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
24 ½ Richdale Drive, Wilton, CT 06897

Latitude: N41.20516
Longitude: W73.4361

Dear Ms. Bachman:

Sprint currently maintains 3 existing panel antennas and three RRH units at the 68' centerline level of the existing 71' wooden pole. Sprint proposes to swap the 71' wooden pole for a 70' steel pole as well as replace the 3 panel antennas and 3 RRH unites at the 68' centerline on the pole. Sprint further proposes to add 3 remote radio heads at the base of the pole. 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.

.
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 Selectwomen Lynne Vanderslice of the Town of Wilton as well as Robert Nerney, Director of Planning for the Town of Wilton and Knapp Properties, 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 tower with proposed modifications to accommodate the revised antenna configuration as well as the latest CSC decision, tax sheet and tax map.

Existing Facility

CSC Summary Statement – CT60XC001 – 24 ½
Richdale Dr, Wilton CT 06897

The Communications Tower facility is located at 24 ½ Richdale Dr, Wilton CT and is owned by Knapp Properties LLC, the Site coordinates are: N41.20516 W73.43619.

The existing facility consists of a 71' wooden pole. Sprint currently operates wireless communications equipment in a shelter on the ground near the pole and has 3 antennas and 3 RRH unites mounted at centerline of 68'.

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 new 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).

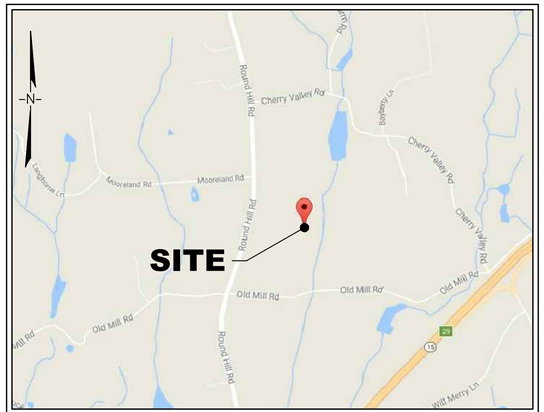
Respectfully submitted,

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

Additional Recipients:
First Selectwoman Lynne Vanderslice for the Town of Wilton– Via FedEx
Robert Nerney, Director of Planning for the Town of Wilton - Via FedEx
Knapp Properties, LLC, owner of the property

"DO MACRO UPGRADE"

CT43XC856
395 ROUND HILL ROAD
GREENWICH, CONNECTICUT 06831
FAIRFIELD COUNTY



KEY MAP

SCALE = N.T.S.

SITE LOCATION INFORMATION

SITE ID NUMBER:	CT43XC856
SITE NAME:	ROUND HILL COMMUNITY CHURCH
SITE ADDRESS:	395 ROUND HILL ROAD GREENWICH, CONNECTICUT 06831
PARCEL ID:	N.A.
PROPERTY OWNER:	ROUND HILL COMMUNITY CHURCH 395 ROUND HILL ROAD GREENWICH, CONNECTICUT 06831
APPLICANT:	SPRINT 6100 SPRINT PARKWAY OVERLAND PARK, KS 66251
COUNTY:	FAIRFIELD COUNTY

SITE CHARACTERISTICS

LATITUDE:	41°-05'-42.42"
LONGITUDE:	73°-39'-51.19"
STRUCTURE TYPE:	FLAG POLE
LOCATION OF PROPOSED EQUIPMENT:	EXISTING EQUIPMENT ROOM
STRUCTURE HEIGHT:	±115'-0" AGL
ANTENNA (RAD CENTER):	±100'-0" AGL (ALPHA) ±100'-0" AGL (BETA) ±100'-0" AGL (GAMMA)

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
C-1	SITE LAYOUT & 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

SCOPE OF WORK

SPRINT PROPOSED TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (3) EXISTING PANEL ANTENNAS
- INSTALL (3) 800/1900 MHz PANEL ANTENNAS
- INSTALL (3) 800 MHz RRHs AT GRADE
- INSTALL (12) 7/8" JUMPER CABLES
- INSTALL (3) HYBRID CABLES

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. COM-EX HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL ANALYSIS PREPARED BY A LICENSED ENGINEER.

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

Sprint
6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

Cherundolo Consulting

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
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DRAWN BY:	DTB
CHECKED BY:	DTS
SCALE:	AS NOTED
JOB NO:	17057-CHE

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

STATE OF CONNECTICUT
NICHOLAS D. BARILE
No. 28643
LICENSED PROFESSIONAL ENGINEER

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

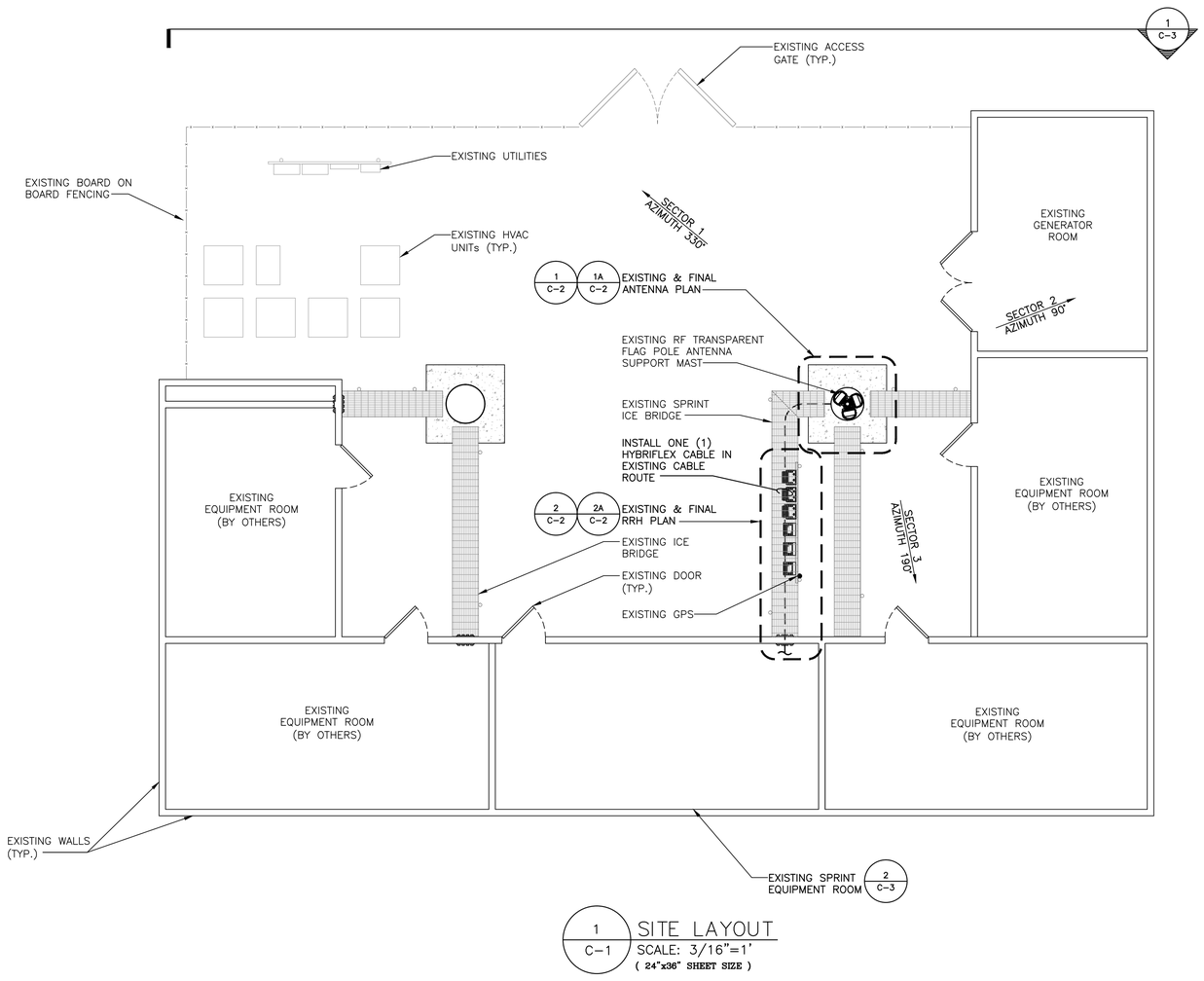
CT43XC856
395 ROUND HILL ROAD
GREENWICH, CT 06831
FAIRFIELD COUNTY

DRAWING TITLE:

TITLE SHEET

DRAWING SHEET: 1 OF 10

T-1



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

GENERAL NOTES:

1. SUBJECT PROPERTY IS KNOWN AS TAX PARCEL ID N.A., AS SHOWN THE OFFICIAL TAX MAP OF THE TOWN OF GREENWICH, CT.
2. THE APPLICANT PROPOSES TO REPLACE THREE (1) EXISTING ANTENNAS WITH THREE (3) NEW ANTENNAS AND INSTALL THREE (3) RRHs ON EXISTING/PROPOSED MOUNTING HARDWARE AT GRADE.
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 URS CORPORATION AES FOR SPRINT'S INSTALLATION ON THIS FACILITY. DRAWINGS ENTITLED "SPRINT, SITE NAME: ROUND HILL COMMUNITY CHURCH, SPRINT NUMBER: CT43XC821" DATED 01/30/08. ADDITIONAL SITE INFORMATION WAS SUPPLEMENTED WITH A LIMITED SITE VISIT BY COM-EX CONSULTANTS ON 05/24/17.
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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STATE OF CONNECTICUT · NICHOLAS D. BARILE · No. 28643 · LICENSED PROFESSIONAL ENGINEER

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

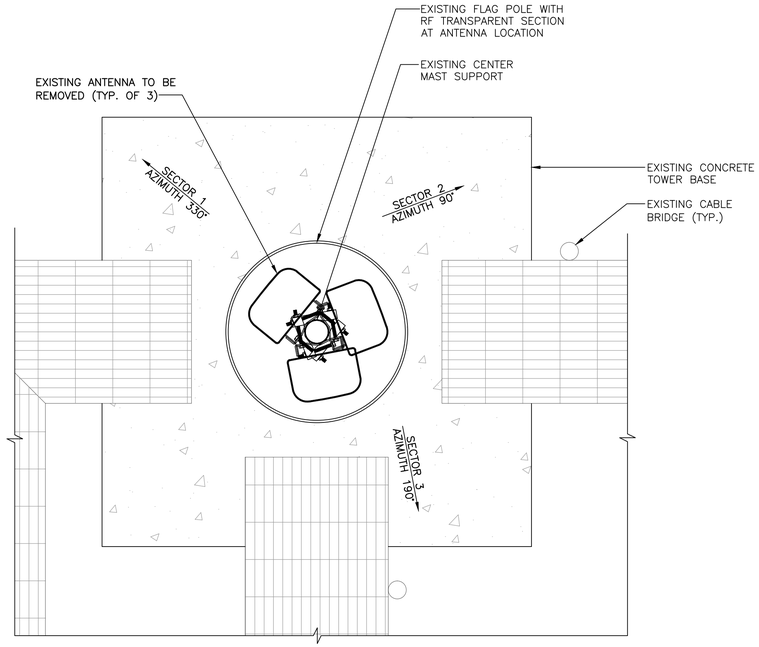
CT43XC856
395 ROUND HILL ROAD
GREENWICH, CT 06831
FAIRFIELD COUNTY

DRAWING TITLE:

SITE LAYOUT & GENERAL NOTES

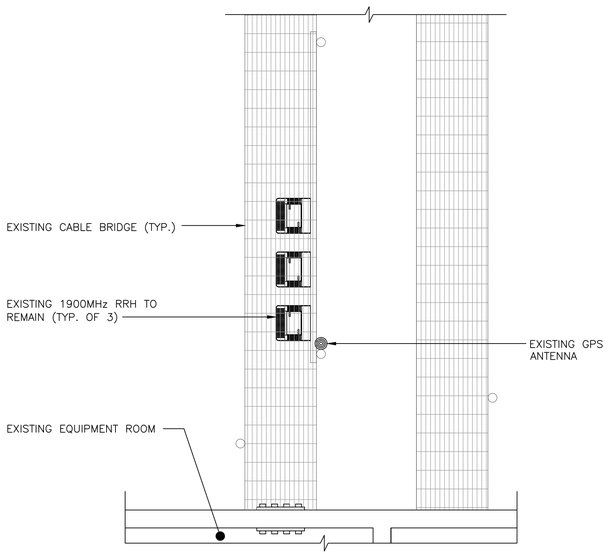
DRAWING SHEET: 2 OF 10

C-1



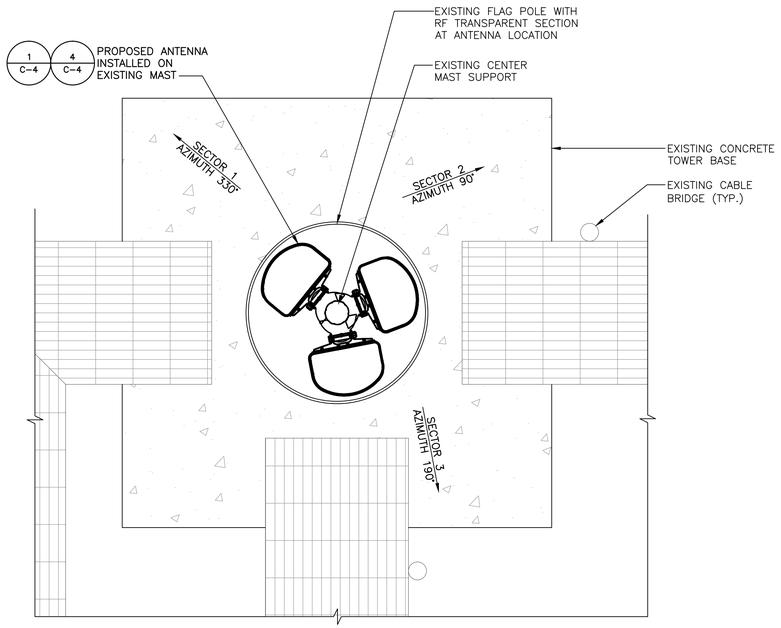
1 / C-2 EXISTING ANTENNA PLAN
SCALE: N.T.S.

NO ACCESS TO ANTENNAS AT TIME OF VISIT. LAYOUT SHOWN TAKEN FROM PREVIOUS SPRINT CDs

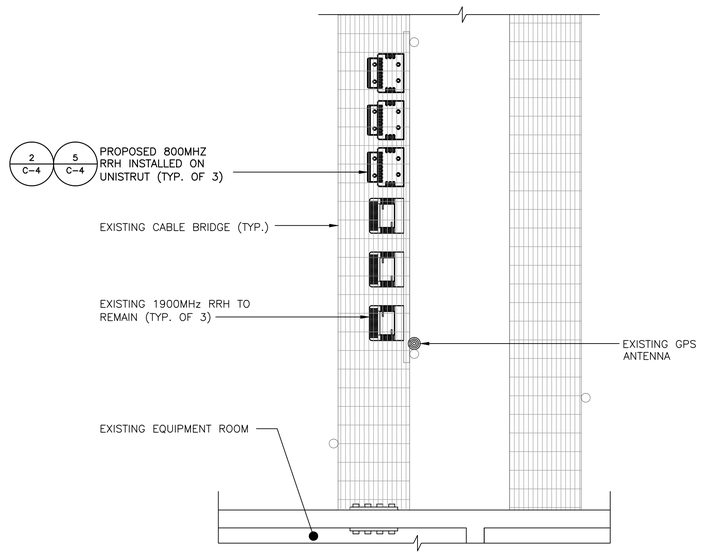


2 / C-2 EXISTING RRH PLAN
SCALE: N.T.S.

ALL LOADING ASSOCIATED WITH PROPOSED EQUIPMENT CABINETS, ANTENNAS, AND CABLE ROUTING SHALL BE VERIFIED BY A PASSING STRUCTURAL ANALYSIS PERFORMED BY A LICENSED ENGINEER PRIOR TO INSTALLATION



1A / C-2 FINAL ANTENNA PLAN
SCALE: N.T.S.



2A / C-2 FINAL RRH PLAN
SCALE: N.T.S.

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

CT43XC856
395 ROUND HILL ROAD
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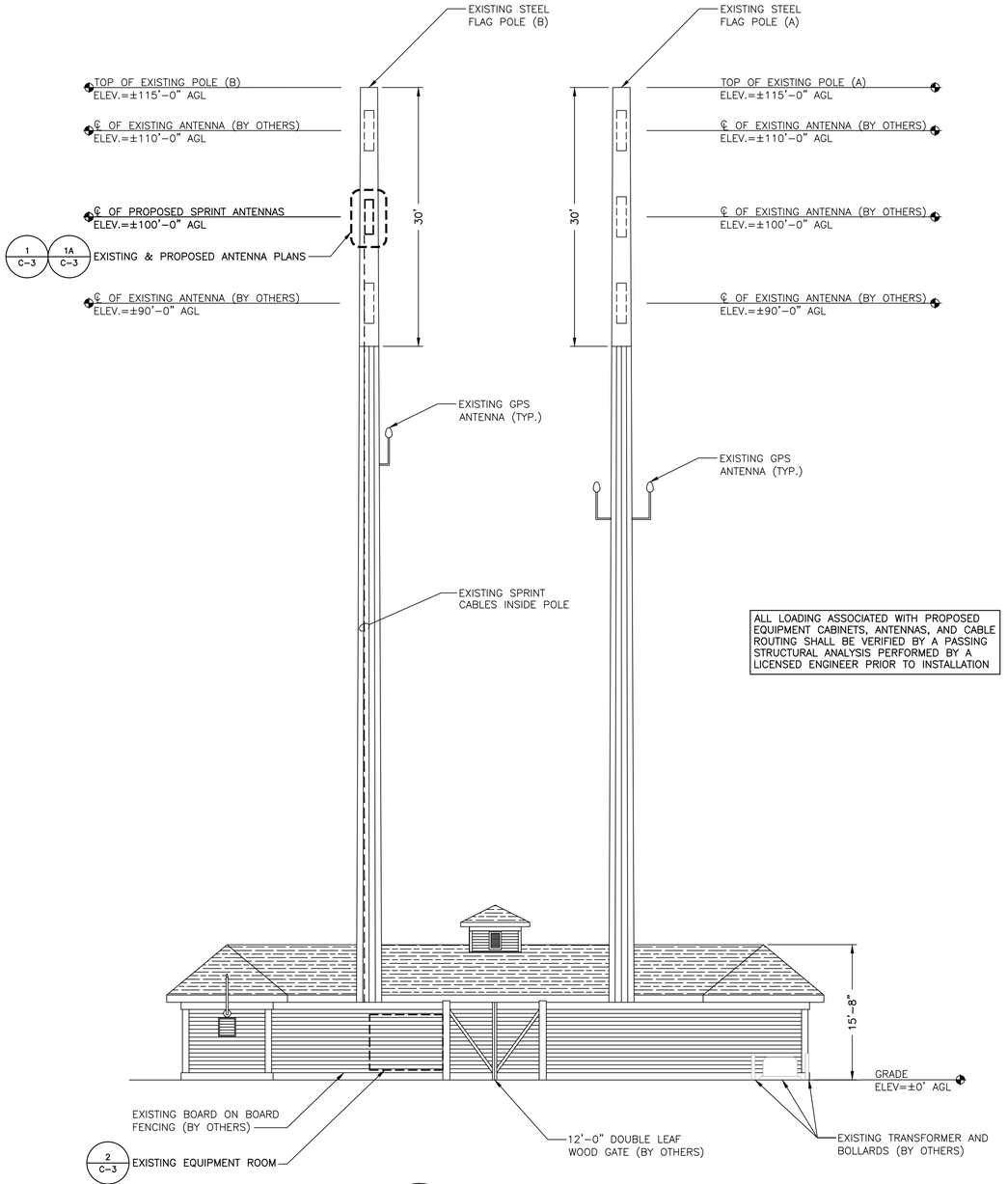
FAIRFIELD COUNTY

DRAWING TITLE:

EXISTING & FINAL ANTENNA PLANS

DRAWING SHEET: 3 OF 10

C-2

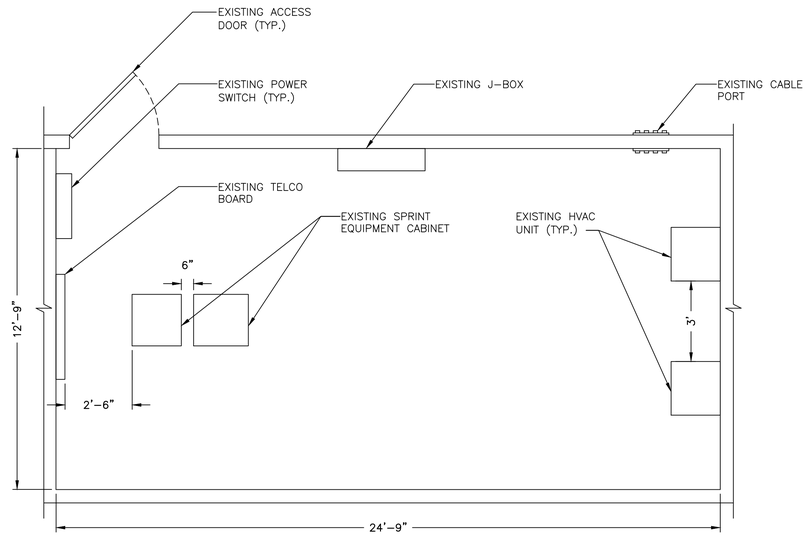


ALL LOADING ASSOCIATED WITH PROPOSED EQUIPMENT CABINETS, ANTENNAS, AND CABLE ROUTING SHALL BE VERIFIED BY A PASSING STRUCTURAL ANALYSIS PERFORMED BY A LICENSED ENGINEER PRIOR TO INSTALLATION

1 C-3 ELEVATION
SCALE: 1/8"=1'
(24"x36" SHEET SIZE)

BILL OF MATERIALS

	DESCRIPTION	QUANTITY EACH	DIMENSIONS (HxWxD)	WEIGHT (LBS) EACH	MANUFACTURER: PART/ MODEL#
ANTENNAS	800/1900MHz PANEL ANTENNA – SECTOR 1	1	72"x11.8"x7.0"	57.0 LBS W/OUT MOUNTING HARDWARE	RFS: APXVSPP18-C-A20
	800 MHz RRH	1	15.7"x12.9"x9.8"	69.1 LBS W/OUT MOUNTING HARDWARE	ALU: RRH-2x50-800
	800/1900MHz PANEL ANTENNA – SECTOR 2	1	72"x11.8"x7.0"	57.0 LBS W/OUT MOUNTING HARDWARE	RFS: APXVSPP18-C-A20
	800 MHz RRH	1	15.7"x12.9"x9.8"	69.1 LBS W/OUT MOUNTING HARDWARE	ALU: RRH-2x50-800
	800/1900MHz PANEL ANTENNA – SECTOR 3	1	72"x11.8"x7.0"	57.0 LBS W/OUT MOUNTING HARDWARE	RFS: APXVSPP18-C-A20
	800 MHz RRH	1	15.7"x12.9"x9.8"	69.1 LBS W/OUT MOUNTING HARDWARE	ALU: RRH-2x50-800
	DESCRIPTION	QUANTITY EACH	DIMENSIONS (LENGTH)	WEIGHT (LBS/FOOT)	MANUFACTURER: SIZE/PART/MODEL#
CABLES	SECTOR 1 HYBRIFLEX RUN (BTS TO RRH)	1	±35'	1.3 LBS	RFS: 1-1/4" / HB114-1-08U4-M5J
	SECTOR 1 COAX CABLE JUMPERS	4	150'	N/A	LDF5-50A (OR EQUIVALENT)
	SECTOR 1 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
	SECTOR 2 HYBRIFLEX RUN (BTS TO RRH)	1	±35'	1.3 LBS	RFS: 1-1/4" / HB114-1-08U4-M5J
	SECTOR 2 COAX CABLE JUMPERS	4	150'	N/A	LDF5-50A (OR EQUIVALENT)
	SECTOR 2 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
	SECTOR 3 HYBRIFLEX RUN (BTS TO RRH)	1	±35'	1.3 LBS	RFS: 1-1/4" / HB114-1-08U4-M5J
	SECTOR 3 COAX CABLE JUMPERS	4	150'	N/A	LDF5-50A (OR EQUIVALENT)
	SECTOR 3 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD



2 C-3 EXISTING EQUIPMENT PLAN
SCALE: 3/8"=1'

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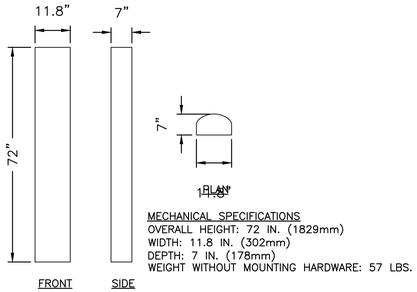
FAIRFIELD COUNTY

DRAWING TITLE:

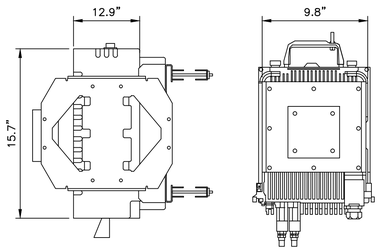
ELEVATION, B.O.M., & FINAL EQUIPMENT PLAN

DRAWING SHEET: 4 OF 10

C-3



MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 72 IN. (1829mm)
WIDTH: 11.8 IN. (302mm)
DEPTH: 7 IN. (178mm)
WEIGHT WITHOUT MOUNTING HARDWARE: 57 LBS.



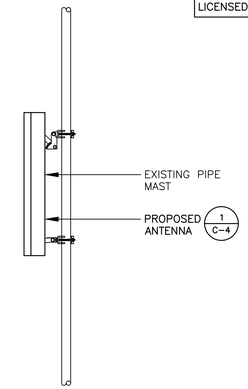
MODEL	H x W x D	WEIGHT
800MHz RRH 2x50W	15.7"x12.9"x9.8"	53 LBS

1 C-4 — 800/1900MHz ANTENNA
RFS: APXVSPP18-C-A20
SCALE: 1/2"=1'

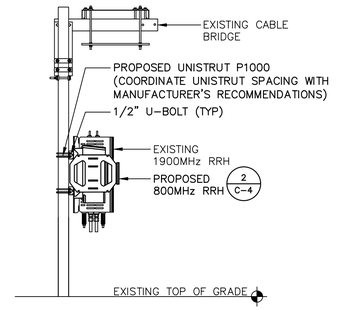
2 C-4 — 800MHz RRH DETAIL
SCALE: N.T.S.

3 C-4 — NOT USED
SCALE: N.T.S.

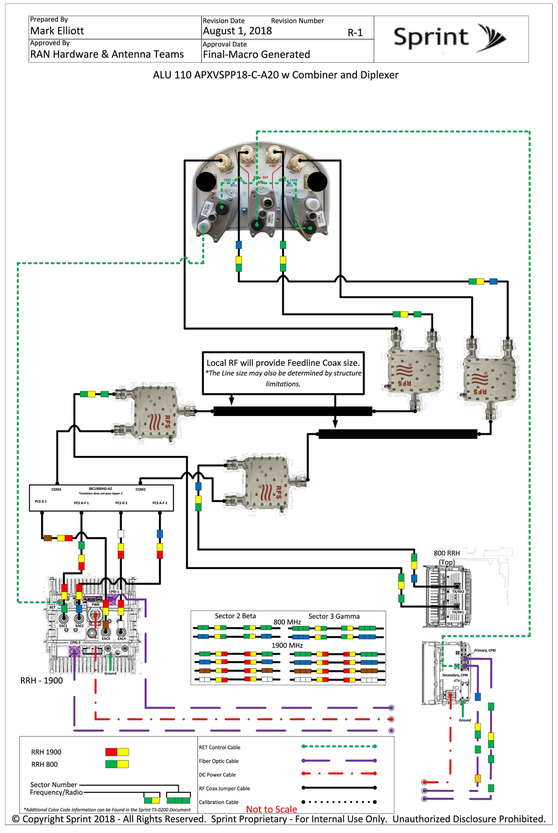
ALL LOADING ASSOCIATED WITH PROPOSED EQUIPMENT CABINETS, ANTENNAS, AND CABLE ROUTING SHALL BE VERIFIED BY A PASSING STRUCTURAL ANALYSIS PERFORMED BY A LICENSED ENGINEER PRIOR TO INSTALLATION



4 C-4 — TYPICAL ANTENNA INSTALLATION DETAIL
SCALE: N.T.S.



5 C-4 — TYPICAL RRH INSTALLATION DETAIL
SCALE: N.T.S.



6 C-4 — ANTENNA SCHEMATIC
SCALE: N.T.S.

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SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4	02/26/19	ISSUED AS FINAL
3	12/28/18	PER NEW SCOPE OF WORK
2	05/01/18	REVISED PER COMMENTS
1	09/26/17	REVISED PER RFDS
0	07/19/17	INITIAL SUBMISSION

DRAWN BY:	DTB
CHECKED BY:	DTS
SCALE:	AS NOTED
JOB NO:	17057-CHE

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

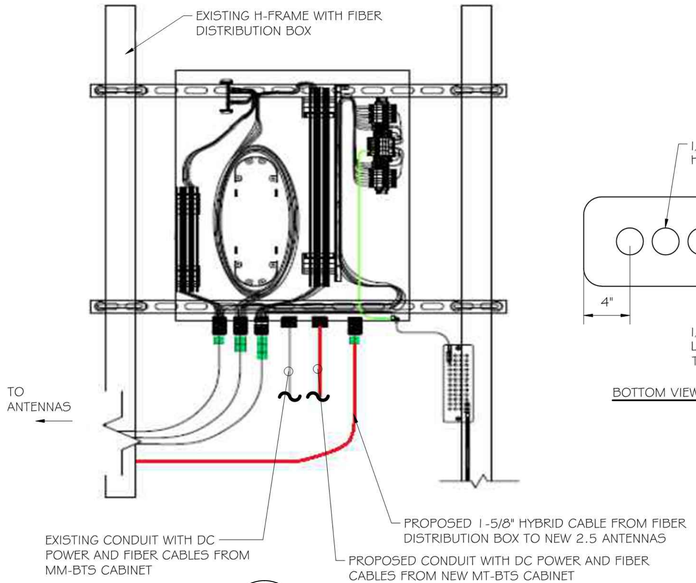
CT43XC856
395 ROUND HILL ROAD
GREENWICH, CT 06831
FAIRFIELD COUNTY

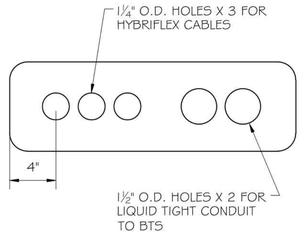
DRAWING TITLE:

CONSTRUCTION DETAILS

DRAWING SHEET: 5 OF 10

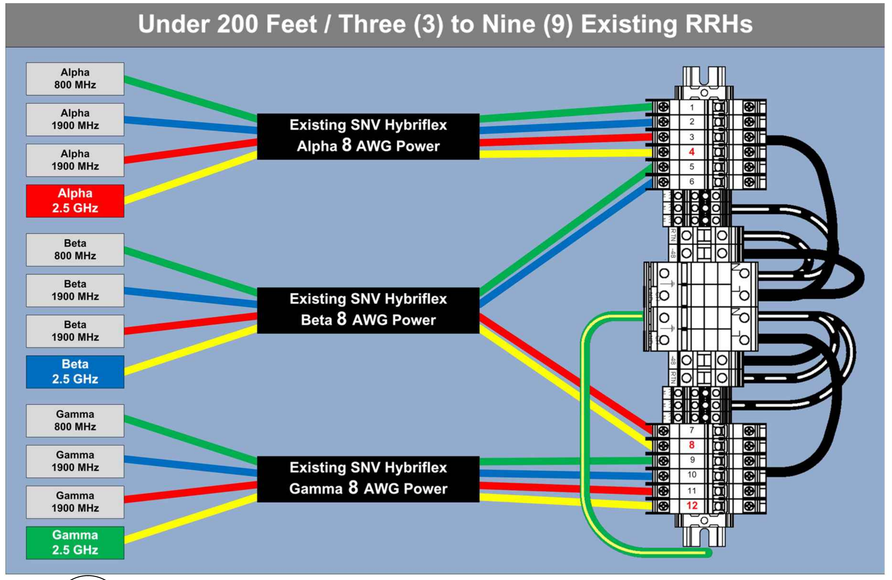
C-4





BOTTOM VIEW - FIBER DISTRIBUTION BOX

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 NOT USED
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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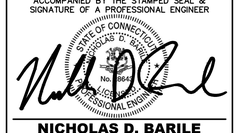

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FAIRFIELD COUNTY

DRAWING TITLE:

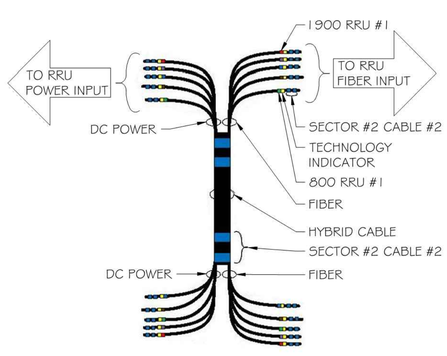
FIBER PLUMBING DIAGRAM

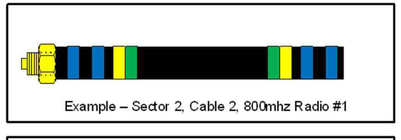
DRAWING SHEET: 6 OF 10

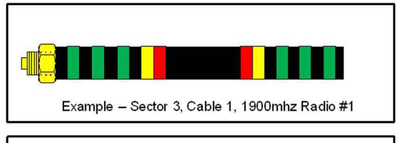
C-5

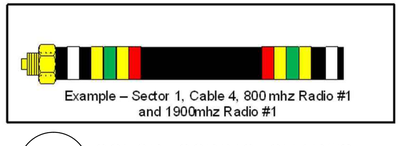
Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue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

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




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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CHECKED BY:	DTS
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STATE OF CONNECTICUT · NICHOLAS D. BARILE · No. 28643 · LICENSED PROFESSIONAL ENGINEER

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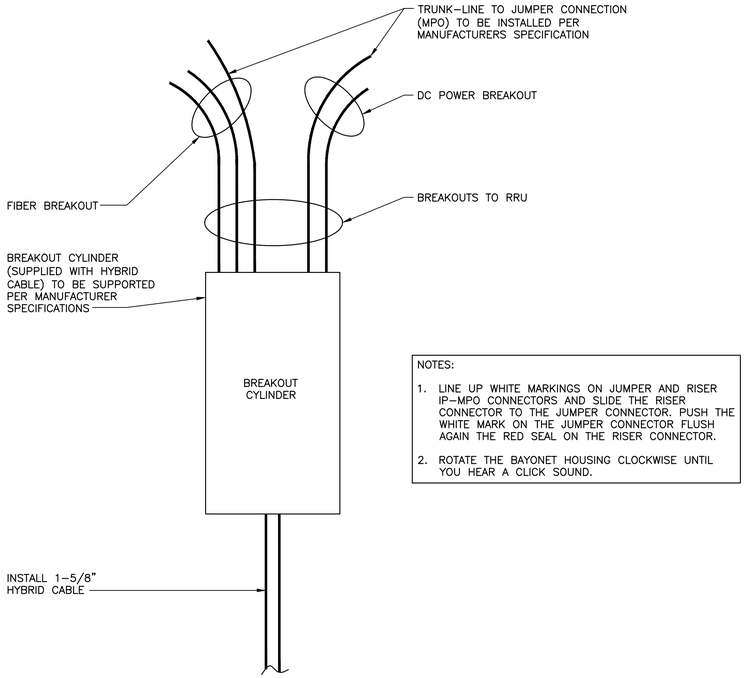
GREENWICH, CT 06831
FAIRFIELD COUNTY

DRAWING TITLE:

CABLE COLOR CODING

DRAWING SHEET: 7 OF 10

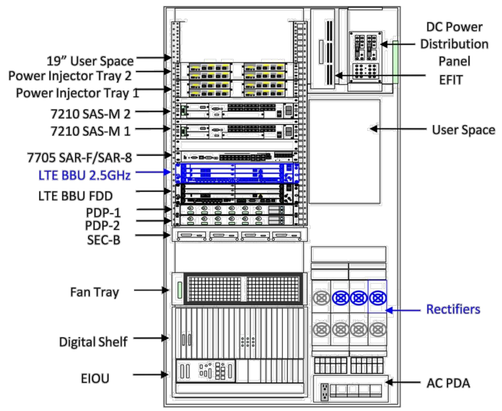
C-6



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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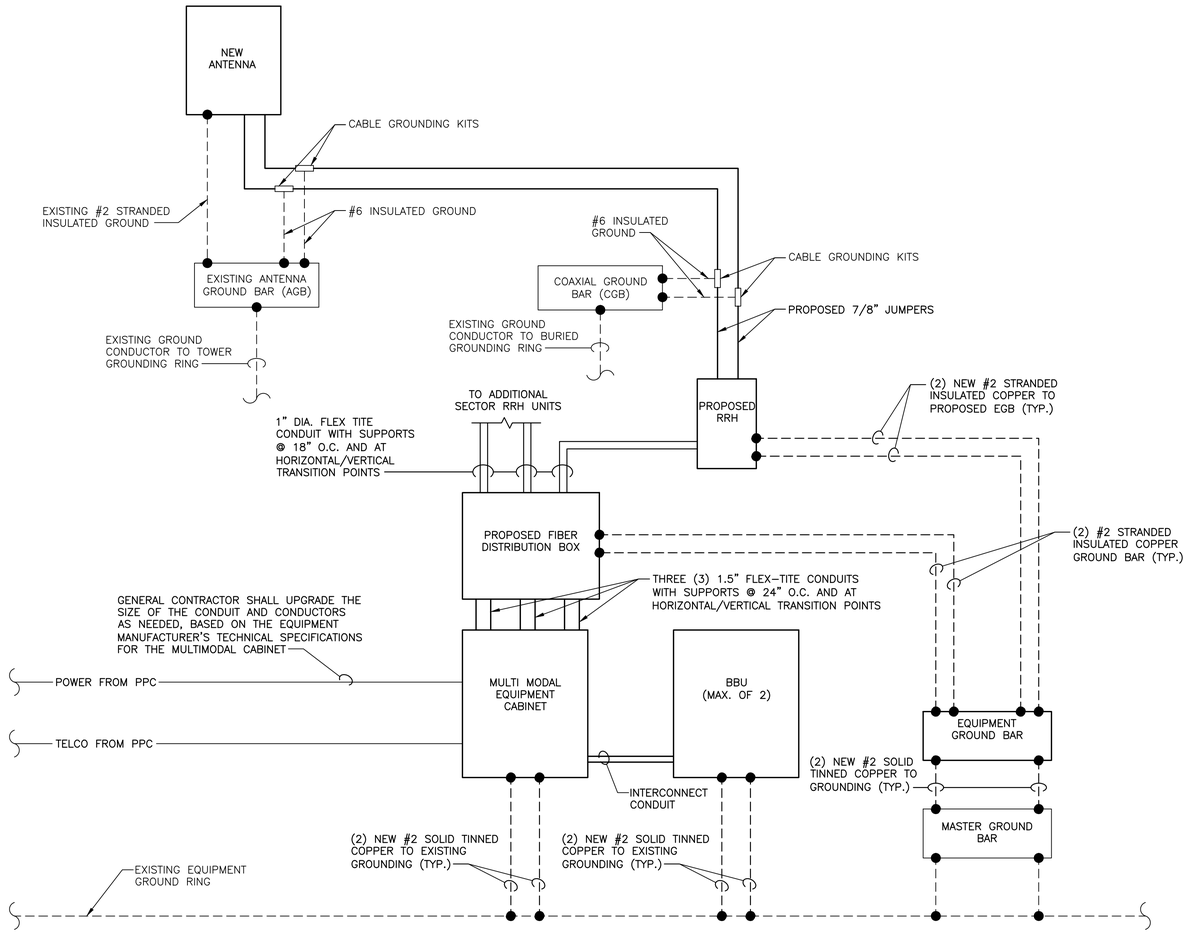
FAIRFIELD COUNTY

DRAWING TITLE:

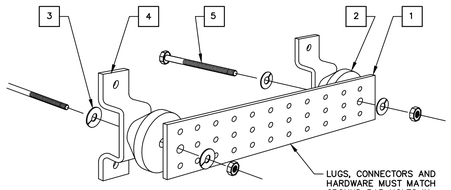
EQUIPMENT DETAILS

DRAWING SHEET: 8 OF 10

C-7



1 E-1 TYPICAL POWER & GROUNDING ONE-LINE DIAGRAM
SCALE: N.T.S.

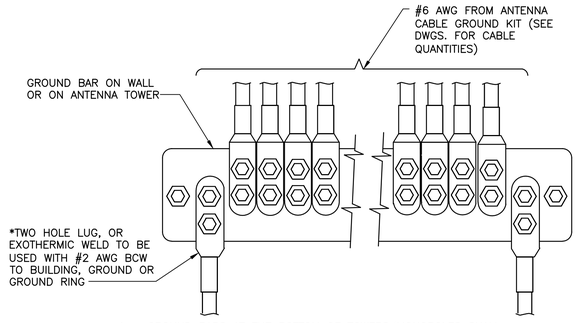


LEGEND

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

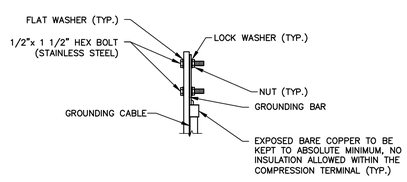


* – GROUND BARS AT THE BOTTOM OF TOWERS/MONOPOLES SHALL ONLY USE EXOTHERMIC WELDS.

– 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.

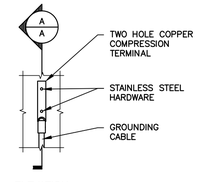
– CONNECT SEQUENCE– BOLT/WASHER/NO-OX/GROUND BAR/NO-OX/WASHER/LOCK-WASHER/NUT. THIS IS REPEATED FOR EACH LUG CONNECTION POINT.

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

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.

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PROFESSIONAL ENGINEER, CT LIC. No. 28643

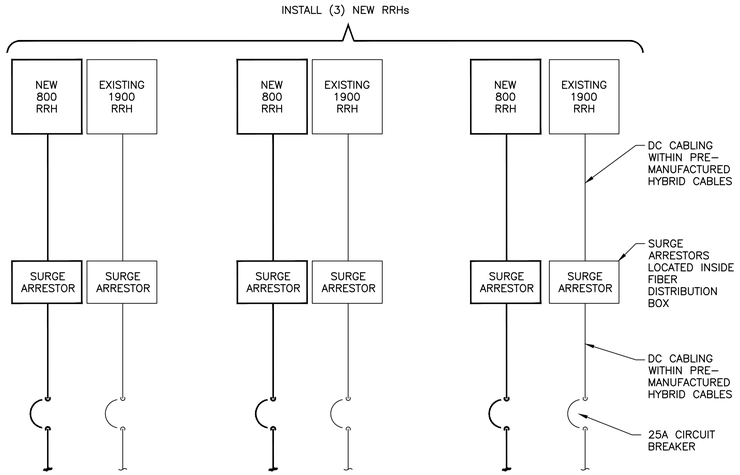
CT43XC856
395 ROUND HILL ROAD
GREENWICH, CT 06831
FAIRFIELD COUNTY

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:	EQUIP. ROOM		PHASE:	1		WIRE:	3
ENCLOSURE:	NEMA 3R		BUSS RATING:	200 AMP		GROUND BAR:	YES
			NEUTRAL BAR:	YES			

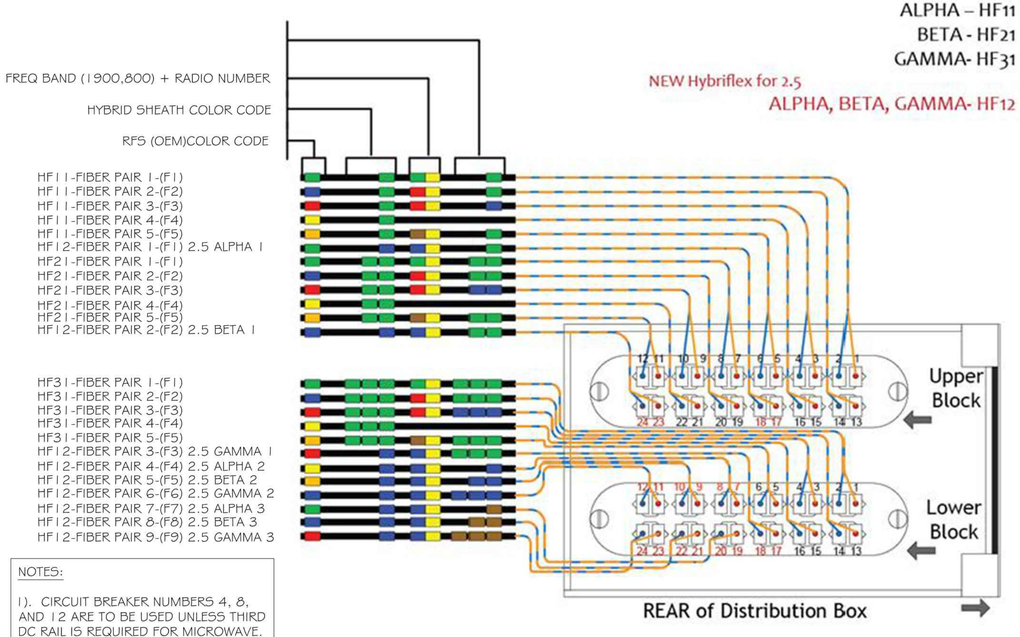
2 / E–2 AC PANEL SCHEDULE
SCALE: NTS

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

ALPHA – HF11
BETA - HF21
GAMMA- HF31

NEW Hybriflex for 2.5

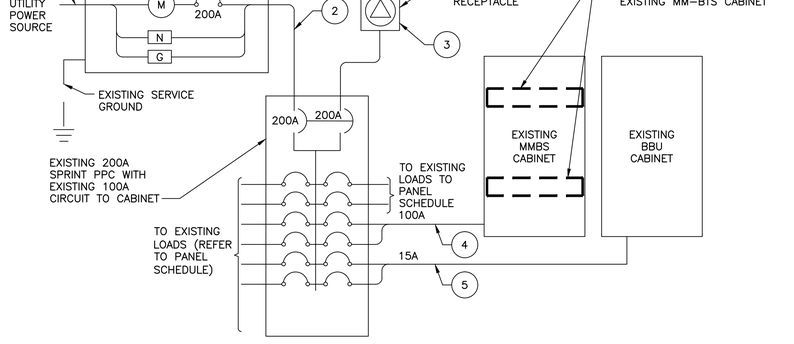
ALPHA, BETA, GAMMA- HF12



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

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

Sprint
6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

Cherundolo Consulting

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4	02/26/19	ISSUED AS FINAL
3	12/28/18	PER NEW SCOPE OF WORK
2	05/01/18	REVISED PER COMMENTS
1	09/26/17	REVISED PER RFDS
0	07/19/17	INITIAL SUBMISSION

DRAWN BY:	DTB
CHECKED BY:	DTS
SCALE:	AS NOTED
JOB NO:	17057-CHE

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · NICHOLAS D. BARILE · No. 28643 · LICENSED PROFESSIONAL ENGINEER

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

CT43XC856
395 ROUND HILL ROAD
GREENWICH, CT 06831
FAIRFIELD COUNTY

DRAWING TITLE:

DC POWER DETAILS & PANEL SCHEDULES

DRAWING SHEET: 10 OF 10

E-2

Shipping Address
#1 Fairholm Avenue, Peoria, Illinois 61603 USA

Mailing Address
P.O. Box 5999, Peoria, Illinois 61601-5999 USA

Phone: 309-566-3000

www.rohntower.com

QUOTATION

Please Reference This Quotation Number: Q19-11267 - 1

August 21, 2019

Sprint

Thank you for the opportunity to meet the supply requirements of your current need. ROHN is pleased to supply the attached quotation. We have carefully reviewed your requirements and believe our proposal meets those requirements, unless otherwise noted. Please note the validity period and related terms and conditions as attached.

Your quotation was prepared by:	Janelle Houge j.houge@rohntower.com 309-566-3017
Your ROHN primary contact is:	Danny Otten d.otten@rohntower.com (309) 566-3018

Please carefully review the quotation supplied. Feel free to contact any of the persons listed above with additional questions or clarifications. ROHN believes you, as our valued client should have a single point of contact for your business with ROHN. That is normally your sales contact person. They can assist you answering a wide variety of questions and bring in additional resources as required.

Lastly, the entire ROHN team is here to serve your needs and requirements. Please call on any of us to assist you as needed. ROHN values both our relationship and your business.

Sincerely,

The ROHN Quotation Team

Shipping Address
#1 Fairholm Avenue, Peoria, Illinois 61603 USA

Mailing Address
P.O. Box 5999, Peoria, Illinois 61601-5999 USA

Phone: 309-566-3000

www.rohntower.com

QUOTATION

Quote To: Sprint
Kimberly Hassebroek
kimberly.hassebroek@sprint.com
Phone Number: 321-280-2074

Proposal Number: Q19-11267 - 1
Quote Date: 8/21/2019
Quote Valid for: 30 days

ROHN Contact: Danny Otten Phone: (309) 566-3018 Email: d.otten@rohntower.com

Item #	Qty	Description	Unit Price
C-21977	1	ROHN Structure: 70ft Tapered Steel Pole Designed to Support the Antennas & Transmission Lines as shown on enclosed drawing "Q19-11267-1 PROFILE" for site "WILTON-RICHDALE TERRACE" located in Fairfield County, CT	
		**** EXCEPTION TO TOPO 3: ROHN DESIGNED AS TOPO CATEGORY 1 ****	
STRUCTURE		Rohn Structure Parts Total	$10,995.00
C-21977-A		Anchor Bolts & Templates	$1,850.00
DESIGN		Design Drawings & Calculations w/State of CT PE Seal & Conventional Foundation design based on submitted soil report	$1,500.00
		SUB TOTAL	**$14,345.00**
		TOTAL	**$14,345.00**

This Structure is designed for:
Design Code: ANSI/TIA-222-REV G 2005
Wind Speed: ASCE 7-16 Factored Wind Speed (No Ice) = 117 MPH
Wind Speed With Ice: 50 MPH with 1.0 inches Ice
Structure Class: II
Exposure Category: B
Topographic Category: 1

Price above includes:
Pole Sections
Step Bolts for Climbing
Tuf Tug Safety Cable Type System w/o Trolley or Harness
3) Base Grounding Lugs - see Optional Items for pricing on TIA Grounding Materials
(3) 8" x 20" Reinforced Hand Holes at 65ft
(2) 11.5" x 31.5" Reinforced Exit Ports (Customer to Identify Elevations & Azimuths)

See Optional Items for Pricing on Mount, Grounding etc.

Any Applicable State Sales Tax is NOT INCLUDED in the Prices Quoted. Please provide Sales Tax Exemption Information if Applicable.

NOTES:

-Structure Height is Nominal, unless otherwise stated.

-Structure is designed to support the Antennas and Transmission Lines as per the attached preliminary profile drawing.

- Sealed Design Drawings and Calculations will be supplied in electronic format only unless otherwise requested.

- If Each Page of a Design set must be sealed, Please ADD $250.00 for EACH set prepared in this manner.

-All welding conforms to AWS.

Additional corrosion protection may be required for steel guy anchors and direct embedded poles that come in direct contact with soil. This additional corrosion protection is to be provided by others, unless otherwise indicated.

-Estimated foundation based on soil report (PROJECT # 28753): see attached drawing.

-Step Bolts are provided for Climbing.

-ROHN'S proposal does not include GROUNDING, unless, the Optional REV G Standard Base Grounding Kits are purchased.

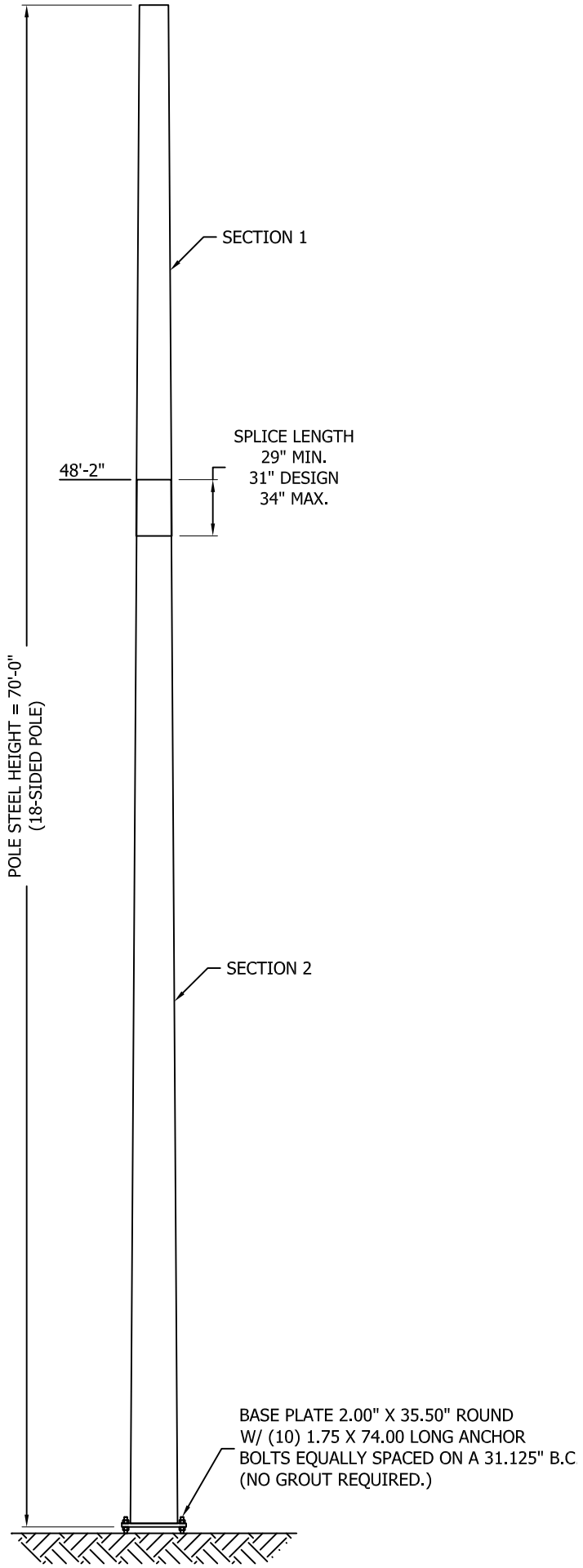
- EXCEPTION: AFTER REVIEWING THE LATITUDE AND LONGITUDE - ROHN DETERMINED THE SITE IS A TOPOGRAPHIC CATEGORY 1 (NOT 3) AND HAVE DESIGNED AS SUCH. IF SPRINT FEELS THAT TOPO 3 IS REQUIRED, THEN ROHN RESERVES THE RIGHT TO REQUOTE THE POLE.

Please note that lead times are estimated and can fluctuate due to production capacity and material availability. The estimated lead times are reassessed upon receiving the Purchase Order. Please contact ROHN to verify current lead times or if a better delivery date is possible when placing an order.

Estimated Current Engineering Design Package Lead Time (ARO):	5-7 Business Days
Estimated Current Structure Lead Time (ARO):	To Be Determined

Optional Items: Not Included in Total Price. Price is Per Each Item

Qty	Description	Unit Price	Extended Price
1	Trolley Only	$190.00	$190.00
1	Journeyman Harness (Tuf Tug)	$150.00	$150.00
1	(1) 5ft Lightning Rod (no downlead)	$75.00	$75.00
1	TIA REV G Standard Grounding	$445.00	$445.00
1	14ft LP Platform w/(12) Mtg Pipes & Toprails	$6,525.00	$6,525.00
1	Estimated Freight for Anchor Bolt Shipment to Wilton, CT 06897	$495.00	$495.00
1	Estimated Freight Charges (1 FLAT BED TRAILER) for shipment of the Above Quoted Tower Material to an accessible delivery site in Wilton, CT 06897 with unloading by the customer	$3,960.00	$3,960.00



POLE DESIGN LOADING		
DESIGN WIND LOAD PER ANSI/TIA-222-G USING THE FOLLOWING DESIGN CRITERIA: ASCE 7-16 FACTORED WIND SPEED (NO ICE): 117 MPH BASIC WIND SPEED (WITH ICE): 50 MPH DESIGN ICE THICKNESS: 1.0" EXPOSURE CATEGORY: C STRUCTURE CLASSIFICATION: II TOPOGRAPHIC CATEGORY: 1 EARTHQUAKE SPECTRAL RESPONSE ACCELERATION, Ss: 0.241 THIS POLE IS DESIGNED TO SUPPORT THE FOLLOWING LOADS:		
ELEVATION (FT)	**ANTENNA TYPE**	**LINE SIZE (NOM)**
TOP	LIGHTNING ROD	-
67	(3) PANEL ANTENNAS & (12) RRUS ON A 14FT LP MOUNT	(4) 1-5/8"

MAXIMUM FACTORED REACTIONS		
DOWNLOAD =	16.2	KIPS
SHEAR =	5.4	KIPS
O.T.M. =	285.8	FT-KIPS

GENERAL NOTES:

1. ROHN PRODUCTS POLE DESIGNS CONFORM TO ANSI/TIA-222-G UNLESS OTHERWISE SPECIFIED UNDER POLE DESIGN LOADING.
2. THE DESIGN LOADING CRITERIA INDICATED HAS BEEN PROVIDED TO ROHN. THE DESIGN LOADING CRITERIA HAS BEEN ASSUMED TO BE BASED ON SITE-SPECIFIC DATA IN ACCORDANCE WITH ANSI/TIA-222-G AND MUST BE VERIFIED BY OTHERS PRIOR TO INSTALLATION.
3. ANTENNAS AND LINES LISTED IN POLE DESIGN LOADING TABLE ARE PROVIDED BY OTHERS UNLESS OTHERWISE SPECIFIED.
4. STEP BOLTS ARE PROVIDED AS A CLIMBING FACILITY FOR THE INSTALLATION OF THE STRUCTURE.
5. POLE MEMBER DESIGN DOES NOT INCLUDE STRESSES DUE TO ERECTION SINCE ERECTION EQUIPMENT AND CONDITIONS ARE UNKNOWN. DESIGN ASSUMES COMPETENT AND QUALIFIED PERSONNEL WILL ERECT THE POLE.
6. WORK SHALL BE IN ACCORDANCE WITH ANSI/TIA-222-G, "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
7. FIELD CONNECTIONS SHALL BE BOLTED. NO FIELD WELDS SHALL BE ALLOWED.
8. STRUCTURAL BOLTS SHALL CONFORM TO GRADE A325 PER ASTM F3125, EXCEPT WHERE NOTED.
9. A NUT LOCKING DEVICE SHALL BE PROVIDED FOR ALL STRUCTURAL BOLTS ON THE POLE.
10. STRUCTURAL STEEL AND CONNECTION BOLTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ANSI/TIA-222-G.
11. ALL HIGH STRENGTH BOLTS ARE TO BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED IN THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". NO OTHER MINIMUM BOLT TENSION OR TORQUE VALUES ARE REQUIRED.
12. PURCHASER SHALL VERIFY THE INSTALLATION IS IN CONFORMANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS FOR OBSTRUCTION MARKING AND LIGHTING.
13. TOLERANCE ON POLE STEEL HEIGHT IS EQUAL TO PLUS 1% OR MINUS 1/2%.
14. DESIGN ASSUMES THAT, AS A MINIMUM, MAINTENANCE AND INSPECTION WILL BE PERFORMED OVER THE LIFE OF THE STRUCTURE IN ACCORDANCE WITH ANSI/TIA-222-G.
15. DESIGN ASSUMES LEVEL GRADE AT POLE SITE.
16. FOUNDATIONS SHALL BE DESIGNED TO SUPPORT THE REACTIONS SHOWN FOR THE CONDITIONS EXISTING AT THE SITE.
17. DESIGN ASSUMES ALL TRANSMISSION LINES ARE ROUTED INTERNALLY.
18. POLE SHAFT CONFORMS TO ASTM A572 GR 65. POLE BASE PLATE AND TOP PLATE STEEL CONFORMS TO ASTM A572 GR 50. POLE ANCHOR BOLTS CONFORM TO ASTM F1554.

SECTION SCHEDULE						
SECTION	**LENGTH (FT)**	**DIAMETER**		**WALL THICK (IN)**	**Fy (KSI)**	**WEIGHT (KIPS)**
		BOT	**TOP**			
1	24.42	19.67	16.00	0.1875	65.0	0.924
2	48.00	26.00	18.79	0.1875	65.0	2.300

FOR POLYGONAL POLES, DIAMETER IS MEASURED ACROSS FLATS.

NOTE: TABULATED WEIGHTS ARE APPROXIMATE. REFER TO ASSEMBLY DRAWING FOR FINAL WEIGHTS. ALL WEIGHTS SHALL BE VERIFIED PRIOR TO LIFTING.

FILE NO.
Q19-11267-1

REVISIONS

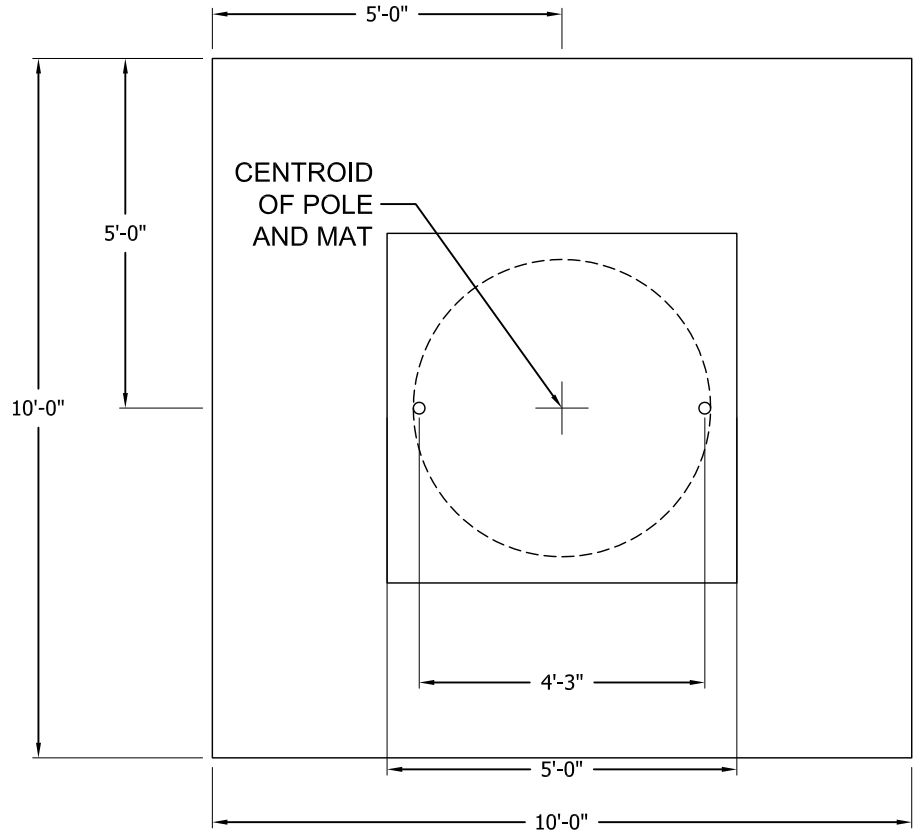
REV.	DESCRIPTION	DWN	CHK	APP

ROHN® PRODUCTS LLC
PO BOX 5999
PEORIA, IL 61601-5999
TOLL FREE 800-727-ROHN

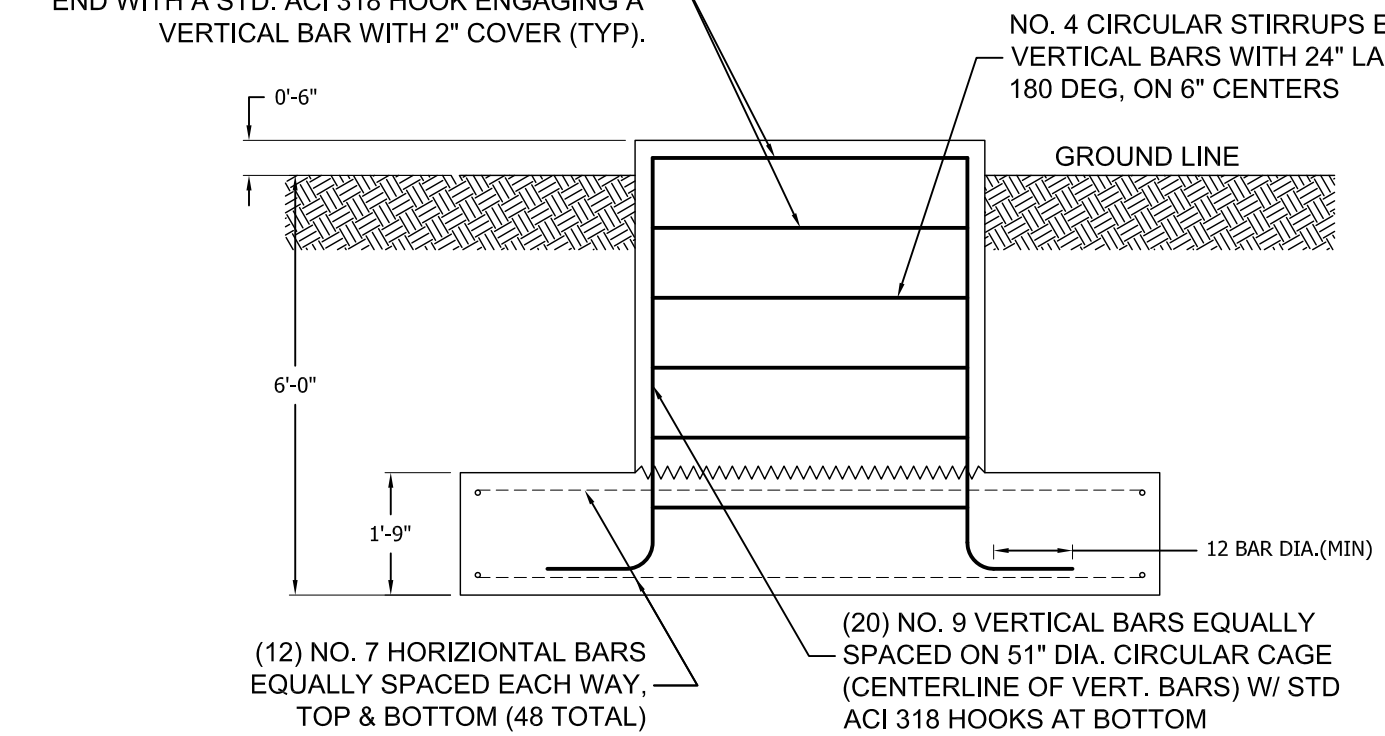
SPRINT
DESIGN PROFILE
70' TAPERED STEEL POLE
WILTON, RICHDALE TERRACE, CT

DWN: SWG	CHK'D:	DATE: 8/20/2019
ENG'R:	SHEET #: 1 OF 1	
PRJ. ENG'R: SWG	PRJ. MANG'R:	
DRAWING NO: Q19-11267-1 PROFILE		REV: 0

NOTE: SEE DRAWING NO. B090548 FOR STANDARD FOUNDATION NOTES.



PLAN VIEW



ELEVATION VIEW

FACTORED REACTIONS

O.T.M. =	285.8 FT-K
DOWNLOAD =	16.2 KIPS
SHEAR =	5.4 KIPS

CONCRETE VOLUME

SQUARE PIER	4.4 CU.YDS
PAD	6.5 CU.YDS
TOTAL	10.9 CU.YDS

FILE NO.
Q19-11267-1

REVISIONS

REV.	DESCRIPTION	DWN	CHK	APP

PRELIMINARY
NOT FOR CONSTRUCTION

ROHN® PRODUCTS LLC
PO BOX 5999
PEORIA, IL 61601-5999
TOLL FREE 800-727-ROHN

MAT W/RAISED PIER
PRESUMPTIVE CLAY PER ANSI/TIA-222-G

DWN: SWG	CHK'D:	DATE: 8/20/2019
ENG'R:		SHEET #: 1 OF 1
PRJ. ENG'R: SWG	PRJ. MANG'R:	
DRAWING NO: Q19-11267-1 FOUNDATION		REV: 0

Quote Specific Terms:

1- This proposal is valid for 30 calendar days from the quotation date. Please refer to ROHN's proposal number when submitting your purchase order.

2- ROHN's Terms for Material Purchases are: 40% down payment with the order; 40% down payment –when fabrication is complete and the tower is ready to ship; 20% within 30 days of shipment from the point of manufacturing.

3- This proposal is subject to the attached Terms and Conditions of Sale.

4- Foundation and tower designs, if ordered independently, are $1500. This cost is deductible from the overall price of the structure once the structure is released for production and shipped. Design work will be billed at the time the work is provided. Please specify as a separate line item on your purchase order.

5- Quoted prices do not include taxes. Refer to Terms and Conditions of Sale. Taxes will be invoiced unless an exemption certificate is provided with the order.

6- Shipment schedules are contingent upon the backlog at the time of order and the availability of materials and resources.

7- Certification of ROHN's products or foundation designs based on specifications provided to ROHN's do not include services for serving as a project's prime professional or engineer of record for the purposes of reviewing and coordinating documents submitted for a building permit, including deferred submittals and documents prepared by others. ROHN's has not verified that the design parameters provided to ROHN's for this proposal meets the requirements for the intended application or meets the requirements of the appropriate regulatory agencies. Price adjustments may apply for requirements in addition to those stated in this proposal.

8- Prices for foundation designs to be based on geotechnical data to be supplied at the time of an order are based on the design of conventional foundations consisting of pier and pad, caissons, mat and deadman anchor blocks. Other types of foundation designs, if required for site-specific conditions, will be quoted upon receipt of the geotechnical data.

9- Materials and work placed on hold for more than 30 days after placement of an order will be subject to a price review upon notification to proceed with the order. This may result in an increase to the quoted prices.

10- For structures to be shipped by the customer at the point of manufacturing, dunnage and loading charges of $350 may apply and will be invoiced with the structure.

11- Storage charges will be .02% of invoice amount per day with a minimum charge of $8.00 a day. These charges will be invoiced on a monthly basis for material requested to be withheld from shipment. Storage will begin 30 days from the date the buyer is notified that the shipment is ready for pickup or delivery.

12- Estimated freight pricing is obtained at the time the proposal is generated. If a significant amount of time elapses between the proposal and the customers order date, freight prices may fluctuate. Final freight pricing will be reviewed and confirmed at the time an order is placed. Final freight pricing is subject to change.

13- Additional freight may apply for optional items ordered. Prices for optional items are based on the optional items being ordered with the structure.

14- Acceptance of an order is contingent on customer credit approval. Terms, as noted above, may be subject to change.

15- Design profile provided at time of quotation is preliminary and is subject to change based upon final design.

16- This quotation is proprietary, confidential and a trade secret of ROHN. This proposal is being provided for the exclusive use of our customer and is not to be disclosed to third parties.

17- Unless noted above, ROHN's general terms and conditions (attached) apply.

18- Purchaser agrees to accept delivery on the mutually agreed upon delivery date, typically stated in the customer's purchase order. If this date passes, and the product is completed and staged for delivery, the Purchaser acknowledges that they have accepted title to the goods by default. If customer has requested early shipment of partial materials, such materials may be invoiced at the time of shipment.

19- Sealed Design Drawings and Calculations will be supplied in ELECTRONIC format only unless otherwise requested.

20- If EACH Page of a Design set must be sealed, Please ADD $250.00 for EACH set prepared in this manner.

21- For quotes including installation service the following apply:

a. Non-union, non-prevailing wages, and non-winter conditions.

b. In the event existing soil conditions are found to be other than assumed for design, change orders for a price adjustment from the quoted price may be required.

c. Customer agrees to obtain any and all required permits pursuant to the job.

d. Site accessible for over the road truck delivery of materials. Customer is responsible for unloading the truck in a timely manner, otherwise waiting charges may apply.

e. ROHN assumes sufficient room for delivery of tower and sufficient room for installation of tower and foundation (if applicable) at tower site.

Rohn Products LLC Terms and Conditions Relating to All Sales

1. All quotation, proposals, prices, or other terms are made for acceptance within 30 days (after 30 days, prices in effect at time of shipment will apply) and shipment within 30 days of purchase order date, unless otherwise stated. They are subject to change without notice; however, ROHN invites your request for an extension. Prices are also subject to review prior to acceptance of any order due to raw material price fluctuations. No other price protection is available. Any order placed on hold will have the price reviewed and adjusted upon release.

2. Every effort will be made to maintain shipping schedules, either on ROHN equipment or via common carrier. ROHN cannot be responsible for delays in shipping caused by state or local agencies with regard to permits, routing, weather, detours, etc. All deliveries and schedules are contingent on availability of raw materials, fuel, and transportation. ROHN will not be liable for damages on account of any delays or abnormalities caused in shipping due to causes beyond our reasonable control. ROHN reserves the right to make partial shipments and to submit invoices accordingly.

3. Changes or modifications to orders can be made only by written agreement executed by all parties affected thereby, which agreement shall include any price modification.

4. ROHN's responsibility ceases upon delivery of all shipments to the carrier. The unloading of all shipments is the responsibility of the Buyer, not the carrier or ROHN. Buyer is warned against receipting for merchandises until careful inspection has been made. Any claim made against ROHN must be made within 90 days after receipt of merchandise. All merchandise leaving ROHN's factory has been carefully inspected and ROHN does not assume responsibility for damages or shortages which occur in transit. Buyer must make all claims and report all damages and losses to the delivering transportation company.

5. No federal, state, or local taxes are included in quoted prices. All quotations, proposals, prices, or other terms are subject to increase without notification by the amount of any sales, excise, or other tax levied or charged to seller by any governmental agency and any such tax will be passed onto purchaser as a tax or as an addition to the selling price. This also applies to all costs incurred due to local statutes or governmental regulations.

6. Orders are not subject to cancellation by Buyer except by written agreement with seller. Any order canceled, after any work has been done by ROHN, such as drawings, production, etc., will have a cancellation charge, to be determined solely at the discretion of ROHN for whatever work has been performed with a minimum of 25% of the purchase order price. If Buyer so chooses, he shall have the right to receive the material already performed at time of cancellation at the quoted price. If an order is canceled before any work has been done by ROHN, a $200 cancellation charge will apply.

7. Material received may not be returned by Buyer except by written agreement with seller. In all cases, permission must be secured from ROHN prior to the returning of any goods for credit. All returned goods are subject to a minimum service charge of 25%, plus all transportation charges, and are subject to inspection by ROHN. Returned goods will be offered and paid for only upon proof of purchase (i.e. invoice no.) and credit will be issued against invoice value. ROHN reserves the sole right to determine amount of credit to be issued on all goods returned for credit. Only standard, currently manufactured ROHN products may be considered for return and credit. Unsaleable products will be scrapped and no credit will be received. If returned goods are determined to have no value and Buyer wishes them returned, the Buyer will be charged return freight. Safety equipment, erection equipment, insulators, transformers, nuts and bolts are not returnable.

8. ROHN warrants the commercial items of its manufacture only, to be reasonably fit for the purpose for which they are manufactured and sold, provided, however, that this warranty shall be effective only if purchaser installs all material according to ROHN's recommendations and specifications and that purchaser during the warranty period shall regularly, not less than semi-annually, inspect and properly maintain all items. Any item found unfit for its purpose within 12 months from date of delivery will be repaired or replaced free of charge, F.O.B. ROHN's plant. ROHN shall be immediately notified in writing of such unfitness. ROHN reserves the sole right to determine if any material is to be repaired or replaced free of charge or to be supplied at ROHN's standard prices. Such obligation shall be limited to parts returned for inspection, properly packed and expenses prepaid, and providing inspection shall satisfactorily indicate defects. The warranty herein made is in lieu of all other warranties and, except as expressly stated herein, ROHN does not make and there are no warranties or obligations of any kind or nature whatsoever either expressed or implied including, but not restricted to, warranty or obligations as to product, material, workmanship, or manufacture or as to the use of the items covered hereby. ROHN shall not under any circumstances be liable to third persons for any claims for damages including direct, special, indirect, or consequential damages for any reason.

The Buyer agrees to indemnify and to hold ROHN harmless for, of, and from any loss, claims, damages, expenses and attorney's fees, including but not limited to, any fines, penalties and corrective measures ROHN may sustain by reason of Buyer's failure to comply with said laws, rules, and regulations in connection with the performance of this sale. The above warranty warranted applies only to items manufactured by ROHN.

Items not manufactured by ROHN are guaranteed only to the extent and in the manner warranted and guaranteed to ROHN by the manufacturer of such items and then only to the extent ROHN is liable to enforce such warranty or guarantee.

ROHN will assume no responsibility for the adequacy of any product if material is used which is not totally supplied by ROHN. The above sets forth the only warranty made by ROHN in connection with items manufactured or sold by it, and any provisions in any proposals, specifications, advertising, or other provisions hereof, are merely descriptive and are not to be construed as warranties made by ROHN. All warranties are void on drawings made by others, whether by a professional engineer, sealed or not, that are not rechecked by ROHN and approved by ROHN. ROHN assumes no liability for the adequacy of the drawings or the product. Without limiting the generality of the foregoing, the Buyer hereby indemnifies ROHN and hold ROHN harmless from any and all claims and/or damages (including direct, special, indirect or consequential damages, attorneys' fees and costs) relating to or arising out of any highway structure or component not designed by ROHN.

ROHN hereby disclaims any and all warranties, including express or implied warranties of merchantability and fitness for any particular purpose, relating to or arising out of metal fatigue.

9. ROHN reserves the right to change or modify the product and construction of any product manufactured by ROHN and to substitute material equal to or superior to that originally specified.

10. Buyer agrees not to disclose or make available to any third party processes, drawings, specifications, reports, photographs, data and other technical or proprietary information relating to ROHN products without obtaining prior written consent of ROHN.

11. No proposal, order, quotation, or acceptance may be changed or varied by verbal agreement, and all orders are accepted only under the provisions set forth herein.

12. Purchase orders and requests for quotations must be submitted in writing to ROHN. It is the responsibility of the Buyer or Buyer Representative to provide ROHN design criteria (environmental loads, equipment loads, operational limitations, geotechnical information, etc.) based on site-specific data. In designing the product for the Buyer, ROHN is relying solely and entirely on design criteria provided by the Buyer to ROHN. Without limiting the generality of the indemnities in these Terms & Conditions, the Buyer hereby indemnifies ROHN and holds ROHN harmless from and against any and all claims and/or damages (including direct, special, indirect or consequential damages, attorneys' fees and costs) relating to or arising out of any inaccuracy or incompleteness in design criteria provided to ROHN by the Buyer, and the Buyer waives all claims against ROHN for same.

13. If outside source inspection, assembly, etc. is required prior to shipment of an order, $50.00 per man hour (plus equipment time, if applicable) is chargeable, with $300.00 as a minimum.

14. Any welding inspection required by Buyer or Buyer's specifications must be done at ROHN's plant prior to packing and shipment of material from ROHN's plant.

15. A minimum charge of $25.00 will be billed for special handling and preparation of material for air shipments.

16. ROHN reserves the right to apply all remittances and credit memos to the oldest outstanding balance in your account. No credits will be issued for any reason against a purchase order whose billing is more than 90 days old. Buyer corrections or complaints must be made within this period of time.

17. Standard catalog prices do not include special drawings or product evaluations. If any are required, there will be a charge.

18. ROHN at all times reserves the right to take pictures of any or all of its products after installation for advertising purposes, except those which are under classified governmental control.

19. The Buyer will be responsible for any extra charges incurred on prepaid shipments.

20. A service charge not to exceed 2% per month or maximum allowable per State law will be billed on all accounts not paid within 30 days of invoice date.

21. Minimum total net worth of merchandise which can be ordered is $100.00. Any orders placed for less will be billed at $100.00.

22. Storage charges will be .02% of invoice amount per day with a minimum charge of $8.00 a day. These charges will be invoiced on a monthly basis for material requested to be withheld from shipment. Storage will begin 30 days from the date the buyer is notified that the shipment is ready for pickup or delivery

23. All CIA requirements must be met with certified checks or money orders to insure prompt shipment.

24. Should it become necessary for ROHN to enforce the provisions of this contract, a purchase order or an invoice through pre-suit negotiations, or by instituting or participating in any legal (including bankruptcy) proceedings, including but not limited to injunctive or other equitable/legal relief, including any appeals associated with the foregoing, ROHN shall be entitled to recover for reasonable attorney's fees, costs of collection and court costs incurred whether the attorney's fees are incurred for the purpose of negotiation, trial, appellate or other legal services.

25. Once the equipment is ready for pickup or has been shipped, an invoice for payment in full shall be issued by ROHN.

26. Buyer is responsible for inspection of material upon delivery. ROHN should be notified of any shortages or discrepancies within 48 hours of delivery. ROHN will not be responsible for down time or equipment ordered.

DESIGNED APPURTENANCE LOADING

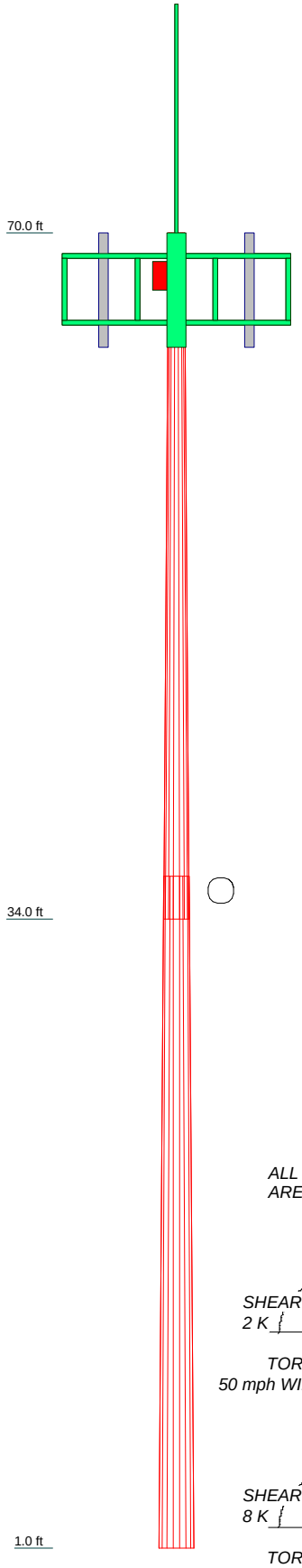
TYPE	ELEVATION	TYPE	ELEVATION
15 ft x 3" dia whip	74.5	(12) RRU	67
72.1" x 11.9" x 7.1" w/ mount pipe	67	72.1" x 11.9" x 7.1" w/ mount pipe	67
72.1" x 11.9" x 7.1" w/ mount pipe	67	14' Platform w/ Handrail	67

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 94 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 3 with Crest Height of 125.00 ft
8. ANSI/TIA-222-G wind speeds are Vasd winds. Refer to IBC Table 1609.3.1 for Vult wind speed conversions.
9. TOWER RATING: 98.5%



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	36.00	18	0.1875	2.25	10.5000	16.1739	A572-65	1.0
2	35.25	18	0.2188		15.4443	21.0000		1.5
								2.5

95 MPH Vasd ASCE-7-05 POLE DESIGN IS EQUIVALENT TO AN ASCE-7-10 123 MPH Vult WIND SPEED

ALL REACTIONS ARE FACTORED

AXIAL 17 K
SHEAR 2 K
MOMENT 127 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 0.7500 in ICE

AXIAL 8 K
SHEAR 8 K
MOMENT 446 kip-ft
TORQUE 1 kip-ft
REACTIONS - 94 mph WIND

DESIGN MEETS TIA-222-H

Preliminary Design
Not For Fabrication

Estimated Total Structure Wt. = 2847 lbs

BASE PLATE:	2" x 34" ROUND (50 KSI)
ANCHOR BOLTS:	(4) ANCHORS ON 28" B.C 2.25 in. A615 GR. 75 X 7'-0"

TAPP
QUALITY STEEL POLES. DELIVERED.

Michael F. Plahovinsak, P.E.
18301 State Route 161
Plain City, OH 43064
Phone: 614-398-6250
FAX: mike@mfpeng.com

Job: ***70-ft Monopole - MFP #23519-590***			
Project: ***CT60XC001 Wilton Richdale Terrace***			
Client: 19-0982	Drawn by: Mike	App'd:	
Code: TIA-222-G	Date: 08/14/19	Scale: NTS	
Path: J:\Projects\235-TAPP\23519-590\23519-590.eri		Dwg No. E-1	

Structural Analysis Report

Prepared for:

KGI
805 Las Cimas Parkway
Building Three, Suite 370
Austin, TX 78746

ATTN: Mr. Sean Rock

Structure	:	**114 ft Monopole**
Site ID	:	**27741_B**
Proposed Carrier	:	**Sprint**
Site Name	:	**Round Hill CT**
Site Location	:	**395 Round Hill Road** **Greenwich, CT** **41.095117, -73.664219**
County	:	**Greenwich**
Date	:	**September 16, 2019**
Max Usage	:	**51%**
Result	:	**Pass**

Prepared By:
Jung Hyun Hong
Structural Engineer

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 114 ft monopole to reflect the change in loading by Sprint.

Supporting Documents

Tower Drawings	EEI Drawing #GS56652-2, dated September 28, 2007
Foundation Drawing	EEI Drawing #14679S-115.0, dated February 12, 2007
Geotechnical Report	Clarence Welti Associate, dated Feruary 6, 2007

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	93 mph (3-Second Gust) Vasd / 120 mph (3-Second Gust) Vult
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	D (Hurricane Zone)
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.26, S_1 = 0.07
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

The pier reinforcement is less than the minimum allowance. Due to this, the pier should be frequently monitored for cracking/spalling.

If you have any questions or require additional information, please contact Semaan Engineering Solutions at 402-289-1888.

Existing and Reserved Equipment

This loading **is** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
110.0	110.0	3	DBXNH-6565A-A2M	Flush Mount Inside Canister	(12) 1 5/8"	T-Mobile
		3	TMAT1921XB6811A			
		3	782 11066			
100.0	-	-	-	Flush Mount Inside Canister	(6) 1 5/8"	Sprint
90.0	-	-	-	Empty Flush Mount Inside Canister	-	-

Equipment to be Removed

This loading **is not** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
100.0	100.0	3	RR65-18-00DPL2	-	-	Sprint

Proposed Equipment

This loading **is** included in the analysis.

Centerline Elevation (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	Equip.					
100.0	100.0	3	APXVSPP18-C-A20	Existing Flush Mount Inside Canister	(2) 1 1/4"	Sprint
		6	KIT-FD9R6004/1C-DL			
		9	IBC1900HG-SA			

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Shaft	31%	Pass
Base Plate	31%	Pass
Anchor Bolts	51%	Pass
Flange Bolts	9%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	504.0	46%
Axial (Kips)	27.0	18%
Shear (Kips)	8.9	19%
Reinf. Conc. Foundation Capacity	N/A	22%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
100.0	APXVSPP18-C-A20	Sprint	0.390	0.752
	KIT-FD9R6004/1C-DL			
	IBC1900HG-SA			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

Standard Conditions

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

-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

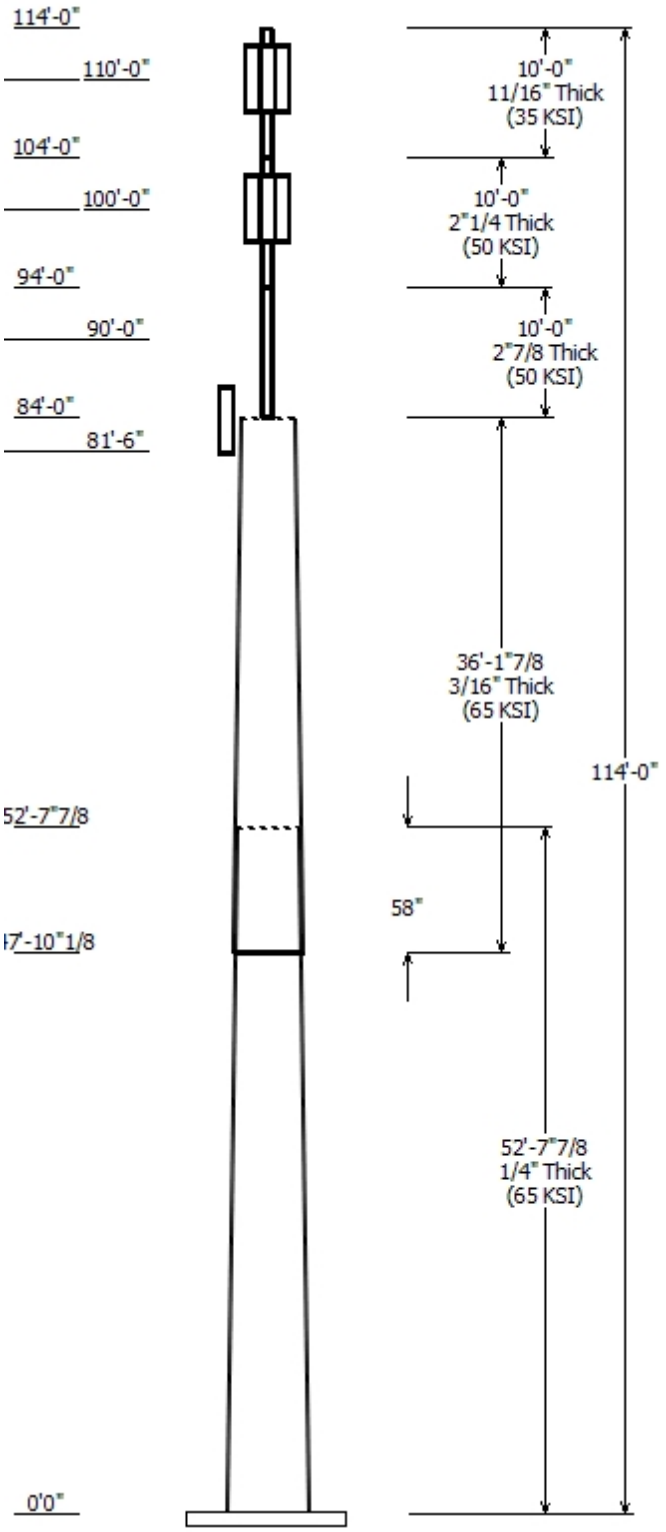
It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions Holdings and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and Semaan Engineering Solutions, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Semaan Engineering Solutions Holdings is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Job Information

Pole :	27741_B	Code:	ANSI/TIA-222-G
Description :			
Client :	KGI	Struct Class :	II
Location :	Round Hill CT, Greenwich, CT		
Shape :	18 Sides	Exposure :	D
Height :	114.00 (ft)	Topo :	1
Base Elev (ft):	1.00		
Taper:	0.14434 (in/ft)		



Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	52.658	33.39	41.00	0.250		0.000	0.144341	65
2	36.158	29.25	34.46	0.188	Slip Joint	57.781	0.144341	65
3	10.000	5.750	5.750	2.875	Butt Joint	0.000	0.000000	50
4	10.000	4.500	4.500	2.250	Butt Joint	0.000	0.000000	50
5	10.000	4.500	4.500	0.674	Butt Joint	0.000	0.000000	35

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
110.000	110.000	3	782 11066
110.000	110.000	3	TMAT1921XB6811A
110.000	110.000	3	DBXNH-6565A-A2M
110.000	110.000	1	Flush Mount
100.000	100.000	9	IBC1900HG-SA
100.000	100.000	6	KIT-FD9R6004/1C-DL
100.000	100.000	3	APXVSPP18-C-A20
100.000	100.000	1	Flush Mount
90.000	90.000	1	Flush Mount
81.500	83.000	1	GPS
81.500	81.500	1	3 ft Standoff

Linear Appurtenance

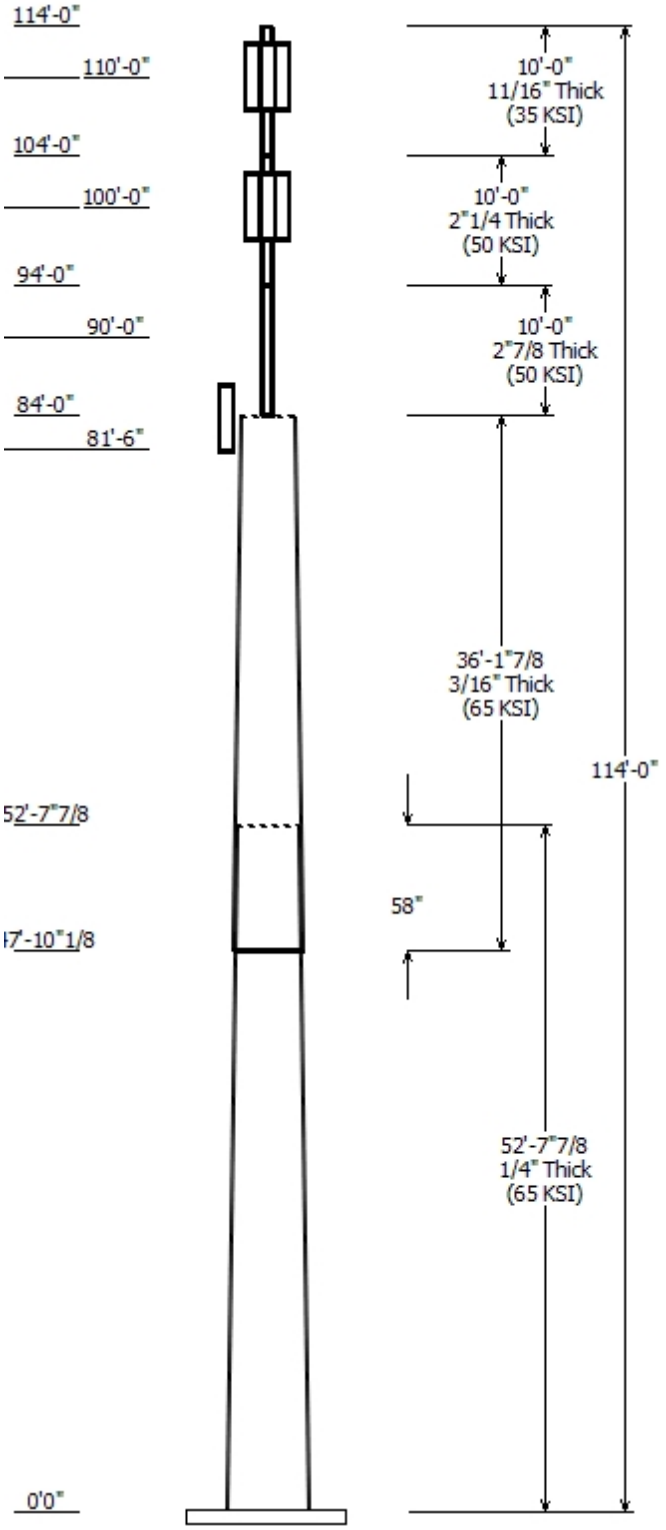
Elev (ft) From	To	Description	Exposed To Wind
104.0	114.0	Concealment	Yes
94.000	104.0	Concealment	Yes
84.000	94.000	Concealment	Yes
0.000	100.0	.32"	No
0.000	100.0	1 1/4" Coax	No
0.000	100.0	1 5/8" Coax	No
0.000	110.0	.32"	No
0.000	110.0	1 5/8" Coax	No
0.000	81.500	1/2" Coax	No

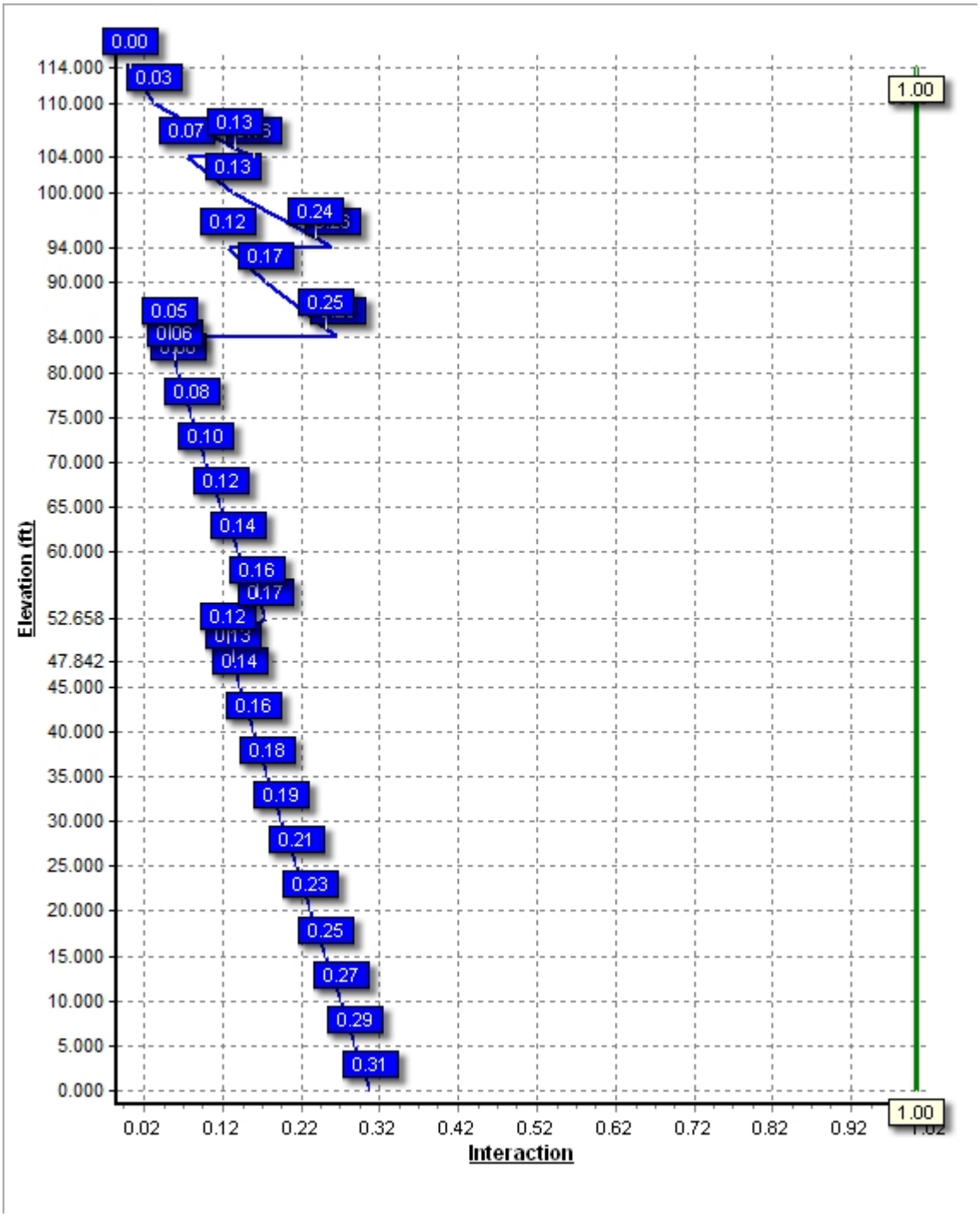
Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	503.96	8.95	15.49
0.9D + 1.6W	501.34	8.94	11.61
1.2D + 1.0Di + 1.0Wi	196.12	3.32	27.00
(1.2 + 0.2Sds) * DL + E ELFM	67.58	0.83	15.40
(1.2 + 0.2Sds) * DL + E EMAM	61.07	0.80	15.40
(0.9 - 0.2Sds) * DL + E ELFM	67.07	0.83	10.37
(0.9 - 0.2Sds) * DL + E EMAM	60.55	0.80	10.37
1.0D + 1.0W	130.62	2.33	12.91

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000




0.00
0.03
0.07
0.13
0.13
0.12
0.24
0.17
0.25
0.05
0.08
0.10
0.12
0.14
0.16
0.17
0.12
0.14
0.16
0.18
0.19
0.21
0.23
0.25
0.27
0.29
0.31
1.00
1.00
114.000
110.000
104.000
100.000
94.000
90.000
84.000
80.000
75.000
70.000
65.000
60.000
52.658
47.842
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	**27741_B**	**Code: ANSI/TIA-222-G**	
Site Name:	**Round Hill CT, Greenwich, CT**	**Engineering Number: REV01**	**9/16/2019 9:52:08 AM**
Customer:	**KGI**		

Analysis Parameters

Location:	**Greenwich County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**114**
Shape:	**18 Sides. Sect 3: Round Solid. Sect 4: Round Solid. Sect 5: Round**		**41.00**
Pole Type:	**Custom**	**Top Diameter (in):**	**4.50**
Pole Manfacturer:	**EEI**	**Taper (in/ft) :**	**0.144**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**93 mph**
Exposure Catagory:	**D**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Catagory:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0.0 ft**	**Design Ice Thickness:**	**0.75 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**1.53**				
T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.050**
S_s:	**0.259**	**S_1:**	**0.071**	**C_s Max:**	**0.050**
F_a:	**1.593**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.275**	**S_{d1}:**	**0.114**		

Load Cases

1.2D + 1.6W	**93 mph with No Ice**
0.9D + 1.6W	**93 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 0.75 in Radial Ice**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Site Number:	**27741_B**	**Code:**	**ANSI/TIA-222-G**
Site Name:	**Round Hill CT, Greenwich, CT**	**Engineering Number:**	**REV01**
Customer:	**KGI**		

9/16/2019 9:52:08 AM

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	52.658	0.2500	65		0.00	5,253	41.00	0.00	32.33	6783.7	27.51	164.00	33.39	52.66	26.30	3651.8	22.15	133.60	0.144341
2-18	36.158	0.1875	65	Slip	57.78	2,319	34.46	47.84	20.40	3029.3	31.00	183.84	29.25	84.00	17.30	1845.7	26.10	156.00	0.144341
3-RS	10.000	2.8750	50	Butt	0.00	884	5.750	84.00	25.97	53.7	0.00	2.00	5.750	94.00	25.97	53.7	0.00	2.00	0.000000
4-RS	10.000	2.2500	50	Butt	0.00	541	4.500	94.00	15.90	20.1	0.00	2.00	4.500	104.00	15.90	20.1	0.00	2.00	0.000000
5-R	10.000	0.6740	35	Butt	0.00	276	4.500	104.00	8.10	14.8	0.00	6.68	4.500	114.00	8.10	14.8	0.00	6.68	0.000000
				Shaft Weight		9,273													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
110.00	782 11066	3	1.76	0.000	1.00	5.33	0.000	1.00	0.000	0.000
110.00	DBXNH-6565A-A2M	3	34.20	0.000	1.00	153.17	0.000	1.00	0.000	0.000
110.00	Flush Mount	1	120.00	0.000	1.00	282.20	0.000	1.00	0.000	0.000
110.00	TMAT1921XB6811A	3	17.60	0.000	1.00	35.49	0.000	1.00	0.000	0.000
100.00	APXVSPP18-C-A20	3	57.00	0.000	1.00	171.46	0.000	1.00	0.000	0.000
100.00	Flush Mount	1	120.00	0.000	1.00	280.64	0.000	1.00	0.000	0.000
100.00	IBC1900HG-SA	9	22.00	0.000	1.00	66.18	0.000	1.00	0.000	0.000
100.00	KIT-FD9R6004/1C-DL	6	6.40	0.000	1.00	17.57	0.000	1.00	0.000	0.000
90.00	Flush Mount	1	120.00	0.000	1.00	278.93	0.000	1.00	0.000	0.000
81.50	3 ft Standoff	1	40.00	2.630	1.00	115.55	8.247	1.00	0.000	0.000
81.50	GPS	1	10.00	0.070	1.00	13.74	0.200	1.00	0.000	1.500
	Totals	32	978.08		2,768.38			Number of Loadings :		11

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Protected Width (in)	Exposed To Wind	Carrier
104.00	114.00	1	Concealment (0.5)	30.00	16.95	N	12.75	Y	
0.00	110.00	1	.32"	0.32	0.06	N	0.00	N	T-Mobile
0.00	110.00	12	1 5/8" Coax	1.98	1.04	N	0.00	N	T-Mobile
94.00	104.00	1	Concealment (0.5)	30.00	16.95	N	12.75	Y	
0.00	100.00	1	.32"	0.32	0.06	N	0.00	N	Sprint
0.00	100.00	2	1 1/4" Coax	1.55	0.66	N	0.00	N	Sprint
0.00	100.00	6	1 5/8" Coax	1.98	1.04	N	0.00	N	Sprint
84.00	94.00	1	Concealment (0.5)	30.00	16.95	N	12.12	Y	
0.00	81.50	1	1/2" Coax	0.65	0.16	N	0.00	N	Sprint

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.2500	41.000	32.334	6,783.7	27.51	164.00	69.0	325.9	0.0	0.0
5.00		0.2500	40.278	31.761	6,429.6	27.00	161.11	69.6	314.4	0.0	545.3
10.00		0.2500	39.557	31.189	6,088.1	26.49	158.23	70.2	303.1	0.0	535.5
15.00		0.2500	38.835	30.616	5,758.9	25.98	155.34	70.8	292.1	0.0	525.8
20.00		0.2500	38.113	30.043	5,441.7	25.47	152.45	71.4	281.2	0.0	516.0
25.00		0.2500	37.391	29.471	5,136.4	24.96	149.57	72.0	270.6	0.0	506.3
30.00		0.2500	36.670	28.898	4,842.8	24.45	146.68	72.6	260.1	0.0	496.5
35.00		0.2500	35.948	28.325	4,560.6	23.94	143.79	73.2	249.9	0.0	486.8
40.00		0.2500	35.226	27.753	4,289.5	23.43	140.91	73.8	239.8	0.0	477.1
45.00		0.2500	34.505	27.180	4,029.4	22.93	138.02	74.4	230.0	0.0	467.3
47.84	Bot - Section 2	0.2500	34.094	26.855	3,886.4	22.64	136.38	74.8	224.5	0.0	261.3
50.00		0.2500	33.783	26.607	3,780.1	22.42	135.13	75.0	220.4	0.0	345.3
52.66	Top - Section 1	0.1875	33.774	19.988	2,848.7	30.35	180.13	65.7	166.1	0.0	421.0
55.00		0.1875	33.436	19.786	2,763.6	30.03	178.33	66.1	162.8	0.0	158.5
60.00		0.1875	32.715	19.357	2,587.5	29.35	174.48	66.9	155.8	0.0	333.0
65.00		0.1875	31.993	18.927	2,419.1	28.68	170.63	67.7	148.9	0.0	325.7
70.00		0.1875	31.271	18.498	2,258.1	28.00	166.78	68.5	142.2	0.0	318.4
75.00		0.1875	30.549	18.069	2,104.4	27.32	162.93	69.3	135.7	0.0	311.1
80.00		0.1875	29.828	17.639	1,957.9	26.64	159.08	70.1	129.3	0.0	303.8
81.50		0.1875	29.611	17.510	1,915.3	26.44	157.93	70.3	127.4	0.0	89.7
84.00	Top - Section 2	0.1875	29.250	17.295	1,845.7	26.10	156.00	70.7	124.3	0.0	148.0
84.00	Bot - Section 3	2.8750	5.750	25.967	53.7	0.00	2.00	50.0	18.7	31.7	
85.00		2.8750	5.750	25.967	53.7	0.00	2.00	50.0	18.7	31.7	88.4
90.00		2.8750	5.750	25.967	53.7	0.00	2.00	50.0	18.7	31.7	441.8
94.00	Top - Section 3	2.8750	5.750	25.967	53.7	0.00	2.00	50.0	18.7	31.7	353.4
94.00	Bot - Section 4	2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	
95.00		2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	54.1
100.0		2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	270.6
104.0	Top - Section 4	2.2500	4.500	15.904	20.1	0.00	2.00	50.0	8.9	15.2	216.5
104.0	Bot - Section 5	0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	
105.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	27.6
110.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	137.8
114.0		0.6740	4.500	8.101	14.8	0.00	6.68	35.0	6.6	10.0	110.3
											9,272.8

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:09 AM

Customer: KGI

Load Case: 1.2D + 1.6W | 93 mph with No Ice | 25 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		213.1	0.0					0.0	0.0	213.1	0.0	0.0	0.0
5.00		422.4	654.3					0.0	121.9	422.4	776.2	0.0	0.0
10.00		414.8	642.6					0.0	121.9	414.8	764.5	0.0	0.0
15.00		414.8	630.9					0.0	121.9	414.8	752.8	0.0	0.0
20.00		423.3	619.2					0.0	121.9	423.3	741.2	0.0	0.0
25.00		431.2	607.5					0.0	121.9	431.2	729.5	0.0	0.0
30.00		436.1	595.8					0.0	121.9	436.1	717.8	0.0	0.0
35.00		438.9	584.2					0.0	121.9	438.9	706.1	0.0	0.0
40.00		439.9	572.5					0.0	121.9	439.9	694.4	0.0	0.0
45.00		345.0	560.8					0.0	121.9	345.0	682.7	0.0	0.0
47.84	Bot - Section 2	220.6	313.6					0.0	69.3	220.6	382.9	0.0	0.0
50.00		213.4	414.4					0.0	52.6	213.4	467.0	0.0	0.0
52.66	Top - Section 1	221.1	505.2					0.0	64.8	221.1	570.0	0.0	0.0
55.00		323.2	190.2					0.0	57.1	323.2	247.3	0.0	0.0
60.00		437.9	399.6					0.0	121.9	437.9	521.5	0.0	0.0
65.00		434.1	390.8					0.0	121.9	434.1	512.7	0.0	0.0
70.00		429.8	382.1					0.0	121.9	429.8	504.0	0.0	0.0
75.00		424.8	373.3					0.0	121.9	424.8	495.2	0.0	0.0
80.00		273.9	364.5					0.0	121.9	273.9	486.4	0.0	0.0
81.50	Appertunance(s)	166.9	107.6	138.5	0.0	5.4	60.0	0.0	36.6	305.4	204.2	0.0	0.0
84.00	Top - Section 2	118.9	177.7					0.0	60.5	118.9	238.1	0.0	0.0
85.00		89.5	106.0					31.3	44.5	120.8	150.6	0.0	0.0
90.00	Appertunance(s)	134.9	530.2	0.0	0.0	0.0	144.0	157.4	222.7	292.2	896.8	0.0	0.0
94.00	Top - Section 3	72.1	424.1					127.0	178.1	199.1	602.3	0.0	0.0
95.00		71.4	64.9					33.5	44.5	104.9	109.5	0.0	0.0
100.00	Appertunance(s)	107.5	324.7	0.0	0.0	0.0	632.9	168.6	222.7	276.2	1,180.3	0.0	0.0
104.00	Top - Section 4	60.0	259.8					136.0	141.6	196.0	401.3	0.0	0.0
105.00		72.6	33.1					34.1	35.4	106.7	68.5	0.0	0.0
110.00	Appertunance(s)	109.3	165.4	0.0	0.0	0.0	336.8	171.5	176.9	280.8	679.2	0.0	0.0
114.00		48.8	132.3					138.2	81.4	186.9	213.7	0.0	0.0
								Totals:		9,146.23	15,496.6	0.00	0.00

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:09 AM

Customer: KGI

Load Case: 1.2D + 1.6W | 93 mph with No Ice | 25 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-15.49	-8.95	0.00	-503.96	0.00	503.96	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.306
5.00	-14.70	-8.55	0.00	-459.22	0.00	459.22	1,990.85	995.43	3,279.75	1,642.31	0.05	-0.10	0.287
10.00	-13.92	-8.16	0.00	-416.48	0.00	416.48	1,971.76	985.88	3,189.37	1,597.06	0.21	-0.20	0.268
15.00	-13.16	-7.76	0.00	-375.70	0.00	375.70	1,952.06	976.03	3,099.16	1,551.88	0.47	-0.29	0.249
20.00	-12.41	-7.35	0.00	-336.91	0.00	336.91	1,931.73	965.87	3,009.15	1,506.81	0.82	-0.38	0.230
25.00	-11.67	-6.93	0.00	-300.16	0.00	300.16	1,910.79	955.40	2,919.43	1,461.88	1.26	-0.46	0.211
30.00	-10.95	-6.50	0.00	-265.52	0.00	265.52	1,889.23	944.62	2,830.03	1,417.12	1.79	-0.54	0.193
35.00	-10.24	-6.07	0.00	-233.01	0.00	233.01	1,867.06	933.53	2,741.01	1,372.54	2.40	-0.61	0.175
40.00	-9.54	-5.63	0.00	-202.68	0.00	202.68	1,844.27	922.13	2,652.43	1,328.19	3.08	-0.68	0.158
45.00	-8.86	-5.28	0.00	-174.52	0.00	174.52	1,820.86	910.43	2,564.34	1,284.08	3.82	-0.74	0.141
47.84	-8.48	-5.06	0.00	-159.50	0.00	159.50	1,807.27	903.64	2,514.51	1,259.12	4.28	-0.78	0.131
50.00	-8.01	-4.85	0.00	-148.58	0.00	148.58	1,796.83	898.42	2,476.80	1,240.24	4.63	-0.80	0.124
52.66	-7.44	-4.62	0.00	-135.69	0.00	135.69	1,181.92	590.96	1,634.85	818.64	5.09	-0.83	0.172
55.00	-7.20	-4.30	0.00	-124.87	0.00	124.87	1,176.68	588.34	1,611.12	806.76	5.50	-0.85	0.161
60.00	-6.68	-3.86	0.00	-103.37	0.00	103.37	1,165.04	582.52	1,560.37	781.35	6.43	-0.91	0.138
65.00	-6.17	-3.42	0.00	-84.07	0.00	84.07	1,152.79	576.40	1,509.51	755.88	7.41	-0.96	0.117
70.00	-5.67	-2.99	0.00	-66.95	0.00	66.95	1,139.92	569.96	1,458.59	730.38	8.45	-1.01	0.097
75.00	-5.18	-2.56	0.00	-52.01	0.00	52.01	1,126.44	563.22	1,407.67	704.88	9.52	-1.05	0.078
80.00	-4.70	-2.28	0.00	-39.22	0.00	39.22	1,112.33	556.17	1,356.80	679.41	10.64	-1.08	0.062
81.50	-4.50	-1.97	0.00	-35.80	0.00	35.80	1,107.98	553.99	1,341.56	671.78	10.98	-1.08	0.057
84.00	-4.27	-1.85	0.00	-30.88	0.00	30.88	1,100.61	550.30	1,316.18	659.07	11.55	-1.10	0.051
84.00	-4.27	-1.85	0.00	-30.88	0.00	30.88	1,168.53	584.26	139.98	118.82	11.55	-1.10	0.264
85.00	-4.11	-1.75	0.00	-29.03	0.00	29.03	1,168.53	584.26	139.98	118.82	11.78	-1.10	0.248
90.00	-3.21	-1.46	0.00	-20.29	0.00	20.29	1,168.53	584.26	139.98	118.82	13.30	-1.76	0.174
94.00	-2.61	-1.25	0.00	-14.45	0.00	14.45	1,168.53	584.26	139.98	118.82	14.93	-2.12	0.124
94.00	-2.61	-1.25	0.00	-14.45	0.00	14.45	715.69	357.85	67.10	56.95	14.93	-2.12	0.257
95.00	-2.49	-1.16	0.00	-13.20	0.00	13.20	715.69	357.85	67.10	56.95	15.38	-2.20	0.235
100.00	-1.32	-0.84	0.00	-7.40	0.00	7.40	715.69	357.85	67.10	56.95	18.10	-2.93	0.132
104.00	-0.93	-0.63	0.00	-4.03	0.00	4.03	715.69	357.85	67.10	56.95	20.70	-3.25	0.072
104.00	-0.93	-0.63	0.00	-4.03	0.00	4.03	255.19	127.60	34.57	26.17	20.70	-3.25	0.158
105.00	-0.86	-0.52	0.00	-3.40	0.00	3.40	255.19	127.60	34.57	26.17	21.38	-3.30	0.133
110.00	-0.20	-0.20	0.00	-0.80	0.00	0.80	255.19	127.60	34.57	26.17	24.97	-3.50	0.031
114.00	0.00	-0.19	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	27.91	-3.53	0.000

Load Case: 0.9D + 1.6W — 93 mph with No Ice (Reduced DL) — 25 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		213.1	0.0					0.0	0.0	213.1	0.0	0.0	0.0
5.00		422.4	490.7					0.0	91.4	422.4	582.2	0.0	0.0
10.00		414.8	482.0					0.0	91.4	414.8	573.4	0.0	0.0
15.00		414.8	473.2					0.0	91.4	414.8	564.6	0.0	0.0
20.00		423.3	464.4					0.0	91.4	423.3	555.9	0.0	0.0
25.00		431.2	455.7					0.0	91.4	431.2	547.1	0.0	0.0
30.00		436.1	446.9					0.0	91.4	436.1	538.3	0.0	0.0
35.00		438.9	438.1					0.0	91.4	438.9	529.6	0.0	0.0
40.00		439.9	429.3					0.0	91.4	439.9	520.8	0.0	0.0
45.00		345.0	420.6					0.0	91.4	345.0	512.0	0.0	0.0
47.84	Bot - Section 2	220.6	235.2					0.0	52.0	220.6	287.2	0.0	0.0
50.00		213.4	310.8					0.0	39.5	213.4	350.3	0.0	0.0
52.66	Top - Section 1	221.1	378.9					0.0	48.6	221.1	427.5	0.0	0.0
55.00		323.2	142.7					0.0	42.8	323.2	185.5	0.0	0.0
60.00		437.9	299.7					0.0	91.4	437.9	391.1	0.0	0.0
65.00		434.1	293.1					0.0	91.4	434.1	384.6	0.0	0.0
70.00		429.8	286.5					0.0	91.4	429.8	378.0	0.0	0.0
75.00		424.8	280.0					0.0	91.4	424.8	371.4	0.0	0.0
80.00		273.9	273.4					0.0	91.4	273.9	364.8	0.0	0.0
81.50	Appertunance(s)	166.9	80.7	138.5	0.0	5.4	45.0	0.0	27.4	305.4	153.2	0.0	0.0
84.00	Top - Section 2	118.9	133.2					0.0	45.4	118.9	178.6	0.0	0.0
85.00		89.5	79.5					31.3	33.4	120.8	112.9	0.0	0.0
90.00	Appertunance(s)	134.9	397.6	0.0	0.0	0.0	108.0	157.4	167.0	292.2	672.6	0.0	0.0
94.00	Top - Section 3	72.1	318.1					127.0	133.6	199.1	451.7	0.0	0.0
95.00		71.4	48.7					33.5	33.4	104.9	82.1	0.0	0.0
100.00	Appertunance(s)	107.5	243.5	0.0	0.0	0.0	474.7	168.6	167.0	276.2	885.2	0.0	0.0
104.00	Top - Section 4	60.0	194.8					136.0	106.2	196.0	301.0	0.0	0.0
105.00		72.6	24.8					34.1	26.5	106.7	51.4	0.0	0.0
110.00	Appertunance(s)	109.3	124.1	0.0	0.0	0.0	252.6	171.5	132.7	280.8	509.4	0.0	0.0
114.00		48.8	99.2					138.2	61.0	186.9	160.3	0.0	0.0
								Totals:		9,146.23	11,622.4	0.00	0.00

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:10 AM

Customer: KGI

Load Case: 0.9D + 1.6W — 93 mph with No Ice (Reduced DL) — 25 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-11.61	-8.94	0.00	-501.34	0.00	501.34	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.303
5.00	-11.02	-8.54	0.00	-456.62	0.00	456.62	1,990.85	995.43	3,279.75	1,642.31	0.05	-0.10	0.284
10.00	-10.43	-8.14	0.00	-413.92	0.00	413.92	1,971.76	985.88	3,189.37	1,597.06	0.21	-0.20	0.265
15.00	-9.86	-7.74	0.00	-373.22	0.00	373.22	1,952.06	976.03	3,099.16	1,551.88	0.47	-0.29	0.246
20.00	-9.29	-7.33	0.00	-334.53	0.00	334.53	1,931.73	965.87	3,009.15	1,506.81	0.82	-0.38	0.227
25.00	-8.74	-6.90	0.00	-297.90	0.00	297.90	1,910.79	955.40	2,919.43	1,461.88	1.26	-0.46	0.208
30.00	-8.20	-6.47	0.00	-263.39	0.00	263.39	1,889.23	944.62	2,830.03	1,417.12	1.78	-0.54	0.190
35.00	-7.66	-6.04	0.00	-231.02	0.00	231.02	1,867.06	933.53	2,741.01	1,372.54	2.38	-0.61	0.172
40.00	-7.14	-5.60	0.00	-200.83	0.00	200.83	1,844.27	922.13	2,652.43	1,328.19	3.06	-0.68	0.155
45.00	-6.63	-5.25	0.00	-172.83	0.00	172.83	1,820.86	910.43	2,564.34	1,284.08	3.80	-0.74	0.138
47.84	-6.34	-5.03	0.00	-157.90	0.00	157.90	1,807.27	903.64	2,514.51	1,259.12	4.25	-0.77	0.129
50.00	-5.99	-4.82	0.00	-147.04	0.00	147.04	1,796.83	898.42	2,476.80	1,240.24	4.60	-0.80	0.122
52.66	-5.57	-4.59	0.00	-134.23	0.00	134.23	1,181.92	590.96	1,634.85	818.64	5.05	-0.82	0.169
55.00	-5.38	-4.27	0.00	-123.48	0.00	123.48	1,176.68	588.34	1,611.12	806.76	5.47	-0.85	0.158
60.00	-5.00	-3.83	0.00	-102.12	0.00	102.12	1,165.04	582.52	1,560.37	781.35	6.38	-0.91	0.135
65.00	-4.62	-3.40	0.00	-82.96	0.00	82.96	1,152.79	576.40	1,509.51	755.88	7.36	-0.96	0.114
70.00	-4.24	-2.96	0.00	-65.98	0.00	65.98	1,139.92	569.96	1,458.59	730.38	8.39	-1.00	0.094
75.00	-3.88	-2.53	0.00	-51.17	0.00	51.17	1,126.44	563.22	1,407.67	704.88	9.45	-1.04	0.076
80.00	-3.52	-2.25	0.00	-38.50	0.00	38.50	1,112.33	556.17	1,356.80	679.41	10.56	-1.07	0.060
81.50	-3.37	-1.95	0.00	-35.12	0.00	35.12	1,107.98	553.99	1,341.56	671.78	10.89	-1.08	0.055
84.00	-3.19	-1.82	0.00	-30.25	0.00	30.25	1,100.61	550.30	1,316.18	659.07	11.46	-1.09	0.049
84.00	-3.19	-1.82	0.00	-30.25	0.00	30.25	1,168.53	584.26	139.98	118.82	11.46	-1.09	0.257
85.00	-3.07	-1.72	0.00	-28.43	0.00	28.43	1,168.53	584.26	139.98	118.82	11.69	-1.09	0.242
90.00	-2.39	-1.43	0.00	-19.83	0.00	19.83	1,168.53	584.26	139.98	118.82	13.19	-1.73	0.169
94.00	-1.95	-1.22	0.00	-14.10	0.00	14.10	1,168.53	584.26	139.98	118.82	14.80	-2.09	0.120
94.00	-1.95	-1.22	0.00	-14.10	0.00	14.10	715.69	357.85	67.10	56.95	14.80	-2.09	0.250
95.00	-1.86	-1.13	0.00	-12.88	0.00	12.88	715.69	357.85	67.10	56.95	15.24	-2.16	0.229
100.00	-0.98	-0.82	0.00	-7.22	0.00	7.22	715.69	357.85	67.10	56.95	17.91	-2.87	0.128
104.00	-0.69	-0.61	0.00	-3.93	0.00	3.93	715.69	357.85	67.10	56.95	20.46	-3.19	0.070
104.00	-0.69	-0.61	0.00	-3.93	0.00	3.93	255.19	127.60	34.57	26.17	20.46	-3.19	0.153
105.00	-0.64	-0.51	0.00	-3.32	0.00	3.32	255.19	127.60	34.57	26.17	21.14	-3.24	0.129
110.00	-0.15	-0.20	0.00	-0.78	0.00	0.78	255.19	127.60	34.57	26.17	24.65	-3.44	0.031
114.00	0.00	-0.19	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	27.55	-3.47	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 24 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.00

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00
Ice Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		75.2	0.0					0.0	0.0	75.2	0.0	0.0	0.0
5.00		149.5	965.7					0.0	121.9	149.5	1,087.6	0.0	0.0
10.00		147.6	977.9					0.0	121.9	147.6	1,099.8	0.0	0.0
15.00		148.1	976.4					0.0	121.9	148.1	1,098.3	0.0	0.0
20.00		151.7	969.7					0.0	121.9	151.7	1,091.6	0.0	0.0
25.00		154.9	960.3					0.0	121.9	154.9	1,082.2	0.0	0.0
30.00		157.1	949.0					0.0	121.9	157.1	1,070.9	0.0	0.0
35.00		158.5	936.5					0.0	121.9	158.5	1,058.4	0.0	0.0
40.00		159.3	923.1					0.0	121.9	159.3	1,045.0	0.0	0.0
45.00		125.2	908.9					0.0	121.9	125.2	1,030.8	0.0	0.0
47.84	Bot - Section 2	80.2	511.0					0.0	69.3	80.2	580.3	0.0	0.0
50.00		77.6	565.3					0.0	52.6	77.6	617.9	0.0	0.0
52.66	Top - Section 1	80.5	690.0					0.0	64.8	80.5	754.8	0.0	0.0
55.00		117.9	352.3					0.0	57.1	117.9	409.5	0.0	0.0
60.00		160.1	740.8					0.0	121.9	160.1	862.7	0.0	0.0
65.00		159.1	727.7					0.0	121.9	159.1	849.6	0.0	0.0
70.00		158.0	714.3					0.0	121.9	158.0	836.3	0.0	0.0
75.00		156.6	700.7					0.0	121.9	156.6	822.6	0.0	0.0
80.00		101.2	686.8					0.0	121.9	101.2	808.7	0.0	0.0
81.50	Appertunance(s)	61.8	204.1	78.3	0.0	2.8	126.3	0.0	36.6	140.1	366.9	0.0	0.0
84.00	Top - Section 2	42.8	336.9					0.0	60.5	42.8	397.4	0.0	0.0
85.00		25.5	120.9					14.4	161.5	39.9	282.4	0.0	0.0
90.00	Appertunance(s)	38.4	605.0	0.0	0.0	0.0	422.9	72.4	808.1	110.8	1,836.0	0.0	0.0
94.00	Top - Section 3	20.9	484.4					58.5	647.4	79.4	1,131.8	0.0	0.0
95.00		22.5	77.5					15.3	162.0	37.8	239.5	0.0	0.0
100.00	Appertunance(s)	33.9	387.8	0.0	0.0	0.0	1,563.7	76.9	810.5	110.8	2,762.0	0.0	0.0
104.00	Top - Section 4	19.0	310.5					62.1	612.7	81.0	923.2	0.0	0.0
105.00		23.0	45.8					15.6	153.3	38.5	199.1	0.0	0.0
110.00	Appertunance(s)	34.6	229.3	0.0	0.0	0.0	921.9	78.4	767.1	113.0	1,918.2	0.0	0.0
114.00		15.5	183.7					63.2	554.2	78.7	737.9	0.0	0.0
								Totals:		3,390.81	27,001.4	0.00	0.00

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:10 AM

Customer: KGI

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 24 Iterations

Gust Response Factor : 1.10 | Ice Dead Load Factor : 1.00 | Wind Importance Factor : 1.00

Dead Load Factor : 1.20 | Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-27.00	-3.32	0.00	-196.12	0.00	196.12	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.130
5.00	-25.91	-3.19	0.00	-179.50	0.00	179.50	1,990.85	995.43	3,279.75	1,642.31	0.02	-0.04	0.122
10.00	-24.81	-3.06	0.00	-163.54	0.00	163.54	1,971.76	985.88	3,189.37	1,597.06	0.08	-0.08	0.115
15.00	-23.71	-2.92	0.00	-148.24	0.00	148.24	1,952.06	976.03	3,099.16	1,551.88	0.18	-0.11	0.108
20.00	-22.62	-2.78	0.00	-133.61	0.00	133.61	1,931.73	965.87	3,009.15	1,506.81	0.32	-0.15	0.100
25.00	-21.53	-2.64	0.00	-119.70	0.00	119.70	1,910.79	955.40	2,919.43	1,461.88	0.50	-0.18	0.093
30.00	-20.46	-2.49	0.00	-106.51	0.00	106.51	1,889.23	944.62	2,830.03	1,417.12	0.70	-0.21	0.086
35.00	-19.40	-2.33	0.00	-94.07	0.00	94.07	1,867.06	933.53	2,741.01	1,372.54	0.94	-0.24	0.079
40.00	-18.36	-2.18	0.00	-82.39	0.00	82.39	1,844.27	922.13	2,652.43	1,328.19	1.21	-0.27	0.072
45.00	-17.33	-2.05	0.00	-71.50	0.00	71.50	1,820.86	910.43	2,564.34	1,284.08	1.51	-0.30	0.065
47.84	-16.75	-1.98	0.00	-65.66	0.00	65.66	1,807.27	903.64	2,514.51	1,259.12	1.69	-0.31	0.061
50.00	-16.13	-1.90	0.00	-61.40	0.00	61.40	1,796.83	898.42	2,476.80	1,240.24	1.83	-0.32	0.058
52.66	-15.37	-1.82	0.00	-56.35	0.00	56.35	1,181.92	590.96	1,634.85	818.64	2.01	-0.33	0.082
55.00	-14.96	-1.70	0.00	-52.10	0.00	52.10	1,176.68	588.34	1,611.12	806.76	2.18	-0.34	0.077
60.00	-14.10	-1.54	0.00	-43.60	0.00	43.60	1,165.04	582.52	1,560.37	781.35	2.55	-0.37	0.068
65.00	-13.25	-1.38	0.00	-35.90	0.00	35.90	1,152.79	576.40	1,509.51	755.88	2.94	-0.39	0.059
70.00	-12.42	-1.22	0.00	-29.00	0.00	29.00	1,139.92	569.96	1,458.59	730.38	3.36	-0.41	0.051
75.00	-11.60	-1.06	0.00	-22.90	0.00	22.90	1,126.44	563.22	1,407.67	704.88	3.79	-0.42	0.043
80.00	-10.79	-0.95	0.00	-17.60	0.00	17.60	1,112.33	556.17	1,356.80	679.41	4.24	-0.44	0.036
81.50	-10.42	-0.81	0.00	-16.17	0.00	16.17	1,107.98	553.99	1,341.56	671.78	4.38	-0.44	0.033
84.00	-10.02	-0.77	0.00	-14.13	0.00	14.13	1,100.61	550.30	1,316.18	659.07	4.61	-0.45	0.031
84.00	-10.02	-0.77	0.00	-14.13	0.00	14.13	1,168.53	584.26	139.98	118.82	4.61	-0.45	0.128
85.00	-9.74	-0.75	0.00	-13.37	0.00	13.37	1,168.53	584.26	139.98	118.82	4.71	-0.45	0.121
90.00	-7.90	-0.66	0.00	-9.60	0.00	9.60	1,168.53	584.26	139.98	118.82	5.34	-0.75	0.088
94.00	-6.77	-0.57	0.00	-6.98	0.00	6.98	1,168.53	584.26	139.98	118.82	6.05	-0.93	0.065
94.00	-6.77	-0.57	0.00	-6.98	0.00	6.98	715.69	357.85	67.10	56.95	6.05	-0.93	0.132
95.00	-6.53	-0.55	0.00	-6.41	0.00	6.41	715.69	357.85	67.10	56.95	6.25	-0.96	0.122
100.00	-3.77	-0.40	0.00	-3.64	0.00	3.64	715.69	357.85	67.10	56.95	7.46	-1.32	0.069
104.00	-2.85	-0.30	0.00	-2.02	0.00	2.02	715.69	357.85	67.10	56.95	8.64	-1.48	0.039
104.00	-2.85	-0.30	0.00	-2.02	0.00	2.02	255.19	127.60	34.57	26.17	8.64	-1.48	0.088
105.00	-2.65	-0.26	0.00	-1.72	0.00	1.72	255.19	127.60	34.57	26.17	8.95	-1.50	0.076
110.00	-0.74	-0.10	0.00	-0.40	0.00	0.40	255.19	127.60	34.57	26.17	10.59	-1.61	0.018
114.00	0.00	-0.08	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	11.95	-1.62	0.000

Load Case: 1.0D + 1.0W — Serviceability 60 mph — 23 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		55.4	0.0					0.0	0.0	55.4	0.0	0.0	0.0
5.00		109.9	545.3					0.0	101.6	109.9	646.9	0.0	0.0
10.00		107.9	535.5					0.0	101.6	107.9	637.1	0.0	0.0
15.00		107.9	525.8					0.0	101.6	107.9	627.4	0.0	0.0
20.00		110.1	516.0					0.0	101.6	110.1	617.6	0.0	0.0
25.00		112.2	506.3					0.0	101.6	112.2	607.9	0.0	0.0
30.00		113.5	496.5					0.0	101.6	113.5	598.1	0.0	0.0
35.00		114.2	486.8					0.0	101.6	114.2	588.4	0.0	0.0
40.00		114.4	477.1					0.0	101.6	114.4	578.7	0.0	0.0
45.00		89.7	467.3					0.0	101.6	89.7	568.9	0.0	0.0
47.84	Bot - Section 2	57.4	261.3					0.0	57.8	57.4	319.1	0.0	0.0
50.00		55.5	345.3					0.0	43.8	55.5	389.2	0.0	0.0
52.66	Top - Section 1	57.5	421.0					0.0	54.0	57.5	475.0	0.0	0.0
55.00		84.1	158.5					0.0	47.6	84.1	206.1	0.0	0.0
60.00		113.9	333.0					0.0	101.6	113.9	434.6	0.0	0.0
65.00		112.9	325.7					0.0	101.6	112.9	427.3	0.0	0.0
70.00		111.8	318.4					0.0	101.6	111.8	420.0	0.0	0.0
75.00		110.5	311.1					0.0	101.6	110.5	412.7	0.0	0.0
80.00		71.3	303.8					0.0	101.6	71.3	405.4	0.0	0.0
81.50	Appertunance(s)	43.4	89.7	36.0	0.0	1.4	50.0	0.0	30.5	79.4	170.2	0.0	0.0
84.00	Top - Section 2	30.9	148.0					0.0	50.4	30.9	198.4	0.0	0.0
85.00		23.3	88.4					8.1	37.1	31.4	125.5	0.0	0.0
90.00	Appertunance(s)	35.1	441.8	0.0	0.0	0.0	120.0	40.9	185.5	76.0	747.4	0.0	0.0
94.00	Top - Section 3	18.8	353.4					33.0	148.4	51.8	501.9	0.0	0.0
95.00		18.6	54.1					8.7	37.1	27.3	91.2	0.0	0.0
100.00	Appertunance(s)	28.0	270.6	0.0	0.0	0.0	527.4	43.9	185.5	71.8	983.5	0.0	0.0
104.00	Top - Section 4	15.6	216.5					35.4	118.0	51.0	334.4	0.0	0.0
105.00		18.9	27.6					8.9	29.5	27.8	57.1	0.0	0.0
110.00	Appertunance(s)	28.4	137.8	0.0	0.0	0.0	280.7	44.6	147.4	73.1	566.0	0.0	0.0
114.00		12.7	110.3					35.9	67.8	48.6	178.1	0.0	0.0
								Totals:		2,379.35	12,913.8	0.00	0.00

Site Number: 27741_B | Code: ANSI/TIA-222-G |

Site Name: Round Hill CT, Greenwich, CT | Engineering Number: REV01 | 9/16/2019 9:52:11 AM

Customer: KGI

Load Case: 1.0D + 1.0W | Serviceability 60 mph | 23 Iterations

Gust Response Factor : 1.10 | Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-12.91	-2.33	0.00	-130.62	0.00	130.62	2,009.33	1,004.66	3,370.24	1,687.62	0.00	0.00	0.084
5.00	-12.27	-2.22	0.00	-118.99	0.00	118.99	1,990.85	995.43	3,279.75	1,642.31	0.01	-0.03	0.079
10.00	-11.63	-2.12	0.00	-107.88	0.00	107.88	1,971.76	985.88	3,189.37	1,597.06	0.06	-0.05	0.073
15.00	-11.00	-2.01	0.00	-97.28	0.00	97.28	1,952.06	976.03	3,099.16	1,551.88	0.12	-0.08	0.068
20.00	-10.38	-1.91	0.00	-87.21	0.00	87.21	1,931.73	965.87	3,009.15	1,506.81	0.21	-0.10	0.063
25.00	-9.77	-1.80	0.00	-77.67	0.00	77.67	1,910.79	955.40	2,919.43	1,461.88	0.33	-0.12	0.058
30.00	-9.17	-1.69	0.00	-68.69	0.00	68.69	1,889.23	944.62	2,830.03	1,417.12	0.46	-0.14	0.053
35.00	-8.59	-1.57	0.00	-60.26	0.00	60.26	1,867.06	933.53	2,741.01	1,372.54	0.62	-0.16	0.049
40.00	-8.01	-1.46	0.00	-52.39	0.00	52.39	1,844.27	922.13	2,652.43	1,328.19	0.80	-0.18	0.044
45.00	-7.44	-1.37	0.00	-45.10	0.00	45.10	1,820.86	910.43	2,564.34	1,284.08	0.99	-0.19	0.039
47.84	-7.12	-1.31	0.00	-41.20	0.00	41.20	1,807.27	903.64	2,514.51	1,259.12	1.11	-0.20	0.037
50.00	-6.73	-1.26	0.00	-38.37	0.00	38.37	1,796.83	898.42	2,476.80	1,240.24	1.20	-0.21	0.035
52.66	-6.26	-1.20	0.00	-35.04	0.00	35.04	1,181.92	590.96	1,634.85	818.64	1.32	-0.21	0.048
55.00	-6.05	-1.11	0.00	-32.23	0.00	32.23	1,176.68	588.34	1,611.12	806.76	1.42	-0.22	0.045
60.00	-5.61	-1.00	0.00	-26.67	0.00	26.67	1,165.04	582.52	1,560.37	781.35	1.66	-0.24	0.039
65.00	-5.19	-0.89	0.00	-21.67	0.00	21.67	1,152.79	576.40	1,509.51	755.88	1.92	-0.25	0.033
70.00	-4.77	-0.77	0.00	-17.24	0.00	17.24	1,139.92	569.96	1,458.59	730.38	2.19	-0.26	0.028
75.00	-4.36	-0.66	0.00	-13.38	0.00	13.38	1,126.44	563.22	1,407.67	704.88	2.47	-0.27	0.023
80.00	-3.95	-0.59	0.00	-10.08	0.00	10.08	1,112.33	556.17	1,356.80	679.41	2.75	-0.28	0.018
81.50	-3.78	-0.51	0.00	-9.19	0.00	9.19	1,107.98	553.99	1,341.56	671.78	2.84	-0.28	0.017
84.00	-3.58	-0.48	0.00	-7.92	0.00	7.92	1,100.61	550.30	1,316.18	659.07	2.99	-0.28	0.015
84.00	-3.58	-0.48	0.00	-7.92	0.00	7.92	1,168.53	584.26	139.98	118.82	2.99	-0.28	0.070
85.00	-3.46	-0.45	0.00	-7.45	0.00	7.45	1,168.53	584.26	139.98	118.82	3.05	-0.28	0.066
90.00	-2.71	-0.37	0.00	-5.20	0.00	5.20	1,168.53	584.26	139.98	118.82	3.44	-0.45	0.046
94.00	-2.21	-0.32	0.00	-3.70	0.00	3.70	1,168.53	584.26	139.98	118.82	3.86	-0.55	0.033
94.00	-2.21	-0.32	0.00	-3.70	0.00	3.70	715.69	357.85	67.10	56.95	3.86	-0.55	0.068
95.00	-2.12	-0.30	0.00	-3.38	0.00	3.38	715.69	357.85	67.10	56.95	3.98	-0.57	0.062
100.00	-1.13	-0.22	0.00	-1.90	0.00	1.90	715.69	357.85	67.10	56.95	4.68	-0.75	0.035
104.00	-0.80	-0.16	0.00	-1.03	0.00	1.03	715.69	357.85	67.10	56.95	5.34	-0.83	0.019
104.00	-0.80	-0.16	0.00	-1.03	0.00	1.03	255.19	127.60	34.57	26.17	5.34	-0.83	0.043
105.00	-0.74	-0.13	0.00	-0.87	0.00	0.87	255.19	127.60	34.57	26.17	5.52	-0.85	0.036
110.00	-0.18	-0.05	0.00	-0.21	0.00	0.21	255.19	127.60	34.57	26.17	6.44	-0.90	0.009
114.00	0.00	-0.05	0.00	0.00	0.00	0.00	255.19	127.60	34.57	26.17	7.20	-0.91	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.26	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.59	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11	
Seismic Response Coefficient (C_s):	0.05	
Upper Limit C_s	0.05	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.53	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.51	
Total Unfactored Dead Load:	12.91	k
Seismic Base Shear (E):	0.83	k

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.26
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.59
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Period Based on Rayleigh Method (sec):	1.53
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
29	112.00	178	1.824	1.651	1.020	0.470	72	150
28	107.50	285	1.681	1.050	0.785	0.348	86	241
27	104.50	57	1.588	0.742	0.654	0.277	14	48
26	102.00	334	1.513	0.534	0.558	0.223	65	283
25	97.50	456	1.382	0.252	0.414	0.139	55	385
24	94.50	91	1.299	0.119	0.335	0.092	7	77
23	92.00	502	1.231	0.036	0.278	0.058	25	424
22	87.50	627	1.113	-0.062	0.195	0.010	6	530
21	84.50	125	1.038	-0.098	0.151	-0.013	-1	106
20	82.75	198	0.996	-0.111	0.129	-0.023	-4	168
19	80.75	120	0.948	-0.119	0.107	-0.032	-3	102
18	77.50	405	0.873	-0.121	0.077	-0.040	-14	343
17	72.50	413	0.764	-0.104	0.044	-0.039	-14	349
16	67.50	420	0.663	-0.075	0.023	-0.023	-9	355
15	62.50	427	0.568	-0.041	0.011	0.000	0	361
14	57.50	435	0.481	-0.009	0.006	0.025	10	367
13	53.83	206	0.421	0.011	0.006	0.041	7	174
12	51.33	475	0.383	0.023	0.007	0.050	21	401
11	48.92	389	0.348	0.033	0.009	0.056	19	329
10	46.42	319	0.313	0.042	0.011	0.062	17	270
9	42.50	569	0.263	0.053	0.016	0.067	33	481
8	37.50	579	0.205	0.062	0.023	0.069	34	489
7	32.50	588	0.154	0.068	0.030	0.068	34	497
6	27.50	598	0.110	0.071	0.036	0.065	34	505
5	22.50	608	0.074	0.072	0.040	0.063	33	514
4	17.50	618	0.045	0.071	0.042	0.060	32	522
3	12.50	627	0.023	0.065	0.039	0.055	30	530
2	7.50	637	0.008	0.052	0.030	0.045	25	538
1	2.50	647	0.001	0.023	0.013	0.022	12	547
Flush Mount	110.00	120	1.760	1.362	0.909	0.414	43	101
DBXNH-6565A-A2M	110.00	103	1.760	1.362	0.909	0.414	37	87
TMAT1921XB6811A	110.00	53	1.760	1.362	0.909	0.414	19	45
782 11066	110.00	5	1.760	1.362	0.909	0.414	2	4
Flush Mount	100.00	120	1.454	0.395	0.490	0.184	19	101

APXVSPP18-C-A20	100.00	171	1.454	0.395	0.490	0.184	27	144
KIT-FD9R6004/1C-DL	100.00	38	1.454	0.395	0.490	0.184	6	32
IBC1900HG-SA	100.00	198	1.454	0.395	0.490	0.184	32	167
Flush Mount	90.00	120	1.178	-0.015	0.239	0.035	4	101
3 ft Standoff	81.50	40	0.966	-0.117	0.115	-0.029	-1	34
GPS	81.50	10	0.966	-0.117	0.115	-0.029	0	8
		12,914	36.276	11.065	11.157	4.560	813	10,912

Load Case (1.2 + 0.2Sds) * DL + E EMAM **Seismic Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
29	112.00	178	1.824	1.651	1.020	0.470	72	150
28	107.50	285	1.681	1.050	0.785	0.348	86	241
27	104.50	57	1.588	0.742	0.654	0.277	14	48
26	102.00	334	1.513	0.534	0.558	0.223	65	283
25	97.50	456	1.382	0.252	0.414	0.139	55	385
24	94.50	91	1.299	0.119	0.335	0.092	7	77
23	92.00	502	1.231	0.036	0.278	0.058	25	424
22	87.50	627	1.113	-0.062	0.195	0.010	6	530
21	84.50	125	1.038	-0.098	0.151	-0.013	-1	106
20	82.75	198	0.996	-0.111	0.129	-0.023	-4	168
19	80.75	120	0.948	-0.119	0.107	-0.032	-3	102
18	77.50	405	0.873	-0.121	0.077	-0.040	-14	343
17	72.50	413	0.764	-0.104	0.044	-0.039	-14	349
16	67.50	420	0.663	-0.075	0.023	-0.023	-9	355
15	62.50	427	0.568	-0.041	0.011	0.000	0	361
14	57.50	435	0.481	-0.009	0.006	0.025	10	367
13	53.83	206	0.421	0.011	0.006	0.041	7	174
12	51.33	475	0.383	0.023	0.007	0.050	21	401
11	48.92	389	0.348	0.033	0.009	0.056	19	329
10	46.42	319	0.313	0.042	0.011	0.062	17	270
9	42.50	569	0.263	0.053	0.016	0.067	33	481
8	37.50	579	0.205	0.062	0.023	0.069	34	489
7	32.50	588	0.154	0.068	0.030	0.068	34	497
6	27.50	598	0.110	0.071	0.036	0.065	34	505
5	22.50	608	0.074	0.072	0.040	0.063	33	514
4	17.50	618	0.045	0.071	0.042	0.060	32	522
3	12.50	627	0.023	0.065	0.039	0.055	30	530
2	7.50	637	0.008	0.052	0.030	0.045	25	538
1	2.50	647	0.001	0.023	0.013	0.022	12	547
Flush Mount	110.00	120	1.760	1.362	0.909	0.414	43	101
DBXNH-6565A-A2M	110.00	103	1.760	1.362	0.909	0.414	37	87
TMAT1921XB6811A	110.00	53	1.760	1.362	0.909	0.414	19	45
782 11066	110.00	5	1.760	1.362	0.909	0.414	2	4
Flush Mount	100.00	120	1.454	0.395	0.490	0.184	19	101
APXVSPP18-C-A20	100.00	171	1.454	0.395	0.490	0.184	27	144
KIT-FD9R6004/1C-DL	100.00	38	1.454	0.395	0.490	0.184	6	32
IBC1900HG-SA	100.00	198	1.454	0.395	0.490	0.184	32	167
Flush Mount	90.00	120	1.178	-0.015	0.239	0.035	4	101
3 ft Standoff	81.50	40	0.966	-0.117	0.115	-0.029	-1	34
GPS	81.50	10	0.966	-0.117	0.115	-0.029	0	8
		12,914	36.276	11.065	11.157	4.560	813	10,912

Load Case (0.9 - 0.2Sds) * DL + E ELFM — **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
29	112.00	178	1.824	1.651	1.020	0.470	72	150
28	107.50	285	1.681	1.050	0.785	0.348	86	241
27	104.50	57	1.588	0.742	0.654	0.277	14	48
26	102.00	334	1.513	0.534	0.558	0.223	65	283
25	97.50	456	1.382	0.252	0.414	0.139	55	385
24	94.50	91	1.299	0.119	0.335	0.092	7	77
23	92.00	502	1.231	0.036	0.278	0.058	25	424
22	87.50	627	1.113	-0.062	0.195	0.010	6	530
21	84.50	125	1.038	-0.098	0.151	-0.013	-1	106
20	82.75	198	0.996	-0.111	0.129	-0.023	-4	168
19	80.75	120	0.948	-0.119	0.107	-0.032	-3	102
18	77.50	405	0.873	-0.121	0.077	-0.040	-14	343
17	72.50	413	0.764	-0.104	0.044	-0.039	-14	349
16	67.50	420	0.663	-0.075	0.023	-0.023	-9	355
15	62.50	427	0.568	-0.041	0.011	0.000	0	361
14	57.50	435	0.481	-0.009	0.006	0.025	10	367
13	53.83	206	0.421	0.011	0.006	0.041	7	174
12	51.33	475	0.383	0.023	0.007	0.050	21	401
11	48.92	389	0.348	0.033	0.009	0.056	19	329
10	46.42	319	0.313	0.042	0.011	0.062	17	270
9	42.50	569	0.263	0.053	0.016	0.067	33	481
8	37.50	579	0.205	0.062	0.023	0.069	34	489
7	32.50	588	0.154	0.068	0.030	0.068	34	497
6	27.50	598	0.110	0.071	0.036	0.065	34	505
5	22.50	608	0.074	0.072	0.040	0.063	33	514
4	17.50	618	0.045	0.071	0.042	0.060	32	522
3	12.50	627	0.023	0.065	0.039	0.055	30	530
2	7.50	637	0.008	0.052	0.030	0.045	25	538
1	2.50	647	0.001	0.023	0.013	0.022	12	547
Flush Mount	110.00	120	1.760	1.362	0.909	0.414	43	101
DBXNH-6565A-A2M	110.00	103	1.760	1.362	0.909	0.414	37	87
TMAT1921XB6811A	110.00	53	1.760	1.362	0.909	0.414	19	45
782 11066	110.00	5	1.760	1.362	0.909	0.414	2	4
Flush Mount	100.00	120	1.454	0.395	0.490	0.184	19	101
APXVSPP18-C-A20	100.00	171	1.454	0.395	0.490	0.184	27	144
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IBC1900HG-SA	100.00	198	1.454	0.395	0.490	0.184	32	167
Flush Mount	90.00	120	1.178	-0.015	0.239	0.035	4	101
3 ft Standoff	81.50	40	0.966	-0.117	0.115	-0.029	-1	34
GPS	81.50	10	0.966	-0.117	0.115	-0.029	0	8
		12,914	36.276	11.065	11.157	4.560	813	10,912

Load Case (0.9 - 0.2Sds) * DL + E EMAM — **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
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27	104.50	57	1.588	0.742	0.654	0.277	14	48
26	102.00	334	1.513	0.534	0.558	0.223	65	283
25	97.50	456	1.382	0.252	0.414	0.139	55	385

24	94.50	91	1.299	0.119	0.335	0.092	7	77
23	92.00	502	1.231	0.036	0.278	0.058	25	424
22	87.50	627	1.113	-0.062	0.195	0.010	6	530
21	84.50	125	1.038	-0.098	0.151	-0.013	-1	106
20	82.75	198	0.996	-0.111	0.129	-0.023	-4	168
19	80.75	120	0.948	-0.119	0.107	-0.032	-3	102
18	77.50	405	0.873	-0.121	0.077	-0.040	-14	343
17	72.50	413	0.764	-0.104	0.044	-0.039	-14	349
16	67.50	420	0.663	-0.075	0.023	-0.023	-9	355
15	62.50	427	0.568	-0.041	0.011	0.000	0	361
14	57.50	435	0.481	-0.009	0.006	0.025	10	367
13	53.83	206	0.421	0.011	0.006	0.041	7	174
12	51.33	475	0.383	0.023	0.007	0.050	21	401
11	48.92	389	0.348	0.033	0.009	0.056	19	329
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9	42.50	569	0.263	0.053	0.016	0.067	33	481
8	37.50	579	0.205	0.062	0.023	0.069	34	489
7	32.50	588	0.154	0.068	0.030	0.068	34	497
6	27.50	598	0.110	0.071	0.036	0.065	34	505
5	22.50	608	0.074	0.072	0.040	0.063	33	514
4	17.50	618	0.045	0.071	0.042	0.060	32	522
3	12.50	627	0.023	0.065	0.039	0.055	30	530
2	7.50	637	0.008	0.052	0.030	0.045	25	538
1	2.50	647	0.001	0.023	0.013	0.022	12	547
Flush Mount	110.00	120	1.760	1.362	0.909	0.414	43	101
DBXNH-6565A-A2M	110.00	103	1.760	1.362	0.909	0.414	37	87
TMAT1921XB6811A	110.00	53	1.760	1.362	0.909	0.414	19	45
782 11066	110.00	5	1.760	1.362	0.909	0.414	2	4
Flush Mount	100.00	120	1.454	0.395	0.490	0.184	19	101
APXVSPP18-C-A20	100.00	171	1.454	0.395	0.490	0.184	27	144
KIT-FD9R6004/1C-DL	100.00	38	1.454	0.395	0.490	0.184	6	32
IBC1900HG-SA	100.00	198	1.454	0.395	0.490	0.184	32	167
Flush Mount	90.00	120	1.178	-0.015	0.239	0.035	4	101
3 ft Standoff	81.50	40	0.966	-0.117	0.115	-0.029	-1	34
GPS	81.50	10	0.966	-0.117	0.115	-0.029	0	8
		12,914	36.276	11.065	11.157	4.560	813	10,912

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	8.95	0.00	15.49	0.00	0.00	503.96	0.00	0.31
0.9D + 1.6W	8.94	0.00	11.61	0.00	0.00	501.34	0.00	0.30
1.2D + 1.0Di + 1.0Wi	3.32	0.00	27.00	0.00	0.00	196.12	94.00	0.13
(1.2 + 0.2Sds) * DL + E ELFM	0.83	0.00	15.40	0.00	0.00	67.58	84.00	0.06
(1.2 + 0.2Sds) * DL + E EMAM	0.80	0.00	15.40	0.00	0.00	61.07	94.00	0.09
(0.9 - 0.2Sds) * DL + E ELFM	0.83	0.00	10.37	0.00	0.00	67.07	84.00	0.06
(0.9 - 0.2Sds) * DL + E EMAM	0.80	0.00	10.37	0.00	0.00	60.55	94.00	0.09
1.0D + 1.0W	2.33	0.00	12.91	0.00	0.00	130.62	0.00	0.08

Site Number:	**27441_B**
Site Name:	**Round Hill CT**
Job Number:	**REV01**
Engineer:	**JHH**
Date:	**9/16/2019**

Base Plate and Bolt Analysis

Reinforcement:	N	
Moment:	504.0	k-ft
Shear/Leg:	9.0	k
Compression/Leg:	15.5	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Corners	
Monopole Shaft Diameter (Across Flats):	41.0	in
Lower Monopole Thickness:	0.250	in
# of Sides of Pole:	18	
Monopole Shaft Yield Strength:	65	ksi
Baseplate Diameter / Length:	47.50	
Base Plate Thickness:	2.00	in
Base Plate Yield Strength:	60	ksi
Baseplate Detail Type:	D	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Fillet Weld Size:	0.375	in
Weld Type (CJP or F/F):	CJP	
Weld Strength:	70	ksi

Anchor Bolts

Anchor Bolt Yield Strength:	75	ksi
Anchor Bolt Ultimate Strength:	100	ksi
Anchor Bolt Diameter:	2.25	in
Anchor Bolt Circle:	49.00	in
# of Anchor Bolts:	4	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

	Baseplate Flexural Capacity					Baseplate Shear Capacity			
Failure Mode:	Effective Width (in)	Moment (k-in)	S/Z (in^3)	Capacity (k-in)	Usage	Shear (k)	Area (in^2)	Capacity (k)	Usage
AA	29.84	468.5	29.8	1611.4	0.29	127.2	59.7	1933.7	0.07
AB	29.84	461.4	29.8	1611.4	0.29	127.2	59.7	1933.7	0.07
BA	30.83	508.7	30.8	1665.0	0.31	127.2	61.7	1998.0	0.06
BB	30.83	508.7	30.8	1665.0	0.31	127.2	61.7	1998.0	0.06

Anchor Bolt Capacity

Area of Bolt:	3.25	in^2
Inertia of Bolt:	0.84	in^4
Total Bolt Inertia:	3902.2	in^4
Maximum Bolt Tension:	119.4	k
Maximum Bolt Compression:	127.2	k
Bolt Shear:	2.2	k
Tensile Bolt Capacity:	259.8	k
Compressive Bolt Capacity:	259.8	k
Shear Bolt Capacity:	140.3	k
Interaction Equation:	0.51	Result:
		OK

Base Weld Capacity

Force / Weld:	3.6	k/in
Weld Capacity:	23.8	k/in
Interaction Equation:	0.15	Result:
		OK

SES Base Plate Design Moment:	508.7	k-in
Design Stress:	15.8	ksi
SES Base Plate Allowable Stress / Moment Capacity:	1738.9	ksi / k-in
Usage:	0.29	
Moment Factor:	1.00	
Length Factor:	0.96	

Site Number:	**SE60XC302**
Site Name:	**Splinter**
Job Number:	**REV01**
Engineer:	**AHB**
Date:	**9/16/2019**

Flange @ 84'

Reinforcement:	N	
Moment:	30.9	k-ft
Shear/Leg:	1.9	k
Compression/Leg:	4.3	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Round	
Monopole Shaft Diameter:		in
Lower Monopole Thickness:		in
Monople Shaft Yield Strength:		ksi
Baseplate Diameter / Length:		
Base Plate Thickness:		in
Base Plate Yield Strength:		ksi
Fillet Weld Size:		in
Weld Type (CJP or F/F):		
Weld Strength:		ksi
Baseplate Detail Type:	C	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Additional Anchor Bolts Installed:	N	

Anchor Bolts

Anchor Bolt Yield Strength:	92	ksi
Anchor Bolt Ultimate Strength:	120	ksi
Anchor Bolt Diameter:	1.00	in
Anchor Bolt Circle:	26.00	in
# of Anchor Bolts:	12	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

Anchor Bolt Capacity

Area of Bolt:	0.61	in^2
Inertia of Bolt:	0.03	in^4
Total Bolt Inertia:	614.6	in^4
Maximum Bolt Tension:	4.4	k
Maximum Bolt Compression:	5.1	k
Bolt Shear:	0.2	k
Tensile Bolt Capacity:	58.2	k
Compressive Bolt Capacity:	58.2	k
Shear Bolt Capacity:	26.2	k
Interaction Equation:	0.09	Result:
		OK

Site Number:	**SE60XC302**
Site Name:	**Splinter**
Job Number:	**REV01**
Engineer:	**AHB**
Date:	**9/16/2019**

Flange @ 94'

Reinforcement:	N	
Moment:	14.5	k-ft
Shear/Leg:	1.3	k
Compression/Leg:	2.6	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Round	
Monopole Shaft Diameter:		in
Lower Monopole Thickness:		in
Monople Shaft Yield Strength:		ksi
Baseplate Diameter / Length:		
Base Plate Thickness:		in
Base Plate Yield Strength:		ksi
Fillet Weld Size:		in
Weld Type (CJP or F/F):		
Weld Strength:		ksi
Baseplate Detail Type:	C	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Additional Anchor Bolts Installed:	N	

Anchor Bolts

Anchor Bolt Yield Strength:	92	ksi
Anchor Bolt Ultimate Strength:	120	ksi
Anchor Bolt Diameter:	1.00	in
Anchor Bolt Circle:	26.00	in
# of Anchor Bolts:	12	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

Anchor Bolt Capacity

Area of Bolt:	0.61	in^2
Inertia of Bolt:	0.03	in^4
Total Bolt Inertia:	614.6	in^4
Maximum Bolt Tension:	2.0	k
Maximum Bolt Compression:	2.4	k
Bolt Shear:	0.1	k
Tensile Bolt Capacity:	58.2	k
Compressive Bolt Capacity:	58.2	k
Shear Bolt Capacity:	26.2	k
Interaction Equation:	0.04	Result:
		OK

Site Number:	**SE60XC302**
Site Name:	**Splinter**
Job Number:	**REV01**
Engineer:	**AHB**
Date:	**9/16/2019**

Flange @ 104'

Reinforcement:	N	
Moment:	4.0	k-ft
Shear/Leg:	0.6	k
Compression/Leg:	0.9	k

TIA-222 Code Revision (F/G):	G	
Anchor Bolt Arrangement:	Round	
Monopole Shaft Diameter:		in
Lower Monopole Thickness:		in
Monople Shaft Yield Strength:		ksi
Baseplate Diameter / Length:		
Base Plate Thickness:		in
Base Plate Yield Strength:		ksi
Fillet Weld Size:		in
Weld Type (CJP or F/F):		
Weld Strength:		ksi
Baseplate Detail Type:	C	
Include Plate Thickness Beyond Bolt Circle:	Y	
Stress Increase:	1.00	
Additional Anchor Bolts Installed:	N	

Anchor Bolts

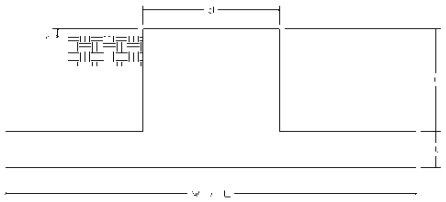
Anchor Bolt Yield Strength:	92	ksi
Anchor Bolt Ultimate Strength:	120	ksi
Anchor Bolt Diameter:	1.00	in
Anchor Bolt Circle:	26.00	in
# of Anchor Bolts:	12	
Minimum Anchor Bolt Separation:	6.00	in
Additional Anchor Bolts Installed:	N	

Anchor Bolt Capacity

Area of Bolt:	0.61	in^2
Inertia of Bolt:	0.03	in^4
Total Bolt Inertia:	614.6	in^4
Maximum Bolt Tension:	0.5	k
Maximum Bolt Compression:	0.7	k
Bolt Shear:	0.1	k
Tensile Bolt Capacity:	58.2	k
Compressive Bolt Capacity:	58.2	k
Shear Bolt Capacity:	26.2	k
Interaction Equation:	0.01	Result:
		OK

Site Name:	Round Hill CT
Site Number:	27741_B
Engineering Number:	REV01
Engineer:	JHH
Date:	09/16/19
Tower Type:	MP

Program Last Updated: *5/13/2014*



Design Loads (Factored) - Analysis per TIA-222-G Standards

Design / Analysis / Mapping:	Analysis				
Compression/Leg:	0.0	k	Concrete Strength (f'_c):	4000	psi
Uplift/Leg:	0.0	k	Pad Tension Steel Depth:	32.00	in
Total Shear:	9.0	k	ϕ_{Shear}:	0.75	
Moment:	504.0	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	15.5	k	$\phi_{Compression:}$	0.65	
Depth to Base of Foundation (l + t - h):	5.00	ft	β:	0.85	
Diameter of Pier (d):	6.00	ft	Bottom Pad Rebar Size #:	8	
Height of Pier above Ground (h):	1.00		# of Bottom Pad Rebar:	16	
Width of Pad (W):	15.00	ft	Pad Bottom Steel Area:	12.64	in^2
Length of Pad (L):	15.00	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	3.00	ft	Top Pad Rebar Size #:	8	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	16	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	12.64	in^2
Tower Center from Mat Center:	0.00	ft	Pier Rebar Size #:	8	
Depth Below Ground Surface to Water Table:	99.00	ft	Pier Steel Area (Single Bar):	0.79	in^2
Unit Weight of Concrete:	150.0	pcf	# of Pier Rebar:	22	
Unit Weight of Soil Above Water Table:	130.0	pcf	Pier Steel F_y:	60000	psi
Unit Weight of Water:	62.4	pcf	Pier Cage Diameter:	64.0	in
Unit Weight of Soil Below Water Table:	50.0	pcf	Rebar Strain Limit:	0.008	
Friction Angle of Uplift:	0.0	Degrees	Steel Elastic Modulus:	29000	ksi
Ultimate Coefficient of Shear Friction:	0.35		Tie Rebar Size #:	4	
Ultimate Compressive Bearing Pressure:	12000.0	psf	Tie Steel Area (Single Bar):	0.20	in^2
Ultimate Passive Pressure on Pad Face:	0.0	psf	Tie Spacing:	6	in
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9		Tie Steel F_y:	60000	psi
ϕ_{Soil}:	0.75				

Overturning Moment Usage

Design OTM:	557.7	k-ft
OTM Resistance:	1201.7	k-ft
Design OTM / OTM Resistance:	0.46	Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	1601	psf
Factored Nominal Bearing Pressure:	9000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.18	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

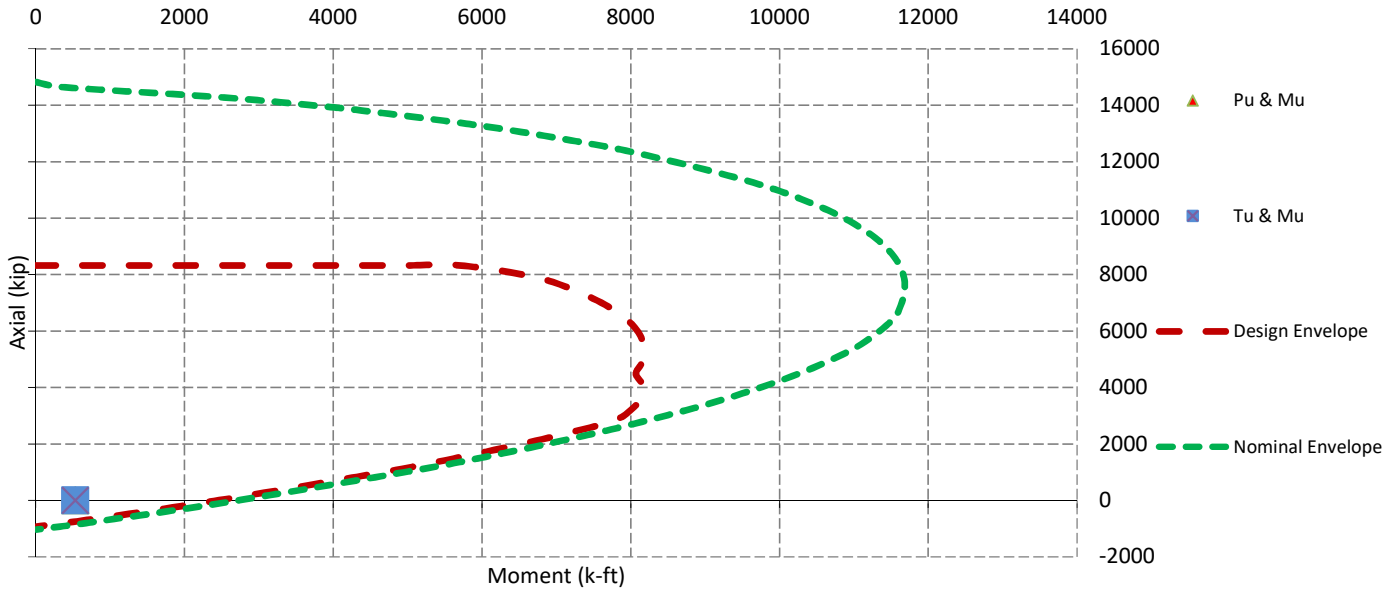
Sliding Factor of Safety

Total Factored Sliding Resistance:	46.7	k
Sliding Design / Sliding Resistance:	0.19	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	28.7	k
One Way Shear Capacity (ϕV_c):	359.9	k - ACI11.3.1.1
V_u / ϕV_c:	0.08	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Steel Pad Factored Moment (M_u):	162.9	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	1736.8	k-ft - ACI10.3
M_u / ϕM_n:	0.09	Result: OK
Load Direction Controling Flexural Capacity:	Diagonal to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	100.2	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	1790.2	k-ft
M_u / ϕM_n:	0.06	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0022	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0022	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	11	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	11	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1983.7	k - ACI11.12.2.1
V_u / ϕV_c:	0.00	Result: OK
Factored Moment in Pier (M_u):	530.8	k-ft
Pier Moment Capacity (ϕM_n):	2451.3	k-ft
M_u / ϕM_n:	0.22	Result: OK
Factored Shear in Pier (V_u):	9.0	k
Pier Shear Capacity (ϕV_n):	386.3	k
V_u / ϕV_c:	0.02	Result: OK
Pier Shear Reinforcement Ratio:	0.0005	No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k
Pier Tension Capacity (ϕT_n):	938.5	k
T_u / ϕT_n:	0.00	Result: OK
Factored Compression in Pier (P_u):	0.0	k
Pier Compression Capacity (ϕP_n):	7167.7	k - ACI10.3.6.2
P_u / ϕP_n:	0.00	Result: OK
Pier Compression Reinforcement Ratio:	0.004	NG - Increase Pier Steel - ACI10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.22	Result: OK

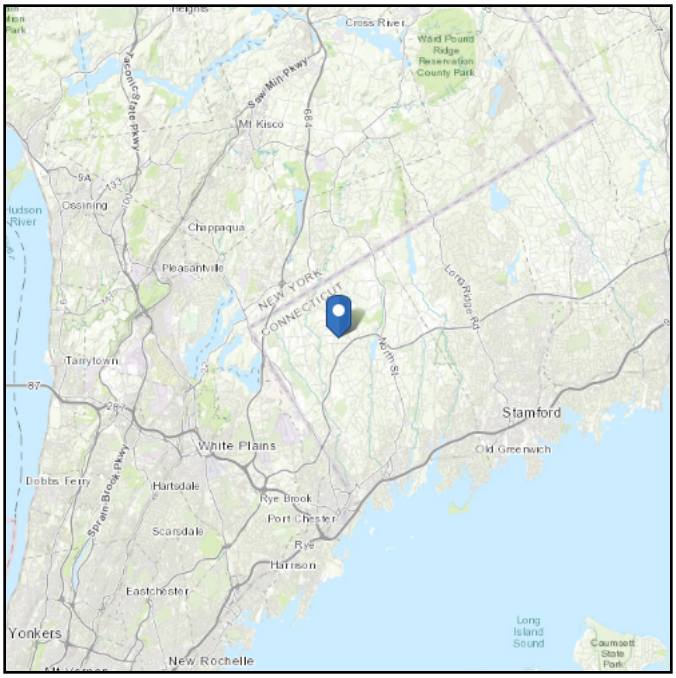
Nominal and Design Moment Capacity and Factored Design Loads



ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	378.96 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.095117
Soil Class:	D - Stiff Soil	**Longitude:**	-73.664219



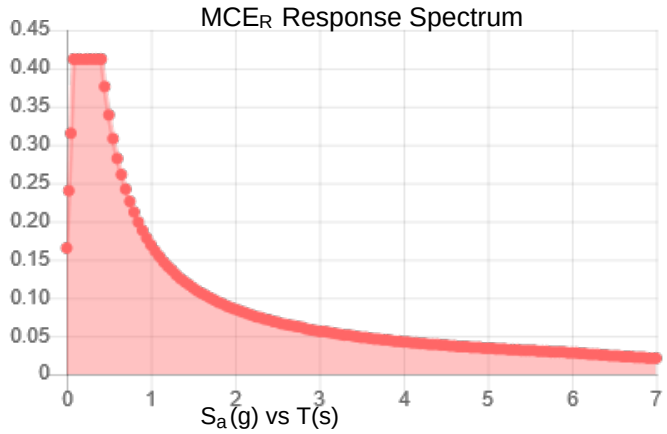
Seismic

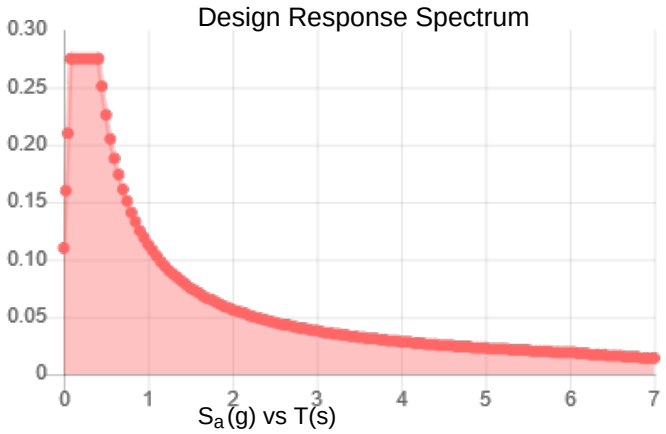
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.259	S_{DS} :	0.275
S_1 :	0.071	S_{D1} :	0.113
F_a :	1.593	T_L :	6
F_v :	2.4	PGA :	0.152
S_{MS} :	0.412	PGA_M :	0.228
S_{M1} :	0.169	F_{PGA} :	1.495
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Sep 11 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Sep 11 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
				Wind Design Parameters								
Municipality	**Ground Snow Load**	**MCE Spectral Accelerations** (%g)		**Ultimate Design Wind Speeds,** V_{ult} (mph)			**Nominal Design Wind Speeds,** V_{asd} (mph)			**Wind-Borne Debris Regions**[1]		**Hurricane-Prone Regions**
		S_s	S_1	Risk Cat.I	Risk Cat.II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes
Hamden	30	0.185	0.063	115	125	135	89	97	105			Yes
Hampton	35	0.172	0.062	120	130	140	93	101	108			Yes
Hartford	30	0.181	0.064	115	125	135	89	97	105			Yes
Hartland	40	0.175	0.065	110	120	125	85	93	97			Yes
Harwinton	35	0.183	0.065	110	120	130	85	93	101			Yes
Hebron	30	0.177	0.063	120	130	140	93	101	108			Yes
Kent	40	0.188	0.065	105	115	120	81	89	93			
Killingly	40	0.171	0.062	120	130	140	93	101	108			Yes
Killingworth	30	0.173	0.061	120	130	140	93	101	108			Yes
Lebanon	30	0.173	0.062	120	130	140	93	101	108			Yes
Ledyard	30	0.163	0.059	125	135	145	97	105	112		Type A	Yes
Lisbon	30	0.169	0.061	125	135	145	97	105	112		Type A	Yes
Litchfield	40	0.184	0.065	110	120	125	85	93	97			Yes
Lyme	30	0.164	0.059	125	135	145	97	105	112		Type A	Yes
Madison	30	0.173	0.060	120	130	140	93	101	108		Type B	Yes
Manchester	30	0.178	0.064	115	125	135	89	97	105			Yes
Mansfield	35	0.173	0.062	120	130	140	93	101	108			Yes
Marlborough	30	0.177	0.062	120	130	140	93	101	108			Yes
Meriden	30	0.183	0.063	115	125	135	89	97	105			Yes
Middlebury	35	0.191	0.064	110	120	130	85	93	101			Yes
Middlefield	30	0.181	0.063	115	125	135	89	97	105			Yes
Middletown	30	0.180	0.063	115	130	135	89	101	105			Yes
Milford	30	0.194	0.063	115	125	135	89	97	105		Type B	Yes
Monroe	30	0.205	0.065	110	120	130	85	93	101			Yes
Montville	30	0.165	0.059	125	135	145	97	105	112		Type A	Yes
Morris	35	0.187	0.065	110	120	125	85	93	97			Yes
Naugatuck	30	0.190	0.064	110	125	135	85	97	105			Yes
New Britain	30	0.183	0.064	115	125	135	89	97	105			Yes
New Canaan	30	0.240	0.068	110	120	130	85	93	101			Yes
New Fairfield	35	0.212	0.067	105	115	125	81	89	97			
New Hartford	40	0.180	0.065	110	120	130	85	93	101			Yes

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UNITED STATES US

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TOWN OF GREENWICH
101 FIELD POINT RD

GREENWICH CT 06830
(203) 622-7700
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PO:
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DEPT:

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SHIP DATE: 04NOV19
ACTWGT: 1.00 LB
CAD: 11104078/INET4160

BILL SENDER

TO **KATIE DELUCA**
TOWN OF GREENWICH
101 FIELD POINT RD

GREENWICH CT 06830
(203) 622-7700
INV:
PO:
REF: CT43XC856 CSC FILING
DEPT:

J192119991991uu

FedEx Express

567J1/F330/05A2

TRK# 0201 **7768 9062 7485**

THU - 07 NOV 4:30P
EXPRESS SAVER

K5 CTXA

06830
CT-US **SWF**

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ORIGIN ID:LKKA (973) 477-8032
STEVE SOFMAN
CHARLES CHERUNDOLO CONSULTING
976 TABOR ROAD
SUITE 4B
MORRIS PLAINS, NJ 07950
UNITED STATES US

SHIP DATE: 04NOV19
ACTWGT: 1.00 LB
CAD: 111040781/INET4160

BILL SENDER

TO LYNDA KINNEY
ROUND HILL COMMUNITY CHURCH
395 ROUND HILL RD

GREENWICH CT 06831
(203) 869-1091
INV:
PO:
REF: CT43XC866 CSC SUBMISSION
DEPT:

567J1/F330/05A2

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