10 INDUSTRIAL AVENUE,
SUITE 3
MAHWAH, NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

September 18, 2020

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

Notice of Exempt Modification
24 Rockdale Road, West Haven, CT
Latitude- 41.2895777
Longitude- -72.9676027
T-Mobile site ID: CT11193A / Anchor

Dear Ms. Bachman,

T-Mobile currently maintains (9) existing antennas at the 135' level of the existing 180' self-support lattice at 24 Rockdale Road in West Haven, Connecticut. The tower and property is owned by Radio Communications Corp. T-Mobile intends to add (3) new 2500 MHz antennas, which will be installed at the same 135' level of the tower.

PLANNED MODIFICATIONS

Remove:
(12) 1-5/8" coax
(1) 9x18 Hybrid cable
(3) TMAs

Remove and Replace:
RRUs:
(3) Ericsson RRUS-2 B2 (REMOVE) - (3) Ericsson 4424 B25's RRU (REPLACE)

Existing to Remain:
(3) Ericsson Air 32 KRD901145-1_B66_B2A - 1900 MHz / 2100 MHz
(3) RFS APXVAARR24_43-UNA20 - 600 MHz / 700 MHz / 1900 MHz
(6) Coax Cables:
(3) Ericsson 4449 B71+B85 RRUs

Install New:
(3) Air 6449 B41 - (REPLACE) 2500 MHz Antennas
(4) 6x12 hybrid

Ground
Install (1) 6160 enclosure, and (1) Battery cabinet

This facility was approved by the Council in Docket No. 56.6 on April 14, 1986. This approval did not include conditions that could feasibly be violated by this modification. This modification complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. 16-50j-72(b)(2). In accordance with R.C.S.A. 16-50j-73, a copy of this letter is being sent to Nancy R. Rossi, Mayor of the City of West Haven, as well as the tower and property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2).

1. The proposed modification will not result in an increase in the height of the existing structure

2. The proposed modifications will not require the extension of the site boundary.

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A. 16-50j-72(b)(2).

Sincerely,

Elizabeth Jamieson
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
860-605-7808
EJamieson@TranscendWireless.com

cc:
Nancy R. Rossi - as elected official
RCC Communications Corp/Bob Knapp - as tower and property owner
Fred A. Messore - as Planning and Development Commissioner

Exhibit A

Original Facility Approval

DOCKET NO. 56

AN APPLICATION OF METRO MOBILE CTS OF NEW HAVEN, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN NEW HAVEN COUNTY.	: : :	CONNECTICUT SITING COUNCIL April 14, 1986

D E C I S I O N   A N D   O R D E R

Pursuant to the foregoing opinion, the Council hereby directs that a certificate of environmental compatibility and public need as required by section 16-50k of the General Statutes of Connecticut (CGS) be issued to Metro Mobile CTS of New Haven, Inc., for the construction, maintenance, and operation of cellular mobile phone telecommunication towers and associated equipment in the towns of Wolcott, Naugatuck, West Haven (existing tower), Milford, Hamden (existing tower), Guilford, and North Branford subject to the conditions below.

1. The proposed and alternate Beacon Falls sites are rejected without prejudice.
2. The Wolcott tower shall be constructed to meet Zone C wind loading with 1" of radial ice and shall not exceed 180' in height excluding antennas.
3. The Naugatuck tower shall not exceed 160' in height, excluding antennas. The certificate holder shall offer to remove the existing privately owned, unused tower now on the site.
4. Any future actions requiring the removal of the existing West Haven or Hamden towers to be shared by the certificate holder shall also apply to the equipment mounted on those towers by the certificate holder, regardless of that equipment's status under Chapter 277a of the CGS.

5. The Milford tower shall be a monopole structure not to exceed 100' in height, excluding antennas.
6. The Guilford tower shall be a monopole structure not to exceed 150' in height, excluding antennas.
7. The North Branford Route 17 site is rejected. The North Branford East Reeds Gap Road tower shall not exceed 160' in height, excluding antennas.
8. The certificate holder shall submit a development and management plan for the Wolcott, Naugatuck, Milford, Hamden, Guilford, and North Branford sites pursuant to sections 16-50j-75 through 16-50j-77 of the RSA, except that irrelevant items in section 16-50j-76 need only be identified as such. In addition to the requirements of section 16-50j-76, the D&M plan shall provide plans for evergreen screening around the fenced perimeter at the Wolcott, Milford, Hamden, Guilford, and North Branford sites. The D&M plan shall include a proposal for painting the approved monopole structures to blend with the sky. Any changes to specifications in the D&M plan must be approved by the Council prior to facility operation.
9. All certified facilities shall be constructed, operated, and maintained as specified in the Council's record and in the site development and management plan required by order 8.
10. The certificate holder shall permit public or private entities to share space on the towers approved herein, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing. In addition to complying with 16-50j-73, the

certificate holder shall notify the Council of the addition of any equipment to any approved tower.

11. A fence not lower than 8' shall surround each tower and associated equipment.
12. Unless necessary to comply with order 13, below, no lights shall be installed on any of these towers.
13. The facilities' construction and any future tower sharing shall be in accordance with all applicable federal, state, and municipal laws and regulations. Shared uses by entities not subject to jurisdiction pursuant to sections 16-50i and 16-50k of the CGS shall be subject to all applicable federal, state, and municipal laws and regulations.
14. Construction activities shall take place during daylight working hours.
15. This decision and order shall be void and the towers and associated equipment shall be dismantled and removed, or reapplication for any new use shall be made to the CSC before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction.
16. This decision and order shall be void if all construction authorized herein is not completed within three years of the issuance of this decision, or within three years of the completion of any appeal if appeal of this decision is taken, unless otherwise approved by the Council.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the decision and order shall be served on each person listed below. A notice of the issuance shall be published in The Record-Journal, The New Haven Register, The Branford Review, The Evening Sentinel, The Waterbury American, and The Waterbury Republican.

The parties to this proceeding are:

Metro Mobile CTS of New Haven, Inc. (Applicant)
5 Eversley Avenue
Norwalk, Connecticut 06855

ATTN: Armand Mascioli
General Manager

Mr. Kevin B. Sullivan, Esq. (its attorneys)
Byrne, Slater, Sandler, Shulman & Rouse, P.C.
111 Pearl Street
P.O. Box 3216
Hartford, Connecticut 06103

Mr. Richard Rubin, Esq.
Fleischman and Walsh, P.C.
1725 N Street, N.W.
Washington, D.C. 20036

Guilford Conservation Commission represented by:

Mr. David B. Damer
Chairman
Guilford Conservation Commission
440 Great Hill Road
Guilford, Connecticut 06437

Mr. Robert W. Griswold, Jr.
100 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Town of Hamden
Memorial Town Hall
2372 Whitney Avenue
Hamden, Connecticut 06518

ATTN: Shirley Gonzales
Town Planner

Guilford Planning and Zoning Commission	represented by: Mr. David W. Fisher Chairman Town Hall 31 Park Street Guilford, Connecticut 06437
Town of Hamden	represented by: John DeNicola, Jr. Mayor Town of Hamden Memorial Town Hall 2372 Whitney Avenue New Haven, Connecticut 06518
Citizens Park Council of New Haven	represented by: Mr. John J. Ciarleglio President Citizens Park Council of New Haven 36 Elmwood Road New Haven, Connecticut 06515
Mr. Thomas V. Keating 343 Rimmon Hill Road Beacon Falls, Connecticut 06403	
Ms. Evelyn M. Sirowich 245 Rimmon Hill Road Beacon Falls, Connecticut 06403	
Mr. Jack B. Levine 11 White Birch Lane Beacon Falls, Connecticut 06403	
Southern New England Telephone Company	represented by: Mr. Peter J. Tyrrell, Esq. 227 Church Street New Haven, Connecticut 06506
Mr. Dennis Bialecki 96 West Road Beacon Falls, Connecticut 06403	

Brittany Woods Homeowner's Association — represented by:

Mr. Stephen P. Del Sole, Esq.
Del Sole & Del Sole
152 Temple Street
P.O. Box 405
New Haven, Connecticut 06502-0405

Ms. Barbara G. Schlein
Box 2993 Westville Station
New Haven, Connecticut 06515

Mr. & Mrs. Joseph T. Farrell, Jr.
334 Rimmon Hill Road
Beacon Falls, Connecticut 06403

Town of Beacon Falls — represented by:

The Honorable Leonard F. D'Amico
First Selectman
10 Maple Avenue
Beacon Falls, Connecticut 06403

West Rock Ridge Park Association — represented by:

Mr. William L. Doheny Jr., D.D.S.
President
220 Mountain Road
Hamden, Connecticut 06514

Department of Parks, Recreation & Trees — represented by:

Mr. Robert G. Sheeley
Director
Parks, Recreation & Trees
P.O. Box 1416
New Haven, Connecticut 06506

Town of Wallingford — represented by:

William W. Dickinson, Jr.
Mayor
Municipal Building
350 Center Street
P.O. Box 427
Wallingford, Connecticut 06492

New Haven Sierra Club — represented by:

Ms. Laurie Klein
270 Edgewood Avenue
New Haven, Connecticut 06511

Peter M. Lerner
State Representative
8 Merritt Avenue
Woodbridge, Connecticut 06525

Carleton J. Benson
State Representative
161 Scott Road
Prospect, Connecticut 06712

Dr. Stephen Collins (service waived)
Vice Chairman
West Rock State Park
Advisory Council
Bethany, Connecticut

Mr. Louis Melillo (service wavied)
985 Wintergreen Avenue
Hamden, Connecticut

Mr. John McGeever (service waived)
339 Rimmon Hill
Beacon Falls, Connecticut 06403

Senator John Consoli (service waived)
51 Luke Hill Road
Bethany, Connecticut 06525

Representative George P. Bassing (service waived)
14 Oakwood Drive
Seymour, Connecticut 06483

Dr. George D. Whitney (service waived)
858 Oakwood Road
Orange, Connecticut

Mr. Steve Molnar (service waived)
205 West Road
Beacon Falls, Connecticut

Mr. James W. Grandy (service waived)
President
Hamden Land Conservation Trust
Hamden, Connecticut

Senator Richard S. Eaton (service waived)
269 Mulberry Point Road
Guilford, Connecticut 06437

Representative Robert M. Ward
719 Totoket Road
Northford, Connecticut 06472

Town of North Branford	represented by: John Gesmonde, Esquire 3127 Whitney Avenue Hamden, Connecticut 06518
Regina Smith 1887 Middletown Avenue Northford, Connecticut 06472	(service waived)
Richard A. Nizolek The Restland Farm Corporation Route 17 Northford, Connecticut 06472	
Mary Liska 83 Reeds Gap Road Northford, Connecticut 06472	
Ben Bullard 50 Christmas Hill Road Guilford, Connecticut 06437	(service waived)
Roland Robichaud 31 Berncliff Drive North Branford, Connecticut 06471	(service waived)
Irene Flynn 1926 Middletown Avenue Northford, Connecticut 06472	(service waived)
Charles Pope 199 Donalds Road Guilford, Connecticut 06437	
Richard Abate 131 Manor Road Guilford, Connecticut 06437	(service waived)
City of Milford	represented by: Mayor Alberta Jagoe Alderman Maurice Condon Alderman Frederick Lisman City Hall River Street Milford, Connecticut 06460
Thomas Scelfo 81 Berncliff Drive North Branford, Connecticut 06471	(service waived)

Senator Thomas Scott (service waived)
22 Meyers Court
Milford, Connecticut 06460

Helen Moore (service waived)
385 Oronoque Road
Milford, Connecticut 06460

William Barberi (service waived)
298 Oronoque Road
Milford, Connecticut 06460

C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 14th day of April, 1986.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner John Downey Designee: Commissioner Peter G. Boucher	Absent
Commissioner Stanley Pac Designee: Christopher Cooper	No
Owen L. Clark	Yes
Mortimer A. Gelston	Yes
James G. Horsfall	Yes
Pamela B. Katz	Yes
William H. Smith	No
Colin C. Tait	No

STATE OF CONNECTICUT)
: ss. New Britain, April 14, 1986
COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

Christopher S. Wood

Christopher S. Wood, Executive Director
Connecticut Siting Council

Exhibit B

Property card

City of West Haven, CT
Property Listing Report

Parcel ID 059-0120-0-0000

Account 00007905

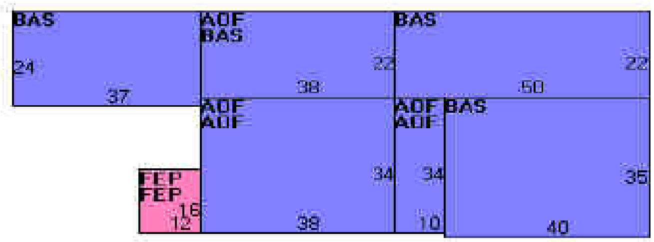
Property Information

Owner	KNAPP ANDREW + LILLIAN R
Co-Owner	& SV
Address	24 ROCKDALE RD
Mailing Address	24 ROCKDALE RD WEST HAVEN CT 06516
Land Use	3320 SVC SHOP MDL-94
Land Class	C

Vision ID	15185
Census Tract	1541
Neighborhood	C400
Zoning Code	R2
Acreage	0.21
Utilities	Public Water,Public Sewer

Photo

Sketch



Primary Construction Details

Actual Year Built	1959
Effective Year Built	1979
Stories	2
Building Style	Light Industrial
Building Use	Ind/Comm
Building Condition	Average +10
Total Rooms	

Bedrooms	
Full Bathrooms	0
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Flat
Roof Cover	T&G/Rubber

Exterior Walls	Concr/Cinder
Interior Walls	Minim/Masonry
Heating Type	Forced Air-Duc
Heating Fuel	Gas
AC Type	None
Gross Bldg Area	8708
Total Living Area	8324

Report Created On 5/30/2018

City of West Haven, CT
Property Listing Report

Parcel ID	059-0120-0-0000	Account	00007905

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	339600	237720
Outbuildings	377000	263900
Improvements	723200	506240
Extras	6600	4620
Land	88800	62160
Total	812000	568400

Outbuilding and Extra Items

Description	Units
PAVING-ASPHALT	4000 S.F.
AIR COND	4100 S.F.
SITE	2 SITES

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Office	2808	2808
First Floor	5516	5516
Porch, Enclosed	384	0
Total Area	8708	

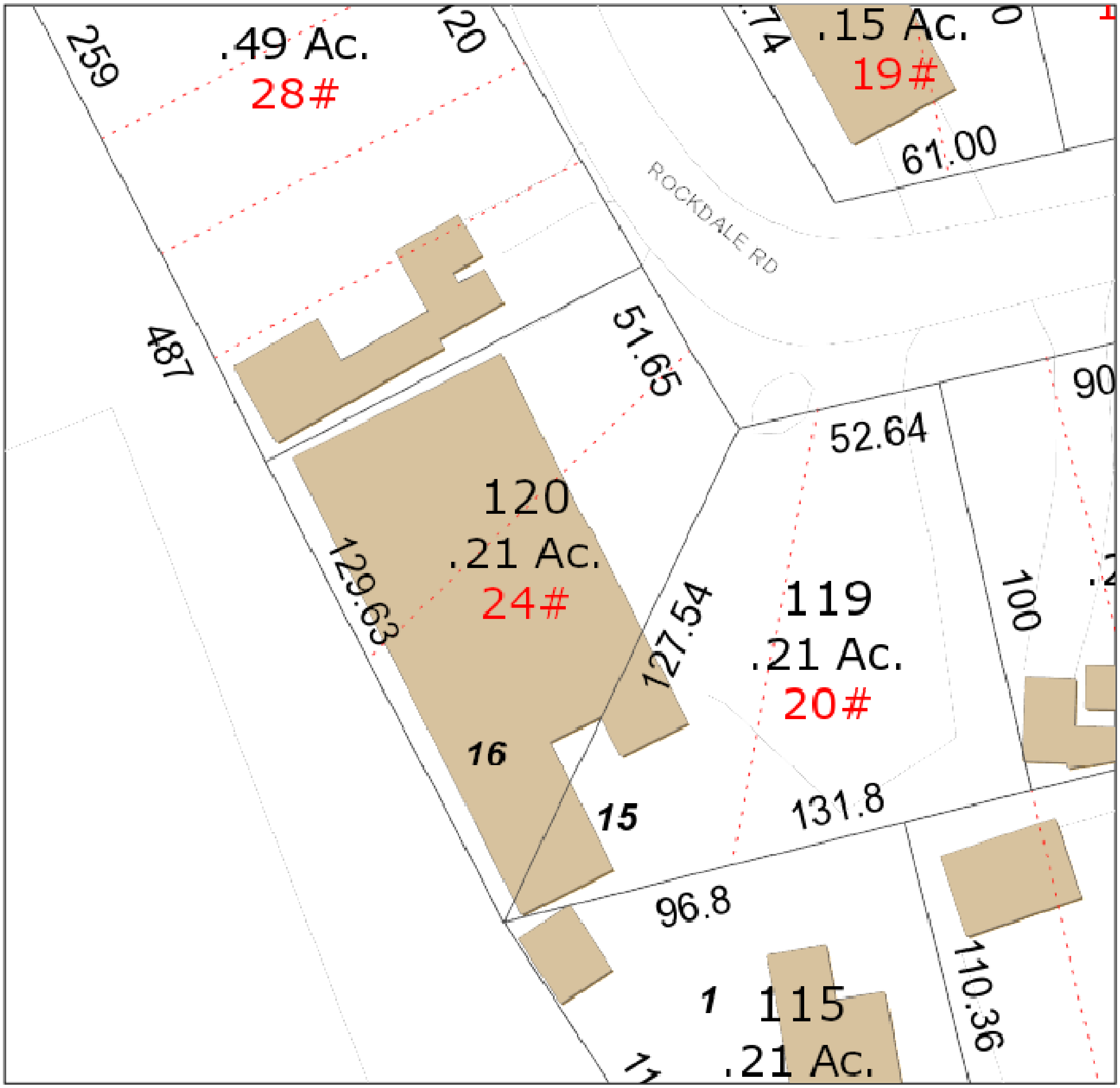
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
KNAPP ANDREW + LILLIAN R	412/ 375		0

City of West Haven

Geographic Information System (GIS)

Date Printed: 5/30/2018



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The City of West Haven and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 40 feet

0 40 Feet

N W E S

Exhibit C
Construction Drawings

T · · Mobile ·®

WEST HAVEN

24 ROCKDALE ROAD
WEST HAVEN, CT 06516
SITE ID: CT11193A

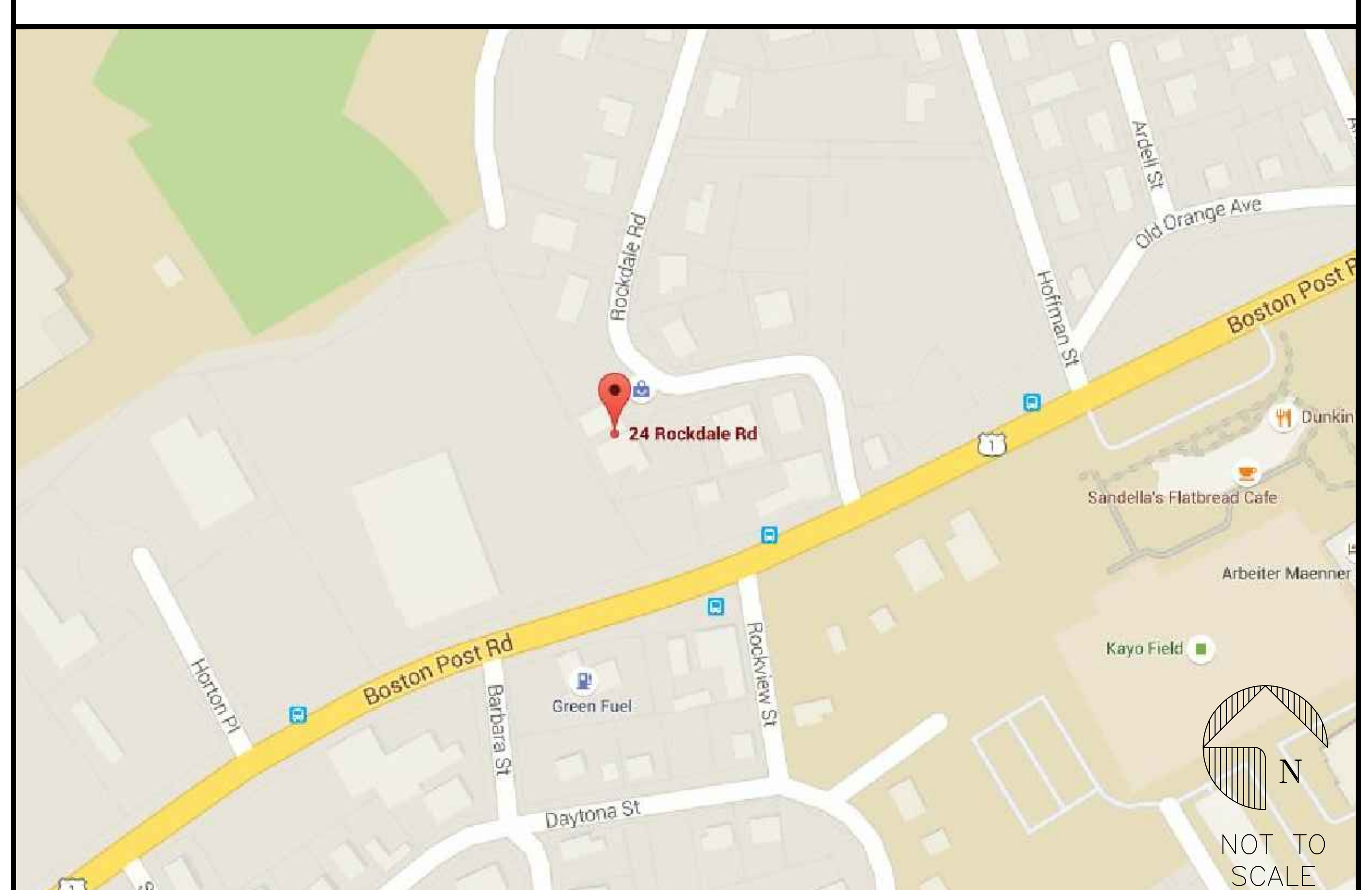
PROJECT DESCRIPTION

T-MOBILE IS PROPOSING TO INSTALL (3) PANEL ANTENNAS (1 PER SECTOR), (3) EXISTING RRUs WILL BE REPLACED WITH (3) NEW RADIOS. (3) EXISTING TMAs WILL BE REMOVED.

A TOTAL OF (3) ANTENNAS TO BE INSTALLED, (3) RRU'S REPLACED, AND (3) TMAs REMOVED.

(2) NEW EQUIPMENT CABINETS TO BE INSTALLED.

(12) EXISTING T-MOBILE 1-5/8" COAX LINES TO BE REMOVED, (1) 9X18 HYBRID CABLE TO BE REPLACED, (3) PROPOSED 6X12 HYBRID CABLES TO BE INSTALLED



LOCATION MAP

DRAWING INDEX

SHEET	SHEET TITLE
T-1	TITLE SHEET
S-1	EXISTING SITE PLAN
S-2	PROPOSED SITE PLAN
S-3	TOWER ELEVATION
A-1	ANTENNA PLAN AND DETAILS
A-2	ANTENNA AND EQUIPMENT DETAILS
G-1	GROUNDING DETAILS
GN-1	GENERAL NOTES
SK-1	MODIFICATION DETAILS

SITE INFORMATION

PROPERTY OWNER:	RADIO COMMUNICATIONS SERVICES 24 ROCKDALE ROAD WEST HAVEN, CT 06516	LATITUDE:	41° 17' 26.52" N
APPLICANT:	T-MOBILE NORTHEAST LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002	LONGITUDE:	72° 58' 3.3954" W
ARCHITECT/ ENGINEER:	KM CONSULTING ENGINEERS 262 UPPER FERRY ROAD EWING, NJ 08628	POWER COMPANY:	TBD
SITE ADDRESS:	24 ROCKDALE ROAD WEST HAVEN, CT 06516	T-MOBILE CONTACT:	(860) 648-1116
COUNTY:	NEW HAVEN	EXISTING/PROPOSED USE:	UNMANNED TELECOMMUNICATIONS FACILITY
GROUND ELEVATION:	152'		

APPROVALS

LANDLORD:

CHAIRPERSON:

BOARD SECRETARY:

BOARD ENGINEER:

AERIAL MAP

CLIENT:

Transcend Wireless

10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

KM Consulting Engineers, Inc.
Wireless Engineering and Project Management
262 UPPER FERRY RD.
EWING, NEW JERSEY 08628
PHONE: (609) 538-0400
E-MAIL: info@kmengr.com
WEB PAGE: http://www.kmengr.com
CERTIFICATION OF AUTHORIZATION: 24GA27989600

MICHAEL L. BOHLINGER, PE
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE # 20405

STATE OF CONNECTICUT ★ MICHAEL L. BOHLINGER ★ 20405 LICENSED PROFESSIONAL ENGINEER

9/1/20

REVISIONS

NO.	DATE:	DRN.:	DESCRIPTION:
3	9/1/20	JTH	PER CLIENT COMMENTS
2	7/14/20	JTH	PER CLIENT COMMENTS
1	6/19/20	JTH	PER CLIENT COMMENTS

PROJECT PARTICIPANTS

SITE ACQUISITION: ______
SIGN OFF INITL. ______ DATE: ______

RF ENGINEER.: ______
SIGN OFF INITL. ______ DATE: ______

CONSTR. SUPV.: ______
SIGN OFF INITL. ______ DATE: ______

A & E: KM CONSULTING ENGR.'S INC.

P.C.:	CHKD.:	DRN.:	DATE:
	MLB	DA	6/19/20

PROJECT NAME:
WEST HAVEN

SITE ADDRESS:
24 ROCKDALE ROAD
WEST HAVEN, CT 06516

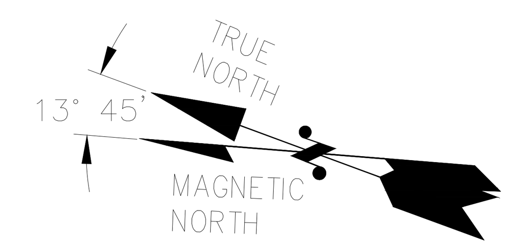
DRAWING TITLE:

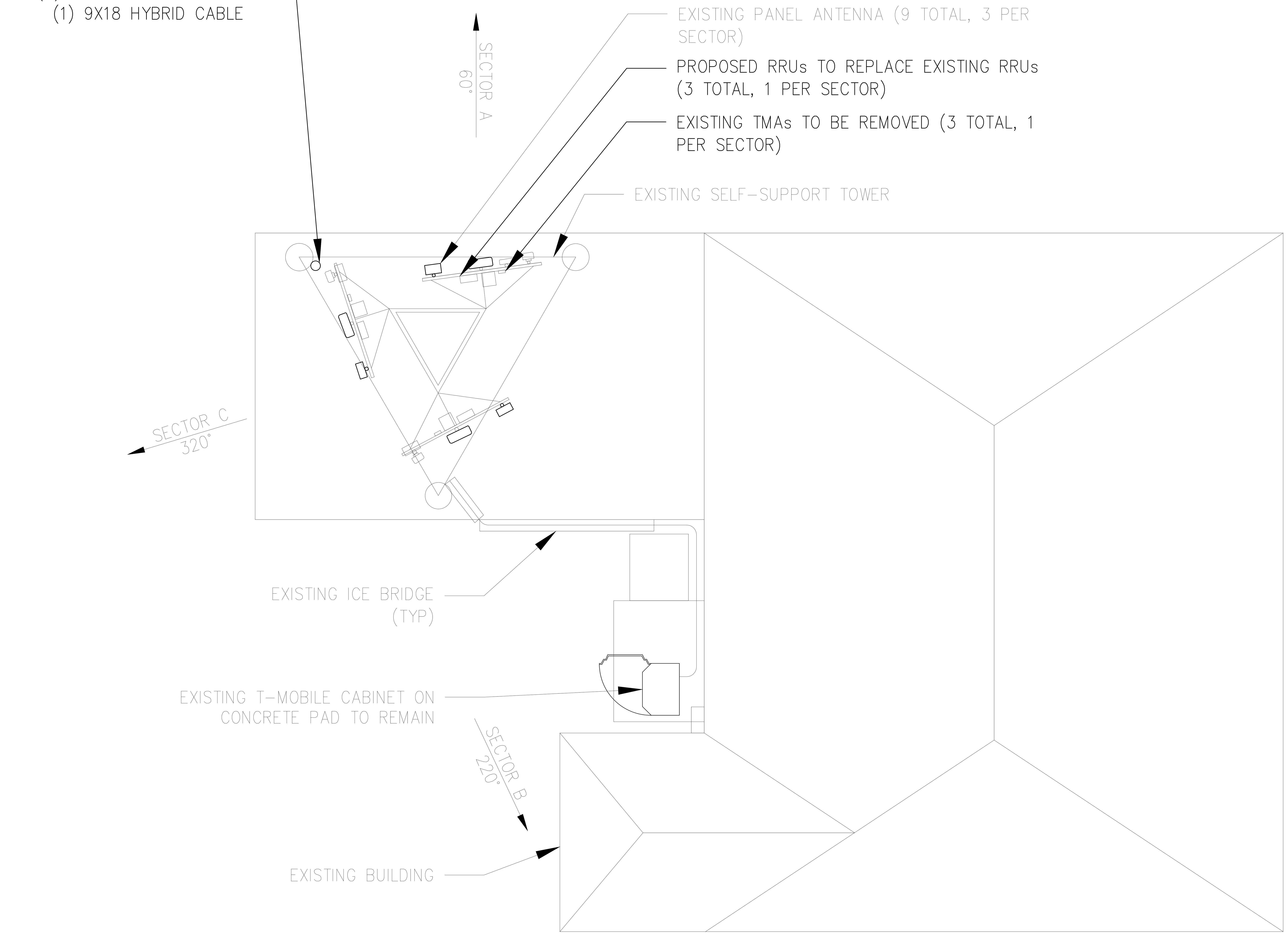
TITLE SHEET

SITE ID #:	DRAWING #:	REV. #:
CT11193A	T-1	3
PROJECT #: 140910.06		

FILE NAME: West Haven (CT11193A) CDs.dwg

LAST PLOTTED: Tuesday, 1-September-2020, 15:50
K:\Transcend Wireless\West Haven\CAD





1 S-1 EXISTING SITE PLAN
SCALE: 3/16" = 1'-0"

0 4' 8' 16' 24'

NOTE:

- GENERAL CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS BY KM CONSULTING ENGINEERS, INC. DATED JULY 1, 2020 AND EQUIPMENT INSTALLATION RECOMMENDATIONS PRIOR TO COMMENCING CONSTRUCTION.
- MOUNTS TO BE REINFORCED BY OTHERS. *SEE MOUNT REINFORCEMENT DETAILS BY CENTEK DATED 6/10/20 FOR SPECIFICATIONS ON THE REINFORCEMENT

GENERAL NOTES:

LIGHTING: EXISTING FACILITY WILL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.

GRADE: EXISTING GRADE WILL BE MAINTAINED FOR PROPOSED CONSTRUCTION.

SIGNAGE: EXTERIOR SIGNS ARE NOT PROPOSED EXCEPT AS REQUIRED BY THE FCC.

STORM WATER CONTROL: THE PROPOSED FACILITY WILL RESULT IN AN INSIGNIFICANT INCREASE IN STORM WATER RUNOFF. CONSEQUENTLY, NO WATER QUALITY CONTROL DEVICES ARE PROPOSED.

UTLITIES: SANITARY SEWER SERVICES AND POTABLE WATER ARE NOT APPLICABLE PER THE USE. IF APPLICABLE, SUBCONTRACTOR SHALL LOCATE ALL UTLITIES PRIOR TO EXCAVATING.

DRIVEWAY: A DRIVEWAY PERMIT IS NOT REQUIRED FOR THIS PROJECT. THE PROJECT WILL NOT REQUIRE RIGHT OF WAY OR PROPERTY TO BE DEDICATED FOR PUBLIC USE.

MISC: NO NOISE, SMOKE, DUST, VAPORS OR ODOR WILL RESULT FROM THIS PROJECT.

CLIENT:
Transcend Wireless
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

KM Consulting Engineers, Inc.
Wireless Engineering and Project Management
262 UPPER FERRY RD.
EWING, NEW JERSEY 08628
PHONE: (609) 538-0400
E-MAIL: info@kmengr.com
WEB PAGE: http://www.kmengr.com
CERTIFICATION OF AUTHORIZATION: 24GA27989600

MICHAEL L. BOHLINGER, PE
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE # 20405
STATE OF CONNECTICUT · MICHAEL L. BOHLINGER · 20405 · LICENSED · PROFESSIONAL ENGINEER
9/1/20

REVISIONS

NO.	DATE:	DRN.:	DESCRIPTION:
3	9/1/20	JTH	PER CLIENT COMMENTS
2	7/14/20	JTH	PER CLIENT COMMENTS
1	6/19/20	JTH	PER CLIENT COMMENTS

PROJECT PARTICIPANTS

SITE ACQUISITION: ________
SIGN OFF INITL. ______ DATE: ______
RF ENGINEER.: ________
SIGN OFF INITL. ______ DATE: ______
CONSTR. SUPV.: ________
SIGN OFF INITL. ______ DATE: ______
A & E: KM CONSULTING ENGR.'S INC.

P.C.:	CHKD.:	DRN.:	DATE:
	MLB	DA	6/19/20

PROJECT NAME:
WEST HAVEN

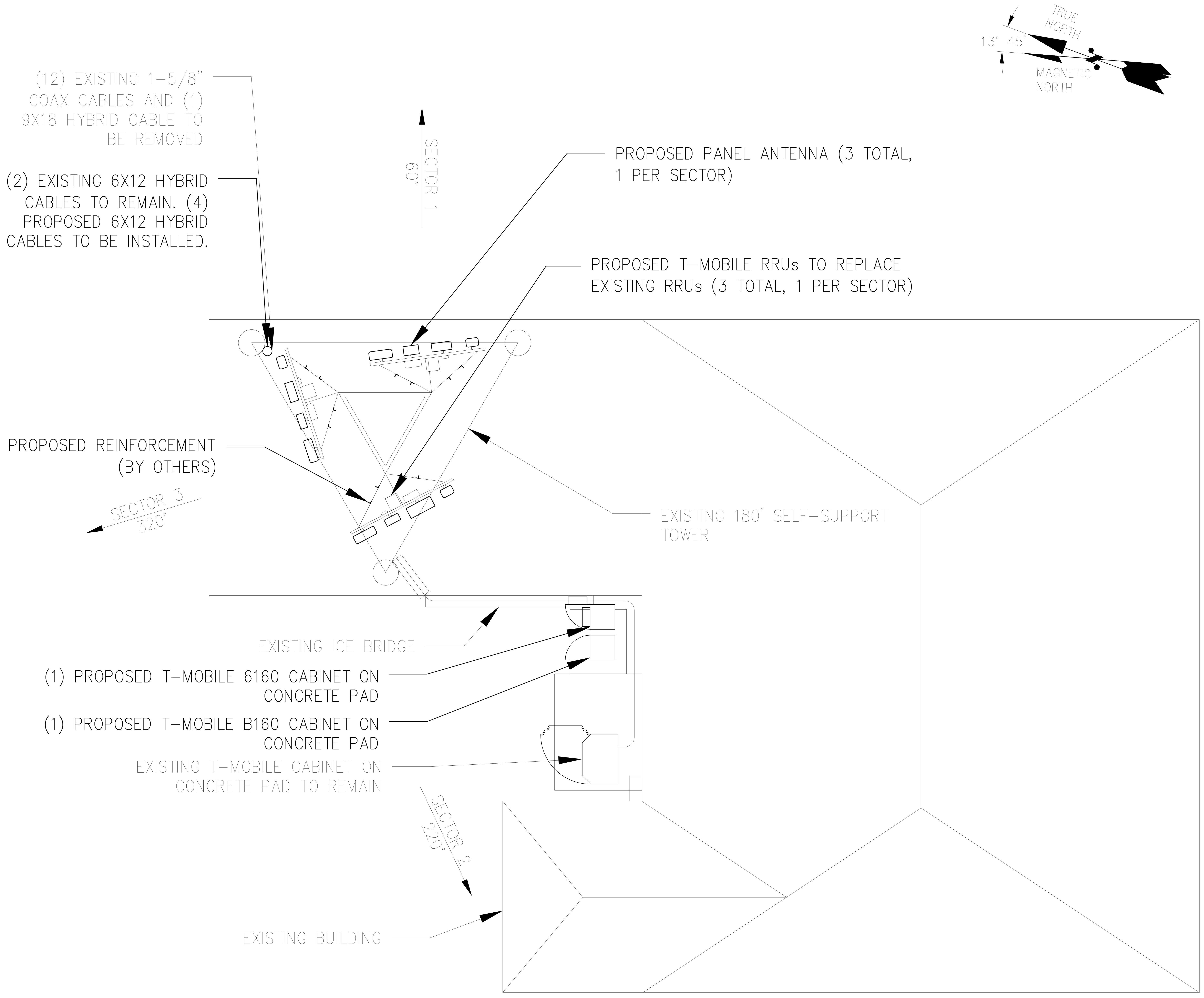
SITE ADDRESS:
24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DRAWING TITLE:
EXISTING SITE PLAN

SITE ID #: CT11193A
PROJECT #: 140910.06
DRAWING #: S-1
REV. #: 3

FILE NAME: West Haven (CT11193A) CDs.dwg

LAST PLOTTED: Tuesday, 1-September-2020, 15:50
K:\Transcend Wireless\West Haven\CAD



1 S-2 PROPOSED SITE PLAN
SCALE: 3/16" = 1'-0"

NOTE:

- GENERAL CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS BY KM CONSULTING ENGINEERS, INC. DATED JULY 1, 2020 AND EQUIPMENT INSTALLATION RECOMMENDATIONS PRIOR TO COMMENCING CONSTRUCTION.
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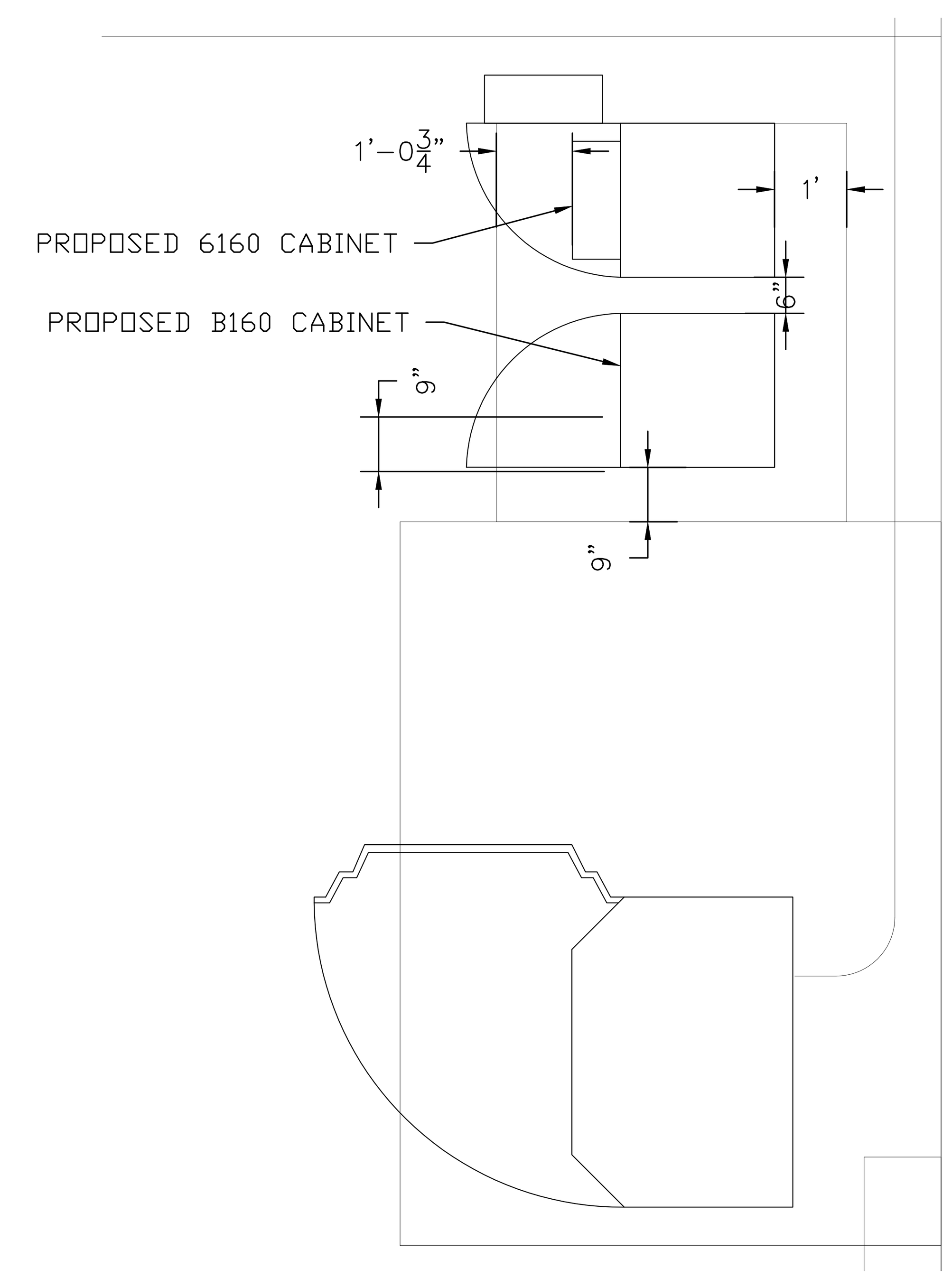

2 S-2 ENLARGED EQUIPMENT PLAN
SCALE: 1/2" = 1'-0"

CLIENT:

Transcend Wireless

10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

KM Consulting Engineers, Inc.
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E-MAIL: info@kmengr.com
WEB PAGE: http://www.kmengr.com
CERTIFICATION OF AUTHORIZATION: 24GA27989600

MICHAEL L. BOHLINGER, PE
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE # 20405

STATE OF CONNECTICUT MICHAEL L. BOHLINGER 20405 LICENSED PROFESSIONAL ENGINEER

9/1/20

REVISIONS

NO.	DATE:	DRN.:	DESCRIPTION:
3	9/1/20	JTH	PER CLIENT COMMENTS
2	7/14/20	JTH	PER CLIENT COMMENTS
1	6/19/20	JTH	PER CLIENT COMMENTS

PROJECT PARTICIPANTS

SITE ACQUISITION: ____
SIGN OFF INITL. ____ DATE: ____

RF ENGINEER.: ____
SIGN OFF INITL. ____ DATE: ____

CONSTR. SUPV.: ____
SIGN OFF INITL. ____ DATE: ____

A & E: KM CONSULTING ENGR.'S INC.

P.C.:	CHKD.:	DRN.:	DATE:
	MLB	DA	6/19/20

PROJECT NAME:
WEST HAVEN

SITE ADDRESS:
24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DRAWING TITLE:
PROPOSED SITE PLAN

SITE ID #:	DRAWING #:	REV. #:
CT11193A	S-2	3
PROJECT #: 140910.06		

FILE NAME: West Haven (CT11193A) CDs.dwg

LAST PLOTTED: Tuesday, 1-September-2020, 15:50
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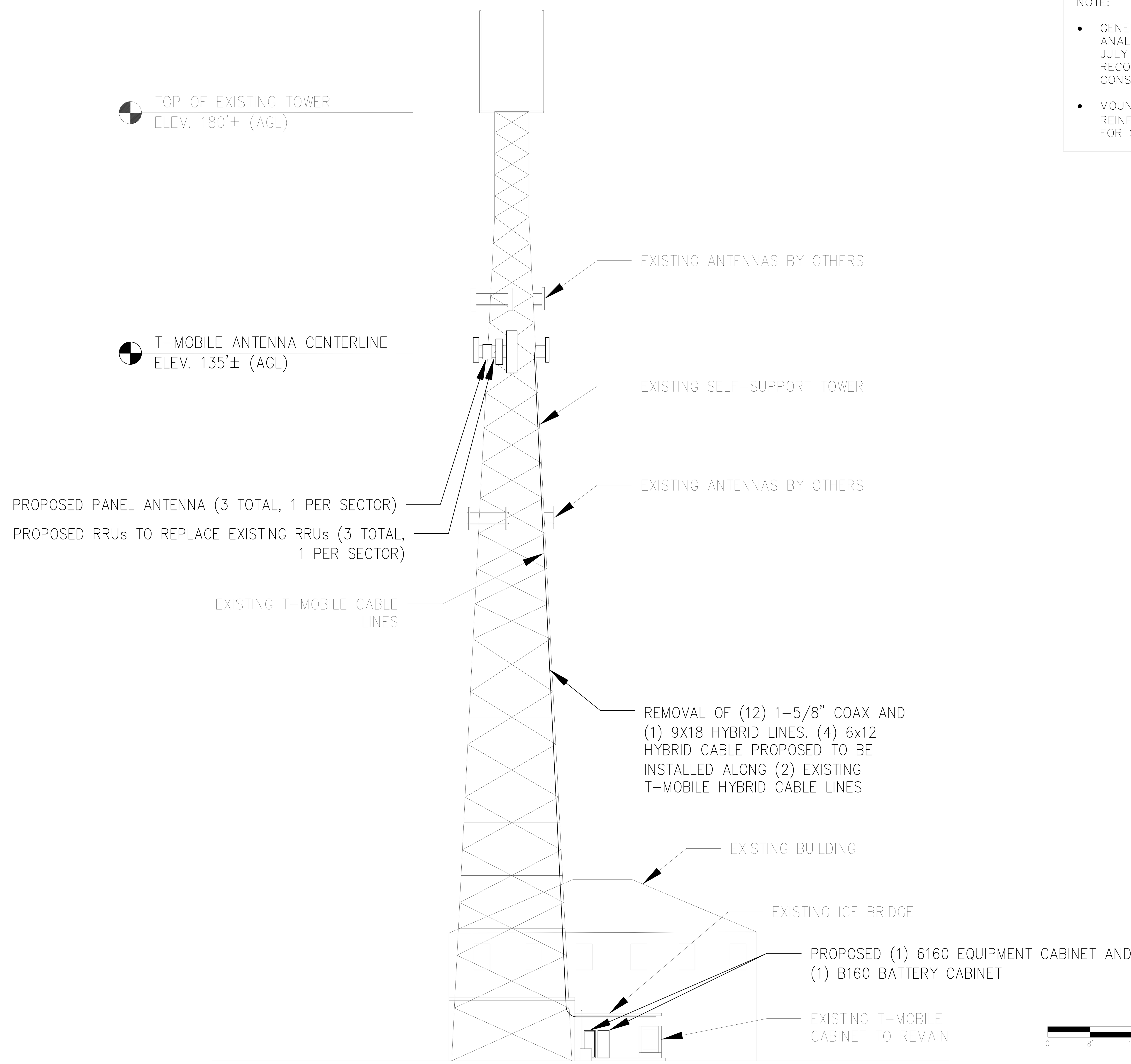

1 S-3 TOWER ELEVATION
SCALE: 3/32" = 1'-0"

0 8' 16' 32' 48'

NOTE:

- GENERAL CONTRACTOR TO REFER TO THE STRUCTURAL ANALYSIS BY KM CONSULTING ENGINEERS, INC. DATED JULY 1, 2020 AND EQUIPMENT INSTALLATION RECOMMENDATIONS PRIOR TO COMMENCING CONSTRUCTION.
- MOUNTS TO BE REINFORCED BY OTHERS. *SEE MOUNT REINFORCEMENT DETAILS BY CENTEK DATED 6/10/20 FOR SPECIFICATIONS ON THE REINFORCEMENT

CLIENT:

Transcend Wireless

10 INDUSTRIAL AVE
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CONSTR. SUPV.: ______
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A & E: KM CONSULTING ENGR.'S INC.

P.C.:	CHKD.:	DRN.:	DATE:
	MLB	DA	6/19/20

PROJECT NAME:
WEST HAVEN

SITE ADDRESS:
24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DRAWING TITLE:
TOWER ELEVATION

SITE ID #:	DRAWING #:	REV. #:
CT11193A	S-3	3
PROJECT #: 140910.06		

FILE NAME: West Haven (CT11193A) CDs.dwg

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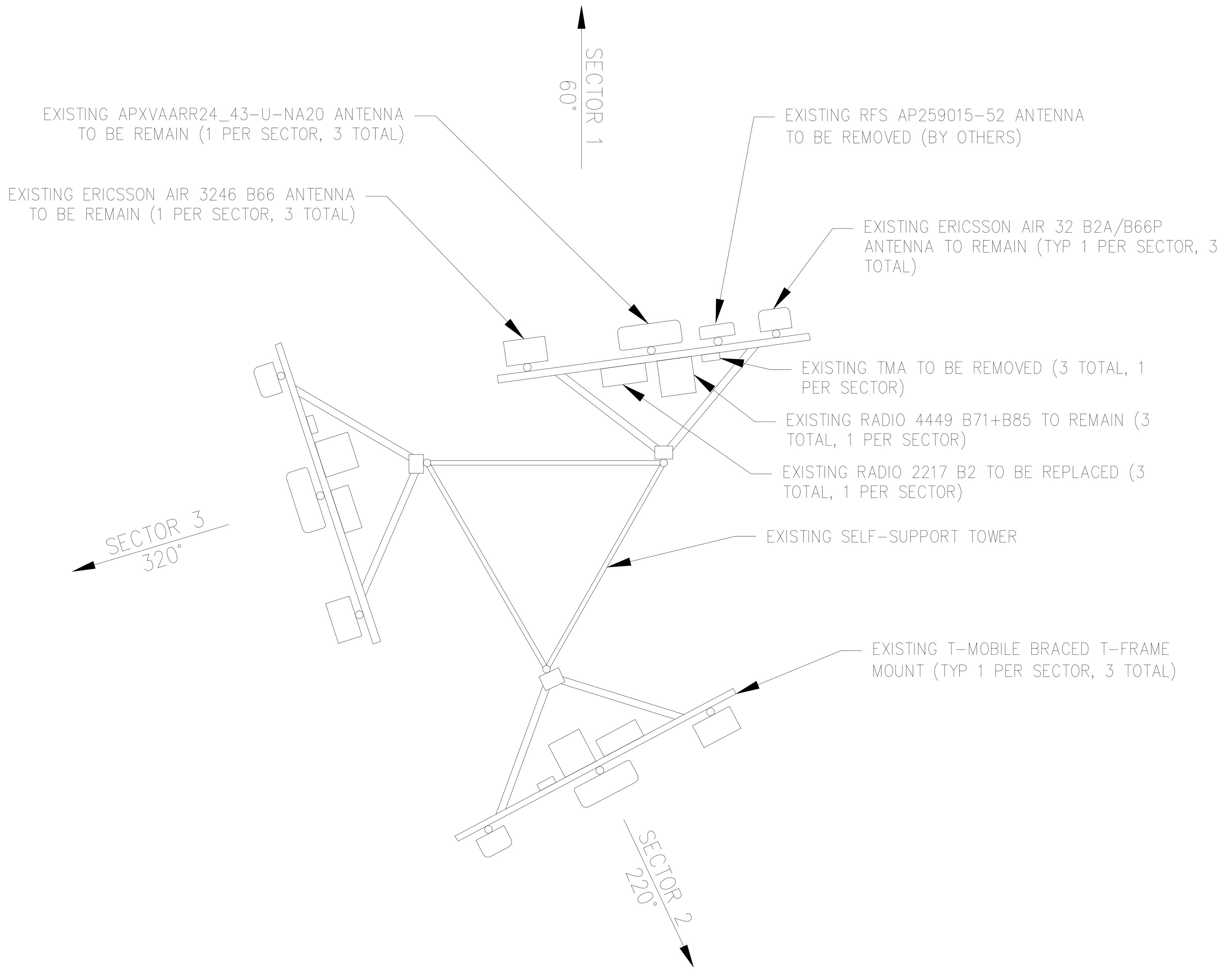
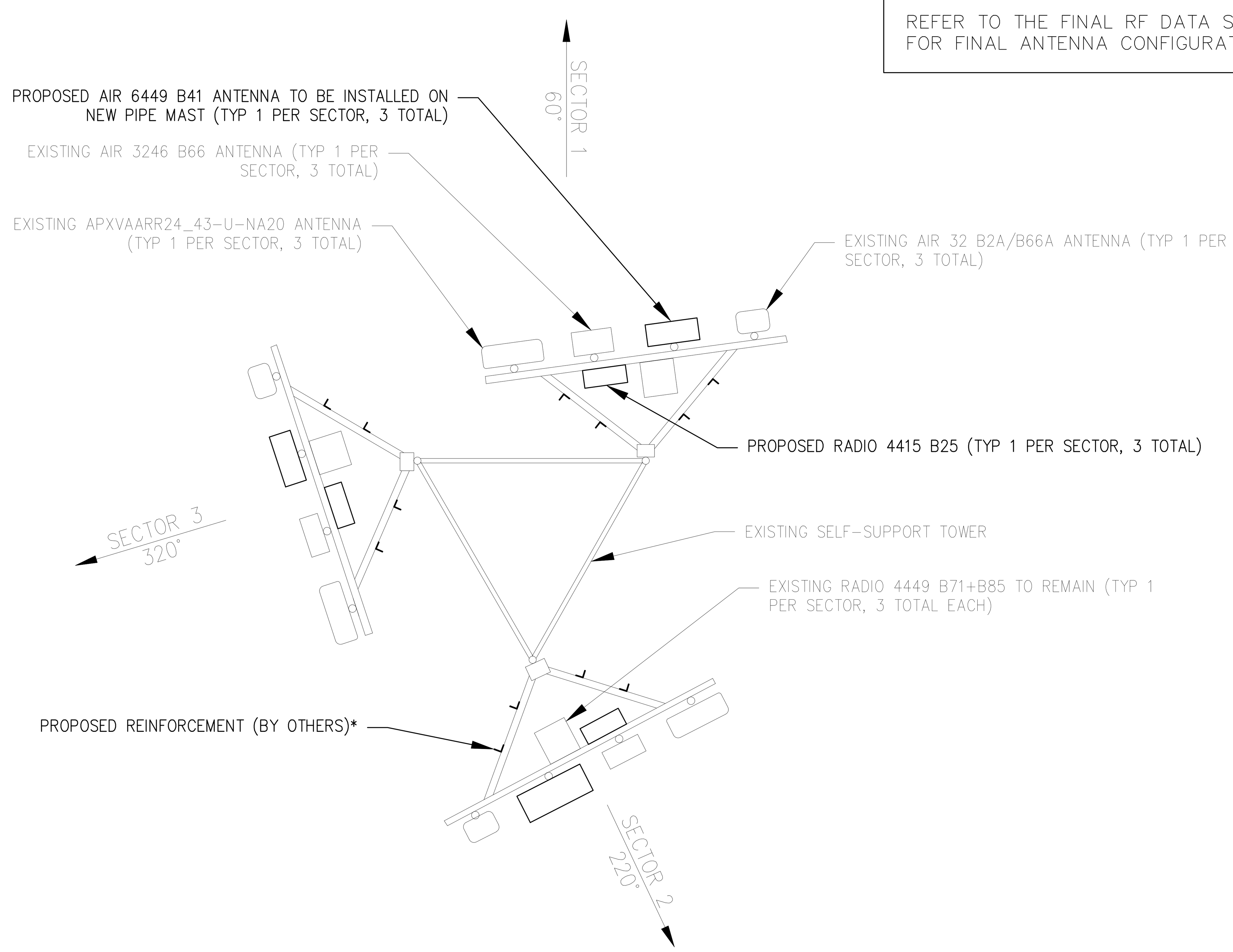


1 A-1 EXISTING ANTENNA PLAN
SCALE: N.T.S.

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA CONFIGURATION



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

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MANUFACTURER	MODEL	TMA/RRH	SIZE (HxWxD)
1	1	ERICSSON	AIR 3246 B66		58.1"X15.75"X9.4"
	2	RFS	APXVAARR24_43-U-NA20	RADIO 4449 B71+B85 RADIO 2217 B2 TWIN STYLE 1B AWS TMA	95.9"X24"X8.7"
	3	ERICSSON	AIR 32 B2A/B66A		56.6"X12.9"X8.7"
2	1	ERICSSON	AIR 3246 B66		58.1"X15.75"X9.4"
	2	RFS	APXVAARR24_43-U-NA20	RADIO 4449 B71+B85 RADIO 2217 B2 TWIN STYLE 1B AWS TMA	95.9"X24"X8.7"
	3	ERICSSON	AIR 32 B2A/B66A		56.6"X12.9"X8.7"
3	1	ERICSSON	AIR 3246 B66		58.1"X15.75"X9.4"
	2	RFS	APXVAARR24_43-U-NA20	RADIO 4449 B71+B85 RADIO 2217 B2 TWIN STYLE 1B AWS TMA	95.9"X24"X8.7"
	3	ERICSSON	AIR 32 B2A/B66A		56.6"X12.9"X8.7"

PROPOSED ANTENNA SCHEDULE

SECTOR	POSITION	MANUFACTURER	MODEL	TMA/RRH	SIZE (HxWxD)
1	1	RFS	APXVAARR24_43-U-NA20	RADIO 4449 B71+B85 RADIO 4415 B25	95.9"x24"x8.7"
	2	ERICSSON	AIR 3246 B66		58.1"x15.75"x9.4"
	3	ERICSSON	AIR 6449 B41		33.1"X20.6"X8.6"
	4	ERICSSON	AIR 32 B2A/B66A		56.6"x12.9"x8.7"
2	1	ERICSSON	AIR 32 B2A/B66A		56.6"x12.9"x8.7"
	2	ERICSSON	AIR 6449 B41		33.1"X20.6"X8.6"
	3	ERICSSON	AIR 3246 B66		58.1"x15.75"x9.4"
	4	RFS	APXVAARR24_43-U-NA20	RADIO 4415 B25 RADIO 4449 B71+B85	95.9"x24"x8.7"
3	1	ERICSSON	AIR 3246 B66		58.1"x15.75"x9.4"
	2	RFS	APXVAARR24_43-U-NA20	RADIO 4415 B25 RADIO 4449 B71+B85	95.9"x24"x8.7"
	3	ERICSSON	AIR 6449 B41		33.1"X20.6"X8.6"
	4	ERICSSON	AIR 32 B2A/B66A		56.6"x12.9"x8.7"

3 A-1 ANTENNA SPECIFICATION TABLE
SCALE:

NOTE:

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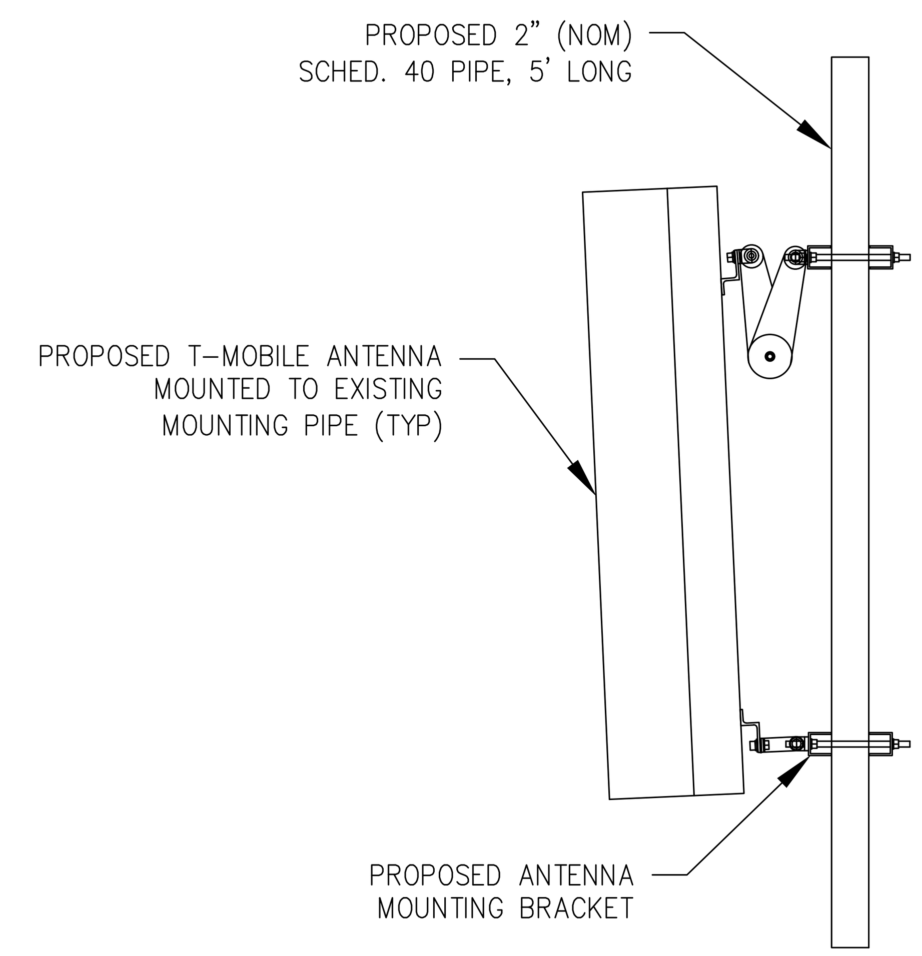

4 A-1 ANTENNA MOUNTING DETAIL
SCALE: N.T.S.

CLIENT:

Transcend Wireless

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LICENSE #

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PROFESSIONAL ENGINEER

9/1/20

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RF ENGINEER.:
SIGN OFF INITL. DATE:
CONSTR. SUPV.:
SIGN OFF INITL. DATE:
A & E: KM CONSULTING ENGR.'S INC.

P.C.:	CHKD.:	DRN.:	DATE:
	MLB	DA	6/19/20

PROJECT NAME:
WEST HAVEN

SITE ADDRESS:
24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DRAWING TITLE:
ANTENNA PLAN & DETAILS

SITE ID #:	DRAWING #:	REV. #:
CT11193A	A-1	3

PROJECT #:
140910.06

FILE NAME: West Haven (CT11193A) CDs.dwg

LAST PLOTTED: Tuesday, 1-September-2020, 15:50
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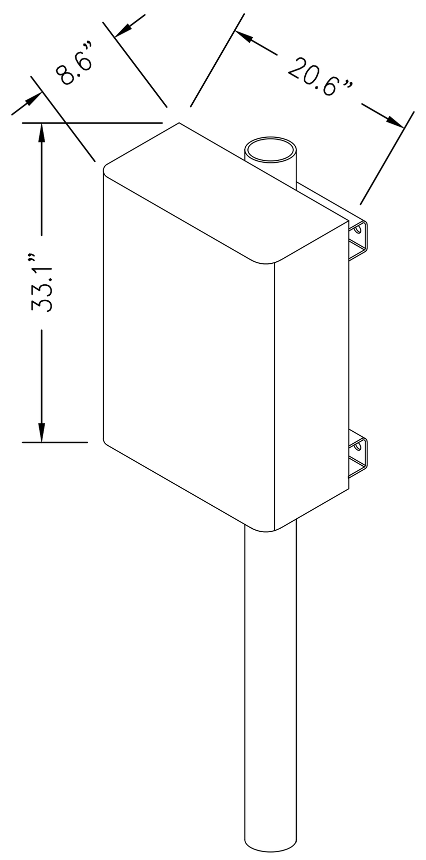

ANTENNA WEIGHT = 104 LBS.

1 ERICSSON AIR 6449 B41
A-2 NOT TO SCALE

ERICSSON 4415 B25 RRU

COLOR: LIGHT GREY
DIMENSIONS (HxWxD): 16.5" X 13.5" X 6.3"
WEIGHT: 46.3 lbs WITHOUT MOUNTING HARDWARE
RF OUTPUT POWER: UP TO 4x40W

2 ERICSSON 4415 B25 RRU DETAIL
A-2 NOT TO SCALE

Specification

Numbers of power pairs / fiber pairs		6/12
Material		plastic PPE black
Pulling force	radio end	2000 N (short-term during installation)
Temperature range	operation	–40 ℃ to +75 ℃
	installtion	–25 ℃ to +65℃
Cable retention force at enclosure	fiber break-out cable	500 N
	power break-out cable	500 N
	hybrid cable	2000 N
Ingress protection	radio end	IP 68
	base station	IP 65 (with protection tube)
IK class		IK 10
Flammability		UL94-V0
UV resistant		ISO 4892-2
Salt mist, IEC 61300-2-26		96 h
Vibration, IEC 61300-2-1		10 – 500 Hz / 10 g
Shock, IEC 61300-2-9		100 g

Hybrid cable specifications (standard cable)

Hybrid cable specification

Jacket material	Heat, moisture, and sunlight resistant polyvinyl chloride (PVC) jacket
Temperature range	-40℉ to + 158℉ (-40℃ to + 75℃)
Operating voltage	48VDC
Rated voltage	0,6kV/1kV (1.2kV)
Cable shielding	copper foil > 100% coverage
Fiber optic	4.8 mm loose-tube cable with up to 24 fibers single mode
Flame retardant	IEC 60332-1-2:2004
UV resistant	Yes, according IEC 68-2-5
UL approved	Yes

3 ERICSSON 6x12 HYBRID CABLE SPECS
A-2 NOT TO SCALE

ERICSSON RBS6160 EQUIPMENT CABINET

ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 63" X 25.6" X 25.6"
WEIGHT: 188 lbs (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R

4 ERICSSON RBS6160 EQUIPMENT CABINET
A-2 NOT TO SCALE

ERICSSON B160 EQUIPMENT CABINET

ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 63" X 25.6" X 25.6"
WEIGHT: 188 lbs (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R

5 ERICSSON B160 EQUIPMENT CABINET
A-2 NOT TO SCALE

CLIENT:

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MAHWAH, NJ 07430
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SITE ACQUISITION: ____________
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RF ENGINEER.: ____________
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CONSTR. SUPV.: ____________
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A & E: KM CONSULTING ENGR.'S INC.

P.C.:	CHKD.:	DRN.:	DATE:
	MLB	DA	6/19/20

PROJECT NAME:
WEST HAVEN

SITE ADDRESS:
24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DRAWING TITLE:
ANTENNA &
EQUIPMENT DETAILS

SITE ID #: CT11193A
PROJECT #: 140910.06
DRAWING #: A-2
REV. #: 3

FILE NAME: West Haven (CT11193A) CDs.dwg

LAST PLOTTED: Tuesday, 1-September-2020, 15:50
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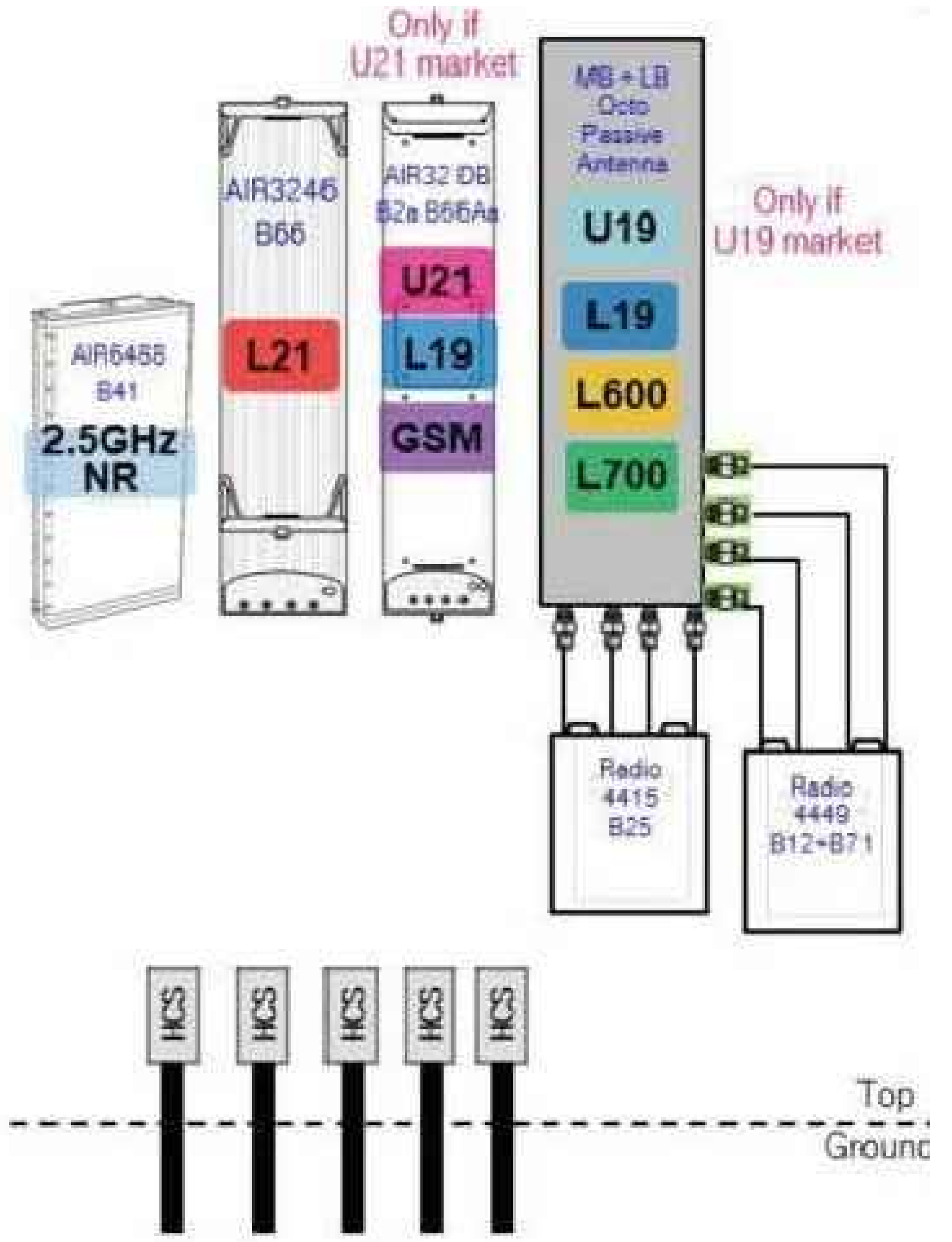
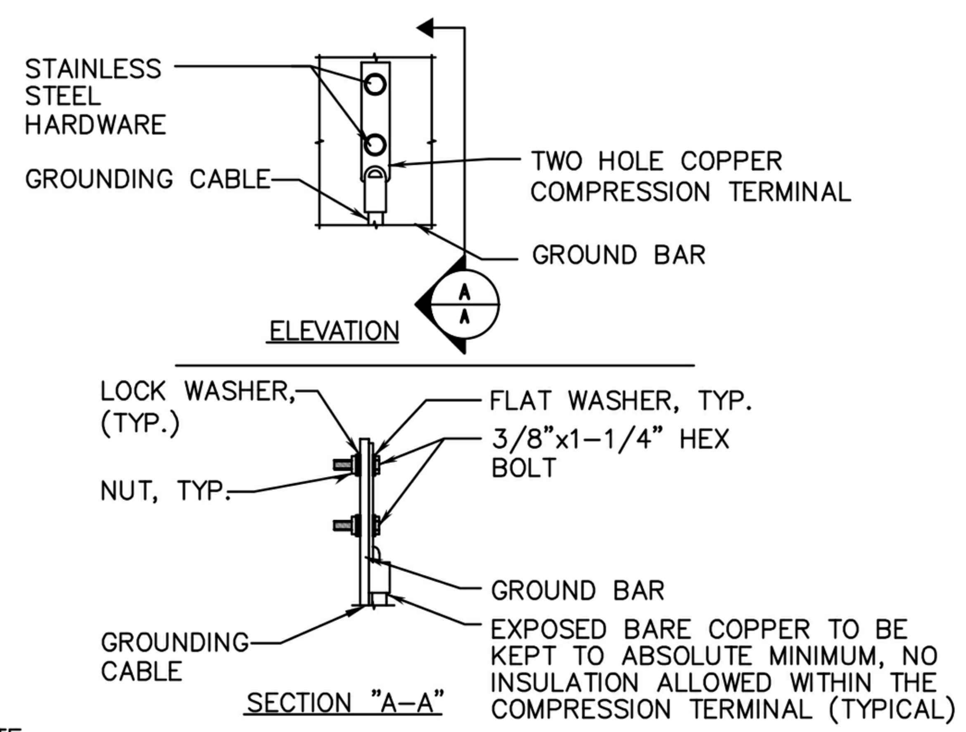
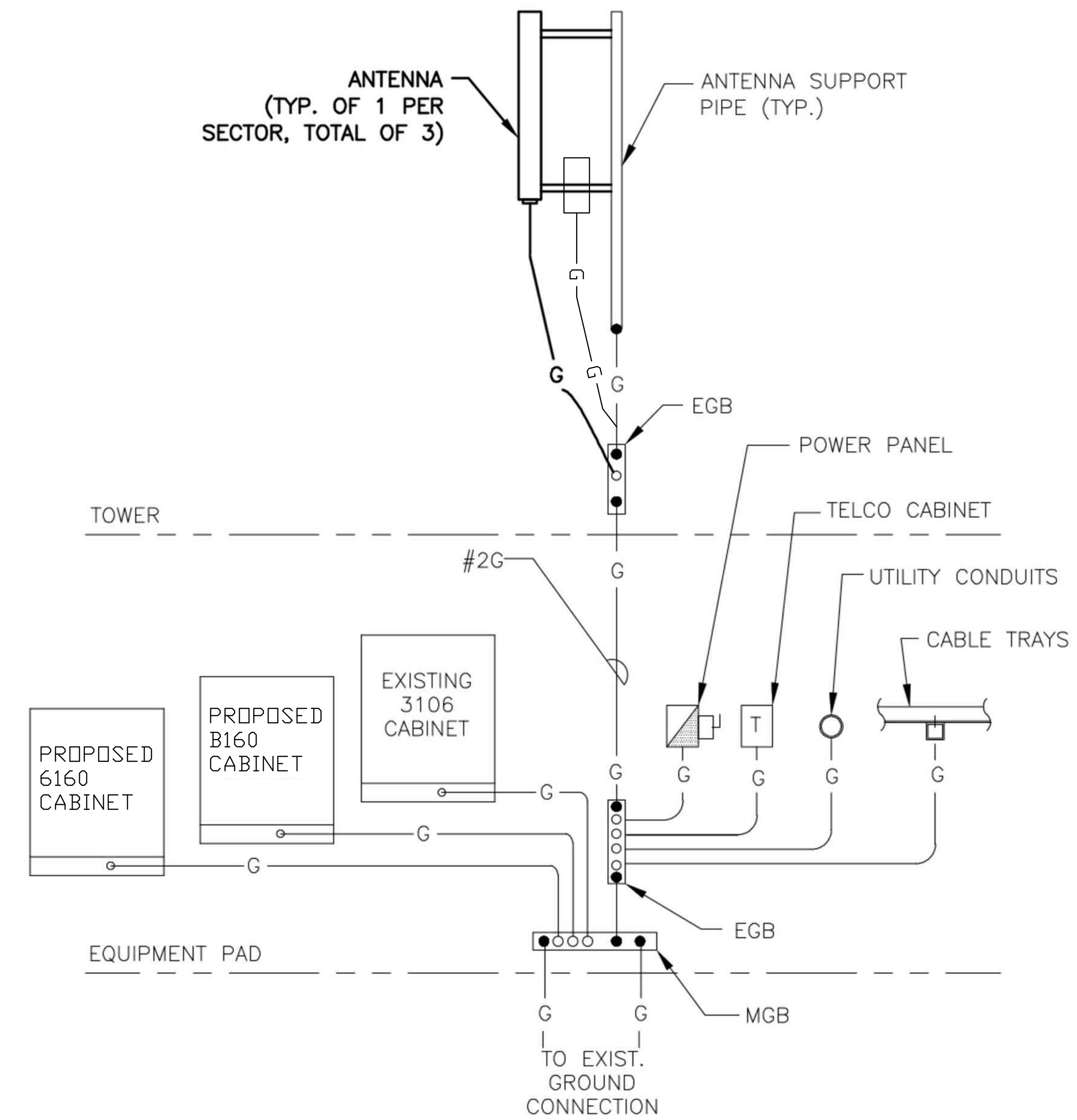


1 G-1 PLUMBING DIAGRAM
SCALE: N.T.S.



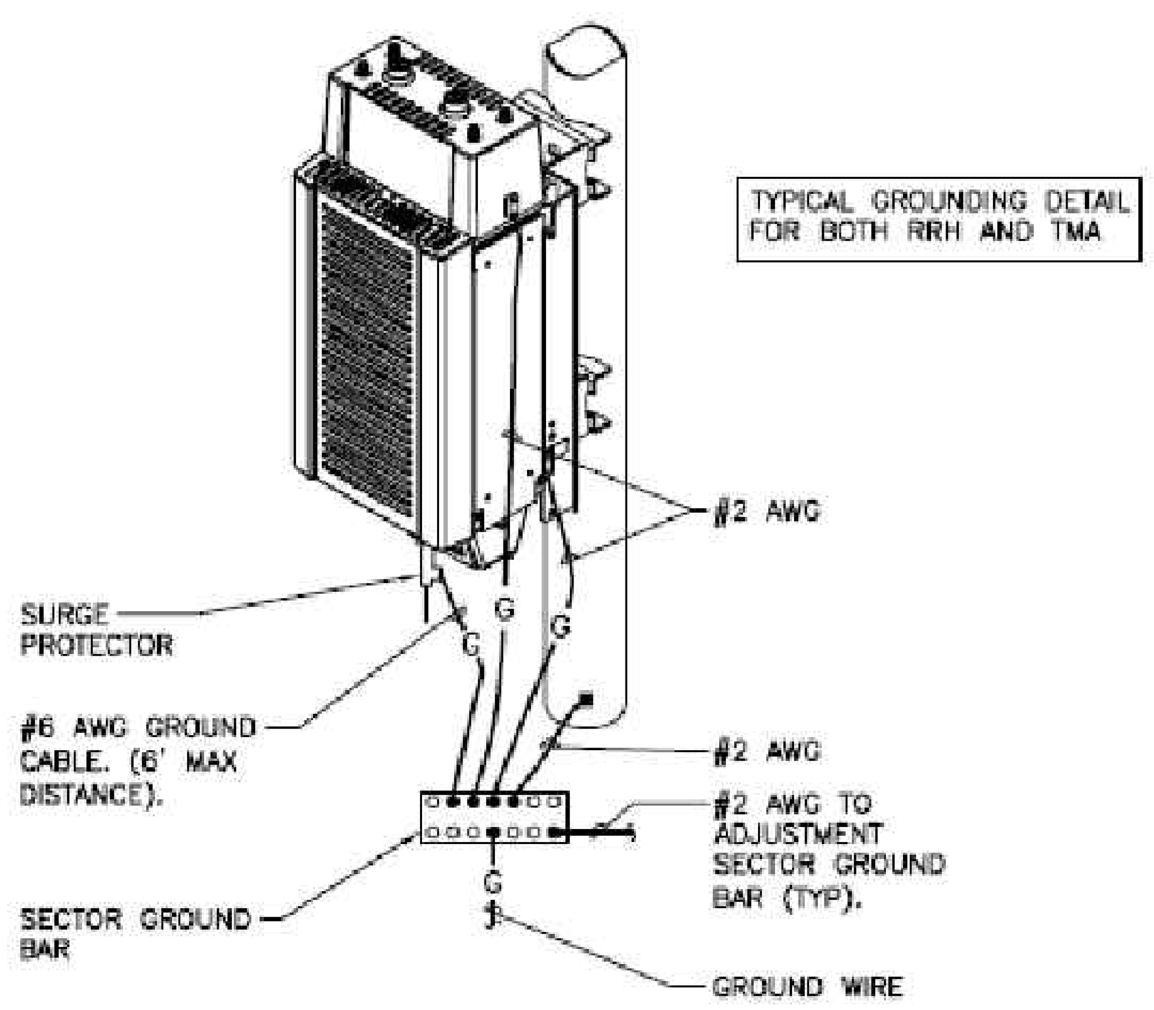
NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

2 G-1 GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.

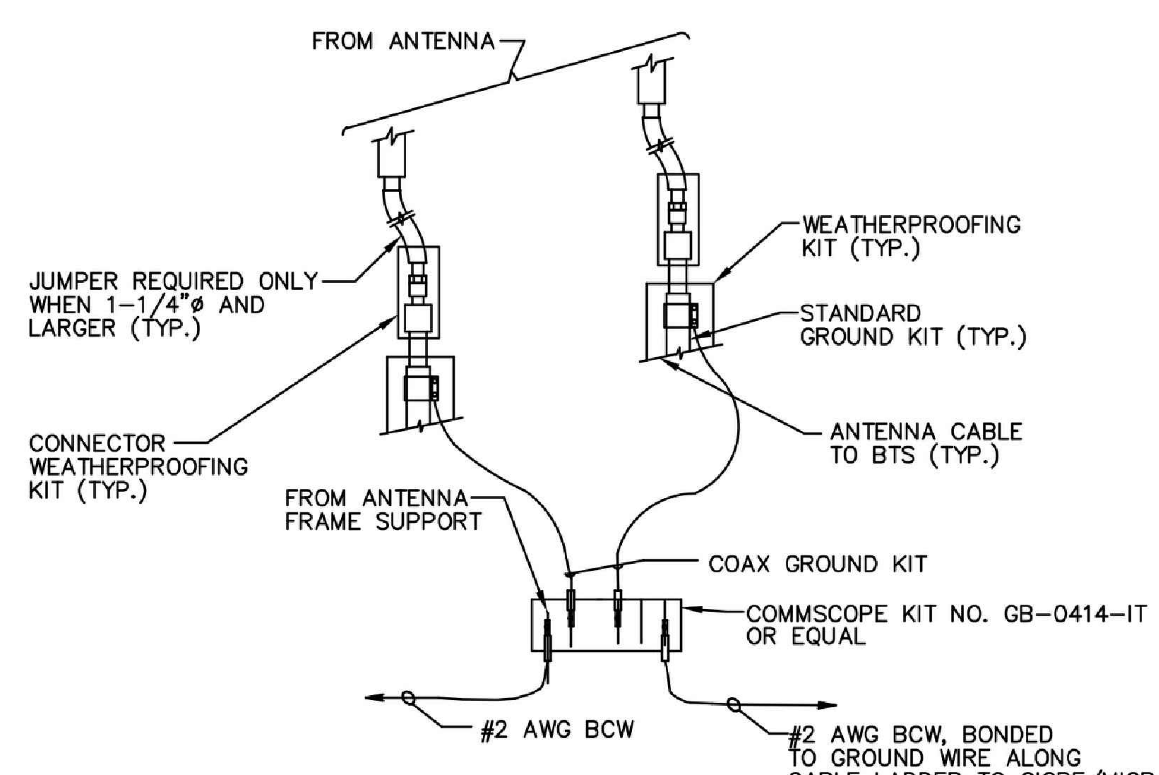


3 G-1 GROUNDING RISER DIAGRAM
SCALE: N.T.S.

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.

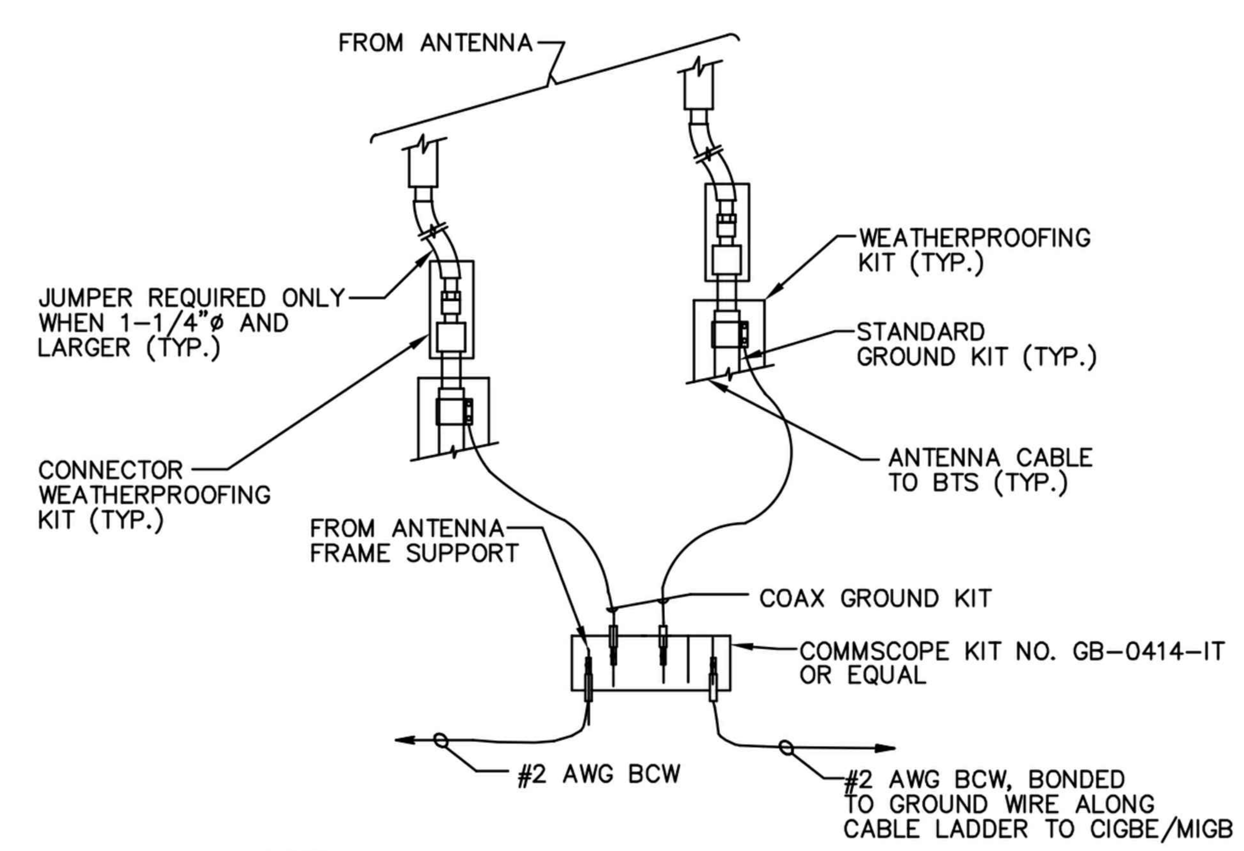


4 G-1 RRU GROUNDING DETAIL
SCALE: N.T.S.



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

5 G-1 GROUND WIRE TO GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



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

6 G-1 ANTENNA CABLE GROUNDING
SCALE: N.T.S.

CLIENT:
Transcend Wireless

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PROJECT PARTICIPANTS

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SIGN OFF INITL. DATE:
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A & E: KM CONSULTING ENGR.'S INC.

P.C.:	CHKD.:	DRN.:	DATE:
	MLB	DA	6/19/20

PROJECT NAME:
WEST HAVEN

SITE ADDRESS:
24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DRAWING TITLE:
GROUNDING DETAILS

SITE ID #: CT11193A
PROJECT #: 140910.06
DRAWING #: G-1
REV. #: 3

FILE NAME: West Haven (CT11193A) CDs.dwg

LAST PLOTTED: Tuesday, 1-September-2020, 15:50
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GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUNDING ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATIONS, RADIO, LIGHTNING PROTECTION, AND AC POWER GEC"S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS, 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RUNG, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTING OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

ELECTRICAL AND GROUNDING NOTES

1. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUNDS); GROUNDING ELECTRODE OR BUILDING STEEL; NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
2. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
3. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
4. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
5. BOND ANTENNA EGB'S AND MGB TO WATER MAIN
6. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
7. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
8. VERIFY PROPOSED SERVICE UPGRADE WITH LOCATION UTILITY COMPANY PRIOR TO CONSTRUCTION.

GENERAL NOTES

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

   CONTRACTOR – TRANSCEND WIRELESS
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T-MOBILE

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY THE CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSED AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTORS SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISED IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLES OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE 3 (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR WITH ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATIONS. ANY CONSTRUCTIN WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF THE CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: 2016 CONNECTICUT STATE BUILDING CODE.
    ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
    LIGHTNING CODE: REFER TO ELECTRICAL DRAWINGS

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

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

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

    MANUAL OF STEEL CONSTRUCTION, ASD, 9TH EDITION

    ANSI/TIA-222-G, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES

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

CLIENT:

Transcend Wireless

10 INDUSTRIAL AVE
MAHWAH, NJ 07430
TEL: (201) 684-0055
FAX: (201) 684-0066

KM Consulting Engineers, Inc.
Wireless Engineering and Project Management
262 UPPER FERRY RD.
EWING, NEW JERSEY 08628
PHONE: (609) 538-0400
E-MAIL: info@kmengr.com
WEB PAGE: http://www.kmengr.com
CERTIFICATION OF AUTHORIZATION: 24GA27989600

MICHAEL L. BOHLINGER, PE
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE # 20405

STATE OF CONNECTICUT
MICHAEL L. BOHLINGER
20405
LICENSED
PROFESSIONAL ENGINEER

9/1/20

REVISIONS

NO.	DATE:	DRN.:	DESCRIPTION:
3	9/1/20	JTH	PER CLIENT COMMENTS
2	7/14/20	JTH	PER CLIENT COMMENTS
1	6/19/20	JTH	PER CLIENT COMMENTS

PROJECT PARTICIPANTS

SITE ACQUISITION: ________
SIGN OFF INITL. _____ DATE: ________

RF ENGINEER.: ________
SIGN OFF INITL. _____ DATE: ________

CONSTR. SUPV.: ________
SIGN OFF INITL. _____ DATE: ________

A & E: KM CONSULTING ENGR.'S INC.

P.C.:	CHKD.:	DRN.:	DATE:
	MLB	DA	6/19/20

PROJECT NAME:
WEST HAVEN

SITE ADDRESS:
24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DRAWING TITLE:
GENERAL NOTES

SITE ID #:	DRAWING #:	REV. #:
CT11193A	GN-1	3
PROJECT #: 140910.06		

FILE NAME: West Haven (CT11193A) CDs.dwg

LAST PLOTTED: Tuesday, 1-September-2020, 15:50
K:\Transcend Wireless\West Haven\CAD

Exhibit D

Structural Analysis Report

STRUCTURAL ANALYSIS REPORT

For

T-Mobile

Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, NJ 07430

West Haven (CT11193A)
KM No. 140910.06

180' Self-Support Tower
24 Rockdale Road
West Haven, CT 06516
41.291205, -72.967881

Prepared By:

KM CONSULTING ENGINEERS, INC.

262 Upper Ferry Road, Ewing, NJ 08628
Ph: (609) 538-0400 www.kmengr.com

July 1, 2020

Prepared to ANSI/TIA-222-G-4 December 2014
Structural Standards for Antenna Supporting
Structures and Antennas

Transcend Wireless
West Haven (CT11193A)

TABLE OF CONTENTS

Load Case No. 1: Existing self-support tower with existing inventory and proposed T-Mobile installation.

1.0 EXECUTIVE SUMMARY

Structure

Owner/Manager: Radio Communications, Inc.

Location: 24 Rockdale Road
West Haven, CT 06516
41.291205, -72.967881

Manufacturer: Rohn

Equipment

Existing tower inventory plus the proposed installation are detailed in Section 2.0 "Tower Inventory."

Synopsis

Loading Case: The existing self-support tower with the existing inventory and proposed T-Mobile installation.

The tower superstructure meets the current ANSI/TIA-222-G standards and therefore is structurally adequate for the proposed loading. The tower superstructure is rated at 81.9% and the base foundation is rated at 52.5%.

2.0 TOWER INVENTORY

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' Dipole	191	BXA-171063-8BF (Verizon)	144.5
10' Whip	183.5	BXA-171063-8BF (Verizon)	144.5
10' Dipole	183	BXA-171063-8BF (Verizon)	144.5
10' Whip	182.5	BXA-80063-6BF (Verizon)	144.5
6' Yagi	182	BXA-80063-6BF (Verizon)	144.5
PG1N0F-0090-310	182	Stand-Off T-Frame (Verizon)	143.5
16' Whip	182	Stand-Off T-Frame (Verizon)	143.5
6' Yagi	182	Stand-Off T-Frame (Verizon)	143.5
21' Whip	182	APXVAARR24_43-U-NA20 (T-Mobile)	135
21' Whip	181.5	APXVAARR24_43-U-NA20 (T-Mobile)	135
21' Whip	181.5	APXVAARR24_43-U-NA20 (T-Mobile)	135
20' Dipole	181.5	Stand-Off T-Frame (T-Mobile)	135
14' Inverted Whip	180 - 166	Stand-Off T-Frame (T-Mobile)	135
Top Platform	180	AIR 3246 B66 (T-Mobile)	135
10' Inverted Whip	180 - 170	Stand-Off T-Frame (T-Mobile)	135
TMA	180	AIR 32 B2a/B66Aa (T-Mobile)	135
TMA	180	AIR 3246 B66 (T-Mobile)	135
(2) Scala Panels	175.5	AIR 3246 B66 (T-Mobile)	135
Raycap (Verizon)	148.5	AIR 32 B2a/B66Aa (T-Mobile)	135
(2) JAHH-45B-R3B (Verizon)	146	AIR 32 B2a/B66Aa (T-Mobile)	135
(2) JAHH-45B-R3B (Verizon)	146	Radio 4449 B71/B85 (T-Mobile)	135
(2) JAHH-45B-R3B (Verizon)	146	Radio 4449 B71/B85 (T-Mobile)	135
BSAMNT-SBS-2-2 (Verizon)	146	Radio 4449 B71/B85 (T-Mobile)	135
BSAMNT-SBS-2-2 (Verizon)	146	AP259015-52	135
BSAMNT-SBS-2-2 (Verizon)	146	AIR6449 B41 (T-Mobile)	135
B5/B13 Dual Band RRH (Verizon)	146	AIR6449 B41 (T-Mobile)	135
B5/B13 Dual Band RRH (Verizon)	146	AIR6449 B41 (T-Mobile)	135
B5/B13 Dual Band RRH (Verizon)	146	Radio 4415 B25 (T-Mobile)	135
B2/B66a Dual Band RRH (Verizon)	146	Radio 4415 B25 (T-Mobile)	135
B2/B66a Dual Band RRH (Verizon)	146	Radio 4415 B25 (T-Mobile)	135
B2/B66a Dual Band RRH (Verizon)	146	IBR1300	125
FDJ85020Q7-S1 diplexer (Verizon)	146	Empty Mount	103
FDJ85020Q7-S1 diplexer (Verizon)	146	2' yagi	102.5
FDJ85020Q7-S1 diplexer (Verizon)	146	GPS	59.5
BXA-80063-6BF (Verizon)	144.5	(2) GPS	18
HTTA box (Verizon)	144.5	(2) GPS	17.67
HTTA box (Verizon)	144.5		

Proposed T-Mobile installation:

*(3) AIR6449 B41 panel antennas @ 135' AGL
*(3) Radio 4415 B25's @ 135' AGL
*(4) 6x12 hybrid cables up to 135' AGL
*removal of (3) Radio 2217 B2's @ 135' AGL
*removal of (12) 1-5/8" coax lines up to 135' AGL
*removal of (1) 9x18 hybrid cable up to 135' AGL

3.0 COMMENTARY

Our scope of work is to determine if the existing structure is capable of withstanding the additional stresses/forces imposed by the installation of the proposed T-Mobile equipment noted in the tower inventory.

Tower structure information and foundation information was obtained from previous structural analyses by KMCE. The tower has been reinforced as per KMCE drawings in November 1997, July 2002, January 2009, August 2012, and December 2014. The existing tower inventory was determined from a tower climb and mapping completed on February 16, 2015. The proposed loading was obtained from a draft T-Mobile RFDS dated 5/19/20 and from correspondence with the client. Mount modifications as detailed by CENTEK Engineering, Inc. dated 6/10/20 are included in this report.

The following report will provide analytical calculations and commentary regarding the capacity of the proposed tower and subsequent recommendations.

4.0 ANALYSIS PROCEDURE

KM Consulting Engineers, Inc. carried out their structural analysis by correlating field inspection and tower member data into proprietary software designed specifically for communication tower analysis.

These programs run in conjunction with the guidelines set down in the ANSI/TIA-222-G (Addendum 4) Dec 2014 Standard entitled "Structural Standards for Antenna Supporting Structures and Antennas."

The existing tower is analyzed by placing wind forces on the structure in 30° positional increments around the tower (i.e. wind pressure directly onto the tower corners, faces and parallel to the faces). This enables the user to "create" a three-dimensional representation, yielding results for worst case scenarios. In effect, the production of these results allows the user to study the structural integrity of the tower when influenced by wind forces from any direction.

The proceeding report includes analysis for the tower with the addition of antennas in the scenarios stated. For clarity, the analysis shall include worst case loadings and a typical elevation view with maximum foundation loads tabulated.

Should the client require to be furnished with a full copy of our analysis, we will gladly do so.

Codes and Standards

ACI - *American Concrete Institute - Building Code Requirements for Structural Concrete* (ACI 318-14), 2014

AISC - *American Institute of Steel Construction - Manual of Steel Construction, 14th edition*, 2011

TIA - Telecommunications Industry Association - *ANSI/TIA-222-G-4 Structural Standards for Antenna Supporting Structures and Antennas*, 2014

CSBC - Connecticut State Building Code 2018

ASCE - *Minimum Design Loads for Buildings and Other Structures* (ASCE/SEI 7-05)

5.0 TOWER ANALYSIS RESULTS

The tower was analyzed for the inventory detailed in Section 2.0 “Tower Inventory”.

The basic wind speed of 97 MPH with no radial ice in accordance with ANSI/TIA-222-G is taken from Appendix N in the 2018 Connecticut State Building Code for the nominal design wind speed for the municipality of West Haven, CT. The basic wind speed of 50 MPH concurrent with ¾” design ice thickness is taken from the ANSI/TIA-222-G listing applicable for New Haven County, CT. Additional criteria include Structure Class II, Exposure Category B, and Topographic Category 1.

> **Loading Case:** Proposed loading includes the addition of (3) AIR6449 B41 panel antennas, (3) Radio 4415 B25’s, and (4) 6x12 hybrid cables, and the removal of (3) Radio 2217 B2’s, (12) 1-5/8” coax lines, and (1) 9x18 hybrid cable.

The tower superstructure meets the current ANSI/TIA-222-G standards and therefore can handle the proposed loading. The tower superstructure is rated at 81.9% and the base foundation is rated at 52.5%. The mount modifications as detailed by CENTEK Engineering, Inc. dated 6/10/20 are included in our report.

Table 1. Foundation Capacity

Loading	Actual (kip)	Allowable (kip)	Rating
Uplift force	201.7	384	**52.5%**

6.0 RECOMMENDATIONS

Further to our calculations, we conclude that the tower superstructure has sufficient capacity to support the proposed T-Mobile installation and therefore meets the current ANSI/TIA-222-G design standards.

Please do not hesitate to contact our office with any questions or concerns regarding this report.

Sincerely,
KM CONSULTING ENGINEERS, INC

Domenic Aversa, PE
Project Manager

Reviewed and Approved by:

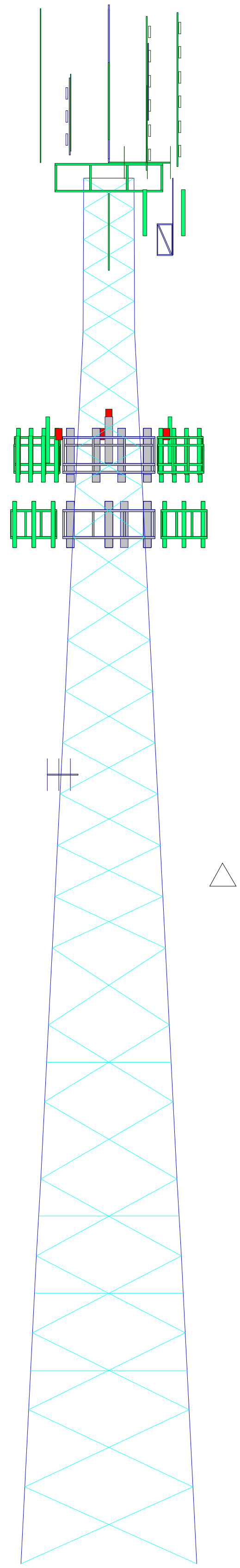
STATE OF CONNECTICUT
MICHAEL L. BOHLINGER
20405
LICENSED
PROFESSIONAL ENGINEER

Michael L. Bohlinger, PE
Principal
CT License #20405

7/1/20

7.0 APPENDIX

LOADING CASE



Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Sec. Horizontals	Face Width (ft)	# Panels @ (ft)	Weight (lb)
T1	ROHN 2 STD (GR)	A572-50	L1 1/2x1 1/2x1/8	A572-50	L3x3x1/4	N.A.	6.5	5 @ 4	806.2
T2	A		L1 3/4x1 3/4x1/8		N.A.		6.6	4 @ 5	890.1
T3	B		G				8.625	9 @ 6.66667	1635.6
T4	C		H				10.65		537.1
T5							11.325		547.8
T6			L3x3x1/4				12		712.7
T7	D						12.675		2696.0
T8	E		L3 1/2x3 1/2x1/4				14.7	8 @ 10	1378.2
T9						J	15.7125		1780.1
T10	ROHN 5 X-STR (GR) w/ 5/8" Cable					N.A.	16.725		1561.2
T11						L3 1/2x3 1/2x1/4	17.7375		1906.1
T12			I				18.75		2159.1
T13							19.7625		2216.3
T14	F		4x4x1/4 w/ sch 40			N.A.	20.775		9793.7
							22.8		28620.1

DESIGNED APPURTENANCE LOADING

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HTTA box (Verizon)	144.5	(2) GPS	17.67
HTTA box (Verizon)	144.5		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD (GR) w/ 5/8" Cable	F	ROHN 6 EH (GR) w/ 5/8" Cable (GR)
B	ROHN 2.5 X-STR (GR) w/ 5/8" Cable	G	L2x2x1/8 w/1.5" sch 40 pipe
C	ROHN 3 X-STR (GR) w/ 5/8" Cable	H	L2 1/2x2 1/2x3/16
D	ROHN 4 X-STR (GR) w/ 5/8" Cable	I	L3.5x3.5x1/4 w/ 2x1/4 plate
E	ROHN 5 STD (GR) w/ 5/8" Cable	J	L3 1/2x3 1/2x1/4

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

KM Consulting Engineers, Inc.
Consulting Engineers
262 Upper Ferry Road
Ewing, NJ 08628
Phone: (609) 538-0400
FAX:

Job: **West Haven LC1**			
Project: **180 ft. Self Support Tower**			
Client: Transcend Wireless	Drawn by: DCA	App'd:	
Code: TIA-222-G	Date: 06/11/20	Scale: NTS	
Path: I:\Doug\Transcend Wireless\West Haven (CT11193A)\Engineering\West Haven LC1.eri		Dwg No. E-1	

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Sec. Horizontals	Face Width (ft)	# Panels @ (ft)	Weight (lb)
T1	ROHN 2 STD (GR)	A572-50	L1 1/2x1 1/2x1/8	A572-50	L3x3x1/4	N.A.	6.5	5 @ 4	806.2
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T5							11.325		547.8
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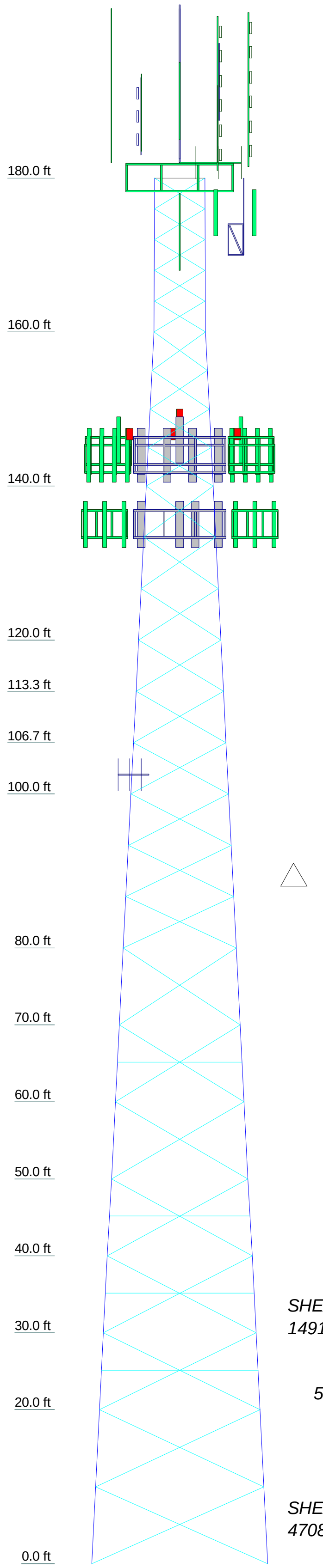
T7	D						12.675		2696.0
T8	E						14.7	8 @ 10	1378.2
T9			L3 1/2x3 1/2x1/4			J	15.7125		1780.1
T10	ROHN 5 X-STR (GR) w/ 5/8" Cable					N.A.	16.725		1561.2
T11						L3 1/2x3 1/2x1/4	17.7375		1906.1
T12			I				18.75		2159.1
T13							19.7625		2216.3
T14	F		4x4x1/4 w/ sch 40			N.A.	20.775		9793.7
							22.8		28620.1



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD (GR) w/ 5/8" Cable	F	ROHN 6 EH (GR) w/ 5/8" Cable (GR)
B	ROHN 2.5 X-STR (GR) w/ 5/8" Cable	G	L2x2x1/8 w/1.5" sch 40 pipe
C	ROHN 3 X-STR (GR) w/ 5/8" Cable	H	L2 1/2x2 1/2x3/16
D	ROHN 4 X-STR (GR) w/ 5/8" Cable	I	L3.5x3.5x1/4 w/ 2x1/4 plate
E	ROHN 5 STD (GR) w/ 5/8" Cable	J	L3 1/2x3 1/2x1/4

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Grouted pipe f'c is 8 ksi
9. Tower legs have 5/8" diameter stainless steel cable(40K tension) in grouted leg.
10. TOWER RATING: 81.9%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 246534 lb
SHEAR: 29287 lb

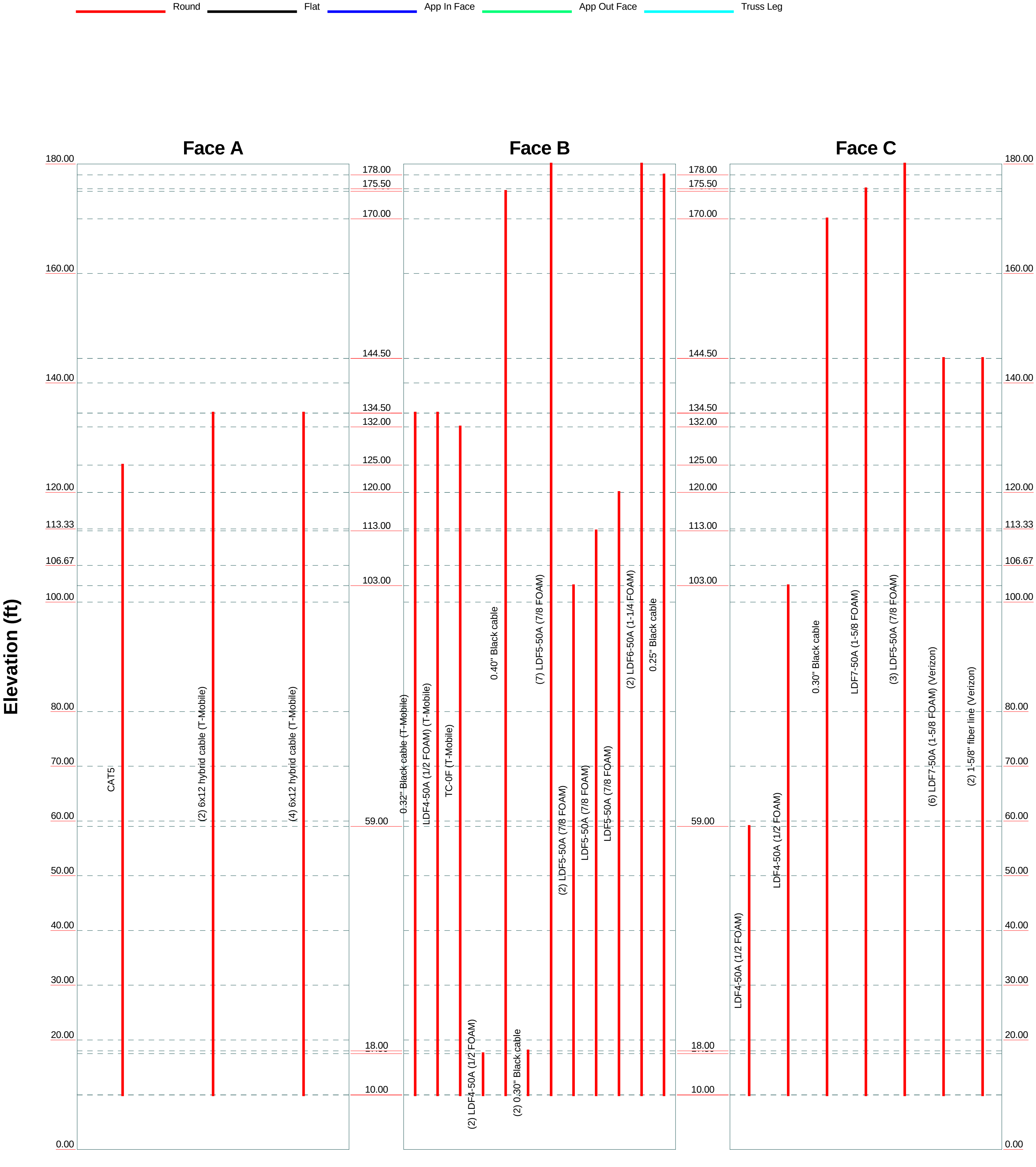
UPLIFT: -201745 lb
SHEAR: 24151 lb

AXIAL 117060 lb
SHEAR 14917 lb
MOMENT 1528905 lb-ft
TORQUE 13593 lb-ft
50 mph WIND - 0.7500 in ICE

AXIAL 47651 lb
SHEAR 47087 lb
MOMENT 4554275 lb-ft
TORQUE 29479 lb-ft
REACTIONS - 97 mph WIND

Consulting Engineers	**KM Consulting Engineers, Inc.** 262 Upper Ferry Road, Ewing, NJ 08628, Phone: (609) 538-0400, FAX:	Job: **West Haven LC1**	
		Project: **180 ft. Self Support Tower**	
		Client: Transcend Wireless	Drawn by: DCA / App'd:
		Code: TIA-222-G	Date: 06/11/20 / Scale: NTS
		Path: I:\Doug\Transcend Wireless\West Haven (CT11193A)\Engineering\West Haven LC1.eri	Dwg No. E-1

Feed Line Distribution Chart
0' - 180'



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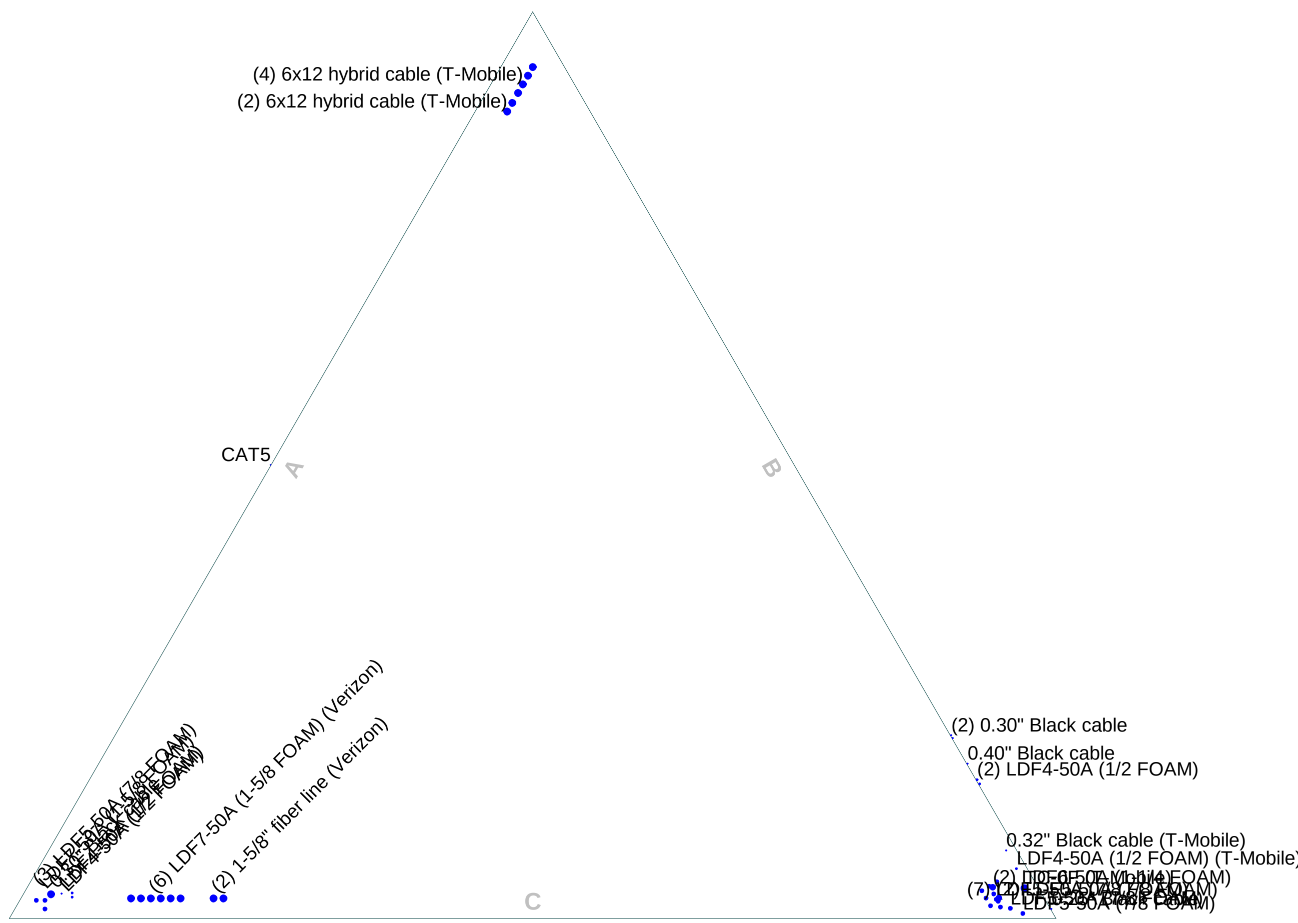
Project: **180 ft. Self Support Tower**		
Client: Transcend Wireless	Drawn by: DCA	App'd:
Code: TIA-222-G	Date: 06/11/20	Scale: NTS
Path: I:\Doug\Transcend Wireless\West Haven (CT11193A)\Engineering\West Haven LC1.eri		Dwg No. E-7

Feed Line Plan

Round Flat App In Face App Out Face

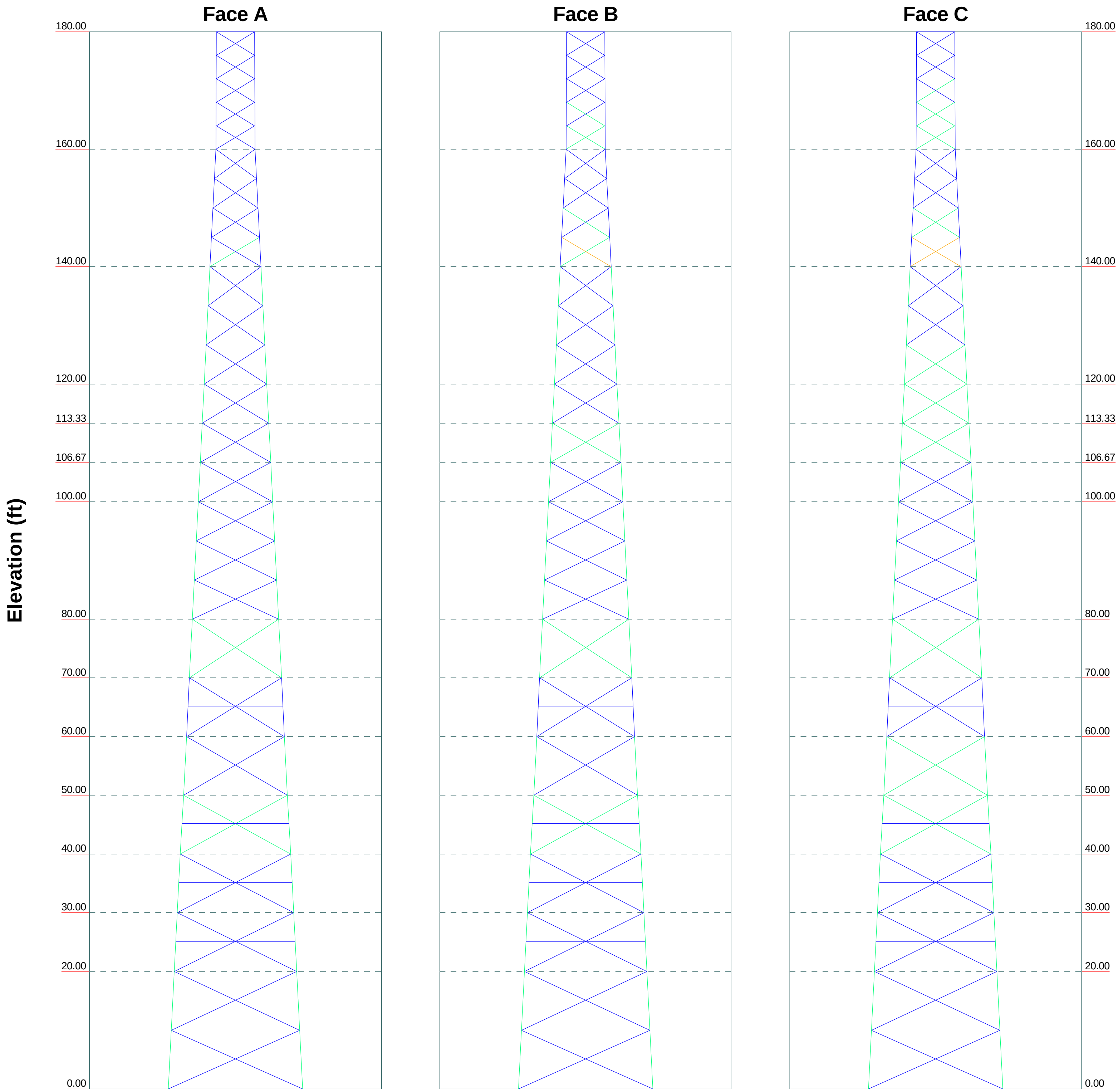


KM Consulting Engineers, Inc.
262 Upper Ferry Road
Ewing, NJ 08628
Phone: (609) 538-0400
FAX:
Consulting Engineers

Job: **West Haven LC1**		
Project: **180 ft. Self Support Tower**		
Client: Transcend Wireless	Drawn by: DCA	App'd:
Code: TIA-222-G	Date: 06/11/20	Scale: NTS
Path: I:\Doug\Transcend Wireless\West Haven (CT11193A)\Engineering\West Haven LC1.eri		Dwg No. E-7

Stress Distribution Chart
0' - 180'

> 100% | 90%-100% | 75%-90% | 50%-75% | < 50% Overstress



KM Consulting Engineers, Inc. 262 Upper Ferry Road, Ewing, NJ 08628, Phone: (609) 538-0400, FAX:	Job: ***West Haven LC1***		
Consulting Engineers	Project: ***180 ft. Self Support Tower***		
	Client: Transcend Wireless	Drawn by: DCA	App'd:
	Code: TIA-222-G	Date: 06/11/20	Scale: NTS
	Path: I:\Doug\Transcend Wireless\West Haven (CT11193A)\Engineering\West Haven LC1.eri		Dwg No. E-8

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$øP_{allow}$ lb	% Capacity	Pass Fail
T1	180 - 160	Leg	ROHN 2 STD (GR)	2	-16513.60	47357.40	34.9	Pass
		Diagonal	L1 1/2x1 1/2x1/8	7	-2569.65	4237.09	60.6	Pass
		Top Girt	L3x3x1/4	4	-348.67	20560.00	1.7	Pass
T2	160 - 140	Leg	ROHN 2.5 STD (GR) w/ 5/8" Cable	38	-33172.60	85040.70	39.0	Pass
		Diagonal	L1 3/4x1 3/4x1/8	40	-3426.42	4183.54	81.9	Pass
T3	140 - 120	Leg	ROHN 2.5 X-STR (GR) w/ 5/8" Cable	65	-60000.60	89416.30	67.1	Pass
		Diagonal	L2x2x1/8 w/1.5" sch 40 pipe	67	-5546.24	10828.00	51.2	Pass
T4	120 - 113.333	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	86	-69292.20	124199.00	55.8	Pass
		Diagonal	L2 1/2x2 1/2x3/16	88	-5682.85	10126.70	56.1	Pass
T5	113.333 - 106.667	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	95	-78986.10	124199.00	63.6	Pass
		Diagonal	L2 1/2x2 1/2x3/16	97	-5882.69	9436.58	62.3	Pass
T6	106.667 - 100	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	104	-88312.20	124199.00	71.1	Pass
		Diagonal	L3x3x1/4	106	-6199.61	18704.30	33.1 39.0 (b)	Pass
T7	100 - 80	Leg	ROHN 4 X-STR (GR) w/ 5/8" Cable	113	-118034.00	225464.00	52.4	Pass
		Diagonal	L3x3x1/4	115	-6923.23	15584.40	44.4	Pass
T8	80 - 70	Leg	ROHN 5 STD (GR) w/ 5/8" Cable	134	-130228.00	253652.00	51.3	Pass
		Diagonal	L3x3x1/4	136	-8018.30	12316.40	65.1	Pass
T9	70 - 60	Leg	ROHN 5 STD (GR) w/ 5/8" Cable	143	-145254.00	335317.00	43.3	Pass
		Diagonal	L3 1/2x3 1/2x1/4	145	-8540.43	17388.70	49.1	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	151	-2519.10	16359.70	15.4	Pass
T10	60 - 50	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	155	-160770.00	262883.00	61.2	Pass
		Diagonal	L3 1/2x3 1/2x1/4	157	-8689.23	16180.50	53.7	Pass
T11	50 - 40	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	164	-175628.00	347755.00	50.5	Pass
		Diagonal	L3 1/2x3 1/2x1/4	167	-9403.90	15078.40	62.4	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	172	-3045.86	13774.00	22.1	Pass
T12	40 - 30	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	176	-191283.00	347854.00	55.0	Pass
		Diagonal	L3.5x3.5x1/4 w/ 2x1/4 plate	179	-9631.83	34444.50	28.0 38.8 (b)	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	185	-3317.36	12705.40	26.1	Pass
T13	30 - 20	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	188	-206493.00	347943.00	59.3	Pass
		Diagonal	L3.5x3.5x1/4 w/ 2x1/4 plate	191	-10053.80	31753.50	31.7 40.5 (b)	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	196	-3581.14	11756.50	30.5	Pass
T14	20 - 0	Leg	ROHN 6 EH (GR) w/ 5/8" Cable (GR)	200	-238798.00	397313.00	60.1	Pass
		Diagonal	4x4x1/4 w/ sch 40	203	-10544.50	77127.90	13.7 21.2 (b)	Pass
							Summary	
						Leg (T6)	71.1	Pass
						Diagonal (T2)	81.9	Pass
						Secondary Horizontal (T13)	30.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$øP_{allow}$ lb	% Capacity	Pass Fail
						Top Girt (T1)	1.7	Pass
						Bolt Checks	44.6	Pass
						RATING =	**81.9**	**Pass**

Exhibit E
Mount Analysis

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

T-Mobile Site #: CT11193A

24 Rockdale Road
West Haven, CT 06516

Centek Project No. 20074.33

Date: June 10, 2020

Max Stress Ratio = 75.7%

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

Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

CENTEK engineering

Centered on Solutions℠

June 10, 2020

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

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CT11193A
24 Rockdale Road
West Haven, CT 06516

Centek Project No. 20074.33

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing mount, consisting of three (3) 10-ft sector frames to support the equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- T-Mobile:
  Sector Frames: Three (3) Ericsson AIR32 B66A panel antennas, three (3) Ericsson AIR3246 B66 panel antennas, three (3) RFS APXVAARR24-43-NA20 panel antennas, three (3) Ericsson AI6449 B41 panel antennas, three (3) Ericsson 4449 B71+B85 remote radio units and three (3) Ericsson 4415 B25 remote radio units mounted on three (3) sector frames with a RAD center elevation of 135-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 97 mph for West Haven as required in Appendix N of the 2018 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the subject antenna mounts with the modifications per the details on sheet SK-1 included within this report have sufficient capacity to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

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

Prepared by:

Fernando J. Palacios
Engineer

Section 2 - Calculations

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

Wind Speeds

Basic Wind Speed	$V := 97$	mph	(User Input - 2018 CSBC Appendix N)
Basic Wind Speed with Ice	$V_i := 50$	mph	(User Input per Annex B of TIA-222-G)

Input

Structure Type =	Structure_Type := Lattice		(User Input)
Structure Category =	SC := II		(User Input)
Exposure Category =	Exp := C		(User Input)
Structure Height =	$h := 180$	ft	(User Input)
Height to Center of Antennas =	$z := 135$	ft	(User Input)
Radial Ice Thickness =	$t_i := 0.75$	in	(User Input per Annex B of TIA-222-G)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)
Topograpic Factor =	$K_{zt} := 1.0$		(User Input)
	$K_a := 1.0$		(User Input)
Gust Response Factor =	$G_H = 1.12$		(User Input)

Output

Wind Direction Probability Factor =

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

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

(Per Table 2-3 of TIA-222-G)

Importance Factors =

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

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

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

$$K_{iz} := \left(\frac{z}{33}\right)^{0.1} = 1.151$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.727$$

Velocity Pressure Coefficient Antennas =

$$Kz := 2.01 \cdot \left(\left(\frac{z}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.348$$

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

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

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS APXVAARR24_43-U-NA20		
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 =	$WT_{ant} := 153.3$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.27$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 626$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 227$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 18.9$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 197$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.4$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 87$	lbs

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \cdot 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \cdot 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 425$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 425$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson - AIR 3246 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 =	$WT_{ant} := 194$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 3.7$		
Antenna Force Coefficient =	$Ca_{ant} = 1.25$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 6.3$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 245$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.8$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 147$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 8.2$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 84$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 5.5$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 57$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 194$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8574$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 6580$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 213$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 213$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson - AIR32 B66A		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 56.6$	in	(User Input)
Antenna Width =	$W_{ant} := 12.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 133$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.4$		
Antenna Force Coefficient =	$Ca_{ant} = 1.28$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.1$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 201$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.4$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 136$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.8$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 72$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 5.1$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 53$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 133$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6352$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5584$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 181$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 181$	lbs

www.centekeng.com
63-2 North Branford Road
Branford, CT 06405
P: (203) 488-0580
F: (203) 488-8587

Development of Wind & Ice Load on Antennas

Antenna Data:

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

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 175$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.9$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 71$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.1$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 60$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 3$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 29$	lbs

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5632$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 4660$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 151$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 151$	lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model = Ericsson 4449 B71+B85

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 17.9$ in (User Input)

RRUS Width = $W_{RRUS} := 13.2$ in (User Input)

RRUS Thickness = $T_{RRUS} := 9.5$ in (User Input)

RRUS Weight = $WT_{RRUS} := 75$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.4$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.6$ sf

Total RRUS Wind Force = $F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 61$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.2$ sf

Total RRUS Wind Force = $F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 44$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.5$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 24$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.9$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 19$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 75$ lbs

Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2245$ cu in

Volume of Ice on Each RRUS = $V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2362$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 77$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 77$ lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model = Ericsson 4415 25

RRUS Shape = Flat (User Input)

RRUS Height = $L_{RRUS} := 14.9$ in (User Input)

RRUS Width = $W_{RRUS} := 13.2$ in (User Input)

RRUS Thickness = $T_{RRUS} := 5.4$ in (User Input)

RRUS Weight = $WT_{RRUS} := 46.3$ lbs (User Input)

Number of RRUS's = $N_{RRUS} := 1$

RRUS Aspect Ratio = $Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.1$

RRUS Force Coefficient = $Ca_{RRUS} = 1.2$

Wind Load (without ice)

Surface Area for One RRUS = $SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.4$ sf

Total RRUS Wind Force = $F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 51$ lbs

Surface Area for One RRUS = $SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 0.6$ sf

Total RRUS Wind Force = $F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 21$ lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSF} := \frac{\left(L_{RRUS} + 2 \cdot t_{iz}\right) \cdot \left(W_{RRUS} + 2 \cdot t_{iz}\right)}{144} = 2.1$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 21$ lbs

Surface Area for One RRUS w/ Ice = $SA_{ICERRUSS} := \frac{\left(L_{RRUS} + 2 \cdot t_{iz}\right) \cdot \left(T_{RRUS} + 2 \cdot t_{iz}\right)}{144} = 1.1$ sf

Total RRUS Wind Force w/ Ice = $Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 11$ lbs

Gravity Load (without ice)

Weight of All RRUSs = $WT_{RRUS} \cdot N_{RRUS} = 46$ lbs

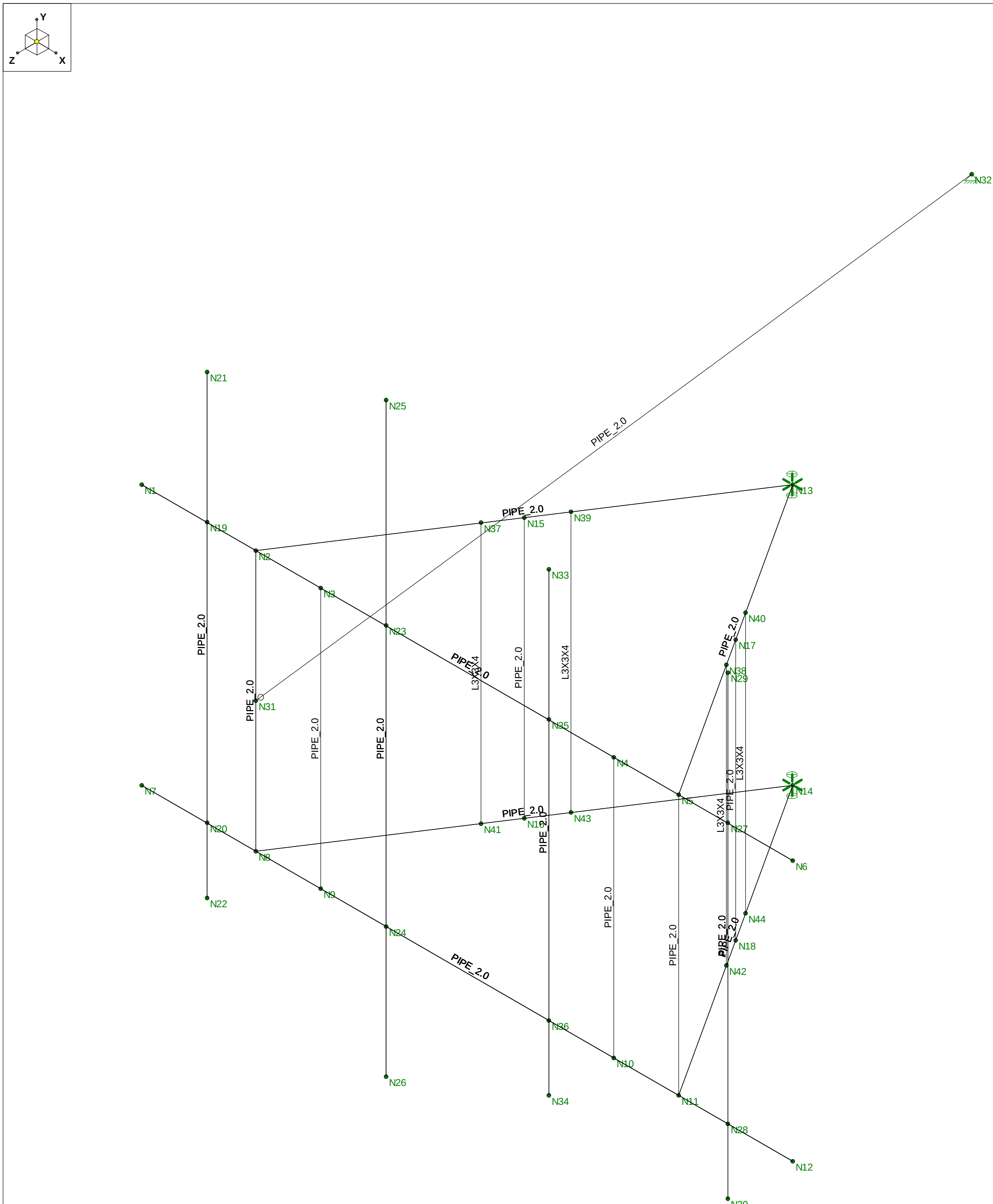
Gravity Loads (ice only)

Volume of Each RRUS = $V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 1062$ cu in

Volume of Ice on Each RRUS = $V_{ice} := \left(L_{RRUS} + 2 \cdot t_{iz}\right) \cdot \left(W_{RRUS} + 2 \cdot t_{iz}\right) \cdot \left(T_{RRUS} + 2 \cdot t_{iz}\right) - V_{RRUS} = 1644$ cu in

Weight of Ice on Each RRUS = $W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 53$ lbs

Weight of Ice on All RRUSs = $W_{ICERRUS} \cdot N_{RRUS} = 53$ lbs



Envelope Only Solution

Centek	CT11193A - Mount	
FJP		June 10, 2020 at 2:29 PM
20074.33	Member Framing	Mount.r3d

(Global) Model Settings

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

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

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
2	New Brace	L3X3X4	Column	Wide Flange	A36 Gr.36	Typical	1.44	1.23	1.23	.031

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	Pipe	10			Lbyy						Lateral
2	M2	Pipe	10			Lbyy						Lateral
3	M3	Pipe	5.963	Segment	Segment	Lbyy						Lateral
4	M4	Pipe	5.963	Segment	Segment	Lbyy						Lateral
5	M5	Pipe	5.963	Segment	Segment	Lbyy						Lateral
6	M6	Pipe	5.963	Segment	Segment	Lbyy						Lateral
7	M7	Pipe	4			Lbyy						Lateral
8	M8	Pipe	4			Lbyy						Lateral
9	M9	Pipe	4			Lbyy						Lateral
10	M10	Pipe	4			Lbyy						Lateral
11	M11	Pipe	4			Lbyy						Lateral
12	M12	Pipe	4			Lbyy						Lateral
13	M13	Pipe	12.59			Lbyy						Lateral
14	M14	Pipe	7			Lbyy						Lateral
15	M15	Pipe	9			Lbyy						Lateral
16	M16	Pipe	7			Lbyy						Lateral
17	M17	Pipe	7			Lbyy						Lateral
18	M18	New Brace	4			Lbyy						Lateral
19	M19	New Brace	4			Lbyy						Lateral
20	M20	New Brace	4			Lbyy						Lateral
21	M21	New Brace	4			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N6			Pipe	Beam	Pipe	A53 Gra...	Typical
2	M2	N7	N12			Pipe	Beam	Pipe	A53 Gra...	Typical
3	M3	N2	N13			Pipe	Beam	Pipe	A53 Gra...	Typical
4	M4	N8	N14			Pipe	Beam	Pipe	A53 Gra...	Typical
5	M5	N5	N13			Pipe	Beam	Pipe	A53 Gra...	Typical
6	M6	N11	N14			Pipe	Beam	Pipe	A53 Gra...	Typical
7	M7	N3	N9			Pipe	Beam	Pipe	A53 Gra...	Typical
8	M8	N4	N10			Pipe	Beam	Pipe	A53 Gra...	Typical
9	M9	N15	N16			Pipe	Beam	Pipe	A53 Gra...	Typical
10	M10	N17	N18			Pipe	Beam	Pipe	A53 Gra...	Typical
11	M11	N2	N8			Pipe	Beam	Pipe	A53 Gra...	Typical
12	M12	N5	N11			Pipe	Beam	Pipe	A53 Gra...	Typical
13	M13	N31	N32			Pipe	Beam	Pipe	A53 Gra...	Typical
14	M14	N22	N21			Pipe	Beam	Pipe	A53 Gra...	Typical
15	M15	N26	N25			Pipe	Beam	Pipe	A53 Gra...	Typical
16	M16	N34	N33			Pipe	Beam	Pipe	A53 Gra...	Typical
17	M17	N30	N29			Pipe	Beam	Pipe	A53 Gra...	Typical
18	M18	N37	N41			New Brace	Column	Wide Flange	A36 Gr.36	Typical
19	M19	N39	N43			New Brace	Column	Wide Flange	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
20	M20	N40	N44			New Brace	Column	Wide Flange	A36 Gr.36	Typical
21	M21	N38	N42			New Brace	Column	Wide Flange	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	1.75	0	0	0	
3	N3	2.75	0	0	0	
4	N4	7.25	0	0	0	
5	N5	8.25	0	0	0	
6	N6	10	0	0	0	
7	N7	0	-4	0	0	
8	N8	1.75	-4	0	0	
9	N9	2.75	-4	0	0	
10	N10	7.25	-4	0	0	
11	N11	8.25	-4	0	0	
12	N12	10	-4	0	0	
13	N13	5	0	-5	0	
14	N14	5	-4	-5	0	
15	N15	3.375	0	-2.5	0	
16	N16	3.375	-4	-2.5	0	
17	N17	6.625	0	-2.5	0	
18	N18	6.625	-4	-2.5	0	
19	N19	1	0	0	0	
20	N20	1	-4	0	0	
21	N21	1	2	0	0	
22	N22	1	-5	0	0	
23	N23	3.75	0	0	0	
24	N24	3.75	-4	0	0	
25	N25	3.75	3	0	0	
26	N26	3.75	-6	0	0	
27	N27	9	0	0	0	
28	N28	9	-4	0	0	
29	N29	9	2	0	0	
30	N30	9	-5	0	0	
31	N31	1.75	-2	0	0	
32	N32	.25	-2	-12.5	0	
33	N33	6.25	2	0	0	
34	N34	6.25	-5	0	0	
35	N35	6.25	0	0	0	
36	N36	6.25	-4	0	0	
37	N37	3.112471	0	-2.096109	0	
38	N38	6.887529	0	-2.096109	0	
39	N39	3.657459	0	-2.934553	0	
40	N40	6.342541	0	-2.934553	0	
41	N41	3.112471	-4	-2.096109	0	
42	N42	6.887529	-4	-2.096109	0	
43	N43	3.657459	-4	-2.934553	0	
44	N44	6.342541	-4	-2.934553	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N13	Reaction	Reaction	Reaction		Reaction	
2	N14	Reaction	Reaction	Reaction		Reaction	
3	N32	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M14	Y	-.067	2
2	M14	Y	-.067	6
3	M15	Y	-.077	1.667
4	M15	Y	-.077	8
5	M15	Y	-.075	%50
6	M16	Y	-.052	2
7	M16	Y	-.052	4.75
8	M17	Y	-.097	2
9	M17	Y	-.097	6
10	M15	Y	-.046	3

Member Point Loads (BLC 3 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M14	Y	-.091	2
2	M14	Y	-.091	6
3	M15	Y	-.213	1.667
4	M15	Y	-.213	8
5	M15	Y	-.077	%50
6	M16	Y	-.076	2
7	M16	Y	-.076	4.75
8	M17	Y	-.107	2
9	M17	Y	-.107	6
10	M15	Y	-.053	3

Member Point Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M14	X	.027	2
2	M14	X	.027	6
3	M15	X	.044	1.667
4	M15	X	.044	8
5	M15	X	.019	%50
6	M16	X	.015	2
7	M16	X	.015	4.75
8	M17	X	.029	2
9	M17	X	.029	6
10	M15	X	.011	3

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M14	X	.068	2
2	M14	X	.068	6
3	M15	X	.114	1.667

Member Point Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
4	M15	X	.114	8
5	M15	X	.044	%50
6	M16	X	.036	2
7	M16	X	.036	4.75
8	M17	X	.074	2
9	M17	X	.074	6
10	M15	X	.021	3

Member Point Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M14	Z	.036	2
2	M14	Z	.036	6
3	M15	Z	.099	1.667
4	M15	Z	.099	8
5	M16	Z	.03	2
6	M16	Z	.03	4.75
7	M17	Z	.042	6
8	M17	Z	.042	2

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M14	Z	.101	2
2	M14	Z	.101	6
3	M15	Z	.313	1.667
4	M15	Z	.313	8
5	M16	Z	.088	2
6	M16	z	.088	4.75
7	M17	Z	.123	2
8	M17	Z	.123	6

Member Distributed Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M3	X	.002	.002	0	0
2	M9	X	.002	.002	0	0
3	M4	X	.002	.002	0	0
4	M11	X	.002	.002	0	0
5	M14	X	.002	.002	0	0
6	M15	X	.002	.002	0	0
7	M17	X	.002	.002	0	0
8	M5	X	.002	.002	0	0
9	M6	X	.002	.002	0	0
10	M10	X	.002	.002	0	0
11	M12	X	.002	.002	0	0
12	M8	X	.002	.002	0	0
13	M7	X	.002	.002	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M3	X	.007	.007	0	0

Member Distributed Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
2	M9	X	.007	.007	0	0
3	M4	X	.007	.007	0	0
4	M11	X	.007	.007	0	0
5	M14	X	.007	.007	0	0
6	M15	X	.007	.007	0	0
7	M17	X	.007	.007	0	0
8	M5	X	.007	.007	0	0
9	M6	X	.007	.007	0	0
10	M10	X	.007	.007	0	0
11	M12	X	.007	.007	0	0
12	M8	X	.007	.007	0	0
13	M7	X	.007	.007	0	0

Member Distributed Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.002	.002	0	0
2	M2	Z	.002	.002	0	0
3	M11	Z	.002	.002	0	0
4	M7	Z	.002	.002	0	0
5	M8	Z	.002	.002	0	0
6	M12	Z	.002	.002	0	0
7	M3	Z	.002	.002	0	0
8	M5	Z	.002	.002	0	0
9	M9	Z	.002	.002	0	0
10	M4	Z	.002	.002	0	0
11	M6	Z	.002	.002	0	0
12	M10	Z	.002	.002	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.007	.007	0	0
2	M2	Z	.007	.007	0	0
3	M11	Z	.007	.007	0	0
4	M7	Z	.007	.007	0	0
5	M8	Z	.007	.007	0	0
6	M12	Z	.007	.007	0	0
7	M3	Z	.007	.007	0	0
8	M5	Z	.007	.007	0	0
9	M9	Z	.007	.007	0	0
10	M4	Z	.007	.007	0	0
11	M6	Z	.007	.007	0	0
12	M10	Z	.007	.007	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	DL		-1						
2	Dead Load	None					10			
3	Ice Load	None					10			
4	Wind with Ice X	None					10	13		

Basic Load Cases (Continued)

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
5	Wind X	None					10	13		
6	Wind with Ice Z	None					8	12		
7	Wind Z	None					8	12		

Load Combinations

	Description	Solve	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.2D + 1.6W (X-direc...	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-direc...	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1.0Wi...	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (Z-direc...	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (Z-direc...	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1.0Wi...	Yes	Y		1	1.2	2	1.2	3	1	6	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N13	max	.111	6	1.291	6	-.238	2	0	6	-.09	6	0	6
2		min	-1.016	2	.519	2	-3.302	6	0	1	-.658	1	0	1
3	N14	max	-.004	5	1.19	3	3.174	3	0	6	.062	6	0	6
4		min	-.591	1	.505	5	.264	5	0	1	-.31	2	0	1
5	N32	max	-.003	6	.03	1	-.022	6	0	6	0	6	0	6
6		min	-.23	2	.02	5	-1.902	2	0	1	0	1	0	1
7	Totals:	max	0	6	2.506	6	0	3						
8		min	-1.832	1	1.052	2	-2.76	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
1	N1	max	.24	1	-.174	2	.234	1	4.821e-03	1	3.805e-03	1	-6.488e-04	5
2		min	.037	6	-.609	6	-.049	5	2.359e-03	5	-3.644e-03	5	-2.143e-03	1
3	N2	max	.24	1	-.215	2	.153	1	6.352e-03	1	3.845e-03	1	-6.927e-04	5
4		min	.037	6	-.626	6	.029	6	2.762e-03	5	-4.475e-03	5	-2.288e-03	1
5	N3	max	.24	1	-.24	2	.109	1	4.012e-03	4	3.643e-03	1	-1.222e-03	5
6		min	.037	6	-.651	6	.044	6	2.347e-03	3	-6.755e-03	5	-2.769e-03	3
7	N4	max	.241	1	-.304	5	.049	5	7.392e-04	4	6.611e-03	4	-6.666e-04	5
8		min	.036	6	-.724	3	-.101	1	-2.203e-04	2	1.753e-03	3	-1.745e-03	1
9	N5	max	.241	1	-.315	5	-.019	5	1.646e-03	6	4.479e-03	1	-1.293e-03	5
10		min	.036	6	-.743	3	-.154	1	7.037e-05	2	1.688e-03	6	-2.786e-03	1
11	N6	max	.241	1	-.341	5	-.044	6	7.14e-04	5	4.095e-03	1	-1.223e-03	5
12		min	.036	6	-.798	3	-.241	1	-7.182e-04	2	1.062e-03	6	-3.025e-03	1
13	N7	max	.141	2	-.173	2	.152	2	2.177e-03	6	3.167e-03	2	-6.742e-04	5
14		min	-.031	6	-.609	6	-.084	4	-1.143e-03	2	-3.624e-03	4	-2.227e-03	1
15	N8	max	.141	2	-.214	2	.086	2	3.36e-03	6	3.104e-03	1	-5.577e-04	5
16		min	-.031	6	-.626	6	-.024	6	-1.979e-03	2	-3.871e-03	4	-1.468e-03	1
17	N9	max	.141	2	-.24	2	.056	5	1.588e-03	6	2.676e-03	2	-1.257e-03	5
18		min	-.031	6	-.651	6	-.013	6	-7.299e-04	2	-5.463e-03	4	-2.856e-03	3
19	N10	max	.142	2	-.304	5	.05	4	5.103e-04	6	4.415e-03	5	-6.653e-04	5
20		min	-.03	6	-.724	3	-.065	2	-5.017e-04	2	-3.385e-04	3	-1.74e-03	1
21	N11	max	.142	2	-.315	5	.016	6	1.61e-03	6	2.808e-03	5	-1.3e-03	5

Envelope Joint Displacements (Continued)

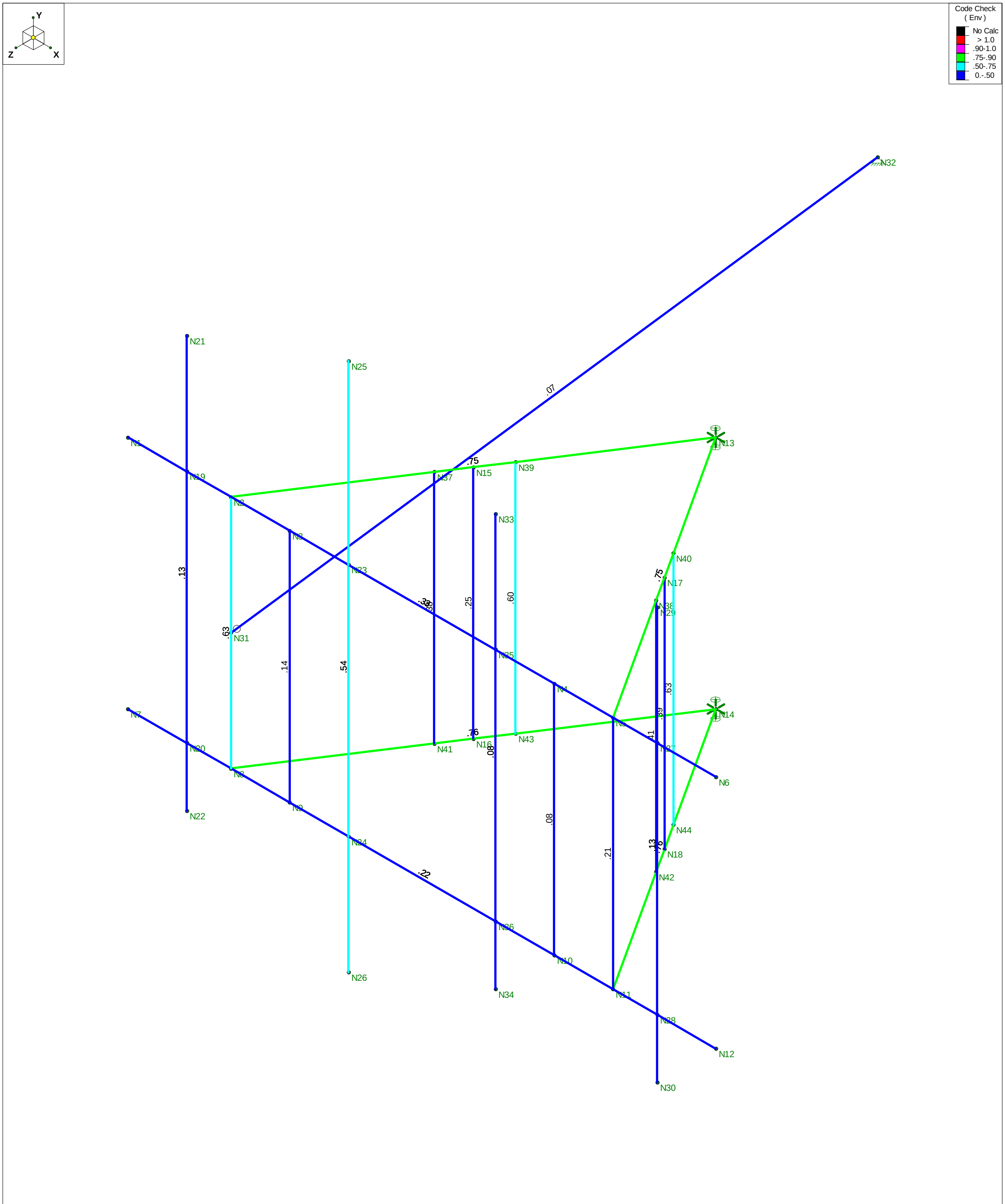
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
22		min	-.03	6	-.743	3	-.094	2	-3.315e-05	2	-3.842e-04	6	-2.834e-03	1
23	N12	max	.142	2	-.341	5	.018	6	3.2e-04	5	3.017e-03	2	-1.217e-03	5
24		min	-.03	6	-.798	3	-.156	2	-7.923e-04	2	-2.823e-05	6	-2.935e-03	1
25	N13	max	0	6	0	6	0	6	2.155e-02	3	0	6	-1.122e-03	5
26		min	0	1	0	1	0	1	8.835e-03	5	0	1	-2.694e-03	1
27	N14	max	0	6	0	6	0	6	2.155e-02	3	0	6	-1.102e-03	5
28		min	0	1	0	1	0	1	8.838e-03	5	0	1	-2.588e-03	1
29	N15	max	.108	1	-.156	2	.07	1	4.232e-03	3	4.746e-03	1	-7.766e-04	5
30		min	.043	6	-.432	6	.031	6	1.828e-03	5	9.818e-04	6	-1.699e-03	1
31	N16	max	.042	2	-.156	2	.025	2	4.15e-03	3	2.894e-03	2	-7.083e-04	5
32		min	-.027	6	-.432	6	-.02	6	1.809e-03	2	-4.273e-04	6	-1.182e-03	1
33	N17	max	.085	2	-.216	5	.018	4	4.169e-03	6	4.761e-03	1	-1.233e-03	5
34		min	-.023	4	-.512	3	-.054	2	1.622e-03	2	-1.506e-04	5	-2.717e-03	3
35	N18	max	.062	1	-.216	5	.013	5	4.177e-03	6	2.989e-03	2	-1.197e-03	5
36		min	-.02	5	-.512	3	-.042	1	1.577e-03	2	-9.391e-04	4	-2.733e-03	3
37	N19	max	.24	1	-.198	2	.188	1	4.821e-03	1	3.805e-03	1	-6.539e-04	5
38		min	.037	6	-.619	6	-.005	5	2.359e-03	5	-3.662e-03	5	-2.149e-03	1
39	N20	max	.141	2	-.198	2	.114	2	2.177e-03	6	3.167e-03	2	-6.794e-04	5
40		min	-.031	6	-.619	6	-.041	4	-1.143e-03	2	-3.642e-03	4	-2.234e-03	1
41	N21	max	.305	1	-.198	2	.304	1	4.825e-03	1	3.805e-03	1	-6.543e-04	5
42		min	.054	5	-.619	6	.068	5	2.658e-03	6	-3.662e-03	5	-2.838e-03	1
43	N22	max	.116	2	-.198	2	.128	2	2.177e-03	6	3.167e-03	2	-6.794e-04	5
44		min	-.042	6	-.619	6	-.057	6	-1.143e-03	2	-3.642e-03	4	-2.215e-03	1
45	N23	max	.24	1	-.27	2	.177	4	7.325e-03	4	3.664e-03	1	-1.102e-03	5
46		min	.037	6	-.684	3	.035	3	1.527e-03	3	-3.835e-03	5	-3.172e-03	1
47	N24	max	.141	2	-.27	2	.114	5	1.027e-03	3	2.305e-03	2	-1.097e-03	5
48		min	-.031	6	-.684	3	-.017	3	-1.475e-03	5	-3.57e-03	4	-2.353e-03	1
49	N25	max	.471	1	-.27	2	.722	4	1.728e-02	4	3.664e-03	1	-1.104e-03	5
50		min	.077	5	-.684	3	.091	3	1.538e-03	3	-3.835e-03	5	-7.298e-03	1
51	N26	max	.097	2	-.27	2	.156	5	1.024e-03	3	2.305e-03	2	-1.096e-03	5
52		min	-.08	6	-.684	3	-.042	3	-1.749e-03	5	-3.57e-03	4	-2.225e-03	3
53	N27	max	.241	1	-.327	5	-.031	6	7.14e-04	5	4.095e-03	1	-1.218e-03	5
54		min	.036	6	-.767	3	-.192	1	-7.182e-04	2	1.066e-03	6	-3.018e-03	1
55	N28	max	.142	2	-.327	5	.018	6	3.2e-04	5	3.017e-03	2	-1.211e-03	5
56		min	-.03	6	-.767	3	-.12	2	-7.923e-04	2	-2.493e-05	6	-2.929e-03	1
57	N29	max	.328	1	-.327	5	-.012	5	1.69e-03	5	4.095e-03	1	-1.219e-03	5
58		min	.066	5	-.768	3	-.209	1	-7.189e-04	2	1.066e-03	6	-3.757e-03	1
59	N30	max	.111	2	-.327	5	.015	6	3.2e-04	5	3.017e-03	2	-1.211e-03	5
60		min	-.057	6	-.767	3	-.111	2	-7.923e-04	2	-2.493e-05	6	-2.91e-03	1
61	N31	max	.174	2	-.215	2	0	6	1.034e-03	1	3.475e-03	1	-1.036e-03	5
62		min	.003	6	-.626	6	-.009	2	-7.551e-05	6	-4.172e-03	5	-2.327e-03	1
63	N32	max	0	6	0	6	0	6	7.312e-03	6	1.151e-03	2	-1.511e-03	5
64		min	0	1	0	1	0	1	3.735e-03	2	1.935e-05	6	-2.816e-03	1
65	N33	max	.276	1	-.298	5	.164	4	1.561e-03	4	5.733e-03	4	-5.343e-04	6
66		min	.049	6	-.717	3	-.049	2	1.414e-04	2	1.534e-03	3	-1.465e-03	1
67	N34	max	.123	2	-.298	5	.098	5	4.793e-04	6	3.734e-03	5	-5.373e-04	6
68		min	-.037	6	-.717	3	-.034	1	-4.646e-04	2	-2.187e-04	3	-1.697e-03	1
69	N35	max	.241	1	-.298	5	.126	4	1.56e-03	4	5.733e-03	4	-5.342e-04	6
70		min	.037	6	-.717	3	-.053	2	1.414e-04	2	1.534e-03	3	-1.465e-03	1
71	N36	max	.142	2	-.298	5	.1	5	4.793e-04	6	3.734e-03	5	-5.373e-04	6
72		min	-.031	6	-.717	3	-.039	1	-4.647e-04	2	-2.187e-04	3	-1.697e-03	1
73	N37	max	.131	1	-.161	2	.084	1	3.906e-03	3	4.672e-03	1	-9.269e-04	5

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
74		min	.046	6	-.449	6	.034	6	1.703e-03	5	5.186e-04	6	-2.193e-03	1
75	N38	max	.109	2	-.229	5	.018	4	4.095e-03	6	5.182e-03	1	-1.439e-03	5
76		min	-.022	4	-.542	3	-.069	2	1.52e-03	2	4.798e-04	5	-3.254e-03	3
77	N39	max	.083	1	-.148	2	.053	1	5.527e-03	3	4.9e-03	1	-9.592e-04	5
78		min	.036	6	-.41	6	.026	6	2.359e-03	5	1.595e-03	6	-1.875e-03	1
79	N40	max	.062	2	-.199	5	.017	4	6.062e-03	3	4.298e-03	1	-1.651e-03	5
80		min	-.022	4	-.473	3	-.039	2	2.509e-03	5	-6.784e-04	5	-3.698e-03	3
81	N41	max	.057	2	-.162	2	.034	2	3.896e-03	3	3.141e-03	2	-7.011e-04	5
82		min	-.028	6	-.449	6	-.021	6	1.729e-03	5	-1.409e-04	6	-1.218e-03	3
83	N42	max	.076	1	-.229	5	.015	5	4.099e-03	6	2.857e-03	2	-1.43e-03	5
84		min	-.024	5	-.542	3	-.051	1	1.492e-03	2	-1.139e-03	6	-3.264e-03	3
85	N43	max	.028	2	-.148	2	.016	2	5.457e-03	3	2.333e-03	2	-9.277e-04	5
86		min	-.023	6	-.41	6	-.018	6	2.321e-03	5	-9.29e-04	6	-1.72e-03	3
87	N44	max	.047	1	-.199	5	.01	5	6.058e-03	3	2.898e-03	2	-1.622e-03	5
88		min	-.016	5	-.473	3	-.032	1	2.522e-03	5	-9.648e-04	4	-3.704e-03	3

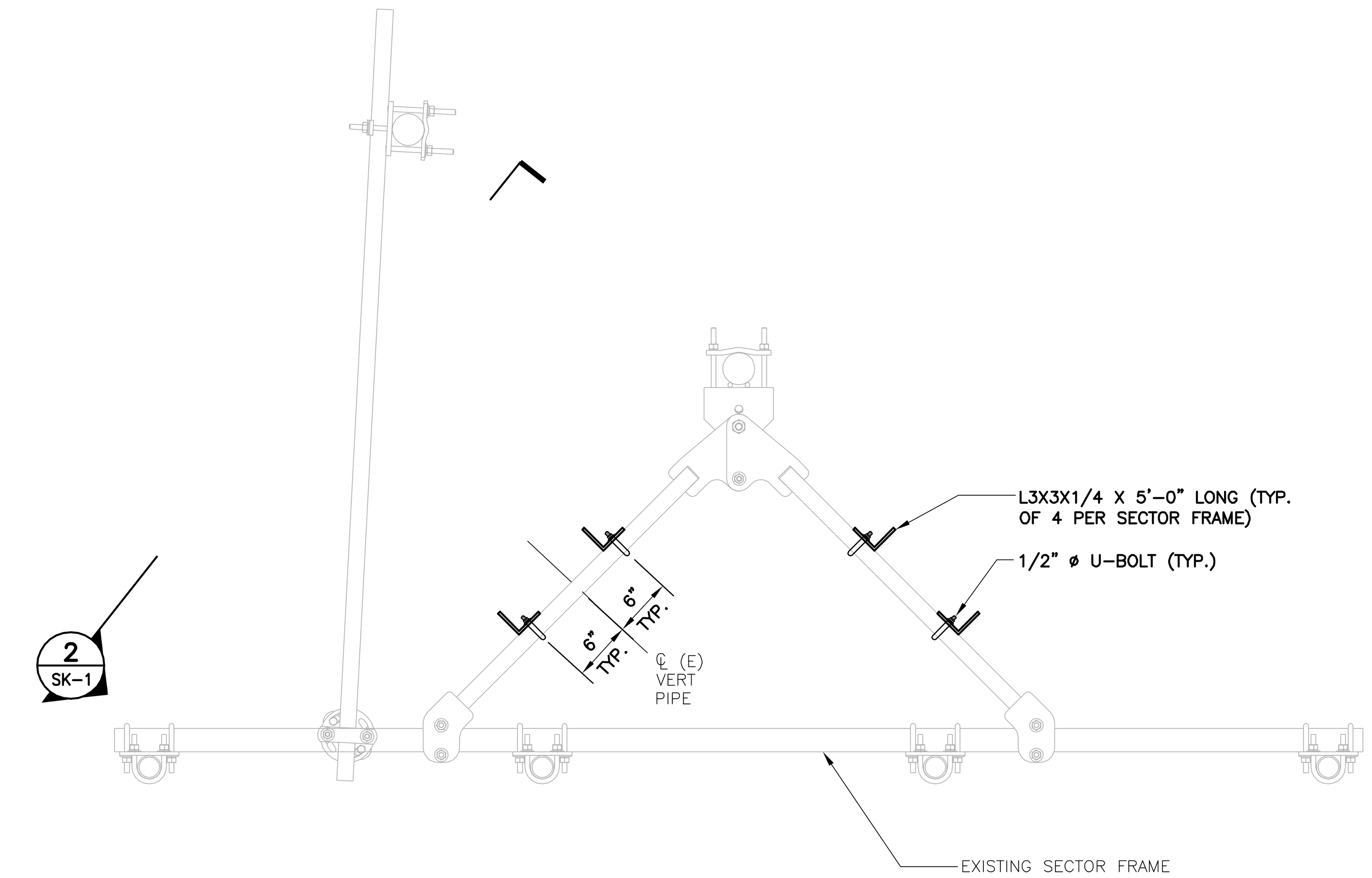
Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Lo...	LC	She...	Lo...	...	...	phi*P...	phi*P...	phi*...	phi*...	Cb	Eqn
1	M6	PIPE_2.0	.757	3....	3	.297	5....		3	29.875	32.13	1.872	1.872	1.8...	H3-6
2	M4	PIPE_2.0	.755	3....	3	.280	5....		3	29.875	32.13	1.872	1.872	1.88	H1-...
3	M3	PIPE_2.0	.755	3....	6	.279	5....		3	29.875	32.13	1.872	1.872	1.8...	H1-...
4	M5	PIPE_2.0	.753	3....	3	.296	5....		6	29.875	32.13	1.872	1.872	1.8...	H3-6
5	M20	L3X3X4	.627	0	3	.034	0	z	3	32.733	46.656	1.688	3.756	2.2...	H2-1
6	M11	PIPE_2.0	.625	2	2	.117	2		1	26.521	32.13	1.872	1.872	1.6...	H1-...
7	M19	L3X3X4	.601	0	3	.049	0	z	3	32.733	46.656	1.688	3.756	2.2...	H2-1
8	M15	PIPE_2.0	.541	6	4	.057	6		5	12.144	32.13	1.872	1.872	2.04	H1-...
9	M21	L3X3X4	.409	0	3	.025	0	z	3	32.733	46.656	1.688	3.756	2.2...	H2-1
10	M10	PIPE_2.0	.392	0	3	.059	0		3	26.521	32.13	1.872	1.872	2.2...	H1-...
11	M18	L3X3X4	.381	4	6	.031	0	z	3	32.733	46.656	1.688	3.756	2.2...	H2-1
12	M1	PIPE_2.0	.330	3.75	4	.253	2....		5	9.837	32.13	1.872	1.872	2.4...	H1-...
13	M9	PIPE_2.0	.249	0	6	.047	4		3	26.521	32.13	1.872	1.872	2.27	H1-...
14	M2	PIPE_2.0	.215	1....	3	.146	1....		6	9.837	32.13	1.872	1.872	2.7...	H1-...
15	M12	PIPE_2.0	.208	0	6	.052	0		3	26.521	32.13	1.872	1.872	2.2...	H1-...
16	M7	PIPE_2.0	.136	0	4	.028	0		4	26.521	32.13	1.872	1.872	2.2...	H1-...
17	M17	PIPE_2.0	.131	4....	4	.030	4....		3	17.855	32.13	1.872	1.872	2.3...	H1-...
18	M14	PIPE_2.0	.125	4....	4	.022	1....		1	17.855	32.13	1.872	1.872	2.31	H1-...
19	M16	PIPE_2.0	.082	1....	3	.051	4....		4	17.855	32.13	1.872	1.872	2.3...	H1-...
20	M8	PIPE_2.0	.080	0	6	.041	0		4	26.521	32.13	1.872	1.872	2.2...	H1-...
21	M13	PIPE_2.0	.074	6....	1	.003	0		6	6.206	32.13	1.872	1.872	1.1...	H1-...

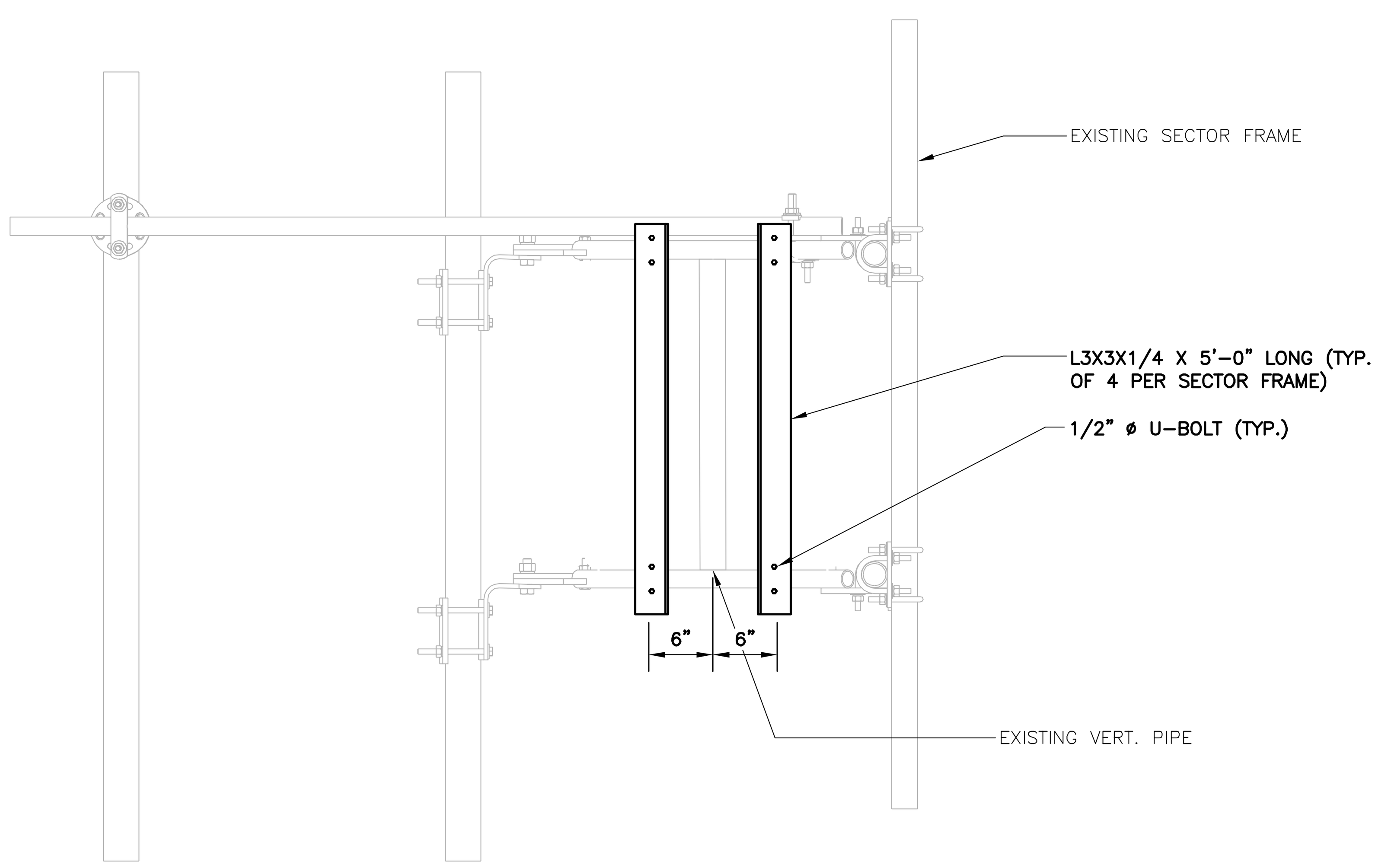


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek	CT11193A - Mount	
FJP		June 10, 2020 at 2:29 PM
20074.33	Unity Check	Mount.r3d



1 / SK-1 MOUNT MODIFICATION PLAN DETAIL
SCALE: 1/2" = 1'-0"



2 / SK-1 MOUNT MODIFICATION SECTION DETAIL
SCALE: 1/2" = 1'-0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/10/20	TJL	CFC	MOUNT MODIFICATION SKETCH – ISSUED FOR CONSTRUCTION

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T-MOBILE

CT11193A

24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DATE: 06/10/20
SCALE: AS NOTED
JOB NO. 20074.33

PIPE MAST REPLACEMENT DETAILS

SK-1

Sheet No. 1 of 1

Exhibit F

Power Density/RF Emissions Report

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

T-Mobile Existing Facility

Site ID: CT11193A

Orange/ Rt-1
24 Rockdale Road
West Haven, Connecticut 06516

July 29, 2020

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**22.04%**

July 29, 2020

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

Emissions Analysis for Site: CT11193A - Orange/ Rt-1

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **24 Rockdale Road** in **West Haven, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 24 Rockdale Road in West Haven, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

8) 4 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

9) 2 LTE channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

10) 2 NR channels (BRS Band - 2500 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

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

12) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

13) The antennas used in this modeling are the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 3246 for the 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 3246 for the 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s) in Sector B, the Ericsson AIR 3246 for the 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback

from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antenna mounting height centerline of the proposed antennas is 135 feet above ground level (AGL).

15) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 3246
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	15.85 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	9	Channel Count:	8	Channel Count:	4
Total TX Power (W):	380 Watts	Total TX Power (W):	300 Watts	Total TX Power (W):	160 Watts
ERP (W):	10,670.10	ERP (W):	10,533.98	ERP (W):	6,153.47
Antenna A1 MPE %:	**3.21%**	Antenna B1 MPE %:	**2.08%**	Antenna C1 MPE %:	**1.21%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR 3246	Make / Model:	Ericsson AIR 6449	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	2100 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	15.85 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	4	Channel Count:	4	Channel Count:	9
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	380 Watts
ERP (W):	6,153.47	ERP (W):	25,651.93	ERP (W):	10,670.10
Antenna A2 MPE %:	**1.21%**	Antenna B2 MPE %:	**5.06%**	Antenna C2 MPE %:	**3.21%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 3246	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	15.85 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts	Total TX Power (W):	160 Watts
ERP (W):	25,651.93	ERP (W):	6,153.47	ERP (W):	25,651.93
Antenna A3 MPE %:	**5.06%**	Antenna B3 MPE %:	**1.21%**	Antenna C3 MPE %:	**5.06%**
Antenna #:	**4**	Antenna #:	**4**	Antenna #:	**4**
Make / Model:	Ericsson AIR 32	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz

Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.85 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	8	Channel Count:	9	Channel Count:	8
Total TX Power (W):	300 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	300 Watts
ERP (W):	10,533.98	ERP (W):	10,670.10	ERP (W):	10,533.98
Antenna A4 MPE %:	**2.08%**	Antenna B4 MPE %:	**3.21%**	Antenna C4 MPE %:	**2.08%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	11.57%
Antennas 1-30 & TV Ch. 28	6.91%
Verizon	3.56%
Site Total MPE % :	22.04%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	11.57%
T-Mobile Sector B Total:	11.57%
T-Mobile Sector C Total:	11.57%
Site Total MPE % :	22.04%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	135.0	2.33	600 MHz LTE	400	0.58%
T-Mobile 600 MHz NR	1	1577.94	135.0	3.11	600 MHz NR	400	0.78%
T-Mobile 700 MHz LTE	2	648.82	135.0	2.56	700 MHz LTE	467	0.55%
T-Mobile 1900 MHz UMTS	2	1101.85	135.0	4.35	1900 MHz UMTS	1000	0.43%
T-Mobile 1900 MHz LTE	2	2203.69	135.0	8.69	1900 MHz LTE	1000	0.87%
T-Mobile 2100 MHz LTE	4	1538.37	135.0	12.14	2100 MHz LTE	1000	1.21%
T-Mobile 2500 MHz LTE	2	6412.98	135.0	25.30	2500 MHz LTE	1000	2.53%
T-Mobile 2500 MHz NR	2	6412.98	135.0	25.30	2500 MHz NR	1000	2.53%
T-Mobile 1900 MHz GSM	4	1028.30	135.0	8.11	1900 MHz GSM	1000	0.81%
T-Mobile 1900 MHz LTE	2	2056.61	135.0	8.11	1900 MHz LTE	1000	0.81%
T-Mobile 2100 MHz UMTS	2	1153.78	135.0	4.55	2100 MHz UMTS	1000	0.46%
						Total:	**11.57%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	11.57%
Sector B:	11.57%
Sector C:	11.57%
T-Mobile Maximum MPE % (Sector A):	11.57%
Site Total:	22.04%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **22.04%** 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.

Exhibit G

Mailing Receipts/Proof of Notice

View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialogue box that appears. Note: If your browser does not support this function, select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a scheduled Pickup
   - Your driver will pickup your shipment(s) as usual.

   Customers without a scheduled Pickup
   - Schedule a Pickup on ups.com to have a UPS driver pickup all of your packages.
   - Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. To find the location nearest you, please visit the 'Locations' Quick link at ups.com.

UPS Access Point™	UPS Access Point™	UPS Access Point™
MICHAELS STORE # 7773	THE UPS STORE	THE UPS STORE
75 INTERSTATE SHOP CTR	115 FRANKLIN TPKE	120 E MAIN ST
RAMSEY NJ	MAHWAH NJ	RAMSEY NJ

FOLD HERE

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

LTR 1 OF 1

SHIP TO:
10 FRANKLIN SQUARE
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE
NEW BRITAIN CT 06051

CT 067 9-06

UPS 2ND DAY AIR 2

TRACKING #: 1Z V25 742 02 9020 4365

BILLING: P/P
UPS CARBON NEUTRAL SHIPMENT

Reference #1: CT11193A
Reference #2: CSC

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View/Print Label

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UPS Access Point™
MICHAELS STORE # 7773
75 INTERSTATE SHOP CTR
RAMSEY NJ

UPS Access Point™
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115 FRANKLIN TPKE
MAHWAH NJ

UPS Access Point™
THE UPS STORE
120 E MAIN ST
RAMSEY NJ

FOLD HERE

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

LTR 1 OF 1

SHIP TO:
THE HONORABLE NANCY R. ROSSI
CITY OF WEST HAVEN
355 MAIN STREET
WEST HAVEN CT 06516

CT 064 7-02

UPS 2ND DAY AIR 2
TRACKING #: 1Z V25 742 02 9905 1291

BILLING: P/P
UPS CARBON NEUTRAL SHIPMENT

Reference #1: CT11193A
Reference #2: Mayor

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View/Print Label

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RAMSEY NJ

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THE UPS STORE
115 FRANKLIN TPKE
MAHWAH NJ

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THE UPS STORE
120 E MAIN ST
RAMSEY NJ

FOLD HERE

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NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

SHIP TO:
FRED A. MESSORE, PLANNING&DEV DIR
CITY OF WEST HAVEN
1ST FL
355 MAIN STREET
WEST HAVEN CT 06516

CT 064 7-02

UPS 2ND DAY AIR 2

TRACKING #: 1Z V25 742 02 9666 1306

BILLING: P/P
UPS CARBON NEUTRAL SHIPMENT

Reference #1: CT11193A
Reference #2: Planner

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View/Print Label

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   - Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. To find the location nearest you, please visit the 'Locations' Quick link at ups.com.

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THE UPS STORE
120 E MAIN ST
RAMSEY NJ

FOLD HERE

NEIL GUERRIERO
3473040176
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 07430

LTR 1 OF 1

SHIP TO:
ROBERT KNAPP
2036402050
RADIO COMMUNICATIONS CORP
24 ROCKDALE RD
WEST HAVEN CT 06516

CT 064 7-02

UPS 2ND DAY AIR 2

TRACKING #: 1Z V25 742 02 9929 1317

BILLING: P/P
UPS CARBON NEUTRAL SHIPMENT

Reference #1: CT11193A
Reference #2: LL

XOL 20.08.05 NV45 31.0A 07/2020*