Northeast Site Solutions
Victoria Masse
420 Main St Unit 1 Box 2
Sturbridge, MA 01566
victoria@northeastsitesolutions.com

April 11, 2023

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

RE: Tower Share Application
575 Pleasant Valley Rd, South Windsor, CT 06074
Latitude: 41.81455556 N
Longitude: 72.60166667 W
Site#: BOBDL00011C

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 on the existing monopole located at 575 Pleasant Valley Rd, South Windsor, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 5G MHz antenna and six (6) RRUs, at the 130-foot level of the existing 174-foot monopole, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within 5"x7" lease area. Included are plans by Infinigy, dated April 5, 2023, Exhibit C. Also included is a structural analysis prepared by Infinigy, dated March 29, 2023, confirming that the existing monopole is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of South Windsor Planning and Zoning Commission, on March 9, 2021. 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 Michael Maniscalco Town Manager, Michele M. Lipe, AICP, Director of Planning, as well as the property owner and tower 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 modifications will not result in an increase in the height of the existing structure. The top of the monopole is 174-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 130-feet.

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

3.The proposed modification will not increase the 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. As indicated in the attached power density calculations, the combined site operations will result in a total density of 4.38% as evidenced by Exhibit F.

Connecticut General Statutes 16-50-aa 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 indicates 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 in 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 monopole such as this monopole in South Windsor. 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 130-foot level of the existing 174-foot monopole would have an insignificant visual impact on the area around the monopole. 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 share application.

E. Public Safety Concerns. As discussed above, the monopole 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 water tank. 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 South Windsor.

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 1 Box 2, Sturbridge, MA 01566
Email: victoria@northeastsitesolutions.com

Attachments
Cc:
Michael Maniscalco, Town Manager
Town of South Windsor
1540 Sullivan Avenue
South Windsor, CT 06074

Michele M. Lipe, AICP, Director of Planning
Town of South Windsor
1540 Sullivan Avenue
South Windsor, CT 06074

Town of South Windsor c/o Veterans Memorial Park, Property & Tower Owner
Pleasant Valley Road
South Windsor, CT 06074

Exhibit A

Original Facility Approval

Town of South Windsor
1540 SULLIVAN AVENUE • SOUTH WINDSOR, CT 06074
TELEPHONE (860) 644-2511

HAND DELIVERED

March 17, 2021

Town of South Windsor
Walter Summers, Fire Marshal
1540 Sullivan Avenue
South Windsor, CT 06074

Dear Mr. Summers:

Re: Appl. 21-07P, Town of South Windsor Radio Communications Tower Special Exception Site Plan of Development, 555 and 575 Pleasant Valley Road

We are pleased to advise you that the Planning & Zoning Commission voted on March 9, 2021 to approve with modifications the above referenced application for a Special Exception Site Plan of Development.

This approval is for special exception to Section 7.18 and site plan of development for the construction of a 175 foot monopole radio communications tower, on property located at 555 and 575 Pleasant Valley Road, A-20 and I zone, as shown on plans prepared by CHA, Project No. 065446, dated January 25, 2021 as revised. This approval is subject to the following modifications:

1. Prior to commencement of any site work, a meeting must be held with Town Staff.
2. No building permit will be issued until the final mylars have been filed in the Town Clerk's office.
3. This application is subject to the conditions of approval of the Inland Wetlands Agency/Conservation Commission.
4. An as-built plan is required prior to issuance of a Certificate of Occupancy per Section 9.1.3 of the Zoning Regulations.
5. All plans used in the field by the developer must bear the stamp and authorized signature of the Town of South Windsor.
6. The building street number must be included on the final plan.
7. Pavement markings must be maintained in good condition throughout the site drives and parking areas.
8. All free standing signs and/or building signs require the issuance of a sign permit before they are erected.
9. A new deed combining the properties shall be filed.

Black and white transparent mylars of Sheets # 2 and 3 with the above modifications, together with three print copies of the entire set of plans with live signatures and raised seals must be submitted to this Commission to be stamped and signed. The letters of approval of this Commission as well as the Inland Wetlands Agency/Conservation Commission must be reproduced on the mylars.

After the mylars have been signed by the Commission, they will be returned to you for filing in the Office of the Town Clerk. After filing these plans, a copy of the receipt must be submitted to the Planning Department.

The attached Special Exception form must be completed and filed in the Town Clerk's office. The Special Exception will take effect upon filing.

Sincerely,

Bart Pacekonis

Bart Pacekonis, Chairman
PLANNING & ZONING COMMISSION

BP/llz

cc: Town Engineer
Chief Building Official
Assessor
Superintendent of Pollution Control
Fire Marshal

Town of South Windsor Building Department

Building Permit: BLDP-21-781

APPLICANT
NAME: Cindy Morton
EMAIL ADDRESS: cmorton@easterncomm.com
ADDRESS: 103R Old Windsor Road
Bloomfield , CT 06002

LOCATION
ADDRESS: 575 PLEASANT VALLEY RD
South Windsor CT6074
OWNER: SOUTH WINDSOR TOWN OF 45
PLEASANT VALLEY ROAD
SOUTH WINDSOR CT 6074

DESCRIPTION OF WORK:
Develop access road and 100' x 100' tower compound. Construct tower foundation and ground ring. Erect 175' monopole and (2) antenna platforms. Construct slab in grade for equipment shelter, LP tank and generator. Place and set up pre-fab equipment shelter. Install town antenna system

Kenneth A Rich

October 25, 2021

BUILDING OFFICIAL — DATE SIGNED

ALL WORK TO BE DONE IN ACCORDANCE WITH THE APPLICATION AND PLANS APPROVED BY THE BUILDING DEPARTMENT
PERMIT ONLY VALID IF SIGNED BY BUILDING OFFICIAL

Exhibit B

Property Card

Town of South Windsor, CT

Property Listing Report

Map Block Lot	23-91	Building #	1	PID	9752	Account	72900575

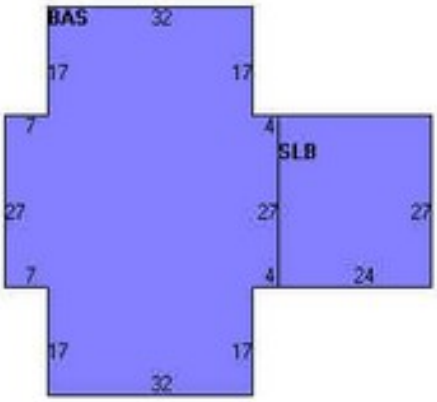
Property Information

Property Location	575 PLEASANT VALLEY ROAD
Owner	SOUTH WINDSOR TOWN OF
Co-Owner	VETERANS MEMORIAL PARK
Mailing Address	PLEASANT VALLEY ROAD SOUTH WINDSOR CT 06074
Land Use	920 Exempt Comm
Land Class	E
Zoning Code	A20
Census Tract	4440

Neighborhood	C400
Acreage	23.93
Utilities	UNKNOWN
Lot Setting/Desc	UNKNOWN UNKNOWN
Book / Page	0128/0436
Additional Info	

Photo

Sketch



Primary Construction Details

Year Built	1982
Building Desc.	Exempt Comm
Building Style	Multipurpose
Building Grade	
Stories	1.00
Occupancy	1.00
Exterior Walls	Wood on Sheath
Exterior Walls 2	Concr/Cinder
Roof Style	Gable
Roof Cover	Asphalt
Interior Walls	Minimum
Interior Walls 2	NA
Interior Floors 1	Concrete
Interior Floors 2	NA

Heating Fuel	Electric
Heating Type	Elec Baseboard
AC %	0
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Comm/Ind
Building Condition	A
Sprinkler %	NA
Heat / AC	NONE
Frame Type	WOOD FRAME
Baths / Plumbing	AVERAGE
Ceiling / Wall	NA
Rooms / Prtns	C
Wall Height	10.00
First Floor Use	NA
Foundation	NA

Report Created On 4/7/2023

Town of South Windsor, CT

Property Listing Report | Map Block Lot **23-91** | Building # **1** | PID **9752** | Account **72900575**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	270500	189400
Extras	0	0
Improvements		
Outbuildings	720400	504400
Land	1127800	789500
Total	2118700	1483300

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	2843	2843
Canopy	511	0
Total Area	3354	2843

Outbuilding and Extra Features

Type	Description
Inground Pool - Custom	40000 S.F.
Shed	264 S.F.
Comm Bath House	2692 S.F.
Porch	2527 S.F.
Shed	260 S.F.
Comm Bath House	260 S.F.
Pump House	112 S.F.
Lights	1 UNITS
Paving	500 S.F.
Paving	9000 S.F.

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
SOUTH WINDSOR TOWN OF	0128/0436	1969-04-08	0

Report Created On **4/7/2023**

Town of South Windsor, CT

Property Listing Report

Map Block Lot	23-91	Building #	2	PID	9752	Account	

Photo

Sketch

Primary Construction Details

Year Built	
Building Desc.	Vacant
Building Style	
Building Grade	
Stories	
Occupancy	
Exterior Walls	
Exterior Walls 2	NA
Roof Style	
Roof Cover	
Interior Walls	
Interior Walls 2	NA
Interior Floors 1	
Interior Floors 2	NA

Heating Fuel	
Heating Type	
AC %	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Exempt Comm Vac OB
Building Condition	
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	NA

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

Report Created On 4/7/2023

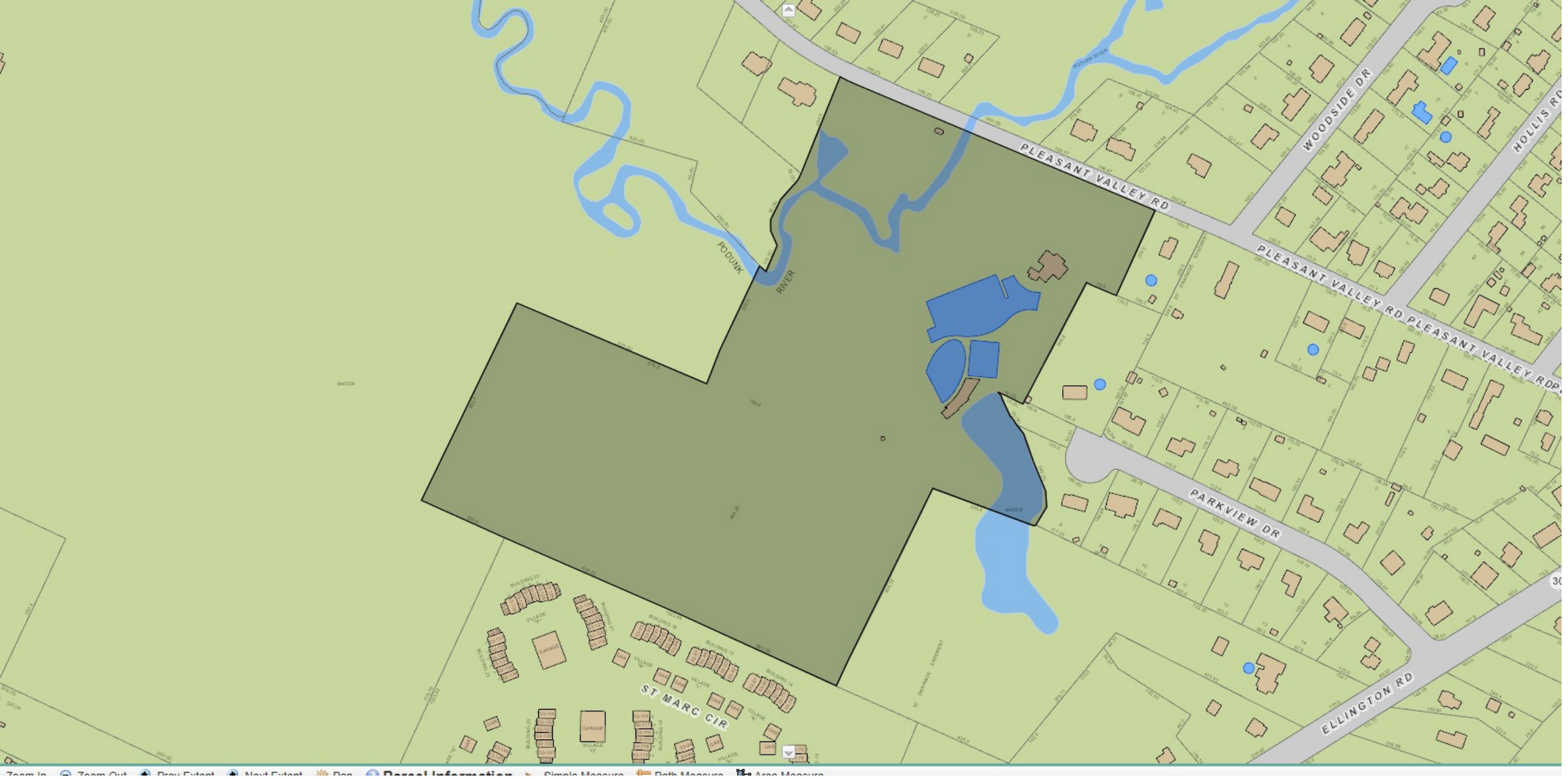

PLEASANT VALLEY RD
PLEASANT VALLEY RD PLEASANT VALLEY RDP
WOODSIDE DR
HOLLIS RD
PODUNK RIVER
PARKVIEW DR
ELLINGTON RD
ST MARC CIR
WATER
DRAINAGE EASEMENT
GARAGE
VILLAGE

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBDL00011C

DISH Wireless L.L.C. SITE ADDRESS:

575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

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	2021 IBC W/ CT AMENDMENTS
MECHANICAL	2021 IMC W/ CT AMENDMENTS
ELECTRICAL	2020 NEC

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM 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
S-1	FOUNDATION DETAILS
S-2	TOWER DETAILS

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 METAL PLATFORM
- 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 SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET

SITE PHOTO

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

811

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.

SITE INFORMATION

PROPERTY OWNER:	TOWN OF SOUTH WINDSOR
ADDRESS:	1540 SULLIVAN AVENUE SOUTH WINDSOR, CT 06074
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	826217
TOWER APP NUMBER:	N/A
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41°48'52.4" N 41.81455556 N
LONGITUDE (NAD 83):	72°36'06.0" W 72.60166667 W
ZONING JURISDICTION:	CT SITING COUNCIL
ZONING DISTRICT:	I (INDUSTRIAL)
PARCEL NUMBER:	23-92
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

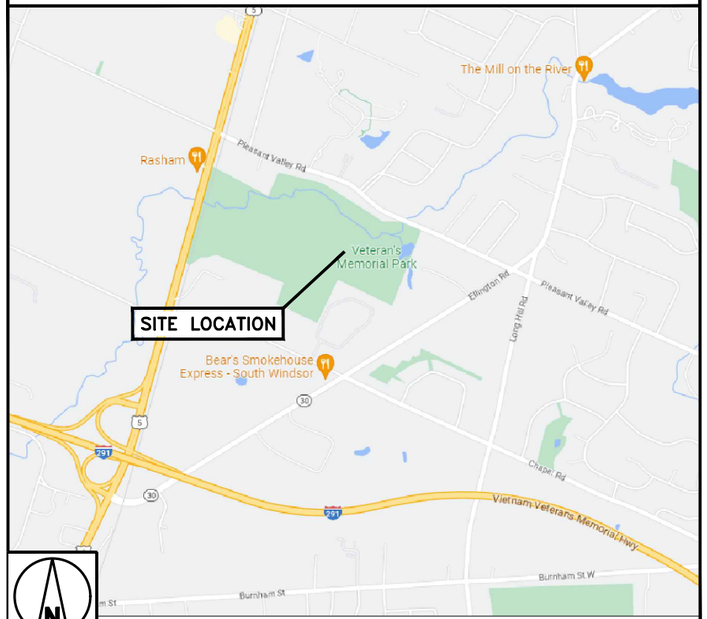
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	TOWN OF SOUTH WINDSOR 1540 SULLIVAN AVENUE SOUTH WINDSOR, CT 06074
SITE DESIGNER:	INFINIGY ENGINEERS, PLLC 500 WEST OFFICE CENTER DRIVE SUITE 150 FORT WASHINGTON, PA 19034
SITE ACQUISITION:	DAVID GOODFELLOW DAVID.GOODFELLOW@DISH.COM
CONSTRUCTION MANAGER:	CHAD WILCOX 860.634.9600 CHAD.WILCOX@DISH.COM
RF ENGINEER:	DIPESH PARIKH DIPESH.PARIKH@DISH.COM

DIRECTIONS

DIRECTIONS FROM HARTFORD-BRAINARD AIRPORT:

DEPART AND HEAD TOWARD SAINT MARC CIRCLE, TURN RIGHT ONTO SAINT MARC CIRCLE, TURN RIGHT TO STAY ON SAINT MARC CIRCLE, TURN RIGHT ONTO CHAPEL RD, TURN LEFT ONTO US-5 S / JOHN FITCH BLVD, TAKE THE RAMP ON THE RIGHT FOR I-291 WEST AND HEAD TOWARD WINDSOR, AT EXIT 2A, HEAD LEFT ON THE RAMP FOR I-91 SOUTH TOWARD HARTFORD, PASS RYDER TRUCK RENTAL ON THE RIGHT IN, AT EXIT 27, HEAD RIGHT ON THE RAMP FOR AIRPORT RD TOWARD BRAINARD RD / REGIONAL MKT / RIVERFRONT PLAZA, TURN LEFT ONTO AIRPORT RD TOWARD BRAINARD RD / REGIONAL MKT / RIVERFRONT PLAZA / AIRPORT RD, TURN LEFT ONTO BRAINARD RD, ROAD NAME CHANGES TO MAXIM RD, TURN RIGHT, ARRIVE AT 575 PLEASANT VALLEY ROAD SOUTH WINDSOR, CT 06074

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
certified
WBENC

INFINIGY
500 WEST OFFICE CENTER DRIVE
SUITE 150
FORT WASHINGTON, PA 19034

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
4/6/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/17/2022	ISSUED FOR REVIEW
B	11/29/2022	ISSUED FOR REVIEW
0	04/05/2023	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE

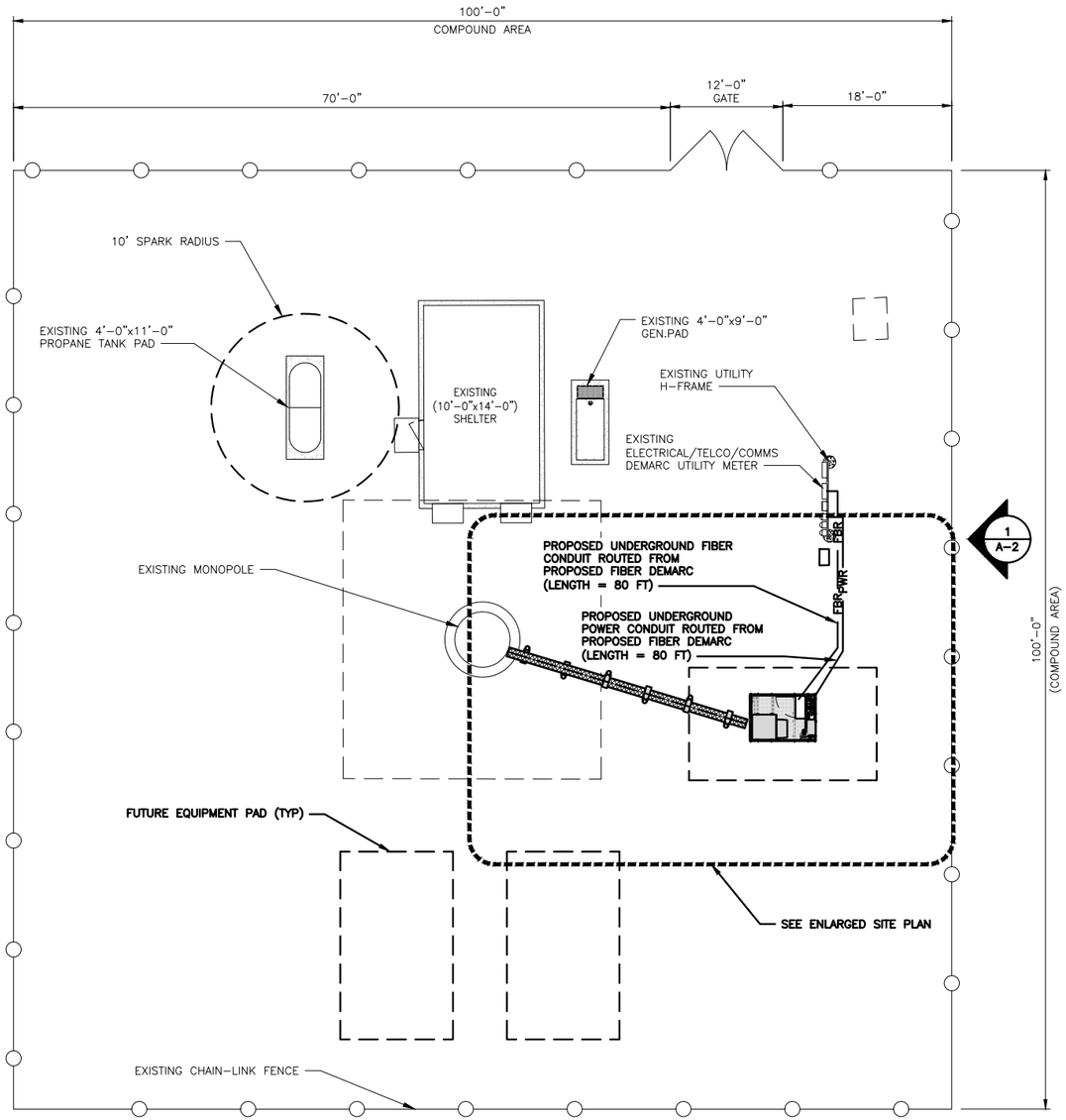
TITLE SHEET

SHEET NUMBER

T-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



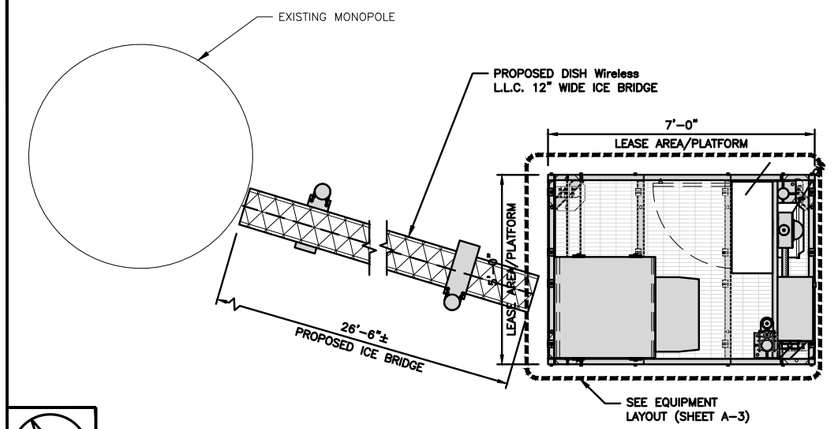
OVERALL SITE PLAN

8' 4' 0 8' 16'
1/8"=1'-0"

1

NOTES

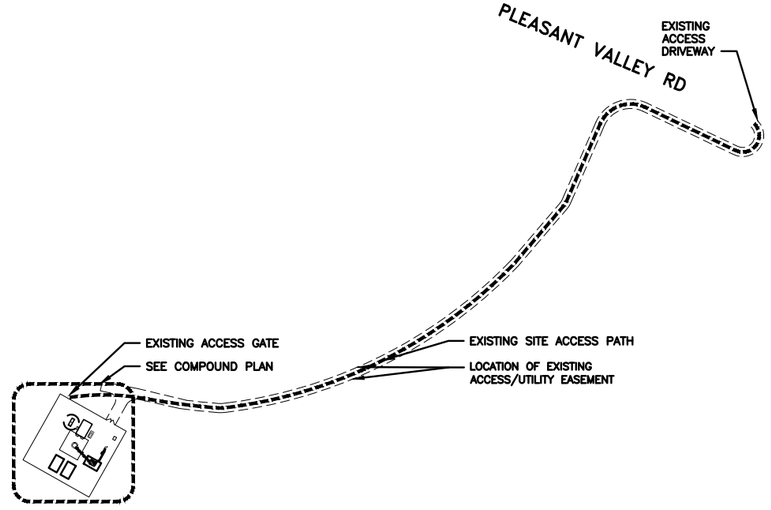
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

2



SITE PLAN

100' 50' 0 100' 200'
1"=100'

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
certified WBENC

INFINIGY
500 WEST OFFICE CENTER DRIVE
SUITE 150
FORT WASHINGTON, PA 19034

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4/6/23
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/17/2022	ISSUED FOR REVIEW
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A&E PROJECT NUMBER

2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE

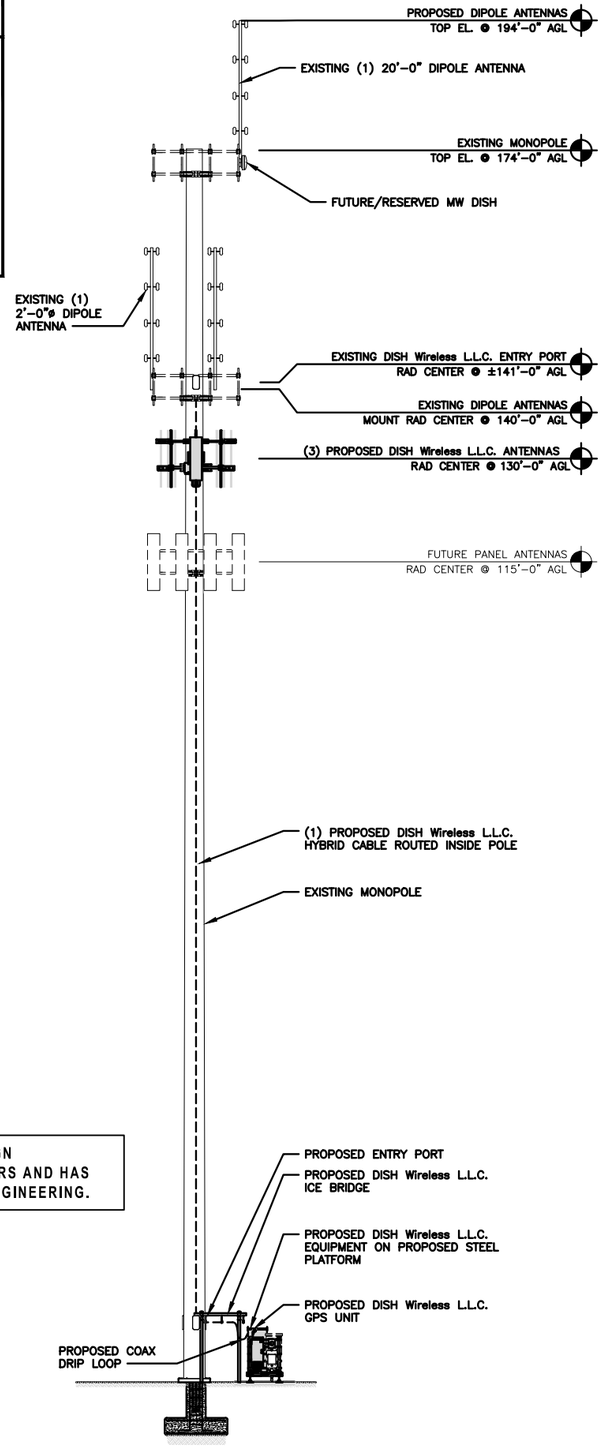
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

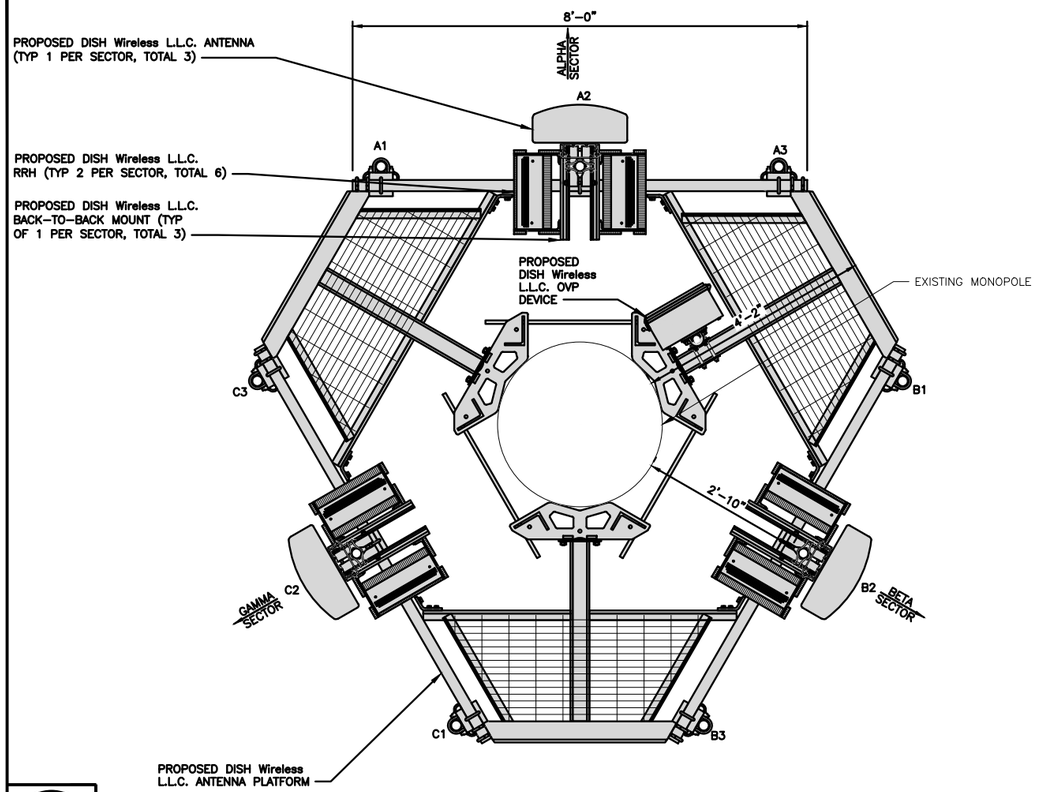


ORIGINAL TOWER AND FOUNDATION DESIGN INFORMATION SHOWN PROVIDED BY OTHERS AND HAS NOT BEEN FIELD VERIFIED BY INFINIGY ENGINEERING.

PROPOSED SOUTHEAST ELEVATION

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1



N

ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

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	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (210' LONG)	FUJITSU – TA08025-B604	5G	A2	RAYCAP-RDIDC-9181-PF-48
A2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	0°	130'-0"		FUJITSU – TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	120°	130'-0"		FUJITSU – TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	240°	130'-0"		FUJITSU – TA08025-B605	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

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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certified WBENC

INFINIGY
500 WEST OFFICE CENTER DRIVE
SUITE 150
FORT WASHINGTON, PA 19034

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4/6/23
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

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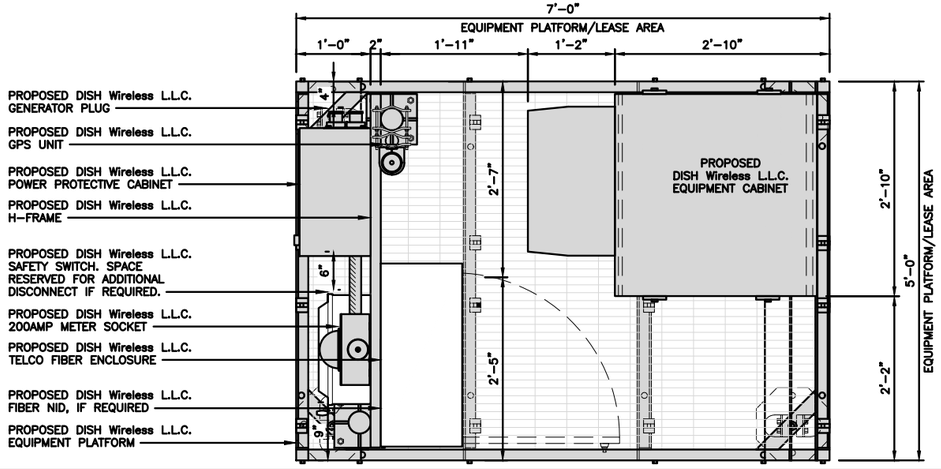
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



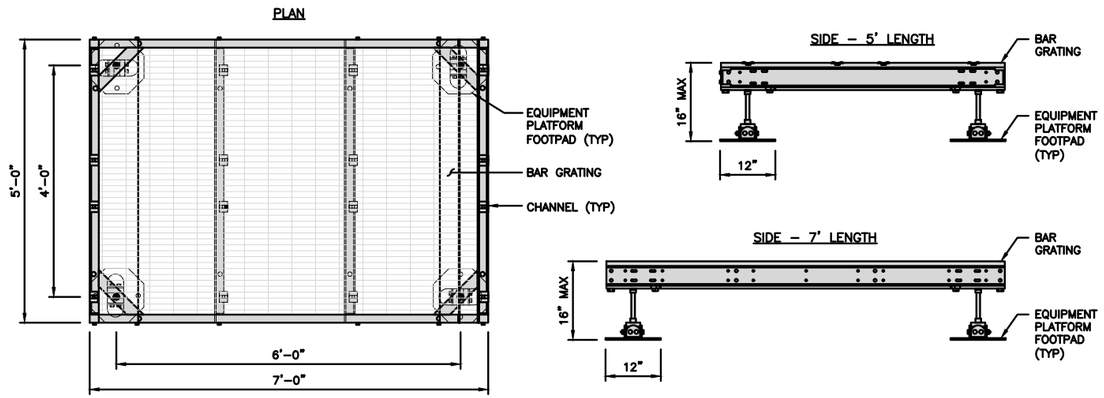
PLATFORM EQUIPMENT PLAN

12" 9" 6" 3" 0 1' 2"
1"=1'-0"

1

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



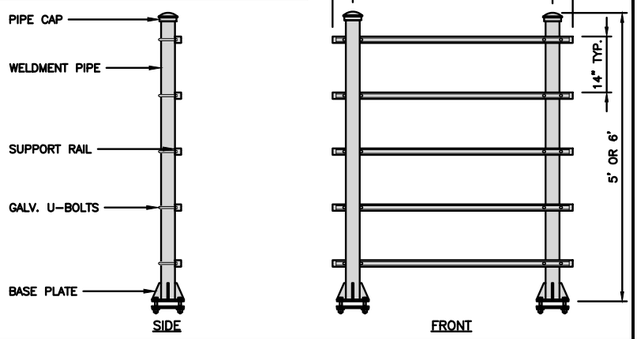
PLATFORM DETAIL

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

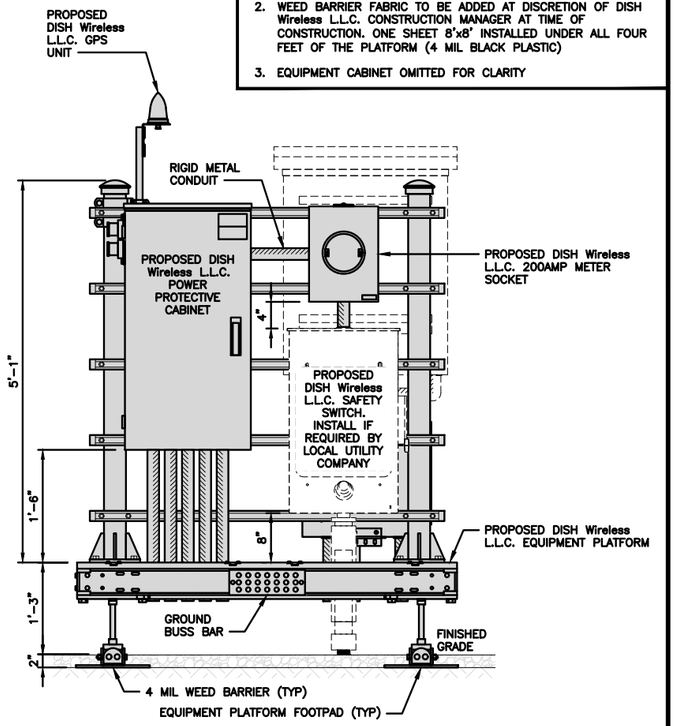
NOT USED

NO SCALE

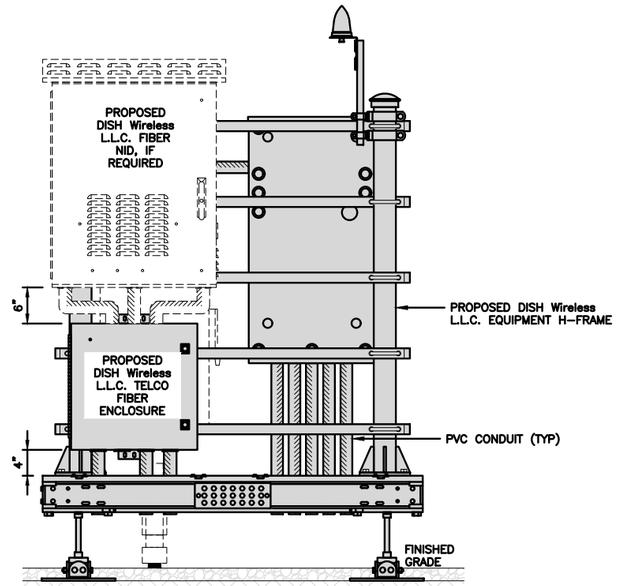
4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. 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)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

12" 9" 6" 3" 0 1' 2"
1"=1'-0"

5

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No. 23544
LICENSED
4/6/23
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
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RFDS REV #: N/A

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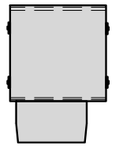
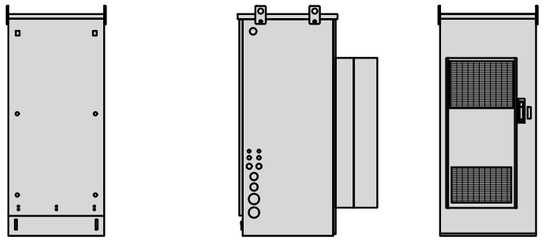
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 lbs

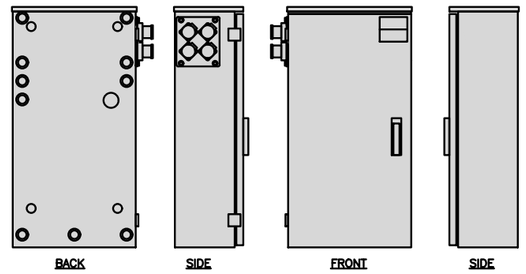

PLAN


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

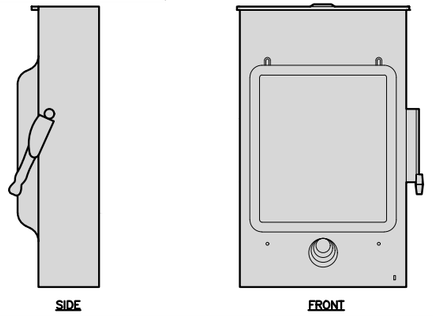

TOP


BACK SIDE FRONT SIDE

POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

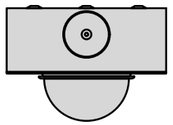
SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E–2875

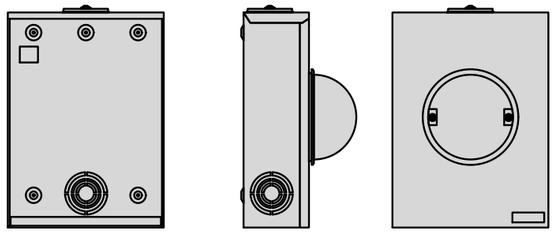

TOP


SIDE FRONT

SAFETY SWITCH DETAIL | NO SCALE | 3

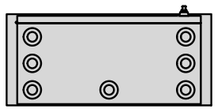
EATON METER SOCKET UNRRS213BEUSE	
DIMENSIONS (HxWxD)	16"x12"x6"
TYPE	RING
AMPERAGE RATING	200 CONT. AMP
WEIGHT	18 lbs

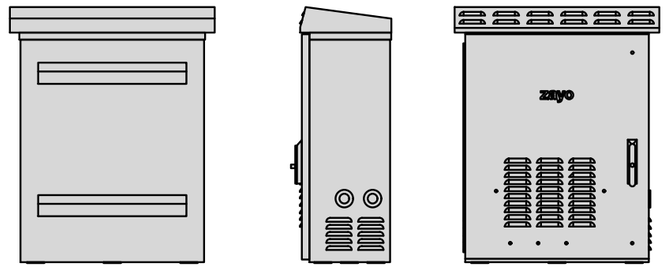

TOP


BACK SIDE FRONT

METER BANK DETAIL | NO SCALE | 4

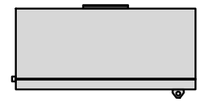
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

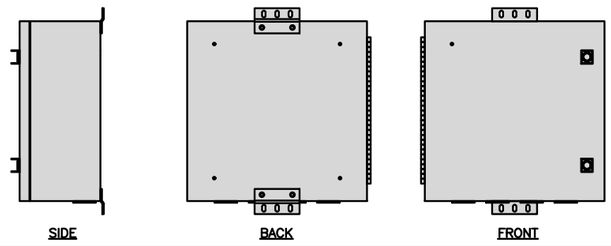

BOTTOM


BACK SIDE FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

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

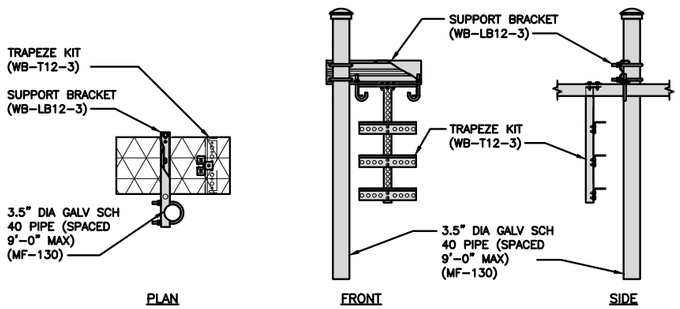

FRONT


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

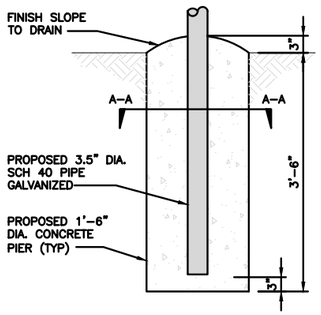
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

INCLUDED PRODUCTS:	WB–T12–3 TRAPEZE KIT, 3 RUNGS
	WB–LB12–3 SUPPORT BRACKET
	MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"

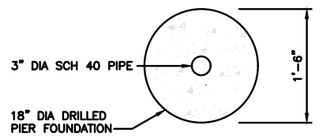


PLAN FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

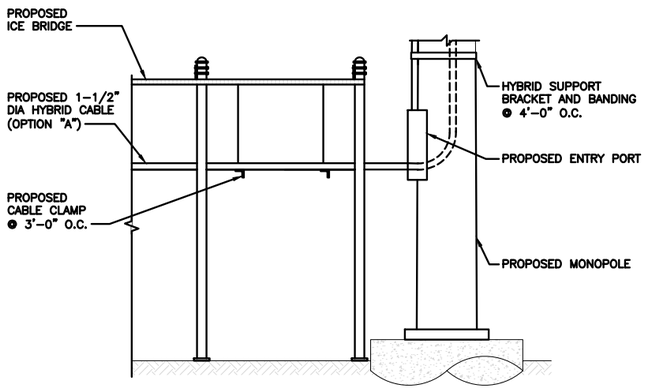


CONCRETE PIER



A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

DISH Wireless L.L.C. TEMPLATE VERSION 47 – 12/17/2021

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CHRISTOPHER J. WARREN
No. 23544
LICENSED PROFESSIONAL ENGINEER
4/6/23

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RFDS REV #: N/A

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2039–Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

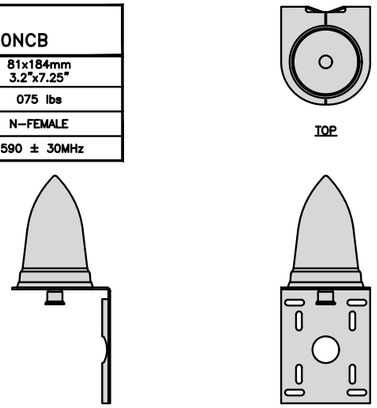
SHEET TITLE

EQUIPMENT DETAILS

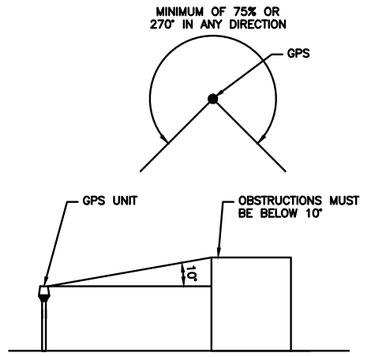
SHEET NUMBER

A-4

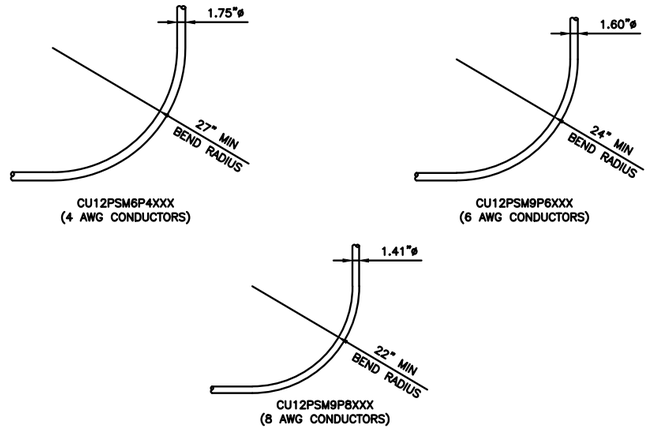
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



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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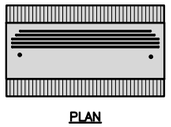
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

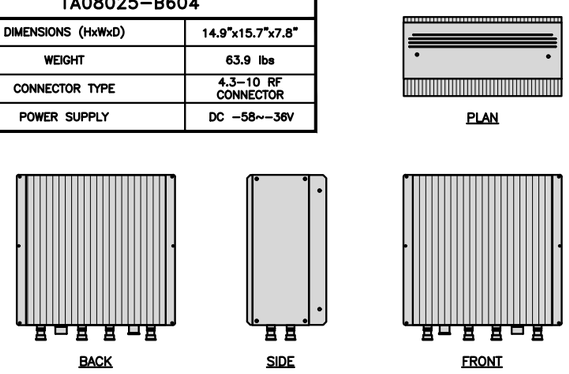
A-5

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



RRH DETAIL | NO SCALE | 1

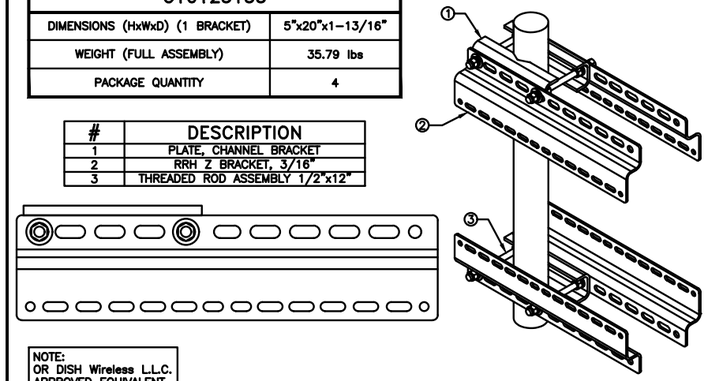
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



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

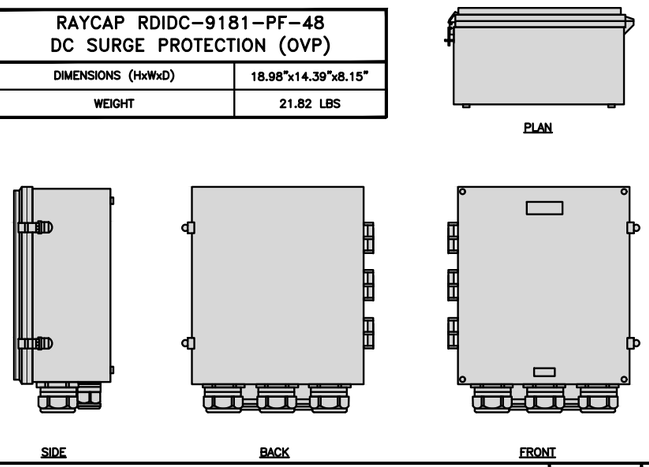
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

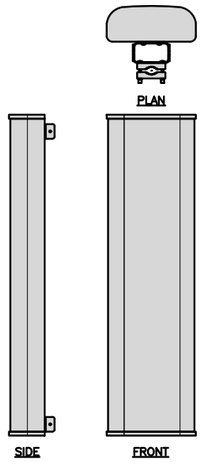
RRH MOUNT DETAIL | NO SCALE | 3

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



SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 4

JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs

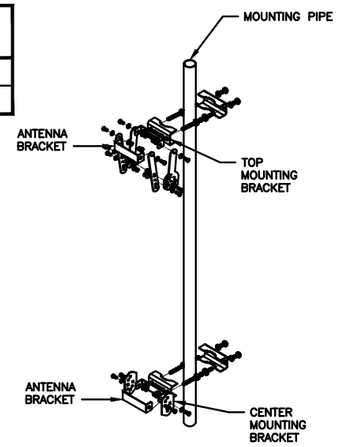


ANTENNA DETAIL | NO SCALE | 5

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

ANTENNA BRACKET NOT PART OF KIT

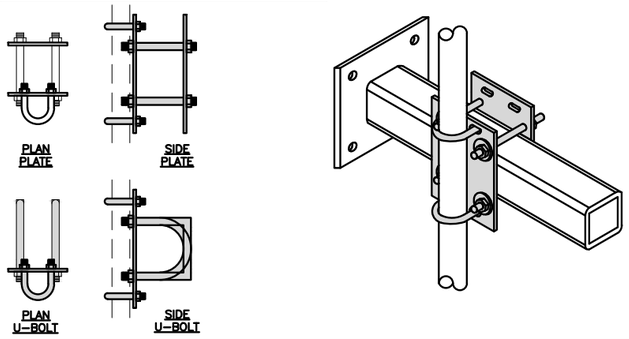


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

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

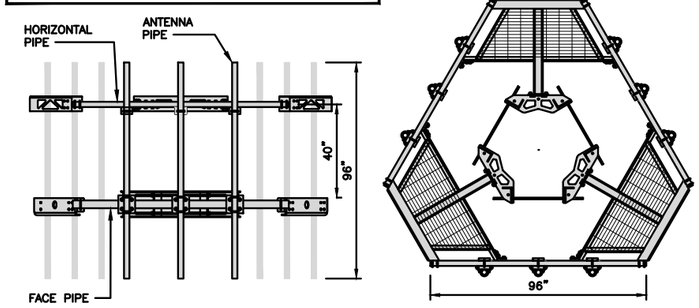
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL | NO SCALE | 7

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 | 8

NOT USED | NO SCALE | 9

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DISH Wireless L.L.C.
PROJECT INFORMATION

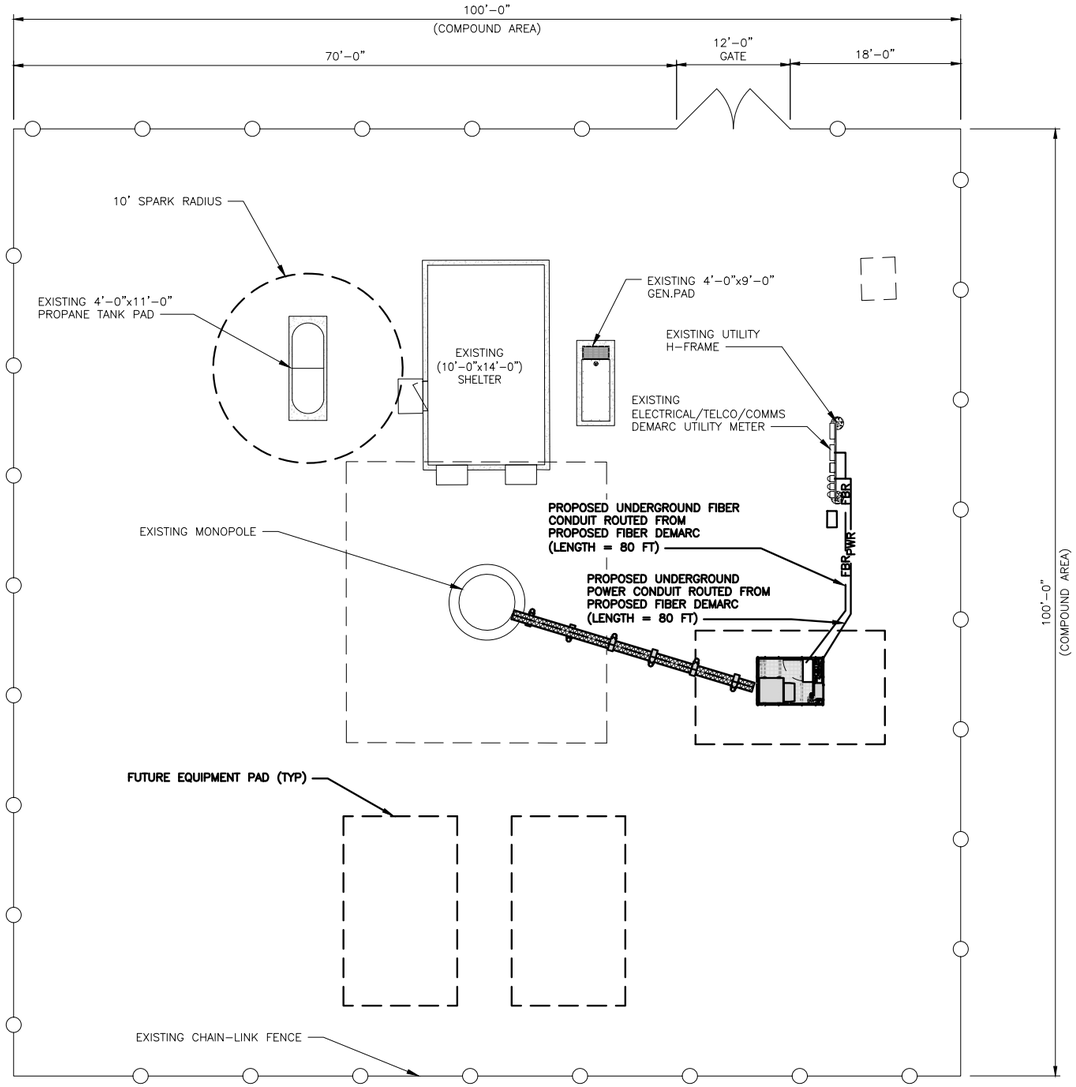
BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

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. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 REPRESENT PLANNED ROUTING BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, METES AND BOUNDS OF THE UTILITY EASEMENT, FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPETY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 AND SAID VARIANCE IS NOT NOTED ON CDs, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



N

UTILITY ROUTE PLAN

8' 4' 0 8' 16'
1/8"=1'–0"

1

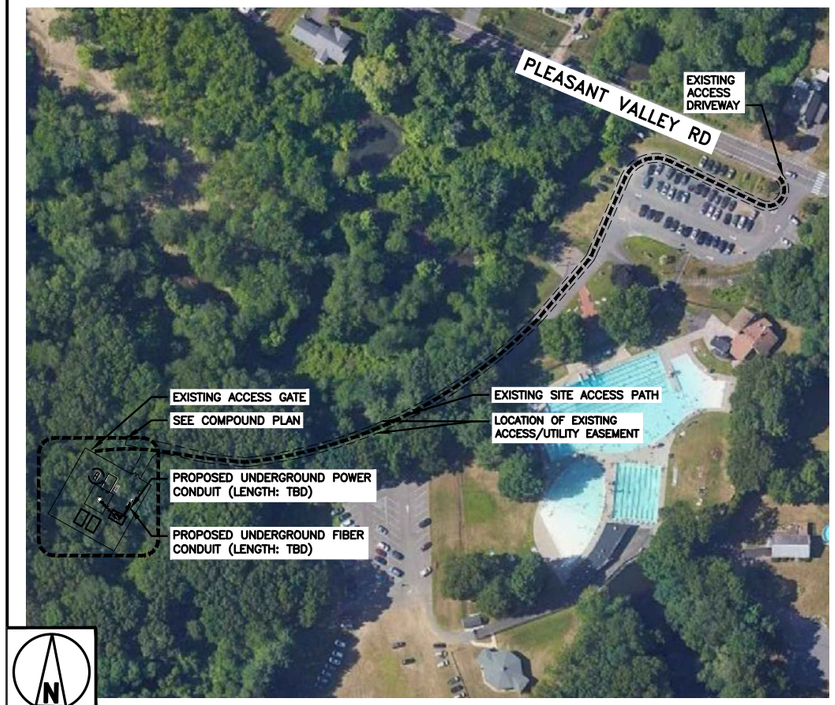
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND –48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY –48V.

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

ELECTRICAL NOTES

NO SCALE

2



N

OVERALL UTILITY ROUTE PLAN

200' 100' 0 200' 400'
1"=200'

3

DISH Wireless L.L.C. TEMPLATE VERSION 47 – 12/17/2021

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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500 WEST OFFICE CENTER DRIVE
SUITE 150
FORT WASHINGTON, PA 19034

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4/6/23
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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B	11/29/2022	ISSUED FOR REVIEW
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2039–Z5555C

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PROJECT INFORMATION
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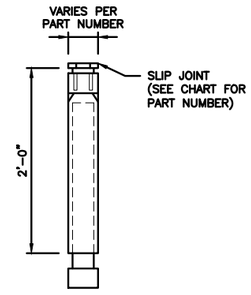
SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

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"

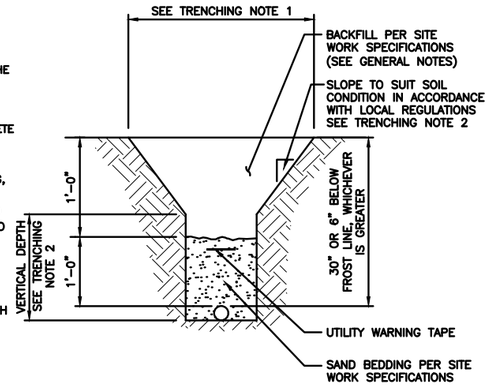


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

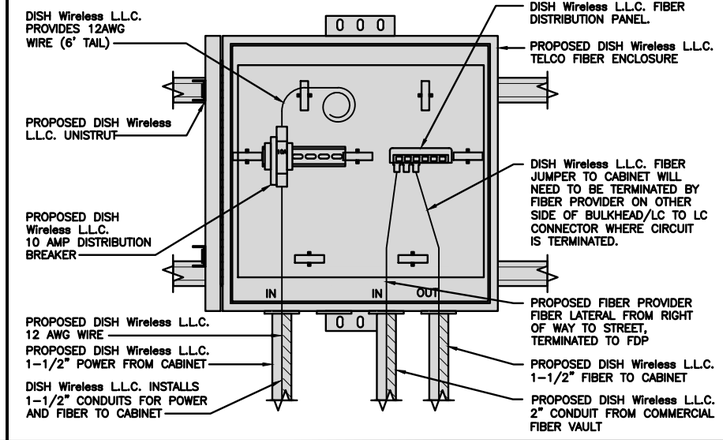
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

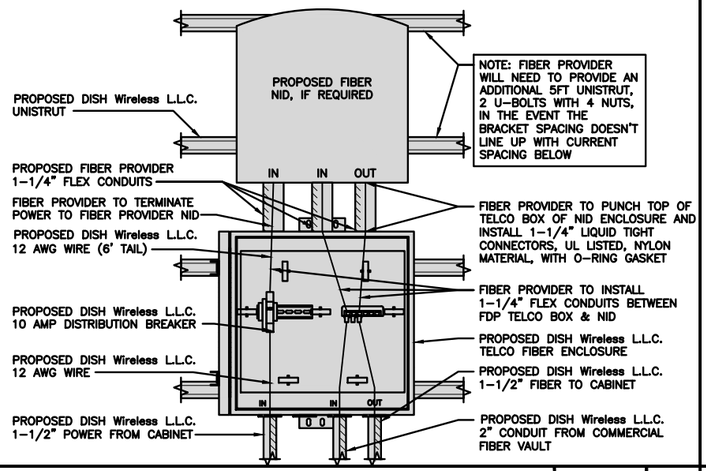
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. 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.



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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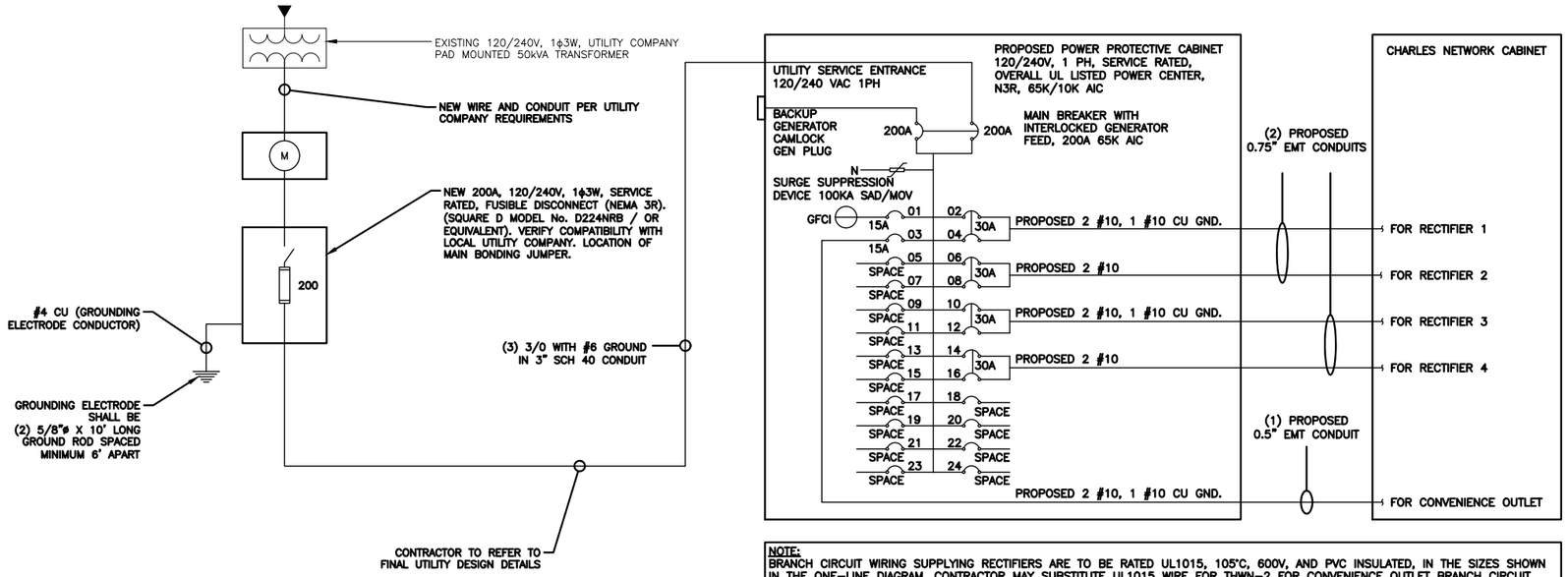
SOUTH WINDSOR, CT 06074

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER – SQUARE D P/N:QO230
(1) 15A, 1P BREAKER – SQUARE D P/N:QO115

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.

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

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 (2 CONDUITS): USING UL1015, CU.

#10 – 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 – 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) 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 CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
–SPACE–				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
–SPACE–				7	B	8			2880	
–SPACE–				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
–SPACE–				11	B	12			2880	
–SPACE–				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
–SPACE–				15	B	16			2880	
–SPACE–				17	A	18				–SPACE–
–SPACE–				19	B	20				–SPACE–
–SPACE–				21	A	22				–SPACE–
–SPACE–				23	B	24				–SPACE–
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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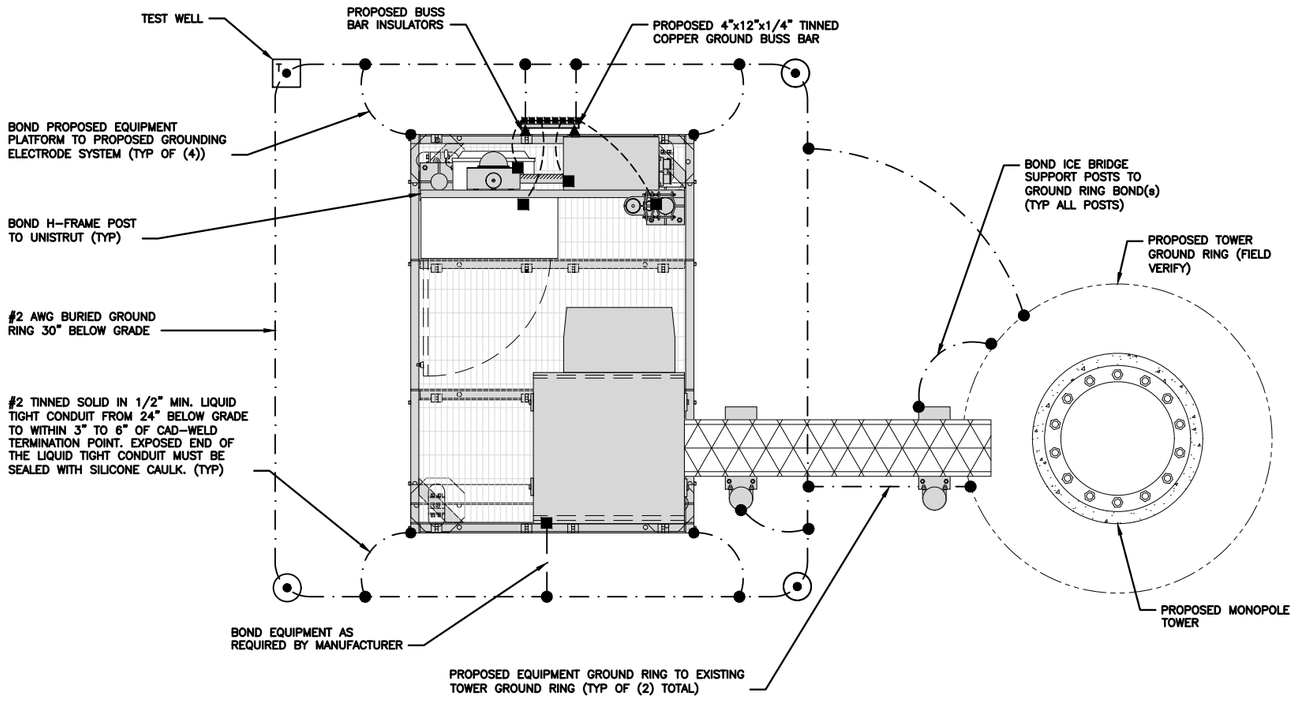
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

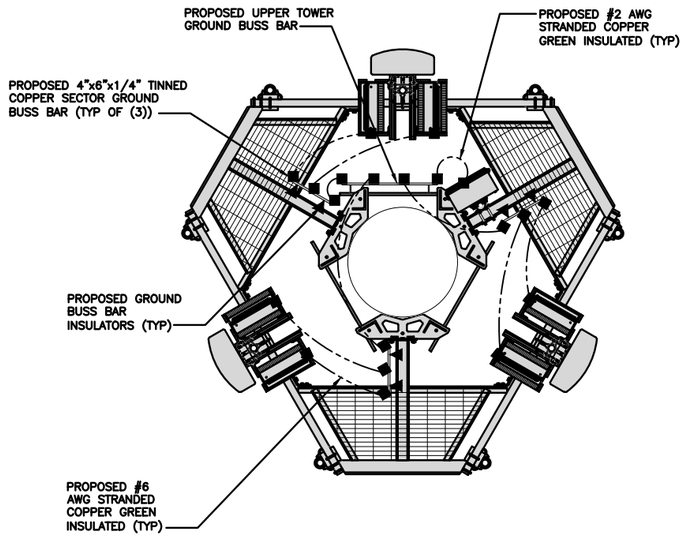
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

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

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- #2 AWG STRANDED & INSULATED
- BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. 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.
3. 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.

GROUNDING KEY NOTES

NO SCALE | 3

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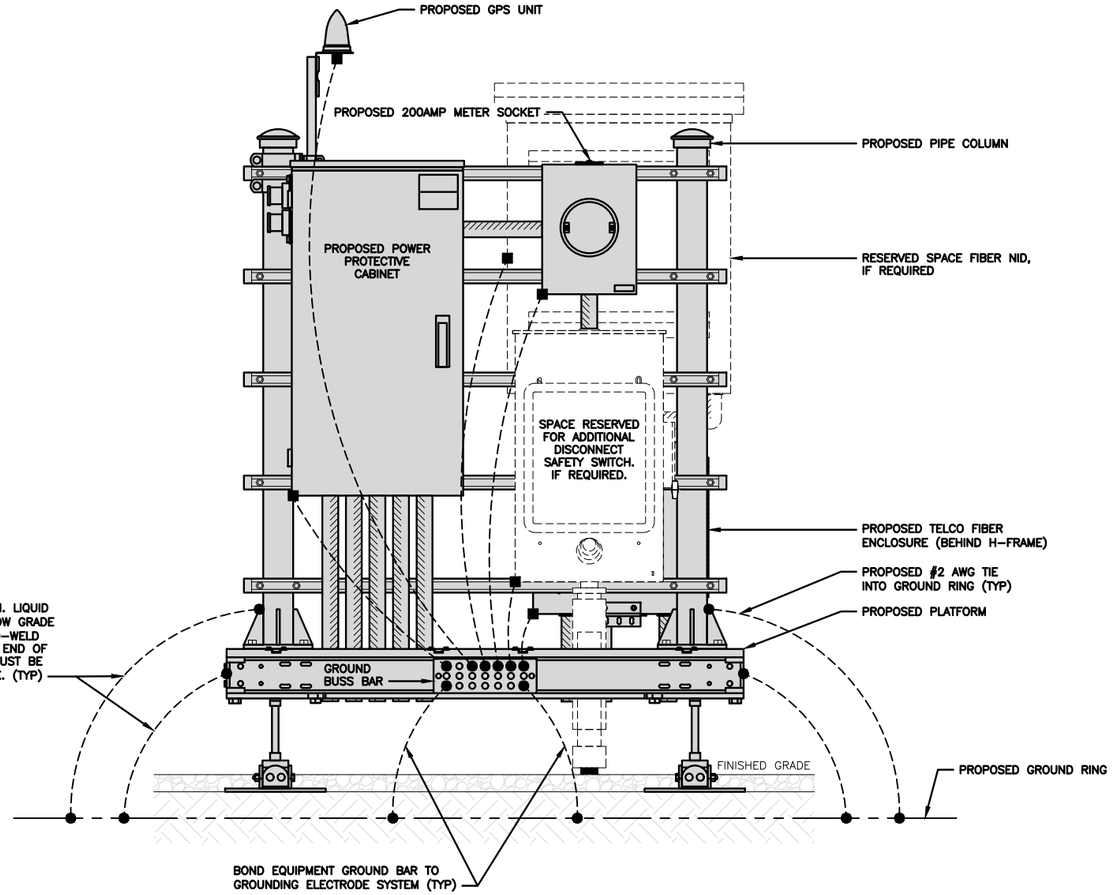
SHEET TITLE
GROUNDING PLANS AND NOTES

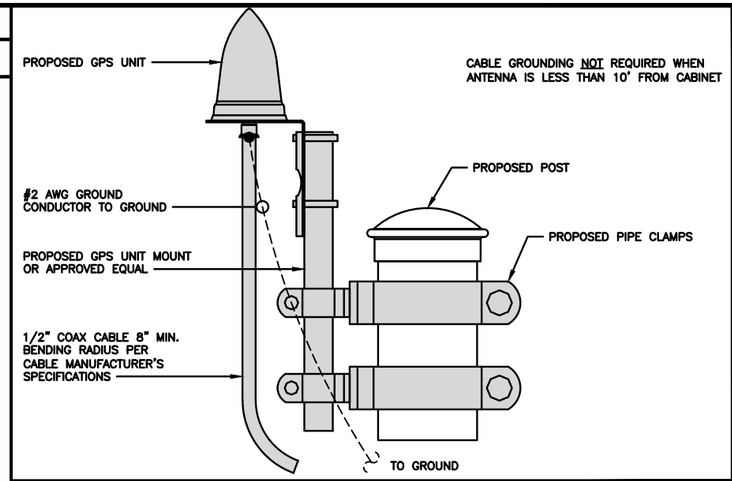
SHEET NUMBER
G-1

NOTES

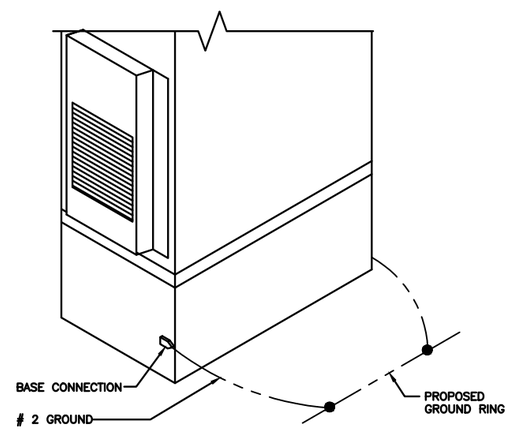
EQUIPMENT CABINET OMITTED FOR CLARITY



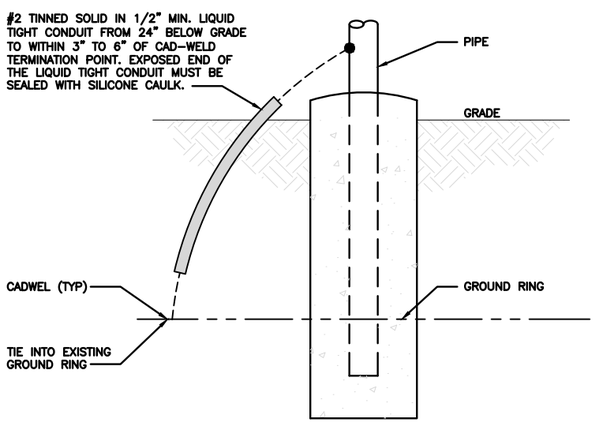
H-FRAME GROUNDING DETAIL | NO SCALE | 1



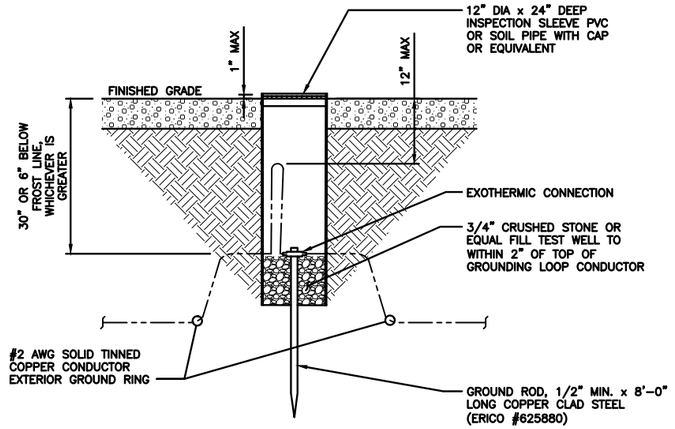
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



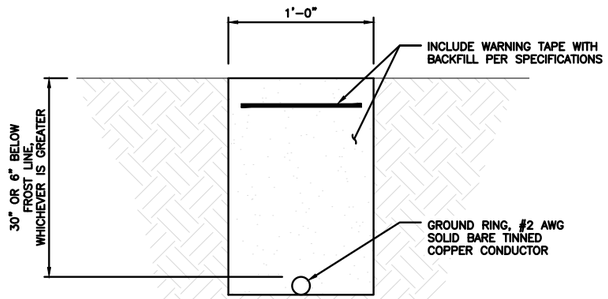
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
certified WBENC

INFINIGY
500 WEST OFFICE CENTER DRIVE
SUITE 150
FORT WASHINGTON, PA 19034

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4/6/23
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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REV	DATE	DESCRIPTION
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B	11/29/2022	ISSUED FOR REVIEW
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A&E PROJECT NUMBER

2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE

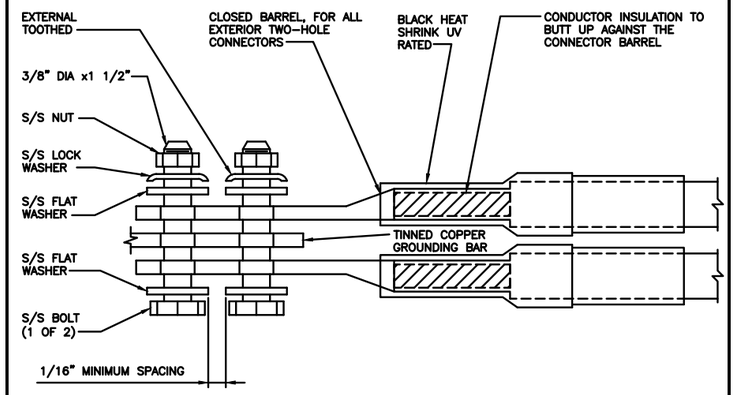
GROUNDING DETAILS

SHEET NUMBER

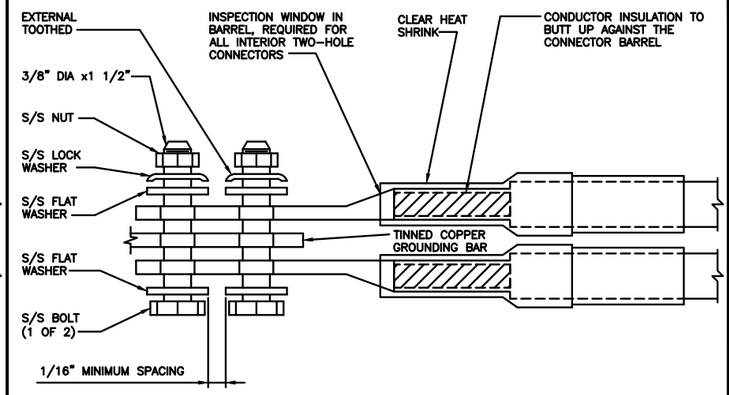
G-2

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).

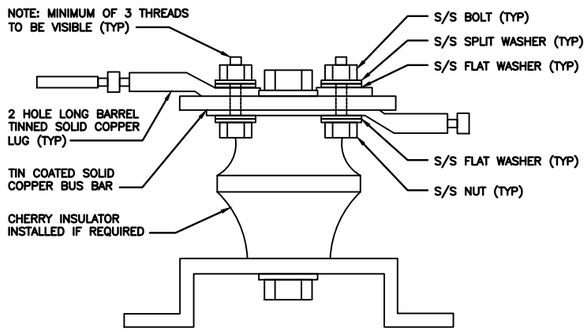
TYPICAL GROUNDING NOTES | NO SCALE | 1



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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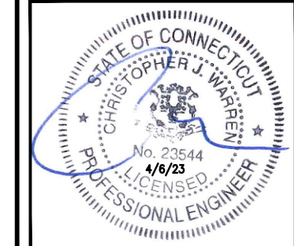

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SOUTH WINDSOR, CT 06074

SHEET TITLE
GROUNDING DETAILS

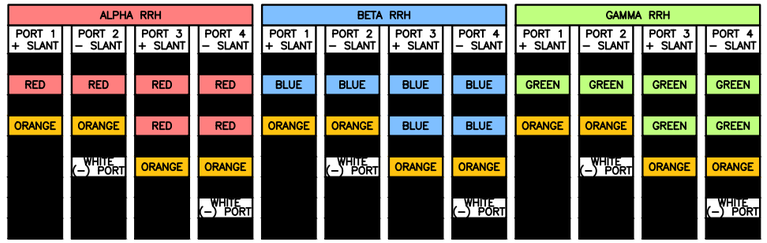
SHEET NUMBER
G-3

HYBRID/DISCREET CABLES

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

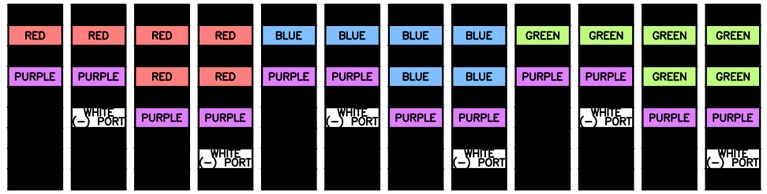
LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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)



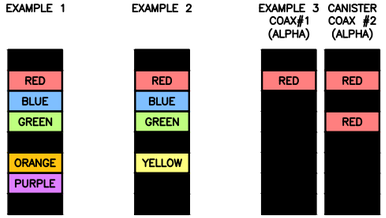
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

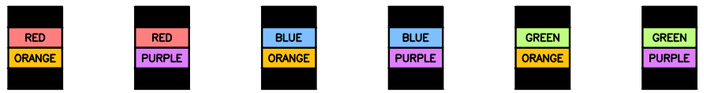
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



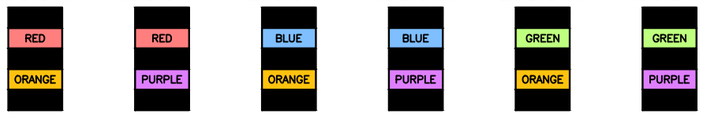
FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



POWER CABLES TO RRHs

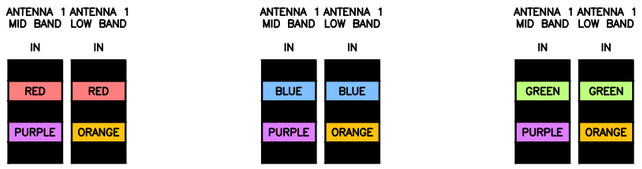
LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

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

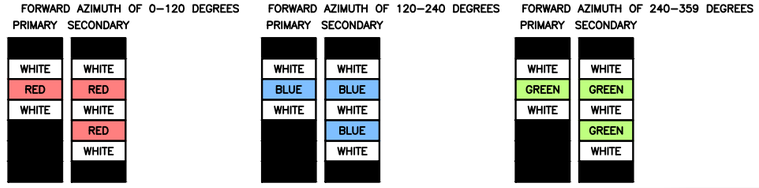
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



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): ORANGE

AWS (N66+N70+H-BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

NOT USED

NOT USED

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PROJECT INFORMATION
BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE — X — X — X — X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W

UNDERGROUND POWER — UGP — UGP — UGP — UGP — UGP

UNDERGROUND TELCO — UGT — UGT — UGT — UGT — UGT

OVERHEAD POWER — OHP — OHP — OHP — OHP

OVERHEAD TELCO — OHT — OHT — OHT — OHT

UNDERGROUND TELCO/POWER — UGT/P — UGT/P — UGT/P — UGT/P

ABOVE GROUND POWER — AGP — AGP — AGP — AGP — AGP

ABOVE GROUND TELCO — AGT — AGT — AGT — AGT — AGT

ABOVE GROUND TELCO/POWER — AGT/P — AGT/P — AGT/P — AGT/P

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

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 SIGH 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: BOBDL00011C

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: BOBDL00011C

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⚠ CAUTION

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RF SIGNAGE

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SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

SITE ACTIVITY REQUIREMENTS:

1. 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.

2. "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.

3. 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.

4. 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).

5. 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."

6. 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.

7. 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.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. 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.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. 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.

13. 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.

14. 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.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. 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.

18. 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.

19. 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.

20. 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.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. 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:

1.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

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. 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.

11. 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.

12. 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

13. 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.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

dish wireless.

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Turnkey Wireless Development
certified WBENC

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STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4/6/23
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/17/2022	ISSUED FOR REVIEW
B	11/29/2022	ISSUED FOR REVIEW
0	04/05/2023	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

2039–Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. 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.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. 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.

4. 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.

5. 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

6. 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"

7. 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:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. 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.

5. 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.

6. 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).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. 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.

10. 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.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. 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.

13. 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).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. 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.

24. 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.

25. 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.

26. 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.

27. 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.

28. 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.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

dish wireless.

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STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
4/6/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER

2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

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.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
certified WBENC

INFINIGY
500 WEST OFFICE CENTER DRIVE
SUITE 150
FORT WASHINGTON, PA 19034

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
4/6/23
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/17/2022	ISSUED FOR REVIEW
B	11/29/2022	ISSUED FOR REVIEW
0	04/05/2023	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION

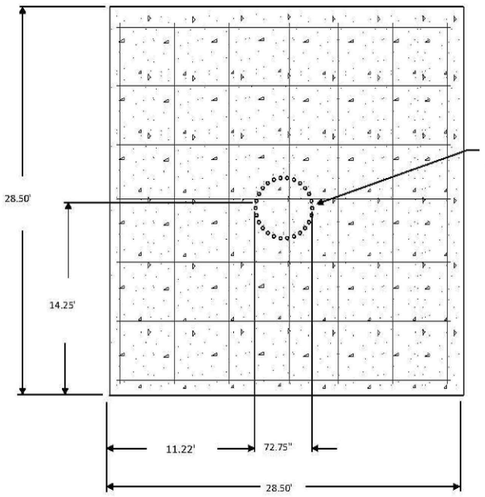
BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5



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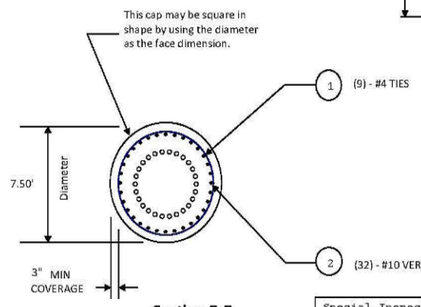

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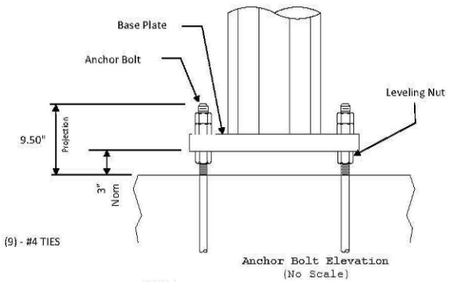
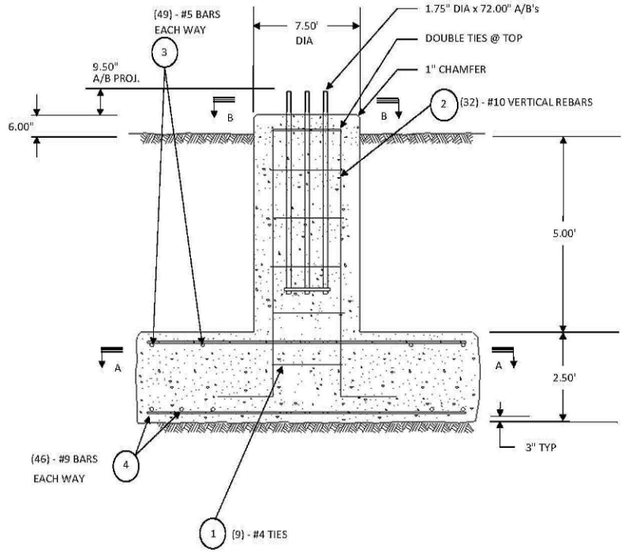


Anchor Bolt Elevation
(No Scale)

Note:
Extreme care should be taken to ensure that all leveling nuts are level with respect to each other prior to erection of the structure. Anchor bolts shall extend through the top nut completely, fully engaging all nut threads. Distance from top of concrete and bottom of leveling nut shall not exceed the diameter of the anchor bolt.

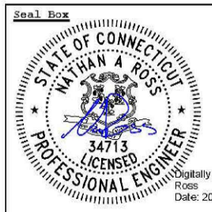


ELEVATION
No Scale

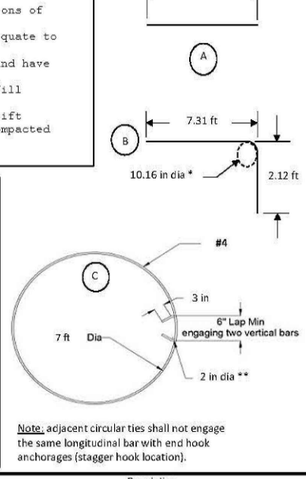
Special Inspection

1. Inspection of reinforcing steel and placement (periodic).
2. Inspection of anchor bolts cast in concrete (periodic).
3. Verifying use of required mix design (periodic).
4. At the time fresh concrete is sampled to fabricate specimens for strength tests; perform slump and air content tests and determine temperature of concrete (continuous).
5. Inspection of concrete placement for proper application techniques (continuous).
6. Inspect formwork for shape, location, and dimensions of the concrete member being formed (periodic).
7. Verify materials below shallow foundation are adequate to achieve the design bearing capacity (periodic).
8. Verify excavations are extended to proper depth and have reached proper material (periodic).
9. Perform classification and testing of compacted fill materials (periodic).
10. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of compacted fill (continuous).

Seal Box



Digitally signed by Nathan A Ross
Date: 2021-07-15 15:41-07:00



Note: adjacent circular ties shall not engage the same longitudinal bar with end hook anchorages (stagger hook location).

General Notes: Slab Foundation

1. Prior to excavation, check the area for underground facilities.
2. All reinforcing shall be deformed bars conforming to ASTM A615 Grade 60 (60,000 psi min. yield) and shall be provided by the foundation contractor.
3. All concrete shall have a minimum compressive strength of 4500 psi @ 28 days. The requirement for the concrete shall be as given in the ACI "Building Code Requirements for Reinforced Concrete", ACI 318, the latest edition.
4. Trowel top of foundation smooth.
5. Concrete shall be placed against undisturbed soil to the depth indicated on the foundation drawing. The portion above grade shall be formed. If an area is excavated beyond the limits shown, this volume shall be filled with concrete or formed. After the forms are removed, the excess excavation shall be replaced and compacted.
6. The ground water was encountered at 12' below grade during boring.
7. Foundation design based on Ultimate vert. bearing pressure of 5000 psf.
8. Concrete is assumed to weigh 150 pcf.
9. Estimated concrete volume = 84.21 cubic yards total.
10. Design Based on the following loads from installation drawing for order No: 511112.

Factored Moment = 6396 FT-KIPS
Factored Download = 64.3 KIPS
Factored Shear = 47.6 KIPS
Overturning Safety Factor = 1.56
Max. Toe Bearing Pressure = 4.21 ksf

11. Backfill should be compacted to a density of 110 pcf.
12. Anchor bolts to be ASTM A615 Gr75.
13. Reference: geotechnical report Whitestone Associates Project Number GM2017523.000, dated 07/13/2021 (Revised)
14. Foundation designed to not exceed 100% of monopole's capacity.
15. Pad shall be underlain by a minimum 12-inch thick layer of CTDOT M.05.01 Processed Aggregate Base, per Geo Report.
16. Suitability of bearing soils shall be confirmed by a geotechnical engineer immediately prior to placing of concrete for the footing.

Reinforcement Steel Schedule

-	Type	Rebar Size	Rebar Spacing	Weight (lbs)	Qty
Cap Ties	1 C	#4	Equal	140	9
Cap Vertical Rebar	2 B	#10	-----	1255	32
Slab Top Steel	3 A	#5	6.99 in	2862	98
Slab Bottom Steel	4 A	#9	7.44 in	8758	92
Total Steel Weight for Complete Foundation Installation =				13015	

Grade 60 Rebar

Size	Wt/ft	6db (in)	d* (in)	d** (in)
#3	0.38	2.25	2.25	1.50
#4	0.67	3.00	3.00	2.00
#5	1.04	3.75	3.75	2.50
#6	1.50	4.50	4.50	4.50
#7	2.04	5.25	5.25	4.25
#8	2.67	6.00	6.00	6.00
#9	3.40	6.77	9.50	-
#10	4.30	7.62	10.75	-
#11	5.31	8.46	12.00	-

* Refers to ACI standard hook detail chart
** Refers to ACI stirrup hook detail chart

Rebar Lap Splice

Rebar Size	Rebar Grade	Specified Concrete Strength	Overlap (inches) Vert & Ties	Bottom Horiz	Top Horiz
#3	60	4500 psi	13	15	21
#4	60	4500 psi	18	20	29
#5	60	4500 psi	22	26	36
#6	60	4500 psi	26	33	46
#7	60	4500 psi	38	45	62
#8	60	4500 psi	43	59	82
#9	60	4500 psi	49	74	104
#10	60	4500 psi	58	95	132
#11	60	4500 psi	71	116	163

Splicing is an alternative to specified material listed in rebar schedule.
Lap Splice may be used on ties when Seismic Hook not required.

Rev	Description	Date	By/Ck
A	Base reactions increased	15-Jul-21	NAR

valmont STRUCTURES
28800 Ida Street
Valley, NE 68064
(402) 359-2201

By:	Nathan Ross	Slab Foundation Layout	
Check:	NAR	Customer: Marcus Communications	
Date:	07/13/21	Site: South Windsor, CT	
Project #511112	SIZE - B	Drawing No. CT511112FS	Sheet 1 of 1

ORIGINAL FOUNDATION DESIGN INFORMATION SHOWN PROVIDED BY OTHERS AND HAS NOT BEEN FIELD VERIFIED BY INFINIGY ENGINEERING.

FOUNDATION DETAILS | NO SCALE | 1

DISH Wireless L.L.C. TEMPLATE VERSION 47 – 12/17/2021

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
certified WBENC

INFINIGY
500 WEST OFFICE CENTER DRIVE
SUITE 150
FORT WASHINGTON, PA 19034

FOR REFERENCE ONLY

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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REV	DATE	DESCRIPTION
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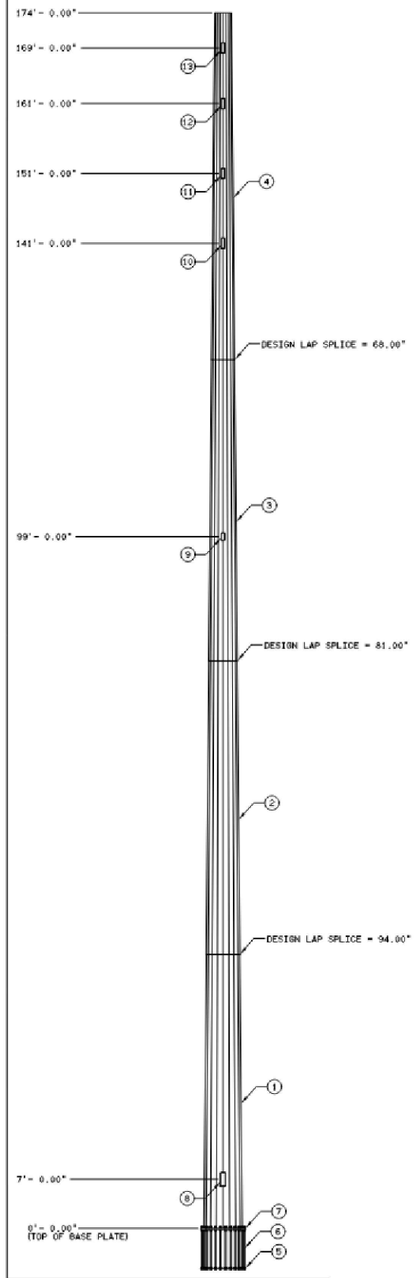
B	11/29/2022	ISSUED FOR REVIEW
0	04/05/2023	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

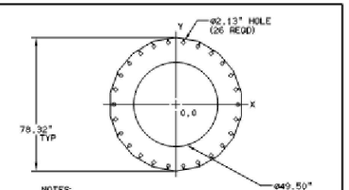
SHEET TITLE
FOUNDATION DETAILS

SHEET NUMBER
S-1



ITEM ID	NO. REQD	FEATURES	UNIT WEIGHT (LBS)	WEIGHT (LBS)
1	1	SECTION A VALMONT S-22 0.438" THK (A572 GR65)	13,352	13,352
2	1	SECTION B VALMONT S-22 0.375" THK (A572 GR65)	10,284	10,284
3	1	SECTION C VALMONT S-22 0.313" THK (A572 GR65)	7,126	7,126
4	1	SECTION D VALMONT S-22 0.250" THK (A572 GR65)	4,581	4,581
5	1	BOTTOM CAGE PLATE	147	147
6	26	1.75" ANCHOR BOLT, LENGTH=6.00' A615 GR75	67	1,724
7	1	BASE PLATE VALMONT S-56 2.500" THK (A572 GR50)	2,562	2,562
	1	TOP CAGE PLATE (REMOVE BEFORE SETTING POLE)	192	192
	1	SAFETY CLIMBING CABLE (LENGTH = 164.00')	120	120
	3	GROUNDING LUG	2	6
		GALVANIZING	705	705
	134	STEP AND CLIP (VALMONT STANDARD)	1	134
8	3	HAND HOLE HVY (9" x 24")	52	156
9	2	HAND HOLE HVY (6" x 12")	26	52
10	3	HAND HOLE STD (6" x 18")	18	54
11	3	HAND HOLE STD (6" x 18")	18	54
12	3	HAND HOLE STD (6" x 18")	18	54
13	3	HAND HOLE STD (6" x 18")	18	54
	1	POLE CAP	41	41

HOLE COORDS (INCHES)	
X-COORD	Y-COORD
38.38	0.00
35.32	8.71
32.61	16.90
27.23	24.12
20.66	29.94
12.99	34.01
4.38	36.11



NOTES:
1. BASE PLATE THICKNESS = 2.500"
2. BASE PLATE ALLOWABLE STRESS (KSI) = 50
3. ANGLES ARE MEASURED CLOCKWISE FROM 0 DEGREES
4. BOLT CIRCLE DIAMETER = 72.75"
5. CAGE TEMPLATE DIAMETER = 76.25"

BASE PLATE / ANCHORAGE CHARACTERISTICS

NOTES:
1. FACTORED REACTIONS FOR FOUNDATION DESIGN
   MOMENT = 78.758 IN-KIPS
   SHEAR = 47.570 #
   VERTICAL = 64.329 #
2. GALVANIZED PER ASTM A-123.
3. DESIGN CRITERIA: ANSI/TIA 222-G ADDENDUM 2
4. THIS STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING LOADING:
   EXPOSURE CATEGORY = B
   STRUCTURE CLASSIFICATION = 3
   TOPOGRAPHY CATEGORY = 1
   EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS Ss = 0.18
   EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT ONE SECOND S1 = 0.06
   EARTHQUAKE SITE CLASS = E
   WIND LOAD CASES ARE BASED ON 3 SECOND GUST AND 100 YEAR WIND RETURN PERIOD
   A. CASE 1: WIND = 98 MPH WIND SPEED
   B. CASE 2: WIND = 50 MPH ICE AND WIND SPEED
      DESIGN ICE THICKNESS = 1.00 INCH
   C. CASE 3: WIND = 60 MPH WIND SPEED
   D. CASE 4: SEISMIC
   E. EQUIPMENT

DESCRIPTION	ABP MTG HT. (FT)	ABP CENTROID HT (FT)	WITHOUT ICE EPA (FT²×2)	WITHOUT ICE WT (LBS)	WITH ICE EPA (FT²×2)	WITH ICE WT (LBS)
6-2" X 72" MOUNTING PIPES	174.00	174.00	6.84	132	16.65	822
1-RMQP-496-HK	162.50	164.00	23.14	1945	46.28	3890
1-RMQP-496-HK	152.50	154.00	23.14	1945	46.28	3890
1-RMQP-496-HK	142.50	144.00	23.14	1945	46.28	3890
1-1/2" X 4' LIGHTNING ROD	174.00	176.00	0.16	14	1.39	70
4-8A8080-67-DIN	174.00	192.25	24.88	264	76.24	1456
2-2' HIGH PERFORMANCE (18GHZ)	174.00	174.00	10.58	166	17.50	556
3-SPI VFA12-HD	174.00	174.00	25.20	1974	109.20	5520
12-PANEL (8' X 1' X 6")	162.50	164.00	90.72	1308	129.48	8496
12-RRU (24" X 12" X 8" - 50#)	162.50	164.00	18.12	600	28.20	2424
4-8A8080-67-DIN	162.50	172.25	23.88	292	72.88	1628
2-2' HIGH PERFORMANCE (18GHZ)	164.00	164.00	13.12	224	21.68	752
12-PANEL (8' X 1' X 6")	152.50	154.00	90.72	1308	129.24	8436
12-RRU (24" X 12" X 8" - 50#)	152.50	154.00	18.12	600	28.20	2412
4-8A8080-67-DIN	152.50	162.25	23.88	292	72.60	1612
2-2' HIGH PERFORMANCE (18GHZ)	154.00	154.00	13.12	224	21.64	748
12-PANEL (8' X 1' X 6")	142.50	144.00	90.72	1308	129.00	8388
12-RRU (24" X 12" X 8" - 50#)	142.50	144.00	18.12	600	28.08	2368

5. FEEDLINES ARE PLACED INTERIOR TO POLE SHAFT (UNLESS NOTED OTHERWISE).
6. TOTAL POLE HEIGHT IS 175 FT AGL.
7. ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE (APPROX. 1 FT AGL).
8. 18 SIDED SHAFT
9. POLE DESIGNED TO AN ULTIMATE WIND SPEED OF 135 MPH PER 2018 CT SBC.
10. WIND SPEED CONVERTED TO 98 MPH FOR USE WITH REV G AND STRUCTURE CLASS II.

SECTION INFORMATION					
ITEM ID	LENGTH	BASE OD	TOP OD	THK	MATL
1	47'- 0.00"	66.00"	55.50"	0.438"	A572 65 KSI
2	48'-10.00"	56.00"	47.09"	0.375"	A572 65 KSI
3	48'- 9.00"	40.22"	38.33"	0.313"	A572 65 KSI
4	49'- 8.00"	40.10"	29.00"	0.250"	A572 65 KSI

REV	DATE	DEV BY	DESCRIPTION
A	07/15/21	NAR	Loading revised.

ORDER	PROJECT	FILE ID	SCALE	DATE	ENGR
511112	511112	511112-P1	NONE	07/13/21	NAR

DESCRIPTION
MARCUS COMMUNICATIONS 174.0' POLE, SITE: SOUTH WINDSOR, CT

valmont

Digitally signed by Nathan A Ross
Date: 2021-07-15 15:40:07:00

ORIGINAL TOWER DESIGN INFORMATION SHOWN PROVIDED BY OTHERS AND HAS NOT BEEN FIELD VERIFIED BY INFINIGY ENGINEERING.

TOWER DETAILS | NO SCALE | 1

DISH Wireless L.L.C. TEMPLATE VERSION 47 – 12/17/2021

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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RFDS REV #: N/A

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DISH Wireless L.L.C.
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575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE
TOWER DETAILS

SHEET NUMBER
S-2

Exhibit D

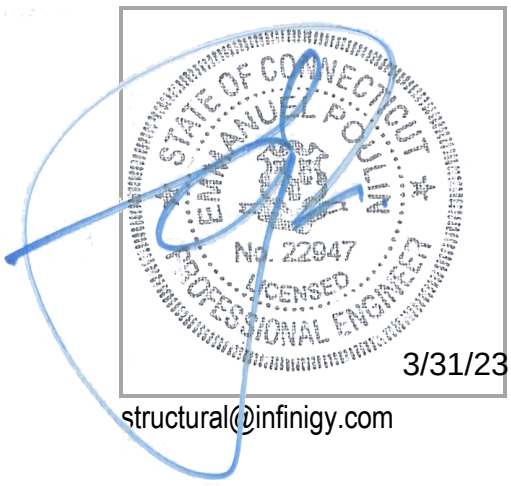
Structural Analysis Report

TOWER STRUCTURAL ANALYSIS REPORT

March 29, 2023

Dish Wireless Site Name	--
Dish Wireless Site Number	BOBDL00011C
Infinigy Job Number	1197-F0001-B
Client	NSS
Carrier	Dish Wireless
Site Location	575 Pleasant Valley Rd South Windsor, CT 06074 Hartford County 41°48'52.4" N NAD83 72°36'06.0" W NAD83
Structure Type	Monopole
Structure Height	174.0 ft
Sufficient Capacity	**47.4%**

The enclosed tower structural analysis has been performed in accordance with the 2022 Connecticut State Building Code (2021 IBC) based on an ultimate 3-second gust wind speed of 117 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



structural@infinigy.com

CONTENTS

1. INTRODUCTION

Infinigy performed a structural analysis on the existing 174 ft. Monopole located at the aforementioned address. Dish proposes to install new equipment on its mount(s) at 130 ft. on the tower. Refer to the final loading configuration table in section 3 for details. The structure was analyzed using tnxTower version 8.1.1 analysis software.

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	117 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.5" ice
Adopted Code	TIA-222-H
Standard(s)	2022 Connecticut State Building Code (2021 IBC)
Risk Category	II
Exposure Category	B
Topographic Factor	1
Seismic Site Class	0 ft.
Seismic Spectral Response	S_s = 0.186 g / S_1 = 0.055 g
Live Load Wind Speed	60 mph
Ground Elevation (HMSL)	65.26 ft

3. EXISTING LOADING CONFIGURATION

Mount Center (ft)	RAD Center (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines*	Carrier
174.0	174.0	1	RFI: BA8080-67-DIN 20' Dipole	(1) Site Pro 1: RMQP-496-HK	(1) 1-1/4" dia. Coax Cable	City
140.0	140.0	2	RFI: BA8080-67-DIN 20' Dipole	(1) Site Pro 1: RMQP-496-HK	(2) 7/8" dia. Coax Cables	

*Existing feedlines installed inside pole shaft.

PROPOSED / FINAL LOADING CONFIGURATION

Mount Center (ft)	RAD Center (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines*	Carrier
174.0	174.0	1	RFI: BA8080-67-DIN 20' Dipole	(1) Site Pro 1: RMQP-496-HK	(1) 1-1/4" dia. Coax Cable	City
140.0	140.0	2	RFI: BA8080-67-DIN 20' Dipole	(1) Site Pro 1: RMQP-496-HK	(2) 7/8" dia. Coax Cables	
130.0	130.0	3	JMA MX08FRO665-21	(1) CommScope: MC-PK8-DSH	(1) 210' Cables Unlimited: CU12PSM9P 6XXX-6AWG	Dish Wireless
		3	Fujitsu TA08025-B604			
		3	Fujitsu TA08025-B605			
		1	Raycap RDIDC-9181-PF-48			

*Existing and proposed feedlines installed inside pole shaft.

4. SUPPORTING DOCUMENTATION*

Construction Drawings	Infinigy dated March 20, 2023
Construction Drawings	Gaviria Engineering, LLC dated February 03, 2023
Dish Wireless Proposed Loading	RFDS dated February 07, 2022
Tower Design Drawings	Valmont dated July 15, 2021
Foundation Drawings	Valmont dated July 15, 2021
Geotechnical Report	Whitestone Associates, Inc. dated July 13, 2021
Mount Analysis Report	Infinigy dated March 29, 2023

*All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site.

5. RESULTS

Structural Components	Capacity (%)	Pass/Fail
Pole	33.9	Pass
Base Plate	25.4	Pass
Anchor Bolts	44.9	Pass
Foundation Soil	47.4	Pass
Foundation Structure	46.0	Pass
RATING =	**47.4**	**Pass**

5.1 DEFLECTION, TWIST, AND SWAY

Antenna Elevation (ft)	Deflection (in)	Sway (°)	Twist (°)
130.0	5.956	0.4244	0.0012

***Per ANSI/TIA-222-H Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.**
***Per ANSI/TIA-222-H Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.**
***Per ANSI/TIA-222-H Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.**
***It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-H Annex D or other appropriate microwave signal degradation limits based on the provided values above.**

If it's believed that the actual conditions differ from those detailed in this report, please contact us immediately.

6. RECOMMENDATIONS

Infinigy recommends installing Dish Wireless's proposed equipment loading configuration on the mount at 130.0 ft on this 174.0 ft monopole. The installation shall be performed in accordance with the construction documents issued by Infinigy for this site.

If you have questions, comments, or require additional information, please contact us immediately.

Robert Faber
Project Engineer I | **INFINIGY**

7. ASSUMPTIONS

The structure, its foundation system and related structures were built and maintained in accordance with the manufacturer's specifications and instructions.
The structure condition is essentially as erected and does not have corrosion, damages or defects that would affect its structural integrity. The structure is plumb and all members and their connections are sound and can fully develop their structural capacities.
The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in the loading configuration tables.
Some of the antennas and mounts used in the structure model are similar in size and weight to the actual appurtenances mounted on the structure.
Steel grades have been assumed as follows, unless noted otherwise: Channel, Solid Round, Angle, Plate — ASTM A36 HSS (Rectangular) — ASTM A500-B GR 46 HSS (Circular) — ASTM A500-B GR 42 Pipe — ASTM A53-B GR 35 Connection Bolts — ASTM A325 U-Bolts — ASTM A307
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard.
The foundation is structurally adequate to carry the original design loads.

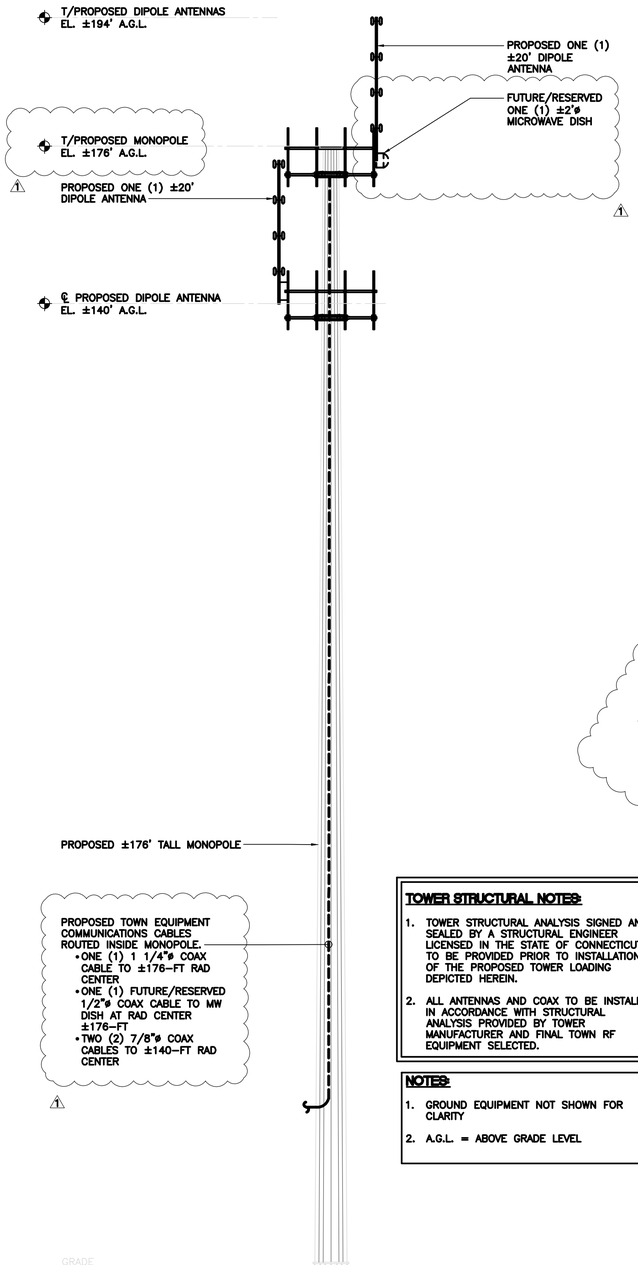
8. LIABILITY WAIVER AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Infinigy is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report, Infinigy Engineering should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or cable mounting attachments. The analysis of these elements is outside the scope of this analysis and are assumed to be adequate for the purposes of this report and are assumed to have been installed per their manufacturer requirements. This document is not for construction purposes.

AS-BUILT



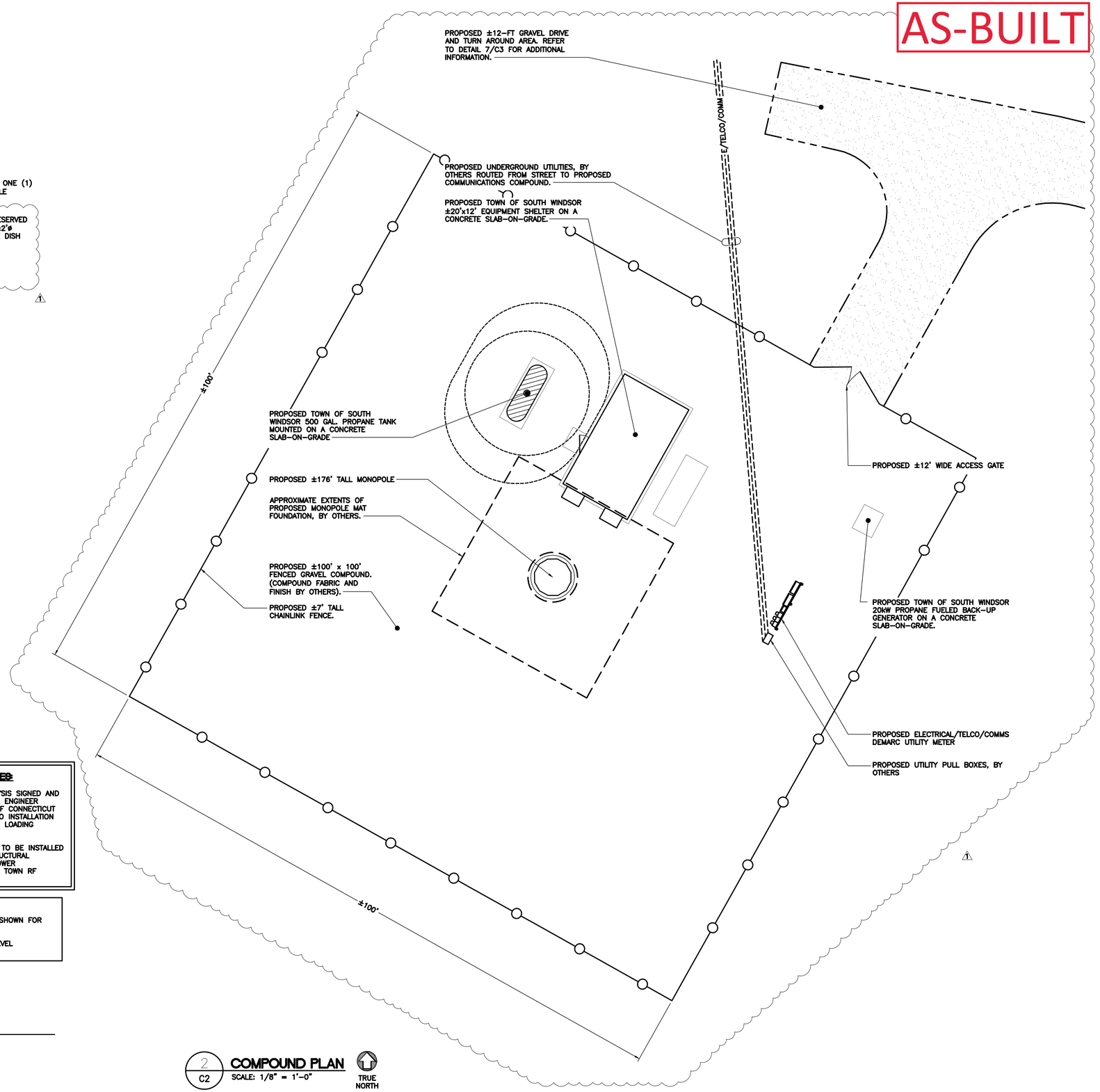
1 C2 **TOWER ELEVATION**
SCALE: 1" = 10'

TOWER STRUCTURAL NOTES:

1. TOWER STRUCTURAL ANALYSIS SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO BE PROVIDED PRIOR TO INSTALLATION OF THE PROPOSED TOWER LOADING DEPICTED HEREIN.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY TOWER MANUFACTURER AND FINAL TOWN RF EQUIPMENT SELECTED.

NOTES:

1. GROUND EQUIPMENT NOT SHOWN FOR CLARITY
2. A.G.L. = ABOVE GRADE LEVEL



2 C2 **COMPOUND PLAN**
SCALE: 1/8" = 1'-0"

TRUE NORTH

1540 SULLIVAN AVENUE
SOUTH WINDSOR, CT 06074

MARCUS
33 MITCHELL ROAD
MANCHESTER, CT 06042

gaviria engineering, LLC
171 SOUTH MAIN STREET
MANCHESTER, CT 06040
(860) 281-7996
www.gaviriaengineering.com

TOWN OF SOUTH WINDSOR

WIRELESS COMMUNICATIONS FACILITY

SITE NAME: VMP TOWER

575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

REV	DATE	DESCRIPTION	
1	02/03/23	AS-BUILT DRAWINGS	CAG
0	10/07/21	ISSUED FOR CONSTRUCTION	CAG

STATE OF CONNECTICUT · CAMILO A. GAVIRIA · LICENSED PROFESSIONAL ENGINEER

Camilo Gaviria

SHEET TITLE

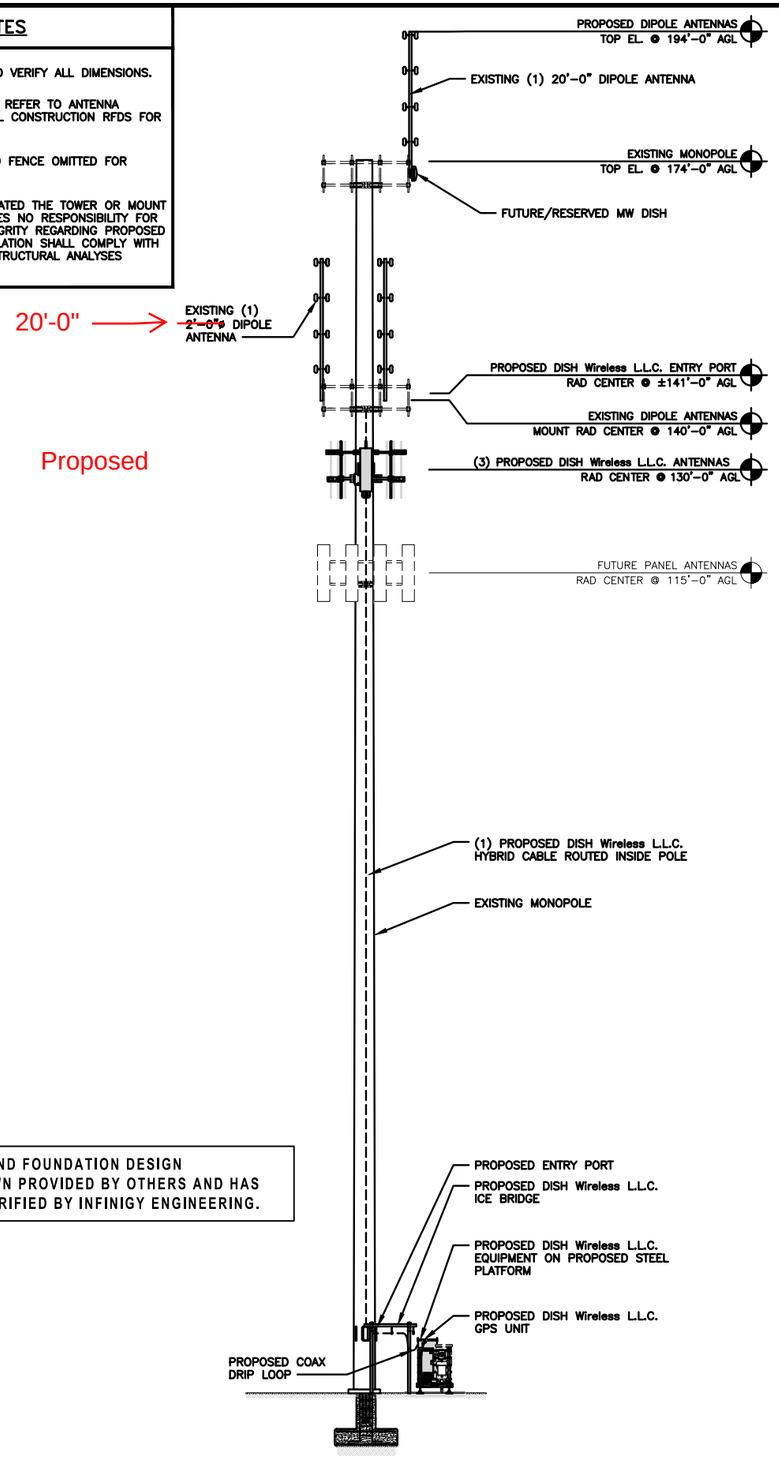
COMPOUND PLAN AND ELEVATION

SHEET NUMBER

C2

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.

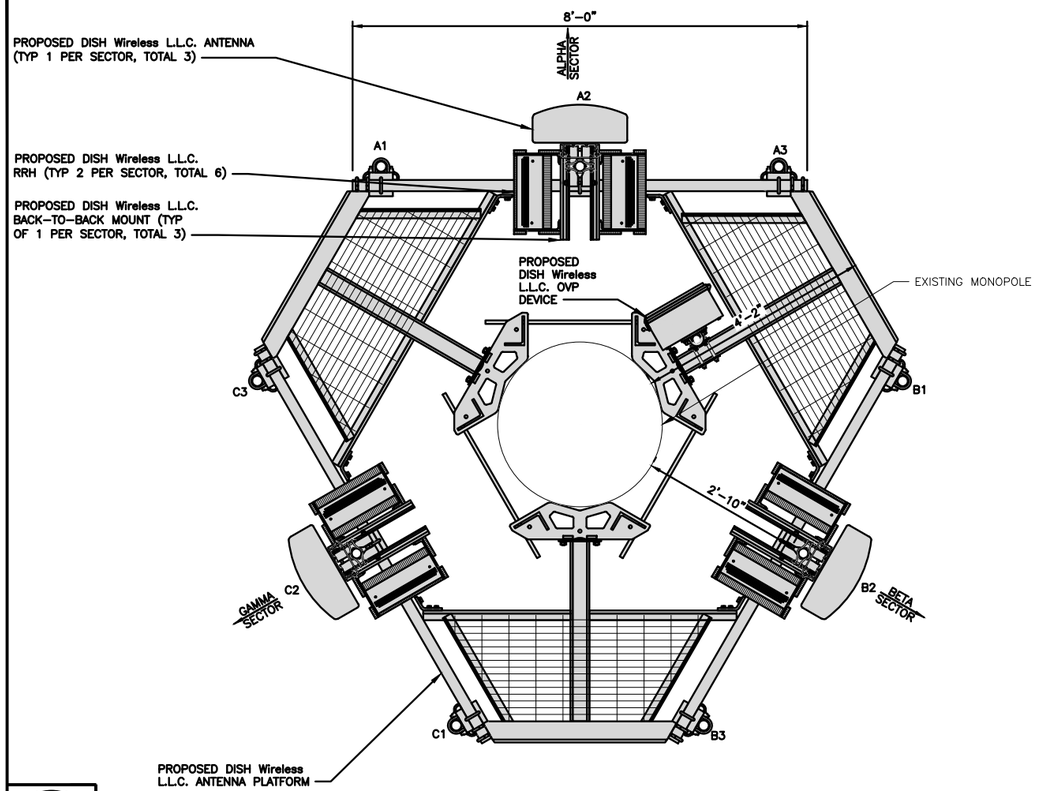


ORIGINAL TOWER AND FOUNDATION DESIGN INFORMATION SHOWN PROVIDED BY OTHERS AND HAS NOT BEEN FIELD VERIFIED BY INFINIGY ENGINEERING.

PROPOSED SOUTHEAST ELEVATION

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1



N

ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

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	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (210' LONG)	FUJITSU – TA08025-B604	5G	A2	RAYCAP-RDIDC-9181-PF-48
A2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	0°	130'-0"		FUJITSU – TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	120°	130'-0"		FUJITSU – TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	240°	130'-0"		FUJITSU – TA08025-B605	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

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
certified WBENC

INFINIGY
500 WEST OFFICE CENTER DRIVE
SUITE 150
FORT WASHINGTON, PA 19034

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
3/21/23
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	03/17/2022	ISSUED FOR REVIEW
B	11/29/2022	ISSUED FOR REVIEW
0	03/20/2023	ISSUED FOR CONSTRUCTION

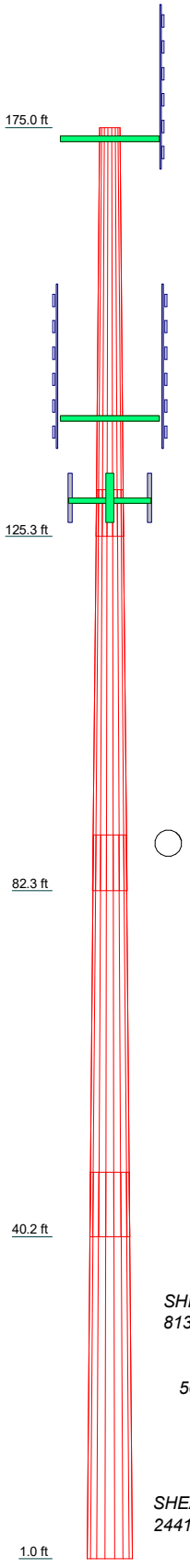
A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00011C
575 PLEASANT VALLEY ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	49.67	18	0.2500	5.67	29.0000	40.1000	A572-65	4600.1
2	48.75	18	0.3130	6.75	38.3329	49.2273		7163.4
3	48.83	18	0.3750	7.83	47.0928	58.0051		10318.4
4	47.00	18	0.4380		55.5053	66.0086		13411.2
								35493.2



ALL REACTIONS ARE FACTORED

AXIAL 80301 lb

SHEAR 8137 lb *MOMENT 916218 lb-ft*

TORQUE 1994 lb-ft
50 mph WIND - 1.5000 in ICE

AXIAL 51526 lb

SHEAR 24412 lb *MOMENT 2597456 lb-ft*

TORQUE 2073 lb-ft
REACTIONS - 117 mph WIND

governing rxn's for tower anchorage and foundation check

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Platform Mount [LP 1301-1]	174	TA08025-B605	130
BA8080-67-DIN	174	RDIDC-9181-PF-48	130
Platform Mount [LP 1301-1]	140	MX08FRO665-21 w/ 7' MP 2.0	130
BA8080-67-DIN	140	TA08025-B604	130
BA8080-67-DIN	140	TA08025-B605	130
Platform Mount [LP 716-1]	130	MX08FRO665-21 w/ 7' MP 2.0	130
MX08FRO665-21 w/ 7' MP 2.0	130	TA08025-B604	130
TA08025-B604	130	TA08025-B605	130

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 117 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Weld together tower sections have flange connections.
9. Connections use galvanized A615 GR75 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
10. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
11. Welds are fabricated with ER-70S-6 electrodes.
12. TOWER RATING: 33.9%

Infinigy
26455 Rancho Pkwy S
Lake Forest, CA 92630
Phone:
FAX:

Job: ***1197-F0001-B***			
Project: ***BOBDL00011C***			
Client: NSS	Drawn by: RF	App'd:	
Code: TIA-222-H	Date: 03/29/23	Scale: NTS	
Path: I:\Albany\Telecom\DISH\NSS\CT - Private sites\BOBDL00011C\Structural\BOBDL00011C.eri		Dwg No. E-1	

Tower Input Data

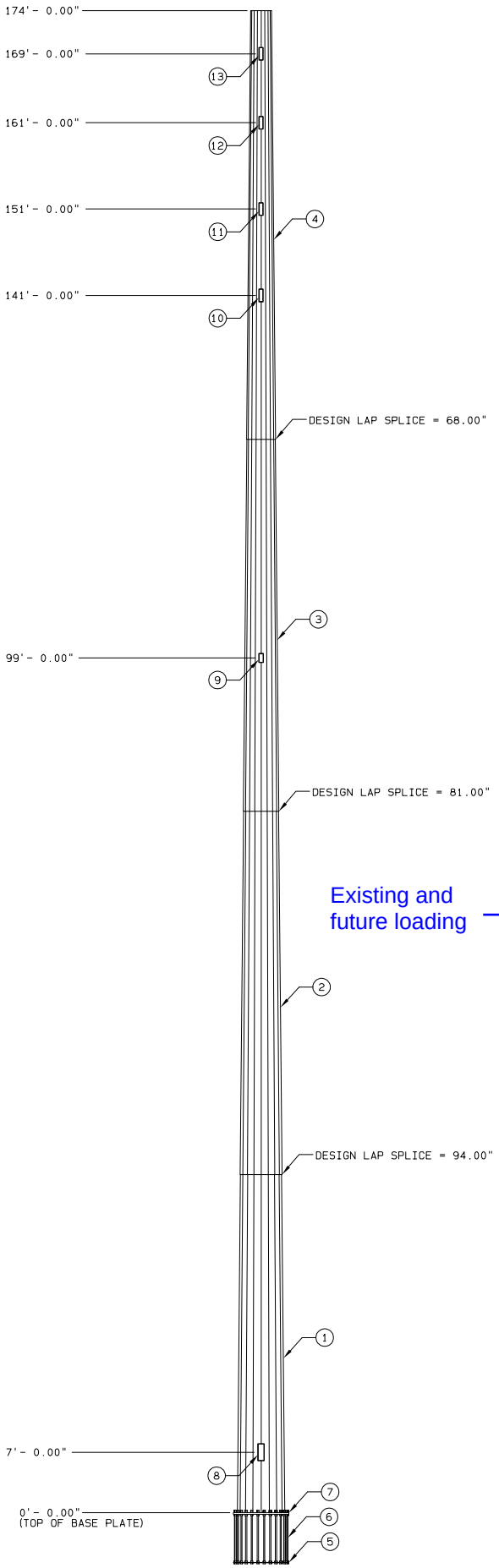
The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Tower base elevation above sea level: 66.30 ft.
Basic wind speed of 117 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Weld together tower sections have flange connections..
Connections use galvanized A615 GR75 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

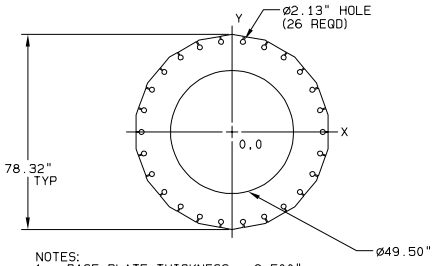
	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tower Design Reference



ITEM ID	NO. REQD	FEATURES	UNIT WEIGHT (LBS)	WEIGHT (LBS)
1	1	SECTION A VALMONT S-22 0.438" THK (A572 GR65)	13,352	13,352
2	1	SECTION B VALMONT S-22 0.375" THK (A572 GR65)	10,284	10,284
3	1	SECTION C VALMONT S-22 0.313" THK (A572 GR65)	7,126	7,126
4	1	SECTION D VALMONT S-22 0.250" THK (A572 GR65)	4,581	4,581
5	1	BOTTOM CAGE PLATE	147	147
6	26	1.75" ANCHOR BOLT, LENGTH=6.00' A615 GR75	67	1,724
7	1	BASE PLATE VALMONT S-56 2.500" THK (A572 GR50)	2,562	2,562
	1	TOP CAGE PLATE (REMOVE BEFORE SETTING POLE)	192	192
	1	SAFETY CLIMBING CABLE (LENGTH = 164.00')	120	120
	3	GROUNDING LUG	2	6
		GALVANIZING	705	705
	134	STEP AND CLIP (VALMONT STANDARD)	1	134
8	3	HAND HOLE HVY (9" x 24")	52	156
9	2	HAND HOLE HVY (6" x 12")	26	52
10	3	HAND HOLE STD (6" x 18")	18	54
11	3	HAND HOLE STD (6" x 18")	18	54
12	3	HAND HOLE STD (6" x 18")	18	54
13	3	HAND HOLE STD (6" x 18")	18	54
	1	POLE CAP	41	41

HOLE COORDS (INCHES)	
X-COORD	Y-COORD
36.38	0.00
35.32	8.71
32.21	16.90
27.23	24.12
20.66	29.94
12.90	34.01
4.38	36.11



NOTES:
1. BASE PLATE THICKNESS = 2.500"
2. BASE PLATE ALLOWABLE STRESS (KSI) = 50
3. ANGLES ARE MEASURED CLOCKWISE FROM 0 DEGREES
4. BOLT CIRCLE DIAMETER = 72.75"
5. CAGE TEMPLATE DIAMETER = 76.25"

BASE PLATE / ANCHORAGE CHARACTERISTICS

NOTES:

1. FACTORED REACTIONS FOR FOUNDATION DESIGN.
   MOMENT = 76,758 IN-KIPS
   SHEAR = 47,570 #
   VERTICAL = 64,329 #
2. GALVANIZED PER ASTM A-123.
3. DESIGN CRITERIA: ANSI/TIA 222-G ADDENDUM 2
4. THIS STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING LOADING:
   EXPOSURE CATEGORY = B
   STRUCTURE CLASSIFICATION = 3
   TOPOGRAPHY CATEGORY = 1
   EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS Ss = 0.18
   EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT ONE SECOND S1 = 0.06
   EARTHQUAKE SITE CLASS = E
   WIND LOAD CASES ARE BASED ON 3 SECOND GUST AND 100 YEAR WIND RETURN PERIOD
   A. CASE 1: WIND = 98 MPH WIND SPEED
   B. CASE 2: WIND = 50 MPH ICE AND WIND SPEED
      DESIGN ICE THICKNESS = 1.00 INCH
   C. CASE 3: WIND = 60 MPH WIND SPEED
   D. CASE 4: SEISMIC
   E. EQUIPMENT

Existing and future loading →

DESCRIPTION	ABP MTG HT. (FT)	ABP CENTROID HT. (FT)	WITHOUT ICE EPA (FT**2)	WITHOUT ICE WT (LBS)	WITH ICE EPA (FT**2)	WITH ICE WT (LBS)
6-2" X 72" MOUNTING PIPES	174.00	174.00	6.84	132	16.65	822
1-RMQP-496-HK	162.50	164.00	23.14	1945	46.28	3890
1-RMQP-496-HK	152.50	154.00	23.14	1945	46.28	3890
1-RMQP-496-HK	142.50	144.00	23.14	1945	46.28	3890
1-1/2" X 4' LIGHTNING ROD	174.00	176.00	0.16	14	1.39	70
4-BA8080-67-DIN	174.00	182.25	24.88	264	76.24	1456
2-2' HIGH PERFORMANCE (18GHZ)	174.00	174.00	10.58	166	17.50	556
3-SP1 VFA12-HD	174.00	174.00	25.20	1974	100.20	5520
12-PANEL (8' X 1' X 6")	162.50	164.00	90.72	1308	129.48	8496
12-RRU (24" X 12" X 8" - 50#)	162.50	164.00	18.12	600	28.20	2424
4-BA8080-67-DIN	162.50	172.25	23.88	292	72.88	1628
2-2' HIGH PERFORMANCE (18GHZ)	164.00	164.00	13.12	224	21.68	752
12-PANEL (8' X 1' X 6")	152.50	154.00	90.72	1308	129.24	8436
12-RRU (24" X 12" X 8" - 50#)	152.50	154.00	18.12	600	28.20	2412
4-BA8080-67-DIN	152.50	162.25	23.88	292	72.60	1612
2-2' HIGH PERFORMANCE (18GHZ)	154.00	154.00	13.12	224	21.64	748
12-PANEL (8' X 1' X 6")	142.50	144.00	90.72	1308	129.00	8388
12-RRU (24" X 12" X 8" - 50#)	142.50	144.00	18.12	600	28.08	2388

5. FEEDLINES ARE PLACED INTERIOR TO POLE SHAFT (UNLESS NOTED OTHERWISE).
6. TOTAL POLE HEIGHT IS 175 FT AGL.
7. ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE (APPROX. 1 FT AGL).
8. 18 SIDED SHAFT
9. POLE DESIGNED TO AN ULTIMATE WIND SPEED OF 135 MPH PER 2018 CT SBC.
10. WIND SPEED CONVERTED TO 98 MPH FOR USE WITH REV G AND STRUCTURE CLASS II.

Digitally signed by Nathan A Ross
Date: 2021-07-15 15:40:07-00

SECTION INFORMATION					
ITEM ID	LENGTH	BASE OD	TOP OD	THK	MATL
1	47'- 0.00"	66.00"	55.50"	0.438"	A572 65 KSI
2	48'-10.00"	58.00"	47.09"	0.375"	A572 65 KSI
3	48'- 9.00"	49.22"	38.33"	0.313"	A572 65 KSI
4	49'- 8.00"	40.10"	29.00"	0.250"	A572 65 KSI

REV ID	DATE	REV BY	DESCRIPTION
A	07/15/21	NAR	Loading revised.

ORDER	PROJECT	FILE ID	SCALE	DATE	ENGR
511112	511112	511112-P1	NONE	07/13/21	NAR1

DESCRIPTION
MARCUS COMMUNICATIONS 174.0' POLE, SITE: SOUTH WINDSOR, CT

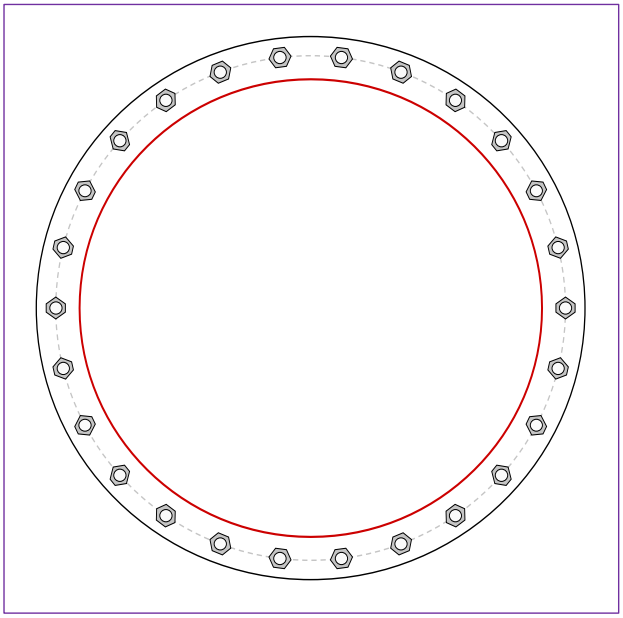
valmont

Monopole Base Plate Connection

Site Info	
Site #	BOBDL00011C
Site Name	--
Job #	1197-F0001-B

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	3

Applied Loads	
Moment (kip-ft)	2597.46
Axial Force (kips)	51.52
Shear Force (kips)	24.43



Connection Properties

Anchor Rod Data

(26) 1-3/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 72.75" BC

Base Plate Data

78.32" OD x 2.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

66.008639" x 0.438" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

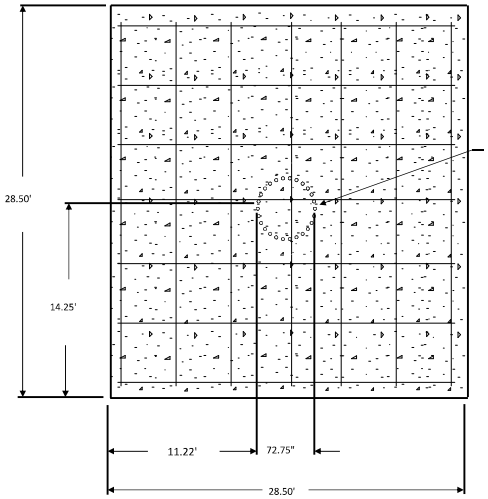
Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 67.88	ϕPn_c = 162.36	**Stress Rating**
Vu = 0.94	ϕVn = 73.06	**44.9%**
Mu = 1.83	ϕMn = 60.29	**Pass**

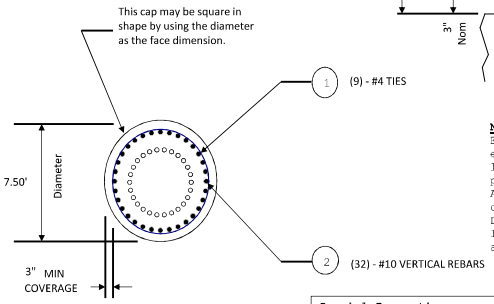
Base Plate Summary

Max Stress (ksi):	11.44	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**25.4%**	**Pass**

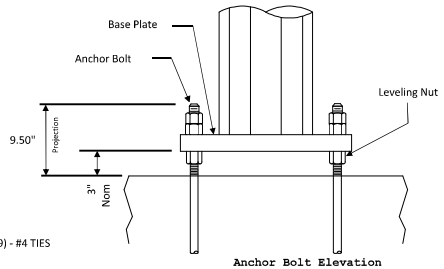
Tower Foundation Design Reference



Section A-A
No Scale



Section B-B
No Scale



Anchor Bolt Elevation
(No Scale)

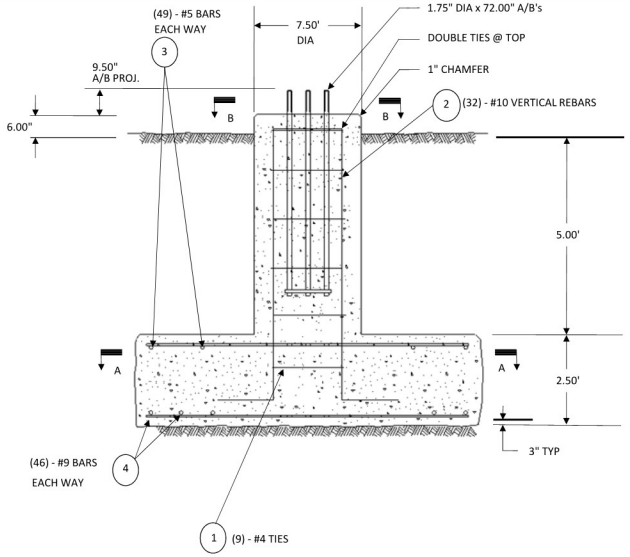
Note:
Extreme care should be taken to ensure that all leveling nuts are level with respect to each other prior to erection of the structure. Anchor bolts shall extend through the top nut completely, fully engaging all nut threads. Distance from top of concrete and bottom of leveling nut shall not exceed the diameter of the anchor bolt.

General Notes: Slab Foundation

1. Prior to excavation, check the area for underground facilities.
2. All reinforcing shall be deformed bars conforming to ASTM A615 Grade 60 (60,000 psi min. yield) and shall be provided by the foundation contractor.
3. All concrete shall have a minimum compressive strength of 4500 psi @ 28 days. The requirement for the concrete shall be as given in the ACI "Building Code Requirements for Reinforced Concrete", ACI 318, the latest edition.
4. Trowel top of foundation smooth.
5. Concrete shall be placed against undisturbed soil to the depth indicated on the foundation drawing. The portion above grade shall be formed. If an area is excavated beyond the limits shown, this volume shall be filled with concrete or formed. After the forms are removed, the excess excavation shall be replaced and compacted.
6. The ground water was encountered at 12' below grade during boring.
7. Foundation design based on Ultimate vert. bearing pressure of 5000 psf.
8. Concrete is assumed to weigh 150 pcf.
9. Estimated concrete volume = **84.21 cubic yards total.**
10. Design Based on the following loads from installation drawing for order No: 511112.

Factored Moment = 6396 FT-KIPS **Overturning Safety Factor = 1.56**
Factored Download = 64.3 KIPS **Max. Toe Bearing Pressure = 4.21 ksf**
Factored Shear = 47.6 KIPS

11. Backfill should be compacted to a density of 110 pcf.
12. Anchor bolts to be ASTM A615 Gr75.
13. Reference: geotechnical report Whitestone Associates Project Number GM2017523.000, dated 07/13/2021 (Revised)
14. Foundation designed to not exceed 100% of monopole's capacity.
15. Pad shall be underlain by a minimum 12-inch thick layer of CTDOT M.05.01 Processed Aggregate Base, per Geo Report.
16. Suitability of bearing soils shall be confirmed by a geotechnical engineer immediately prior to placing of concrete for the footing.

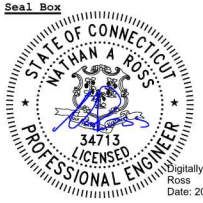


ELEVATION
No Scale

Special Inspection

1. Inspection of reinforcing steel and placement (periodic).
2. Inspection of anchor bolts cast in concrete (periodic).
3. Verifying use of required mix design (periodic).
4. At the time fresh concrete is sampled to fabricate specimens for strength tests; perform slump and air content tests and determine temperature of concrete (continuous).
5. Inspection of concrete placement for proper application techniques (continuous).
6. Inspect formwork for shape, location, and dimensions of the concrete member being formed (periodic).
7. Verify materials below shallow foundation are adequate to achieve the design bearing capacity (periodic).
8. Verify excavations are extended to proper depth and have reached proper material (periodic).
9. Perform classification and testing of compacted fill materials (periodic).
10. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of compacted fill (continuous).

Seal Box



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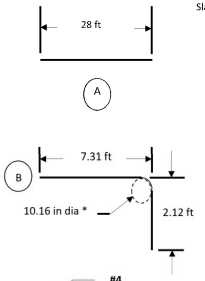
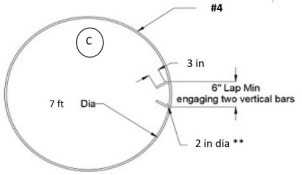
Date: 2021-07-15 15:41:07:00

Reinforcement Steel Schedule

-	Type	Rebar Size	Rebar Spacing	Weight (lbs)	Qty
Cap Ties	1	C	#4	Equal	140	9
Cap Vertical Rebar	2	B	#10	-----	1255	32
Slab Top Steel	3	A	#5	6.99 in	2862	98
Slab Bottom Steel	4	A	#9	7.44 in	8758	92
Total Steel Weight for Complete Foundation Installation =					13015	





Note: adjacent circular ties shall not engage the same longitudinal bar with end hook anchorages (stagger hook location).

Grade 60 Rebar

Size	Wt/ft	6db (in)	d* (in)	d** (in)
#3	0.38	2.25	2.25	1.50
#4	0.67	3.00	3.00	2.00
#5	1.04	3.75	3.75	2.50
#6	1.50	4.50	4.50	4.50
#7	2.04	5.25	5.25	4.25
#8	2.67	6.00	6.00	6.00
#9	3.40	6.77	9.50	-
#10	4.30	7.62	10.75	-
#11	5.31	8.46	12.00	-

* Refers to ACI standard hook detail chart
** Refers to ACI stirrup hook detail chart

Rebar Lap Splice

Rebar Size	Rebar Grade	Specified Concrete Strength	Overlap (inches) Vert & Ties	Bottom Horiz	Top Horiz
#3	60	4500 psi	13	15	21
#4	60	4500 psi	18	20	29
#5	60	4500 psi	22	26	36
#6	60	4500 psi	26	33	46
#7	60	4500 psi	38	45	62
#8	60	4500 psi	43	59	82
#9	60	4500 psi	49	74	104
#10	60	4500 psi	58	95	132
#11	60	4500 psi	71	116	163

Splicing is an alternative to specified material listed in rebar schedule.
Lap Splice may be used on ties when Seismic Hook not required.

Rev	Description	Date	By/Ck
A	Base reactions increased	15-Jul-21	NAR

valmont STRUCTURES
28800 Ida Street
Valley, NE 68064
(402) 359-2201

By:	Nathan Ross	Slab Foundation Layout	
Check:	NAR	Customer: Marcus Communications	
Date:	07/13/21	Site: South Windsor, CT	
	Project #511112	SIZE - B	Drawing No. CT511112FS — Sheet 1 of 1

2.0 FIELD INVESTIGATION

2.1 Field work

Field exploration for the proposed communications tower consisted of advancing two soil borings (identified as B-1 and B-2) using truck-mounted Mobile B-53 drill rig equipped with hollow stem augers. The soil borings were backfilled with excavated soils generated from the investigation. The locations of the soil borings are shown on the accompanying *Boring Location Plan* included as Figure 1. The *Records of Subsurface Exploration* are provided in Appendix A.

The subsurface tests were conducted in the presence of a Whitestone engineer who observed field tests, recorded visual classifications, and collected samples of the various strata encountered. The tests were located in the field using normal taping procedures and estimated right angles. These locations are presumed to be accurate within a few feet.

The soil borings and Standard Penetration Tests (SPTs) were conducted in general accordance with ASTM International (ASTM) designation D1586. The SPT resistance value (N) can be used as an indicator of the consistency of fine-grained soils and the relative density of coarse-grained soils. The N-value for various soil types can be correlated with the engineering behavior of earthworks and foundations.

Groundwater level observations, where encountered, were recorded during and immediately after the completion of field operations prior to backfilling the tests. Seasonal variations, temperature effects, man-made effects, and recent rainfall conditions may influence the levels of the groundwater, and the observed levels will depend on the permeability of the soils. Groundwater elevations derived from sources other than seasonally observed groundwater monitor wells may not be representative of true groundwater levels.

3.0 SUBSURFACE CONDITIONS

The subsurface soil conditions encountered within the subsurface tests conducted by Whitestone consisted of the following generalized strata in order of increasing depth. The *Records of Subsurface Exploration* are provided in Appendix A.

Surface Cover Materials: At the ground surface, the borings encountered approximately four inches of topsoil.

Glaciofluvial Deposit: Beneath the surface cover materials, the borings encountered a glaciofluvial deposit, consisting of brown, medium dense (surficially loose), poorly graded sand with silt and gravel (USCS: SP). The SPT N-values within the glaciofluvial deposit ranged from seven blows per foot (bpf) to 17 bpf. The glaciofluvial deposit extended to depths of approximately 18 feet below ground surface (fbgs) to 18.5 fbgs.

avg. of 12

Glaciolacustrine Deposit: Beneath the glaciofluvial deposit, the borings encountered a glaciolacustrine deposit, consisting of gray to reddish-brown, very soft to soft, clayey silt (USCS: ML). The SPT N-values within the glaciofluvial deposit ranged from weight of hammer for 12 inches of split-spoon sampler advancement to two bpf. Boring B-2 terminated in this stratum at a depth of 22 fbgs. In boring B-1, the glaciolacustrine deposit extended to a depth 85 fbgs.

Glacial Till: Underlying the existing fill, boring B-1 encountered glacial till, which consisted of reddish-brown, silty sand with gravel (USCS: SM). The glacial till was encountered between 85 fbgs and 86 fbgs.

Apparent and Weathered Bedrock: Beneath the glacial till, boring B-1 encountered weathered bedrock that was penetrated by a tricone roller bit to a depth of 90 fbgs. Bedrock was not sampled through rock coring efforts. Rock coring techniques would be required to further characterize the nature and extent of the refusal materials.

Groundwater: Static groundwater was encountered in the soil borings at depths of 12 fbgs and 14 fbgs during the exploration. The groundwater level should be expected to fluctuate seasonally and following periods of precipitation.

4.0 CONCLUSIONS & RECOMMENDATIONS

Because of the very soft consistency of the glaciolacustrine deposit, Whitestone recommends that the proposed tower be supported on a reinforced concrete drilled shaft foundation bearing within the bedrock. However, as an alternative, the tower may be supported on a reinforced concrete pad and pier foundation bearing within the upper glaciofluvial deposit or structural fill placed over the glaciofluvial deposit, provided a relatively low allowable bearing pressure is used and increased settlement can be tolerated. The following recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered within the limited exploration performed.

If there are any significant changes to the project characteristics or if significantly different subsurface conditions are encountered during construction, Whitestone should be consulted, so that the recommendations of this report can be reviewed. The recommendations are based on no increase in site grades, since fill placed to raise site grade will cause settlement from consolidation of the very soft glaciolacustrine deposit.

4.1 Foundation Design Criteria

Deep Foundation: Whitestone recommends supporting the proposed communications tower on a concrete-filled drilled shaft foundation designed to bear within the weathered or competent bedrock, which was encountered at a depth of 86 fbgs. The drilled shaft may be designed using a maximum net allowable bearing pressure of 20,000 pounds per square foot (psf). The minimum diameter of the shaft, which Whitestone estimates may be around eight feet, would match the diameter of the base of the tower to allow anchor bolts to be set.

Should LPile be used for drilled shaft design, the site soils to a depth of 18 fbgs should be modeled as SAND with a total unit weight of 125 pounds per cubic foot and a friction angle of 32 degrees. Cohesion/undrained shear strength should be ignored. Whitestone considers a horizontal modulus of subgrade reaction, k, of 150 pounds per cubic inch to be appropriate to a depth of 18 fbgs. The site soils below a depth of 18 fbgs should be modeled as CLAY with a total unit weight of 100 pounds per cubic foot and an undrained shear strength of 250 psf. Friction should be ignored. Whitestone considers a horizontal modulus of subgrade reaction, k, of 75 pounds per cubic inch and soil strain parameters, E50, of 0.02 to be appropriate below a depth of 18 fbgs.

Uplift loads may be resisted by the weight of the concrete of the drilled shaft. Given the dimensions of the drilled shaft, this should be sufficient resistance.

ultimate of 5,000 psf per foundation drawings on pg 30

Shallow (Pad and Pier) Foundation: Alternatively, Whitestone recommends supporting the proposed tower on a shallow pad and pier foundation designed to bear within the approved glaciofluvial deposit and/or on controlled structural fill materials that are properly placed and compacted as described herein. The pad should be underlain by a minimum 12-inch thick layer of CTDOT *M.05.01 Processed Aggregate Base* (or approved equivalent). Foundations bearing within these materials may be designed using a maximum net allowable bearing pressure of 2,500 pounds per square foot. The pad should be placed at least 3.5 feet below adjacent exterior grades, as specified by the *Connecticut State Building Code*, to provide protection from frost penetration, however, Whitestone understands that the pad will likely be founded at around seven fbgs based on stability considerations.

A pad foundation subject to lateral loads and/or overturning should be designed so that the maximum toe pressure due to the combined effect of vertical loads and overturning moment does not exceed the recommended maximum allowable net bearing pressure. In addition, positive contact pressure should be maintained throughout the base of the footing such that no uplift or tension exists between the base of the footing and the supporting soil. Uplift loads should be resisted by the weight of the concrete. Side friction should be neglected when proportioning the footing, so that lateral resistance is provided by friction resistance at the base of the footing. An allowable coefficient of friction against sliding of 0.4 is recommended for use in the design of the foundation bearing within the existing site soils or imported structural fill soils.

Seismic Site Class: The subsurface conditions are most consistent with a Site Class E, as defined by the *Connecticut State Building Code*. The site soils are not susceptible to earthquake induced liquefaction.

Inspection/Overexcavation Criteria: For the drilled shaft, Whitestone recommends that the suitability of the bearing material at the shaft bottom be reviewed by a geotechnical engineer immediately prior to placing concrete. For the pad foundation, Whitestone recommends that the suitability of the bearing soils at the footing bottom be reviewed by a geotechnical engineer immediately prior to placing concrete for the footing. In the event that areas of unsuitable materials are encountered, additional overexcavation and replacement of the materials may be necessary to provide a suitable footing subgrade. Any overexcavation to be restored with structural fill will need to extend at least one foot laterally beyond footing edges for each vertical foot of overexcavation. Lateral overexcavation may be eliminated if grades are restored with lean concrete.

Settlement: Whitestone estimates post construction settlements of proposed deep foundation of less than one half inch, if the recommendations outlined in this report are properly implemented. Whitestone estimates post construction settlements of the alternative shallow foundation would be around one inch to two inches, with differential settlement of one half to three quarters of the total settlement, if the recommendations outlined in this report are properly implemented.

4.2 Groundwater Control

Static groundwater was encountered during the investigation at depths that are not expected to impact excavation for a pad foundation. However, perched/trapped water may be encountered above non-permeable strata. As such, construction phase dewatering may consist of removing surface water runoff, infiltrating water, or trapped water at this site. Whitestone anticipates that construction phase dewatering, if required, would include installing temporary sump pits and pumps within the excavation.

4.3 Drilled Shalt Installation Considerations

Temporary steel casing will likely be needed within the upper sand. Whitestone recommends that the temporary steel casing extend at least two feet above ground surface to reduce the potential risk of foreign

Pier and Pad Foundation

Site # :	BOBDL00011C
Site Name:	--
Job Number:	1197-F0001-B

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☑
Block Foundation?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	51.526	kips
Base Shear, Vu_comp:	24.412	kips
Moment, M_u:	2597.456	ft-kips
Tower Height, **H**:	174	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	7.5	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	10	
Pier Rebar Quantity, **mc**:	32	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	9	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	7.5	ft
Pad Width, **W**:	28.5	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size (Top), Sp_{top}:	5	
Pad Top Rebar Quantity (Top), mp_{top}:	49	
Pad Rebar Size (Bottom), **Sp**:	9	
Pad Rebar Quantity (Bottom), **mp**:	46	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	5	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	5.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	32	degrees
SPT Blow Count, N_{blows}:	12	
Base Friction, μ:	0.4	
Neglected Depth, **N**:	0.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	12	ft

<--Toggle between Gross and Net

avg.

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	398.13	24.41	**6.1%**	**Pass**
Bearing Pressure (ksf)	3.75	1.78	**47.4%**	**Pass**
*Overturning (kip*ft)*	8511.13	2798.86	**32.9%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	7139.96	2731.72	**38.3%**	**Pass**
Pier Compression (kip)	40277.25	107.21	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	5020.39	985.55	**19.6%**	**Pass**
Pad Shear - 1-way (kips)	870.93	141.55	**16.3%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.201	0.037	**18.3%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3564.13	1639.03	**46.0%**	**Pass**

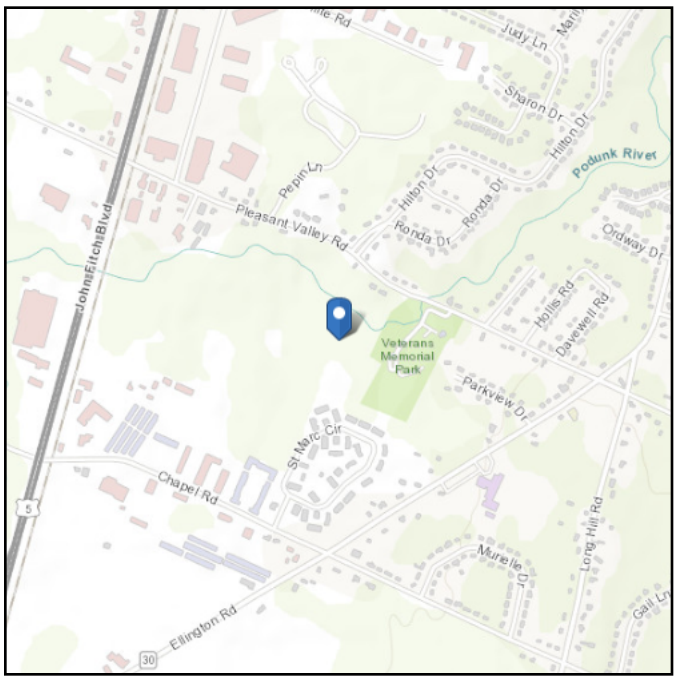
Soil Rating:	**47.4%**
Structural Rating:	**46.0%**

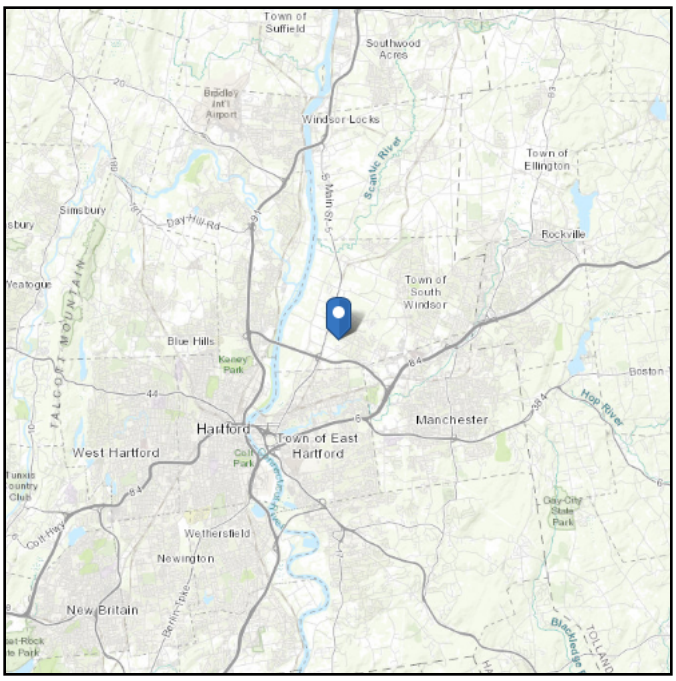
Version 3.4.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.814556
Risk Category:	II	**Longitude:**	-72.601667
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	65.2584649983758 ft (NAVD 88)





Wind

Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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: Tue Mar 28 2023

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.

Seismic

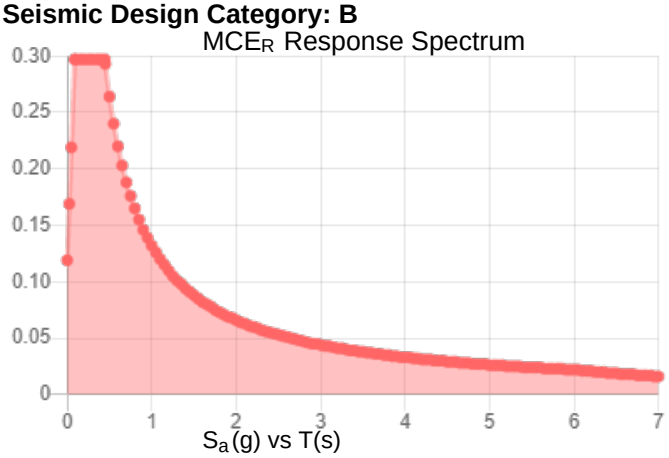
D - Default (see Section 11.4.3)

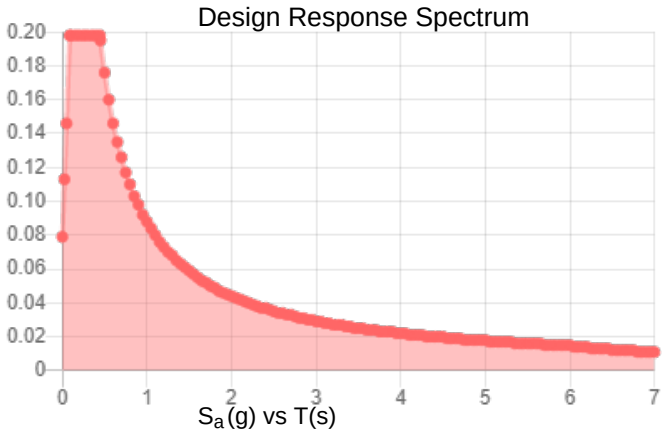
Site Soil Class:

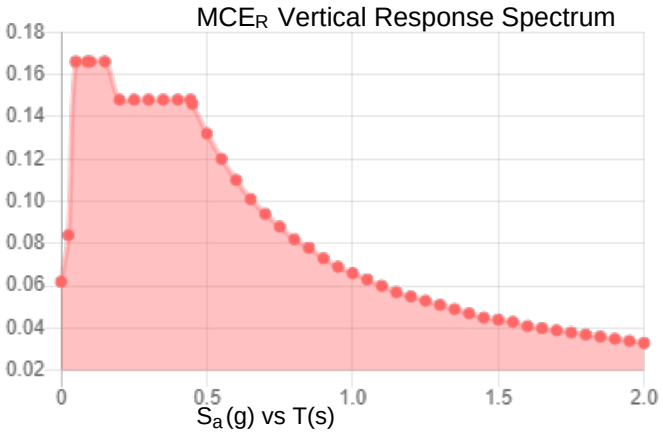
Results:

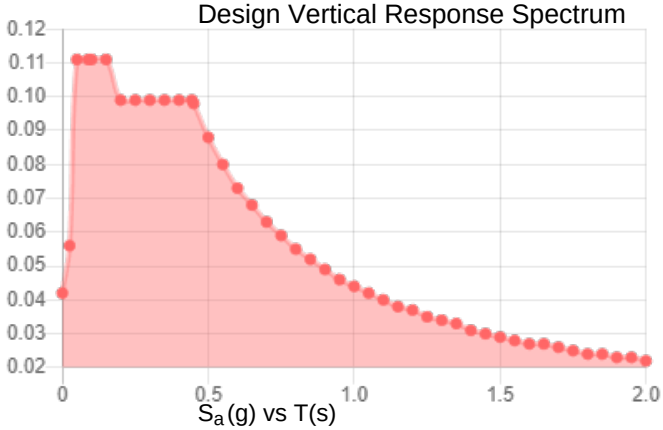
S_S :	0.186	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.099
F_v :	2.4	PGA_M :	0.159
S_{MS} :	0.297	F_{PGA} :	1.6
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.198	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Tue Mar 28 2023**

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:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Mar 28 2023

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.

Exhibit E

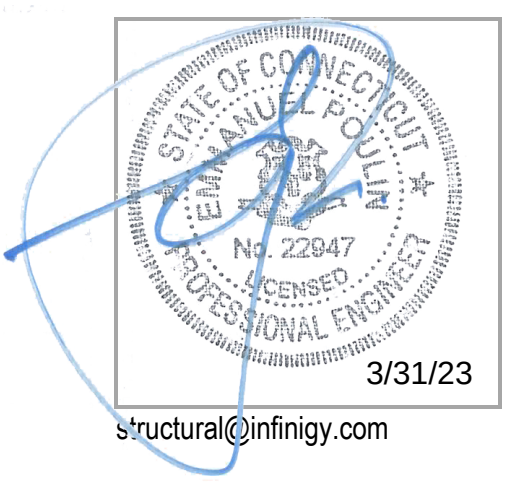
Mount Analysis

MOUNT ANALYSIS REPORT

March 29, 2023

Dish Wireless Site Name	--
Dish Wireless Site Number	BOBDL00011C
Infinigy Job Number	1197-F0001-B
Client	NSS
Carrier	Dish Wireless
Site Location	575 Pleasant Valley Rd South Windsor, CT 06074 Hartford County 41°48'52.4" N NAD83 72°36'06.0" W NAD83
Structure Type	Monopole
Structure Height	174.0 ft
Mount Type	8.0 ft Platform
Mount Elevation	130.0 ft AGL
Structural Usage Ratio	**33.2%**
Overall Result	**Pass**

The enclosed mount structural analysis has been performed in accordance with the 2022 Connecticut State Building Code (2021 IBC) based on an ultimate 3-second gust wind speed of 117 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



structural@infinigy.com

CONTENTS

1. INTRODUCTION

Infinigy performed a structural analysis on the Dish Wireless proposed telecommunication equipment supporting Platform mounted to the existing structure located at the aforementioned address. The mount was analyzed using RISA-3D version 21.0.0 analysis software.

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	117 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.5" ice
Adopted Code	TIA-222-H
Standard(s)	2022 Connecticut State Building Code (2021 IBC)
Risk Category	II
Exposure Category	B
Topographic Factor	1
Seismic Spectral Response	S_s = 0.186 g / S_1 = 0.055 g
Live Load Wind Speed	30 mph
Man Live Load at Mid/End Points	250 lbs
Man Live Load at Mount Pipes	500 lbs
Ground Elevation (HMSL)	65.26 ft

3. PROPOSED LOADING CONFIGURATION - 130.0 ft. AGL Platform

Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
130.0	3	JMA	MX08FRO665-21
	3	FUJITSU	TA08025-B604
	3	FUJITSU	TA08025-B605
	1	RAYCAP	RDIDC-9181-PF-48

4. SUPPORTING DOCUMENTATION*

Construction Drawings	Infinigy dated March 20, 2023
Dish Wireless Proposed Loading	RFDS dated February 07, 2022
Previous Analysis Report	Infinigy dated December 06, 2022
Mount Assembly Drawings	CommScope: MC-PK8-DSH

*All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site.

5. RESULTS

Components	Capacity (%)	Pass/Fail
Antenna Pipes	19.9	Pass
Face Pipes	11.2	Pass
Standoff Tubes	25.4	Pass
Handrails	20.3	Pass
Grating Angles	18.6	Pass
Corner Plates	29.1	Pass
Channel	28.8	Pass
Handrail Connectors	26.0	Pass
Connections	33.2	Pass
RATING =	**33.2**	**Pass**

Notes:
1. See additional documentation in Appendix for calculations supporting the capacity consumed and detailed mount connection calculations.

6. RECOMMENDATIONS

Infinigy recommends installing Dish Wireless's proposed equipment loading configuration on the Platform at 130.0 ft. The installation shall be performed in accordance with the construction documents issued by Infinigy for this site.

If you have any questions, require additional information, or believe the actual conditions differ from those detailed in this report, please contact us immediately.

Robert Faber
Project Engineer I | **INFINIGY**

7. ASSUMPTIONS

The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.
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.
The analysis will require revisions if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
Steel grades have been assumed as follows, unless noted otherwise: Channel, Solid Round, Plate, Built-up Angle — ASTM A1011 36 KSI Structural Angle — ASTM A529 Gr. 50 HSS (Rectangular) — ASTM A500-C GR 46 HSS (Circular) — ASTM A500-C GR 42 Pipe — ASTM A500 Gr C Connection Bolts — ASTM A325 U-Bolts — ASTM A307
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard.

8. LIABILITY WAIVER AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Infinigy is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report, Infinigy should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

This report is an evaluation of the mount structure only and does not determine the adequacy of the supporting structure, other carrier mounts or cable mounting attachments. The analysis of these elements is outside the scope of this analysis, are assumed to be adequate for the purpose of this report and to have been installed per their manufacturer requirements. This document is not for construction purposes.

Program Inputs

INFINIGY

Infinigy Load Calculator V2.3.4

PROJECT INFORMATION	
Site Name:	--
Carrier:	DISH Wireless
Engineer:	Robert Faber

CODE STANDARDS		
Building Code:	2021 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-16	

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	65.30	ft *Rev H

WIND AND ICE DATA			
Ultimate Wind (V_{ult}):	117	mph	
Design Wind (V):	N/A	mph	
Ice Wind (V_{ice}):	50	mph	
Base Ice Thickness (t_i):	1.5	in	
Radial Ice Thickness (t_{iz}):	1.720	in	
Flat Pressure:	70.754	psf	qz(2Gh)
Round Pressure:	42.453	psf	qz(1.2Gh)
Ice Wind Pressure:	7.753	psf	

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	130.00	ft
Tower Height AGL:	174.00	ft

SEISMIC DATA		
Short-Period Accel. (S_s):	0.186	g
1-Second Accel. (S_1):	0.055	g
Short-Period Design (S_{DS}):	0.198	
1-Second Design (S_{D1}):	0.088	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	
Seismic Importance (I_e):	1.000	
Seismic Response Co. (C_s):	0.099	
Total App. Weight:	225.230	lb
Total Shear Force (V_s):	22.343	lb
Hor. Seismic Load (E_h):	22.343	lb
Vert. Seismic Load (E_v):	8.937	lb *

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.998	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Height Esc. Fact. (K_{iz}):	1.147	
Gust Effect Factor (G_h):	1.000	
Shielding Factor (K_a):	0.900	
Velocity Pressure Co.(K_z):	1.065	(Mount Elev)

*For reference only. Per TIA rev H section 16.7, Ev is not applicable to mounts

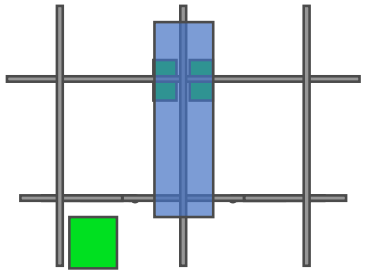
qz = 0.00256*Kz*Kzt*Ks*Ke*Kd*V2

Program Inputs

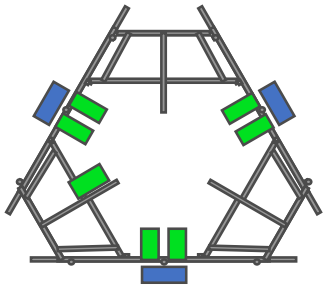
INFINIGY

Infinigy Load Calculator V2.3.4

ELEVATION VIEW



PLAN VIEW



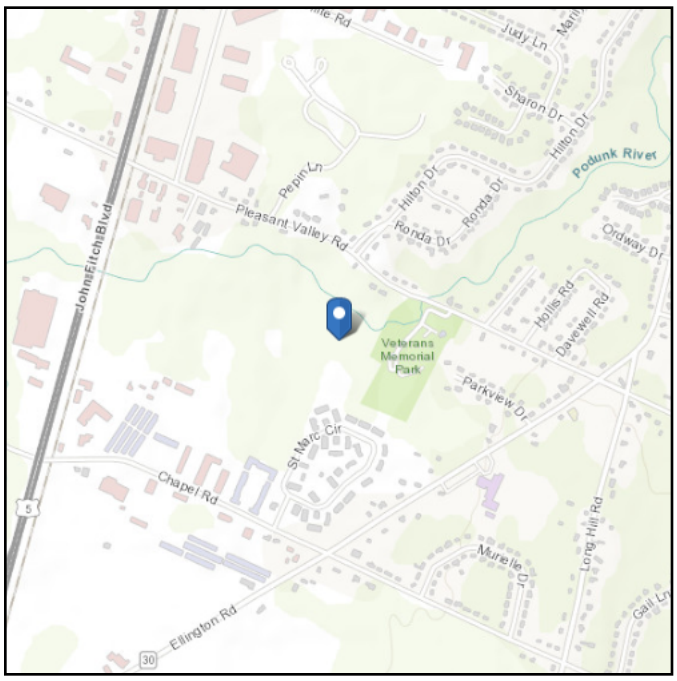
APPURTENANCE INFORMATION

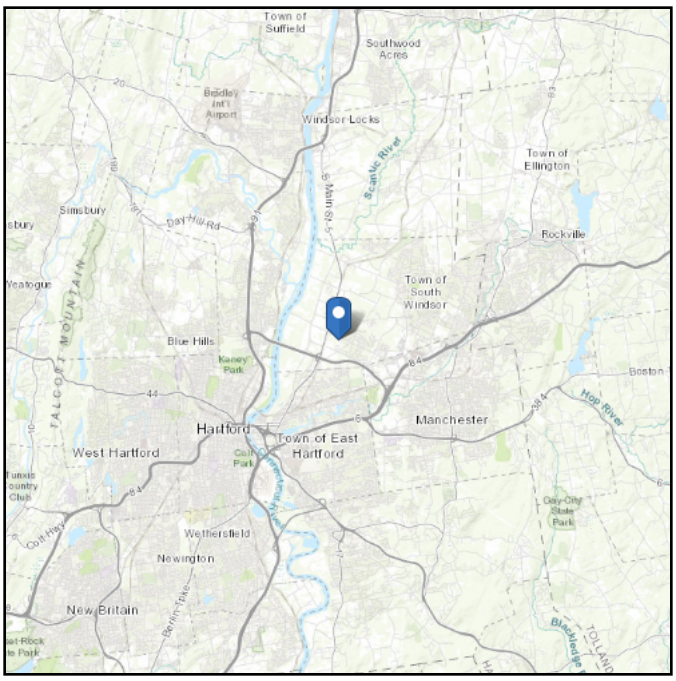
Appurtenance Name	Elevation	Qty.	Height (in)	Width (in)	Depth (in)	Weight (lbs)	EPA_N (ft^2)	EPA_T (ft^2)	Member (α sector)
JMA WIRELESS MX08FRO665-21	130.0	3	72.00	20.00	8.00	64.50	12.49	5.87	MP2
FUJITSU TA08025-B605	130.0	3	14.96	15.75	7.87	74.95	1.96	0.98	MP2
FUJITSU TA08025-B604	130.0	3	14.96	15.75	7.87	63.93	1.96	0.98	MP2
RAYCAP RDIDC-9181-PF-48	130.0	1	18.97	16.20	9.64	21.85	2.56	1.52	S2

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.814556
Risk Category:	II	**Longitude:**	-72.601667
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	65.2584649983758 ft (NAVD 88)





Wind

Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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: Tue Mar 28 2023

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.

Seismic

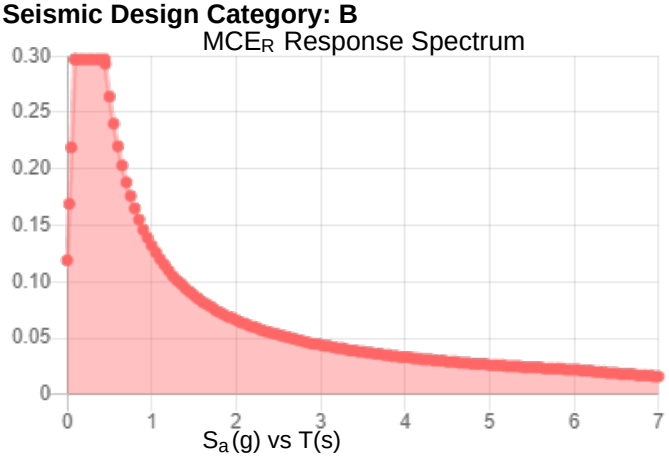
D - Default (see Section 11.4.3)

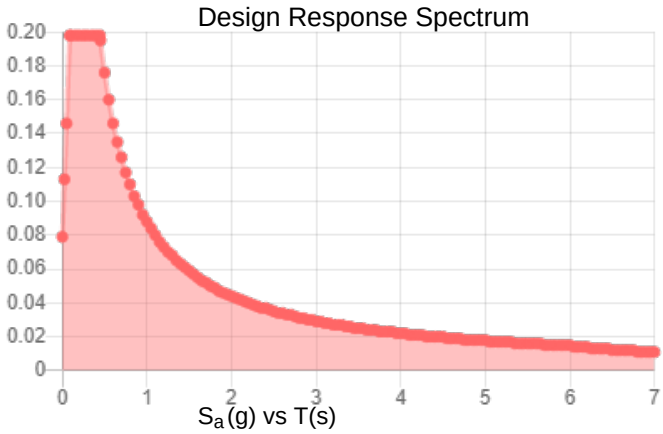
Site Soil Class:

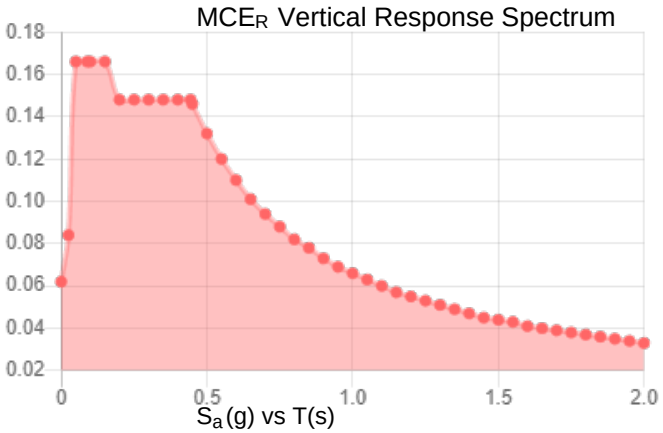
Results:

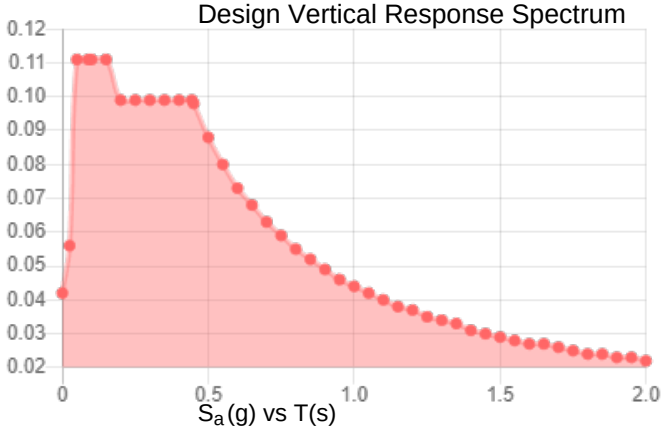
S_S :	0.186	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.099
F_v :	2.4	PGA_M :	0.159
S_{MS} :	0.297	F_{PGA} :	1.6
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.198	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Tue Mar 28 2023**

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:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Mar 28 2023

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.

INFINIGY

Bolt Calculation Tool, V1.6.4

PROJECT DATA	
Site Name:	--
Site Number:	BOBDL00011C
Connection Description:	Platform to Monopole

ENVELOPE BOLT LOADS		
(LC32 S2) Bolt Tension:	6747.42	lbs
(LC89 S2) Bolt Shear:	1371.39	lbs

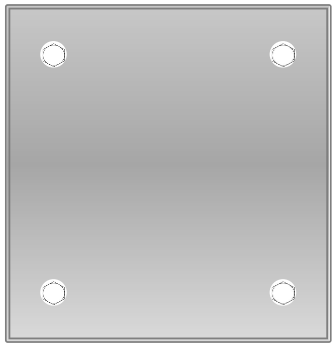
MAX BOLT USAGE LOADS[1]		
Bolt Tension:	6747.42	lbs
Bolt Shear:	610.14	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

[1] *Max bolt usage loads correspond to Load combination #32 on member S2 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of S3, S2, S1,

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	33.2%	
Max Shear Usage	9.9%	
Interaction Check (Max Usage)	0.11	***≤1.05***
Result	Pass	



NOTES:

1.0 GENERAL
- 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
- 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM

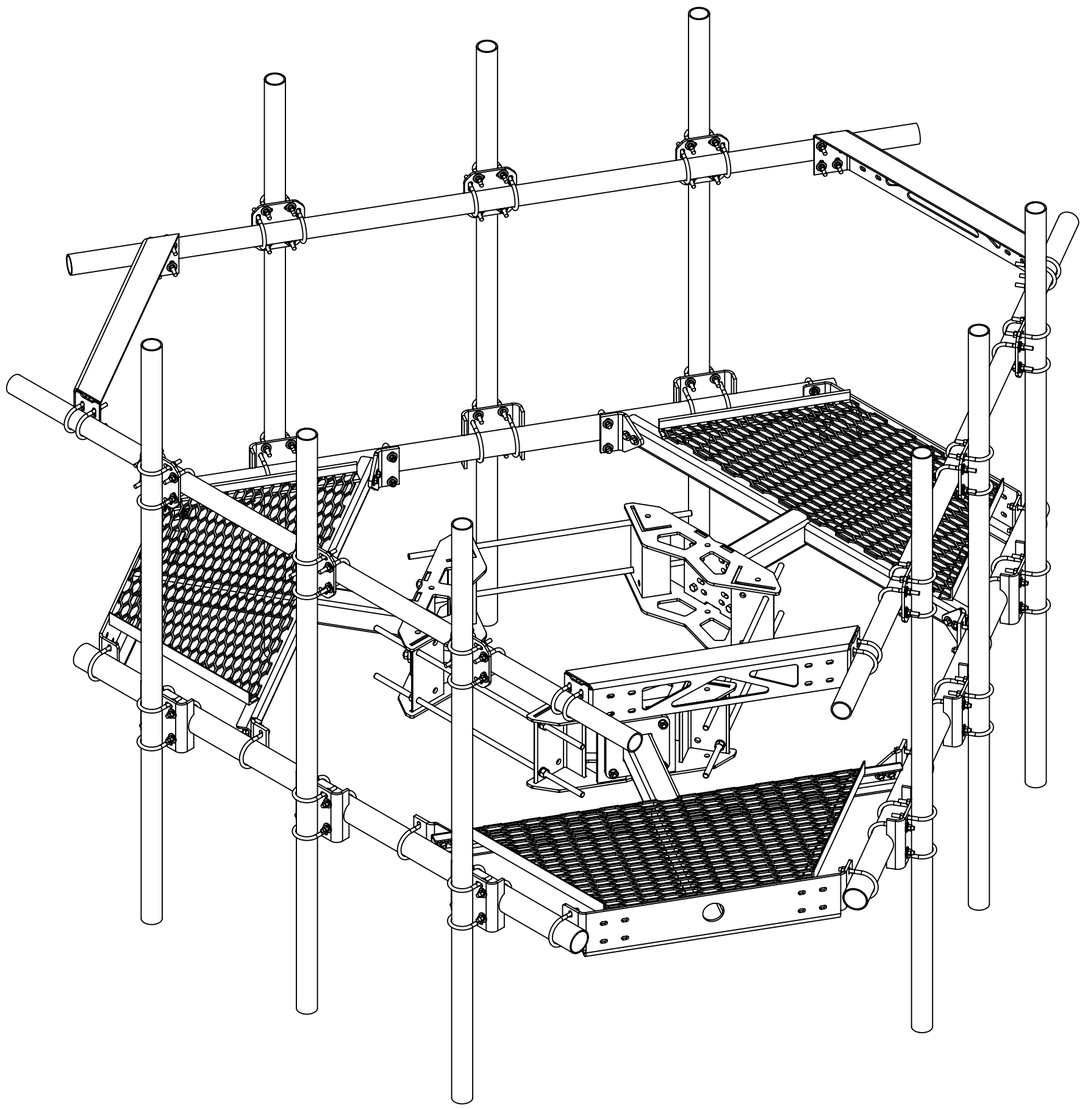
2.0 DESIGN NOTES
- 2.1 TORQUE U-BOLTS TO 44 FT-LBS

3.0 MANUFACTURING/SPECIAL REQUIREMENTS

4.0 TEST

5.0 PACKAGING

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A	10272PC	INITIAL RELEASE	HDAI	03/08/2021



PATENT PENDING

DENSITY	lbs/in³
MASS	lbs
VOLUME	in³
SURFACE AREA	in²
HEIGHT	96"
LENGTH	46"
WIDTH	29'

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES
1 PLACE .X ± .25
2 PLACE .XX ± 0.12
3 PLACE .XXX ± 0.06
ANGLES ± 2°

SAP MATERIAL MASTER: MC-PK8-DSH

FINISH: GALV A123

MATERIAL: A500, A1011/A1018

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y 14.5M-1994

	NAME	DATE
CE	MRC	02/17/20
RW	ROGHANSON	03/16/2021
AD	BCROSS	03/17/2021
RE	FA1024	02/27/2020

ECN 10272PC

TITLE: **LOW PROFILE PLATFORM FACE**

SCALE: 1:32

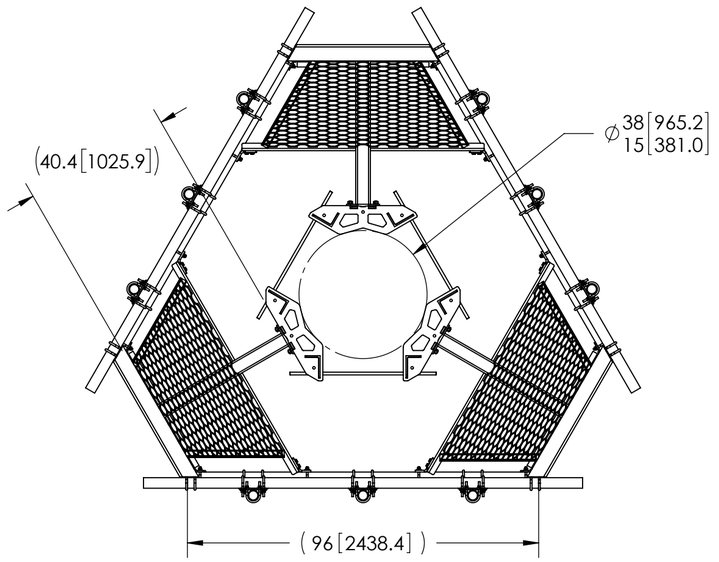
DOCUMENT NO.: MC-PK8-DSH

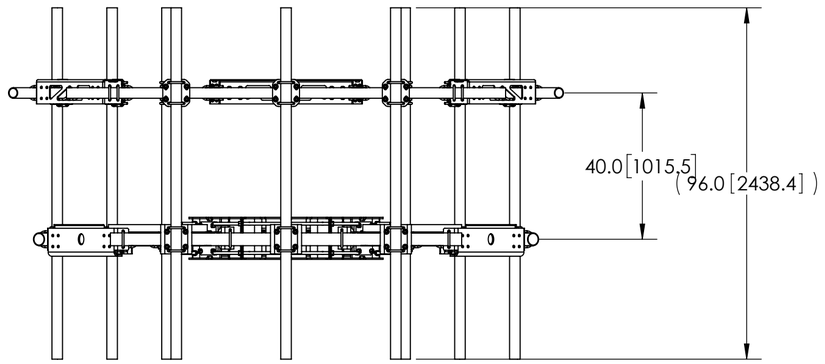
SIZE: C

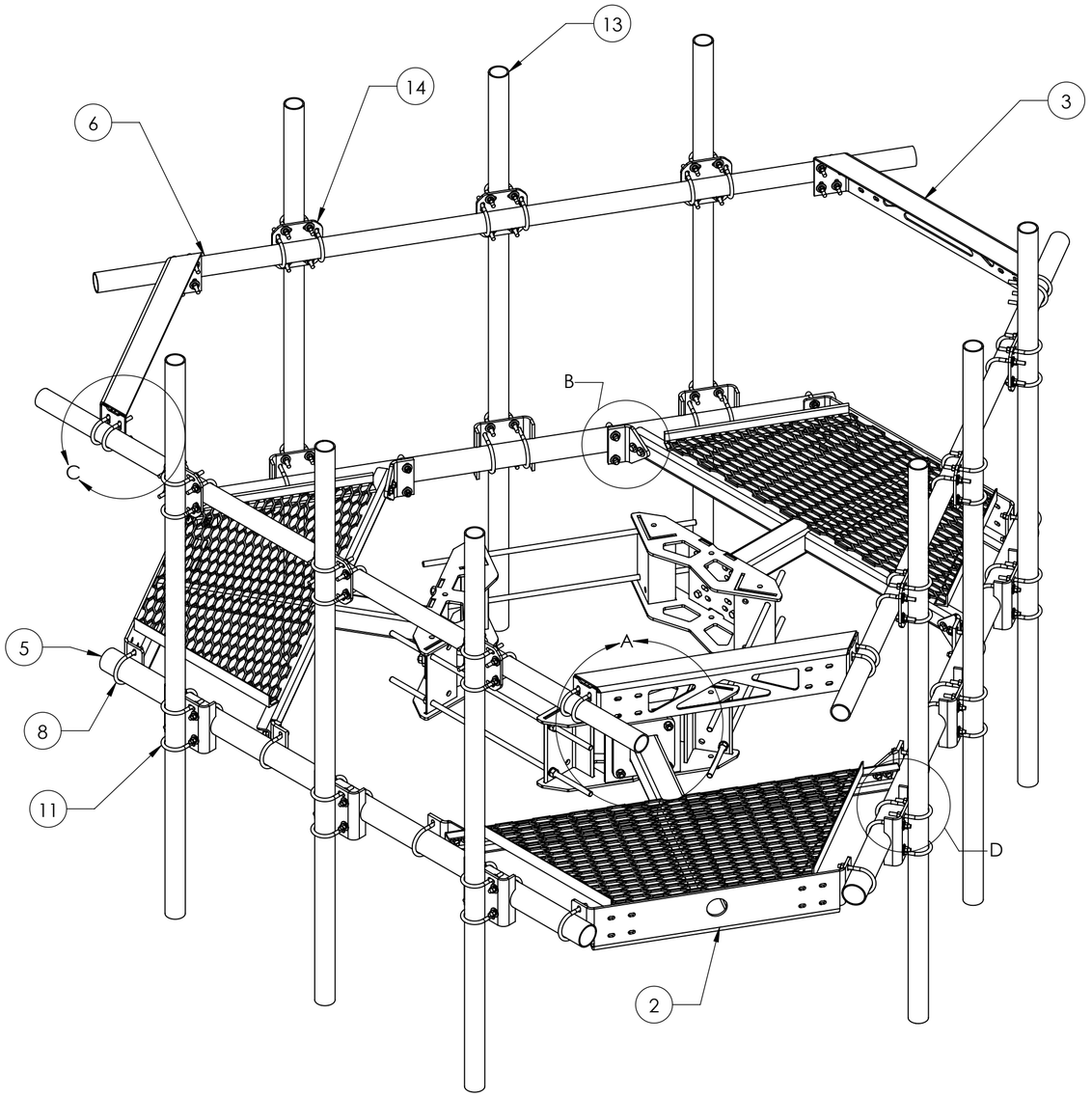
Auth Group: INSL

MODEL			DRAWING			SHEET
VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	
01	AD		00	AD	A	1 OF 3

NOTES:







ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	GB-0520A	5/8" X 2" GALV BOLT KIT (A325)	12
5	MT54796	3.50" OD X 96" GALV PIPE	3
6	MT546120	2.875" O.D. X 120" PIPE	3
7	GWF-04	1/2" GALV FLAT WASHER	12
8	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12
9	MTC300618	MOUNTING PLATE FOR MT-196	6
10	GB-04205	1/2" X 2" GALV BOLT KIT	12
11	MT-219M-H	3.5" OD X 2-7/8" OD Clamp Bracket Assembly	9
12	GUB-4352	1/2" X 3" X 5-1/4" GALV U-BOLT	12
13	MT54696	∅2.875" O.D. X 96 PIPE	9
14	XP-2525	CROSSOVER PLATE KIT, 2-7/8 OD X 2-7/8 OD	9

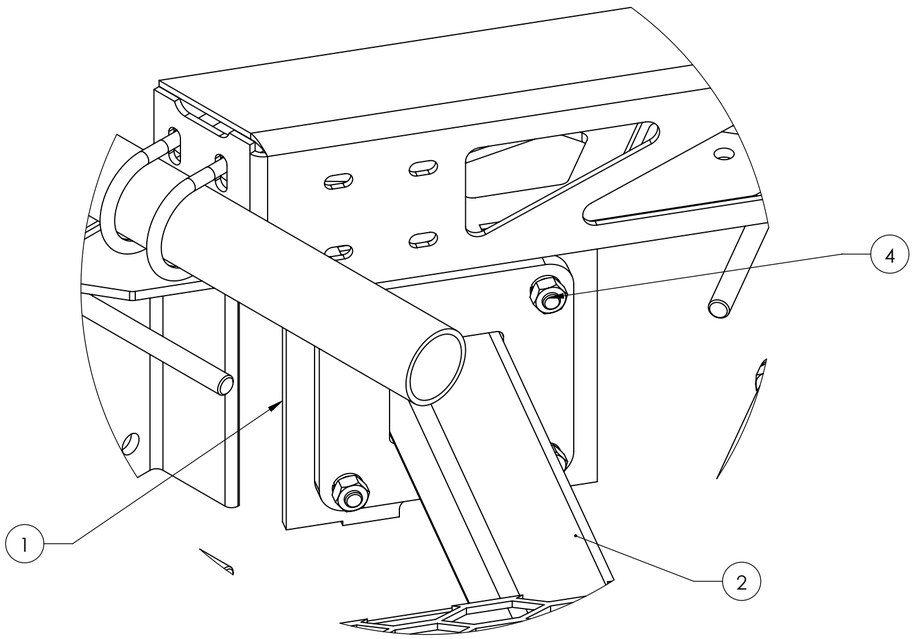
COMMSCOPE, INC. OF NORTH CAROLINA

TITLE

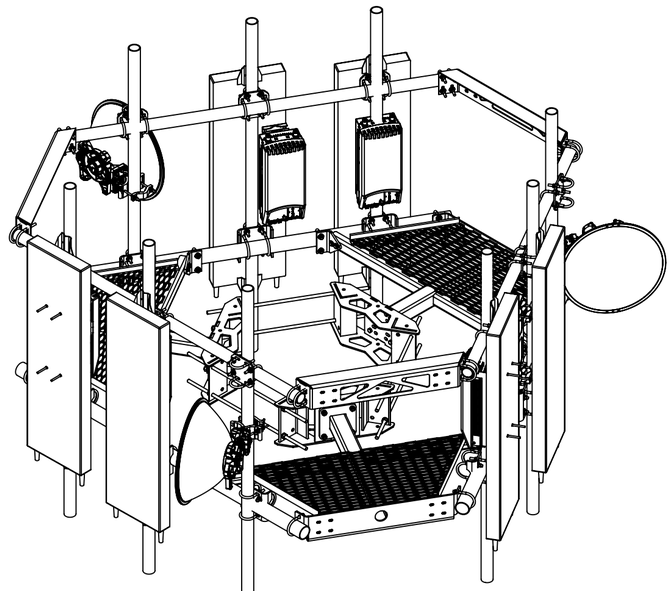
LOW PROFILE PLATFORM FACE

SIZE	SCALE	DOCUMENT NO.		
C	1:32	MC-PK8-DSH		
		DRAWING		SHEET
		VERSION	STATUS	REVISION
		00	AD	A

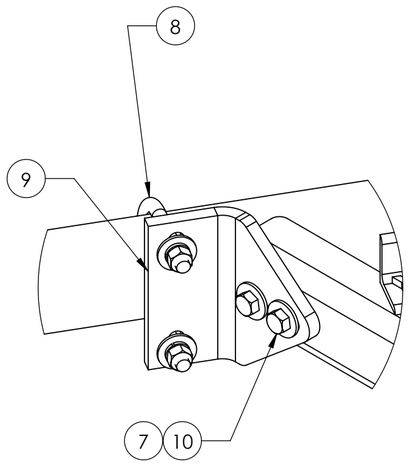
NOTES:



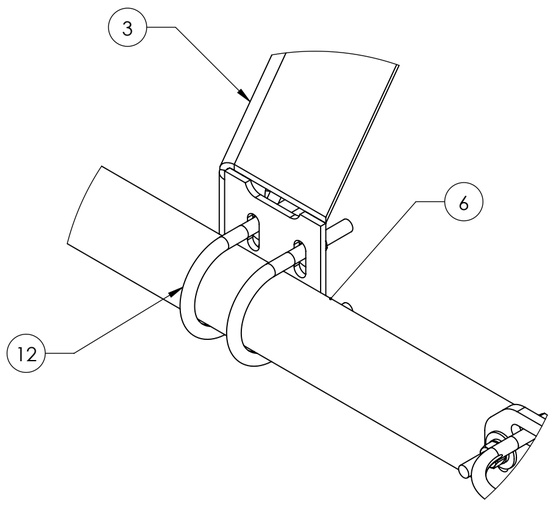
DETAIL A
SCALE 1 : 4



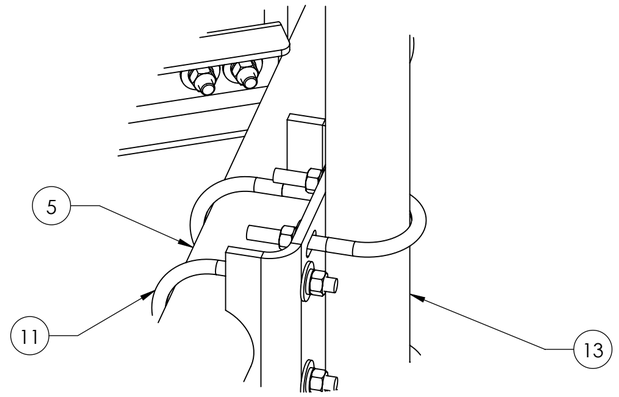
WITH ANTENNAS



DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 4

COMMSCOPE, INC. OF NORTH CAROLINA				
TITLE: LOW PROFILE PLATFORM FACE				
SIZE: C	SCALE: 1:24	DOCUMENT NO.: MC-PK8-DSH		
		DRAWING		SHEET
		VERSION: 00	STATUS: AD	REVISION: A
				3 OF 3

Exhibit F

Power Density/RF Emissions Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

Site ID: BOBDL00011C

575 Pleasant Valley Road
South Windsor, CT 06074

April 7, 2023

Fox Hill Telecom Project Number: 230299

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**4.38 %**

Fox Hill Telecom

April 7, 2023

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBDL00011C**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **575 Pleasant Valley Road, South Windsor, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the Dish Wireless antenna facility located at **575 Pleasant Valley Road, South Windsor, 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

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

S = Power Density (in μw/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	JMA MX08FRO665-21	130
B	1	JMA MX08FRO665-21	130
C	1	JMA MX08FRO665-21	130

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	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	2.20
						Sector A Composite MPE%	**2.20**
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	2.20
						Sector B Composite MPE%	**2.20**
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	2.20
						Sector C Composite MPE%	**2.20**

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	**2.20 %**
Town UHF (174')	0.85 %
Town UHF (140')	1.33 %
Site Total MPE %:	**4.38 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	2.20 %
Dish Sector B Total:	2.20 %
Dish Sector C Total:	2.20 %
Site Total:	4.38 %

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 ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Dish n71 (600 MHz) 5G	4	858.77	130	5.84	n71 (600 MHz)	400	1.46%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	130	3.70	n70 (AWS-4 / 1995-2020)	1000	0.37%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	130	3.70	n66 (AWS-4 / 2180-2200)	1000	0.37%
						Total:	**2.20 %**

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:	2.20 %
Sector B:	2.20 %
Sector C:	2.20 %
Dish Maximum Total (per sector):	2.20 %
Site Total:	4.38 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite emissions value for this site, assuming all carriers present, is **4.38 %** 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

06074

Michael Maniscalco, MPA
Town Manager

March 30, 2023

CONNECTICUT SITING COUNCIL

Melanie A. Bachman
Executive Director
Connecticut Sitting
Council
10 Franklin Square
New Britain, CT 06051

Re: Letter of Authorization

Project: Dish Wireless, LLC
Site ID: BOBDL00011C
575 Pleasant Valley Road
South Windsor CT 06074

Owner: The Town of South Windsor

Dear Mr. Regulbuto

The Town of South Windsor, owner of the tower facility located at the address identified above, does hereby authorize Dish Wireless LLC, and or its agent to use the authorization letter for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for the Dish Wireless, LLC installation.

Sincerely,

Michael Maniscalco, MPA
Town Manager

DISH SITE ID:_
TOWER OWNER SITE #:

TOWER	OWNER
Town of South Windsor *OWNER NAME*	*Town of South Windsor* *OWNER NAME*
575 Pleasant Valley Road, South Windsor CT 06074 *STREET ADDRESS*	*1540 Sullivan Avenue, South Windsor CT 06074* *STREET ADDRESS*
41.81455556 N (NAD 83) *72.601666676 W (NAD 83)* *LATITUDE & LONGITUDE*	South Windsor CT 06074 *CITY, STATE ZIP CODE*

National Environmental Policy Act/National Historic Preservation Act

1. Tower construction or redevelopment was completed:

   ____ on or before March 16, 2001 **or** __X__ after March 16, 2001

2. Owner states the above-referenced Tower has not been determined by the FCC to have an effect on one or more historic properties, or such effect has been found to be not adverse through a no adverse effect finding, or if found to be adverse or potentially adverse, has been resolved, such as through a conditional no adverse effect determination, a memorandum of agreement, a programmatic agreement, or is otherwise in compliance with Section 106 of the National Historic Preservation Act ("Section 106") and Subpart B of 36 CFR Part 800;

3. Owner states the above-referenced Tower is not the subject of a pending environmental review or related proceeding before the FCC involving compliance with Section 106 of the National Historic Preservation Act;

4. Owner has not received any written or electronic notification that the FCC is in receipt of a complaint from a member of the public, a State Historic Preservation Officer or the Council, that the proposed collocation has an adverse affect on one or more historic properties; and

5. If the Tower was constructed after March 16, 2001, the Section 106 review process for the Tower set forth in 36 CFR Part 800 and any associated environmental reviews required by the FCC have been completed.

The undersigned represents and warrants to DISH Wireless L.L.C. via signature below that the information contained herein is true and correct as of the date first set forth below, and DISH Wireless L.L.C. shall be entitled to rely upon the foregoing representation.

CERTIFIED BY TOWER OWNER:

Company: Town of South Windsor Name: Michael Maniscalco

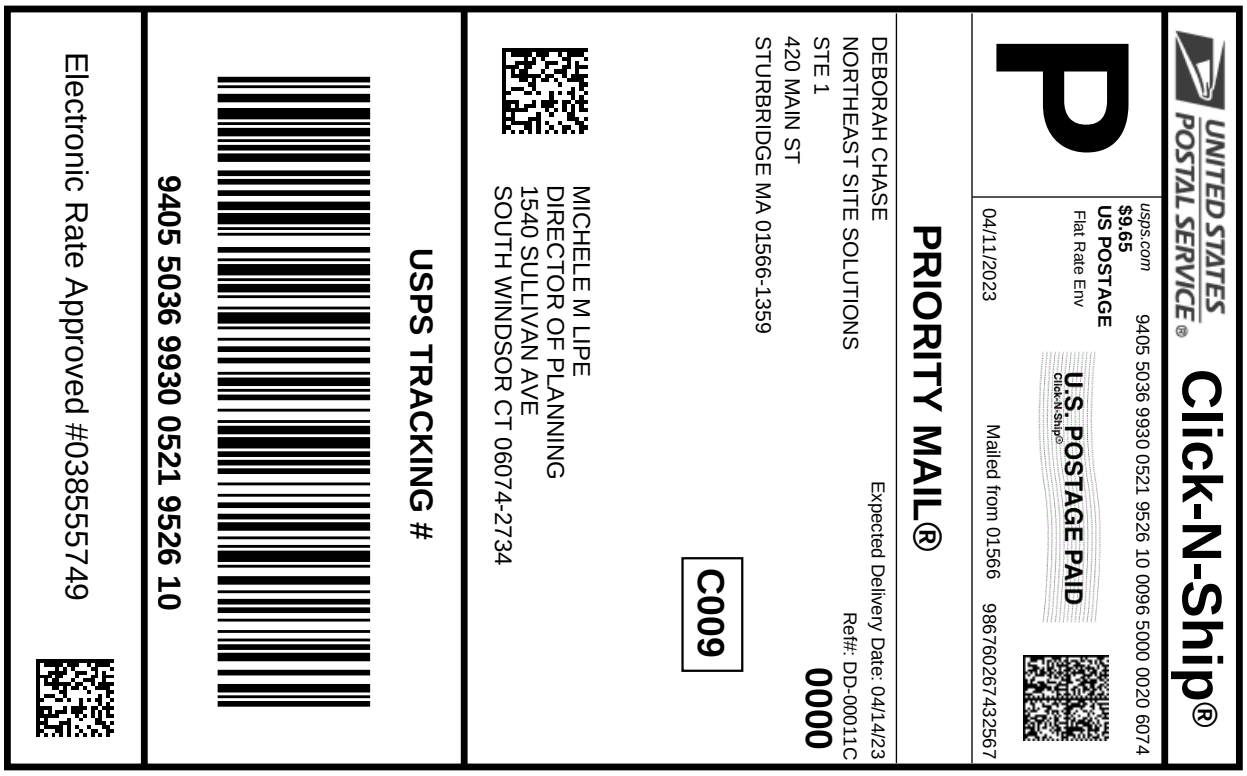
Title: Town Manager Phone: 860-644-2511 x 2200

Email Address: Michael.Maniscalco@southwindsor-ct.gov

Authorized Signature: _____ Date: March 30, 2023

Exhibit H

Recipient Mailings



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2. **Place your label so it does not wrap around the edge of the package.**
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USPS TRACKING # :
9405 5036 9930 0521 9526 10

Trans. #:	586404597
Print Date:	04/11/2023
Ship Date:	04/11/2023
Expected Delivery Date:	04/14/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

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

Ref#: DD-00011C

To: MICHELE M LIPE
DIRECTOR OF PLANNING
1540 SULLIVAN AVE
SOUTH WINDSOR CT 06074-2734

* 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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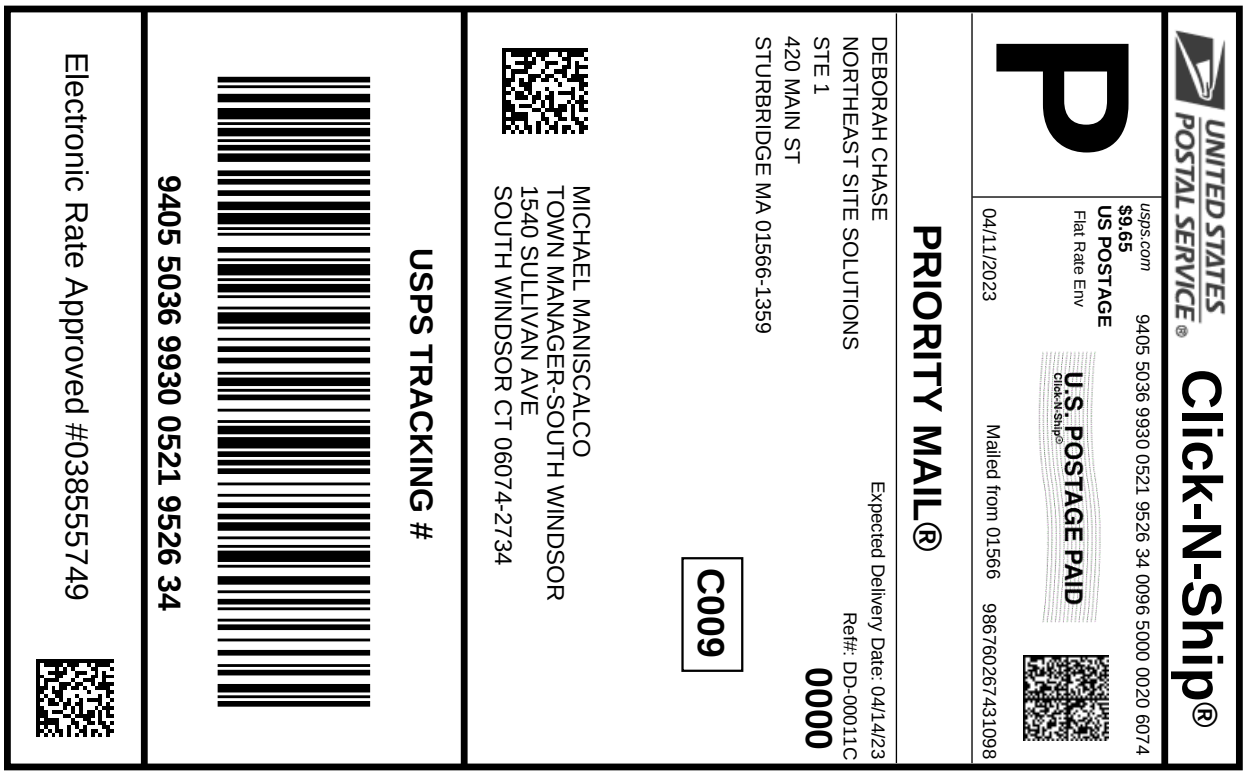

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0521 9526 34

Trans. #:	586404597
Print Date:	04/11/2023
Ship Date:	04/11/2023
Expected Delivery Date:	04/14/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

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

Ref#: DD-00011C

To: MICHAEL MANISCALCO
TOWN MANAGER-SOUTH WINDSOR
1540 SULLIVAN AVE
SOUTH WINDSOR CT 06074-2734

* 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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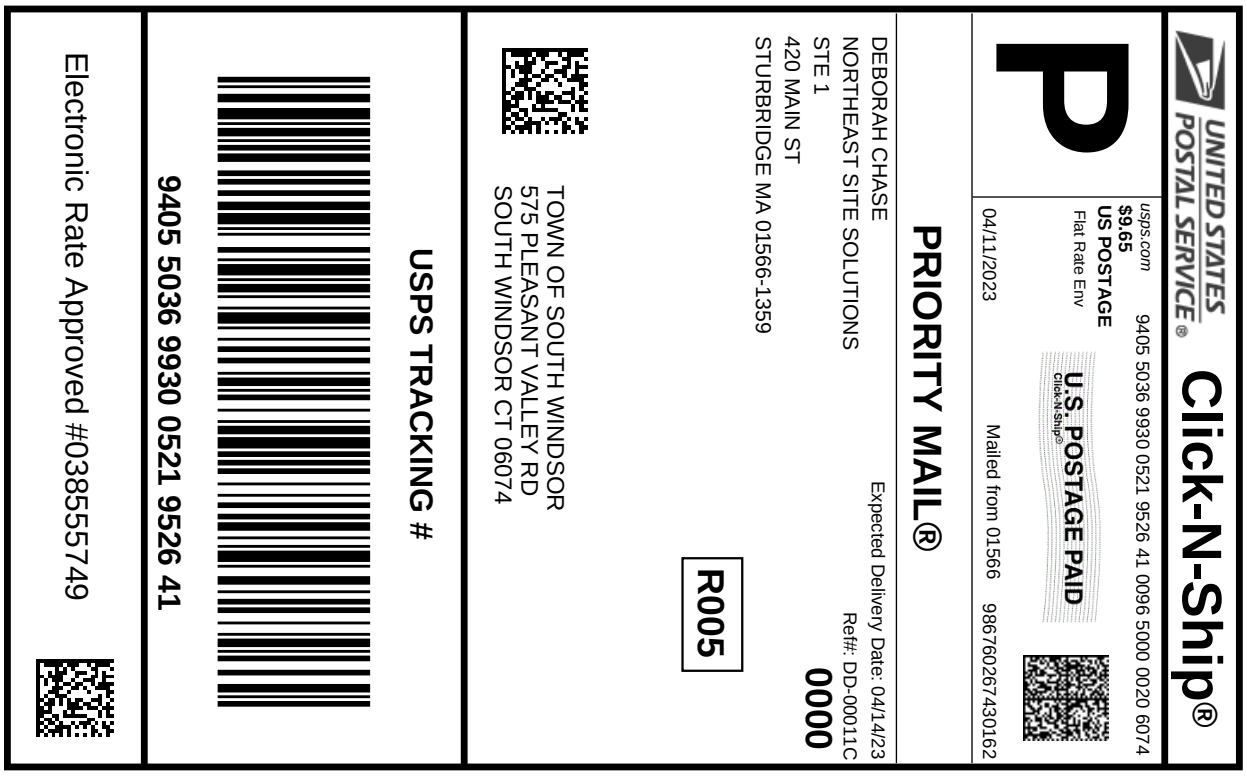

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0521 9526 41

Trans. #:	586404597
Print Date:	04/11/2023
Ship Date:	04/11/2023
Expected Delivery Date:	04/14/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

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

Ref#: DD-00011C

To: TOWN OF SOUTH WINDSOR
575 PLEASANT VALLEY RD
SOUTH WINDSOR CT 06074

* 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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BOBDL00011C - DISH

UNITED STATES POSTAL SERVICE.

FISKDALE
458 MAIN ST
FISKDALE, MA 01518-9998
(800)275-8777

04/12/2023 02:02 PM

Product	Qty	Unit Price	Price
Prepaid Mail South Windsor, CT 06074 Weight: 0 lb 15.10 oz Acceptance Date: Wed 04/12/2023 Tracking #: 9405 5036 9930 0521 9526 41	1		$0.00
Prepaid Mail South Windsor, CT 06074 Weight: 0 lb 15.10 oz Acceptance Date: Wed 04/12/2023 Tracking #: 9405 5036 9930 0521 9526 10	1		$0.00
Prepaid Mail South Windsor, CT 06074 Weight: 0 lb 15.20 oz Acceptance Date: Wed 04/12/2023 Tracking #: 9405 5036 9930 0521 9526 34	1		$0.00
Grand Total:			$0.00

Text your tracking number to 28777 (2USPS) to get the latest status. Standard Message and Data rates may apply. You may also visit www.usps.com USPS Tracking or call 1-800-222-1811.

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UFN: 242703-0518
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Clerk: 5