Jesse A. Langer
(t) 203.786.8317
(f) 203.772.2037
jlanger@uks.com

October 25, 2018

VIA FEDERAL EXPRESS AND
ELECTRONIC MAIL

Melanie.bachman@ct.gov
Siting.council@ct.gov

Ms. Melanie A. Bachman, Esq., Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

Re: Petition of T-Mobile Northeast, LLC for a Declaratory Ruling that a Certificate of Environmental Compatibility and Public Need is not Required for the Installation of a Rooftop Telecommunications Facility.

Dear Attorney Bachman:

This office represents T-Mobile Northeast, LLC ("T-Mobile"). On behalf of T-Mobile, I have enclosed an original and fifteen (15) copies of the above-mentioned Petition for Declaratory Ruling as well as the filing fee related thereto.

Please do not hesitate to contact me with any questions.

Very truly yours,

Jesse A. Langer

Enclosures

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

RE: PETITION OF T-MOBILE NORTHEAST, LLC FOR A DECLARATORY RULING THAT A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITYAND PUBLIC NEED IS NOT REQUIRED FOR THE INSTALLATION OF A ROOFTOP TELECOMMUNCATIONS FACILITY

PETITION FOR DECLARATORY RULING

OCTOBER 25, 2018

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Attachment G – EME

Attachment H – FAA Compliance Report

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

PETITION OF T-MOBILE NORTHEAST, LLC FOR A DECLARATORY RULING THAT A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED IS NOT REQUIRED FOR THE INSTALLATION OF A ROOFTOP TELECOMMUNICATIONS FACILITY	:	OCTOBER 25, 2018

PETITION FOR DECLARATORY RULING

In accordance with General Statutes § 4-176 (a), § 16-50k (a) and Regs., Conn. State Agencies § 16-50j-38 *et seq.*, T-Mobile Northeast, LLC ("T-Mobile") respectfully seeks a declaratory ruling from the Connecticut Siting Council ("Council") that a Certificate of Environmental Compatibility and Public Need is not required for the installation of a rooftop telecommunications facility ("Rooftop Facility") proposed to be located within the midtown campus of Western Connecticut Statue University ("University"), specifically on the rooftop of the Ruth Haas Library ("Property").[1]

I. AUTHORITY FOR REQUESTED RELIEF

General Statutes § 4-176 (a) provides that "[a]ny person may petition an agency . . . for a declaratory ruling as to the validity of any regulation, or the applicability to specified circumstances of a provision of the general statutes, a regulation, or a final decision on a matter within the jurisdiction of the agency."[2] *Bingham v. Dept. of Public Works*, 286 Conn. 698, 706, 945 A.2d 927 (2008). The Council may approve a proposal concerning a telecommunications

[1] The general street address for the midtown campus is 181 White Street, Danbury, Connecticut.

[2] General Statutes § 4-166 (9) defines "person" to mean "any individual, partnership, corporation, limited liability company, association, governmental subdivision, agency or public or private organization of any character, but does not include the agency conducting the proceeding."

facility, or a modification to such a facility, by declaratory ruling if it determines that the proposal does not have a substantial adverse environmental effect in the State. General Statutes § 16-50k (a).

II. CONTACT INFORMATION

T-Mobile is a limited liability company organized under the laws of the State of Delaware, and is duly registered with the State of Connecticut. All correspondence or communications may be addressed to T-Mobile's legal counsel as follows:

Jesse A. Langer
Updike, Kelly & Spellacy, P.C.
8 Frontage Road
East Haven, CT 06512
(203) 786-8317
jlanger@uks.com

III. BACKGROUND

A. The Property

The Property consists of the Ruth Haas Library, which rests on two parcels totaling approximately fifteen acres. The Property is located in the City of Danbury ("City") within a High-Rise Residential District (RH-3). An RH-3 District is a mixed residential district, which is intended to provide for "a compatible mix of high density residential, limited commercial, institutional and neighborhood uses in the urban core of the City." *Danbury Zoning Regs., § 4.D.1.* The immediately adjacent land use consists largely of the University, including a multi story parking garage, a concert hall and other relatively large campus buildings. Beyond the University campus are some residential and commercial properties within the City proper. Please see T-Mobile's Site Plan, specifically Page C-1, which is appended hereto as Attachment A.

B. The Proposed Rooftop Facility

As a wireless carrier licensed by the Federal Communications Commission ("FCC"), T-Mobile seeks out wireless sites that will meet its coverage and capacity objectives so that T-Mobile may provide reliable coverage throughout its network. T-Mobile has identified the Ruth Haas Library building within the midtown campus at the University for a rooftop telecommunications facility to address such coverage and capacity objectives in the area.

The proposed Rooftop Facility would consist of the installation of nine (9) panel antennas on three (3) sectors and a future microwave dish, all to be mounted to the roof of the library on the Property. Please the antenna specifications appended hereto as Attachment B. The Rooftop Facility would be located at approximately sixty-feet (60) above grade level ("AGL"). The Rooftop Facility would include a Mansard roof screening system to conceal the installation from public view. The top of the screening system would be approximately 70'4" AGL. The centerline of the panel antennas would be located at 65'5" AGL. The equipment associated with T-Mobile's installation would be on a 10 x 12 steel platform on the parapet of the lower roof, which is approximately 48'5" AGL. The roof screening system would completely conceal this equipment. The cables connecting T-Mobile's antennas to the attendant equipment would come from existing power and telephone service originating in the library's basement. Please see Attachment A. The Rooftop Facility would also fall well within the loading limits of the library and, accordingly, the proposal would be structurally sound. Please see the Structural Analysis appended hereto as Attachment C.

IV. NOTICE TO ABUTTERS, OFFICIALS AND AGENCIES

In accordance with § 16-50j-40 of the Regulations of Connecticut State Agencies, on October 25, 2018, T-Mobile sent a notice of its intent to file this Petition, via certified mail,

return receipt requested and regular mail, to each person appearing as a record owner of the properties which abut the Property, each person appearing as the record owner of the properties on which the Rooftop Facility would be located and the appropriate municipal officials and government agencies. A service list of abutters and a sample letter to the abutters are appended hereto as Attachment D. The service list of municipal officials and government agencies, as well as a copy of the letter sent to the host municipality, are appended hereto as Attachment E.

V. NO SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

The proposed Rooftop Installation would not have a substantial adverse environmental effect.

A. Environmental Effects

The proposed Rooftop Facility would be located on the roof of the Ruth Haas Library within the University's campus, located in midtown Danbury. The surrounding area is extensively developed and T-Mobile has submitted a proposal so as not to have a substantial adverse environmental effect.

B. Visual Effects

The proposed Rooftop Facility would not have any adverse visual effects. The proposed antennas would be concealed behind a Mansard screening system to shield the installation from public view. T-Mobile has proposed a wireless site which is visually responsible and takes into account the aesthetic of the surrounding area. Please see the visual assessment and photo-simulations, which are appended hereto as Attachment F.

C. Compliance with the FCC

The proposed Rooftop Facility would comply with the limits for maximum permissible exposure ("MPE") as promulgated by the FCC. Please see the Radio Frequency –

Electromagnetic Energy Compliance Report appended hereto as Attachment G. As the Report demonstrates, the proposed facility would be well below the MPE limits set by the FCC.

D. Compliance with the Federal Aviation Authority

The proposed Rooftop Facility would not constitute a hazard to air navigation and otherwise require any additional measures or authorizations from the Federal Aviation Authority ("FAA"). Please see FAA Compliance Report appended hereto as Attachment H.

VI. CONCLUSION

This Petition and the appended attachments demonstrate that the proposed Rooftop Facility would not have a substantial adverse environmental effect. Therefore, a Certificate of Environmental Compatibility and Public Need is not required in accordance with the General Statutes § 16-50k.

Respectfully submitted by,

T-MOBILE NORTHEAST LLC

By: _____

Jesse A. Langer
UPDIKE, KELLY & SPELLACY, P.C.
8 Frontage Road
East Haven, CT 06512
(203) 786-8310
Email: jlanger@uks.com

ATTACHMENT A

Site Plan

T-Mobile

WIRELESS COMMUNICATIONS FACILITY

WCSU DANBURY
SITE ID: CTFF039A
181 WHITE STREET
DANBURY, CT 06810

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2016 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 MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

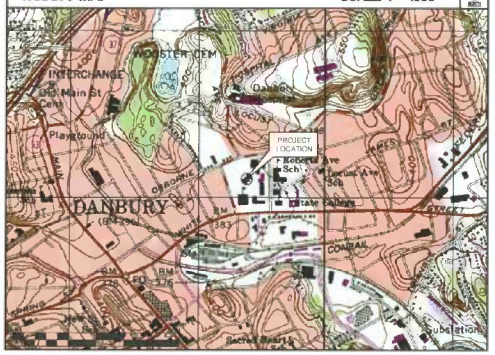
SITE DIRECTIONS

FROM: 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002 **TO:** 181 WHITE STREET, DANBURY, CT 06810

1.	START OUT GOING NORTH ON GRIFFIN RD S TOWARD HARTMAN RD;	0.30 MI.
2.	TAKE 2ND RIGHT ONTO DAY HILL RD;	0.14 MI.
3.	TAKE 1ST RIGHT ONTO BLUE HILLS AVENUE EXT/CT-187. CONTINUE TO FOLLOW CT-187;	1.89 MI.
4.	TURN LEFT ONTO CT-305/OLD WINDSOR RD. CONTINUE TO FOLLOW CT-305.	2.33 MI.
5.	MERGE ONTO I-91 S TOWARD HARTFORD.	5.66 MI.
6.	MERGE ONTO I-84 W VIA EXIT 32A TOWARD WATERBURY.	13.29 MI.
7.	KEEP LEFT TO TAKE I-84 W TOWARD WATERBURY.	40.71 MI.
8.	MERGE ONTO NEWTOWN ROAD VIA EXIT 8 TOWARD BETHEL.	1.97 MI.
9.	NEWTOWN ROAD BECOMES WHITE STREET.	0.69 MI.
12.	END AT 181 WHITE STREET ON THE LEFT.	

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF THE INSTALLATION OF A PROPOSED UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   - A. THE INSTALLATION OF (3) NEW T-MOBILE PANEL ANTENNAS PER SECTOR (AND ASSOCIATED APPURTENANCES), (3) SECTORS FOR A TOTAL OF (9) PANEL ANTENNAS AND (1) FUTURE MICROWAVE DISH.
   - B. ALL SECTOR ANTENNAS TO BE MOUNTED TO, AND BEHIND, A PROPOSED MANSARD ROOF SCREENING SYSTEM ATOP THE HIGH ROOF OF THE EXISTING BUILDING. THE SCREENING SYSTEM WILL BE RF TRANSPARENT AT EACH ANTENNA SECTOR LOCATION AND WILL MATCH THE COLOR AND ARCHITECTURAL APPEARANCE OF THE EXISTING MANSARD SCREENING ON THE ADJACENT BUILDING.
   - C. EXPOSED CABLES AND/OR CABLE TRAY SHALL BE PAINTED TO MATCH THE COLOR OF THE EXISTING BUILDING FACADE.
   - D. A 10'x12' STEEL EQUIPMENT PLATFORM IS PROPOSED ON THE EXISTING BUILDING'S LOW-HEIGHT ROOF.
   - E. ELECTRICAL AND TELCO UTILITIES SHALL BE ROUTED TO THE PROPOSED EQUIPMENT LOCATION FROM EXISTING UTILITY DEMARCS LOCATED WITHIN THE EXISTING BUILDING'S BASEMENT LEVEL.

PROJECT INFORMATION

SITE NAME:	DANBURY
SITE ID:	CTFF039A
SITE ADDRESS:	181 WHITE STREET DANBURY, CT 06810
PARCEL ID(S):	I132380000 J130010000
ZONE:	RH3
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:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-24'-03.721" N LONGITUDE: 73°-26'-46.326" W GROUND ELEVATION: 382.53'± AMSL COORDINATES AND GROUND ELEVATION REFERENCED FROM FAA 2-C CERTIFICATION PREPARED FOR T-MOBILE NORTHEAST LLC. BY CENTEK ENGINEERING, INC., DATED MAY 5, 2018.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	E
C-1	SITE LOCATION PLAN	E
C-1A	ABUTTERS MAP	E
C-1B	ABUTTERS LIST	E
C-2	ROOF PLAN AND ELEVATIONS	E
C-3	BUILDING ELEVATION	E
C-4	EQUIPMENT & ANTENNA SPECIFICATIONS AND DETAILS	E
S-1	EQUIPMENT PLATFORM PLANS AND DETAILS	E
S-2	MANSARD ROOF SCREENING PLAN AND DETAILS	E

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
E	10/10/18	DAD	TJL	CONSTRUCTION DRAWINGS – REVISED PER TMO ATC/NNCT COMMENTS
D	09/10/18	DAD	TJL	CONSTRUCTION DRAWINGS – SUBMITTED FOR CSC APPROVAL
C	08/30/18	DAD	TJL	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
B	08/28/18	DAD	TJL	CONSTRUCTION DRAWINGS – REVISED PER CLIENT'S COMMENTS
A	06/17/18	DAD	TJL	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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

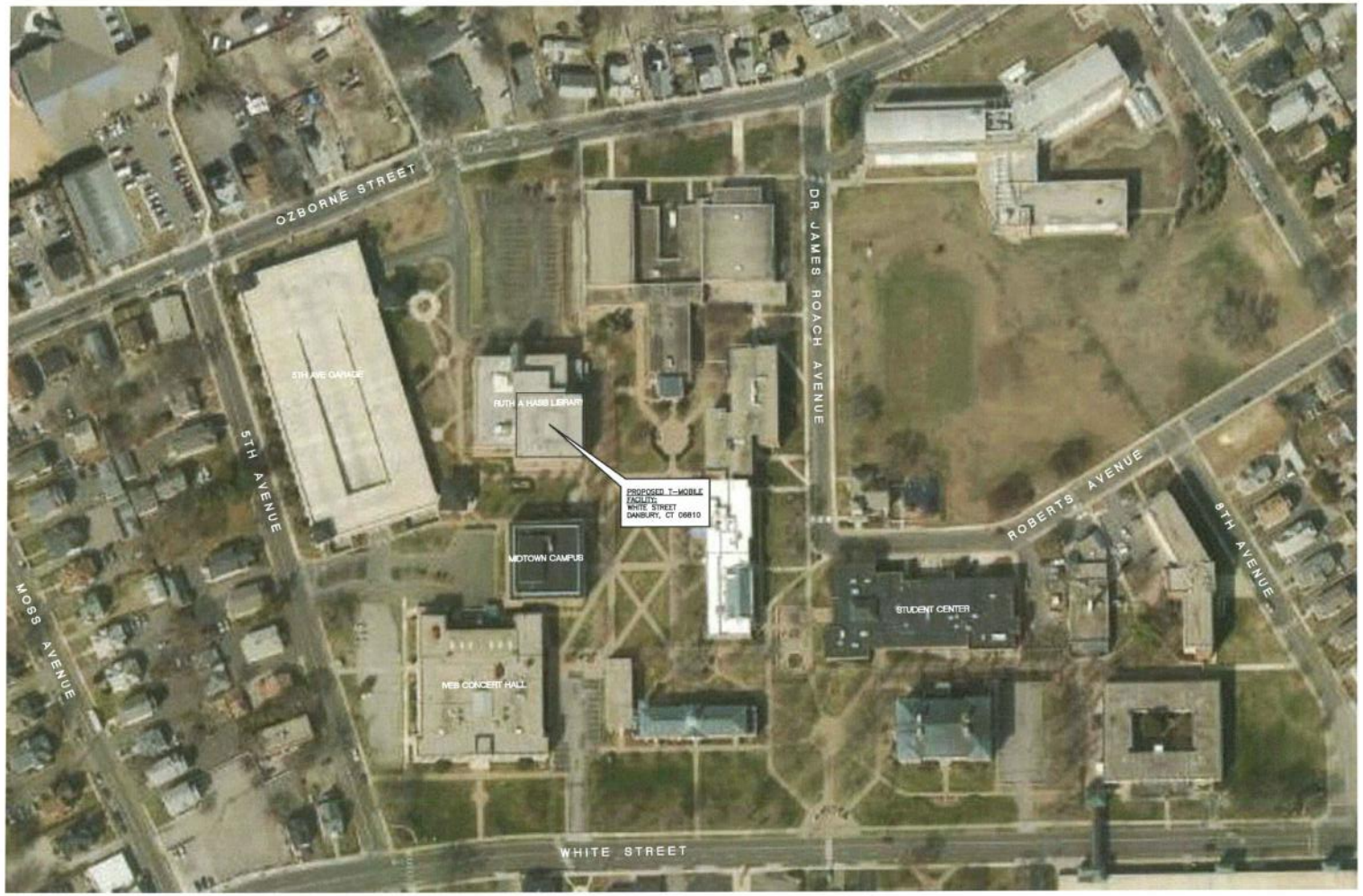
T-MOBILE
WIRELESS COMMUNICATIONS FACILITY
CTFF039A
181 WHITE STREET
DANBURY, CT 06810

DATE: 06/19/18
SCALE: AS NOTED
JOB NO. 18067.00

TITLE SHEET

T-1

Sheet No. 1 of 9



1 / C-1 SITE LOCATION PLAN
SCALE: 1" = 70'

APPROX. NORTH

GRAPHIC SCALE
70 0 35 70 140 280
(IN FEET)
1 inch = 70 ft.

REV.	DATE	DRAWN BY	DESCRIPTION
A	06/15/18	DAG	CONSTRUCTION DRAWINGS – REVISED PER TMO ATTORNEY COMMENTS
B	06/18/18	DAG	CONSTRUCTION DRAWINGS – REVISED PER TMO ATTORNEY COMMENTS
C	06/13/18	DAG	CONSTRUCTION DRAWINGS – REMOVED ARRAY 2 ANTENNA
D	08/09/18	DAG	CONSTRUCTION DRAWINGS – REVISED PER CLIENT'S COMMENTS
E	08/17/18	DAG	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

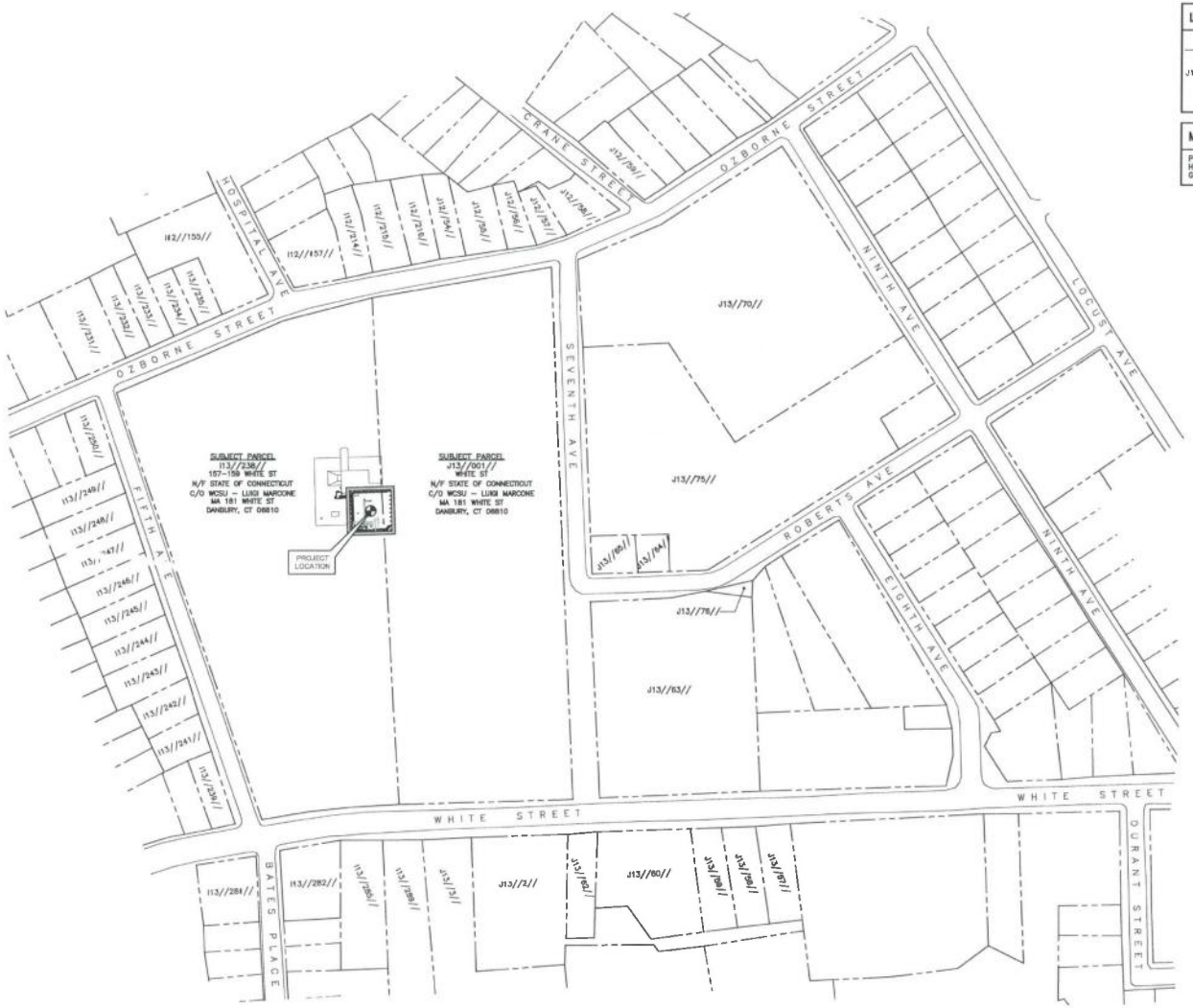
T-MOBILE
WIRELESS COMMUNICATIONS FACILITY
CTFF039A
181 WHITE STREET
DANBURY, CT 06810

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

DATE: 06/19/18
SCALE: AS NOTED
JOB NO. 18087.00

SITE LOCATION PLAN

C-1
Sheet No. 2 of 9



LEGEND:

----------	PROPERTY LINE
J12//73//	MAP/BLOCK/LOT/UNIT (SEE ABUTTERS LIST ON SHEET C-1B FOR CORRESPONDING PROPERTY OWNERSHIP AND MAILING ADDRESS)

MAP REFERENCE NOTE:

PROPERTY LINES AND PARCEL ID INFORMATION SHOWN HEREIN ARE REFERENCED FROM THE CITY OF DANBURY GIS DATA BASE.

1 C-1A **ABUTTERS MAP**
SCALE: 1" = 100'

APPROX. NORTH

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
-	08/10/18	CAG	TJL	CONSTRUCTION DRAWINGS - REVISED PER TMO ATTORNEY COMMENTS
-	08/14/18	CAG	TJL	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
C	08/10/18	CAG	TJL	CONSTRUCTION DRAWINGS - REVISED AS-BUILTED ANTENNA
B	08/09/18	CAG	TJL	CONSTRUCTION DRAWINGS - REVISED PER CLIENT'S COMMENTS
A	08/17/18	DMD	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT * REGISTERED * PROFESSIONAL ENGINEER

T-Mobile

Transcend Wireless

CENTEK engineering
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T-MOBILE
WIRELESS COMMUNICATIONS FACILITY
CTFF039A
181 WHITE STREET
DANBURY, CT 06810

DATE: 08/19/18
SCALE: AS NOTED
JOB NO. 18067.00

ABUTTERS MAP

C-1A

Sheet No. 3 of 9

ABUTTER LIST REFERENCE NOTE:

PROPERTY OWNERSHIP AND MAILING ADDRESS INFORMATION SHOWN HEREIN ARE REFERENCED FROM THE CITY OF DANBURY GIS DATA BASE.

DR. JAMES ROACH AVE:

J13//70// DR JAMES ROACH AV
N/F STATE OF CONNECTICUT
C/O WCSU – LUIGI MARCONE
MA 181 WHITE ST
DANBURY, CT 06810

FIFTH AVE:

113//241// 4–8 FIFTH AV
N/F SIX FIFTH AVENUE CORP
MA 7 NATIONAL PL
DANBURY, CT 06810–2805

113//242// 8–10 FIFTH AV
N/F ROY MANIK G & VALENTINA
MA PO BOX 117
DANBURY, CT 06813

113//243// 12 FIFTH AV
N/F BURNETT MARC K
MA 70 CHERNISKE RD
NEW MILFORD, CT 06776

113//244// 14 FIFTH AV
N/F PREVEZA CRAIG
MA 34 GRAMMAR SCHOOL DR
DANBURY, CT 06811

113//245// 18 FIFTH AV
N/F VITTI PAUL & FIORITA DAVID
MA 2 BELDEN HILL RD
BROOKFIELD, CT 06804

113//246// FIFTH AV
N/F EAST FIFTH AVENUE PROPERTIES LLC
MA 3 WOODSTONE CT
DANBURY, CT 06811

113//247// 20 FIFTH AV
N/F PAULINO NUNO L & CELINA
MA 5 WILDLIFE DR
NEW MILFORD, CT 06776

113//248// 22 FIFTH AV
N/F PAULINO NUNO L & CELINA
MA 5 WILDLIFE DR
NEW MILFORD, CT 06776

113//249// 24 FIFTH AV
N/F 24 FIFTH AVE INVESTORS LLC
MA 24 FIFTH AVE
DANBURY, CT 06810

HOSPITAL AVE:

112//155// 7 HOSPITAL AV
N/F DASILVA JOSEPH JR
MA 288 MAIN ST
DANBURY, CT 06810

112//157// 2 HOSPITAL AV
N/F MIDWESTERN CONNECTICUT COUNCIL
OF ALCOHOLISM INC
MA 36 OLD RIDGEBURY RD
DANBURY, CT 06810

OSBORNE STREET:

112//214// 67 OSBORNE ST
N/F HOUSING AUTHORITY
CITY OF DANBURY
MA 2 MILL RIDGE RD
DANBURY, CT 06810

112//215// 69–71 OSBORNE ST
N/F HANCOCK JILL TR & HANCOCK
JOHN L II TR LU JOHN L JR
MA 69 ½ OSBORNE ST
DANBURY, CT 06810

112//216// 73 ½ – 75 OSBORNE ST
N/F 73 ½ – 75 OSBORNE ST LLC
MA PO BOX 361
BETHEL, CT 06802

113//235// 61 OSBORNE ST
N/F PALMIOTTO STEVEN
MA PO BOX 4352
DANBURY, CT 06813

113//231// 51 OSBORNE ST
N/F CITY OF DANBURY
MA 155 DEER HILL AVE
DANBURY, CT 06810–7789

113//232// 56 OSBORNE ST
N/F ALAM ENTERPRISES LLC
MA PO BOX 816
DANBURY, CT 06813

113//233// 57 OSBORNE ST
N/F ALAM INVESTMENT COMPANY LLC
MA PO BOX 816
DANBURY, CT 06813

113//234// 59 OSBORNE ST
N/F SED JOHN
MA 8 JEAN LANE
RYE BROOK, NY 10573

113//250// 50 OSBORNE ST
N/F CYMA LLC
MA 50 OSBORNE ST
DANBURY, CT 06810

J12//54// 77 OSBORNE ST
N/F RAMOS ANTONIO & ROSA M
MA TAMANNY TRAIL
DANBURY, CT 06811

J12//55// 79 OSBORNE ST
N/F DEOLIVEIRA EDNILSON P &
DOS SANTOS CELIA PEREIRA
MA 79 OSBORNE ST
DANBURY, CT 06810

J12//56// 81 OSBORNE ST
N/F BATISTA CARMEN & URENA
JOSE A
MA 81 OSBORNE ST
DANBURY, CT 06810

J12//57// 83 OSBORNE ST
N/F DEMILIO MIRIAM G & DEREK A
MA 83 OSBORNE ST
DANBURY, CT 06810

J12//58// 85–87 OSBORNE ST
N/F V & L TLAGAN REALTY LLC
MA 85 OSBORNE ST
DANBURY, CT 06810

J12//59// 91 OSBORNE ST
N/F BUTERA LOUIS–TR
MA 29 WESTVILLE AVE
DANBURY, CT 06810

ROBERTS AVE:

J13//64// 4 ROBERTS AV
N/F STATE OF CONNECTICUT
C/O WCSU
MA 181 WHITE ST
DANBURY, CT 06810

J13//65// 2 ROBERTS AV
N/F STATE OF CONNECTICUT
C/O WCSU – LUIGI MARCONE
MA 181 WHITE ST
DANBURY, CT 06810

J13//75// ROBERTS AV
N/F STATE OF CONNECTICUT
C/O SCSU – LUIGI MARCONE
MA 181 WHITE ST
DANBURY, CT 06810

J13//76// ROBERTS AV
N/F STATE OF CONNECTICUT
MA 210 CAPITAL AVE STE 1
HARTFORD, CT 06106

WHITE STREET:

113//239// 155 WHITE ST
N/F MASTRO WILLIAM L & MARY LYNN &
NICOLE MARIE
MA 6 FARRELL RD
NEWTOWN, CT 06470

113//282// 162 WHITE ST
N/F NARCISO JOAQUIM C & MARIA A
MA 104 DEER HILL AV
DANBURY, CT 06810

113//285// 164 WHITE ST
N/F 164 WHITE STREET LLC
MA 41 CORN TASSLE RD
DANBURY, CT 06811

113//286// 166 WHITE ST
N/F 166 WHITE STREET LLC
MA 41 CORNTASSLE RD
DANBURY, CT 06811

J13//72// 168–178 WHITE ST
N/F ELLIOT DALLE A TR &
MARNELAKIS GEORGE TR
MA 143 VARIETY TREE CIRCLE
ALTAMONTE SPRINGS, FL 32714

J13//73// 168–170 WHITE ST
N/F HOFFMAN FUEL COMPANY OF
DANBURY
MA 170 WHITE ST
DANBURY, CT 06810

J13//57// 190 WHITE ST
N/F STATE OF CONNECTICUT
MA 210 CAPITOL AVE STE 1
HARTFORD, CT 06106

J13//58// 188 WHITE ST
N/F STATE OF CONNECTICUT
MA 210 CAPITOL AVE STE 1
HARTFORD, CT 06106

J13//59// 186 WHITE ST
N/F WESTERN CONNECTICUT STATE
UNIVERSITY
MA 181 WHITE ST
DANBURY, CT 06810

J13//60// 182–184 WHITE ST
N/F STATE OF CONNECTICUT
C/O WCSU – LUIGI MARCONE
MA 181 WHITE ST
DANBURY, CT 06810

J13//62// 178 WHITE ST
N/F HALAS DALE E JR
MA 3 WHEELER DR
DANBURY, CT 06811

J13//63// WHITE ST
N/F STATE OF CONNECTICUT
C/O WCSU – LUIGI MARCONE
MA 181 WHITE ST
DANBURY, CT 06810

113//281// 154 WHITE ST
N/F 154 WHITE STREET LLC
MA 85 ALBERTS HILL RD
SANDY HOOK, CT 06482

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	05/17/18	TJL	CAG	CONSTRUCTION DRAWINGS – REVISED PER TMO ATTORNEY COMMENTS
B	06/08/18	TJL	CAG	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
C	09/12/18	TJL	CAG	CONSTRUCTION DRAWINGS – REVISED ANT122 ANTENNA
D	09/26/18	TJL	CAG	CONSTRUCTION DRAWINGS – REVISED PER CLIENT'S COMMENTS
E	10/17/18	TJL	CAG	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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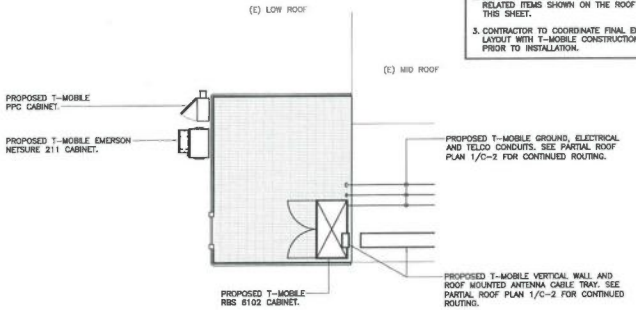
DATE: 06/19/18
SCALE: AS NOTED
JOB NO. 18087.00

ABUTTERS LIST

C-1B

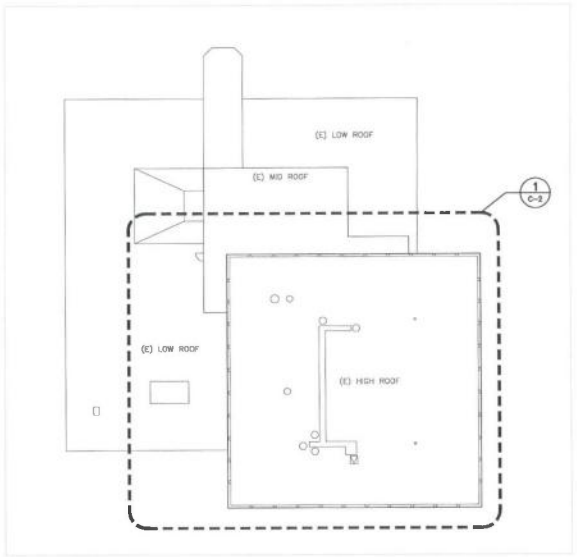
Sheet No. 4 of 9

NOTES:
1. EXPOSED T-MOBILE CONDUITS, ANTENNA CABLES AND CABLE TRAY MOUNTS SHALL BE PAINTED TO MATCH COLOR OF THE EXISTING BUILDING FINISHED SURFACE TO WHICH IT IS ATTACHED.
2. REFER TO ELECTRICAL DRAWINGS FOR UTILITY RELATED ITEMS SHOWN ON THE ROOF PLAN ON THIS SHEET.
3. CONTRACTOR TO COORDINATE FINAL EQUIPMENT LAYOUT WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO INSTALLATION.



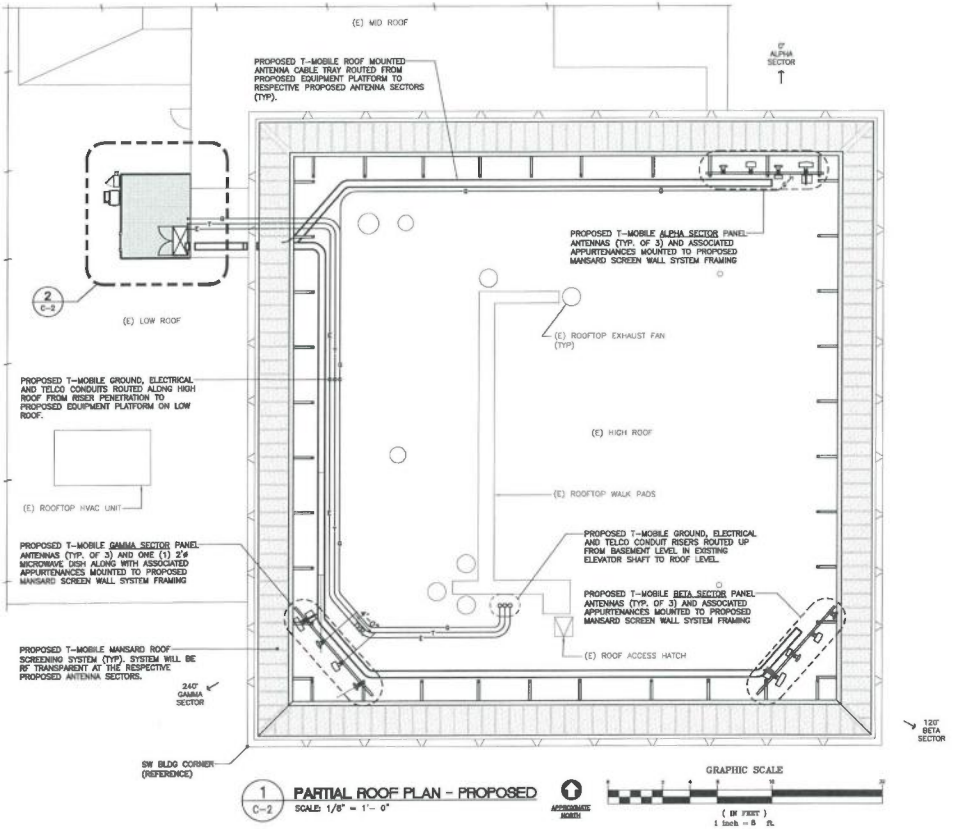
2 C-2 **PARTIAL ROOF PLAN - PROPOSED**
SCALE: 1/4" = 1'- 0"

GRAPHIC SCALE
(IN FEET)
1 inch = 4 ft.



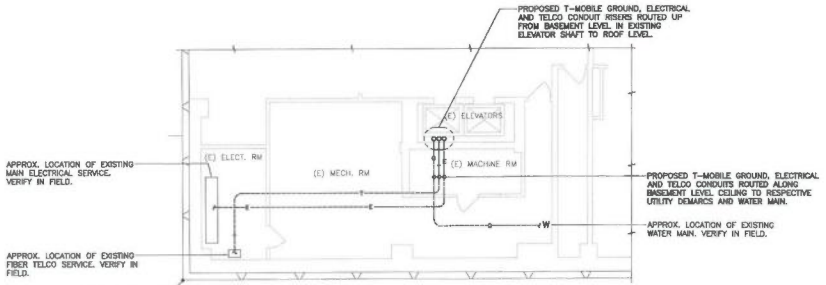
KP C-2 **KEY PLAN**
SCALE: 1" = 20'

GRAPHIC SCALE
(IN FEET)
1 inch = 80 ft.



1 C-2 **PARTIAL ROOF PLAN - PROPOSED**
SCALE 1/8" = 1'- 0"

GRAPHIC SCALE
(IN FEET)
1 inch = 8 ft.



1 C-2 **PARTIAL BASEMENT PLAN - PROPOSED**
SCALE: 1/8" = 1'- 0"

REV.	DATE	BY	DESCRIPTION
E	10/15/18	TJL	CONSTRUCTION DRAWINGS — REVISED PER TMO ATTORNEY COMMENTS
D	09/10/18	TJL	CONSTRUCTION DRAWINGS — SUBMITTED FOR CSC APPROVAL
C	09/10/18	TJL	CONSTRUCTION DRAWINGS — REVISED PER CLIENT COMMENTS
B	09/05/18	TJL	CONSTRUCTION DRAWINGS — REVISED PER CLIENT'S COMMENTS
A	08/17/18	TJL	CONSTRUCTION DRAWINGS — ISSUED FOR CLIENT REVIEW

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ROOF PLAN AND ELEVATIONS

C-2
Sheet No. 5 of 9

NOTES:
1. EXPOSED T-MOBILE CONDUITS, ANTENNA CABLES AND CABLE TRAY SHALL BE PAINTED TO MATCH COLOR OF THE EXISTING FINISHED BUILDING SURFACE TO WHICH IT IS ATTACHED.

1 / C-3 **NORTH ELEVATION - PROPOSED**
SCALE: 1/8" = 1'- 0"

GRAPHIC SCALE
(IN FEET)
1 inch = 8 ft.

REV.	DATE	DRAWN BY	CHKD BY	DESCRIPTION
A	05/17/18	TAL	CMG	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
B	05/29/18	TAL	CMG	CONSTRUCTION DRAWINGS – REVISED PER CLIENT'S COMMENTS
C	06/10/18	TAL	CMG	CONSTRUCTION DRAWINGS – REMOVED ARS152 ANTENNA.
D	06/18/18	TAL	CMG	CONSTRUCTION DRAWINGS – REVISED PER NO ATTORNEY COMMENTS
E	06/19/18	CMG	TMG	REVISED PER CLIENT COMMENTS

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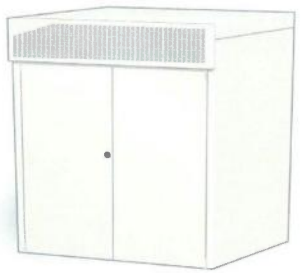
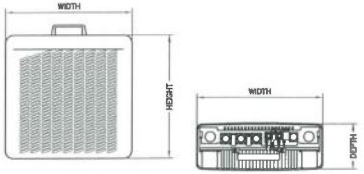
BUILDING ELEVATION

C-3
Sheet No. 6 of 9



EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: 6102	67.[illegible]"H x 51.18"W x 27.56"D	727.53-LBS

3 C-4 ERICSSON RADIO CABINET DETAIL
SCALE: NTS



FRONT VIEW BOTTOM VIEW

RRH (REMOTE RADIO HEAD)		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: RRU 4448 B71+B12	14.9"H x 13.2"W x 10.4"D	±74 LBS
MAKE: ERICSSON MODEL: RRU 4415 B25	16.5"H x 13.4"W x 5.9"D	±46 LBS
MAKE: ERICSSON MODEL: RRU 2217 B66A	13.8"H x 11.7"W x 8.4"D	±28.2 LBS

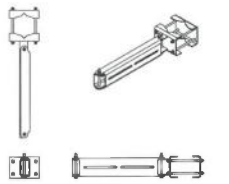
NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.
2. REFER TO RRU MANUFACTURER FOR REQUIRED INSTALLATION CLEARANCE REQUIREMENTS.

2 C-4 REMOTE RADIO HEAD (RRH) DETAIL (TYP)
SCALE: NTS

ALPHA/BETA/GAMMA/DELTA ANTENNA			
EQUIPMENT	DIMENSIONS	WEIGHT	POSITION
MAKE: ERICSSON MODEL: AIR3246 B66	58.1"H x 15.7"W x 9.4"D	180-LBS	2
MAKE: RFS MODEL: APX16DWV-16DWVS-E-A20	55.8"H x 13.0"W x 3.15"D	40.7-LBS	3
MAKE: RFS MODEL: APXVAA24_43-U-NA20	95.9"H x 24"W x 8.7"D	153-LBS	4

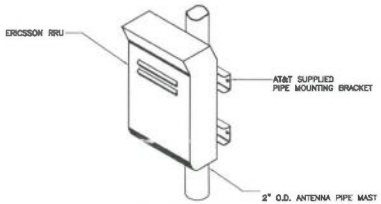
NOTES:
1. INSTALL ANTENNA TO PIPE MAST USING MANUFACTURERS SUPPLIED BRACKETS AND MOUNTING HARDWARE
2. SET MECHANICAL DOWNTILT TO VALUE SPECIFIED IN LATEST RFDS.
3. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

1 C-4 PROPOSED ANTENNAS SCHEDULE
SCALE: NTS



RRU DUAL SWIVEL MOUNT		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: SITE PRO 1 PART NO.: RRUDSM	27.75"L x 8.5"W x 4.7"D	39.4 LBS.

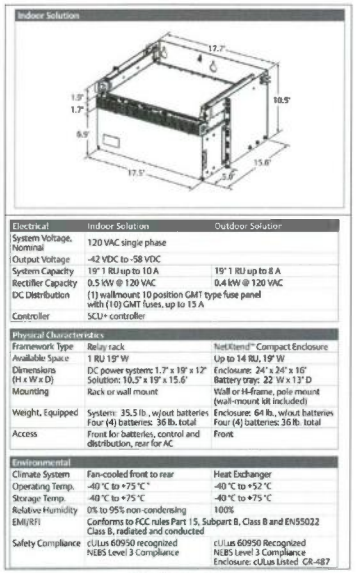
4 C-4 RRH DUAL SWIVEL MOUNT DETAIL
NOT TO SCALE



ISOMETRIC VIEW

NOTES:
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. CONTRACTOR SHALL INSTALL RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

5 C-4 TYPICAL RRU MOUNTING DETAIL
SCALE: NTS



Electrical	Indoor Solution	Outdoor Solution
System Voltage, Nominal	120 VAC single phase	
Output Voltage	-42 VDC to -58 VDC	
System Capacity	19" 1 RU up to 10 A	19" 1 RU up to 8 A
Rectifier Capacity	0.5 kW @ 120 VAC	0.4 kW @ 120 VAC
DC Distribution	(1) wallmount 10 position GMT type fuse panel with (10) GMT fuses, up to 15 A	
Controller	SCU+ controller	
Physical Characteristics		
Framework Type	Relay rack	NetXtend™ Compact Enclosure
Available Space	1 RU 19" W	Up to 14 RU, 19" W
Dimensions (H x W x D)	DC power systems: 1.7" x 19" x 12" Solution: 10.5" x 19" x 15.6"	Enclosure: 24" x 24" x 16" Battery tray: 22 W x 13" D
Mounting	Rack or wall mount	Wall or H-frame, pole mount (wall-mount kit included)
Weight, Equipped	System: 35.5 lb., w/out batteries Four (4) batteries: 36 lb. total	Enclosure: 64 lb., w/out batteries Four (4) batteries: 36 lb. total
Access	Front for batteries, control and distribution, rear for AC	Front
Environmental		
Climate System	Fan-cooled front to rear	Heat Exchanger
Operating Temp.	-40 °C to +75 °C *	-40 °C to +52 °C
Storage Temp.	-40 °C to +75 °C	-40 °C to +75 °C
Relative Humidity	0% to 95% non-condensing	100%
EMI/RFI	Conforms to FCC rules Part 15, Subpart B, Class B and EN55022 Class B, radiated and conducted	
Safety Compliance	cULus 60950 recognized NEBS Level 3 Compliance	cULus 60950 Recognized NEBS Level 3 Compliance Enclosure: cULus Listed CR-487

P/N: BB2366008K010

6 C-4 EMERSON NETSURE 211 POWER SYSTEM
SCALE: NTS

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
E	10/15/16	DAB	CAD	CONSTRUCTION DRAWINGS – REVISED PER TMO ATTORNEY COMMENTS
D	08/19/16	DAB	CAD	CONSTRUCTION DRAWINGS – SUBMITTED FOR CSC APPROVAL
C	08/12/16	DAB	CAD	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
B	08/02/16	DAB	CAD	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
A	08/17/16	DMD	CAD	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

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SCALE: AS NOTED
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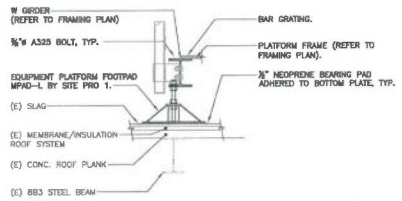
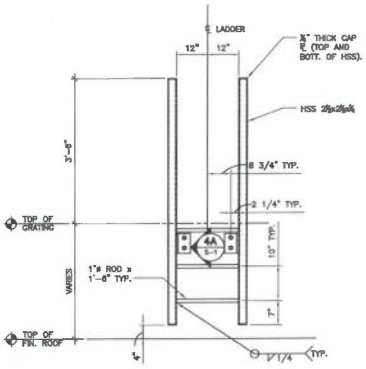
EQUIPMENT & ANTENNA SPECIFICATIONS AND DETAILS

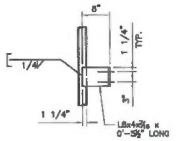
C-4
Sheet No. 7 of 9



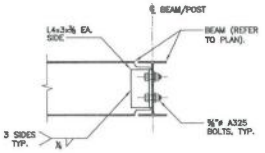
3 / S-1 **TYPICAL PLATFORM SUPPORT DETAIL**
SCALE: 3/4" = 1'-0"



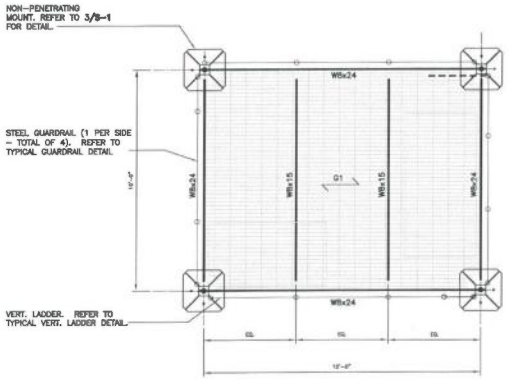
4 / S-1 **TYPICAL VERT LADDER DETAIL**
SCALE: 3/4" = 1'-0"



4A / S-1 **VERT LADDER CONNECTION**
SCALE: 3/4" = 1'-0"



5 / S-1 **TYPICAL GIRDER-TO-BEAM CONNECTION DETAIL**
N.T.S.



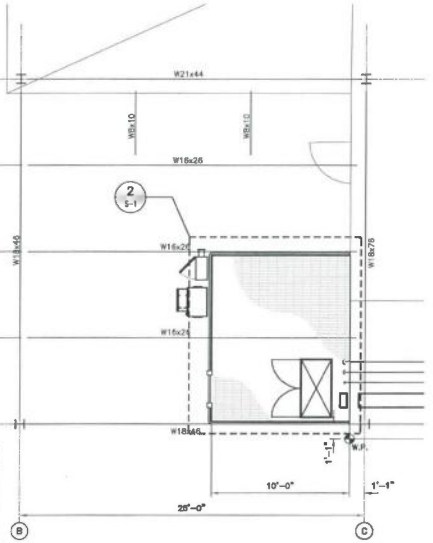
2 / S-1 **EQUIPMENT PLATFORM FRAMING PLAN**
SCALE: 1/2" = 1'-0"

LEGEND

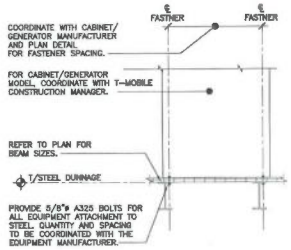
G1	INDICATES SPAN DIRECTION OF GALVANIZED BAR GRATING - Mc. NICHOLS GW-100A, 1 1/4" x 1/8" BAR GRATING WITH STANDARD SADDLE CLIP FASTENERS. REFER TO FRAMING PLAN FOR DECK SPAN DIRECTION.
W.P.	W.P. DENOTES WORKING POINT.

PLAN NOTES

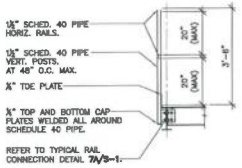
1. VERIFY ALL DIMENSIONS, ELEVATIONS, EXISTING FRAMING MEMBER SIZES AND GENERAL CONDITIONS PRIOR TO COMMENCEMENT OF WORK. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND EXISTING CONDITIONS.
2. EXISTING ROOF CONSTRUCTION: METAL ROOF DECK WITH STEEL FRAMING.
3. TYPICAL EXISTING ROOF CONSTRUCTION MUST BE VERIFIED PRIOR TO FABRICATION OF ANY MATERIAL. GENERAL CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF RECORD IF FIELD CONDITIONS ARE NOT AS NOTED WITHIN THE CONTRACT DOCUMENTS.
4. DIMENSIONS APPLY TO THE CENTER OF MEMBERS UNLESS NOTED OTHERWISE.
5. REFER TO CIVIL DRAWINGS FOR EQUIPMENT LAYOUT AND CONFIGURATIONS.



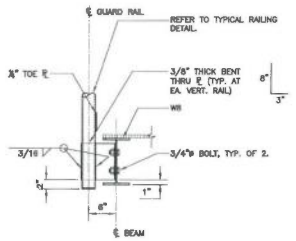
1 / S-1 **LOW ROOF FRAMING PLAN**
SCALE: 1/8"=1'-0"



6 / S-1 **TYPICAL EQUIP CONNECTION DETAIL**
N.T.S.



7 / S-1 **TYPICAL GUARDRAIL DETAIL**
N.T.S.



7A / S-1 **TYPICAL GUARDRAIL CONNECTION**
N.T.S.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	06/17/18	DMD	DAD	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
B	09/05/18	DMD	DAD	CONSTRUCTION DRAWINGS – REVISED PER CLIENT'S COMMENTS
C	09/10/18	DMD	DAD	CONSTRUCTION DRAWINGS – SUBMITTED FOR CSC APPROVAL
D	09/19/18	DMD	DAD	CONSTRUCTION DRAWINGS – REVISED PER TMO ATTORNEY COMMENTS
E	10/10/18	DMD	DAD	CONSTRUCTION DRAWINGS – REVISED PER TMO ATTORNEY COMMENTS

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SCALE: AS NOTED
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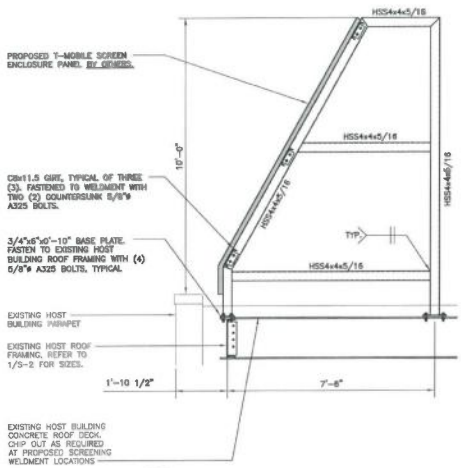
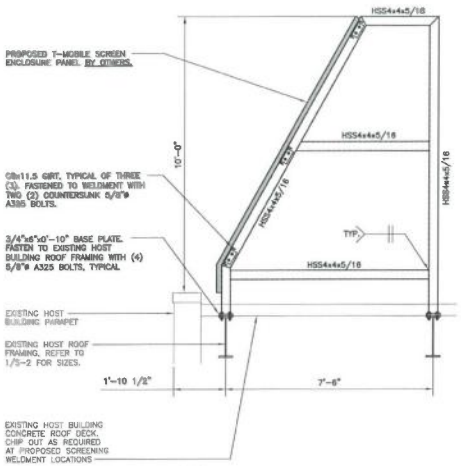
EQUIPMENT PLATFORM PLANS AND DETAILS

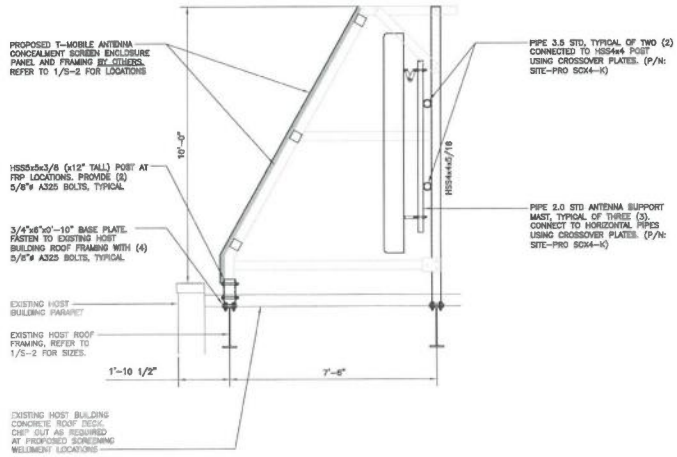
S-1
Sheet No. 5 of 5



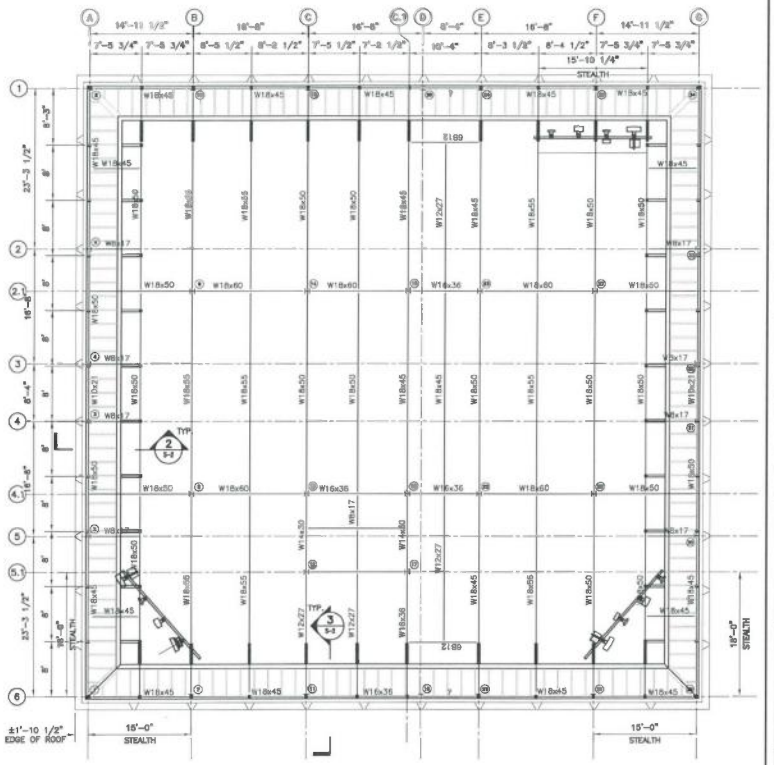
3 S-2 **SCREEN ENCLOSURE DETAIL**
SCALE: 1/2"=1'-0"



2 S-2 **SCREEN ENCLOSURE DETAIL**
SCALE: 1/2"=1'-0"



4 S-2 **SCREEN ENCLOSURE DETAIL**
SCALE: 1/2"=1'-0"



1 S-2 **HIGH ROOF FRAMING PLAN**
SCALE: 1/8"=1'-0"

PLAN NOTES

1. VERIFY ALL DIMENSIONS, ELEVATIONS, EXISTING FRAMING MEMBER SIZES AND GENERAL CONDITIONS PRIOR TO COMMENCEMENT OF WORK. NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND EXISTING CONDITIONS.
2. EXISTING ROOF CONSTRUCTION: METAL ROOF DECK WITH STEEL FRAMING.
3. TYPICAL EXISTING ROOF CONSTRUCTION MUST BE VERIFIED PRIOR TO FABRICATION OF ANY MATERIAL. GENERAL CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF RECORD IF FIELD CONDITIONS ARE NOT AS NOTED WITHIN THE CONTRACT DOCUMENTS.
4. DIMENSIONS APPLY TO THE CENTER OF MEMBERS UNLESS NOTED OTHERWISE.
5. REFER TO CIVIL DRAWINGS FOR EQUIPMENT LAYOUT AND CONFIGURATIONS.

NO.	DATE	BY	DESCRIPTION
F	10/10/18	CAG	T.S. CONSTRUCTION DRAWINGS – REVISED PER TMO ATTORNEY COMMENTS
E	09/12/18	CAG	T.S. CONSTRUCTION DRAWINGS – REVISED PER TMO ATTORNEY COMMENTS
D	09/10/18	CAG	T.S. CONSTRUCTION DRAWINGS – REMOVED ANTICO ANTENNA
C	09/06/18	CAG	T.S. CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
B	09/05/18	CAG	T.S. CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS
A	08/17/18	DMC	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

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

T-MOBILE
WIRELESS COMMUNICATIONS FACILITY
CTFF039A
181 WHITE STREET
DANBURY, CT 06810

DATE: 08/19/18
SCALE: AS NOTED
JOB NO.: 18067.00

MANSARD SCREENING PLANS AND DETAILS

S-2
Sheet No. 2 of 3

ATTACHMENT B

Antenna Specifications

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

FEATURES / BENEFITS

This antenna provides a 8 Port multi-band flexible platform for advanced use for flexible use in deployment scenarios for encompassing 600MHz, 700MHz, AWS & PCS applications.

- 24 Inch Width For Easier Zoning
- Field Replaceable (Integrated) AISG RET platform for reduced environmental exposure and long lasting quality
- Superior elevation pattern performance across the entire electrical down tilt range
- Includes three AISG RET motors - Includes 0.5m AISG jumper for optional diasy chain of two high band RET motors for one single AISG point of high band tilt control.
- Low band arrays driven by a single RET motor

Technical Features

LOW BAND LEFT ARRAY (617-746 MHZ) [R1]

Frequency Band	MHz	617-698	698-746
Gain	dBi	15.1	15.5
Horizontal Beamwidth @3dB	Deg	65	62
Vertical Beamwidth @3dB	Deg	11.4	10.4
Electrical Downtilt Range	Deg	0-12	0-12
Upper Side Lobe Suppression 0 to +20	dB	19	20
Front-to-Back, at +/-30°, Copolar	dB	25	24
Cross Polar Discrimination (XPD) @ Boresight	dB	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3
3rd Order PIM 2 x 43dBm	dBc		-153
VSWR	-	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25
Maximum Effective Power per Port	Watt	250	250

LOW BAND RIGHT ARRAY (617-746 MHZ) [R2]

Frequency Band	MHz	617-698	698-746
Gain	dBi	14.8	15.1
Horizontal Beamwidth @3dB	Deg	65	62
Vertical Beamwidth @3dB	Deg	11.4	10.3
Electrical Downtilt Range	Deg	0-12	0-12
Upper Side Lobe Suppression 0 to +20	dB	19	20
Front-to-Back, at +/-30°, Copolar	dB	25	23
Cross Polar Discrimination (XPD) @ Boresight	dB	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3
3rd Order PIM 2 x 43dBm	dBc		-153
VSWR	-	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25
Maximum Effective Power per Port	Watt	250	250

All information contained in the present datasheet is subject to confirmation at time of ordering

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

HIGH BAND LEFT ARRAY (1695-2200 MHZ) [B1]

Frequency Band	MHz	1695-1880	1850-1990	1920-2200
Gain	dBi	17.3	17.8	18.5
Horizontal Beamwidth @3dB	Deg	66	59	59
Vertical Beamwidth @3dB	Deg	5.3	4.7	4.3
Electrical Downtilt Range	Deg	2-12	2-12	2-12
Upper Side Lobe Suppression 0 to +20	dB	15	15	15
Front-to-Back, at +/-30°, Copolar	dB	25	25	25
Cross Polar Discrimination (XPD) @ Boresight	dB	19	17	16
Cross Polar Discrimination (XPD) @ +/-60	dB	4	6	4
3rd Order PIM 2 x 43dBm	dBc	-153	-153	-153
VSWR	-	1.5:1	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25	25
Maximum Effective Power per Port	Watt	250	250	250

HIGH BAND RIGHT ARRAY (1695-2200 MHZ) [B2]

Frequency Band	MHz	1695-1880	1850-1990	1920-2200
Gain	dBi	17.1	17.8	18.5
Horizontal Beamwidth @3dB	Deg	66	59	59
Vertical Beamwidth @3dB	Deg	5.2	4.7	4.3
Electrical Downtilt Range	Deg	2-12	2-12	2-12
Upper Side Lobe Suppression 0 to +20	dB	15	15	15
Front-to-Back, at +/-30°, Copolar	dB	25	24	25
Cross Polar Discrimination (XPD) @ Boresight	dB	20	17	16
Cross Polar Discrimination (XPD) @ +/-60	dB	4	6	5
3rd Order PIM 2 x 43dBm	dBc	-153	-153	-153
VSWR	-	1.5:1	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25	25
Maximum Effective Power per Port	Watt	250	250	250

All information contained in the present datasheet is subject to confirmation at time of ordering

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

ELECTRICAL SPECIFICATIONS

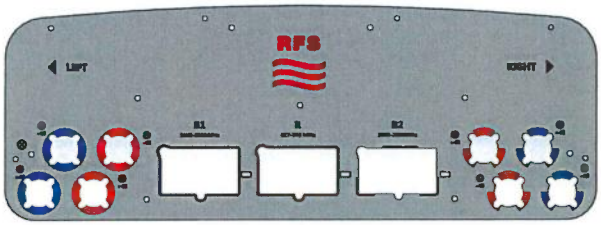
Impedance	Ohm	50.0
Polarization	Deg	±45°

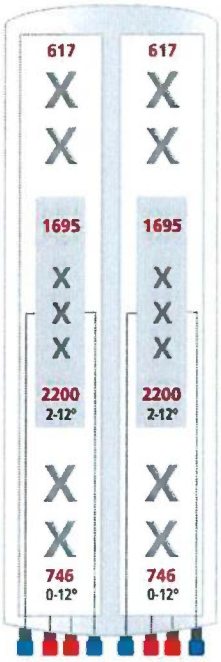
MECHANICAL SPECIFICATIONS

Dimensions - H x W x D	mm (in)	2436 x 609 x 222 (95.9 x 24 x 8.7)
Weight (Antenna Only)	kg (lb)	58 (128)
Weight (Mounting Hardware only)	kg (lb)	11.5 (25.3)
Shipping Weight	kg (lb)	80 (176)
Connector type		8 x 4.3-10 female at bottom + 6 AISG connectors (3 male, 3 female)
Adjustment mechanism		Integrated RET solution AISG compliant (Field Replaceable) + Manual Override + External Tilt Indicator
Mounting Hardware Material		Galvanized steel
Radome Material / Color		Fiber Glass / Light Grey RAL7035

TESTING AND ENVIRONMENTAL

Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Lightning protection		IEC 61000-4-5
Survival/Rated Wind Velocity	km/h	241 (150)
Environmental		ETSI 300-019-2-4 Class 4.1E





ORDERING INFORMATION

Order No.	Configuration	Mounting Hardware	Mounting pipe Diameter	Shipping Weight
APXVAARR24_43-U-NA20	Field Replace RET included (3)	APM40-5E Beam tilt kit (included)	60-120mm	80 Kg

All information contained in the present datasheet is subject to confirmation at time of ordering

RADIO FREQUENCY SYSTEMS
The Clear Choice®

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

External Document Links

APM40_Series_Installation_Instructions
Manual_Overdrive_Instructions
Global RFS Website

Notes

All electrical parameters are compliant with BASTA NGMN 9.6 requirements.

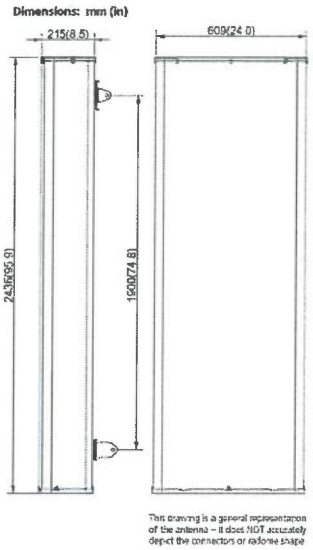
Available Configurations
APXVAARR24_43-U-NA20 -- External ACU is included -- shipping weight 80kg.

For additional mounting information please click "External Document Links".

This data is provisional and subject to changes.

External Link Reference

Global RFS Website	http://www.rfsworld.com



All information contained in the present datasheet is subject to confirmation at time of ordering

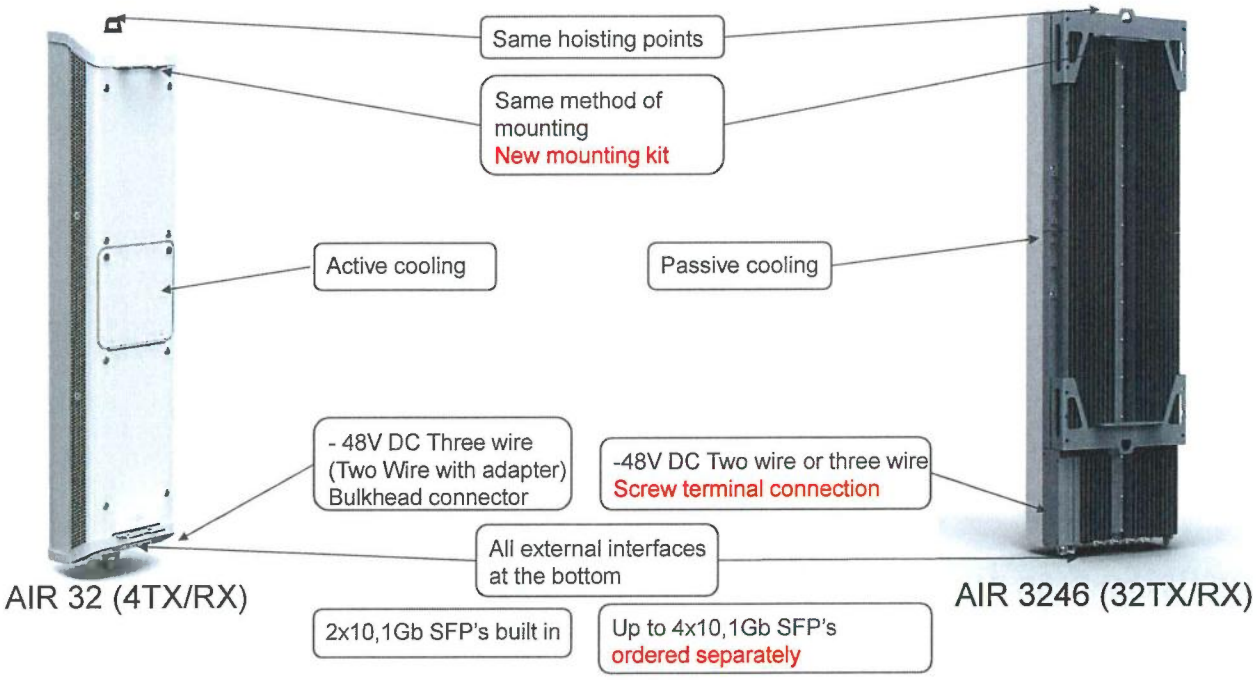
AIR 3246 update 12/18 - 17

Kenth Höglund – AIR3246 product manager
Evangelos Paravalos – PjM RAN SW development Ottawa R&D

Agenda

- AIR3246 site considerations
- AIR3246 specifications
- FD-MIMO dual band

Installation Comparison



POWER SYSTEM ON RAIL

POWER 6302 & BATTERY 6312/13

Power: AC input 172-275VAC, 50-60 Hz, 2.3 kW DC -48V output power

Battery: Capacity dimensioned for typical 10 and 50 minutes back-up time for 2kW user load

Lithium-Ion: Long battery lifetime

All:

O&M monitoring integrated

Ericsson Rail mounting

Convection cooled

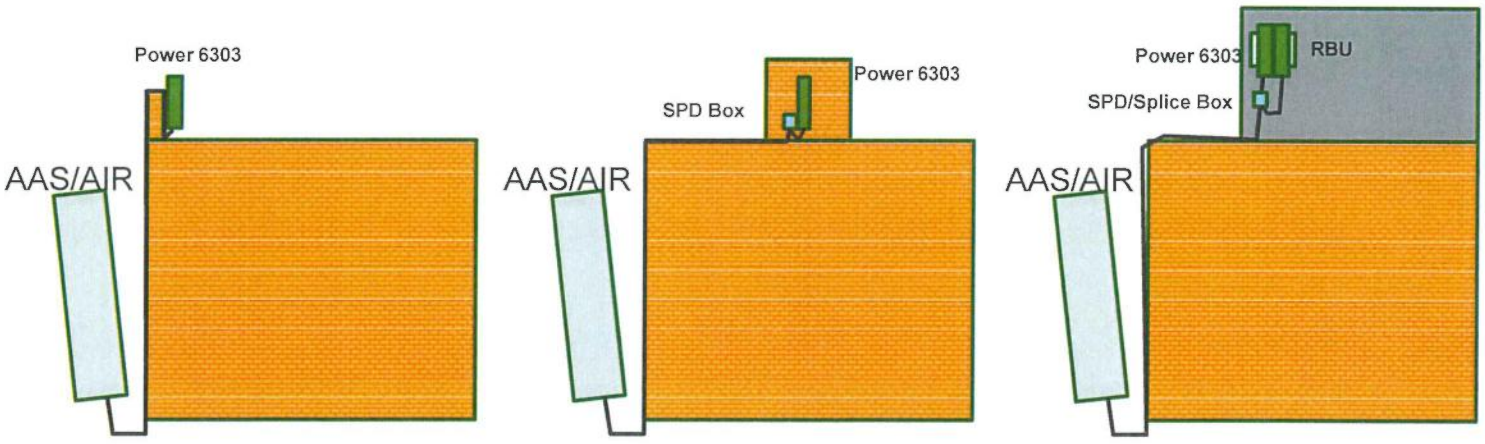
IP 65

Battery on Rail

POWER 6303
- 2KW FOR ERS RADIOS

- Rationale
  - Enable AC/400 VDC feed to new Air radio units that do not have internal AC/DC conversion
- Product overview: 2 kW output power
- One output with shielded 2x10mm2 cable
- Power input "connector", hatch and screw terminal

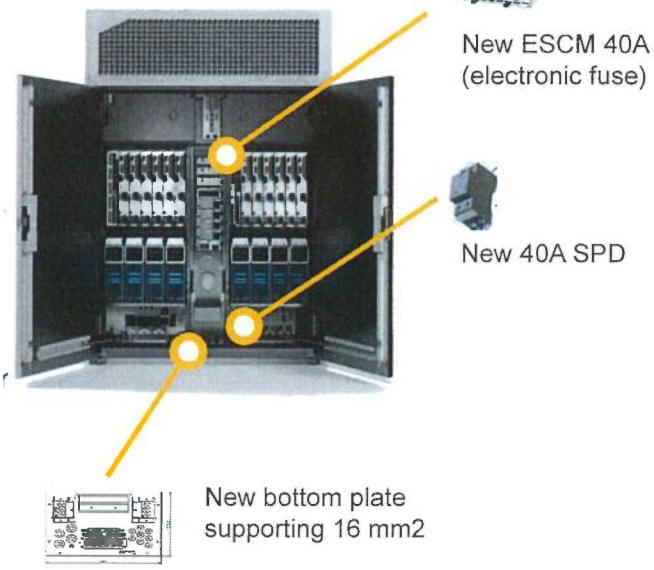
POWER 6303
- INSTALLATION EXAMPLES WALL/ROOF



6K POWER EXPANSION FOR 5G RADIOS

- Enable larger cables, new cable inlet components
- New components for higher current, SPD and distribution unit
- Allow a larger voltage drop over the distribution cable (reduce cost for installation material)

Example RBS 6102



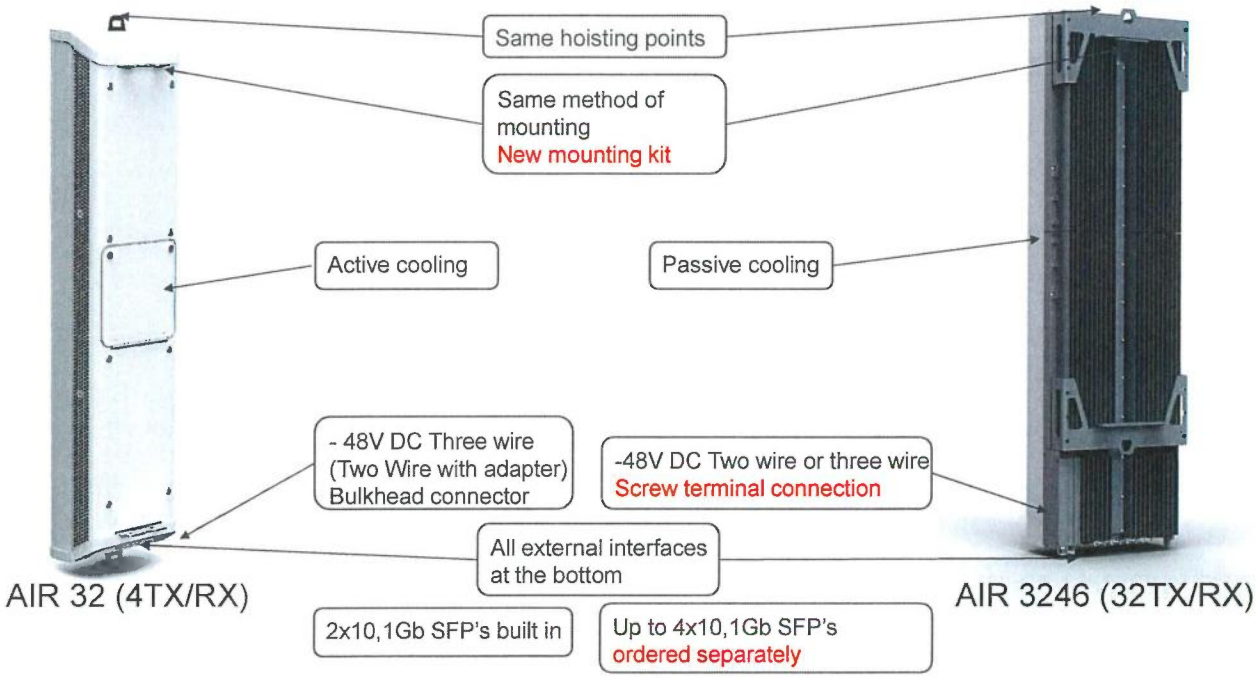
Agenda

› AIR3246 site considerations

› AIR3246 specifications

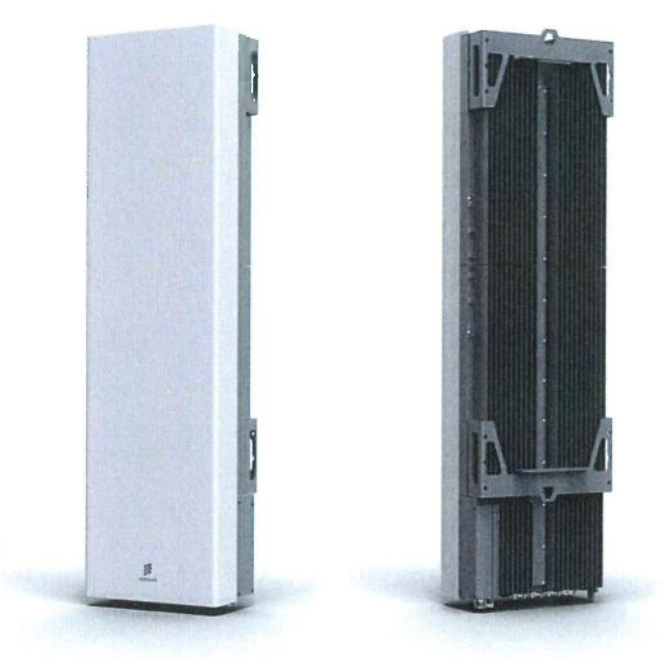
› FD-MIMO dual band

Installation Comparison



AIR 3246 BAND 66 (1/2)

- Radio
  - 32 TX/RX
  - 90 MHz IBW
  - 60 MHz LTE CBW
  - Up to 3 carriers LTE
  - 160 W total RF conducted power
- Baseband interface 4 x 10.1 Gbps CPRI
- Mechanical properties
  - Size (H x W x D):1475x400x238 mm
  - Weight : 81 Kg (estimated)
- Power
  - -48v DC, 3 wire or 2 wire
  - Max Power consumption: < 1350 w (estimated)
  - 120/230 VAC via supervised external PSU

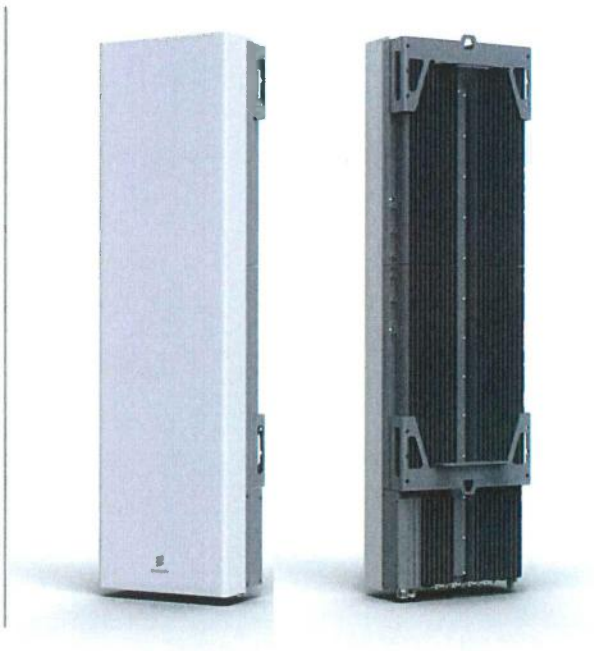


AIR 3246 BAND 66 (2/2)

- Antenna and beamforming properties
  - 96 X-polarized elements split by..
  - 4 rows and 4 columns of subarrays
  - Subarrays 3x1 X-pol element.
  - Beamforming capabilities. SW defined by baseband functionality. For legacy terminals with capability of reporting 4 CSI or less, static cell specific beamforming selectable from a range of predefined patterns. For terminals capable of reporting 8 or more, CSI precoder based user specific beamforming according to 3GPP up to Release 14.
  - Broadcast beam, typical values
    - Horiz. HPBW 65 degrees
    - Vert. HPBW 6 degrees
    - Gain 18 dBi
    - Downtilt 2-12 degrees
  - Traffic beams, typical values
    - Horiz. HPBW 24 degrees
    - Vert. HPBW 6 degrees
    - Gain 23 dBi
    - Horizontal pointing range +-53 degrees
    - Vertical pointing range: Up 5 deg, down 19 degrees

AIR 3246 BAND 25

- 32 TX/RX
- 160 W total RF output power
- EIRP CRS Beam 70dBm
- 65 MHz IBW
- 60 MHz LTE CBW
- 4 x 10.1 Gbps CPRI
- Size (H x W x D):1475x400x238 mm
- Weight : 81 Kg (estimated)
- -48v DC, 3 wire or 2 wire
- Max Power consumption: < 1440 w
- 120/230 VAC via external PSU
- Availability Q4-2018



Supported Beams (Preliminary)

- TM4 and common channels:
  - MACRO (default = DUALPOLARIZED65 which is EB)
  - MACRO2 (default = SECTORIZED1 which is MB6)
  - MACRO_NARROW (default = NARROW which is narrow beam)
  - MACRO_WIDE (default = BROAD which is broad beam)

- TM9 and CSI-RS (not configurable)
  - Always default to broad beam

Agenda

› AIR3246 site considerations

› AIR3246 specifications

› FD-MIMO dual band

AIR 3246 DUAL BAND

- 32 TX/RX per band
- Frequency bands: B66/B25
- 320 W total RF output power
- 90/65 MHz IBW
- 60 MHz LTE CBW / Band
- Interface: 4 x 25Gb CPRI
- Size (H x W x D):1475x400x*300* mm (estimated)
- Weight : TBD Kg
- -48v DC, 3 wire or 2 wire
- Optional 120/240 VAC

- Target availability late Q4-2019

AIR 88XX DUAL BAND

- 8 TX/RX per band
- Frequency bands: B66/B25
- 320 W total RF output power
- 90/65 MHz IBW
- 60 MHz LTE CBW / Band
- Interface: 4 x 10,1Gb CPRI
- Size (H x W x D):1475x400x238 mm (estimated)
- Weight : TBD Kg
- -48v DC, 3 wire or 2 wire
- 120/230 VAC via external PSU

- Target availability Q3-2019

ERICSSON

Product Data Sheet **APX16DWV-16DWVS-E-A20**

Optimizer® Side-by-Side Dual Polarized Antenna, 1710-2200, 65deg, 18dBi, 1.4m, VET, 0-10deg RET

Product Description

A combination of two X-Polarized antennas in a single radome, this pair of variable tilt antennas provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features a wide downtilt range. This antenna is optimized for performance across the entire frequency band (1710-2200 MHz). The antenna comes pre-connected with two antenna control units (ACU).

Features/Benefits

- **Variable electrical downtilt - provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.**
- **High Suppression of all Upper Sidelobes (Typically <-20dB).**
- **Gain tracking – difference between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz) <1dB.**
- **Two X-Polarised panels in a single radome.**
- **Azimuth horizontal beamwidth difference <4deg between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz).**
- **Low profile for low visual impact.**
- **Dual polarization; Broadband design.**
- **Includes (2) AISG 2.0 Compatible ACU-A20-N or ACU-A20-S antenna control units.**

Technical Specifications

Electrical Specifications

Frequency Range, MHz	1710-2200
Horizontal Beamwidth, deg	65
Vertical Beamwidth, deg	5.9 to 7.7
Electrical Downtilt Range, deg	0-10
Gain, dBi (dBd)	18 (15.9)
1st Upper Sidelobe Suppression, dB	> 18 (typically > 20)
Upper Sidelobe Suppression, dB	> 18 all (typically > 20)
Front-To-Back Ratio, dB	>26 (typically 28)
Polarization	Dual pol +/-45°
VSWR	< 1.5:1
Isolation between Ports, dB	> 30
3rd Order IMP @ 2 x 43 dBm, dBc	> 150 (155 Typical)
Impedance, Ohms	50
Maximum Power Input, W	300
Lightning Protection	Direct Ground
Connector Type/Location	(4) 7-16 Long Neck Female/Bottom

Mechanical Specifications

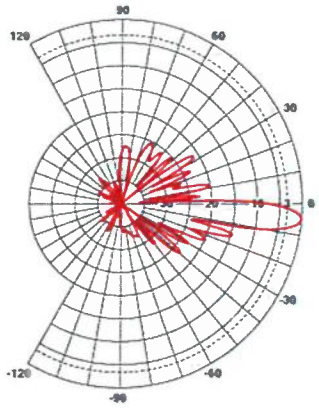
Dimensions - HxWxD, mm (in)	1420 x 331 x 80 (55.9 x 13 x 3.15)
Weight w/o Mtg Hardware, kg (lb)	18.5 (40.7)
Survival/Rated Wind Speed, km/h (mph)	200 (125) / 160 (100)
Applied Wind Load Standard	DIN 1055-4
Wind Load @ Rated Wind, Front, N (lbf)	756 (170)
Wind Load @ Rated Wind, Max., N (lbf)	756 (170)
Wind Load @ Rated Wind, Side, N (lbf)	231 (52)
Wind Load @ Rated Wind, Rear, N (lbf)	408 (92)
Operation temperature, °C (°F)	-40 to +60 (-40 to +140)
Radome Material/Color	Fiberglass/Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum
Radiating Element Material	Brass
Reflector Material	Aluminum
Shipping Weight, kg (lb)	24.5 (53.9)
Packing Dimensions, HxWxD, mm (in)	1520 x 408 x 198 (59.8 x 16 x 7.8)

Ordering Information

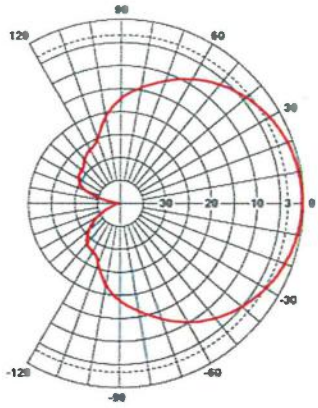
Mounting Hardware	APM40-2 + APM40-E2
Mounting Pipe Diameter, mm (in)	60-120 (2.36-4.72)
Mounting Hardware Weight, kg (lb)	3.5 (7.7)

All information contained in the present datasheet is subject to confirmation at time of ordering

Optimizer® Side-by-Side Dual Polarized Antenna, 1710-2200, 65deg, 18dBi, 1.4m, VET, 0-10deg RET



Vertical Pattern



Horizontal Pattern

Notes

For additional mounting information please click "External Document Link" below.

External Document Links

APM40 Series Datasheet: APM40 Series Datasheet
APM40 Series Installation Instructions: APM40 Series Installation Instructions

All information contained in the present datasheet is subject to confirmation at time of ordering

ATTACHMENT C

Structural Analysis

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

New Site Development (NSD)

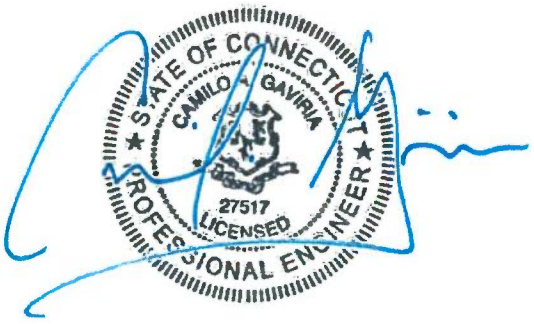
Proposed T-Mobile
Telecommunications Facility

Site Ref: CTFF039A

181 White Street
Danbury, CT

CENTEK Project No. 18067.00

Date: September 8, 2018



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

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

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis for the telecommunications facility as proposed by T-Mobile on the existing roof of the host building located in Danbury, Connecticut.

The host structure is a ±61-ft tall, four-story building constructed circa 1966 and used as an educational institution. The host building geometry, structure member sizes and foundation system information were obtained from existing drawings as prepared by Philip N. and William Webb Sunderland, dated May 5th, 1966.

Antenna and appurtenance information were provided to this office by T-Mobile RF Data sheet dated April 24th, 2018. Additional information was obtained by CENTEK personnel during a site visit conducted on March 27th, 2018.

Antenna and Appurtenance Summary

The proposed loads considered in this analysis consist of the following:

- **T-MOBILE (PROPOSED):**
  Antennas: Three (3) Ericsson AIR3246 B66 panel antennas, three (3) RFS APX16DWV-16DWV-S-E-A20 panel antennas, three (3) RFS APXVAARR24_43-U-NA20 panel antennas, three (3) Ericsson 4415 B25 remote radio units, three (3) Ericsson 2217 B66A remote radio units, and three (3) Ericsson 4449 B7/B12 remote radio mounted on antenna sector frames behind antenna concealment enclosure with a RAD center elevation of ±65'-6" above grade level.

  Coax Cables: Three (3) Ericsson 6x12 Hybrid Cable System (HCS) routed from the equipment platform on the lower roof and inside non-penetrating cable tray to each antenna sector on the upper roof.

Primary Assumptions Used in the Analysis

- The host building's theoretical capacity does not include any assessment of the condition of the structure.
- The host building structure transfers the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- The host building structure was properly installed and maintained.
- The host building is in plumb condition.
- Superimposed loading, existing and proposed, experienced by the host structure as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original building design documents.
- All members exposed to the elements were "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All existing member protective coatings are in good condition.
- All host building structure members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables to be installed as indicated in this report and construction drawings prepared by this office.

Analysis

The proposed antenna concealment enclosure was analyzed using a comprehensive finite element computer program entitled RISA 3D. The program analyzes the proposed concealment enclosure, considering the worst case loading condition. The enclosure is considered as loaded by concentric forces along the main structural supports, and the model assumes that the enclosure members are subjected to bending, axial, and shear forces. In addition to the enclosure the existing host building framing members were analyzed using a structural analysis software entitled TEDDS.

The proposed enclosure and existing framing members were analyzed using Allowable Stress Design (ASD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC[1].

Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice on the tower structure and its components.

Ultimate Design Wind Speed:	Burlington; V_{ULT} = 120 mph	*[Appendix N of the 2016 CT Building Code Supplement]*
Load Cases (ASD):	Load Case 1; Dead Load	*[Section 1605.3.1 of 2012 IBC]*
	Load Case 2: Dead Load + Snow Load	*[Section 1605.3.1 of 2012 IBC]*
	Load Case 3: Dead Load + (0.6) Wind Load	*[Section 1605.3.1 of 2012 IBC]*
Snow Load (Flat roof):	30 psf (Minimum)	*[Section 1608.1.1 of 2016 CT Building Code Supplement]*
Snow Load (Drift Conditions):	60.534 psf (Max surcharge) Width of Drift =13.527-ft	*[Section 1608.1.1 of 2016 CT Building Code Supplement]*

[1] The 2012 International Building Code (IBC) as amended by the 2016 Connecticut State Building Code.

Design/Analysis Capacities

Host structure member stresses and proposed concealment enclosure stresses were calculated utilizing the structural analysis software RISA 3D.

- Existing Host Structure Members Stresses:

Section	Bending Ratio (percentage of capacity)	Shear Ratio (percentage of capacity)	Result
(E) W16x26 (Low Roof)	82.8%	20.5%	**PASS**
(E) W18x50 (High Roof)	74.6%	19.7%	**PASS**
(E) W18x45 (High Roof)	38.7%	16.9%	**PASS**

(1) Refer to section 3.0 for additional information.

- Proposed Concealment enclosure member stresses:

Tower Component	Stress Ratio (percentage of capacity)	Result
HSS5x5x3/8 (Stub Posts)	3.9%	**PASS**
HSS4x4x5/16 (Weldment)	7.5%	**PASS**
Pipe 3.5 STD (Horiz.)	15.8%	**PASS**
Pipe 2.0 STD (Vert.)	57.2%	**PASS**

Conclusion

This analysis shows that the subject structure **is adequate** to support the proposed superimposed loading due to the proposed telecommunications facility.

The analysis is based, in part, on the information provided to this office by T-Mobile and information provided by the host building management. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Camilo A. Gaviria, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of the governing state building code and all applicable referenced standards.
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Roof Dead Load Summaries
(include: roofing, ballast, shingles, decking, sheathing, ceilings, joists/beam/girders, trusses, rafters, bridging, future reroofing, misc./mechanical/electrical, etc.)

Roof Type 1: ***Lower Roof Construction***

4.75 Thick total concrete on 1.3x22ga form deck	52.0	psf
Ceiling system	3.0	psf
Misc Mech/Electrical	5.0	psf
Roofing system	8.0	psf
		psf
		psf
		psf
Total =	**68.0**	**psf**

Roof Type 2: ***High Roof Construction***

5" Total Thickness concrete slab on 24 ga form deck	55.0	psf
Ceiling System	3.0	psf
Misc Mech/Elec	5.0	psf
Roofing System	8.0	psf
		psf
		psf
		psf
Total =	**71.0**	**psf**

Roof Type 2 :

		psf
		psf
		psf
		psf
		psf
		psf
Total =	**0.0**	**psf**

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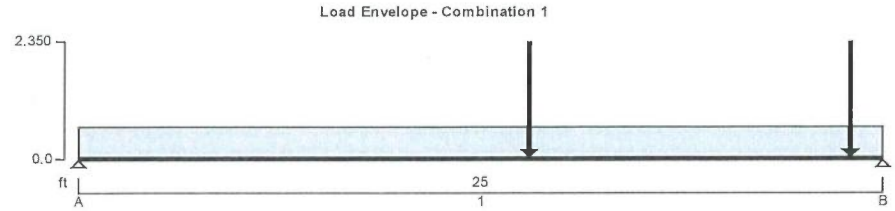
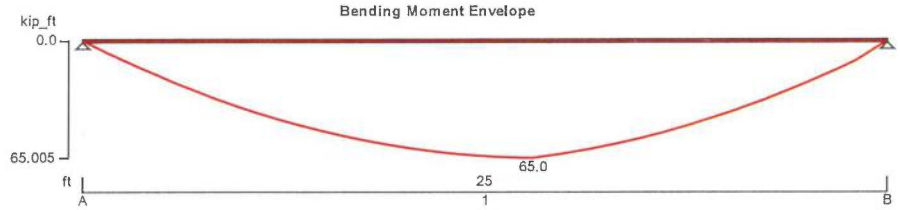
	Section Existing W16x26 (RTP Loading)				Sheet no./rev. 1	
	Calc. by CAG	Date 9/9/2018	Chk'd by	Date	App'd by	Date

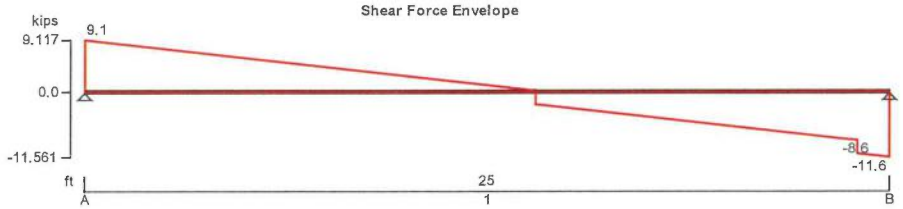
STEEL BEAM ANALYSIS & DESIGN (AISC360-10)

In accordance with AISC360 14th Edition published 2010 using the ASD method

Tedds calculation version 3.0.12







Support conditions

Support A	Vertically restrained
	Rotationally free
Support B	Vertically restrained
	Rotationally free

Applied loading

Beam loads	Self - Dead self weight of beam × 1
	Roof Dead - Dead full UDL 0.425 kips/ft
	Snow - Snow full UDL 0.188 kips/ft
	RTP DL - Dead point load 1.15 kips at 288.00 in
	RTP LL - Live point load 1.2 kips at 288.00 in
	RTP DL - Dead point load 1.15 kips at 168.00 in
	RTP LL - Live point load 1.2 kips at 168.00 in

Load combinations

Load combination 1	Support A	Dead × 1.00
		Live × 1.00
		Snow × 1.00
	Span 1	Dead × 1.00
		Live × 1.00
		Snow × 1.00
	Support B	Dead × 1.00
		Live × 1.00
		Snow × 1.00

Analysis results

Maximum moment	M_{max} = **65** kips_ft	M_{min} = **0** kips_ft
Maximum moment span 1 segment 1	$M_{s1\_seg1\_max}$ = **44.5** kips_ft	$M_{s1\_seg1\_min}$ = **0** kips_ft
Maximum moment span 1 segment 2	$M_{s1\_seg2\_max}$ = **64** kips_ft	$M_{s1\_seg2\_min}$ = **0** kips_ft
Maximum moment span 1 segment 3	$M_{s1\_seg3\_max}$ = **65** kips_ft	$M_{s1\_seg3\_min}$ = **0** kips_ft
Maximum moment span 1 segment 4	$M_{s1\_seg4\_max}$ = **47.4** kips_ft	$M_{s1\_seg4\_min}$ = **0** kips_ft
Maximum shear	V_{max} = **9.1** kips	V_{min} = **-11.6** kips
Maximum shear span 1 segment 1	$V_{s1\_seg1\_max}$ = **9.1** kips	$V_{s1\_seg1\_min}$ = **0** kips
Maximum shear span 1 segment 2	$V_{s1\_seg2\_max}$ = **5.1** kips	$V_{s1\_seg2\_min}$ = **0** kips
Maximum shear span 1 segment 3	$V_{s1\_seg3\_max}$ = **1.1** kips	$V_{s1\_seg3\_min}$ = **-5.2** kips
Maximum shear span 1 segment 4	$V_{s1\_seg4\_max}$ = **0** kips	$V_{s1\_seg4\_min}$ = **-11.6** kips
Deflection segment 5	δ_{max} = **0** in	δ_{min} = **0** in
Maximum reaction at support A	R_{A_max} = **9.1** kips	R_{A_min} = **9.1** kips
Unfactored dead load reaction at support A	R_{A_Dead} = **6.2** kips	
Unfactored live load reaction at support A	R_{A_Live} = **0.6** kips	
Unfactored snow load reaction at support A	R_{A_Snow} = **2.4** kips	
Maximum reaction at support B	R_{B_max} = **11.6** kips	R_{B_min} = **11.6** kips
Unfactored dead load reaction at support B	R_{B_Dead} = **7.4** kips	
Unfactored live load reaction at support B	R_{B_Live} = **1.8** kips	
Unfactored snow load reaction at support B	R_{B_Snow} = **2.4** kips	

Section details

Section type	**W 16x26 (AISC 14th Edn 2010)**	ASTM steel designation	**A36**

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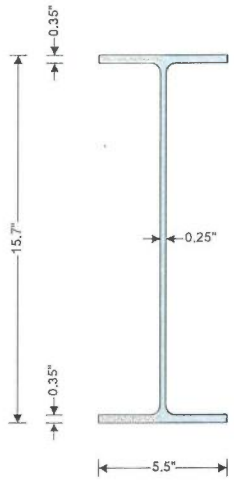
	Calc. by CAG	Date 9/9/2018	Chk'd by	Date	App'd by	Date



Flexure class **Compact**

Design of members for shear - Chapter G

Required shear strength V_r = **11.561** kips Allowable shear strength V_c = **56.520** kips

PASS - Allowable shear strength exceeds required shear strength

Design of members for flexure in the major axis - Chapter F

Required flexural strength M_r = **65.005** kips_ft Allowable flexural strength M_c = **78.549** kips_ft

PASS - Allowable flexural strength exceeds required flexural strength

Design of members for vertical deflection

Consider deflection due to loads

Limiting deflection δ_{lim} = **1.25** in Maximum deflection δ = **0** in

PASS - Maximum deflection does not exceed deflection limit

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Subject: Wind Load on Equipment per ASCE 7-10

Location: Danbury, CT

Rev. 0: 09/08/18

Prepared by: CAG Checked by: CFC
Job No. 18067.00

Design Wind Load on Other Structures: (Based on IBC 2012, CSBC 2016 and ASCE 7-10)

Wind Speed =	$V := 120$ mph	(User Input)	(CSBC Appendix-N)
Risk Category =	$BC := II$	(User Input)	(IBC Table 1604.5)
Exposure Category =	$Exp := B$	(User Input)	
Height Above Grade =	$Z := 70.33$ ft	(User Input)	
Structure Type =	$Structuretype := Solid\_Sign$	(User Input)	
Structure Height =	$Height := 10$ ft	(User Input)	
Horizontal Dimension of Structure =	$Width := 8.0$ ft	(User Input)	

Terrain Exposure Constants:

Nominal Height of the Atmospheric Boundary Layer = (Table 26.9-1)

$$zg := \begin{cases} 1200 \text{ if } Exp = B = 1.2 \times 10^3 \\ 900 \text{ if } Exp = C \\ 700 \text{ if } Exp = D \end{cases}$$

3-Sec Gust Speed Power Law Exponent = (Table 26.9-1)

$$\alpha := \begin{cases} 7 \text{ if } Exp = B = 7 \\ 9.5 \text{ if } Exp = C \\ 11.5 \text{ if } Exp = D \end{cases}$$

Integral Length Scale Factor = (Table 26.9-1)

$$l := \begin{cases} 320 \text{ if } Exp = B = 320 \\ 500 \text{ if } Exp = C \\ 650 \text{ if } Exp = D \end{cases}$$

Integral Length Scale Power Law Exponent = (Table 26.9-1)

$$E := \begin{cases} \frac{1}{3} \text{ if } Exp = B = 0.333 \\ \frac{1}{5} \text{ if } Exp = C \\ \frac{1}{8} \text{ if } Exp = D \end{cases}$$

Turbulence Intensity Factor = (Table 26.9-1)

$$c := \begin{cases} 0.3 \text{ if } Exp = B = 0.3 \\ 0.2 \text{ if } Exp = C \\ 0.15 \text{ if } Exp = D \end{cases}$$

Exposure Constant = (Table 26.9-1)

$$Z_{min} := \begin{cases} 30 \text{ if } Exp = B = 30 \\ 15 \text{ if } Exp = C \\ 7 \text{ if } Exp = D \end{cases}$$

Exposure Coefficient = (Table 29.3-1)

$$K_z := \begin{cases} 2.01\left(\frac{Z}{zg}\right)^{\left(\frac{2}{\alpha}\right)} \text{ if } 15 \le Z \le zg = 0.89 \\ 2.01\left(\frac{15}{zg}\right)^{\left(\frac{2}{\alpha}\right)} \text{ if } Z < 15 \end{cases}$$

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Rev. 0: 09/08/18		Prepared by: CAG Checked by: CFC Job No. 18067.00

Topographic Factor =	$K_{zt} := 1$	(Eq. 26.8-2)
Wind Directionality Factor =	$K_d = 0.85$	(Table 26.6-1)
Velocity Pressure =	$q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 = 28$	(Eq. 29.3-1)
Peak Factor for Background Response =	$g_Q := 3.4$	(Sec 26.9.4)
Peak Factor for Wind Response =	$g_v := 3.4$	(Sec 26.9.4)
Equivalent Height of Structure =	$z := \begin{cases} Z_{min} \text{ if } Z_{min} > 0.6 \cdot Height \\ 0.6 \cdot Height \text{ otherwise} \end{cases} = 30$	(Sec 26.9.4)
Intensity of Turbulence =	$I_z := c \cdot \left(\frac{33}{z}\right)^{\left(\frac{1}{6}\right)} = 0.305$	(Eq. 26.9-7)
Integral Length Scale of Turbulence =	$L_Z := l \cdot \left(\frac{z}{33}\right)^{E} = 309.993$	(Eq. 26.9-9)
Background Response Factor =	$Q := \sqrt{\frac{1}{1 + 0.63\left(\frac{Width + Height}{L_Z}\right)^{0.63}}} = 0.951$	(Eq. 26.9-8)
Gust Response Factor =	$G := 0.925 \cdot \left[\frac{\left(1 + 1.7 \cdot g_Q \cdot I_z \cdot Q\right)}{1 + 1.7 \cdot g_v \cdot I_z}\right] = 0.896$	(Eq. 26.9-6)
Force Coefficient =	$C_f = 1.2$	(Fig 29.5-1 - 29.5-3)
Wind Force =	$F := q_z \cdot G \cdot C_f = 30$ psf	

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson AIR3246 B66		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 58.1$	in	(User Input)
Antenna Width =	$W_{ant} := 15.7$	in	(User Input)
Antenna Thickness =	$T_{ant} := 9.4$	in	(User Input)
Antenna Weight =	$WT_{ant} := 180$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6.3$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 6.3$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 191$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.8$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 114$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 180$	lbs

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Location:		Danbury, CT
Rev. 0: 09/08/18		Prepared by: CAG Checked by: CFC Job No. 18067.00

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPXVAARR24-43		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 153$	lbs	(User Input)
Number ofAntennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 16$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 481$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5.8$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 175$	lbs

Gravity Load (without ice)

Weight ofAll Antennas =	$WT_{ant} \cdot N_{ant} = 153$	lbs

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Location: Danbury, CT

Rev. 0: 09/08/18

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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPX16DWW-16DWWS-A20		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 13$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.15$	in	(User Input)
Antenna Weight =	$WT_{ant} := 40.7$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)

Wind Load (Front)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 152$	lbs

Wind Load (Side)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.2$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.2$	sf
Total Antenna Wind Force =	$F_{ant} := F \cdot A_{ant} = 37$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 41$	lbs

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Location:	Danbury, CT
Rev. 0: 09/08/18	Prepared by: CAG Checked by: CFC Job No. 18067.00

Development of Wind & Ice Load on RRHs

RRUS Data:

RRUS Model =	Ericsson 4449 B71/B12		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRH} := 14.9$	in	(User Input)
RRUS Width =	$W_{RRH} := 13.2$	in	(User Input)
RRUS Thickness =	$T_{RRH} := 10.4$	in	(User Input)
RRUS Weight =	$WT_{RRH} := 74$	lbs	(User Input)
Number of RRUS's =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1.4$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.4$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 41$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 1.1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 32$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 74$	lbs

Development of Wind & Ice Load on RRHs

RRUS Data:

RRUS Model =	Ericsson 4415 B25		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRH} := 16.5$	in	(User Input)
RRUS Width =	$W_{RRH} := 13.4$	in	(User Input)
RRUS Thickness =	$T_{RRH} := 5.9$	in	(User Input)
RRUS Weight =	$WT_{RRH} := 46$	lbs	(User Input)
Number of RRUS's =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1.5$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.5$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 46$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.7$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.7$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 20$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 46$	lbs

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Location:	Danbury, CT
Rev. 0: 09/08/18	Prepared by: CAG Checked by: CFC Job No. 18067.00

Development of Wind & Ice Load on RRHs

RRUS Data:

RRUS Model =	Ericsson 2217 B66A		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRH} := 13.8$	in	(User Input)
RRUS Width =	$W_{RRH} := 11.7$	in	(User Input)
RRUS Thickness =	$T_{RRH} := 5.4$	in	(User Input)
RRUS Weight =	$WT_{RRH} := 28.2$	lbs	(User Input)
Number of RRUS's =	$N_{RRH} := 1$		(User Input)

Wind Load (Front)

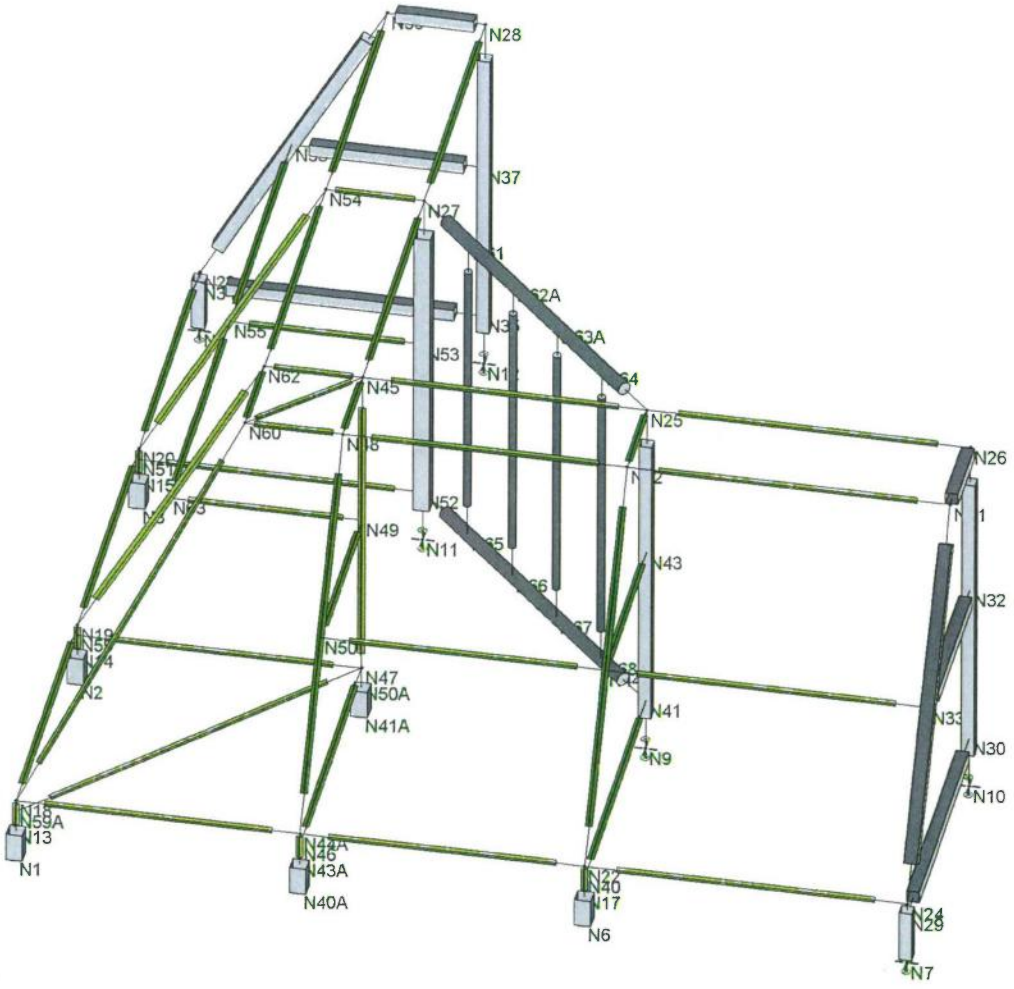
Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot W_{RRH}}{144} = 1.1$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 1.1$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 34$	lbs

Wind Load (Side)

Surface Area for One RRH =	$SA_{RRH} := \frac{L_{RRH} \cdot T_{RRH}}{144} = 0.5$	sf
RRH Projected Surface Area =	$A_{RRH} := SA_{RRH} \cdot N_{RRH} = 0.5$	sf
Total RRH Wind Force =	$F_{RRH} := F \cdot A_{RRH} = 16$	lbs

Gravity Load (without ice)

Weight of All RRHs =	$WT_{RRH} \cdot N_{RRH} = 28$	lbs



Envelope Only Solution

CENTEK		SK - 1
CAG	CTFF039A WCSU Danbury	Sept 9, 2018 at 10:40 AM
18067.00	Isometric View	18067.00 CTFF039A WCSU Danbu...

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HSS Stub Posts	HSS5X5X6	Column	Tube	A500 Gr...	Typical	6.18	21.7	21.7	36.1
2	Weldment	HSS4X4X5	None	None	A500 Gr...	Typical	4.1	9.14	9.14	15.3
3	ANT SUPPORTS (HORI...	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
4	ANT SUPPORTS (VERT)	PIPE_2.0	Column	Wide Flange	A53 Gr.B	Typical	1.02	.627	.627	1.25

Load Combinations

	Description	S...	P...	S...	B...	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Deflection 1	Yes	Y		DL	1																				
2	IBC 16-8	Yes	Y		DL	1																				
3	IBC 16-10 (b)	Yes	Y		DL	1	SL	1	S...	1																
4	IBC 16-12 (a) (b)	Yes	Y		DL	1	WLZ	.6																		
5	IBC 16-12 (a) (c)	Yes	Y		DL	1	WLX	.6																		
6	IBC 16-12 (a) (d)	Yes	Y		DL	1	WLZ	-.6																		
7		Yes	Y		DL	1	WLX	-.6																		
8	IBC 16-13 (b) (a)	Yes	Y		DL	1	WLX	.45	LL	.75	L...	.75	SL	.75	S...	.75										
9	IBC 16-13 (b) (b)	Yes	Y		DL	1	WLZ	.45	LL	.75	L...	.75	SL	.75	S...	.75										
10	IBC 16-13 (b) (c)	Yes	Y		DL	1	WLX	-.45	LL	.75	L...	.75	SL	.75	S...	.75										
11	IBC 16-13 (b) (d)	Yes	Y		DL	1	WLZ	-.45	LL	.75	L...	.75	SL	.75	S...	.75										
12	IBC 16-15 (a)	Yes	Y		DL	.6	WLX	.6																		
13	IBC 16-15 (b)	Yes	Y		DL	.6	WLZ	.6																		
14	IBC 16-15 (c)	Yes	Y		DL	.6	WLX	-.6																		
15	IBC 16-15 (d)	Yes	Y		DL	.6	WLZ	-.6																		

Envelope Joint Reactions

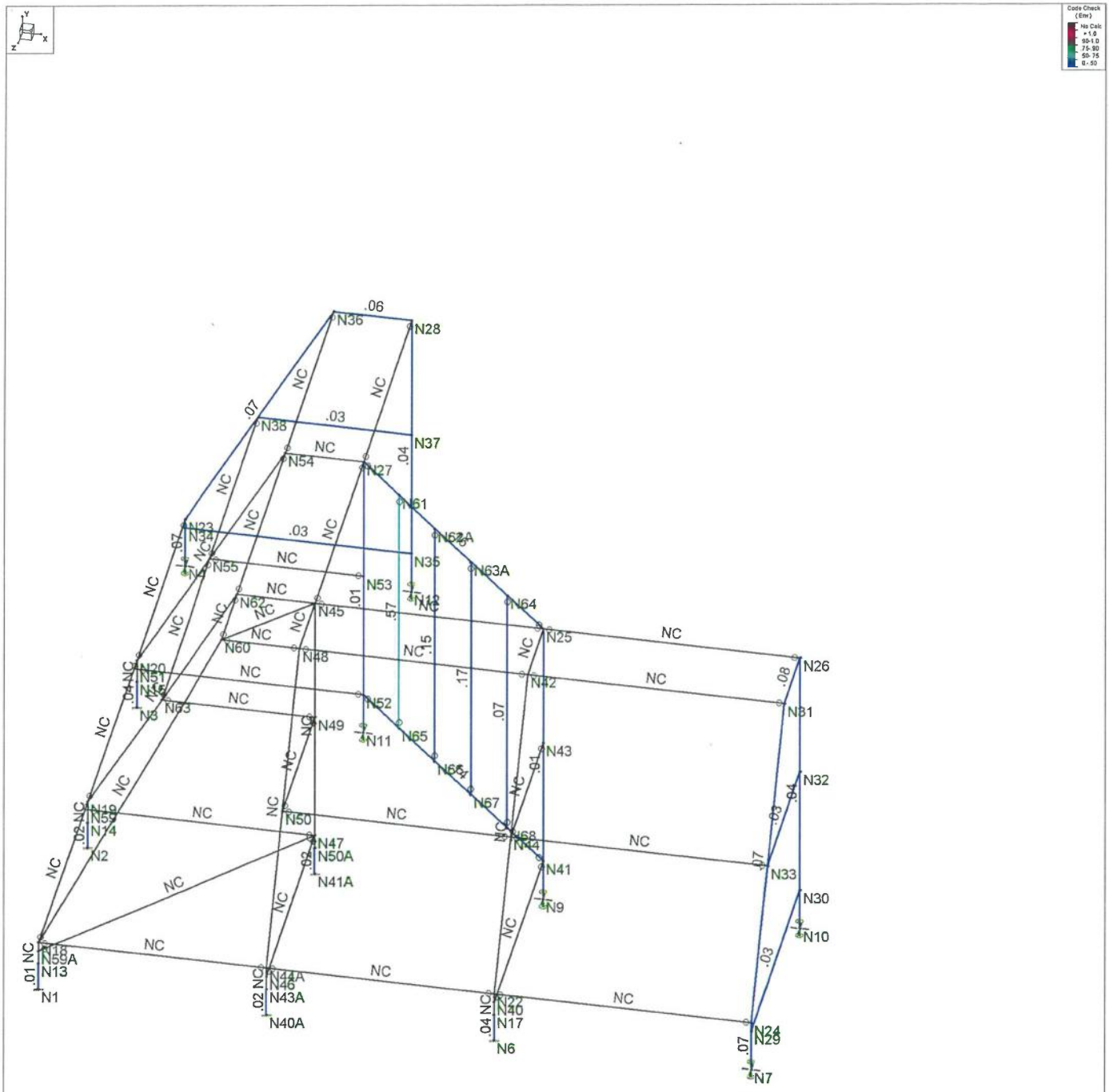
	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-...	LC
1	N1	max	.265	14	1.2	10	.285	4	.151	4	.006	5	.142	5
2		min	-.265	5	-1.587	5	-.285	15	-.15	15	-.006	7	-.14	14
3	N6	max	.265	14	2.584	3	1.541	4	.779	4	.006	12	.142	5
4		min	-.265	5	.026	13	-1.54	15	-.777	15	-.006	7	-.14	14
5	N2	max	.592	14	2.09	10	.285	4	.151	4	.006	5	.306	5
6		min	-.592	5	-1.32	5	-.285	15	-.15	15	-.006	7	-.304	14
7	N3	max	1.637	14	2.525	3	.285	4	.151	4	.006	12	.829	5
8		min	-1.638	5	-.008	12	-.285	15	-.15	15	-.006	7	-.826	14
9	N4	max	.547	7	1.201	10	.002	13	0	15	.001	12	0	15
10		min	-.533	12	-.415	12	-.002	6	0	1	-.001	7	0	1
11	N7	max	.002	6	1.252	11	.584	13	0	15	.001	6	0	15
12		min	-.002	13	-.46	13	-.601	6	0	1	-.001	13	0	1
13	N10	max	0	13	1.21	9	.213	4	0	15	0	6	0	15
14		min	0	6	-.377	15	-.205	11	0	1	0	13	0	1
15	N12	max	.187	10	1.094	8	0	7	0	15	0	12	0	15
16		min	-.199	5	-.337	14	0	12	0	1	0	7	0	1
17	N9	max	.091	7	.545	9	.029	13	0	15	0	12	0	15
18		min	-.091	12	.02	15	-.029	6	0	1	0	7	0	1
19	N40A	max	.265	14	1.996	8	.583	4	.3	4	.006	12	.142	5
20		min	-.265	5	-1.273	14	-.583	15	-.299	15	-.006	7	-.14	14
21	N41A	max	.592	14	2.886	8	.583	4	.3	4	.006	12	.306	5
22		min	-.592	5	-1.112	14	-.583	15	-.299	15	-.006	7	-.304	14

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-...	LC
23	N11	max	.071	7	.764	8	.174	13	0	15	0	12	0	15
24		min	-.07	12	.014	14	-.175	6	0	1	0	7	0	1
25	Totals:	max	4.508	14	15.57	3	4.558	13						
26		min	-4.508	5	1.547	15	-4.558	6						

Envelope AISC 14th(360-10): ASD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Che...	Lo...	...	LC	Pnc/...	Pnt/o...	Mny...	Mnz...	...	Eqn
1	M1	HSS5X5X6	.014	0	4	.007	0	z	4	169....	170....	24.331	24.331	...	H1-...
2	M3	HSS5X5X6	.020	0	5	.013	0	y	14	169....	170....	24.331	24.331	...	H1-...
3	M4	HSS5X5X6	.039	0	7	.036	0	y	5	169....	170....	24.331	24.331	...	H1-...
4	M5	HSS5X5X6	.036	0	6	.034	0	z	4	169....	170....	24.331	24.331	...	H1-...
5	M6	HSS4X4X5	.045	6.107	9	.007	0	z	4	68.926	112....	12.831	12.831	...	H1-...
6	M7	HSS4X4X5	.074	1.489	6	.025	1....	z	6	111....	112....	12.831	12.831	...	H1-...
7	M8	HSS4X4X5	.033	8	4	.005	8	y	4	85.517	112....	12.831	12.831	...	H1-...
8	M9	HSS4X4X5	.074	0	9	.018	0	y	9	70.862	112....	12.831	12.831	...	H1-...
9	M10	HSS4X4X5	.075	2.583	9	.025	2....	y	9	109....	112....	12.831	12.831	...	H1-...
10	M11	HSS4X4X5	.029	0	9	.005	0	y	9	99.769	112....	12.831	12.831	...	H1-...
11	M12	HSS4X4X5	.039	6.107	8	.007	0	y	5	68.926	112....	12.831	12.831	...	H1-...
12	M13	HSS4X4X5	.067	1.489	7	.023	1....	y	7	111....	112....	12.831	12.831	...	H1-...
13	M14	HSS4X4X5	.065	0	8	.022	0	y	8	109....	112....	12.831	12.831	...	H1-...
14	M15	HSS4X4X5	.067	10.104	8	.018	10...	y	8	72.471	112....	12.831	12.831	...	H1-...
15	M16	HSS4X4X5	.031	7.5	5	.005	7.5	y	5	88.446	112....	12.831	12.831	...	H1-...
16	M17	HSS4X4X5	.027	0	8	.005	0	y	8	100....	112....	12.831	12.831	...	H1-...
17	M18	HSS4X4X5	.013	1.444	7	.003	0	y	7	68.926	112....	12.831	12.831	...	H1-...
18	M23A	HSS5X5X6	.019	0	6	.013	0	z	15	169....	170....	24.331	24.331	...	H1-...
19	M29A	HSS5X5X6	.020	0	5	.013	0	y	14	169....	170....	24.331	24.331	...	H1-...
20	M31	HSS5X5X6	.012	1.444	6	.004	0	z	6	124....	170....	24.331	24.331	...	H1-...
21	M66	PIPE_3.5	.158	4.455	5	.019	0		7	32.092	52.395	5.292	5.292	...	H1-...
22	M67	PIPE_3.5	.144	4.455	5	.018	0		5	32.092	52.395	5.292	5.292	...	H1-...
23	M68	PIPE_2.0	.572	4.008	5	.033	0		5	7.8	21.377	1.245	1.245	...	H1-...
24	M69	PIPE_2.0	.145	2.481	5	.013	0		5	7.8	21.377	1.245	1.245	...	H1-...
25	M70	PIPE_2.0	.170	2.576	6	.015	0		5	7.8	21.377	1.245	1.245	1	H1-...
26	M71	PIPE_2.0	.067	6.297	4	.012	0		5	7.8	21.377	1.245	1.245	1	H1-...



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

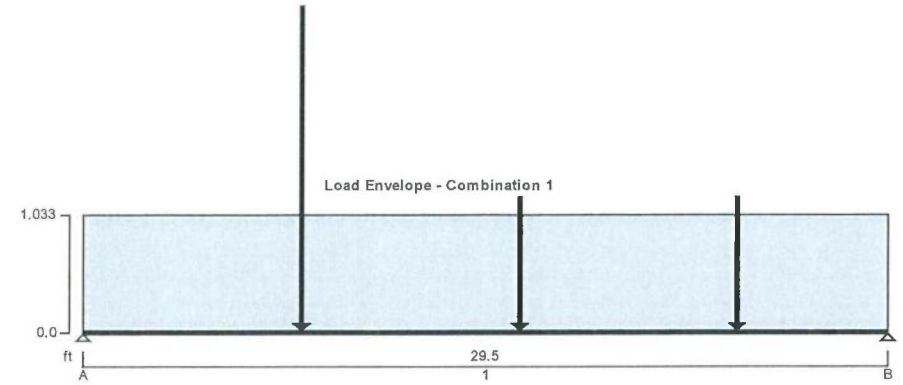
CENTEK		SK - 2
CAG	CTFF039A WCSU Danbury	Sept 9, 2018 at 10:40 AM
18067.00	Unity Check	18067.00 CTFF039A WCSU Danbu...

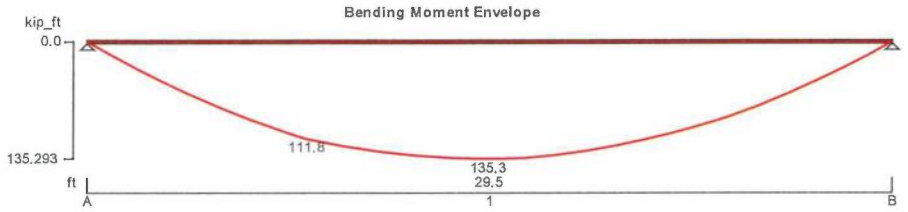
CENTEK engineering Centered on Solutions™ Centek Engineering, Inc. 63-2 North Branford Road Branford, CT 06405	Project CTFF039A WCSU Danbury				Job Ref. 18067.00	
	Section (E) W18x50				Sheet no./rev. 1	
	Calc. by CAG	Date 9/9/2018	Chk'd by	Date	App'd by	Date

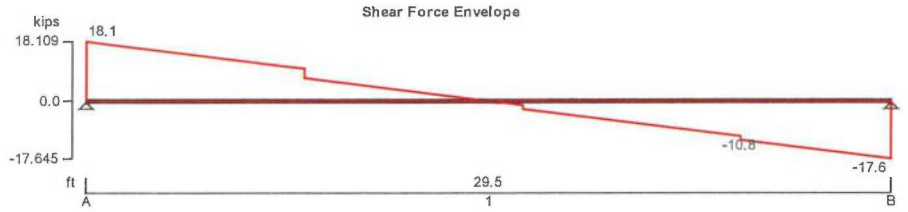
STEEL BEAM ANALYSIS & DESIGN (AISC360-05)

In accordance with AISC360 13th Edition published 2005 using the ASD method

Tedds calculation version 3.0.12







Support conditions

Support A	Vertically restrained
	Rotationally free
Support B	Vertically restrained
	Rotationally free

Applied loading

Beam loads	self - Dead self weight of beam × 1
	roof dead - Dead full UDL 0.533 kips/ft
	Snow (drift) - Snow full UDL 0.45 kips/ft

Enclosure - Dead point load 2.88 kips at 96.00 in
Enclosure - Dead point load 1.2 kips at 192.00 in
Enclosure - Dead point load 1.2 kips at 288.00 in

Load combinations

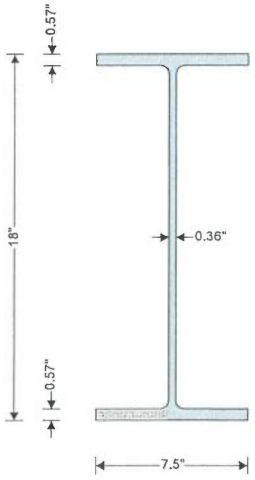
Load combination 1	Support A	Dead × 1.00
		Snow × 1.00
	Span 1	Dead × 1.00
		Snow × 1.00
	Support B	Dead × 1.00
		Snow × 1.00

Analysis results

Maximum moment	M_{max} = **135.3** kips_ft	M_{min} = **0** kips_ft
Maximum shear	V_{max} = **18.1** kips	V_{min} = **-17.6** kips
Deflection	δ_{max} = **0.9** in	δ_{min} = **0** in
Maximum reaction at support A	R_{A_max} = **18.1** kips	R_{A_min} = **18.1** kips
Unfactored dead load reaction at support A	R_{A_Dead} = **11.5** kips	
Unfactored snow load reaction at support A	R_{A_Snow} = **6.6** kips	
Maximum reaction at support B	R_{B_max} = **17.6** kips	R_{B_min} = **17.6** kips
Unfactored dead load reaction at support B	R_{B_Dead} = **11** kips	
Unfactored snow load reaction at support B	R_{B_Snow} = **6.6** kips	

Section details

Section type	**W 18x50 (AISC 14th Edn 2010)**
ASTM steel designation	**A36**
Steel yield stress	F_y = **36** ksi
Steel tensile stress	F_u = **58** ksi
Modulus of elasticity	E = **29000** ksi



Safety factors

Safety factor for tensile yielding	Ω_{ty} = **1.67**
Safety factor for tensile rupture	Ω_{tr} = **2.00**

Safety factor for compression	Ω_c = **1.67**
Safety factor for flexure	Ω_b = **1.67**
Safety factor for shear	Ω_v = **1.50**

Lateral bracing

Span 1 has continuous lateral bracing

Classification of sections for local buckling - Section B4.1

Classification of flanges in flexure - Table B4.1 (case 1)

Width to thickness ratio	$b_f / (2 \times t_f)$ = **6.58**	
Limiting ratio for compact section	$\lambda_{pff} = 0.38 \times \sqrt{[E / F_y]}$ = **10.79**	
Limiting ratio for non-compact section	$\lambda_{rff} = 1.0 \times \sqrt{[E / F_y]}$ = **28.38**	Compact

Classification of web in flexure - Table B4.1 (case 9)

Width to thickness ratio	$(d - 2 \times k) / t_w$ = **45.23**	
Limiting ratio for compact section	$\lambda_{pwf} = 3.76 \times \sqrt{[E / F_y]}$ = **106.72**	
Limiting ratio for non-compact section	$\lambda_{rwf} = 5.70 \times \sqrt{[E / F_y]}$ = **161.78**	Compact

Section is compact in flexure

Design of members for shear - Chapter G

Required shear strength	$V_r = \max(\text{abs}(V_{max}), \text{abs}(V_{min}))$ = **18.109** kips
Web area	$A_w = d \times t_w$ = **6.39** in^2
Web plate buckling coefficient	k_v = **5**
Web shear coefficient - eq G2-2	C_v = **1.000**
Nominal shear strength - eq G2-1	$V_n = 0.6 \times F_y \times A_w \times C_v$ = **138.024** kips
Allowable shear strength	$V_c = V_n / \Omega_v$ = **92.016** kips

PASS - Allowable shear strength exceeds required shear strength

Design of members for flexure in the major axis - Chapter F

Required flexural strength $M_r = \max(\text{abs}(M_{s1\_max}), \text{abs}(M_{s1\_min}))$ = **135.293** kips_ft

Yielding - Section F2.1

Nominal flexural strength for yielding - eq F2-1	$M_{nyld} = M_p = F_y \times Z_x$ = **303** kips_ft
Nominal flexural strength	$M_n = M_{nyld}$ = **303.000** kips_ft
Allowable flexural strength	$M_c = M_n / \Omega_b$ = **181.437** kips_ft

PASS - Allowable flexural strength exceeds required flexural strength

Design of members for vertical deflection

Consider deflection due to dead and snow loads

Limiting deflection	$\delta_{lim} = L_{s1} / 240$ = **1.475** in
Maximum deflection span 1	$\delta = \max(\text{abs}(\delta_{max}), \text{abs}(\delta_{min}))$ = **0.916** in

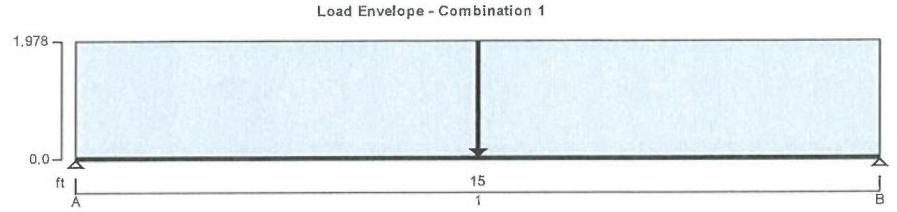
PASS - Maximum deflection does not exceed deflection limit

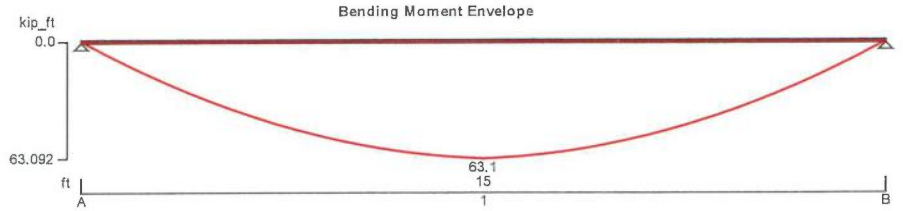
CENTEK engineering Centered on Solutions Centek Engineering, Inc. 63-2 North Branford Road Branford, CT 06405	Project CTFF039A WCSU Danbury				Job Ref. 18067.00	
	Section (E) W18x45				Sheet no./rev. 1	
	Calc. by CAG	Date 9/9/2018	Chk'd by	Date	App'd by	Date

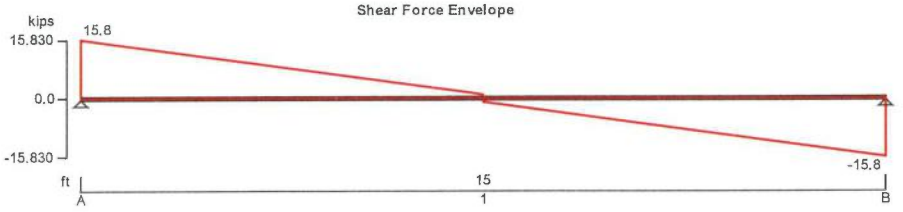
STEEL BEAM ANALYSIS & DESIGN (AISC360-10)

In accordance with AISC360 14th Edition published 2010 using the ASD method

Tedds calculation version 3.0.12







Support conditions

Support A	Vertically restrained
	Rotationally free
Support B	Vertically restrained
	Rotationally free

Applied loading

Beam loads	self - Dead self weight of beam × 1
	roof dead - Dead full UDL 1.047 kips/ft
	snow drift - snow full UDL 0.885 kips/ft
	Enclosure - Dead point load 1.99 kips at 90.00 in

Load combinations

Load combination 1	Support A	Dead × 1.00
		snow × 1.00
	Span 1	Dead × 1.00

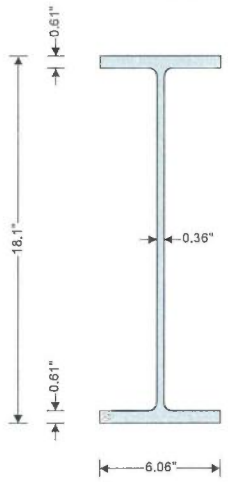
		snow × 1.00
	Support B	Dead × 1.00
		snow × 1.00

Analysis results

Maximum moment	M_{max} = **63.1** kips_ft	M_{min} = **0** kips_ft
Maximum shear	V_{max} = **15.8** kips	V_{min} = **-15.8** kips
Deflection	δ_{max} = **0.1** in	δ_{min} = **0** in
Maximum reaction at support A	R_{A_max} = **15.8** kips	R_{A_min} = **15.8** kips
Unfactored dead load reaction at support A	R_{A_Dead} = **9.2** kips	
Unfactored snow load reaction at support A	R_{A_snow} = **6.6** kips	
Maximum reaction at support B	R_{B_max} = **15.8** kips	R_{B_min} = **15.8** kips
Unfactored dead load reaction at support B	R_{B_Dead} = **9.2** kips	
Unfactored snow load reaction at support B	R_{B_snow} = **6.6** kips	

Section details

Section type	**W 18x46 (AISC 14th Edn 2010)**
ASTM steel designation	**A36**
Steel yield stress	F_y = **36** ksi
Steel tensile stress	F_u = **58** ksi
Modulus of elasticity	E = **29000** ksi



Safety factors

Safety factor for tensile yielding	Ω_{ty} = **1.67**
Safety factor for tensile rupture	Ω_{tr} = **2.00**
Safety factor for compression	Ω_c = **1.67**
Safety factor for flexure	Ω_b = **1.67**
Safety factor for shear	Ω_v = **1.50**

Lateral bracing

Span 1 has continuous lateral bracing

CENTEK engineering
Centered on Solutions
Centek Engineering, Inc.
63-2 North Branford Road
Branford, CT 06405

Project				Job Ref.	
CTFF039A WCSU Danbury				18067.00	
Section				Sheet no./rev.	
(E) W18x45				3	
Calc. by	Date	Chk'd by	Date	App'd by	Date
CAG	9/9/2018				

Classification of sections for local buckling - Section B4.1

Classification of flanges in flexure - Table B4.1b (case 10)

Width to thickness ratio	$b_f / (2 \times t_f)$ = **5.01**	
Limiting ratio for compact section	$\lambda_{pff} = 0.38 \times \sqrt{[E / F_y]}$ = **10.79**	
Limiting ratio for non-compact section	$\lambda_{rff} = 1.0 \times \sqrt{[E / F_y]}$ = **28.38**	Compact

Classification of web in flexure - Table B4.1b (case 15)

Width to thickness ratio	$(d - 2 \times k) / t_w$ = **44.67**	
Limiting ratio for compact section	$\lambda_{pwf} = 3.76 \times \sqrt{[E / F_y]}$ = **106.72**	
Limiting ratio for non-compact section	$\lambda_{rwf} = 5.70 \times \sqrt{[E / F_y]}$ = **161.78**	Compact

Section is compact in flexure

Design of members for shear - Chapter G

Required shear strength	$V_r = \max(\text{abs}(V_{max}), \text{abs}(V_{min}))$ = **15.830** kips
Web area	$A_w = d \times t_w$ = **6.516** in^2
Web plate buckling coefficient	k_v = **5**
Web shear coefficient - eq G2-2	C_v = **1.000**
Nominal shear strength - eq G2-1	$V_n = 0.6 \times F_y \times A_w \times C_v$ = **140.746** kips
Allowable shear strength	$V_c = V_n / \Omega_v$ = **93.830** kips

PASS - Allowable shear strength exceeds required shear strength

Design of members for flexure in the major axis - Chapter F

Required flexural strength	$M_r = \max(\text{abs}(M_{s1\_max}), \text{abs}(M_{s1\_min}))$ = **63.092** kips_ft

Yielding - Section F2.1

Nominal flexural strength for yielding - eq F2-1	$M_{nyld} = M_p = F_y \times Z_x$ = **272.1** kips_ft
Nominal flexural strength	$M_n = M_{nyld}$ = **272.100** kips_ft
Allowable flexural strength	$M_c = M_n / \Omega_b$ = **162.934** kips_ft

PASS - Allowable flexural strength exceeds required flexural strength

Design of members for vertical deflection

Consider deflection due to dead and snow loads

Limiting deflection	$\delta_{lim} = L_{s1} / 240$ = **0.75** in
Maximum deflection span 1	$\delta = \max(\text{abs}(\delta_{max}), \text{abs}(\delta_{min}))$ = **0.121** in

PASS - Maximum deflection does not exceed deflection limit

ATTACHMENT D

Service List of Abutters and Sample Letter to Abutters

CERTIFICATION OF SERVICE

I hereby certify that on the 25th day of October, 2018, T-Mobile Northeast, LLC, provided notice of its Petition For A Declaratory Ruling That A Certificate of Environmental Compatibility And Public Need Is Not Required for the installation of a rooftop telecommunications facility proposed to be located at 181 White Street, Danbury, Connecticut, to the following:

Abutters

4-6 Fifth Avenue
Six Fifth Avenue Corp
7 National Place
Danbury, CT 06810

8-10 Fifth Avenue
Manik & Valentina Roy
P.O Box 117
Danbury, CT 06813

12 Fifth Avenue
Marc Burnett
70 Cherniske Road
New Milford, CT 06776

14 Fifth Avenue
Craig Preveza
34 Grammar School Drive
Danbury, CT 06811

16 Fifth Avenue
Paul Vitti & David Fiorita
2 Belden Hill Road
Brookfield, CT 06804

Fifth Avenue: Parcel I13//246//
East Fifth Avenue Properties LLC
3 Woodstone Court
Danbury, CT 06811

20 Fifth Avenue
Nuno & Celina Paulino
5 Wildlife Drive
New Milford, CT 06776

22 Fifth Avenue
Nuno & Celina Paulino
5 Wildlife Drive
New Milford, CT 06776

24 Fifth Avenue
24 Fifth Avenue Investors LLC
24 Fifth Avenue
Danbury, CT 06810

7 Hospital Avenue
Joseph DaSilva, Jr.
288 Main Street
Danbury, CT 06810

2 Hospital Avenue
Midwestern Connecticut Council
of Alcoholism Inc.
38 Old Ridgebury Road
Danbury, CT 06810

67 Osborn Street
City of Danbury Housing Authority
2 Mill Ridge Road
Danbury, CT 06810

69-71 Osborn Street
John & Jill Hancock, Trustees
69 ½ Osborn Street
Danbury, CT 06810

73 ½ - 75 Osborn Street
73 ½ - 75 Osborn St LLC
P.O. Box 361
Bethel, CT 06802

61 Osborn Street
Steven Palmiotto
P.O. Box 4352
Danbury, CT 06813

51 Osborn Street
City of Danbury
155 Deer Hill Avenue
Danbury, CT 06810

55 Osborn Street
Alam Enterprises LLC
P.O. Box 816
Danbury, CT 06813

57 Osborn Street
Alam Investment Company LLC
P.O. Box 816
Danbury, CT 06813

59 Osborn Street
John Seo
6 Jean Lake
Rye Brook, NY 10573

50 Osborn Street
CYMA LLC
50 Osborne Street
Danbury, CT 06810

69-71 Osborn Street
John & Jill Hancock, Trustees
69 ½ Osborn Street
Danbury, CT 06810

77 Osborn Street
Antonio & Rosa Ramos
29 Tamanny Trail
Danbury, CT 06811

79 Osborn Street
Ednilson DeOliveira &
Celia Pereira Dos Santos
79 Osborn Street
Danbury, CT 06810

81 Osborn Street
Carmen Batista & Jose Urena
81 Osborn Street
Danbury, CT 06810

83 Osborn Street
Derek & Miriam DeMilio
83 Osborn Street
Danbury, CT 06810

85-87 Osborn Street
V & L Ylagan Realty LLC
85 Osborn Street
Danbury, CT 06810

91 Osborn Street
Louis Butera, Trustee
28 Westville Avenue
Danbury, CT 06810

4 Roberts Avenue
State of Connecticut
c/o Western Connecticut State University
Attn: Luigi Marcone
181 White Street
Danbury, CT 06810

2 Roberts Avenue
State of Connecticut
c/o Western Connecticut State University
Attn: Luigi Marcone
181 White Street
Danbury, CT 06810

Roberts Avenue: Parcel J13//75//
State of Connecticut
c/o Southern Connecticut State University
Attn: Luigi Marcone
181 White Street
Danbury, CT 06810

Roberts Avenue: Parcel J13//76//
State of Connecticut
210 Capital Avenue, Suite 1
Hartford, CT 06106

155 White Street
William & Mary Lynn Mastro,
Nicole Marie Mastro
8 Farrell Road
Newtown, CT 06470

162 White Street
Joaquim & Maria Narcisco
104 Deer Hill Road
Danbury, CT 06810

164 White Street
164 White Street LLC
41 Corntassle Road
Danbury, CT 06811

166 White Street
166 White Street LLC
41 Corntassle Road
Danbury, CT 06811

168-176 White Street
Callie Elliot & George Marnelakis, Trustees
143 Variety Tree Circle
Altamonte Springs, FL 32714

168-170 White Street
Hoffman Fuel Company of Danbury
170 White Street
Danbury, CT 06810

190 White Street
State of Connecticut
210 Capital Avenue, Suite 1
Hartford, CT 06106

188 White Street
State of Connecticut
210 Capital Avenue, Suite 1
Hartford, CT 06106

186 White Street
Western Connecticut State University
181 White Street
Danbury, CT 06810

182-184 White Street
State of Connecticut
c/o Western Connecticut State University
Attn: Luigi Marcone
181 White Street
Danbury, CT 06810

178 White Street
Dale Halas, Jr.
3 Wheeler Drive
Danbury, CT 06811

White Street: Parcel J13//63//
State of Connecticut
c/o Western Connecticut State University
Attn: Luigi Marcone
181 White Street
Danbury, CT 06810

154 White Street
154 White Street LLC
85 Alberts Hill Road
Sandy Hook, CT 06482

Dr. James Roach Avenue: Parcel J13//70//
State of Connecticut
c/o Western Connecticut State University
Attn: Luigi Marcone
181 White Street
Danbury, CT 06810

Property Owner

157-159 White Street
State of Connecticut
c/o Western Connecticut State University
Attn: Luigi Marcone
181 White Street
Danbury, CT 06810

White Street: Parcel J13//001//
State of Connecticut
c/o Western Connecticut State University
Attn: Luigi Marcone
181 White Street
Danbury, CT 06810

Respectfully submitted by,
T-MOBILE NORTHEAST, LLC

By: _____

Jesse A. Langer
Updike, Kelly & Spellacy, P.C.
8 Frontage Road
East Haven, CT 06512
(203) 786-8317
Email: jlanger@uks.com

Jesse A. Langer
(t) 203.786.8317
(f) 203.772.2037
jlanger@uks.com

October 25, 2018

VIA CERTIFIED MAIL
AND REGULAR MAIL

Six Fifth Avenue Corp
7 National Place
Danbury, CT 06810

RE: Proposed installation of rooftop telecommunications facility at 181 White Street, Danbury, Connecticut

To Whom It May Concern:

I write on behalf of T-Mobile Northeast, LLC ("T-Mobile"). T-Mobile intends to file with the Connecticut Siting Council ("Council") a petition for declaratory ruling ("Petition") that a Certificate of Environmental Compatibility and Public Need is not required. The Petition addresses a proposed installation of a rooftop telecommunications facility ("Rooftop Facility") proposed to be located within the midtown campus of Western Connecticut Statue University ("University"), specifically on the rooftop of the Ruth Haas Library ("Property"). The general address for the midtown campus is 181 White Street, Danbury, Connecticut.

As a wireless carrier licensed by the Federal Communications Commission, T-Mobile seeks out wireless sites that will meet its coverage and capacity objectives so that T-Mobile may provide reliable coverage throughout its network. T-Mobile has identified the Ruth Haas Library building within the midtown campus at the University for a rooftop telecommunications facility to address such coverage and capacity objectives in the area. The proposed Rooftop Facility would consist of the installation of nine (9) panel antennas on three (3) sectors and a future microwave dish, all to be mounted to the roof of the library on the Property.

This letter serves as notice to you as an abutting property owner pursuant to § 16-50j-40 of the Regulations of Connecticut State Agencies. T-Mobile will file the Petition on or about October 25, 2018, and will request that the Council place the Petition on some future agenda.

You may review the Petition at the office of the Council, which is located at 10 Franklin Square, New Britain, Connecticut, 06051, or at the City Hall for the City of Danbury. If you have any questions or concerns regarding this matter, please contact Jesse A. Langer of Updike, Kelly & Spellacy, P.C., at (203) 786-8317, or the Council.

Very truly yours,
T-MOBILE NORTHEAST, LLC

By: _____
Jesse A. Langer
Updike, Kelly & Spellacy, P.C.

ATTACHMENT E

Service List of Municipal Officials and Government Agencies, with Letter to Host Municipality

CERTIFICATION OF SERVICE

I hereby certify that on the 25th day of October, 2018, T-Mobile Northeast, LLC, provided notice of its Petition For A Declaratory Ruling That A Certificate of Environmental Compatibility And Public Need Is Not Required for the installation of a rooftop telecommunications facility proposed to be located at 181 White Street, Danbury, Connecticut, to the following:

City of Danbury

City of Danbury
Mark D. Boughton, Mayor
City Hall
155 Deer Hill Avenue
Danbury, CT 06810

City of Danbury
Planning and Zoning Commission
Sharon B. Calitro, Director
City Hall
155 Deer Hill Avenue
Danbury, CT 06810

City of Danbury
Janice R. Giegler, Town Clerk
City Hall
155 Deer Hill Avenue
Danbury, CT 06810

City of Danbury
Zoning Board of Appeals
Richard S. Jowdy, Chairman
City Hall
155 Deer Hill Avenue
Danbury, CT 06810

City of Danbury
Environmental Impact Commission
Bernard P. Gallo, Chairman
City Hall
155 Deer Hill Avenue
Danbury, CT 06810

City of Danbury
Conservation Commission
Kim Botelho, Chair
City Hall
155 Deer Hill Avenue
Danbury, CT 06810

State and Regional

The Honorable George Jepsen
Attorney General
Office of the Attorney General
55 Elm Street
Hartford, CT 06106

Department of Emergency Services
and Public Protection
Division of Emergency Management
and Homeland Security
c/o William J. Hackett, Deputy Commissioner
25 Sigourney Street, 6th Floor
Hartford, CT 06106-5042

Department of Public Health
c/o Raul Pino, MD, MPH
Commissioner
410 Capital Avenue
Hartford, CT 06106

Council on Environmental Quality
c/o Susan D. Merrow, Chair
79 Elm Street
Hartford, CT 06106

Department of Energy
& Environmental Protection
c/o Rob Klee, Commissioner
79 Elm Street
Hartford, CT 06106

Office of Policy and Management
c/o Benjamin Barnes, Secretary
450 Capitol Avenue
Hartford, CT 06106-1379

Department of Economic and Community
Development
Offices of Culture and Tourism
c/o Randy Fiveash, Director
450 Columbus Boulevard, Suite 5
Hartford, CT 06103

Department of Economic and Community
Development
State Historic Preservation Office
c/o Kristina Newman-Scott, Director of
Culture & State Historic Preservation Officer
450 Columbus Boulevard, Suite 5
Hartford, CT 06103

Michael A. McLachlan
State Senate; 24th District
Legislative Office Building, Room 3400
Hartford, CT 06106-1591

Public Utilities Regulatory Authority
c/o Katie Dykes, Chair
Ten Franklin Square
New Britain, CT 06051

Department of Economic
and Community Development
c/o Catherine H. Smith, Commissioner
450 Columbus Boulevard, Suite 5
Hartford, CT 06103

Department of Agriculture
c/o Steven K. Reviczky, Commissioner
450 Columbus Boulevard, Suite 701
Hartford, CT 06103

Department of Transportation
c/o James P. Redeker, Commissioner
2800 Berlin Turnpike
Newington, CT 06131-7546

Western Connecticut Council of Governments
c/o Jayme Stevenson, Chairman
1 Riverside Road
Sandy Hook, CT 06482

David Arconti
State Representative; 109th District
Legislative Office Building, Room 4034
Hartford, CT 06106-1591

Federal

U.S. Department of Transportation
Federal Aviation Administration
c/o Dan Elwell, Acting Administrator
800 Independence Avenue, SW
Washington, DC 20591

U.S. Representative Elizabeth Esty
1 Grove Street, Suite 600
New Britain, CT 06053

U.S. Senator Christopher Murphy
Colt Gateway, Suite 401
120 Huyshope Avenue
Hartford, CT 06106

U.S. Senator Richard Blumenthal
90 State House Square, 10th Floor
Hartford, CT 06103

Federal Communications Commission
c/o Ajit Pai, Chairman
445 12th Street SW
Washington, DC 20554

Respectfully submitted by,

T-MOBILE NORTHEAST, LLC

By: _____

Jesse A. Langer
Updike, Kelly & Spellacy, P.C.
8 Frontage Road
East Haven, CT 06512
(203) 786-8317
Email: jlanger@uks.com

MERITAS LAW FIRMS WORLDWIDE

Jesse A. Langer
(t) 203.786.8317
(f) 203.772.2037
jlanger@uks.com

October 25, 2018

VIA CERTIFIED MAIL
AND REGULAR MAIL

City of Danbury
Mark D. Boughton, Mayor
City Hall
155 Deer Hill Avenue
Danbury, CT 06810

RE: Proposed installation of rooftop telecommunications facility at 181 White Street, Danbury, Connecticut

To Whom It May Concern:

I write on behalf of T-Mobile Northeast, LLC ("T-Mobile"). T-Mobile intends to file with the Connecticut Siting Council ("Council") a petition for declaratory ruling ("Petition") that a Certificate of Environmental Compatibility and Public Need is not required. The Petition addresses a proposed installation of a rooftop telecommunications facility ("Rooftop Facility") proposed to be located within the midtown campus of Western Connecticut Statue University ("University"), specifically on the rooftop of the Ruth Haas Library ("Property"). The general address for the midtown campus is 181 White Street, Danbury, Connecticut.

As a wireless carrier licensed by the Federal Communications Commission, T-Mobile seeks out wireless sites that will meet its coverage and capacity objectives so that T-Mobile may provide reliable coverage throughout its network. T-Mobile has identified the Ruth Haas Library building within the midtown campus at the University for a rooftop telecommunications facility to address such coverage and capacity objectives in the area. The proposed Rooftop Facility would consist of the installation of nine (9) panel antennas on three (3) sectors and a future microwave dish, all to be mounted to the roof of the library on the Property.

This letter serves as notice to you as an "appropriate municipal official[sic] and government agenc[y]" as that term is defined under § 16-50j-40 of the Regulations of Connecticut State Agencies. T-Mobile will file the Petition on or about October 25, 2018, and will request that the Council place the Petition on some future agenda.

Attached please find a copy of the Petition. If you have any questions or concerns regarding this matter, please contact Jesse A. Langer of Updike, Kelly & Spellacy, P.C., at (203) 786-8317, or the Council.

Very truly yours,
T-MOBILE NORTHEAST, LLC

By: _____
Jesse A. Langer
Updike, Kelly & Spellacy, P.C.

ATTACHMENT F

Visual Assessment and Photo-Simulations

Photographic Simulation Package

Danbury – CTff039A

181 White Street
Danbury, CT 06810

Centek Project No. 18067.00

Prepared For
Transcend Wireless
T-mobile

Prepared By
Centek Engineering, Inc.
63 North Branford Road
Branford, CT 06405
T: 203.488.0580
F: 203.488.8587
www.centekeng.com

Date 10.09.2018

CENTEK engineering
Centered on Solutions℠

Transcend Wireless

T · ·Mobile

CENTEK engineering

TABLE OF CONTENTS

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

CENTEK Engineering, Inc.
Photographic Simulation Package
T-Mobile – New Site Development – CTFF039A
Danbury, CT
October 9, 2018

At the request of Transcend Wireless, acting on behalf of T-Mobile, CENTEK Engineering, Inc. ("CENTEK") completed this visual assessment and prepared computer-generated photographic simulations depicting the proposed installation of a wireless telecommunications facility ("Facility") located at 181 White Street, Danbury, Connecticut which will be referred throughout this summary as "the host property."

The host property is located north of White Street and east of 5th Avenue on the campus of Western Connecticut State University ("WCSU"). *See Figure 1 – Photolog Key Legend.* The host property is located in a High-Rise Residential District (RH-3), which is a mixed residential district intended to provide for high density residential, limited commercial, institutional and neighborhood uses in the "urban core" of the City of Danbury. The WCSU campus includes a multi-story parking garage, the Ruth A. Haas Library ("Library"), a concert hall, recreational fields and other uses incident to a college campus. Beyond the school grounds, the surrounding land use is primarily residential with some limited commercial uses.

The proposed Facility would include twelve (12) panel antennas and nine remote radio units split over three (3) sectors on the high roof of the library located on the host property. All of the rooftop mounted antennas and associated appurtenances would be installed behind radio frequency (RF) transparent enclosure designed to resemble a decorative mansard roof similar to the one located on the adjacent building to the south. The RF transparent enclosure would be painted to match the patina found on the adjacent building's mansard roof and would extend approximately 10-feet above the roof. Associated support equipment would be placed within a ±10-ft x 12-ft elevated non-penetrating rooftop steel platform located on the existing low roof of the Haas library. The support equipment would be installed as close to the high roof façade as possible to eliminate visibility from grade. Utilities would be routed through the existing building via conduits within existing utility chases. The proposed Facility component locations are illustrated within construction drawings as prepared by CENTEK dated October 10th, 2018.

On August 8th, 2018, CENTEK personnel conducted a field visit to obtain photo-documentation of the existing conditions. At each photo location, the geographic coordinates were logged using global positioning system ("GPS") technology. Photographs were taken with a Cannon Rebel EOS T5 digital camera body and Canon 75 to 300 millimeter ("mm") zoom lens using a focal length of 75 mm for consistency.

Computer models were developed for the building and proposed telecommunications facility components within AutoCad and Revit. Photographic simulations were then created to depict to scale representations of the proposed installation. Using field data, site plan information and image editing software, the proposed Facility was scaled to the correct location and height, relative to the existing structure and surrounding area. A photo key map and copies of the existing conditions and photo-simulations are attached.

Three (3) photo-locations were simulated and represent unobstructed views towards the proposed installation(s). The table below provides a description of each location, view orientation, and approximate distance between where the photo was taken and the proposed Facility.

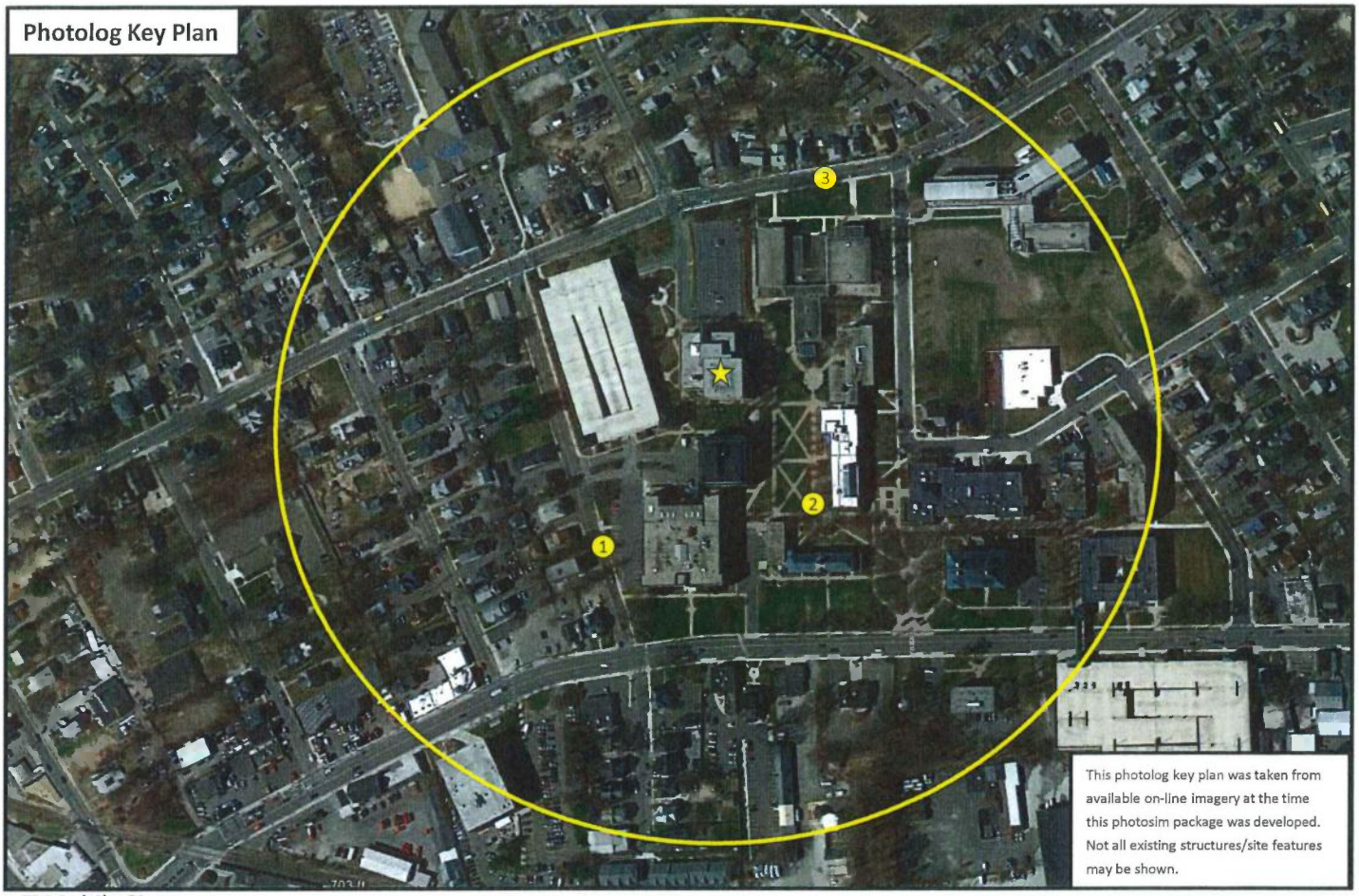
View	Location	Orientation	Distance to Site
1	Host Property	Northeast	**±367-ft**
2	Host Property	Northwest	**±230-ft**
3	Host Property	Southwest	**±446-ft**

In conclusion, the affected views of the proposed Facility would be limited to locations less than 1/8 of a mile on the host property and immediately abutting properties to the north and southwest of the library. Enclosing the proposed Facility components within the mansard enclosure would create fluency within the existing aesthetic of the surrounding buildings located in proximity of the host property.

Based on the results of this assessment, it is our opinion that the proposed installation of the Facility would not have an adverse visual impact on existing views of the Library or the character of the surrounding community.

Assumptions

This photographic simulation package provides a representation of the Facility under similar conditions as those encountered during our field visit. This package is static in nature and does not necessarily fairly characterize the prevailing views from all locations within a given area. View of the Facility can change throughout the seasons and the time of day, and are dependent on weather and other atmospheric conditions (e.g., haze, fog, clouds, etc.); the location, angle and intensity of the sun; and the specific view location.



T-Mobile Site -
Danbury-CTFF039A
Centek Project #18067.00
181 White Street
Danbury, CT 06810

Photolog Legend
Proposed RF Transparent Screening
1000' Radius
Photo Location - (Year round visibility)

T-Mobile Transcend Wireless

CENTEK engineering
Centered on Solutions℠

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

Centek Project # 18067.00

Existing Photo # :	1
GPS Coordinates (Library):	41.40104 -73.44619
Distance to Library:	367 Feet
Orientation:	Looking Northeast
Visibility:	Year Round

CENTEK engineering
Centered on Solutions℠
63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

Centek Project # 18067.00

Simulation Photo # :	1
GPS Coordinates (Library):	41.40104 -73.44619
Distance to Library:	267 Feet
Orientation:	Looking Northeast
Visibility:	Year Round

CENTEK engineering
Centered on Solutions℠
63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

Centek Project # 18067.00

Existing Photo # :	2
GPS Coordinates (Library):	41.40104 -73.44619
Distance to Library:	230 Feet
Orientation:	Looking Northwest
Visibility:	Year Round

CENTEK engineering
Centered on Solutions℠
63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

Centek Project # 18067.00

Simulation Photo # :	2
GPS Coordinates (Library):	41.40104 -73.44619
Distance to Library:	230 Feet
Orientation:	Looking Northwest
Visibility:	Year Round

CENTEK engineering
Centered on Solutions℠
63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

Centek Project # 18067.00

Existing Photo # :	3
GPS Coordinates (Library):	41.40104 -73.44619
Distance to Library:	446 Feet
Orientation:	Looking Southwest
Visibility:	Year Round

Centek Project # 18067.00

Simulation Photo # :	3
GPS Coordinates (Library):	41.40104 -73.44619
Distance to Library:	446 Feet
Orientation:	Looking Southwest
Visibility:	Year Round

ATTACHMENT G

EME

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: CTFF039A

WCSU Cell Split
181 White Street
Danbury, CT 06810

September 14, 2018

EBI Project Number: 6218006175

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**17.43 %**

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

EBI Consulting
environmental | engineering | due diligence

September 14, 2018

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

Emissions Analysis for Site: **CTFF039A – WCSU Cell Split**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **181 White Street, Danbury, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general 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) and 2100 MHz (AWS) 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 **181 White Street, Danbury, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.

2) 1 UMTS channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

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

5) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

6) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

7) 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.

8) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

9) The antennas used in this modeling are the **Ericsson AIR 3246 B66** & **RFS APX16DWV-16DWVS-E-A20** and the **RFS APXVAARR24_43-U-NA20** for 600 MHz, 700 MHz, 1900 MHz and 2100 MHz channels. There is also one **Ericsson AIR 5121 n257** (5G) antenna to be installed per sector for future use. 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

10) The antenna mounting height centerline of the proposed antennas is **65.5 feet** above ground level (AGL).

11) 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.

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

EBI Consulting

environmental | engineering | due diligence

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 3246 B66	Make / Model:	Ericsson AIR 3246 B66	Make / Model:	Ericsson AIR 3246 B66
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	65.5 feet	Height (AGL):	65.5 feet	Height (AGL):	65.5 feet
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	160	Total TX Power(W):	160	Total TX Power(W):	160
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A1 MPE%	**6.32**	Antenna B1 MPE%	**6.32**	Antenna C1 MPE%	**6.32**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	65.5 feet	Height (AGL):	65.5 feet	Height (AGL):	65.5 feet
Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)	Frequency Bands	1900 MHz (PCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	80	Total TX Power(W):	80	Total TX Power(W):	80
ERP (W):	3,412.64	ERP (W):	3,412.64	ERP (W):	3,412.64
Antenna A2 MPE%	**3.47**	Antenna B2 MPE%	**3.47**	Antenna C2 MPE%	**3.47**
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	16.35 / 12.95 / 13.35 dBd	Gain:	16.35 / 12.95 / 13.35 dBd	Gain:	16.35 / 12.95 / 13.35 dBd
Height (AGL):	65.5 feet	Height (AGL):	65.5 feet	Height (AGL):	65.5 feet
Frequency Bands	2100 MHz / 600 MHz / 700 MHz	Frequency Bands	2100 MHz / 600 MHz / 700 MHz	Frequency Bands	2100 MHz / 600 MHz / 700 MHz
Channel Count	5	Channel Count	5	Channel Count	5
Total TX Power(W):	160	Total TX Power(W):	160	Total TX Power(W):	160
ERP (W):	4,169.10	ERP (W):	4,169.10	ERP (W):	4,169.10
Antenna A3 MPE%	**7.64**	Antenna B3 MPE%	**7.64**	Antenna C3 MPE%	**7.64**
Antenna #:	4	Antenna #:	4	Antenna #:	4
Make / Model:	Ericsson AIR 5121 n257 **(FUTURE USE)**	Make / Model:	Ericsson AIR 5121 n257 **(FUTURE USE)**	Make / Model:	Ericsson AIR 5121 n257 **(FUTURE USE)**
Gain:	15.05	Gain:	15.05	Gain:	15.05
Height (AGL):	65.5	Height (AGL):	65.5	Height (AGL):	65.5
Frequency Bands	NA	Frequency Bands	NA	Frequency Bands	NA
Channel Count	NA	Channel Count	NA	Channel Count	NA
Total TX Power(W):	0.00	Total TX Power(W):	0.00	Total TX Power(W):	0.00
ERP (W):	0.00	ERP (W):	0.00	ERP (W):	0.00
Antenna A3 MPE%	**0.00**	Antenna B3 MPE%	**0.00**	Antenna C3 MPE%	**0.00**

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

Site Summary Tables

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	17.43 %
No Additional Carriers on this Facility	NA
Site Total MPE %:	17.43 %

T-Mobile Sector A Total:	17.43 %
T-Mobile Sector B Total:	17.43 %
T-Mobile Sector C Total:	17.43 %
Site Total:	17.43 %

T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile _Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	4	1,556.18	65.5	63.21	AWS - 2100 MHz	1000.00	6.32%
T-Mobile PCS - 1900 MHz LTE	2	1,706.32	65.5	34.65	PCS - 1900 MHz	1000.00	3.47%
T-Mobile AWS - 2100 MHz UMTS	1	1,726.08	65.5	17.53	AWS - 2100 MHz	1000.00	1.75%
T-Mobile 600 MHz LTE	2	788.97	65.5	16.02	600 MHz	400.00	4.01%
T-Mobile 700 MHz LTE	2	432.54	65.5	8.78	700 MHz	467.00	1.88%
						Total:	17.43%

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:	17.43 %
Sector B:	17.43 %
Sector C:	17.43 %
T-Mobile Maximum MPE % (Per Sector):	17.43 %
Site Total:	17.43 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **17.43%** 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.

ATTACHMENT H

FAA Compliance Report

EBI Consulting
environmental | engineering | due diligence

21 B Street
Burlington, MA 01803
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www.ebiconsulting.com

September 19, 2018

Ms. Jenn Dupont
T-Mobile USA
c/o Transcend Wireless LLC
35 Griffin Road
Bloomfield, CT 06002

Subject: **Federal Aviation Administration (FAA) Compliance Results**
Proposed T-Mobile USA Project
Site No. CTFF039A / Danbury
181 White Street
Danbury, CT 06810
EBI Project No. 6118007484

Dear Ms. Dupont

Enclosed please find the results of the Federal Aviation Administration (FAA) Compliance studies for the above-referenced site. The studies were completed based on information provided by Transcend Wireless LLC on behalf of T-Mobile USA, and gathered from the Land Survey and Site Plans, attached as Appendix A.

EBI utilized both commercially available and publicly accessible software that runs algorithms in accordance with FAA glide-slope calculations, referenced in Federal Aviation Regulation (FAR) Part 77 and FCC Rulepart 47 CFR 17, to determine the need for filing with the FAA and if registration with the FCC is required. For this site, our analysis demonstrated that notice to the FAA and an Antenna Structure Registration with the FCC are not required. Thus, the site may proceed from an FAA Compliance perspective.

If the proposed project location or proposed height of the structure changes, please notify EBI Consulting, and we will be happy to conduct FAA Compliance studies based on the changes.

Land Survey and Site Plans – Appendix A

Latitude (NAD 83): 41° 24' 3.721" N
Longitude (NAD 83): 73° 26' 46.326" W
Site Ground Elevation (AMSL): 392.53 feet
Proposed Structure Height (AGL): 71.96 feet

Airspace© Studies – Appendix B

PASS. This site passed all Airspace studies, and notice to the FAA is not required,

FCC TOWAIR – Appendix C

PASS. This site does not require FCC registration based on the 6.10-meter (20-foot) rule.

Thank you for the opportunity to be of service to Transcend Wireless LLC (on behalf of T-Mobile USA), and please don't hesitate to contact us with any questions or if we can assist with any of your future regulatory needs.

Respectfully Submitted,

Ms. Tiffany Skrobiszewski
Author/FAA Specialist
TEL: 757-582-3866

Mr. Ian Swanson
T-Mobile USA Program Manager
TEL: 339-933-0448

Appendix A: Land Survey and Site Plans
Appendix B: Airspace© Studies
Appendix C: FCC TOWAIR Results

CENTEK engineering

Centered on Solutions℠

FAA 2-C CERTIFICATION

Applicant: T-Mobile Northeast LLC
35 Griffin Rd S
Bloomfield, CT 06002

Site Name: CTFF039A

Address: 181 White Street
Danbury, CT 06810

Horizontal Datum Source:

☐ Ground Survey ☒ GPS Survey ☒ NAD 83 ☐ NAD 27

Vertical Datum Source:

☐ Ground Survey ☒ GPS Survey ☒ NAVD 88 ☐ NGVD 29

Structure Type:

☒ Existing	☐ Monopole Tower	☐ Transmission Tower	☐ Utility Pole
☐ Proposed	☐ SST Lattice Tower	☐ Smokestack	☒ Roof Top
	☐ Guyed Lattice Tower	☐ Water Tank	☐ Other (describe)

Latitude:	**N 41° 24' 03.721" NAD83**	**N 41.4010335° NAD83**
Longitude:	**W 73° 26' 46.326" NAD83**	**W 73.4462017° NAD83**
Ground Elevation:	**392.53 feet AMSL**	

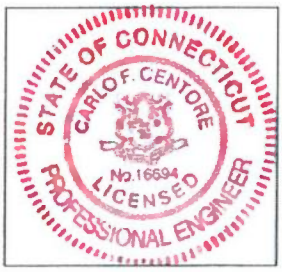
Top of Existing Roof:	61.55 ± feet AGL	454.08 ± feet AMSL
Top of Existing Roof Parapet:	61.96 ± feet AGL	454.49 ± feet AMSL
Top of Proposed Antenna:	71.96 ± feet AGL	464.49 ± feet AMSL
Top of Proposed Antenna Concealment Enclosure:	71.96 ± feet AGL	464.49 ± feet AMSL

Certification: I certify that the Latitude and Longitude noted hereon are accurate to within ± 50 feet horizontally and that the site elevation is accurate to within ± 20 feet vertically. The top of proposed antenna height is 71.96 ± feet AGL (464.49 ± AMSL). The overall height is the top of proposed antenna as well as the proposed antenna concealment enclosure at 71.96 ± feet AGL (464.49 ± AMSL). The horizontal datum (coordinates) are in terms of the North American Datum of 1983 (NAD 83) and are expressed in degrees minutes and seconds to the nearest thousandth of a second. The vertical datum (heights) is in terms of the National Geodetic Vertical Datum of 1988 and expressed to the nearest hundredth of a foot.

Company: Centek Engineering, Inc.

Signature:

PE Name & License No.: Carlo F. Centore, PE (Lic. No. CT16694)



Date Issued: 5/9/2018

TOWAIR Determination Results

*** NOTICE ***

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

DETERMINATION Results

Structure does not require registration. The structure meets the 6.10-meter (20-foot) Rule criteria.

Your Specifications

NAD83 Coordinates	
Latitude	41-24-03.7 north
Longitude	073-26-46.3 west
Measurements (Meters)	
Overall Structure Height (AGL)	21.9
Support Structure Height (AGL)	18.9
Site Elevation (AMSL)	119.6
Structure Type	
B - Building	

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

CLOSE WINDOW