STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:

AMENDED PETITION OF T-MOBILE NORTHEAST LLC ("T-MOBILE) FOR A DECLARATORY RULING ON THE NEED TO OBTAIN A SITING COUNCIL CERTIFICATE FOR THE RELOCATION OF AN EXISTING WIRELESS TELECOMMUNICATIONS FACILITY ON A HIGH TENSION POWER LINE STRUCTURE WITHIN AN EXISTING EVERSOURCE TRANSMISSION EASEMENT OFF OF OLD STATION ROAD (A/K/A 15 OLD DANBURY ROAD) IN WILTON, CT	:	PETITION NO. 395A
	:	AUGUST 13, 2016

AMENDED PETITION FOR A DECLARATORY RULING TO RELOCATE A WIRELESS TELECOMMUNICATIONS FACILITY FROM EXISTING EVERSOURCE TRANSMISSION TOWER #2997 TO APPROVED REPLACEMENT TRANSMISSION TOWER #2997 OLD STATION ROAD (A/K/A 15 OLD DANBURY ROAD), WILTON, CT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A."), T-Mobile Northeast LLC ("T-Mobile") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S") in order to relocate an existing wireless telecommunications facility approved by the Siting Council in Petition #395. A copy of the Council's staff report in Petition 395 is annexed hereto in Attachment A. Eversource requires T-Mobile to permanently relocate from existing transmission tower structure #2997 to a planned new tower that will be replaced as per the approval granted in Siting Council Petition 1225 ("Approved Tower"). See Attachment B. The new transmission tower structure #2997 will be located adjacent to the site of the current transmission tower located off of Old Station Road (a/k/a 15 Old Danbury Road) in Wilton, CT (the "Site"). T-Mobile must construct its Relocation Facility ("Relocation Facility") during the necessary line outage required for installation of the Approved Tower.

II. Existing Facility and Eversource Project

The Siting Council approved the original facility in 1998 in Petition #395. The existing antennas are part of a power mount installed on existing transmission tower #2997 with equipment located at grade in an existing Eversource right-of-way ("Existing Facility"). Eversource structure #2997 is part of the supporting infrastructure for Eversource's Line 1682, a 115-kilovolt (kV) transmission line extending through the south-central section of Wilton adjacent to the Metro-North Railroad. The existing tower #2997 is a double-circuit, steel lattice tower tangent structure. T-Mobile's equipment is located in an approximately 6' x 10' concrete pad beneath the tower. Access to the Existing Facility is from Wilton Station, a commuter train parking lot. Power and communications will continue to remain underground extending from an existing utility pole to the ground equipment.

Eversource is rebuilding and reconductoring approximately two miles of its existing Line 1682, a 115-kV transmission line within an existing right-of-way from the Wilton Substation at 53 Old Danbury Road in Wilton to Norwalk Junction at 111 Danbury Road, also in Wilton. Tower #2997 will be replaced with a double-circuit, galvanized steel tangent monopole structure on foundation. Eversource notified T-Mobile that the Existing Facility must be removed and relocated to the planned replacement tower and T-Mobile and Eversource have since coordinated on permanent relocation plans that are incorporated into this Amended Petition for the Relocation Facility.

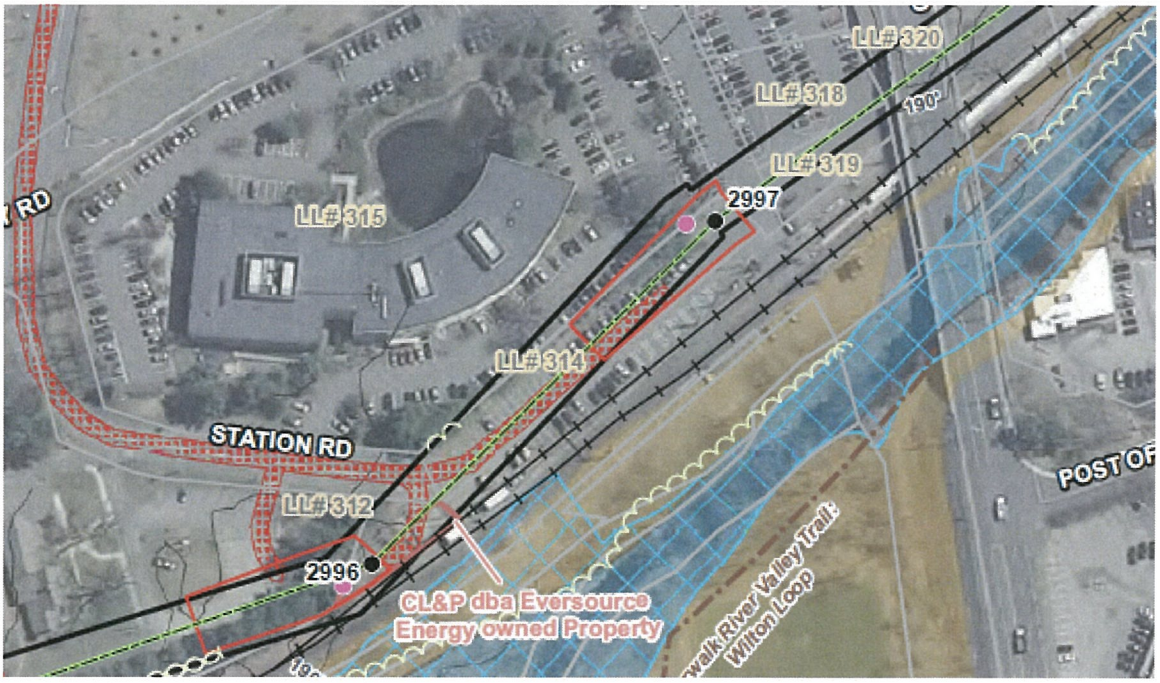

Figure 1 Zoom-in image capture of project area as provided by Eversource in Siting Council Petition #1225. The "work pad" area for tower #2997 is outline in red, the existing tower location is identified in pink while the new tower location is depicted in black.

III. T-Mobile Relocation Facility

Federal Communications Commission ("FCC") licenses T-Mobile to provide wireless services in this area of the State of Connecticut. The Existing Facility has provided T-Mobile wireless services to a large area of Wilton for 17 years. T-Mobile's proposed permanent relocation to existing transmission tower structure #2997 consists of an adjustable chain mount and antennas that will extend to approximately 121' AGL. T-Mobile will install three (3) panel antennas, along with associated equipment, at a centerline height of approximately 119' AGL, with the top of the antennas reaching an overall height of 121' on the 124' tall replacement Eversource transmission structure.

Access to the Relocation Facility is from Wilton Station, a commuter train parking lot. The Replacement Facility will use existing electric and communication connections running underground from a utility pole on Danbury Road. All of the improvements are located within an existing Eversource right-of-way.

Included as Attachment C is a letter of authorization from Eversource granting AT&T the authority to file this Petition. Included as Attachment D are detailed drawings prepared by Centek Engineering, last revised August 8, 2016 providing plans, elevations, site details, site utility plans, abutters map and other aspects of the proposed Replacement Facility. Annexed hereto as Attachment E is a structural letter prepared by Centek Engineering dated August 16, 2016, concluding that the new pole will be adequate to support T-Mobile's proposed facility.

Adjacent land uses include the Eversource electric transmission towers and rights-of-way, Metro-North railroad, commercial uses along Routes 7 and 33. A Town park including the Norwalk River Valley Trail and the Wilton Metro-North train station are also adjacent.

IV. The Relocated Facility Will Not Have a Substantial Adverse Environmental Effect

A. Site Footprint

A comparison of existing and proposed conditions as part of Petition 395 and this amendment to the approved plans reveals no substantial adverse environmental impacts associated with the mandatory relocation of T-Mobile's Existing Facility. The Relocation Facility consists of a similar power mount that will be constructed within the limits of the existing transmission line right-of-way. T-Mobile proposes no ground disturbance or tree clearing and no impacts to wetlands or other natural resources are anticipated.

B. Compliance with MPE Limits

A power density report is included in Attachment F which notes the facility will be less than 3% of the federal and state emission standards for the general public. As such, the total radio frequency power density will be well within the standards adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and the MPE limits established by the Federal Communications Commission for the public.

C. Visibility

The proposed T-Mobile installation will not significantly alter the appearance of the Approved Tower and the installed antennas will be similar in appearance to the existing facility. A picture of the existing facility is included in Attachment G. The Relocation Facility requires no FAA lighting or marking as per the TOWAIR report included in Attachment H.

D. Species and Habitat Review

Review of the Department of Energy and Environmental Protection's Natural Diversity Database mapping indicates no area of concern around the site. Please see NDDB map included in Attachment I. T-Mobile's Replacement Facility involves little to no ground disturbance and is in essence a minor modification of the Eversource Plans for the installation of the Approved Tower.

V. Public Need

The existing facility has been part of T-Mobile's wireless network providing reliable service in this part of the Town of Wilton for approximately 18 years. While the Council does not have to find a public need for the relocation facility as part of a ruling on this Amended Petition, it is respectfully submitted that the Relocated Facility is critical to providing continued, reliable wireless service to the public living in and traveling through this area of the state. Moreover, this project is consistent with the state policy to avoid the proliferation of towers.

VI. Notice

Pursuant to R.C.S.A. Section 16-50j-40(a), notice of T-Mobile's intent to file this Amended Petition was sent to each person appearing of record as an owner of property that abuts the site, as well as the appropriate municipal officials as listed in Section 16-50e of the C.G.S. Certification of such notice, a copy of the notice and the list of property owners and municipal officials are included in Attachment J.

VII. Conclusion

As set forth above, the proposed Relocated Facility is essentially a minor modification of the Approved Tower already reviewed in Petition 1225. Shared use

of such infrastructure is wholly consistent with legislative findings outlined in Section 16-50g and 16-50aa of the General Statutes of Connecticut that seek to avoid the unnecessary proliferation of towers in the State. Further, there are no known adverse environmental effects associated with the Relocation Facility. Therefore and for all of the foregoing reasons, T-Mobile petitions the Connecticut Siting Council for an amended approval in Petition #395 and not require a Certificate of Environmental Compatibility and Public Need for the relocation and that the Council issue an order approving the Amended Petition.

Respectfully submitted

T-MOBILE NORTHEAST LLC

By: 

Eric Dahl
Vertical Development, LLC
Agent for T-Mobile Northeast LLC
(860) 227-1975
edahl@comcast.net

cc: Lynne Vanderslice, First Selectman Town of Wilton
Michael J. Green, Eversource
T-Mobile

ATTACHMENT A

Petition No. 395
Wilton, Connecticut
Omnipoint Communications Inc.

Staff Report
July 9, 1998

On June 22, 1998, the Connecticut Siting Council (Council) Executive Director, Joel M. Rinebold, Council members Brian Emerick and Ed Wilensky, and Paul Aresta and Robert Erling of the Council Staff met with Sharon Burrows, Kenneth Jenkins, Michael Lund, Steven Lingard and Brian Weinstein of Omnipoint Communications, Inc. (Omnipoint) for a field review on a petition in the Town of Wilton, Connecticut. Omnipoint is petitioning the Council for a determination that no Certificate of Environmental Compatibility and Public Need (Certificate) would be required for modifications to an existing Connecticut Light and Power (CL&P) electric transmission line facility in Wilton. Omnipoint submits no Certificate would be required because the addition of the antenna and associated equipment would not have a substantial adverse environmental effect.

Omnipoint proposes to attach one dual pole PCS antenna to existing CL&P transmission line structure number 2997, located off of Old Station Road in Wilton, Connecticut. Access would be from Wilton Station, a commuter train parking lot. A temporary 15-foot by 20-foot staging area would be built immediately west of the base of the 90-foot CL&P lattice tower. All proposed construction would take place within the existing CL&P Right-of-Way (ROW). The top of the Omnipoint Accelerator antenna would extend to approximately 98 feet 8 inches above ground level (AGL) on the tower. The proposed antenna is 72 inches in height, 16 inches in diameter, and weighs 150 lbs. The communications equipment would be installed in an equipment cabinet placed on a 10-foot by 5.5-foot concrete pad located within the legs of the tower. There are no wetlands at the tower site. Some existing brush would be trimmed inside the tower base. The total calculated radio frequency power density at the base of the tower would be 0.0179 mW/cm^2, 1.8 percent of the maximum permissible exposure for uncontrolled environments based on Federal Communications Commission (FCC) Bulletin 65, August 1997.

ATTACHMENT B

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

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

May 27, 2016

Kathleen M. Shanley
Manager-Transmission Siting
Eversource Energy
P.O. Box 270
Hartford, CT 06141-0270

RE: **PETITION NO. 1225** – Eversource Energy petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed rebuilding and reconductoring of approximately two miles of its existing No. 1682 115-kV transmission line within existing right of way from the Wilton Substation at 53 Old Danbury Road, Wilton to Norwalk Junction at 111 Danbury Road, Wilton, Connecticut.

Dear Ms. Shanley:

At a public meeting held on May 26, 2016, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need, with the following conditions:

1. Eversource provide to the Council a copy of SHPO's response and/or mitigation measures in regards to the professional archeological reconnaissance survey to be conducted;

2. Eversource notify the Council of changes to construction work hours and that approval of any changes in work hours be delegated to staff;

3. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility 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 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 facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;

4. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the Town of Wilton;

5. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

6. The facility owner/operator 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;

7. This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and

8. If the facility owner/operator 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 facility within 30 days of the sale and/or transfer.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated April 1, 2016 and additional information dated May 12, 2016 and May 13, 2016.

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

Robert Stein NAB

Robert Stein
Chairman

RS/RDM/lm

Enclosure: Staff Report dated May 26, 2016

c: The Honorable Lynne Vanderslice, First Selectman, Town of Wilton
Robert Nerney, Director of Planning and Land Use Management, Town of Wilton

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

Petition No. 1225
Eversource Energy
1682 Line Upgrade Project - Wilton

Staff Report
May 26, 2016

Introduction

On April 1, 2016, the Connecticut Siting Council (Council) received a petition (Petition) from The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for proposed modifications to transmission line no. 1682 in the Town of Wilton. Council Chairman Robert Stein, Council Acting Executive Director Melanie Bachman, and Council staff member Robert Mercier conducted a field review of the proposed project on May 18, 2016. Eversource representatives in attendance included Kathleen Shanley, Fred Mattioli, Peter Novak, and Devleena Ghosh-Brower.

The purpose of the proposed project is to eliminate potential transmission system thermal and voltage criteria violations in the area that were identified in the June 2014 Southwest Connecticut Area (SWCT) Needs Assessment performed by ISO New England (ISO-NE) and in accordance with the February 2015 SWCT ISO-NE Solutions Study. In addition, the Project will meet Eversource's storm hardening requirements due to the proposed line design exceeding the structural loading criteria.

Proposed Project

Eversource proposes to modify a 1.85 mile section of Eversource's Line 1682, a 115-kilovolt (kV) transmission line extending through the south-central section of Wilton, adjacent to the Metro-North Railroad. Specifically, the Project entails the following components:

a. Replacement of the eight existing double-circuit, steel lattice tower tangent structures (structures 3000, 3001, 3002, 3003, 3008, 3009, 3012 and 3013) with direct-embedded, double-circuit galvanized steel tangent monopole structures.

b. Replacement of the seven existing double-circuit, steel lattice tower tangent structures (structures 2995, 2996, 2998, 3005, 3006, 3007 and 3010) with double- circuit, galvanized steel tangent monopole structures on foundations.

c. Replacement of the four existing double-circuit steel lattice tower strain structures (structures 2994, 2997, 2999 and 3011) with double-circuit galvanized strain steel monopoles on foundations.

d. Replacement of the existing transmission 556-kcmil aluminum conductor with steel reinforced conductor with new 1590-kcmil aluminum conductor with steel support conductor, which would be supported on the new double-circuit galvanized steel monopole structures within Eversource's right-of-way.

e. Installation of OPGW and 19#10 Alumoweld shield wires.

The work would occur in existing Eversource right-of-way (ROW) between the Wilton Substation and the Norwalk Junction Substation. The 1682 Line and a 27.6-kV distribution circuit are the only electric lines within this section of ROW. The ROW was established in 1943 and varies in width from 40 to 110 feet.

The new structures would be direct-embedded or installed on concrete foundations depending on the structure location and underlying soil conditions. The new structures would be located as close to the existing structures as possible.

The existing lattice structures range in height from 64 feet to 101 feet above ground level (agl). The proposed monopole structures would be 7 feet to 26 feet taller than the existing structures, with a maximum height of 119 feet agl. The increase in structure height is required to comply with the 2012 National Electrical Safety Code conductor to ground clearance requirements, phase to phase clearance requirements and Eversource's Overhead Transmission Line Standards.

T-Mobile and AT&T have installed telecommunications antenna arrays at the top of existing lattice structures no. 2997 and no. 2998, respectively. Eversource would design the new monopole structures at these locations so that they can accommodate replacement antennas for both telecommunication carriers. Additionally, both of the new structures would be constructed to support a 10-foot extension for future co-location. Eversource is coordinating with the telecommunications carriers regarding construction sequencing.

Project Construction and Work Procedures

Construction areas would be isolated by establishing erosion and sedimentation controls (E&S controls) in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and Eversource's Best Management Practices (Eversource BMPs). Typical E&S controls include, but are not limited to, the use of hay bales and silt fence, check dams, berms, swales, and sediment basins. Following the completion of construction, seeding and mulching would occur to permanently stabilize previously disturbed areas. Temporary E&S controls would remain in place until construction is complete and all disturbed areas are stabilized.

Construction along the ROW would utilize existing access roads, new access roads and spurs. Existing access roads may need to be graded, widened, and/or improved in order to be used safely and effectively during construction. Existing access road improvements as well as new access roads would include clearing adjacent vegetation and establishing a gravel travel surface approximately 16 to 20 feet wide. However, where access roads traverse streams or wetlands, temporary construction mats would be utilized.

At each transmission line structure site, a 100-foot by 100-foot work pad would be constructed to stage material for final on-site assembly. Construction of a work pad may require the removal of vegetation, grading and the installation of gravel to provide a safe, level work base for the construction equipment.

The new structure sections and associated materials and hardware would be delivered by truck and would be stored at a nearby staging area. The new structure would be delivered to the installation location in sections, and then it would be assembled and installed with a crane. Insulators and connecting hardware would be installed on most structures at this time.

The installation of the overhead line conductors and shield wires would require the use of special pulling and tensioning equipment, which would be positioned at the work pad locations. Helicopters may be used for conductor and shield wire pulling activities. Additionally, a 27.6-kV distribution line that is attached to the lattice structures would be relocated to the new monopole structures. Once the new lines are installed on the new monopoles, the old lattice towers and associated equipment would be removed and either recycled or disposed in accordance with Eversource BMPs and applicable regulations.

Access roads and/or structure work pads that are constructed in upland areas would be left in place to facilitate future maintenance, unless requested to be removed by the underlying property owner.

Eversource anticipates beginning construction during summer of 2016 with completion by December 2017. Normal work hours would be Monday through Saturday from 7:00 a.m. to 7:00 p.m. Sunday work hours or hours beyond normal work hours may be required for time sensitive work during or for scheduled Metro-North Railroad outages. Eversource would coordinate work hours with the Town of Wilton and abutting property owners when work beyond normal work hours is necessary.

The Project would traverse some maintained lawn areas, driveways and parking lots that exist in the ROW. Eversource would coordinate with affected property owners to maintain necessary access as well as restore disturbed areas upon completion of construction.

Environmental Considerations

Land-use in the Project area consists of a mix of commercial, residential and undeveloped lands. Although the Project includes slightly taller towers than what presently exists, the Project is located along busy transportation corridors (Route 7 and the Metro-North Railroad) and already contains a transmission line, and, as such, would have a negligible visual impact. Additionally, the new monopole structures would have a more streamlined appearance than the existing lattice structures and would be essentially in the same location as the existing lattice structures.

Several open space parcels, a Town park, and a recreation trail are located near the Project area. Given their location west of the Metro-North Railroad, the construction of the Project would have no direct impacts on these recreational resources.

Removal of mature vegetation would be minimal as all work would occur within a maintained ROW. The existing cleared area of the ROW varies in width from 40-60 feet. All clearing would be conducted in accordance with Eversource's BMPs. Eversource would coordinate with affected property owners to provide replacement plantings in areas where existing landscaping or visual buffers are removed during construction.

Cultural resources surveys identified two areas within the ROW that have a moderate/high potential to produce intact cultural deposits. Eversource is coordinating with the State Historic Preservation Office (SHPO) regarding additional survey work in these areas and would comply with any subsequent SHPO mitigation requirements. In addition to these potential archeological deposits, one historic building on the National Register of Historic Places is approximately 600 feet from the ROW. No adverse impacts to this historic building are anticipated.

No records of State-listed endangered, threatened, or special-concern species occur in the vicinity of the project area. Although the Petition initially identified one listed species, Eversource reviewed this information and determined this finding was related to work in a different portion of the existing ROW that was to be included as part of this Petition, but now will be submitted as a separate petition in the future. This listed species is not known to occur near the Project area.

Construction of the Project would require the installation of temporary construction mats in three separate wetland areas to access work pad locations, affecting a total of 0.85-acre of wetlands. The temporary mats would be removed upon completion of construction and disturbed wetland areas would be restored in accordance with Eversource BMPs. Additionally, 50 square feet of wetlands would be permanently filled for the installation structure no. 3006. Due to the amount of the wetlands in this area, it is not possible to relocate the structure to avoid permanent wetland impact. No vernal pools were identified within the Project area.

Eversource may need to cross the Norwalk River or an associated tributary to access several structures. Watercourse crossings would be conducted in accordance with Eversource's BMPs and would utilize temporary matting to reduce impact to riverbanks. Disturbed areas would be restored in accordance with Eversource BMPs.

Three of the new structures would be located in a FEMA 100-year flood zone and would not impact the base flood elevation as a result of construction. Based on a hydraulic analysis, structures nos. 3005, 3006, and 3007 would be constructed on new drilled shaft foundations that are eight feet in diameter, extending five feet above the base flood elevation, and would conform to compensatory flood storage requirements.

No public water supply reservoirs are located in the vicinity of the proposed project. The Project is not located within an aquifer protection area.

Construction-related noise is exempt per DEEP noise regulations. Notwithstanding, any construction-related noise would be short-term and localized in the vicinity of work sites. There would be no permanent changes to the existing sound levels along the transmission right-of-way after completion of the project.

Magnetic Fields

Eversource reviewed magnetic field (MF) levels associated with the Project. The Project route already contains an existing transmission line and a distribution line that both emit MF. In the United States, no state or federal exposure standards for 60-hertz MF based on demonstrated health effects have been established, nor are there any such standards established world-wide. However, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) has established a level of 2,000 milliGauss (mG), based on extrapolation from scientific experimentation, and the International Committee on Electromagnetic Safety (ICES) has calculated a guideline of 9,040 mG for exposure to workers and the general public, and recognized in the Council's *Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Lines in Connecticut.*

Calculations performed by Eversource indicate MF would increase slightly along the west edge of the ROW (facing the railroad) and decrease slightly along the east edge of the ROW under average loading conditions. These values, 5.0 mG and 12.1 mG, respectively, are well below the guidelines established by ICNIRP and ICES.

Municipal and Abutter Notice

Eversource began Project consultation with the Town of Wilton in February 2016. Formal notice of the Petition was provided to the Town and abutting property owners on or about April 1, 2016. The Council has not received any comments from property abutters or the Town to date.

Recommended Conditions

Staff recommends the following conditions:

- Eversource provide to the Council a copy of SHPO's response and/or mitigation measures in regards to the professional archeological reconnaissance survey to be conducted; and
- Eversource notify the Council of changes to construction work hours and that approval of any changes in work hours be delegated to staff.

ATTACHMENT C

EVERSOURCE ENERGY

107 Selden Street
Berlin, CT 06037

August 9, 2016

Steven Andrade
Area Director, CT and UPNY
T-Mobile Northeast LLC
35 Griffin Road, South
Bloomfield, CT 06002

Re: Site Permitting Authorization

Dear Mr. Andrade,

Authorization is hereby given to T-Mobile Northeast LLC , its employees and its duly authorized agents and independent contractors (hereinafter collectively referred to as "T-Mobile Northeast LLC "), to apply for any and all local municipal, state and federal licenses, permits and approvals, including but not limited to Connecticut Siting Council, building permits, zoning variances, zoning special exceptions, site plan and subdivision approvals, driveway, wetlands and terrain alteration permits, which are or may be necessary or required for T-Mobile Northeast LLC to construct, operate and maintain a wireless communications system (PCS System), and/or antenna site on the following property owned by The Connecticut Light & Power Company dba Eversource Energy (ES):

15 Old Danbury Road
Wilton, CT 06897
Structure #2997
CT11018

The foregoing authorization is given subject to the following conditions:

1. This authorization shall be nonexclusive. Nothing herein shall prevent or restrict ES from authorizing any other person or entity to apply for any similar licenses, permits or approvals to construct, operate and maintain any other communication system or facility of any type on the property at any time.

2. This authorization shall not obligate ES to pay for or reimburse any costs or expenses or to provide any assistance of any kind in connection with any applications, or bind or obligate ES to agree or be responsible for any on-site or off-site improvements, development restrictions, impact fees or assessments, capital improvement charges, bonds or other security, or any other fee, assessment, charge or expense imposed or required as a condition of any license, permit or approval. T-Mobile Northeast LLC shall be solely and fully responsible for all fees, charges costs and expenses of any kind in connection with any applications. ES agrees to reasonably cooperate with T-Mobile Northeast LLC in signing such applications or other similar documents as may be required in order for T-Mobile Northeast LLC to apply for any license, permit or approval.

EVERSOURCE ENERGY

107 Selden Street
Berlin, CT 06037

3. This authorization shall not be deemed or construed to grant or transfer to T-Mobile Northeast LLC any interest in the property, whatsoever, and shall not in any respect obligate or require ES to sell, lease or license the Property to T-Mobile Northeast LLC or otherwise allow T-Mobile Northeast LLC to use or occupy the property for any purpose, regardless of whether any licenses, permits and approvals applied for by T-Mobile Northeast LLC for the property are granted. T-Mobile Northeast LLC understands and acknowledges that any and all applications filed by T-Mobile Northeast LLC for the property at T-Mobile Northeast LLC' sole risk and without any enforceable expectation that the property will be made available for T-Mobile Northeast LLC ' use.

4. T-Mobile Northeast LLC shall be required to supply to ES, free of charge and contemporaneous with T-Mobile Northeast LLC filing of same, a complete copy of any and all applications, plans, reports and other public filings made by T-Mobile Northeast LLC with any local, municipal, state or federal governmental or regulatory officer, agency board, bureau, commission or other person or body for any licenses, permits or approvals for the property, and to keep ES fully informed on a regular basis of the status of T-Mobile Northeast LLC ' applications.

5. This authorization shall automatically expire six (6) months after the date of this letter, unless extended in writing by mutual agreement of ES and T-Mobile Northeast LLC.

Very truly yours,

Henry O'Brien, Real Estate Analyst
T & D/ROW & Survey Engineering
Eversource Energy

AGREED TO ON BEHALF OF
T-MOBILE NORTHEAST LLC

By: _____
Duly Authorized
Steven Andrade
Director Eng & Ops
Connecticut & UPNY

Date: 8/9/16

15 Old Danbury Road
Wilton, CT 06897
Structure #2907
CT11101B

ATTACHMENT D

T-Mobile

WIRELESS COMMUNICATIONS FACILITY

CL+P IN WILTON DTWN
SITE ID: CT11101B
EVERSOURCE STRUCTURE NO. 2997
15 OLD DANBURY RD
WILTON, CT 06897

PROJECT SUMMARY

THE GENERAL SCOPE OF WORK CONSISTS OF THE FOLLOWING:

1. A TOTAL OF THREE (3) DIRECTIONAL PANEL ANTENNAS ARE TO BE MOUNTED AT A CENTERLINE ELEVATION OF ±119' A.G.L. ON A 124' TALL REPLACEMENT EVERSOURCE TRANSMISSION STRUCTURE.
2. POWER & TELCO UTILITIES WILL BE ROUTED UNDERGROUND FROM THEIR RESPECTIVE DEMARCS LOCATED ADJACENT TO THE EXISTING TRANSMISSION TOWER.

PROJECT INFORMATION

SITE NAME:	CL&P IN WILTON DTWN
SITE ID:	CT11101B
SITE ADDRESS:	15 OLD DANBURY RD WILTON, CT 06897
TOWER OWNER:	EVERSOURCE 56 PROSPECT STREET HARTFORD, CT 06103
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	MATT BAMBLE (PROJECT MANAGER) VERTICAL DEVELOPMENT, LLC (508) 642-6801
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-11'-46.44" N LONGITUDE: 73°-23'-56.15" W GROUND ELEVATION: 186'± AMSL SITE COORDINATES AND ELEVATION REFERENCED FROM THE CSC DATABASE.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "F" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO "EXTRA" WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM: 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002 **TO:** 15 OLD DANBURY RD, WILTON, CT 06897

1.	HEAD NORTHEAST ON GRIFFIN RD S TOWARD W NEWBERRY RD	0.6 MI.
2.	TURN RIGHT ONTO DAY HILL RD	3.6 MI.
3.	USE THE RIGHT LANE TO MERGE ONTO I-91 S VIA THE RAMP TO HARTFORD	0.4 MI.
4.	MERGE ONTO I-91 S	28.0 MI.
5.	TAKE EXIT 17 TO MERGE ONTO CT-15 S/WILBUR CROSS PKWY	14.2 MI.
6.	TAKE EXIT 41 TOWARD CT-33 N/WILTON RD	482 FT.
7.	TURN LEFT ONTO CT-33 N/WILTON RD	3.7 MI.
8.	CONTINUE ONTO US-7 N	0.3 MI.
9.	TURN LEFT ONTO OLD DANBURY RD	285 FT.

VICINITY MAP

SCALE: 1" = 1000'

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	DESIGN BASIS AND STRUCTURAL SPECIFICATIONS	0
C-1	SITE LOCATION PLAN AND ABUTTERS MAP	0
C-2	COMPOUND PLAN, ELEVATION AND ANTENNA MOUNTING CONFIG.	0
E-1	COMPOUND GROUNDING PLAN AND NTOES	0
E-2	SCHEMATIC DIAGRAM AND NOTES	0
E-3	EVERSOURCE TOWER GROUNDING AND NOTES	0
E-4	ELECTRICAL DETAILS	0
E-5	ELECTRICAL SPECIFICATIONS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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WIRELESS COMMUNICATIONS FACILITY
CL+P IN WILTON DTWN
SITE ID: CT11101B
15 OLD DANBURY ROAD
WILTON, CT 06897

DATE:	07/28/15
SCALE:	AS NOTED
JOB NO.	15107.00

TITLE SHEET

T-1

Sheet No. 1 of 3

STRUCTURAL SPECIFICATIONS

DESIGN BASIS

1. GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CT STATE BUILDING CODE AND 2009 AMENDMENTS.
2. TIA/EIA-222-F-1996, ASCE MANUAL NO. 72 – "DESIGN OF STEEL TRANSMISSION POLE STRUCTURES SECOND EDITION", NESC C2-2007 AND NORTHEAST UTILITIES DESIGN CRITERIA.
3. DESIGN CRITERIA:

   WIND LOAD: (UTILITY POLE & FOUNDATION)
   BASIC WIND SPEED (V) = 110 MPH (3-SECOND GUST) BASED ON NESC C2-2007, SECTION 25 RULE 250C.

SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS ARE TO BE PROVIDED BY AN APPROVED AGENCY HIRED BY VERIZON WIRELESS. REFER TO THE STATEMENT OF SPECIAL INSPECTIONS PREPARED BY CENTEK ENGINEERING, INC. DATED 05.06.16.

GENERAL NOTES

1. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
2. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.
3. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
4. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED OFF SITE AND BE LEGALLY DISPOSED, AT NO ADDITIONAL COST.
4. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.
5. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
6. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
7. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
8. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
9. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
10. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.

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WIRELESS COMMUNICATIONS FACILITY

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DESIGN BASIS AND STRUCTURAL SPECIFICATIONS

N-1

Sheet No. 2 of 3

308 DANBURY ROAD:

N/F
THOMAS DANIEL JUDE COSTELLO
C/O TRUSTEE OF THE (REVOC)
308 DANBURY RD UNIT 1
M.A.: 27 WOODHILL RD
WILTON, CT 06897

N/F
COLLEEN P MCDERMOTT
308 DANBURY RD UNIT 2
WILTON, CT 06897

N/F
JOAN D & THOMAS A MOORE TR
308 DANBURY RD UNIT 3
WILTON, CT 06897

N/F
MANISH MAHESHWARI
C/O KAVITA RATHI
308 DANBURY RD UNIT 4
WILTON, CT 06897

N/F
SENG-CHOO ONG
C/O STEVEN R ERICKSON
308 DANBURY RD UNIT 5
WILTON, CT 06897

N/F
STEPHEN J WALL
308 DANBURY RD UNIT 6
WILTON, CT 06897

N/F
KERRY A TYLER
308 DANBURY RD UNIT 7
WILTON, CT 06897

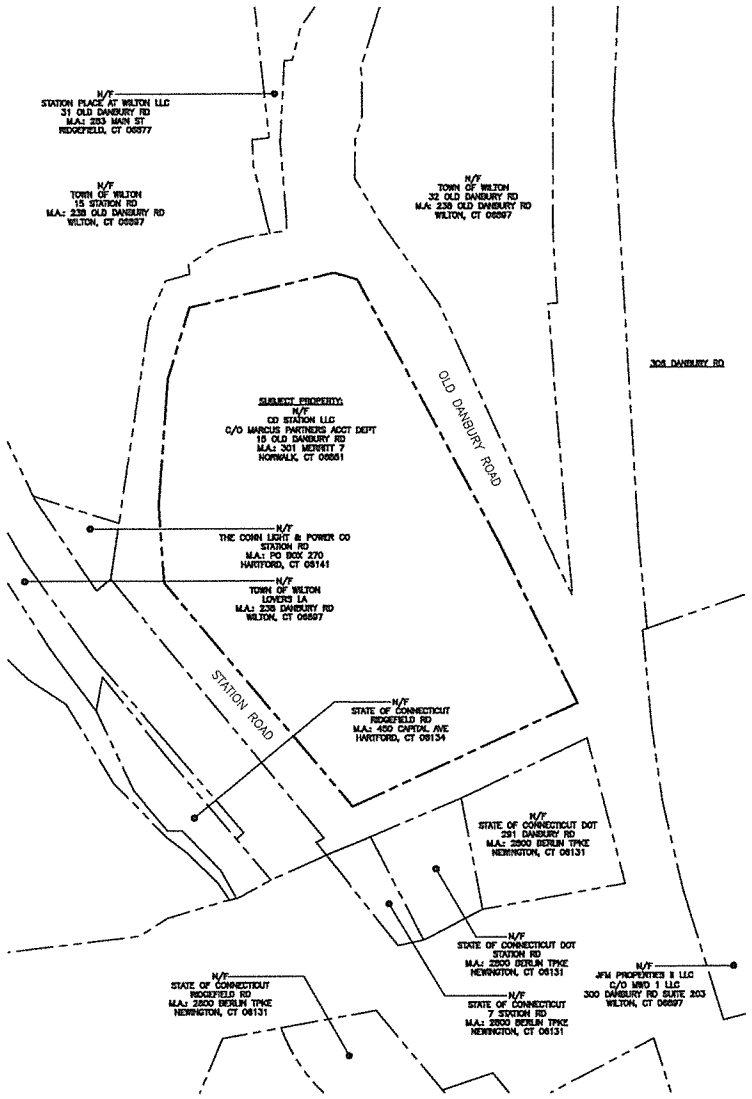
N/F
LINDA R & DAVID A GORTZ
308 DANBURY RD UNIT 8
WILTON, CT 06897

N/F
SANDRA H & WILLIAM A HOGAN
308 DANBURY RD UNIT 9
WILTON, CT 06897

N/F
PATRICIA B & DAMIAN V RINALDI
308 DANBURY RD UNIT 10
WILTON, CT 06897

N/F
JOHN A DECARAGNE
C/O PATRICIA HSUNG
308 DANBURY RD UNIT 11
WILTON, CT 06897

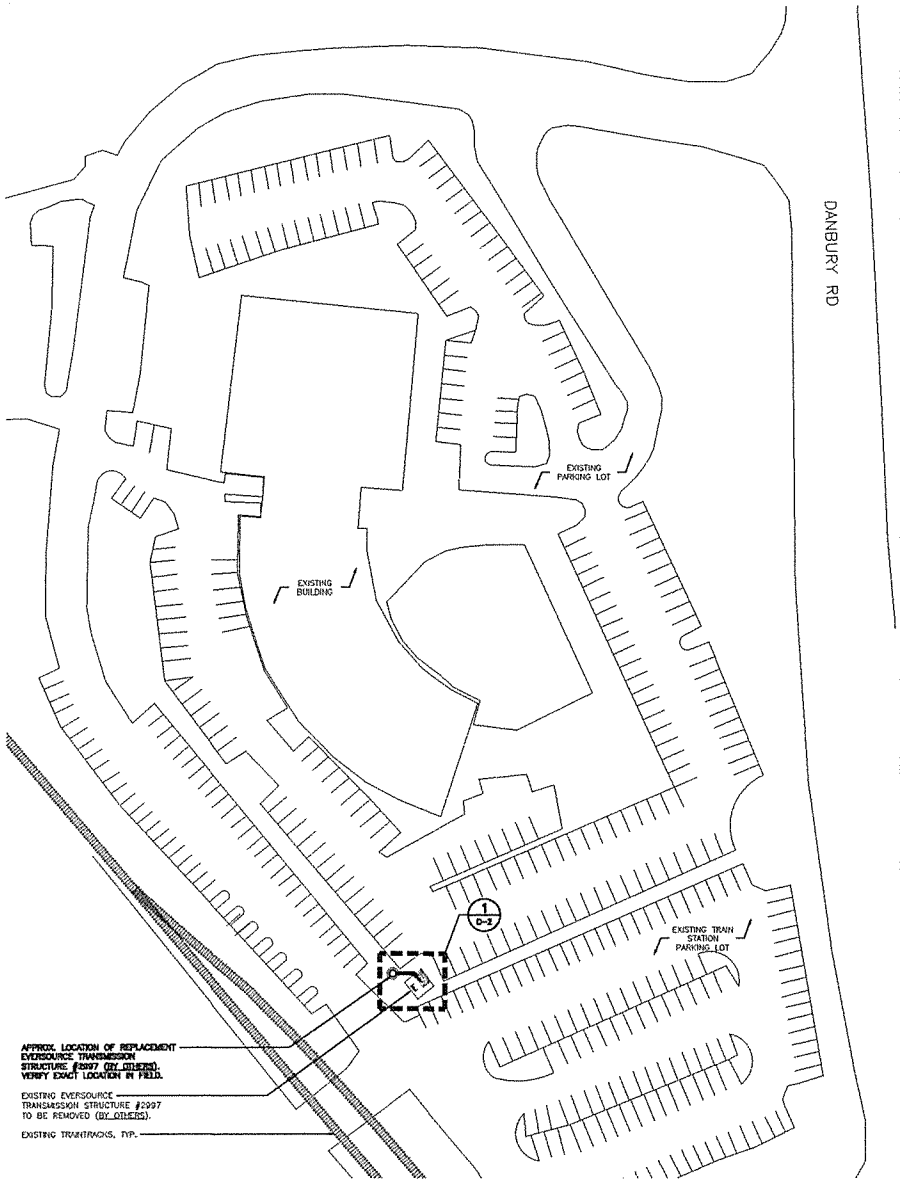
N/F
ROBERT STANZIONE JR ETAL
C/O CAROL STANZIONE LIFE ESTATE
308 DANBURY RD UNIT 12
WILTON, CT 06897



1 C-1 **ABUTTERS MAP**
SCALE: 1" = 70'

TRUE NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 70 ft.



2 C-1 **SITE LOCATION PLAN**
SCALE: 1" = 40'

TRUE NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

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WILTON, CT 06897

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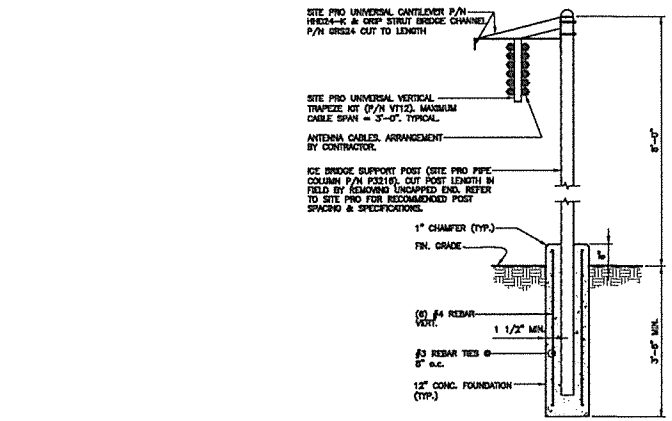
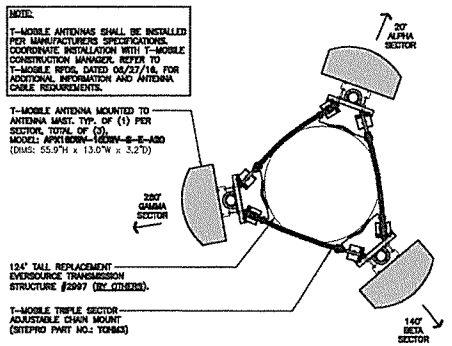
SITE LOCATION PLAN AND ABUTTERS MAP

C-1

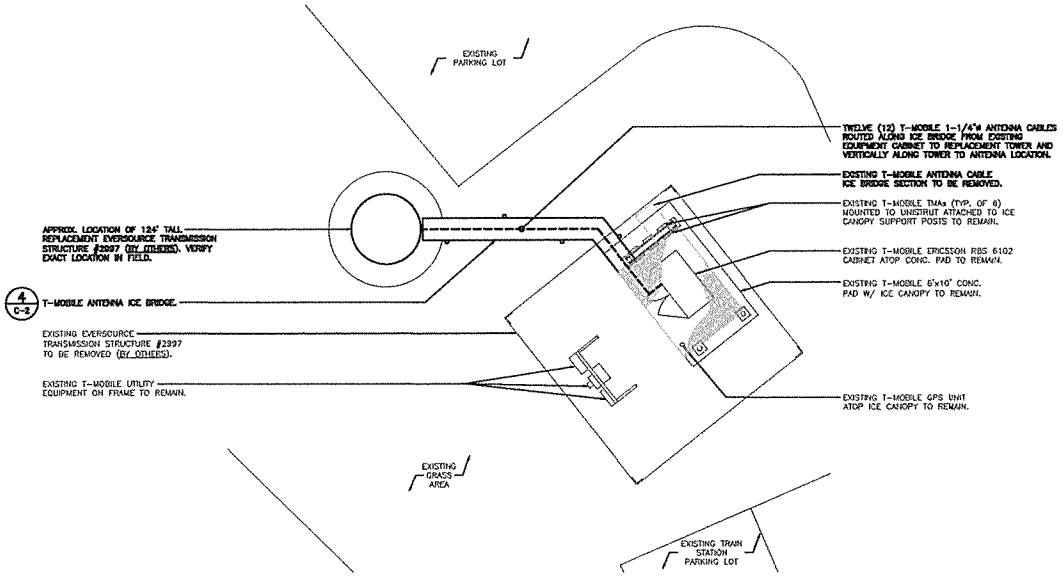
Sheet No. 3 of 3



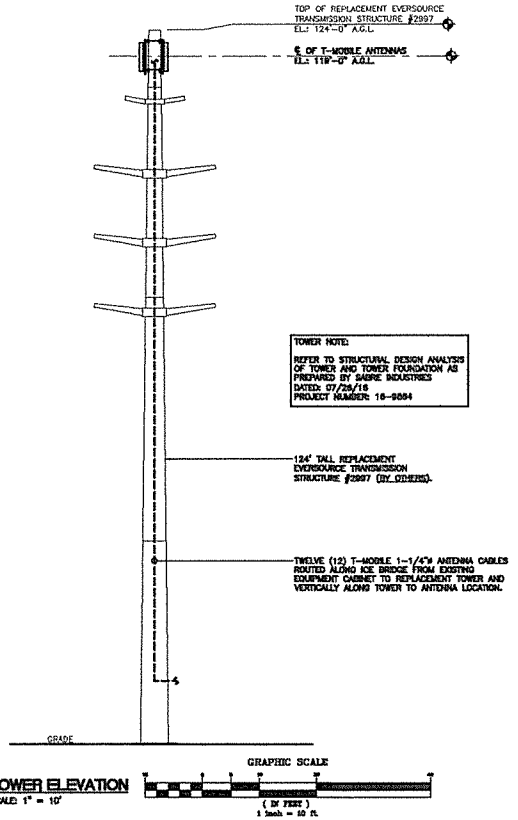
4 C-2 **ICE BRIDGE DETAIL**
NOT TO SCALE



3 C-2 **ANTENNA MOUNTING CONFIGURATION**
SCALE: 1" = 1'



1 C-2 **COMPOUND PLAN**
SCALE: 1/4" = 1'
TRUE NORTH



2 C-2 **TOWER ELEVATION**
SCALE: 1" = 10'

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COMPOUND PLAN, ELEVATION AND ANTENNA MOUNTING CONFIG.

C-2

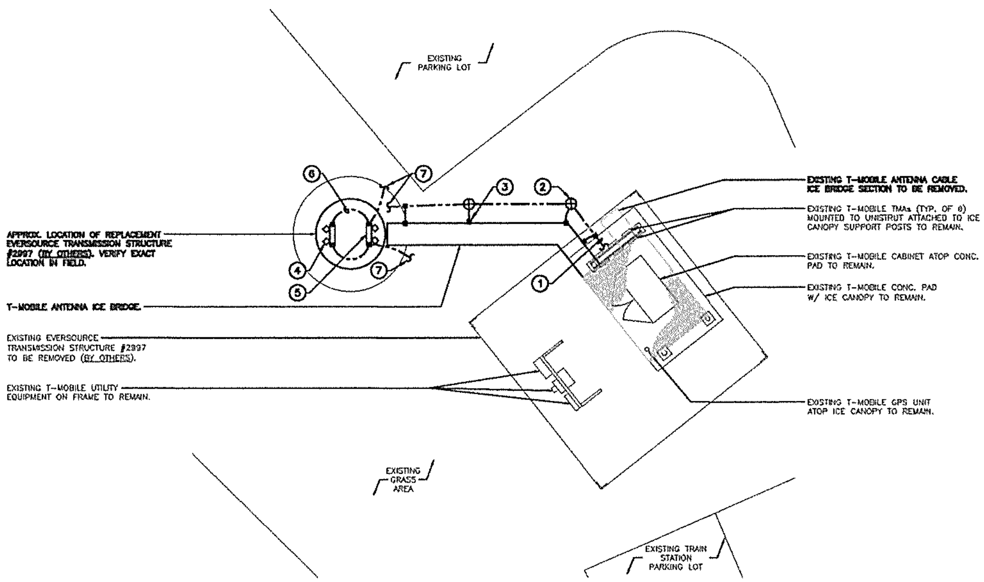
Sheet No. 4 of 7

GROUNDING PLAN NOTES

1. #2 SOLID TINNED BCW. BOND TO EXISTING T-MOBILE COMPOUND GROUND RING. (TYP)
2. GROUNDING ROD (TYP.) PER DETAILS.
3. ICE BRIDGE POST AND COVER. BOND EACH SECTION AND SUPPORT TO GROUND RING PER DETAILS. (TYP.)
4. UPPER TOWER MOUNTED GROUND BAR PER DETAILS.
5. LOWER TOWER MOUNTED GROUND BAR PER DETAILS.
6. BOND UPPER TOWER MOUNTED GROUND BAR TO LOWER TOWER MOUNTED GROUND BAR (2 GROUND LEADS) PER DETAILS.
7. BOND TO NEW TOWER GROUND RING.

GENERAL NOTES

1. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY TOWER OWNER PRIOR TO INSTALLATION.
2. PROVIDE ANY ADDITIONAL GROUNDING ELEMENTS REQUIRED BY TOWER OWNER.
3. REFER TO GROUNDING SCHEMATIC AND ALL DETAILS FOR ADDITIONAL INFORMATION.
4. TOWER GROUNDING TO BE PROVIDED BY OTHERS AND IS NOT PART OF THE SCOPE OF THESE PLANS.
5. REMOVAL OF GROUNDING ELEMENTS ASSOCIATED WITH DEMOLITION OF EXISTING TOWER SHALL BE BY OTHERS AND IS NOT PART OF THE SCOPE OF THESE PLANS.



1 / E-1 COMPOUND PLAN
SCALE: 1/4" = 1'

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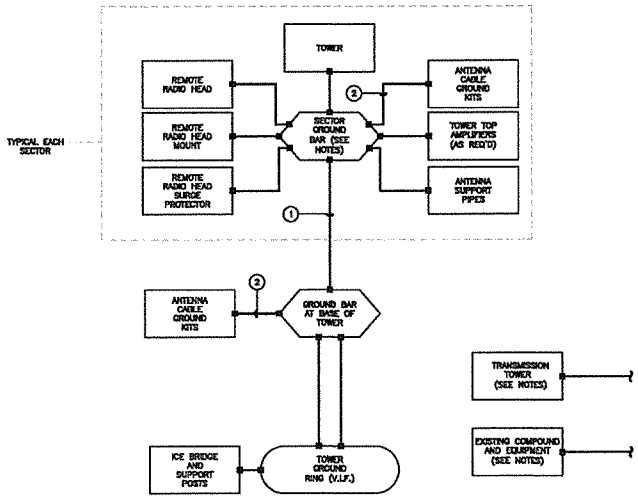
COMPOUND GROUNDING PLAN AND NOTES

E-1

Sheet No. 5 of 3



CELLULAR GROUNDING NOTES

OBJECTIVE:
PROVIDE A CELLULAR GROUNDING SYSTEM WITH MAXIMUM ALTERNATING CURRENT RESISTANCE OF 5 OHMS BETWEEN ANY POINT ON THE GROUNDING SYSTEM AND REFERENCE GROUND. PROVIDE EXTERIOR GROUNDING SCHEME WITH OWNER'S ENGINEER APPROVAL AS REQUIRED TO ACHIEVE DESIRED MAXIMUM AC RESISTANCE TO GROUND.

TESTING
CONTRACTOR TO PROVIDE AN INDEPENDENT TESTING CONTRACTOR TO DETERMINE THE GROUNDING SYSTEM RESISTANCE BY USE OF THE THREE POINT TEST AND AN AEMC MODEL 4500L OR APPROVED EQUAL. TEST TO BE PERFORMED PRIOR TO CONNECTION OF POWER SUPPLY TO THE CELL SITE AND CONNECTION OF THE GROUNDING SYSTEM TO THE WATER MAIN OR AC SUPPLY AS APPLICABLE. IF 5 OHM LIMIT IS EXCEEDED, CONTACT ENGINEER FOR ADDITIONAL INSTRUCTIONS TO ACHIEVE 5 OHMS OR LESS.

CONDUCTOR USED FOR CELLULAR GROUNDING SYSTEM
EGR – #2 AWG ANNEALED SOLID TINNED BARE COPPER
IGR – #2 AWG ANNEALED STRANDED (7 STRAND) THW GREEN COLORED INSULATION
INTER-BUS EXTENSION (FROM IGR TO EGR) – SEE DETAILS
EXTERNAL BOND CONNECTIONS TO EGR – #2 ANNEALED SOLID TINNED BARE COPPER
INTERIOR BOND CONNECTIONS TO IGR – #6 ANNEALED STRANDED (7 STRAND) THW GREEN COLORED INSULATION

MINIMUM BENDING RADIUS
IGR #2 : 1'-0" NOMINAL AND 8" MINIMUM
EGR #2 : 2'-0" NOMINAL AND 8" MINIMUM
CELLULAR GROUNDING CONDUCTOR SHALL BE AS STRAIGHT AS POSSIBLE WITH MINIMUM 8" BENDING RADIUS.

FASTENER FOR CELLULAR GROUNDING CONDUCTOR
USE NON-METALLIC FASTENER AND STANDOFF "CLIC" (AVAIL. FROM NEFCO 800-989-0255) TO SURFACE SUPPORT CONDUCTOR 3" AWAY FROM SURFACES.
SPACING OF FASTENERS: 2'-0" O.C. OUTSIDE BUILDING
3'-0" O.C. INSIDE BUILDING

GROUNDING ELECTRODE
GROUNDING ELECTRODE SHALL BE 5/8" DIA. x 10'-0" L COPPER CLAD STEEL ROD. ADJUST LOCATION OF GROUNDING ELECTRODE IF SOIL CONDITION IS NOT CONDUCTIVE (GRAVEL, SANDY SOIL, ROCKS). SPACE GROUNDING ELECTRODES 20'-0" APART (SPACING MAY BE REDUCED WHERE REQUIRED TO ACCOMMODATE FIELD CONDITIONS BUT SHALL NOT BE LESS THAN 10'-0"). ELECTRODES SHALL BE DRIVEN ONLY WITH PROPER DRIVER SLEEVE TO PREVENT MUSHROOMING TOP OF ROD. WHEN ROCK BOTTOM IS ENCOUNTERED, THE ELECTRODE SHALL BE DRIVEN AT AN OBLIQUE ANGLE NOT TO EXCEED 45° FROM THE VERTICAL AWAY FROM STRUCTURES. TOP OF GROUNDING ELECTRODE SHALL BE MIN. 3'-0" BELOW FINISH GRADE.

CONNECTIONS ABOVE GRADE (MECHANICAL)
COMPRESSION LUG CONNECTOR – 15 TON COMPRESSION, 2 HOLE, LONG BARREL, ELECTRO TINNED PLATED, HIGH CONDUCTIVITY, COPPER 600V RATED. USE 1/4" ø BOLT, 3/4" SPACING LUGS TO BOND OBJECTS FROM THE IGR. (CONNECTOR SHALL BE BURNDY HYLUG SERIES OR EQUAL.)

EXOTHERMIC WELD LUG CONNECTOR – 2 HOLE, OFFSET, ELECTRO TINNED PLATED, HIGH CONDUCTIVITY, COPPER 600V. USE 1/2"ø BOLT, 1-3/4" SPACING LUGS. CONNECTOR SHALL BE CADWELD CONNECTION STYLE (CABLE TO SURFACE) TYPE LA, LUG SIZE 1/8 x 1. EXOTHERMIC WELD TO LUG AS REQUIRED.

C-TAP COMPRESSION CONNECTOR – HIGH CONDUCTIVITY COPPER FOR MAIN TO BRANCH LINE TAPPING. (CONNECTOR SHALL BE BURNDY HYTAP SERIES OR EQUAL.)

MECHANICAL CONNECTIONS
USE MATCHING MANUFACTURER TOOL AND DIE FOR COMPRESSION CONNECTION.
APPLY ANTI-OXIDANT CONDUCTIVITY ENHANCER COMPOUND ON SURFACES THAT ARE COMPRESSED.
SURFACES INTENDED TO BE CONNECTED WITH MECHANICAL CONNECTORS SHALL BE BARE METAL TO BARE METAL. PRIME AND PAINT OVER BONDED AREA TO PREVENT CORROSION.

WHEN BONDING #2 TO #2
EXTERIOR OF BUILDING – USE EXOTHERMIC WELD CONNECTION
INTERIOR OF BUILDING – USE COMPRESSION CONNECTION ON STRANDED CONDUCTORS ONLY.
– USE EXOTHERMIC WELD CONNECTION ON SOLID CONDUCTOR.

WHEN BONDING #2 TO FENCE POST
USE EXOTHERMIC WELD (CADWELD TYPE "VS") CONNECTION TO FENCE POST STEEL SURFACE. TEST WELD FOR POSSIBLE BURN THRU. PATCH WELDED AREA WITH GALVANIZED COATING AS REQUIRED FOR PROPER WELDED PERMANENT BOND. REFER TO MANUFACTURER'S REQUIREMENTS FOR DETAILS

GROUNDING SYSTEM INTERCONNECTION
BOND THE EGR DOWN CONDUCTORS, AND/OR BURIED GROUND RING TO ANY METALLIC OBJECT OR EXISTING GROUNDING SYSTEM WITHIN 6'.

WHEN BONDING #2 TO TOWER GROUND PLATE
TOWER GROUND PLATE SHALL BE 6" x 8" x 1/4" COPPER AND BE MADE AVAILABLE TO TOWER CONTRACTOR TO BE INSTALLED DURING TOWER CONSTRUCTION. USE EXOTHERMIC WELD (CADWELD TYPE "HS") TO TOWER GROUND PLATE TEST WELD FOR POSSIBLE BURN THRU. COORDINATE THE SIZE OF THE MOUNTING HOLE WITH TOWER CONTRACTOR.

METALLIC CONDUITS
BOND ALL STEEL CONDUITS TO PANELS AT POINT OF CONTACT WITH APPROVED GROUNDING BUSHING.

GROUNDING SCHEMATIC NOTES

(1) #2/0 GREEN INSULATED
(2) #6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY AND ICE BRIDGE SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR TOWER OWNER'S STRUCTURAL ENGINEER.
6. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
7. REFER TO ALL GROUNDING DETAILS.
8. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
9. ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
10. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
11. COORDINATE WITH EVERSOURCE TRANSMISSION DEPARTMENT REPRESENTATIVE TO DETERMINE ADDITIONAL GROUNDING REQUIREMENTS. PROVIDE ALL REQUIRED ELEMENTS TO MEET EVERSOURCE APPROVAL. THIS REQUIREMENT IS INCLUSIVE OF ALL NEW AND EXISTING T-MOBILE EQUIPMENT.
12. COORDINATE WITH TOWER OWNER BEFORE INSTALLING ANY GROUNDING ELEMENTS ON TOWER OR BONDING TO EXISTING TOWER GROUND RING.

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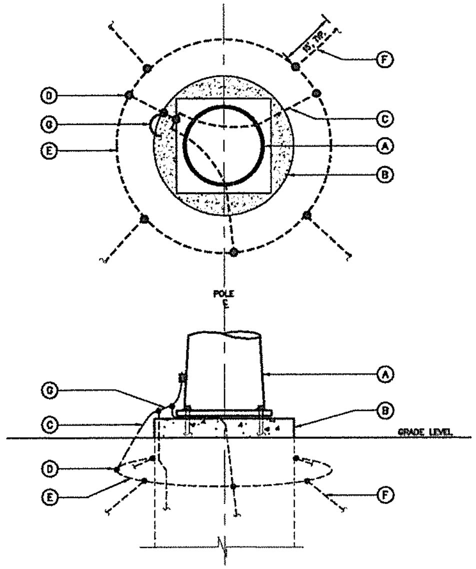
SCHEMATIC DIAGRAM AND NOTES

E-2
Sheet No. 5 of 7



1 EVERSOURCE TOWER GROUNDING DETAIL
E-6
NOT TO SCALE

EVERSOURCE TOWER GROUNDING NOTES:

(EVERSOURCE REQUIREMENTS)

(A) STEEL HYBRID POLE.

(B) CONCRETE CAISSON TYPE FOUNDATION.

(C) STRANDED COPPERWELD SPOKE FROM POLE GROUND TO GRADING RING. SPOKES ARE A CONTINUATION OF STRANDED COPPERWELD COUNTERPOISE CONNECTING GRADING RING TO POLE GROUND. SPOKES TO SLOPE ON STRAIGHT LINE FROM GROUND LEVEL TO GRADING RING.

(D) PARALLEL GROVE CONNECTOR, NU SC190052.

(E) GRADING RING @ 18" MINIMUM BELOW GRADE AND 24" TO 30" FROM TOWER FOUNDATION. GRADING RING TO BE 3 NO. 8 STRANDED ANNEALED COPPERWELD.

(F) COUNTERPOISE, 3 NO. 8 STRANDED ANNEALED COPPERWELD (TYPICAL).

(G) COPPERWELD POLE GROUND.

GENERAL NOTES:

1. THE INFORMATION ON THIS SHEET REPRESENTS TYPICAL EVERSOURCE GROUNDING REQUIREMENTS. CONTRACTOR MUST COORDINATE WITH EVERSOURCE SITE MANAGER FOR SPECIFIC (AND CURRENT) GROUNDING REQUIREMENTS AT THIS SITE.

EVERSOURCE - TOWER GROUNDING SYSTEM NOTES

GENERAL–

1. THE OWNER WILL FURNISH THE WIRE, CONNECTORS, AND MISCELLANEOUS MATERIAL ASSOCIATED WITH THE COUNTERPOISE GROUNDING SYSTEM.
2. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL THE GROUNDING SYSTEM AND TO REHABILITATE THE RIGHT–OF–WAY AS CLOSE AS POSSIBLE TO ITS ORIGINAL CONDITION.
3. THE CONTRACTOR SHALL HANDLE AND TRANSPORT THE OWNER SUPPLIED MATERIAL FROM THE OWNER'S STOREROOMS AND YARDS TO THE JOB SITE AND SHALL RETURN SURPLUS MATERIAL AND EMPTY REELS TO DESIGNATED STOREROOMS AND YARDS UPON COMPLETION OF THE CONTRACT.
4. EVERSOURCE WILL BE RESPONSIBLE FOR PERFORMING TESTS FOR SURGE IMPEDANCE AND WAVE IMPENDENCE.

INSTALLATION–

1. UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE, COUNTERPOISE SHALL BE BURIED A MINIMUM OF 24" IN CULTIVATED AREAS AND 18" IN WOODED OR OTHER AREAS. IN ROCKY AREAS OR WHERE OBSTRUCTIONS ARE ENCOUNTERED, THE COUNTERPOISE SHALL BE DIVERTED AROUND SUCH OBSTRUCTIONS. ALL INSTALLATIONS SHALL INCLUDE CONNECTIONS TO EXISTING OR PROPOSED STRUCTURES, AND SUCH CONNECTIONS SHALL BE MADE BELOW GROUND USING BOLTED PARALLEL GROVE CONNECTORS.
2. WHERE MULTIPLE STRUCTURE GROUNDS EXIST AT MULTI POLE STRUCTURES, THEY SHALL BE CONNECTED TOGETHER WITH BURIED COPPERWELD WIRE, BUT ONLY IF SUCH GROUNDS HAVE METALLIC CONNECTIONS UP THE POLES TO THE SHIELD WIRE(S). AT STRUCTURES THAT HAVE PALE GROUNDS AND ALSO POLE GUY GROUNDS, CONNECTIONS SHALL BE MADE ONLY TO THE POLE GROUNDS, AND THE MINIMUM SPACING BETWEEN THE COUNTERPOISE AND ANCHOR RODS SHALL BE 10'. AT WOOD POLE STRUCTURES WHERE NO SUCH POLE GROUND EXISTS, COUNTERPOISE CONNECTIONS SHALL BE MADE TO THE POLE TOP GUYS.
3. FOR SINGLE CONTINUOUS (TYPE A) AND SINGLE BROKEN (TYPE B) COUNTERPOISE, THE WIRE SHALL IN GENERAL BE LAYED AT THE CENTERLINE OF THE TRANSMISSION LINE. FOR DOUBLE CONTINUOUS (TYPE C) AND DOUBLE BROKEN (TYPE D) COUNTERPOISE, THE WIRES SHALL IN GENERAL SHALL BE LAYED UNDER THE OUTSIDE PHASE WIRES OF THE TRANSMISSION LINE. COUNTERPOISE SHALL NOT BE INSTALLED ACROSS BROOKS, RIVERS, HIGHWAYS, RAILROADS, OR IN THE VICINITY OF TELEPHONE CABLES OR PIPELINES.
4. AT STEEL POLE STRUCTURES, A BURIED GRADING RING AND SPOKES SHALL ALSO BE INSTALLED AROUND THE STRUCTURE UNLESS THE STRUCTURE HAS A PAD AND PIER FOUNDATION OR UNLESS A RING ALREADY EXISTS. COUNTERPOISE WIRE SHALL BE CONNECTED AT TWO PLACES TO EACH RING, AND COPPERWELD SPOKES SHALL SLOPE LINEARLY UP TO THE STRUCTURE GROUND.
5. AT WOOD POLE STRUCTURES, AN 8' LENGTH OF PLASTIC MOLDING SHALL BE STAPLED OVER THE BOTTOM WITH 8' OF DOWNLEAD.

GROUND RODS–

1. WHERE GROUND RODS ARE REQUIRED, THEY SHALL BE SINGLE OR SECTIONAL WITH THE LENGTH SPECIFIED. THEY SHALL BE DRIVEN VERTICALLY INTO THE GROUND TO A DEPTH WHICH WILL LEAVE THE TOP OF THE ROD AT LEAST 12" BELOW GRADE. ALL RODS SHALL BE CONNECTED TO COUNTERPOISE OR TO POLE GROUNDS USING BOLTED CONNECTORS.

REHABILITATION–

1. SELECTIVE CLEARING PROCEDURES WERE USED IN THE DEVELOPMENT OF THE RIGHT–OF–WAY, AND GROWTH OF SELECTED SPECIES HAS BEEN SAVED. THE CONTRACTOR SHALL NOT VIOLATE THE OWNER'S INTENT TO SAVE SELECTIVE SPECIES AND IMPOSE THE MINIMUM ENVIRONMENTAL IMPACT ON THE RIGHT OF WAY DURING THE EXECUTION OF THE WORK. THE CONTRACTOR SHALL REVIEW THE ROUTING OF EACH SECTION OF COUNTERPOISE WITH THE OWNER'S REPRESENTATIVE PRIOR TO ITS FIELD SPECIFIED LOCATION. THE CONTRACTOR IS RESPONSIBLE TO THE OWNER FOR DAMAGES TO THE RIGHT–OF–WAY IN OTHER THAN THE FIELD SPECIFIED LOCATIONS.
2. ANY BRUSH ALONG THE FIELD SPECIFIED COUNTERPOISE ROUTES WHICH IS LEFT IN AN UNSIGHTLY CONDITION BY THE INSTALLATION WORK WILL BE CUT TO THE GROUND BY THE CONTRACTOR AND LEFT IN SMALL, NEAT PILES IN PLACE WHERE CUT.
3. IN LOCATIONS WHERE EXCAVATION FOR THE INSTALLATION OF COUNTERPOISE BRINGS TO THE SURFACE ANY SMALL BOULDERS, THEY WILL BE BACKFILLED BELOW GRADE OR DISPERSED ON THE RIGHT–OF–WAY AS THE OWNER'S REPRESENTATIVE MAY DIRECT. INSTALLATION OF THE COUNTERPOISE SHALL NOT RESULT IN A PATH OF SMALL BOULDERS ON THE FINISHED SURFACE.
4. THE OWNER ANTICIPATES THAT SEASONAL CONDITIONS MAY NOT ALLOW PERMANENT REHABILITATION OF WORK SITES AND THE RIGHT–OF–WAY UPON COMPLETION OF THE INSTALLATION OF THE COUNTERPOISE. WHERE TEMPORARY REHABILITATION HAS BEEN COMPLETED IN ADVERSE SEASON, THE CONTRACTOR SHALL TAKE THE FOLLOWING STEPS:
   A. WATERBARS WILL BE CONSTRUCTED ON ACCESS ROADS AND TRENCH LINES TO SHUNT WATER OFF THIS LINE OF DISTURBED SURFACES AND CONTROL EROSION ALONG THE DISTURBED SURFACE.
   B. ALL DISTURBED SURFACES OF FOUNDATION SITES OR ALONG TRENCH LINES OR ACCESS ROADS WILL BE GRADED AND COVERED WITH HAY MULCH. SUCH DISTURBED SY–URFACES ON SLOPES GREATER THAN ONE (VERTICAL) ON FOUR (HORIZONTAL) SHALL BE COVERED WITH WOOD CHIPS.
5. AS DRYING CONDITIONS PERMIT IN THE SPRING, FOLLOWING COMPLETION OF THE INSTALLATION OF COUNTERPOISE, PERMANENT REHABILITATION OF ALL DISTURBED OR ERODED SURFACES SHALL BE ACCOMPLISHED AS FOLLOWS:
   A. LAWNS, GOLF COURSES, CEMETERIES AND OTHER SIMILAR OCCUPANCIES SHALL BE LOAMED, GRADED, FERTILIZED, SEEDED AND WHERE APPROPRIATE, MULCHED, TO ESTABLISH A REHABILITATION CONSISTENT WITH THE USE ESTABLISHED BY THE OCCUPANT.
   B. GARDENS, OTHER CULTIVATED AREAS AND PASTURES, SHALL BE GRADED AND TOPSOILED TO RESTORE THE DEPTH OF FERTILE SOIL COMMON TO THE ADJACENT GROUND. WHERE APPROPRIATE, SEEDING SHALL BE DONE IN ACCORDANCE WITH STEP C BELOW.
   C. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS ALONG THE NEW COUNTERPOISE ROUTES. SEED SHALL BE SPREAD AT THE RATE OF 100 LBS. PER ACRE AND SHALL BE AS FOLLOWS OR APPROVED EQUAL:

	% BY WEIGHT	% BY GERMINATION	% BY PURITY
CREEPING RED FESCUE	30	85	95
DOMESTIC RYE	20	90	95
KENTUCKY TALL FESCUE	50	—	—
	100		

   D. ALL OTHER DISTURBED AREAS INCLUDING REMAINING FOUNDATION SITES, ACCESS ROADS, AND REPAIR OF EROSION OF SITUATION SHALL BE SEEDED WITH MIXED SPECIFICATION ABOVE. IN REMOTE AREAS, A CONSERVATION MIX, AS USED BY THE CONNECTICUT STATE PARKS AND FOREST COMMISSION MAY BE SUBSTITUTED. ALL AREAS WHICH EXPERIENCED EROSION DAMAGE AND ALL SLOPES OVER ONE (VERTICAL) AND FOUR (HORIZONTAL) WHERE TEMPORARY REHABILITATION WORK HAS BEEN DONE SHALL BE REMULCHED.
6. IT IS IMPERATIVE THAT PERMANENT REHABILITATION BE ACCOMPLISHED IN GOOD TIME, WHICH WILL ALLOW THE OCCUPANT FULL AND UNDISTURBED USE OF THE SITE IN THE SUCCEEDING SEASON, AND TO PREVENT UNNECESSARY AND UNREASONABLE SPREADING OF CONTINUATION OF DISTURBED SURFACES.
7. ANY BRUSH ALONG THE ACCESS ROADS WHICH IS LEFT IN AN UNSIGHTLY CONDITION BY THE WORK CONDUCTED, SHALL BE CUT TO THE GROUND BY THE CONTRACTOR AND LEFT IN SMALL NEAT PILES IN PLACE WHERE CUT.

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DATE: 07/28/16
SCALE: AS NOTED
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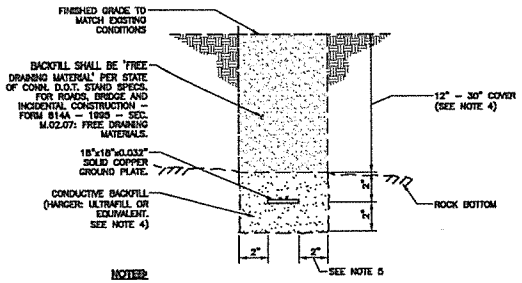
EVERSOURCE TOWER GROUNDING AND NOTES

E-3

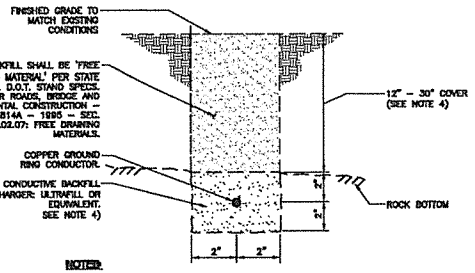
Sheet No. 7 of 3



NOTES:

1. ENGINEER SHALL INSPECT PLACEMENT OF EGR CONDUCTOR PRIOR TO BACKFILLING.
2. MAINTAIN MIN. 2'-0" LINEAR CLEARANCE BETWEEN BACKFILL AND THE FOLLOWING: FOUNDATION, UNDERGROUND PIPING/CONDUIT, UNDERGROUND SERVICES. IN THE CLEARANCE AREAS, USE EARTH BACKFILL INSTEAD.
3. EXERCISE HANDLING AND USE PRECAUTION OF BACKFILL MATERIAL PER MFR'S REQUIREMENTS.
4. FOR LOCATIONS WHERE ROCK BOTTOM DEPTH IS LESS THAN 12" CONDUCTIVE CONCRETE SHALL BE USED INSTEAD OF CONDUCTIVE BACKFILL.
5. PROVIDE MIN 2" CLEARANCE ON ALL SIDES OF GROUND PLATE.

1 E-4 GROUND PLATE TRENCH/BACKFILL DETAIL (SHALLOW TOPSOIL)
NOT TO SCALE



NOTES:

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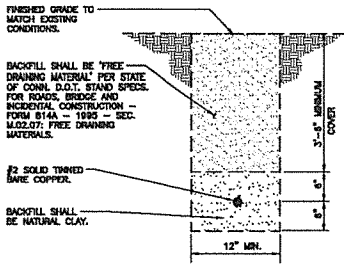
2. MAINTAIN MIN. 2'-0" LINEAR CLEARANCE BETWEEN BACKFILL AND THE FOLLOWING: FOUNDATION, UNDERGROUND PIPING/CONDUIT, UNDERGROUND SERVICES. IN THE CLEARANCE AREAS, USE EARTH BACKFILL INSTEAD.
3. EXERCISE HANDLING AND USE PRECAUTION OF BACKFILL MATERIAL PER MFR'S REQUIREMENTS.
4. FOR LOCATIONS WHERE ROCK BOTTOM DEPTH IS LESS THAN 12" CONDUCTIVE CONCRETE SHALL BE USED INSTEAD OF CONDUCTIVE BACKFILL.

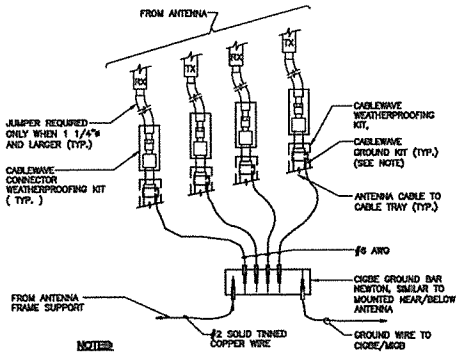
2 E-4 EGR TRENCH/BACKFILL DETAIL (SHALLOW TOPSOIL)
NOT TO SCALE



NOTES:

1. ENGINEER SHALL INSPECT PLACEMENT OF EGR CONDUCTOR PRIOR TO BACKFILLING.
2. MAINTAIN MIN. 2'-0" LINEAR CLEARANCE BETWEEN NATURAL CLAY BACKFILL AND THE FOLLOWING: FOUNDATION, UNDERGROUND PIPING/CONDUIT, UNDERGROUND SERVICES. IN THE CLEARANCE AREAS, USE EARTH BACKFILL INSTEAD.
3. EXERCISE HANDLING AND USE PRECAUTION OF BACKFILL MATERIAL PER MFR'S REQUIREMENTS.

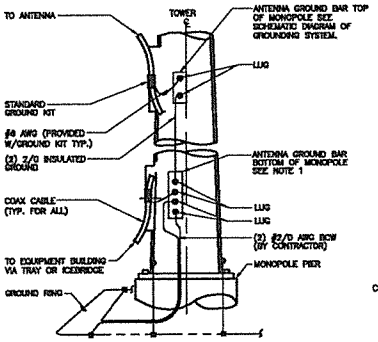
3 E-4 EGR TRENCH/BACKFILL DETAIL
NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

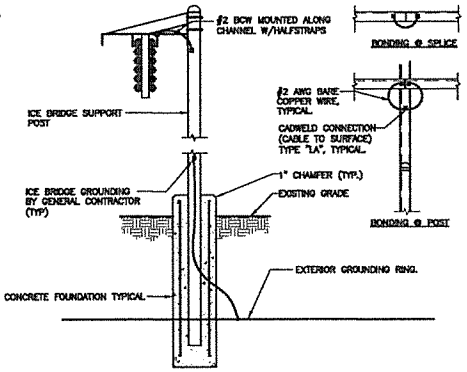
4 E-4 CONNECTION OF GROUND WIRES TO GROUND BAR
NOT TO SCALE



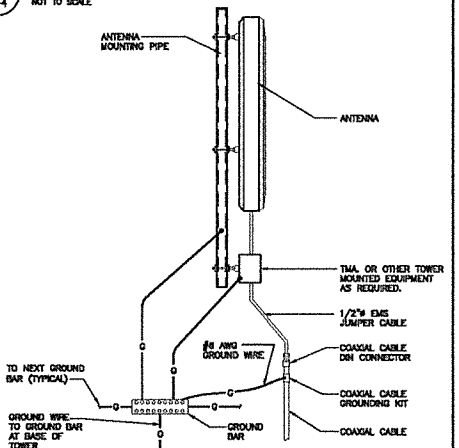
NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

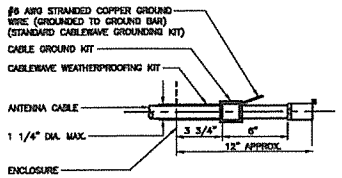
5 E-4 ANTENNA CABLE GROUNDING
NOT TO SCALE



6 E-4 ICE BRIDGE BONDING DETAIL
NOT TO SCALE



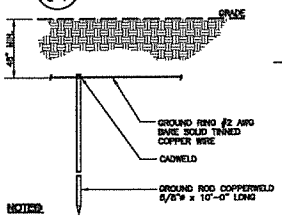
7 E-4 TYPICAL ANTENNA GROUNDING DETAIL
NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

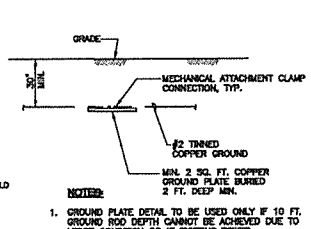
8 E-4 ANTENNA CABLE GROUNDING DETAIL
NOT TO SCALE



NOTES:

1. USE GROUND PLATE DETAIL IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.

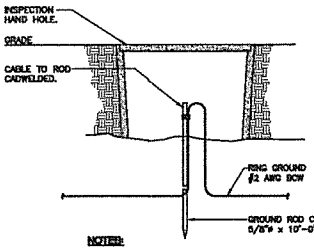
9 E-4 GROUND ROD DETAIL
NOT TO SCALE



NOTES:

1. GROUND PLATE DETAIL TO BE USED ONLY IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.

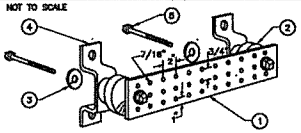
9A E-4 GROUND PLATE DETAIL
NOT TO SCALE



NOTES:

1. INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 12" DIA x 18" DEEP.

10 E-4 GROUND ROD WITH ACCESS DETAIL
NOT TO SCALE



NOTES

1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3051-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-6.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6036.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

11 E-4 GROUND BAR DETAIL
NOT TO SCALE

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ELECTRICAL DETAILS

E-4

Sheet No. 3 of 3

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.01. SCOPE OF WORK

A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. CELLULAR GROUNDING SYSTEMS, CONSISTING OF ANTENNA GROUNDING, GROUND BARS, ETC. INCLUDING ALL GROUNDING REQUIRED BY EVERSOURCE.

2. COORDINATE ALL WORK SHOWN, ON THESE PLANS WITH LOCAL UTILITY COMPANIES.

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH LOCAL TELEPHONE COMPANY THAT MAY BE REQUIRED FOR THE INSTALLATION OF TELEPHONE SERVICE TO THE PROPOSED CELLULAR SITE.

F. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

G. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

H. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

I. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

J. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

K. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

L. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

M. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

N. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.

2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

O. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUIT

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". ALL CONDUIT RUNS LOCATED WITHIN THE OWNER'S EQUIPMENT ROOM SHALL ORIGINATE FROM THE WIREWAY AND RUN VERTICALLY TO ITS DESTINATION. NO BENDS WILL BE ACCEPTED. CONDUITS SHALL BE PROPERLY FASTENED TO THE WALLS AND CEILINGS AS REQUIRED BY THE N.E.C.

CONDUIT MATERIAL SHALL BE AS FOLLOWS:

1. ELECTRIC METALLIC TUBING (EMT) – BRANCH CIRCUITS INSIDE WIRELESS ROOM

2. GALVANIZED RIGID CONDUIT (GRC) – FEEDERS AND CIRCUITS EXPOSED TO EXTERIOR & UNDERGROUND.

3. LIQUID TIGHT FLEXIBLE METAL CONDUIT – FOR SHORT LENGTHS (MAX. 3'-0") WIRING TO VIBRATING EQUIPMENT (HVAC UNITS, MOTORS, ETC.) IN WET LOCATIONS.

4. FLEXIBLE METAL CONDUIT – FOR SHORT LENGTHS (MAX. 3'-0") WIRING TO VIBRATING EQUIPMENT IN DRY LOCATIONS.

5. PVC CONDUIT – WHERE SHOWN ON GROUNDING DETAILS.

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S). LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.

2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.

2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.

3. REFER TO PANEL SCHEDULE "BRANCH CIRCUIT" DATA FOR EQUIPMENT GROUND CONDUCTOR SIZE FOR EACH BRANCH CIRCUIT.

4. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16060).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS
2. INTERIOR GROUND RING
3. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
4. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S WIRELESS PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.

2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.

3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS, TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS SUCH THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	08/05/16	ASC	DSC	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY

CL+P IN WILTON DTWN
SITE ID: CT11101B
15 OLD DANBURY ROAD
WILTON, CT 06897

DATE: 07/28/16
SCALE: AS NOTED
JOB NO.: 16107.00

ELECTRICAL SPECIFICATIONS

E-5

Sheet No. 5 of 7

ATTACHMENT E

CENTEK engineering

Centered on Solutions℠

August 16, 2016

Mr. Matthew Bandle
Site Acquisition Project Manager
Vertical Development, LLC
20 Commercial Street
Branford, CT 06405

Re: Structural Letter
T-Mobile – Site Ref: CT11101B
Eversource Structure No. 2997
15 Old Danbury Road
Wilton, CT 06897

Centek Project No. 16107.00

Dear Mr. Bandle,

Centek Engineering, Inc. has reviewed the proposed T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine if the proposed Sabre tower design, as performed by Sabre Industries, quote no. 16-9864, dated July 26, 2016, incorporates T-Mobile's proposed antenna configuration.

The proposed T-Mobile loading consists of the following installed at a RAD center elevation of 119-ft above grade level based on a T-Mobile RFDS, dated June 27, 2016:

- **T-Mobile (Proposed Final Configuration):**
  - ***Antennas:***
    - *Three (3) APX16DWV-16DWV-S-E-A20*
  - ***Cables:***
    - *Twelve (12) 1-1/4" dia. coax cables mounted on transmission line brackets to a face of the tower.*

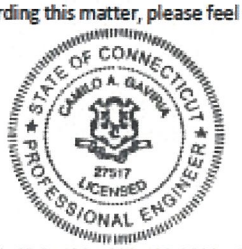
Based on our review of the structural analysis provided, it is our opinion that the proposed loading has been incorporated within the design of the replacement Eversource structure No. 2997.

It is noted that our review does not constitute a design, nor is it all-inclusive; the responsibility for the structural design remains with the proposed tower manufacturer's Structural engineer of record.

If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Camilo A. Gaviria, PE
Structural Engineer



As Prepared by:

Harry M. Rocheville Jr., EIT
Civil Engineer

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

ATTACHMENT F

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11101B

CL&P In Wilton Dtwn
15 Old Danbury Rd
Wilton, CT 06897

August 10, 2016

EBI Project Number: 6216003568

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	2.70 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

August 10, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11101B – CL&P In Wilton Dtwn**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **15 Old Danbury Rd, Wilton, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where 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.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **15 Old Danbury Rd, Wilton, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

5) Since the radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path the following losses were calculated. 1.24 dB of additional cable loss for all ground mounted 1900 MHz channels and 1.27 dB of additional cable loss for all ground mounted 2100 MHz channels. This is based on manufacturers Specifications for 120 feet of 1-1/4" coax cable on each path.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is **119 feet** above ground level (AGL).

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves. There are no additional carriers listed at this facility

11) All calculations were done with respect to uncontrolled / general public threshold limits.

EBI Consulting
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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	119	Height (AGL):	119	Height (AGL):	119
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	300	Total TX Power(W):	300	Total TX Power(W):	300
ERP (W):	9,579.09	ERP (W):	9,579.09	ERP (W):	9,579.09
Antenna A1 MPE%	2.70	Antenna B1 MPE%	2.70	Antenna C1 MPE%	2.70

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**2.70 %**
No Additional Carriers	NA
Site Total MPE %:	**2.70 %**

T-Mobile Sector A Total:	2.70 %
T-Mobile Sector B Total:	2.70 %
T-Mobile Sector C Total:	2.70 %
Site Total:	2.70 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	1,910.52	119	10.76	AWS - 2100 MHz	1000	1.08%
T-Mobile AWS - 2100 MHz UMTS	2	955.26	119	5.38	AWS - 2100 MHz	1000	0.54%
T-Mobile PCS - 1950 MHz UMTS	2	961.88	119	5.42	PCS - 1950 MHz	1000	0.54%
T-Mobile PCS - 1950 MHz GSM	2	961.88	119	5.42	PCS - 1950 MHz	1000	0.54%
						Total:	**2.70%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

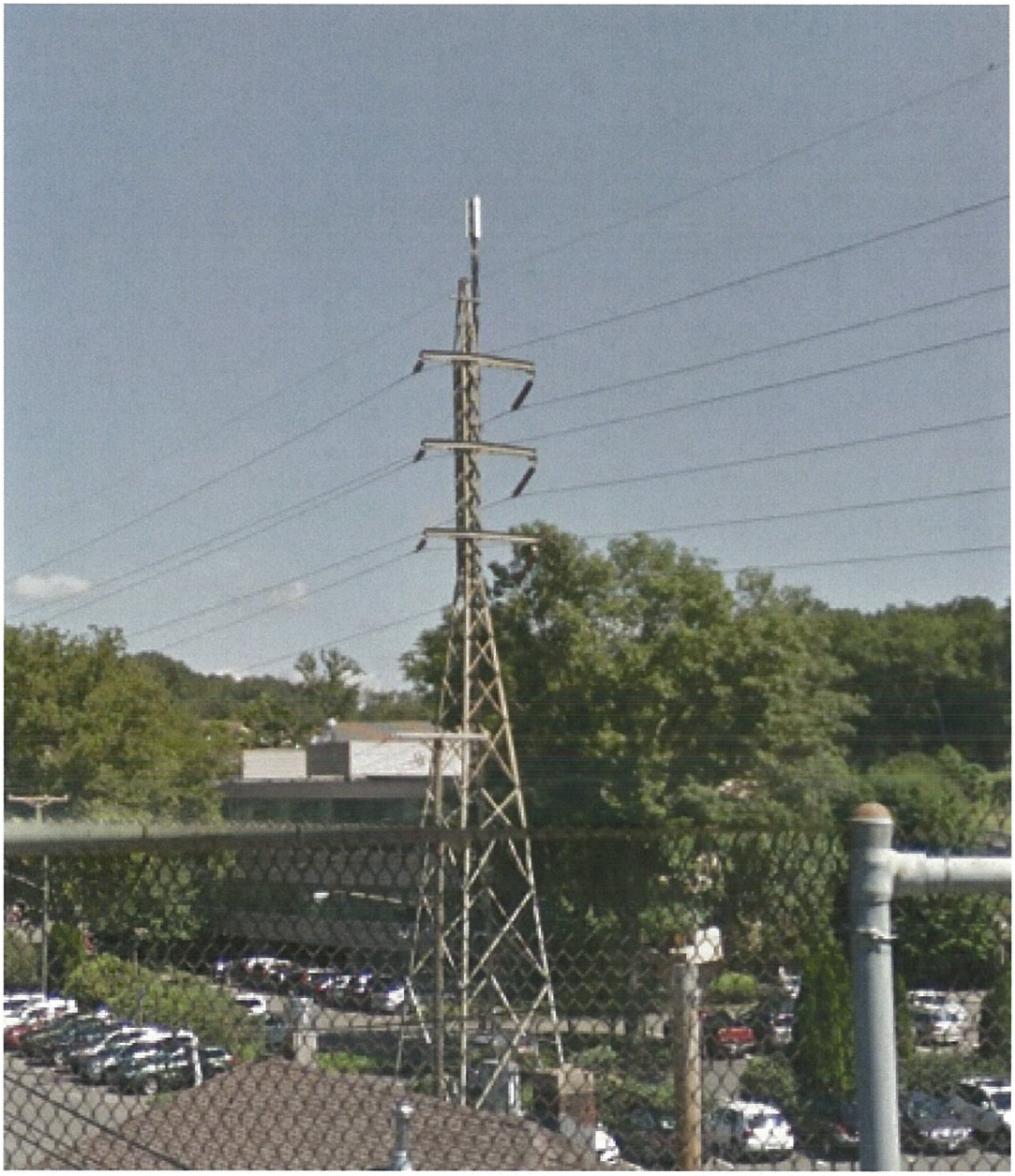
The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	2.70 %
Sector B:	2.70 %
Sector C:	2.70 %
T-Mobile Per Sector Maximum:	2.70 %
Site Total:	2.70 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **2.70%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

ATTACHMENT G



ATTACHMENT H

Antenna Structure Registration

TOWAIR Determination Results

HELP

New Search Printable Page

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates	
Latitude	41-11-46.4 north
Longitude	073-25-55.2 west
Measurements (Meters)	
Overall Structure Height (AGL)	37.8
Support Structure Height (AGL)	NaN
Site Elevation (AMSL)	56.7
Structure Type	
MTOWER - Monopole	

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

ATTACHMENT I

Natural Diversity Data Base Areas

WILTON, CT

June 2016

State and Federal Listed Species & Significant Natural Communities

Town Boundary

NOTE: This map shows general locations of State and Federal Listed Species and Significant Natural Communities. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a number of data sources. Exact locations of species have been buffered to produce the general locations. Exact locations of species and communities occur somewhere in the shaded areas, not necessarily in the center. A new mapping format is being employed that more accurately models important riparian and aquatic areas and eliminates the need for the upstream/downstream searches required in previous versions.

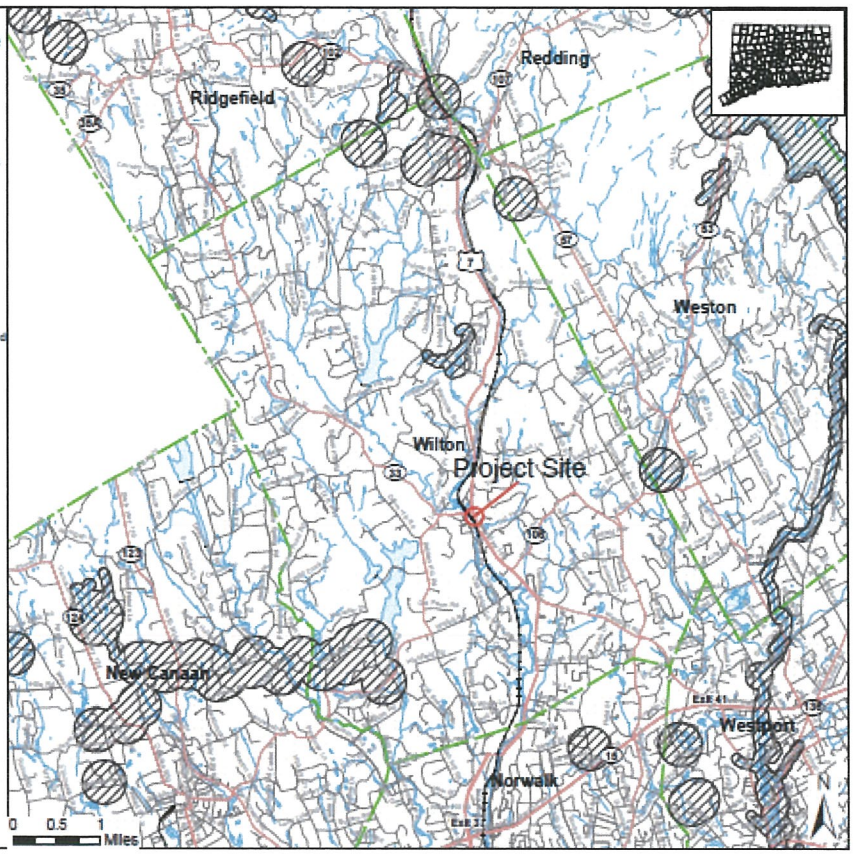
This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a shaded area there may be a potential conflict with a listed species. For more information, complete a Request for Natural Diversity Data Base State Listed Species Review form (DEP-APP-007), and submit it to the NDDB along with the required maps and information. More detailed instructions are provided with the request form on our website.

www.ct.gov/deep/nddbrequest

Use the CTECO Interactive Map Viewers at www.cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St., Hartford CT 06106
Phone (860) 424-3011

Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



ATTACHMENT J

August 11, 2016

VIA USPS CERTIFIED MAIL/
RETURN RECEIPT REQUESTED

<<Name_and_Address>>

RE: T-Mobile Northeast LLC ("T-Mobile")
Proposed Replacement Facility on Eversource Tower
Old Station Road, Wilton, CT

Dear Sir or Madam

We are writing to you on behalf of our client T-Mobile Northeast LLC ("T-Mobile") with respect to the above referenced matter and our client's intent to file a petition with the State of Connecticut Siting Council for approval of a proposed wireless communications tower facility (the "Facility") within the Town of Wilton.

State law requires that record owners of property abutting a parcel on which a facility is proposed be sent notice of an applicant's intent to file a petition with the Siting Council.

Included with this letter please find a Notice of this submission and details of the proposal. The location, height and other features of the Facility are subject to review and potential change by the Connecticut Siting Council under the provisions of Connecticut General Statutes § 16-50g et seq.

If you have any questions concerning this petition, please contact the Connecticut Siting Council or the undersigned after August 17, 2016, the date that the petition is expected to be on file.

Sincerely,

Eric Dahl
Enclosure

NOTICE

Notice is hereby given, pursuant to Section 16-50j-40(a) of the Regulations of Connecticut State Agencies of a Petition to be file with the Connecticut Siting Council ("Siting Council" on or after August 17, 2016 by T-Mobile Northeast LLC ("T-Mobile") the ("Petitioner"). T-Mobile seeks a declaratory ruling that replacement of an existing wireless facility does not have significant adverse environmental effects that might otherwise require a certificate of environmental compatibility and public need ("Certificate").

T-Mobile currently maintains an operational facility on an existing electrical transmission tower #2997 off of Old Station Road in Wilton. Eversource recently received approval to replace this and several other transmission towers in the Route 7 corridor as part of a necessary upgrade project (Siting Council Petition 1225). Accordingly, T-Mobile must permanently relocate from existing transmission structure #2997 to the newly approved tower. The new transmission tower structure #2997 will be immediately adjacent to the site of the current transmission tower off of Old Station Road in Wilton, Connecticut (the "Relocation Facility").

If feasible, T-Mobile will coordinate with Eversource to construct the Relocation Facility at the same time Eversource is replacing the tower and during the necessary transmission line outage.

The Petition will provide details of the Relocation Facility and explain why it represents no significant adverse environmental effects. The location, height and other features of the facility are subject to review and potential change under provisions of the Connecticut General Statutes Sections 16-50g et. seq.

Copies of the Petition will be available for review during normal business hours on or after August 17, 2016 at the following:

Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Town of Wilton
Town Clerk
238 Danbury Road
Wilton, CT 06897

or the offices of the undersigned. All inquiries should be addressed to the Connecticut Siting Council or to the undersigned.

Eric Dahl
Vertical Development LLC
20 Commercial Street
Branford, CT 06405
(860) 227-1975

CERTIFICATION OF SERVICE

I hereby certify that on the 13th of August 2016, a copy of the foregoing letter and notice were mailed by certified mail, return receipt requested to each of the abutting property owners on the accompanying list.

Date 8/16/16

Eric Dahl
Vertical Development LLC
20 Commercial Street
Branford, CT 06405

Agent for T-Mobile Northeast LLC

Addressee	Mailing Address	Mailing City	State	Zip
Thomas Daniel Jude Costello	27 Woodhill Rd	Wilton	CT	06897
Colleen P McDermott	306 Danbury Rd, Unit 2	Wilton	CT	06897
Joan D & Thomas A Moore TR	306 Danbury Rd, Unit 3	Wilton	CT	06897
Manish Maheshwari	306 Danbury Rd, Unit 4	Wilton	CT	06897
Beng-Choo Ong	306 Danbury Rd, Unit 5	Wilton	CT	06897
Stephen J Wall	306 Danbury Rd, Unit 6	Wilton	CT	06897
Kerry A Tyler	306 Danbury Rd, Unit 7	Wilton	CT	06897
Linda R & David A Gortz	306 Danbury Rd, Unit 8	Wilton	CT	06897
Sandra H & William A Hogan	306 Danbury Rd, Unit 9	Wilton	CT	06897
Patricia B & Damian V Rinaldi	306 Danbury Rd, Unit 10	Wilton	CT	06897
John A DeCarmine	306 Danbury Rd, Unit 11	Wilton	CT	06897
Robert Stanzione Jr Etal	306 Danbury Rd, Unit 12	Wilton	CT	06897
Station Place at Wilton, LLC	283 Main St	Ridgefield	CT	06877
Town of Wilton	238 Old Danbury Rd	Wilton	CT	06897
Town of Wilton	238 Old Danbury Rd	Wilton	CT	06897
State of Connecticut	2800 Berlin Tpke	Newington	CT	06111
The Conn Light & Power Co	PO Box 270	Hartford	CT	06141
Town of Wilton	238 Old Danbury Rd	Wilton	CT	06897
State of Connecticut	2800 Berlin Tpke	Newington	CT	06111
State of Connecticut	450 Capitol Ave	Hartford	CT	06106
State of Connecticut	2800 Berlin Tpke	Newington	CT	06111
State of Connecticut	2800 Berlin Tpke	Newington	CT	06111
JFM Properties II, LLC	300 Danbury Rd, Suite 203	Wilton	CT	06897
CD Station LLC	301 Merrit 7	Norwalk	CT	06851