



56 Prospect Street
P.O. Box 270
Hartford, CT 06103

Kathleen M. Shanley
Manager – Transmission Siting
Tel: (860) 728-4527

April 25, 2018

Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Petition No. 1308
Killingly Telecommunications Project

Dear Chairman Stein:

On July 21, 2017, Eversource Energy (“Eversource”) received a declaratory ruling from the Connecticut Siting Council (“Council”) that a Certificate of Environmental Compatibility and Public Need would not be required for the work proposed in Petition No. 1308 (“Petition”). Among other conditions of the ruling, the Council required that Eversource submit a copy of any required notices to the Federal Aviation Administration (FAA) to the Council.

Attached are the following notices:

- FAA Form 7460-1
- FAA Form 7460-2
- FAA Form 854
- FAA Determination of No Hazard to Air Navigation.

Enclosed please find an original and 15 copies of this submission.

Should you, the Council members or Council staff have any questions regarding this request, please do not hesitate to contact me via e-mail at kathleen.shanley@eversource.com or telephone at (860)728-4527.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kathleen M. Shanley".

Enclosure

NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

§ 77.7 Form and time of notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460-1, Notice of Proposed Construction or Alteration. FAA Form 7460-1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460-1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

§ 77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

- (1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.
- (2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S.

Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
2601 Meacham Boulevard
Fort Worth, TX 76193
Fax: (817) 321-7765
Phone: (817) 321-7750

Website: <https://oeaaa.faa.gov>

INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE or PRINT

ITEM #1. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #3. New Construction would be a structure that has not yet been built.

Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marking and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in ITEM #21 "Complete Description of Proposal".

Existing would be a correction to the latitude and/or longitude, a correction to the height, or if filing on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in ITEM #21 "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enter the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #6. Please indicate the type of structure. DO NOT LEAVE BLANK.

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference" DO NOT LEAVE BLANK. NOTE: High Intensity lighting shall be used only for structures over 500' AGL. In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9 and #10. Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from a hand-held GPS instrument is NOT acceptable. A hand-held GPS is only accurate to within 100 meters (328 feet) 95 percent of the time. This data, when plotted, should match the site depiction submitted under ITEM #20.

ITEM #11. NAD 83 is preferred; however, latitude and longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datum may be used. It is important to know which datum is used. DO NOT LEAVE BLANK.

ITEM #12. Enter the name of the nearest city and state to the site. If the structure is or will be in a city, enter the name of that city and state.

ITEM #13. Enter the full name of the nearest public-use (not private-use) airport or heliport or military airport or heliport to the site.

ITEM #14. Enter the distance from the airport or heliport listed in #13 to the structure.

ITEM #15. Enter the direction from the airport or heliport listed in #13 to the structure.

ITEM #16. Enter the site elevation above mean sea level and expressed in whole feet rounded to the nearest foot (e.g. 17'3" rounds to 17', 17'6" rounds to 18'). This data should match the ground contour elevations for site depiction submitted under ITEM #20.

ITEM #17. Enter the total structure height above ground level in whole feet rounded to the next highest foot (e.g. 17'3" rounds to 18'). The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.

ITEM #18. Enter the overall height above mean sea level and expressed in whole feet. This will be the total of ITEM #16 + ITEM #17.

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" x 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey (USGS) Quadrangle Map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, contact USGS at 1-888-275-8747 or via internet at "<http://store.usgs.gov>". If available, attach a copy of a documented site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

ITEM #21.

- For transmitting stations, include maximum effective radiated power (ERP) and all frequencies.
- For antennas, include the type of antenna and center of radiation (Attach the antenna pattern, if available).
- For microwave, include azimuth relative to true north.
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures (Attach depiction).
- For each pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of each corner, dimensions, and construction materials.
- For alterations, explain the alteration thoroughly.
- For existing structures, thoroughly explain the reason for notifying the FAA (e.g. corrections, no record or previous study, etc.).

Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal, state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviation's and zoning authorities.

Paperwork Reduction Work Act Statement: This information is collected to evaluate the effect of proposed construction or alteration on air navigation and is not confidential. Providing this information is mandatory or anyone proposing construction or alteration that meets or exceeds the criteria contained in 14 CFR, part 77. We estimate that the burden of this collection is an average 19 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB control number associated with this collection is 2120-0001. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.



U.S. Department of Transportation
Federal Aviation Administration

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

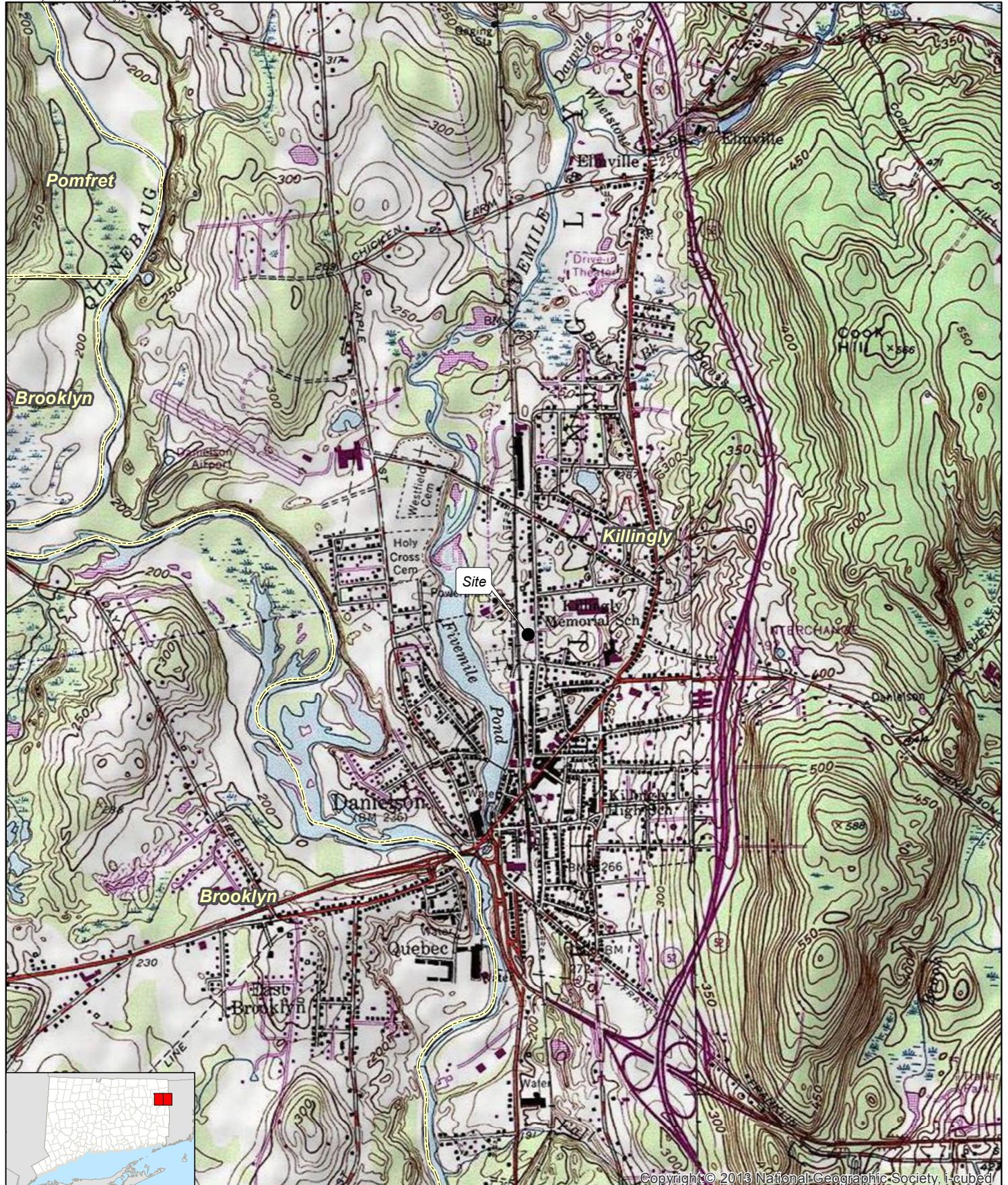
FOR FAA USE ONLY

Aeronautical Study Number

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of \$1,000 per day until the notice is received, pursuant to 49 U.S.C., Section 46301(a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking & lighting standards as necessary.

Date	Typed or Printed Name and Title of Person Filing Notice	Signature
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**Legend**

- Site
- Municipal Boundary

USGS Topographic Site Location Map

Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

EVERSOURCE
ENERGY

ALL-POINTS
TECHNOLOGY CORPORATION

**Legend**

- Proposed 70' Tall Pole with Proposed Antennas
- Subject Property
- Approximate Parcel Boundary (CTDEEP)

Aerial Photograph

Danielson Work Center
173 Mechanic Street
Killingly, Connecticut

EVERSOURCE
ENERGY

ALL-POINTS
TECHNOLOGY CORPORATION



STRUCTURAL SPECIFICATIONS

DESIGN BASIS

GOVERNING CODE/STANDARD(S): 2003 INTERNATIONAL BUILDING CODE; (IBC) AS MODIFIED BY THE 2005 CT STATE SUPPLEMENT/ASCE 7-02

SNOW LOAD

GROUND SNOW LOAD (P_g) 30 PSF (2005 CSBC/2009 AMENDMENT: APPENDIX 'K')
IMPORTANCE FACTOR (I_s) 1.0 (2005 CSBC TABLE 1604.5)
EXPOSURE FACTOR (C_e) 1.0 (2005 CSBC TABLE 1608.3.1)
THERMAL FACTOR (C_t) 1.0 (2005 CSBC TABLE 1608.3.2)

WIND

BASIC WIND SPEED (3 SECOND GUST) 105 MPH (2005 CSBC/2009 AMENDMENT: APPENDIX 'K')
EXPOSURE CATEGORY C (TIA-222-G SECTION 2.6.5.1)
STRUCTURE CLASSIFICATION III (TIA-222-G TABLE 2-1)
IMPORTANCE FACTOR (I_w) 1.15 (TIA-222-G TABLE 2-3)

SPECIAL INSPECTIONS

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

CONCRETE CONSTRUCTION

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE FOLLOWING STANDARDS:
ACI 211 – STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL AND HEAVYWEIGHT CONCRETE.
ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
ACI 302 – GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION
ACI 304 – RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
2. ACI 306.1 STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING
ACI 318 – BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
3. CONCRETE SHALL DEVELOP COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:
ALL CONCRETE 4,000 PSI
4. REINFORCING STEEL SHALL BE 60,000 PSI YIELD STRENGTH.
5. CONCRETE COVER OVER REINFORCING SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SHOWN:
BOTTOM OF FOOTING 3 INCHES
ALL OTHER SURFACES 1-1/2 INCHES
6. NO STEEL WIRE, METAL FORM TIES, OR ANY OTHER METAL SHALL REMAIN WITHIN THE REQUIRED COVER OF ANY CONCRETE SURFACE.
7. ALL REINFORCEMENT SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. SPLICES SHALL BE WELL STAGGERED. SUCH DETAILS SHALL COMPLY WITH ACI 315 RECOMMENDATIONS UNLESS OTHERWISE SHOWN.
8. NO TACK WELDING OF REINFORCING WILL BE PERMITTED.
9. NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 1 % CHLORIDE BY WEIGHT OF ADMIXTURE SHALL BE USED IN THE CONCRETE.
10. UNLESS OTHERWISE NOTED, ALL LAP SPLICES SHALL BE 48 BAR DIAMETERS.
11. INSPECTION AND TESTING OF CONCRETE WORK SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY, PAID BY THE OWNER, AND APPROVED BY THE ENGINEER. THE INSPECTOR SHALL OBSERVE CONDITION OF SOILS AND FORMWORK, SIZE, SPACING AND LOCATION OF REINFORCEMENT, AND PLACEMENT OF CONCRETE.
12. THE TESTING COMPANY SHALL ALSO OBTAIN A MINIMUM OF THREE (3) COMPRESSIVE STRENGTH TEST SPECIMENS FOR EACH CONCRETE MIX DESIGN. ONE SPECIMEN TESTED AT 7 DAYS, ONE AT 28 DAYS, AND ONE HELD IN RESERVE FOR FUTURE TESTING, IF NEEDED.
13. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD):
A. STRUCTURAL STEEL (W SHAPES)---ASTM A992, (FY = 50 KSI)
B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36, (FY = 36 KSI)
C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
E. CONNECTION BOLTS---ASTM A325-N
F. ANCHOR RODS---ASTM F 1554
G. REBAR---ASTM A-615 GRADE 60, (FY = 60 KSI)
H. WELDING ELECTRODE---ASTM E 70XX
2. EXISTING DIMENSIONS OF STRUCTURE SHOWN ON THESE PLANS ARE NOT GUARANTEED. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF ALL EXISTING WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR REVIEW TO THE ENGINEER.
3. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE REVIEWER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
4. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
5. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
6. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
7. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
8. FABRICATE BEAMS WITH MILL CAMBER UP.
9. THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER THE WORK IS FULLY COMPLETED.
10. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
11. BOLT HOLES SHALL BE PUNCHED OR DRILLED, FLAME CUT HOLES ARE NOT ACCEPTABLE.
12. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
13. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325-N. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
16. ALL BOLTED JOINTS SHALL BE SNUG TIGHT (ST) UNLESS OTHERWISE DESIGNATED AS PRETENSIONED (PT) OR SLIP CRITICAL (SC) ON THE DRAWINGS.
17. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLET J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 9TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
18. USE PRECAUTIONS & PROCEDURES PER AWS D1.1 WHEN WELDING GALVANIZED METALS.
19. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER IN ACCORDANCE WITH AWS STANDARDS. SUBMIT WELDER CERTIFICATION FOR REVIEW BY ENGINEER.
20. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
21. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
22. NOTIFY THE ENGINEER PRIOR TO FIELD CUTTING OR MODIFYING APPROVED FABRICATIONS.
23. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
24. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centek Solutions™

(203) 488-0590 Fax
652 North Branford Road
Branford, CT 06405
www.CentekEng.com

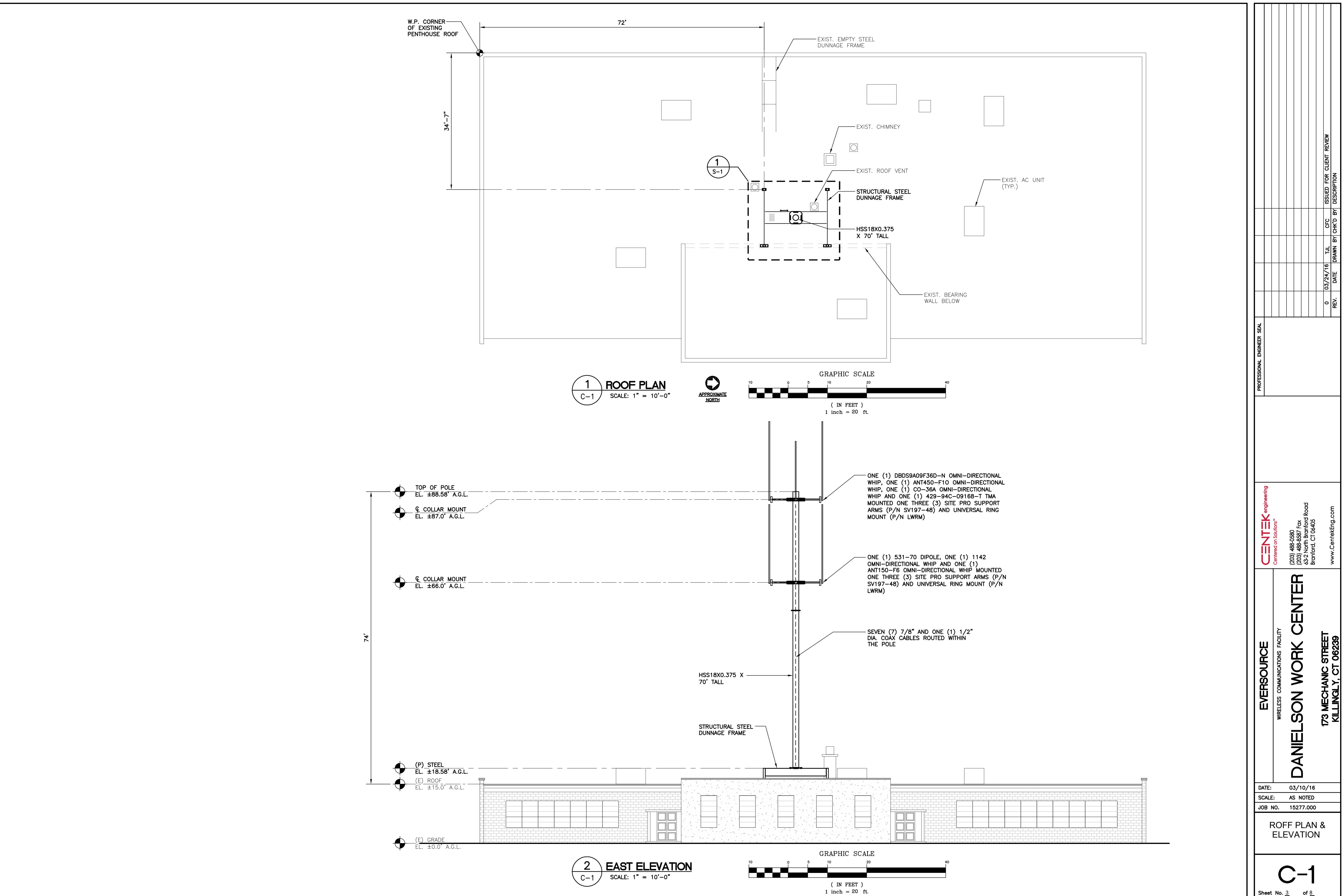
EVERSOURCE
WIRELESS COMMUNICATIONS FACILITY

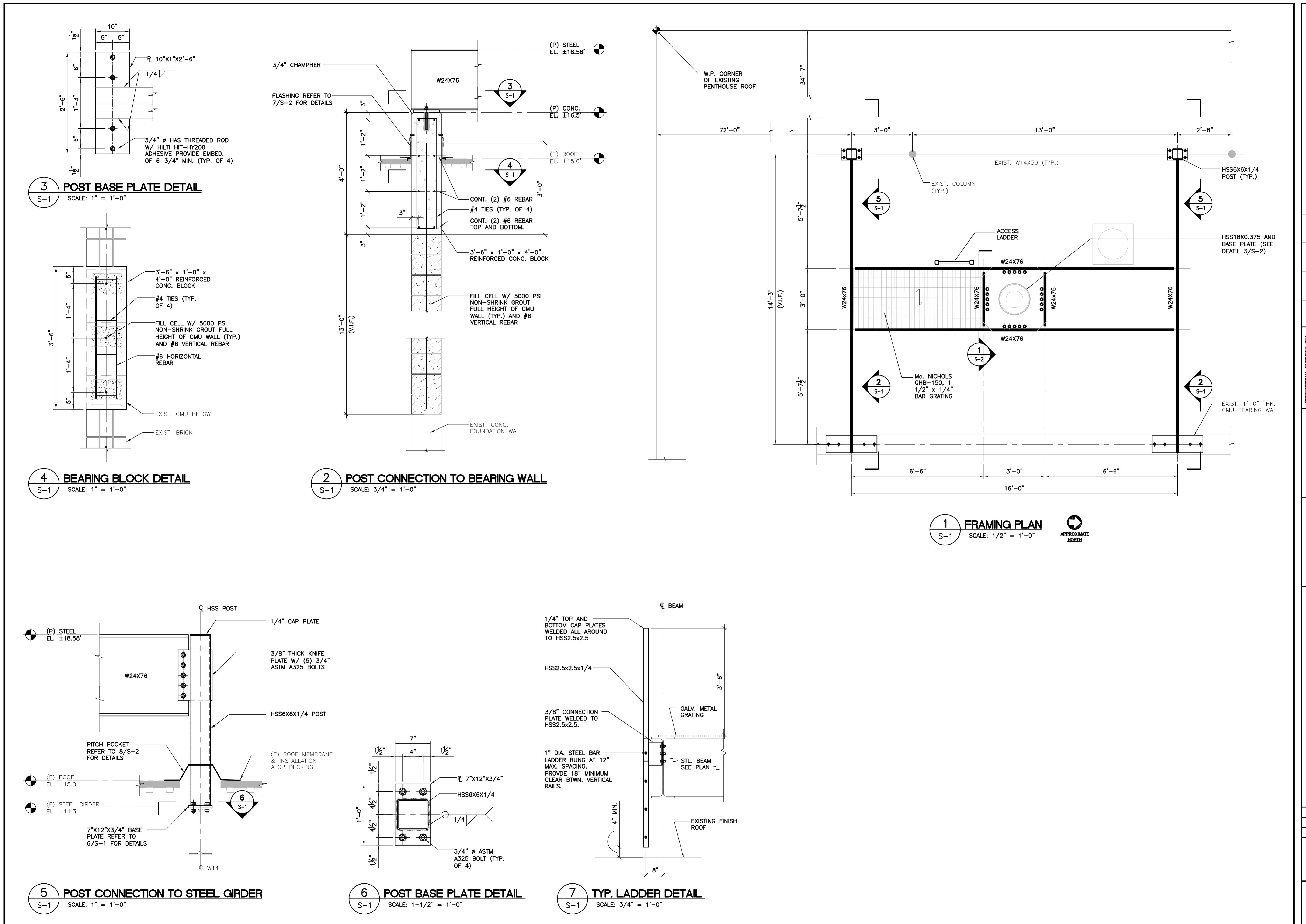
DANIELSON WORK CENTER
173 MECHANIC STREET
KILLINGLY, CT 06239

DATE: 03/10/16
SCALE: AS NOTED
JOB NO. 15277.000

NOTES

N-1
Sheet No. 2 of 8





PROFESSIONAL ENGINEER SEAL	ISSUED FOR CLIENT REVIEW

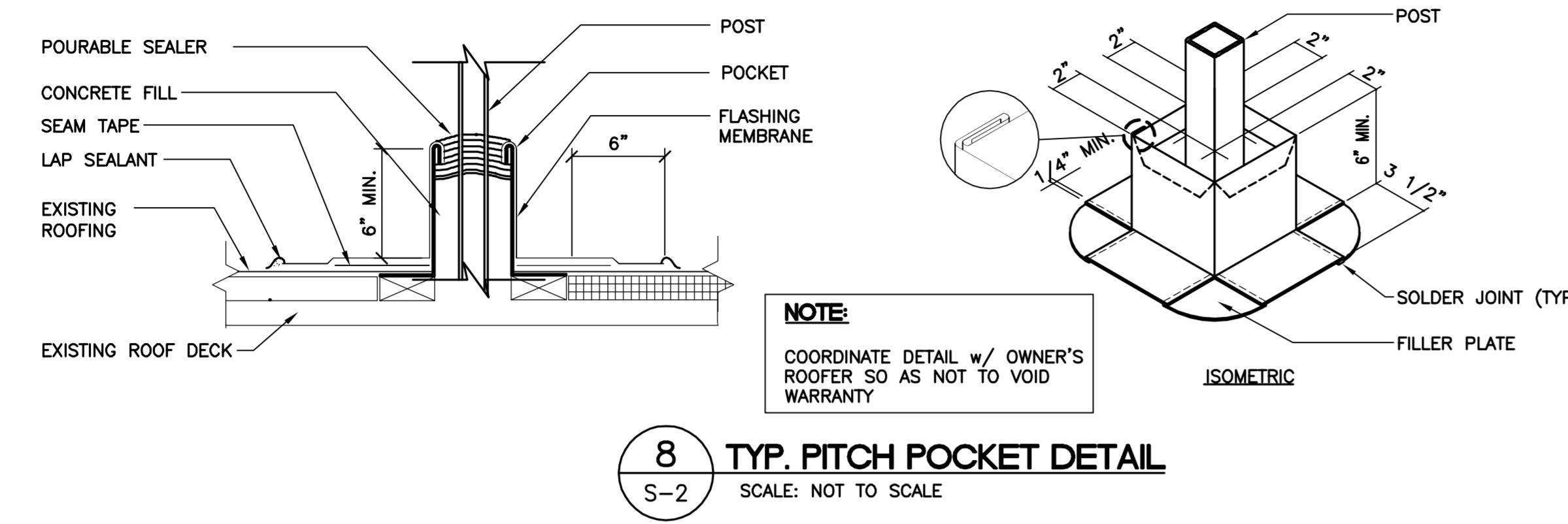
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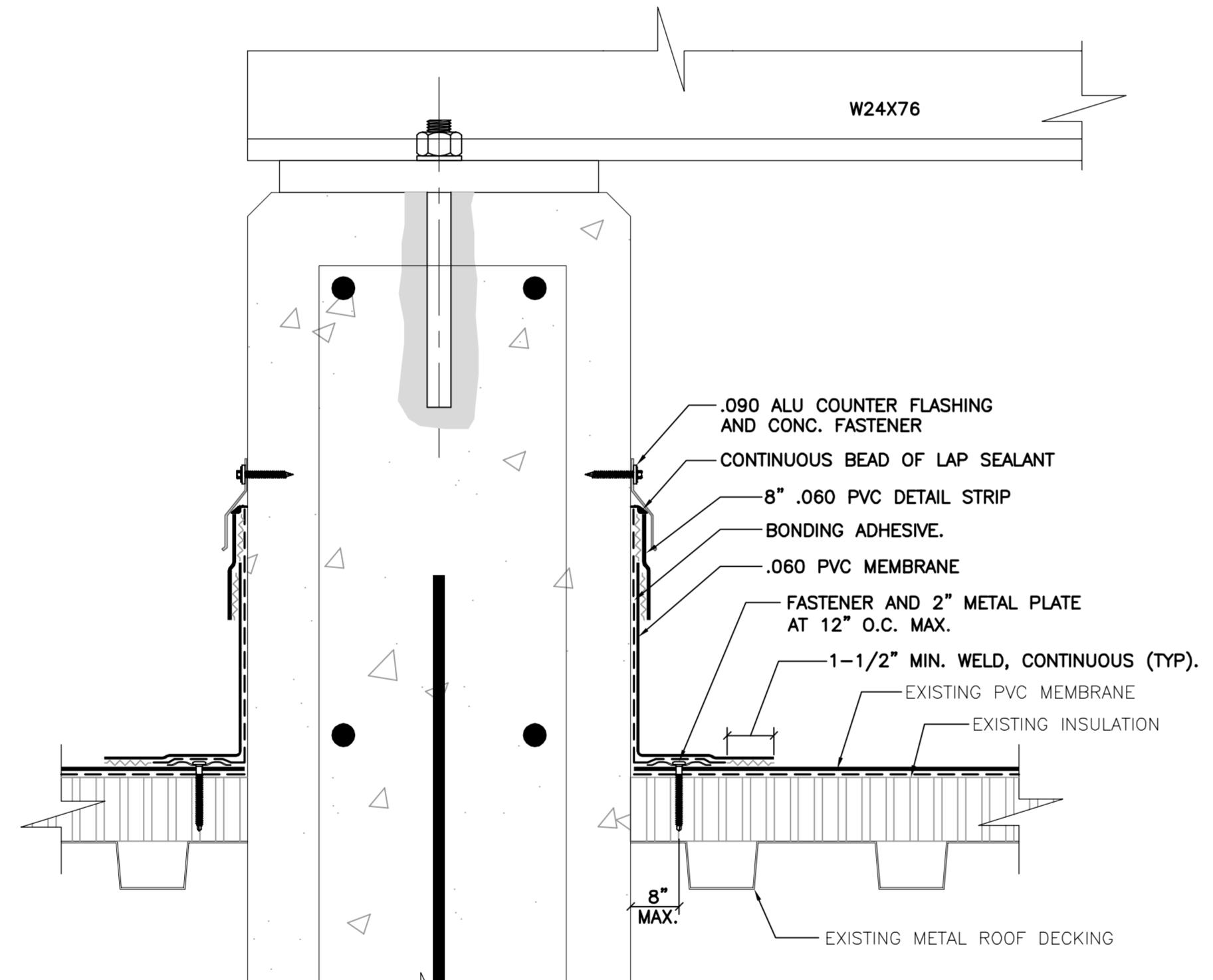
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SCALE: AS NOTED
JOB NO. 15277.000

DUNNAGE FRAME DETAILS

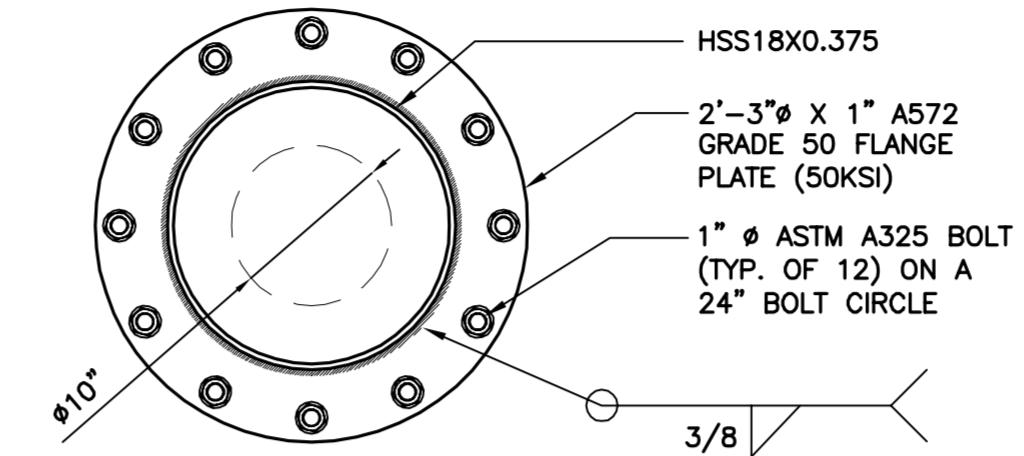
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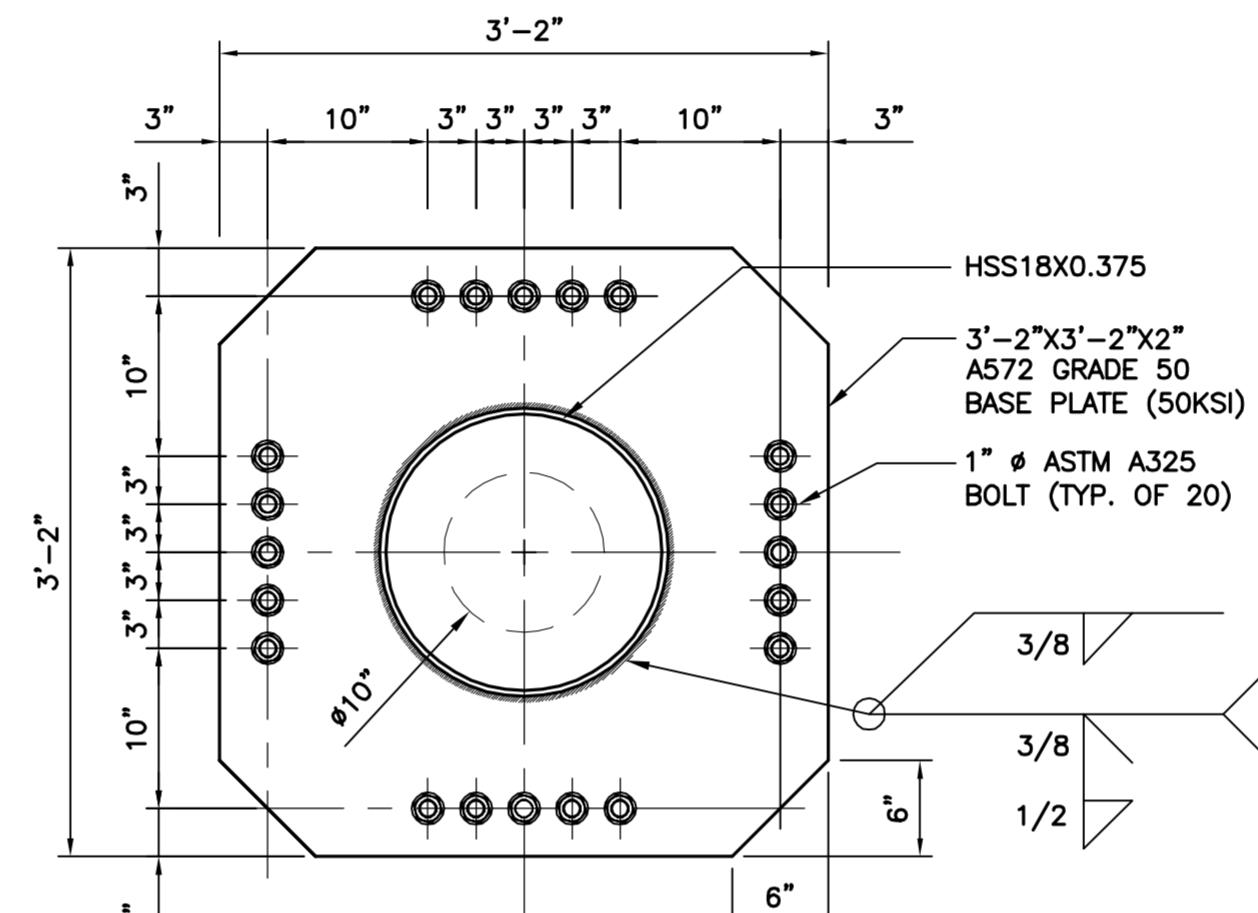
8 TYP. PITCH POCKET DETAIL
S-2



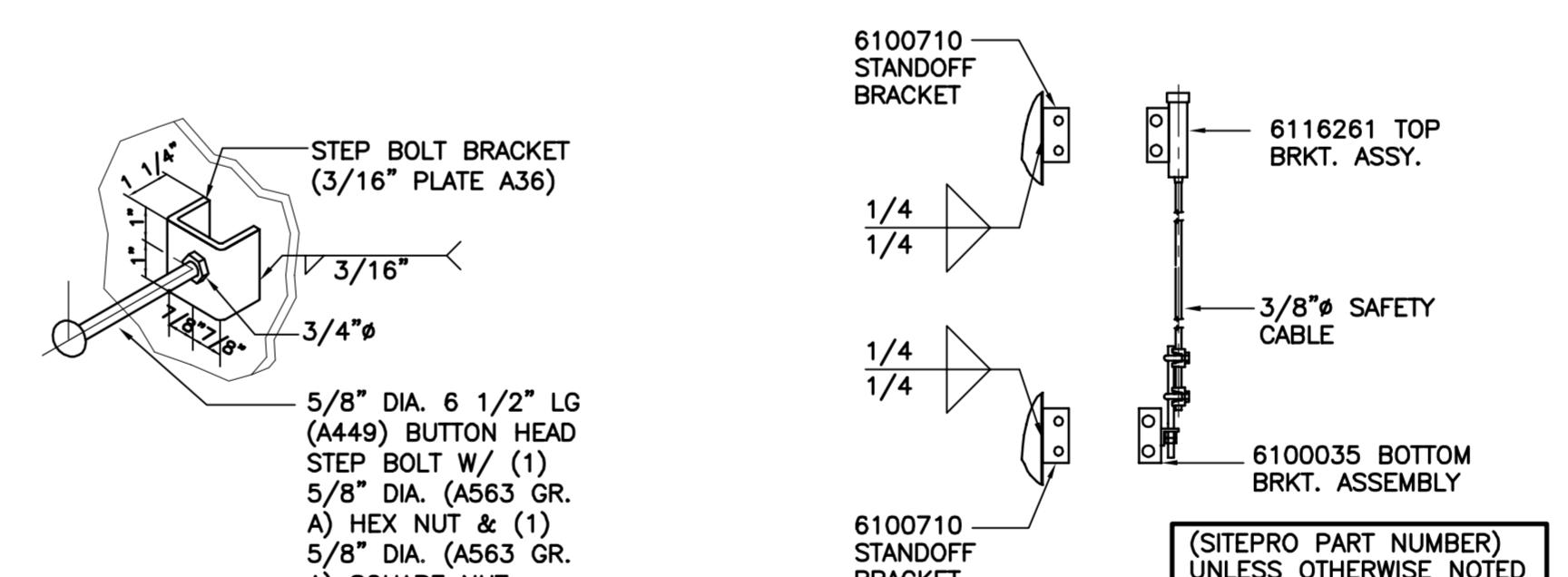
7 FLASHER DETAIL
S-2



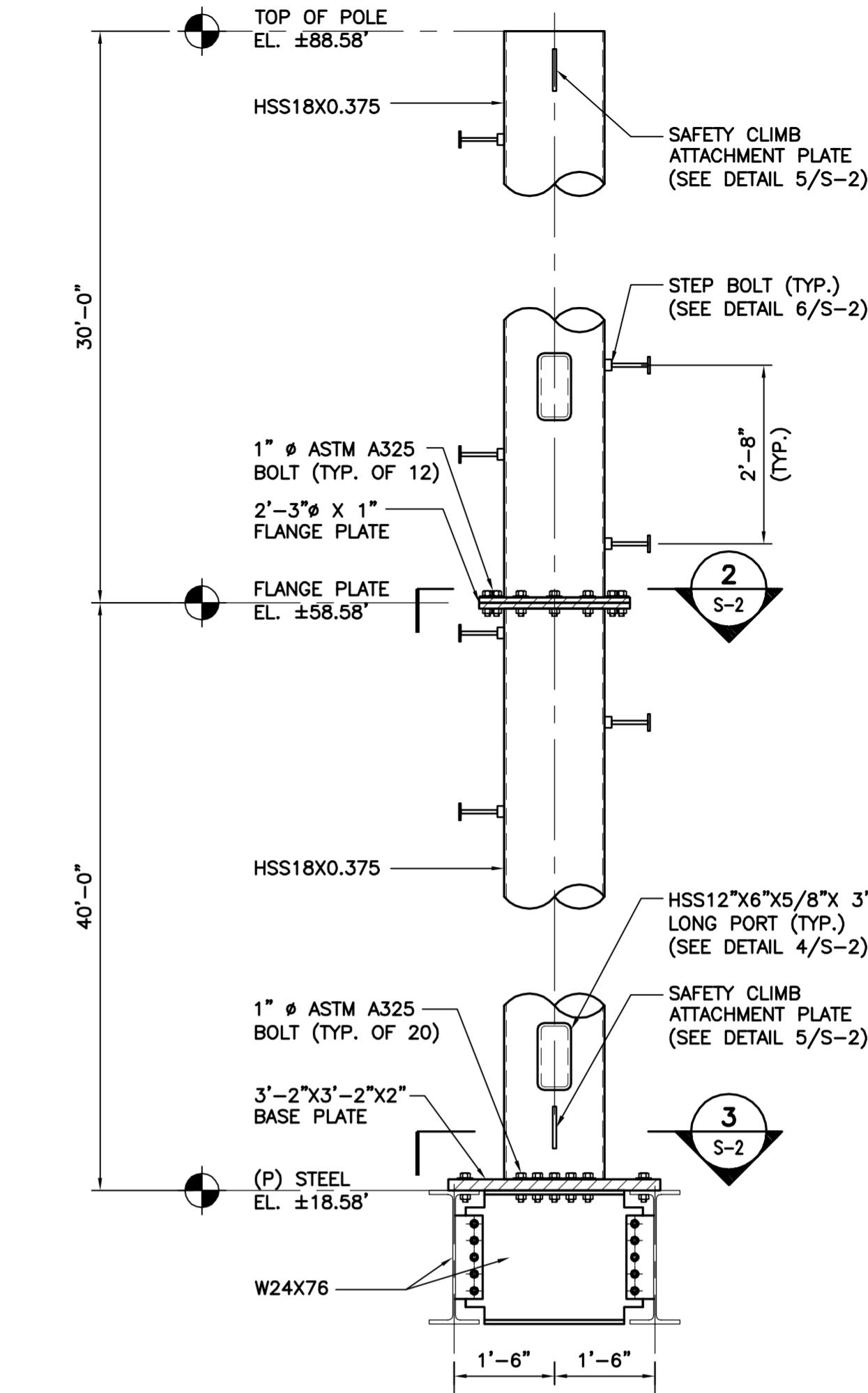
2 POLE FLANGE PLATE DETAIL
S-2



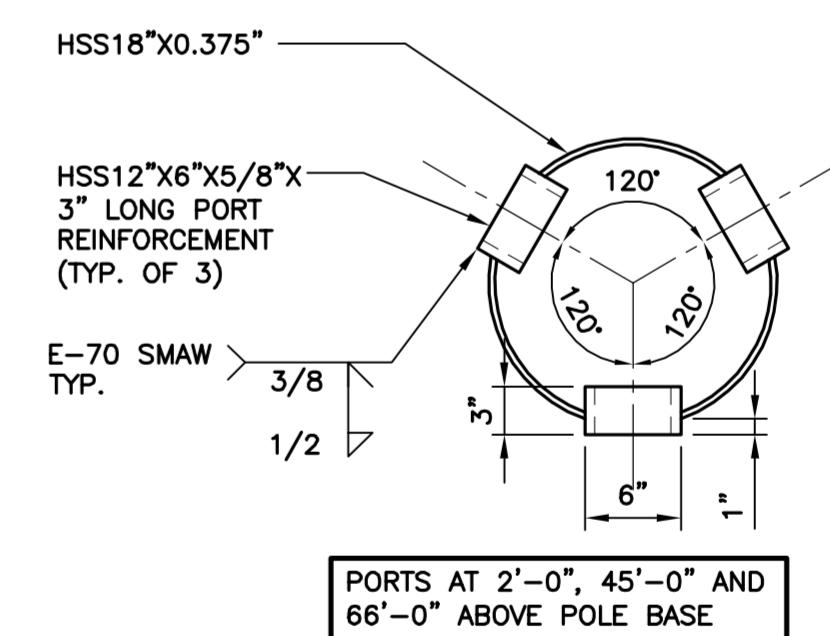
3 POLE BASE PLATE DETAIL
S-2



6 STEP BOLT DETAIL
S-2



1 POLE DETAIL
S-2



4 PORT DETAIL
S-2

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KILLINGLY, CT 06239

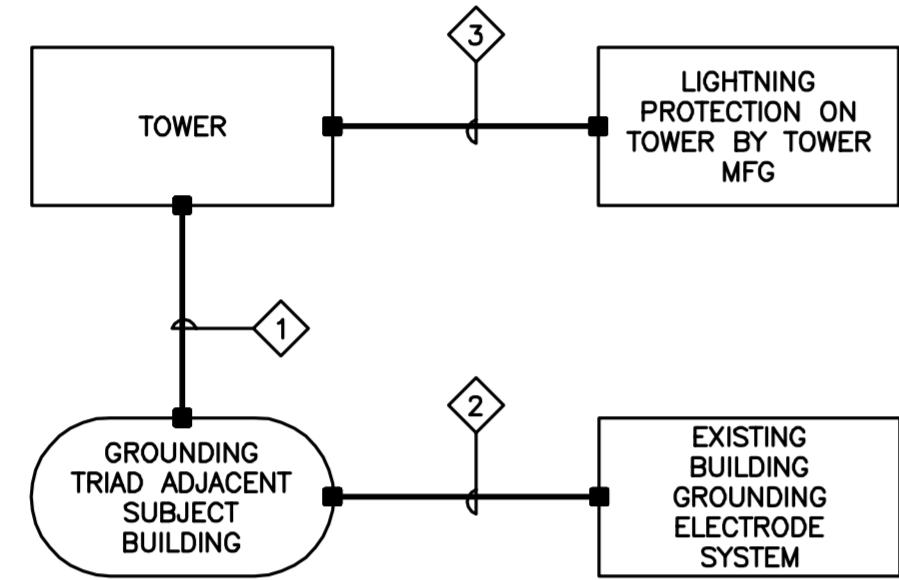
CENTEK engineering
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632 North Branford Road
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DATE: 03/10/16
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MONOPOLE &
ROOFING DETAILS

S-2

Sheet No. 5 of 8



1 SCHEMATIC GROUNDING DIAGRAM
E-1 NOT TO SCALE

GROUNDING SCHEMATIC NOTES

- ① #4/0 GREEN INSULATED BONDING JUMPER SIZED PER NEC.
- ② COORDINATE WITH TOWER MANUFACTURER AND PROVIDE ALL BONDING JUMPERS AND DOWNLEADS AS REQUIRED. ALL BONDING FOR LIGHTNING PROTECTION ON TOWER SHALL BE PER TOWER MANUFACTURER'S SPECIFICATIONS.
- ③ GENERAL NOTES:
 1. GROUND CONDUCTORS SHOWN SHALL BE #2 AWG SOLID TINNED BOW UNLESS OTHERWISE NOTED OR REQUIRED BY CODE.
 2. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
 3. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
 4. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
 5. COORDINATE ALL TOWER & ROOF MOUNTED EQUIPMENT WITH OWNER.
 6. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
 7. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL CONTACT THE LIGHTNING PROTECTION COMPANY CERTIFYING AND WARRANTING ANY EXISTING LIGHTNING PROTECTION SYSTEM AT THIS LOCATION TO IDENTIFY ANY ADDITIONAL REQUIREMENTS THAT ARE NOT SHOWN ON THESE PLANS BUT NECESSARY TO MAINTAIN ALL WARRANTIES, CERTIFICATIONS, UL LISTING, AND PERFORMANCE CHARACTERISTICS. (THIS WILL INCLUDE THE ADDITION OF LIGHTNING PROTECTION FOR THE NEW WORK.) UPON COMPLETION OF THESE REQUIRED ADDITIONS/MODIFICATIONS CONTRACTOR WILL HAVE THE ENTIRE LIGHTNING PROTECTION SYSTEM RE-INSPECTED BY THE LIGHTNING PROTECTION COMPANY. ALL REQUIRED MODIFICATIONS TO MAINTAIN THE UL LISTING, WARRANTY, AND ANY OTHER PRE-CONSTRUCTION CERTIFICATIONS SHALL BE PERFORMED AS PART OF THIS CONTRACT. CONTRACTOR SHALL CONTACT BUILDING OWNER FOR LIGHTNING PROTECTION COMPANY INFORMATION, AND IF UNAVAILABLE, SHALL UTILIZE NORTHEAST LIGHTNING PROTECTION, LOCATED IN BLOOMFIELD, CT.
 8. A UL LISTED LIGHTNING PROTECTION IS REQUIRED FOR THE NEW WORK. THE NEW LIGHTNING PROTECTION SYSTEM SHALL BE DESIGNED AND INSTALLED BY NORTHEAST LIGHTNING PROTECTION, LOCATED IN BLOOMFIELD, CONNECTICUT OR OTHER APPROVED AND CERTIFIED VENDOR AS DESCRIBED IN NOTE ABOVE. CONTRACTOR SHALL CARRY AN ALLOWANCE OF \$7500 FOR THE NEW LIGHTNING PROTECTION SYSTEM. THE ENTIRE SCOPE OF LIGHTNING PROTECTION SHALL BE INCLUSIVE OF ALL RECOMMENDED ADDITIONS FOR THE NEW WORK, AS WELL AS ALL RECOMMENDED MODIFICATIONS/ADDITIONS TO ANY EXISTING LIGHTNING PROTECTION SYSTEM AT THIS LOCATION.

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 4500, 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.

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 6" BENDING RADIUS.

FASTENER FOR CELLULAR GROUNDING CONDUCTOR

USE NON-METALLIC FASTENER AND STANDOFF "CLIC" (AVAIL. FROM NEFCO 203-289-0285) 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'-6" 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

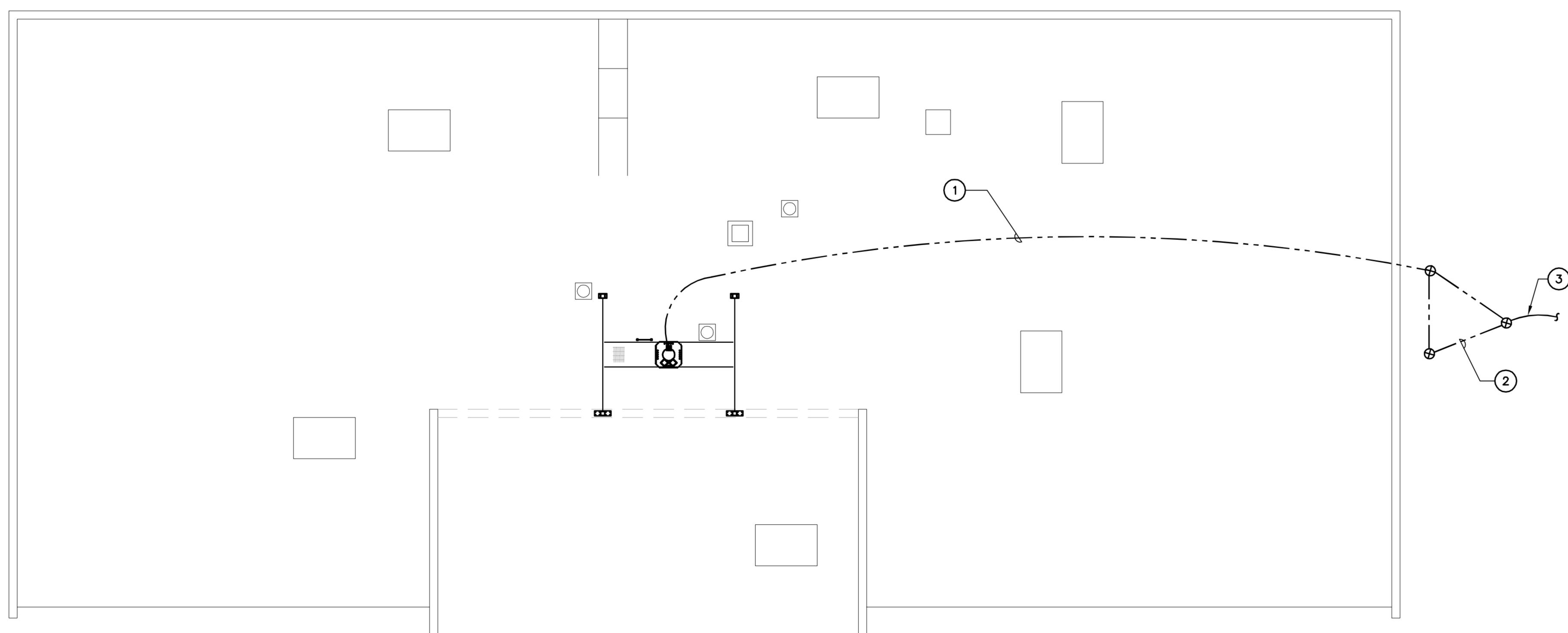
TOWER GROUND PLATE SHALL BE 6" x 8" x 1/4" COPPER AND BE MADE AVAILABLE TO TOWER CONTRACTOR TO BE INSTALLED DURING TOWER CONSTRUCTION. USE EXOTHERMIC WELD 'CADWELD TYPE HS' TO TOWER GROUND PLATE TEST WELD FOR POSSIBLE BURN THRU. COORDINATE THE SIZE OF THE MOUNTING HOLE WITH TOWER CONTRACTOR.

METALLIC CONDUITS

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

GROUNDING PLAN NOTES

- ① BOND TOWER TO GROUNDING TRIAD WITH #4/0 AWG GREEN INSULATED.
- ② GROUNDING TRIAD. PER DETAILS.
- ③ BOND GROUNDING TRIAD TO EXISTING BUILDING GROUNDING ELECTRODE SYSTEM PER NEC REQUIREMENTS.



2 ROOF PLAN
E-1

SCALE: 1" = 10'-0"



GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 20 ft.

EVERSOURCE
WIRELESS COMMUNICATIONS FACILITY

DANIELSON WORK CENTER
173 MECHANIC STREET
KILLINGLY, CT 06439

CENTEK engineering
Centeneers on Solutions™

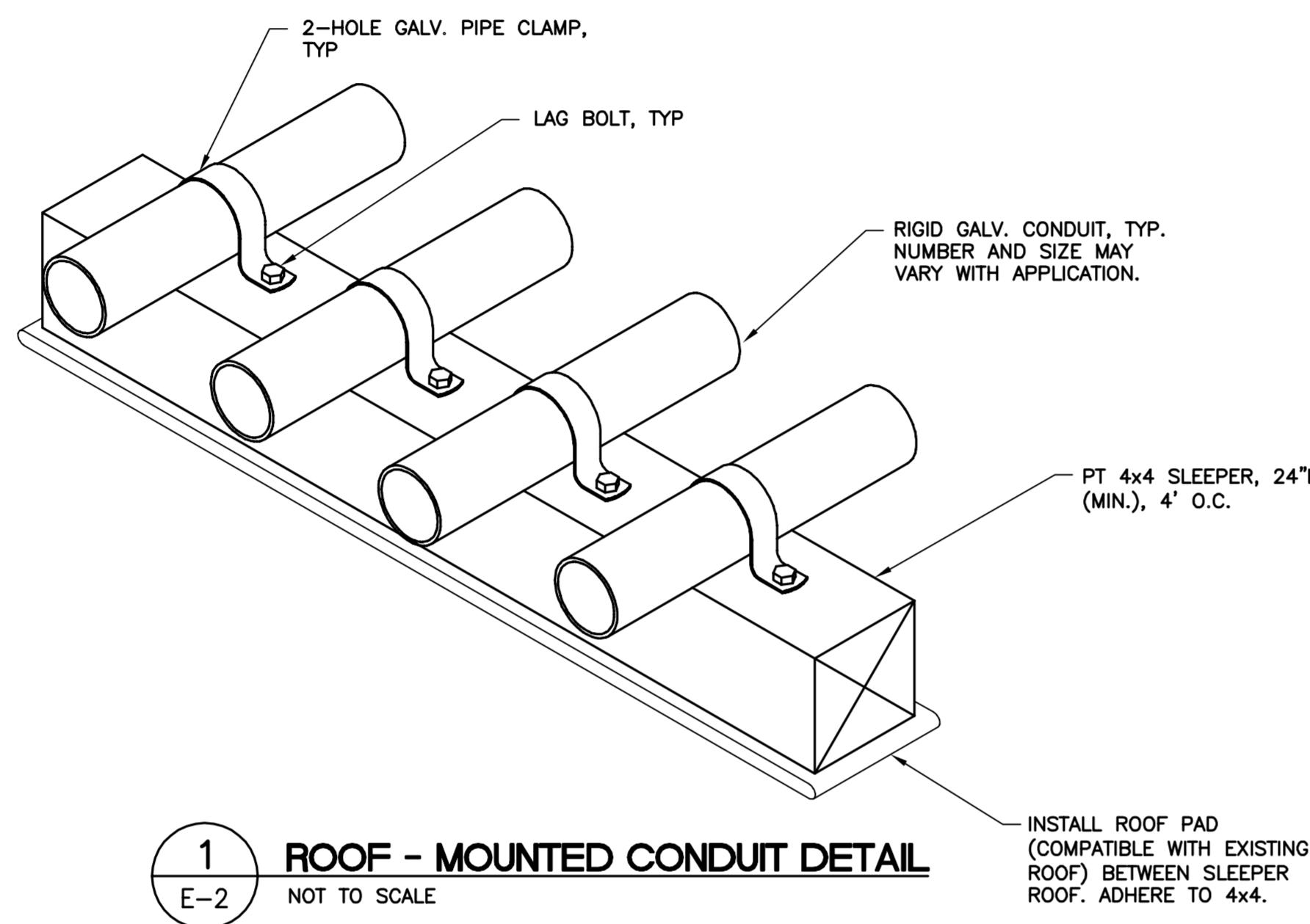
(203) 488-0590
(203) 488-5537 Fax
652 Bradford Road
Branford, CT 06405
www.CentekEng.com

DATE: 03/10/16
SCALE: AS NOTED
JOB NO. 15277.000

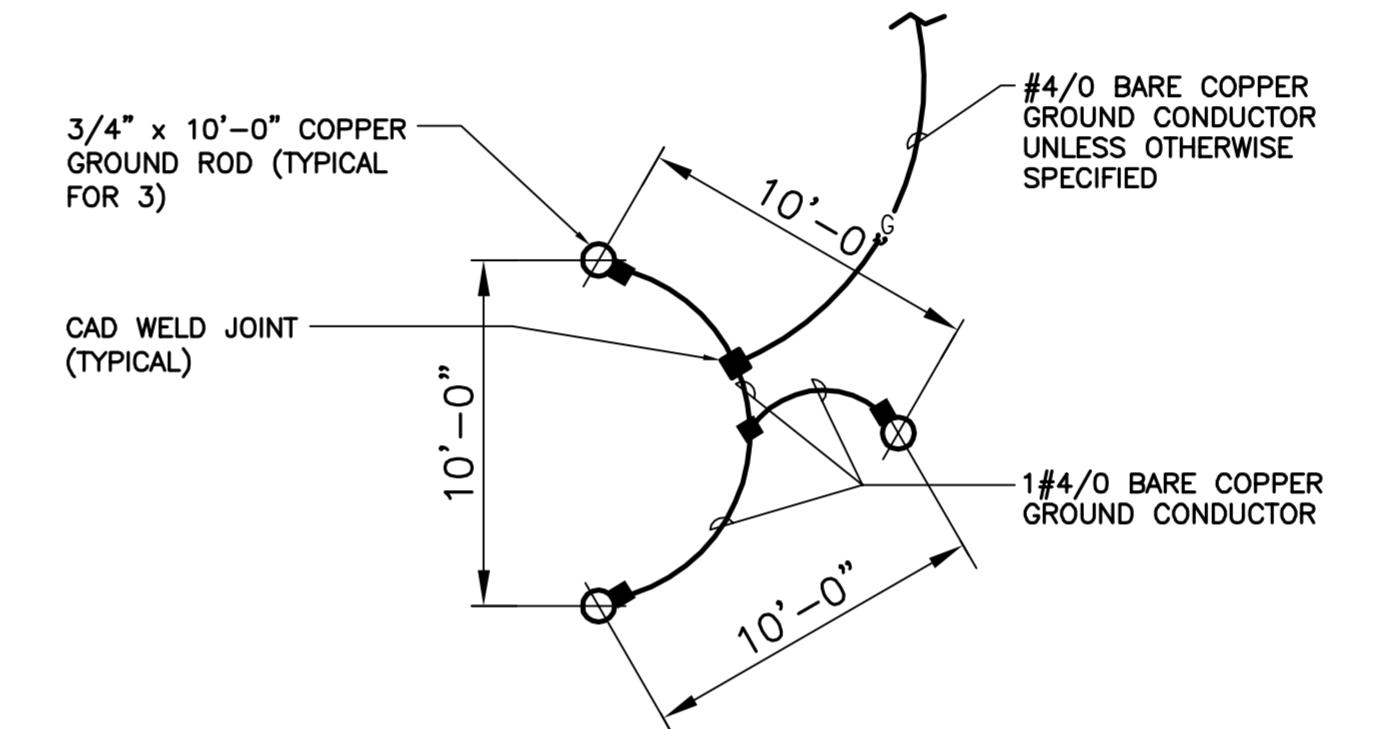
SCHEMATIC
GROUNDING, PLAN
AND NOTES

E-1

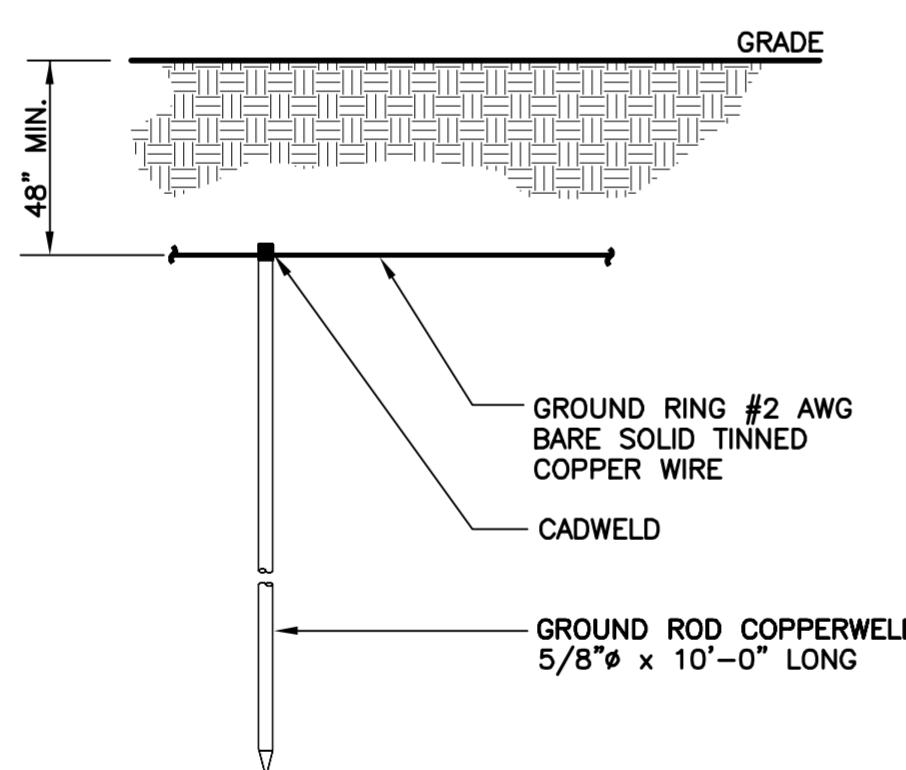
Sheet No. 6 of 8



1 ROOF - MOUNTED CONDUIT DETAIL
E-2 NOT TO SCALE

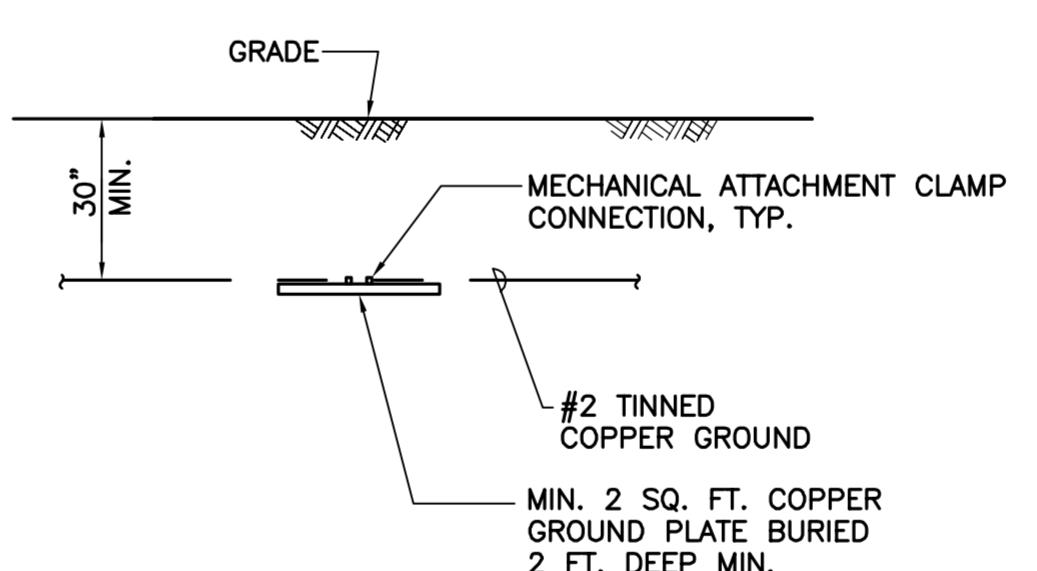


2 GROUND TRIAD DETAIL
E-2 NOT TO SCALE



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.

3 GROUND ROD DETAIL
E-2 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.

3A GROUND PLATE DETAIL
E-2 NOT TO SCALE

CENTEK <small>engineering</small> <small>Centeneon Solutions™</small>	EVERSOURCE <small>WIRELESS COMMUNICATIONS FACILITY</small>	
	173 MECHANIC STREET KILLINGLY, CT 06239	www.CentekEng.com
	1233-488-0590 (233-488-5537 Fax 652 North Bradford Road Branford, CT 06405	
	03/22/16	TUL
	REV. DATE	DRAWN BY CHK'D BY
	CFC	ISSUED FOR CLIENT REVIEW
	PROFESSIONAL ENGINEER SEAL	

DATE: 03/10/16
SCALE: AS NOTED
JOB NO. 15277.000

ELECTRICAL DETAILS

E-2

Sheet No. 7 of 9

ELECTRICAL SPECIFICATIONS

SECTION 16010

SECTION 1010

101. 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. PROVIDE TOWER GROUNDING IN ACCORDANCE WITH EIA, TIA AND NEC REQUIREMENTS.

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

SECTION 16450

SECTION 1040

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 16960).

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.

CENTEK engineering

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P.O. Box 1505

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EVERSOURCE

DANIEL SON WORK CE WIRELESS COMMUNICATIONS FACILITY

73 MECHANIC STREET
KILLINGWORTH CT 06239

DATE:	03/10/16
SCALE:	AS NOTED
JOB NO.	15277.000

ELECTRICAL SPECIFICATIONS

E-3

TOWAIR Determination Results

This structure requires FAA notification and FCC registration, based on a check of the coordinates, heights, and structure type you provided. As detailed below, one or more of the determination results produced a "fail slope" result, which means registration is required.

*** 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

FAIL SLOPE (50:1) FAA REQ - 1291.0 Meters(4235.51 Feet) away & exceeds by 14.0 Meters (45.93 Feet)

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	41- 49-4.00N	071-53-48.00W	DANIELSON WINDHAM	DANIELSON, CT	70.4	823.0

Your Specifications

NAD83 Coordinates

Latitude 41-48-40.6 north
Longitude 071-53-01.6 west

Measurements (Meters)

Overall Structure Height (AGL) 33.5
Support Structure Height (AGL) 27
Site Elevation (AMSL) 77.7

Structure Type

BPOLE - Building with Pole

Tower Construction Notifications

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

[CLOSE WINDOW](#)



**Federal Aviation
Administration**

[« OE/AAA](#)

Form 7460-2 for ASN: 2016-ANE-1032-OE

Construction		
Construction Type	Alteration	Owner of Structure: Eversource Energy Service Company
Construction Location / Height		
Latitude:	41° 48' 40.60" N	Address:
Longitude:	71° 53' 01.60" W	Address 2:
Horizontal Datum:	NAD 83	City: Killingly
Site Elevation (SE):	239 (nearest foot)	State: CT
Structure Height (AGL):	100 (nearest foot)	
Site Elevation Determined By:	USGS 7.5 Quad Map	
Construction Notifications		
Construction Start Date:	Abandon Date:	
Estimated End Date:	Dismantled Date:	
Greatest Height Reached Date: 02/13/2018	M&L Change Date:	
	Extension Request Date:	
Antenna Requiring FCC License		
ASR Number: 1299950	FCC Permit Applied Date:	
FCC ASR Registration	FCC Permit Issued Date	
Marking and Lighting		
Marking and Lighting:	None	
Estimated Date ADLS will be installed:		
Estimated Date ADLS will be operational:		
Date ADLS enabled:		
Date ADLS discontinued:		
Latest Supplemental Case Note		
Latest Supplemental Case Note:		
Comments:		

FCC Form 854
Main Form

Approved by OMD – 3060-0139
See instructions for public burden estimate

Application for Antenna Structure Registration

Purpose of Filing

1) Enter the application purpose: (NT)		 AM – Amendment of a Pending Application AU – Administrative Update CA – Cancellation of an Antenna Structure Registration DI – Notification of an Antenna Structure Dismantlement DU – Request for a Duplicate Antenna Structure Registration MD – Modification of a Antenna Structure Registration NE – Registration of a New Antenna Structure NT – Required Construction/Alteration Notification OC – Ownership Change RE – Registration of a Replacement Antenna Structure WD – Withdrawal of a Pending Application	
2a) If the answer to 1 is AU, CA, DI, DU, MD, NT, OC or RE, provide the FCC Antenna Structure Registration (ASR) Number.		FCC ASR Number: 1299950	
2b) If the answer to 1 is AM or WD, provide the File Number of the pending application on file.		File Number:	
2c) If the answer to 1 is MD or NT, provide the date the Antenna Structure was constructed or the date it was last altered (mm/dd/yyyy).		Date: 02/13/2018	
2d) If the answer to 1 is DI, provide the date the Antenna Structure was dismantled (mm/dd/yyyy).		Date:	

Antenna Structure Ownership Information

3) Select one of the entity types:			
<input type="checkbox"/> Individual	<input type="checkbox"/> Unincorporated Association	<input type="checkbox"/> Trust	<input type="checkbox"/> Government Entity
<input checked="" type="checkbox"/> Corporation	<input type="checkbox"/> Limited Liability Company	<input type="checkbox"/> General Partnership	<input type="checkbox"/> Limited Partnership
<input type="checkbox"/> Consortium	<input type="checkbox"/> Limited Liability Partnership	<input type="checkbox"/> Other: _____	
4) FCC Registration Number (FRN): 0003583721		5) Assignor FCC Registration Number (FRN):	
6) First Name (if individual):		MI:	Last Name: _____
7) Legal Entity Name (if not an individual): Eversource Energy Service Company			
8) Attention To: Telecom Manager		9) P.O. Box: 270	And/Or
10a) Street Address 1:		10b) Street Address 2:	
11) City: Hartford		12) State: CT	13) Zip Code: 06141-0270
14) Telephone Number (xxx-xxx-xxxx): (860) 665-2661		15) Fax Number: (xxx-xxx-xxxx): (860) 665-5585	
16) E-mail Address: fcccontact@eversource.com			

Contact Representative Information

17) First Name (if individual): K	MI: H	Last Name: LAW	Suffix: DC
18) Business Name: Keller and Heckman LLP			
19) Attention To: Telecom	20) P.O. Box		And/Or
21a) Street Address 1: 1001 G Street NW, Suite 500 West		21b) Street Address 2:	
22) City: Washington	23) State: DC	24) Zip Code: 20001	
25) Telephone Number (xxx-xxx-xxxx): (202) 434-4100		26) Fax Number: (xxx-xxx-xxxx): (202) 434-4646	
27) E-mail Address: telecomlicensing@khlaw.com			

Antenna Structure Information

28a) Latitude (DD-MM-SS.S): 41- 48- 40.6	28b) North or South: North	
29a) Longitude (DDD-MM-SS.S): 071- 53- 01.6	29b) East or West: West	
30) Street Address or Geographic Location: 173 Mechanic Street	31) City: Killingly	
32) County: WINDHAM	33) State: CONNECTICUT	34) Zip Code: 06239
35) Elevation of site above mean sea level (meters): 72.8 meters		
36) Overall height above ground level (AGL) of the supporting structure without appurtenances: 27.0 meters		
37) Overall height above ground level (AGL) of the antenna structure including all appurtenances: 30.5 meters		
38) Overall height above mean sea level (add items 35 and 37 together): 103.3 meters		

39a) Enter the type of structure on which the antenna will be mounted: (**BANT**)

B – Building
BANT – Building with Antenna on Top
BMAST – Building with Mast
BPIPE – Building with Pipe
BPOLE – Building with Pole
BRIDG – Bridge
BTWR – Building with Tower
GTOWER – Guyed Structure Used For Communication Purposes
LTOWER – Lattice Tower
MAST – Mast
MTOWER – Monopole
NNGTANN – Guyed Tower Array

NNLTANN – Lattice Tower Array
NNMTANN – Monopole Array
PIPE – Any type of Pipe
POLE – Any type of Pole
RIG – Oil or Other Type of Rig
SIGN – Any type of Sign or Billboard
SILO – Any type of Silo
STACK – Smoke Stack
TANK – Any type of Tank (water, gas, etc.)
TREE – When used as a support for an antenna
UPOLE – Utility Pole/Tower used to provide service (electric, telephone, etc.)

39b) Number of Towers in Array:	39c) Position of this Tower in the Array:
40a) Array Center Latitude (DD-MM-SS.S):	40b) North or South:
41a) Array Center Longitude (DDD-MM-SS.S):	41b) East or West:

Proposed Marking and/or Lighting

42) Enter the proposed marking and/or lighting: (1)
See Form 854 Item 42 Instructions for detailed tier and lighting information.

1) None
2) Paint Only
3) Other _____

4) FAA Style B
5) FAA Style D
6) FAA Style C

7) FAA Style E
8) FAA Style F
9) FAA Style A
10) FAA Style G

FAA Notification

43) FAA Study Number:
2016-ANE-1032-OE

44) Date Issued:
08/03/2016

Environmental Compliance

45) Does the applicant request a waiver of the Commission's rules for environmental notice prior to construction due to an emergency situation?	(<input type="checkbox"/>) Yes or No
46a) If the answer to 45 is No, is another federal agency taking responsibility for environmental review of the Antenna Structure?	(<input type="checkbox"/>) Yes or No
46b) If the answer to 46a is Yes, indicate why: 1) The Antenna Structure is on Federal Land and the landholding agency is taking responsibility for the environmental review of the Antenna Structure. 2) Another federal agency has agreed with the FCC in writing to take responsibility for the environmental review of the Antenna Structure.	(<input type="checkbox"/>) 1 or 2
46c) If the answer to 46a is Yes, provide the name of the federal agency taking responsibility for the environmental review of the Antenna Structure.	Name: _____
47) If the answers to 45 and 46a are No, provide the National Notice Date for the application to be posted on the FCC's website (mm/dd/yyyy).	Date: _____
48) Is the applicant submitting an environmental assessment?	(<input type="checkbox"/>) Yes or No
49) Does the applicant certify that grant of Authorizations at this location would not have a significant environmental effect pursuant to Section 1.1307 of the FCC's rules?	(<input type="checkbox"/>) Yes or No
50) If the answer to 49 is Yes, select the basis for this certification. 1) The construction is exempt from environmental notification (other than due to another agency's review) and it does not fall within one of the categories in Section 1.1307(a) or (b) of the FCC's rules? 2) The construction is exempt from environmental notification due to another agency's review, and the other agency has issued a Finding of No Significant Impact. 3) The environmental notification has been completed, and the FCC has notified the applicant that an Environmental Assessment is not required under Section 1.1307(c) or (d) of the FCC's rules, and the Construction does not fall within one of the categories in Section 1.1307(a) or (b) of the FCC's rules. 4) The FCC has issued a Finding of No Significant Impact.	(<input type="checkbox"/>) 1, 2, 3, 4
51) If the answer to 50 is 3 or 4, enter the date that Local Notice was provided (mm/dd/yyyy).	Date: _____

Certification Statements

1) The applicant certifies that all statements made in this application and in the exhibits, attachments, or documents incorporated by reference are material, are part of this application, and are true, complete, correct, and made in good faith.
2) The applicant certifies that neither the applicant nor any other party to the application is subject to a denial of Federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 862, because of a conviction for possession or distribution of a controlled substance. See Section 1.2002(b) of the rules, 47 CFR § 1.2002(b), for the definition of "party to the application" as used in this certification

Signature (Typed or Printed Name of Party Authorized to Sign)

52) First Name: Matt	MI:	Last Name: Acton	Suffix:
53) Title: Manager, Telecommunications Strategy			
54) Signature: Matt Acton	55) Date: Feb 16, 2018		

WILLFUL FALSE STATEMENTS MADE ON THIS FORM OR ANY ATTACHMENTS ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. Code, Title 18, Section 1001) AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-ANE-1032-OE

Issued Date: 08/03/2016

Telecom Manager
Eversource Energy Service Company
PO Box 270
Hartford, CT 06141-0270

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna - Top Mount Killingly
Location:	Killingly, CT
Latitude:	41-48-40.60N NAD 83
Longitude:	71-53-01.60W
Heights:	239 feet site elevation (SE) 100 feet above ground level (AGL) 339 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

At least 10 days prior to start of construction (7460-2, Part 1)
 Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 L.

Any height exceeding 100 feet above ground level (339 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (404) 305-6531. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-ANE-1032-OE.

Signature Control No: 287924450-300784552

(DNE)

Darin Clipper
Specialist

Attachment(s)
Additional Information
Case Description
Frequency Data
Map(s)

cc: FCC

Additional information for ASN 2016-ANE-1032-OE

AGL height reduced from 110 ft. AGL to 100 ft. AGL.

Antennas to be added to an existing 89 ft. building.

Antennas (11 ft. AGL) not to exceed a total top mount height of 100 ft. AGL.

Case Description for ASN 2016-ANE-1032-OE

The applicant seeks to construct an 89 foot tower on a building with 21 feet of appurtenances resulting in an overall height of 110 feet.

Frequency Data for ASN 2016-ANE-1032-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
154.4638	154.4638	MHz	331	W
158.4225	158.4225	MHz	100	W

TOPO Map for ASN 2016-ANE-1032-OE

