



Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
denise@northeastsitesolutions.com

February 6, 2023

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
31 Chestnut Hill Road, Colchester CT 06415
Latitude: 41.57132711
Longitude: -72.30232222
Site #: CT02220-S_BOBOS00887B_SBA_DISH

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 31 Chestnut Hill Road, Colchester, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 154-foot level of the existing 180-foot tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the fenced compound. Included are plans by B+T, dated January 26, 2023, Exhibit C. Also included is a structural analysis prepared by TES, stamped January 26, 2023, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Town of Colchester, Approval No. SDP#99-238, received on November 3, 1999. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to The Honorable Andreas Bisbikos, First Selectman and Ariel Lago, ZEO for the Town of Colchester, as well as the tower owner and property owner.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 180-feet and the Dish Wireless LLC antennas will be located at a center line height of 154-feet.

2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 17.34% as evidenced by Exhibit F.

Connecticut General Statutes 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully submits that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included as Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this tower in Colchester. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a Letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 154-foot level of the existing 180-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish Wireless LLC with this tower sharing application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Colchester.

Sincerely,

Denise Sabo

Denise Sabo

Mobile: 203-435-3640

Fax: 413-521-0558

Office: 4 Angela's Way, Burlington CT 06013

Email: denise@northeastsitesolutions.com



NSS

NORTHEAST
SITE SOLUTIONS

Turnkey Wireless Development

Attachments

Cc: The Honorable Andreas Bisbikos
Town of Colchester
127 Norwich Ave, Colchester Ct 06415

Ariel Lago, ZEO
Town of Colchester
127 Norwich Ave, Colchester Ct 06415

John and Mary Przyborowski– Property Owner
3560 Oriental Ave, Box 602, Fishers Island NY 06390

SBA - Tower Owner

Exhibit A

Original Facility Approval

SITE ID #10125-020

SITE NAME: Colchester 2

JOB COST #002220

CTO 2220-S

ZONING/PERMITTING COMPLETION FORM

Zoning Classification for Site: *I-Industrial*

Special Relief (setback, height variance, special use permit, wetlands permit etc.):

Site Development Plan Approval

* Date of Zoning Decision: 11/03/99

Summary of zoning conditions **(Include details of any conditions relative to time restrictions, expiration dates, renewal obligations, monetary obligations, performance obligation, inspection fees).**

See attached.

Submitted by: Esther McNany

Title: Territory Manager

Territory Manager Approval:

* Attach a copy of the Zoning decision and forward to the Regional Compliance Manager as soon as possible, after the decision.



Planning and Zoning

Planning Director
Town Engineer
Code Administration
Health Director
Building Official
Fire Marshal
Registered Sanitarian
Zoning Enforcement
Wetlands Enforcement

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

November 4, 1999

Ms. Esther McNany
SBA Inc.
125 Shaw Street
New London, CT 06320

RE: SDP#99-238, SBA/Omnipoint Communications, 31 Chestnut Hill Road,
Communications Tower, Site Development Plan prepared by Goodkind & O'Dea
Inc (Job#CT10125-020) dated 9/28/99 revised through 10/19/99

Dear Ms. McNany:

The above referenced site development plan was approved by the Zoning & Planning Commission at their regular meeting held November 3, 1999.

Per Section 12.10.1 of the Zoning Regulations, a bond in the amount of 25% of the total cost of site improvements must be posted prior to the endorsement of this plan and/or commencement of work. A bond estimate must be submitted to the Town Engineer for his review and approval.

If you have any questions, please call me at 537-7283.

Very truly yours,

Alicia Lathrop
Zoning Enforcement Officer

COLCHESTER ZONING AND PLANNING COMMISSION
 WEDNESDAY, OCTOBER 20, 1999
 TOWN HALL, 127 NORWICH AVENUE, COLCHESTER, CT

MINUTES OF MEETING

MEMBERS PRESENT: Chairman Robert Weeks, Michel Ciccone, James Ford, John Gagnon, L. Kieft-Robitaille, John Mahoney, Mark Noniewicz, Ronald Vasquez

MEMBERS ABSENT: Joseph Mathieu

STAFF PRESENT: Larry Dunkin, AICP, Planning Director, Alicia Lathrop, Zoning Enforcement Officer and Deanna Rhodes, Clerk

1. CALL MEETING TO ORDER

The regular meeting of the Zoning and planning Commission was called to order at 7:02 p.m. by Chairman Robert Weeks.

2. ADDITIONS TO AGENDA

A. Lathrop requested the order of the agenda be changed for Item 6A, Pending Applications, to be addressed with Item 7C, New Applications.

MOTION by J. Ford, SECOND by J. Mahoney to move Item 6A to be addressed concurrently with Item 7C. **MOTION CARRIED UNANIMOUSLY.**

3. PUBLIC HEARINGS

A. Lathrop read the legal warning.

A. SE#99-138, H. Waltmire, 328 West Road, Accessory Apartment

Public Hearing Record Items

- a. Application SE#99-138, W. Henry Waltmire applicant
- b. Floor plan, proposed accessory apartment and plot plan showing proposed addition
- c. Staff Report, Alicia Lathrop, Zoning Enforcement Officer, dated 10/19/99
- d. Sign-off/Approval by Director of Health, Wendy S. Mis, dated 10/13/99
- e. Staff Report, Larry L. Dunkin, Planning Director, dated 10/20/99

A. Lathrop gave an overview of the proposed accessory apartment, which is to be located over an existing garage planned for expansion from two to three-bays. She stated that the main entrance to the apartment would be through the primary dwelling, with the second means of egress from the second story rear deck. She noted an additional third means of egress is proposed from the interior of the garage and that the Planning Director and her have differing opinions about allowing the access through the garage. She noted the applicant was not present, but that Mrs. Peterson, the proposed tenant was.

L. Dunkin voiced concern that the egress from the garage would undermine the regulation requiring the main access to be from the primary dwelling unit. A. Lathrop stated that the zoning requirement has been met and clarified that no additional front door will exist. L.

RECEIVED
 COLCHESTER, CT
 99 OCT 22 AM 10:19
 ALCIA A. LATHROP
 ZONING ENFORCEMENT CLERK

Dunkin stated the off-street parking shown on the plan needs to be corrected and increased to meet the requirements.

Speaking in Favor: Sally Peterson, mother of the applicant, stated she will be the tenant of the apartment and is in favor of the application.

Speaking in Opposition: No one spoke.

MOTION by J. Mahoney, SECOND by M. Ciccone to CLOSE THE PUBLIC HEARING.
MOTION CARRIED UNANIMOUSLY.

4. FIVE-MINUTE SESSION FOR THE PUBLIC - No one spoke.

5. MINUTES OF THE PREVIOUS MEETING – 10/6/99 Mtg.

MOTION by M. Ciccone, SECOND by J. Gagnon to APPROVE 10/06/99 minutes.
ABSTAINED: J. Mahoney, M. Noniewicz and L. Kieft-Robitaille. VOTING IN FAVOR: All others present. **MOTION CARRIED.**

6. PENDING APPLICATIONS

B. SE#99-138, H. Waltmire, 328 West Road, Accessory Apartment (DRD 65 days close PH)

MOTION by J. Mahoney, SECOND by J. Gagnon to APPROVE SE#99-138 conditional upon the off-street parking meeting the zoning requirements. **MOTION CARRIED UNANIMOUSLY.**

C. SDP#99-237, BRG Interests, 119 Broadway, Modified site plan (DRD 12/10/99)

A. Lathrop explained that this application is for a modification to a previously approved site plan for which a bond has already been placed. She stated the modified site plan reverts to the original parking configuration and eliminates from the current proposal the construction of the second building.

Bruce Goldstein, owner of the property, stated there will be a single tenant instead of three and there will be only one handicapped ramp.

A: Lathrop clarified to the Commission that the site plan presented is the build out of Phase I and the required drainage. The Town Engineer's comments have been addressed and approval was given by the State of Connecticut Department of Transportation.

MOTION by J. Mahoney, SECOND by J. Gagnon to APPROVE SDP#99-237. **MOTION CARRIED UNANIMOUSLY.**

7. NEW APPLICATIONS

A. SUB#99-303, L. Savitsky, 314 Westchester Road, 1 lot re-subdivision

B. SUB#99-304, G. Gallucci, Taylor Road, 3 lot re-subdivision

MOTION BY J. Mahoney, SECOND by J. Ford to SET PUBLIC HEARINGS for November 17, 1999. **MOTION CARRIED UNANIMOUSLY.**

C. SDP#99-238, SBA/Omnipoint Communications, 31 Chestnut Hill Road, Site Development Plan, Communications Tower (DRD 12/24/99)
SDP#99-235, SBA/Omnipoint Communications, 48 Westchester Road, Site Development Plan, Communications Tower (DRD 11/5/99)

A. Lathrop gave an overview of the applications which are for two separate telecommunications towers, one behind Carefree Building on Westchester Road and the other location on Chestnut Hill Road near Exit 21 off Route 2. She stated that the Westchester Road location has received approval from the Conservation Commission for the wetlands crossing and that the applicant is requesting an exception to exceed the height restriction for both locations.

Esther McNany, representing SBA, Inc. and Omnipoint, addressed the Commission and stated that SBA, Inc. will be the site manager and owner of the proposed towers and Omnipoint will lease space on the towers. She presented information displaying coverage gaps in and around Colchester and clarified that the main purpose of the towers is to service customers using portable phones while in transport along main roadway corridors throughout the State.

Jim Ford voiced concern about multiple towers within close proximity to each other and sharing of towers by carriers. A discussion ensued.

L. Dunkin reminded the Commission that the regulations allow for telecommunication towers in all zones as public utilities. A. Lathrop stated that both site plans meet the zoning regulations.

MOTION by J. Ford, SECOND by J. Mahoney to TABLE SDP#99-235 and SDP#99-238. VOTING IN FAVOR: J. Gagnon, R. Vasquez, J. Ford, J. Mahoney and R. Weeks, VOTING IN OPPOSITION: M. Ciccone, M. Noniewicz and L. Kieft-Robitaille. **MOTION CARRIED.**

8. OLD BUSINESS - None

9. NEW BUSINESS - None

10. COMMUNICATIONS

A. Lathrop distributed information compiled regarding "Transitional Living Facilities", Fair Housing Act and cellular towers. She also distributed a draft of the Zoning and Planning Commission Year 2000 meeting schedule.

R. Weeks stated that a new member, Joseph Mathieu, has been appointed to the Commission.

11. ZONING ENFORCEMENT OFFICER'S REPORT

J. Ford questioned A. Lathrop about enforcement regarding an addition to a tower on Old Hartford Road. A. Lathrop stated that an exception to the height limit was granted at the time of approval and that a specific height limit was not stated. She noted a building permit has been issued for the additional tower on the silo. A discussion ensued regarding creating cellular tower regulations.

12. PLANNING ISSUES & DISCUSSION

L. Dunkin stated that the next regular meeting for the Subcommittee for the Plan of Conservation and Development will meet on November 10, 1999.

13. ADJOURNMENT

MOTION by J. Mahoney, SECOND by M. Noniewicz to ADJOURN. **MOTION CARRIED UNANIMOUSLY.** The meeting was adjourned at 8:32 p.m.


Deanna Rhodes, Clerk

CT 2220-5

CT 33XC 575 Colchester SPA

TOWN OF COLCHESTER
BUILDING PERMIT

| | |
|-----------------|------------------|
| OFFICE USE ONLY | |
| Street | 31 Chestnut Hill |
| Map | Lot |
| Date | Feb 23 2000 |
| PERMIT | No 8319 |

| | | | | | | |
|----------|------------|-----|----------|--|----------------|---------------------------|
| FEE PAID | Structural | 450 | Plumbing | | Misc. (SFA) | 87.20 |
| | Septic | | Heating | | Misc. (SFA) | 10 |
| | Electrical | | Well | | Total Fee Paid | 450 + 87.20 + 10 = 547.20 |

PERMISSION IS HEREBY GRANTED TO SPRINT PCS
 to: erect 1, alter , enlarge , repair , move , demolish , a Antenna
 located at 31 Chestnut Hill on land
 owned by John Pazy Borowski
 Said: erection 1, alteration , enlargement , repairs , removal , demolition , to be
 occupied as Communications Equipment
 as described in Application No. and to conform with plans and specifications filed with
 application, all provisions of the Connecticut Building Code and to comply with all other laws and rules relating to this
 subject. If no work is performed within six months from the time of issuance, this permit shall expire by limitation as
 provided by law.

REMARKS Antenna & Associated Equipment

Receipt No. 1163

Approved by Timothy E. York
Timothy E. York
 Building Inspector

Please refer to notice on reverse side of this permit
 WHITE: Applicant CANARY: Assessor PINK: Gen. File GOLDENROD: Street File

SITE # 10125-020
 FILE TYPE CO-LO
 SECTION SPRINT

Attention: Steve Mauro
 201-684-4141

SBA
 Ed Dupont
 860-659-9140

Exhibit B

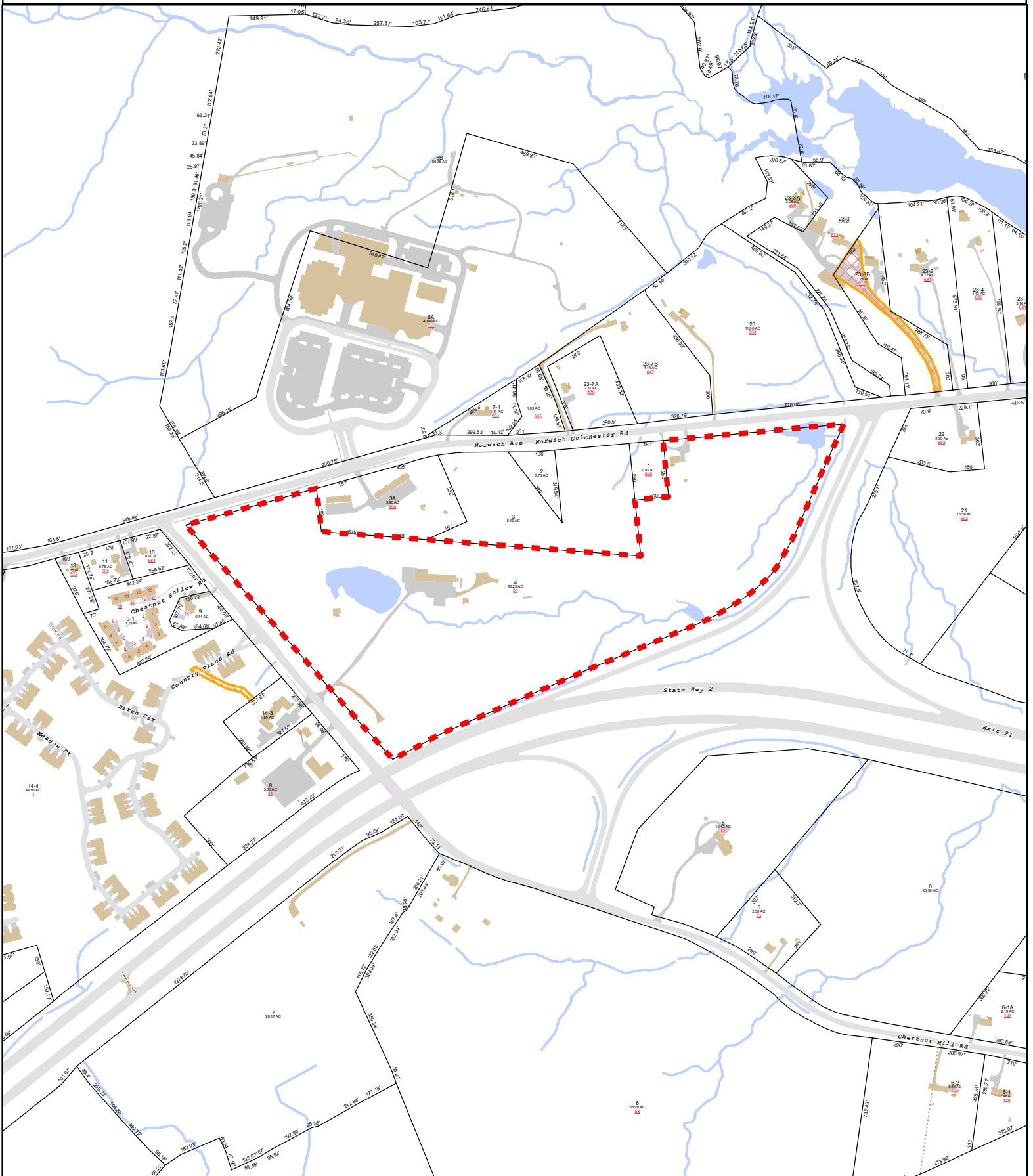
Property Card



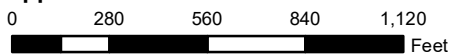
Town of Colchester, Connecticut - Assessment Parcel Map

Parcel: 4W-01-004-000

Address:



Approximate Scale: 1 inch = 550 feet



Map Produced: April 2021 / Grand List: 2020

Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Colchester and its mapping contractors assume no legal responsibility for the information contained herein.



Town of Colchester, CT

Property Report

Map Block Lot

4W-01/004-000

PID 4018

Building # 1

Section # 1

Account

P0499600

Property Information

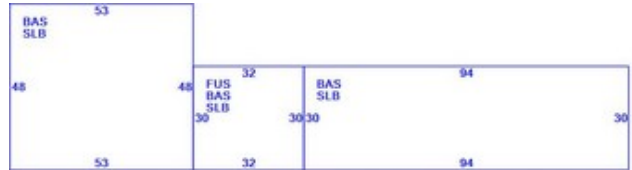
| | |
|-------------------|--|
| Property Location | 31 CHESTNUT HILL RD |
| Owner | PRZYBOROWSKI JOHN JR + MARY |
| Co-Owner | na |
| Mailing Address | 3560 ORIENTAL AVE BOX 602 FISHERS ISLAND NY 06390 |
| Land Use | 4010 Ind Whse MDL-96 |
| Land Class | I |
| Zoning Code | GC |
| Census Tract | |

| | |
|------------------|-----------------|
| Neighborhood | |
| Acreage | 40.25 |
| Utilities | UNKNOWN |
| Lot Setting/Desc | UNKNOWN UNKNOWN |
| Additional Info | |

Photo



Sketch



Primary Construction Details

| | |
|--------------------|---------------|
| Year Built | 1952 |
| Stories | 2 |
| Building Style | Warehouse |
| Building Use | Commercial |
| Building Condition | |
| Interior Floors 1 | Concrete Slab |
| Interior Floors 2 | NA |
| Total Rooms | 0 |
| Basement Garages | |
| Occupancy | 1.00 |
| Building Grade | |

| | |
|----------------|-----------|
| Bedrooms | 0 |
| Full Bathrooms | 0 |
| Half Bathrooms | 0 |
| Extra Fixtures | 0 |
| Bath Style | |
| Kitchen Style | |
| Roof Style | Gable |
| Roof Cover | Metal/Tin |
| AC Type | None |
| Fireplaces | 0 |

| | |
|------------------|----------------|
| Exterior Walls | Wood Shingle |
| Exterior Walls 2 | Pre-finsh Metl |
| Interior Walls | Minimum |
| Interior Walls 2 | NA |
| Heating Type | None |
| Heating Fuel | Coal or Wood |
| Sq. Ft. Basement | |
| Fin BSMT Quality | |
| Extra Kitchens | |

Exhibit C

Construction Drawings



DISH Wireless L.L.C. SITE ID:

BOBOS00887B

DISH Wireless L.L.C. SITE ADDRESS:

**31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415**



By sroth at 5:17:13 PM, 1/26/2023

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- TOWER SCOPE OF WORK:**
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
 - INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT
 - INSTALL PROPOSED JUMPERS
 - INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
 - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
 - INSTALL (1) PROPOSED HYBRID CABLE

- GROUND SCOPE OF WORK:**
- INSTALL (1) PROPOSED ICE BRIDGE
 - INSTALL (1) PROPOSED PPC CABINET
 - INSTALL (1) PROPOSED EQUIPMENT CABINET
 - INSTALL (1) PROPOSED POWER CONDUIT
 - INSTALL (1) PROPOSED TELCO CONDUIT
 - INSTALL (1) PROPOSED TELCO-FIBER BOX
 - INSTALL (1) PROPOSED GPS UNIT
 - INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

SITE INFORMATION

PROPERTY OWNER: SBA TOWERS INC
ADDRESS: 8051 CONGRESS AVENUE
BOCA RATON, FL 33487

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: CT02220-S

TOWER APP NUMBER: 177518

COUNTY: NEW LONDON

LATITUDE (NAD 83): 41° 34' 16.78" N
41.57132711°

LONGITUDE (NAD 83): 72° 18' 8.36" W
-72.30232222°

ZONING JURISDICTION: CITY OF COLCHESTER

ZONING DISTRICT: RESIDENTIAL

PARCEL NUMBER: 4W-01/004-000/TWR

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: CONNECTICUT LIGHT & POWER

TELEPHONE COMPANY: T.B.D

PROJECT DIRECTORY

APPLICANT: DISH Wireless L.L.C.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

TOWER OWNER: SBA COMMUNICATAIONS CORP.
8051 CONGRESS AVENUE
BOCA RATON, FL 33487
(800) 487-7483

SITE DESIGNER: B+T GROUP
1717 S. BOULDER AVE, SUITE 300
TULSA, OK 74119
(918) 587-4630

SITE ACQUISITION: APRIL PARROTT
april.parrott@dish.com

CONST. MANAGER: CHAD WILCOX
chad.wilcox@dish.com

RF ENGINEER: DIPESH PARIKH
dipesh.parikh@dish.com



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
Ph: (918) 587-4630
www.btgrp.com



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:
NGN FWP RMC
RFDS REV #: 0

CONSTRUCTION DOCUMENTS

| SUBMITTALS | | |
|------------|---------|-------------------------|
| REV | DATE | DESCRIPTION |
| 0 | 7/5/22 | ISSUED FOR CONSTRUCTION |
| 1 | 8/18/22 | ISSUED FOR CONSTRUCTION |
| 2 | 1/26/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
**31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415**

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

CONNECTICUT CODE OF COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES

| CODE TYPE | CODE |
|------------|---|
| BUILDING | 2022 CT STATE BUILDING CODE/2021 IBC W/ CT AMENDMENTS |
| MECHANICAL | 2022 CT STATE BUILDING CODE/2021 IMC W/ CT AMENDMENTS |
| ELECTRICAL | 2022 CT STATE BUILDING CODE/2020 NEC W/ CT AMENDMENTS |

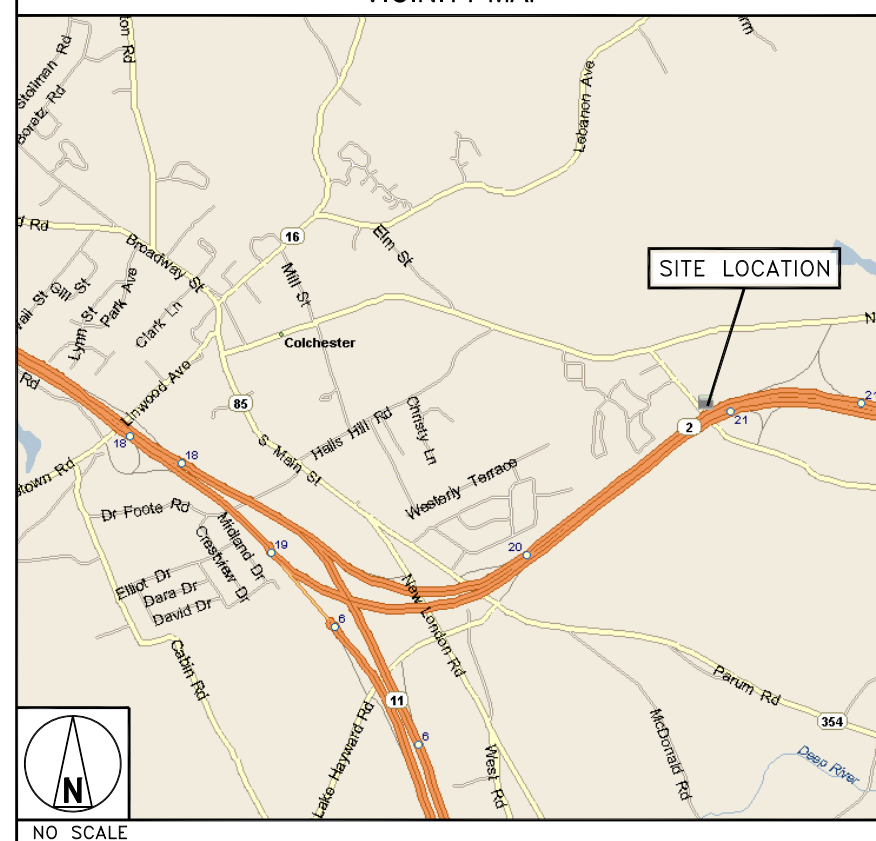
SITE PHOTO



DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:
GET ON BRADLEY INTERNATIONAL CON IN EAST GRANBY FROM BRADLEY INTERNATIONAL AIRPORT, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, CONTINUE STRAIGHT, KEEP RIGHT TO CONTINUE TOWARD BRADLEY INTERNATIONAL AIRPORT CON, TAKE I-91 S AND CT-2 E TO CHESTNUT HILL RD IN COLCHESTER. TAKE EXIT 21 FROM CT-2 E, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, TAKE THE EXIT ONTO I-91 S TOWARD HARTFORD, TAKE EXIT 30 ON THE LEFT TO MERGE ONTO I-84, TAKE EXIT 55 FOR CT-2 E TOWARD NORWICH/NEW LONDON/I-84 E, CONTINUE ONTO CT-2 E, KEEP LEFT AT THE Y JUNCTION TO STAY ON CT-2 E, FOLLOW SIGNS FOR 2 E, TAKE EXIT 21 FOR CHESTNUT HILL RD, TURN RIGHT ONTO CHESTNUT HILL RD AND ARRIVE AT BOBOS00887B.

VICINITY MAP



UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

SHEET INDEX

| SHEET NO. | SHEET TITLE |
|-----------|---|
| T-1 | TITLE SHEET |
| LS1 | SITE SURVEY |
| A-1 | OVERALL AND ENLARGED SITE PLAN |
| A-2 | ELEVATION, ANTENNA LAYOUT AND SCHEDULE |
| A-3 | EQUIPMENT PAD AND H-FRAME DETAILS |
| A-4 | EQUIPMENT DETAILS |
| A-5 | EQUIPMENT DETAILS |
| A-6 | EQUIPMENT DETAILS |
| E-1 | ELECTRICAL/FIBER ROUTE PLAN AND NOTES |
| E-2 | ELECTRICAL DETAILS |
| E-3 | ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE |
| G-1 | GROUNDING PLANS AND NOTES |
| G-2 | GROUNDING DETAILS |
| G-3 | GROUNDING DETAILS |
| RF-1 | RF CABLE COLOR CODE |
| GN-1 | LEGEND AND ABBREVIATIONS |
| GN-2 | RF SIGNAGE |
| GN-3 | GENERAL NOTES |
| GN-4 | GENERAL NOTES |
| GN-5 | GENERAL NOTES |

NOTES:

1. THIS SURVEY AND MAP HAVE BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEY AND MAPS IN THE STATE OF CONNECTICUT," AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPT. 26, 1996.

IT IS A ZONING LOCATION SURVEY BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2 AND INTENDED TO BE USED FOR THE PURPOSE OF DEPICTING ZONING COMPLIANCE.

2. THE TYPE OF SURVEY IS FOR LEASED PROPERTY AND IS INTENDED TO DEPICT THE LIMITS OF THE PROJECT AREA OF PROPERTY FOR THE PROJECT REFERENCED HEREON.

3. THE BASE LINE FROM WHICH THIS PROPERTY TRANSACTION IS REFERENCED CONFORMS TO CLASS A-2 HORIZONTAL ACCURACY.

4. COORDINATE SYSTEM IS NORTH AMERICAN DATUM OF 1927 (NAD 27).

5. VERTICAL DATUM IS NATIONAL GOEDETIC VERTICAL DATUM OF 1929.

LEGEND

DATUM IS MEAN SEA LEVEL

- EXISTING HIGHWAY LINE/PROPERTY LINE
- PROPOSED LEASE AREA
- BUILDING SETBACKS ZONE INDUSTRIAL
- COLCHESTER ZONING SECTION 4H.4 SETBACKS
- WETLAND BOUNDARY
- TREE, HEDGE, EDGE OF WOODS
- EXISTING CONTOUR
- EXISTING SPOT ELEVATION @ X
- BARBED WIRE, FARM AND CHAIN LINK FENCE
- EXISTING UTILITY POLE AND OVERHEAD UTILITIES
- PROPOSED UTILITY POLE AND OVERHEAD UTILITIES
- CHD BOUNDARY MONUMENT
- CLEARING LINE

REFERENCE MAPS:

1. "RIGHT OF WAY MAP, TOWN OF COLCHESTER, VETERANS OF FOREIGN WARS MEMORIAL HIGHWAY FROM MILL HILL ROAD EASTERLY TO CHESTNUT HILL ROAD" BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION, SCALE 1"=80' DATED NOVEMBER 26, NUMBER 28-14, SHEETS 1 AND 2 OF 8.
2. "TOWN OF COLCHESTER, MAP SHOWING LAND, EASEMENT & RIGHTS OF ACCESS ACQUIRED FROM RELOCATION OF ROUTE 2, JOHN PRZYBOROWSKI JR. " BY THE STATE OF CONNECTICUT, SCALE 1"=200', DATED 09/63, TOWN NO. 28, PROJECT NO. 28-109, SERIAL 48, SHEET 1 OF 1.
3. "PLAN MADE FOR JOHN PRZYBOROWSKI, PORTION OF PROPERTY ON ROUTE 2, TOWN OF COLCHESTER, CONNECTICUT" SCALE 1"=50', RECEIVED FOR FILING BY THE TOWN CLERK'S OFFICE OF COLCHESTER ON 11/04/64, CTC DRAWER 7, SHEET 42A.

PROPERTY INFORMATION

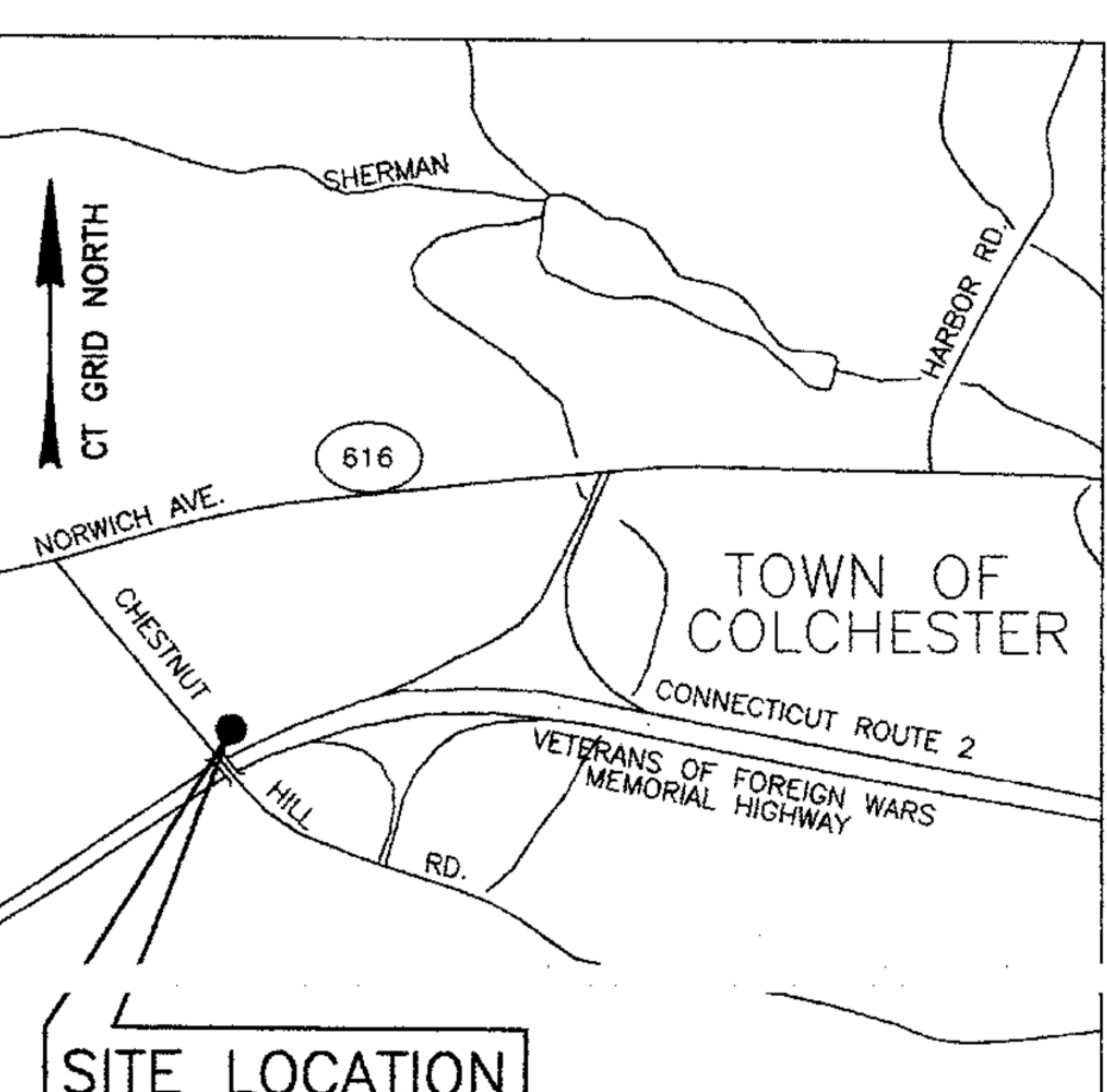
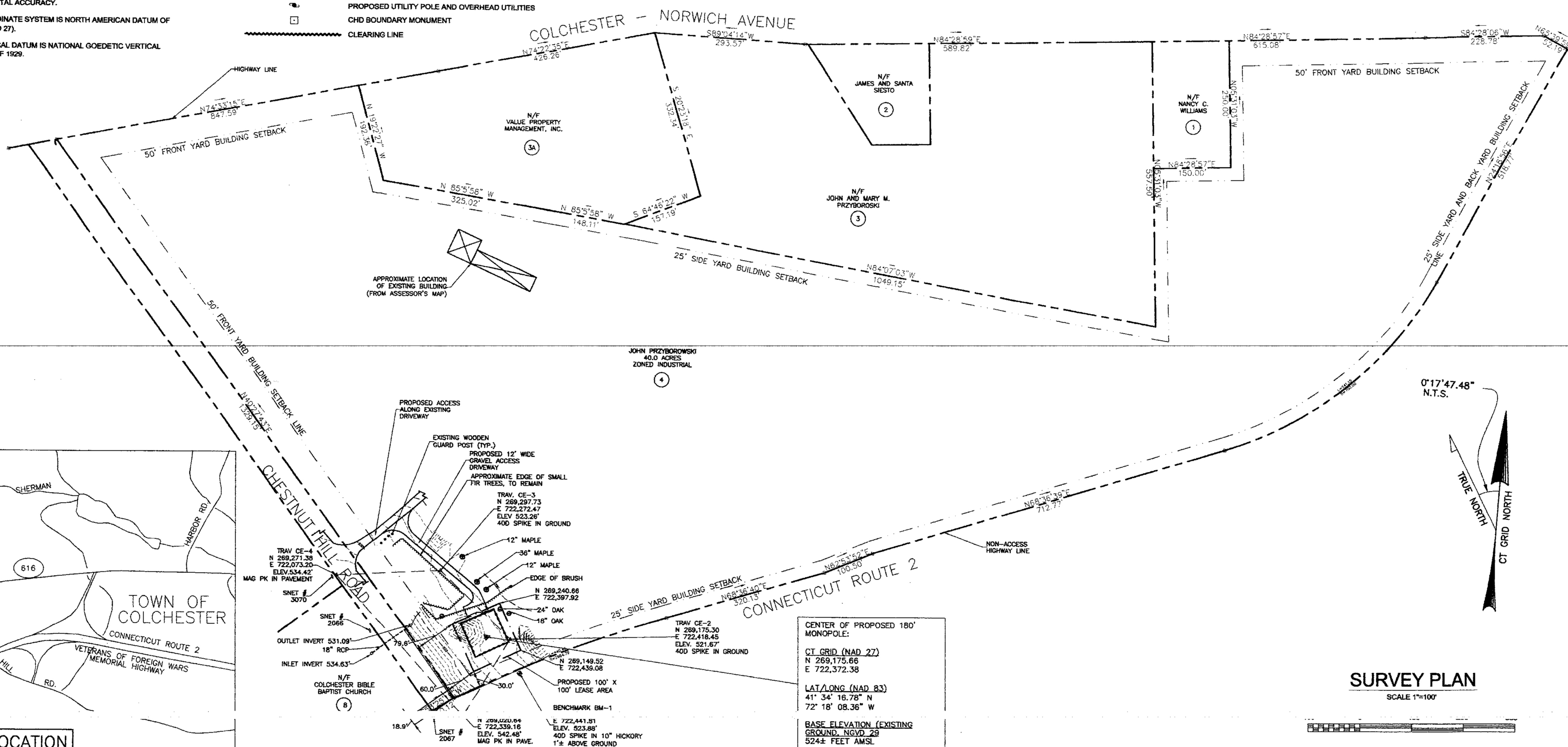
1. PROPERTY ADDRESS:
CHESTNUT HILL ROAD
COLCHESTER, CT 06415
2. PROPERTY OWNER:
JOHN PRZYBOROWSKI, JR.
681 NORWICH AVENUE
COLCHESTER, CT 06415
- DEED: CTC VOLUME 80, PAGE 485
2. ASSESSOR DATA: MAP 4W-1, LOT 4
3. ZONE: INDUSTRIAL
4. FEMA FIRM MAP: ZONED "X"

TOWER INFORMATION

1. LOCATION
NAD 27-CT
N 269,175.66
E 722,372.38
- GEOD LAT/LONG NAD83
41° 34' 16.78" N
72° 18' 08.36" W
2. GROUND ELEVATION AT TOWER: 524± AMSL
3. TYPE: MONOPOLE
4. TOWER HEIGHT: 180' ABOVE TOP OF FOUNDATION

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

EDWARD A. NIELSEN R.L.S. #6404
for Goodkind & O'Dea, Inc. NOTE: THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE AND EMBOSSED SEAL.

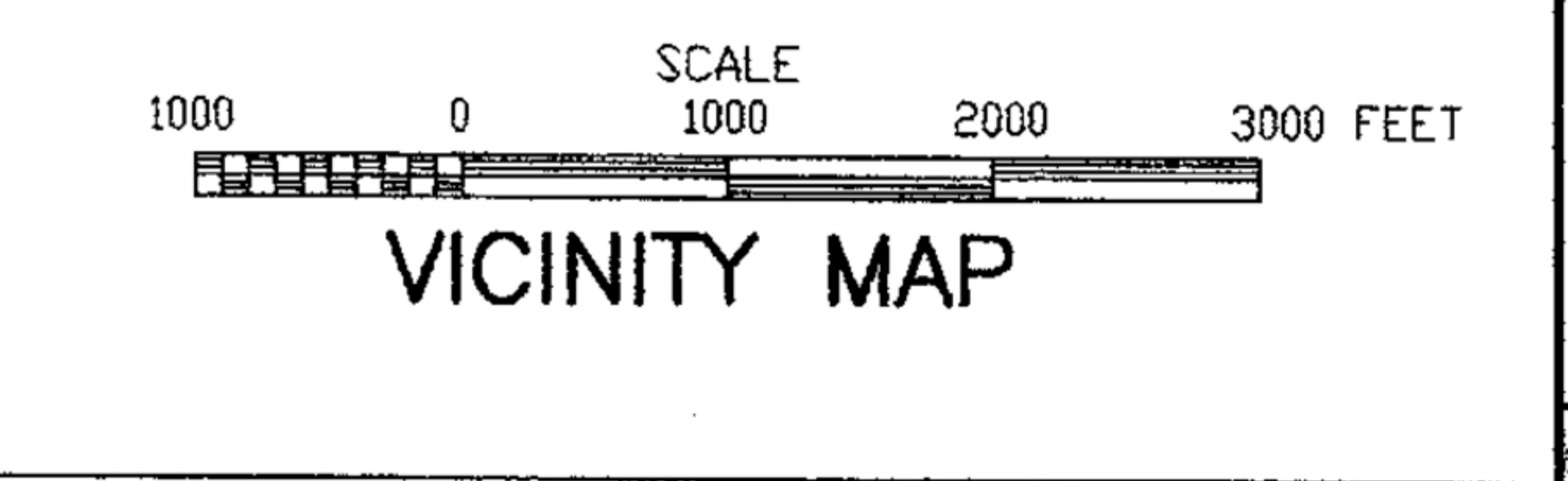


SITE LOCATION

SURVEY PLAN

SCALE 1"=100'

CENTER OF PROPOSED 180' MONOPOLE:
CT GRID (NAD 27)
N 269,175.66
E 722,372.38
LAT/LONG (NAD 83)
41° 34' 16.78" N
72° 18' 08.36" W
BASE ELEVATION (EXISTING GROUND, NGVD 29)
524± FEET AMSL



Goodkind & O'Dea, Inc.
Consulting Engineers and Planners
59 ELM STREET, SUITE 101
NEW HAVEN, CONNECTICUT 06510
(203) 776-2277

SBA, INC.
125 SHAW STREET SUITE 116
NEW LONDON, CONNECTICUT
(860) 439-0152
ESTHER McNANY
ONE TOWN CENTER RD, 3RD FL.
BOCA RATON, FL. 33486
(561) 995-7670

| | | | | | |
|----------|----------|------------------------------------|-----|-------|-------|
| NO. | DATE | REVISIONS | BY | CHK | APP'D |
| 10/25/99 | | PRELIMINARY ISSUE FOR CONSTRUCTION | EWC | EAN | FDK |
| SCALE | AS NOTED | DESIGNED | EWC | DRAWN | EWC |

COLCHESTER EAST
CHESTNUT HILL ROAD
COLCHESTER, CONNECTICUT

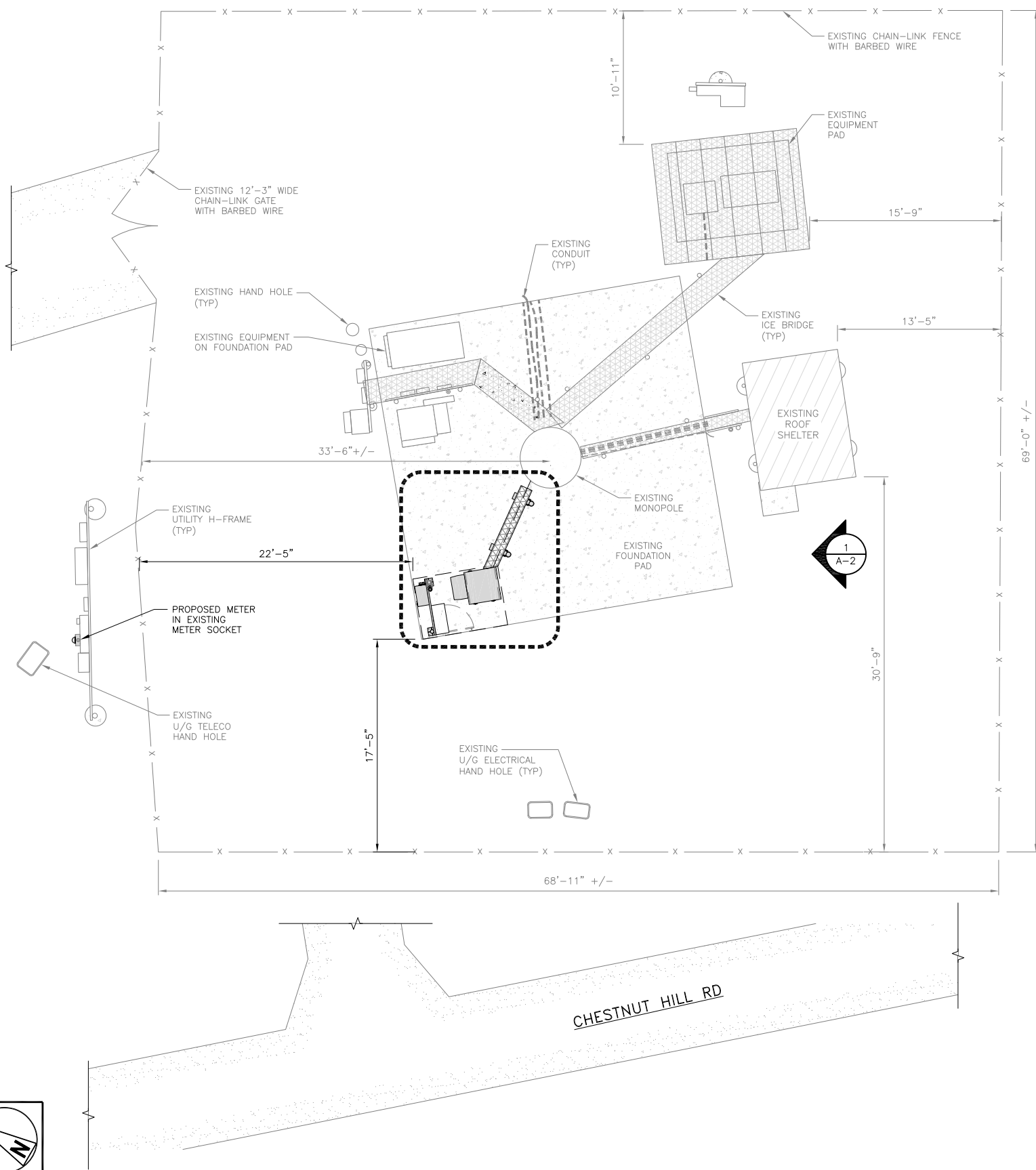
SITE NUMBER 10125-020
COLCHESTER EAST
EXISTING CONDITION SURVEY
CT5020S1 0

NOTES

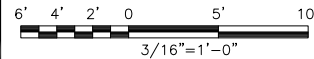
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

NOTES

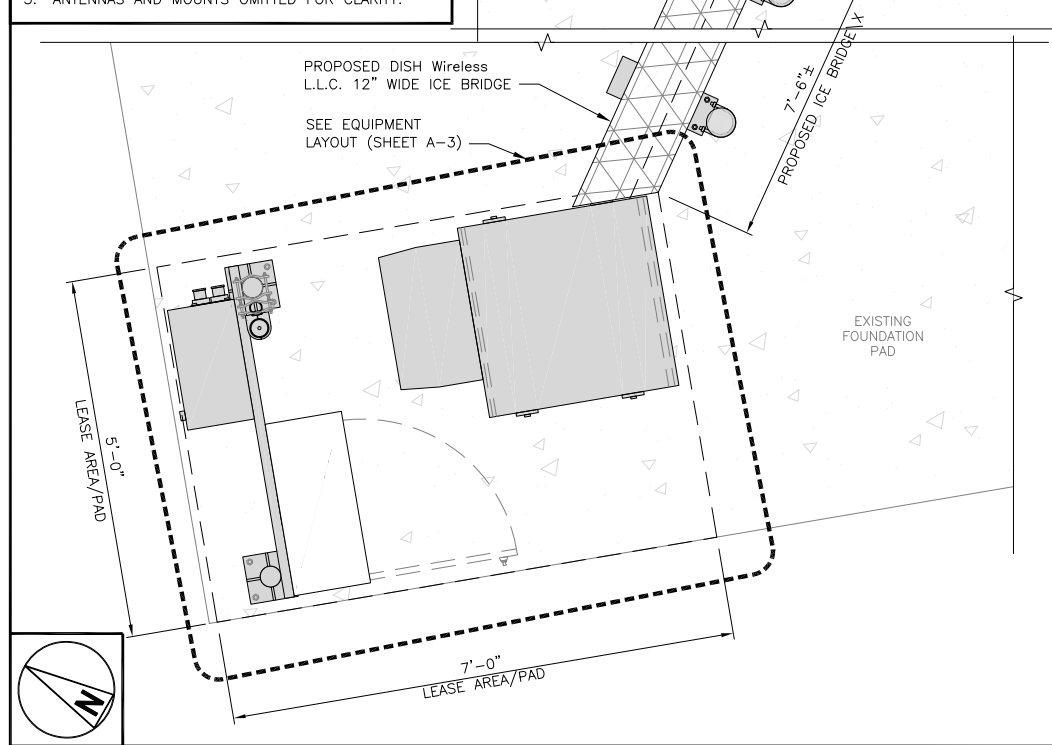
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



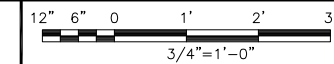
OVERALL SITE PLAN



1



ENLARGED SITE PLAN



2



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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DRAWN BY: NGN
CHECKED BY: FWP
APPROVED BY: RMC

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

| REV | DATE | DESCRIPTION |
|-----|---------|-------------------------|
| 0 | 7/5/22 | ISSUED FOR CONSTRUCTION |
| 1 | 8/18/22 | ISSUED FOR CONSTRUCTION |
| 2 | 1/26/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

A-1

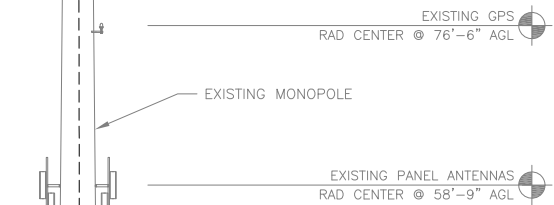
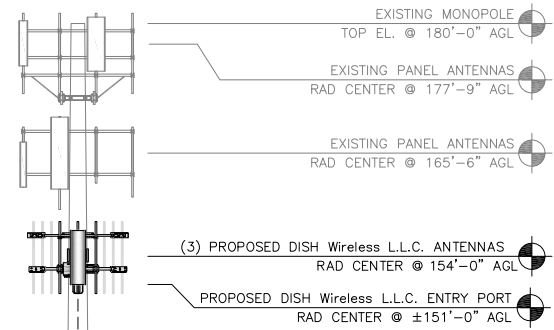
NOT USED

NO SCALE

3

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



(1) PROPOSED DISH Wireless L.L.C. HYBRID CABLE ROUTED INSIDE POLE

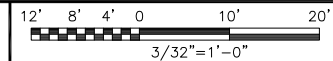
PROPOSED DISH Wireless L.L.C. ICE BRIDGE
 PROPOSED DISH Wireless L.L.C. GPS UNIT
 PROPOSED DISH Wireless L.L.C. EQUIPMENT ON EXISTING CONCRETE PAD

EXISTING ENTRY PORT

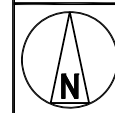
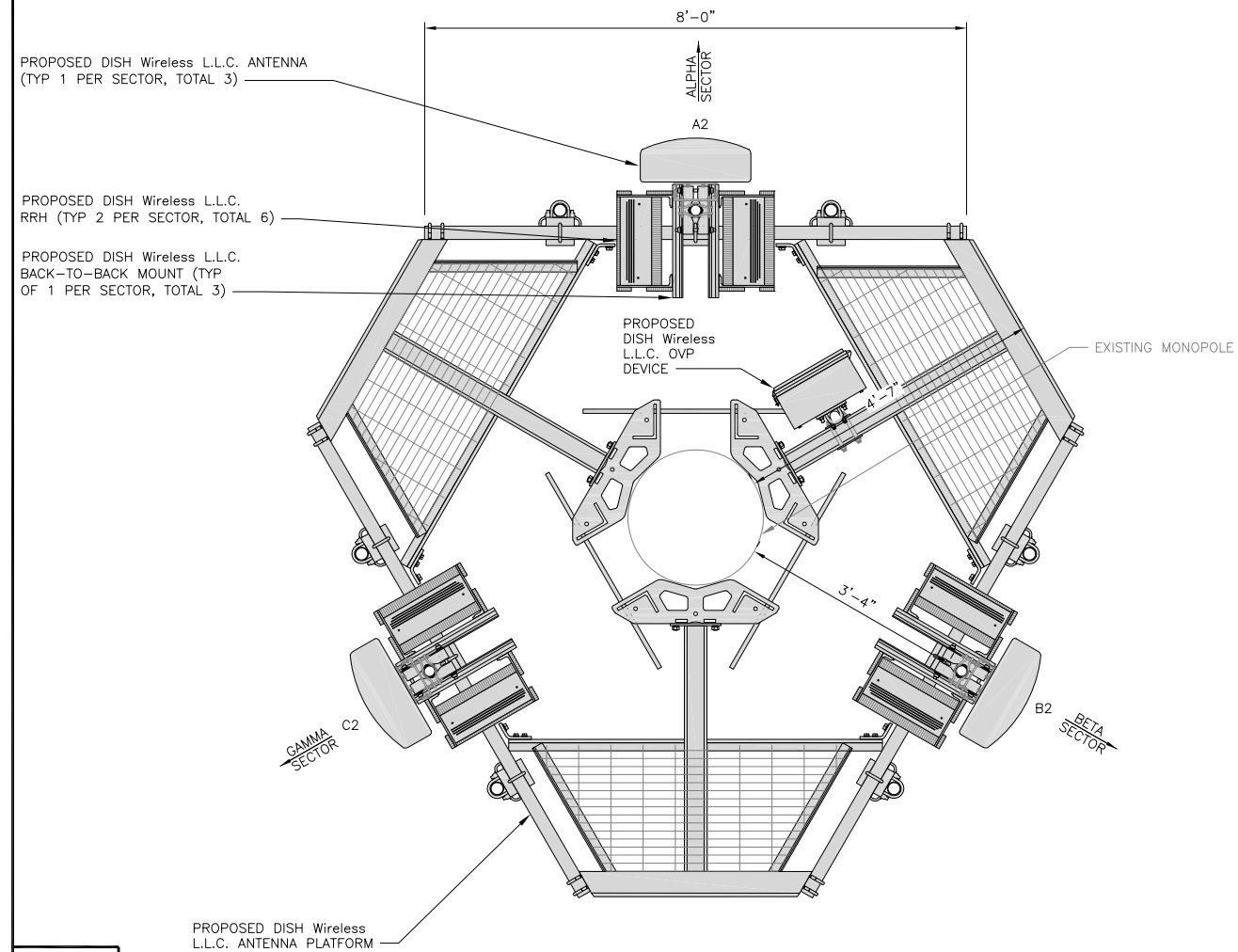
HYBRID CABLE DRIP LOOP



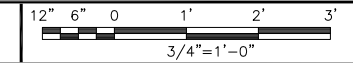
PROPOSED SOUTH EAST ELEVATION



1



ANTENNA LAYOUT



2

| SECTOR POS. | ANTENNA | | | | | TRANSMISSION CABLE | RRH | | | OVP |
|-------------|----------------------|-----------------------------|------|---------|------------|--|---------------------------|-----------------------------|------|------------------------|
| | EXISTING OR PROPOSED | MANUFACTURER - MODEL NUMBER | TECH | AZIMUTH | RAD CENTER | | FEED LINE TYPE AND LENGTH | MANUFACTURER - MODEL NUMBER | TECH | |
| A1 | -- | -- | -- | -- | -- | (1) HIGH-CAPACITY HYBRID CABLE (200' LONG) | FUJITSU - TA08025-B605 | 5G | A2 | RAYCAP RDIC-9181-PF-48 |
| A2 | PROPOSED | COMMSCOPE - FFV-65B-R2 | 5G | 0° | 154'-0" | | FUJITSU - TA08025-B604 | 5G | A2 | |
| A3 | -- | -- | -- | -- | -- | | -- | -- | -- | |
| B1 | -- | -- | -- | -- | -- | SHARED W/ALPHA | FUJITSU - TA08025-B605 | 5G | B2 | SHARED W/ALPHA |
| B2 | PROPOSED | COMMSCOPE - FFV-65B-R2 | 5G | 120° | 154'-0" | | FUJITSU - TA08025-B604 | 5G | B2 | |
| B3 | -- | -- | -- | -- | -- | | -- | -- | -- | |
| C1 | -- | -- | -- | -- | -- | SHARED W/ALPHA | FUJITSU - TA08025-B605 | 5G | C2 | SHARED W/ALPHA |
| C2 | PROPOSED | COMMSCOPE - FFV-65B-R2 | 5G | 240° | 154'-0" | | FUJITSU - TA08025-B604 | 5G | C2 | |
| C3 | -- | -- | -- | -- | -- | | -- | -- | -- | |

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

ANTENNA SCHEDULE

NO SCALE

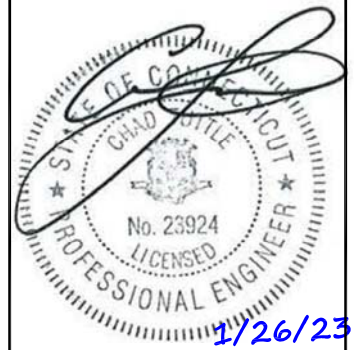
3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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| | | |
|-------------|-------------|--------------|
| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| NGN | FWP | RMC |
| RFDS REV #: | 0 | |

CONSTRUCTION DOCUMENTS

| SUBMITTALS | | |
|------------|---------|-------------------------|
| REV | DATE | DESCRIPTION |
| 0 | 7/5/22 | ISSUED FOR CONSTRUCTION |
| 1 | 8/18/22 | ISSUED FOR CONSTRUCTION |
| 2 | 1/26/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C. PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD COLCHESTER, CT 06415

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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| | | |
|-------------|-------------|--------------|
| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| NGN | FWP | RMC |
| RFDS REV #: | 0 | |

CONSTRUCTION DOCUMENTS

| SUBMITTALS | | |
|------------|---------|-------------------------|
| REV | DATE | DESCRIPTION |
| 0 | 7/5/22 | ISSUED FOR CONSTRUCTION |
| 1 | 8/18/22 | ISSUED FOR CONSTRUCTION |
| 2 | 1/26/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

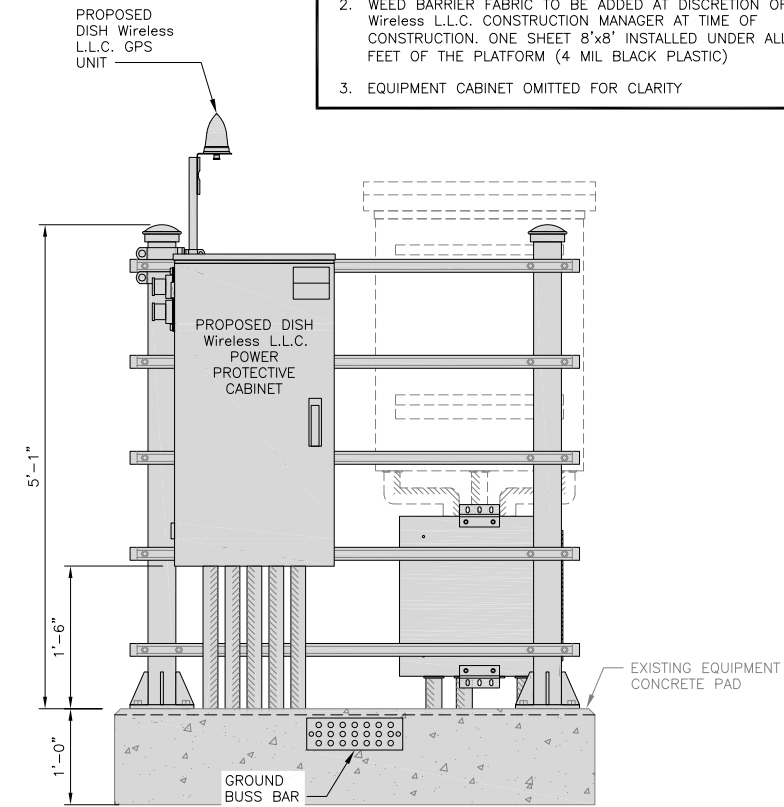
SHEET TITLE
EQUIPMENT PAD AND H-FRAME DETAILS

SHEET NUMBER

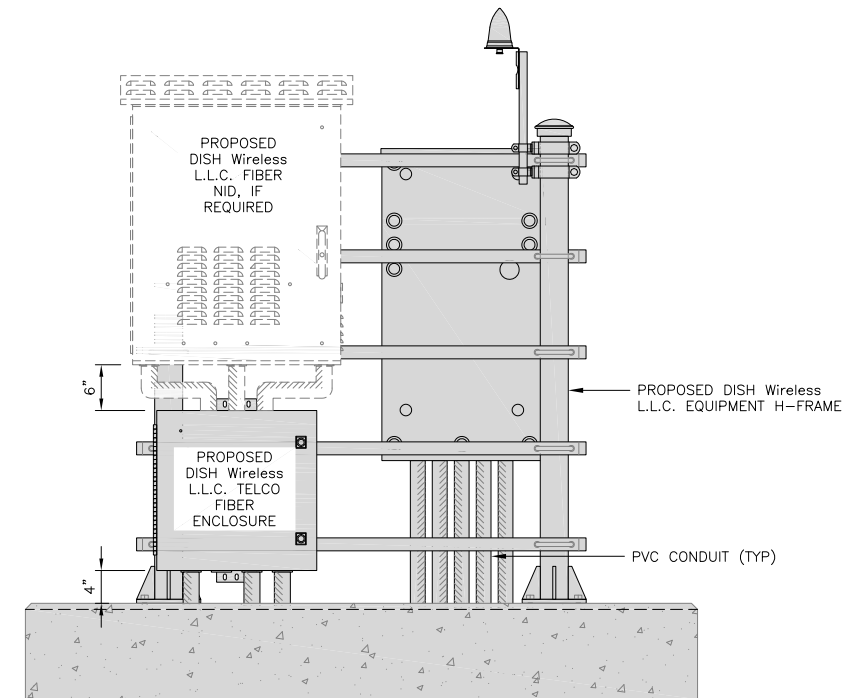
A-3

NOTES

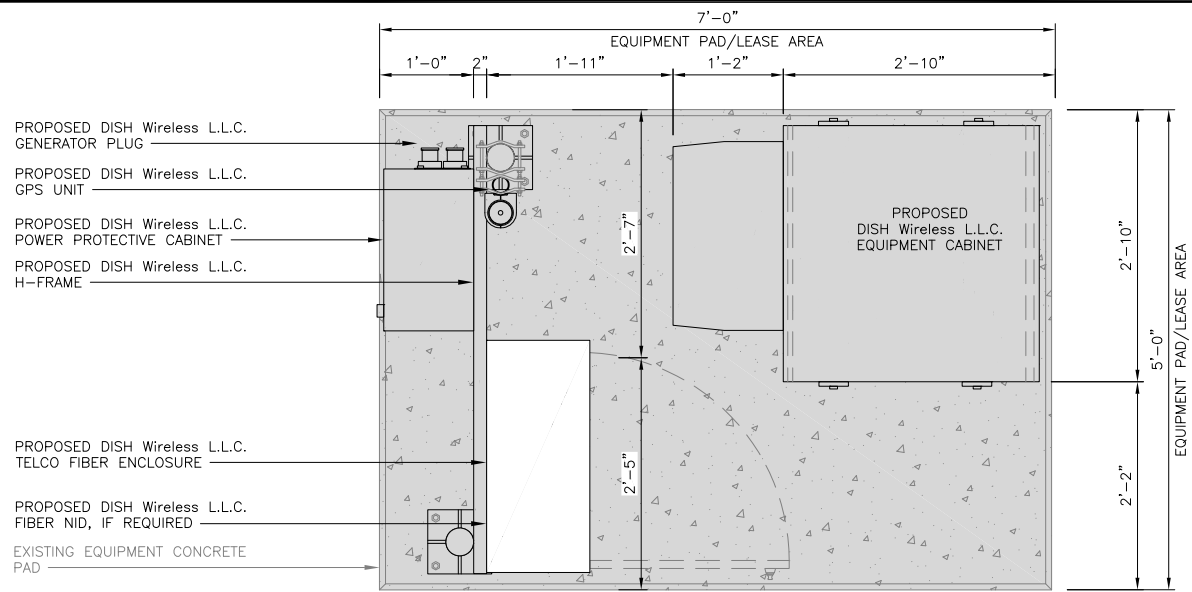
- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
- WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
- EQUIPMENT CABINET OMITTED FOR CLARITY



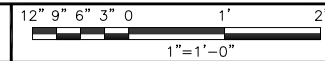
FRONT ELEVATION



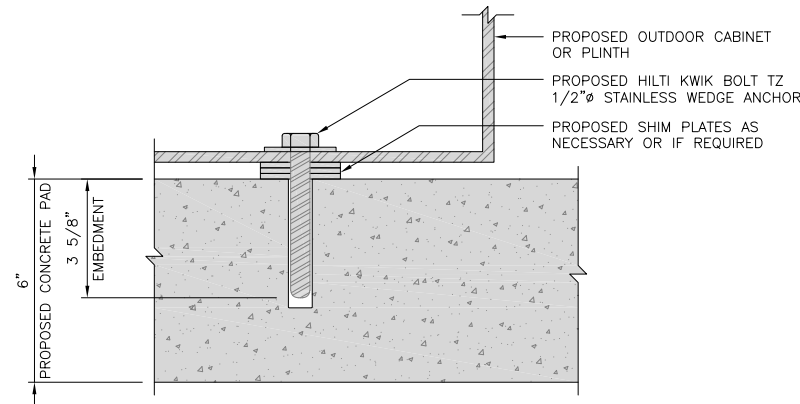
BACK ELEVATION



CONCRETE PAD EQUIPMENT PLAN



1



TYPICAL OUTDOOR EQUIPMENT TO CONCRETE SLAB ANCHORAGE

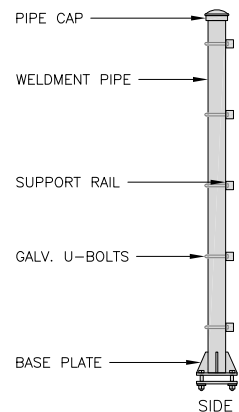
NO SCALE

2

COMMSCOPE MTC4045HFLD H-FRAME

| | |
|----------------------------|-----------|
| UNISTRUT/SUPPORT RAILS QTY | 5 |
| WEIGHT | 59.74 lbs |

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



H-FRAME DETAIL

NO SCALE

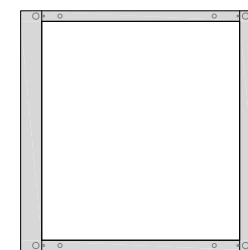
3

CHARLES INDUSTRY LT-97-002422 PLINTH KIT

| | |
|---|--------------|
| DIMENSIONS (HxWxD): | 6"x 32"x 32" |
| NOTE: GASKET AND MOUNTING HARDWARE INCLUDED | |



FRONT/BACK



PLAN



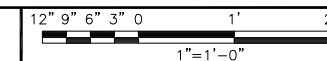
SIDE

PLINTH DETAIL

NO SCALE

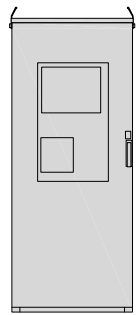
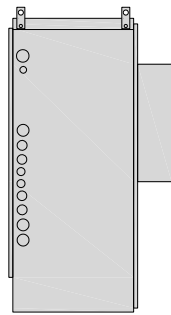
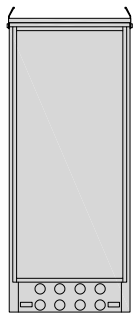
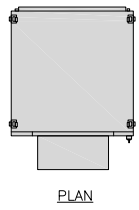
4

H-FRAME EQUIPMENT ELEVATION



5

| ENERSYS HVAC 2000005995 | |
|----------------------------|-----------------|
| DIMENSIONS (HxWxD) | 73"x30"x32" |
| POWER SYSTEM | -48V ALPHA/600A |
| HVAC | 600W |
| TOTAL WEIGHT (EMPTY) | 371 lbs |



BACK

SIDE

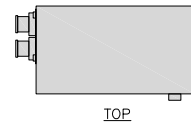
FRONT

CABINET DETAIL

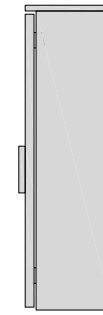
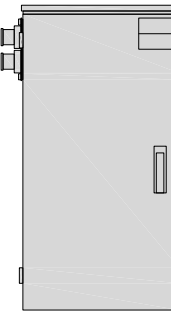
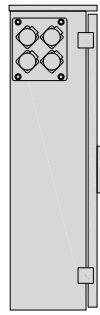
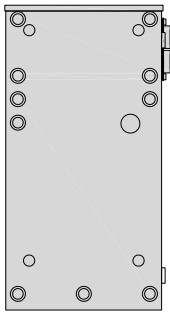
NO SCALE

1

| RAYCAP PPC RDIAC-2465-P-240-MTS | |
|------------------------------------|----------------------|
| ENCLOSURE DIMENSIONS (HxWxD): | 39"x22.855"x12.593 |
| WEIGHT: | 80 lbs |
| OPERATING AC VOLTAGE | 240/120 1 PHASE 3W+G |



TOP



BACK

SIDE

FRONT

SIDE

POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

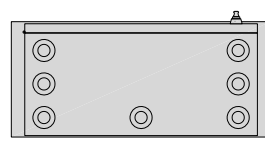
2

NOT USED

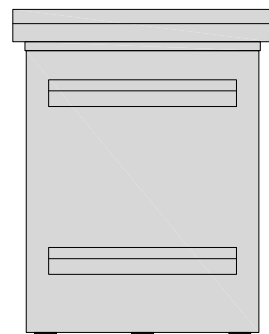
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3

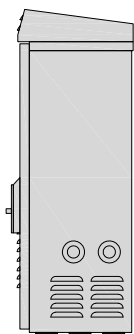
| ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE | |
|---|-----------------|
| DIMENSIONS (HxWxD) | 36.1"x29"x12.9" |
| WEIGHT | 85 lbs |



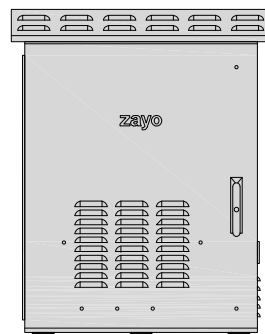
BOTTOM



BACK



SIDE



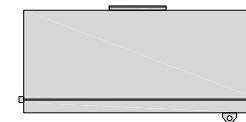
FRONT

FIBER NID ENCLOSURE DETAIL

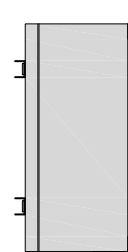
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5

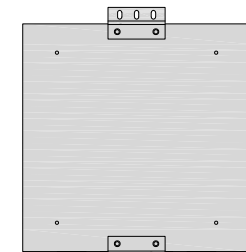
| CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE | |
|--|------------|
| ENCLOSURE DIMS (HxWxD) | 20"x20"x9" |
| ENCLOSURE WEIGHT | 20 lbs |
| MOUNTING | WALL |
| COMPLIANCE | TYPE 4 |



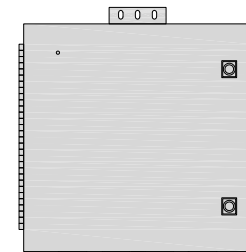
FRONT



SIDE



BACK



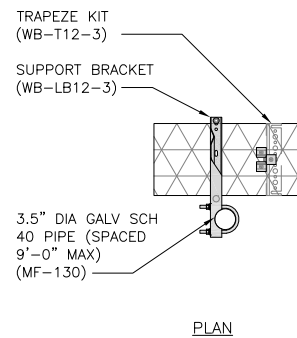
FRONT

FIBER TELCO ENCLOSURE DETAIL

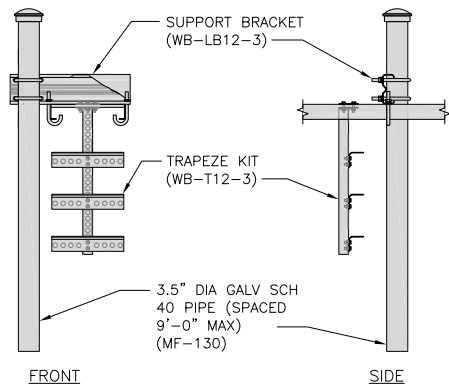
NO SCALE

6

| COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT | | INCLUDED PRODUCTS: WB-T12-3 TRAPEZE KIT, 3 RUNGS WB-LB12-3 SUPPORT BRACKET MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4" |
|---|-----------|--|
| DIMENSIONS (HxL) | 160"x10' | |
| WEIGHT/ VOLUME | 325.0 LBS | |
| CABLE RUN (QTY) | 12 | |



PLAN



FRONT

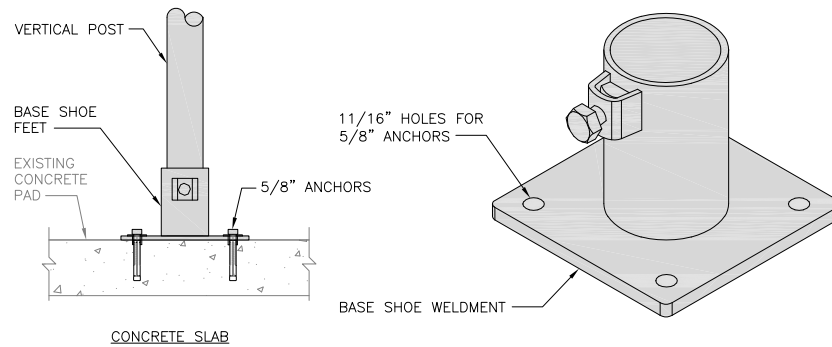
SIDE

ICE BRIDGE DETAIL

NO SCALE

7

| SITEPRO1 BSF35 BASE SHOE FEET | |
|----------------------------------|------------------|
| DIMENSIONS (HxWxL) | 8"x8"x1/2" |
| WEIGHT | 15.0 LBS |
| POST SIZE: | 2-7/8" OR 3-1/2" |

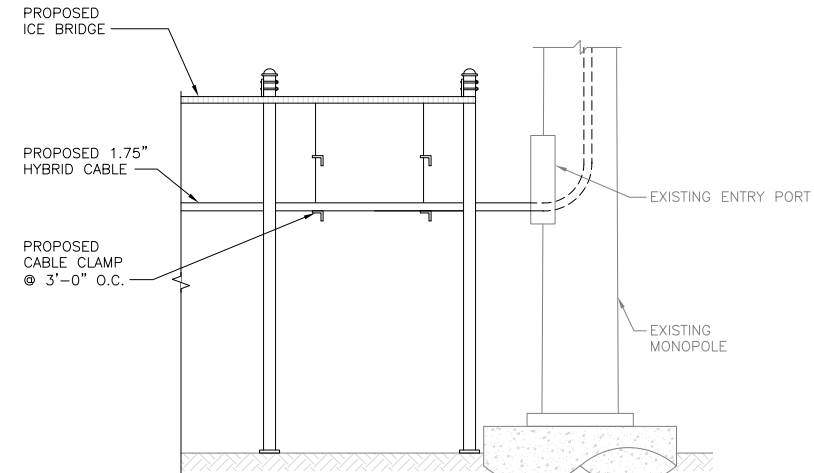


CONCRETE SLAB

ICE BRIDGE PIPE MOUNT DETAIL

NO SCALE

8



HYBRID CABLE RUN

NO SCALE

9

dish
wireless.

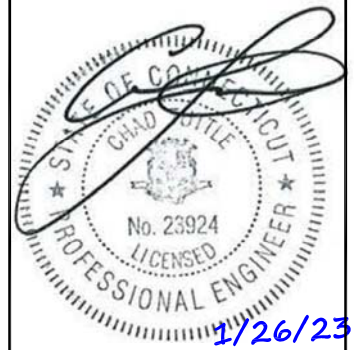
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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BOCA RATON, FL 33487



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SUITE 300
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BER:2386985
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RFDS REV #: 0

CONSTRUCTION
DOCUMENTS

| SUBMITTALS | | |
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| REV | DATE | DESCRIPTION |
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A&E PROJECT NUMBER
160356.001.01

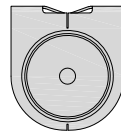
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
EQUIPMENT DETAILS

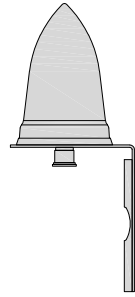
SHEET NUMBER

A-4

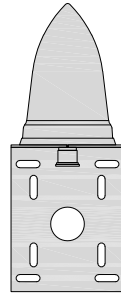
| | |
|--|------------------------|
| PCTEL GPSGL-TMG-SPI-40NCB | |
| DIMENSIONS (DIAxH) MM/INCH | 81x184mm 3.2"x7.25" |
| WEIGHT W/ACCESSORIES | 075 lbs |
| CONNECTOR | N-FEMALE |
| FREQUENCY RANGE | 1590 ± 30MHz |



TOP



BACK

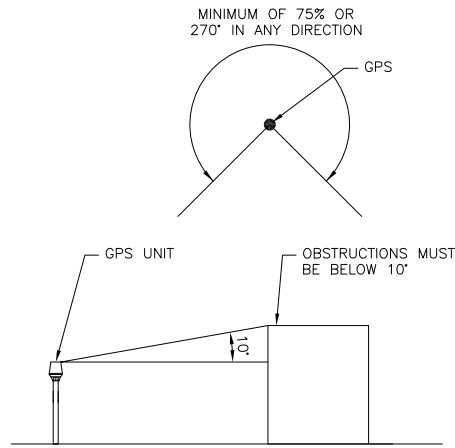


SIDE

GPS DETAIL

NO SCALE

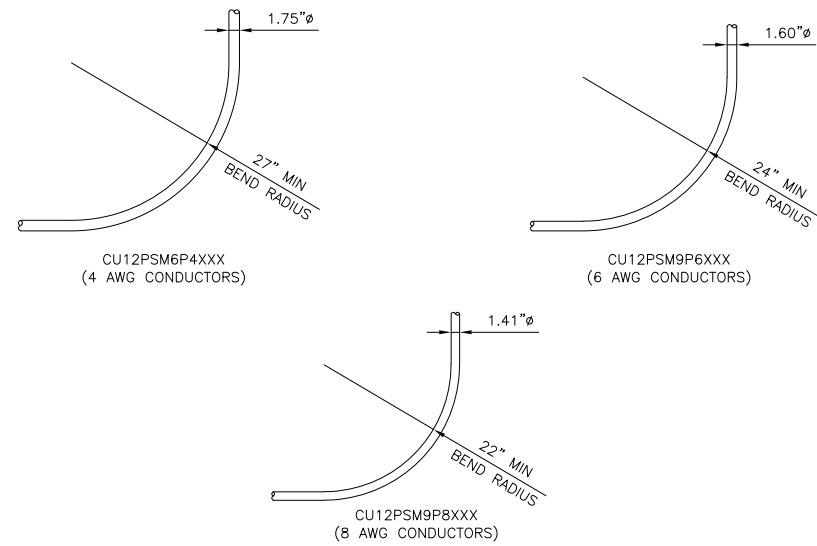
1



GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2



CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

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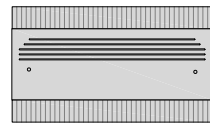
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DISH Wireless L.L.C.
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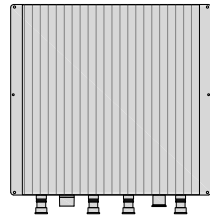
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

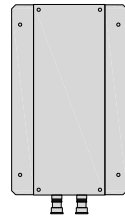
| FUJITSU TRIPLE BAND TA08025-B605 | |
|-------------------------------------|---------------------|
| DIMENSIONS (HxWxD) | 14.9"x15.7"x9" |
| WEIGHT | 74.95 lbs |
| CONNECTOR TYPE | 4.3-10 RF CONNECTOR |
| POWER SUPPLY | DC -58~-36V |



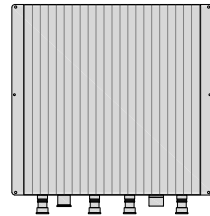
PLAN



BACK



SIDE



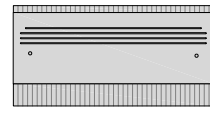
FRONT

RRH DETAIL

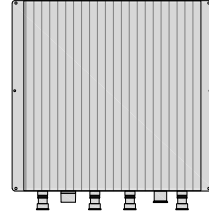
NO SCALE

1

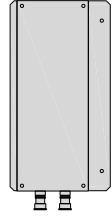
| FUJITSU DUAL BAND TA08025-B604 | |
|-----------------------------------|---------------------|
| DIMENSIONS (HxWxD) | 14.9"x15.7"x7.8" |
| WEIGHT | 63.9 lbs |
| CONNECTOR TYPE | 4.3-10 RF CONNECTOR |
| POWER SUPPLY | DC -58~-36V |



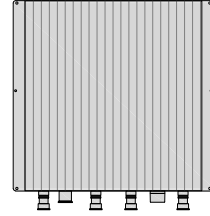
PLAN



BACK



SIDE



FRONT

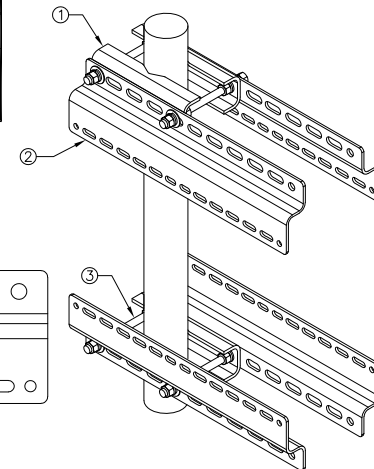
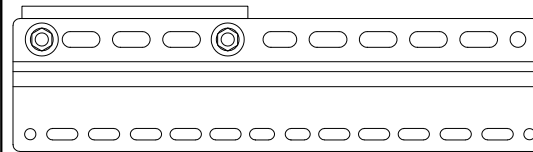
RRH DETAIL

NO SCALE

2

| SABRE DOUBLE Z-BRACKET C10123155 | |
|-------------------------------------|-----------------|
| DIMENSIONS (HxWxD) (1 BRACKET) | 5"x20"x1-13/16" |
| WEIGHT (FULL ASSEMBLY) | 35.79 lbs |
| PACKAGE QUANTITY | 4 |

| # | DESCRIPTION |
|---|--------------------------------|
| 1 | PLATE, CHANNEL BRACKET |
| 2 | RRH Z BRACKET, 3/16" |
| 3 | THREADED ROD ASSEMBLY 1/2"x12" |



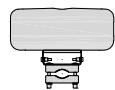
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL

NO SCALE

3

| COMMSCOPE FFVV-65B-R2 | |
|---------------------------|--------------------------------|
| DIMENSIONS (HxWxD)(MM/IN) | 1826x498x197 72"x19.6"x7.8" |
| RF CONNECTOR INTERFACE | 4.3-10 FEMALE |
| WEIGHT | 70.8 lbs |
| WEIGHT WITH BRACKETS | 98.1 lbs |



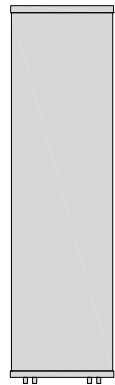
PLAN



BACK



SIDE



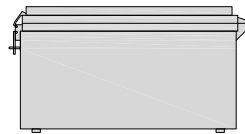
FRONT

ANTENNA DETAIL

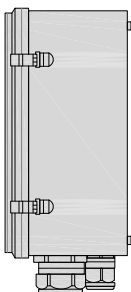
NO SCALE

4

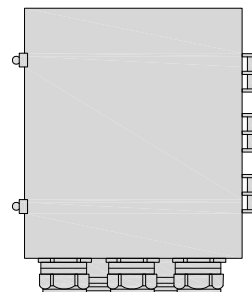
| RAYCAP RDIC-9181-PF-48 DC SURGE PROTECTION (OVP) | |
|---|---------------------|
| DIMENSIONS (HxWxD) | 18.98"x14.39"x8.15" |
| WEIGHT | 21.82 LBS |



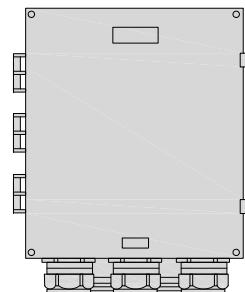
PLAN



SIDE



BACK



FRONT

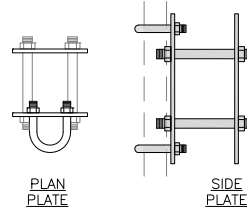
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

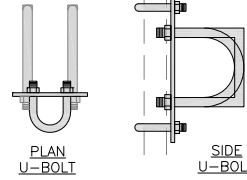
| COMMSCOPE XP-2040 CROSSOVER PLATE | |
|--------------------------------------|---------|
| DIMENSIONS (HxW) | 10"x12" |
| WEIGHT | 11 lbs |

NOTE:
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APPROVED EQUIVALENT



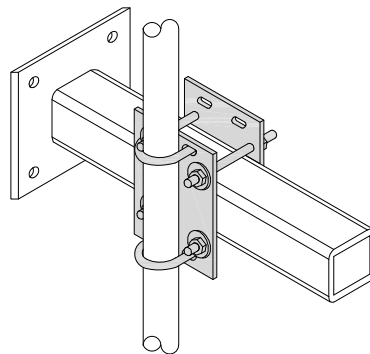
PLAN PLATE

SIDE PLATE



PLAN U-BOLT

SIDE U-BOLT



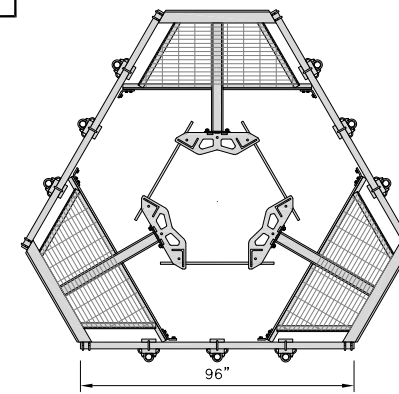
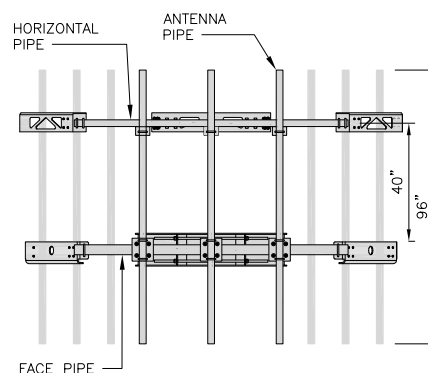
RRH/OVP MOUNT DETAIL

NO SCALE

8

| COMMSCOPE MC-PK8-DSH | |
|-------------------------|-------------|
| FACE WIDTH | 96" |
| WEIGHT | 1373.08 lbs |
| NOTE: 15" TO 38" O.D. | |

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



ANTENNA PLATFORM DETAIL

NO SCALE

9



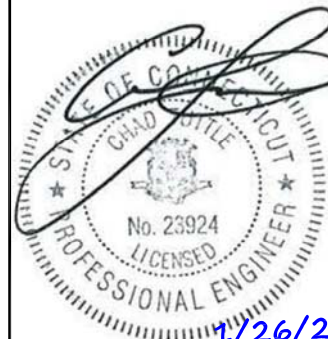
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NGN FWP RMC

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

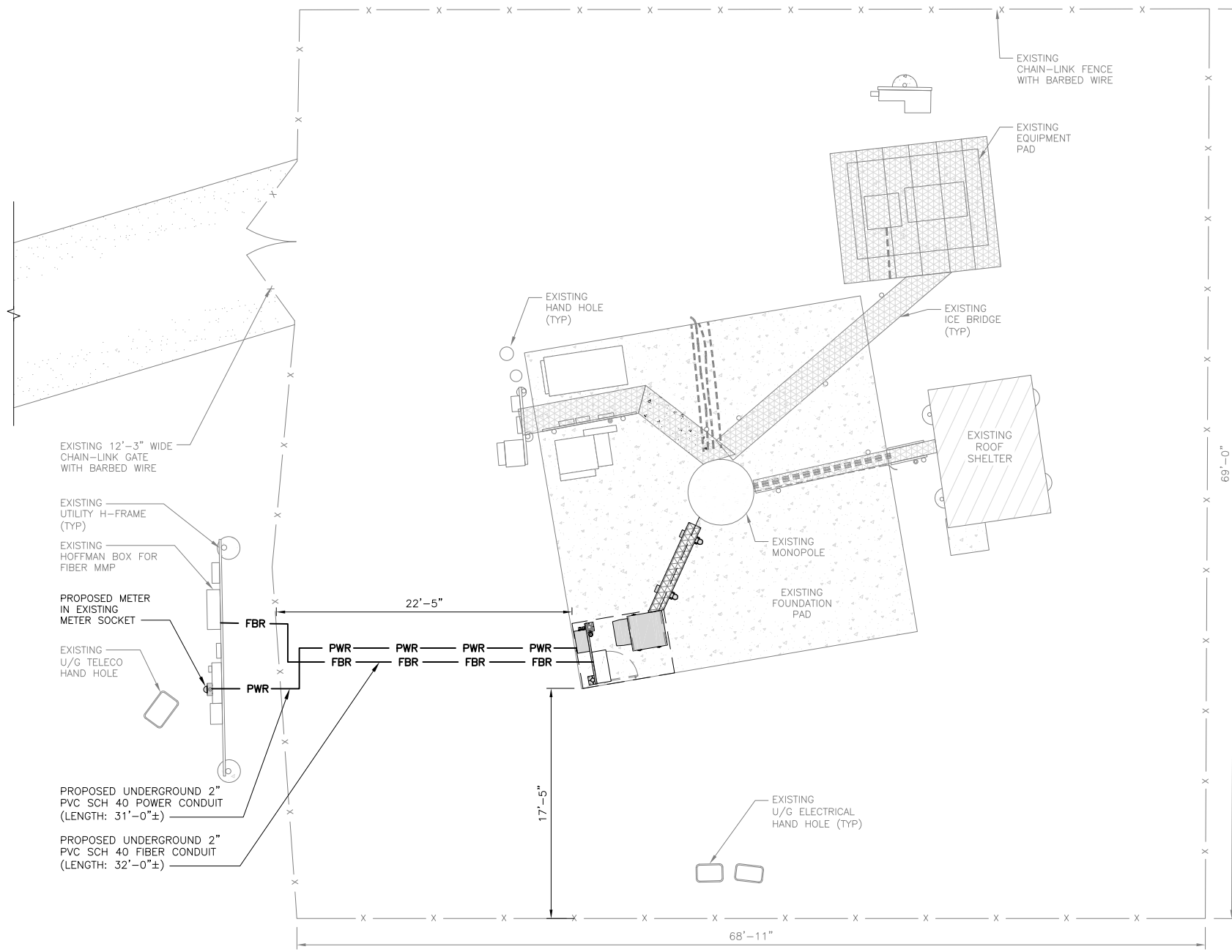
A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE DOES NOT SPECIFY OUR UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION PLEASE NOTIFY TOWER OWNER AS FURTHER COORINATION MAY BE NEEDED.

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG



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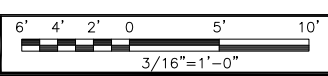
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DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
**ELECTRICAL/FIBER ROUTE
PLAN AND NOTES**

SHEET NUMBER
E-1

UTILITY ROUTE PLAN



1

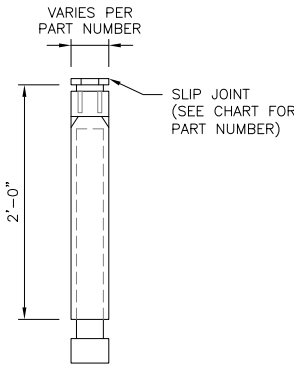
ELECTRICAL NOTES

NO SCALE

2

CARLON EXPANSION FITTINGS

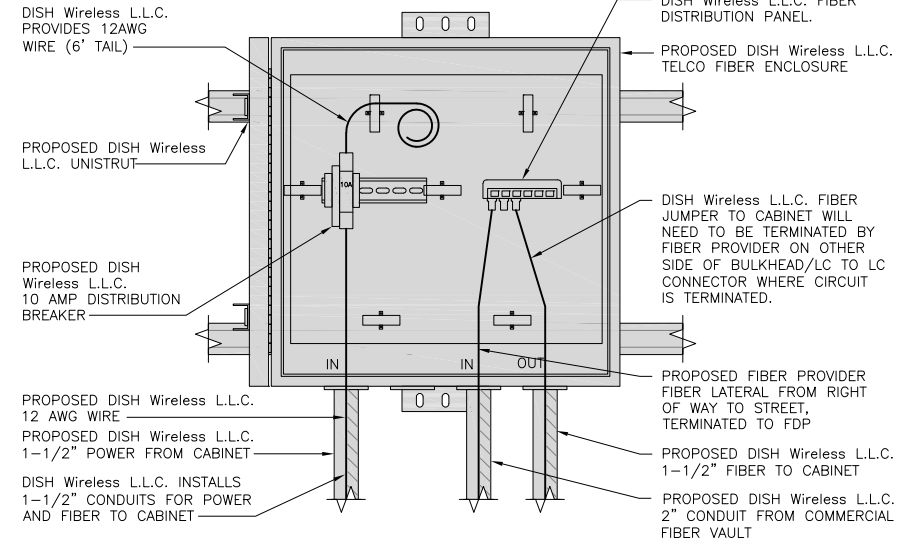
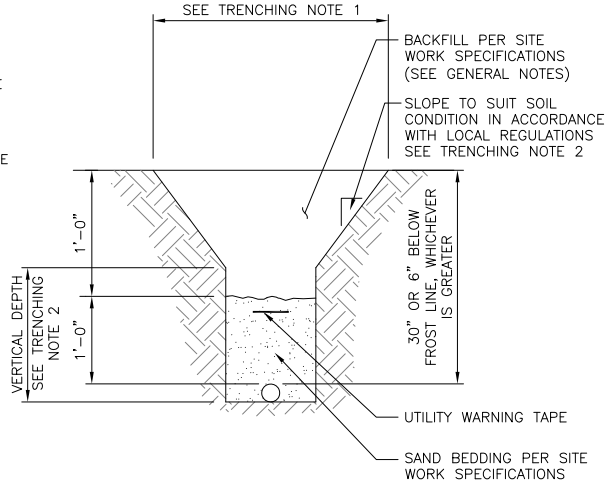
| COUPLING END PART# | MALE TERMINAL ADAPTER END PART# | SIZE | STD CTN QTY. | TRAVEL LENGTH |
|--------------------|---------------------------------|--------|--------------|---------------|
| E945D | E945DX | 1/2" | 20 | 4" |
| E945E | E945EX | 3/4" | 15 | 4" |
| E945F | E945FX | 1" | 10 | 4" |
| E945G | E945GX | 1 1/4" | 5 | 4" |
| E945H | E945HX | 1 1/2" | 5 | 4" |
| E945J | E945JX | 2" | 15 | 8" |
| E945K | E945KX | 2 1/2" | 10 | 8" |
| E945L | E945LX | 3" | 10 | 8" |
| E945M | E945MX | 3 1/2" | 5 | 8" |
| E945N | E945NX | 4" | 5 | 8" |
| E945P | E945PX | 5" | 1 | 8" |
| E945R | E945RX | 6" | 1 | 8" |



NOTE: CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

TRENCHING NOTES

- CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
- ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



EXPANSION JOINT DETAIL

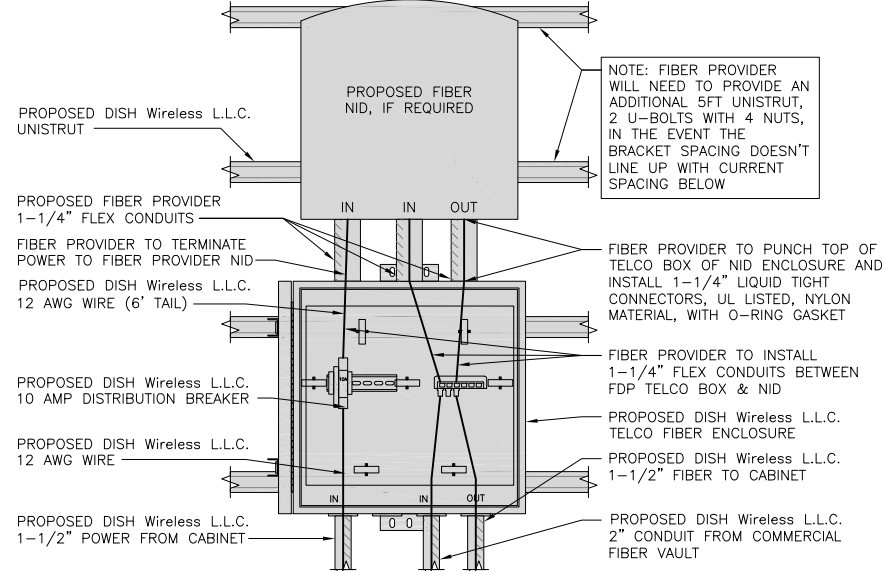
NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT

NO SCALE 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9



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RFDS REV #: 0

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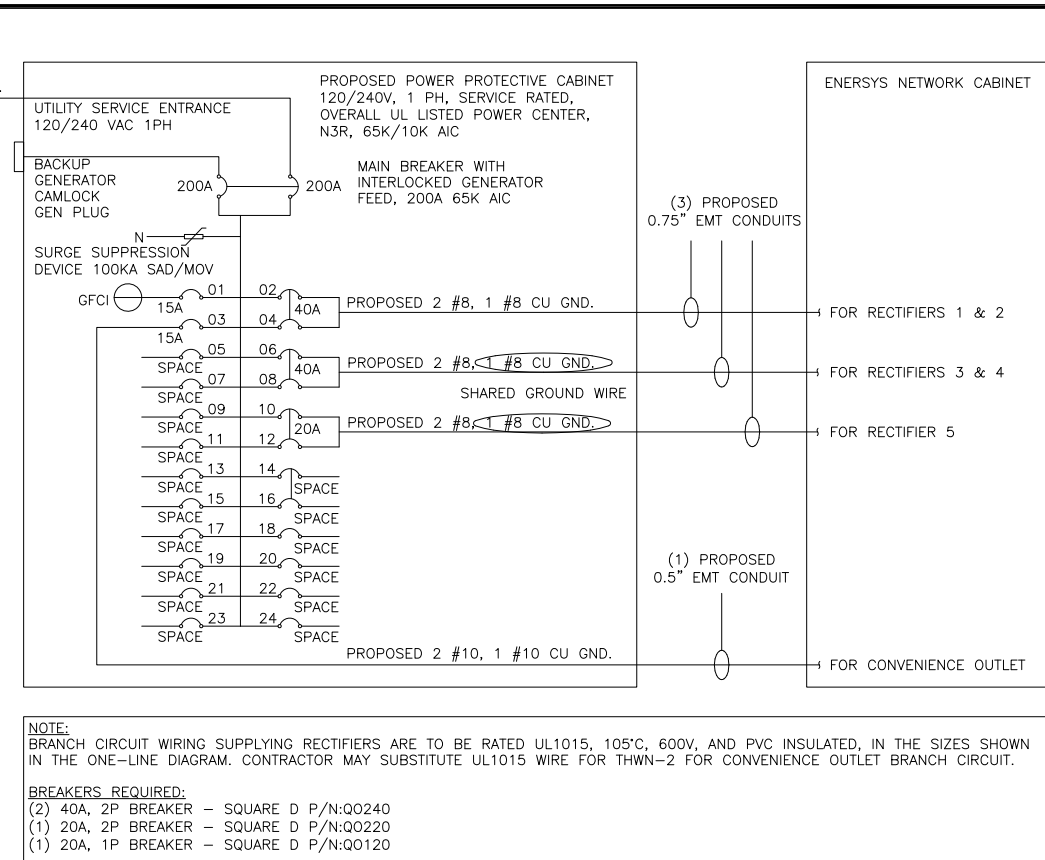
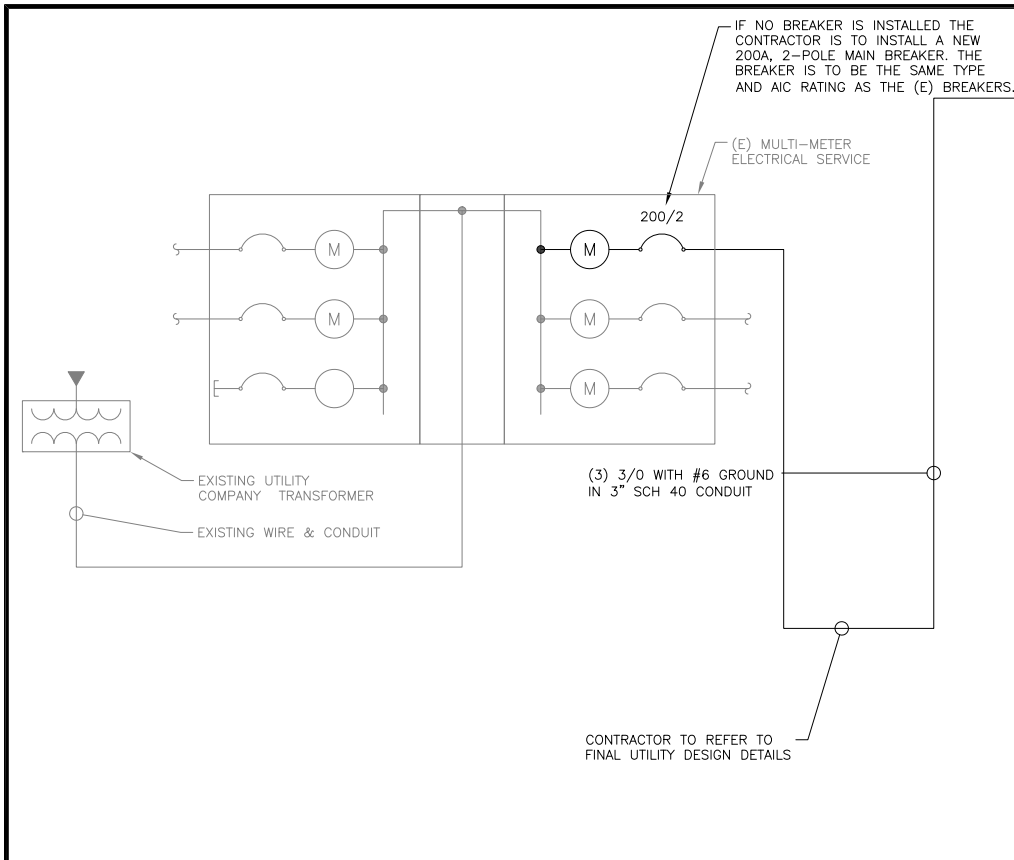
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PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2



NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.

0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.

#8 - 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
#8 - 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
TOTAL = 0.1234 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC ONE-LINE DIAGRAM

NO SCALE 1

| PROPOSED ENERSYS PANEL SCHEDULE | | | | | | | | | | |
|----------------------------------|-------------------|-----|------|-------|-------|-------|------|-------------------|------|---------------------------------------|
| LOAD SERVED | VOLT AMPS (WATTS) | | TRIP | CKT # | PHASE | CKT # | TRIP | VOLT AMPS (WATTS) | | LOAD SERVED |
| | L1 | L2 | | | | | | L1 | L2 | |
| PPC GFCI OUTLET | 180 | 180 | 15A | 1 | A | 2 | 40A | 3840 | 3840 | ENERSYS ALPHA CORDEX RECTIFIERS 1 & 2 |
| ENERSYS GFCI OUTLET | | 180 | 15A | 3 | B | 4 | 40A | 3840 | 3840 | ENERSYS ALPHA CORDEX RECTIFIER 3 & 4 |
| -SPACE- | | | | 5 | A | 6 | 40A | 3840 | 3840 | ENERSYS ALPHA CORDEX RECTIFIER 3 & 4 |
| -SPACE- | | | | 7 | B | 8 | 20A | 1920 | 1920 | ENERSYS ALPHA CORDEX RECTIFIER 5 |
| -SPACE- | | | | 9 | A | 10 | | | | |
| -SPACE- | | | | 11 | B | 12 | | | | |
| -SPACE- | | | | 13 | A | 14 | | | | |
| -SPACE- | | | | 15 | B | 16 | | | | |
| -SPACE- | | | | 17 | A | 18 | | | | |
| -SPACE- | | | | 19 | B | 20 | | | | |
| -SPACE- | | | | 21 | A | 22 | | | | |
| -SPACE- | | | | 23 | B | 24 | | | | |
| VOLTAGE AMPS | 180 | 180 | | | | | | 9500 | 9500 | |
| 200A MCB, 1φ, 24 SPACE, 120/240V | | | | L1 | L2 | | | | | |
| MB RATING: 65,000 AIC | | | | 9680 | 9680 | | | | | |
| | | | | 81 | 81 | | | | | |
| | | | | 81 | | | | | | |
| | | | | 102 | | | | | | |

PANEL SCHEDULE

NO SCALE 2

NOT USED

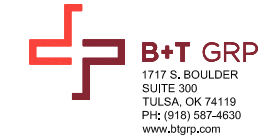
NO SCALE 3



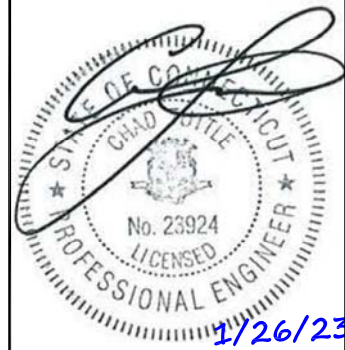
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RFDS REV #: 0

CONSTRUCTION DOCUMENTS

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| 2 | 1/26/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
ELECTRICAL ONE-LINE, FAULT
CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



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| | | |
|-----------|-------------|--------------|
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RFDS REV #: 0

CONSTRUCTION DOCUMENTS

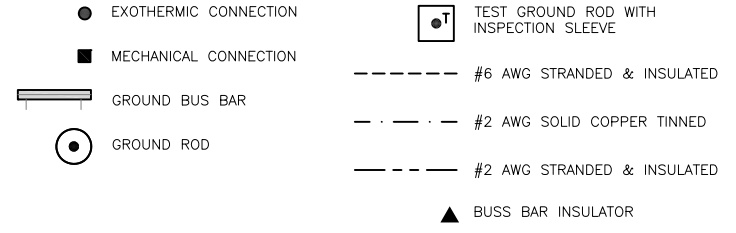
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A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

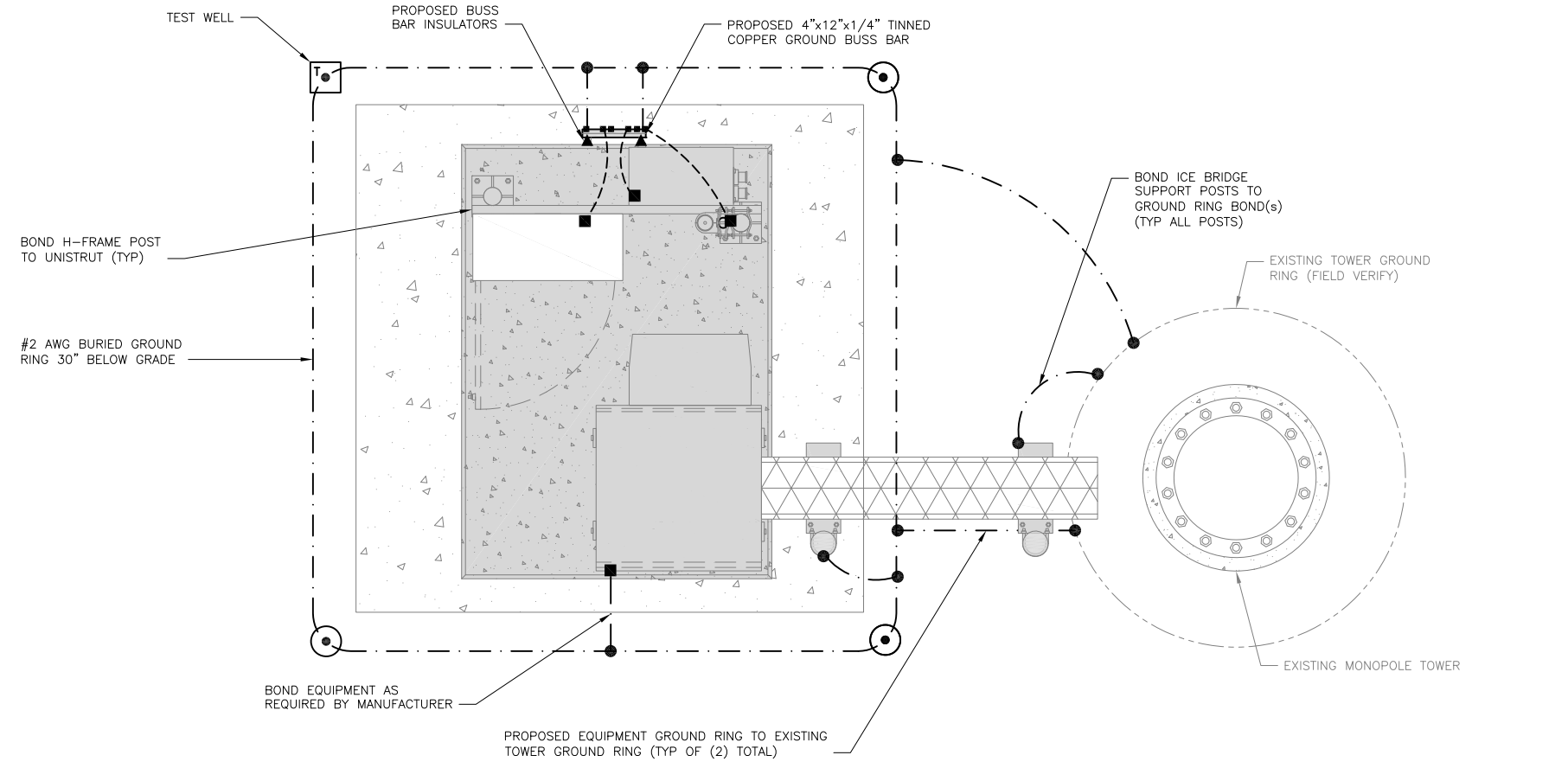


GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
- ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

- (A) **EXTERIOR GROUND RING:** #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) **TOWER GROUND RING:** THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) **INTERIOR GROUND RING:** #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) **BOND TO INTERIOR GROUND RING:** #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) **GROUND ROD:** UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) **CELL REFERENCE GROUND BAR:** POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) **HATCH PLATE GROUND BAR:** BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) **EXTERIOR CABLE ENTRY PORT GROUND BARS:** LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (I) **TELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (J) **FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (K) **INTERIOR UNIT BONDS:** METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) **FENCE AND GATE GROUNDING:** METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (M) **EXTERIOR UNIT BONDS:** METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE.
- (N) **ICE BRIDGE SUPPORTS:** EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR.
- (P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

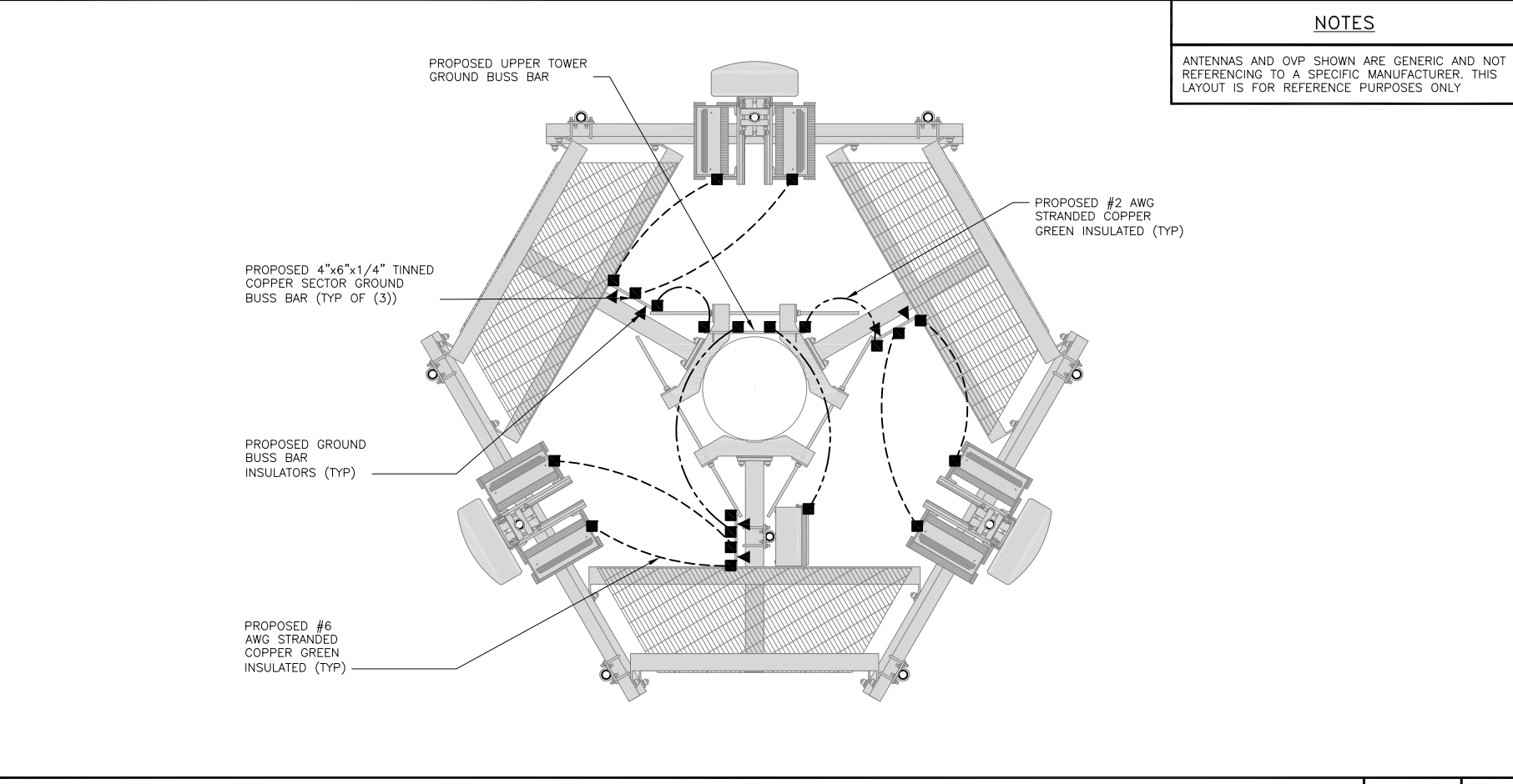


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

NOTES

ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY



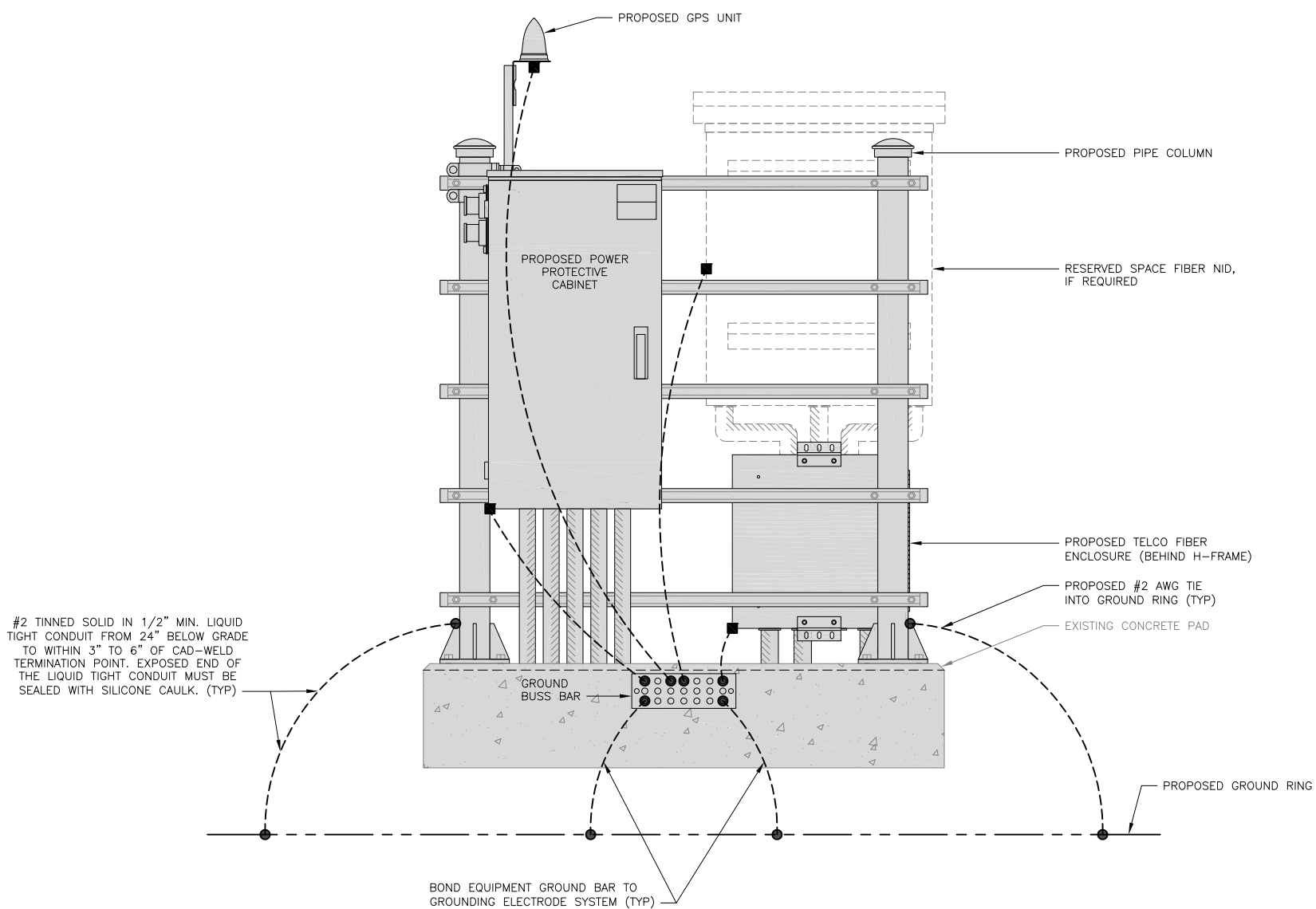
TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

GROUNDING KEY NOTES

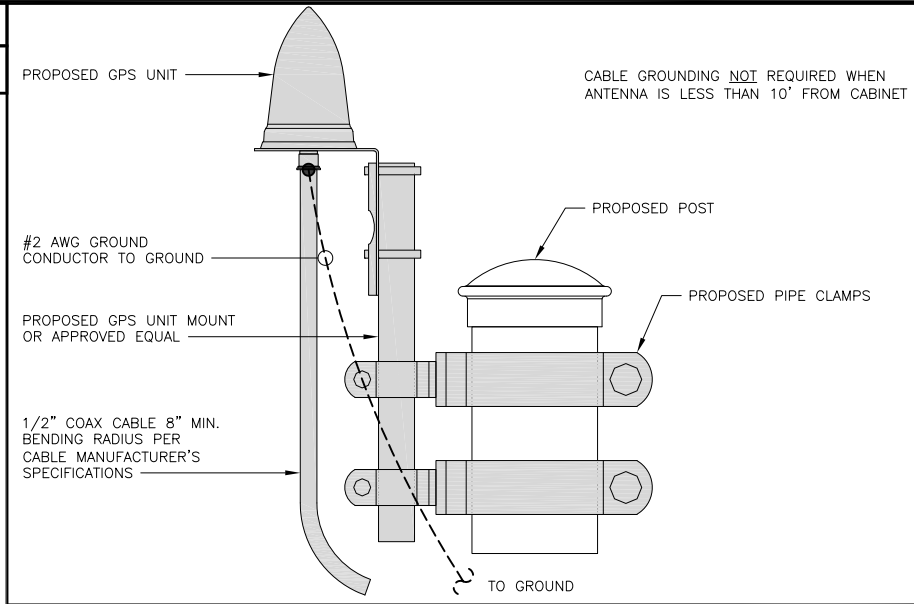
NO SCALE 3

NOTES
EQUIPMENT CABINET OMITTED FOR CLARITY



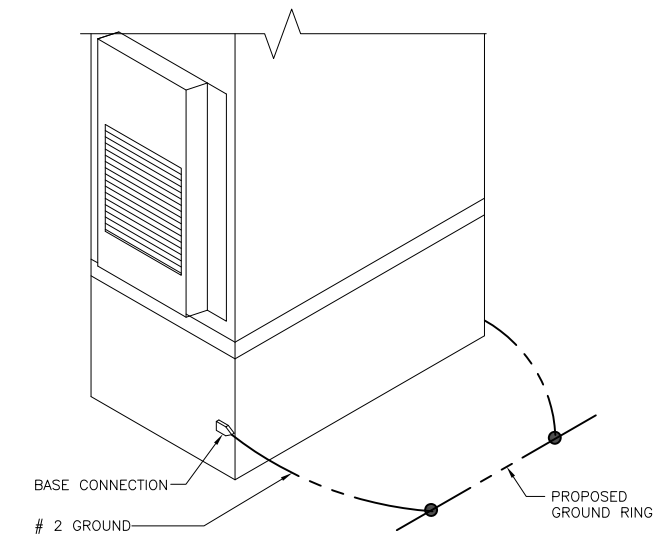
H-FRAME GROUNDING DETAIL

NO SCALE **1**



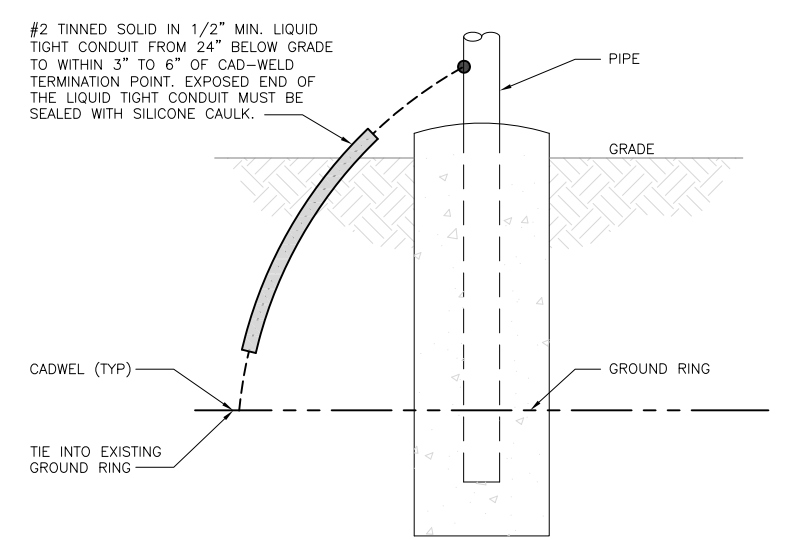
TYPICAL GPS UNIT GROUNDING

NO SCALE **2**



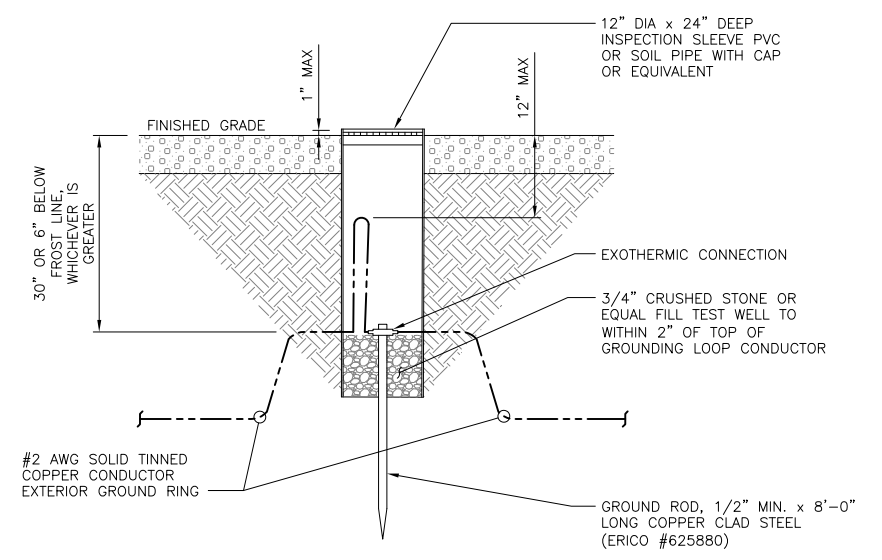
OUTDOOR CABINET GROUNDING

NO SCALE **3**



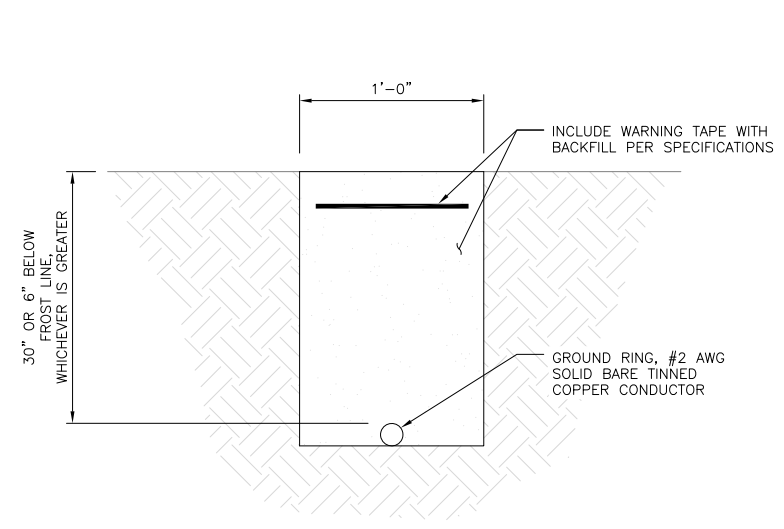
TRANSITIONING GROUND DETAIL

NO SCALE **4**



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE **5**



TYPICAL GROUND RING TRENCH

NO SCALE **6**



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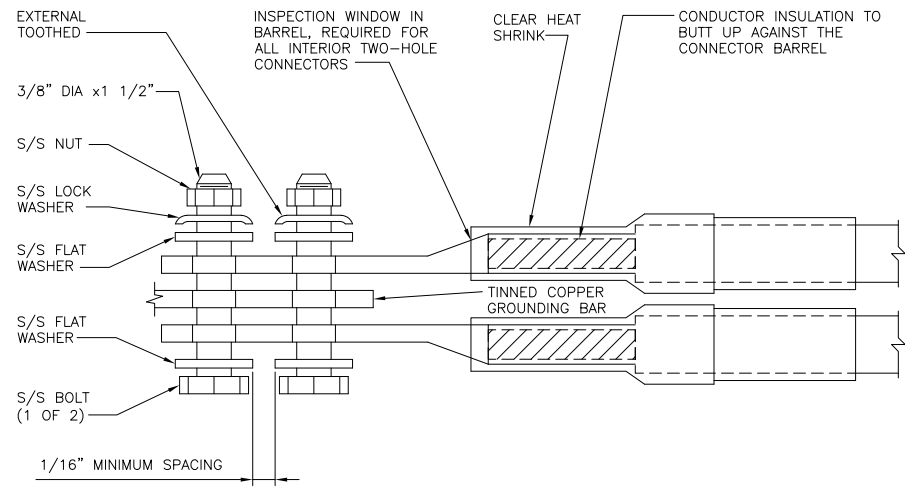
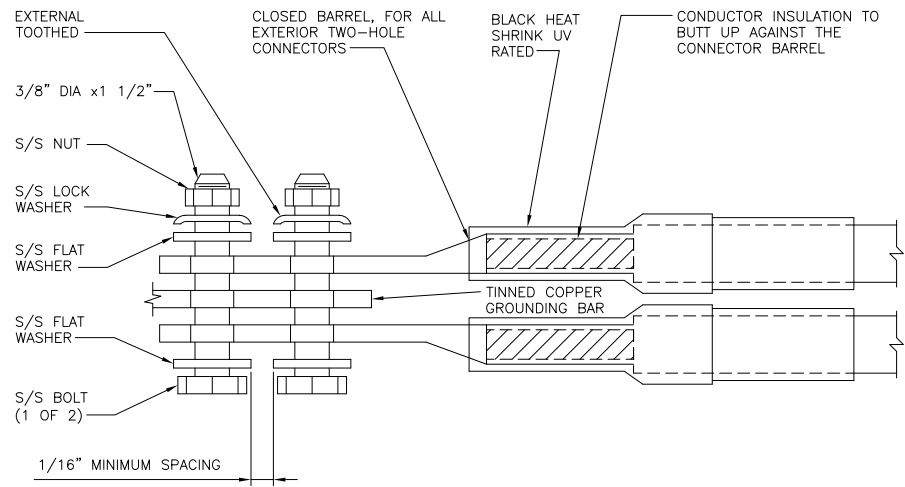
A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



TYPICAL GROUNDING NOTES

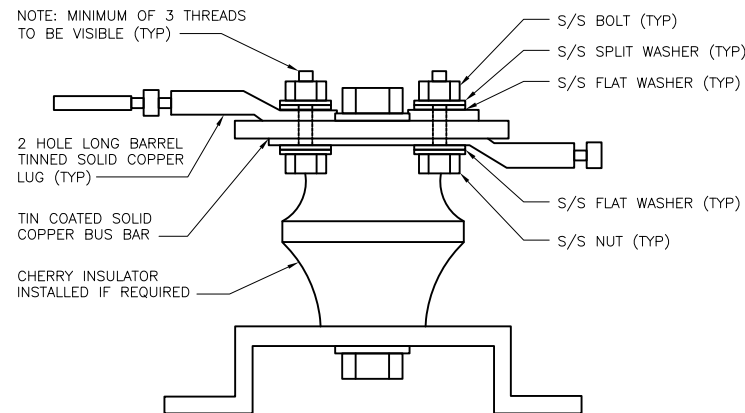
NO SCALE 1

TYPICAL EXTERIOR TWO HOLE LUG

NO SCALE 2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE 3



LUG DETAIL

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

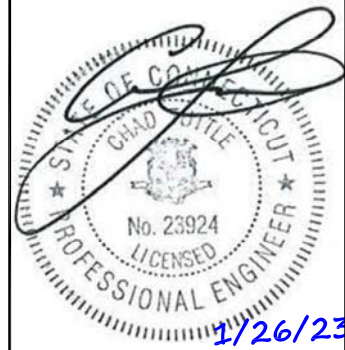
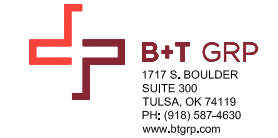
NO SCALE 9



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A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

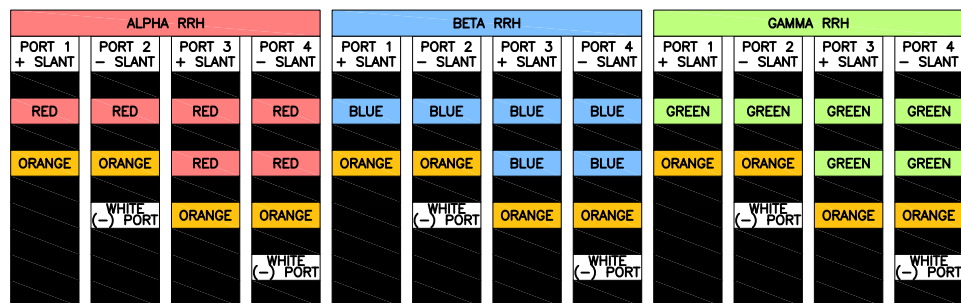
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

HYBRID/DISCREET CABLES

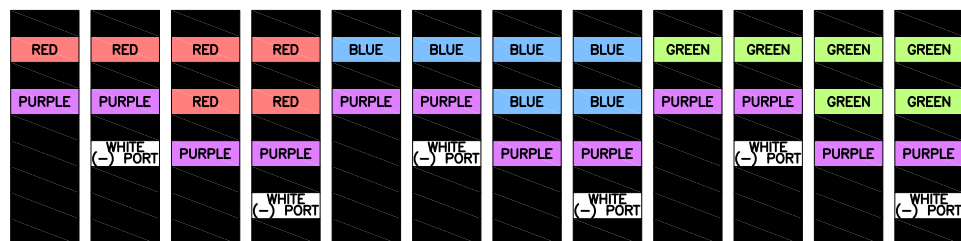
3/4" TAPE WIDTHS WITH 3/4" SPACING

LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) - OPTIONAL PER MARKET
ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BAND)



MID-BAND RRH
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



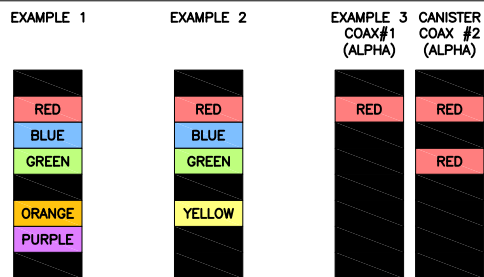
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS.

EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND
MID-BANDS.

EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS
CBRS ONLY, ALL SECTORS.

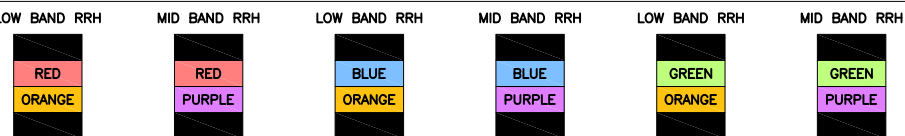
EXAMPLE 3 - MAIN COAX WITH GROUND
MOUNTED RRHS.



CONTRACTOR TO REFER TO FINAL
CONSTRUCTION RFDS FOR ALL RD DETAILS.
FINAL RFDS IS IN NEXSYSONE.

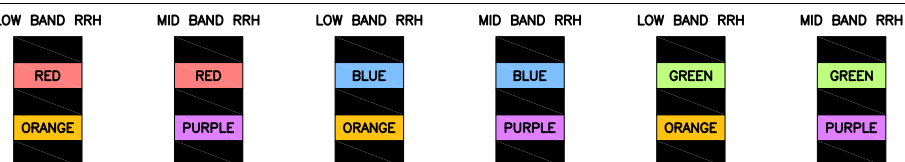
FIBER JUMPERS TO RRHS

LOW-BAND HHR FIBER CABLES HAVE SECTOR
STRIPE ONLY.



POWER CABLES TO RRHS

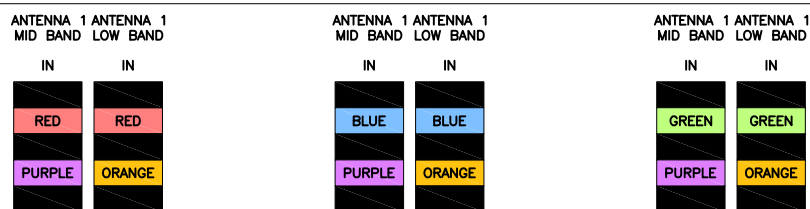
LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID-BAND
RRH WHEN ONE SET OF RET PORTS EXIST ON
ANTENNA.

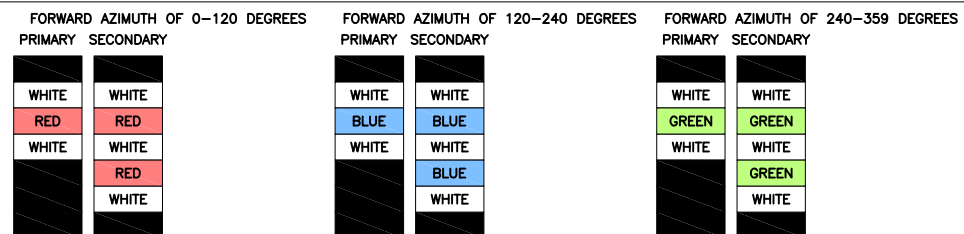
SEPARATE RET CABLES ARE USED WHEN
ANTENNA PORTS PROVIDE INPUTS FOR BOTH
LOW AND MID BANDS.



MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP
WITH THE AZIMUTH COLOR OVERLAPPING IN THE
MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR
EACH ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P-TOUCH
LABELS INSIDE THE CABINET TO IDENTIFY THE
LOCAL AND REMOTE SITE ID'S.



LOW BANDS (N71+N26)
OPTIONAL - (N29)



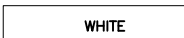
AWS
(N66+N70+H-BLOCK)



CBRS TECH
(3 GHz)



NEGATIVE SLANT PORT
ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4



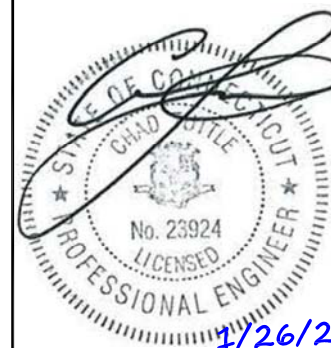
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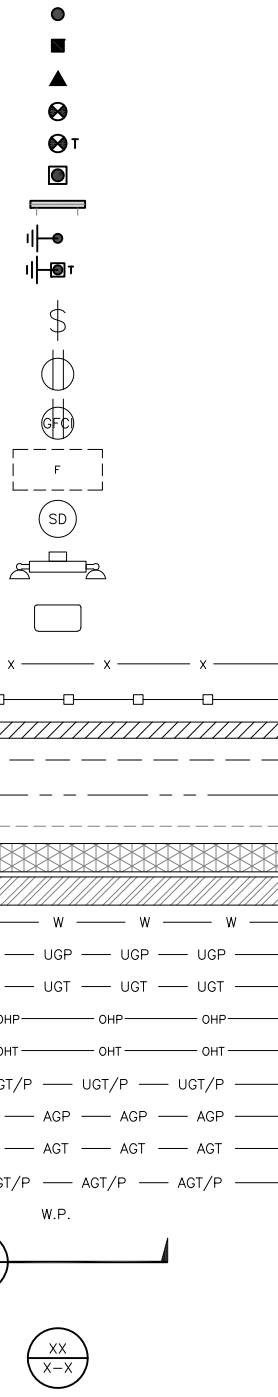
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DISH Wireless L.L.C.
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BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- BUSS BAR INSULATOR
- CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
- TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
- EXOTHERMIC WITH INSPECTION SLEEVE
- GROUNDING BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- SINGLE POLE SWITCH
- DUPLEX RECEPTACLE
- DUPLEX GFCI RECEPTACLE
- FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8
- SMOKE DETECTION (DC)
- EMERGENCY LIGHTING (DC)
- SECURITY LIGHT W/PHOTOCELL LITHIONIA ALXW LED-1-25A400/51K-SR4-120-PE-DOBXTD
- CHAIN LINK FENCE
- WOOD/WROUGHT IRON FENCE
- WALL STRUCTURE
- LEASE AREA
- PROPERTY LINE (PL)
- SETBACKS
- ICE BRIDGE
- CABLE TRAY
- WATER LINE
- UNDERGROUND POWER
- UNDERGROUND TELCO
- OVERHEAD POWER
- OVERHEAD TELCO
- UNDERGROUND TELCO/POWER
- ABOVE GROUND POWER
- ABOVE GROUND TELCO
- ABOVE GROUND TELCO/POWER
- WORKPOINT
- SECTION REFERENCE
- DETAIL REFERENCE



LEGEND

- AB ANCHOR BOLT
- ABV ABOVE
- AC ALTERNATING CURRENT
- ADDL ADDITIONAL
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- AGL ABOVE GROUND LEVEL
- AIC AMPERAGE INTERRUPTION CAPACITY
- ALUM ALUMINUM
- ALT ALTERNATE
- ANT ANTENNA
- APPROX APPROXIMATE
- ARCH ARCHITECTURAL
- ATS AUTOMATIC TRANSFER SWITCH
- AWG AMERICAN WIRE GAUGE
- BATT BATTERY
- BLDG BUILDING
- BLK BLOCK
- BLKG BLOCKING
- BM BEAM
- BTC BARE TINNED COPPER CONDUCTOR
- BOF BOTTOM OF FOOTING
- CAB CABINET
- CANT CANTILEVERED
- CHG CHARGING
- CLG CEILING
- CLR CLEAR
- COL COLUMN
- COMM COMMON
- CONC CONCRETE
- CONSTR CONSTRUCTION
- DBL DOUBLE
- DC DIRECT CURRENT
- DEPT DEPARTMENT
- DF DOUGLAS FIR
- DIA DIAMETER
- DIAG DIAGONAL
- DIM DIMENSION
- DWG DRAWING
- DWL DOWEL
- EA EACH
- EC ELECTRICAL CONDUCTOR
- EL ELEVATION
- ELEC ELECTRICAL
- EMT ELECTRICAL METALLIC TUBING
- ENG ENGINEER
- EQ EQUAL
- EXP EXPANSION
- EXT EXTERIOR
- EW EACH WAY
- FAB FABRICATION
- FF FINISH FLOOR
- FG FINISH GRADE
- FIF FACILITY INTERFACE FRAME
- FIN FINISH(ED)
- FLR FLOOR
- FDN FOUNDATION
- FOC FACE OF CONCRETE
- FOM FACE OF MASONRY
- FOS FACE OF STUD
- FOW FACE OF WALL
- FS FINISH SURFACE
- FT FOOT
- FTG FOOTING
- GA GAUGE
- GEN GENERATOR
- GFCI GROUND FAULT CIRCUIT INTERRUPTER
- GLB GLUE LAMINATED BEAM
- GLV GALVANIZED
- GPS GLOBAL POSITIONING SYSTEM
- GND GROUND
- GSM GLOBAL SYSTEM FOR MOBILE
- HDG HOT DIPPED GALVANIZED
- HDR HEADER
- HGR HANGER
- HVAC HEAT/VENTILATION/AIR CONDITIONING
- HT HEIGHT
- IGR INTERIOR GROUND RING
- IN INCH
- INT INTERIOR
- LB(S) POUND(S)
- LF LINEAR FEET
- LTE LONG TERM EVOLUTION
- MAS MASONRY
- MAX MAXIMUM
- MB MACHINE BOLT
- MECH MECHANICAL
- MFR MANUFACTURER
- MGB MASTER GROUND BAR
- MIN MINIMUM
- MISC MISCELLANEOUS
- MTL METAL
- MTS MANUAL TRANSFER SWITCH
- MW MICROWAVE
- NEC NATIONAL ELECTRIC CODE
- NM NEWTON METERS
- NO. NUMBER
- # NUMBER
- NTS NOT TO SCALE
- OC ON-CENTER
- OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
- OPNG OPENING
- P/C PRECAST CONCRETE
- PCS PERSONAL COMMUNICATION SERVICES
- PCU PRIMARY CONTROL UNIT
- PRC PRIMARY RADIO CABINET
- PP POLARIZING PRESERVING
- PSF POUNDS PER SQUARE FOOT
- PSI POUNDS PER SQUARE INCH
- PT PRESSURE TREATED
- PWR POWER CABINET
- QTY QUANTITY
- RAD RADIUS
- RECT RECTIFIER
- REF REFERENCE
- REINF REINFORCEMENT
- REQ'D REQUIRED
- RET REMOTE ELECTRIC TILT
- RF RADIO FREQUENCY
- RMC RIGID METALLIC CONDUIT
- RRH REMOTE RADIO HEAD
- RRU REMOTE RADIO UNIT
- RWY RACEWAY
- SCH SCHEDULE
- SHT SHEET
- SIAD SMART INTEGRATED ACCESS DEVICE
- SIM SIMILAR
- SPEC SPECIFICATION
- SQ SQUARE
- SS STAINLESS STEEL
- STD STANDARD
- STL STEEL
- TEMP TEMPORARY
- THK THICKNESS
- TMA TOWER MOUNTED AMPLIFIER
- TN TOE NAIL
- TOA TOP OF ANTENNA
- TOC TOP OF CURB
- TOF TOP OF FOUNDATION
- TOP TOP OF PLATE (PARAPET)
- TOS TOP OF STEEL
- TOW TOP OF WALL
- TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
- TYP TYPICAL
- UG UNDERGROUND
- UL UNDERWRITERS LABORATORY
- UNO UNLESS NOTED OTHERWISE
- UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
- UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
- VIF VERIFIED IN FIELD
- W WIDE
- W/ WITH
- WD WOOD
- WP WEATHERPROOF
- WT WEIGHT

ABBREVIATIONS



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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| | | |
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| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| NGN | FWP | RMC |

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

| SUBMITTALS | | |
|------------|---------|-------------------------|
| REV | DATE | DESCRIPTION |
| 0 | 7/5/22 | ISSUED FOR CONSTRUCTION |
| 1 | 8/18/22 | ISSUED FOR CONSTRUCTION |
| 2 | 1/26/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

| SIGN TYPES | | |
|-------------|------------|--|
| TYPE | COLOR | COLOR CODE PURPOSE |
| INFORMATION | GREEN | "INFORMATIONAL SIGN" TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE. |
| NOTICE | BLUE | "NOTICE BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b) |
| CAUTION | YELLOW | "CAUTION BEYOND THIS POINT" RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b) |
| WARNING | ORANGE/RED | "WARNING BEYOND THIS POINT" RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b) |

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C. EQUIPMENT.
 - A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C. EQUIPMENT CABINET.
 - B) IF THE INFORMATION SIGN IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C. H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:


1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

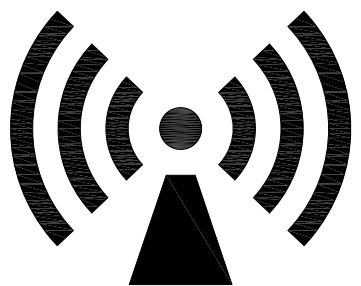
Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE



Transmitting Antenna(s)

Radio frequency fields beyond this point **MAY EXCEED** the FCC Occupational exposure limit.


Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.


Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY



CAUTION



Transmitting Antenna(s)

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dish

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WARNING



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Site ID: _____

dish


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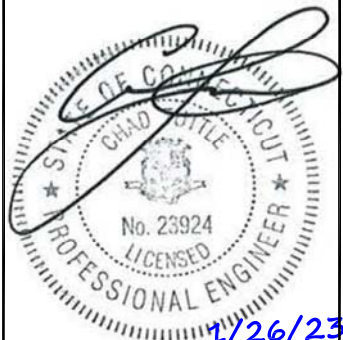
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com



1/26/23

MTS ENGINEERING P.L.L.C.
BER:2386985
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A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOSO0887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

SITE ACTIVITY REQUIREMENTS:

- NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
- "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
- PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
- ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER:DISH Wireless L.L.C.
TOWER OWNER:TOWER OWNER
- THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
- THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
- NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
- SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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A&E PROJECT NUMBER
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DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
 #4 BARS AND SMALLER 40 ksi
 #5 BARS AND LARGER 60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - CONCRETE EXPOSED TO EARTH OR WEATHER:
 - #6 BARS AND LARGER 2"
 - #5 BARS AND SMALLER 1-1/2"
 - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
 - SLAB AND WALLS 3/4"
 - BEAMS AND COLUMNS 1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C."
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



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BER:2386985
Expires 3/31/23

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| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| NGN | FWP | RMC |

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

| SUBMITTALS | | |
|------------|---------|-------------------------|
| REV | DATE | DESCRIPTION |
| 0 | 7/5/22 | ISSUED FOR CONSTRUCTION |
| 1 | 8/18/22 | ISSUED FOR CONSTRUCTION |
| 2 | 1/26/23 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
160356.001.01

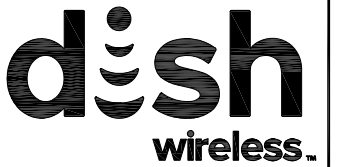
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.



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A&E PROJECT NUMBER
160356.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00887B
31 CHESTNUT HILL ROAD
COLCHESTER, CT 06415

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-5

Exhibit D

Structural Analysis Report

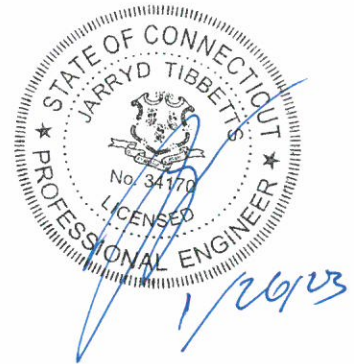


Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 180 ft Valmont Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT02220-S
Customer Site Name: Colchester 2 CT
Carrier Name: Dish Wireless (App#: 177518, V1)
Carrier Site ID / Name: BOBOS00887B / 0
Site Location: 31 Chestnut Hill Road
Colchester, Connecticut
New London County
Latitude: 41.571327
Longitude: -72.302322



Analysis Result:

Max Structural Usage: 59.6% [Pass]

Max Foundation Usage: 53.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Younus Alkarawi



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 180 ft Valmont Monopole

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Customer Site Number: CT02220-S

Customer Site Name: Colchester 2 CT

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Report Prepared By: Younus Alkarawi

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

| | |
|------------------------------|---|
| Tower Drawings | Tower design prepared by Valmont, job # 19539-99, dated 11/30/1999 |
| Foundation Drawing | Foundation design prepared by Valmont, job # 19539-99, dated 11/29/1999 |
| Geotechnical Report | Geotechnical report prepared by 1207126EG1, dated 08/10/2012 |
| Modification Drawings | Modification inspection prepared by FDH, job # 15BSZU1700, dated 10/14/2015 |
| Mount Analysis | N/A |

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the TIA-222-H. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

| | |
|---|---|
| Wind Speed Used in the Analysis: | 125.0 mph (3-Sec. Gust) (Ultimate wind speed) |
| Wind Speed with Ice: | 50 mph (3-Sec. Gust) with 1" radial ice concurrent |
| Service Load Wind Speed: | 60 mph + 0" Radial ice |
| Standard/Codes: | TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code |
| Exposure Category: | B |
| Risk Category: | II |
| Topographic Category: | 1 |
| Crest Height: | 0 ft |
| Seismic Parameters: | $S_5 = 0.205$, $S_1 = 0.055$ |

This structural analysis is based upon the tower being classified as a Risk Category II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

| Items | Elevation (ft) | Qty. | Antenna Descriptions | Mount Type & Qty. | Transmission Lines | Owner |
|-------|----------------|----------------------------|------------------------------------|--|------------------------------------|------------------|
| 1 | 180.0 | 3 | RFS - APXVTM14-C-I20 - Panel | Low Profile Platform + (1) Handrail Kit (SitePro HRK-14) +(1) V-Brace Kit (SitePro PRK-SFS) + (1) Platform Reinforcement Kit (SitePro PRK-1245-L) | (4) 1-1/4" Fiber | Sprint Nextel |
| 2 | | 3 | CommScope - NNVV-65B-R4 - Panel | | | |
| 3 | | 3 | ALU 1900 Mhz RRUs | | | |
| 4 | | 6 | ALU 800 Mhz RRUs | | | |
| 5 | | 3 | ALU TD-RRH8x20-25 RRUs | | | |
| 6 | 164.5 | 3 | EMS - RR90-17-82DP - Panel | Modified Low Profile Platform with support rail kit with T- Arm MS-P-TARM and new heavy collar mount MS-H1436 | (12) 1 5/8" (1) 1 5/8" Fiber | T-Mobile |
| 7 | | 3 | RFS - APXVAARR24_43-U-NA20 - Panel | | | |
| 8 | | 3 | Ericsson KRY 112 489/2 | | | |
| 9 | | 3 | Ericsson KRY 112 144/2 | | | |
| 10 | | 3 | Ericsson Radio 4449 B71+B12 | | | |
| 11 | 3 | Kathrein 782 11056 Bias Ts | | | | |
| 16 | 60.0 | 2 | Commscope NNH4-65A-R6- Panel | (3) Standoff | (1) 1 5/8" Fiber | Verizon |
| 17 | | 2 | Samsung VZS01 - Panel | | | |
| 18 | | 2 | Samsung B2/B66A RRH-BR049- RRU | | | |

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

| Items | Elevation (ft) | Qty. | Antenna Descriptions | Mount Type & Qty. | Transmission Lines | Owner |
|-------|----------------|------|------------------------------|--|---------------------|------------------|
| 12 | 154.0 | 3 | Commscope FFVV-65B-R2- Panel | (1) Commscope MC-PK8-DSH Platform W/ Handrails | (1) 1.75" Hybrid | Dish Wireless |
| 13 | | 3 | Fujitsu TA08025-B605 RRU | | | |
| 14 | | 3 | Fujitsu TA08025-B604 RRU | | | |
| 15 | | 1 | Raycap RDIDC-9181-PF-48-OVP | | | |

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

| | Pole shafts | Anchor Bolts | Base Plate |
|-------------|--------------|--------------|--------------|
| Max. Usage: | 59.6% | 55.7% | 43.2% |
| Pass/Fail | Pass | Pass | Pass |

Foundations

| | Moment (Kip-Ft) | Shear (Kips) | Axial (Kips) |
|--------------------|-----------------|--------------|--------------|
| Analysis Reactions | 3953.1 | 32.3 | 53.3 |

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Service Load Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.0751 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 59.60% at 0.0ft

Structure: CT02220-S-SBA
Site Name: Colchester 2 CT
Height: 180.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-H
Exposure: B
Gh: 1.1

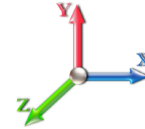
1/26/2023



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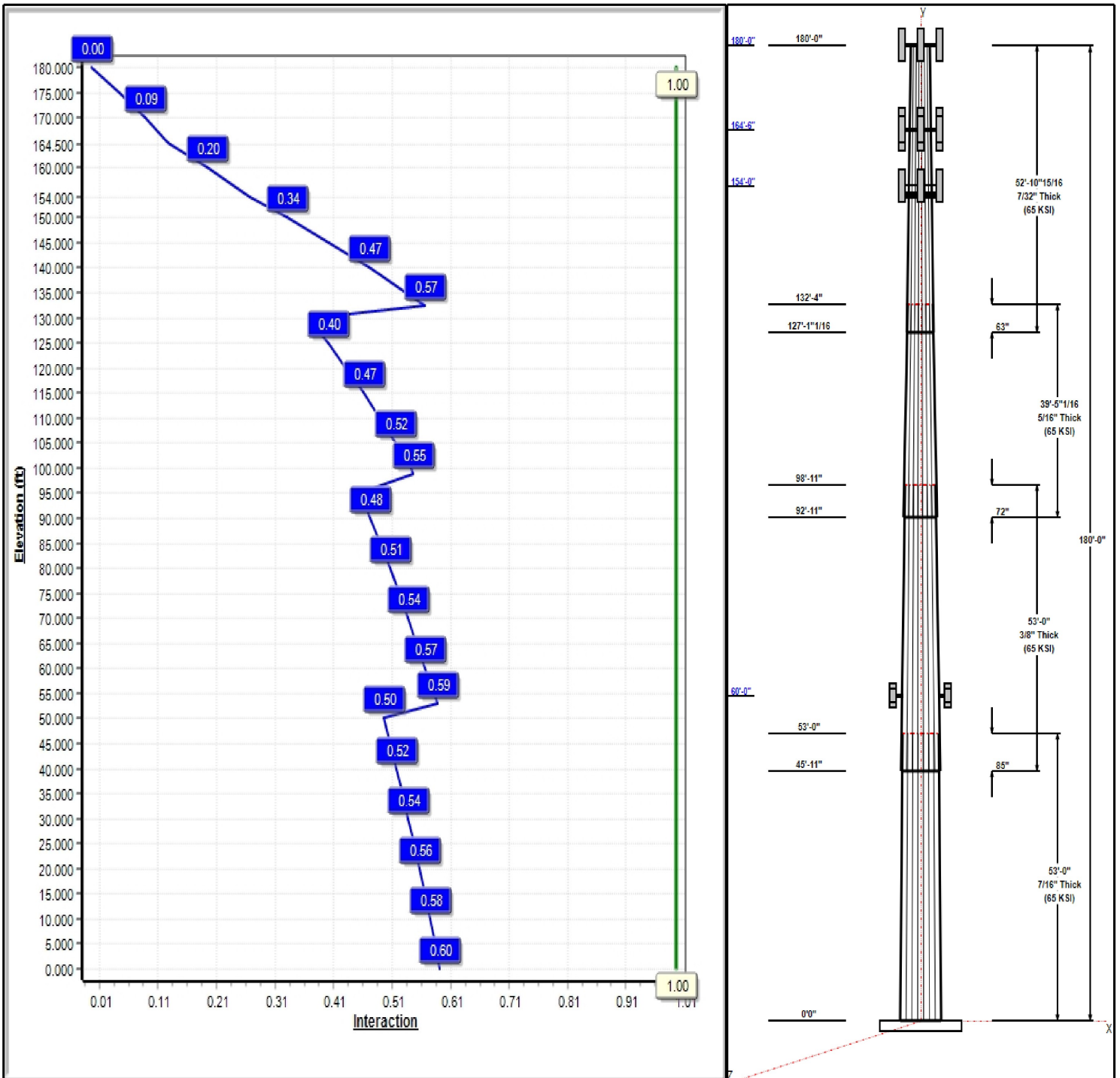
Dead Load Factor: 1.20
Wind Load Factor: 1.00

Load Case : 1.2D + 1.0W 125 mph Wind



Iterations: 25

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Structure: CT02220-S-SBA

Type: Tapered
Site Name: Colchester 2 CT
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.20502

1/26/2023

Page: 2



Shaft Properties

| Seq | Length (ft) | Top (in) | Bottom (in) | Thick (in) | Joint Type | Taper | Grade (ksi) |
|-----|-------------|----------|-------------|------------|------------|---------|-------------|
| 1 | 53.00 | 49.13 | 60.00 | 0.439 | | 0.20502 | 65 |
| 2 | 53.00 | 40.47 | 51.34 | 0.375 | Slip | 0.20502 | 65 |
| 3 | 39.42 | 34.24 | 42.33 | 0.313 | Slip | 0.20502 | 65 |
| 4 | 52.91 | 24.91 | 35.76 | 0.219 | Slip | 0.20502 | 65 |

Discrete Appurtenances

| Attach Elev (ft) | Force Elev (ft) | Qty | Description | Carrier |
|------------------|-----------------|-----|-------------------------|---------------|
| 180.00 | 180.00 | 3 | APXVTM14-C-I20 | Sprint Nextel |
| 180.00 | 180.00 | 3 | ALU 1900 Mhz RRUs | Sprint Nextel |
| 180.00 | 180.00 | 6 | ALU 800 Mhz RRUs | Sprint Nextel |
| 180.00 | 180.00 | 3 | ALU TD-RRH8x20-25 | Sprint Nextel |
| 180.00 | 180.00 | 1 | Low Profile Platform | Sprint Nextel |
| 180.00 | 180.00 | 1 | HRK14 | Sprint Nextel |
| 180.00 | 180.00 | 1 | PRK-SFS | Sprint Nextel |
| 180.00 | 180.00 | 1 | PRK-1245L | Sprint Nextel |
| 180.00 | 180.00 | 3 | NNVV-65B-R4 | Sprint Nextel |
| 164.50 | 164.50 | 1 | Low Profile Platform | T-Mobile |
| 164.50 | 164.50 | 3 | RR90-17-82DP | T-Mobile |
| 164.50 | 164.50 | 3 | APXVAARR24_43-U-NA20 | T-Mobile |
| 164.50 | 164.50 | 3 | Ericsson KRY 112 489/2 | T-Mobile |
| 164.50 | 164.50 | 3 | Ericsson KRY 112 144/2 | T-Mobile |
| 164.50 | 164.50 | 3 | Ericsson Radio 4449 | T-Mobile |
| 164.50 | 164.50 | 3 | Kathrein 782 11056 Bias | T-Mobile |
| 164.50 | 164.50 | 1 | Bracing | T-Mobile |
| 154.00 | 154.00 | 3 | FFV-65B-R2 | Dish Wireless |
| 154.00 | 154.00 | 3 | TA08025-B605 | Dish Wireless |
| 154.00 | 154.00 | 3 | TA08025-B604 | Dish Wireless |
| 154.00 | 154.00 | 1 | RDIDC-9181-PF-48 | Dish Wireless |
| 154.00 | 154.00 | 1 | MC-PK8-DSH | Dish Wireless |
| 60.00 | 60.00 | 2 | NNH4-65A-R4 | Verizon |
| 60.00 | 60.00 | 2 | VZS01 | Verizon |
| 60.00 | 60.00 | 2 | B2/B66A RRH-BR049 | Verizon |
| 60.00 | 60.00 | 1 | Collar Mount | Verizon |
| 60.00 | 60.00 | 3 | 3 ft Standoff | Verizon |

Linear Appurtenances

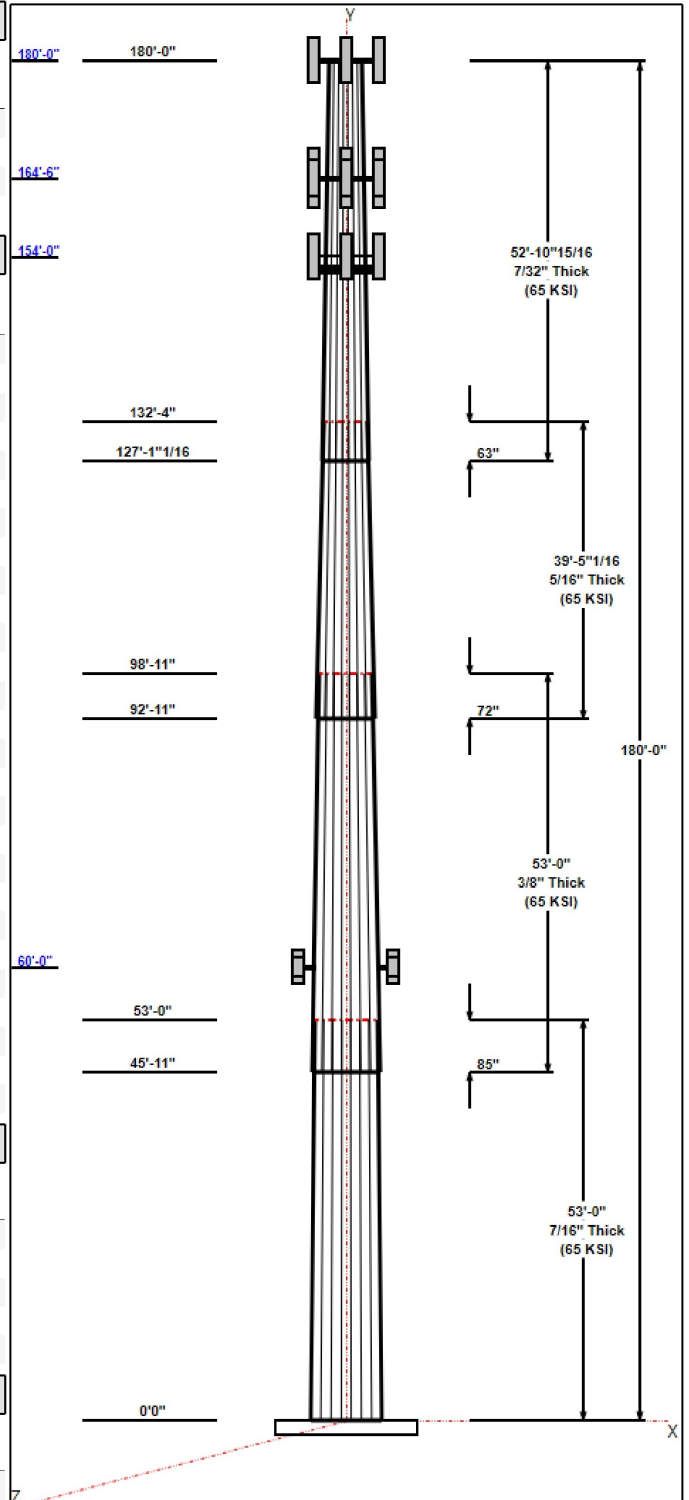
| Elev From (ft) | Elev To (ft) | Placement | Description | Carrier |
|----------------|--------------|-----------|--------------|---------------|
| 0.00 | 180.00 | Inside | 1-1/4" Fiber | Sprint Nextel |
| 0.00 | 164.50 | Inside | 1 5/8" Coax | T-Mobile |
| 0.00 | 164.50 | Inside | 1 5/8" Fiber | T-Mobile |
| 0.00 | 154.00 | Outside | 1.75" Hybrid | Dish Wireless |
| 0.00 | 60.00 | Inside | 1 5/8" Fiber | Verizon |

Anchor Bolts

| Qty | Specifications | Grade (ksi) | Arrangement |
|-----|----------------|-------------|-------------|
| 20 | 2.25" 18J | 75.0 | Radial |

Base Plate

| Thickness (in) | Specifications (in) | Grade (ksi) | Geometry |
|----------------|---------------------|-------------|----------|
| | | | |



Structure: CT02220-S-SBA

Type: Tapered
Site Name: Colchester 2 CT
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 16 Sided
Taper: 0.20502

1/26/2023

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2.7500 74.6 60.0 Polygon

Reactions

| Load Case | Moment (FT-Kips) | Shear (Kips) | Axial (Kips) |
|----------------------------------|---------------------|-----------------|-----------------|
| 1.2D + 1.0W 125 mph Wind | 3953.1 | 32.3 | 53.3 |
| 0.9D + 1.0W 125 mph Wind | 3910.1 | 32.2 | 39.9 |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 990.3 | 8.1 | 70.2 |
| 1.2D + 1.0Ev + 1.0Eh | 127.8 | 0.8 | 55.3 |
| 0.9D + 1.0Ev + 1.0Eh | 126.6 | 0.8 | 41.9 |
| 1.0D + 1.0W 60 mph Wind | 809.9 | 6.6 | 44.4 |

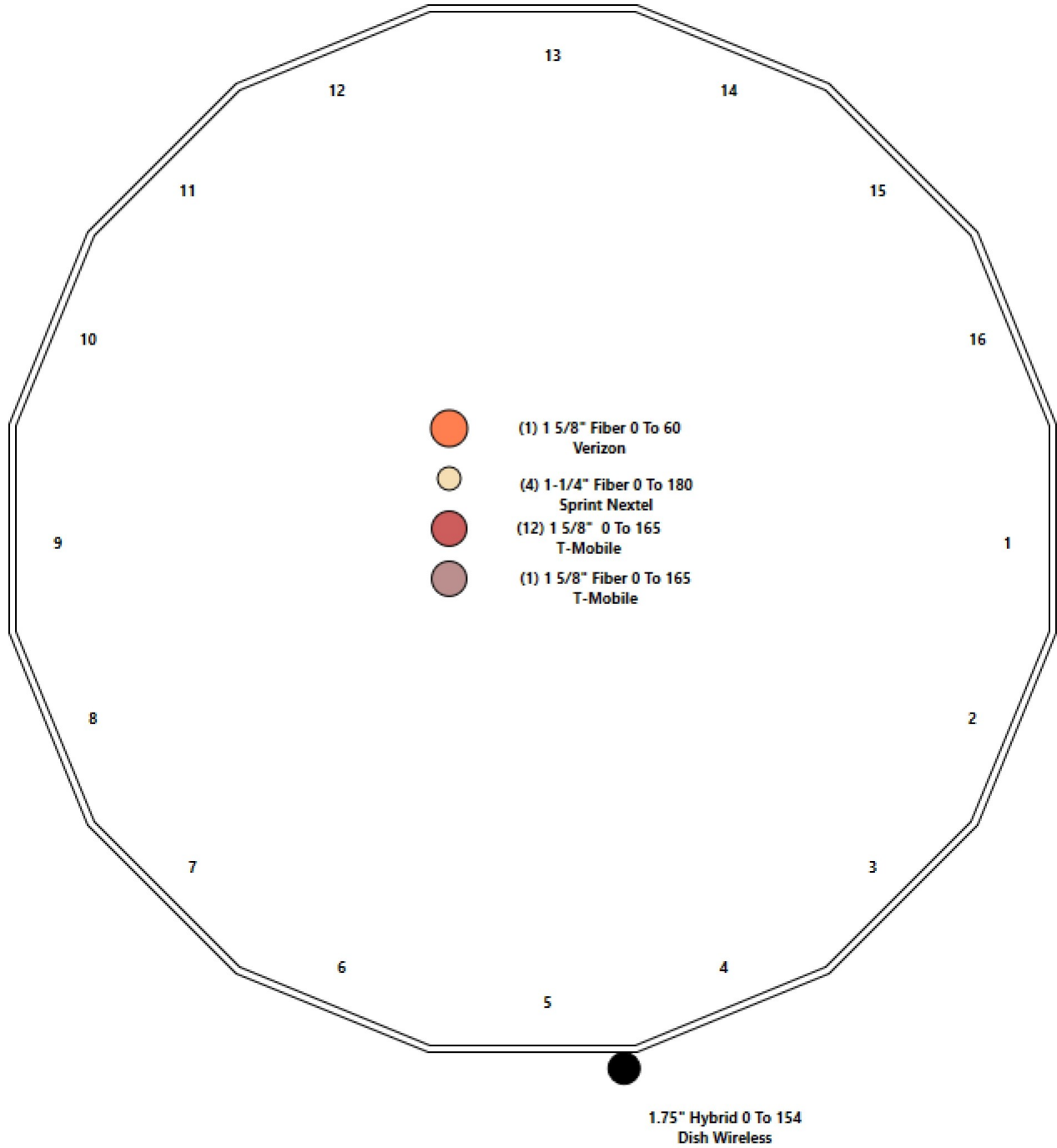
Structure: CT02220-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Colchester 2 CT
Height: 180.00 (ft)

1/26/2023



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Final Analysis Summary

| | | |
|-----------------------------------|-----------------------------------|-------------------------|
| Structure: CT02220-S-SBA | Code: TIA-222-H | 1/26/2023 |
| Site Name: Colchester 2 CT | Exposure: B | |
| Height: 180.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Reactions

| Load Case | Shear FX (kips) | Shear FZ (kips) | Axial FY (kips) | Moment MX (ft-kips) | Moment MY (ft-kips) | Moment MZ (ft-kips) |
|----------------------------------|-----------------|-----------------|-----------------|---------------------|---------------------|---------------------|
| 1.2D + 1.0W 125 mph Wind | 32.3 | 0.00 | 53.26 | 0.00 | 0.00 | 3953.12 |
| 0.9D + 1.0W 125 mph Wind | 32.2 | 0.00 | 39.93 | 0.00 | 0.00 | 3910.08 |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 8.1 | 0.00 | 70.24 | 0.00 | 0.00 | 990.35 |
| 1.2D + 1.0Ev + 1.0Eh | 0.8 | 0.00 | 55.27 | 0.00 | 0.00 | 127.76 |
| 0.9D + 1.0Ev + 1.0Eh | 0.8 | 0.00 | 41.90 | 0.00 | 0.00 | 126.58 |
| 1.0D + 1.0W 60 mph Wind | 6.6 | 0.00 | 44.41 | 0.00 | 0.00 | 809.93 |

Max Stresses

| Load Case | 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) | Elev (ft) | Stress Ratio |
|----------------------------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|-----------|--------------|
| 1.2D + 1.0W 125 mph Wind | -53.26 | -32.27 | 0.00 | -3953.1 | 0.00 | -3953.1 | 5525.87 | 1463.8 | 7242.88 | 6747.00 | 0.00 | 0.596 |
| 0.9D + 1.0W 125 mph Wind | -39.93 | -32.25 | 0.00 | -3910.0 | 0.00 | -3910.0 | 5525.87 | 1463.8 | 7242.88 | 6747.00 | 0.00 | 0.587 |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | -70.24 | -8.12 | 0.00 | -990.35 | 0.00 | -990.35 | 5525.87 | 1463.8 | 7242.88 | 6747.00 | 0.00 | 0.160 |
| 1.2D + 1.0Ev + 1.0Eh | -14.98 | -0.70 | 0.00 | -25.91 | 0.00 | -25.91 | 1489.26 | 422.54 | 1209.69 | 1053.20 | 132.34 | 0.035 |
| 0.9D + 1.0Ev + 1.0Eh | -11.36 | -0.69 | 0.00 | -25.74 | 0.00 | -25.74 | 1489.26 | 422.54 | 1209.69 | 1053.20 | 132.34 | 0.032 |
| 1.0D + 1.0W 60 mph Wind | -44.41 | -6.65 | 0.00 | -809.93 | 0.00 | -809.93 | 5525.87 | 1463.8 | 7242.88 | 6747.00 | 0.00 | 0.128 |

Base Plate Summary

| | | |
|-----------------------------------|-----------------------------------|-------------------------|
| Structure: CT02220-S-SB | Code: TIA-222-H | 1/26/2023 |
| Site Name: Colchester 2 CT | Exposure: B | |
| Height: 180.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: D - Stiff Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| Reactions | Base Plate | Anchor Bolts |
|---------------------------------|------------------------------------|---------------------------------|
| Original Design | Yield (ksi): 60.00 | Bolt Circle: 68.62 |
| Moment (kip-ft): 5045.00 | Width (in): 74.62 | Number Bolts: 20.00 |
| Axial (kip): 56.10 | Style: Polygon | Bolt Type: 2.25" 18J |
| Shear (kip): 39.50 | Polygon Sides: 16.00 | Bolt Diameter (in): 2.25 |
| Analysis (1.2D + 1.0W) | Clip Length (in): 0.00 | Yield (ksi): 75.00 |
| Moment (kip-ft): 3953.12 | Effective Len (in): 13.76 | Ultimate (ksi): 100.00 |
| Axial (kip): 53.26 | Moment (kip-in): 607.38 | Arrangement: Radial |
| Shear (kip): 32.27 | Allow Stress (ksi): 81.00 | Cluster Dist (in): 0.00 |
| | Applied Stress (ksi): 34.83 | Start Angle (deg): 0.00 |
| | Stress Ratio: 0.43 | Compression |
| | | Force (kip): 140.92 |
| | | Allowable (kip): 268.39 |
| | | Ratio: 0.53 |
| | | Tension |
| | | Force (kip): 135.60 |
| | | Allowable (kip): 243.75 |
| | | Ratio: 0.56 |



Monopole Mat Foundation Design

Date

1/20/2022

| | | | |
|-----------------------|-------------------------|--------------------------------|-------------|
| Customer Name: | SBA Communications Corp | TIA Standard: | EIA-222-G |
| Site Name: | Colchester 2 CT | Structure Height (Ft.): | 180 |
| Site Number: | CT02220-S | Engineer Name: | J. Tibbetts |
| Engr. Number: | 122526 | Engineer Login ID: | |

Foundation Info Obtained from:

Mapping Operation
Monopole
Analysis

Structure Type:

Analysis or Design?

Base Reactions (Factored):

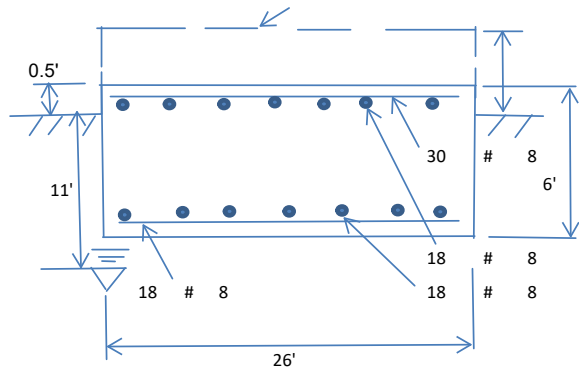
| | | | |
|----------------------|------|---------------------|--------|
| Axial Load (Kips): | 53.3 | Shear Force (Kips): | 32.3 |
| Uplift Force (Kips): | 0.0 | Moment (Kips-ft): | 3953.1 |

Allowable overstress %: 5.0%

Foundation Geometries:

| | | | |
|---------------------------|------|-------------------------|------|
| Anchor Bolt Circle (ft.): | 5.72 | Depth of Base BG (ft.): | 5.50 |
| Thickness of Pad (ft.): | 6.00 | Width of Pad (ft.): | 26 |
| Length of Pad (ft.): | 26 | Width of Pad (ft.): | 26 |

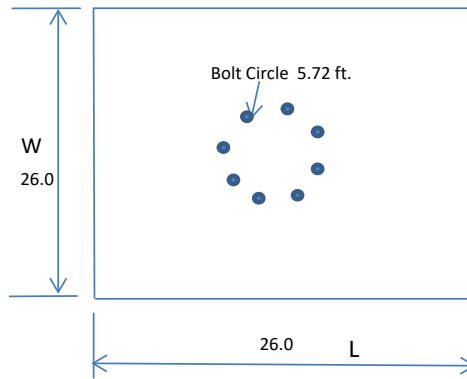
Final Length of pad (ft) 26.0 Final width of pad (ft): 26.0



Material Properties and Rebar Info:

| | | | | |
|--|------|---------------------------|-------|-----|
| Concrete Strength (psi): | 3000 | Steel Elastic Modulus: | 29000 | ksi |
| Pad Rebar Yield (Ksi): | 60 | Tie Spacing (in): | 8.0 | |
| Pad Steel Rebar Size (#): | 8 | Unit Weight of Concrete: | 150.0 | pcf |
| Concrete Cover (in.): | 3 | | | |
| Rebar at the bottom of the concrete pad: | | | | |
| Qty. of Rebar in Pad (L): | 30 | Qty. of Rebar in Pad (W): | 30 | |
| Rebar at the top of the concrete pad: | | | | |
| Qty. of Rebar in Pad (L): | 18 | Qty. of Rebar in Pad (W): | 18 | |

Apply 1.35 factor for e/w Per G: 1.35



Soil Design Parameters:

| | | | | | | |
|--------------------------------------|-------|--|------|-----|--------------------------|----|
| Water Table B.G.S. (ft): | 11.0 | Unit Weight of Water: | 62.4 | pcf | Angle from Top of Pad: | 30 |
| Ultimate Bearing Pressure (psf): | 25000 | Ultimate Skin Friction: | 0 | Psf | Angle from Bottm of Pad: | 25 |
| Consider Friction for O.T.M. (Y/N): | No | Consider Friction for bearing (Y/N): | No | | Angle from Bottm of Pad: | 25 |
| Consider soil hor. resist. for OTM.: | No | Reduction factor on the maximum soil bearing pressure: | 1.00 | | | |

Foundation Analysis and Design:

| | | | |
|--|---------|--|--------|
| Uplift Strength Reduction Factor: | 0.75 | Compression Strength Reduction Factor: | 0.75 |
| Total Dry Soil Volume (cu. Ft.): | 0.00 | Total Dry Soil Weight (Kips): | 0.00 |
| Total Buoyant Soil Volume (cu. Ft.): | 0.00 | Total Buoyant Soil Weight (Kips): | 0.00 |
| Total Effective Soil Weight (Kips): | 0.00 | Weight from the Concrete Block at Top (K): | 0.00 |
| Total Dry Concrete Volume (cu. Ft.): | 4056.00 | Total Dry Concrete Weight (Kips): | 608.40 |
| Total Buoyant Concrete Volume (cu. Ft.): | 0.00 | Total Buoyant Concrete Weight (Kips): | 0.00 |
| Total Effective Concrete Weight (Kips): | 608.40 | Total Vertical Load on Base (Kips): | 661.66 |

Check Soil Capacities:

| | | | | | | |
|--|--------|---|--|-------|------|-----|
| Calculated Maxium Net Soil Pressure under the base (psf): | 3076 | < | Allowable Factored Soil Bearing (psf): | 18750 | 0.16 | OK! |
| Allowable Foundation Overturning Resistance (kips-ft.): | 7810.7 | > | Design Factored Momnt (kips-ft): | 4148 | 0.53 | OK! |
| Factor of Safety Against Overturning (O. R. Moment/Design Moment): | 1.88 | | | | | OK! |

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

| | | | |
|--|------|--------------------------------------|------|
| Strength reduction factor (Flexure and axial tension): | 0.90 | Strength reduction factor (Shear): | 0.75 |
| Strength reduction factor (Axial compression): | 0.65 | Wind Load Factor on Concrete Design: | 1.00 |

Concrete Pad:

| | | | | | | |
|---|---------|-----|--|--------|------|-----|
| One-Way Design Shear Capacity (L-Direction, Kips): | 1755.9 | > | One-Way Factored Shear (L-D. Kips): | 229.2 | 0.13 | OK! |
| One-Way Design Shear Capacity (W-Direction, Kips): | 1755.9 | > | One-Way Factored Shear (W-D., Kips) | 229.2 | 0.13 | OK! |
| One-Way Design Shear Capacity (Corner-Corner, Kips): | 2063.1 | > | One-Way Factored Shear (C-C, Kips): | 613.9 | 0.30 | OK! |
| Lower Steel Pad Reinforcement Ratio (L-Direct.): | 0.0011 | OK! | Lower Steel Pad Reinf. Ratio (W-Direc | 0.0011 | | |
| Lower Steel Pad Moment Capacity (L-Direction, Kips-ft): | 7210.2 | > | Moment at Bottom (L-Direct, K-Ft): | 479.3 | 0.07 | OK! |
| Lower Steel Pad Moment Capacity (W-Direction, Kips-ft): | 7210.2 | > | Moment at Bottom (W-Direct, K-Ft): | 479.3 | 0.07 | OK! |
| Lower Steel Pad Moment Capacity (Corner-Corner, K-ft): | 10169.3 | > | Moment at Bottom (C-C Dir, K-Ft): | 677.8 | 0.07 | OK! |
| Upper Steel Pad Reinforcement Ratio (L-Direct.): | 0.0007 | OK! | Upper Steel Reinf. Ratio (W-Direct.): | 0.0007 | | |
| Upper Steel Pad Moment Capacity (L-Direction, Kips-ft): | 4349.0 | > | Moment at the top (L-Dir Kips-Ft): | 187.8 | 0.04 | OK! |
| Upper Steel Pad Moment Capacity (W-Direction, Kips-ft): | 4349.0 | > | Moment at the top (W-Dir Kips-Ft): | 187.8 | 0.04 | OK! |
| Upper Steel Pad Moment Capacity (Corner-Corner, K-ft): | 6140.5 | > | Moment at the top (C-C Direc, K-Ft): | 568.0 | 0.09 | OK! |

Exhibit E

Mount Analysis

January 23, 2023

David Evans
SBA Network Services, LLC
134 Flanders Road, Suite 125
Westborough, MA 01581
(508) 251-0720 x 3805



MTS Engineering, P.L.L.C.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject: **Appurtenance Mount Analysis Report**

Carrier Designation: **Dish Wireless Co-Locate**
Site Number: BOBOS00887B
Site Name: SBA - Chestnut Hill Rd

SBA Network Services Designation: **Site Number:** CT02220-S
Site Name: Colchester 2 CT
Application Number: 177518, v1

Engineering Firm Designation: **B+T Group Project Number:** 160356.003.01

Site Data: **31 Chestnut Hill Road, Colchester, CT, 06415, New London County**
Latitude 41.57133°, Longitude -72.30232°
Monopole
8' Platform Mount

Dear Mr. Evans,

B+T Group is pleased to submit this “**Appurtenance Mount Analysis Report**” to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount’s stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Proposed Equipment

Note: See Table 1 for the final loading configuration

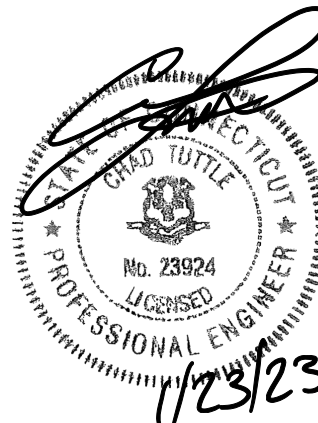
Sufficient Capacity
(Passing at 52.4%)

This analysis utilizes an ultimate 3-second gust wind speed of 122 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

We appreciate the opportunity of providing our continuing professional services to you and *SBA Network Services, LLC*. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Gertha Wesh

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER:2386985 Expires: 3/31/2023



Chad E. Tuttle, P.E.

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7) APPENDIX B

Additional Calculations

1) INTRODUCTION

The appurtenance mount consists of Commscope platform mount (Part #MC-PK8-DSH) at 154 ft., attached to monopole at 31 Chestnut Hill Road, Colchester, CT, 06415, New London County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 122 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category B, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the platform mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30° increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

| Loading | RAD Center Elev. (ft.) | Position | Qty. | Description | Note |
|----------|------------------------|----------|------|-------------------------|------|
| Proposed | 154 | 1 | 3 | Commscope FFVV-65B-R2 | 1 |
| | | | 3 | Fujitsu TA08025-B605 | 2 |
| | | | 3 | Fujitsu TA08025-B604 | |
| | | -- | 1 | Raycap RDIDC-9181-PF-48 | 3 |

Note:

- (1) Proposed Antenna to be installed on the proposed Mount Pipe.
- (2) Proposed Equipment to be installed directly behind the Antenna.
- (3) Proposed Equipment to be installed on the Mount.

Table 2 - Documents Provided

| Documents | Remarks | Reference | Source |
|-----------|------------------|------------------|---------------------------|
| Collo App | Proposed Loading | Date: 10/24/2021 | SBA Network Services, LLC |
| RFDS | | Date: 09/08/2021 | |

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

6. Serviceability with respect to antenna twist, tilt, roll, or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
 - a) Connection Bolts : ASTM A325
 - b) Steel Pipe : ASTM A53 (GR. 35)
 - c) HSS (Round) : ASTM 500 (GR. B-42)
 - d) HSS (Rectangular) : ASTM 500 (GR. B-46)
 - e) Channel : ASTM A36 (GR. 36)
 - f) Steel Solid Rod : ASTM A36 (GR. 36)
 - g) Steel Plate : ASTM A36 (GR. 36)
 - h) Steel Angle : ASTM A36 (GR. 36)
 - i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

| Notes | Component | Elevation (ft.) | % Capacity | Pass / Fail |
|-------|-------------------|-----------------|------------|-------------|
| - | Main Horizontals | 154 | 8.0 | Pass |
| - | Support Rails | 154 | 14.0 | Pass |
| - | Support Tubes | 154 | 52.4 | Pass |
| - | Support Channels | 154 | 35.7 | Pass |
| - | Support Angles | 154 | 37.1 | Pass |
| - | Mount Pipes | 154 | 15.9 | Pass |
| - | Connection Plates | 154 | 19.9 | Pass |
| - | Connection Angles | 154 | 24.1 | Pass |
| - | Connection Bolts | 154 | 26.9 | Pass |

5) RECOMMENDATIONS

The Commscope platform mount, Part #MC-PK8-DSH has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX B

(Additional Calculations)

| | | |
|---------|-------------------------------------|------------|
| PROJECT | 160356.002.01 - Colchester 2 | KSC |
| SUBJECT | Platform Mount Analysis | |
| DATE | 01/12/22 | PAGE OF |



B+T GRP
 1717 S. Boulder, Suite 300
 Tulsa, OK 74159
 (918) 587-4630

| | | | |
|-----------------------|------------|----------|-------------------------|
| Tower Type | : | Monopole | |
| Ground Elevation | z_s : | 528 | ft [ASCE7 Hazard Tool] |
| Tower Height | : | 180.00 | ft |
| Mount Elevation | : | 154.00 | ft |
| Antenna Elevation | : | 154.00 | ft |
| Crest Height | : | 0 | ft |
| Risk Category | : | II | [Table 2-1] |
| Exposure Category | : | B | [Sec. 2.6.5.1.2] |
| Topography Category | : | 1.00 | [Sec. 2.6.6.2] |
| Wind Velocity | V : | 122 | mph [ASCE7 Hazard Tool] |
| Ice wind Velocity | V_i : | 50 | mph [ASCE7 Hazard Tool] |
| Service Velocity | V_s : | 30 | mph [ASCE7 Hazard Tool] |
| Base Ice thickness | t_i : | 1.00 | in [ASCE7 Hazard Tool] |
| Seismic Design Cat. | : | B | [ASCE7 Hazard Tool] |
| | S_S : | 0.20 | |
| | S_1 : | 0.06 | |
| | S_{DS} : | 0.22 | |
| | S_{D1} : | 0.09 | |
| Gust Factor | G_h : | 1.00 | [Sec. 16.6] |
| Pressure Coefficient | K_z : | 1.12 | [Sec. 2.6.5.2] |
| Topography Factor | K_{zt} : | 1.00 | [Sec. 2.6.6] |
| Elevation Factor | K_e : | 0.98 | [Sec. 2.6.8] |
| Directionality Factor | K_d : | 0.95 | [Sec. 16.6] |
| Shielding Factor | K_a : | 0.90 | [Sec. 16.6] |
| Design Ice Thickness | t_{iz} : | 1.17 | in [Sec. 2.6.10] |
| Importance Factor | I_e : | 1 | [Table 2-3] |
| Response Coefficient | C_s : | 0.109 | [Sec. 2.7.7.1] |
| Amplification | A_s : | 2.422222 | [Sec. 16.7] |
| | q_z : | 39.70 | psf |

| | | | | | |
|---------|--|------|---|------------|---|
| PROJECT | 160356.002.01 - Colchester 2 CT, CT | | | KSC | |
| SUBJECT | Platform Mount Analysis | | | | |
| DATE | 01/12/22 | PAGE | 1 | OF | 1 |



B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 (918) 587-4630

B+T GRP

[REF: AISC 360-05]

Reactions at Bolted Connection

| | | | |
|-------------------------------|---|-------|------|
| Tension | : | 1.326 | k |
| Vertical Shear | : | 1.718 | k |
| Horizontal Shear | : | 1.091 | k |
| Torsion | : | 0.338 | k.ft |
| Moment from Horizontal Forces | : | 1.106 | k.ft |
| Moment from Vertical Forces | : | 3.912 | k.ft |

Bolt Parameters

| | | | |
|----------------------------------|---|-------|-----------------|
| Bolt Grade | : | A325 | |
| Bolt Diameter | : | 0.625 | in |
| Nominal Bolt Area | : | 0.307 | in ² |
| Bolt spacing, Horizontal | : | 6 | in |
| Bolt spacing, Vertical | : | 6 | in |
| Bolt edge distance, plate height | : | 1.5 | in |
| Bolt edge distance, plate width | : | 1.5 | in |
| Total Number of Bolts | : | 4 | bolts |

Summary of Forces

| | | | |
|-------------------------------|---|------|---|
| Shear Resultant Force | : | 2.04 | k |
| Force from Horz. Moment | : | 2.00 | k |
| Force from Vert. Moment | : | 7.09 | k |
| Shear Load / Bolt | : | 0.51 | k |
| Tension Load / Bolt | : | 0.33 | k |
| Resultant from Moments / Bolt | : | 3.68 | k |

Bolt Checks

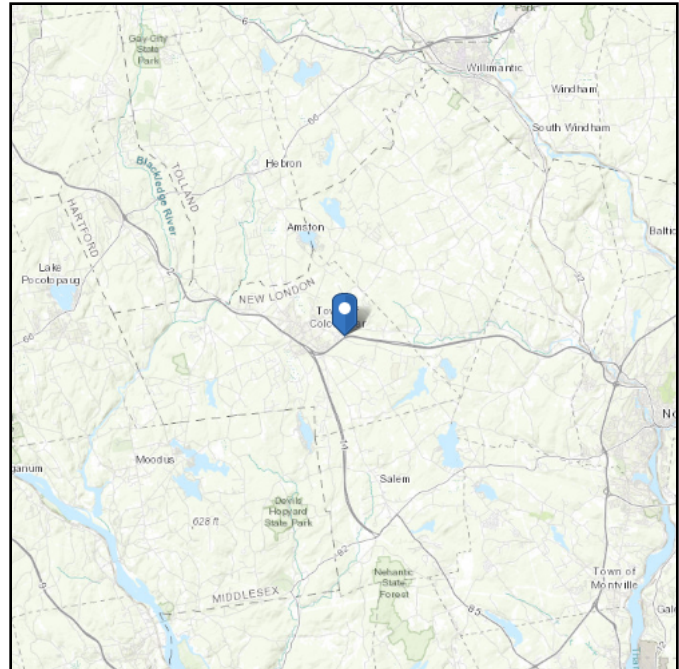
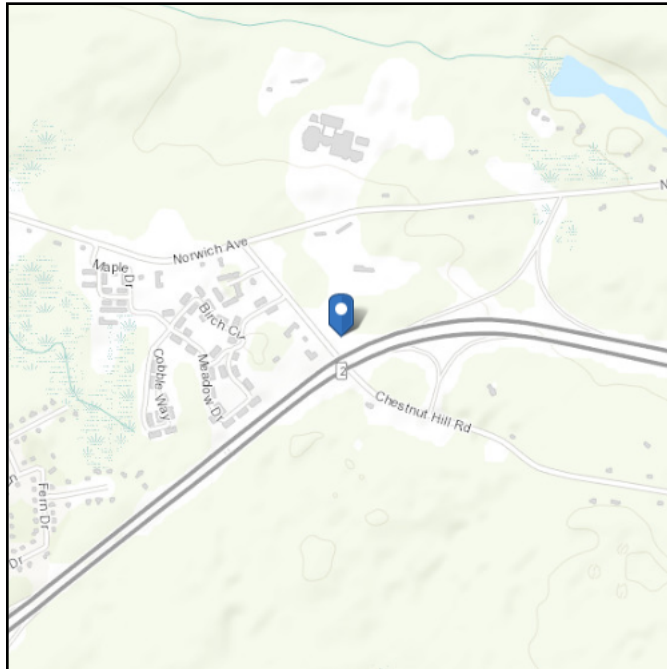
| | | | | |
|---|---|---------------|--------|-------------------|
| Nominal Tensile Stress, F_{nt} | : | 90.00 | ksi | [AISC Table J3.2] |
| Available Tensile Stress, ΦR_{nt} | : | 20.72 | k/bolt | [Eq. J3-1] |
| Unity Check, Bolt Tension | : | 19.37% | | OKAY |
| Nominal Shear Stress, F_{nv} | : | 48.00 | ksi | [AISC Table J3.2] |
| Available Shear Stress, ΦR_{nv} | : | 11.05 | k/bolt | [Eq. J3-1] |
| Unity Check, Bolt Shear | : | 7.60% | | OKAY |
| Unity Check, Combined | : | 26.97% | | OKAY |
| Available Bearing Strength, ΦR_n | : | 34.66 | k/bolt | |
| Unity Check, Bolt Bearing | : | 1.47% | | OKAY |

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 528.44 ft (NAVD 88)
Latitude: 41.571327
Longitude: -72.302322



Wind

Results:

| | |
|--------------|----------|
| Wind Speed | 122 Vmph |
| 10-year MRI | 75 Vmph |
| 25-year MRI | 85 Vmph |
| 50-year MRI | 94 Vmph |
| 100-year MRI | 100 Vmph |

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Jan 12 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

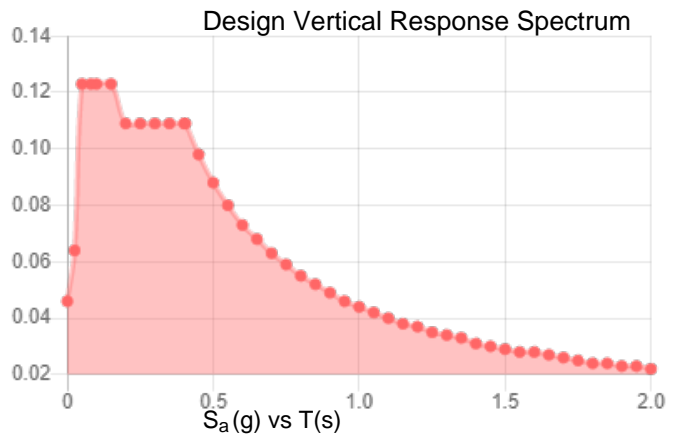
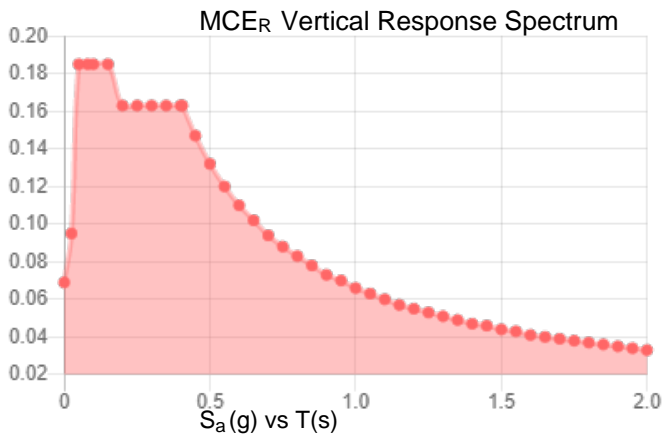
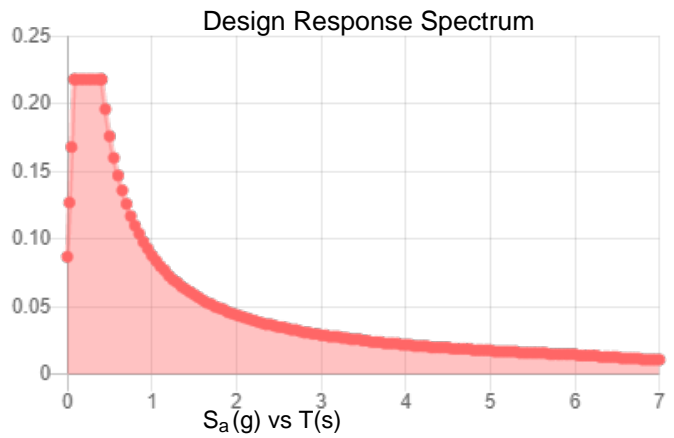
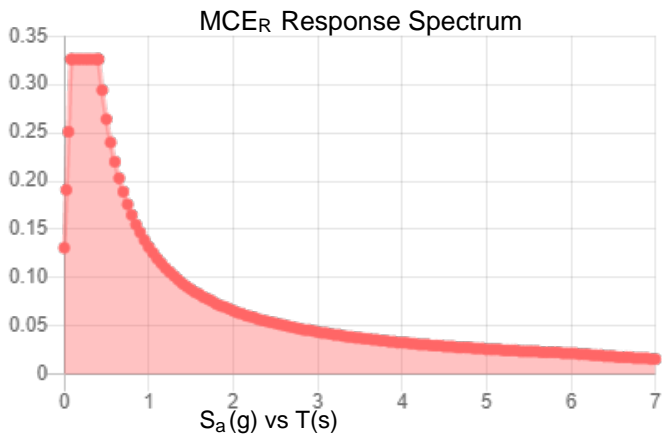
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

| | | | |
|------------|-------|--------------------|-------|
| S_s : | 0.204 | S_{D1} : | 0.088 |
| S_1 : | 0.055 | T_L : | 6 |
| F_a : | 1.6 | PGA : | 0.113 |
| F_v : | 2.4 | PGA _M : | 0.178 |
| S_{MS} : | 0.326 | F_{PGA} : | 1.574 |
| S_{M1} : | 0.132 | I_e : | 1 |
| S_{DS} : | 0.218 | C_v : | 0.708 |

Seismic Design Category B



Data Accessed: Wed Jan 12 2022

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Wed Jan 12 2022

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 500-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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

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Exhibit F

Power Density/RF Emissions Report



Radio Frequency Emissions Analysis Report



Site ID: BOBOS00887B

SBA Colchester 2 CT
31 Chestnut Hill Road
Colchester, CT 06415

January 3, 2023

Fox Hill Telecom Project Number: 222124

| Site Compliance Summary | |
|--|------------------|
| Compliance Status: | COMPLIANT |
| Site total MPE% of FCC general population allowable limit: | 17.34 % |

January 3, 2023

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBOS00887B – SBA Colchester 2 CT**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **31 Chestnut Hill Road, Colchester, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 600 MHz band is approximately $400 \mu\text{W}/\text{cm}^2$. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed upgrades to the Dish Wireless antenna facility located at **31 Chestnut Hill Road, Colchester, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4 \text{ ERP}}{R^2}$$

S = Power Density (in $\mu\text{w}/\text{cm}^2$)

ERP = Effective Radiated Power from antenna (watts)

R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.



For each Dish sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

| Technology | Frequency Band | Channel Count | Transmit Power per Channel (W) |
|------------|-------------------------|---------------|--------------------------------|
| 5G | n71 (600 MHz) | 4 | 61.5 |
| 5G | n70 (AWS-4 / 1995-2020) | 4 | 40 |
| 5G | n66 (AWS-4 / 2180-2200) | 4 | 40 |

Table 1: Channel Data Table



The following **Dish** antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from Dish regarding anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

| Sector | Antenna Number | Antenna Make / Model | Antenna Centerline (ft) |
|--------|----------------|-----------------------|-------------------------|
| A | 1 | Commscope FFVV-65B-R2 | 154 |
| B | 1 | Commscope FFVV-65B-R2 | 154 |
| C | 1 | Commscope FFVV-65B-R2 | 154 |

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC’s allowable general population limit.

| Antenna ID | Antenna Make / Model | Frequency Bands | Antenna Gain (dBd) | Channel Count | Total TX Power (W) | ERP (W) | MPE % |
|-------------------------|-----------------------|---|-----------------------|---------------|--------------------|-----------|-------------|
| Antenna A1 | Commscope FFVV-65B-R2 | n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200) | 12.15 / 15.95 / 16.25 | 12 | 566 | 17,079.80 | 1.55 |
| Sector A Composite MPE% | | | | | | | 1.55 |
| Antenna B1 | Commscope FFVV-65B-R2 | n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200) | 12.15 / 15.95 / 16.25 | 12 | 566 | 17,079.80 | 1.55 |
| Sector B Composite MPE% | | | | | | | 1.55 |
| Antenna C1 | Commscope FFVV-65B-R2 | n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200) | 12.15 / 15.95 / 16.25 | 12 | 566 | 17,079.80 | 1.55 |
| Sector C Composite MPE% | | | | | | | 1.55 |

Table 3: Dish Emissions Levels

The Following table (*Table 4*) shows all additional carriers on site and their emissions contribution estimates, along with the newly calculated **Dish** far field emissions contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site emissions values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite emissions value for the site.

| Site Composite MPE% | |
|-----------------------------|----------------|
| Carrier | MPE% |
| Dish – Max Per Sector Value | 1.55 % |
| Sprint / Nextel | 0.56 % |
| T-Mobile | 1.12 % |
| Verizon Wireless | 14.11 % |
| Site Total MPE %: | 17.34 % |

Table 4: All Carrier MPE Contributions

| | |
|----------------------|---------|
| Dish Sector A Total: | 1.55 % |
| Dish Sector B Total: | 1.55 % |
| Dish Sector C Total: | 1.55 % |
| | |
| Site Total: | 17.34 % |

Table 5: Site MPE Summary



Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

| Dish _ Frequency Band / Technology Max Power Values (Per Sector) | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density ($\mu\text{W}/\text{cm}^2$) | Frequency (MHz) | Allowable MPE ($\mu\text{W}/\text{cm}^2$) | Calculated % MPE |
|--|---------------|----------------------------|------------------|---|-------------------------|---|---------------------|
| Dish n71 (600 MHz) 5G | 4 | 1,008.96 | 154 | 4.12 | n71 (600 MHz) | 400 | 1.03% |
| Dish n70 (AWS-4 / 1995-2020) 5G | 4 | 1,574.20 | 154 | 2.60 | n70 (AWS-4 / 1995-2020) | 1000 | 0.26% |
| Dish n66 (AWS-4 / 2180-2200) 5G | 4 | 1,686.79 | 154 | 2.60 | n66 (AWS-4 / 2180-2200) | 1000 | 0.26% |
| | | | | | | Total: | 1.55 % |

Table 6: Dish Maximum Sector MPE Power Values



Summary

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

The anticipated maximum composite contributions from the Dish facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

| Dish Sector | Power Density Value (%) |
|-------------------------------------|-------------------------|
| Sector A: | 1.55 % |
| Sector B: | 1.55 % |
| Sector C: | 1.55 % |
| Dish Maximum Total (per sector): | 1.55 % |
| | |
| Site Total: | 17.34 % |
| | |
| Site Compliance Status: | COMPLIANT |

The anticipated composite emissions value for this site, assuming all carriers present, is **17.34 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
(978)660-3998

Exhibit G

Letter of Authorization

SBA Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

Melanie A. Bachman

Executive Director

Connecticut Siting Council

10 Franklin Square

New Britain, CT 06051

Re: Tower Share Application

SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.


SBA COMMUNICATIONS CORPORATION

134 Flanders Road, Suite 125

Westboro, MA 01581

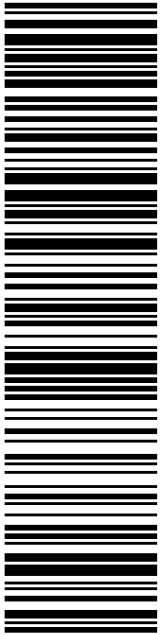
Exhibit H

Recipient Mailings



SBA COMMUNICATIONS CORPORATION
STE 125
13 FLANDERS RD
WESTBOROUGH MA 01581

USPS TRACKING #



9405 5036 9930 0473 6835 49

P

usps.com 9405 5036 9930 0473 6835 49 0096 5000 0010 1581
US POSTAGE \$9.65
 Flat Rate Envoy

U.S. POSTAGE PAID
 Click-N-Ship®

Mailed from 01566 986766711999307


DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

PRIORITY MAIL®

Expected Delivery Date: 02/07/23
Ref#: SBDS-887B
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R005

Electronic Rate Approved #038555749





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| | |
|------------------------------------|---------------------------------------|
| Trans. #: 582063264 | Priority Mail® Postage: \$9.65 |
| Print Date: 02/06/2023 | Total: \$9.65 |
| Ship Date: 02/06/2023 | |
| Expected Delivery Date: 02/07/2023 | |

From: DEBORAH CHASE Ref#: SBDS-887B
 NORTHEAST SITE SOLUTIONS
 STE 1
 420 MAIN ST
 STURBRIDGE MA 01566-1359


To: SBA COMMUNICATIONS CORPORATION
 STE 125
 13 FLANDERS RD
 WESTBOROUGH MA 01581

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



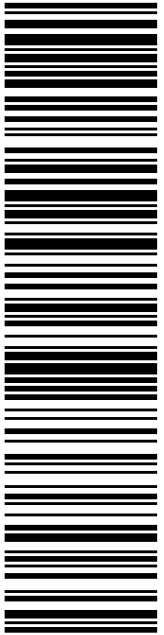
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ANDREAS BISBIKOS
FIRST SELECTMAN
127 NORWICH AVE
COLCHESTER CT 06415-1230

USPS TRACKING #



9405 5036 9930 0473 6835 56

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

PRIORITY MAIL®

Expected Delivery Date: 02/08/23
Ref#: SBDS-00887
0000

C001

P

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US POSTAGE \$9.65
Flat Rate Envoy

U.S. POSTAGE PAID
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02/06/2023

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|------------------------------------|---------------------------------------|
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| Print Date: 02/06/2023 | Total: \$9.65 |
| Ship Date: 02/06/2023 | |
| Expected Delivery Date: 02/08/2023 | |


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STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

To: ANDREAS BISBIKOS
FIRST SELECTMAN
127 NORWICH AVE
COLCHESTER CT 06415-1230

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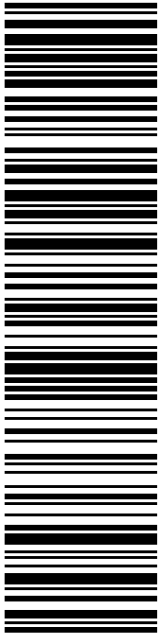


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ARIEL LAGO
ZONING ENFORCEMENT OFFICER
127 NORWICH AVE
COLCHESTER CT 06415-1230

USPS TRACKING #



9405 5036 9930 0473 6835 87

DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

C001

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02/06/2023 Mailed from 01566 986766711997524

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Expected Delivery Date: 02/08/23
 Ref#: SBDS-00887
0000

UNITED STATES POSTAL SERVICE®

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5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

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9405 5036 9930 0473 6835 87

| | |
|------------------------------------|---------------------------------------|
| Trans. #: 582063264 | Priority Mail® Postage: \$9.65 |
| Print Date: 02/06/2023 | Total: \$9.65 |
| Ship Date: 02/06/2023 | |
| Expected Delivery Date: 02/08/2023 | |

From: DEBORAH CHASE Ref#: SBDS-00887
 NORTHEAST SITE SOLUTIONS
 STE 1
 420 MAIN ST
 STURBRIDGE MA 01566-1359


To: ARIEL LAGO
 ZONING ENFORCEMENT OFFICER
 127 NORWICH AVE
 COLCHESTER CT 06415-1230

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



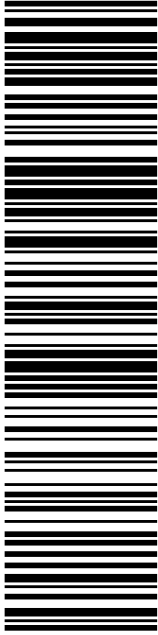
Thank you for shipping with the United States Postal Service!

Check the status of your shipment on the USPS Tracking® page at usps.com



JOHN & MARY PRZYBOROWSKI
PO BOX 602
FISHERS ISLE NY 06390-0602

USPS TRACKING #



9405 5036 9930 0473 6836 00

P

usps.com 9405 5036 9930 0473 6836 00 0096 5000 00 10 6390
US POSTAGE \$9.65
 Flat Rate Envoy

U.S. POSTAGE PAID
 Click-N-Ship®

Mailed from 01566 986766711995205


DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

PRIORITY MAIL®

Expected Delivery Date: 02/08/23
 Ref#: SBDS-00887
0000

B003

Electronic Rate Approved #038555749





Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0473 6836 00

| | |
|------------------------------------|---------------------------------------|
| Trans. #: 582063264 | Priority Mail® Postage: \$9.65 |
| Print Date: 02/06/2023 | Total: \$9.65 |
| Ship Date: 02/06/2023 | |
| Expected Delivery Date: 02/08/2023 | |

From: DEBORAH CHASE Ref#: SBDS-00887
 NORTHEAST SITE SOLUTIONS
 STE 1
 420 MAIN ST
 STURBRIDGE MA 01566-1359

To: JOHN & MARY PRZYBOROWSKI
 PO BOX 602
 FISHERS ISLE NY 06390-0602

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 Check the status of your shipment on the USPS Tracking® page at usps.com

BOBOS 00887B SBA DISH



**UNITED STATES
POSTAL SERVICE.**

LINCOLN MALL
560 LINCOLN ST STE 8
WORCESTER, MA 01605-1925
(800)275-8777

02/06/2023

03:43 PM

| Product | Qty | Unit Price | Price |
|-----------------------------|-----|------------|--------|
| Prepaid Mail | 1 | | \$0.00 |
| Westborough, MA 01581 | | | |
| Weight: 0 lb 2.00 oz | | | |
| Acceptance Date: | | | |
| Mon 02/06/2023 | | | |
| Tracking #: | | | |
| 9405 5036 9930 0473 6835 49 | | | |
| Prepaid Mail | 1 | | \$0.00 |
| Colchester, CT 06415 | | | |
| Weight: 0 lb 14.90 oz | | | |
| Acceptance Date: | | | |
| Mon 02/06/2023 | | | |
| Tracking #: | | | |
| 9405 5036 9930 0473 6835 56 | | | |
| Prepaid Mail | 1 | | \$0.00 |
| Colchester, CT 06415 | | | |
| Weight: 0 lb 14.80 oz | | | |
| Acceptance Date: | | | |
| Mon 02/06/2023 | | | |
| Tracking #: | | | |
| 9405 5036 9930 0473 6835 87 | | | |
| Prepaid Mail | 1 | | \$0.00 |
| Fishers Island, NY 06390 | | | |
| Weight: 0 lb 14.80 oz | | | |
| Acceptance Date: | | | |
| Mon 02/06/2023 | | | |
| Tracking #: | | | |
| 9405 5036 9930 0473 6836 00 | | | |

Grand Total:

\$0.00