Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
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March 18, 2022

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

T-Mobile Northeast LLC – CTHA348A
Tower Share Application
Haywardville Road
Latitude- 41.292810
Longitude- -72.211690

Dear Ms. Bachman,

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile plans to install antennas and related equipment at the tower site located at Haywardville Road, East Haddam, Connecticut.

T-Mobile will install six (6) 600/700/1900/2100/5G MHz antennas and six (6) RRUs at the 160' level of the existing 180' monopole tower. Three (3) Hybrid cables will also be installed. T-Mobile's equipment cabinets will be placed on an existing 10' x 15' concrete pad within the existing ground facility. Included are plans by Centek Engineering, March 15, 2022, depicting the planned changes and attached as **Exhibit A**. Also included is a structural analysis prepared by Morrison Hershfield, dated December 24, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. This is attached and detailed in **Exhibit B**.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Irene Haines, First Selectman of East Haddam, James Ventres, Zoning Enforcement Officer, as well as the tower owner, AT&T, and the property owner, East Haddam Fishing & Game Club Inc. Please see the attached letter from AT&T authorizing the proposed shared use of this facility attached as **Exhibit C**.

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the monopole is at 180'; T-Mobile's proposed antennas will be located at a center line height of 160'.

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

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. T-Mobile's plans include the installation of an emergency back-up generator; noise associated with this installation is exempt from State and local noise standards. The incremental effect of the proposed changes will be negligible.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 10.38%, as evidenced by **Exhibit D**.

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

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting T-Mobile's proposed loading, with the tower modifications/reinforcements as detailed in the structural analysis. The structural analysis is included as **Exhibit B**.
B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopole in East Haddam. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as **Exhibit C**, authorizing T-Mobile to file this application for shared use.
C. Environmental Feasibility. The proposed shared use of this facility would have minimal environmental impact. The installation of T-Mobile equipment at the 160' level of the existing 180' tower would have an insignificant visual impact on the area around the tower. T-Mobile's ground equipment would be installed within the existing facility compound. T-Mobile's shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by **Exhibit D**, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.
D. Economic Feasibility. T-Mobile will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist T-Mobile with this tower sharing application.
E. Public Safety Concerns. As discussed above, the monopole is structurally capable of supporting T-Mobile's proposed loading. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing monopole. T-Mobile's intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through East Haddam and nearby the facility.

Sincerely,

Eric Breun

Eric Breun
Transcend Wireless
1 International Blvd., Suite 400
Mahwah, New Jersey 07495
ebreun@transcendwireless.com
201-658-7728

CC: Irene Haines – First Selectman
James Ventres – Zoning Enforcement Officer
East Haddam Fishing and Game - Property Owner
AT&T – Tower Owner

SITE NAME: EAST HADDAM CTHA348
SITE ID: CTHA348A
MILLINGTON RD
EAST HADDAM, CT 06423

T-MOBILE A&L TEMPLATE (PROVIDED BY RFDS)
67E5998E_1xAIR+1OP

RAN TEMPLATE (PROVIDED BY RFDS)
67E5A998E 6160

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA–222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2017 CONNECTICUT FIRE SAFETY CODE, 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 MANUFACTURER'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 CONDUITS 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 THE OWNER'S 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: MILLINGTON RD
EAST HADDAM, CT 06423

1.	GET ON I–91 S IN WINDSOR FROM DAY HILL RD.	4.40 MI
2.	MERGE ONTO I–91 S.	7.10 MI
3.	TAKE EXIT 30 ON THE LEFT TO MERGE ONTO I–84 E.	0.70 MI
4.	TAKE EXIT 55 FOR CT–2 E TOWARD NORWICH/NEW LONDON/I–84 E.	0.40 MI
5.	CONTINUE ONTO CT–2 E.	23.4 MI
6.	KEEP RIGHT AT THE FORK TO CONTINUE ON CT–11 S, FOLLOW SIGNS FOR NEW LONDON.	4.20 MI
7.	TAKE EXIT 5 FOR WITCH MEADOW RD.	0.50 MI
8.	TURN RIGHT ONTO WITCH MEADOW RD.	0.50 MI
9.	CONTINUE ONTO ALEXANDER RD.	0.40 MI
10.	CONTINUE ONTO SALEM RD.	0.50 MI
11.	TURN RIGHT ONTO ALEXANDER RD.	0.60 MI
12.	TURN LEFT ONTO HAYWARDVILLE RD.	1.60 MI
13.	HAYWARDVILLE RD BECOMES MILLINGTON RD. DESTINATION WILL BE ON THE RIGHT.	

SITE COORDINATES: LATITUDE: 41°–29'–28.5" N
LONGITUDE: 72°–21'–17.4" W
GROUND ELEVATION: 475'± AMSL

COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH

VICINITY MAP

NORTH

PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

1. INSTALL (1) RADIO 4460 B25+B66 PER SECTOR AT GRADE, TOTAL (3).
2. INSTALL (1) RADIO 4480 B71+B85 PER SECTOR AT GRADE, TOTAL (3).
3. INSTALL (1) ANTENNA APXVAALL24_43 U–NA20 PER SECTOR, TOTAL (3).
4. INSTALL (1) ANTENNA ERICSSON AIR 6449 B41 PER SECTOR, TOTAL (3).
5. INSTALL NEW POWER ENCLOSURE 6160.
6. INSTALL NEW BATTERY ENCLOSURE B160.
7. INSTALL (1) SITEPRO LOW PROFILE ANTENNA PLATFORM.
8. INSTALL (3) 6/24 HYBRID CABLES.
9. INSTALL (1) 10'x15' CONCRETE EQUIPMENT PAD.
10. INSTALL ANTENNA CABLE ICE BRIDGE.
11. INSTALL 200A METER AND CIRCUIT BREAKER
12. INSTALL (1) TELCO BOX.
13. INSTALL (1) 200A PPC CABINET.
14. INSTALL (1) 6' EQUIPMENT FRAME.
15. INSTALL (1) EMERSON CABINET.
16. INSTALL (1) 200A AUTOMATIC TRANSFER SWITCH.
17. INSTALL (1) 48 KW DIESEL FUELED BACK–UP GENERATOR.

PROJECT INFORMATION

SITE NAME:	EAST HADDAM CTHA348
SITE ID:	CTHA348A
SITE ADDRESS:	MILLINGTON RD EAST HADDAM, CT 06423
APPLICANT:	T–MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	DAN REID (PROJECT MANAGER) TRANSCEND WIRELESS, LLC (203) 592–8291
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63–2 NORTH BRANFORD RD. BRANFORD, CT 06405 CARLO F. CENTORE, PE (203) 488–0580 EXT. 122
PROJECT COORDINATES:	LATITUDE: 41°–29'–28.5" N LONGITUDE: 72°–21'–17.4" W GROUND ELEVATION: 475'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

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C–3	ANTENNA PLAN AND ELEVATION	0
C–4	TYPICAL EQUIPMENT DETAILS	0
C–5	TYPICAL EQUIPMENT DETAILS	0
C–6	TYPICAL EQUIPMENT DETAILS	0
E–1	ELECTRICAL CONDUIT ROUTING AND RISER DIAGRAM	0
E–2	ELECTRICAL GROUNDING SCHEMATIC	0
E–3	ELECTRICAL GROUNDING PLANS	0
E–4	TYPICAL ELECTRICAL DETAILS	0
E–5	TYPICAL ELECTRICAL DETAILS	0
E–6	ELECTRICAL SPECIFICATIONS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	03/15/22	RTS	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

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

SITE NAME: EAST HADDAM CTHA348
SITE ID: CTHA348A
MILLINGTON RD
EAST HADDAM, CT 06423

DATE: 01/03/22
SCALE: AS NOTED
JOB NO. 21022.32

TITLE SHEET

T–1

Sheet No. 1 of 14

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED: 101 MPH (Vasd)
  (EXPOSURE B/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10).

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. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. 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.
5. 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.

GENERAL NOTES

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18. CONTRACTOR SHALL COMPLY WITH OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
19. THE COUNTY/CITY/TOWN WILL MAKE PERIODIC FIELD OBSERVATION AND INSPECTIONS TO MONITOR THE INSTALLATION, MATERIALS, WORKMANSHIP AND EQUIPMENT INCORPORATED INTO THE PROJECT TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS AND APPROVED SHOP DRAWINGS.
20. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.

STRUCTURAL STEEL

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. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'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.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. 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.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. 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.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. 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.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	03/15/22	RTS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile
Transcend Wireless

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
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T-MOBILE NORTHEAST LLC

SITE NAME: EAST HADDAM CTHA348
SITE ID: CTHA348A
MILLINGTON RD
EAST HADDAM, CT 06423

DATE: 01/03/22
SCALE: AS NOTED
JOB NO. 21022.32

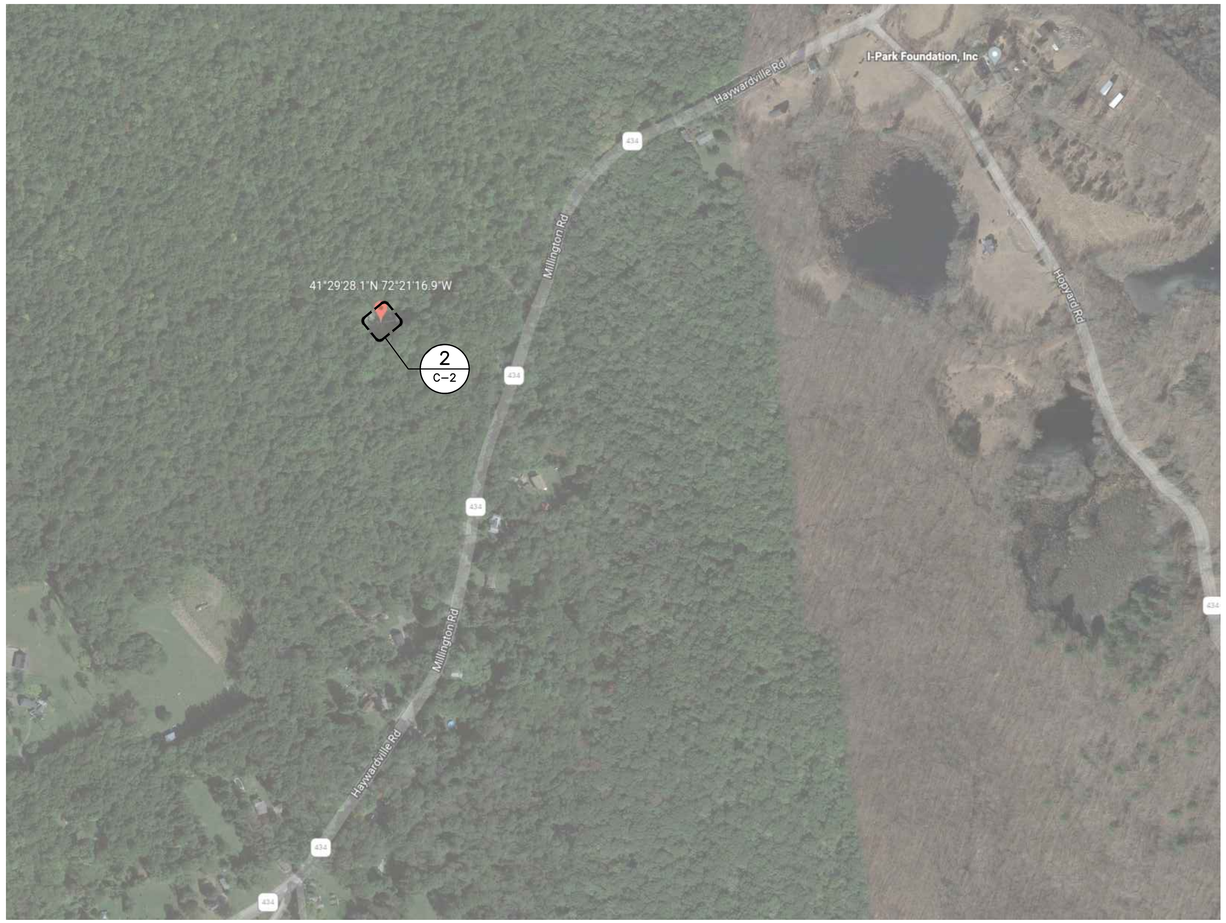
GENERAL NOTES AND SPECIFICATIONS

N-1

NOTE:
ALL HYBRID/COAX LENGTHS TO BE MEASURED AND VERIFIED IN FIELD BEFORE ORDERING

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (QTY)	(E/P) TMA (QTY)	(QTY) PROPOSED COAX
A1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	160'	40°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		(3) 6/24 HYBRID CABLES
A2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	160'	40°			
B1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	160'	140°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		
B2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	160'	140°			
C1	PROPOSED	RFS–APXVAALL24_43–U–NA20	95.9 x 24 x 8.5	160'	300°	(P) RADIO 4480 B71+B85 (1), (P) RADIO 4460 B25+B66 (1)		
C2	PROPOSED	ERICSSON–AIR6449 B41	33.1 x 20.6 x 8.6	160'	300°			



1 / C–1 SITE LOCATION PLAN
SCALE: NOT TO SCALE

TRUE NORTH

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SITE LOCATION PLAN

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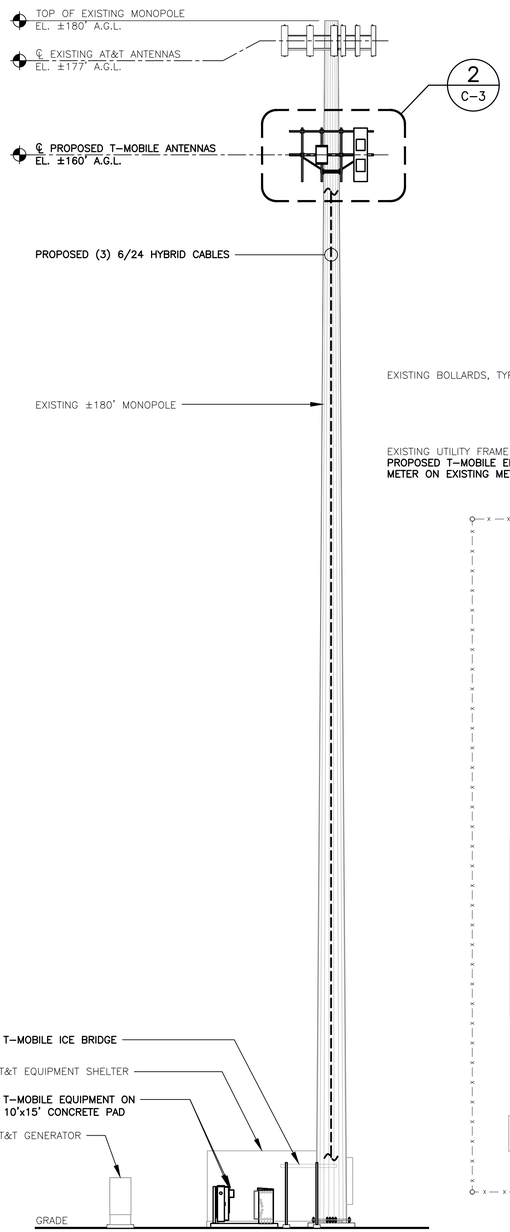
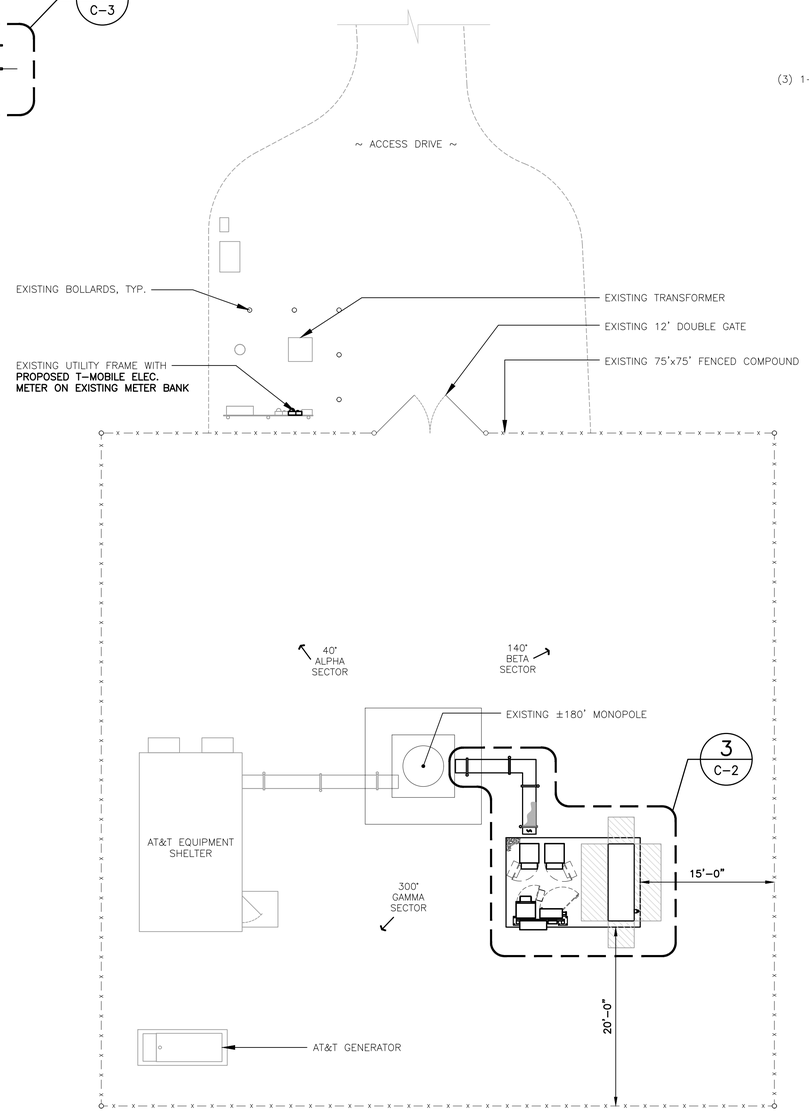
Sheet No. 3 of 14



1 C-2 **ELEVATION - PROPOSED**
SCALE: 3/32" = 1'

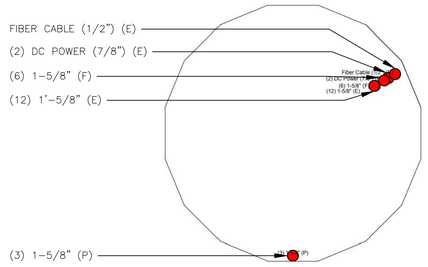


2 C-2 **COMPOUND PLAN - PROPOSED**
SCALE: 1/8" = 1'

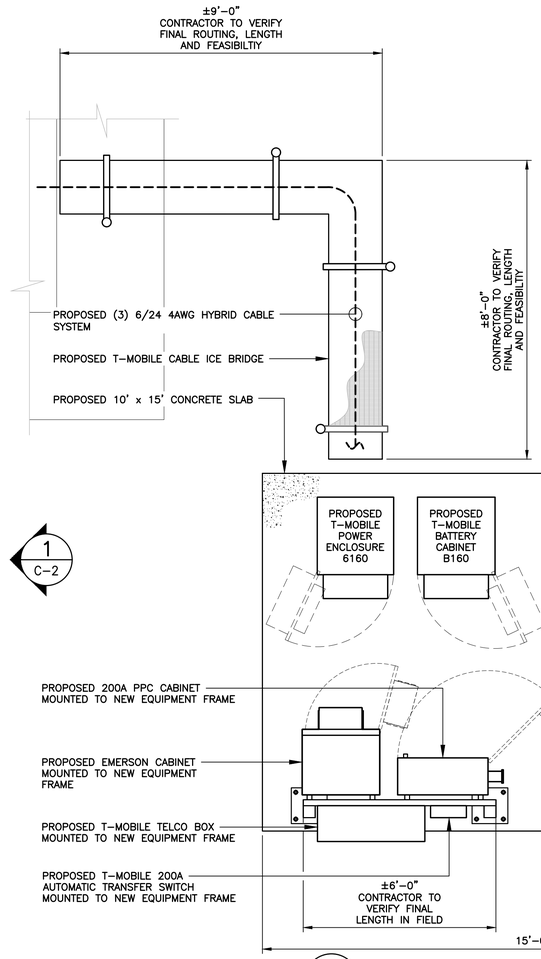
TRUE NORTH

NOTE:
ANTENNA EQUIPMENT NOT SHOWN FOR CLARITY.

NOTE:
COAX CABLE PLAN REFERENCED IN STRUCTURAL ANALYSIS REPORT BY MORRISON HERSHFIELD DATED 12/24/21



1A C-2 **COAX CABLE PLAN**
SCALE: NOT TO SCALE



3 C-2 **EQUIPMENT PLAN - PROPOSED**
SCALE: 1/2" = 1'

TRUE NORTH

NOTE:
1. CONTRACTOR TO FIELD VERIFY MEASUREMENTS BEFORE INSTALLATION

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING..

REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21022.32) DATED 09/13/21 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY MORRISON HERSHFIELD (PROJECT # 21022.32) DATED 12/24/21 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

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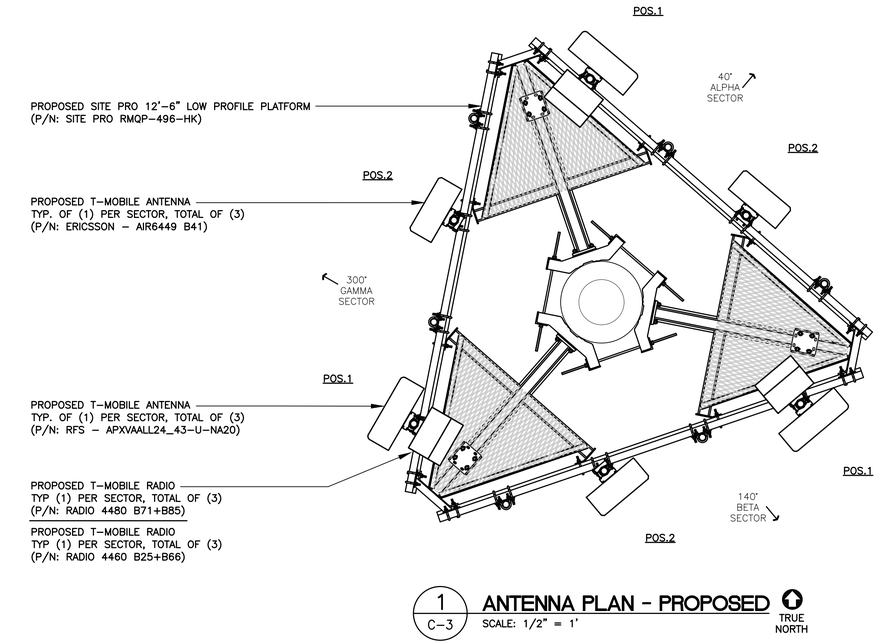
COMPOUND, EQUIPMENT PLAN AND ELEVATION

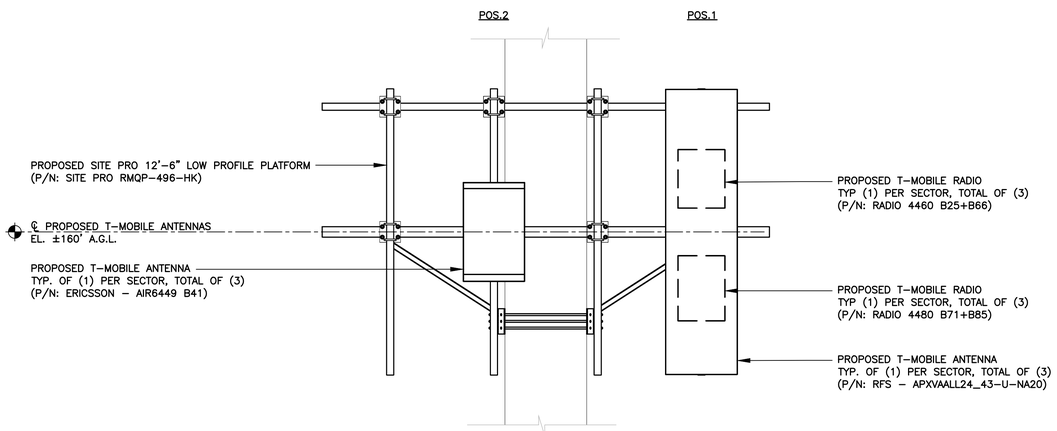
C-2

Sheet No. 4 of 14



1 / C-3 **ANTENNA PLAN - PROPOSED** TRUE NORTH

SCALE: 1/2" = 1'



2 / C-3 **ANTENNA ELEVATION - PROPOSED**

SCALE: 3/4" = 1'

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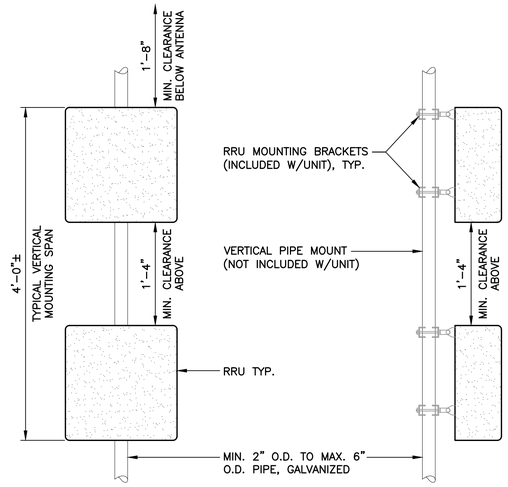
ANTENNA PLAN AND ELEVATION

C-3

Sheet No. 5 of 14



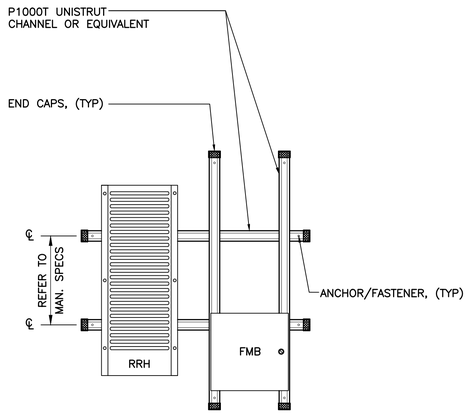
FRONT ELEVATION SIDE ELEVATION

NOTES: (PIPE MOUNTING)

1. T-MOBILE SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 C-4 TYPICAL RRU MOUNTING DETAILS

SCALE: NOT TO SCALE



FRONT ELEVATION

NOTES: (UNISTRUT MOUNTING)

1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

AIR6449 B41

APXVAALL24_43-U-NA20

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: AIR6449 B41	33.1"L x 20.6"W x 8.6"D	±104 LBS.
MAKE: RFS MODEL: APXVAALL24_43-U-NA20	95.9"L x 24.0"W x 8.5"D	±150 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

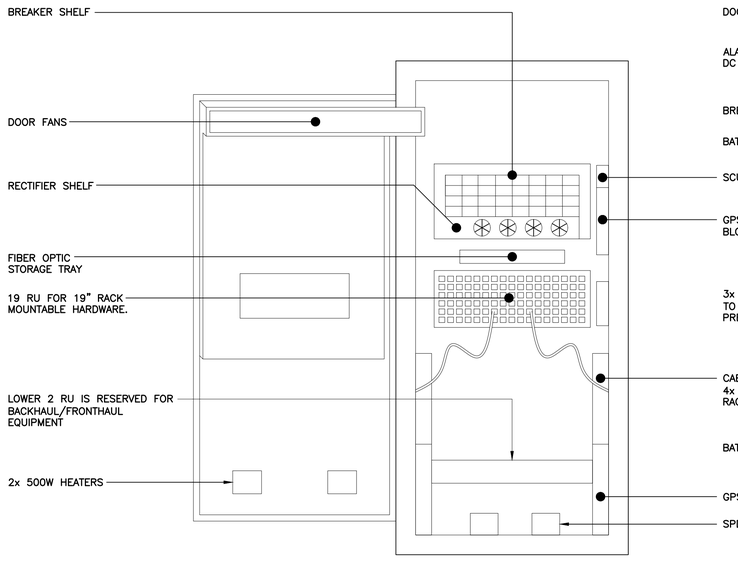
2 C-4 PROPOSED ANTENNA DETAIL

SCALE: NOT TO SCALE

VERTIV MINI PPC CABINET					
EQUIPMENT	PHASE	VOLTAGE	LOAD CENTER	AMP	DIMENSIONS
MAKE: VERTIV CATALOG: CACA75214090	1-PHASE	120/240	30 POSITIONS	200	39"H x 20"L x 10"W

3 C-4 30 POSITION MINI PPC CABINET

SCALE: NOT TO SCALE



EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: ENCLOSURE 6160 CABINET	62.0"H x 26.0"W x 26.0"D	±1200 LBS

4 C-4 ENCLOSURE 6160 CABINET DETAIL

SCALE: NOT TO SCALE

EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: BATTERY B160 CABINET	62.0"H x 26.0"W x 26.0"D	±1883 LBS

5 C-4 BATTERY B160 CABINET DETAIL

SCALE: NOT TO SCALE

RADIO 4460 B25+B66

RADIO 4480 B71+B85

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4460 B25+B66	19.6"L x 15.7"W x 12.1"D	±109 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
MAKE: ERICSSON MODEL: RADIO 4480 B71+B85	21.8"L x 15.7"W x 7.5"D	±84 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

6 C-4 PROPOSED RRU DETAIL

SCALE: NOT TO SCALE

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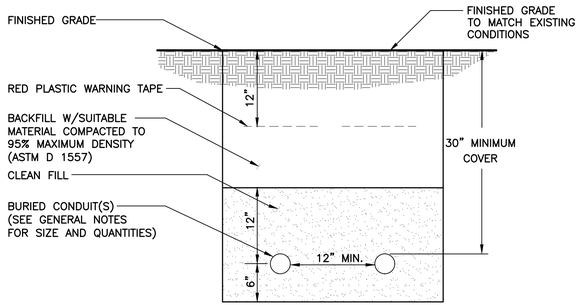
TYPICAL EQUIPMENT DETAILS

C-4

Sheet No. 6 of 14

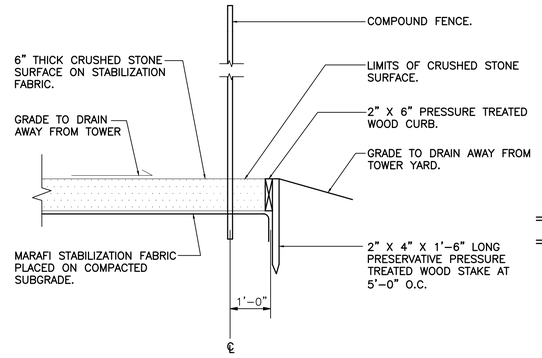


NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.

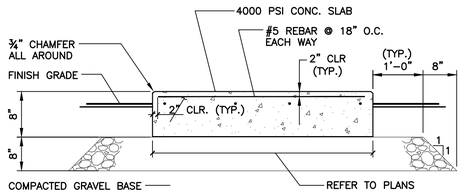
1 C-5 TYPICAL ELECTRICAL/TEL TRENCH DETAIL

SCALE: NOT TO SCALE



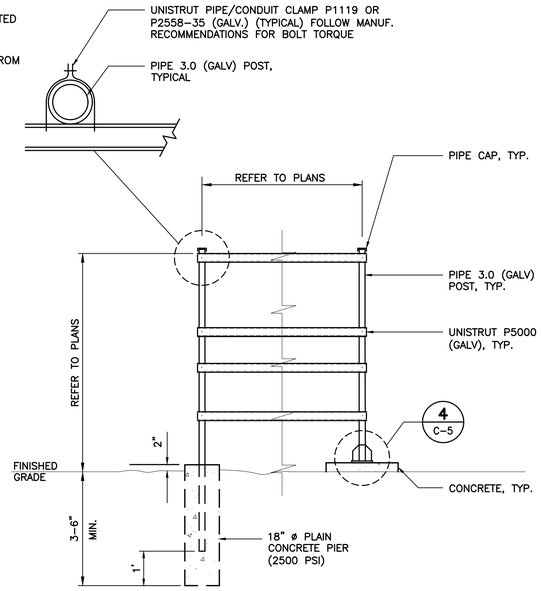
2 C-5 TYPICAL COMPOUND SURFACING DETAIL

SCALE: NOT TO SCALE



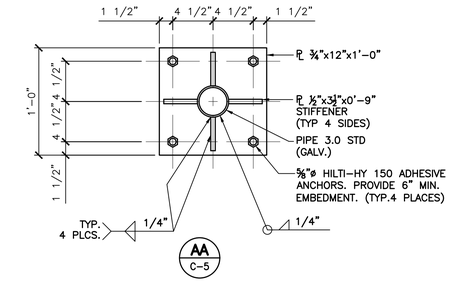
3 C-5 TYPICAL CONCRETE PAD DETAIL

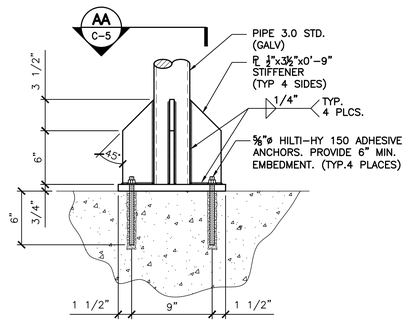
SCALE: NOT TO SCALE



4 C-5 TYPICAL FRAME MOUNTING DETAIL

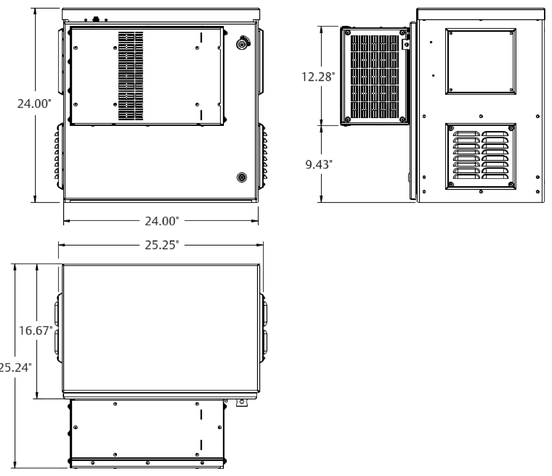
SCALE: NOT TO SCALE





5 C-5 FRAME TO CONCRETE CONNECTION DETAIL

SCALE: NOT TO SCALE



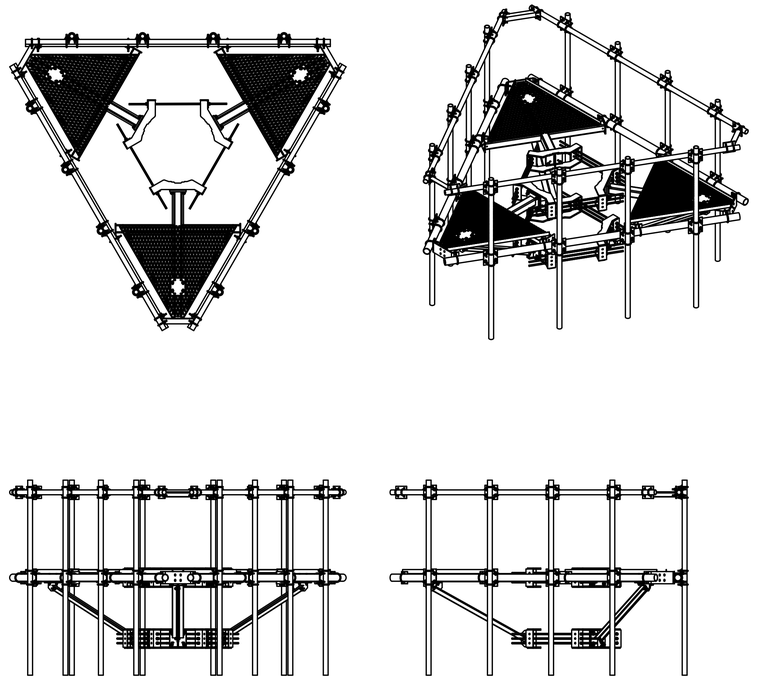
EMERSON CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: EMERSON MODEL: COMPACT 2416	24"L x 24"W x 16"D	±64 LBS.

NOTES:

1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

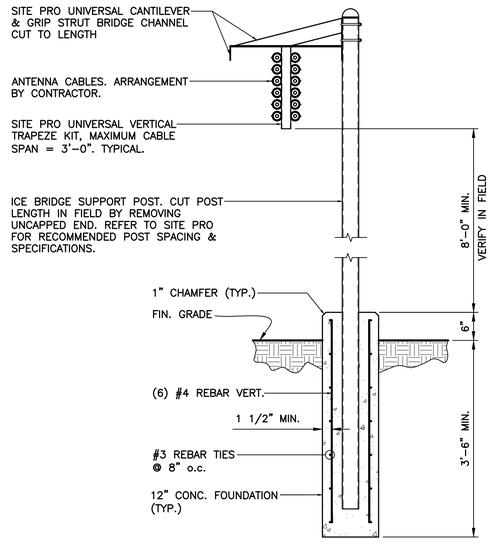
6 C-5 PROPOSED EMERSON CABINET DETAIL

SCALE: NOT TO SCALE



7 C-5 SITE PRO LOW PROFILE PLATFORM P/N: RMQP-496-HK

SCALE: NOT TO SCALE



8 C-5 TYPICAL ICE-BRIDGE DETAIL

SCALE: NOT TO SCALE

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TYPICAL EQUIPMENT DETAILS

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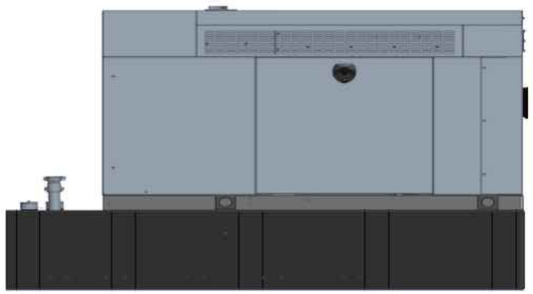

BACKUP POWER GENERATOR						
EQUIPMENT	POWER GENERATED	FUEL	MODEL NUMBER	FUEL TANK SIZE (GAL)	DIMENSIONS	WEIGHT
MAKE: GENERAC MODEL: RD48	48 KW, AC	DIESEL	7194	229	103.4"L x 35.0"W x 91.7"H	2915 LBS.

NOTES:
1. FUEL LEVEL/SECONDARY CONTAINMENT SHALL BE ALARMED AND IN COMMUNICATION WITH T–MOBILE'S NOC.
2. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION AND ALL OPTIONAL FEATURES WITH T–MOBILE'S CONSTRUCTION MANAGER PRIOR TO ORDERING.

1 C–6 PROPOSED GENERATOR DETAIL

SCALE: NOT TO SCALE

NFPA 704 HAZARD ID LEGEND:

RED: FLAMMABILITY
BLUE: HEALTH
YELLOW: REACTIVITY
WHITE: BLANK

SIGN NAME: REGULATORY, NFPA 704 HAZARD ID

DESCRIPTION: MOUNT ON GENERATOR ACCESS DOOR.
CONSULT WITH GENERATOR MANUFACTURER MSDS SHEET FOR BLUE AND RES POSITIONS

NOTES:
1) SIGNS EXPOSED TO WEATHER SHOULD BE CHECKED ANNUALLY FOR READABILITY.
2) SIGNS MUST BE UPDATED IF CHEMICAL STORAGE OR HAZARD INFORMATION FOR THE LOCATION CHANGES.
3) THE GC MUST REVIEW WITH LOCAL JURISDICTION WHEN FILLING FOR PERMITS, AS EACH JURISDICTION MAY HAVE DIFFERENT REQUIREMENTS AND COMPLY WITH POSTING REQUIREMENTS OR DIRECTIVES FROM THE LOCAL JURISDICTION.

2 C–6 NFPA 704 DIAMOND SIGNAGE DETAIL

SCALE: NOT TO SCALE

AUTOMATIC TRANSFER SWITCH					
EQUIPMENT	PHASE	VOLTAGE	ENCLOSURE	AMP	DIMENSIONS
MAKE: GENERAC MODEL: RXSC200A3	1–PHASE	120/240	NEMA–3R	200	17.3"L x 12.5"W

NOTES:
1. CONTRACTOR TO COORDINATE FINAL LOCATION AND MOUNTING CONFIGURATION OF THE AUTOMATIC TRANSFER SWITCH INSTALLATION.

3 C–6 AUTOMATIC TRANSFER SWITCH DETAIL

SCALE: NOT TO SCALE

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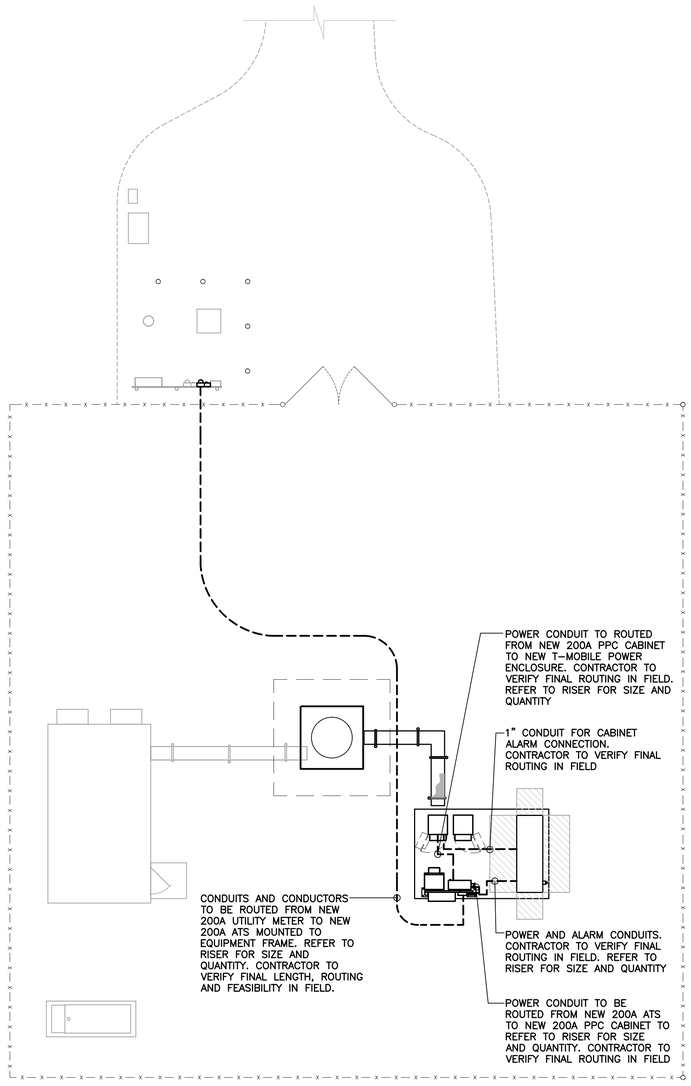
TYPICAL EQUIPMENT DETAILS

C-6

Sheet No. 8 of 14

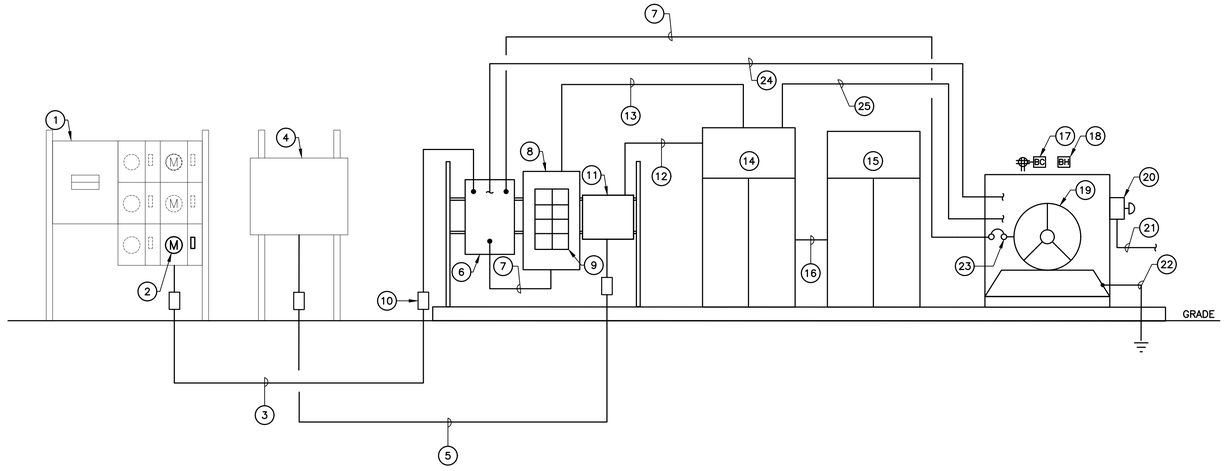
NOTE:
CONTRACTOR TO VERIFY FINAL CONDUIT RUN AND FEASIBILITY IN FIELD



1 / E-1 **ELECTRICAL POWER CONDUIT ROUTING PLAN**
SCALE: NOT TO SCALE

RISER DIAGRAM NOTES

1. EXISTING 800A, 240/120V, 1P, NEMA-3R, MULTI-GANG METER CENTER.
2. 200A RATED, 240V, SINGLE PHASE, 3 WIRE UTILITY METER IN AVAILABLE METERING SOCKET AND ASSOCIATED 200A/2P CIRCUIT BREAKER TO SERVE T-MOBILE EQUIPMENT. ALL EQUIPMENT MUST BE UTILITY COMPANY APPROVED.
3. (3) 3/0 AWG, (1) #6 AWG GROUND, 2" CONDUIT.
4. EXISTING TELCO DEMARC.
5. 4" CONDUIT WITH PULL ROPES FOR TELCO CONDUCTORS.
6. NEW 200A, 2 SOURCE AUTOMATIC TRANSFER SWITCH.
7. (3) #3/0 AWG, (1) #6 AWG GROUND, 2-1/2" CONDUIT.
8. NEW 200A, 120/240V, SINGLE PHASE PPC CABINET.
9. NEW 100A/2P CIRCUIT BREAKER TO SERVE NEW EQUIPMENT.
10. EXPANSION COUPLING TYPICAL.
11. 3 x 3 x 1 NEMA 3R HOFFMAN BOX FOR TELCO CONNECTIONS
12. TELCO CONDUIT AND CONDUCTORS FOR CABINET TELCO CONNECTION PER CABINET MANUFACTURER AND CONSTRUCTION MANAGERS REQUIREMENTS.
13. (3) #1 AWG, (1) #8 AWG GROUND, 1-1/2" CONDUIT.
14. NEW T-MOBILE EQUIPMENT CABINET
15. NEW T-MOBILE BATTERY CABINET
16. DC CONDUIT AND CONDUCTORS FOR BATTERY CABINET CONNECTION PER MANUFACTURERS SPECIFICATIONS.
17. GENERATOR BATTERY CHARGER AND CONVENIENCE GFCI OUTLET WIRED TO EXISTING PANEL. OUTLET TO BE MOUNTED IN WEATHERPROOF ENCLOSURE.
18. GENERATOR BLOCK HEATER WIRED TO EXISTING PANEL SERVING T-MOBILE EQUIPMENT.
19. 48KW EMERGENCY BACK UP GENERATOR.
20. REMOTE GENERATOR SHUT OFF SWITCH IN BREAK GLASS ENCLOSURE MOUNTED TO EXTERIOR OF GENERATOR ENCLOSURE PER 2019 NFPA 110 5.6.5.6.1.
21. 3/4" CONDUIT AND CONDUCTORS REQUIRED FOR PROPER OPERATION OF EMERGENCY GENERATOR SHUT OFF SWITCH.
22. GENERATOR GROUNDING PER NEC AND MANUFACTURER'S REQUIREMENTS. BOND TO EXISTING GROUNDING SYSTEM. (MINIMUM OF (1) #2 AWG GROUND)
23. GENERATOR OUTPUT CIRCUIT BREAKER.
24. 1" CONDUIT FOR GENERATOR CONTROL AND SIGNAL WIRING.
25. 1" CONDUIT FOR CABINET ALARM CONNECTION.



2 / E-1 **ELECTRICAL RISER DIAGRAM**
SCALE: NOT TO SCALE

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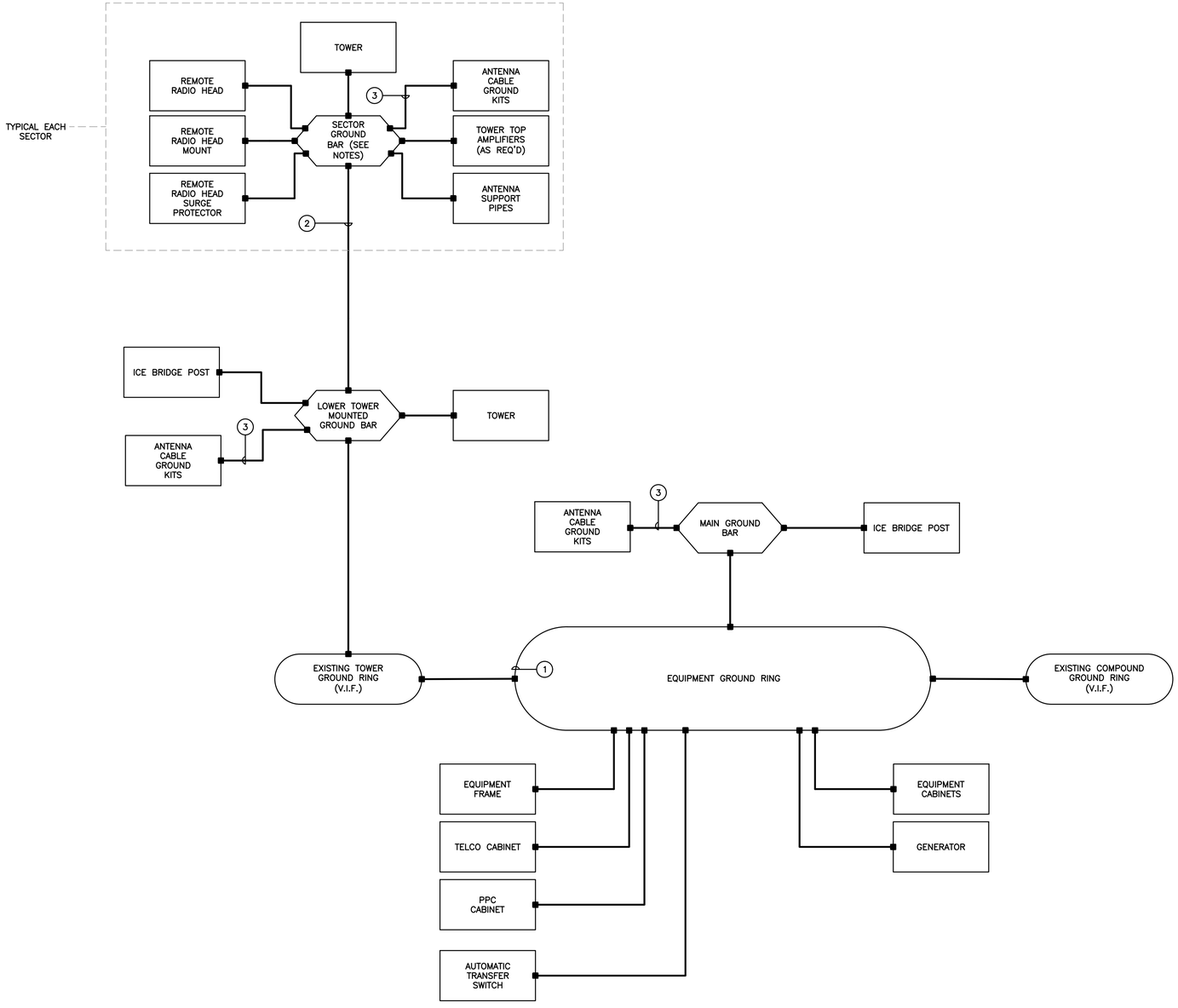
ELECTRICAL CONDUIT ROUTING AND RISER DIAGRAM

E-1

Sheet No. 9 of 14



1 / E-2 **ELECTRICAL GROUNDING SCHEMATIC**

SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

1. GROUND RING, #2 AWG BCW
2. #2/0 GREEN INSULATED
3. #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. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
7. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
8. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
9. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
10. ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
11. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
12. COORDINATE WITH TOWER OWNER BEFORE INSTALLING ANY GROUNDING ELEMENTS ON TOWER OR BONDING TO EXISTING TOWER GROUND RING.
13. BOND GENERATOR TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS

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ELECTRICAL GROUNDING SCHEMATIC

E-2

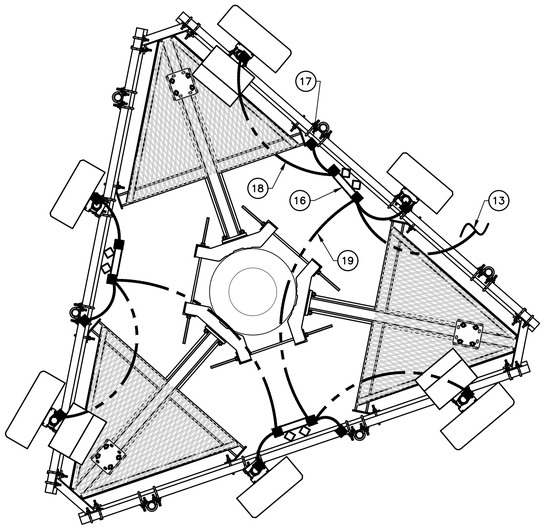
Sheet No. 10 of 14

GROUNDING PLAN NOTES

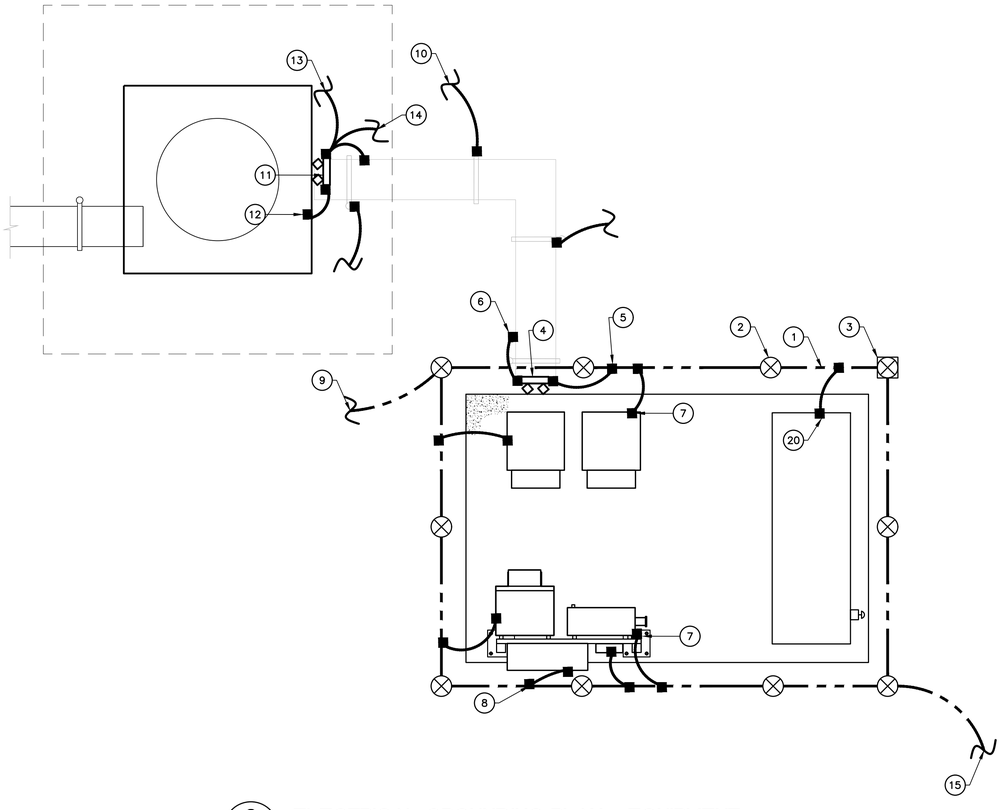
1. #2 SOLID TINNED BCW GROUND RING (INSTALLED 2' OF THE EDGE OF THE EQUIPMENT PAD).
2. GROUNDING ROD (TYP.) SEE DETAILS.
3. GROUNDING ROD WITH ACCESS (TYP.) SEE DETAILS.
4. MAIN GROUND BAR TYP.
5. BOND GROUND BAR TO GROUND RING.
6. BOND GROUND BAR TO ICE-BRIDGE POST.
7. BOND EQUIPMENT CABINET TO GROUND RING TYP.
8. BOND EQUIPMENT FRAME TO GROUND RING TYP.
9. CONNECT EQUIPMENT GROUND RING TO TOWER GROUND RING.
10. ICE BRIDGE POST AND COVER. BOND EACH SECTION AND SUPPORT TO GROUND RING.
11. LOWER TOWER MOUNTED GROUND BAR.
12. BOND GROUND BAR TO TOWER STEEL.
13. BOND LOWER TOWER MOUNTED GROUND BAR TO SECTOR GROUND BAR.
14. LOWER TOWER MOUNTED GROUND BAR TO TOWER GROUND RING.
15. CONNECT EQUIPMENT GROUND RING TO COMPOUND GROUND RING.
16. SECTOR GROUND BAR TYP.
17. BOND SECTOR GROUND BAR TO ANTENNA PLATFORM STEEL.
18. BOND ANTENNA MOUNTING PIPES TO SECTOR GROUND BAR. (TYPICAL)
19. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
20. BOND GENERATOR TO GROUND RING PER NEC AND MANUFACTURER SPECIFICATIONS

GENERAL NOTES

1. COORDINATE WITH ALL GROUNDING DETAILS AND SPECIFICATIONS.
2. COORDINATE WITH ALL OWNERS REQUIREMENTS AND NEC SPECIFICATIONS.
3. COORDINATE WITH SCHEMATIC DIAGRAM ON SHEET E2.



1 / E-3 ELECTRICAL GROUND PLAN - ANTENNAS
SCALE: NOT TO SCALE



2 / E-3 ELECTRICAL GROUNDING PLAN - EQUIPMENT
SCALE: NOT TO SCALE

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ELECTRICAL GROUNDING PLANS

E-3

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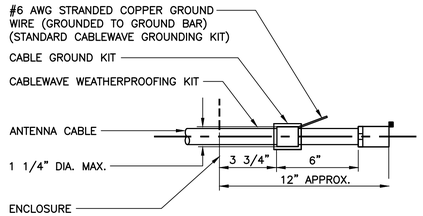
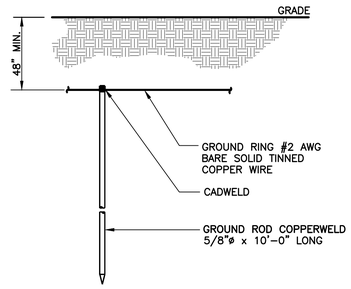


NOTES:

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

1 E-4 ANTENNA CABLE GROUNDING DETAIL

SCALE: NOT TO SCALE

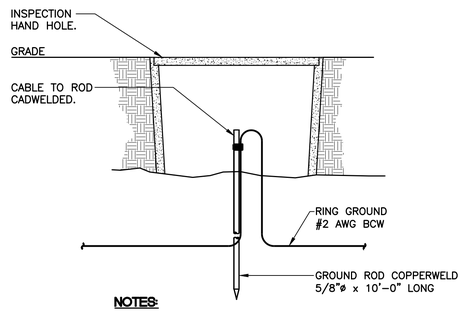


NOTES:

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.

2 E-4 GROUND ROD DETAIL

SCALE: NOT TO SCALE



NOTES:

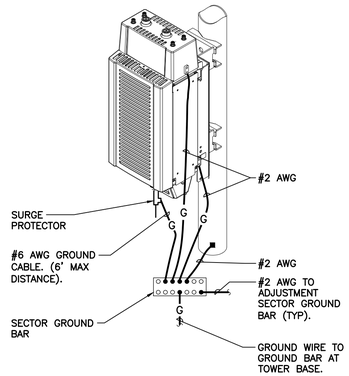
1. INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 12" DIA x 18" DEEP.

3 E-4 GROUND ROD WITH ACCESS DETAIL

SCALE: NOT TO SCALE

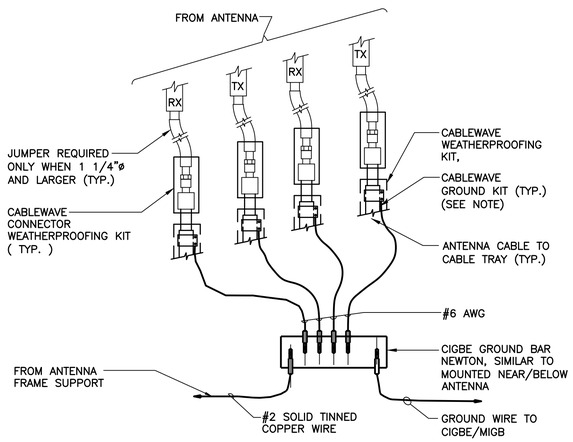
EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:

1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



4 E-4 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE

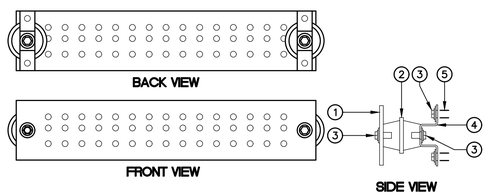


NOTES:

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

5 E-4 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE



TYPICAL GROUND BAR ASSEMBLY

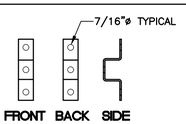
N.T.S.

TYPICAL GROUND BAR - DIMENSIONS

N.T.S.

NOTES

1. HIGH CONDUCTIVITY TINNED COPPER BAR 1'-8"Lx4"Wx1/4"D.
2. RED COLORED STANDOFF INSULATOR PLASTIC #1872-1A.
3. STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS, SPLIT LOCKWASHER AND FLAT WASHER.
4. 1"Wx1/8"T STAINLESS STEEL TYPE 304 BRACKET.
5. STAINLESS STEEL TYPE 304 HARDWARE - 3/8"ø EXPANSION BOLT FOR CONCRETE.

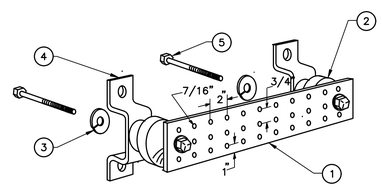


BRACKET FOR GROUND BAR-DIMENSIONS

N.T.S.

6 E-4 MASTER/EQUIPMENT GROUND BAR DETAILS

SCALE: 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. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

7 E-4 GROUND BAR DETAIL

SCALE: NOT TO SCALE

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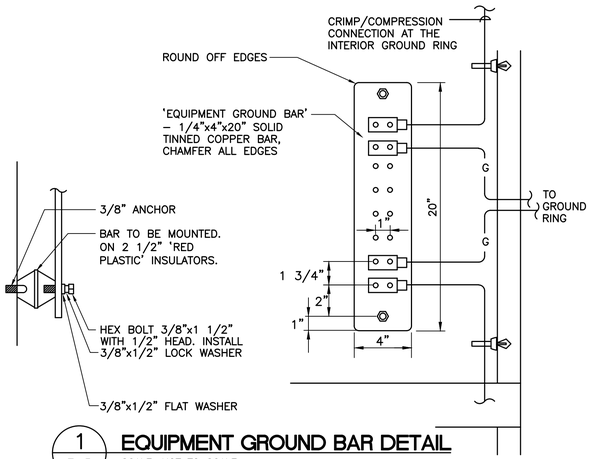
TYPICAL ELECTRICAL DETAILS

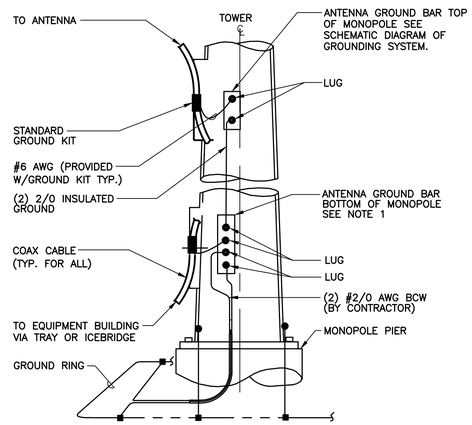
E-4

Sheet No. 12 of 14



1 E-5 **EQUIPMENT GROUND BAR DETAIL**

SCALE: NOT TO SCALE

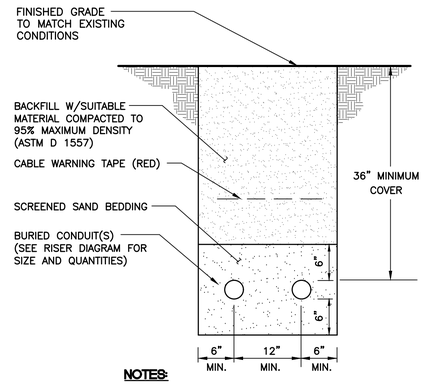


NOTES:

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.

2 E-5 **ANTENNA CABLE GROUNDING**

SCALE: NOT TO SCALE

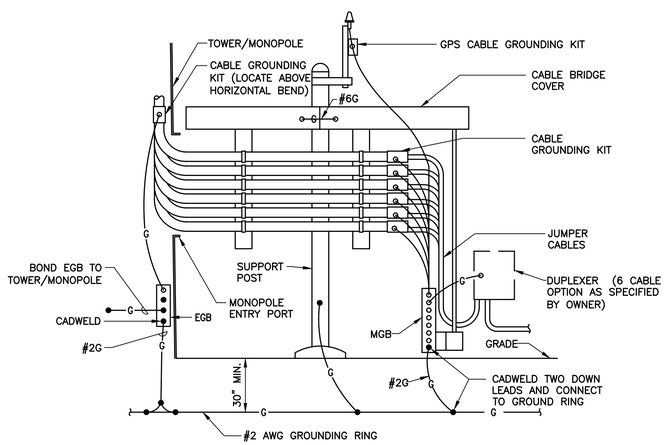


NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
3. WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN UTILITY SOURCE AND SERVICE EQUIPMENT, COORDINATE WITH UTILITY COMPANY FOR BURIAL DEPTH REQUIREMENTS.
4. COORDINATE WITH ELECTRICAL ENGINEER WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN SERVICE EQUIPMENT AND EQUIPMENT SHELTER.

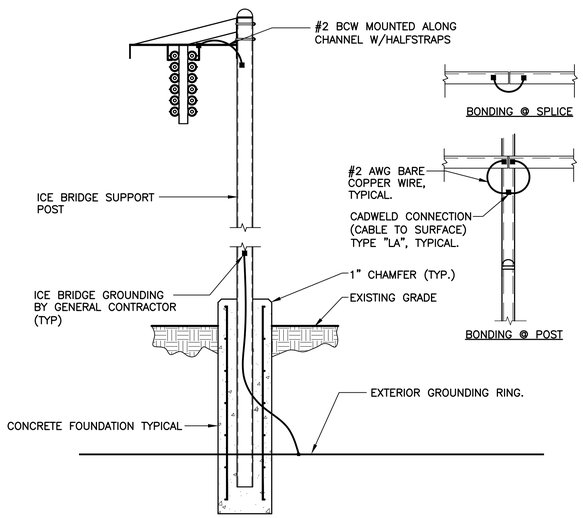
3 E-5 **TYPICAL ELECTRICAL TRENCH DETAIL**

SCALE: NOT TO SCALE



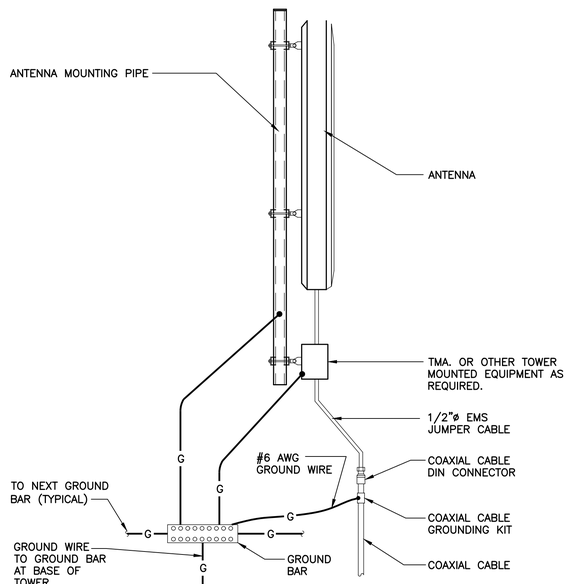
4 E-5 **CABLE BRIDGE GROUNDING DIAGRAM**

SCALE: NOT TO SCALE



5 E-5 **ICE BRIDGE BONDING DETAIL**

SCALE: NOT TO SCALE



6 E-5 **TYPICAL ANTENNA GROUNDING DETAIL**

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TYPICAL ELECTRICAL DETAILS

E-5

Sheet No. 13 of 14

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. INSTALL 200A, 240/120V, 1P, 3 WIRE ELECTRIC SERVICE WITH REVENUE METER AND 200A MAIN CIRCUIT BREAKER FOR OWNER AND ASSOCIATED DISTRIBUTION EQUIPMENT. (AS REQUIRED BY UTILITY CO.)
2. NEW SITE TELEPHONE SERVICE AS SPECIFIED BY TELEPHONE COMPANY.
3. GENERATOR/TRANSFER SWITCH.
4. CELLULAR GROUNDING SYSTEMS, CONSISTING OF ANTENNA GROUNDING, INTERIOR GROUNDING RING, GROUND BARS, ETC.
5. FIELD MEASURE EXISTING ELECTRICAL SERVICES TO CONFIRM AVAILABLE EXISTING POWER.
6. COORDINATE ALL WORK SHOWN, ON THESE PLANS WITH LOCAL UTILITY COMPANIES.

B. LOCAL UTILITY COMPANIES SHALL PROVIDE THE FOLLOWING:

1. TELEPHONE CABLES.
2. SHUTDOWN OF SERVICE (COORDINATE WITH OWNER).

C. CONTRACTOR SHALL CONFER WITH LOCAL UTILITY COMPANIES TO ASCERTAIN THE LIMITS OF THEIR WORK AND SHALL INCLUDE IN BID ANY CHARGES OR FEES MADE BY THE UTILITY COMPANIES FOR THEIR PORTION OF THE WORK AND SHALL PROVIDE AND INSTALL ALL ITEMS REQUIRED, BUT NOT PROVIDED BY UTILITY COMPANY.

D. ELECTRICAL CONTRACTOR SHALL COORDINATE ELECTRICAL INSTALLATION WITH ELECTRIC UTILITY CO. PRIOR TO INSTALLATION.

E. CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY COMPANY FOR LOCATION OF TELEPHONE SERVICE AND TO DETERMINE ANY REQUIRED EQUIPMENT TO BE INSTALLED BY CONTRACTOR.

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". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2,3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16114

1.01. CABLE TRAY

A. CABLE TRAY SHALL BE SOLID SIDE BAR, 18" WIDE (NEWTON INSTRUMENT COMPANY, INC.). TRAY SHALL BE INSTALLED AS SHOWN ON CONTRACT DOCUMENTS.

B. CROSSWISE RUNS SHALL BE COORDINATED WITH THE SPECIFIC EQUIPMENT THE TRAY SHALL SERVE.

C. ALL PROTRUDING CABLE TRAY SUPPORT RODS SHALL BE FILED SMOOTH WITH NO SHARP EDGES. ALL SUPPORT RODS SHALL BE CAD-PLATED FOR RUST RESISTANCE AND A MINIMUM 1/2" DIAMETER.

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 16130

1.01. BOXES

A. FURNISH AND INSTALL OUTLET BOXES FOR ALL DEVICES, SWITCHES, RECEPTACLES, ETC.. BOXES TO BE ZINC COATED STEEL.

B. FURNISH AND INSTALL PULL BOXES IN MAIN FEEDERS RUNS WHERE REQUIRED. PULL BOXES SHALL BE GALVANIZED STEEL WITH SCREW REMOVABLE COVERS, SIZE AND QUANTITY AS REQUIRED. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

SECTION 16170

1.01. DISCONNECT SWITCHES

A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16190

1.01. SEISMIC RESTRAINT

A. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ZONE 2 SEISMIC REQUIREMENTS.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.

B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.

C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.

D. ALL RECEPTACLES, SWITCHES, DISCONNECT SWITCHES, ETC. SHALL BE LABELED WITH THE CORRECT BRANCH CIRCUIT NUMBER SERVED BY MEANS OF PERMANENT PRESSED TYPE BLACK 1/4" TRANSFER LETTERING. (FOR EXAMPLE: "MDP-5", ETC.).

E. PROVIDE A NAMEPLATE AT THE SERVICE EQUIPMENT INDICATING THE TYPE AND LOCATION OF THE ON SITE GENERATOR.

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. 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 10 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 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 16470

1.01. DISTRIBUTION EQUIPMENT

A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.

SECTION 16477

1.01. FUSES

A. FUSES SHALL BE NONRENEWABLE TYPE AS MANUFACTURED BY "BUSSMAN" OR APPROVED EQUAL. FUSES RATED TO 1/10 AMPERE UP TO 600 AMPERES SHALL BE EQUIVALENT TO BUSSMAN TYPE LPN-RK (250V) UL CLASS RK1, LOW PEAK, DUAL ELEMENT, TIME-DELAY FUSES. FUSES SHALL HAVE SEPARATE SHORT CIRCUIT AND OVERLOAD ELEMENTS AND HAVE AN INTERRUPTING RATING OF 200 KAIC. UPON COMPLETION OF WORK, PROVIDE ONE SPARE SET OF FUSES FOR EACH TYPE INSTALLED.

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	03/15/22	RTS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile

Transcend Wireless

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

SITE NAME: EAST HADDAM CTHA348
SITE ID: CTHA348A
MILLINGTON RD
EAST HADDAM, CT 06423

DATE: 01/03/22
SCALE: AS NOTED
JOB NO. 21022.32

ELECTRICAL SPECIFICATIONS

E-6

Sheet No. 14 of 14

Conditional Approval of Application

December 6, 2021

Applicant: T-Mobile
Applicant Site Name: East Haddam
Applicant Site ID: CTHA348A
Site Address: 41 Haywardville Road, East Haddam, CT

AT&T Site Name: East Haddam Haywardville Rd
AT&T FA#: 10128075

Dear Valued Customer,

AT&T Towers has received and reviewed your co-location application regarding the above site and grants a **Conditional Approval** provided the application, as attached, is complete and correctly details the intended installation. AT&T has generated the attached site sketch based on your request for ground space. This layout must be shown in your final construction drawings.

This approval is strictly limited to the attached application and is subject to Applicant's completion and/or submittal of the following:

1. The **Application Fee** of $ [redacted] has not been received.

   Any agreement pursuant to this application will not be executed by AT&T without the payment of this fee. To avoid delay please submit your application fee immediately made payable to AT&T Mobility, Attn: Co-location A/R, PO Box 5086, Carol Stream, IL 60197-5086.
   (Physical address: AT&T Mobility, Attn: Co-location A/R, 16331 NE 72nd Way, Redmond, WA 98052)
   AT&T FA# 10128075 must be included on the check.

2. **Structural Analysis:**

   AT&T requires a Structural Analysis of the tower that includes all of the Applicant's proposed structure mounted equipment and existing and reserved structure loading.

   Each time the Applicant wishes to revise its proposed equipment, a revised application must be submitted. **PO requirement for structural analysis**: (the applicable box is checked)

   ☒**Initial Structural Analysis:** Please submit a PO payable to AT&T Mobility in the amount of [redacted] within 14 days of date of this letter.
   - Please email the PO to ATTTowersFinance@att.com.
   - Check payments may be mailed to the address shown in paragraph 1.

   Please make sure to include the AT&T Towers FA# (listed above) on the check/PO.

   ☐**Additional Services Required:** Additional Services are required for your structural analysis. Please submit a PO payable to AT&T Mobility in the amount of **$0.00** within 14 days of date of this letter.
   - Geotechnical Report - $0.00
   - Foundation Mapping - $0.00
   - Tower Mapping - $0.00
   - Check payments may be mailed to the address shown in paragraph 1.
   - Please email the PO to ATTTowersFinance@att.com.

   Please make sure to include the AT&T Towers FA# (listed above) on the check/PO.

   Failure to provide any of the above items or placing the application on hold after issuance of this Conditional Approval could result in AT&T Towers revoking this Conditional Approval and a new application (with accompanying fee) may be required.

3. **Estimated Preliminary Agreement Pricing:**

   The agreement pricing below is an *estimate* based on the attached application:

   - Base (or Current) Rent:_____ [redacted]
   - Additional equipment charges:_____

- Monthly rent payment: [redacted]
- Estimated revenue share contribution: [redacted]
- Monthly Total: [redacted]

Potential Site Issues - The following issues exist at this site and may impact the above pricing and your ability to proceed:

☑ **Revenue Share –** The prime lease for this site requires that AT&T pay a portion of the rent revenue to the ground landlord or other third-party. This revenue share may be passed through to the Applicant.

Porthole Availability (Monopole Towers) **–** Applicant must verify via site visit the availability of all portholes necessary for the installation of Applicants power and transmission feed-lines **prior to** the pre-con walk. AT&T will not permit feed-lines to run outside the monopole when there is sufficient space inside the pole. If a port cut is needed, please contact your regional structural manager Reggie Barrau at rb988g@att.com for porthole design quote.

NO WORK SHALL BE ALLOWED TO COMMENCE PRIOR TO AT&T'S WRITTEN NOTICE TO PROCEED.

If the Applicant requires a Letter of Authorization (for permitting purposes) from the property owner, please contact the Co-location Project Manager listed below and AT&T will provide property owner contact information.

Sincerely,

Alison Skipper

Alison Skipper
Co-location Project Manager
470-413-6770
as317b@att.com

Attachments:
Co-Location Application
Site Sketch
Notice to Proceed Checklist

Ms. Alison Skipper
AT&T Towers
2180 Lake Blvd., NE 5B-14
Brookhaven, GA 30319
(470) 413-6770

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(770) 379-8500

Date: December 24, 2021

Subject: **Rigorous Structural Analysis Report**

AT&T Designation:
Site USID: 100431-A
Site FA: 10128075
Site Name: EAST HADDAM HAYWARDVILLE RD

Carrier: T-Mobile
Carrier Site Number: CTHA348A
Carrier Site Name: East Haddam CTHA348

Site Address: 41 Haywardville Road, East Haddam, Middlesex County, CT 06423
Site Coordinates: Latitude 41° 29' 28.10" N, Longitude 72° 21' 16.90" W
Tower Description: 180 ft – Sabre Monopole

Morrison Hershfield Project Number: ATT-811 / 2101576

Dear Ms. Skipper,

Morrison Hershfield is pleased to submit this "**Rigorous Structural Analysis Report"** to determine the structural integrity of the above mentioned tower structure for the existing, reserved and proposed antenna and equipment noted.

This analysis utilizes an ultimate 3-second gust wind speed of 123 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Our analysis demonstrates that the existing tower and foundation **ARE in conformance** with the requirements of the above noted standards under the effects of loading described.

Summary of Results		
Tower Structure	***65.3%***	***Sufficient***
Base Foundation	***79.8%***	***Sufficient***

We at *Morrison Hershfield* appreciate the opportunity of providing our continuing professional services to you and AT&T Towers. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:
Morrison Hershfield

STATE OF CONNECTICUT
G. LANCE COOKE
No. 28133
LICENSED PROFESSIONAL ENGINEER

Digitally signed by G. Lance Cooke
Date: 2021.12.24 09:06:25-08'00'

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer

1.0 INTRODUCTION

This is a 180 ft monopole tower designed by Sabre Tower & Poles. The original tower drawings were not available. A previous structural analysis report by GPD Group in November of 2012, referenced the original Sabre, Job No. 32503, dated 08/04/2010 drawings. The tower geometry and member sizes have been obtained from the above mentioned report and are considered to be accurate.

2.0 ANALYSIS CRITERIA

The following design parameters have been used in our analysis:

Design Standard:	2018 Connecticut State Building Code ANSI/TIA-222-H, Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures ASCE 7-16, Minimum Design Loads and Associated Criteria for Buildings and Other Structures AISC 325-15, Manual of Steel Construction ACI 318-14, Building Code Requirements for Structural Concrete ANSI/AWS D1.1-11, Structural Welding Code - Steel
Design Wind Speed:	123 mph (Ultimate 3-sec gust) with no radial ice
Risk Category:	II
Exposure Category:	C
Topographic Factor, K_{zt}:	1.0
Design Ice Thickness:	1.0 in
Wind Speed with Ice:	50 mph (Nominal 3-sec gust)
Seismic S_S:	0.209 [Neglected]
Seismic S_1:	0.055 [Neglected]
Service Wind Speed:	60 mph (Nominal 3-sec gust)

The structural analysis was based on the following documentation:

Table 1 – Documentation

Document	Description	Source
Structural Analysis Report	GPD Group, Project No. 2012801.77, dated 11/06/2012	Client
RF Data Sheet	AT&T Mobility, RFDS Name: CT1277, Version 01, dated 04/25/2013	Client
Proposed Loading	T-Mobile Site Lease Application, Site ID: CTHA348A, dated 10/28/2021	Client

3.0 ANALYSIS LOADING

The existing, reserved and proposed antennas, transmission cables, antenna mounts and other equipment considered in this analysis were provided by the client and are noted in the attachments.

4.0 ANALYSIS PROCEDURE

tnxTower (Version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is attached at the end of this report.

5.0 ASSUMPTIONS

The analysis provided by Morrison Hershfield is based on the theoretical capacity of the structure and is not a condition assessment of the tower. Morrison Hershfield has not performed an engineering inspection of the tower and the analysis was completed based on information supplied by the client. Morrison Hershfield has not made any independent determination of the accuracy of the information provided.

1) Tower and structures were built in accordance with the manufacturer's specifications and the applicable ANSI/TIA/EIA standard.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The tower is assumed to be in good condition and capable of supporting its full design capacity.
4) The foundation was properly designed and constructed for the original design loads.
5) The configuration of antennas, transmission cables, antenna mounts and other appurtenances are as specified in the attached Tower Analysis Summary Form and the referenced documents.
6) All existing/reserved/proposed antennas and antenna mounts are assumed to be adequate for the existing/reserved/proposed loads. Analysis of these antennas and antenna mounts is considered to be outside of the scope of this analysis. Morrison Hershfield has not performed an analysis of the existing/reserved/proposed antennas or antenna mounts.
7) The existing and proposed loading for T-Mobile are taken from their Site Lease Application, Site ID: CTHA348A, dated 10/28/2021, and is considered to be correct.
8) The existing loading for AT&T Mobility is taken from their RF Data Sheet, RFDS Name: CT1277, Version 01, dated 04/25/2013, and is considered to be correct.
9) Future loading for AT&T Mobility is per Generic AT&T Reserve Loading Requirements and is considered to be correct.

If any assumptions are not valid or have been made in error, this analysis is invalid. Morrison Hershfield should be notified to determine the effect on the structural integrity of the tower.

6.0 SUMMARY OF RESULTS

The following tables summarize the location and utilized percentage of available capacity for each component of the tower. With consideration to the appropriate safety factors, 100% represents the full capacity of the component. Percentages below 100% indicate available capacity and conformance of the component. Percentages above 100% indicate an overstressed situation requiring structural modification to ensure conformance with the applicable codes and standards.

Based on our analysis results, the **tower and foundation ARE within capacity** to support the loads under the current loading scenario.

Table 2 – Tower Section Capacity

Section No.	*Elevation ft*	*Component Type*	*Size*	*% Capacity*	*Pass Fail*
L1	180 – 147	Pole	TP23.52x16x0.1875	53.5	Pass
L2	147 – 96.75	Pole	TP34.61x22.4044x0.3125	57.6	Pass
L3	96.75 – 48	Pole	TP45.1x32.9013x0.375	56.7	Pass
L4	48 - 1	Pole	TP55.06x42.9249x0.375	65.3	Pass
				Summary	
			Pole (L4)	65.3	Pass
			RATING =	**65.3**	**Pass**

Table 3 – Capacity of Additional Components

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	60.0	Pass
1	Base Plate		57.6	Pass
2	Foundation Soil Interaction	0	55.1	Pass
2	Foundation Structural		79.8	Pass

Structure Rating (max from all components) =	**79.8%***

Notes:
1) See additional documentation in “Additional Calculations” for calculations supporting the % capacity consumed.
2) *Rating per TIA-222-H, Section 15.5.

7.0 RECOMMENDATIONS

1) All assumptions made in this analysis should be carefully reviewed. Morrison Hershfield should be contacted for any discrepancies so that a full assessment may be made to validate the results of this analysis.

ATTACHMENTS: Tower Loading, Tower Profile, Program Output, Coax Sketch, Additional Calculations and Site Lease Application

TOWER LOADING

Tower Analysis Summary Form

General Info

Site Name	EAST HADDAM HAYWARDVILLE RD
Site Number	100431-A
FA Number	10128075
Date of Analysis	12/24/2021
Company Performing Analysis	Morrison Hershfield

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	MP	
Tower Height (top of steel AGL)	180 ft	
Tower Manufacturer	Sabre Towers & Poles	
Tower Model	-	
Tower Manufacturer Drawings	-	
Foundation Mapping	-	
Geotechnical Report	-	
Tower Mapping	-	
Structural Modification Design	-	
Previous Structural Analysis	GPD Group, Project No. 2012801.77	11/6/2012

Design Parameters	
Design Code Used	ANSI/TIA-222-H 2018 Connecticut State Building / ASCE 7-16
Location of Tower (County, State)	Middlesex, CT
Basic Wind Speed (mph)	123
Ice Thickness (in)	1.0
Structure Classification (I, II, III)	II
Exposure Category (B, C, D)	C
Topographic Category (1 to 5)	1

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Pole (%)	65.3%
Anchor Bolts (%) / Base Plate (%)	60.0% / 57.6%
Foundation (%)	79.8%
Foundation Adequate?	YES

Steel Yield Strength (ksi)

Pole	65
Base Plate	50
Anchor Rods	75

1) The existing and proposed loading for T-Mobile are taken from their Site Lease Application, Site ID: CTHA348A, dated 10/28/2021, and is considered to be correct.
2) The existing loading for AT&T Mobility is taken from their RF Data Sheet, RFDS Name: CT1277, VER. 01, dated 04/25/2013, and is considered to be correct.
3) Future loading for AT&T Mobility is per Generic AT&T Reserve Loading Requirements and is considered to be correct.

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Int/ Ext
AT&T Mobility	177.0	177.0	6	Panel	Powerwave	P90-15-XLH-RR	30/150/270	1	Unknown	12' Platform Mount	12	Unknown	1-5/8"	Internal
AT&T Mobility	177.0	177.0	1	Panel	KMW	AM-X-CD-17-65-00T-RET	30				2	DC Power	7/8"	Internal
AT&T Mobility	177.0	177.0	1	Panel	Andrew	SBNH-1D4545A	150				1	Fiber	1/2"	Internal
AT&T Mobility	177.0	177.0	1	Panel	Powerwave	P45-16-XLH-RR	270							
AT&T Mobility	177.0	177.0	3	RRU	Ericsson	RRUS 11 B12								
AT&T Mobility	177.0	177.0	6	TMA	Powerwave	TT08-19DB111-001								
AT&T Mobility	177.0	177.0	1	Squid	Raycap	DC6-48-60-18-8F								

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Int/ Ext
T-Mobile	160.0	160.0	3	Panel	RFS Celwave	APXVAALL24_43-U-NA20	40/140/300	1	Site Pro-1	Platform Mount [#F3P-12-W]	3	Unknown	1-5/8"	Internal
T-Mobile	160.0	160.0	3	Panel	Ericsson	AIR 6449 B41	40/140/300							
T-Mobile	160.0	160.0	3	RRU	Ericsson	Radio 4480 B71+B85								
T-Mobile	160.0	160.0	3	RRU	Ericsson	Radio 4460 B25+B66								

Note: Proposed loading at 160 ft elevation.

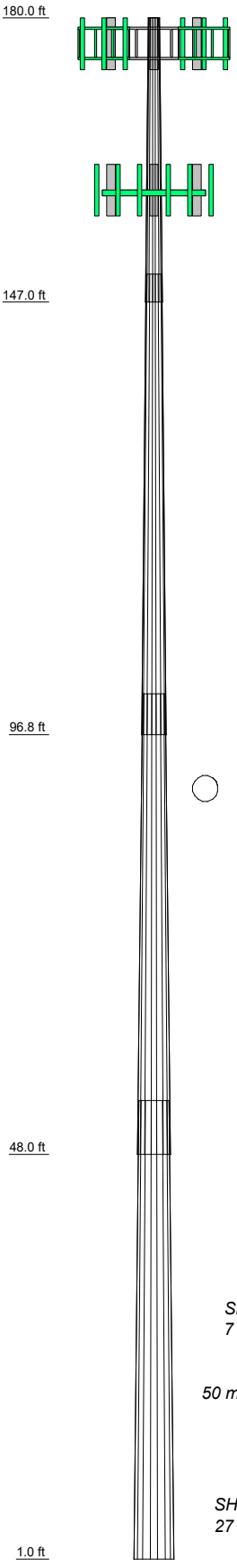
Future Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Int/ Ext
AT&T Mobility	177.0	177.0	3	Panel	KMW	AM-X-CD-17-65-00T-RET	30/150/270	-	-	Same as existing	6	Unknown	1-5/8"	Internal

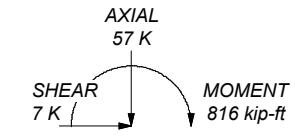
Note: Future loading per Generic AT&T Reserve Loading Requirementsis and is in addition to the existing loading at 177 ft elevation.

TOWER PROFILE

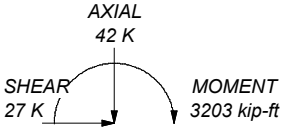
Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	33.00	18	0.1875	3.25	16.0000	23.5200		1.3
2	53.50	18	0.3125	4.75	22.4044	34.6100		5.1
3	53.50	18	0.3750	6.25	32.9013	45.1000		8.4
4	53.25	18	0.3750		42.9249	55.0600		10.5
							A572-65	



ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE



TORQUE 0 kip-ft
REACTIONS - 123 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) P90-15-XLH-RR w/ pipe mount (E)	177	APXVAALL24_43-U-NA20 w/ Mount Pipe (P)	160
(2) P90-15-XLH-RR w/ pipe mount (E)	177	APXVAALL24_43-U-NA20 w/ Mount Pipe (P)	160
(2) P90-15-XLH-RR w/ pipe mount (E)	177	APXVAALL24_43-U-NA20 w/ Mount Pipe (P)	160
AM-X-CD-17-65-00T-RET w/ Mount Pipe (E)	177	AIR 6449 B41 w/ Mount Pipe (P)	160
SBNH-1D4545A w/ Mount Pipe (E)	177	AIR 6449 B41 w/ Mount Pipe (P)	160
P45-16-XLH-RR w/ pipe mount (E)	177	AIR 6449 B41 w/ Mount Pipe (P)	160
(2) TT08-19DB111-001 (E)	177	RADIO 4480 B71+B85 (P)	160
(2) TT08-19DB111-001 (E)	177	RADIO 4480 B71+B85 (P)	160
(2) TT08-19DB111-001 (E)	177	RADIO 4480 B71+B85 (P)	160
RRUS 11 B12 (E)	177	RADIO 4460 B25+B66 (P)	160
RRUS 11 B12 (E)	177	RADIO 4460 B25+B66 (P)	160
RRUS 11 B12 (E)	177	RADIO 4460 B25+B66 (P)	160
DC6-48-60-18-8F (E)	177	(2) 8'x2" Antenna Mount Pipe (P)	160
12' Platform Mount (E)	177	(2) 8'x2" Antenna Mount Pipe (P)	160
AM-X-CD-17-65-00T-RET w/ Mount Pipe (F)	177	(2) 8'x2" Antenna Mount Pipe (P)	160
AM-X-CD-17-65-00T-RET w/ Mount Pipe (F)	177	Platform Mount [#F3P-12-W] (P)	160
AM-X-CD-17-65-00T-RET w/ Mount Pipe (F)	177		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 123 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 65.3%

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Consulting Engineers
1455 Lincoln Parkway, Suite 500
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Job: ***ATT-811 / 2101576***			
Project: ***10128075 / EAST HADDAM HAYWARDVILLE RD***			
Client: AT&T Towers	Drawn by: MK	App'd:	
Code: TIA-222-H	Date: 12/24/21	Scale: NTS	
Path: C:\Users\mkodey\Documents\Madhuri (WORK)\Reviews\ATT-811-10128075 - EAST HADDAM HAYWARDVILLE RD\ATT-811 SA\Analysis\ATT-811.eri		Dwg No. E-1	

PROGRAM OUTPUT

Tower Input Data

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

Tower is located in Middlesex County, Connecticut.
Tower base elevation above sea level: 418.00 ft.
Basic wind speed of 123 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	180.00-147.00	33.00	3.25	18	16.0000	23.5200	0.1875	0.7500	A572-65 (65 ksi)
L2	147.00-96.75	53.50	4.75	18	22.4044	34.6100	0.3125	1.2500	A572-65 (65 ksi)
L3	96.75-48.00	53.50	6.25	18	32.9013	45.1000	0.3750	1.5000	A572-65 (65 ksi)
L4	48.00-1.00	53.25		18	42.9249	55.0600	0.3750	1.5000	A572-65 (65 ksi)

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8 (E)	C	No	Surface Ar (CaAa)	180.00 - 10.00	1	1	0.000 0.000	0.3750		0.22
Climbing Pegs (E)	C	No	Surface Ar (CaAa)	180.00 - 10.00	1	1	-0.050 0.050	0.7050		1.80

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
AT&T Mobility									
1-5/8" (E)	B	No	No	Inside Pole	177.00 - 8.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
DC Power (7/8") (E)	B	No	No	Inside Pole	177.00 - 8.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.60 0.60 0.60
Fiber Cable (1/2") (E)	B	No	No	Inside Pole	177.00 - 8.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.15 0.15 0.15
***									
1-5/8" (F)	B	No	No	Inside Pole	177.00 - 8.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
T-Mobile									
1-5/8" (P)	C	No	No	Inside Pole	160.00 - 8.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.04 1.04 1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
AT&T Mobility									
(2) P90-15-XLH-RR w/ pipe mount	A	From Leg	4.00	0.0000	177.00	No Ice	8.37	6.95	0.07
			0.00			1/2" Ice	8.93	8.13	0.14
(E)			0.00			1" Ice	9.46	9.02	0.22
(2) P90-15-XLH-RR w/ pipe mount	B	From Leg	4.00	0.0000	177.00	No Ice	8.37	6.95	0.07
			0.00			1/2" Ice	8.93	8.13	0.14
(E)			0.00			1" Ice	9.46	9.02	0.22
(2) P90-15-XLH-RR w/ pipe mount	C	From Leg	4.00	0.0000	177.00	No Ice	8.37	6.95	0.07
			0.00			1/2" Ice	8.93	8.13	0.14
(E)			0.00			1" Ice	9.46	9.02	0.22
AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Leg	4.00	0.0000	177.00	No Ice	6.09	4.31	0.09
			0.00			1/2" Ice	6.66	4.86	0.17
(E)			0.00			1" Ice	7.24	5.42	0.26
SBNH-1D4545A w/ Mount Pipe	B	From Leg	4.00	0.0000	177.00	No Ice	8.32	5.01	0.07
			0.00			1/2" Ice	8.97	5.60	0.13
(E)			0.00			1" Ice	9.64	6.21	0.20
P45-16-XLH-RR w/ pipe mount	C	From Leg	4.00	0.0000	177.00	No Ice	8.36	4.94	0.07
			0.00			1/2" Ice	8.87	5.79	0.14
(E)			0.00			1" Ice	9.36	6.51	0.21
(2) TT08-19DB111-001	A	From Leg	3.50	0.0000	177.00	No Ice	0.79	0.64	0.02
(E)			0.00			1/2" Ice	0.90	0.75	0.03
			0.00			1" Ice	1.03	0.87	0.04
(2) TT08-19DB111-001	B	From Leg	3.50	0.0000	177.00	No Ice	0.79	0.64	0.02
(E)			0.00			1/2" Ice	0.90	0.75	0.03
			0.00			1" Ice	1.03	0.87	0.04
(2) TT08-19DB111-001	C	From Leg	3.50	0.0000	177.00	No Ice	0.79	0.64	0.02
(E)			0.00			1/2" Ice	0.90	0.75	0.03
			0.00			1" Ice	1.03	0.87	0.04
RRUS 11 B12	A	From Leg	3.50	0.0000	177.00	No Ice	2.83	1.18	0.05
(E)			0.00			1/2" Ice	3.04	1.33	0.07
			0.00			1" Ice	3.26	1.48	0.10
RRUS 11 B12	B	From Leg	3.50	0.0000	177.00	No Ice	2.83	1.18	0.05
(E)			0.00			1/2" Ice	3.04	1.33	0.07
			0.00			1" Ice	3.26	1.48	0.10
RRUS 11 B12	C	From Leg	3.50	0.0000	177.00	No Ice	2.83	1.18	0.05
(E)			0.00			1/2" Ice	3.04	1.33	0.07
			0.00			1" Ice	3.26	1.48	0.10
DC6-48-60-18-8F	A	From Leg	2.00	0.0000	177.00	No Ice	0.92	0.92	0.02
(E)			0.00			1/2" Ice	1.46	1.46	0.04
			0.00			1" Ice	1.64	1.64	0.06
12' Platform Mount	C	None		0.0000	177.00	No Ice	31.07	31.07	1.34
(E)						1/2" Ice	34.82	34.82	1.97
						1" Ice	38.48	38.48	2.67
*									
AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Leg	4.00	0.0000	177.00	No Ice	6.09	4.31	0.09
			0.00			1/2" Ice	6.66	4.86	0.17
(F)			0.00			1" Ice	7.24	5.42	0.26
AM-X-CD-17-65-00T-RET w/ Mount Pipe	B	From Leg	4.00	0.0000	177.00	No Ice	6.09	4.31	0.09
			0.00			1/2" Ice	6.66	4.86	0.17
(F)			0.00			1" Ice	7.24	5.42	0.26
AM-X-CD-17-65-00T-RET w/ Mount Pipe	C	From Leg	4.00	0.0000	177.00	No Ice	6.09	4.31	0.09
			0.00			1/2" Ice	6.66	4.86	0.17
(F)			0.00			1" Ice	7.24	5.42	0.26
T-Mobile									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVAALL24_43-U-NA20 w/ Mount Pipe (P)	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
APXVAALL24_43-U-NA20 w/ Mount Pipe (P)	B	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
APXVAALL24_43-U-NA20 w/ Mount Pipe (P)	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.18 0.31 0.45
AIR 6449 B41 w/ Mount Pipe (P)	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
AIR 6449 B41 w/ Mount Pipe (P)	B	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
AIR 6449 B41 w/ Mount Pipe (P)	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	5.19 5.59 6.02	2.71 3.04 3.38	0.13 0.17 0.23
RADIO 4480 B71+B85 (P)	A	From Leg	3.50 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	2.85 3.06 3.28	1.38 1.54 1.71	0.09 0.11 0.14
RADIO 4480 B71+B85 (P)	B	From Leg	3.50 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	2.85 3.06 3.28	1.38 1.54 1.71	0.09 0.11 0.14
RADIO 4480 B71+B85 (P)	C	From Leg	3.50 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	2.85 3.06 3.28	1.38 1.54 1.71	0.09 0.11 0.14
RADIO 4460 B25+B66 (P)	A	From Leg	3.50 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
RADIO 4460 B25+B66 (P)	B	From Leg	3.50 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
RADIO 4460 B25+B66 (P)	C	From Leg	3.50 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.69 1.85 2.02	0.11 0.13 0.16
(2) 8'x2" Antenna Mount Pipe (P)	A	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8'x2" Antenna Mount Pipe (P)	B	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
(2) 8'x2" Antenna Mount Pipe (P)	C	From Leg	4.00 0.00 0.00	0.0000	160.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
Platform Mount [#F3P-12-W] (P)	C	None		0.0000	160.00	No Ice 1/2" Ice 1" Ice	25.52 31.74 37.96	25.41 32.27 39.13	2.00 2.60 3.20

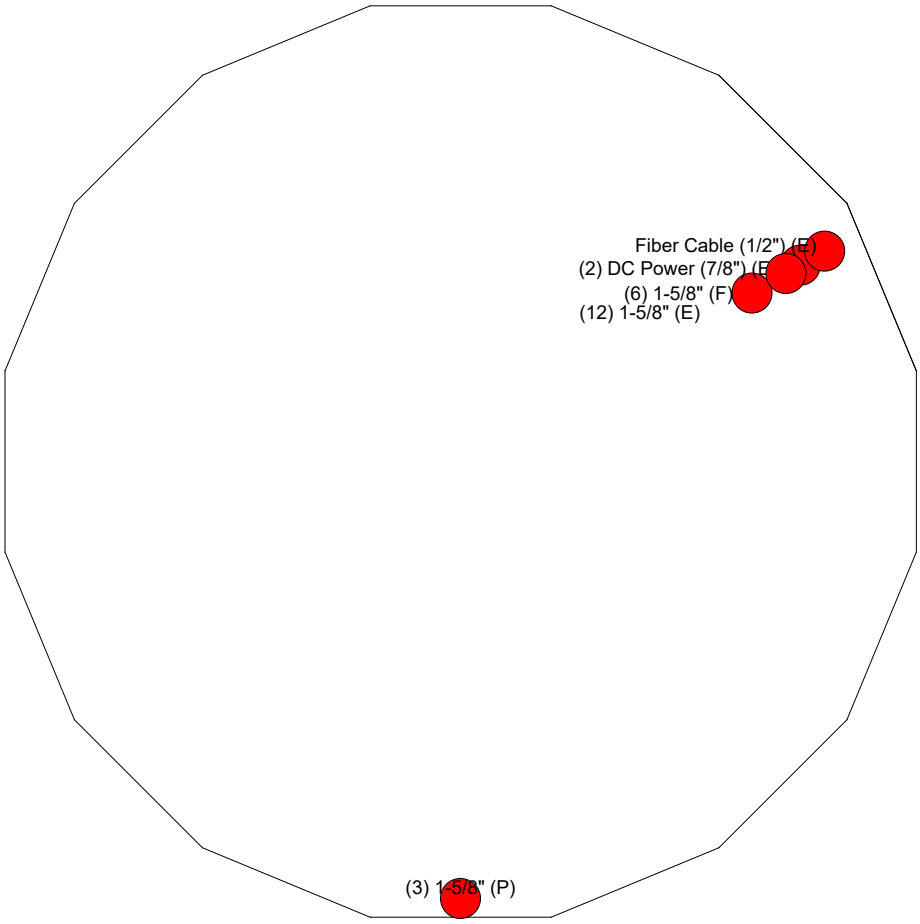
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	180 - 147	Pole	TP23.52x16x0.1875	1	-8.01	825.86	53.5	Pass
L2	147 - 96.75	Pole	TP34.61x22.4044x0.3125	2	-15.17	2023.58	57.6	Pass
L3	96.75 - 48	Pole	TP45.1x32.9013x0.375	3	-26.19	3165.71	56.7	Pass
L4	48 - 1	Pole	TP55.06x42.9249x0.375	4	-42.06	3998.08	65.3	Pass
							Summary	
						Pole (L4)	65.3	Pass
						RATING =	**65.3**	**Pass**

COAX SKETCH

Feed Line Plan
48'

Section @ 48'



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ADDITIONAL CALCULATIONS

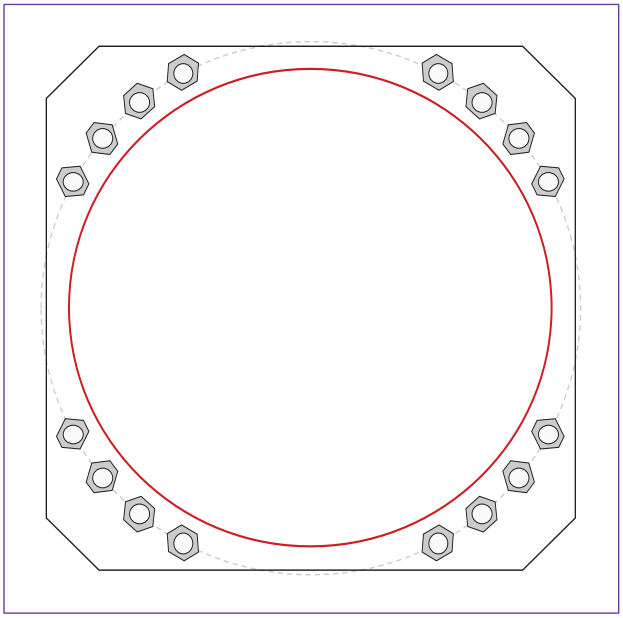
Monopole Base Plate Connection

Site Info	
USID #	100431-A
Site Name	EAST HADDAM HAYWA
FA #	10128075

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	3202.66
Axial Force (kips)	42.06
Shear Force (kips)	26.89

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 61.5" BC

Anchor Spacing: 6 in

Base Plate Data

60.25" W x 2.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

55.06" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 153.51	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.68	ϕVn = 149.1	**60.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	27.23	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**57.6%**	**Pass**

Analysis Date: 12/24/2021

Pier and Pad Foundation

Site Info	
USID #	100431-A
Site Name	EAST HADDAM HAYWA
FA #	10128075

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	42.08	kips
Base Shear, Vu_comp:	26.85	kips
Moment, M_u:	3202.66	ft-kips
Tower Height, **H**:	180	ft

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	224.82	26.85	**11.4%**	**Pass**
Bearing Pressure (ksf)	9.00	1.78	**19.8%**	**Pass**
*Overturning (kip*ft)*	6131.03	3377.19	**55.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	5242.70	3323.49	**60.4%**	**Pass**
Pier Compression (kip)	31187.52	81.77	**0.2%**	**Pass**
*Pad Flexure (kip*ft)*	2392.68	1244.77	**49.5%**	**Pass**
Pad Shear - 1-way (kips)	577.18	198.58	**32.8%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.065	**32.4%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	2380.16	1994.09	**79.8%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**79.8%**
Soil Rating*:	**55.1%**

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	32	
Pier Tie/Spiral Size, **St**:	3	
Pier Tie/Spiral Quantity, **mt**:	3	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	5.5	ft
Pad Width, W_1:	26	ft
Pad Thickness, **T**:	2	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	36	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	12.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	34	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	5	ft

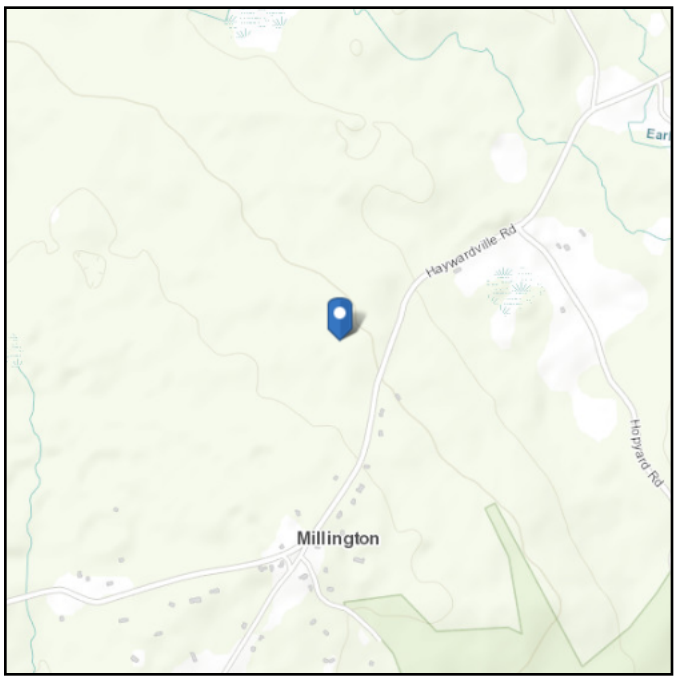
<--Toggle between Gross and Net

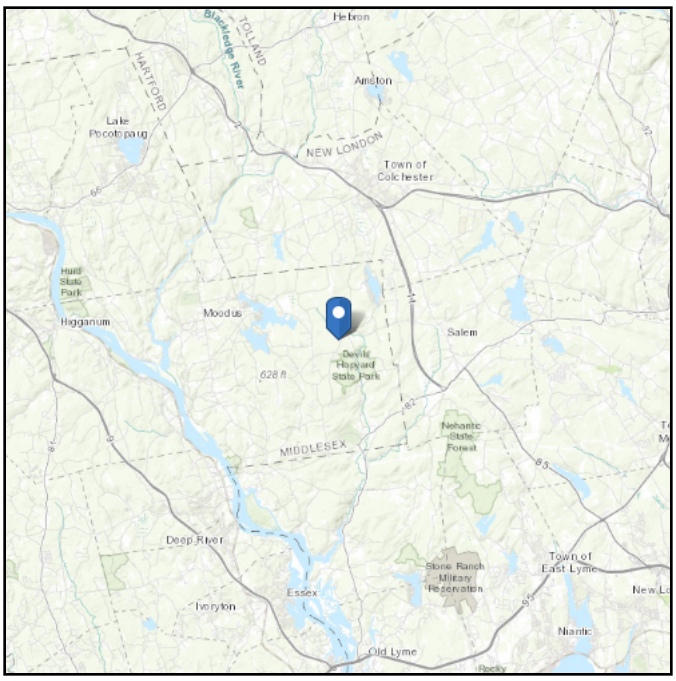
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 418.12 ft (NAVD 88)
Latitude: 41.491139
Longitude: -72.354692





Wind

Results:

Wind Speed	123 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	94 Vmph
100-year MRI	100 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Dec 22 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

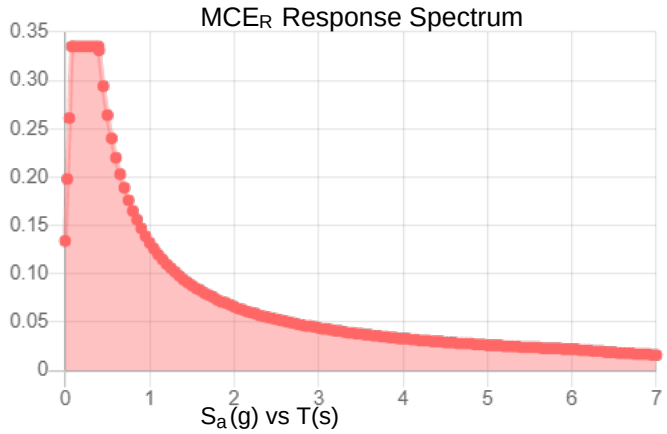
Seismic

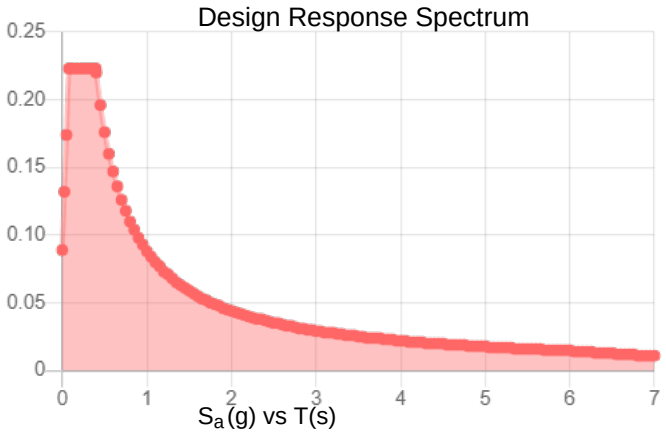
Site Soil Class: D - Stiff Soil

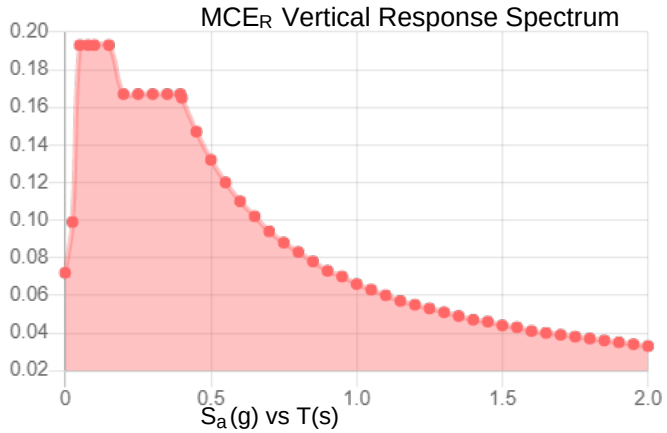
Results:

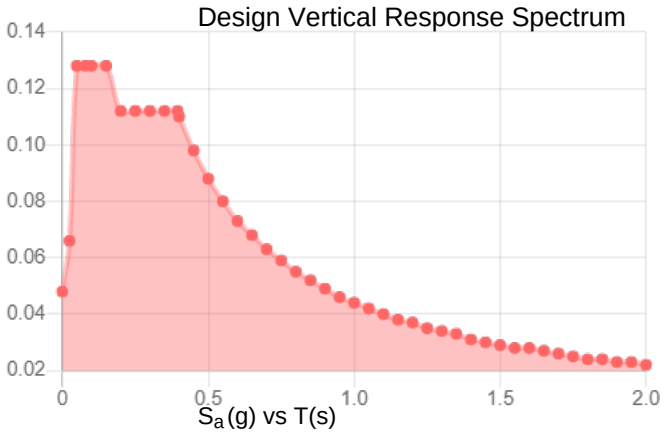
S_S :	0.209	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.117
F_v :	2.4	PGA_M :	0.183
S_{MS} :	0.335	F_{PGA} :	1.566
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.223	C_v :	0.719

Seismic Design Category B









Data Accessed: **Wed Dec 22 2021**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Dec 22 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

SITE LEASE APPLICATION

AT&T Site Lease Application

rev 12

Please e-mail completed application to corresponding Account Manager (see below)

	Primary Contact	States / Areas Covered	Email Address
X	**Alison Skipper**	***ALL TOWER SITES NATIONWIDE***	as317b@att.com
Select One	**Alan Campbell**	***ALL ROOFTOP SITES NATIONWIDE***	ac5154@att.com

NOTE: Upon review/approval of your Site Lease Application, your AT&T Towers / Rooftop representative will send a Preliminary Approval Letter with detailed instructions regarding the next steps in the process. AT&T Towers requires a structural analysis of it's tower foundations and all the expenses in connection therewith are paid by the applicant.

>>>>Please Select Lease Type>>>> New Lease ***>>>> NOTE: Revised Applications May Require Additional Processing Time <<<***

APPLICANT INFORMATION

Application Date:	10/28/2021	**Applicant Site Name:**	East Haddam CTHA348	**Applicant Site Number:**	CTHA348A
Company Name:	T-Mobile	**Legal Entity Name:**	T-Mobile Northeast LLC		
State of Incorporation:	DE	**Type of Corporation - [Corp, Part, LLC, Non-Prof]:**	LLC		

Applicant Address for Legal Notices - Billing - Other

	NOTICE ADDRESS FOR LEASE:	BILLING (A/P) ADDRESS:	COPY TO:
COMPANY NAME	T-Mobile Northeast LLC	T-Mobile Northeast LLC	
ADDRESS	SE 38th Street	SE 38th Street	
CITY, STATE, ZIP	Bellevue, WA 98006	Bellevue, WA 98006	
Attention:			
Telephone:			

Applicant Contacts

	Name & Title	Phone	E-mail Address
Site Acquisition Contractor:	Eric Breun - Site Acqusition	201-658-7728	ebreun@transcendwireless.com
Carrier Site Development Manager:	Dan Reid - Project Manager	203-592-8291	dreid@transcendwireless.com
RF Engineer Contact:	Michael Low		michael.low1@t-mobile.com
Lessee Signatory:			
24 Hour Emergency Contact (NOC):			
Email Address for Invoices/PO requests associated with Pre-Construction Services (i.e. Structural Analysis) >>>>			ebreun@transcendwireless.com

Commencement & Terms

Desired Construction Commencement Date:		1/1/2022					
Initial Term (in years):	5	**Number of Extended Terms (#):**	5	**Duration of Each Extended Term (yrs):**	5		

AT&T Towers Site Identification Information (from AT&T Towers Web Site: www.att.com/towers)

AT&T Towers Site Name:	East Haddam Haywardville Rd	**Coordinates (NAD 83)**	**LAT**	41	29	28.1000	**Existing Tower Height:** 184
AT&T Towers Site ID #:	10128075		**LON**	72	21	16.9000	**Tower Type:** Monopole
Site Address:	41 Haywardville Road						
City:	East Haddam	**State:**	CT	**Zip Code:**	06423	**County:**	Middlesex

ANTENNA EQUIPMENT DETAIL (All equipment attached to the structure MUST be listed in this application).

AT&T Towers requires a structural analysis of the structure and its foundation and all the expenses in connection therewith are paid to AT&T by the applicant.

>>> Does your equipment installation require a Tower Extension or Tower Replacement? N/A

If you need additional space to list all equipment attached to the structure, please use row 82 below.									
FINAL INSTALL CONFIGURATION (ALL EQUIPMENT)					**EXISTING EQUIPMENT CONFIGURATION (IF ANY)**				
ANTENNA DESCRIPTION	**SECTOR 1**	**SECTOR 2**	**SECTOR 3**	**SECTOR 4**	**ANTENNA DESCRIPTION**	**SECTOR 1**	**SECTOR 2**	**SECTOR 3**	**SECTOR 4**
Manufacturer	RFS, Ericsson	RFS, Ericsson	RFS, Ericsson		**Manufacturer**				
Model Number	(1) APXVAAL24_43-U-NA20; (1) AIR6449 B41	(1) APXVAAL24_43-U-NA20; (1) AIR6449 B41	(1) APXVAAL24_43-U-NA20; (1) AIR6449 B41		**Model Number**				
Antenna Quantity Per Sector	2	2	2		**Antenna Quantity Per Sector**				
Antenna Type	(2) Panel	(2) Panel	(2) Panel		**Antenna Type**				
Antenna Dimensions (HxWxD) show dimensions in "inches"	96x24x8.5, 33x21x9	96x24x8.5, 33x21x9	96x24x8.5, 33x21x9		**Antenna Dimensions** (HxWxD) show dimensions in "inches"				
Weight (lbs)	123, 104	123, 104	123, 104		**Weight** (lbs)				
Number of Coax Feed Lines per Sector and Diameter	0	0	0		**Number of Coax Feed Lines per Sector and Diameter**				
Number of Fiber Lines per Sector and Diameter	0	0	0		**Number of Fiber Lines per Sector and Diameter**				
Number of Hybrid Lines per Sector and Diameter (include DC and RET cables in any)	(1) 1 5/8"	(1) 1 5/8"	(1) 1 5/8"		**Number of Hybrid Lines per Sector and Diameter** (include DC and RET cables if any)				
Number of OTHER Lines per Sector and Diameter	0	0	0		**Number of OTHER Lines per Sector and Diameter**				
Antenna Center Line - (in feet AGL)	160.00	160.00	160.00		**Antenna Center Line** (in feet AGL)				
Mount Height (in feet AGL)	160.00	160	160		**Mount Height** (in feet AGL)				
Mount Type & Model	N/A	N/A	N/A		**Mount Type & Model**				
Mount Face/Leg (If Rooftop, then indicate Parapet, Penthouse, Platform, or attachment)	Select One	Select One	Select One	Select One	**Mount Face/Leg (If Rooftop, then indicate Parapet, Penthouse, Platform, or attachment)**	Select One	Select One	Select One	Select One
Orientation or Azimuth (in degrees)	40	140	300		**Orientation or Azimuth (in degrees)**				
ALL Other Structure Mounted Equipment Detail (BTS, TMA, TTA, MHA, GPS, NEMA, ODU, RRU, Diplexers, etc., use row 83 if you need additional space)									
OTHER EQUIPMENT DESCRIPTION	**SECTOR 1**	**SECTOR 2**	**SECTOR 3**	**SECTOR 4**	**OTHER EQUIPMENT DESCRIPTION**	**SECTOR 1**	**SECTOR 2**	**SECTOR 3**	**SECTOR 4**
Type (Amplifiers, Diplexers, BTS, GPS, ODU, RRU, etc)	RRU	RRU	RRU		**Type** (Amplifiers, Diplexers, BTS, GPS, ODU, RRU, etc)				
Manufacturer	Ericsson	Ericsson	Ericsson		**Manufacturer**				
Model Number	(1) Radio 4460 B71 B85, (1) Radio 4460 B25 B66	(1) Radio 4460 B71 B85, (1) Radio 4460 B25 B66	(1) Radio 4460 B71 B85, (1) Radio 4460 B25 B66		**Model Number**				
Quantity	2	2	2		**Quantity**				
Dimensions (HxWxD) show dimensions in "inches"	21.8x15.7x7.5, 19.6x15.7x12.1	21.8x15.7x7.5, 19.6x15.7x12.1	21.8x15.7x7.5, 19.6x15.7x12.1		**Dimensions (HxWxD)** show dimensions in "inches"				
Weight (lbs)	92.6, 109	92.6, 109	92.6, 109		**Weight (lbs)**				
Mount Height and Mount Location	160 - TMO antenna platform	160 - TMO antenna platform	160 - TMO antenna platform		**Mount Height and Mount Location**				

Microwave (MW) Equipment

FINAL INSTALL CONFIGURATION (ALL EQUIPMENT)					EXISTING EQUIPMENT CONFIGURATION (IF ANY)				
MICROWAVE DESCRIPTION	**SECTOR 1**	**SECTOR 2**	**SECTOR 3**	**SECTOR 4**	**MICROWAVE DESCRIPTION**	**SECTOR 1**	**SECTOR 2**	**SECTOR 3**	**SECTOR 4**
Manufacturer					**Manufacturer**				
Model Number					**Model Number**				
Antenna Quantity Per Sector					**Antenna Quantity Per Sector**				
Antenna Dimensions (HxWxD) show dimensions in "inches"					**Antenna Dimensions** (HxWxD) show dimensions in "inches"				
Weight (lbs)					**Weight** (lbs)				
Feed Line Diameter					**Feed Line Diameter**				
Number of Feed Lines per MW					**Number of Feed Lines per MW**				
MW Center Line - (in feet AGL)					**Rad Center Line** (in feet AGL)				
Mount Height (in feet AGL)					**Mount Height** (in feet AGL)				
Mount Face/Leg (If Rooftop, then indicate Parapet, Penthouse, Platform, or	Select One	Select One	Select One	Select One	**Mount Face/Leg (If Rooftop, then indicate Parapet, Penthouse, Platform, or attachment)**	Select One	Select One	Select One	Select One
Orientation or Azimuth (in degrees)					**Orientation or Azimuth** (in degrees)				

EQUIPMENT NOTES: Use space below for notes or to detail other structure mounted equipment. If you intend to install any type of tower CONDUIT or INNERDUCT for your transmission cables you MUST indicate the quantity, diameter, and type in the below space.

Additional Information and Comments (Include any equipment information that did not fit in the cells above**)**	
Applicant Project Type: (examples: 2.5, L700, AWS, UMTS 3C, LTE 2C, Modernization, etc.)	Anchor

Transmitter Equipment - Final Install (ALL EQUIPMENT)

Frequency Filings (Notice of Change or Alteration to the FAA) : AT&T Towers will arrange for any frequency filing using the "Acceptable FAA Blanket Frequency Bands" in addition to Applicants indicated microwave frequencies and power levels, if any.

DESCRIPTION	**Transmitter 1**	**Transmitter 2**	**Transmitter 3**	**Transmitter 4**	**Transmitter 5 /OTHER**
Call Sign(s) (if applicable)**: (REQUIRED)**					
Tx Frequency (MHz): (REQUIRED)	B71: 617-652 MHz DL B85A: 728-745 MHz DL	B25: 1930-1995 MHz DL B66: 2110-2200 MHz DL	2496-2690 MHz		
Rx Frequency (MHz): (REQUIRED)	B71: 663-698 MHz UL B85A: 698-715 MHz UL	B25: 1850-1915 MHz DL B66: 1710-1780 MHz UL	2496-2690 MHz		
Max Tx Output Power: (in watts)	100	140	320		
Max Power Output / Radio: (in watts) **(REQUIRED)**	100	140	320		
Max ERP: (in watts) **(REQUIRED)**	100	140	320		

Ground or Equipment Space - Power & Telco Requirements (you must complete row 99)

Equipment/Ground Space Requirements:	New Tower Site with Ground Space	**Adding Generator?**	Yes (details below)	**Equipment Detail**	Cabinets	**Inside Lessor Building?:**	NO
	Building or Equipment Dimensions (HxWxL)**:**	**Equipment Pad Dimensions** (WxL)**:**		**Leased Area Total Width**	**Leased Area Total Length**	**Subtotal Square Feet**	**Total Square Feet**
Equipment Space 1:	10' x 15'	10' x 15'		10.00	15.00	150	**150**
Generator Space 2:						0	
Other Space 3:						0	
Power (Volts/Amps) (Only if provided by AT&T)		**Telco Requirements:** (Only if provided by AT&T)		Select One		**Number of *New* Exterior Cabinet(s) (REQUIRED)**	

Notes for All Equipment Above (Rows 96-99)

Notes	25Kw Diesel Generator and (2) Cabinets to be installed on 10'x15' equipment slab
Equipment To Be Removed (if any)	No equipment existing for T-Mobile

Do you require an LOA (Letter of Authorization)?	**Yes**	

End of Application

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: CTHA348A

East Haddam CTHA348
Millington Road
East Haddam, Connecticut 06423

January 24, 2022

EBI Project Number: 6222000363

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**10.38%**

January 24, 2022

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

Emissions Analysis for Site: CTHA348A - East Haddam CTHA348

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **Millington Road** in **East Haddam, Connecticut** 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 ($\mu W/cm^2$). 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 population 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 population 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 limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency 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 Millington Road in East Haddam, Connecticut 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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 power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 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.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 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.

7) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

8) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

9) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

10) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

11) 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.

12) 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

13) The antennas used in this modeling are the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied

specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

14) The antenna mounting height centerline of the proposed antennas is 160 feet above ground level (AGL).

15) 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.

16) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	160 feet	Height (AGL):	160 feet	Height (AGL):	160 feet
Channel Count:	13	Channel Count:	13	Channel Count:	13
Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts	Total TX Power (W):	560 Watts
ERP (W):	17,868.72	ERP (W):	17,868.72	ERP (W):	17,868.72
Antenna A1 MPE %:	**3.58%**	Antenna B1 MPE %:	**3.58%**	Antenna C1 MPE %:	**3.58%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	160 feet	Height (AGL):	160 feet	Height (AGL):	160 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A2 MPE %:	**5.51%**	Antenna B2 MPE %:	**5.51%**	Antenna C2 MPE %:	**5.51%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	9.09%
AT&T	1.29%
Site Total MPE % :	10.38%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	9.09%
T-Mobile Sector B Total:	9.09%
T-Mobile Sector C Total:	9.09%
Site Total MPE % :	10.38%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	160.0	1.79	600 MHz LTE	400	0.45%
T-Mobile 600 MHz NR	1	1577.94	160.0	2.39	600 MHz NR	400	0.60%
T-Mobile 700 MHz LTE	2	695.22	160.0	2.11	700 MHz LTE	467	0.45%
T-Mobile 1900 MHz GSM	4	1052.26	160.0	6.38	1900 MHz GSM	1000	0.64%
T-Mobile 1900 MHz LTE	2	2104.51	160.0	6.38	1900 MHz LTE	1000	0.64%
T-Mobile 2100 MHz LTE	2	2649.42	160.0	8.03	2100 MHz LTE	1000	0.80%
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	160.0	16.74	2500 MHz LTE 1C & 2C Traffic	1000	1.67%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	160.0	1.63	2500 MHz LTE 1C & 2C Broadcast	1000	0.16%
T-Mobile 2500 MHz NR Traffic	1	22089.26	160.0	33.49	2500 MHz NR Traffic	1000	3.35%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	160.0	3.26	2500 MHz NR Broadcast	1000	0.33%
						Total:	**9.09%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population 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 population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	9.09%
Sector B:	9.09%
Sector C:	9.09%
T-Mobile Maximum MPE % (Sector A):	9.09%
Site Total:	10.38%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **10.38%** of the allowable FCC established general population 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.

CENTEK engineering
Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

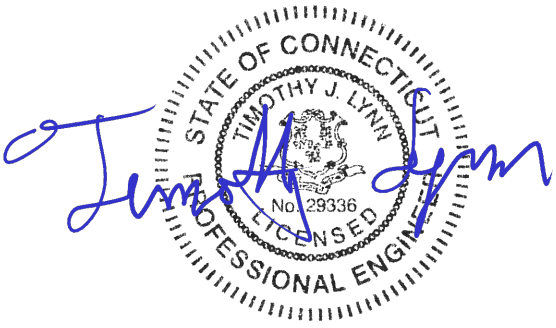
Proposed T-Mobile
Equipment Installation

T-Mobile Site #: CTHA348A

Millington Road
East Haddam, CT

Centek Project No. 21022.32

Date: September 13, 2021



Max Stress Ratio = 74.1%

Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

CENTEK engineering

Centered on Solutions℠

September 13, 2021

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CTHA348A
Millington Road
East Haddam, CT 06423

Centek Project No. 21022.32

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above-referenced site. The purpose of the review is to determine the structural adequacy of the proposed 12'-6" low profile platform with handrail (SitePro P/N: RMQP-496-HK). The review considered the effects of wind load, dead load, and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC), including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- T-Mobile:
  Low Profile Platfrom:Three (3) RFS APXVAALL24_43-U-NA20 panel antennas, three (3) Ericsson AIR6449 b41 panel antennas, three (3) Ericsson 4480 B71+B85 remote radio heads and three (3) Ericsson 4460 B25+B66 remote radio heads on the proposed mount with a RAD center elevation of 160-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 101 mph for East Haddam as required in Appendix N of the 2018 Connecticut State Building Code.

Based on our review of the installation, it is our opinion that the subject antenna mount has sufficient capacity to support the aforementioned antenna configuration.

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

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED PROFESSIONAL ENGINEER

Prepared by:

Fernando J. Palacios
Engineer

Section 2 - Calculations

CENTEK engineering
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Branford, CT 06405 F: (203) 488-8587

Subject: Loads on Equipment

Location: East Haddam,CT

Rev. 0: 09/13/2021

Prepared by: F.J.P.. Checked by: T.J.L.
Job No. 21022.32

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed	$V := 101$	mph	(User Input - 2018 CSBC Appendix N)
Basic Wind Speed with Ice	$V_i := 50$	mph	(User Input per Annex B of TIA-222-G)

Input

Structure Type =	$Structure\_Type := Pole$		(User Input)
Structure Category =	$SC := II$		(User Input)
Exposure Category =	$Exp := B$		(User Input)
Structure Height =	$h := 180.0$	ft	(User Input)
Height to Center of Antennas =	$z := 160.0$	ft	(User Input)
Radial Ice Thickness =	$t_i := .75$	in	(User Input per Annex B of TIA-222-G)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)
Topographic Factor =	$K_{zt} := 1.0$		(User Input)
	$K_a := 1.0$		(User Input)
Gust Response Factor =	$G_H = 1.1$		(User Input)

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if } Structure\_Type = Pole \\ 0.85 & \text{if } Structure\_Type = Lattice \end{cases} = 0.95$$

(Per Table 2-2 of TIA-222-G)

(Per Table 3-3 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.00 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \end{cases} = 1$$

$$K_{iz} := \left(\frac{z}{33}\right)^{0.1} = 1.171$$

Velocity Pressure Coefficient Antennas =

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.757$$

$$Kz := 2.01 \cdot \left(\left(\frac{z}{zg}\right)\right)^{\overline{\alpha}} = 1.13$$

Velocity Pressure w/o Ice Antennas = $qz := 0.00256 \cdot K_d \cdot Kz \cdot V^2 \cdot I_{Wind} = 28$ psf

Velocity Pressure with Ice Antennas = $qz_{ice} := 0.00256 \cdot K_d \cdot Kz \cdot V_i^2 \cdot I_{Wind} = 7$ psf

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS APXVAALL24_43-U-NA20		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24.0$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 150$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.27$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 624$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.7$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 221$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 19$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 182$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.3$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 79$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 150$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \cdot 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \cdot 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 431$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 431$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson - AIR6449 B41		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 33.1$	in	(User Input)
Antenna Width =	$W_{ant} := 20.5$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.3$	in	(User Input)
Antenna Weight =	$WT_{ant} := 103$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 1.6$		
Antenna Force Coefficient =	$Ca_{ant} = 1.2$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 174$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.9$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 71$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.1$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 55$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 3$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 27$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 103$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5632$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 4754$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 154$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 154$	lbs

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Branford, CT 06405 F: (203) 488-8587

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model =	Ericsson 4480 B71+B85		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRUS} := 21.8$	in	(User Input)
RRUS Width =	$W_{RRUS} := 15.7$	in	(User Input)
RRUS Thickness =	$T_{RRUS} := 7.5$	in	(User Input)
RRUS Weight =	$WT_{RRUS} := 84$	lbs	(User Input)
Number of RRUS's =	$N_{RRUS} := 1$		
RRUS Aspect Ratio =	$Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.4$		
RRUS Force Coefficient =	$Ca_{RRUS} = 1.2$		

Wind Load (without ice)

Surface Area for One RRUS =	$SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.4$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 88$	lbs
Surface Area for One RRUS =	$SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 42$	lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.4$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 31$	lbs
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.9$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 18$	lbs

Gravity Load (without ice)

Weight of All RRUSs =	$WT_{RRUS} \cdot N_{RRUS} = 84$	lbs

Gravity Loads (ice only)

Volume of Each RRUS =	$V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2567$	cu in
Volume of Ice on Each RRUS =	$V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2789$	cu in
Weight of Ice on Each RRUS =	$W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 90$	lbs
Weight of Ice on All RRUSs =	$W_{ICERRUS} \cdot N_{RRUS} = 90$	lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model =	Ericsson 4460 B25+B66		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRUS} := 19.6$	in	(User Input)
RRUS Width =	$W_{RRUS} := 15.7$	in	(User Input)
RRUS Thickness =	$T_{RRUS} := 12.1$	in	(User Input)
RRUS Weight =	$WT_{RRUS} := 109$	lbs	(User Input)
Number of RRUS's =	$N_{RRUS} := 1$		
RRUS Aspect Ratio =	$Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.2$		
RRUS Force Coefficient =	$Ca_{RRUS} = 1.2$		

Wind Load (without ice)

Surface Area for One RRUS =	$SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 2.1$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 79$	lbs
Surface Area for One RRUS =	$SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.6$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 61$	lbs

Wind Load (with ice)

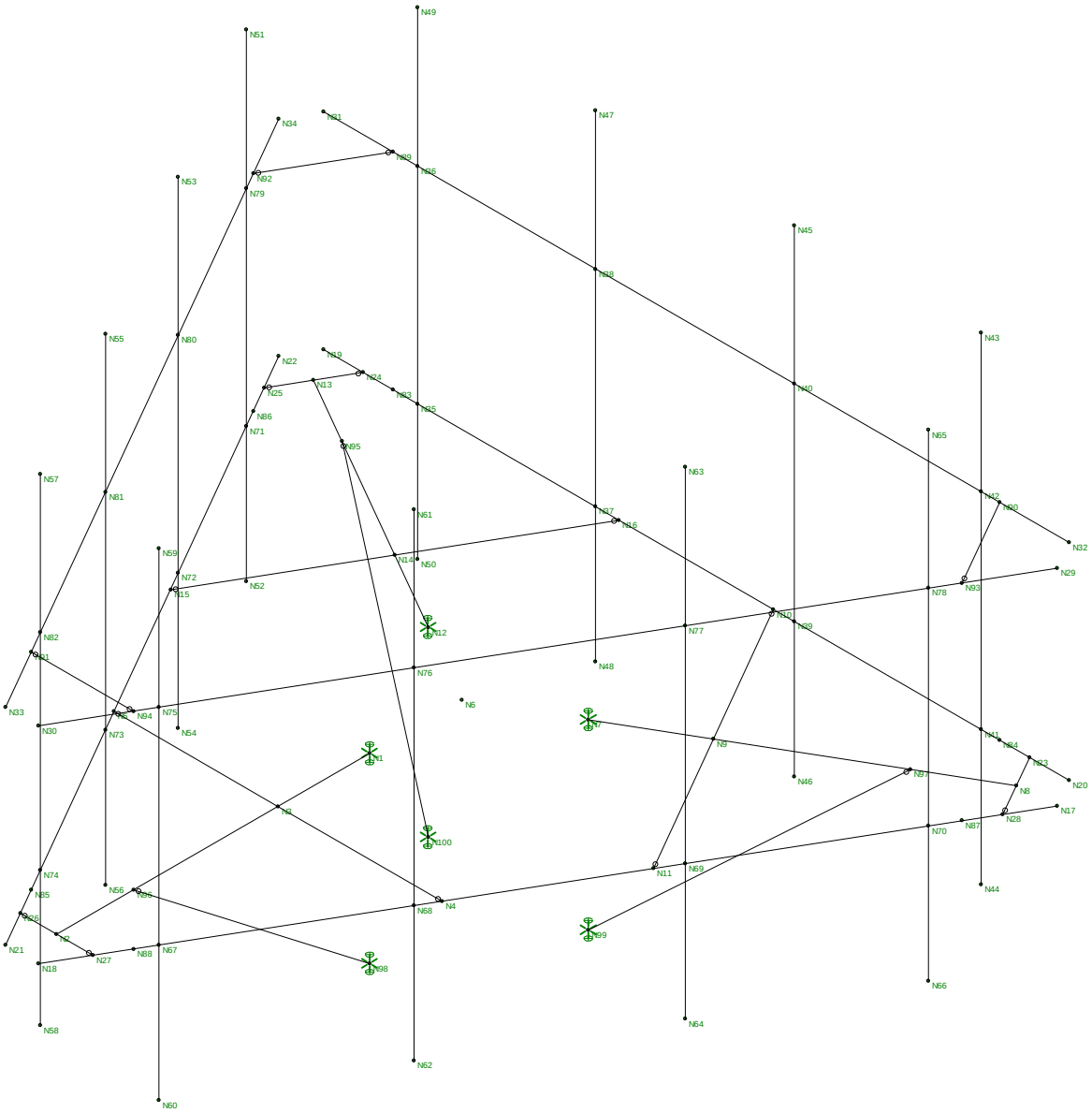
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 3.1$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 28$	lbs
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 2.5$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 23$	lbs

Gravity Load (without ice)

Weight of All RRUSs =	$WT_{RRUS} \cdot N_{RRUS} = 109$	lbs

Gravity Loads (ice only)

Volume of Each RRUS =	$V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 3723$	cu in
Volume of Ice on Each RRUS =	$V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 3210$	cu in
Weight of Ice on Each RRUS =	$W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 104$	lbs
Weight of Ice on All RRUSs =	$W_{ICERRUS} \cdot N_{RRUS} = 104$	lbs



Envelope Only Solution

Centek Engineering		SK - 1
FJP	CTHA348A - Mount	Sept 13, 2021 at 1:23 PM
21022.32	Member Framing	CTHA348A_AMA.R3D

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	Outrigger_...	5.25			Lbyy						Lateral
2	M2	Plat. Horz_...	2.75			Lbyy						Lateral
3	M3	Plat. Horz_...	2.75			Lbyy						Lateral
4	M4	Outrigger_...	5.25			Lbyy						Lateral
5	M5	Plat. Horz_...	2.75			Lbyy						Lateral
6	M6	Plat. Horz_...	2.75			Lbyy						Lateral
7	M7	Outrigger_...	5.25			Lbyy						Lateral
8	M8	Plat. Horz_...	2.75			Lbyy						Lateral
9	M9	Plat. Horz_...	2.75			Lbyy						Lateral
10	M10	Face Tube...	12.5			Lbyy						Lateral
11	M13	Face Tube...	12.5			Lbyy						Lateral
12	M14	Face Tube...	12.5			Lbyy						Lateral
13	M13A	PL 3/8"x6 "	1.212			Lbyy						Lateral
14	M14A	PL 3/8"x6 "	1.212			Lbyy						Lateral
15	M15	PL 3/8"x6 "	1.212			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
16	M16	Handrails _...	12.5			Lbyy						Lateral
17	M17	Handrails _...	12.5			Lbyy						Lateral
18	M18	Handrails _...	12.5			Lbyy						Lateral
19	PSA.1	Antenna M...	8			Lbyy						Lateral
20	PSA.2	Antenna M...	8			Lbyy						Lateral
21	PSA.3	Antenna M...	8			Lbyy						Lateral
22	PSA.4	Antenna M...	8			Lbyy						Lateral
23	PSB.1	Antenna M...	8			Lbyy						Lateral
24	PSB.2	Antenna M...	8			Lbyy						Lateral
25	PSB.3	Antenna M...	8			Lbyy						Lateral
26	PSB.4	Antenna M...	8			Lbyy						Lateral
27	PSC.1	Antenna M...	8			Lbyy						Lateral
28	PSC.2	Antenna M...	8			Lbyy						Lateral
29	PSC.3	Antenna M...	8			Lbyy						Lateral
30	PSC.4	Antenna M...	8			Lbyy						Lateral
31	M31	Side railings	1.712			Lbyy						Lateral
32	M32	Side railings	1.712			Lbyy						Lateral
33	M33	Side railings	1.712			Lbyy						Lateral
34	M34	Mount Rein...	4.991			Lbyy						Lateral
35	M35	Mount Rein...	4.991			Lbyy						Lateral
36	M36	Mount Rein...	4.991			Lbyy						Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Outrigger_HSS4X4	HSS4X4X4	Beam	HSS Pipe	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
2	Face Tube_Pipe 3.0 STD	PIPE_3.0	Beam	Pipe	A53 Grad...	Typical	2.07	2.85	2.85	5.69
3	Handrails_Pipe 2.0 STD	PIPE_2.0	Beam	Pipe	A53 Grad...	Typical	1.02	.627	.627	1.25
4	Antenna Mast_Pipe 2.0 STD	PIPE_2.0	Column	Pipe	A53 Grad...	Typical	1.02	.627	.627	1.25
5	Plat. Horz_HSS4X4	HSS4X4X4	Beam	HSS Pipe	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
6	PL 3/8"x6 "	6"x3/8"	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
7	Side railings	L2.5x2.5x5	Beam	RECT	A36 Gr.36	Typical	1.46	.837	.837	.05
8	Mount Reinforcement	LL2x2x3x0	Beam	RECT	A36 Gr.36	Typical	1.44	.994	.542	.018

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N2			Outrigger_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
2	M2	N4	N3		180	Plat. Horz_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
3	M3	N5	N3			Plat. Horz_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
4	M4	N7	N8			Outrigger_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
5	M5	N10	N9		180	Plat. Horz_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
6	M6	N11	N9			Plat. Horz_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
7	M7	N12	N13			Outrigger_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
8	M8	N15	N14		180	Plat. Horz_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
9	M9	N16	N14			Plat. Horz_HSS4X4	Beam	HSS Pipe	A500 ...	Typical
10	M10	N17	N18			Face Tube_Pipe 3.0 STD	Beam	Pipe	A53 Gr...	Typical
11	M13	N19	N20			Face Tube_Pipe 3.0 STD	Beam	Pipe	A53 Gr...	Typical
12	M14	N21	N22			Face Tube_Pipe 3.0 STD	Beam	Pipe	A53 Gr...	Typical
13	M13A	N28	N23			PL 3/8"x6 "	Beam	RECT	A36 Gr...	Typical
14	M14A	N24	N25			PL 3/8"x6 "	Beam	RECT	A36 Gr...	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
15	M15	N27	N26			PL 3/8"x6 "	Beam	RECT	A36 Gr...	Typical
16	M16	N29	N30			Handrails_Pipe 2.0 STD	Beam	Pipe	A53 Gr...	Typical
17	M17	N31	N32			Handrails_Pipe 2.0 STD	Beam	Pipe	A53 Gr...	Typical
18	M18	N33	N34			Handrails_Pipe 2.0 STD	Beam	Pipe	A53 Gr...	Typical
19	PSA.1	N43	N44			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
20	PSA.2	N49	N50			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
21	PSA.3	N47	N48			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
22	PSA.4	N45	N46			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
23	PSB.1	N51	N52			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
24	PSB.2	N57	N58			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
25	PSB.3	N55	N56			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
26	PSB.4	N53	N54			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
27	PSC.1	N59	N60			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
28	PSC.2	N65	N66			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
29	PSC.3	N63	N64			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
30	PSC.4	N61	N62			Antenna Mast_Pipe 2.0 STD	Colu...	Pipe	A53 Gr...	Typical
31	M31	N91	N94		180	Side railings	Beam	RECT	A36 Gr...	Typical
32	M32	N93	N90		180	Side railings	Beam	RECT	A36 Gr...	Typical
33	M33	N89	N92		180	Side railings	Beam	RECT	A36 Gr...	Typical
34	M34	N97	N99			Mount Reinforcement	Beam	RECT	A36 Gr...	Typical
35	M35	N95	N100			Mount Reinforcement	Beam	RECT	A36 Gr...	Typical
36	M36	N96	N98			Mount Reinforcement	Beam	RECT	A36 Gr...	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
1	N1	-0.	0	1.548833	0	
2	N2	-0.	0	6.798833	0	
3	N3	-0.	0	3.083333	0	
4	N4	2.75	0	3.083333	0	
5	N5	-2.75	0	3.083333	0	
6	N6	-0.	0	0.	0	
7	N7	1.341329	0	-0.774417	0	
8	N8	5.887962	0	-3.399417	0	
9	N9	2.670245	0	-1.541667	0	
10	N10	1.295245	0	-3.923237	0	
11	N11	4.045245	0	0.839903	0	
12	N12	-1.341329	0	-0.774417	0	
13	N13	-5.887962	0	-3.399417	0	
14	N14	-2.670245	0	-1.541667	0	
15	N15	-4.045245	0	0.839903	0	
16	N16	-1.295245	0	-3.923237	0	
17	N17	6.52262	0	-3.451036	0	
18	N18	0.272625	0	7.374273	0	
19	N19	-6.249995	0	-3.923237	0	
20	N20	6.249995	0	-3.923237	0	
21	N21	-0.272625	0	7.374273	0	
22	N22	-6.52262	0	-3.451036	0	
23	N23	5.583328	0	-3.923237	0	
24	N24	-5.583328	0	-3.923237	0	
25	N25	-6.189287	0	-2.873686	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
26	N26	-0.605958	0	6.796922	0	
27	N27	0.605958	0	6.796922	0	
28	N28	6.189287	0	-2.873686	0	
29	N29	6.52262	3.45	-3.451036	0	
30	N30	0.272625	3.45	7.374273	0	
31	N31	-6.249995	3.45	-3.923237	0	
32	N32	6.249995	3.45	-3.923237	0	
33	N33	-0.272625	3.45	7.374273	0	
34	N34	-6.52262	3.45	-3.451036	0	
35	N35	-4.666662	0	-3.923237	0	
36	N36	-4.666662	3.45	-3.923237	0	
37	N37	-1.687495	0	-3.923237	0	
38	N38	-1.687495	3.45	-3.923237	0	
39	N39	1.645838	0	-3.923237	0	
40	N40	1.645838	3.45	-3.923237	0	
41	N41	4.770838	0	-3.923237	0	
42	N42	4.770838	3.45	-3.923237	0	
43	N43	4.770838	5.75	-3.923237	0	
44	N44	4.770838	-2.25	-3.923237	0	
45	N45	1.645838	5.75	-3.923237	0	
46	N46	1.645838	-2.25	-3.923237	0	
47	N47	-1.687495	5.75	-3.923237	0	
48	N48	-1.687495	-2.25	-3.923237	0	
49	N49	-4.666662	5.75	-3.923237	0	
50	N50	-4.666662	-2.25	-3.923237	0	
51	N51	-5.783042	5.75	-2.170049	0	
52	N52	-5.783042	-2.25	-2.170049	0	
53	N53	-4.220542	5.75	0.53628	0	
54	N54	-4.220542	-2.25	0.53628	0	
55	N55	-2.553875	5.75	3.423032	0	
56	N56	-2.553875	-2.25	3.423032	0	
57	N57	-1.064292	5.75	6.003066	0	
58	N58	-1.064292	-2.25	6.003066	0	
59	N59	1.012203	5.75	6.093285	0	
60	N60	1.012203	-2.25	6.093285	0	
61	N61	2.574703	5.75	3.386956	0	
62	N62	2.574703	-2.25	3.386956	0	
63	N63	4.24137	5.75	0.500205	0	
64	N64	4.24137	-2.25	0.500205	0	
65	N65	5.730953	5.75	-2.079829	0	
66	N66	5.730953	-2.25	-2.079829	0	
67	N67	1.012203	0	6.093285	0	
68	N68	2.574703	0	3.386956	0	
69	N69	4.24137	0	0.500205	0	
70	N70	5.730953	0	-2.079829	0	
71	N71	-5.783042	0	-2.170049	0	
72	N72	-4.220542	0	0.53628	0	
73	N73	-2.553875	0	3.423032	0	
74	N74	-1.064292	0	6.003066	0	
75	N75	1.012203	3.45	6.093285	0	
76	N76	2.574703	3.45	3.386956	0	
77	N77	4.24137	3.45	0.500205	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
78	N78	5.730953	3.45	-2.079829	0	
79	N79	-5.783042	3.45	-2.170049	0	
80	N80	-4.220542	3.45	0.53628	0	
81	N81	-2.553875	3.45	3.423032	0	
82	N82	-1.064292	3.45	6.003066	0	
83	N83	-5.083328	0	-3.923237	0	
84	N84	5.083328	0	-3.923237	0	
85	N85	-0.855958	0	6.36391	0	
86	N86	-5.939287	0	-2.440673	0	
87	N87	5.939287	0	-2.440673	0	
88	N88	0.855958	0	6.36391	0	
89	N89	-5.083328	3.45	-3.923237	0	
90	N90	5.083328	3.45	-3.923237	0	
91	N91	-0.855958	3.45	6.36391	0	
92	N92	-5.939287	3.45	-2.440673	0	
93	N93	5.939287	3.45	-2.440673	0	
94	N94	0.855958	3.45	6.36391	0	
95	N95	-4.763371	0	-2.750133	0	
96	N96	-0.	0	5.500267	0	
97	N97	4.763371	0	-2.750133	0	
98	N98	-0.	-3.049275	1.548833	0	
99	N99	1.341329	-3.049275	-0.774417	0	
100	N100	-1.341329	-3.049275	-0.774417	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction		Reaction	
2	N7	Reaction	Reaction	Reaction		Reaction	
3	N12	Reaction	Reaction	Reaction		Reaction	
4	N95						
5	N96						
6	N97						
7	N98	Reaction	Reaction	Reaction		Reaction	
8	N99	Reaction	Reaction	Reaction		Reaction	
9	N100	Reaction	Reaction	Reaction		Reaction	

Member Point Loads (BLC 2 : Equipment Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSA.1	Y	-.075	1.083
2	PSA.1	Y	-.075	5.917
3	PSA.2	Y	-.052	1.667
4	PSA.2	Y	-.052	4.417
5	PSA.1	Y	-.084	1
6	PSA.1	Y	-.109	7
7	PSB.1	Y	-.075	1.083
8	PSB.1	Y	-.075	5.917
9	PSB.2	Y	-.052	1.667
10	PSB.2	Y	-.052	4.417
11	PSB.1	Y	-.084	1

Member Point Loads (BLC 2 : Equipment Weight) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
12	PSB.1	Y	-.109	7
13	PSC.1	Y	-.075	1.083
14	PSC.1	Y	-.075	5.917
15	PSC.2	Y	-.052	1.667
16	PSC.2	Y	-.052	4.417
17	PSC.1	Y	-.074	1
18	PSC.1	Y	-.109	7

Member Point Loads (BLC 3 : Ice Weight)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSA.1	Y	-.216	1.083
2	PSA.1	Y	-.216	5.917
3	PSA.2	Y	-.077	1.667
4	PSA.2	Y	-.077	4.417
5	PSA.1	Y	-.09	1
6	PSA.1	Y	-.104	7
7	PSB.1	Y	-.216	1.083
8	PSB.1	Y	-.216	5.917
9	PSB.2	Y	-.077	1.667
10	PSB.2	Y	-.077	4.417
11	PSB.1	Y	-.09	1
12	PSB.1	Y	-.104	7
13	PSC.1	Y	-.216	1.083
14	PSC.1	Y	-.216	5.917
15	PSC.2	Y	-.077	1.667
16	PSC.2	Y	-.077	4.417
17	PSC.1	Y	-.09	1
18	PSC.1	Y	-.104	7

Member Point Loads (BLC 4 : Wind w/ Ice X (5 psf))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSA.1	X	.04	1.083
2	PSA.1	X	.04	5.917
3	PSA.2	X	.014	1.667
4	PSA.2	X	.014	4.417
5	PSA.1	X	.018	1
6	PSA.1	X	.023	7
7	PSB.1	X	.091	1.083
8	PSB.1	X	.091	5.917
9	PSB.2	X	.028	1.667
10	PSB.2	X	.028	4.417
11	PSB.1	X	.031	1
12	PSB.1	X	.028	7
13	PSC.1	X	.091	1.083
14	PSC.1	X	.091	5.917
15	PSC.2	X	.028	1.667
16	PSC.2	X	.028	4.417
17	PSC.1	X	.031	1
18	PSC.1	X	.028	7

Member Point Loads (BLC 5 : Wind X(27 psf))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSA.1	X	.111	1.083
2	PSA.1	X	.111	5.917
3	PSA.2	X	.036	1.667
4	PSA.2	X	.036	4.417
5	PSA.1	X	.042	1
6	PSA.1	X	.061	7
7	PSB.1	X	.312	1.083
8	PSB.1	X	.312	5.917
9	PSB.2	X	.087	1.667
10	PSB.2	X	.087	4.417
11	PSB.1	X	.088	1
12	PSB.1	X	.079	7
13	PSC.1	X	.312	1.083
14	PSC.1	X	.312	5.917
15	PSC.2	X	.087	1.667
16	PSC.2	X	.087	4.417
17	PSC.1	X	.088	1
18	PSC.1	X	.079	7

Member Point Loads (BLC 6 : Wind w/ Ice Z(5 psf))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSA.1	Z	.091	1.083
2	PSA.1	Z	.091	5.917
3	PSA.2	Z	.028	1.667
4	PSA.2	Z	.028	4.417
5	PSA.1	Z	.031	1
6	PSA.1	Z	.028	7
7	PSB.1	Z	.04	1.083
8	PSB.1	Z	.04	5.917
9	PSB.2	Z	.014	1.667
10	PSB.2	Z	.014	4.417
11	PSB.1	Z	.018	1
12	PSB.1	Z	.023	7
13	PSC.1	Z	.04	1.083
14	PSC.1	Z	.04	5.917
15	PSC.2	Z	.014	1.667
16	PSC.2	Z	.014	4.417
17	PSC.1	Z	.018	1
18	PSC.1	Z	.023	7

Member Point Loads (BLC 7 : Wind Z (27 psf))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	PSA.1	Z	.312	1.083
2	PSA.1	Z	.312	5.917
3	PSA.2	Z	.087	1.667
4	PSA.2	Z	.087	4.417
5	PSA.1	Z	.088	1
6	PSA.1	Z	.079	7
7	PSB.1	Z	.111	1.083
8	PSB.1	Z	.111	5.917
9	PSB.2	Z	.036	1.667

Member Point Loads (BLC 7 : Wind Z (27 psf)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	PSB.2	Z	.036	4.417
11	PSB.1	Z	.042	1
12	PSB.1	Z	.061	7
13	PSC.1	Z	.111	1.083
14	PSC.1	Z	.111	5.917
15	PSC.2	Z	.036	1.667
16	PSC.2	Z	.036	4.417
17	PSC.1	Z	.042	1
18	PSC.1	Z	.061	7

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft, k*s...
No Data to Print ...			

Member Distributed Loads (BLC 4 : Wind w/ Ice X (5 psf))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	PSA.4	X	.002	.002	0	0
2	PSA.3	X	.002	.002	0	0
3	PSB.4	X	.002	.002	0	0
4	PSB.3	X	.002	.002	0	0
5	PSC.4	X	.002	.002	0	0
6	PSC.3	X	.002	.002	0	0
7	M16	X	.002	.002	0	0
8	M18	X	.002	.002	0	0
9	M10	X	.002	.002	0	0
10	M14	X	.002	.002	0	0
11	M34	X	.002	.002	0	0
12	M35	X	.002	.002	0	0
13	M36	X	.002	.002	0	0

Member Distributed Loads (BLC 5 : Wind X(27 psf))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	PSA.4	X	.005	.005	0	0
2	PSA.3	X	.005	.005	0	0
3	PSB.4	X	.005	.005	0	0
4	PSB.3	X	.005	.005	0	0
5	PSC.4	X	.005	.005	0	0
6	PSC.3	X	.005	.005	0	0
7	M16	X	.005	.005	0	0
8	M18	X	.005	.005	0	0
9	M10	X	.008	.008	0	0
10	M14	X	.008	.008	0	0
11	M34	X	.005	.005	0	0
12	M35	X	.005	.005	0	0
13	M36	X	.005	.005	0	0

Member Distributed Loads (BLC 6 : Wind w/ Ice Z(5 psf))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]

Member Distributed Loads (BLC 6 : Wind w/ Ice Z(5 psf)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	PSA.4	Z	.002	.002	0	0
2	PSA.3	Z	.002	.002	0	0
3	PSB.4	Z	.002	.002	0	0
4	PSB.3	Z	.002	.002	0	0
5	PSC.4	Z	.002	.002	0	0
6	PSC.3	Z	.002	.002	0	0
7	M13	Z	.002	.002	0	0
8	M17	Z	.002	.002	0	0
9	M34	Z	.002	.002	0	0
10	M35	Z	.002	.002	0	0

Member Distributed Loads (BLC 7 : Wind Z (27 psf))

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	PSC.3	Z	.005	.005	0	0
2	PSC.4	Z	.005	.005	0	0
3	PSB.3	Z	.005	.005	0	0
4	PSB.4	Z	.005	.005	0	0
5	PSA.3	Z	.005	.005	0	0
6	PSA.2	Z	.005	.005	0	0
7	M17	Z	.005	.005	0	0
8	M13	Z	.008	.008	0	0
9	M34	Z	.005	.005	0	0
10	M35	Z	.005	.005	0	0

Member Distributed Loads (BLC 8 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.015	-.007	2.1	3.15
2	M1	Y	-.007	-.004	3.15	4.2
3	M1	Y	-.004	-.005	4.2	5.25
4	M2	Y	-.004	-.004	.169	2.704
5	M3	Y	-.004	-.004	.169	2.704
6	M10	Y	-.00071	-.003	7.5	9.167
7	M10	Y	-.003	-.003	9.167	10.833
8	M10	Y	-.003	-.000457	10.833	12.5
9	M14	Y	-.000458	-.003	0	1.667
10	M14	Y	-.003	-.003	1.667	3.333
11	M14	Y	-.003	-.00071	3.333	5
12	M15	Y	-.000871	-.000871	0	1.212
13	M7	Y	-.015	-.007	2.1	3.15
14	M7	Y	-.007	-.004	3.15	4.2
15	M7	Y	-.004	-.005	4.2	5.25
16	M8	Y	-.004	-.004	.169	2.704
17	M9	Y	-.004	-.004	.169	2.704
18	M13	Y	-.000458	-.003	0	1.667
19	M13	Y	-.003	-.003	1.667	3.333
20	M13	Y	-.003	-.00071	3.333	5
21	M14	Y	-.00071	-.003	7.5	9.167
22	M14	Y	-.003	-.003	9.167	10.833
23	M14	Y	-.003	-.000457	10.833	12.5
24	M14A	Y	-.000871	-.000871	0	1.212
25	M4	Y	-.015	-.007	2.1	3.15

Member Distributed Loads (BLC 8 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
26	M4	Y	-.007	-.004	3.15	4.2
27	M4	Y	-.004	-.005	4.2	5.25
28	M5	Y	-.004	-.004	.169	2.704
29	M6	Y	-.004	-.004	.169	2.704
30	M10	Y	-.000458	-.003	0	1.667
31	M10	Y	-.003	-.003	1.667	3.333
32	M10	Y	-.003	-.00071	3.333	5
33	M13	Y	-.00071	-.003	7.5	9.167
34	M13	Y	-.003	-.003	9.167	10.833
35	M13	Y	-.003	-.000457	10.833	12.5
36	M13A	Y	-.000871	-.000871	0	1.212

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	J...	Point	Distribu...	Area(M...	Surface...
1	Self Weight	None		-1						
2	Equipment Weight	None					18		3	
3	Ice Weight	None					18			
4	Wind w/ Ice X (5 psf)	None					18	13		
5	Wind X(27 psf)	None					18	13		
6	Wind w/ Ice Z(5 psf)	None					18	10		
7	Wind Z (27 psf)	None					18	10		
8	BLC 2 Transient Area Loads	None						36		

Load Combinations

	Description	Solve	PDelta	...	B...	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2D + 1.6W (X-directi...	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-directi...	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1.0Wi (...	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (X-directi...	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (X-directi...	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1.0Wi (...	Yes	Y		1	1.2	2	1.2	3	1	6	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	.031	5	.119	1	-1.309	2	0	6	.205	5	0	6
2		min	-2.163	1	.068	5	-3.417	4	0	1	-3.002	1	0	1
3	N7	max	-.124	5	.312	4	1.876	1	0	6	1.784	4	0	6
4		min	-3.382	1	-.217	2	-1.503	5	0	1	-.066	2	0	1
5	N12	max	1.863	6	.448	1	.99	3	0	6	.562	1	0	6
6		min	-2.019	2	-.007	5	-.669	5	0	1	-.76	5	0	1
7	N98	max	0	6	1.966	6	2.53	6	0	6	0	6	0	6
8		min	-.02	2	.721	2	.92	2	0	1	-.002	2	0	1
9	N99	max	2.323	1	2.104	1	-.159	5	0	6	0	1	0	6
10		min	.237	5	.222	5	-1.354	1	0	1	0	5	0	1
11	N100	max	.438	2	1.724	6	.266	2	0	6	0	1	0	6
12		min	-1.919	6	-.399	2	-1.111	6	0	1	0	5	0	1
13	Totals:	max	0	6	5.63	6	0	3						

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
14		min	-4.825	1	2.468	2	-3.599	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	0	6	0	6	0	6	4.01e-4	4	0	6	-6.072e-4	3
2		min	0	1	0	1	0	1	-1.286e-4	2	0	1	-8.307e-4	4
3	N2	max	.15	2	-.021	2	.002	4	1.845e-3	6	3.127e-3	2	6.519e-4	2
4		min	0	5	-.038	6	0	2	1.104e-3	2	3.944e-5	6	-2.144e-3	6
5	N3	max	.024	1	.003	2	0	4	3.157e-4	4	1.641e-3	1	-6.072e-4	3
6		min	-.002	5	-.007	4	0	2	-2.062e-4	2	-2.219e-4	5	-8.307e-4	4
7	N4	max	.024	1	-.031	2	.041	5	4.927e-3	1	1.364e-3	2	6.266e-5	6
8		min	-.002	5	-.059	4	-.023	1	6.916e-4	6	1.697e-4	6	-1.227e-2	2
9	N5	max	.024	1	.029	2	.044	2	1.169e-3	4	7.228e-4	2	3.193e-3	5
10		min	-.002	5	-.013	6	.003	6	-6.73e-3	1	-3.103e-4	5	-1.825e-2	1
11	N6	max	0	6	0	6	0	6	0	6	0	6	0	6
12		min	0	1	0	1	0	1	0	1	0	1	0	1
13	N7	max	0	6	0	6	0	6	1.628e-3	5	0	6	-5.855e-5	3
14		min	0	1	0	1	0	1	-4.105e-4	1	0	1	-1.179e-3	4
15	N8	max	.034	4	-.002	5	.059	5	3.773e-3	5	-6.048e-5	3	-3.111e-4	2
16		min	.002	2	-.038	3	0	1	-1.951e-3	3	-1.216e-3	4	-2.416e-3	4
17	N9	max	.007	4	-.002	5	.012	5	1.759e-3	5	1.429e-4	1	-5.277e-5	3
18		min	0	2	-.009	1	-.001	1	-5.04e-4	1	-9.003e-4	5	-9.318e-4	4
19	N10	max	.014	1	.047	5	.009	5	8.195e-3	4	3.719e-4	2	2.657e-4	2
20		min	.002	6	-.038	1	-.009	1	-4.397e-3	1	-1.042e-3	4	-1.238e-3	4
21	N11	max	.03	1	-.024	3	.029	5	5.963e-3	2	2.941e-5	5	-5.513e-4	6
22		min	-.023	5	-.072	4	-.019	1	3.776e-4	6	-5.956e-4	1	-7.509e-3	1
23	N12	max	0	6	0	6	0	6	7.644e-4	4	0	6	3.352e-4	6
24		min	0	1	0	1	0	1	-6.84e-4	2	0	1	-3.189e-4	2
25	N13	max	.033	2	.006	2	.043	5	8.463e-4	3	1.149e-3	5	2.519e-3	6
26		min	-.025	4	-.035	6	-.056	1	2.693e-4	5	-1.699e-3	1	-9.874e-5	2
27	N14	max	.002	2	.002	5	.005	5	7.696e-4	4	2.984e-4	5	3.201e-4	6
28		min	-.003	4	-.001	3	-.003	1	-4.888e-4	2	-6.584e-5	1	-6.569e-4	2
29	N15	max	.052	1	.027	2	.027	1	3.059e-3	5	3.053e-4	4	4.245e-3	4
30		min	.002	6	-.033	6	.002	6	-1.145e-2	1	-2.018e-3	2	-1.411e-2	1
31	N16	max	.014	1	.032	5	.013	4	9.494e-3	4	9.667e-4	4	1.929e-3	4
32		min	.002	6	-.031	1	.001	3	-8.2e-3	1	-3.921e-4	1	-1.516e-3	2
33	N17	max	.042	4	-.016	2	.067	5	4.669e-3	4	1.691e-4	2	-7.85e-4	6
34		min	.008	3	-.029	6	-.018	1	8.591e-4	3	-1.677e-3	4	-6.167e-3	2
35	N18	max	.169	1	-.016	2	.06	2	9.855e-3	2	2.653e-3	1	-9.866e-4	6
36		min	-.002	5	-.044	6	.009	6	-9.016e-4	6	-4.069e-4	5	-1.708e-2	1
37	N19	max	.014	1	.013	2	.07	5	1.225e-2	4	6.894e-4	5	1.785e-4	5
38		min	.002	6	-.021	6	-.079	2	-1.494e-2	1	-1.507e-3	2	-6.488e-4	1
39	N20	max	.014	1	.033	5	.069	5	5.574e-3	5	1.551e-4	4	1.128e-3	3
40		min	.002	6	-.038	3	-.005	1	-1.483e-3	1	-2.045e-4	2	2.715e-4	5
41	N21	max	.174	2	-.016	5	.012	5	1.082e-3	5	3.478e-3	1	1.528e-3	4
42		min	.001	6	-.03	1	-.043	2	-1.229e-2	1	5.51e-5	6	-2.146e-2	1
43	N22	max	.117	1	.008	2	.04	5	4.701e-3	4	1.013e-3	4	7.405e-3	5
44		min	-.044	5	-.042	6	-.011	1	-9.619e-3	2	-3.936e-4	1	-1.774e-2	1
45	N23	max	.014	1	.031	5	.071	4	5.574e-3	5	1.565e-4	4	1.129e-3	3
46		min	.002	6	-.047	3	-.007	2	-1.483e-3	1	-2.045e-4	2	2.723e-4	5

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
47	N24	max	.014	1	.008	2	.064	5	1.225e-2	4	6.88e-4	5	1.778e-4	5
48		min	.002	6	-.021	6	-.067	1	-1.494e-2	1	-1.507e-3	2	-6.498e-4	1
49	N25	max	.115	1	.004	2	.036	5	4.701e-3	4	1.013e-3	4	7.405e-3	5
50		min	-.037	5	-.051	6	-.009	1	-9.618e-3	2	-3.924e-4	1	-1.774e-2	1
51	N26	max	.15	2	-.014	5	.013	5	1.081e-3	5	3.477e-3	1	1.529e-3	4
52		min	0	5	-.029	1	-.029	2	-1.229e-2	1	5.51e-5	6	-2.146e-2	1
53	N27	max	.15	2	-.016	2	.05	2	9.854e-3	2	2.651e-3	1	-9.871e-4	6
54		min	0	5	-.054	6	.009	6	-9.025e-4	6	-4.069e-4	5	-1.708e-2	1
55	N28	max	.032	1	-.017	2	.061	5	4.67e-3	4	1.703e-4	2	-7.845e-4	6
56		min	.006	6	-.038	4	-.017	1	8.6e-4	3	-1.677e-3	4	-6.167e-3	2
57	N29	max	.354	4	-.03	5	.4	4	6.065e-3	5	9.353e-3	1	-1.294e-3	3
58		min	.016	3	-.047	1	-.075	1	-7.295e-6	3	-4.121e-3	4	-8.284e-3	4
59	N30	max	1.537	1	.05	2	.759	1	1.77e-2	1	1.207e-2	1	-3.304e-4	6
60		min	.007	6	-.11	4	.046	6	1.64e-3	6	-1.803e-3	5	-3.782e-2	1
61	N31	max	.179	1	.063	2	.752	4	1.821e-2	4	1.574e-3	4	6.89e-4	4
62		min	.005	6	-.029	6	-1.283	1	-2.457e-2	1	-1.385e-2	1	-3.258e-3	2
63	N32	max	.179	1	.078	5	.406	4	1.452e-2	5	9.234e-3	5	2.782e-3	5
64		min	.005	6	-.107	1	.007	3	-1.357e-3	1	-1.137e-3	1	-3.454e-3	1
65	N33	max	1.487	1	-.032	6	.046	5	1.614e-3	4	7.94e-3	2	-9.585e-5	5
66		min	.02	6	-.097	1	-.631	1	-1.466e-2	1	8.145e-4	6	-3.27e-2	1
67	N34	max	1.254	1	.052	2	.459	4	1.073e-2	5	6.512e-3	4	1.337e-2	4
68		min	-.608	4	-.062	6	-.495	1	-1.637e-2	1	-1.94e-3	1	-3.409e-2	1
69	N35	max	.014	1	.001	2	.056	5	1.234e-2	4	8.345e-4	5	1.611e-4	5
70		min	.002	6	-.021	6	-.05	1	-1.504e-2	1	-1.779e-3	1	-7.487e-4	1
71	N36	max	.179	1	.002	2	.723	4	1.828e-2	4	1.62e-3	4	5.394e-4	4
72		min	.005	6	-.022	6	-1.02	1	-2.472e-2	1	-1.342e-2	1	-3.035e-3	2
73	N37	max	.014	1	.024	5	.018	4	1.017e-2	4	1.076e-3	4	1.532e-3	4
74		min	.002	6	-.025	1	0	3	-9.273e-3	1	-8.495e-4	1	-1.408e-3	2
75	N38	max	.179	1	.023	5	.655	4	1.812e-2	4	1.385e-3	4	2.57e-4	5
76		min	.005	6	-.025	1	-.553	1	-1.554e-2	1	-1.052e-2	1	-1.451e-3	1
77	N39	max	.014	1	.042	5	.014	5	8.444e-3	4	1.564e-4	2	-1.765e-4	2
78		min	.002	6	-.038	1	-.01	2	-4.087e-3	1	-1.389e-3	4	-1.012e-3	4
79	N40	max	.179	1	.042	5	.641	5	1.806e-2	5	-4.295e-5	6	-1.784e-4	5
80		min	.005	6	-.038	1	-.193	1	-5.759e-3	1	-6.663e-3	1	-1.297e-3	1
81	N41	max	.014	1	.03	5	.07	4	6.375e-3	5	-6.322e-5	6	5.135e-4	3
82		min	.002	6	-.057	3	-.008	2	-1.612e-3	1	-3.733e-4	5	-1.613e-5	5
83	N42	max	.179	1	.031	5	.566	5	1.656e-2	5	7.238e-3	5	1.582e-3	5
84		min	.005	6	-.058	3	-.008	3	-1.038e-3	1	-2.021e-3	1	-3.634e-3	1
85	N43	max	.323	1	.031	5	1.135	5	2.143e-2	5	7.238e-3	5	1.585e-3	5
86		min	-.024	5	-.058	3	-.032	3	-1.041e-3	1	-2.021e-3	1	-5.511e-3	1
87	N44	max	.034	1	.03	5	.035	1	5.317e-3	5	-6.322e-5	6	8.791e-4	1
88		min	.013	5	-.057	3	-.078	5	-1.607e-3	1	-3.733e-4	5	-1.61e-5	5
89	N45	max	.218	1	.042	5	1.139	5	1.807e-2	5	-4.295e-5	6	-1.784e-4	5
90		min	.016	6	-.038	1	-.352	1	-5.76e-3	1	-6.663e-3	1	-1.474e-3	1
91	N46	max	.013	2	.042	5	.1	1	8.443e-3	4	1.564e-4	2	-1.109e-5	2
92		min	-.025	6	-.038	1	-.214	4	-4.087e-3	1	-1.389e-3	4	-1.012e-3	4
93	N47	max	.222	1	.023	5	1.159	4	1.83e-2	4	1.385e-3	4	2.57e-4	5
94		min	.006	6	-.025	1	-.982	1	-1.555e-2	1	-1.052e-2	1	-1.627e-3	1
95	N48	max	.054	4	.024	5	.251	1	1.e-2	4	1.076e-3	4	1.532e-3	4
96		min	-.021	2	-.025	1	-.253	4	-9.272e-3	1	-8.495e-4	1	-1.243e-3	2
97	N49	max	.265	2	.002	2	1.238	4	1.875e-2	4	1.62e-3	4	5.399e-4	4
98		min	-.004	6	-.022	6	-1.703	1	-2.475e-2	1	-1.342e-2	1	-3.152e-3	2

Envelope Joint Displacements (Continued)

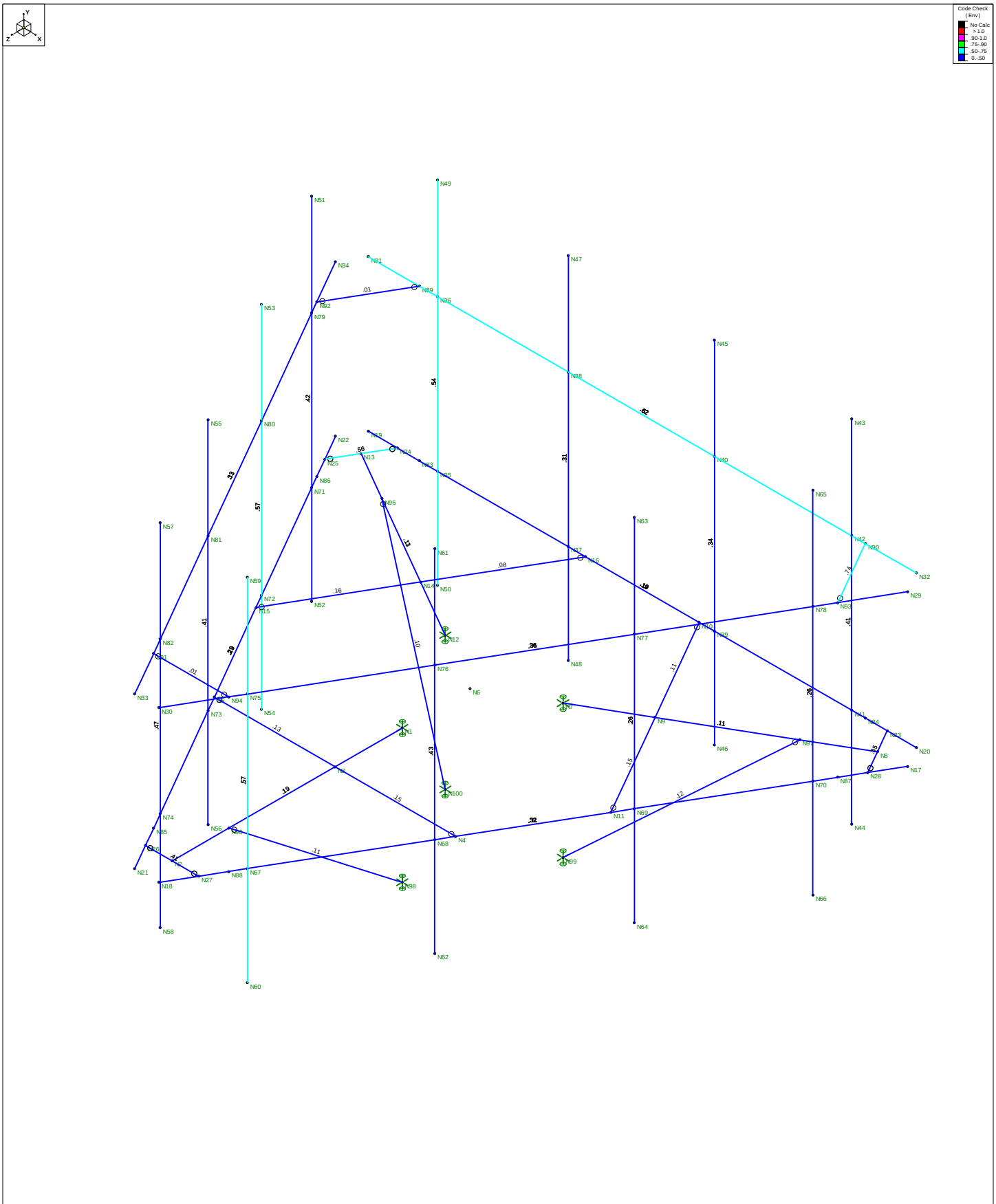
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
99	N50	max	.017	5	.001	2	.356	1	1.217e-2	4	8.345e-4	5	1.611e-4	5
100		min	-.006	1	-.021	6	-.273	4	-1.504e-2	1	-1.779e-3	1	-7.487e-4	1
101	N51	max	2.284	1	0	2	.74	5	1.259e-2	5	6.452e-3	4	1.348e-2	4
102		min	-.879	4	-.061	6	-.927	1	-1.629e-2	1	-2.125e-3	1	-3.923e-2	1
103	N52	max	.174	5	-.001	2	.252	2	3.773e-3	4	1.174e-3	4	7.486e-3	5
104		min	-.347	1	-.06	6	-.075	4	-9.557e-3	2	-7.235e-4	1	-1.678e-2	1
105	N53	max	1.938	1	.017	2	.437	5	5.926e-3	5	5.699e-3	4	9.537e-3	4
106		min	-.551	4	-.037	6	-.855	1	-1.579e-2	1	-2.327e-3	1	-2.96e-2	1
107	N54	max	.133	4	.018	2	.32	1	3.145e-3	5	5.949e-4	5	4.768e-3	4
108		min	-.347	1	-.037	6	-.075	5	-1.103e-2	1	-2.04e-3	2	-1.503e-2	1
109	N55	max	1.975	1	.015	2	.259	5	3.211e-3	5	4.28e-3	5	3.987e-3	4
110		min	-.219	4	-.013	6	-.875	1	-1.599e-2	1	6.839e-4	3	-3.01e-2	1
111	N56	max	.075	5	.015	2	.251	1	1.3e-3	4	1.419e-3	2	2.869e-3	5
112		min	-.483	1	-.012	6	-.021	4	-7.779e-3	1	-1.442e-4	5	-1.89e-2	1
113	N57	max	2.267	1	-.012	5	.135	4	1.667e-3	4	7.766e-3	2	-8.458e-5	5
114		min	.01	6	-.029	1	-.97	1	-1.5e-2	1	7.849e-4	6	-3.3e-2	1
115	N58	max	.037	4	-.012	5	.319	1	1.256e-3	5	3.566e-3	1	1.413e-3	4
116		min	-.47	1	-.028	1	-.02	5	-1.217e-2	1	6.597e-5	6	-2.174e-2	1
117	N59	max	2.509	1	-.015	2	1.147	1	1.795e-2	1	1.211e-2	1	-3.452e-4	6
118		min	.02	6	-.067	6	.103	6	2.083e-3	6	-1.716e-3	5	-4.278e-2	1
119	N60	max	-.016	6	-.015	2	.042	4	1.e-2	2	3.054e-3	1	-6.628e-4	6
120		min	-.309	1	-.066	6	-.234	2	-5.937e-4	6	-3.375e-4	5	-1.598e-2	1
121	N61	max	1.59	1	-.024	2	.786	1	1.411e-2	1	1.203e-2	1	-8.033e-4	6
122		min	.037	6	-.058	4	.076	6	9.462e-4	6	-1.219e-3	4	-2.474e-2	1
123	N62	max	.003	6	-.024	2	.004	5	5.897e-3	1	2.039e-3	2	1.184e-4	6
124		min	-.32	2	-.058	4	-.178	1	8.254e-4	6	1.396e-4	6	-1.295e-2	2
125	N63	max	.915	1	-.021	2	.443	4	7.102e-3	1	8.779e-3	1	-1.153e-3	6
126		min	.059	6	-.07	4	.071	3	1.12e-3	6	-2.672e-3	4	-1.389e-2	1
127	N64	max	-.023	6	-.022	2	-.002	6	5.406e-3	2	-7.545e-5	6	-6.976e-4	6
128		min	-.174	1	-.07	4	-.164	2	2.856e-4	6	-3.613e-4	4	-7.588e-3	1
129	N65	max	.513	4	-.017	2	.538	5	6.452e-3	5	9.026e-3	1	-1.309e-3	3
130		min	.08	3	-.055	4	.004	3	6.426e-5	3	-4.033e-3	4	-8.208e-3	4
131	N66	max	-.02	6	-.017	2	-.014	6	4.48e-3	4	2.888e-4	2	-8.685e-4	6
132		min	-.137	2	-.055	4	-.11	1	6.578e-4	3	-1.689e-3	4	-6.337e-3	2
133	N67	max	.127	2	-.014	2	.045	5	1.002e-2	2	3.054e-3	1	-6.674e-4	6
134		min	.001	6	-.066	6	.007	3	-4.142e-4	6	-3.375e-4	5	-1.707e-2	1
135	N68	max	.03	1	-.024	2	.043	5	5.897e-3	1	2.039e-3	2	1.185e-4	6
136		min	0	5	-.058	4	-.019	1	8.555e-4	6	1.396e-4	6	-1.312e-2	2
137	N69	max	.032	1	-.022	2	.03	5	5.406e-3	2	-7.545e-5	6	-6.977e-4	6
138		min	-.023	5	-.07	4	-.018	1	3.157e-4	6	-3.613e-4	4	-7.754e-3	1
139	N70	max	.034	1	-.017	2	.051	5	4.48e-3	4	2.888e-4	2	-8.686e-4	6
140		min	.003	6	-.055	4	-.016	1	6.579e-4	3	-1.689e-3	4	-6.338e-3	2
141	N71	max	.111	2	-.001	2	.031	5	4.564e-3	4	1.174e-3	4	7.503e-3	5
142		min	-.029	5	-.06	6	-.007	2	-9.578e-3	2	-7.235e-4	1	-1.788e-2	1
143	N72	max	.06	1	.018	2	.023	1	3.311e-3	5	5.949e-4	5	4.768e-3	4
144		min	.001	6	-.037	6	.002	6	-1.103e-2	1	-2.04e-3	2	-1.519e-2	1
145	N73	max	.029	1	.015	2	.041	1	1.465e-3	4	1.419e-3	2	2.87e-3	5
146		min	-.003	5	-.012	6	.003	6	-7.78e-3	1	-1.442e-4	5	-1.907e-2	1
147	N74	max	.117	2	-.012	5	.014	5	1.256e-3	5	3.566e-3	1	1.413e-3	4
148		min	0	5	-.028	1	-.01	2	-1.217e-2	1	6.597e-5	6	-2.174e-2	1
149	N75	max	1.352	1	-.014	2	.652	1	1.791e-2	1	1.211e-2	1	-3.429e-4	6
150		min	.01	6	-.067	6	.048	6	1.627e-3	6	-1.716e-3	5	-3.784e-2	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
151	N76	max	.908	1	-.024	2	.396	1	1.411e-2	1	1.203e-2	1	-8.032e-4	6
152		min	.015	6	-.058	4	.05	6	9.14e-4	6	-1.219e-3	4	-2.456e-2	1
153	N77	max	.533	1	-.021	2	.294	4	7.101e-3	1	8.779e-3	1	-1.153e-3	6
154		min	.027	6	-.07	4	.032	3	1.088e-3	6	-2.672e-3	4	-1.371e-2	1
155	N78	max	.286	5	-.017	2	.36	4	6.333e-3	5	9.026e-3	1	-1.251e-3	3
156		min	.044	3	-.055	4	.002	3	6.413e-5	3	-4.033e-3	4	-8.2e-3	4
157	N79	max	1.225	1	0	2	.401	5	1.07e-2	5	6.452e-3	4	1.345e-2	4
158		min	-.508	4	-.061	6	-.478	1	-1.625e-2	1	-2.125e-3	1	-3.429e-2	1
159	N80	max	1.122	1	.017	2	.274	5	5.748e-3	5	5.699e-3	4	9.536e-3	4
160		min	-.288	4	-.037	6	-.42	1	-1.578e-2	1	-2.327e-3	1	-2.942e-2	1
161	N81	max	1.146	1	.015	2	.171	5	3.034e-3	5	4.28e-3	5	3.987e-3	4
162		min	-.109	4	-.013	6	-.434	1	-1.599e-2	1	6.839e-4	3	-2.992e-2	1
163	N82	max	1.357	1	-.012	5	.089	5	1.551e-3	4	7.766e-3	2	-8.452e-5	5
164		min	.006	6	-.029	1	-.556	1	-1.499e-2	1	7.849e-4	6	-3.269e-2	1
165	N83	max	.014	1	.005	2	.06	5	1.23e-2	4	7.306e-4	5	1.363e-4	5
166		min	.002	6	-.022	6	-.058	1	-1.5e-2	1	-1.588e-3	2	-6.413e-4	1
167	N84	max	.014	1	.03	5	.071	4	6.067e-3	5	3.362e-6	6	8.927e-4	3
168		min	.002	6	-.054	3	-.008	2	-1.562e-3	1	-1.619e-4	2	7.798e-5	5
169	N85	max	.132	2	-.013	5	.014	5	1.133e-3	5	3.502e-3	1	1.495e-3	4
170		min	0	5	-.029	1	-.018	2	-1.235e-2	1	5.834e-5	6	-2.154e-2	1
171	N86	max	.113	2	.001	2	.033	5	4.641e-3	4	1.074e-3	4	7.459e-3	5
172		min	-.032	5	-.057	6	-.008	2	-9.576e-3	2	-5.17e-4	1	-1.784e-2	1
173	N87	max	.033	1	-.017	2	.056	5	4.609e-3	4	2.064e-4	2	-8.008e-4	6
174		min	.005	6	-.047	4	-.017	1	8.048e-4	3	-1.681e-3	4	-6.231e-3	2
175	N88	max	.136	2	-.015	2	.045	5	9.966e-3	2	2.803e-3	1	-8.66e-4	6
176		min	.001	6	-.062	6	.008	3	-7.331e-4	6	-3.806e-4	5	-1.708e-2	1
177	N89	max	.179	1	.017	2	.73	4	1.821e-2	4	1.551e-3	4	6.781e-4	4
178		min	.005	6	-.024	6	-1.089	1	-2.457e-2	1	-1.385e-2	1	-3.266e-3	2
179	N90	max	.179	1	.039	5	.535	4	1.452e-2	5	9.257e-3	5	2.791e-3	5
180		min	.005	6	-.062	3	-.005	3	-1.357e-3	1	-1.137e-3	1	-3.443e-3	1
181	N91	max	1.391	1	-.019	5	.078	5	1.604e-3	4	7.921e-3	2	-9.176e-5	5
182		min	.01	6	-.046	1	-.575	1	-1.467e-2	1	8.145e-4	6	-3.269e-2	1
183	N92	max	1.231	1	.011	2	.414	5	1.074e-2	5	6.512e-3	4	1.336e-2	4
184		min	-.529	4	-.061	6	-.482	1	-1.636e-2	1	-1.92e-3	1	-3.41e-2	1
185	N93	max	.304	5	-.024	2	.371	4	6.072e-3	5	9.374e-3	1	-1.288e-3	3
186		min	.036	3	-.05	4	-.009	1	2.154e-6	3	-4.121e-3	4	-8.279e-3	4
187	N94	max	1.391	1	-.001	2	.675	1	1.769e-2	1	1.205e-2	1	-3.359e-4	6
188		min	.01	6	-.071	6	.047	6	1.63e-3	6	-1.803e-3	5	-3.783e-2	1
189	N95	max	.019	2	.003	2	.027	5	7.112e-4	6	1.194e-3	5	1.726e-3	6
190		min	-.016	4	-.01	6	-.031	1	-5.772e-5	2	-1.775e-3	2	-1.437e-4	2
191	N96	max	.1	1	-.004	2	.002	4	1.161e-3	3	3.192e-3	2	1.563e-4	2
192		min	-.002	5	-.011	6	0	2	5.813e-4	5	4.373e-5	6	-1.612e-3	6
193	N97	max	.024	4	0	5	.041	5	3.069e-3	5	-6.208e-5	3	1.691e-5	2
194		min	.001	2	-.013	1	-.002	1	-1.287e-3	3	-1.305e-3	4	-1.884e-3	4
195	N98	max	0	6	0	6	0	6	4.443e-4	6	0	6	4.193e-5	5
196		min	0	1	0	1	0	1	2.714e-4	2	0	1	-3.165e-3	1
197	N99	max	0	6	0	6	0	6	1.457e-3	5	0	6	-4.679e-4	3
198		min	0	1	0	1	0	1	-1.919e-4	1	0	1	-9.82e-4	4
199	N100	max	0	6	0	6	0	6	1.035e-3	5	0	6	7.54e-4	4
200		min	0	1	0	1	0	1	-1.044e-3	1	0	1	-7.12e-4	2

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Me...	Sha...	Code C...	Lo...	LC	Shea...	Loc...	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y...	phi*Mn...	Cb	Eqn
1	M1	HS...	.191	0	1	.060	3.9...	y	6	124.318	139.518	16.181	16.181	1.443	H1-1b
2	M2	HS...	.149	2.75	4	.147	0	z	1	135.171	139.518	16.181	16.181	1.699	H1-1b
3	M3	HS...	.132	2.75	4	.176	0	z	1	135.171	139.518	16.181	16.181	1.693	H1-1b
4	M4	HS...	.113	0	5	.053	3.9...	y	4	124.318	139.518	16.181	16.181	1.937	H1-1b
5	M5	HS...	.110	2.75	4	.088	0	z	5	135.171	139.518	16.181	16.181	1.708	H1-1b
6	M6	HS...	.151	2.75	1	.089	2.75	y	1	135.171	139.518	16.181	16.181	1.694	H1-1b
7	M7	HS...	.125	1.5...	2	.057	3.9...	y	3	124.318	139.518	16.181	16.181	1.756	H1-1b
8	M8	HS...	.157	2.75	2	.187	0	z	2	135.171	139.518	16.181	16.181	1.345	H1-1b
9	M9	HS...	.076	2.75	5	.089	0	z	4	135.171	139.518	16.181	16.181	1.492	H1-1b
10	M10	PIP...	.320	7.5...	1	.333	7.5...		1	28.251	65.205	5.749	5.749	2.006	H3-6
11	M13	PIP...	.186	4.9...	1	.259	4.9...		1	28.251	65.205	5.749	5.749	2.523	H3-6
12	M14	PIP...	.286	5.0...	1	.297	4.9...		2	28.251	65.205	5.749	5.749	1.693	H1-1b
13	M1...	6"x...	.355	.606	5	.110	.606	y	6	28.164	72.9	.57	9.113	1.293	H1-1b
14	M1...	6"x...	.563	.606	2	.321	.606	y	1	28.164	72.9	.57	9.113	1.442	H1-1b
15	M15	6"x...	.407	.606	1	.424	.606	y	1	28.164	72.9	.57	9.113	1.539	H1-1b
16	M16	PIP...	.356	10....	1	.279	7.9...		1	6.295	32.13	1.872	1.872	3.577	H3-6
17	M17	PIP...	.624	11....	4	.446	11....		4	6.295	32.13	1.872	1.872	4.14	H3-6
18	M18	PIP...	.334	10....	1	.129	7.9...		4	6.295	32.13	1.872	1.872	3.995	H1-1b
19	PS...	PIP...	.414	2.25	4	.193	5.75		5	14.916	32.13	1.872	1.872	3.69	H1-1b
20	PS...	PIP...	.539	5.75	1	.241	4.5		1	14.916	32.13	1.872	1.872	4.116	H1-1b
21	PS...	PIP...	.311	5.75	1	.193	5.75		1	14.916	32.13	1.872	1.872	4.443	H1-1b
22	PS...	PIP...	.336	5.75	4	.150	5.75		2	14.916	32.13	1.872	1.872	3.67	H1-1b
23	PS...	PIP...	.417	2.25	1	.118	5.75		4	14.916	32.13	1.872	1.872	1.587	H1-1b
24	PS...	PIP...	.472	5.75	1	.109	4.5		2	14.916	32.13	1.872	1.872	3.154	H1-1b
25	PS...	PIP...	.414	5.75	1	.094	5.75		5	14.916	32.13	1.872	1.872	2.931	H1-1b
26	PS...	PIP...	.572	5.75	1	.107	5.75		4	14.916	32.13	1.872	1.872	2.963	H1-1b
27	PS...	PIP...	.566	5.75	1	.218	5.75		1	14.916	32.13	1.872	1.872	1.729	H1-1b
28	PS...	PIP...	.255	5.75	4	.175	2.3...		1	14.916	32.13	1.872	1.872	2.041	H1-1b
29	PS...	PIP...	.263	5.75	4	.176	5.75		1	14.916	32.13	1.872	1.872	2.867	H1-1b
30	PS...	PIP...	.430	5.75	1	.195	5.75		1	14.916	32.13	1.872	1.872	2.864	H1-1b
31	M31	L2....	.006	.856	4	.236	1.7...	y	1	42.973	47.304	1.316	3.061	1.136	H2-1
32	M32	L2....	.741	1.7...	4	.128	0	y	4	42.973	47.304	1.316	3.061	1.636	H2-1
33	M33	L2....	.015	.856	1	.225	0	y	1	42.973	47.304	1.316	3.061	1.136	H2-1
34	M34	LL2...	.121	0	1	.003	4.9...	y	1	28.249	46.656	2.147	1.607	1.138	H1-1b*
35	M35	LL2...	.099	4.9...	6	.004	4.9...	z	1	28.249	46.656	2.147	1.607	1.131	H1-1b*
36	M36	LL2...	.113	4.9...	6	.008	4.9...	z	2	28.249	46.656	2.147	1.607	1.667	H1-1b*



Centek Engineering		SK - 2
FJP	CTHA348A - Mount	Sept 13, 2021 at 1:24 PM
21022.32	Member Unity Check	CTHA348A_AMA.R3D

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA348A_Coverage Strategy_1_draft

Print Name: Standard
PORs: Coverage Strategy_Regional Coverage

Section 1 - Site Information

Site ID: CTHA348A
Status: Draft
Version: 1
Project Type: Coverage Strategy
Approved: Not Approved
Approved By: Not Approved
Last Modified: 8/19/2021 2:5:00 PM
Last Modified By: Michael.Low1@T-Mobile.com

Site Name: East Haddam CTHA348
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Not Specified

Latitude: 41.49114000
Longitude: -72.35469000
Address: Millington Rd
City, State: East Haddam, CT
Region: NORTHEAST

RAN Template: 67E5A998E 6160			AL Template: 67E5998E_1xAIR+1OP	
Sector Count: 3	**Antenna Count:** 6	**Coax Line Count:** 0	**TMA Count:** 0	**RRU Count:** 6

Section 2 - Existing Template Images

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Section 3 - Proposed Template Images

----- This section is intentionally blank. -----

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA348A_Coverage Strategy_1_draft

Print Name: Standard
PORs: Coverage Strategy_Regional Coverage

Section 5 - RAN Equipment

Existing RAN Equipment

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Proposed RAN Equipment

Template: 67E5A998E 6160

Enclosure	1	2	3
Enclosure Type	Enclosure 6160	RBS 6601	B160
Baseband	BB 6648 (L2500, N2500); BB 6648 (L700, L600, N600, L2100, L1900)	DUG20 (G1900)	
Hybrid Cable System	PSU 4813 **(x 2)**		
Transport System	CSR IXRe V2 (Gen2)		
Functionality Groups	Ericsson Hybrid Cable System **(x 2)** Ericsson Hybrid Trunk 6/24 4AWG *Select Length*		

RAN Scope of Work:

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA348A_Coverage Strategy_1_draft

Print Name: Standard
PORs: Coverage Strategy_Regional Coverage

Section 6 - A&L Equipment

Existing Template: Custom
Proposed Template: 67E5998E_1xAIR+1OP

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	40				40	
M. Tilt	0				0	
Height	160				160	
Ports	P1	P2	P3	P4	P5	P6
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900	L2100 L1900 G1900	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA348A_Coverage Strategy_1_draft

Print Name: Standard
PORs: Coverage Strategy_Regional Coverage

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	140				140	
M. Tilt	0				0	
Height	160				160	
Ports	P1	P2	P3	P4	P5	P6
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900	L2100 L1900 G1900	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA348A_Coverage Strategy_1_draft

Print Name: Standard
PORs: Coverage Strategy_Regional Coverage

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR6449 B41 (Active Antenna - Massive MIMO)	
Azimuth	300				300	
M. Tilt	0				0	
Height	160				160	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600	L2100 L1900 G1900	L2100 L1900 G1900	L2500 N2500	L2500 N2500
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**	Coax Jumper **(x2)**		
TMAs						
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Antenna)	SHARED Radio 4480 B71+B85 (At Antenna)	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)		
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E5A998E 6160	67E5998E_1xAIR+1OP

CTHA348A_Coverage Strategy_1_draft

Print Name: Standard
PORs: Coverage Strategy_Regional Coverage

Section 7 - Power Systems Equipment

Existing Power Systems Equipment
----- This section is intentionally blank. -----

	Proposed Power Systems Equipment
Enclosure	1
Enclosure Type	Enclosure 6160

DOCKET NO. 395A – New Cingular Wireless PCS, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located off of Haywardville Road in the Town of East Haddam, Connecticut.	}	Connecticut
	}	Siting
	}	Council

June 17, 2010

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, management, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to New Cingular Wireless PCS, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility on property owned by the East Haddam Fish and Game Club and located off of Haywardville Road in East Haddam, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC and other entities, both public and private, but such tower shall not exceed a height of 180 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of East Haddam for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and

    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

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

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

6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of East Haddam public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

8. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

9. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of East Haddam. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

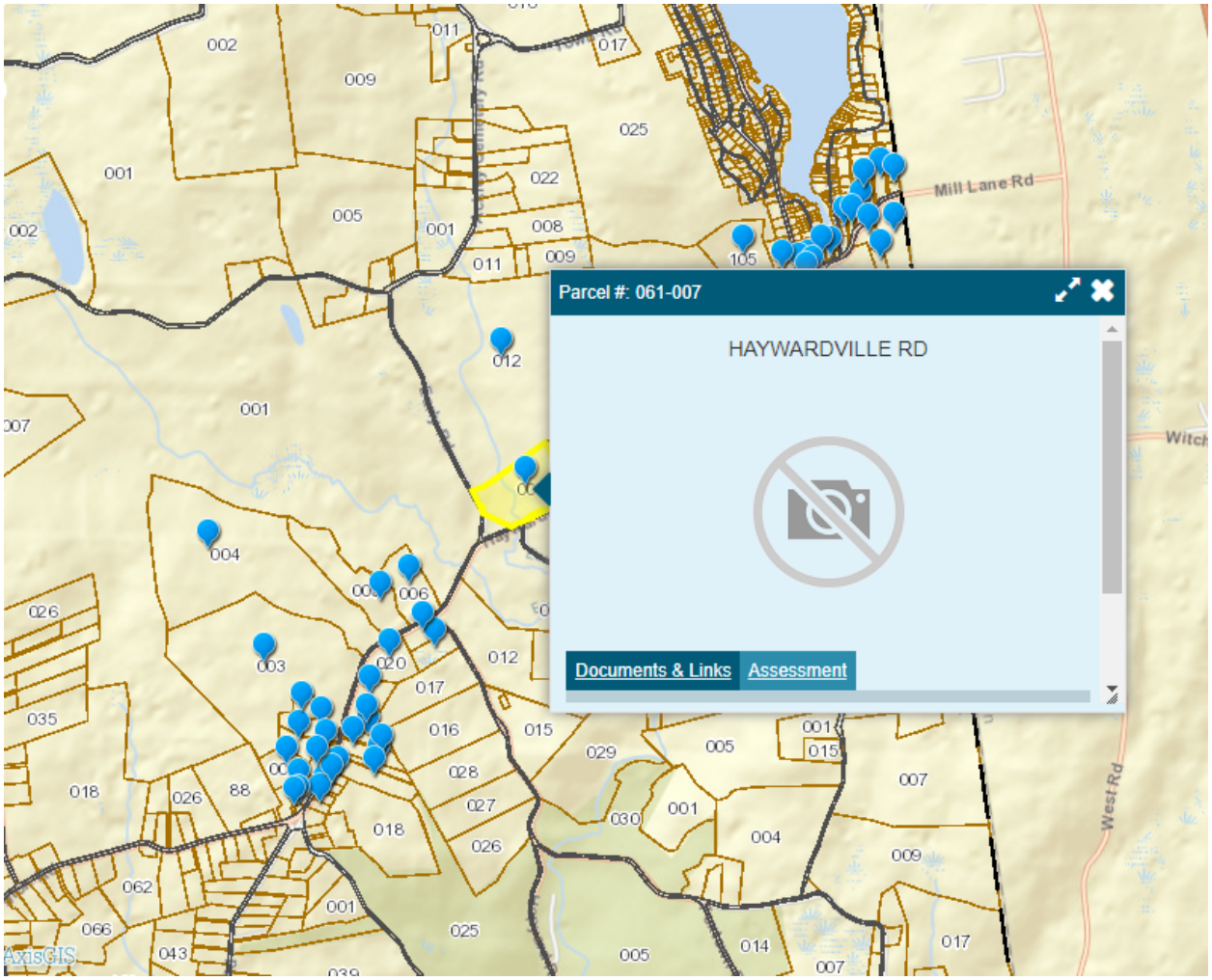
12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written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

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Hartford Courant.

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

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
New Cingular Wireless PCS, LLC	Christopher B Fisher, Esq. Daniel M. Laub, Esq. Cuddy & Feder LLP 445 Hamilton Avenue, 14th Floor White Plains, NY 10601


Parcel #: 061-007
HAYWARDVILLE RD
Documents & Links
Assessment
Mill Lane Rd
West Rd
AxisGIS

HAYWARDVILLE RD

Sales | Print | Map It

Location	HAYWARDVILLE RD	**Mblu**	M61/ / L007/ /
Acct#	00269900	**Owner**	EAST HADDAM FISHING & GAME CLUB INC
Assessment	$3,610	**Appraisal**	$103,760
PID	3224	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$0	$103,760	$103,760

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$0	$3,610	$3,610

Owner of Record

Owner	EAST HADDAM FISHING & GAME CLUB INC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	PO BOX 446 EAST HADDAM, CT 06423	**Book & Page**	0098/0131
		Sale Date	11/12/1971
		Instrument	29

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
EAST HADDAM FISHING & GAME CLUB INC	$0		0098/0131	29	11/12/1971

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Vacant Land
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type	
AC Type	
Kitchen Style	
Num Kitchens	
Fireplace(s)	
Extra Openings	
Gas Fireplace(s)	
Bsmt Garage(s)	
Foundation	
Num Park	
Fireplaces	
Fin Bsmnt	
FBM Quality	
Int Vs Ext	
Fndtn Cndtn	
Basement	

Building Photo

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	700
Description	10 Mil
Zone	R2
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	17.94
Frontage	
Depth	
Assessed Value	$3,610
Appraised Value	$103,760

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$0	$103,760	$103,760
2020	$0	$111,570	$111,570
2018	$0	$111,570	$111,570

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$0	$3,610	$3,610
2020	$0	$3,770	$3,770
2018	$0	$3,770	$3,770

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

SHIP TO:
ZEO
JAMES VENTRES
1 PLAINS ROAD
EAST HADDAM CT 06469

CT 063 0-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9966 7802

BILLING: P/P

Reference #1: CTHA348A

XOL 22.03.13 NV45 12.0A 03/2022*

TM

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

SHIP TO:
IRENE HAINES
1 PLAINS ROAD
EAST HADDAM CT 06469

CT 063 0-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9468 0510

BILLING: P/P

Reference #1: CTHA348A

XOL 22.03.13 NV45 12.0A 03/2022*

TM


ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495
1 LBS
1 OF 1
SHIP TO:
EAST HADDAM FISH & GAME CLUB
138 BASHAN ROAD
EAST HADDAM CT 06423
CT 063 0-01
UPS GROUND
TRACKING #: 1Z V25 742 03 9529 7817
BILLING: P/P
Reference #1: CTHA348A
XOL 22.03.13 NV-45 12.0A 03/2022*
TM

Your shipment from

TRANSCEND WIRELESS

Estimated delivery

Tomorrow, March 17 between 11:00 A.M. - 1:00 P.M.

- Label Created
- On the Way
- Out for Delivery
- Delivery

Ship To
AT&T TOWERS
12555 CINGULAR WAY
ALPHARETTA, GA 30004 US

Hello, your package has been delivered.

Delivery Date: Wednesday, 03/16/2022

Delivery Time: 10:41 AM

Left At: OFFICE

Signed by: VENTRAS

TRANSCEND WIRELESS

Tracking Number:	1ZV257420399667802
Ship To:	JAMES VENTRES 1 PLAINS ROAD EAST HADDAM, CT 06469 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA348A

Hello, your package has been delivered.

Delivery Date: Wednesday, 03/16/2022

Delivery Time: 10:42 AM

Left At: OFFICE

Signed by: ZIOBRON

TRANSCEND WIRELESS

Tracking Number:	1ZV257420394680510
Ship To:	IRENE HAINES 1 PLAINS ROAD EAST HADDAM, CT 06469 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA348A

Hello, your package has been delivered.

Delivery Date: Wednesday, 03/16/2022

Delivery Time: 3:05 PM

Left At: FRONT DOOR

TRANSCEND WIRELESS

Tracking Number:	1ZV257420395297817
Ship To:	EAST HADDAM FISH & GAME CLUB 138 BASHAN ROAD EAST HADDAM, CT 06423 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTHA348A

Landlord Authorization

AT&T Towers hereby authorizes T-Mobile, to make application for a wireless facility upgrade to be located on the property with the following address:

Address: 41 Haywardville Road, East Haddam, Middlesex County, CT

AT&T Site Name: East Haddam Haywardville Rd.

AT&T FA#: 10128075

Authorization to make application for land use review and/or building permit shall not be construed to constitute an agreement to lease.

No construction shall commence before a lease is executed.

Sincerely,

Russell Baldwin Digitally signed by Russell Baldwin
Date: 2022.03.17 15:00:54 -04'00'

Russell Baldwin

Principal – Client Services Proj/Prog Mgmt
AT&T Towers/Rooftops/DAS Tenant Add/DAS Owner Payments