount Pipe	B	From Face	3.50 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice 1" Ice	6.45 7.02 7.53	3.92 4.64 5.25	125.90 180.90 241.81

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
AIR6449 B41 w/ Mount Pipe	C	From Face	3.50	0.0000	110.00	No Ice	6.45	3.92	125.90
			0.00			1/2" Ice	7.02	4.64	180.90
			0.00			1" Ice	7.53	5.25	241.81
APXVAALL24_43-U-NA20 w/mount pipe	A	From Face	3.50	0.0000	110.00	No Ice	20.24	11.19	174.32
			0.00			1/2" Ice	20.89	12.62	311.78
			0.00			1" Ice	21.55	13.71	460.89
APXVAARR24_43-U-NA20 w/mount pipe	B	From Face	3.50	0.0000	110.00	No Ice	20.24	11.19	174.32
			0.00			1/2" Ice	20.89	12.62	311.78
			0.00			1" Ice	21.55	13.71	460.89
APXVAARR24_43-U-NA20 w/mount pipe	C	From Face	3.50	0.0000	110.00	No Ice	20.24	11.19	174.32
			0.00			1/2" Ice	20.89	12.62	311.78
			0.00			1" Ice	21.55	13.71	460.89
APX16DWV-16DWVS-E-A20 w/mount pipe	A	From Face	3.50	0.0000	110.00	No Ice	6.91	3.57	76.90
			0.00			1/2" Ice	7.39	4.41	126.32
			0.00			1" Ice	7.86	5.13	182.31
APX16DWV-16DWVS-E-A20 w/mount pipe	B	From Face	3.50	0.0000	110.00	No Ice	6.91	3.57	76.90
			0.00			1/2" Ice	7.39	4.41	126.32
			0.00			1" Ice	7.86	5.13	182.31
APX16DWV-16DWVS-E-A20 w/mount pipe	C	From Face	3.50	0.0000	110.00	No Ice	6.91	3.57	76.90
			0.00			1/2" Ice	7.39	4.41	126.32
			0.00			1" Ice	7.86	5.13	182.31
Radio 4449 B71+B85	A	From Face	2.50	0.0000	110.00	No Ice	1.97	1.40	71.00
			0.00			1/2" Ice	2.15	1.56	89.48
			0.00			1" Ice	2.33	1.72	110.77
Radio 4449 B71+B85	B	From Face	2.50	0.0000	110.00	No Ice	1.97	1.40	71.00
			0.00			1/2" Ice	2.15	1.56	89.48
			0.00			1" Ice	2.33	1.72	110.77
Radio 4449 B71+B85	C	From Face	2.50	0.0000	110.00	No Ice	1.97	1.40	71.00
			0.00			1/2" Ice	2.15	1.56	89.48
			0.00			1" Ice	2.33	1.72	110.77
Radio 4424 B25	A	From Face	2.50	0.0000	110.00	No Ice	1.86	1.32	88.00
			0.00			1/2" Ice	2.03	1.47	105.87
			0.00			1" Ice	2.20	1.62	126.50
Radio 4424 B25	B	From Face	2.50	0.0000	110.00	No Ice	1.86	1.32	88.00
			0.00			1/2" Ice	2.03	1.47	105.87
			0.00			1" Ice	2.20	1.62	126.50
Radio 4424 B25	C	From Face	2.50	0.0000	110.00	No Ice	1.86	1.32	88.00
			0.00			1/2" Ice	2.03	1.47	105.87
			0.00			1" Ice	2.20	1.62	126.50
Radio 4415 B25	A	From Face	2.50	0.0000	110.00	No Ice	1.86	0.87	49.60
			0.00			1/2" Ice	2.03	1.00	64.15
			0.00			1" Ice	2.20	1.13	81.25
Radio 4415 B25	B	From Face	2.50	0.0000	110.00	No Ice	1.86	0.87	49.60
			0.00			1/2" Ice	2.03	1.00	64.15
			0.00			1" Ice	2.20	1.13	81.25
Radio 4415 B25	C	From Face	2.50	0.0000	110.00	No Ice	1.86	0.87	49.60
			0.00			1/2" Ice	2.03	1.00	64.15
			0.00			1" Ice	2.20	1.13	81.25
******									
(2) JAHH-45C-R3B w/ Mount Pipe (VERIZON)	A	From Leg	4.00	0.0000	120.00	No Ice	16.18	10.16	214.11
			0.00			1/2" Ice	16.90	11.68	327.78
			0.00			1" Ice	17.61	13.02	452.91
(2) JAHH-45C-R3B w/ Mount Pipe	B	From Leg	4.00	0.0000	120.00	No Ice	16.18	10.16	214.11
			0.00			1/2" Ice	16.90	11.68	327.78
			0.00			1" Ice	17.61	13.02	452.91
(2) JAHH-45C-R3B w/ Mount Pipe	C	From Leg	4.00	0.0000	120.00	No Ice	16.18	10.16	214.11
			0.00			1/2" Ice	16.90	11.68	327.78

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	17.61	13.02	452.91
JAHH-45C-R3B w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	16.18 16.90 17.61	10.16 11.68 13.02	214.11 327.78 452.91
JAHH-45C-R3B w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	16.18 16.90 17.61	10.16 11.68 13.02	214.11 327.78 452.91
JAHH-45C-R3B w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	16.18 16.90 17.61	10.16 11.68 13.02	214.11 327.78 452.91
B5/B13 RRH-BRO4C	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	82.00 98.43 117.53
B5/B13 RRH-BRO4C	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	82.00 98.43 117.53
B5/B13 RRH-BRO4C	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.01 1.14 1.28	82.00 98.43 117.53
B2/B66A RRH-BRO49	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	97.50 115.84 136.97
B2/B66A RRH-BRO49	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	97.50 115.84 136.97
B2/B66A RRH-BRO49	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.25 1.39 1.54	97.50 115.84 136.97
CBC78T-DS-43-2X	A	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.37 0.45 0.53	0.51 0.60 0.70	22.00 28.34 36.37
CBC78T-DS-43-2X	B	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.37 0.45 0.53	0.51 0.60 0.70	22.00 28.34 36.37
CBC78T-DS-43-2X	C	From Leg	3.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	0.37 0.45 0.53	0.51 0.60 0.70	22.00 28.34 36.37
RxxDC-6627-PF-48	B	From Leg	2.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 1" Ice	4.59 4.86 5.14	2.52 2.73 2.95	32.00 67.82 107.61
RMQP-4096-HK Platform	A	None		0.0000	120.00	No Ice 1/2" Ice 1" Ice	33.00 43.00 53.00	33.00 43.00 53.00	2300.00 2800.00 3300.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice

Comb. No.	Description
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	31	55024.70	-5921.70	-3418.90
	Max. H_x	20	34690.16	24481.81	47.50
	Max. H_z	2	34690.16	47.50	24426.96
	Max. M_x	2	2313964.29	47.50	24426.96
	Max. M_z	8	2320858.86	-24481.81	-47.50
	Max. Torsion	16	368.57	12199.77	-21130.61
	Min. Vert	17	26017.62	12199.77	-21130.61

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. H_x	8	34690.16	-24481.81	-47.50
	Min. H_z	14	34690.16	-47.50	-24426.96
	Min. M_x	14	-2314058.72	-47.50	-24426.96
	Min. M_z	20	-2320657.84	24481.81	47.50
	Min. Torsion	4	-368.59	-12199.77	21130.61

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	28908.47	0.00	0.00	37.10	-79.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	34690.16	-47.50	-24426.96	-2313964.29	5755.75	334.28
0.9 Dead+1.6 Wind 0 deg - No Ice	26017.62	-47.50	-24426.96	-2294941.28	5728.20	332.57
1.2 Dead+1.6 Wind 30 deg - No Ice	34690.16	12199.77	-21130.61	-2001028.49	-1155420.13	368.59
0.9 Dead+1.6 Wind 30 deg - No Ice	26017.62	12199.77	-21130.61	-1984579.47	-1145890.37	366.70
1.2 Dead+1.6 Wind 60 deg - No Ice	34690.16	21178.12	-12172.34	-1151891.53	-2007023.50	304.10
0.9 Dead+1.6 Wind 60 deg - No Ice	26017.62	21178.12	-12172.34	-1142430.69	-1990483.02	302.56
1.2 Dead+1.6 Wind 90 deg - No Ice	34690.16	24481.81	47.50	5901.13	-2320858.86	158.29
0.9 Dead+1.6 Wind 90 deg - No Ice	26017.62	24481.81	47.50	5835.53	-2301736.00	157.49
1.2 Dead+1.6 Wind 120 deg - No Ice	34690.16	21225.62	12254.62	1162115.28	-2012861.16	-29.79
0.9 Dead+1.6 Wind 120 deg - No Ice	26017.62	21225.62	12254.62	1152537.85	-1996267.75	-29.63
1.2 Dead+1.6 Wind 150 deg - No Ice	34690.16	12282.04	21178.12	2006959.65	-1165551.22	-209.91
0.9 Dead+1.6 Wind 150 deg - No Ice	26017.62	12282.04	21178.12	1990433.25	-1155929.11	-208.82
1.2 Dead+1.6 Wind 180 deg - No Ice	34690.16	47.50	24426.96	2314058.72	-5953.66	-333.92
0.9 Dead+1.6 Wind 180 deg - No Ice	26017.62	47.50	24426.96	2295011.00	-5874.33	-332.20
1.2 Dead+1.6 Wind 210 deg - No Ice	34690.16	-12199.77	21130.61	2001121.19	1155222.08	-368.57
0.9 Dead+1.6 Wind 210 deg - No Ice	26017.62	-12199.77	21130.61	1984647.92	1145744.13	-366.69
1.2 Dead+1.6 Wind 240 deg - No Ice	34690.16	-21178.12	12172.34	1151983.48	2006823.89	-304.49
0.9 Dead+1.6 Wind 240 deg - No Ice	26017.62	-21178.12	12172.34	1142498.59	1990335.64	-302.93
1.2 Dead+1.6 Wind 270 deg - No Ice	34690.16	-24481.81	-47.50	-5808.20	2320657.84	-158.66
0.9 Dead+1.6 Wind 270 deg - No Ice	26017.62	-24481.81	-47.50	-5766.91	2301587.59	-157.85
1.2 Dead+1.6 Wind 300 deg - No Ice	34690.16	-21225.62	-12254.62	-1162020.63	2012660.28	29.81
0.9 Dead+1.6 Wind 300 deg - No Ice	26017.62	-21225.62	-12254.62	-1152467.97	1996119.44	29.64

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.6 Wind 330 deg - No Ice	34690.16	-12282.04	-21178.12	-2006864.24	1165351.89	210.26
0.9 Dead+1.6 Wind 330 deg - No Ice	26017.62	-12282.04	-21178.12	-1990362.82	1155781.94	209.18
1.2 Dead+1.0 Ice+1.0 Temp	55024.70	0.00	0.00	191.93	-442.43	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	55024.70	-8.61	-6822.88	-631944.30	598.80	79.89
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	55024.70	3408.95	-5904.48	-546702.39	-316261.99	84.88
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	55024.70	5913.09	-3403.98	-314913.91	-548514.13	67.13
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	55024.70	6832.82	8.61	1313.40	-633925.77	31.40
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	55024.70	5921.70	3418.90	317246.59	-549611.11	-12.73
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	55024.70	3423.87	5913.09	548231.81	-318162.26	-53.46
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	55024.70	8.61	6822.88	632376.79	-1595.57	-79.87
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	55024.70	-3408.95	5904.48	547134.77	315265.20	-84.88
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	55024.70	-5913.09	3403.98	315346.26	547517.24	-67.16
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	55024.70	-6832.82	-8.61	-880.97	632928.79	-31.43
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	55024.70	-5921.70	-3418.90	-316814.06	548614.15	12.73
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	55024.70	-3423.87	-5913.09	-547799.24	317165.41	53.48
Dead+Wind 0 deg - Service	28908.47	-10.16	-5226.41	-492747.68	1163.11	71.71
Dead+Wind 30 deg - Service	28908.47	2610.27	-4521.13	-426103.74	-246116.79	79.10
Dead+Wind 60 deg - Service	28908.47	4531.29	-2604.40	-245275.07	-427472.15	65.30
Dead+Wind 90 deg - Service	28908.47	5238.15	10.16	1285.30	-494308.87	34.00
Dead+Wind 120 deg - Service	28908.47	4541.45	2622.01	247511.65	-428718.25	-6.39
Dead+Wind 150 deg - Service	28908.47	2627.88	4531.29	427427.96	-248275.29	-45.08
Dead+Wind 180 deg - Service	28908.47	10.16	5226.41	492825.83	-1329.39	-71.69
Dead+Wind 210 deg - Service	28908.47	-2610.27	4521.13	426181.83	245950.51	-79.10
Dead+Wind 240 deg - Service	28908.47	-4531.29	2604.40	245353.13	427305.80	-65.32
Dead+Wind 270 deg - Service	28908.47	-5238.15	-10.16	-1207.20	494142.47	-34.02
Dead+Wind 300 deg - Service	28908.47	-4541.45	-2622.01	-247433.48	428551.85	6.39
Dead+Wind 330 deg - Service	28908.47	-2627.88	-4531.29	-427349.76	248108.95	45.10

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	lb	lb	lb	lb	lb	lb	
1	0.00	-28908.47	0.00	0.00	28908.47	0.00	0.000%
2	-47.50	-34690.16	-24426.96	47.50	34690.16	24426.96	0.000%
3	-47.50	-26017.62	-24426.96	47.50	26017.62	24426.96	0.000%
4	12199.77	-34690.16	-21130.61	-12199.77	34690.16	21130.61	0.000%
5	12199.77	-26017.62	-21130.61	-12199.77	26017.62	21130.61	0.000%
6	21178.12	-34690.16	-12172.34	-21178.12	34690.16	12172.34	0.000%
7	21178.12	-26017.62	-12172.34	-21178.12	26017.62	12172.34	0.000%
8	24481.81	-34690.16	47.50	-24481.81	34690.16	-47.50	0.000%
9	24481.81	-26017.62	47.50	-24481.81	26017.62	-47.50	0.000%
10	21225.62	-34690.16	12254.62	-21225.62	34690.16	-12254.62	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
11	21225.62	-26017.62	12254.62	-21225.62	26017.62	-12254.62	0.000%
12	12282.04	-34690.16	21178.12	-12282.04	34690.16	-21178.12	0.000%
13	12282.04	-26017.62	21178.12	-12282.04	26017.62	-21178.12	0.000%
14	47.50	-34690.16	24426.96	-47.50	34690.16	-24426.96	0.000%
15	47.50	-26017.62	24426.96	-47.50	26017.62	-24426.96	0.000%
16	-12199.77	-34690.16	21130.61	12199.77	34690.16	-21130.61	0.000%
17	-12199.77	-26017.62	21130.61	12199.77	26017.62	-21130.61	0.000%
18	-21178.12	-34690.16	12172.34	21178.12	34690.16	-12172.34	0.000%
19	-21178.12	-26017.62	12172.34	21178.12	26017.62	-12172.34	0.000%
20	-24481.81	-34690.16	-47.50	24481.81	34690.16	47.50	0.000%
21	-24481.81	-26017.62	-47.50	24481.81	26017.62	47.50	0.000%
22	-21225.62	-34690.16	-12254.62	21225.62	34690.16	12254.62	0.000%
23	-21225.62	-26017.62	-12254.62	21225.62	26017.62	12254.62	0.000%
24	-12282.04	-34690.16	-21178.12	12282.04	34690.16	21178.12	0.000%
25	-12282.04	-26017.62	-21178.12	12282.04	26017.62	21178.12	0.000%
26	0.00	-55024.70	0.00	0.00	55024.70	0.00	0.000%
27	-8.61	-55024.70	-6822.86	8.61	55024.70	6822.88	0.000%
28	3408.94	-55024.70	-5904.46	-3408.95	55024.70	5904.48	0.000%
29	5913.07	-55024.70	-3403.97	-5913.09	55024.70	3403.98	0.000%
30	6832.80	-55024.70	8.61	-6832.82	55024.70	-8.61	0.000%
31	5921.69	-55024.70	3418.89	-5921.70	55024.70	-3418.90	0.000%
32	3423.86	-55024.70	5913.07	-3423.87	55024.70	-5913.09	0.000%
33	8.61	-55024.70	6822.86	-8.61	55024.70	-6822.88	0.000%
34	-3408.94	-55024.70	5904.46	3408.95	55024.70	-5904.48	0.000%
35	-5913.07	-55024.70	3403.97	5913.09	55024.70	-3403.98	0.000%
36	-6832.80	-55024.70	-8.61	6832.82	55024.70	8.61	0.000%
37	-5921.69	-55024.70	-3418.89	5921.70	55024.70	3418.90	0.000%
38	-3423.86	-55024.70	-5913.07	3423.87	55024.70	5913.09	0.000%
39	-10.16	-28908.47	-5226.41	10.16	28908.47	5226.41	0.000%
40	2610.27	-28908.47	-4521.12	-2610.27	28908.47	4521.13	0.000%
41	4531.29	-28908.47	-2604.40	-4531.29	28908.47	2604.40	0.000%
42	5238.15	-28908.47	10.16	-5238.15	28908.47	-10.16	0.000%
43	4541.45	-28908.47	2622.01	-4541.45	28908.47	-2622.01	0.000%
44	2627.88	-28908.47	4531.29	-2627.88	28908.47	-4531.29	0.000%
45	10.16	-28908.47	5226.41	-10.16	28908.47	-5226.41	0.000%
46	-2610.27	-28908.47	4521.12	2610.27	28908.47	-4521.13	0.000%
47	-4531.29	-28908.47	2604.40	4531.29	28908.47	-2604.40	0.000%
48	-5238.15	-28908.47	-10.16	5238.15	28908.47	10.16	0.000%
49	-4541.45	-28908.47	-2622.01	4541.45	28908.47	2622.01	0.000%
50	-2627.88	-28908.47	-4531.29	2627.88	28908.47	4531.29	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 67	11.9667	43	0.8885	0.0008
L2	71.5 - 33.5	4.1917	43	0.5640	0.0002
L3	39 - 1	1.2227	43	0.2943	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
122.00	Lightning Rod	43	11.9667	0.8885	0.0008	54203
120.00	(2) JAHH-45C-R3B w/ Mount Pipe	43	11.9667	0.8885	0.0008	54203
110.00	RMQP-396 w/handrail	43	10.1974	0.8268	0.0006	27101

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
2.5000	16	2.2500	124609.78 223654.40 0.56	128944.39 371266.30 0.35	33.181 45.000 0.74		Plate	0.74 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	120 - 67 (1)	TP33.2006x20.4128x0.375	53.00	0.00	0.0	37.7783	-16068.90	2806740.00	0.006
L2	67 - 33.5 (2)	TP40.5334x31.3648x0.4375	38.00	0.00	0.0	53.8354	-23655.90	3999700.00	0.006
L3	33.5 - 1 (3)	TP47.5x38.3314x0.4375	38.00	0.00	0.0	65.3522	-34676.80	4763910.00	0.007

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	120 - 67 (1)	TP33.2006x20.4128x0.375	776557.50	1824733.33	0.426	0.00	1824733.33	0.000
L2	67 - 33.5 (2)	TP40.5334x31.3648x0.4375	1442116.67	3177825.00	0.454	0.00	3177825.00	0.000
L3	33.5 - 1 (3)	TP47.5x38.3314x0.4375	2324250.00	4603758.33	0.505	0.00	4603758.33	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	120 - 67 (1)	TP33.2006x20.4128x0.375	19148.10	1403370.00	0.014	29.86	3660416.67	0.000

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L2	67 - 33.5 (2)	TP40.5334x31.3648x0.4375	21784.90	1999850.00	0.011	29.81	6374224.67	0.000
L3	33.5 - 1 (3)	TP47.5x38.3314x0.4375	24528.10	2381950.00	0.010	29.79	9231666.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	120 - 67 (1)	0.006	0.426	0.000	0.014	0.000	0.431 ✔	1.000	4.8.2 ✔
L2	67 - 33.5 (2)	0.006	0.454	0.000	0.011	0.000	0.460 ✔	1.000	4.8.2 ✔
L3	33.5 - 1 (3)	0.007	0.505	0.000	0.010	0.000	0.512 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	120 - 67	Pole	TP33.2006x20.4128x0.375	1	-16068.90	2806740.00	43.1	Pass
L2	67 - 33.5	Pole	TP40.5334x31.3648x0.4375	2	-23655.90	3999700.00	46.0	Pass
L3	33.5 - 1	Pole	TP47.5x38.3314x0.4375	3	-34676.80	4763910.00	51.2	Pass
							Summary	
						Pole (L3)	51.2	Pass
						Base Plate	73.7	Pass
						RATING =	**73.7**	**Pass**

Exhibit E

INFINIGY

Non-Ionizing Radiation Report

Compiled For: Northeast Site Solutions on behalf of T-Mobile

Site Name: CTNH400A

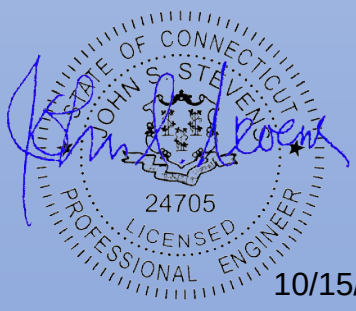
Site ID: CTNH400A

796 Woodin Street, Hamden, CT 06514

Latitude: 41-21-04.37 N; Longitude: 72-57-45.27 W

Structure Type: Monopole

Report Date: October 9, 2020



10/15/20

Status: T-Mobile will be compliant with FCC rules on RF Exposure.

Table of Contents

1. Executive Summary:

Northeast Site Solutions on behalf of T-Mobile has contracted Infinigy Solutions, LLC to determine whether the site CTNH400A located at 796 Woodin Street in Hamden, CT Will Be Compliant with all Federal Communications Commission (FCC) rules and regulations for radio frequency (RF) exposure as indicated in **47CFR§1.1310**.

The report incorporates a theoretical RF field analysis in accordance with the FCC Rules and Regulations for all individuals classified as "Occupational or Controlled" and "General Public or Uncontrolled" (see Appendix A and B).

This document and the conclusions herein are based on information provided by Northeast Site Solutions on behalf of T-Mobile.

As a result of the analysis, **T-Mobile Will Be Compliant with FCC rules.**

All Carriers, All Bands Cumulative Exposure %		
Uncontrolled / General Population	Exposure values at the site (mW/cm^2)	0.0278
	% Exposure	5.17 %
Controlled / Occupational	Exposure values at the site (mW/cm^2)	0.0364
	% Exposure	1.05 %

2. Site Summary:

Site Information	
Site Name: CTNH400A	
Site Address: 796 Woodin Street, Hamden, CT 06514	
Site Type: Monopole	
Compliance Status	Will Be Compliant
Mitigation Required	No
Signage Required	Yes
Barriers Required	No
Access Locked	No
Area Controlled or Uncontrolled	Uncontrolled

3. Site Compliance

This report also incorporates overview of the site information:

- Antenna Inventory Table
- Calculation Tables showing exposure for each carrier transmit frequency
- Total exposure for all carriers existing and proposed at ground level considering the centerline of all antennas and horizontal distance from the tower.
- Maximum Effective Radiated Power Assumed as Worst Case for Calculations used in this study
- Calculations based on flat ground around base of the structure

4. Site Compliance Recommendations

Infinigy recommends the following upon the installation of antennas at the site:

Base of tower

Install a yellow caution sign. Note: The recommendation for alerting signage is moot if there is a yellow caution, or greater already installed.

5. Antenna Inventory Table

Ant ID	Sector	Operator	Antenna manufacturer	Antenna Model	Operating Frequency/Technology	Rad Ctr (Ft)	Az (Deg)	# of TX	ERP TX (Watts)	Total ERP Power (Watts)
1	Alpha	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	2100 MHz LTE	110	2	80	160	4645
2a	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	110	2	80	160	3205
2b	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	110	2	80	160	2972
2c	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	110	2	80	160	2972
2d	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz GSM	110	2	80	160	4064
2e	Alpha	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz LTE	110	2	80	160	4064
3a	Alpha	T-Mobile	Ericsson	AIR6449 B41	2500 MHz LTE	110	2	80	160	3399
3b	Alpha	T-Mobile	Ericsson	AIR6449 B41	2500 MHz 5G	110	2	80	160	3399
4	Beta	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	2100 MHz LTE	110	2	80	160	4645
5a	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	110	2	80	160	3205
5b	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	110	2	80	160	2972
5c	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	110	2	80	160	2972
5d	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz GSM	110	2	80	160	4064
5e	Beta	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz LTE	110	2	80	160	4064
6a	Beta	T-Mobile	Ericsson	AIR6449 B41	2500 MHz LTE	110	2	80	160	3399
6b	Beta	T-Mobile	Ericsson	AIR6449 B41	2500 MHz 5G	110	2	80	160	3399
7	Gamma	T-Mobile	RFS	APX16DW-16DWV-S-E-A20	2100 MHz LTE	110	2	80	160	4645
8a	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	700 MHz LTE	110	2	80	160	3205
8b	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz LTE	110	2	80	160	2972
8c	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	600 MHz 5G	110	2	80	160	2972
8d	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz GSM	110	2	80	160	4064
8e	Gamma	T-Mobile	RFS	APXVARR24_43-C-NA20	1900 MHz LTE	110	2	80	160	4064
9a	Gamma	T-Mobile	Ericsson	AIR6449 B41	2500 MHz LTE	110	2	80	160	3399
9b	Gamma	T-Mobile	Ericsson	AIR6449 B41	2500 MHz 5G	110	2	80	160	3399

6. RF Guidelines

To ensure safety of company workers, the following points need to be taken into consideration and implemented at wireless sites in accordance with the Carriers policies:

a) Worksite: Any employee at the site should avoid working directly in front of the antenna or in areas predicted to exceed general population exposure limits by 100%. Workers should insist that the transmitters be switched off during the work period.

b) RF Safety Training and Awareness: All employees working in areas exceeding the general population limits should have a basic awareness of RF safety measures. Videos, classroom lectures and online courses are all appropriate training methods on these topics.

c) Site Access: Restricting access to transmitting antenna locations is one of the most important elements of RF safety. This can be done with:
   - Locked doors/gates/ladder access
   - Alarmed doors
   - Restrictive barriers

d) Three-foot Buffer: There is an inverse relationship between the strength of the field and the distance from the antenna. The RF field diminishes with distance from the antenna. Workers should maintain a three-foot distance from the antennas.

e) Antennas: Workers should always assume that the antenna is transmitting and should never stop right in front of the antenna. If someone must pass by an antenna, he/she should move quickly, thus reducing RF exposure.

7. T-Mobile Exposure Analysis By Band and Technology

T-Mobile 600 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.4**
	Exposure values at the site (mW/cm^2)	**0.0038**
	% Exposure	**0.94%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.0**
	Exposure values at the site (mW/cm^2)	**0.0038**
	% Exposure	**0.19%**

T-Mobile 600 MHz 5G		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.4**
	Exposure values at the site (mW/cm^2)	**0.0038**
	% Exposure	**0.94%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.0**
	Exposure values at the site (mW/cm^2)	**0.0038**
	% Exposure	**0.19%**

T-Mobile 700 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.5**
	Exposure values at the site (mW/cm^2)	**0.0041**
	% Exposure	**0.81%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.3**
	Exposure values at the site (mW/cm^2)	**0.0041**
	% Exposure	**0.18%**

T-Mobile 1900 MHz GSM		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0051**
	% Exposure	**0.51%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0051**
	% Exposure	**0.10%**

T-Mobile 1900 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0051**
	% Exposure	**0.51%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0051**
	% Exposure	**0.10%**

T-Mobile 2100 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0059**
	% Exposure	**0.59%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0059**
	% Exposure	**0.12%**

T-Mobile 2500 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0043**
	% Exposure	**0.43%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0043**
	% Exposure	**0.09%**

T-Mobile 2500 MHz 5G		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0043**
	% Exposure	**0.43%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0043**
	% Exposure	**0.09%**

8. Appendix A: FCC Guidelines

FCC Policies

The Federal Communications Commission (FCC) in 1996 implemented regulations and policies for analysis of RF propagation to evaluate RF emissions. All the analysis and results of this report are compared with FCC's (Federal Communications Commission) rules to determine whether a site is compliant for Occupational/Controlled or General Public/Uncontrolled exposure. All the analysis of RF propagation is done in terms of a percentage. The limits primarily indicate the power density and are generally expressed in terms of milliwatts per centimeter square, mW/cm^2.

FCC guidelines incorporate two separate tiers of exposure limits that are dependent on the scenario/ situation in which that exposure takes place or the status of the individuals who are subjected to that exposure. The decision as to which tier is applied to a scenario is based on the following definitions:

Occupational / Controlled

These limits apply in situations when someone is exposed to RF energy through his/her occupation, is fully aware of the harmful effects of the RF exposure and has an ability to exercise control over this exposure. Occupational / controlled exposure limits also apply when exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. limits for Occupational/Controlled exposure can be found on Table 1(A).

General Population / Uncontrolled

These limits apply to situations in which the general public may be exposed or in which persons who are exposed because of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure to RF. Therefore, members of the general public would always be considered under this category, for example, in the case of a telecommunications tower that exposes people in a nearby residential area. Exposure limits for General Population/Uncontrolled can be found on Table 1(B).

Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

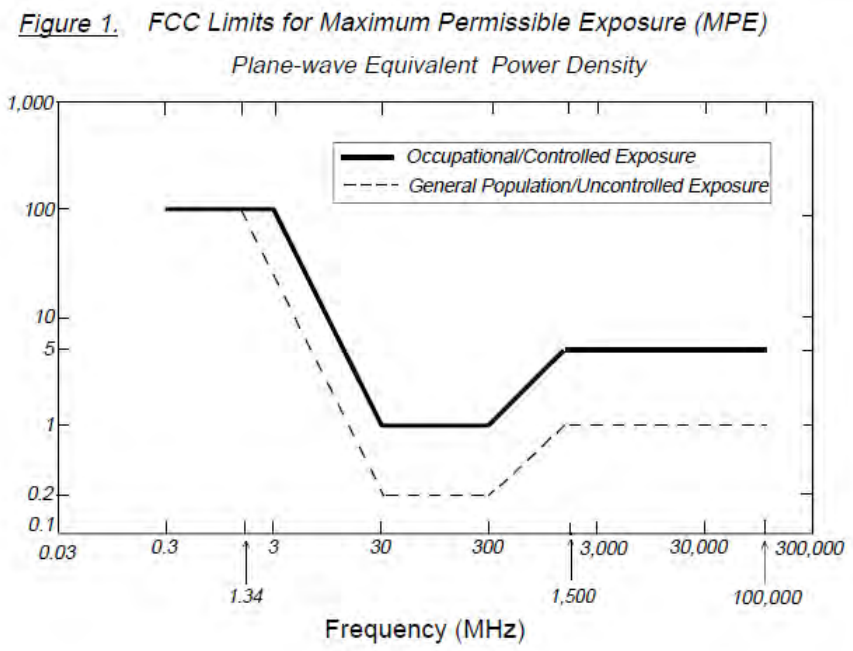
(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density



OSHA Statement:

The objective of the OSHA Act is to ensure the safety and health of the working men and women by enforcing certain standards. The act also assists and encourages the states in their efforts to ensure safe and healthy working conditions through means of research, information, education and training in the field of occupational safety and health and for other purposes.

According to OSHA Act section 5, important duties to be considered are:

(a) Each employer

1) Shall furnish to each of his employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious harm to his employees
2) Shall comply with occupational safety and health standards promulgated under this act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

9. Preparer Certification

I, Tim Harris, preparer of this report, certify that I am fully trained and aware of the rules and regulations of both the Federal Communications Commission and the Occupational Safety and Heath Administration regarding Human Exposure to Radio Frequency Radiation. In addition, I have been trained in 1) RF safety and 2) RF modeling using RoofView modeling software.

I certify that the information contained in this report is true and correct to the best of my knowledge.

Timothy A. Harris *10/9/2020*

Signature Date

Exhibit F

August 18, 2020

T-Mobile
Mr. Brian Paul
55 Griffin Dr
Bloomfield, CT 06002

RE: T-Mobile proposed antenna and equipment installation at 796 Woodin St., Hamden, CT
Docket 486

Dear Mr. Paul:

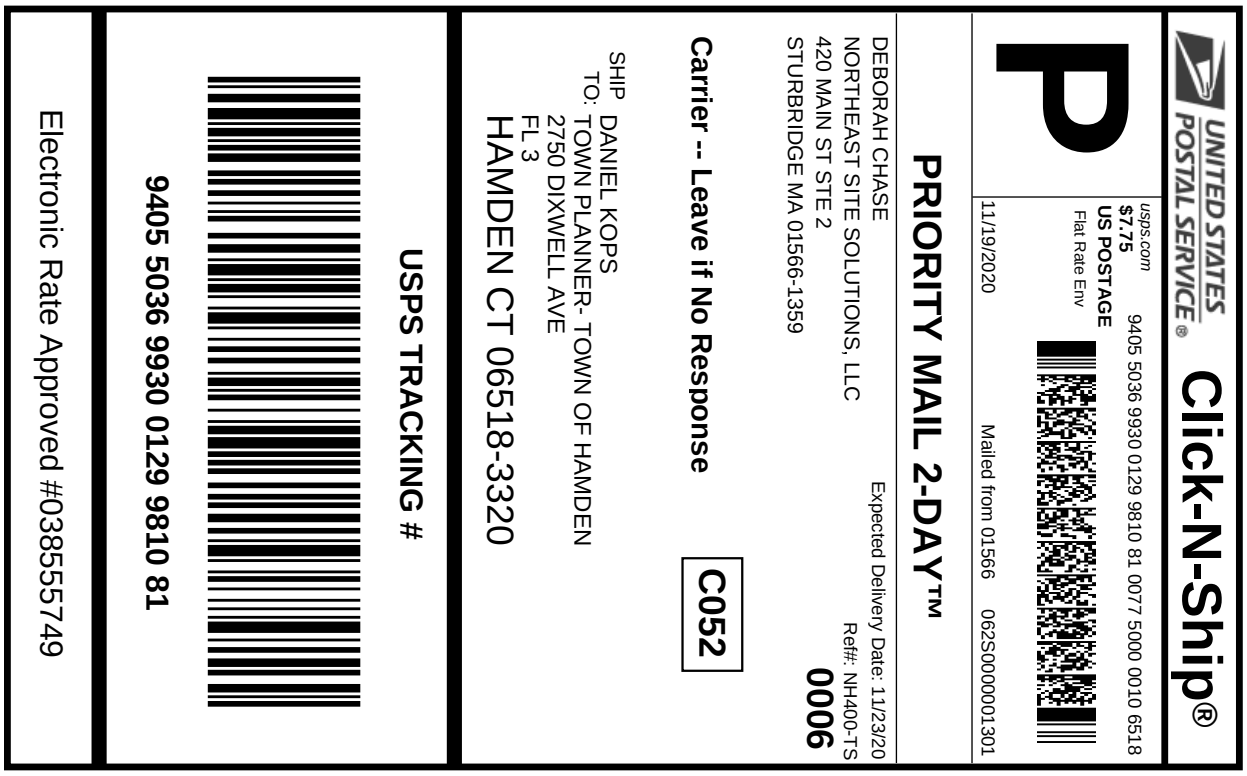
We, Tarpon Towers II, LLC, ("Tarpon"), as owner of the above mentioned tower site, hereby authorize T-Mobile and/or its agents to apply for and obtain all necessary permits and approvals from all applicable State of Connecticut and Town of Hamden agencies, commissions, boards and departments.

Should you have any questions please contact me at 941-757-5010.

Sincerely,

Brett Buggeln
COO

Exhibit G



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0129 9810 81

Trans. #:	514124581
Print Date:	11/17/2020
Ship Date:	11/19/2020
Expected Delivery Date:	11/23/2020

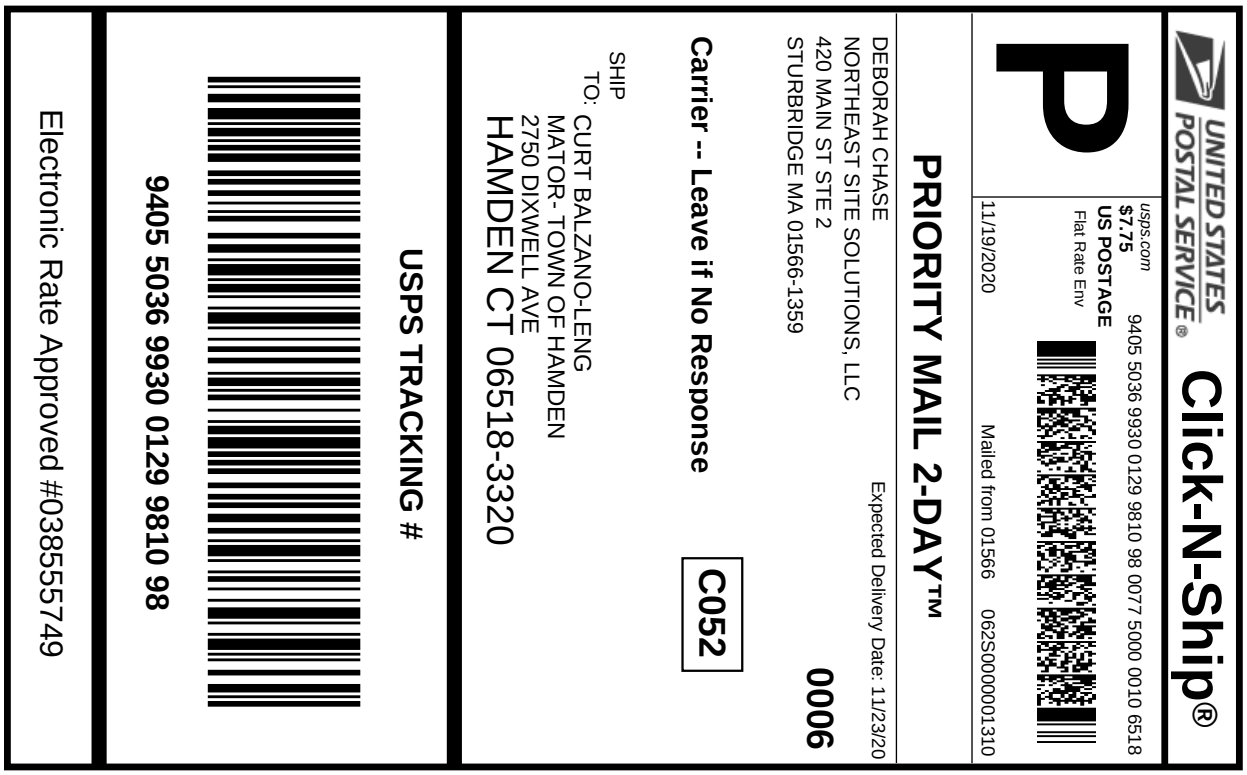
Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: NH400-TS
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: DANIEL KOPS
TOWN PLANNER- TOWN OF HAMDEN
2750 DIXWELL AVE
FL 3
HAMDEN CT 06518-3320

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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Total:	**$7.75**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: CURT BALZANO-LENG
MATOR- TOWN OF HAMDEN
2750 DIXWELL AVE
HAMDEN CT 06518-3320

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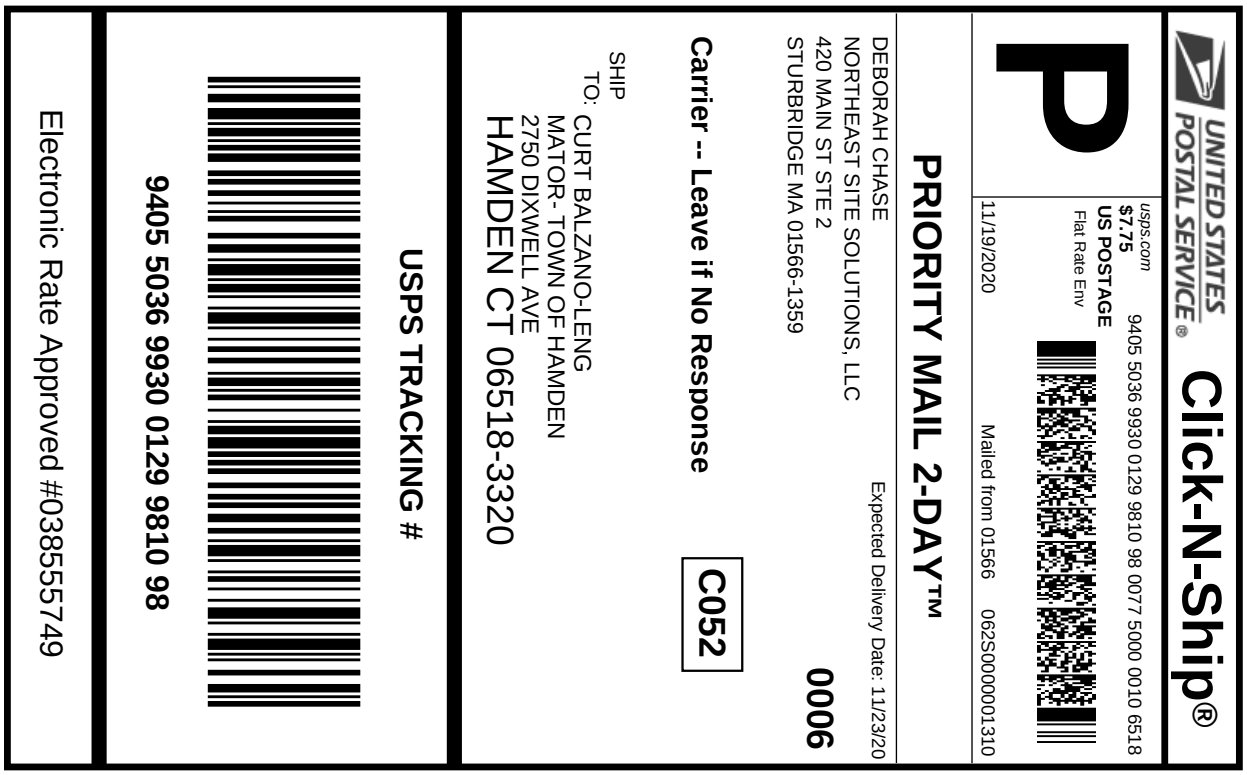

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From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: CURT BALZANO-LENG
MATOR- TOWN OF HAMDEN
2750 DIXWELL AVE
HAMDEN CT 06518-3320

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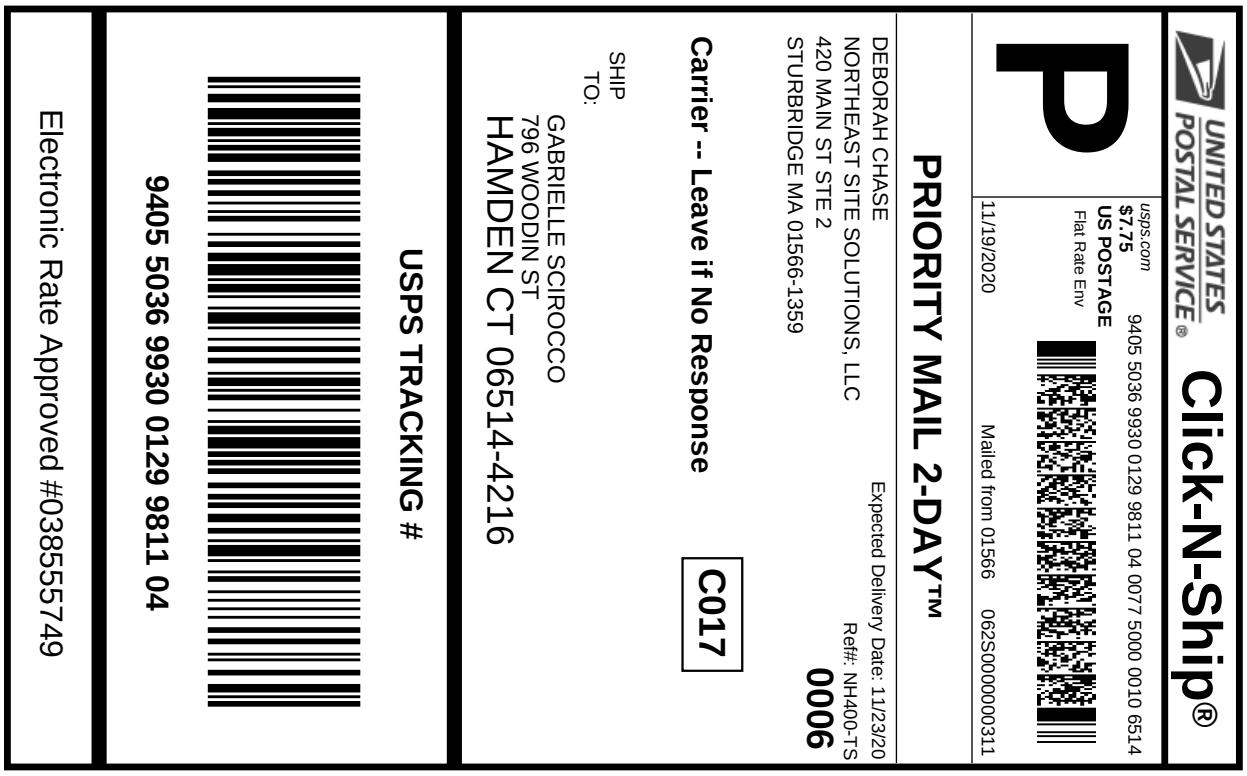

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0129 9811 04

Trans. #:	514124581
Print Date:	11/17/2020
Ship Date:	11/19/2020
Expected Delivery Date:	11/23/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: NH400-TS
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: GABRIELLE SCIROCCO
796 WOODIN ST
HAMDEN CT 06514-4216

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UNITED STATES POSTAL SERVICE®

Click-N-Ship®

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usps.com
$7.75
US POSTAGE
Flat Rate Env

P

11/19/2020 Mailed from 01566 062S0000000313

PRIORITY MAIL 2-DAY™

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

Expected Delivery Date: 11/23/20
Ref#: NH400A-TS

0006

Carrier -- Leave if No Response

C001

SHIP TO: KEITH COPPINS
TARPON TOWERS
110 WASHINGTON AVE
NORTH HAVEN CT 06473-1723

USPS TRACKING #

9405 5036 9930 0129 9811 28

Electronic Rate Approved #038555749

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Expected Delivery Date:	11/23/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: NH400A-TS
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: KEITH COPPINS
TARPON TOWERS
110 WASHINGTON AVE
NORTH HAVEN CT 06473-1723

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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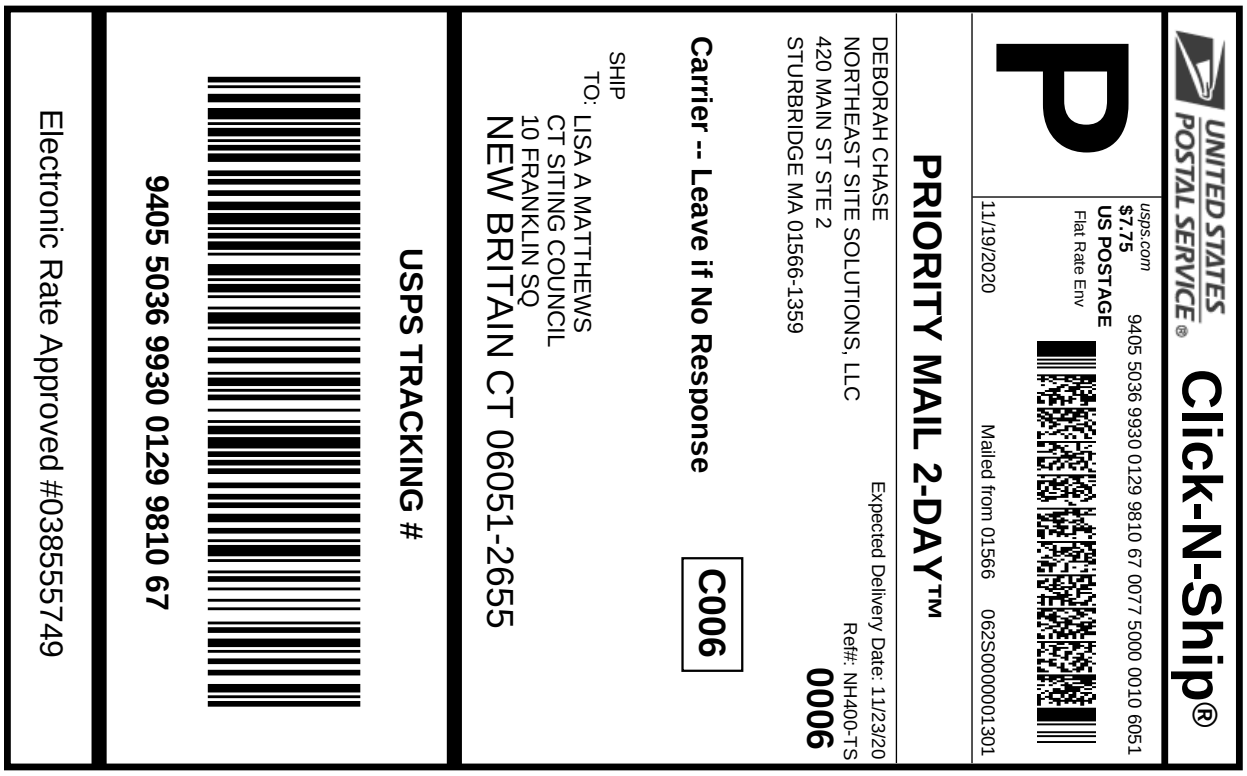

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0129 9810 67

Trans. #:	514124581
Print Date:	11/17/2020
Ship Date:	11/19/2020
Expected Delivery Date:	11/23/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

From: DEBORAH CHASE Ref#: NH400-TS
NORTHEAST SITE SOLUTIONS, LLC
420 MAIN ST STE 2
STURBRIDGE MA 01566-1359

To: LISA A MATTHEWS
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

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Exhibit H

Deborah Chase

From: Deborah Chase
Sent: Tuesday, November 17, 2020 12:42 PM
To: 'cleng@hamden.com'; 'dkops@hamden.com'; 'kcoppins@phoenixptrs.com'; 'kcoppins@arxwireless.com'
Subject: RE: 796 WOODIN STREET HAMDEN CT 06518 T-MOBILE TOWER SHARE APPLICATION (CTNH400A-NSD)
Attachments: 796 WOODIN STREET HAMDEN CT 06518 T-MOBILE TOWER SHARE (CTNH400A-NSD).pdf

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From: Deborah Chase <deborah@northeastsitesolutions.com>
Sent: Tuesday, November 17, 2020 12:15 PM
To: 'cleng@hamden.com' <cleng@hamden.com>; 'dkops@hamden.com' <dkops@hamden.com>; 'kcoppins@phoenixptrs.com' <kcoppins@phoenixptrs.com>; 'kcoppins@arxwireless.com' <kcoppins@arxwireless.com>
Subject: 796 WOODIN STREET HAMDEN CT 06518 T-MOBILE TOWER SHARE APPLICATION (CTNH400A-NSD)

Good afternoon
On behalf of our client, (T-Mobile), I am forwarding copies of T-Mobile Tower Share Application Request to collocate on a wireless telecommunications facility located at 796 Woodin Street, Hamden CT.
Hard copies will be sent as well for your records.
Please do not hesitate to contact me with any questions.
Thank you very much

Deborah Chase
Senior Project Coordinator & Analyst
Mobile: 860-490-8839
NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
www.northeastsitesolutions.com

Save a tree. Refuse.Reduce. Reuse. Recycle.