T-Mobile

T-Mobile Northeast LLC, a subsidiary of T-Mobile USA, Inc.

Connecticut Market

August 9, 2017

Honorable Robert Stein, Chairman,
and members of the Council
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: T-MOBILE Northeast LLC notice of intent to install a temporary microwave antenna located at 24 Rockdale Rd West haven, Connecticut

Dear Chairman Stein and Members of the Council:

TRM is pleased to submit this Notice of Exempt Modification on behalf of T-MOBILE Northeast LLC

T-MOBILE Northeast LLC hereby notifies the Connecticut Siting Council of placing a temporary microwave dish on a 180' Self Support Tower at 24 Rockdale Rd in West Haven, CT. The microwave will supply backhaul to a Cell On Light Truck (COLT) on the grounds of the Yale Bowl located at 81 Central Ave., New Haven, Connecticut. Please accept this Notice to the Connecticut Siting Council, Pursuant to RCSA Section 16-50j-73, of construction that constitutes an exempt modification under RSCA Section 16-50j-72 (d). In compliance with RCSA Section 16-50j-73, copies of this Notice of Exempt Modification are being sent to the Mayor of West Haven and Radio Communications, Inc, which owns the tower.

The proposed temporary microwave meets the criteria set forth in RCSA 16-50j-72(d) for temporary cellular service for events of statewide significance. The microwave dish is necessary to provide backhaul to a temporary Cell Site being placed at the Yale Bowl to accommodate the increased communication needs during the Yale/Harvard football game.

The Yale/Harvard football game is November 18, 2017 but T-Mobile will need to do testing beforehand to make sure the microwave dish is up and running before the game.

Proposed Temporary Facility

The temporary microwave dish will be located at 24 Rockdale Rd in West Haven, Connecticut on a tower owned by Radio Communications. (See attached location map) Coordinates for the location are N 41.290831, W72.967575. A copy of the agreement between T-Mobile and the Tower owner is attached.

Equipment installation will start on November 1, 2017 and the site will be on-air until November 19, 2017. The COLT will be removed on November 19, 2017, the morning after the game.

Structural

A structural analysis was done to make sure the existing tower is structurally capable of supporting the temporary microwave dish and the full report is included with this letter.

Conclusion

For the reasons above, we respectfully request the Council acknowledge T-Mobile's Notice of Exempt Modification for the temporary microwave dish to be operated during the Yale/Harvard football game pursuant to RCSA Section 16-50j-72(d).

Please call me with any questions concerning this Notice at 203-417-4446. Thank you.

Respectfully,

Thomas White
Agent of T-Mobile

Cc: West Haven Mayor Edward M. O'Brien
Radio Communications Inc

Temporary Microwave Dish Location

T

T-Mobile Northeast LLC, a subsidiary of T-Mobile USA, Inc.

Connecticut Market

June 29, 2017

Robert Knapp
Radio Communications Corp.
24 Rockdale Rd
West Haven, CT 06516

Re:STANDARD AGREEMENTby andbetween Radio Communications Corp.("Landlord") and T-Mobile Northeast LLC as successor-in interest to Omnipoint Communications, Inc. ("Tenant").

Site Number: CT11193A
Site Address: 24 Rockdale RdWest Haven CT("Property")

Mr. Knapp,

Tenantwill pay $500 for the right to placea temporary microwave antennaand lines at 24 Rockdale Rd West Haven CT from 11/1/17 to 11/30/17.The antenna will be removed by 11/30/17. The antenna will be placed on the tower and as part of the agreement an agreed uponexisting Yagi antenna will be removed permanently.

Please signify your approval by signing and dating one (1) original of this Consent Letter in the space provided below. Kindly return the Consent Letter via fax to the attention of Thomas White at 774-215-5423or scan and email the Consent Letter totwhite@trmcom.com.

Should you have any questions, please contact Thomas Whiteat 203-417-4446. Thank you in advance for your cooperation in this matter.

Very truly yours,

Thomas White
Agent for T-Mobile

Acknowledged, Accepted and Agreed:

By: ______________ Vice President

Date: 7/24/17

STRUCTURAL ANALYSIS REPORT

For

T-Mobile®

TRM
16 Chestnut St. Suite 420
Foxborough, MA 02035

West Haven
KM No. 170706.00

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

Prepared By:

KM CONSULTING ENGINEERS, INC.
262 Upper Ferry Rd, Ewing, NJ 08628
Ph: (609) 538-0400 www.kmengr.com

August 7, 2017

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

TRM
West Haven

TABLE OF CONTENTS

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

1.0 EXECUTIVE SUMMARY

Structure

Tower Manager: Radio Communications, Inc.

Location: 24 Rockdale Road
West Haven, CT 06516

Manufacturer: Rohn

Equipment

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

Synopsis

Load Case No. 1: The existing tower superstructure with the current inventory and proposed T-Mobile installation.

The tower superstructure and foundation have sufficient capacity and therefore meet the current TIA standards. The tower superstructure is rated at 97.6% and the base foundation is rated at 79.7%.

2.0 TOWER INVENTORY

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' Dipole	191	BXA-80063-6BF (Verizon)	144.5
10' Whip	183.5	BXA-171063-12BF (Verizon)	144.5
10' Dipole	183	BXA-80063-6BF (Verizon)	144.5
10' Whip	182.5	Stand-Off T-Frame (Verizon)	143.5
6' Yagi	182	Stand-Off T-Frame (Verizon)	143.5
PG1N0F-0090-310	182	Stand-Off T-Frame (Verizon)	143.5
16' Whip	182	Ericsson AIR21 Antenna (T-Mobile)	135
6' Yagi	182	Stand-Off T-Frame (T-Mobile)	135
21' Whip	182	LNX-6515DS-A1M (T-Mobile)	135
21' Whip	181.5	LNX-6515DS-A1M (T-Mobile)	135
21' Whip	181.5	LNX-6515DS-A1M (T-Mobile)	135
20' Dipole	181.5	Stand-Off T-Frame (T-Mobile)	135
14' Inverted Whip	180 - 166	Ericsson AIR21 Antenna (T-Mobile)	135
Top Platform	180	Ericsson AIR21 Antenna (T-Mobile)	135
10' Inverted Whip	180 - 170	Stand-Off T-Frame (T-Mobile)	135
TMA	180	RRUS11 B12 (T-Mobile)	135
TMA	180	RRUS11 B12 (T-Mobile)	135
(2) Scala Panels	175.5	RRUS11 B12 (T-Mobile)	135
Raycap (Verizon)	148.5	AIR32 B66Aa/B2a (T-Mobile)	135
BXA-70063-6CF (Verizon)	144.5	AIR32 B66Aa/B2a (T-Mobile)	135
BXA-70040-6CF (Verizon)	144.5	AIR32 B66Aa/B2a (T-Mobile)	135
BXA-70040-6CF (Verizon)	144.5	TMA (T-Mobile)	135
BXA-80063-6BF (Verizon)	144.5	TMA (T-Mobile)	135
BXA-171063-8BF (Verizon)	144.5	TMA (T-Mobile)	135
BXA-171063-8BF (Verizon)	144.5	IBR1300	125
BXA-171063-8BF (Verizon)	144.5	Empty Mount	103
BXA-171063-8BF (Verizon)	144.5	2' yagi	102.5
BXA-171063-8BF (Verizon)	144.5	GPS	59.5
ALU RH_2X40-AWS RRH (Verizon)	144.5	(2) GPS	18
ALU RH_2X40-AWS RRH (Verizon)	144.5	(2) GPS	17.67
ALU RH_2X40-AWS RRH (Verizon)	144.5		

Proposed T-Mobile Loading:
*(1) IBR-1300 @ 125' AGL
*(2) CAT5 cables up to 125' 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 correspondence with TRM.

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 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 (approximately 80 pages).

Codes and Standards

ACI - American Concrete Institute - Building Code Requirements for Structural Concrete (ACI 318-011), 2011

AISC - American Institute of Steel Construction - Manual of Steel Construction, Allowable Stress Design, 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 2016

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".

Structural wind speed is in accordance with ANSI/TIA-222-G listing applicable to New Haven, CT: 115 MPH (3 SG), no ice and 50 MPH (3 SG), ¾" radial ice. Additional criteria include Structure Class II, Exposure Category B, and Topographic Category 1.

All allowable capacities have been calculated to comply with the permitted EIA allowable increases (for wind). All bolts loaded in shear assume the threads **are included** in the shear plane.

Load Case No. 1: Proposed T-Mobile addition of (1) IBR-1300 microwave antenna and (2) CAT5 cables.

The tower superstructure and foundation have sufficient capacity and therefore meet the current TIA standards. The tower superstructure is rated at 97.6% and the base foundation is rated at 79.7%.

Foundation Capacity		
Actual Uplift	Allowable Uplift	% Use
305.6 kips	384 kips	79.7%

6.0 RECOMMENDATIONS

Further to our calculations, we conclude that the tower superstructure and base foundation have adequate capacity and therefore meet 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

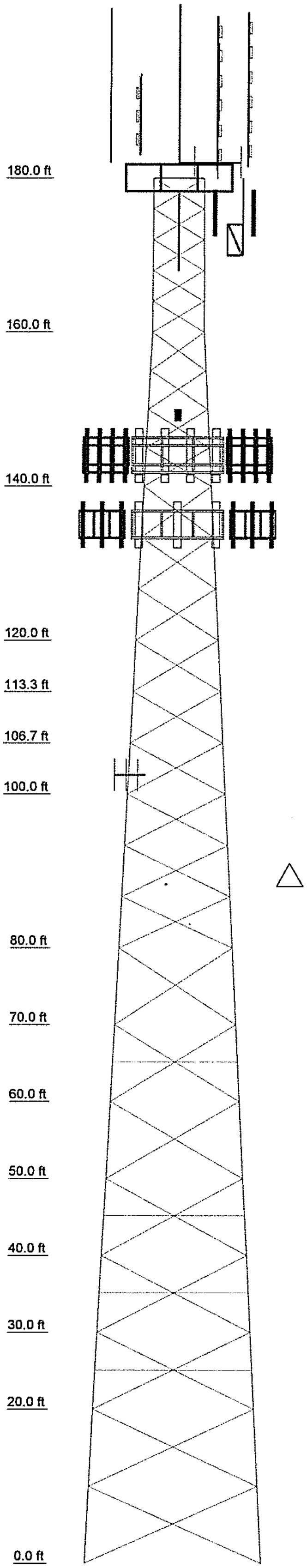
8/7/17

Michael L. Bohlinger, PE
Principal
CT License No. 20405

7.0 APPENDIX

LOAD CASE 1

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

TYPE	ELEVATION	TYPE	ELEVATION
20' Dipole	191	BXA-80063-6BF (Verizon)	144.5
10' Whip	183.5	BXA-171063-12BF (Verizon)	144.5
10' Dipole	183	BXA-80063-6BF (Verizon)	144.5
10' Whip	182.5	Stand-Off T-Frame (Verizon)	143.5
6' Yagi	182	Stand-Off T-Frame (Verizon)	143.5
PG1N0F-0090-310	182	Stand-Off T-Frame (Verizon)	143.5
16' Whip	182	Ericsson AIR21 Antenna (T-Mobile)	135
6' Yagi	182	Stand-Off T-Frame (T-Mobile)	135
21' Whip	182	LNX-6515DS-A1M (T-Mobile)	135
21' Whip	181.5	LNX-6515DS-A1M (T-Mobile)	135
21' Whip	181.5	LNX-6515DS-A1M (T-Mobile)	135
20' Dipole	181.5	Stand-Off T-Frame (T-Mobile)	135
14' Inverted Whip	180 - 166	Ericsson AIR21 Antenna (T-Mobile)	135
Top Platform	180	Ericsson AIR21 Antenna (T-Mobile)	135
10' Inverted Whip	180 - 170	Stand-Off T-Frame (T-Mobile)	135
TMA	180	RRUS11 B12 (T-Mobile)	135
TMA	180	RRUS11 B12 (T-Mobile)	135
(2) Scala Panels	175.5	RRUS11 B12 (T-Mobile)	135
Raycap (Verizon)	148.5	AIR32 B66Aa/B2a (T-Mobile)	135
BXA-70063-6CF (Verizon)	144.5	AIR32 B66Aa/B2a (T-Mobile)	135
BXA-70040-6CF (Verizon)	144.5	AIR32 B66Aa/B2a (T-Mobile)	135
BXA-70040-6CF (Verizon)	144.5	TMA (T-Mobile)	135
BXA-80063-6BF (Verizon)	144.5	TMA (T-Mobile)	135
BXA-171063-8BF (Verizon)	144.5	TMA (T-Mobile)	135
BXA-171063-8BF (Verizon)	144.5	IBR1300	125
BXA-171063-8BF (Verizon)	144.5	Empty Mount	103
BXA-171063-8BF (Verizon)	144.5	2' yagi	102.5
BXA-171063-8BF (Verizon)	144.5	GPS	59.5
ALU RH_2X40-AWS RRH (Verizon)	144.5	(2) GPS	18
ALU RH_2X40-AWS RRH (Verizon)	144.5	(2) GPS	17.67
ALU RH_2X40-AWS RRH (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

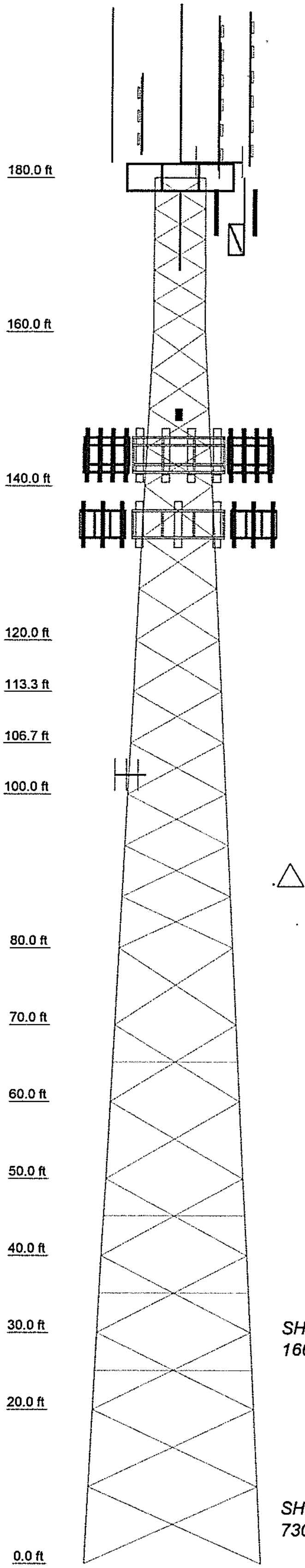
MATERIAL STRENGTH

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

KM Consulting Engineers
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: TRM	Drawn by: Domenic Aversa	App'd:
Code: TIA-222-G	Date: 08/02/17	Scale: N
Path: K:\TRM\West Haven\Engineering\West Haven LC1.eri		Dwg No.

Section	Elevation	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Sec. Horizontals	Face Width (ft)	# Panels @ (ft)	Weight (lb)
T1	180.0 ft – 160.0 ft	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	160.0 ft – 140.0 ft	A		L1 3/4x1 3/4x1/8		N.A.		6.6	4 @ 5	890.1
T3	140.0 ft – 120.0 ft	B		G				8.625		1635.6
T4	120.0 ft – 113.3 ft	C		H				10.65	9 @ 6.66667	537.1
T5	113.3 ft – 106.7 ft							11.325		547.8
T6	106.7 ft – 100.0 ft	D		L3x3x1/4				12		712.7
T7	100.0 ft – 80.0 ft							12.675	8 @ 10	2698.0
T8	80.0 ft – 70.0 ft	E						14.7		1378.2
T9	70.0 ft – 60.0 ft			L3 1/2x3 1/2x1/4			J	15.7125		1780.1
T10	60.0 ft – 50.0 ft	ROHN 5 X-STR (GR) w/ 5/8" Cable					N.A.	16.725		1561.2
T11	50.0 ft – 40.0 ft						L3 1/2x3 1/2x1/4	17.7375		1906.1
T12	40.0 ft – 30.0 ft			I				18.75		2159.1
T13	30.0 ft – 20.0 ft							19.7625		2216.3
T14	20.0 ft – 0.0 ft	F		4x4x1/4 w/ sch 40			N.A.	20.775		9793.7
	0.0 ft							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

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 115 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: 97.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 355996 lb
SHEAR: 44139 lb

UPLIFT: -305554 lb
SHEAR: 38187 lb

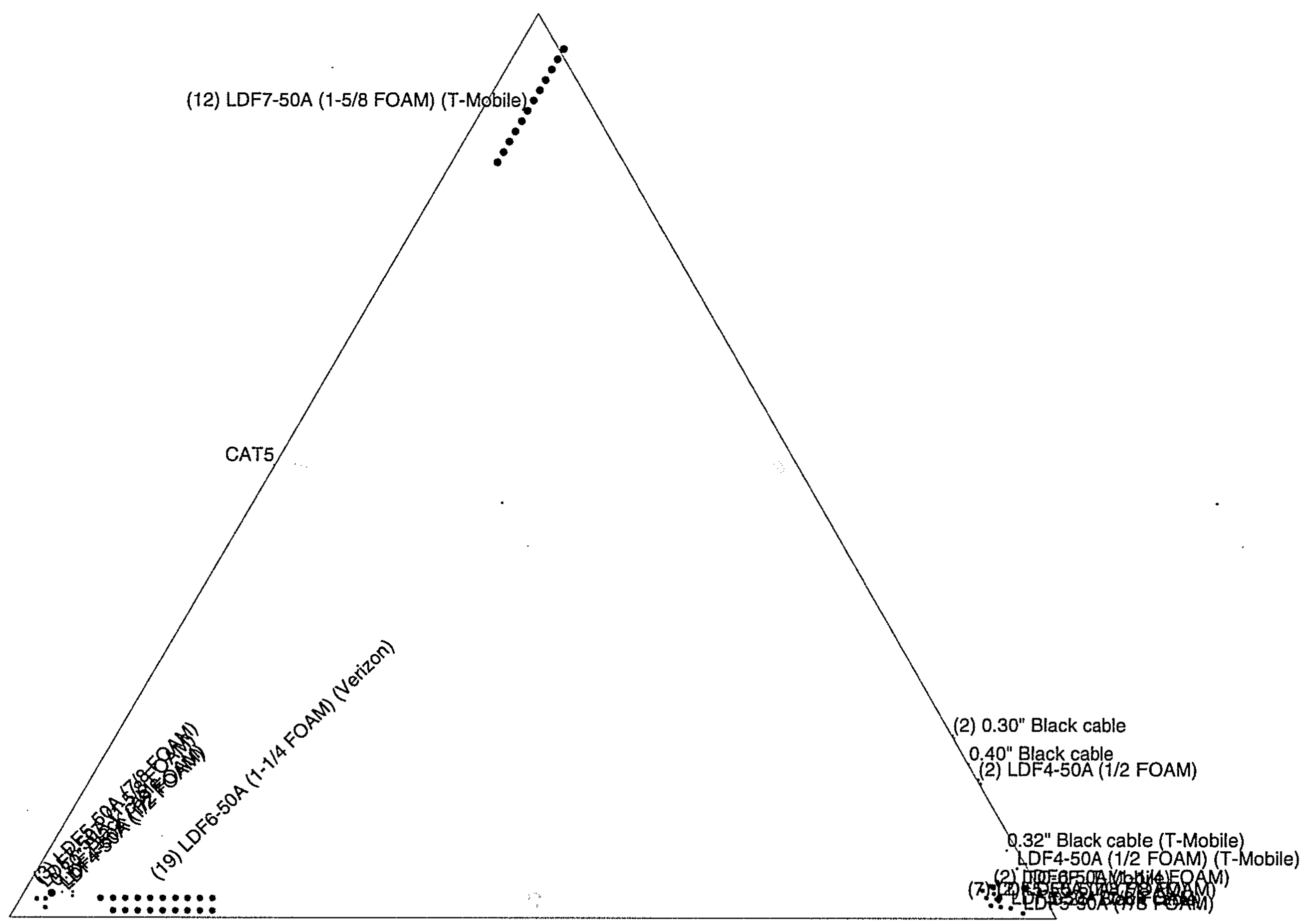
AXIAL 121189 lb
SHEAR 16664 lb
MOMENT 1631628 lb-ft
TORQUE 2546 lb-ft
50 mph WIND - 0.7500 in ICE

AXIAL 46097 lb
SHEAR 73022 lb
MOMENT 6725885 lb-ft
TORQUE 16487 lb-ft
REACTIONS - 115 mph WIND

KM Consulting Engineers
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: TRM	Drawn by: Domenic Aversa	App'd:	
Code: TIA-222-G	Date: 08/02/17	Scale: N	
Path: K:\TRM\West Haven\Engineering\West Haven LC1.eri		Dwg No.	

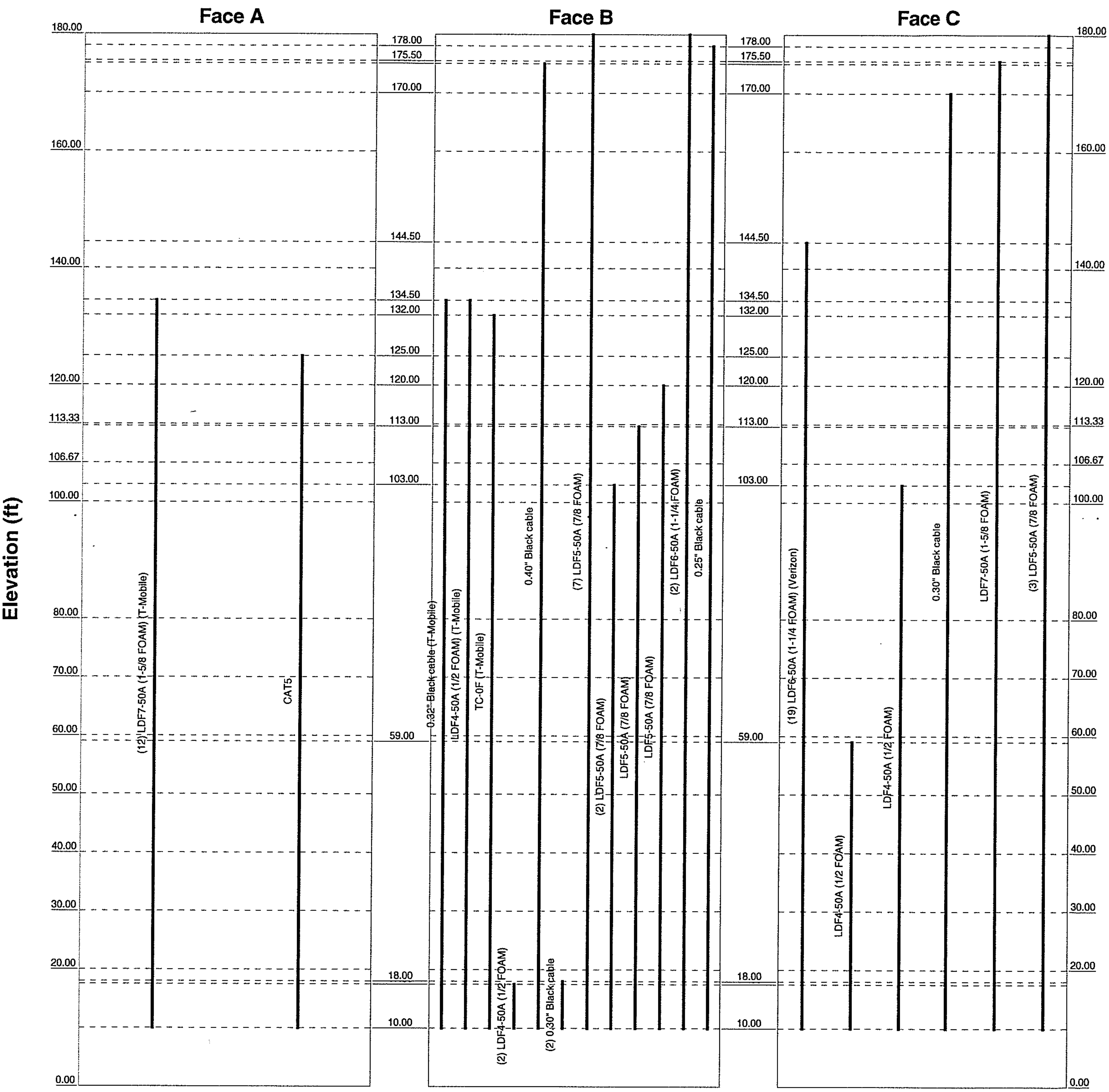
Round Flat App In Face App Out Face



KM Consulting Engineers, Inc.	Job: West Haven LC1		
262 Upper Ferry Road	Project: 180 ft. Self Support Tower		
Ewing, NJ 08628	Client: TRM	Drawn by: Doug Austin	App'd:
Phone: (609) 538-0400	Code: TIA-222-G	Date: 08/01/17	Scale: N
Consulting Engineers FAX:	Path: K:\TRM\West Haven\Engineering\West Haven LC1.er		Dwg No.

0' - 180'

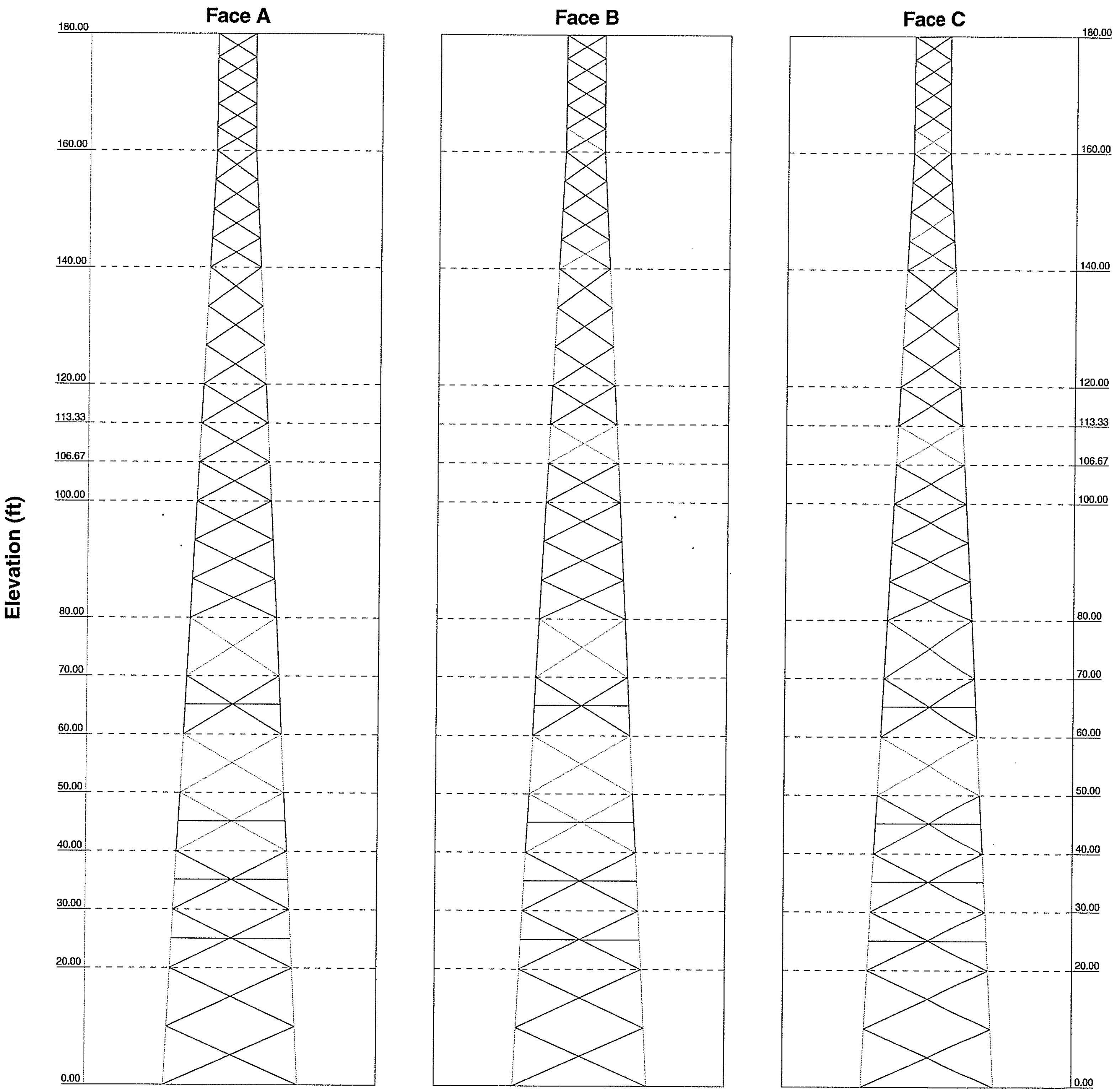
Round Flat App In Face App Out Face Truss Leg



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: TRM	Drawn by: Doug Austin	App'd:
	Code: TIA-222-G	Date: 08/01/17	Scale: N
	Path: K:\TRM\West Haven\Engineering\West Haven LC1.er		Dwg No.

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: TRM	Drawn by: Doug Austin	App'd:
	Code: TIA-222-G	Date: 08/01/17	Scale: N
	Path: K:\TRM\West Haven\Engineering\West Haven LC1.er		Dwg No.

Section Capacity Table

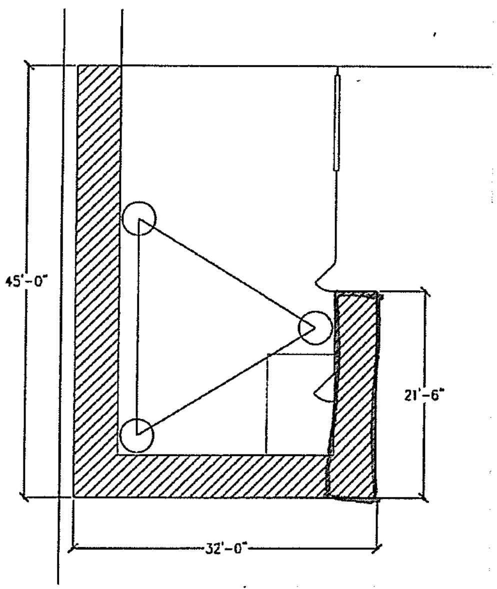
Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	180 - 160	Leg	ROHN 2 STD (GR)	2	-22528.50	47357.40	47.6	Pass
		Diagonal	L1 1/2x1 1/2x1/8	7	-3484.08	4237.09	82.2	Pass
		Top Girt	L3x3x1/4	4	-495.20	20560.00	2.4	Pass
T2	160 - 140	Leg	ROHN 2.5 STD (GR) w/ 5/8" Cable	38	-44593.60	85040.70	52.4	Pass
		Diagonal	L1 3/4x1 3/4x1/8	40	-4083.33	4183.54	97.6	Pass
T3	140 - 120	Leg	ROHN 2.5 X-STR (GR) w/ 5/8" Cable	65	-76443.00	89416.30	85.5	Pass
		Diagonal	L2x2x1/8 w/1.5" sch 40 pipe	67	-6661.32	10828.00	61.5	Pass
T4	120 - 113.333	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	86	-88668.80	124199.00	71.4	Pass
		Diagonal	L2 1/2x2 1/2x3/16	88	-7072.69	10126.70	69.8	Pass
T5	113.333 - 106.667	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	95	-101507.00	124199.00	81.7	Pass
		Diagonal	L2 1/2x2 1/2x3/16	97	-7628.64	9436.58	80.8	Pass
T6	106.667 - 100	Leg	ROHN 3 X-STR (GR) w/ 5/8" Cable	104	-114609.00	124199.00	92.3	Pass
		Diagonal	L3x3x1/4	106	-8265.62	18704.30	44.2 52.0 (b)	Pass
T7	100 - 80	Leg	ROHN 4 X-STR (GR) w/ 5/8" Cable	113	-157671.00	225464.00	69.9	Pass
		Diagonal	L3x3x1/4	116	-9847.67	15584.40	63.2	Pass
T8	80 - 70	Leg	ROHN 5 STD (GR) w/ 5/8" Cable	134	-176052.00	253652.00	69.4	Pass
		Diagonal	L3x3x1/4	137	-11588.50	12316.40	94.1	Pass
T9	70 - 60	Leg	ROHN 5 STD (GR) w/ 5/8" Cable	143	-198941.00	335317.00	59.3	Pass
		Diagonal	L3 1/2x3 1/2x1/4	146	-12495.70	17388.70	71.9	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	151	-3450.17	16359.70	21.1	Pass
T10	60 - 50	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	155	-222800.00	262883.00	84.8	Pass
		Diagonal	L3 1/2x3 1/2x1/4	158	-12948.70	16180.50	80.0	Pass
T11	50 - 40	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	164	-246021.00	347755.00	70.7	Pass
		Diagonal	L3 1/2x3 1/2x1/4	167	-14019.70	15078.40	93.0	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	172	-4266.66	13774.00	31.0	Pass
T12	40 - 30	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	176	-270404.00	347854.00	77.7	Pass
		Diagonal	L3.5x3.5x1/4 w/ 2x1/4 plate	179	-14515.30	34444.50	42.1 58.4 (b)	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	185	-4689.53	12705.40	36.9	Pass
T13	30 - 20	Leg	ROHN 5 X-STR (GR) w/ 5/8" Cable	188	-294315.00	347943.00	84.6	Pass
		Diagonal	L3.5x3.5x1/4 w/ 2x1/4 plate	191	-15170.20	31753.50	47.8 61.0 (b)	Pass
		Secondary Horizontal	L3 1/2x3 1/2x1/4	197	-5104.21	11756.50	43.4	Pass
T14	20 - 0	Leg	ROHN 6 EH (GR) w/ 5/8" Cable (GR)	200	-343935.00	397313.00	86.6	Pass
		Diagonal	4x4x1/4 w/ sch 40	203	-15900.80	77127.90	20.6 32.0 (b)	Pass
							Summary	
						Leg (T6)	92.3	Pass
						Diagonal (T2)	97.6	Pass
						Secondary Horizontal (T13)	43.4	Pass

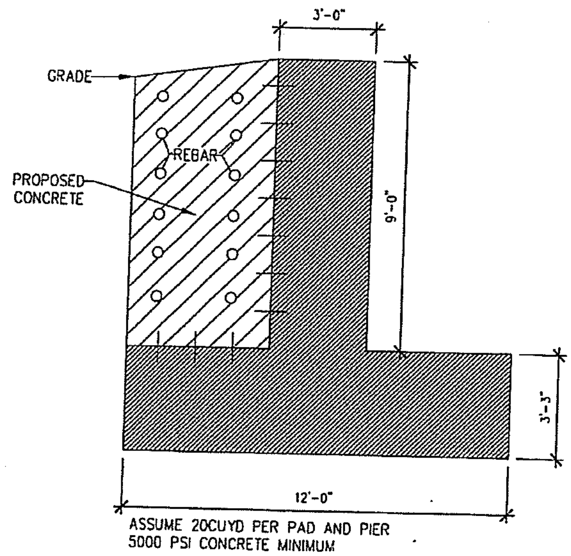
<u>Foundation Calculations</u>

Allowable uplift prior to reinforcement: $467.96\ k$

Actual uplift from analysis: $Actual := 305.55\ k$

Proposed Reinforcement:





Assume section marked in red as minimum supporting max corner reaction

$$Volume := 21.5 \cdot 4.5 \cdot 9 = 870.75\ ft^3\ concrete$$

$$Weight := 50\ \frac{lb}{ft^3}$$ (150 lb/ft^3 concrete - 100 lb/ft^3 soil)

$$Resistance := \frac{Volume \cdot Weight}{1000} = 43.54\ k$$

$$Total := Resistance + 467.96 = 511.5\ k$$

$$\phi := 0.75$$

$$Allow := Total \cdot \phi = 383.623$$

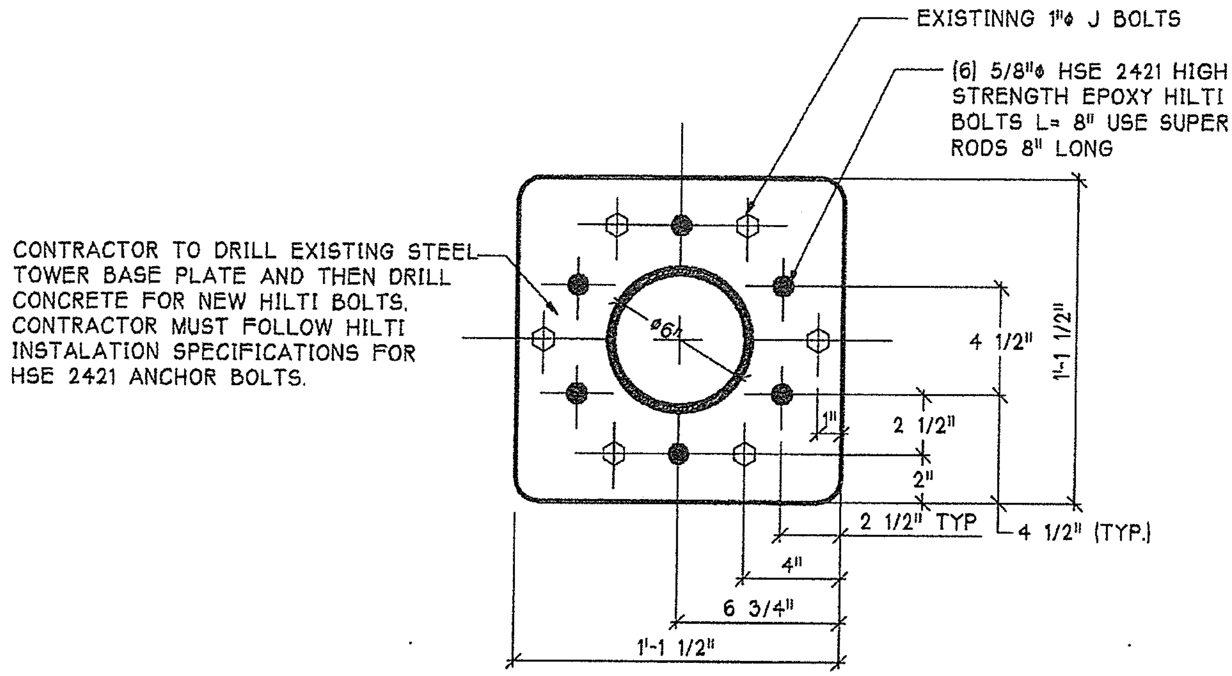
$$\frac{Actual}{Allow} = 0.796$$ **OK**

KM Consulting Engineers, Inc.
262 Upper Ferry Road
Ewing, NJ 08628

Tel.: (609) 538-0400
www.kmengr.com
Email: info@kmengr.com

Anchor Bolt Calculations

Existing anchor bolt configuartion:



(6) Original 1" diameter A-490 anchor bolts:

Yield Strength:	$F_y := 130 ksi$
Allowable Strength	$F_{allow} := F_y \cdot 0.6 = 78\ ksi$
Area of bolts:	$A_b := 6 \cdot \pi \cdot (0.5)^2 = 4.712\ in^2$
Allowable tenstion (per leg):	$F_{allow} \cdot 4.712 = 367.5\, k$

(6) reinforcement Hilti anchors:

Allowable tension (per bolt):	$T_a := 6.25\ \ k$
Total allowable tension:	$T := 6 \cdot T_a = 37.5\ \ k$

Total resistance:	$T_{total} := 367.5 + 37.5 = 405\, k$
Actual max tension per leg:	$T_{max} := 305.6\ \ k$

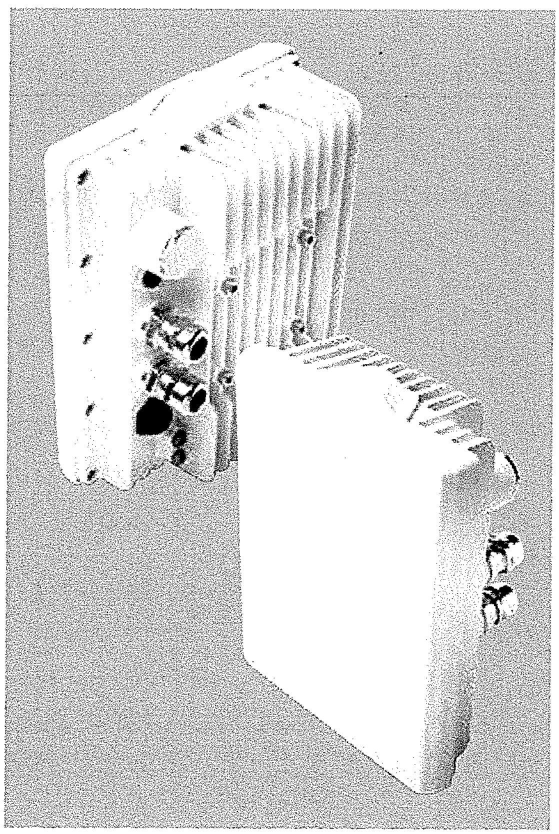
$$\frac{T_{max}}{T_{total}} = 0.755$$ **OK**

IBR Intelligent Backhaul Radio™

Fastback NETWORKS® intelligent wireless transport

IBR 1300 Series
Compact Carrier Class Radio & Switch
Fast and Economical Urban Connectivity Anywhere

At 1.6 Gbps and 8x10x4 inches, the highly compact IBR 1300 is the fastest, smallest and most versatile 5GHz radio available. The IBR 1300 delivers higher performance by enabling the full radio spectrum to be available at all times to both the transmit and receive channels, while at the same retaining very low latency. This innovative use of FDD (Frequency Division Duplex) transmission dramatically cuts installation time through immediate alignment of the radio link, and further advances Fastback's Extreme Interference Protection (XIP) for more connections in more locations. In addition, beamforming technology on both transmit and receive channels improves reliability for high density, large scale deployments. And the IBR 1300 is the only radio in its class that can operate using integrated AC power when no other source is available,ideal for small cell deployments in city centers and urban locations using street furniture.



Ease of Deployment Redefined

The discrete form factor and other advances enable the ultimate freedom of location for mounting on any tower, building or street asset anywhere backhaul is required to support carrier grade backhaul service or enterprise connectivity. During installation, an immediate IBR 1300 link can always be achieved without "swapping ends" and incurring the related cost. This simplifies installation, troubleshooting, configuration and cuts the cost of deployment spares in half. The wide azimuthal and vertical apertures of the IBR make installation and operation simple, with quick and uncomplicated alignment.

Wireless Extension of Existing Network Architecture

- Fiber performance in any line of sight (AnyLOS™)
- Scalable in capacity: 1.6 Gbps at 500m range (NLOS) and 2km range (LOS), 900 Mbps at 3km range (LOS), 300 Mbps at 13km range (LOS)[1]
- <400 μsec latency
- Compact design: 200mm width, 260mm height, 90mm depth
- UNI, NTE-Demarc, SLA on a light pole: monitor, manage and deliver an SLA to any location
- Mounts anywhere: light poles, buildings, strand
- Ruggedized, outdoor device: IP66
- Power over Ethernet, or integrated AC power
- Interference Mitigation: Extreme Interference Protection (XIP™) technology
- Auto Alignment: Auto discovery & synchronization via innovative antenna system
- Carrier Ethernet services:
  - *Transport:* full layer 2
  - *SLA assurance:* via full-featured OAM capability
  - *Timing & Synchronization over NLOS link:* Packet-based timing over wireless, distributed 1588v2 transparent clock
  - *Network synchronization:* support in any location
  - *Service uptime:* carrier-grade physical link and network layer redundancy
  - *Security:* service protection and reliability

Specifications

Specifications	IBR
RADIO	
Speed and Range	Typical: Scalable up to 1.6 Gbps at 500m range (NLOS) and 2km range (LOS), 900 Mbps at 3km range (LOS), 300Mbps at 13km range (LOS)[1]
Latency	Typical: <400μsec
Frequency bands	FDD+ (no A or B side) operation across all 5 GHz UNII bands
Antenna Beamwidth	20 degrees, steerable over 40 degrees
EIRP	FCC: Up to +42 dBm
Adaptive Rate Modulation	Supported via proprietary adaptive algorithms
Interference Mitigation	Supported via proprietary avoidance and cancellation algorithms
Diversity	Supported via proprietary antenna array signal processing
Security	AES-256 OTA Encryption
SWITCH	
Carrier Ethernet Features	Y.1731 and 802.1ag OAM, Q in Q, RFC 2544 reflection, QoS, Broadcast / Unknown / Multicast (BUM) filter, Configurable latency per queue
Interfaces	1 x GbE (Cu), 1 x GbE (SFP or Cu), 1 ALOS radio interface (see above)
QoS	802.1p and DSCP classification, strict priority scheduling, WDRR scheduling
Timing	1588v2 Transparent Clock
Management	HTTPS, ssh, Telnet, SNMP v2c & v3, IPv6, Dying Gasp
Dimensions (W x H x D)	200mm width, 260mm height, 90mm depth
Weight	4 kg
Power Input	IBR-1300: PoE IBR-1301: 90-240 VAC
Temperature	-40C to +60C operating -55C to +85C storage

Certifications	IBR
Radiated	FCC Part 15, IC RSS-247, EN 301 893
Safety	UL/cUL (UL60950-1, UL60950-22), CE Mark EN 60950-1, EN 60950-22, EN 55022, EN 55024, EN 62311
EMC/EMI	FCC Part 15 Class B, EN 301 489
Environmental	IP66

1. Range and throughput performance based on FCC operation

About Fastback Networks

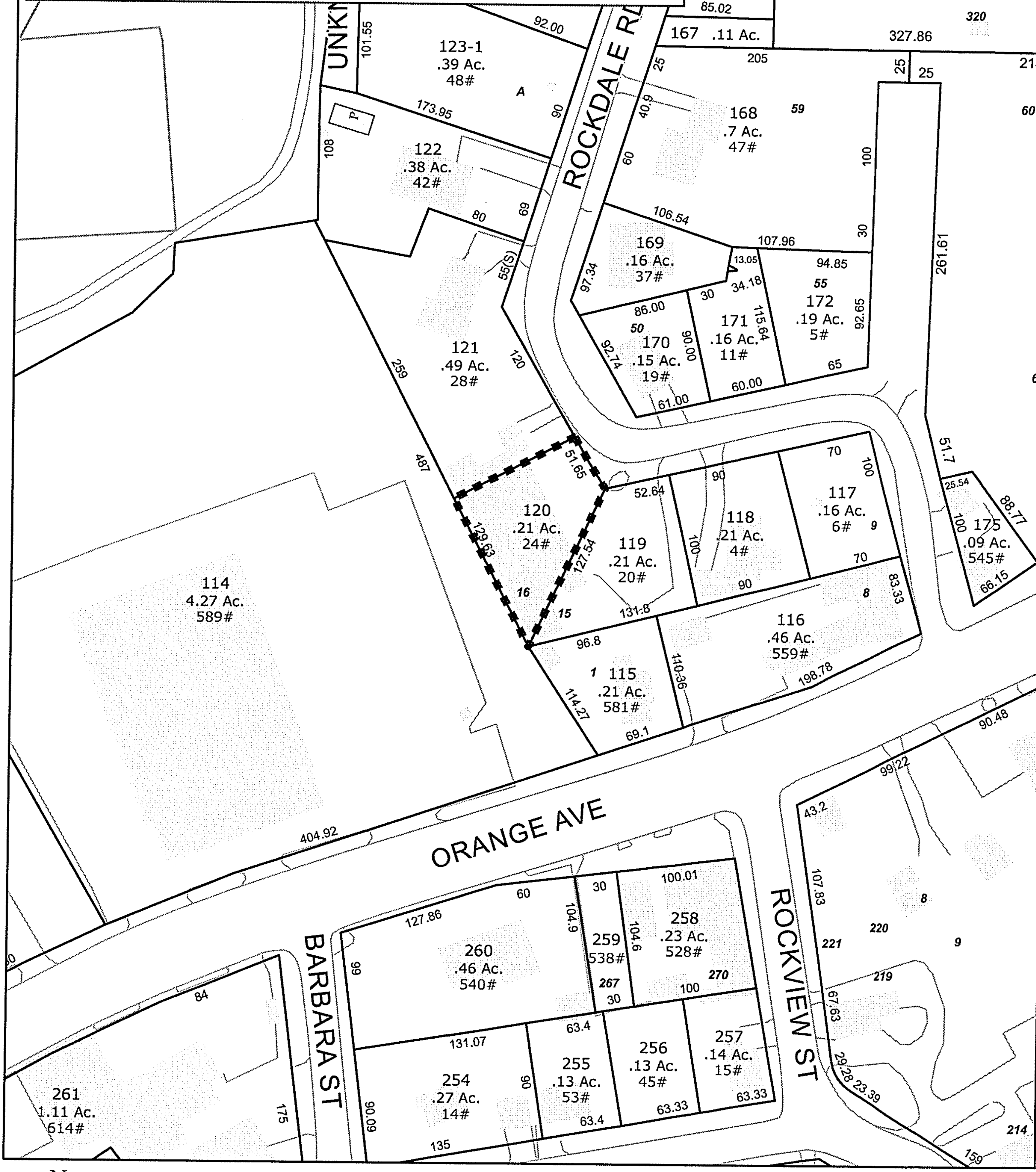
Fastback Networks was founded with a vision to deliver innovative technology for the mobile infrastructure of the future. Fastback solutions enable network operators to expand and enhance services, and private networks to secure, monitor and manage operations via high capacity data connectivity. With insights derived from the collective team's experience building leading edge radio and data networking solutions, Fastback Networks looks at the challenges of 4G/5GLTE deployment with fresh eyes and better ideas, and develops transformational mobile backhaul solutions that enable the acceleration of the mobile future. Fastback Networks is a privately held company funded by Business Growth Fund, Foundation Capital, Granite Ventures, Harmony Partners, Juniper Networks Junos Innovation Fund, and Matrix Partners. More information is available at **www.fastbacknetworks.com.**

Fastback NETWORKS
intelligent wireless transport

Fastback Networks
469 El Camino Real, Suite 201
Santa Clara, CA 95050
408-430-5440
www.fastbacknetworks.com

City of West Haven, Connecticut - Assessment Parcel Map

Parcel: 059-0120-0-0000   Address: 24 ROCKDALE RD



N

Approximate Scale: 1 inch = 100 feet

0 30 60 120 180 240 Feet

Map Produced: January 2015

Disclaimer: This map is for informational purposes only. 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.

City of West Haven, CT
Property Listing Report

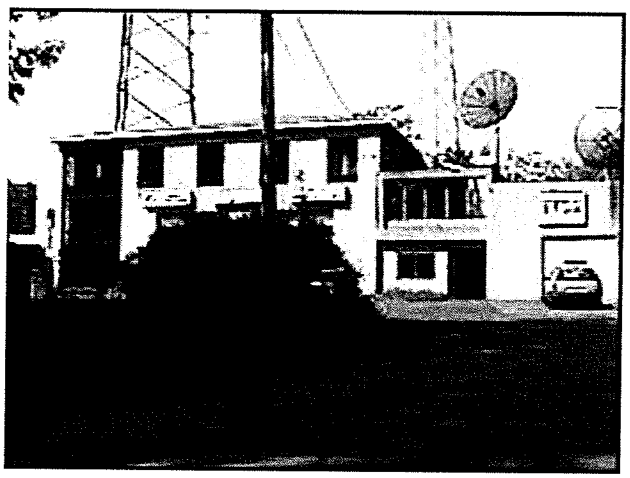
Parcel ID	059-0120-0-0000	Account	00007905

Property Information

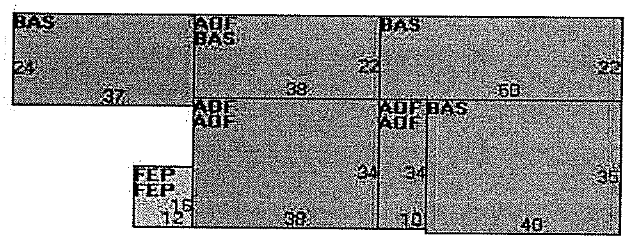
Owner	KNAPP ANDREW + LILLIAN R
Co-Owner	& SV
Address	24 ROCKDALE RD
Mailing Address	24 ROCKDALE RD WEST HAVEN CT 06516
Land Use	3320 SVC SHOP MDL-94
Land Class	C

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 8/14/2017

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.
SITE	2 SITES
AIR COND	4100 S.F.

Sub Areas

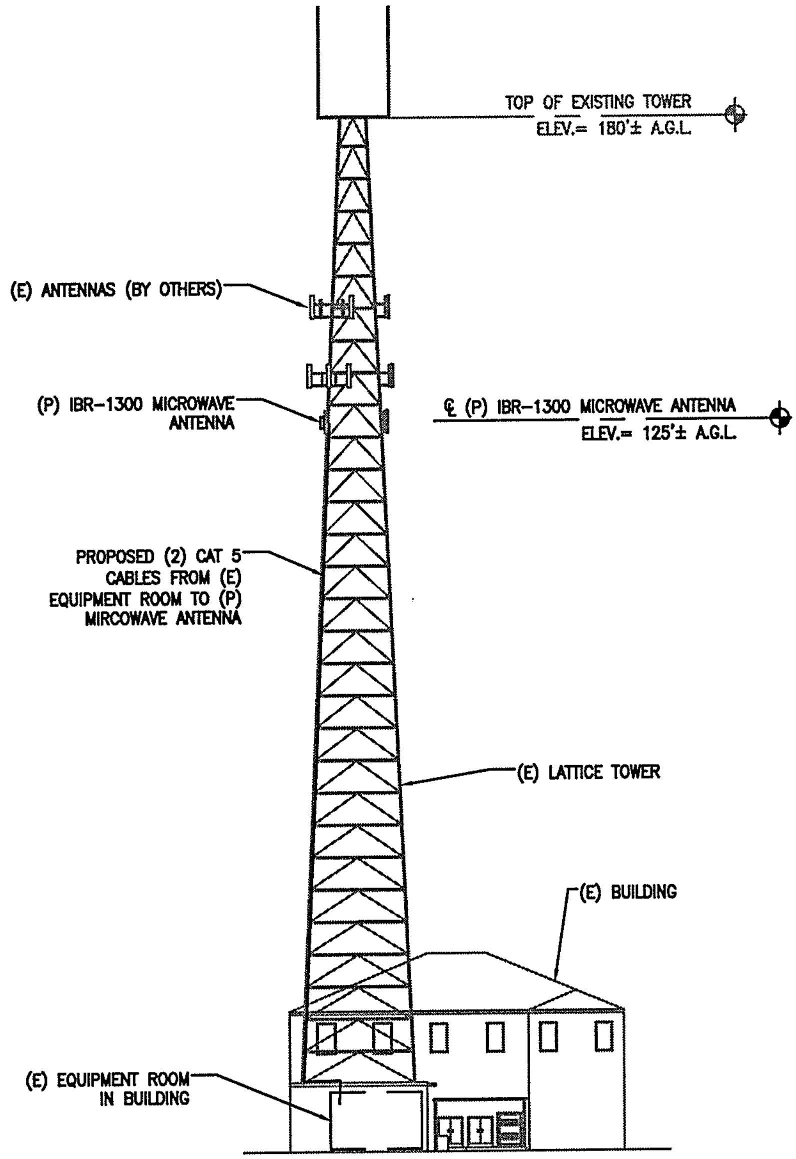
Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Office	2808	2808
First Floor	5516	5516
Porch, Enclosed	384	0
Total Area	8708	

Sales History

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

Report Created On 8/14/2017

NOTES:
1. ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY T-MOBILE NORTHEAST, LLC, STRUCTURAL & RF ENGINEERS.



1 / LE-1 ELEVATION VIEW
SCALE: 1/32"= 1'-0"

0 16'-0" 32'-0" 64'-0"

LEGEND

(F) = FUTURE
(E) = EXISTING
(P) = PROPOSED
(AGL) = ABOVE GROUND LEVEL

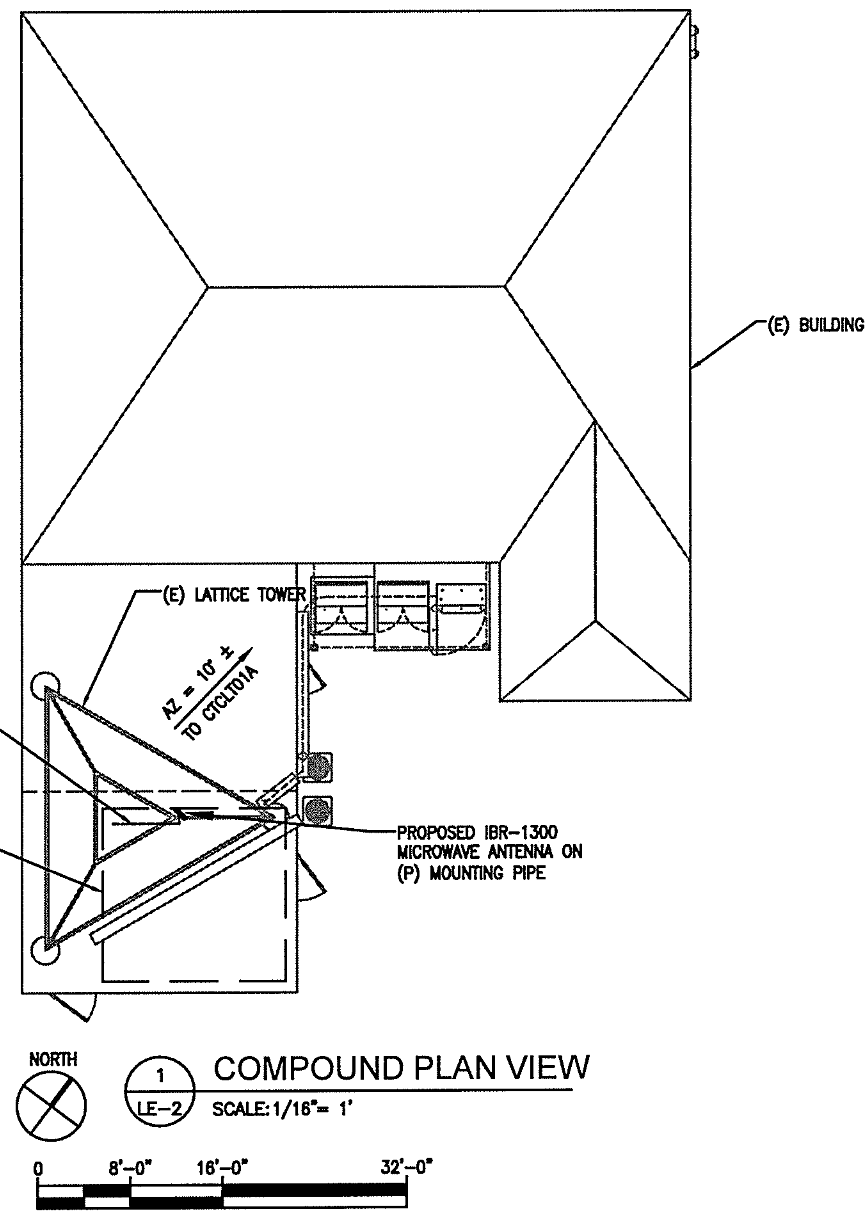
ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development - Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
TEL: (401) 354-2403
FAX: (401) 633-6354

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700
FAX: (508) 286-2893

TITLE: LEASE EXHIBIT
SITE NO: CT11193A
SITE NAME: ORANGE/RT 1
ADDRESS: 24 ROCKDALE ROAD
WEST HAVEN, CT 06516

DATE: 08/16/2017
DRAWN BY: JWH
REVISION: 0
SCALE: NOTED
SHEET: LE-1

NOTE:
ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY T-MOBILE NORTHEAST, LLC, STRUCTURAL & RF ENGINEERS.



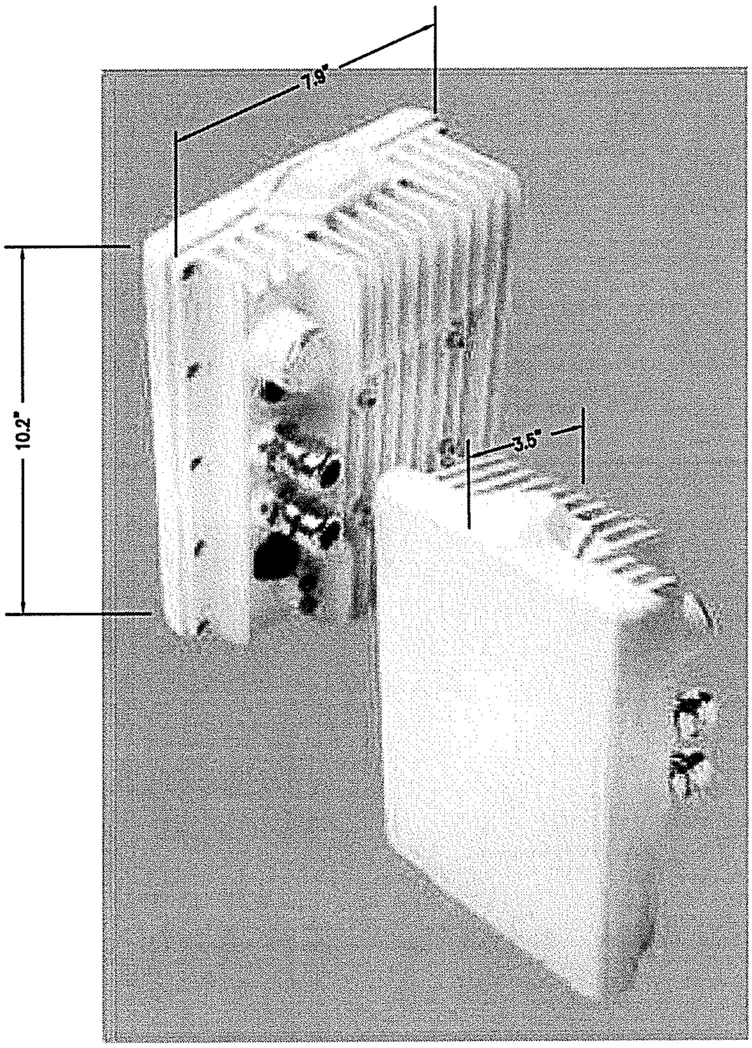
1 / LE-2 COMPOUND PLAN VIEW
SCALE: 1/16" = 1'

ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development - Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
TEL: (401) 354-2403
FAX: (401) 633-6354

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700
FAX: (508) 286-2893

TITLE:	LEASE EXHIBIT
SITE NO:	CT11193A
SITE NAME:	ORANGE/RT 1
ADDRESS:	24 ROCKDALE ROAD WEST HAVEN, CT 06516

DATE:	08/16/2017
DRAWN BY:	JWH
REVISION:	0
SCALE:	NOTED
SHEET:	LE-2



PROP. FASTBACK
NETWORK IBR-1300
ANTENNA DIMENSIONS:
10.2"Hx7.9"Wx3.5"D

IBR-1300 MICROWAVE ANTENNA

1 / LE-3 SCALE: N.T.S.

ADVANCED ENGINEERING GROUP, P.C.
Civil Engineering - Site Development - Surveying - Telecommunications
500 NORTH BROADWAY
EAST PROVIDENCE, RI 02914
TEL: (401) 354-2403
FAX: (401) 633-6354

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
OFFICE: (508) 286-2700
FAX: (508) 286-2893

TITLE:	LEASE EXHIBIT
SITE NO:	CT11193A
SITE NAME:	ORANGE/RT 1
ADDRESS:	24 ROCKDALE ROAD WEST HAVEN, CT 06516

DATE:	08/16/2017
DRAWN BY:	JWH
REVISION:	0
SCALE:	NOTED
SHEET:	LE-3

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11193 to CTCLT01A MW

CT11193 MW Donor for CTCLT01A
24 Rockdale Road
West Haven, CT 06516

September 5, 2017

EBI Project Number: 6217003915

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**13.23%**

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

EBI Consulting
environmental | engineering | due diligence

September 5, 2017

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

Emissions Analysis for Site: **CT11193 to CTCLT01A MW – CT11193 MW Donor for CTCLT01A**

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

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 5 GHz microwave 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, West Haven, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel and microwave antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

6) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

7) 1 microwave backhaul channel (5 GHz) was considered for the microwave donor to the T-Mobile temporary site CTCLT01A in New Haven.

8) 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.

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

10) The antennas used in this modeling are the **Ericsson AIR32 B66A/B2A** & **Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels, the **Commscope LNX-6515DS-A1M** for 700 MHz channels and the **Fastback Networks IBR 1300** for 5 GHz microwave backhaul . This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR32 B66A/B2A** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Ericsson AIR21 B2A/B4P** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-A1M** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. the **Fastback Networks IBR 1300 antenna** has a maximum gain of **10 dBd** at 5 GHz**.** The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antenna mounting height centerline of the proposed antennas is **135 feet** above ground level (AGL) for all standard panel antennas and **125 feet** above ground level for the proposed 5 GHz microwave radio / antenna.

12) 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.

13) 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:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A	Make / Model:	Ericsson AIR32 B66A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	135	Height (AGL):	135	Height (AGL):	135
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	2.02	Antenna B1 MPE%	2.02	Antenna C1 MPE%	2.02
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	135	Height (AGL):	135	Height (AGL):	135
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,002.81	ERP (W):	7,002.81	ERP (W):	7,002.81
Antenna A2 MPE%	1.51	Antenna B2 MPE%	1.51	Antenna C2 MPE%	1.51
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	135	Height (AGL):	135	Height (AGL):	135
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.40	Antenna B3 MPE%	0.40	Antenna C3 MPE%	0.40

Antenna #:	**4 (Microwave)**
Make / Model:	Fastback Networks IBR 1300
Gain:	10.0 dBd
Height (AGL):	125
Frequency Bands	5.0 GHz
Channel Count	1
Total TX Power(W):	1
ERP (W):	10 W
Antenna A4 MPE%	0.03

T-Mobile Sector A Total:	3.96%
T-Mobile Sector B Total:	3.93 %
T-Mobile Sector C Total:	3.93 %
Site Total:	13.23%

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**3.96%**
Assorted Antennas 1 - 20	5.76 %
TV Ch 28	1.15 %
Verizon Wireless	2.36 %
Site Total MPE %:	**13.23%**

EBI Consulting

environmental | engineering | due diligence

T-Mobile Per Sector Maximum Power Values

T-Mobile _Max Values per sector (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	135	10.09	AWS - 2100 MHz	1000	1.01%
T-Mobile PCS - 1900 MHz LTE	2	2,334.27	135	10.09	PCS - 1900 MHz	1000	1.01%
T-Mobile AWS - 2100 MHz UMTS	2	1,167.14	135	5.04	AWS - 2100 MHz	1000	0.50%
T-Mobile PCS - 1900 MHz UMTS	2	1,167.14	135	5.04	PCS - 1900 MHz	1000	0.50%
T-Mobile PCS - 1900 MHz GSM	2	1,167.14	135	5.04	PCS - 1900 MHz	1000	0.50%
T-Mobile 700 MHz LTE	1	865.21	135	1.87	700 MHz	467	0.40%
T-Mobile 5 GHz Microwave	1	10	125	0.25	5 GHz Microwave	1000	0.03%
						Total:	**3.96%**

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:	3.96%
Sector B:	3.93%
Sector C:	3.93%
T-Mobile Per Sector Maximum:	3.96%
Site Total:	13.23%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **13.23%** 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.