

December 20, 2017

Via Electronic Mail and Federal Express

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

Re: **EM-VER-075-171108 T- Relocation of Temporary Telecommunications Facility at Tiffany Farm, 156 Sterling City Road, Lyme, Connecticut**

Dear Ms. Bachman:

On November 7, 2017, Cellco Partnership d/b/a Verizon Wireless ("Cellco") notified the Council of its need to establish a truck-mounted telecommunication facility at 156 Sterling City Road in Lyme, Connecticut ("Property"). This temporary facility would restore telecommunication service lost due to the collapse of an existing agricultural silo at the Property. Cellco's truck-mounted facility was installed and activated on November 8, 2017. On November 10, 2017, AT&T Wireless ("AT&T") also notified the Council of its intent to install and use an 88-foot tall temporary ballast tower at the Property. Cellco now intends to relocate its antennas onto the AT&T tower. Once the Cellco antennas are activated, Cellco will remove its truck-mounted facility from the Property.

More specifically, Cellco will install two (2) Commscope SBNH-1D6565B panel antennas, at the 74-foot level on the AT&T tower. Cellco's antennas will be connected to its existing radio equipment located inside an adjacent barn structure. Two (2) remote radio heads ("RRHs") will be mounted to a temporary ballast frame structure, on the ground, near the base of the temporary tower. Included in Attachment 1 are specifications for Cellco's antennas and RRH and a set of Project Plans showing Cellco's proposed facility improvements.

The operation of Cellco's temporary telecommunications facility on the AT&T tower will comply with the Federal Communications Commission (FCC) safety standard for radio

17457190-v2

Melanie A. Bachman, Esq.
December 20, 2017
Page 2

frequency emissions. A General Power Density table for Cellco's antennas is included in Attachment 2. Also, a Structural Analysis confirming that the ballast tower can support both AT&T's and Cellco's antennas and related equipment is included in Attachment 3.

A copy of this notice letter has been sent to John J. Tiffany II, the owner of the Property, Lyme's First Selectman Steven Mattson and the Town's Deputy Fire Chief and Emergency Management Director, John C. L. Evans, by certified mail. Copies of the certified mail receipt are included in Attachment 4.

Please contact me if you have any questions.

Sincerely,



Kenneth C. Baldwin

Attachments

Copy to:

John J. Tiffany II (*via Certified Mail, Return Receipt*)
Steven Mattson, First Selectman (*via Certified Mail, Return Receipt*)
John C. L. Evans, Deputy Fire Chief and Emergency Management Director (*via Certified Mail, Return Receipt*)
Anthony Befera, Verizon Wireless

ATTACHMENT 1



SBNHH-1D65B

6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm					

Electrical Specifications, BASTA*

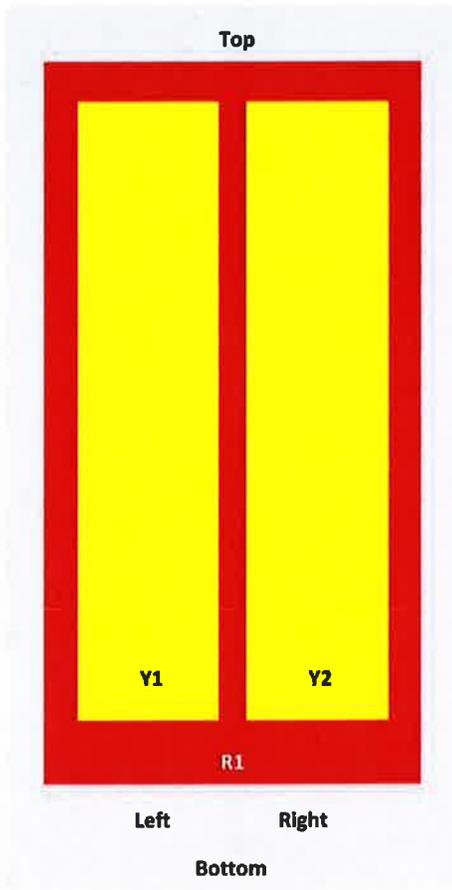
Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0° 14.6	0° 14.5	0° 17.4	0° 17.8	0° 18.1	0° 18.2
	7° 14.6	7° 14.4	3° 17.5	3° 17.9	3° 18.3	3° 18.4
	14° 14.2	14° 13.6	7° 17.4	7° 17.9	7° 18.2	7° 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

Array Layout

SBNHH-1D65B

SBNHH 65



Array	Freq (MHz)	Coors	RET (MRET)	AISG RET UID
R1	698-896	1-2	1	ANXXXXXXXXXXXXXXXXX.1
Y1	1695-2360	3-4	2	ANXXXXXXXXXXXXXXXXX.2
Y2	1695-2360	5-6		

View from the front of the antenna
 (Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2360 MHz 698 – 896 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	6
RF Connector Quantity, low band	2
RF Connector Quantity, high band	4
RF Connector Interface	7-16 DIN Female

SBNHH-1D65B

Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1851.0 mm 72.9 in
Width	301.0 mm 11.9 in
Depth	180.0 mm 7.1 in
Net Weight, without mounting kit	18.4 kg 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	1 female 1 male

Packed Dimensions

Length	2025.0 mm 79.7 in
Width	390.0 mm 15.4 in
Depth	296.0 mm 11.7 in
Shipping Weight	31.0 kg 68.3 lb

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU
China RoHS SJ/T 11364-2006
ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system



SBNHH-1D65B

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance



SBNHH-1D85B

6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 85° HPBW, 3x RET

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Three internal RETs for independent tilt on all three bands

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	14.4	17.0	17.6	17.9	17.9
Beamwidth, Horizontal, degrees	83	86	81	79	79	79
Beamwidth, Vertical, degrees	12.3	11.1	5.7	5.3	5.0	4.6
Beam Tilt, degrees	0–12	0–12	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	19	18	15	16	17	18
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	25	25	25	25
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm					

Electrical Specifications, BASTA*

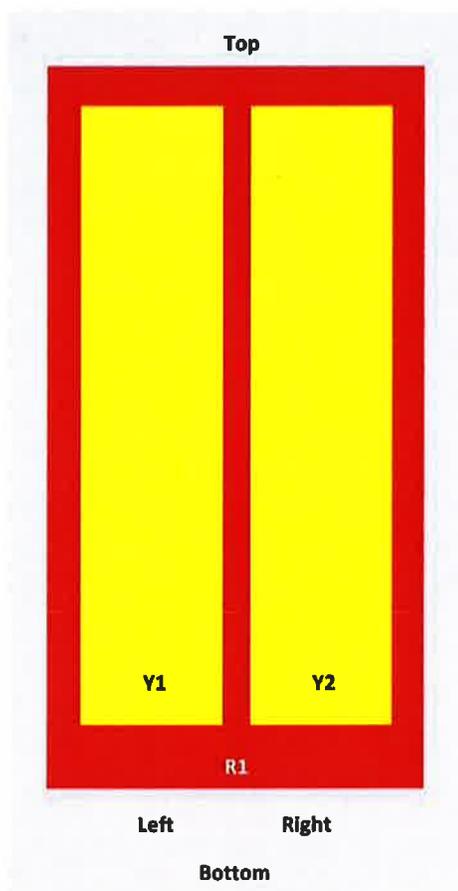
Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.2	16.8	17.4	17.7	17.8
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.5	±0.3	±0.4	±0.3
Gain by Beam Tilt, average, dBi	0° 14.2	0° 14.1	0° 16.8	0° 17.5	0° 17.7	0° 17.6
	6° 14.3	6° 14.3	4° 16.8	4° 17.5	4° 17.8	4° 18.0
	12° 14.1	12° 13.9	8° 16.7	8° 17.2	8° 17.5	8° 17.6
Beamwidth, Horizontal Tolerance, degrees	±2.4	±1.7	±4.8	±3.2	±3.8	±1.9
Beamwidth, Vertical Tolerance, degrees	±0.6	±0.9	±0.2	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	15	16	17	18
Front-to-Back Total Power at 180° ± 30°, dB	23	23	27	26	25	27
CPR at Boresight, dB	20	20	23	22	18	22
CPR at Sector, dB	15	16	12	13	10	6

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

Array Layout

SBNHH-1D85B

SBNHH 45 85



Array	Freq (MHz)	Coas	RET (MBET)	AISG RET UID
R1	698-896	1-2	1	ANXXXXXXXXXXXXX.1
Y1	1695-2360	3-4	2	ANXXXXXXXXXXXXX.2
Y2	1695-2360	5-6	3	ANXXXXXXXXXXXXX.3

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2360 MHz 698 – 896 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	6
RF Connector Quantity, low band	2
RF Connector Quantity, high band	4
RF Connector Interface	7-16 DIN Female

SBNHH-1D85B

Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1851.0 mm 72.9 in
Width	301.0 mm 11.9 in
Depth	180.0 mm 7.1 in
Net Weight, without mounting kit	19.1 kg 42.1 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (2) Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	1 female 1 male

Packed Dimensions

Length	1970.0 mm 77.6 in
Width	409.0 mm 16.1 in
Depth	299.0 mm 11.8 in
Shipping Weight	31.2 kg 68.8 lb

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU
China RoHS SJ/T 11364-2006
ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system



SBNHH-1D85B

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

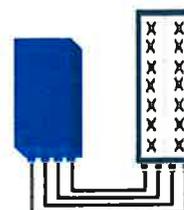


FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (lb) (w/o mounting HW)	26 (57.2) (with solar shield)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions	-40°C (-40°F) / +55°C (+131°F)
Wind load (@150km/h or 93mph)	IP65 Frontal: <200N / Lateral : <150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

www.alcatel-lucent.com Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners. The information presented is subject to change without notice. Alcatel-Lucent assumes no responsibility for inaccuracies contained herein. Copyright © 2014 Alcatel-Lucent. All Rights Reserved

verizon[✓]

WIRELESS COMMUNICATIONS FACILITY

LYME CT

156 STERLING CITY ROAD

LYME, CT 06371

DRAWING INDEX

T-1 TITLE SHEET & INDEX

C-1 SITE PLAN

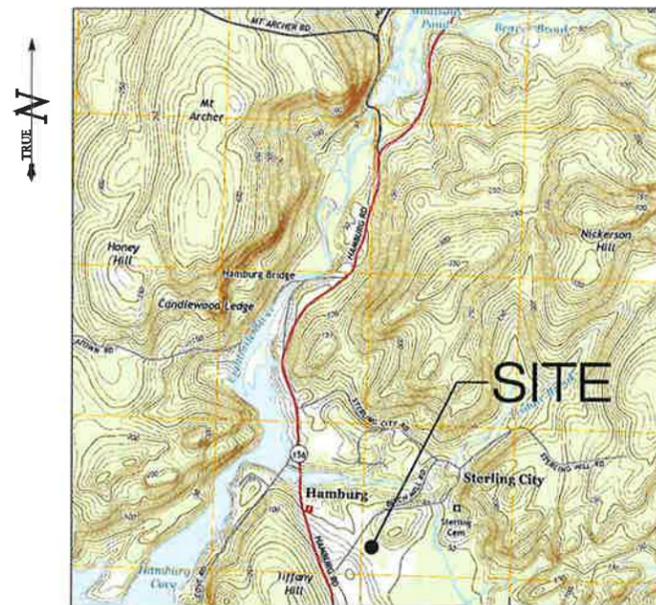
C-2 PARTIAL SITE PLAN, WEST ELEVATION,
TEMPORARY MONOPOLE PLAN & DETAILS

SITE DIRECTIONS

**START: 99 EAST RIVER DRIVE
EAST HARTFORD, CONNECTICUT 06108**

**END: 156 STERLING CITY ROAD
LYME, CT 06371**

- | | |
|--|---------|
| 1. HEAD NORTHEAST ON E RIVER DRIVE | 335 FT |
| 2. TURN LEFT ONTO CT-2 E RAMP | 0.2 MI |
| 3. MERGE ONTO I-84 E | 374 FT |
| 4. TAKE EXIT 55 FOR CT-2 E / I-84 E | 0.4 MI |
| 5. CONTINUE ONTO CT-2 E | 23.4 MI |
| 6. KEEP RIGHT AT FORK TO CONTINUE ON CT-11 S | 7.4 MI |
| 7. CONTINUE ONTO EXIT 4 (CT-82 / SALEM / HADLYME) | 0.2 MI |
| 8. TURN RIGHT ONTO CT-82 W | 3.8 MI |
| 9. TURN RIGHT ONTO CT-156 E | 0.8 MI |
| 10. TURN LEFT ONTO STERLING CITY ROAD DESTINATION WILL BE ON RIGHT | 0.1 MI |



LOCATION MAP
SCALE: 1" = 2000'-0"

SITE INFORMATION

VZ SITE REF: LYME CT
VZ PROJECT CODE: N/A
VZ LOCATION CODE: 467845
LOCATION: 156 STERLING CITY ROAD
LYME, CT 06371

AT&T SITE REF: LYME CENTRAL
AT&T SITE F.A.: 10071096
AT&T SITE I.D.: CT5735; USID: 27049

PROJECT SCOPE: PROPOSED INSTALLATION CONSISTS OF TWO (2) PANEL ANTENNAS MOUNTED TO EXIST. TEMPORARY MONOPOLE IN ADDITION TO ONE (1) MDB & TWO (2) RRHs MOUNTED TO PROP. BALLAST FRAME AT BASE OF EXIST. TEMPORARY MONOPOLE.

MAP/LOT: 26 / 57 AND 26 / 55

ZONING DISTRICT: RU-80: "RURAL DISTRICT"

LATITUDE: 41° 22' 38.6784" N (41.3774107° N)

LONGITUDE: 72° 20' 45.3356" W (72.3459266° W)

GROUND ELEVATION: 93.8± AMSL

PROPERTY OWNER: JOHN J. TIFFANY II
156 STERLING CITY ROAD
LYME, CT 06371

APPLICANT: CELLCO PARTNERSHIP
d/b/a VERIZON WIRELESS
99 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

LEGAL/REGULATORY COUNSEL: ROBINSON & COLE, LLP
KENNETH C. BALDWIN, ESQ.
280 TRUMBULL STREET
HARTFORD, CT 06103

ENGINEER CONTACT: ALL-POINTS TECHNOLOGY CORP.
3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
(860) 663-1697

COORDINATES & GROUND ELEVATION INDICATED HEREIN WERE ESTABLISHED FROM AN FAA 1-A SURVEY CERTIFICATION, AS PREPARED BY MARTIN SURVEYING ASSOCIATES, LLC., DATED DECEMBER 6, 2017.

Cellco Partnership d/b/a

verizon[✓]

99 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

**ALL-POINTS
TECHNOLOGY CORPORATION**

3 SADDLEBROOK DRIVE PHONE: (860)-663-1697
KILLINGWORTH, CT 06419 FAX: (860)-663-0935
WWW.ALLPOINTSTECH.COM

PERMITTING DOCUMENTS

NO	DATE	REVISION
0	12/13/17	FOR REVIEW: JRM
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419

OWNER: JOHN J. TIFFANY II
ADDRESS: 156 STERLING CITY ROAD
LYME, CT 06371

LYME CT

SITE: 156 STERLING CITY ROAD
ADDRESS: LYME, CT 06371

APT FILING NUMBER: CT141NB10240

DATE: 12/13/17
DRAWN BY: THK
CHECKED BY: JRM

SHEET TITLE:

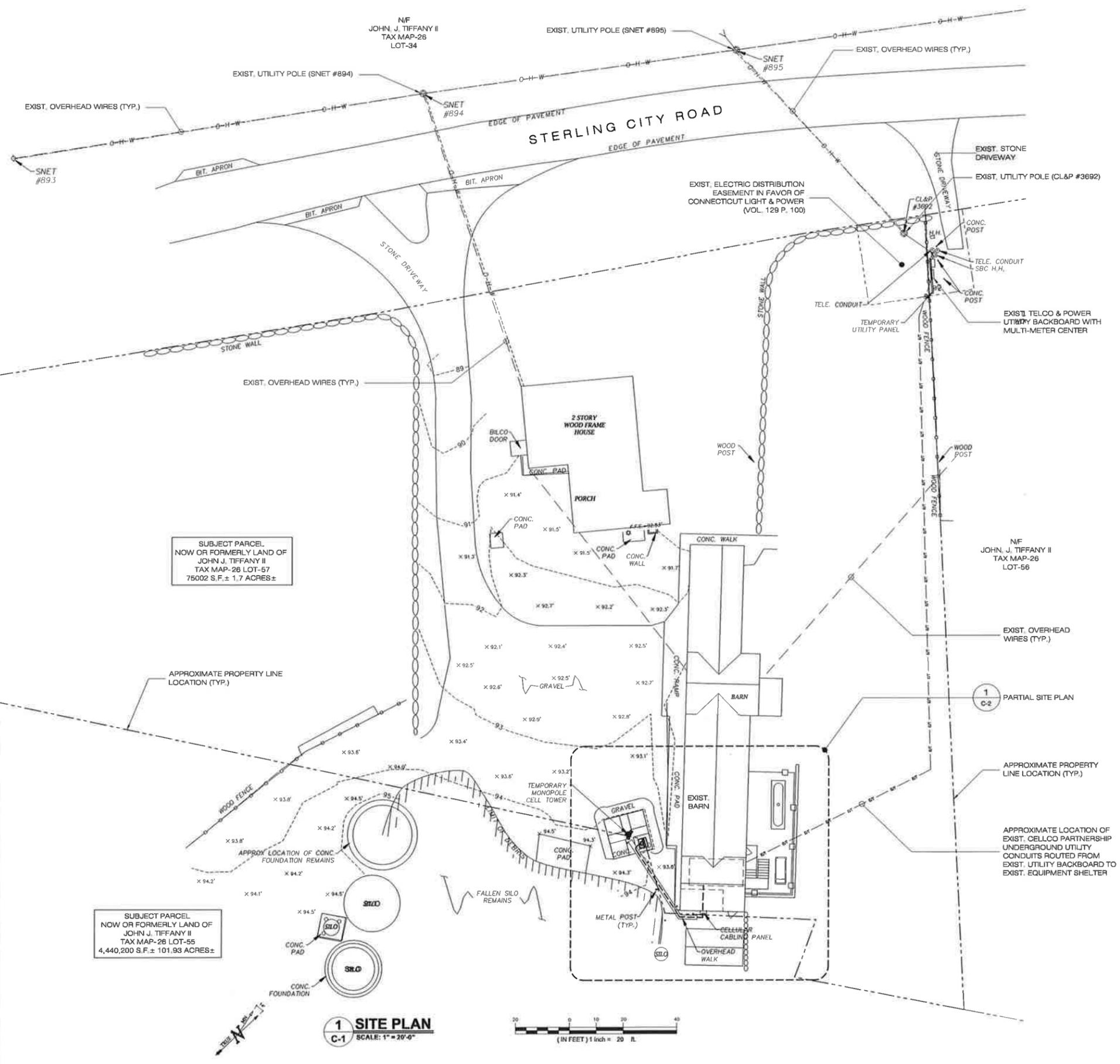
**TITLE SHEET
& INDEX**

SHEET NUMBER:

T-1

SITE PLAN REFERENCE:

1. "COMPILATION PLAN, LAND NOW OR FORMERLY OF JOHN J. TIFFANY II, 156 STERLING CITY ROAD, LYME, CONNECTICUT," PREPARED BY MARTIN SURVEYING ASSOCIATES, LLC, 201 CHRISTIAN LANE, BERLIN, CT 06037, SCALE: 1"=20', DATED: DECEMBER 8, 2017.
2. "SURVEY MAP PROPERTIES OF JOHN J. TIFFANY II, ET. AL. PREPARED FOR STATE OF CONNECTICUT DEPARTMENTS OF AGRICULTURE, HAMBURG-LYME ROAD CONNECTICUT ROUTE 156 AND STERLING CITY ROAD LYME, CONNECTICUT" SCALE: 1"=100', DATED: JUNE 27, 1988, REVISED: SEPTEMBER 6, 1988, BY: CHANDLER, PALMER & KING.
3. "COMPILATION PLAN MAP SHOWING EASEMENT AREA TO BE GRANTED TO THE CONNECTICUT LIGHT AND POWER COMPANY ACROSS THE PROPERTY OF JOHN J. TIFFANY II, 156 STERLING CITY ROAD, LYME, CONNECTICUT" SCALE: 1"=30', DATED: OCTOBER, 2003 BY: URS CORPORATION AES.
4. FIELD MEASUREMENTS TAKEN BY ALL-POINTS TECHNOLOGY CORPORATION ON NOVEMBER 30, 2017
5. "FIRM FLOOR INSURANCE RATE MAP," NEW LONDON COUNTY, CONNECTICUT, MAP NUMBER 0901100313G, EFFECTIVE DATE JULY 19, 2011, FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA). THE SUBJECT PARCELS ARE NOT LOCATED IN SFHA.



MAP NOTES:

1. THIS MAP AND SURVEY HAVE BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND "THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS ON SEPTEMBER 26, 1996.
2. THE TYPE OF SURVEY PERFORMED AND THE MAPPED FEATURES DEPICTED HEREON ARE IN ACCORDANCE WITH THE REQUIREMENTS OF A COMPILATION SURVEY AND IS INTENDED TO DEPICT CERTAIN FEATURES AS DIRECTED BY THE CLIENT. OTHER FEATURES EXIST UPON THE SUBJECT PARCEL THAT ARE NOT DEPICTED HEREON.
3. THE PROPERTY LINES DEPICTED HEREON CONFORM TO A CLASS "D" AND HAVE BEEN COMPILED FROM OTHER MAPS AND RECORD RESEARCH. IT IS NOT TO BE CONSTRUED AS HAVING BEEN A RESULT OF A FIELD SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE.
4. THE HORIZONTAL BASELINE CONFORMS TO A CLASS A-2 ACCURACY. THE VERTICAL BASELINE CONFORMS TO A CLASS V-2 ACCURACY. THE TOPOGRAPHIC FEATURES CONFORM TO A CLASS T-2 ACCURACY.
5. THE NORTH ARROW AND BEARINGS ARE BASED UPON THE CONNECTICUT STATE COORDINATE SYSTEM N.A.D. 1983 (2011). THE ELEVATIONS ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) USING GEOID 12B. COORDINATES AND ELEVATIONS WERE DETERMINED FROM RTK GPS OBSERVATIONS MADE ON NOVEMBER 30, 2017, USING THE CT D.O.T. RTK NETWORK (CTGR BASE), HAVING THE FOLLOWING VALUES:
 LATITUDE = N 41° 20' 07.03551"
 LONGITUDE = W 72° 02' 58.96930"
 ELLIPSOID HEIGHT = -18.343M
6. UNDERGROUND UTILITIES, STRUCTURES AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE COMPANIES OR GOVERNMENTAL AGENCIES AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE WHICH IS UNKNOWN TO MARTIN SURVEYING ASSOCIATES, LLC. ALL CONTRACTORS ARE REQUIRED TO CONTACT CALL-BEFORE-YOU-DIG AT 1-800-922-4455 FOR LOCATION AND OR STAKEOUT OF ANY UTILITY PRIOR TO ANY EXCAVATION.

Cellco Partnership d/b/a



89 EAST RIVER DRIVE
EAST HARTFORD, CT 06108



3 SADDLEBROOK DRIVE PHONE: (860)-663-1697
KILLINGWORTH, CT 06419 FAX: (860)-663-0935
WWW.ALLPOINTSTECH.COM

PERMITTING DOCUMENTS

NO	DATE	REVISION
0	12/13/17	FOR REVIEW: JRM
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION
ADD: 3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 08419

OWNER: JOHN J. TIFFANY II
ADDRESS: 156 STERLING CITY ROAD
LYME, CT 06371

LYME CT

SITE 156 STERLING CITY ROAD
ADDRESS: LYME, CT 06371

APT FILING NUMBER: CT141N910240

DRAWN BY: THK
DATE: 12/13/17 CHECKED BY: JRM

SHEET TITLE:

SITE PLAN

SHEET NUMBER:

C-1

PERMITTING DOCUMENTS

NO	DATE	REVISION
0	12/13/17	FOR REVIEW: JRM
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF. SCOTT M. CHASSE P.E.
 COMP: ALL-POINTS TECHNOLOGY CORPORATION
 ADD: 3 SADDLEBROOK DRIVE
 KILLINGWORTH, CT 06419

OWNER: JOHN J. TIFFANY II
 ADDRESS: 156 STERLING CITY ROAD
 LYME, CT 06371

LYME CT

SITE 156 STERLING CITY ROAD
ADDRESS: LYME, CT 06371

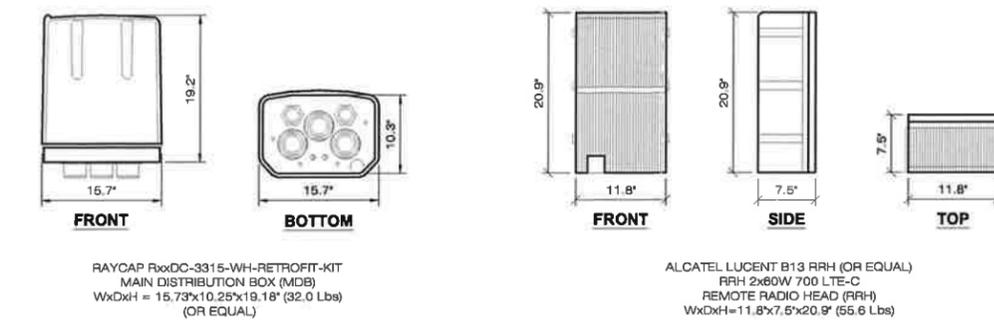
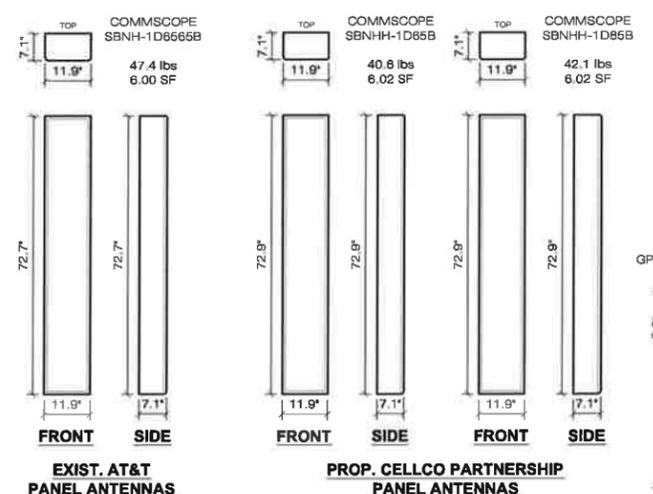
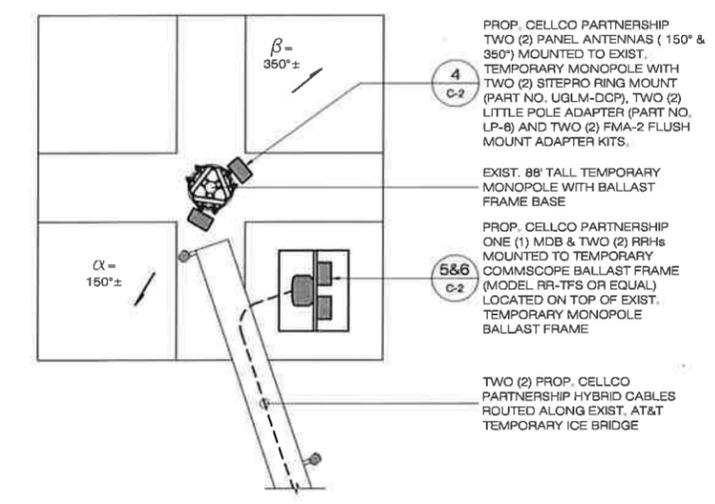
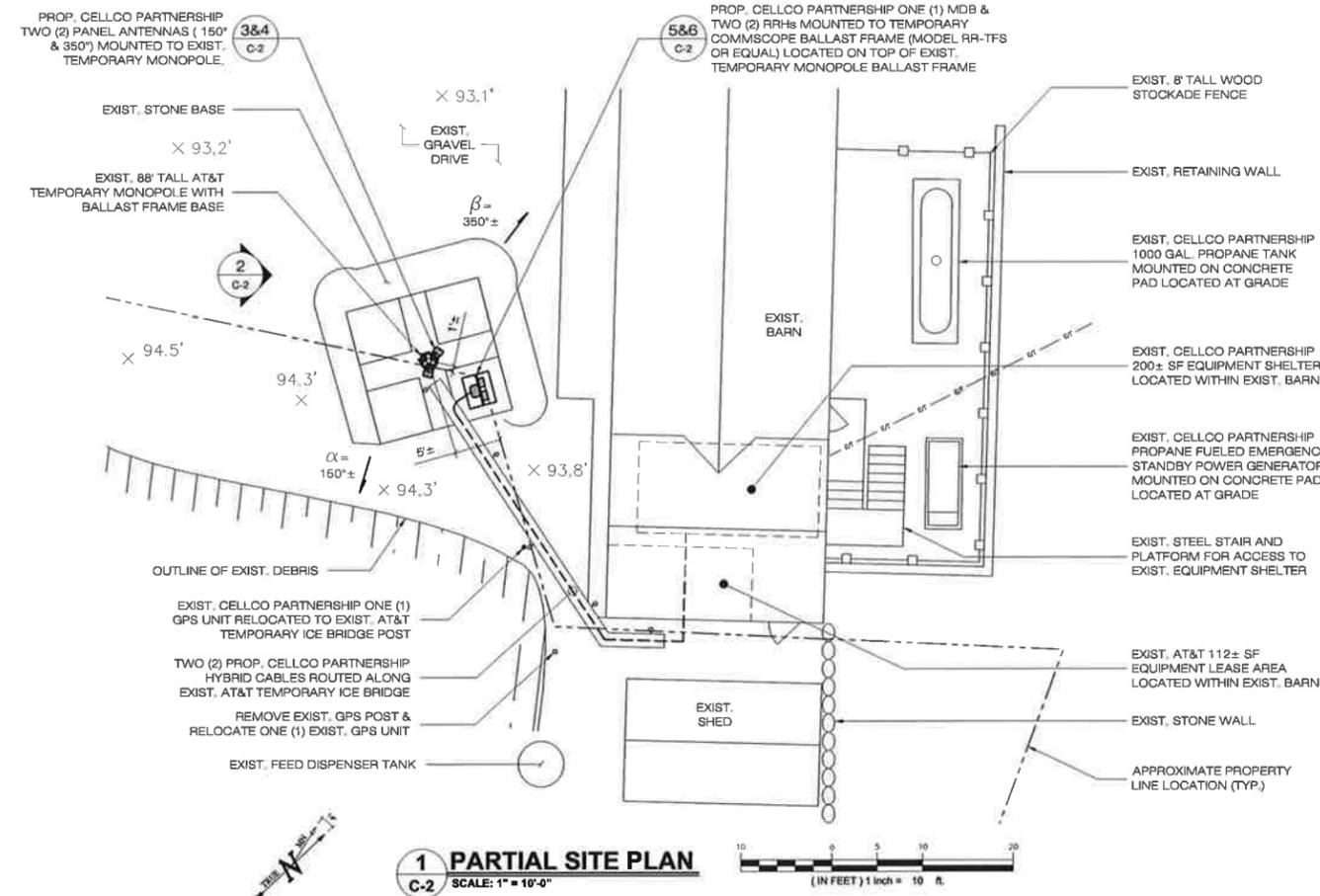
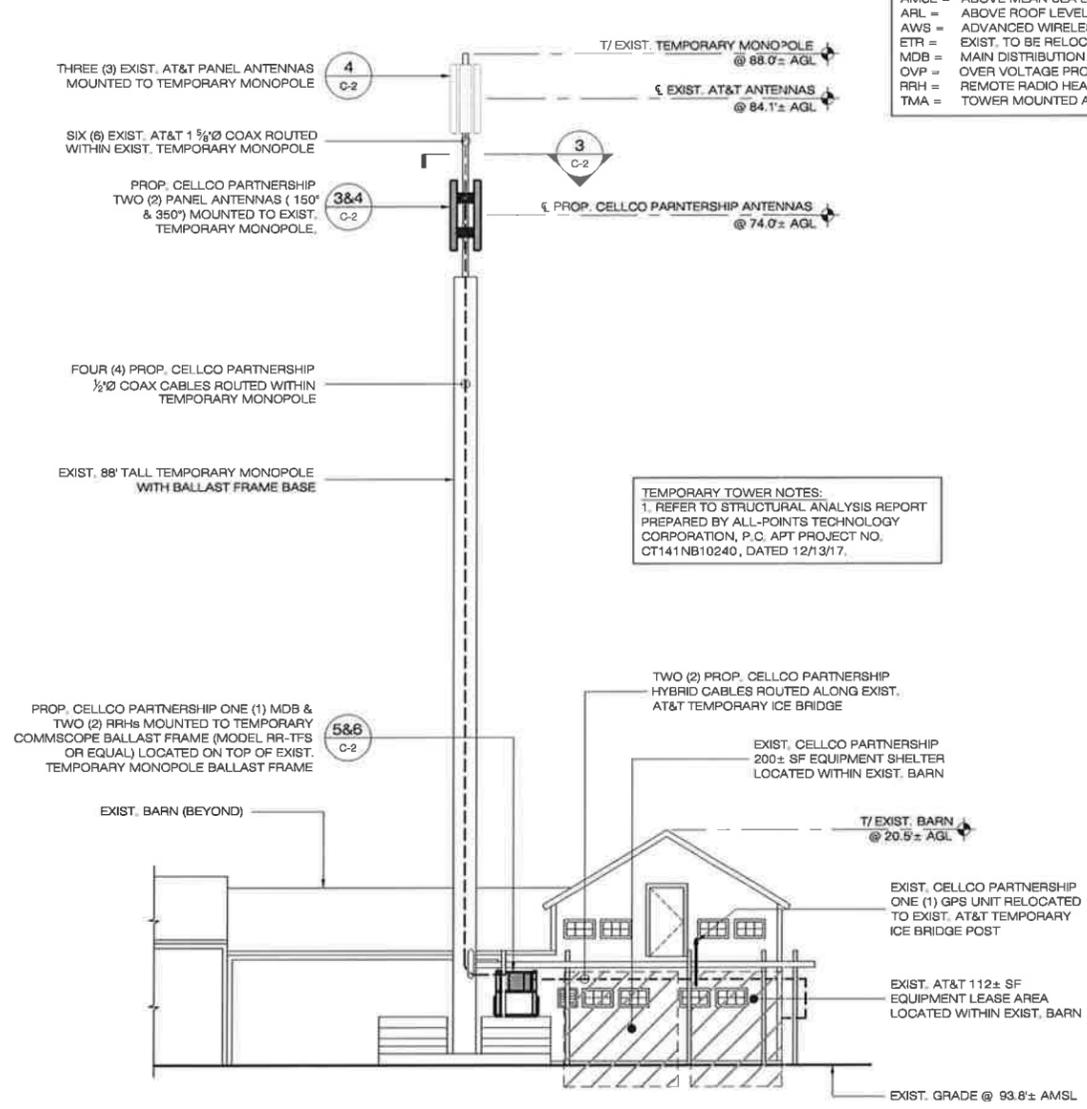
APT FILING NUMBER: CT141NB10240

DATE: 12/13/17 **DRAWN BY:** THK **CHECKED BY:** JRM

SHEET TITLE:
**PARTIAL SITE PLAN,
 WEST ELEVATION,
 TEMPORARY MONOPOLE
 PLAN & DETAILS**

SHEET NUMBER:
C-2

ABBREVIATION LIST:
 AGL = ABOVE GROUND LEVEL;
 AMSL = ABOVE MEAN SEA LEVEL;
 ARL = ABOVE ROOF LEVEL;
 AWS = ADVANCED WIRELESS SERVICE;
 ETR = EXIST. TO BE RELOCATED
 MDB = MAIN DISTRIBUTION BOX;
 OVP = OVER VOLTAGE PROTECTION;
 RRH = REMOTE RADIO HEAD;
 TMA = TOWER MOUNTED AMPLIFIER



ATTACHMENT 2

Site Name: Lyme CT
 Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm ²)	Maximum Permissible Exposure* (mW/cm ²)	Fraction of MPE (%)
VZW PCS	1970	0	0	0	74	0.0000	1.0	0.00%
VZW Cellular	869	0	0	0	74	0.0000	0.5793333333	0.00%
VZW AWS	2145	0	0	0	74	0.0000	1.0	0.00%
VZW 700	746	1	754	754	74	0.0495	0.4973333333	9.96%

Total Percentage of Maximum Permissible Exposure

9.96%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm² = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:

1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole.

ATTACHMENT 3



Structural Analysis Report
For a Proposed Antenna & Appurtenance
Installation on an Existing AT&T Mobility 85-ft Temporary
Uni-Pole Tower,
Lyme, Connecticut

Prepared for
Verizon Wireless & AT&T Mobility

Verizon Wireless Site Ref:
Lyme, CT

AT&T Site Ref: Lyme Central
AT&T Site F.A.: 10071096
AT&T Site I.D.:CT5735, USID: 27049

December 13, 2017



APT Project #CT141NB10241

**STRUCTURAL ANALYSIS REPORT
85' TEMPORARY MONOPOLE TOWER
LYME, CT
prepared for
Verizon Wireless**

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) a professional engineering corporation licensed in the State of Connecticut, has been retained by Verizon Wireless to assess the structural adequacy of an existing 85-ft AT&T Mobility temporary uni-pole tower structure with ballast base frame to support a proposed antenna and appurtenance installation.

The proposed Verizon Wireless equipment installation consists of two (2) pipe mounted panel antennas. Additionally, the installation includes four (4) ½" dia. coaxial cables located within the interior of the temporary pole structure.

Our analysis indicates that the subject AT&T Mobility temporary uni-pole tower structure, located at 156 Sterling City Road, Lyme, Connecticut, meets the requirements of the 2012 International Building Code, as amended by the 2016 Connecticut State Building Code and the TIA-222-G standard.

INTRODUCTION:

A structural analysis of the subject temporary communications tower was performed by APT for Verizon Wireless. The temporary AT&T Mobility uni-pole tower is located at 156 Sterling City Road, Lyme, Connecticut.

The temporary uni-pole construction consists of three (3) steel pipe sections together with stiffened base plate assembly and a ballasted base frame. The manufacturer of the uni-pole is unknown at the time of preparing this report, therefore minimum material strengths were assumed where necessary, for the purpose of this analysis.

The following information was utilized in the preparation of this analysis:

- Field mapping of the uni-pole structure conducted from grade, by APT during November 2017.
- FAA-1A elevation mapping of the uni-pole structure conducted from grade, by APT during November 2017.
- Structural analysis report of AT&T temporary uni-pole structure prepared by Centek Engineering for AT&T Mobility and Verizon Wireless, dated April 29, 2014, marked Rev 1.
- Existing AT&T antenna and equipment inventory provided by AT&T Mobility.
- Proposed Verizon equipment, as noted within an RFDS provided by Verizon Wireless, dated November 08, 2017.

ALL-POINTS TECHNOLOGY CORPORATION, P.C.

☒ 3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935

☐ 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

AT&T Site Ref: Lyme Central
 AT&T Site F.A.: 10071096
 AT&T Site I.D.:CT5735, USID: 27049

The analysis was conducted using the following antenna inventory (proposed equipment shown in bold text):

Carrier	Antenna and Appurtenance Make/Model	Elevation	Status	Mount Type	Coax/Feed-Line
AT&T Mobility	Three (3) Commscope SBNH-1D6565B panel antennas	84.1'	E	Three (3) Pipe Mounts	(6) Commscope AVA-7RK-50 1-5/8" dia. Coaxial Cables (Interior)
Verizon Wireless	One (1) Commscope SBNHH-1D65B and one (1) Commscope SBNHH-1D85B panel antenna	74'	P	Three (3) Pipe Mounts attached to Two (2) SitePRO1 UGLM Mini Ring Mount Assemblies with two (2) LP-6 Pole Adapter Plate Assemblies & Two (2) FMA-2 Flush Mount Adapter Kits	(4) 1/2" Dia. Coaxial Cables (Interior)

Notes:

- 1) E = Existing; P = Proposed.
- 2) Analysis excludes future equipment design loading, designated as carriers #4 and #5 within tower loading form provided by Bay Communications, dated April 21, 2015, and marked Rev 1.

STRUCTURAL ANALYSIS:

Analysis Criteria:

This structural analysis has been prepared in accordance with the ANSI TIA-222-G standard entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures," the American Institute of Steel Construction (AISC) Manual of Steel Construction and the 2012 International Building Code, as amended by the 2016 Connecticut State Building Code.

Antenna and appurtenance loads were evaluated utilizing the ANSI TIA-222-G standard.

- Load Case 1: 120mph (3-second gust), 0" ice (Survival Wind)⁽¹⁾
- Load Case 2: 120mph (3-second gust), 0.9 x Dead Load
- Load Case 3: 50mph (3-second gust) w/ 0.75in ice thickness
- Load Case 4: 60mph (3-second gust) (Service Load)
- Structure Class II,
- Exposure Category C
- Topographic Category 1.

Notes:

1. Per Appendix 'N' of the 2016 Connecticut State Building Code.

ALL-POINTS TECHNOLOGY CORPORATION, P.C.

☒ 3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935

☐ 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

AT&T Site Ref: Lyme Central
 AT&T Site F.A.: 10071096
 AT&T Site I.D.:CT5735, USID: 27049

Analysis Results:

The following table summarizes the capacity of the monopole based on the effects of combined axial and bending:

Elevation	Capacity
68'-88"	13%
38'-68'	11%
3'-38'	39%
Anchor Bolts	35%
Base plate	37%

Base Foundation:

The existing base foundation system consists of a 15-ft square steel base frame assembly with concrete ballast placed at each of the four corners. The evaluation of the existing ballast frame was limited to a global stability analysis utilizing the following tower base reactions:

Base Reactions	Calculated Base Reactions TIA-222-G	Pass/Fail
Axial	7.2 k	Pass ⁽²⁾
Shear	5.3 k	Pass ⁽²⁾
Overturning Moment	205 kip-ft	Pass ⁽²⁾⁽³⁾

Notes:

2. Ballast requirements based on 0.9D + 1.6W Load Combination.
3. Based on a minimum Factor of Safety (F.O.S.) of 1.5 to resist overturning.

Conclusions and Recommendations:

The results of this analysis indicate that the existing AT&T Mobility 85' temporary uni-pole tower located at 156 Sterling City Road, Lyme, Connecticut meets the requirements of the 2012 International Building Code, as amended by the 2016 Connecticut State Building Code and the TIA-222-G standard with the proposed Verizon Wireless equipment installation.

Sincerely,

All-Points Technology Corp., P.C.



Robert E. Adair, P.E.
 Principal



Prepared By:
 All-Points Technology Corp., P.C.



Jason R. Mead
 Project Manager/
 Structural Engineer

AT&T Site Ref: Lyme Central
AT&T Site F.A.: 10071096
AT&T Site I.D.:CT5735, USID: 27049

Limitations:

This report is based on the following:

1. Tower is properly installed and maintained.
2. All members are in an un-deteriorated condition.
3. All bolts are in place and are properly tightened.
4. Tower is in plumb condition.

All-Points Technology Corporation, P.C. (APT) is not responsible for any modifications completed prior to or hereafter which APT is not or was not directly involved. Modifications include but are not limited to:

1. Adding or relocating antennas.
2. Installing antenna mounts or waveguide cables.
3. Extending tower.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

ALL-POINTS TECHNOLOGY CORPORATION, P.C.

☒ 3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935

☐ 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

Appendix A

Photographs

VERIZON
85-ft AT&T temporary uni-pole tower
Verizon Site Ref: Lyme, CT

AT&T Site Ref: Lyme Central
AT&T Site F.A.: 10071096
AT&T Site I.D.:CT5735, USID: 27049



Image of existing ± 85 -ft tall AT&T temporary uni-pole tower with ballast base frame.



Close up image of existing ± 85 -ft tall AT&T temporary uni-pole tower and AT&T antenna array.

Photos taken by APT during November 2017.

VERIZON
85-ft AT&T temporary uni-pole tower
Verizon Site Ref: Lyme, CT

AT&T Site Ref: Lyme Central
AT&T Site F.A.: 10071096
AT&T Site I.D.:CT5735, USID: 27049



Image of existing ± 85 -ft tall AT&T temporary uni-pole tower ballast base frame and base plate assembly.



Image of existing ± 85 -ft tall AT&T temporary uni-pole tower ballast base frame and base plate assembly.

Appendix B

Calculations



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
6"x2" Antenna Mount Pipe (ATI)	84.1	SBNHH-1D65B (Verizon)	74
6"x2" Antenna Mount Pipe (ATI)	84.1	6"x2" Antenna Mount Pipe (Verizon)	74
6"x2" Antenna Mount Pipe (ATI)	84.1	6"x2" Antenna Mount Pipe (Verizon)	74
SBNH-1D6565B (ATI)	84.1	6"x2" Antenna Mount Pipe (Verizon)	74
SBNH-1D6565B (ATI)	84.1	SBNHH-1D65B (Verizon)	74
SBNH-1D6565B (ATI)	84.1	SitePRO1 UGLM - LP6_FMA Mount (Verizon)	72.5
SitePRO1 UGLM - LP6_FMA Mount (Verizon)	75.5		

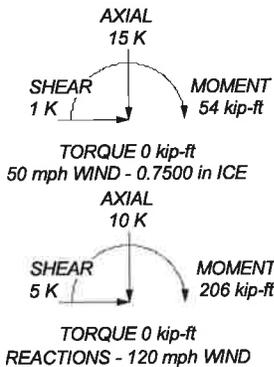
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 120 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. TOWER RATING: 39.3%

ALL REACTIONS ARE FACTORED



All-Points Engineering		Job: 85' Temporary Monopole - Lyme, CT	
3 Saddlebrook Drive		Project: Lyme, CT Loc. Code: 467845	
Killingworth, CT 06419		Client: Verizon	Drawn by: JRM
Phone: (860) 663-1697		Code: TIA-222-G	Date: 12/13/17
FAX: (860) 663-0935		Path:	Scale: N
		Dwg No.	

tnxTower All-Points Engineering 3 Saddlebrook Drive Killingworth, CT 06419 Phone: (860) 663-1697 FAX: (860) 663-0935	Job 85' Temporary Monopole - Lyme, CT	Page 1 of 3
	Project Lyme, CT Loc. Code: 467845	Date 13:06:55 12/13/17
	Client Verizon	Designed by JRM

Tower Input Data

There is a pole section.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in New London County, Connecticut.

Basic wind speed of 120 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}		Weight
						ft ² /ft	plf	
1 5/8 (AT&T)	C	No	Inside Pole	84.10 - 9.00	6	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04
1/2 (Verizon)	C	No	Inside Pole	74.00 - 9.00	4	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement ft	C _{AA}		Weight
			Horz Lateral ft	Vert ft			Front ft ²	Side ft ²	K
6'x2" Antenna Mount Pipe (AT&T)	A	From Face	1.00	0.0000	84.10	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	2.05	2.05	0.03
			0.00			1" Ice	2.68	2.68	0.05
6'x2" Antenna Mount Pipe (AT&T)	B	From Face	1.00	0.0000	84.10	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	2.05	2.05	0.03
			0.00			1" Ice	2.68	2.68	0.05
6'x2" Antenna Mount Pipe	C	From Face	1.00	0.0000	84.10	No Ice	1.43	1.43	0.02

tnxTower All-Points Engineering 3 Saddlebrook Drive Killingworth, CT 06419 Phone: (860) 663-1697 FAX: (860) 663-0935	Job	85' Temporary Monopole - Lyme, CT	Page	2 of 3
	Project	Lyme, CT Loc. Code: 467845	Date	13:06:55 12/13/17
	Client	Verizon	Designed by	JRM

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
(AT&T)			0.00			1/2" Ice	2.05	2.05	0.03	
			0.00			1" Ice	2.68	2.68	0.05	
SBNH-1D6565B (AT&T)	A	From Face	1.00		0.0000	84.10	No Ice	8.41	5.41	0.05
			0.00				1/2" Ice	8.96	5.86	0.10
			0.00				1" Ice	9.52	6.33	0.15
SBNH-1D6565B (AT&T)	B	From Face	1.00		0.0000	84.10	No Ice	8.41	5.41	0.05
			0.00				1/2" Ice	8.96	5.86	0.10
			0.00				1" Ice	9.52	6.33	0.15
SBNH-1D6565B (AT&T)	C	From Face	1.00		0.0000	84.10	No Ice	8.41	5.41	0.05
			0.00				1/2" Ice	8.96	5.86	0.10
			0.00				1" Ice	9.52	6.33	0.15
SBNHH-1D65B (Verizon)	A	From Face	1.00		0.0000	74.00	No Ice	8.43	5.42	0.04
			0.00				1/2" Ice	8.99	5.88	0.09
			0.00				1" Ice	9.55	6.35	0.15
SBNHH-1D85B (Verizon)	B	From Face	1.00		0.0000	74.00	No Ice	8.43	5.42	0.04
			0.00				1/2" Ice	8.99	5.88	0.09
			0.00				1" Ice	9.55	6.35	0.15
6'x2" Antenna Mount Pipe (Verizon)	A	From Face	1.00		0.0000	74.00	No Ice	1.43	1.43	0.02
			0.00				1/2" Ice	2.05	2.05	0.03
			0.00				1" Ice	2.68	2.68	0.05
6'x2" Antenna Mount Pipe (Verizon)	B	From Face	1.00		0.0000	74.00	No Ice	1.43	1.43	0.02
			0.00				1/2" Ice	2.05	2.05	0.03
			0.00				1" Ice	2.68	2.68	0.05
SitePRO1 UGLM - LP6 & FMA Mount (Verizon)	C	None			0.0000	72.50	No Ice	1.30	1.30	0.18
							1/2" Ice	1.52	1.52	0.25
							1" Ice	1.74	1.74	0.32
SitePRO1 UGLM - LP6 & FMA Mount (Verizon)	C	None			0.0000	75.50	No Ice	1.30	1.30	0.18
							1/2" Ice	1.52	1.52	0.25
							1" Ice	1.74	1.74	0.32

Maximum Tower Deflections - Service Wind

Section No.	Elevation	Horz. Deflection	Gov. Load	Tilt	Twist
	ft	in	Comb.	°	°
L1	88 - 68	1.936	39	0.1889	0.0000
L2	68 - 38	1.208	39	0.1271	0.0000
L3	38 - 3	0.457	39	0.1055	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	°	°	ft
84.10	6'x2" Antenna Mount Pipe	39	1.787	0.1745	0.0000	86752
75.50	SitePRO1 UGLM - LP6 & FMA Mount	39	1.467	0.1455	0.0000	34701
74.00	SBNHH-1D65B	39	1.414	0.1412	0.0000	30983
72.50	SitePRO1 UGLM - LP6 & FMA Mount	39	1.361	0.1372	0.0000	27986

tnxTower All-Points Engineering 3 Saddlebrook Drive Killingworth, CT 06419 Phone: (860) 663-1697 FAX: (860) 663-0935	Job 85' Temporary Monopole - Lyme, CT	Page 3 of 3
	Project Lyme, CT Loc. Code: 467845	Date 13:06:55 12/13/17
	Client Verizon	Designed by JRM

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	88 - 68	11.247	2	0.9986	0.0001
L2	68 - 38	7.320	2	0.7534	0.0000
L3	38 - 3	2.815	2	0.6417	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
84.10	6'x2" Antenna Mount Pipe	2	10.457	0.9412	0.0001	24697
75.50	SitePRO1 UGLM - LP6 & FMA Mount	2	8.743	0.8259	0.0000	9879
74.00	SBNHH-1D65B	2	8.452	0.8087	0.0000	8820
72.50	SitePRO1 UGLM - LP6 & FMA Mount	2	8.163	0.7928	0.0000	7967

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension K	Actual Allowable Ratio Bolt Compression K	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
1.2500	20	1.0000	17.85	18.76	16.611	9.675	Plate	0.37
			53.01	88.00	45.000	45.000		✓
			0.35	0.23	0.37	0.22		

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	88 - 68	Pole	P6.625x.432	1	-1.65	264.76	12.7	Pass	
L2	68 - 38	Pole	P24x3/8	2	-5.29	876.73	11.4	Pass	
L3	38 - 3	Pole	P24x3/8	3	-9.55	876.73	39.3	Pass	
							Summary		
							Pole (L3)	39.3	Pass
							Base Plate	36.9	Pass
							RATING =	39.3	Pass

All-Points Technology Corporation

Consulting Engineers
 3 Saddlebrook Drive,
 Killingworth, CT 06419
 Ph. 860-663-1697
 Fax. 860-663-0935

Subject: **Ballast Frame Stability Analysis**

Project: **Verizon - Lyme, CT**

Date: **12.13.17**

Revised: _____

Prepared: **JRM**

APT Job No. **CT141NB10240**

Ballast Frame Stability Analysis

Foundation Data

Base Plate Distance Above Grade:	1.50	ft
Ballast Type No. 1 Length/Width:	6.00	ft
Ballast Type No. 1 Length/Width:	6.00	ft
Ballast Type 1 Thickness:	0.67	ft
Ballast Type 2 Thickness:	0.96	ft
Ballast Type 1 Area:	36.00	ft ²
Ballast Type 2 Area:	36.00	ft ²
No. of Type 1 Ballast Units:	8.00	
No. of Type 2 Ballast Units:	8.00	
Ballast Frame Length/Width:	15.00	ft

Base Reactions: (0.9D+1.6W)

Axial Force, Pu:	7.20	kips
Shear Force, Vu:	5.30	kips
Overturning Moment, Mu:	205.00	kfp-ft

Ballast Eccentricity From Toe, eL: 12.00 ft

Material Properties

Concrete Density:	145.00	pcf
Soil Unit Weight, g:	110.00	pcf
Ultimate Bearing Capacity, qn:	6.00	psf
Strength Reduction Factor, F:	0.75	
Angle of Internal Friction, φs:	30.00	degrees
Allowable Soil Bearing, Fqn:	4.50	psf
Coefficient of Friction (Concrete & Soil), m:	0.45	
Passive Soil Pressure Coefficient, Kp:	3.00	

Vol. of Ballast Type No. 1:	192.96	cu.ft
Vol. of Ballast Type No. 2:	275.90	cu.ft
Total Vol of Ballast:	468.86	cu.ft
Weight of Concrete Ballast Type 1:	27.98	kips
Weight of Concrete Ballast Type 2:	40.01	kips
Weight of Concrete Ballast:	67.99	kips
Weight of Steel Base Frame (calculated):	4.80	kips
Total (Unfactored) Weight of Ballast & Ballast Frame:	72.79	kips
Total Vertical Load Including Axial Force (x0.9):	72.71	kips

Check Stability (Proposed Loading, 0.9DL+1.6WL)

Total Overturning Moment, ft-kips:	212.95	ft-kips
Total Resisting Moment, ft-kips:	436.24	ft-kips
Overturning Factor Of Safety (Mr/Mot*Wind Load Factor/Dead Load Factor)	3.64	> 1.5 OK

Comments:

Appendix C

Reference Materials



SBNHH-1D65B

6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm					

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0° 14.6	0° 14.5	0° 17.4	0° 17.8	0° 18.1	0° 18.2
	7° 14.6	7° 14.4	3° 17.5	3° 17.9	3° 18.3	3° 18.4
	14° 14.2	14° 13.6	7° 17.4	7° 17.9	7° 18.2	7° 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

Array Layout

SBNHH-1D65B

Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1851.0 mm 72.9 in
Width	301.0 mm 11.9 in
Depth	180.0 mm 7.1 in
Net Weight, without mounting kit	18.4 kg 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	1 female 1 male

Packed Dimensions

Length	2025.0 mm 79.7 in
Width	390.0 mm 15.4 in
Depth	296.0 mm 11.7 in
Shipping Weight	31.0 kg 68.3 lb

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU
China RoHS SJ/T 11364-2006
ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system





SBNHH-1D85B

6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 85° HPBW, 3x RET

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Three internal RETs for independent tilt on all three bands

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	14.4	17.0	17.6	17.9	17.9
Beamwidth, Horizontal, degrees	83	86	81	79	79	79
Beamwidth, Vertical, degrees	12.3	11.1	5.7	5.3	5.0	4.6
Beam Tilt, degrees	0–12	0–12	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	19	18	15	16	17	18
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	25	25	25	25
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm					

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.2	16.8	17.4	17.7	17.8
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.5	±0.3	±0.4	±0.3
Gain by Beam Tilt, average, dBi	0° 14.2	0° 14.1	0° 16.8	0° 17.5	0° 17.7	0° 17.6
	6° 14.3	6° 14.3	4° 16.8	4° 17.5	4° 17.8	4° 18.0
	12° 14.1	12° 13.9	8° 16.7	8° 17.2	8° 17.5	8° 17.6
Beamwidth, Horizontal Tolerance, degrees	±2.4	±1.7	±4.8	±3.2	±3.8	±1.9
Beamwidth, Vertical Tolerance, degrees	±0.6	±0.9	±0.2	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	15	16	17	18
Front-to-Back Total Power at 180° ± 30°, dB	23	23	27	26	25	27
CPR at Boresight, dB	20	20	23	22	18	22
CPR at Sector, dB	15	16	12	13	10	6

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

Array Layout

SBNHH-1D85B

Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1851.0 mm 72.9 in
Width	301.0 mm 11.9 in
Depth	180.0 mm 7.1 in
Net Weight, without mounting kit	19.1 kg 42.1 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (2) Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	1 female 1 male

Packed Dimensions

Length	1970.0 mm 77.6 in
Width	409.0 mm 16.1 in
Depth	299.0 mm 11.8 in
Shipping Weight	31.2 kg 68.8 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system





SBNH-1D6565B

Andrew® Dual Band Antenna, 698–896 MHz and 1710–2180 MHz, 65° horizontal beamwidth, internal RET

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal next generation actuator eliminates field installation and defines new standards for reliability
- The values presented on this datasheet have been calculated based on N-P-BASTA White Paper version 9.6 by the NGMN Alliance

This product will be discontinued on: December 31, 2014

Replaced By

DBXNH-6565B-VTM	Andrew® Dual Band Teletilt® Antenna, 698–896 MHz and 1710–2180 MHz, 65° horizontal beamwidth, RET compatible
SBNHH-1D65B	Andrew® Tri-band Antenna, 698–896 and 2 x 1710–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.
SBNH-1D65B	Andrew® Dualband Antenna, 698–896 MHz and 1710–2360 MHz, 65° horizontal beamwidth, internal RET.

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1710–1880	1850–1990	1920–2180
Gain by all Beam Tilts, average, dBi	14.9	15.2	18.3	18.2	17.9
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.4	±0.4	±0.3	±0.7
	0 ° 15.1	0 ° 15.2	0 ° 18.5	0 ° 18.3	0 ° 18.2
Gain by Beam Tilt, average, dBi	5 ° 15.1	5 ° 15.3	3 ° 18.4	3 ° 18.3	3 ° 18.0
	10 ° 14.6	10 ° 15.1	6 ° 18.1	6 ° 18.0	6 ° 17.5
Beamwidth, Horizontal, degrees	71	67	59	57	63
Beamwidth, Horizontal Tolerance, degrees	±2.2	±2.3	±2.6	±1.4	±10.2
Beamwidth, Vertical, degrees	12.3	10.9	5.5	5.1	4.8
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.4
Beam Tilt, degrees	0–10	0–10	0–6	0–6	0–6
USLS, dB	16	17	16	17	15
Front-to-Back Total Power at 180° ± 30°, dB	21	20	29	29	27
CPR at Boresight, dB	26	22	25	26	24
CPR at Sector, dB	11	7	10	10	8
Isolation, dB	30	30	30	30	30
Isolation, Intersystem, dB	30	30	30	30	30
VSWR Return Loss, dB	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0	1.5 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	400	400	300	300	300
Polarization	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® multiband with internal RET
Band	Multiband

SBNH-1D6565B

POWERED BY



Brand DualPol® | Teletilt®
Operating Frequency Band 1710 – 2180 MHz | 698 – 896 MHz

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum
Radome Material	Fiberglass, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	4
Wind Loading, maximum	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h 149.8 mph

Dimensions

Depth	181.0 mm 7.1 in
Length	1847.0 mm 72.7 in
Width	301.0 mm 11.9 in
Net Weight	21.5 kg 47.4 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	11.0 W
Protocol	3GPP/AISG 2.0 Multi-RET
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	1 female 1 male
RET System	Teletilt®

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



Included Products

DB380 — Pipe Mounting Kit for 2.4"-4.5" (60-115mm) OD round members on wide panel antennas. Includes 2 clamp sets and double nuts.

DB5083 — Downtilt Mounting Kit for 2.4"-4.5" (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel

ATTACHMENT 4

7014 0150 0000 0537 2719

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
 (Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 2.45
Certified Fee	3.50
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 8.55

Stamp: OLD STATE HOUSE STATION 061058 BALDWIN CT 06897-1334
 DEC 20 2017

Sent To: John C. L. Evans, Deputy Fire Chief/
 Town of Lyme
 Street, Apt. No.; or PO Box No.: 480 Hamburg Road (Route 156)
 City, State, ZIP+4: Lyme, CT 06371

PS Form 3800, August 2006 See Reverse for Instructions

7014 0150 0000 0537 2696

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
 (Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 2.45
Certified Fee	3.50
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 8.55

Stamp: OLD STATE HOUSE STATION 061058 BALDWIN CT 06897-1334
 DEC 20 2017

Sent To: John J. Tiffany, II
 Street, Apt. No.; or PO Box No.: 156 Sterling City Road
 City, State, ZIP+4: Old Lyme, CT 06371

PS Form 3800, August 2006 See Reverse for Instructions

7014 0150 0000 0537 2702

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
 (Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 3.50
Certified Fee	3.50
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 8.55

Stamp: OLD STATE HOUSE STATION 061058 BALDWIN CT 06897-1334
 DEC 20 2017

Sent To: Steven Mattson, First Selectman
 Town of Lyme
 Street, Apt. No.; or PO Box No.: 480 Hamburg Road (Route 156)
 City, State, ZIP+4: Lyme, CT 06371

PS Form 3800, August 2006 See Reverse for Instructions