Cherundolo Consulting

1280 Route 46 West, Suite 9, Parsippany NJ, 07054

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

Re: Notice of Exempt Modification Application
1111 East Putnam Ave, Fairfield, CT

Latitude: N41.041081
Longitude:
W73.584138

Dear Ms. Bachman:

Sprint currently maintains 3 existing panel antennas, and 3 remote radio units at the 51' centerline level on the roof of the building at 1111 East Putnam Ave. Sprint proposes to remove all 3 existing panel antennas and 3 remote radio heads and replace them with 6 panel antennas and 9 remote radio unit at the 51' centerline on the rooftop. Sprint further proposes to remove 12 existing cables and replace them with 6 hybrid cable. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

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Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).
In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to First Selectman Peter Tesei of the Town of Greenwich as well as Katie DeLuca, Director of Planning for the Town of Greenwich and Fountainhead Properties LLC, owner of the property.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the building, as well as the latest CSC decision, tax sheet and tax map.

Existing Facility

CSC Summary Statement – CT52XC014 – 1111 Putnam Ave, Greenwich, CT 06830

The Communications facility is located on the roof of the building at 1111 E. Putnam Ave, Greenwich Ct and is owned by Fountainhead Properties LLC. The Site coordinates are: N41.041081, W73.584138.

The existing facility consists of a 47' Building. Sprint currently operates wireless communications equipment inside the building at the facility and has 3 antennas, and 3 RRU's mounted on at centerline of 51' feet.

Statutory Considerations

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

1. The height of the overall structure will be unaffected.

2. The proposed changes will not require an extension of the property boundaries.

3. The proposed additions will not increase the noise level at the existing facility by

six decibels or more, or to levels that exceed state and/or local criteria

4. The changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.

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

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

For the foregoing reasons, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

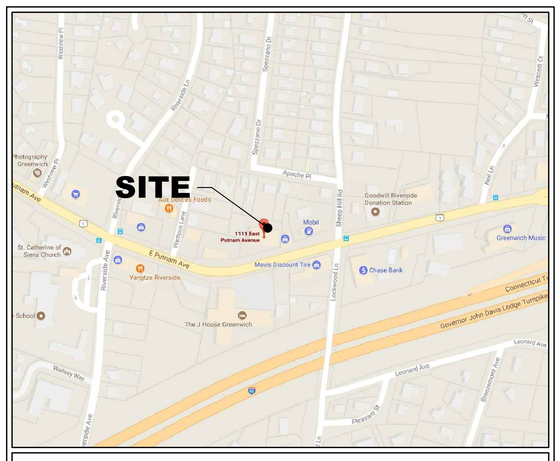
Respectfully submitted,

Ryan G Bailey
Charles Cherundolo Consulting
856-625-1596
ryan@mackenzierealtyconsulting.com

Additional Recipients:
First Selectman Peter Tesei for the Town of Greenwich– Via FedEx
Katie DeLuca, Director of Planning for the Town of Greenwich - Via FedEx
Fountainhead Properties LLC, owner of the property – Via FedEx

"SPRINT MiMO UPGRADE"

CT52XC014
1111 E PUTNAM AVE
GREENWICH, CT 06830
FAIRFIELD COUNTY



KEY MAP

SCALE = N.T.S.

SITE LOCATION INFORMATION

SITE ID NUMBER:	CT52XC014
SITE NAME:	GREENWICH/CT-BDR0132
SITE ADDRESS:	1111 E PUTNAM AVE GREENWICH, CT 06830
PARCEL ID:	12-1010/S
CENSUS TRACT:	010900
CENSUS BLOCK:	4005
PROPERTY OWNER:	FOUNTAINHEAD PROP LLC
APPLICANT:	SPRINT CORPORATION 201 ROUTE 17 N, 3RD FLOOR RUTHERFORD, NJ 07070
COUNTY:	FAIRFIELD COUNTY

SITE CHARACTERISTICS

LATITUDE:	41.041081
LONGITUDE:	-73.584138
STRUCTURE TYPE:	BUILDING
LOCATION OF PROPOSED EQUIPMENT:	EXISTING EQUIPMENT ROOM
STRUCTURE HEIGHT:	±47'-0" AGL
ANTENNA (RAD CENTER):	±51'-0" AGL (ALPHA) ±51'-0" AGL (BETA) ±51'-0" AGL (GAMMA)

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
C-1	ROOF PLAN & GENERAL NOTES
C-2	EXISTING & FINAL ANTENNA PLANS
C-3	ELEVATION, B.O.M., & FINAL EQUIPMENT PLAN
C-4	CONSTRUCTION DETAILS
C-5	FIBER PLUMBING DIAGRAM
C-6	CABLE COLOR CODING
C-7	EQUIPMENT DETAILS
E-1	GROUNDING DETAILS
E-2	DC POWER DETAILS & PANEL SCHEDULES

COM-EX Consultants
115 Route 46
Suite E39
Mountain Lakes, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

Sprint

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REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

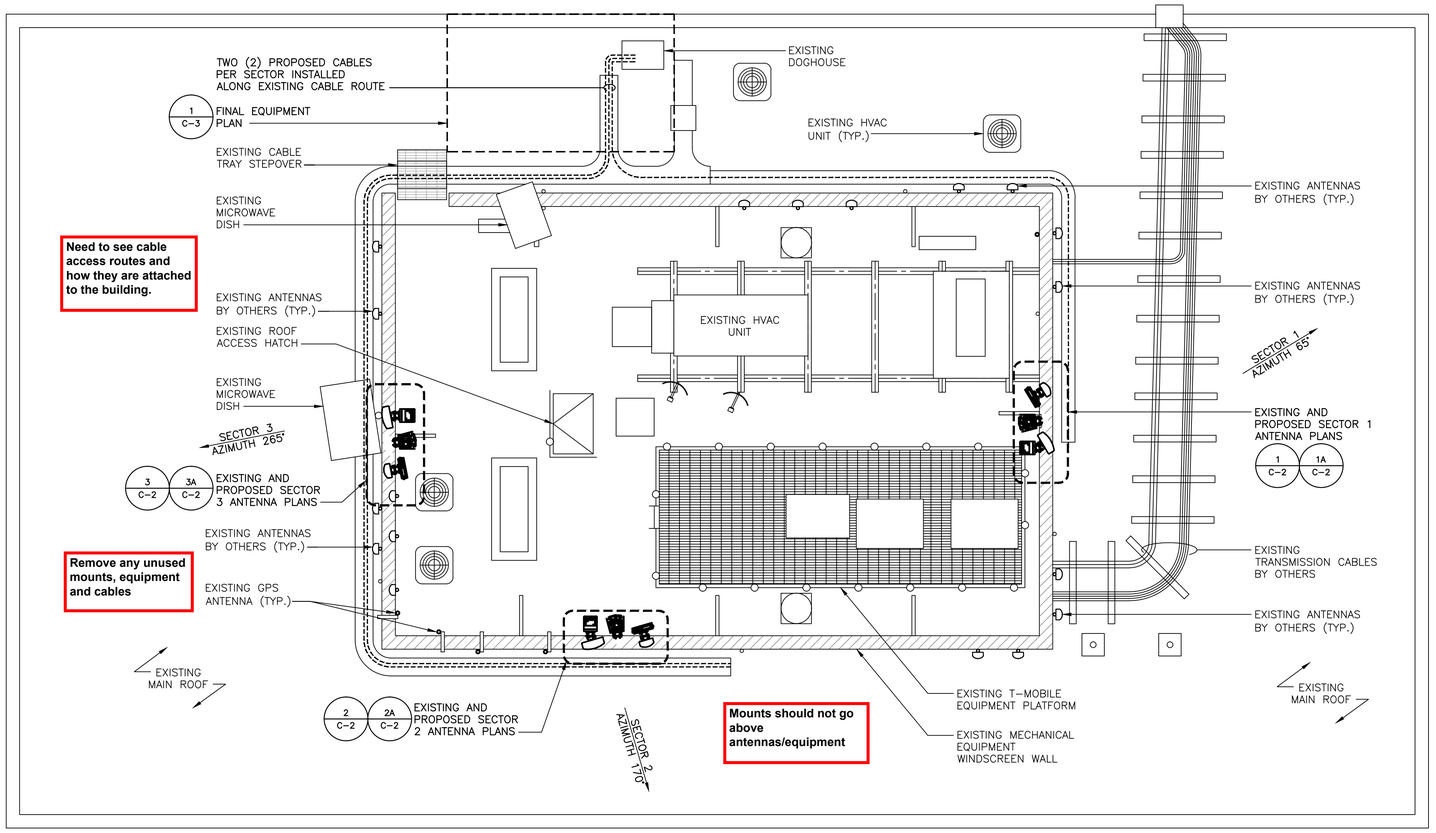
CT52XC014
1111 E PUTNAM AVE
GREENWICH, CT 06830
FAIRFIELD COUNTY

DRAWING TITLE:

TITLE SHEET

DRAWING SHEET: 1 OF 10

T-1



EAST PUTNAM AVENUE

1 C-1 ROOF PLAN
SCALE: 3/16"=1'
(24"x36" SHEET SIZE)

2 C-3

GENERAL NOTES:

1. SUBJECT PROPERTY IS KNOWN AS TAX PARCEL ID 12-1010/S, CENSUS TRACT 010900, CENSUS BLOCK 4005 AS SHOWN THE OFFICIAL TAX MAP OF THE TOWN OF GREENWICH, CT.
2. THE APPLICANT PROPOSES TO REPLACE ONE (1) EXISTING ANTENNA WITH TWO (2) NEW ANTENNAS PER SECTOR AND REPLACE ONE (1) EXISTING RRH WITH FOUR (4) PROPOSED RRHs PER SECTOR ON EXISTING MOUNTING HARDWARE. ADD ONE (1) NEW EQUIPMENT CABINET IN EXISTING EQUIPMENT ROOM.
3. CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL INSURANCE REQUIRED BY SPRINT, THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
4. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION".
5. SITE INFORMATION SHOWN TAKEN FROM PLANS PREPARED BY CHA FOR SPRINT'S INSTALLATION ON THIS FACILITY. DRAWINGS ENTITLED "SPRINT, SITE NAME: GREENWICH, SPRINT NUMBER: CT-BDR0132" DATED 10/19/09. ADDITIONAL SITE INFORMATION WAS SUPPLEMENTED WITH A LIMITED SITE VISIT BY COM-EX CONSULTANTS 05/17/17.
6. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES OR OTHER PUBLIC AUTHORITIES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THIS PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
10. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
11. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
12. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
13. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
14. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
15. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
16. THE CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. THE CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND RELATED PARTIES. THE SUBCONTRACTOR SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT EFFECTS THEIR WORK.
17. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON THE SITE AT ALL TIMES AND INSURE THE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA CONTRACTOR FURNISH 3 SETS OF REDLINE "AS-BUILT" DRAWINGS TO SPRINT UPON COMPLETION OF THE WORK.
18. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAT BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL INCLUDED AS PART OF THE WORK.
19. ALL MATERIAL PROVIDED BY IS TO BE REVIEWED BY THE CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTOR PRIOR TO INSTALLATION. ANY DEFICIENCIES TO PROVIDE MATERIALS SHALL BE BROUGHT TO THE CONSTRUCTION MANAGERS ATTENTION IMMEDIATELY.
20. THE MATERIALS INSTALLED SHALL MEET REQUIREMENTS OF CONTRACTORS DOCUMENTS. NO SUBSTITUTIONS ARE ALLOWED.
21. THE CONTRACTOR SHALL COORDINATE ALL CIVIL, STRUCTURAL AND ELECTRICAL DRAWINGS FOR THE LOCATIONS OF ALL OPENINGS, RECESSES, BUILT-IN WORK, ETC..
22. THE CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTACT DOCUMENTS.
23. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
24. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST-ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAND PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
25. THE CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
27. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS MAY TAKE PRECEDENCE.
28. THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
29. THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS AND RUBBISH. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
30. BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORKS, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.
31. DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE 2015 AND THE EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

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115 Route 46
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STATE OF CONNECTICUT
NICHOLAS D. BARILE
PROFESSIONAL ENGINEER. CT LIC. No. 28643

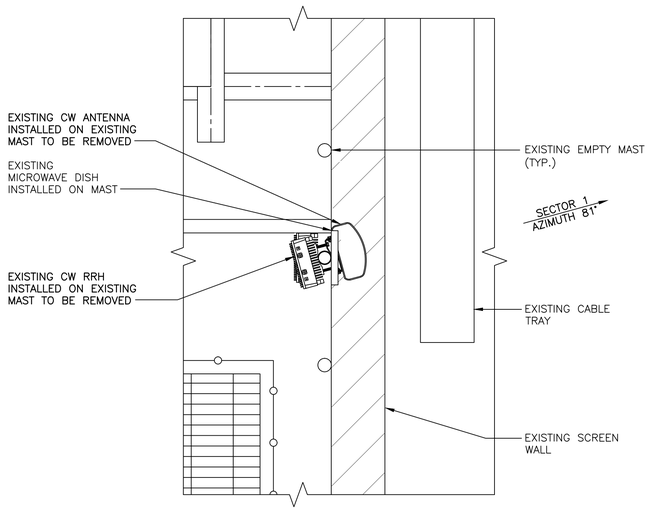
CT52XC014
1111 E PUTNAM AVE
GREENWICH, CT 06830
FAIRFIELD COUNTY

DRAWING TITLE:

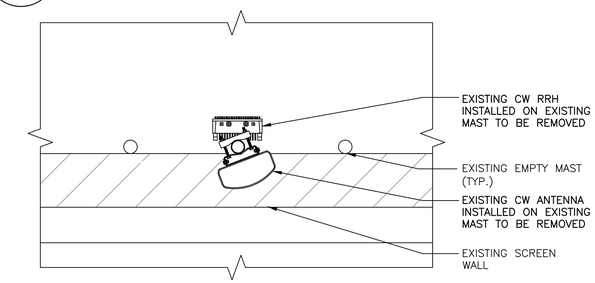
ROOF PLAN & GENERAL NOTES

DRAWING SHEET: 2 OF 10

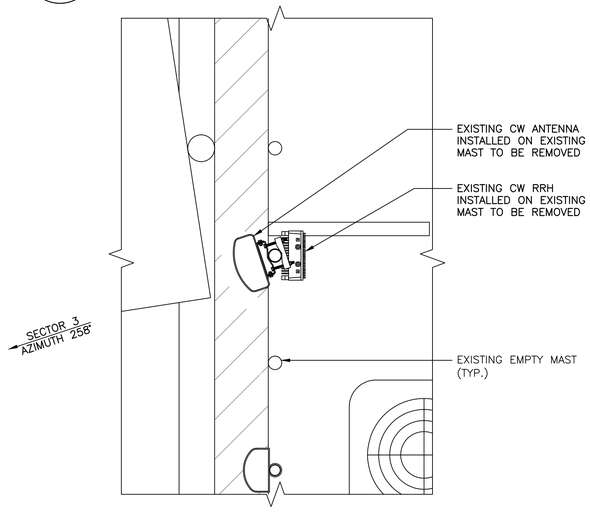
C-1



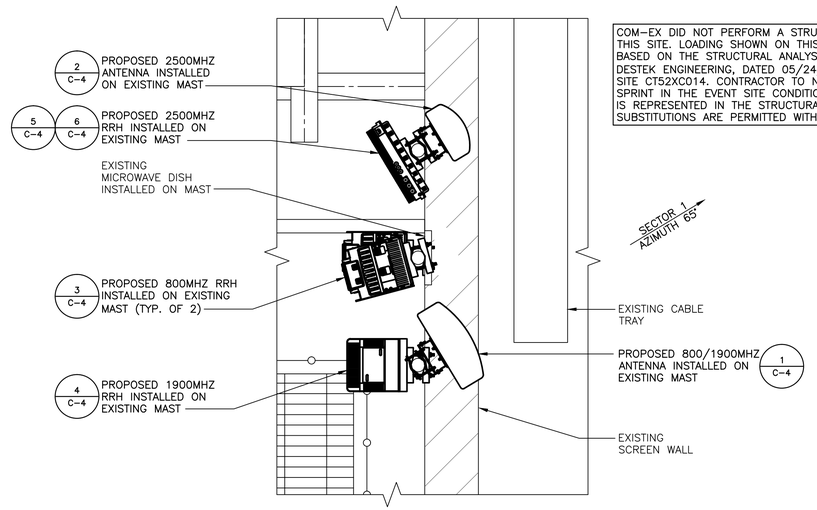
1 / C-2 EXISTING SECTOR 1 ANTENNA PLAN
SCALE: 3/4"=1'



2 / C-2 EXISTING SECTOR 2 ANTENNA PLAN
SCALE: 3/4"=1'

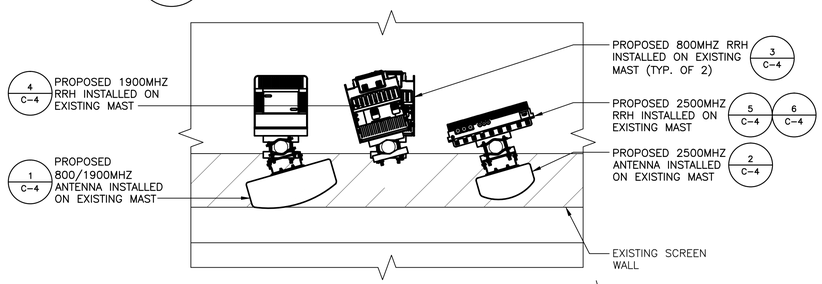


3 / C-2 EXISTING SECTOR 3 ANTENNA PLAN
SCALE: 3/4"=1'

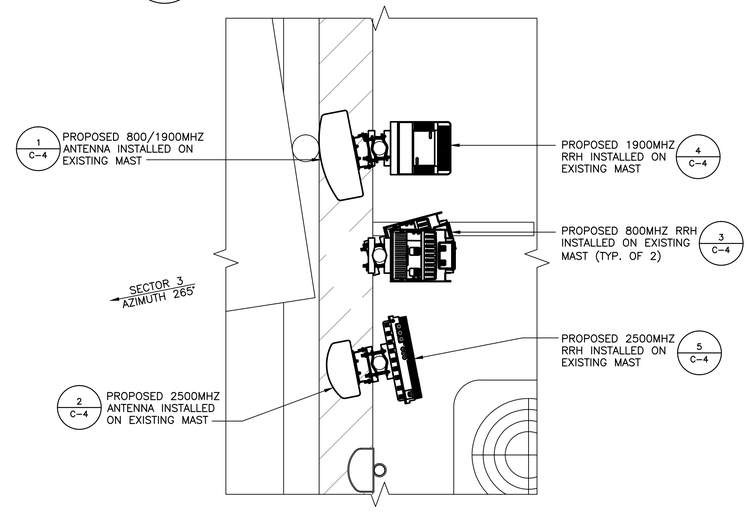


COM-EX DID NOT PERFORM A STRUCTURAL ANALYSIS ON THIS SITE. LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE STRUCTURAL ANALYSIS PERFORMED BY DESTEK ENGINEERING, DATED 05/24/18 FOR THE SPRINT SITE CT52XC014. CONTRACTOR TO NOTIFY COM-EX AND SPRINT IN THE EVENT SITE CONDITIONS DIFFER FROM WHAT IS REPRESENTED IN THE STRUCTURAL ANALYSIS. NO SUBSTITUTIONS ARE PERMITTED WITHOUT ADDITIONAL ANALYSIS.

1A / C-2 FINAL SECTOR 1 ANTENNA PLAN
SCALE: 3/4"=1'



2A / C-2 FINAL SECTOR 2 ANTENNA PLAN
SCALE: 3/4"=1'



3A / C-2 FINAL SECTOR 3 ANTENNA PLAN
SCALE: 3/4"=1'

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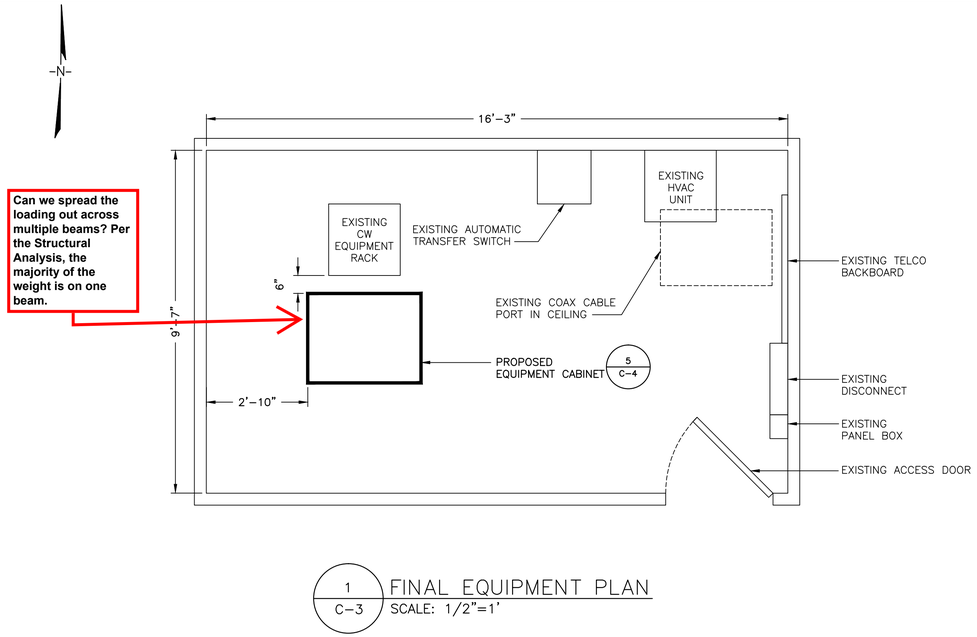
DRAWING TITLE:

EXISTING & FINAL ANTENNA PLANS

DRAWING SHEET: 3 OF 10

C-2



Can we spread the loading out across multiple beams? Per the Structural Analysis, the majority of the weight is on one beam.

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

BILL OF MATERIALS

	DESCRIPTION	QUANTITY EACH	DIMENSIONS (HxWxD)	WEIGHT (LBS) EACH	MANUFACTURER: PART/ MODEL#
ANTENNAS	800/1900MHz PANEL ANTENNA – SECTOR 1	1	72"x19.6"x7.8"	84.7 LBS W/OUT MOUNTING HARDWARE	COMMSCOPE: NNVV-65B-R4
	2500 MHz PANEL ANTENNA – SECTOR 1	1	56.3"x12.6"x6.3"	70.0 LBS W/OUT MOUNTING HARDWARE	RFS: APXVTM14-ALU-I20
	800 MHz RRH	2	15.7"x12.9"x9.8"	53 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	1900 MHz RRH	1	25.2"x11.8"x11.5"	60 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	2500 MHz RRH	1	26.1"x18.6"x6.7"	70 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	800/1900MHz PANEL ANTENNA – SECTOR 2	1	72"x19.6"x7.8"	84.7 LBS W/OUT MOUNTING HARDWARE	COMMSCOPE: NNVV-65B-R4
	2500 MHz PANEL ANTENNA – SECTOR 2	1	56.3"x12.6"x6.3"	70.0 LBS W/OUT MOUNTING HARDWARE	RFS: APXVTM14-ALU-I20
	800 MHz RRH	2	15.7"x12.9"x9.8"	53 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	1900 MHz RRH	1	25.2"x11.8"x11.5"	60 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	2500 MHz RRH	1	26.1"x18.6"x6.7"	70 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	800/1900MHz PANEL ANTENNA – SECTOR 3	1	72"x19.6"x7.8"	84.7 LBS W/OUT MOUNTING HARDWARE	COMMSCOPE: NNVV-65B-R4
	2500 MHz PANEL ANTENNA – SECTOR 3	1	56.3"x12.6"x6.3"	70.0 LBS W/OUT MOUNTING HARDWARE	RFS: APXVTM14-ALU-I20
	800 MHz RRH	2	15.7"x12.9"x9.8"	53 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
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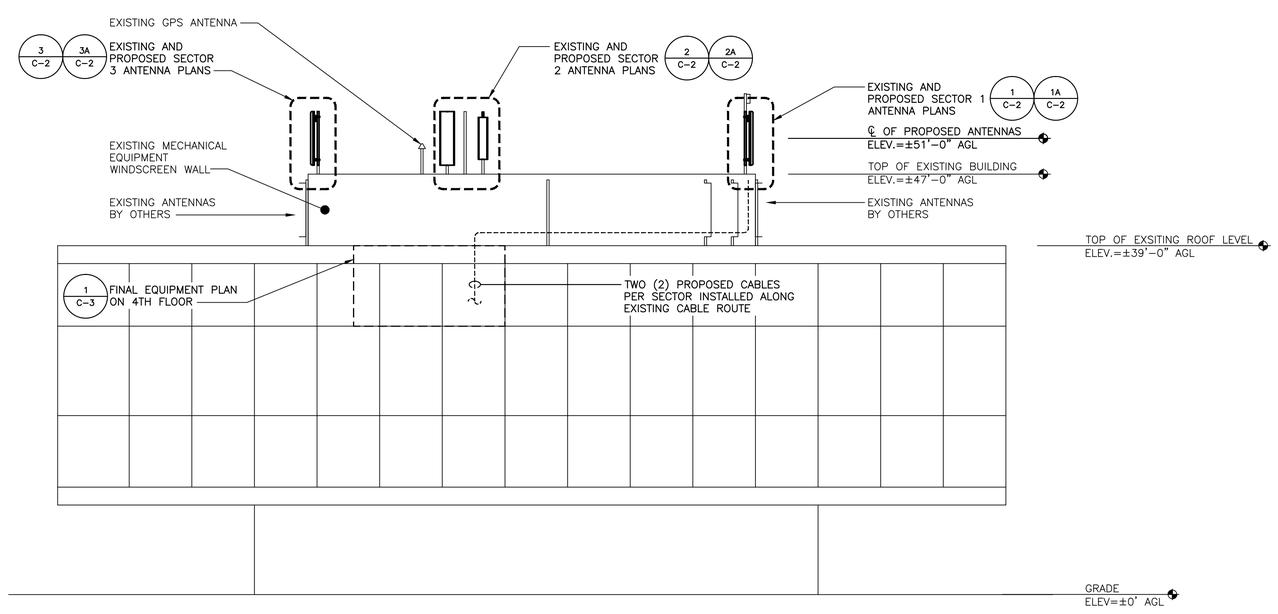
	2500 MHz RRH	1	26.1"x18.6"x6.7"	70 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	DESCRIPTION	QUANTITY EACH	DIMENSIONS (LENGTH)	WEIGHT (LBS/FOOT)	MANUFACTURER: SIZE/PART/MODEL#
CABLES	SECTOR 1 HYBRIFLEX RUN (BTS TO RRH)	2	±100'	1.3 LBS	RFS: 1-1/4" / HB114-1-08U4-M5J
	SECTOR 1 COAX CABLE JUMPERS	16	±10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 1 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
	SECTOR 2 HYBRIFLEX RUN (BTS TO RRH)	2	±120'	1.3 LBS	RFS: 1-1/4" / HB114-1-08U4-M5J
	SECTOR 2 COAX CABLE JUMPERS	16	±10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 2 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
	SECTOR 3 HYBRIFLEX RUN (BTS TO RRH)	2	±100'	1.3 LBS	RFS: 1-1/4" / HB114-1-08U4-M5J
	SECTOR 3 COAX CABLE JUMPERS	16	±10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 3 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
EQUIP.	BTS CABINET	1	73.5"x38"x30"	505 LBS (1381 LBS FULLY LOADED)	ELTEK
	CABLING KIT	1	71.4"x12.1"x28.1"	180 LBS	ELTEK
	GPS UNIT	1	5"X3.2"	.5 LBS W/OUT MOUNTING HARDWARE	PCTEL: GPS-TMG-HR-26N

This date differs from the date on the Structural Analysis.

COM-EX DID NOT PERFORM A STRUCTURAL ANALYSIS ON THIS SITE. LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE STRUCTURAL ANALYSIS PERFORMED BY DESTEK ENGINEERING, DATED 05/24/18 FOR THE SPRINT SITE CT52XC014. CONTRACTOR TO NOTIFY COM-EX AND SPRINT IN THE EVENT SITE CONDITIONS DIFFER FROM WHAT IS REPRESENTED IN THE STRUCTURAL ANALYSIS. NO SUBSTITUTIONS ARE PERMITTED WITHOUT ADDITIONAL ANALYSIS.



EAST PUTNAM AVENUE

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

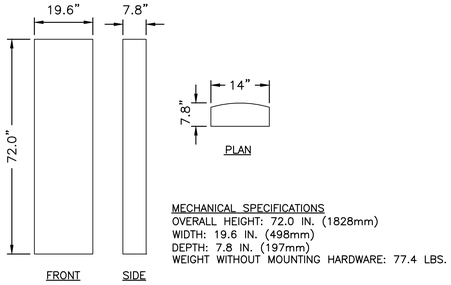
CT52XC014
1111 E PUTNAM AVE
GREENWICH, CT 06830
FAIRFIELD COUNTY

DRAWING TITLE:

ELEVATION, B.O.M., & FINAL EQUIPMENT PLAN

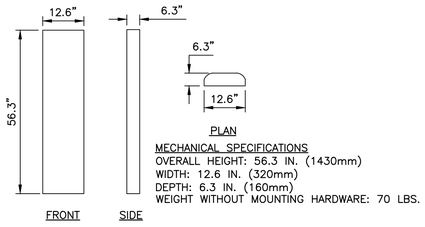
DRAWING SHEET: 4 OF 10

C-3



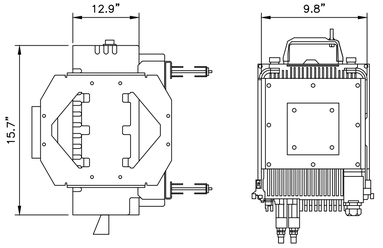
MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 72.0 IN. (1828mm)
WIDTH: 19.6 IN. (498mm)
DEPTH: 7.8 IN. (197mm)
WEIGHT WITHOUT MOUNTING HARDWARE: 77.4 LBS.

1 / C-4 — 800/1900MHz ANTENNA
COMMSCOPE: NNVV-65B-R4
SCALE: 1/2"=1'



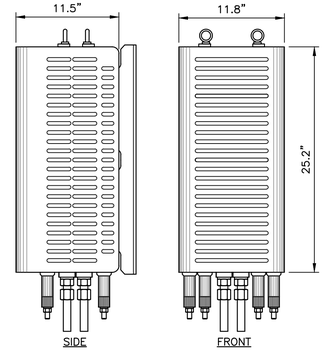
MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 56.3 IN. (1430mm)
WIDTH: 12.6 IN. (320mm)
DEPTH: 6.3 IN. (160mm)
WEIGHT WITHOUT MOUNTING HARDWARE: 70 LBS.

2 / ANT-004 — 2500MHz ANTENNA
RFS: APXVTM14-ALU-I20
SCALE: NTS

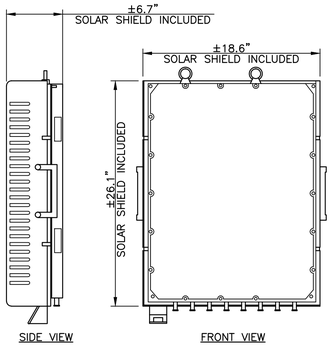


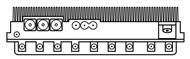
MODEL	H x W x D	WEIGHT
800MHz RRH 2x50W	15.7"x12.9"x9.8"	53 LBS

3 / C-4 — 800MHz RRH DETAIL
SCALE: N.T.S.



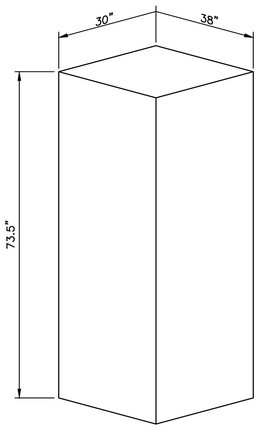
4 / C-4 — 1900MHz RRH DETAIL
SCALE: N.T.S.





5 / C-4 — 2500MHz RRH DETAIL
SCALE: N.T.S.

6 / C-4 — DETAIL NOT USED
SCALE: N.T.S.



ECAB ELTEK MULTI TECHNOLOGY
BTS CABINET

MECHANICAL SPECIFICATIONS
HEIGHT: 73.5 IN. (1866 mm)
WIDTH: 38 IN. (965 mm)
DEPTH: 30 IN. (762 mm)
WEIGHT: 505 LBS

7 / C-4 — ELTEK EQUIPMENT DETAIL
SCALE: N.T.S.

GPS-TMG-HR-26N, High Rejection 26dB With Enhanced Narrow Band Filtering

Antenna Element Electrical Specifications

Frequency Band	Antenna Gain	Nominal Impedance	VSWR	Polarization	Connector
1575.42 +/- 10 MHz	3.5 dBic	50 ohms	≤1.5:1	Right hand circular	N, female (one - bottom fed)

Mechanical Specifications

Antenna Dimensions	Shipping Dimensions	Antenna Weight	Shipping Weight	Radome Color
5.0" H x 3.2" D (126 H x 81 mm)	7.5" L x 4.4" W x 3.8" D (190 L x 112 x 96 mm)	0.6 lbs (0.3 kg)	1.9 lbs (0.9 kg)	White

Environmental Specifications

Temperature Range	Humidity
- 40°C to + 85°C	95%

Mounting

All mounting options fit pipes of 1"-1.45" (25 mm-37 mm) maximum diameter.

Model	Options
GPS-TMG-HR-26N	Antenna Only. Does not include mounting hardware.
GPS-TMG-HR-26NCM	Includes red powder coated collar mount (GPS-TMG-MNT-R)


GPS-TMG-HR-26N


GPS-TMG-MNT-R


GPS-TMG-HR-26NCM

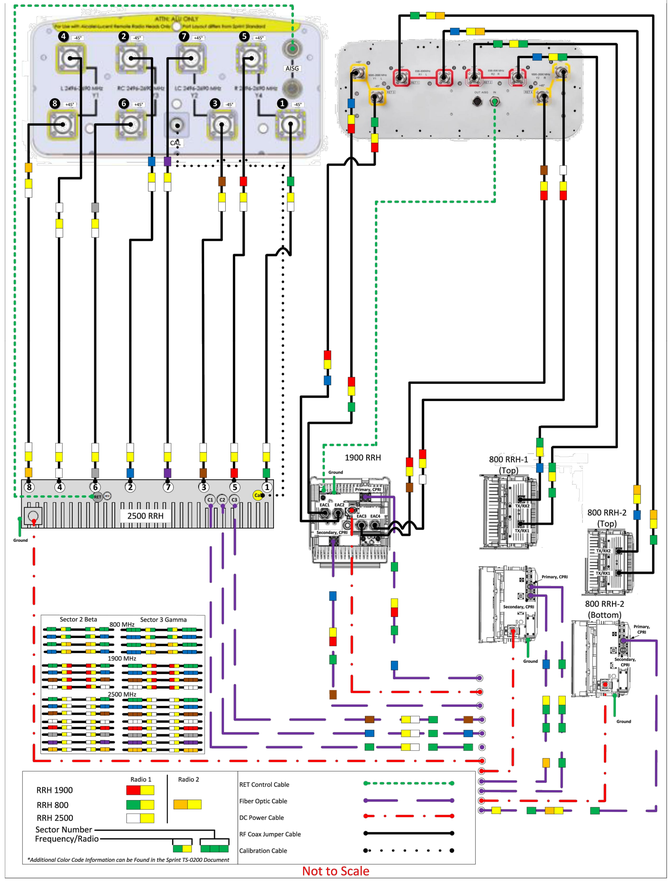
PCTEL

8 / C-4 — GPS UNIT DETAIL
SCALE: N.T.S.

Prepared By	Revision Date	Revision Number
Mark Elliott	March 13, 2018	R1
Approved By	**Approval Date**	
RAN Hardware & Antenna Teams	Final-Macro Generated	

Sprint

ALU 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



Not to Scale

9 / C-4 — SCHEMATIC
SCALE: N.T.S.

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SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5	05/29/18	ISSUED FOR CONSTRUCTION
4	05/09/18	REVISED PER COMMENTS
3	04/16/18	REVISED PER RFDS
2	01/10/18	REVISED - TRIBAND SOLUTION
1	10/12/17	REVISED PER RFDS
0	08/29/17	INITIAL SUBMISSION

DRAWN BY:	AM
CHECKED BY:	NDB
SCALE:	AS NOTED
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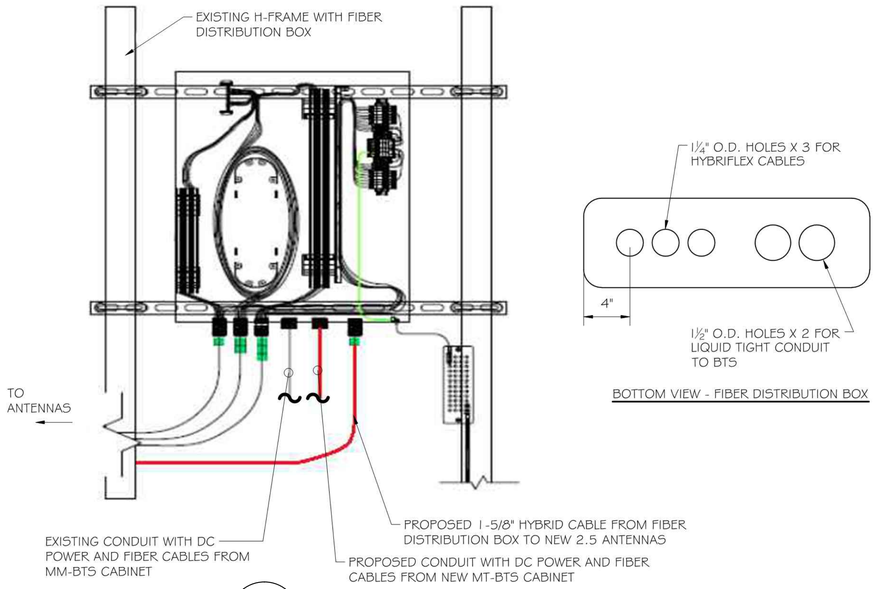
FAIRFIELD COUNTY

DRAWING TITLE:

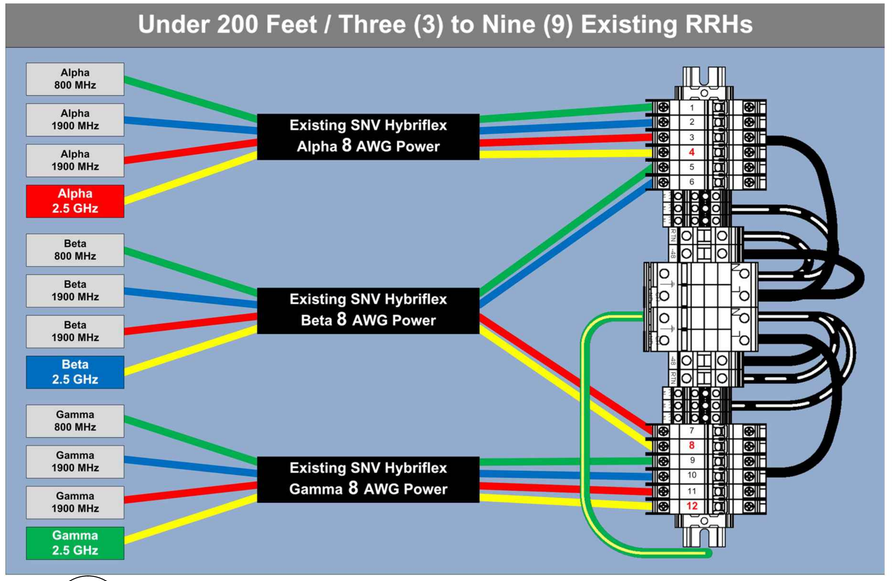
CONSTRUCTION DETAILS

DRAWING SHEET: 5 OF 10

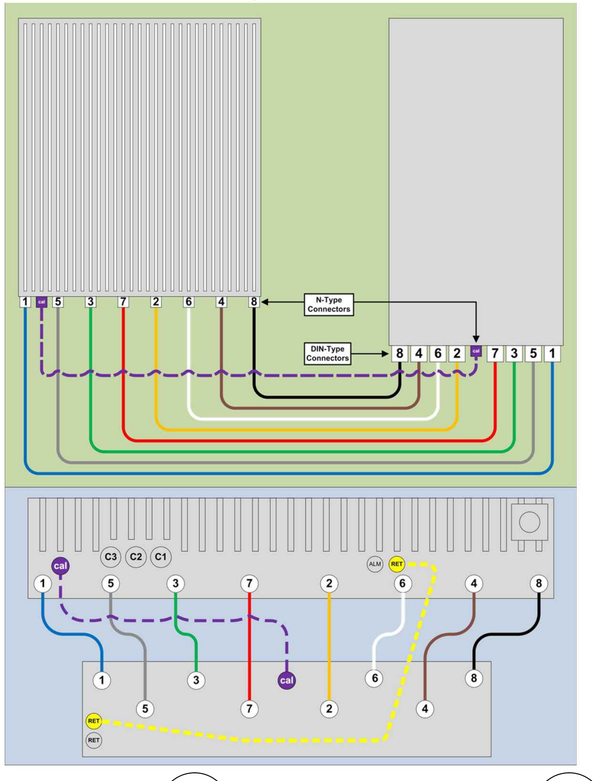
C-4



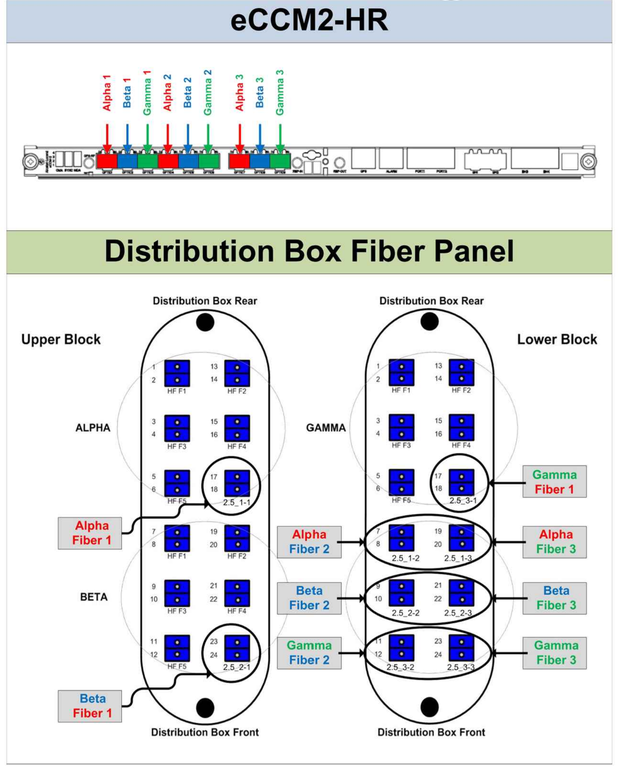
1 C-5 TYPICAL FIBER DISTRIBUTION BOX DETAIL
SCALE: NTS



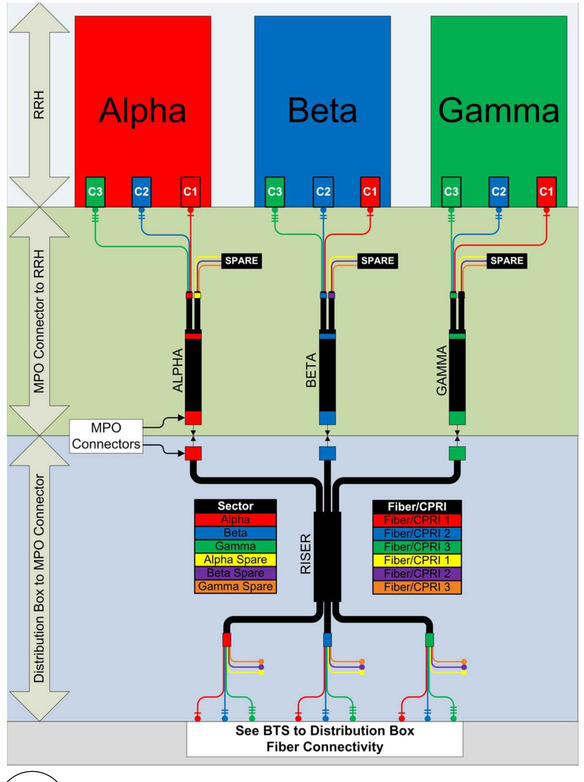
2 C-5 RRH TO DISTRIBUTION BOX POWER CONNECTIVITY DETAIL
SCALE: NTS



3 C-5 8T8R DETAIL
SCALE: NTS



4 C-5 BTS TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL
SCALE: NTS



5 C-5 RRH TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL
SCALE: NTS

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FAIRFIELD COUNTY

DRAWING TITLE:

FIBER PLUMBING DIAGRAM

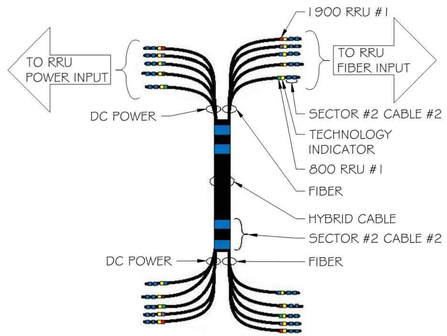
DRAWING SHEET: 6 OF 10

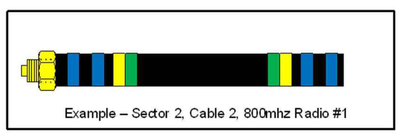
C-5

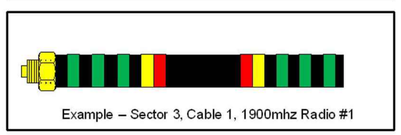
2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

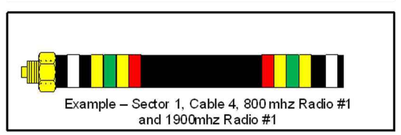
NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange




Example – Sector 2, Cable 2, 800mhz Radio #1


Example – Sector 3, Cable 1, 1900mhz Radio #1


Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

1 / C-6 COLOR CODING CHARTS
SCALE: NTS

CABLE MARKING NOTES

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAKOUT UNIT. THERE SHALL BE 1" SPACE BETWEEN EACH RING.
3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
4. THE 2" COLORED TAPE(S) SHALL BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE SECOND CABLE IDENTIFIED BY BLUE BANDS OF TAPE
6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

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SCALE:	AS NOTED
JOB NO:	17048-CHE

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STATE OF CONNECTICUT NICHOLAS D. BARILE 28643 REGISTERED PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
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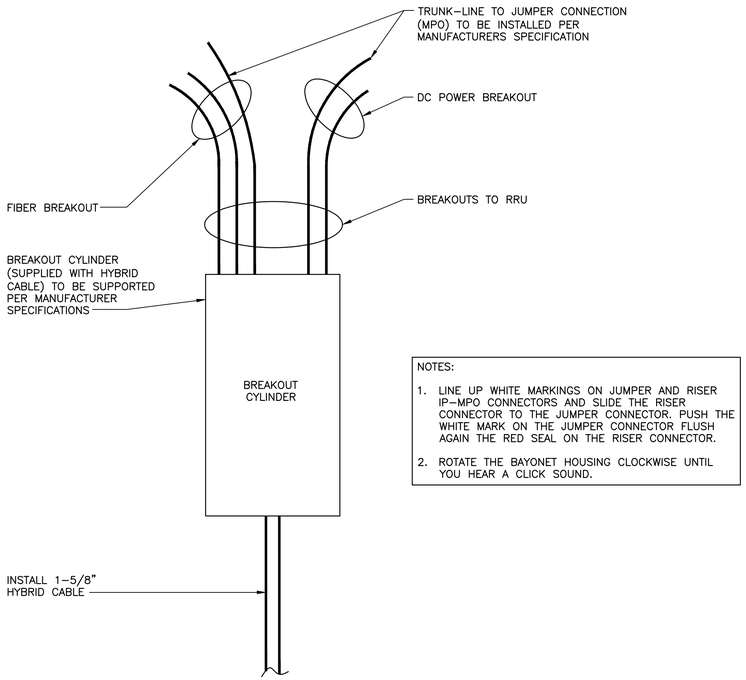
FAIRFIELD COUNTY

DRAWING TITLE:

CABLE COLOR CODING

DRAWING SHEET: 7 OF 10

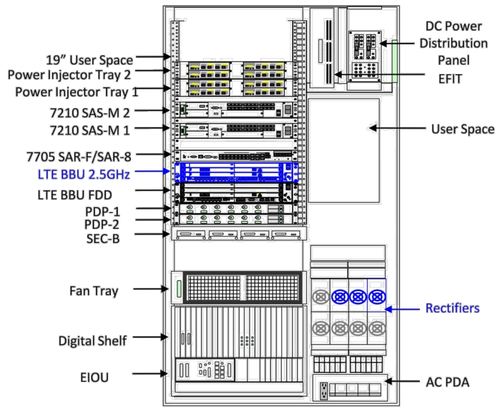
C-6



NOTES:

1. LINE UP WHITE MARKINGS ON JUMPER AND RISER IP–MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.
2. ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND.

1 / C–7 HYBRID BREAKOUT DETAIL
SCALE: NTS



2 / C–7 EXISTING MMBS CABINET
SCALE: NTS

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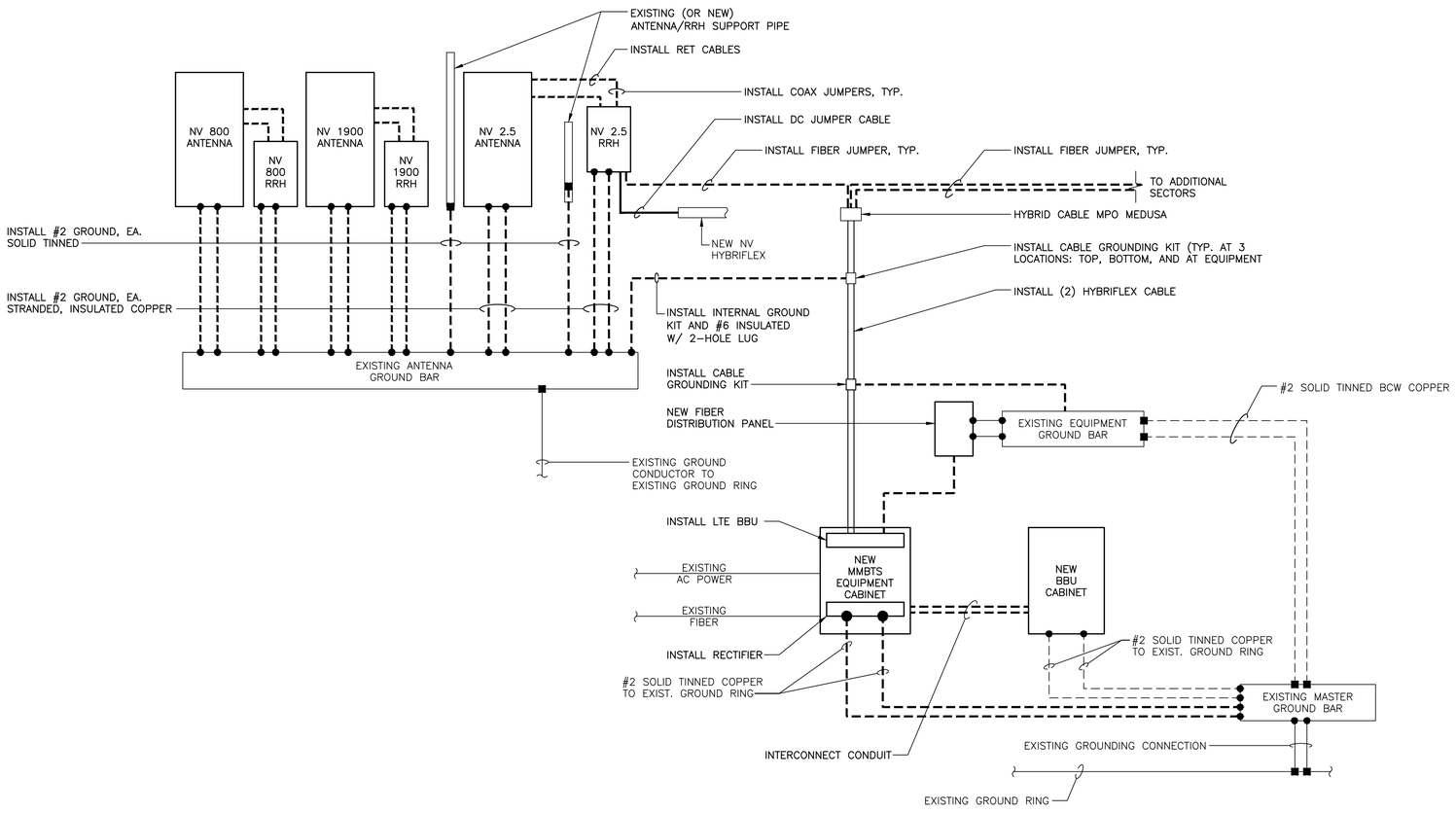
FAIRFIELD COUNTY

DRAWING TITLE:

EQUIPMENT DETAILS

DRAWING SHEET: 8 OF 10

C-7

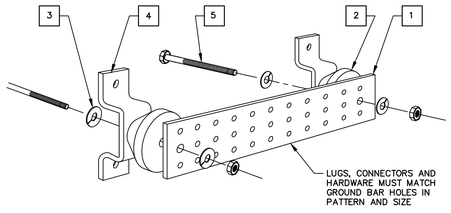


1 / E-1 TYPICAL POWER & GROUNDING ONE-LINE DIAGRAM

SCALE: N.T.S.

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
4. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
5. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THNN INSULATION.
6. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
7. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
8. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
9. GROUNDING SHALL COMPLY WITH NEC ART. 250.
10. GROUND HYBRIFLEX CABLE SHIELDS AT 3 LOCATIONS USING MANUFACTURER'S HYBRIFLEX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
11. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
12. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
13. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
14. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
15. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
16. BOND ANTENNA MOUNTING BRACKETS, HYBRIFLEX CABLE GROUND KITS, AND RRHs TO EGB PLACED NEAR THE ANTENNA LOCATION.
17. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
18. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULT FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
19. CONTRACTOR SHALL CONDUCT ANTENNA, HYBRIFLEX CABLES, AND RRH RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
20. CONTRACTOR (CERTIFIED ELECTRICIAN) SHALL CHECK CAPACITY OF EXISTING SERVICE & PANEL ON SITE TO DETERMINE IF CAPACITY EXISTS TO ACCOMMODATE THE ADDED LOAD OF THIS PROJECT. ADVISE ENGINEER OF ANY DISCREPANCY.



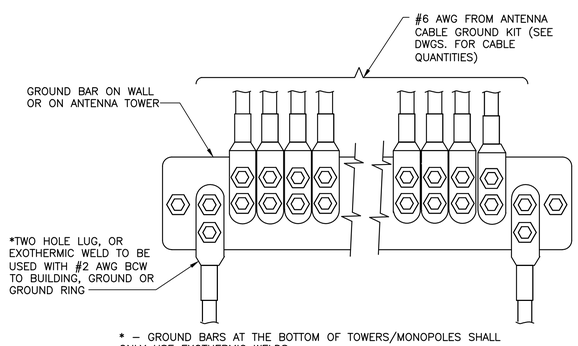
LEGEND

1. COPPER GROUND BAR, 7/16"X 4" X 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 X 1" H.H.C.S.BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

GROUND BAR SCHEDULE				
TYPE	QTY.	MANUFACTURER	CAT. NO.	REMARKS
MGB	2	HARGER	GB14420TMGB	OR EQUAL
CGB	3	HARGER	GB14412TMGB	OR EQUAL

2 / E-1 TYPICAL GROUND BAR DETAIL

SCALE: NTS



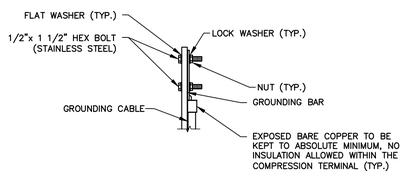
* - GROUND BARS AT THE BOTTOM OF TOWERS/MONOPOLES SHALL ONLY USE EXOTHERMIC WELDS.

- ATTACH "DO NOT DISCONNECT" LABELS TO GROUND BARS. CAN USE BRASS TAG "DO NOT DISCONNECT" AT EACH HYBRIFLEX GROUND POINT OR BACK-A-LITE PLATE LABEL ON GROUND BAR.

- CONNECT SEQUENCE- BOLT/WASHER/NO-OX/GROUND BAR/NO-OX/WASHER/LOCK-WASHER/NUT. THIS IS REPEATED FOR EACH LUG CONNECTION POINT.

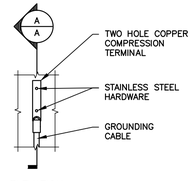
3 / E-1 TYPICAL GROUND BAR CONNECTION PLAN

SCALE: NTS



SECTION "A-A"

NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



ELEVATION

4 / E-1 TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: NTS

COM-EX Consultants
115 Route 46
Suite E39
Mountain Lakes, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

Sprint

Cherundolo Consulting

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5	05/29/18	ISSUED FOR CONSTRUCTION
4	05/09/18	REVISED PER COMMENTS
3	04/16/18	REVISED PER RFDS
2	01/10/18	REVISED - TRIBAND SOLUTION
1	10/12/17	REVISED PER RFDS
0	08/29/17	INITIAL SUBMISSION

DRAWN BY:	AM
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	17048-CHE

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

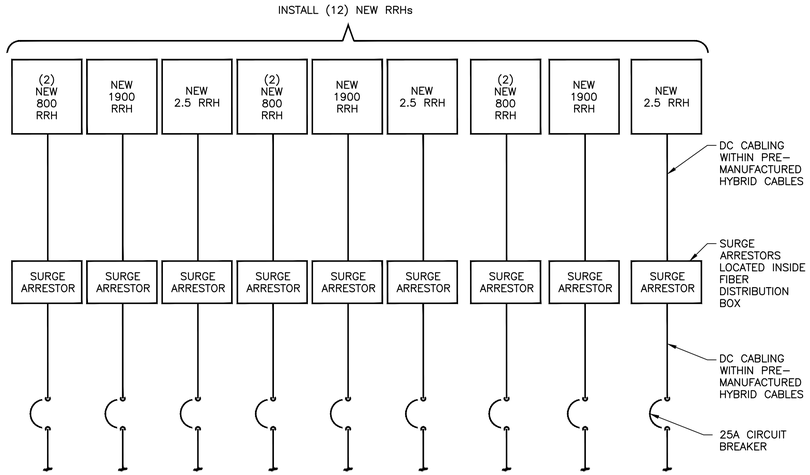
CT52XC014
1111 E PUTNAM AVE
GREENWICH, CT 06830
FAIRFIELD COUNTY

DRAWING TITLE:

GROUNDING DETAILS

DRAWING SHEET: 9 OF 10

E-1



1 E–2 DC ONE–LINE DIAGRAM
SCALE: NTS

A/C PANEL SCHEDULE

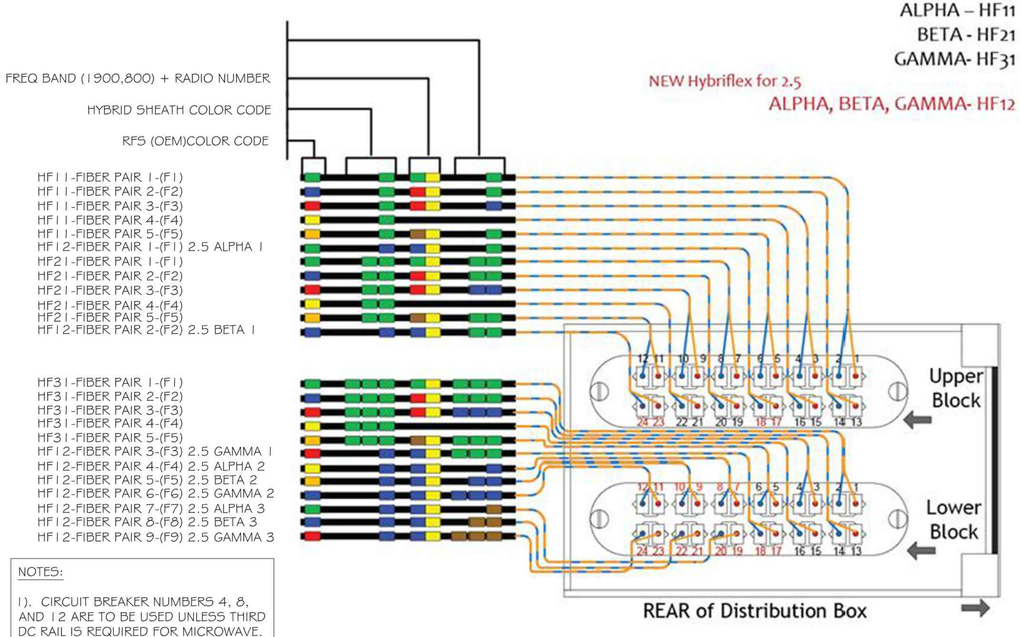
VOLTAGE:	240V/120		PANEL STATUS:	EXISTING		N TO GROUND BOND:	YES
MAIN BREAKER:	200 AMP		MODEL NUMBER:	TBD		INTERNAL TVSS:	YES
MOUNT:	SHELTER		PHASE:	1		WIRE:	3
ENCLOSURE:	NEMA 3R		BUSS RATING:	200 AMP		GROUND BAR:	YES
			NEUTRAL BAR:	YES			

2 E–2 AC PANEL SCHEDULE
SCALE: NTS

Each sector has separate Hybriflex cable .
Hybriflex cable naming as follows:

ALPHA – HF11
BETA - HF21
GAMMA- HF31

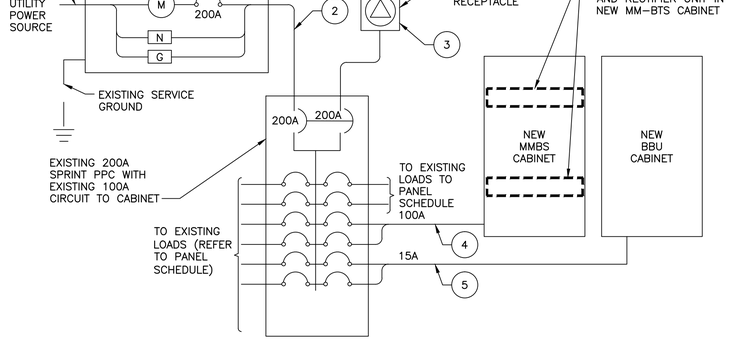
NEW Hybriflex for 2.5
ALPHA, BETA, GAMMA- HF12



NOTES:

1). CIRCUIT BREAKER NUMBERS 4, 8, AND 12 ARE TO BE USED UNLESS THIRD DC RAIL IS REQUIRED FOR MICROWAVE.
2). USE DC POWER LOOP.
3). ALL UNUSED DC FEEDERS TO BE TERMINATED WITH WIRE NUTS AND TAPED.
4). REMOVE ALL DEBRIS FROM INTERIOR OF FIBER DISTRIBUTION BOX WHEN COMPLETE.

3 E–2 TYPICAL FIBER DISTRIBUTION
SCALE: NTS



CIRCUIT SCHEDULE

NO.	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/ DISCONNECT	EXISTING
2	METER/ DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EX. MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1–1/2" CONDUIT
5	TRANSFER & LOAD CENTER	EX. BBU CABINET	(2) #12 AWG, (1) #12 GND IN 3/4" CONDUIT

4 E–2 ELECTRICAL ONE–LINE DIAGRAM
SCALE: NTS

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Sprint

Cherundolo Consulting

SCHEDULE OF REVISIONS

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0	08/29/17	INITIAL SUBMISSION

DRAWN BY:	AM
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	17048-CHE

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NICHOLAS D. BARILE
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GREENWICH, CT 06830
FAIRFIELD COUNTY

DRAWING TITLE:

DC POWER DETAILS & PANEL SCHEDULES

DRAWING SHEET: 10 OF 10

E-2

STRUCTURAL ANALYSIS REPORT
ROOFTOP

Prepared For:

Com-Ex Consultants, LLC
115 Route 46 – Suite E39
Mountain Lakes, NJ 07046

Structure Rating:	
Pipe Mounts:	**Pass**
Roof Screen:	**Pass**
Building Floor:	**Pass**

Sincerely,
Destek Engineering, LLC

05-24-2018

STATE OF CONNECTICUT
AHMET COLAKOGLU
PEN. 27057
LICENSED
PROFESSIONAL ENGINEER

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Sprint Site ID: CT52XC014
1111 East Putnam Avenue
Greenwich, CT 06830
Fairfield County

Destek Job No: 1829010 May 24, 2018

CONTENTS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing telecommunication installation on the building located at 1111 East Putnam Avenue, Greenwich, CT 06830, for the additions and alterations proposed by Sprint.

The structural analysis is based a visit performed by Destek Engineering, LLC (Destek) personnel on 02/19/2018 and the following information provided to Destek:

- Construction Drawings prepared by Com-Ex Consultants, dated 05/09/2018.
- As-Built Construction Drawings prepared by Transcend Wireless, LLC, and Clough Harbour & associates, LLP, dated 10/18/2010.
- Structural Analysis Report prepared by Clough Harbour & associates, LLP, dated 07/12/2010.

1.1 STRUCTURE AND EXISTING EQUIPMENT

The existing structure is a 3-story office building. The top of the building is approximately 39' above the ground level (AGL). The building roof structural system is composed of steel deck on open web joists supported on steel frames, while the building floor structural system is composed of composite floor decks spanning between steel beams also supported on steel frames. Sprint currently operates a telecommunication facility located at the rooftop level composed by (3) panel antennas, (1) per sector, attached to pipe mounts supported on the roof screen framing. In addition, Sprint has equipment cabinets located in a room at the third level directly supported on the floor. Please refer to the calculations in Appendix A for additional details.

2.0 EXISTING AND PROPOSED APPURTENANCES

Sprint is proposing the following configuration in the equipment room:

- (1) Existing Clearwire Equipment Rack – 450 lb
- (1) Existing Automatic Transfer Switch – 300 lb
- (1) Existing HVAC Unit – 200 lb
- (1) Existing Telco Backboard – 50 lb
- (1) Existing Disconnect – 50 lb
- (1) Existing Panel Box – 150 lb
- (1) New ECAB Eltek Multi Technology BTS Cabinet – 1381 lb

Total Dead Load on Floor (approx.): 2581 lb

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

Sprint is also proposing the following antenna configuration on the building:

Existing Configuration of Sprint Appurtenances:

Sector	Rad Center (Feet-AGL)	Antenna	Mount
Alpha, Beta & Gamma	51’	(3) Clearwire antenna (3) Clearwire RRH + (3) J-Boxes (1) Clearwire MW Dish	(9) Pipe Mounts on Roof Screen

Final Configuration of Sprint Appurtenances:

Sector	Rad Center (Feet-AGL)	Antenna	Mount
Alpha, Beta & Gamma	51’	(3) Commscope NNVV-65B-R4 (3) RFS APXVTM14-ALU-I20 (6) 800 MHz RRH 2x50W (3) 1900 MHz RRH (3) 2500 MHz RRH (1) Clearwire MW Dish	(9) Pipe Mounts on Roof Screen

* Equipment to be installed behind antenna

3.0 CODES AND LOADING

The analysis is in accordance with:

- 2016 Connecticut State Building Code
- ASCE 7-10, Minimum Design Loads for Building and Other Structures
- AISC, Manual of Steel Construction, 14th Edition

The following loading parameters are used:

- Basic wind speed, V=120 mph (ultimate) / 93 mph (nominal)
- Exposure C
- Occupancy Category II

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless noted otherwise, the structure and the foundation system are assumed to be in good condition, free of defects and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the

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design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed additions and alterations. Any deviation of the proposed equipment and placement, etc., will require Destek to generate an additional structural analysis.

5.0 ANALYSIS AND ASSUMPTIONS

This structural analysis and qualification of the subject structure is based on either a load comparison or a strength check as following:

Pursuant to 2012 International Existing Building Code Sections 706 and 807, any existing gravity load-carrying structural element for which additions and/or alterations cause an increase in design gravity load of no more than 5 percent, shall be permitted to remain unaltered, and thus considered to be Code-compliant and adequate. Any existing gravity load-carrying structural element for which additions and/or alterations cause an increase in design gravity loads exceeding 5 percent is checked against the applicable Code criteria for new structures.

Pursuant to 2012 International Existing Building Code Sections 706 and 807, any existing lateral load-carrying structural element whose demand-capacity ratio with the addition and/or alteration considered is no more than 10 percent greater than its demand-capacity ratio with the addition and/or alteration ignored shall be permitted to remain unaltered, and thus considered to be Code-compliant and adequate. If the demand-capacity ratio increase is more than 10 percent, the subject structural element is checked against the applicable Code criteria for new structures.

The analysis was performed by utilizing Risa 3-D, a commercially available structural engineering software package developed by Risa Technologies, as applicable.

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6.0 RESULTS AND CONCLUSION

Antenna Pipe Mounts: The existing antenna pipe mounts have **adequate** structural capacity for the equipment configuration by Sprint. For the code specified load combinations and as a maximum, the mounts are stressed to **34%** of their structural capacity.

Roof Screen: The existing roof screen framing has **adequate** structural capacity for the equipment configuration by Sprint. For the code specified load combinations and as a maximum, the screen members are stressed to **45%** of their structural capacity.

Equipment Room Floor: The building floor framing members have **adequate** structural capacity for the equipment configuration by Sprint. For the code specified load combinations and as a maximum, the roof beams are stressed to **74%** of their structural capacity.

Therefore, the proposed additions by Sprint **can** be implemented as intended with the conditions outlined in this report.

Should you have any questions about this report, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

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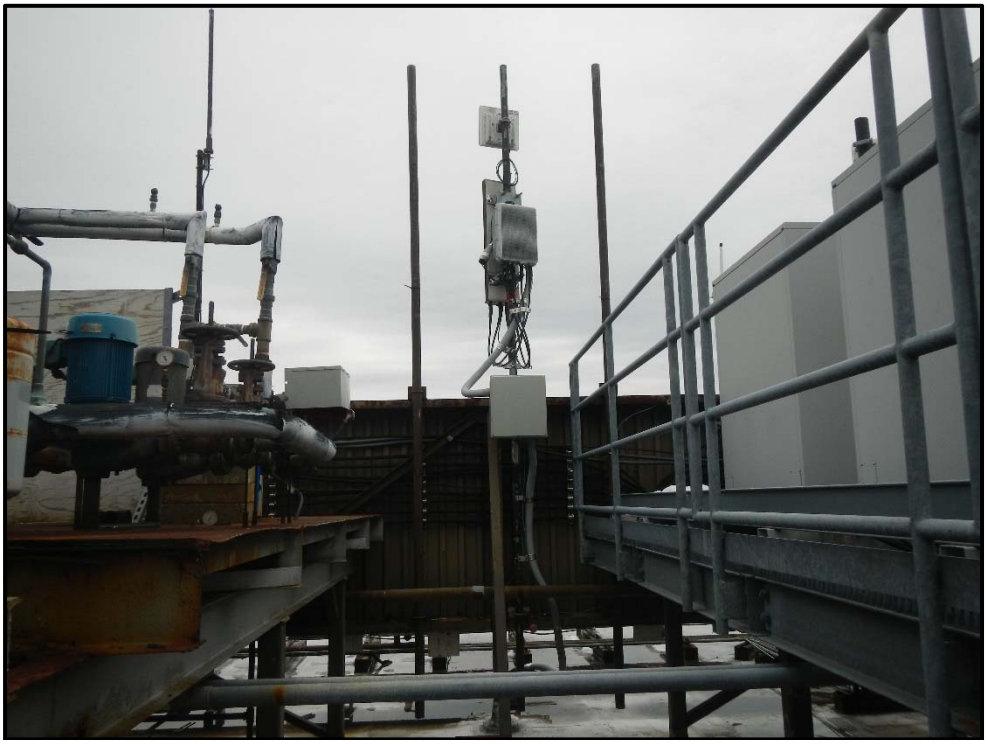
APPENDIX A
PICTURES AND CALCULATIONS



Existing Alpha Sector Pipe Mounts on Roof Screen

Existing Beta Sector Pipe Mounts on Roof Screen

Existing Gamma Sector Pipe Mounts on Roof Screen

Overview of Equipment Room

PURPOSE

The purpose of this analysis is to evaluate the structural capacity of the existing telecommunication installation on the building at 1111 East Putnam Avenue, Greenwhich, CT 06830, for the additions and alterations proposed by Sprint.

All calculations in accordance with 2016 Connecticut State Building Code.

1. Check Antenna Mounts

Wind Load

(reference ASCE 7-10)

ASCE 7 Reference

Input:

Location: Greenwhich, Fairfield County, CT

Classification: II — Table 1.5-1, pg. 2

Antenna RAD center: $z := 51$ ft

Exposure category: $Exp := "C"$ — Section 26.7.3, pg. 251

$$z_g := \begin{cases} 1200 & \text{if } Exp = "B" \\ 900 & \text{if } Exp = "C" \\ 700 & \text{if } Exp = "D" \end{cases} = 900 \qquad \alpha := \begin{cases} 7.0 & \text{if } Exp = "B" \\ 9.5 & \text{if } Exp = "C" \\ 11.5 & \text{if } Exp = "D" \end{cases} = 9.5$$

Velocity pressure exposure coefficient: $K_z := 2.01 \cdot \left(\frac{z}{z_g}\right)^{\frac{2}{\alpha}} = 1.1$ — Table 29.3-1, pg. 310

Topographic factor: $K_{zt} := 1.0$ — Section 26.8.2, pg. 254

Wind directional factor: $K_d := 0.85$ — Table 26.6-1, pg. 250

Basic wind speed: $V := 120 \cdot \sqrt{0.6} = 93$ mph — Appendix N of 2016 CT-BC

Gust response factor: $G := 0.85$ — Section 26.9, pg. 254

Velocity Pressure: $q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot psf$ — Equation 29.3-1, pg. 307

$$q_z = 20.65 \cdot psf$$

Force Coefficients:

$$C_{F\_flat} := \begin{pmatrix} 1 & 1.3 \\ 7 & 1.4 \\ 25 & 2 \end{pmatrix} \qquad C_{F\_round} := \begin{pmatrix} 1 & 0.7 \\ 7 & 0.8 \\ 25 & 1.2 \end{pmatrix}$$

Figure 29.5-1, pg. 312

Loads on Antennas Commscope NNVV-65B-R4:

Dimensions : $H := 72in$ $W := 19.6in$ $D := 7.8in$ $W_{ant1} := 91.1lbf$

Front: $Area := H \cdot W = 9.8\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{W}\right) = 1.34$ Figure 29.5-1, pg. 312

$F_{ant1\_front} := q_z \cdot G \cdot C_f \cdot Area = 231.28\,lbf$ Equation (29.5-1) Pg 308

Side: $Area := H \cdot D = 3.9\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{D}\right) = 1.47$ Figure 29.5-1, pg. 312

$F_{ant1\_side} := q_z \cdot G \cdot C_f \cdot Area = 100.92\,lbf$ Equation (29.5-1) Pg 308

Loads on Antennas RFS APXVTM14-ALU-I20:

Dimensions : $H := 56.3in$ $W := 12.6in$ $D := 6.3in$ $W_{ant2} := 67.7lbf$

Front: $Area := H \cdot W = 4.93\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{W}\right) = 1.36$ Figure 29.5-1, pg. 312

$F_{ant2\_front} := q_z \cdot G \cdot C_f \cdot Area = 117.4\,lbf$ Equation (29.5-1) Pg 308

Side: $Area := H \cdot D = 2.46\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{D}\right) = 1.46$ Figure 29.5-1, pg. 312

$F_{ant2\_side} := q_z \cdot G \cdot C_f \cdot Area = 63.32\,lbf$ Equation (29.5-1) Pg 308

Loads on MW Dish:

Dimensions : $H := 24in$ $W := 24in$ $D := 3.0in$ $W_{ant3} := 25lbf$

Front: $Area := H \cdot W = 4\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{W}\right) = 1.3$ Figure 29.5-1, pg. 312

$F_{ant3\_front} := q_z \cdot G \cdot C_f \cdot Area = 91.27\,lbf$ Equation (29.5-1) Pg 308

Side: $Area := H \cdot D = 0.5\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{D}\right) = 1.43$ Figure 29.5-1, pg. 312

$F_{ant3\_side} := q_z \cdot G \cdot C_f \cdot Area = 12.58\,lbf$ Equation (29.5-1) Pg 308

Loads on 800 MHz RRH

Dimensions : $H := 15.7in$ $W := 12.9in$ $D := 9.8in$ $W_{rrh1} := 53lbf$

Front: $Area := H \cdot W = 1.41\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{W}\right) = 1.3$ Figure 29.5-1, pg. 312

$F_{rrh1\_front} := q_z \cdot G \cdot C_f \cdot Area = 32.18\,lbf$ Equation (29.5-1) Pg 308

Side: $Area := H \cdot D = 1.07\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{D}\right) = 1.31$ Figure 29.5-1, pg. 312

$F_{rrh1\_side} := q_z \cdot G \cdot C_f \cdot Area = 24.57\,lbf$ Equation (29.5-1) Pg 308

Loads on 1900 MHz RRH

Dimensions : $H := 25.2in$ $W := 11.8in$ $D := 11.5in$ $W_{rrh2} := 60lbf$

Front: $Area := H \cdot W = 2.07\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{W}\right) = 1.32$ Figure 29.5-1, pg. 312

$F_{rrh2\_front} := q_z \cdot G \cdot C_f \cdot Area = 47.8\,lbf$ Equation (29.5-1) Pg 308

Side: $Area := H \cdot D = 2.01\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{D}\right) = 1.32$ Figure 29.5-1, pg. 312

$F_{rrh2\_side} := q_z \cdot G \cdot C_f \cdot Area = 46.62\,lbf$ Equation (29.5-1) Pg 308

Loads on 2500 MHz RRH

Dimensions : $H := 26.1in$ $W := 18.6in$ $D := 6.7in$ $W_{rrh3} := 70lbf$

Front: $Area := H \cdot W = 3.37\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{W}\right) = 1.31$ Figure 29.5-1, pg. 312

$F_{rrh3\_front} := q_z \cdot G \cdot C_f \cdot Area = 77.32\,lbf$ Equation (29.5-1) Pg 308

Side: $Area := H \cdot D = 1.21\,ft^2$

$C_f := linterp\left(C_{F\_flat}^{\langle 0 \rangle}, C_{F\_flat}^{\langle 1 \rangle}, \frac{H}{D}\right) = 1.35$ Figure 29.5-1, pg. 312

$F_{rrh3\_side} := q_z \cdot G \cdot C_f \cdot Area = 28.74\,lbf$ Equation (29.5-1) Pg 308

Loads on Mount Pipes 2.5 STD:

$Dia := 2.875in$ $H := 150in$

$C_f := \min\left[\left(\text{linterp}\left(C_{F\_round}^{\langle 0\rangle}, C_{F\_round}^{\langle 1\rangle}, \frac{H}{Dia}\right)\right), 1.2\right] = 1.2$ Figure 29.5-1, pg. 312

$F_{2.5pipe} := q_z \cdot G \cdot C_f \cdot Dia = 5.05 \cdot plf$ Equation (29.5-1) Pg 308

Loads on Roof Screen:

$W := 69in$ $H := 48ft$ $Weight_{screen} := 3.5psf$ $w := 0.5 \cdot W \cdot Weight_{screen} = 10.06 \cdot plf$

$C_f := \min\left[\left(\text{linterp}\left(C_{F\_flat}^{\langle 0\rangle}, C_{F\_flat}^{\langle 1\rangle}, \frac{H}{W}\right)\right), 2.0\right] = 1.44$ Figure 29.5-1, pg. 312

$F_{screen} := 0.5 q_z \cdot G \cdot C_f \cdot W = 72.91 \cdot plf$ Equation (29.5-1) Pg 308

Loads on Screen Post - HSS4x4x1/4:

$W := 4in$ $H := 102in$

$C_f := \min\left[\left(\text{linterp}\left(C_{F\_flat}^{\langle 0\rangle}, C_{F\_flat}^{\langle 1\rangle}, \frac{H}{W}\right)\right), 2.0\right] = 2$ Figure 29.5-1, pg. 312

$F_{hss4} := q_z \cdot G \cdot C_f \cdot W = 11.7 \cdot plf$ Equation (29.5-1) Pg 308

Loads on Screen Brace - L3x3x3/8:

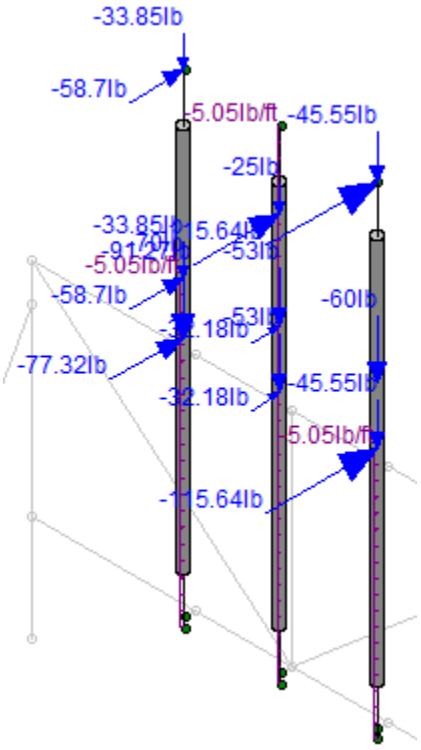
$W := 3in$ $H := 102in$

$C_f := \min\left[\left(\text{linterp}\left(C_{F\_flat}^{\langle 0\rangle}, C_{F\_flat}^{\langle 1\rangle}, \frac{H}{W}\right)\right), 2.0\right] = 2$ Figure 29.5-1, pg. 312

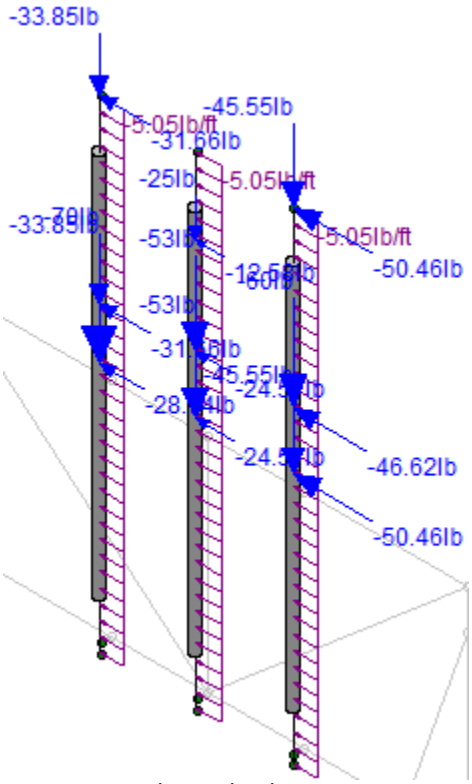
$F_{L3} := q_z \cdot G \cdot C_f \cdot W = 8.78 \cdot plf$ Equation (29.5-1) Pg 308

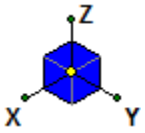
Pipe Mount Analysis

Load configuration - Front Wind

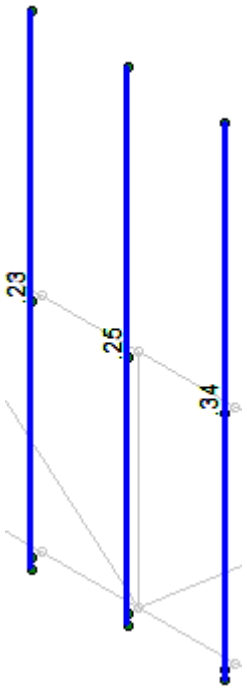


Load configuration - Side Wind

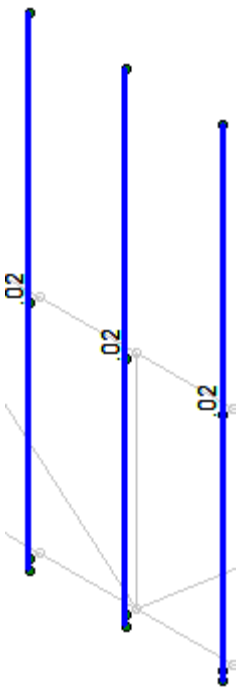


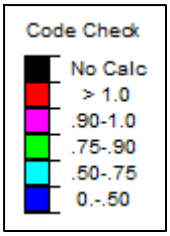


Axial & Bending Check



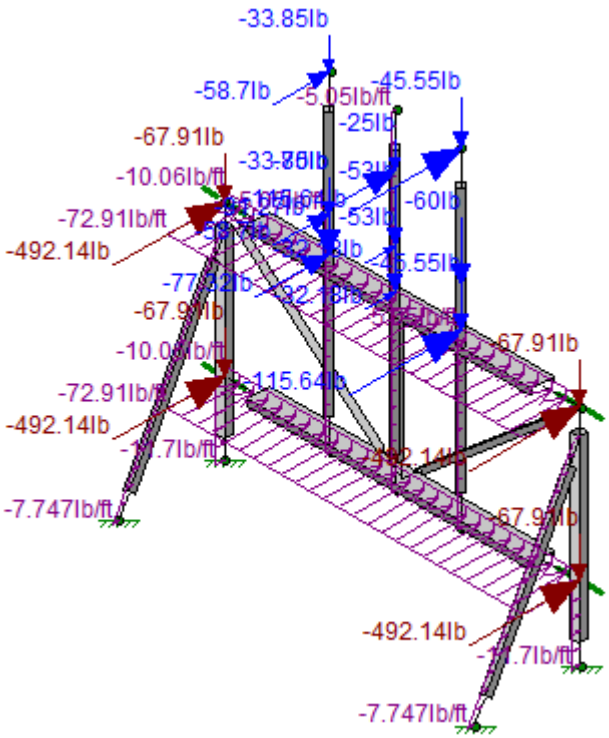
Shear Check



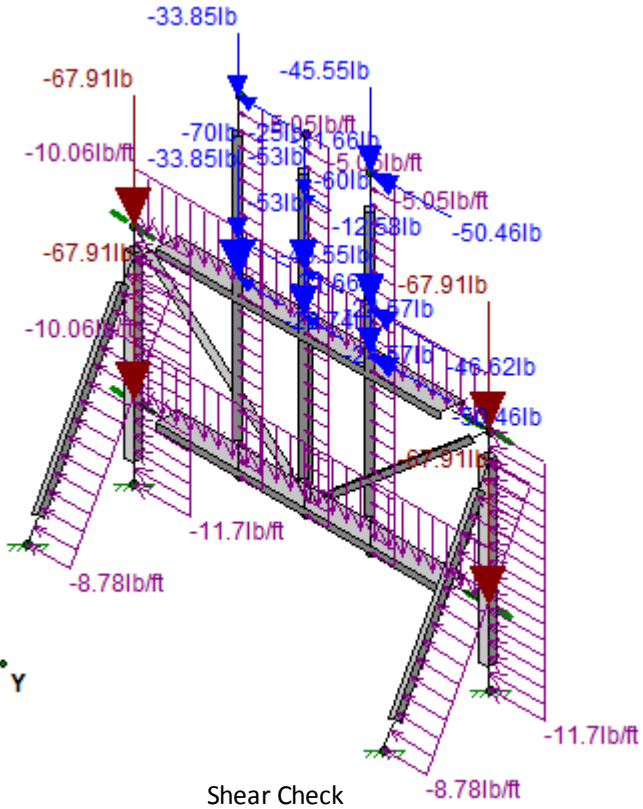


Roof Screen Analysis

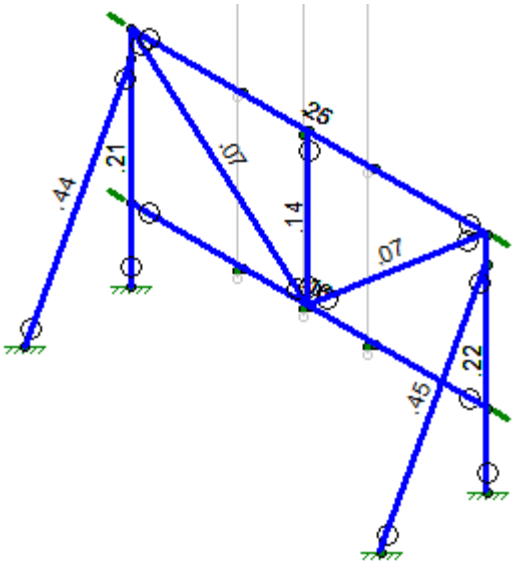
Load configuration - Front Wind



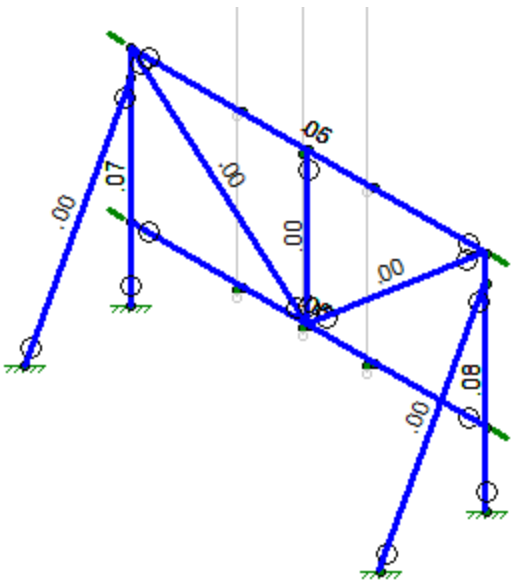
Load configuration - Side Wind

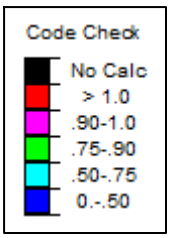


Axial & Bending Check



Shear Check





2. Check Equipment Room Floor

Load Combinations (reference ASCE 7-10)

1) DL
2) DL + LL

Floor Dead Load

For Floor: 1" Deck + 2" Concrete Top - 32 psf
Floor Finish - 2 psf
Mech & Miscl - 4 psf

Floor Dead Load: $DL_F := 38psf$

Ceiling Dead Load

For Dropped Ceiling: Ceiling Tile - 1.0 psf
Framing - 1.0 psf

Ceiling Dead Load: $DL_C := 2.0psf$

Floor Live Load

Per ASCE7-10: $LL := 50psf$ ASCE 7-10 Table 4-1

Cabinet Load

ECAB Eltek BTS Cabinet:

$H_{eltek} := 73.5in$
$W_{eltek} := 38in$
$D_{eltek} := 30in$
$Weight_{eltek} := 1381lbf$

Clearwire Equpiment Rack:

$H_{cw\_rack} := 72in$
$W_{cw\_rack} := 30in$
$D_{cw\_rack} := 30in$
$Weight_{cw\_rack} := 450lbf$

Floor Beam Layout

Floor frame was identified in field as W8x10 10' long spanning between W21x55 beams. The building main girders were identified as W24x103 spanning 30' between the building columns.

Loads on W8x10 Beams

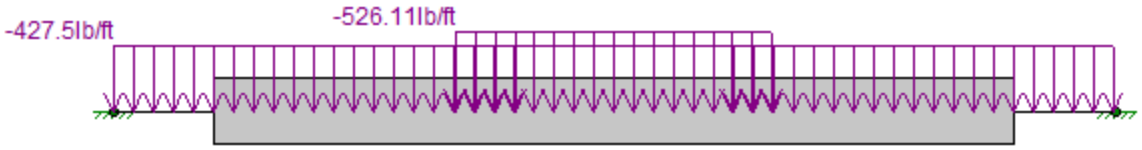
Beam Tributary Width: $W_{Trib} := 57in$

Beam Dead Load: $w_{DL} := (DL_F + DL_C) \cdot W_{Trib} = 190 \cdot plf$

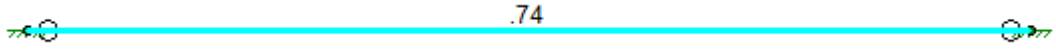
Beam Live Load: $w_{LL} := LL \cdot W_{Trib} = 237.5 \cdot plf$

Beam Cabinet Load: $w_{cab} := \left(\frac{Weight_{eltek}}{W_{eltek}}\right) + 0.5 \cdot \left(\frac{Weight_{cw\_rack}}{W_{cw\_rack}}\right) = 526.11 \cdot plf$

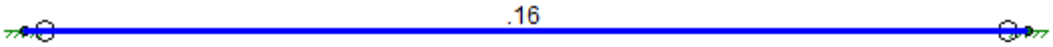
Load Configuration: (shown for DL+LL+Cabinets)

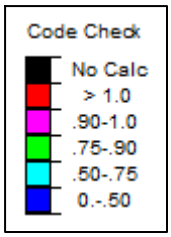


Bending Check:



Shear Check:





Loads on W21x55 Beams

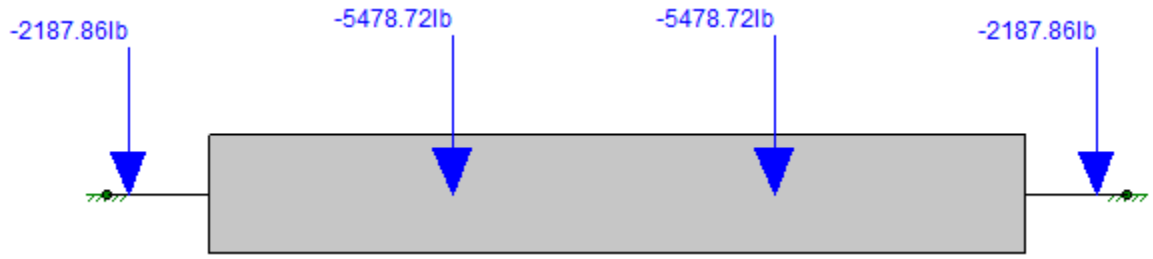
Beam Tributary Width: $W_{Trib} := 57in \cdot 10ft$

Beam Dead Load: $w_{DL} := (DL_F + DL_C) \cdot W_{Trib} + 10plf \cdot 10ft = 2000 \cdot lbf$

Beam Live Load: $w_{LL} := LL \cdot W_{Trib} = 2375 \cdot lbf$

Beam Cabinet Load: $w_{cab} := (Weight_{eltek} + Weight_{cw\_rack}) + 187.5lbf = 2018.5 \cdot lbf$

Load Configuration: (shown for DL+LL+Cabinets)



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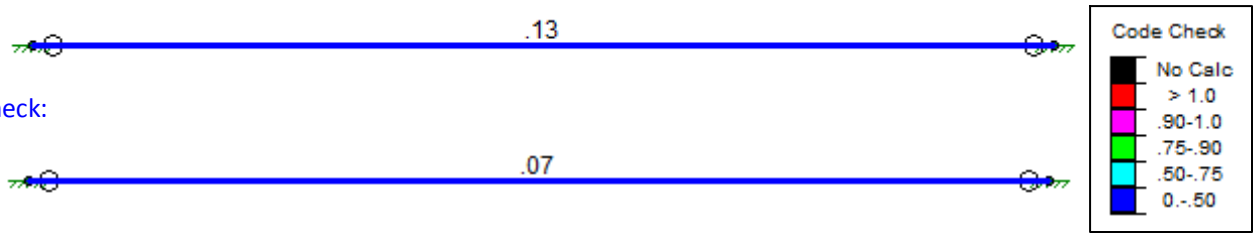


Shear Check:

Loads on W24x103 Beams

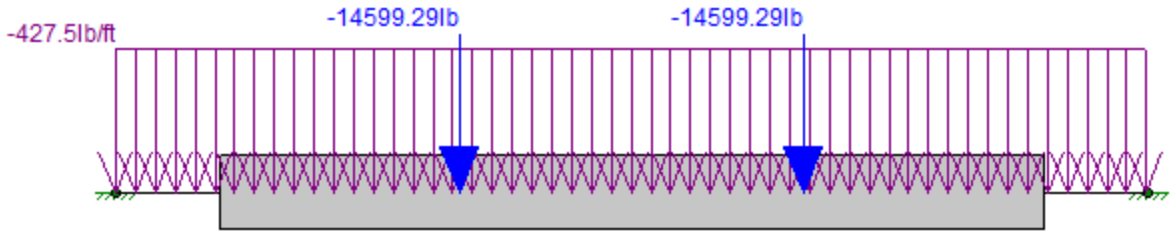
Beam Tributary Width: $W_{Trib} := 57in \cdot 10ft$

Beam Dead Load: $w_{DL} := 3\left[\left(DL_F + DL_C\right) \cdot W_{Trib} + 10plf \cdot 10ft\right] + 55plf \cdot 15ft = 6825 \cdot lbf$

Beam Live Load: $w_{LL} := 3LL \cdot W_{Trib} = 7125 \cdot lbf$

Beam Cabinet Load: $w_{cab} := 645.25lbf$

Load Configuration: (shown for DL+LL+Cabinets)



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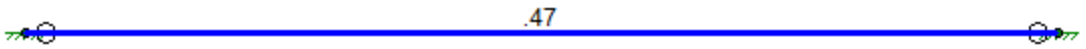

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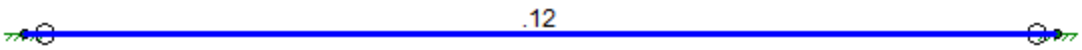
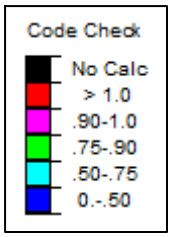




EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT52XC014

Greenwich/CT-BDR0132
1111 E Putnam Avenue
Greenwich, CT 06830

June 18, 2018

EBI Project Number: 6218004489

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	93.74 %

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

EBI Consulting
environmental | engineering | due diligence

June 18, 2018

SPRINT
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Emissions Analysis for Site: **CT52XC014 – Greenwich/CT-BDR0132**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **1111 E Putnam Avenue, Greenwich, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT 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.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS), 2500 MHz (BRS) and 11 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 SPRINT Wireless antenna facility located at **1111 E Putnam Avenue, Greenwich, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) 1 microwave (11 GHz) backhaul channel was considered for the Sprint facility in Sector C. This channel has a transmit power of 1 Watt.

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

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

9) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands and a **2-foot parabolic microwave dish** for the 11 GHz microwave backhaul. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerlines of the proposed panel antennas and parabolic microwave dishes are **51 feet** above ground level (AGL) for **Sector A**, **51 feet** above ground level (AGL) for **Sector B** and **51 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	**51 feet**	Height (AGL):	**51 feet**	Height (AGL):	**51 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	**16.17 %**	Antenna B1 MPE%	**16.17 %**	Antenna C1 MPE%	**16.17 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**51 feet**	Height (AGL):	**51 feet**	Height (AGL):	**51 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**11.05 %**	Antenna B2 MPE%	**11.05 %**	Antenna C2 MPE%	**11.05 %**

Microwave Backhaul Data

Antenna Type:	Gain (dBd)	Height (feet AGL):	Frequency Bands	Channel Count	Total TX Power(W)	ERP (W)	MPE %	Sector
2-foot parabolic dish	32.35 dBd	51	11 GHz	1	1	1,717.90	**0.30**	C

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Sector C	**27.52 %**
Verizon Wireless	38.22 %
Nextel	5.56 %
T-Mobile	19.31 %
Greenwich PD	2.09 %
Clearwire	1.04 %
Site Total MPE %:	**93.74 %**

SPRINT Sector A Total:	27.22 %
SPRINT Sector B Total:	27.22 %
SPRINT Sector C Total:	27.52 %
Site Total:	93.74 %

SPRINT _ Frequency Band / Technology Max Power Values (Sector C)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	51	6.69	850 MHz	567	1.19%
Sprint 850 MHz LTE	2	941.82	51	33.44	850 MHz	567	5.90%
Sprint 1900 MHz (PCS) CDMA	5	511.82	51	45.43	1900 MHz (PCS)	1000	4.54%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	51	45.43	1900 MHz (PCS)	1000	4.54%
Sprint 2500 MHz (BRS) LTE	8	778.09	51	110.51	2500 MHz (BRS)	1000	11.05%
Sprint 11 GHz Microwave	1	1,717.900	51	3.05	11 GHz	1000	0.30%
						Total:	**27.52%**

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 SPRINT 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:

SPRINT Sector	Power Density Value (%)
Sector A:	27.22 %
Sector B:	27.22 %
Sector C:	27.52 %
SPRINT Maximum Total (Sector C):	27.52 %
Site Total:	93.74 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **93.74 %** 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.

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

September 17, 2018

Cynthia VanDeMark
Zoning and Permitting Specialist
SAC Wireless, LLC
540 W. Madison Avenue, 9th Floor
Chicago, IL 60661

RE: **EM-SPRINT-057-180828** – Sprint notice of intent to modify an existing telecommunications facility located at 1111 East Putnam Avenue, Greenwich, Connecticut.

Dear Ms. VanDeMark:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

1. Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;

2. Any material changes to this modification as proposed shall require the filing of a new notice with the Council;

3. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

4. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by Sprint shall be removed within 60 days of the date the antenna ceased to function;

5. The validity of this action shall expire one year from the date of this letter; and

6. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated August 24, 2018. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and Environmental Protection pursuant to Connecticut General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below state and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require

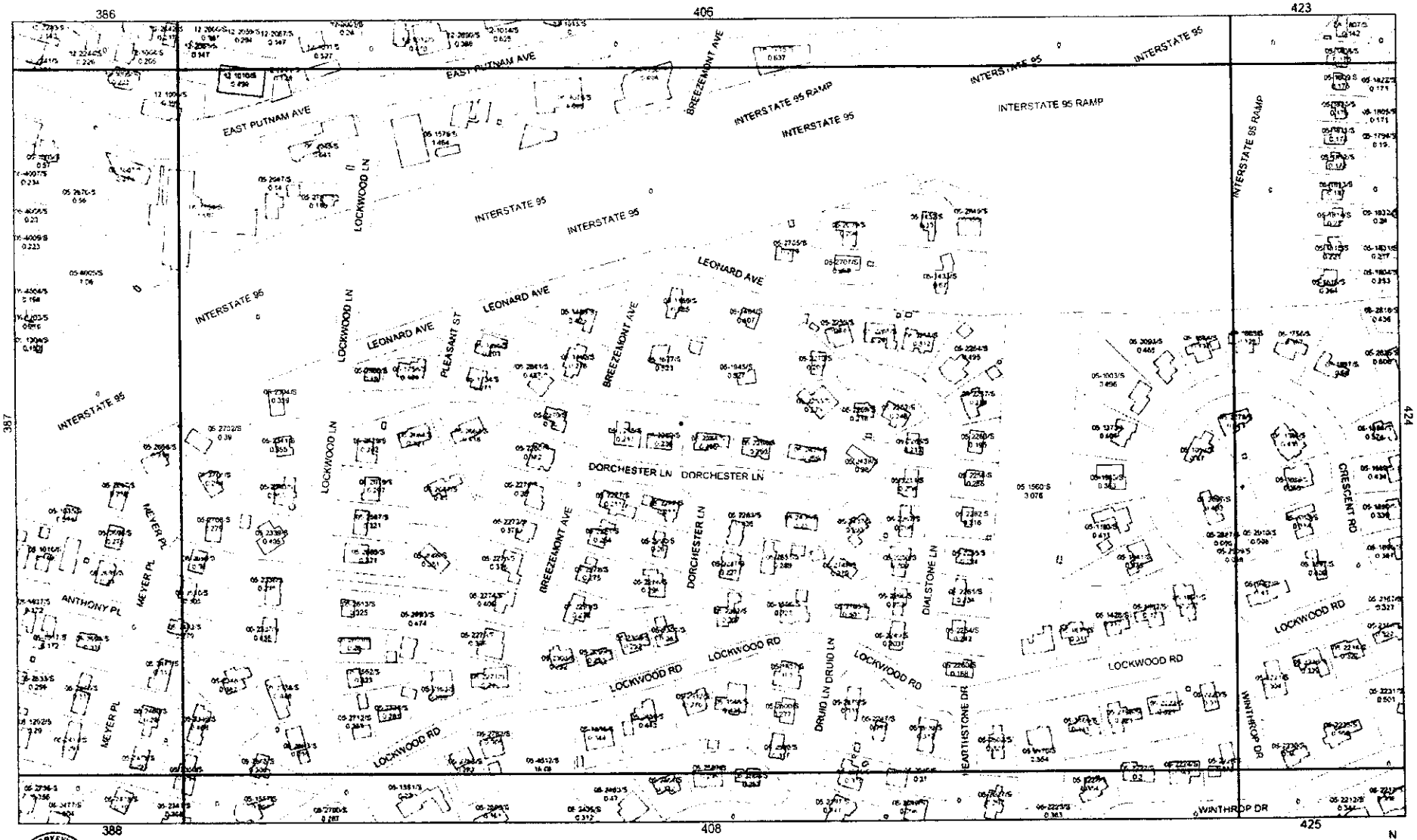
explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/FC/emr

c: The Honorable Peter J. Tesei, First Selectman, Town of Greenwich
Katie DeLuca, Director of Planning & Zoning, Town of Greenwich
Fountainhead Properties, LLC, Antenna and Property Owner



This map was produced from the Town of Greenwich Geographic Information System. The Town expressly disclaims any liability that may result from the use of this map. Aerial: 4/2/08 Data: 10/1/08 Map: 7/20/09 Copyright © 2009 by the Town of Greenwich

TOWN OF GREENWICH TAX MAP 407 VOL 5

200 100 0 200 Feet

N W E S

Tax ID 407/054 Printed 05/29/2018 Card No. 1 of 1

ADMINISTRATIVE INFORMATION

Parcel Number

Parent Parcel Number

Property Address
EAST PUTNAM AVENUE 1111

Neighborhood

Property Class
General Office

TAXING DISTRICT INFORMATION

Jurisdiction 17 Greenwich, CT

Area

Corporation

District

Section & Plat

Routing Number

Site Description

Topography:

Public Utilities:
Sewer, Electric

Street or Road:

Neighborhood:

Zoning:

Legal Acres:

OWNERSHIP

FOUNTAINHEAD PROPERTIES LLC
% ALLIED PROF MGMT-ATT T TORELLI
116 MASON ST
GREENWICH, CT 06830

TRANSFER OF OWNERSHIP

Date

FOUNTAINHEAD PROPERTIES

B/P: 3369, 199

B/P: 750, 310

COMMERCIAL

VALUATION RECORD

Assessment Year		2005 Revised	2010 Reval	2015 Prelim	2015 Final	2017 BAA		10/01/2017
Reason for Change								2017 List
VALUATION Market	L	2967500	2323700	2383600	2383600	2383600	2383600	2383600
	B	3192300	2894700	4115900	4115900	3615900	3615900	3216400
	T	6159800	5218400	6499500	6499500	5999500	5999500	5600000
VALUATION 70% Assessed	L	2077250	1626590	1668520	1668520	1668520	1668520	1668520
	B	2234610	2026290	2881130	2881130	2531130	2531130	2251480
	T	4311860	3652880	4549650	4549650	4199650	4199650	3920000

LAND DATA AND CALCULATIONS

Land Type	Rating Soil ID -or- Actual Frontage	Measured Acreage -or- Effective Frontage	Table Effective Depth	Prod. Factor -or- Depth Factor -or- Square Feet	Base Rate	Adjusted Rate	Extended Value	Influence Factor	Value
1 Primary Commercial					109.59	109.59			2383600

BAA: Decrease Total Value by ...
BP14: ...: Lessee - Version Wireless, Antennas $21,000, nvc
IBA: Wind Office Bldg
Ext wall material: Brk, Stl, Glc
Antennas Income $192,548 2015 Income

Permit Number Type	FilingDate	Est. Cost Field Visit Est. SqFt

Supplemental Cards
TRUE TAX VALUE 2383600

Supplemental Cards
TOTAL LAND VALUE 2383600

IMPROVEMENT DATA

PHYSICAL CHARACTERISTICS

ROOFING

Built-Up

WALLS

	B	1	2	U
Frame		Yes	Yes	Yes
Brick				
Metal				
Guard				

FRAMING

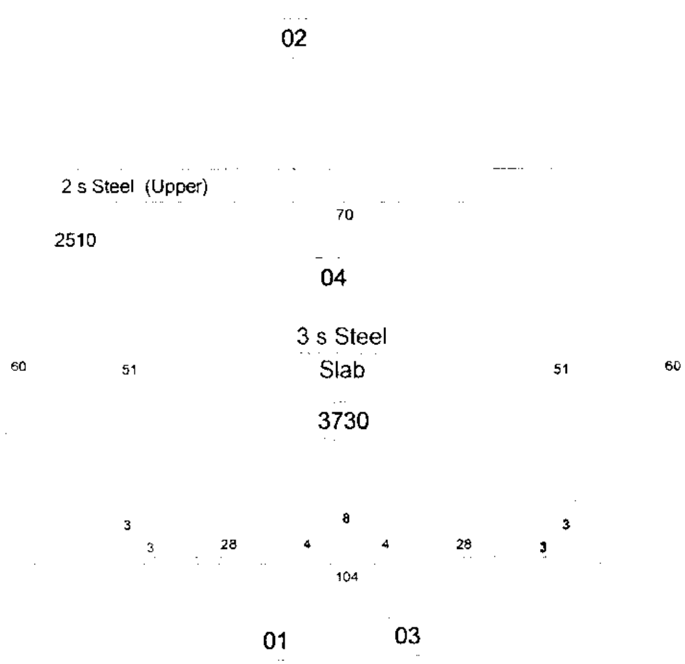
	B	1	2	U
F Prf	0	3730	6240	6240

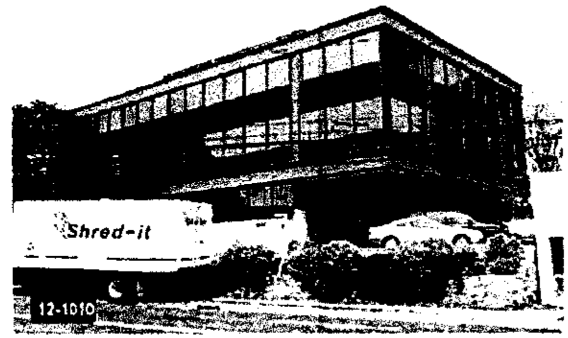
FINISH

	UF	SF	FO	FD
1	0	0	0	3730
2	0	0	0	6240
U	0	0	0	6240
Total	0	0	0	16210

HEATING AND AIR CONDITIONING

	B	1	2	U
Heat	0	3730	6240	6240
Sprink	0	3730	6240	6240





(LCM: 150.00)

SPECIAL FEATURES

Description	Value

SUMMARY OF IMPROVEMENTS

ID	Use	Stry Hgt	Const Type	Grade	Year Const	Eff Year	Cond	Base Rate	Feat Adj	Adj Rate	Size or Area	Computed Value	Phys Depr	Obsol Depr	Market Adj	% Comp	Value
C	CENOFF	3.00		Avg-	1969	1985	AV	0.00	0	0.00	6240	0	0	0	150	100	3699600
01	PAVING	0.00	15	Good	1969	1985	AV	1.60	0	10.35	16000	165600	13	0	100	100	144100
02	RTWCONC	10.00	6D	Good	1969	1985	AV	26.00	0	58.50	10x 56	3260	13	0	100	100	2900
03	RTWCONC	5.00	4D	Good	1969	1985	AV	26.00	0	58.50	5x 90	5270	13	0	100	100	4600
04	ELEVCOM	3.00	2B	Avg+	1969	1985	AV	1[illegible]300	0	304200	[illegible]	304200	13	0	100	100	264700

Data Collector/Date	Appraiser/Date	Neighborhood	Supplemental Cards TOTAL IMPROVEMENT VALUE	
JLT 12/08/1999	TOG 10/01/2015	Neigh 2300 AV		4115900

ORIGIN ID:LKKA (856) 825-1596
RYAN BAILEY
CHARLES CHERUNDOLO CONSULTING
3 PROSPECT PL
B
MADISON, NJ 07940
UNITED STATES US

SHIP DATE: 19NOV18
ACTWGT: 1.00 LB
CAD: 111040781/INET4040

BILL SENDER

TO **FIRST SELECTMAN PETER TESEI**
TOWN OF GREENWICH
101 FIELD POINT RD
FIRST FLOOR
GREENWICH CT 06830
(203) 622-7710
INV:
PO:
REF: CT62XC014 CSC
DEPT:

552J3/C3B2/DCA5

FedEx Express

J182118881901ue

TRK# 0201 **7737 5314 5624**

FRI - 23 NOV 4:30P
EXPRESS SAVER

K5 CTXA

06830
CT-US **SWF**

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:LKKA (856) 625-1596
RYAN BAILEY
CHARLES CHERUNDOLO CONSULTING
3 PROSPECT PL
B
MADISON, NJ 07940
UNITED STATES US

SHIP DATE: 19NOV18
ACTWGT: 1.00 LB
CAD: 111040781/INET4040

BILL SENDER

TO **KATIE DELUCA**
TOWN OF GREENWICH
101 FIELD POINT RD
2ND FLOOR
GREENWICH CT 06830
(203) 622-7710
INV:
PO:
REF: CT62XC014.CSC
DEPT:

552J3/C3B2/DCA5

FedEx Express

J182119881501uv

TRK# 0201 **7737 5314 6712**

FRI - 23 NOV 4:30P
EXPRESS SAVER

K5 CTXA

CT-US **SWF**

06830

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ORIGIN ID:LKKA (856) 625-1596
RYAN BAILEY
CHARLES CHERUNDOLO CONSULTING
3 PROSPECT PL
B
MADISON, NJ 07940
UNITED STATES US

SHIP DATE: 19NOV18
ACTWGT: 1.00 LB
CAD: 111040781/INET4040

BILL SENDER

TO **TOM TORELLI**
FOUNTAINHEAD PROPERTIES
116 MASON ST
2ND FLOOR
GREENWICH CT 06830
(203) 661-5800 REF: CT52XC014 CSC
INV:
PO: DEPT:

552J3/C3B2/DCA5

FedEx Express

E

FRI - 23 NOV 4:30P
EXPRESS SAVER

TRK# [0201] **7737 5314 8690**

06830
CT-US **SWF**

K5 CTXA

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.