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

July 20, 2023

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

RE: Tower Share Application
69 Wheeler Street, New Haven, CT
Latitude: 41.296110 N
Longitude: 72.898661 W
Site#: BOHVN00189A

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 69 Wheeler Street, New Haven, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 5G MHz antenna and six (6) RRUs, at the 81-foot level of the existing 98-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within the 7x5 lease area. Included are plans by Infinigy, dated July 20, 2023, Exhibit C. Also included is a structural analysis prepared by Infinigy, dated December 6, 2022, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Connecticut Siting Council, Petition No 753 on January 13, 2006. 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 Justin M. Elicker, Mayor for the City of New Haven, Laura E. Brown, Executive Director, as well as the property owner Whitney Realty Enterprises and Landmark Dividend, 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 tower is 98-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 81-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 7.99% 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 tower such as this monopole in New Haven. 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 81-foot level of the existing 98-foot tower 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 tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through New Haven.

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:
Justin M. Elicker, Mayor
City of New Haven
165 Church St., 5th Floor.
New Haven, CT 06510

Laura E. Brown, Executive Director
City of New Haven
165 Church St., 5th Floor.
New Haven, CT 06510

Whitney Realty Enterprises LLC, Property Owner
51 Longhini Lane
New Haven, CT 06519

Landmark Dividend LLC, Tower Owners
400 N. Continental Blvd, Suite 500
EL Segundo, CA 90245

Exhibit A

Original Facility Approval

PETITION NO. 753 - Omnipoint Communications, Inc. (T-Mobile) petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction of a ten foot (10') extension to an existing wireless communication monopole located at 69 Wheeler Street, **New Haven**, Connecticut. **Staff Report.** **Approved 1/25/06.**

Petition No. 753
Omnipoint/T-Mobile
New Haven, Connecticut
Staff Report
January 13, 2006

T-Mobile is seeking approval to add a ten-foot extension onto an existing 88-foot tall monopole located at 69 Wheeler Street in New Haven.

Council member Gerry Heffernan and staff member David Martin conducted the field review for this petition. Christine Farrell and Bill Abbott represented T-Mobile.

The existing monopole is located on the side of an industrial building and has three carriers at centerline heights of 88, 78, and 68 feet. T-Mobile wants to install antennas on the pole to cover an existing gap along I-95 and the Q bridge. T-Mobile would need to add ten feet onto the existing pole to enable its antennas to achieve its coverage objectives. T-Mobile would install six antennas on a low-profile platform. With T-Mobile's antennas installed at the top of the ten-foot extension, the antennas would extend to an overall height of 101 feet AGL.

The pole's base plate would need to be reinforced to support the proposed extension. Engineering plans for the required reinforcement were submitted as part of the petition. T-Mobile's equipment and battery cabinets would fit inside an existing fenced compound.

Staff calculates that the power density of all four carriers on this monopole would equal 0.3802 mW/cm^2 or 55.12% of the FCC standard for Maximum Permissible Exposure.

The site is located in a heavily industrialized area of New Haven, two blocks north of I-95 and just east of the Quinnnipiac River. The addition of a ten-foot extension with antennas attached should have little discernable impact on the surrounding neighborhood.

Exhibit B

Property Card

69 WHEELER ST

Location	69 WHEELER ST	**Mblu**	077/ 0975/ 00200/ /
Acct#	077 0975 00200	**Owner**	WHITNEY REALTY ENTERPRISES LLC
Assessment	$359,870	**Appraisal**	$514,100
PID	3459	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$320,800	$193,300	$514,100
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$224,560	$135,310	$359,870

Owner of Record

Owner	WHITNEY REALTY ENTERPRISES LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	51 LONGHINI LANE NEW HAVEN, CT 06519	**Book & Page**	8954/0126
		Sale Date	03/01/2013
		Instrument	3

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
WHITNEY REALTY ENTERPRISES LLC	$0		8954/0126	3	03/01/2013
ELMER LAYDON SPRAY TRUST	$0		8826/0020	25	05/04/2012
LAYDON ELMER F & WILLIAM M	$0		2868/0345		09/11/1980

Building Information

Building 1 : Section 1

Year Built:	1920
Living Area:	8,816

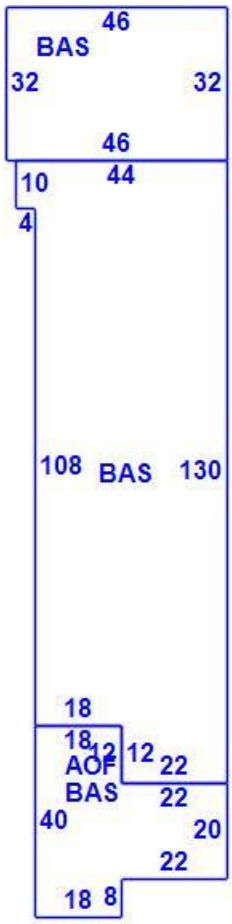
Replacement Cost: $491,411
Building Percent Good: 60
Replacement Cost Less Depreciation: $294,800

Building Attributes	
Field	**Description**
Style:	Warehouse
Model	Ind/Lg Com
Grade	Average
Stories:	2
Occupancy	1.00
Exterior Wall 1	Brick
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil/Gas
Heating Type	FA/HW/ST
AC Type	None
Struct Class	
Bldg Use	IND WHSES MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
NBHD Code	
1st Floor Use:	4010
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & MIN WL
Rooms/Prtns	AVERAGE
Wall Height	14.00
% Comn Wall	

Building Photo

(https://images.vgsi.com/photos/NewHavenCTPhotos/\00\05\09\06.jpg)

Building Layout



(ParcelSketch.ashx?

pid=3459&bid=18150)

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	7,656	7,656
AOF	Office	1,160	1,160
		8,816	8,816

Extra Features

Extra Features					Legend
Code	**Description**	**Size**	**Value**	**Assessed Value**	**Bldg #**
MEZ1	MEZZANINE-UNF	250.00 S.F.	$1,900	$1,330	1

Land

Land Use

Use Code	4010
Description	IND WHSES MDL-96
Zone	IH
Neighborhood	IND5
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.3
Frontage	1
Depth	0
Assessed Value	$135,310
Appraised Value	$193,300

Outbuildings

Outbuildings							Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Assessed Value**	**Bldg #**
PAV1	PAVING-ASPHALT			11760.00 S.F.	$24,100	$16,870	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$320,800	$193,300	$514,100
2021	$320,800	$193,300	$514,100
2020	$254,933	$130,100	$385,033

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$224,560	$135,310	$359,870
2021	$224,560	$135,310	$359,870
2020	$178,453	$91,070	$269,523

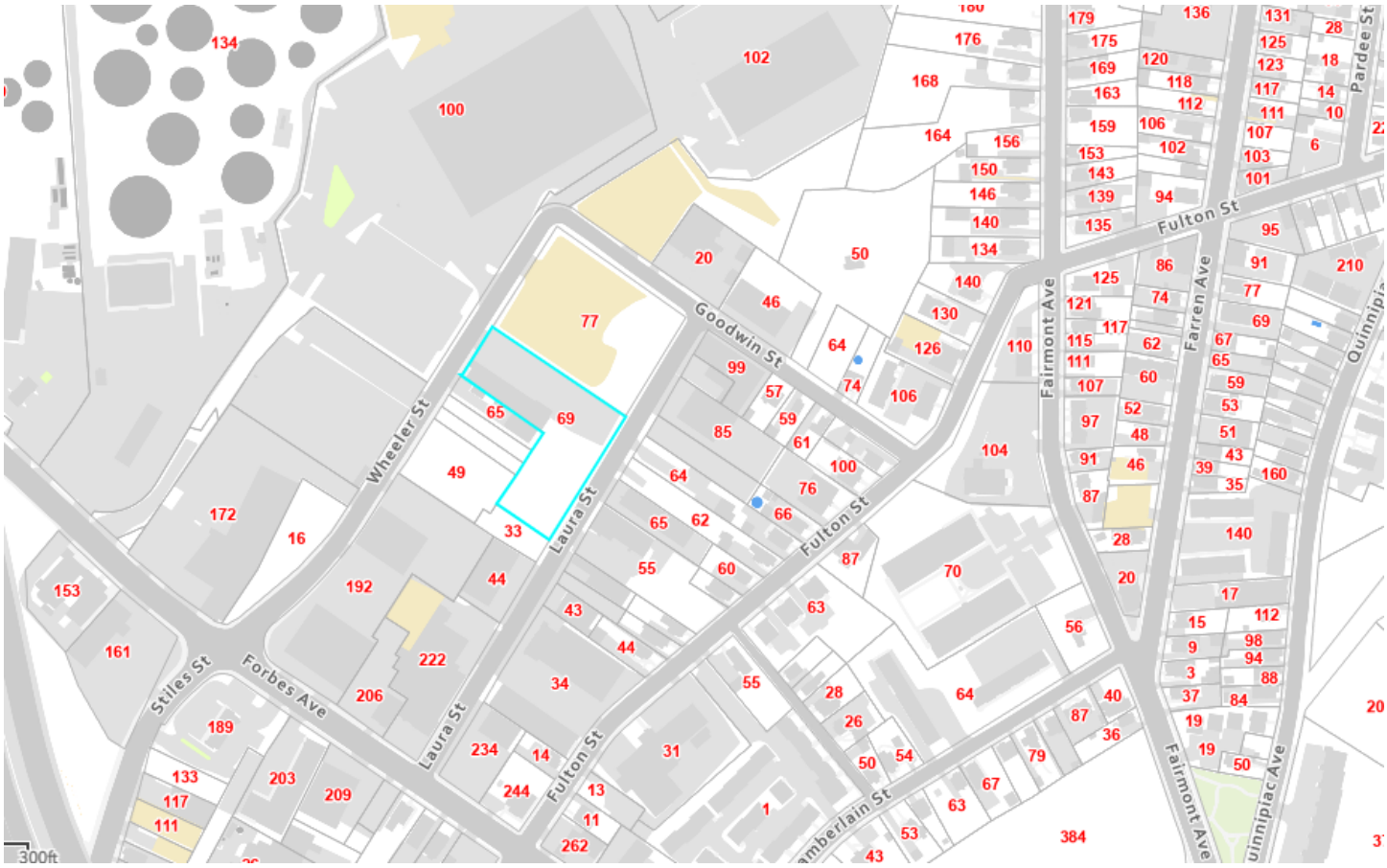

Goodwin St
Fulton St
Wheeler St
Laura St
Forbes Ave
Stiles St
Fairmont Ave
Farren Ave
Pardee St
Quinnipiac Ave
Chamberlain St
300ft

Exhibit C

Construction Drawings

DISH WIRELESS, LLC. SITE ID:

BOHVN00189A

DISH WIRELESS, LLC. SITE ADDRESS:

69 WHEELER STREET
NEW HAVEN, CT 06512

CONNECTICUT CODE OF COMPLIANCE

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

CODE TYPE	CODE
BUILDING	2022 STATE BUILDING CODE
MECHANICAL	2022 STATE BUILDING CODE
ELECTRICAL	2020 STATE BUILDING CODE

SHEET INDEX

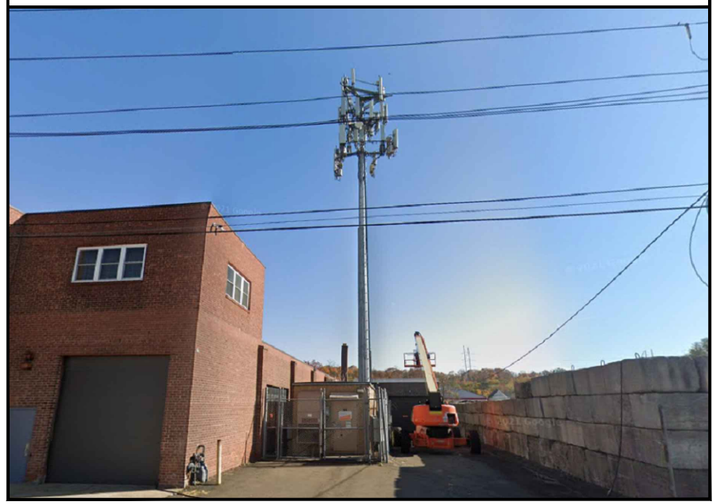
SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PARTS 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 PLATFORM
- 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
- UTILIZE (1) EXISTING POWER CONDUIT
- UTILIZE (1) EXISTING TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET
- INSTALL PROPOSED FENCE

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:	WHITNEY REALTY ENTERPRISES LLC
ADDRESS:	51 LONGHINI LANE NEW HAVEN, CT 06519
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	TC132451
TOWER APP NUMBER:	TBD
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41° 17' 45.48" N 41.295970 N
LONGITUDE (NAD 83):	72° 53' 52.55" W 72.897930 W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	IH
PARCEL NUMBER:	3459
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

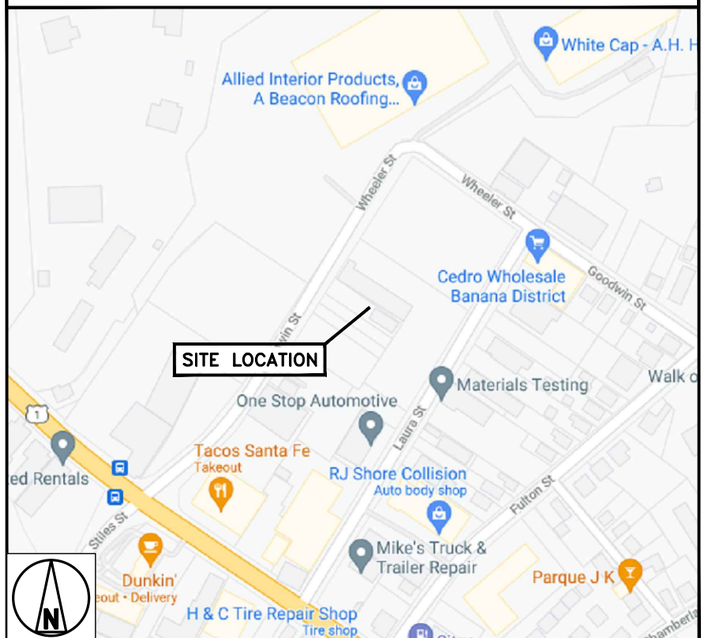
APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	LANDMARK DIVIDEND, LLC 400 N. CONTINENTAL BLVD, SUITE 500 EL SEGUNDO, CA 90245
SITE DESIGNER:	INFINIGY 500 WEST OFFICE CENTER DRIVE SUITE 150 FORT WASHINGTON, PA 19034
SITE ACQUISITION:	DAVID GOODFELLOW DAVID.GOODFELLOW@DISH.COM
CONSTRUCTION MANAGER:	CHAD WILCOX CHAD.WILCOX@DISH.COM
RF ENGINEER:	DIPESH PARIKH DIPESH.PARIKH@DISH.COM

DIRECTIONS

DIRECTIONS FROM TWEED NEW HAVEN AIRPORT:

DEPART AND HEAD (NORTHEAST), TURN LEFT, AVIS RENT A CAR ON THE CORNER, TURN RIGHT, TURN RIGHT TOWARD FORT HALE RD, BUDGET CAR RENTAL ON THE CORNER, KEEP STRAIGHT TO GET ONTO FORT HALE RD, TURN RIGHT ONTO CT-337 / TOWNSEND AVE, TURN LEFT ONTO US-1 S / FORBES AVE, TURN RIGHT ONTO WHEELER ST, ARRIVE AT 69 WHEELER STREET, NEW HAVEN, CT 06512

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
7/20/23
LICENSED
PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

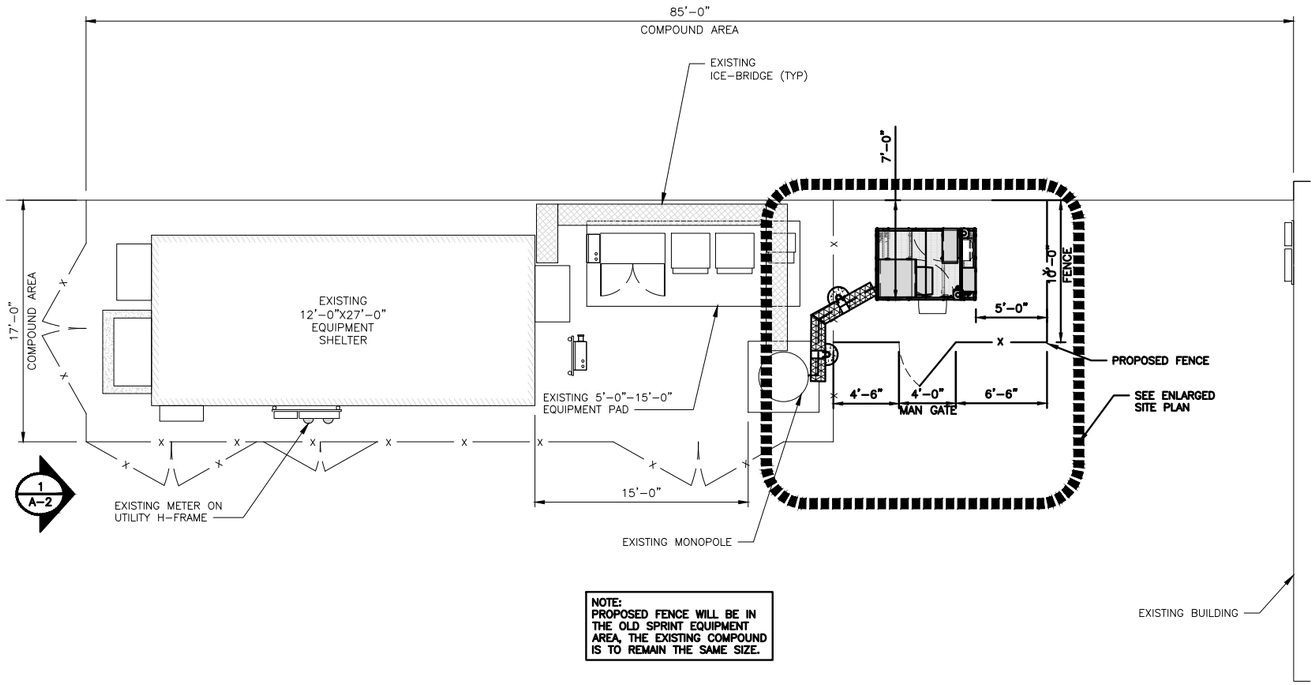
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

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

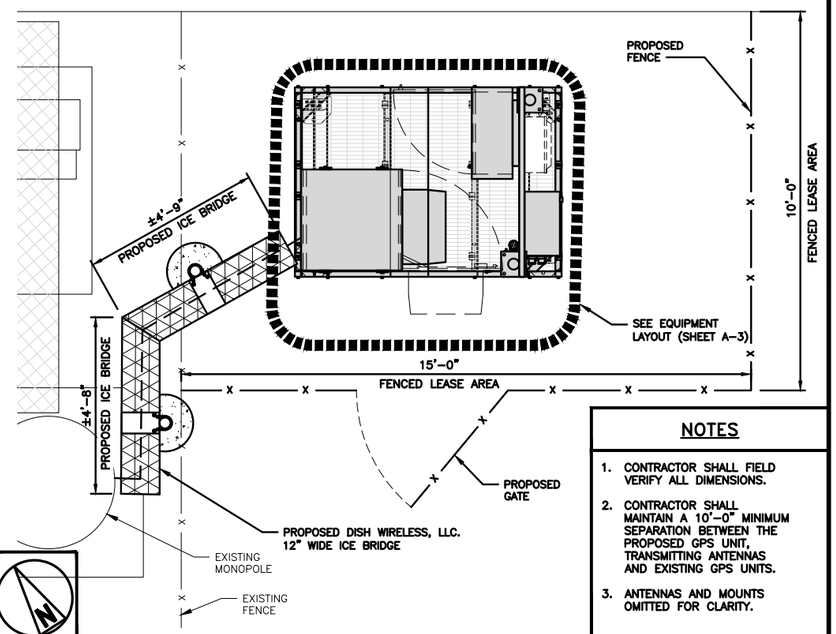


NOTE:
PROPOSED FENCE WILL BE IN THE OLD SPRINT EQUIPMENT AREA, THE EXISTING COMPOUND IS TO REMAIN THE SAME SIZE.

COMPOUND PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1



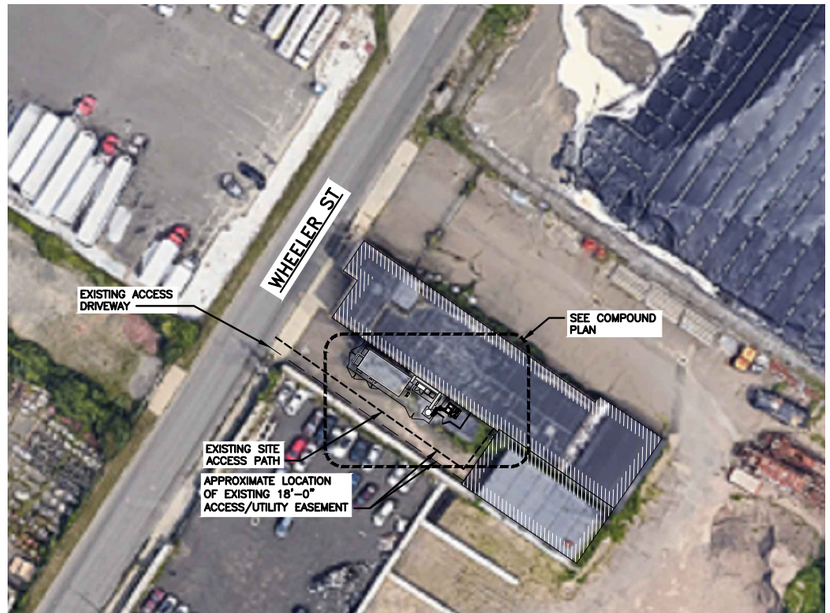
NOTES

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

40' 20' 0 40' 80'
1"=40'

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
7/20/23
LICENSED
PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION

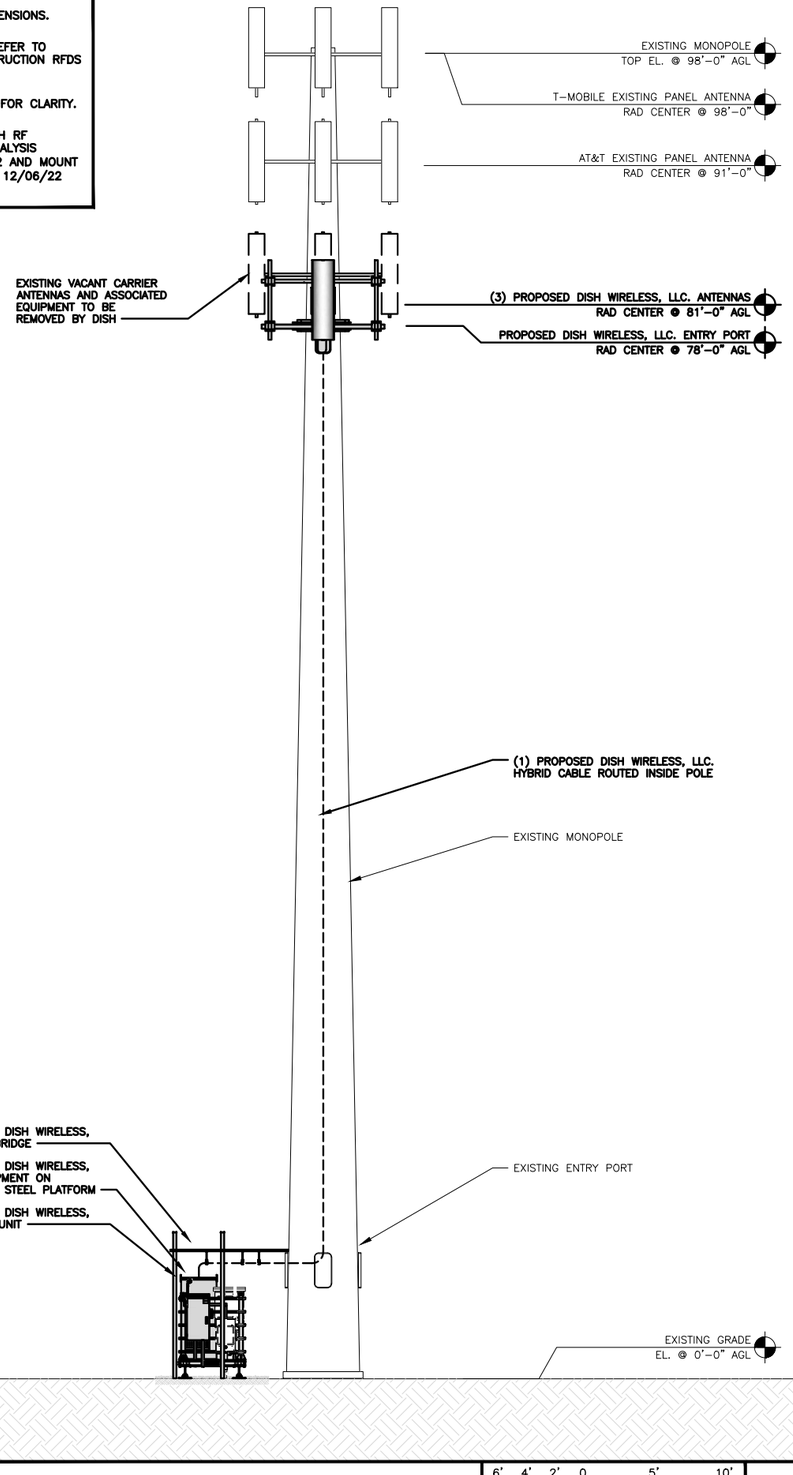
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

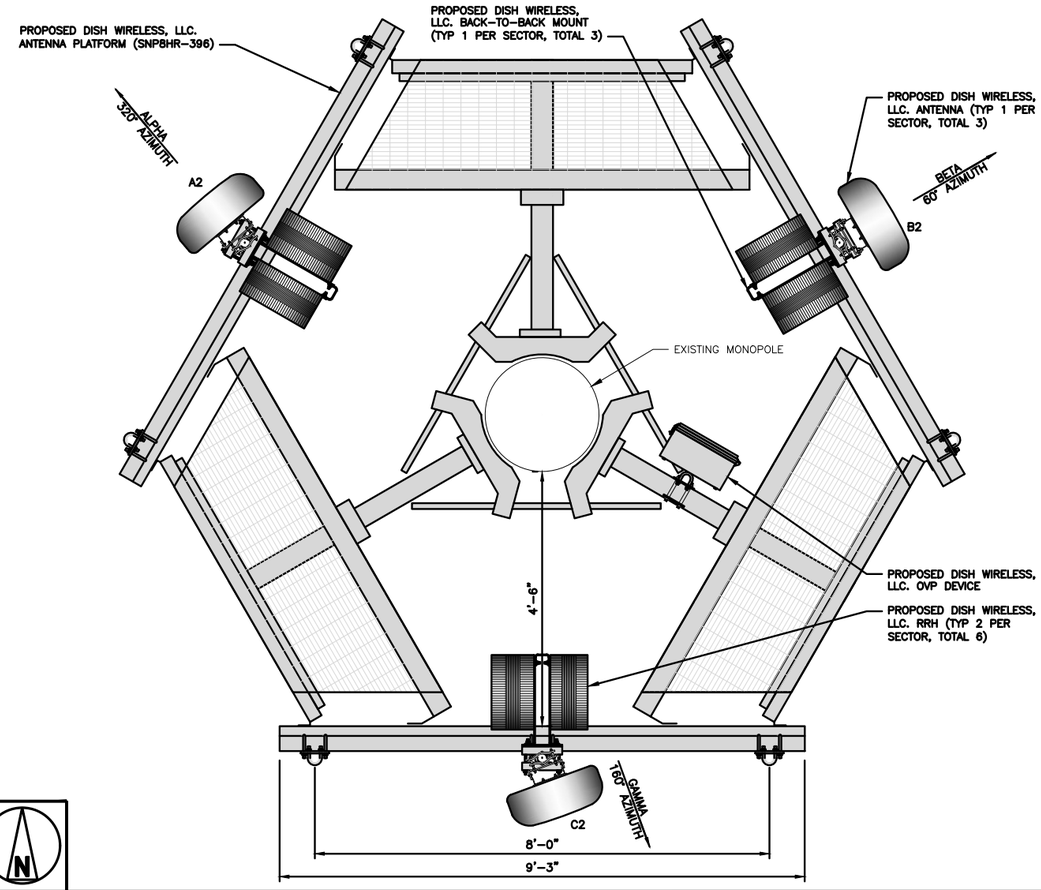
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. CONTRACTOR TO COORDINATE LOADING WITH RF ENGINEER, AND REFER TO STRUCTURAL ANALYSIS PERFORMED BY INFINIGY, DATED 12/07/22 AND MOUNT ANALYSIS PERFORMED BY INFINIGY, DATED 12/06/22 PRIOR TO CONSTRUCTION.



PROPOSED NORTHWEST ELEVATION

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	320°	81'-0"	(1) HIGH-CAPACITY HYBRID CABLE (130 FT APPROX.)
BETA	B2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	60°	81'-0"	
GAMMA	C2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	160°	81'-0"	

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR 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.

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A2	FUJITSU – TA08025-B604	5G
	A2	FUJITSU – TA08025-B605	5G
BETA	B2	FUJITSU – TA08025-B604	5G
	B2	FUJITSU – TA08025-B605	5G
GAMMA	C2	FUJITSU – TA08025-B604	5G
	C2	FUJITSU – TA08025-B605	5G

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

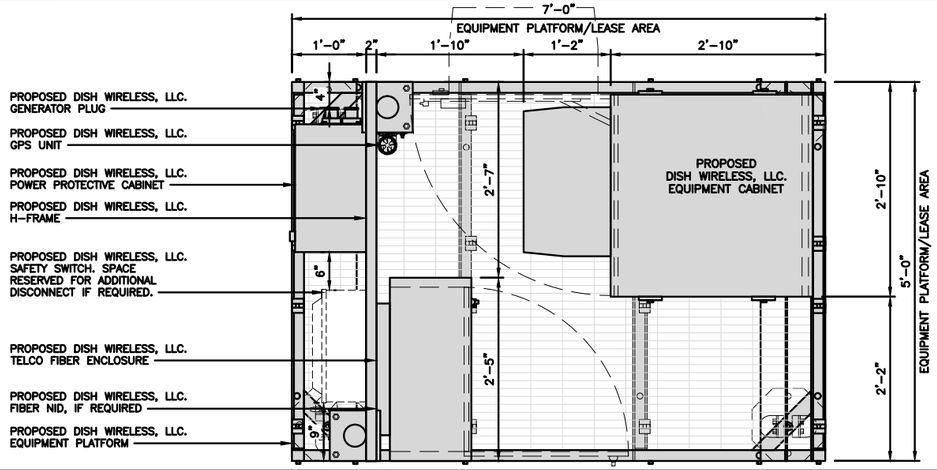
REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

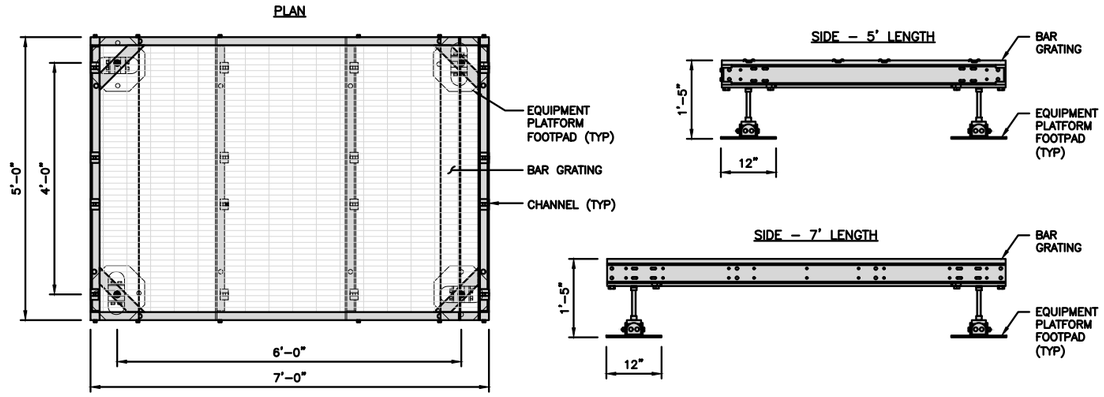


PLATFORM EQUIPMENT PLAN

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

1

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

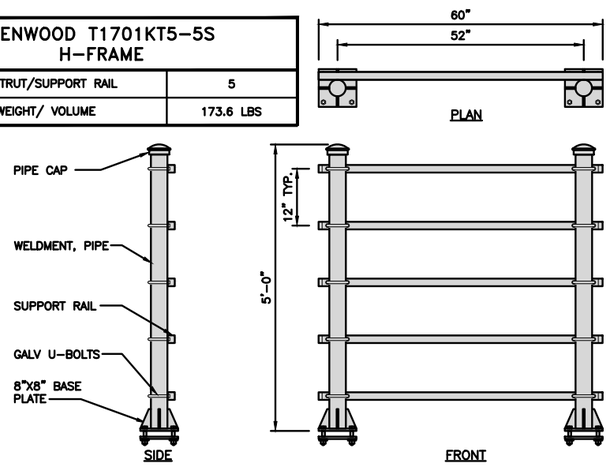


PLATFORM DETAIL

NO SCALE

2

KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS



H-FRAME DETAIL

NO SCALE

3

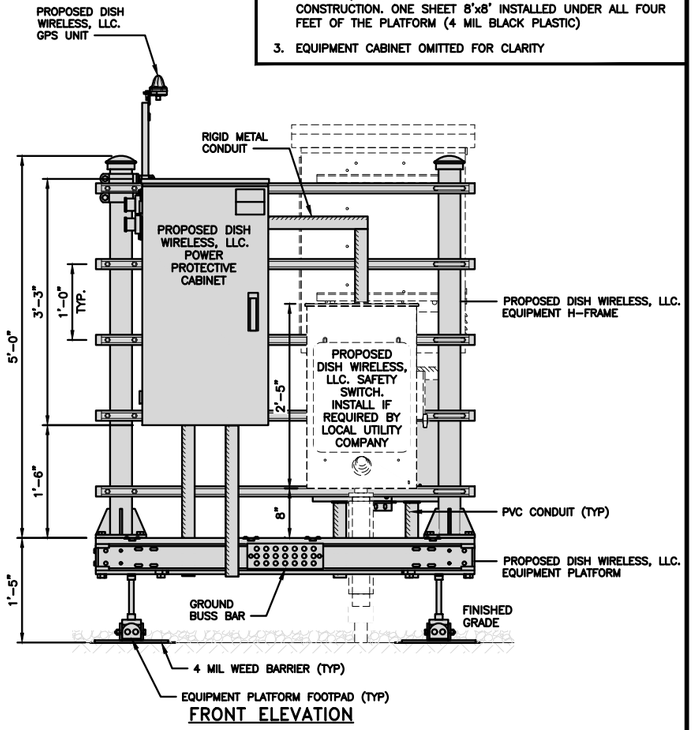
NOT USED

NO SCALE

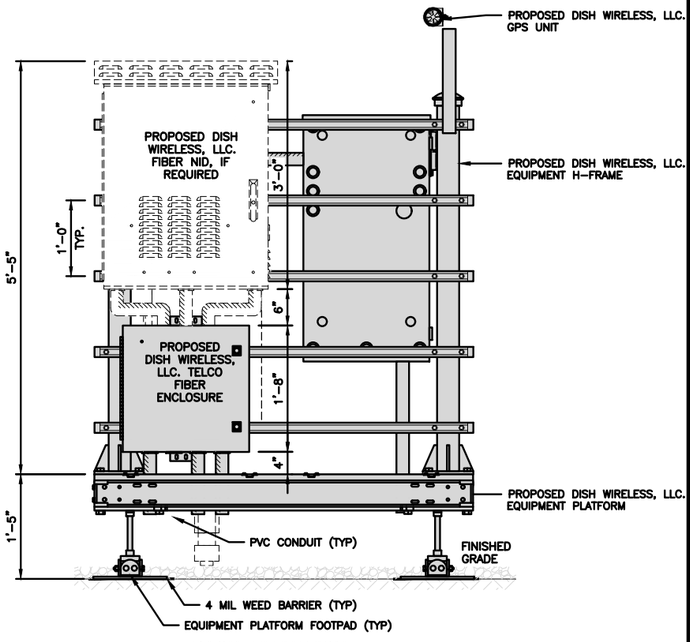
4

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, LLC. 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

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

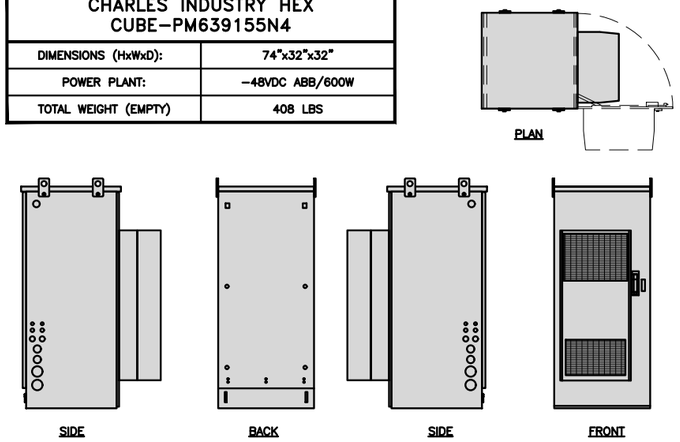
A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

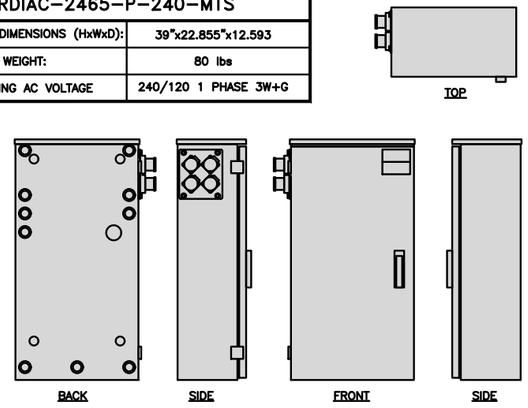
SHEET NUMBER
A-3

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



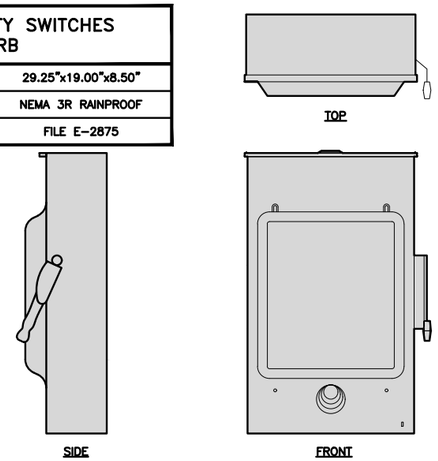
CABINET DETAIL | NO SCALE | 1

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



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

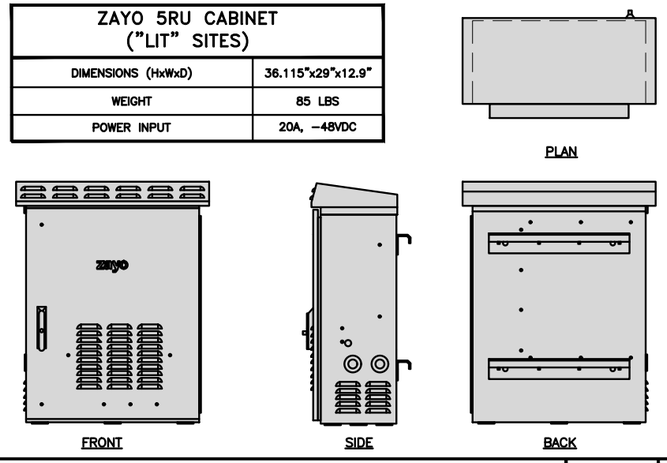
SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E–2875



SAFETY SWITCH DETAIL | NO SCALE | 3

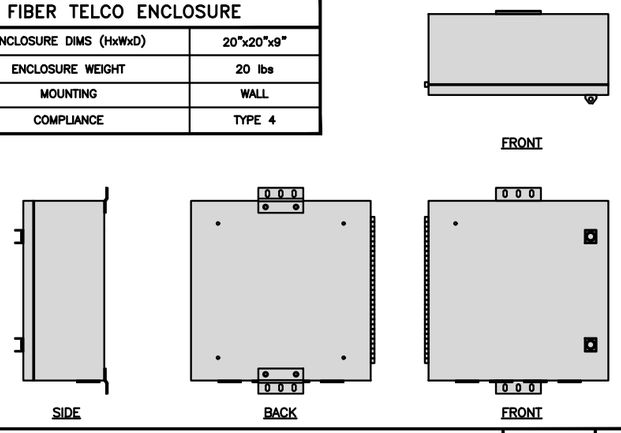
NOT USED | NO SCALE | 4

ZAYO 5RU CABINET ("LIT" SITES)	
DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, –48VDC



NETWORK INTERFACE UNIT DETAIL | NO SCALE | 5

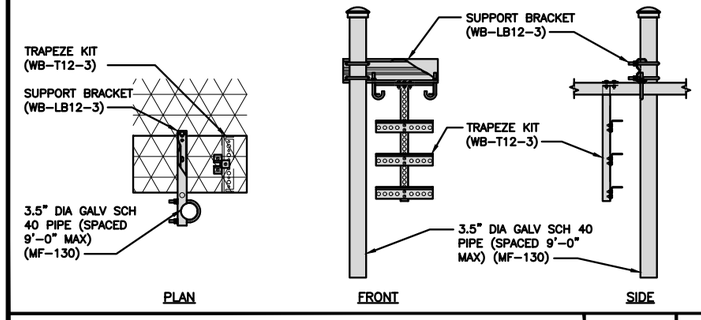
CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



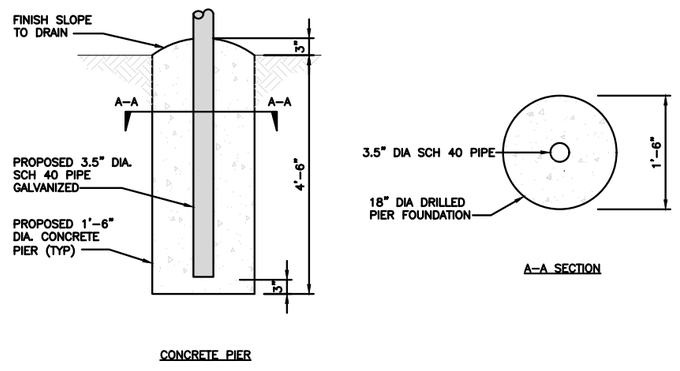
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

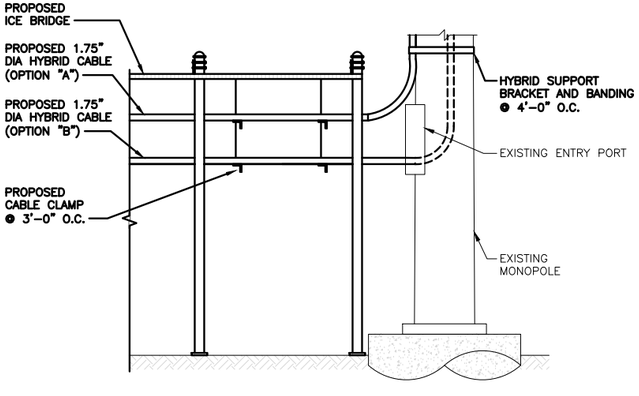
INCLUDED PRODUCTS:	WB–T12–3 TRAPEZE KIT, 3 RUNGS
	WB–LB12–3 SUPPORT BRACKET
	MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

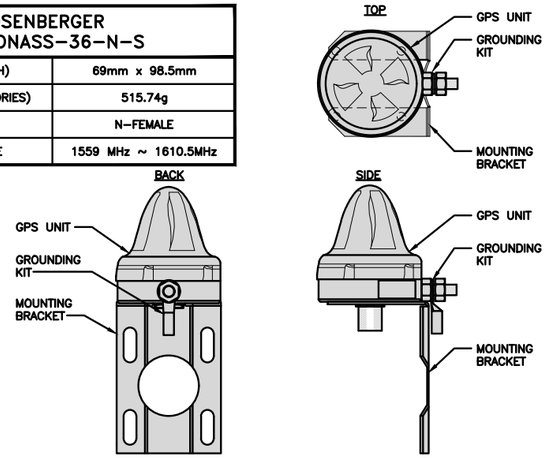
A&E PROJECT NUMBER
1197–F0001–C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

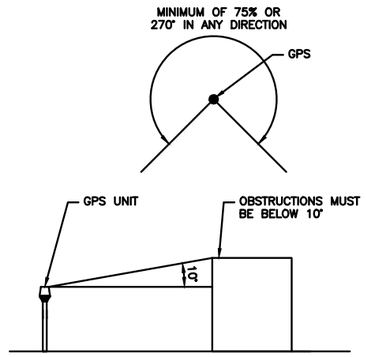
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

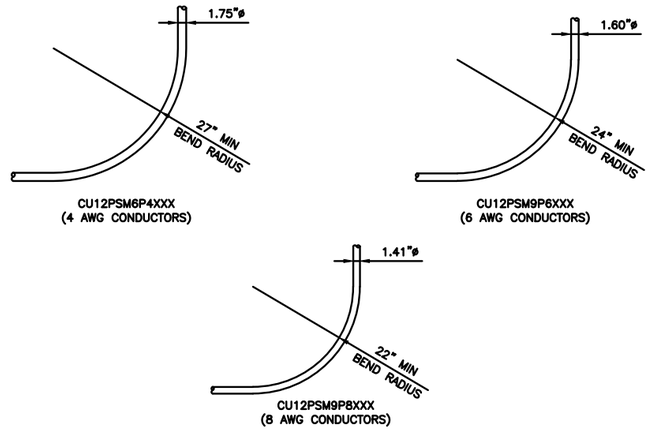
ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA 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

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

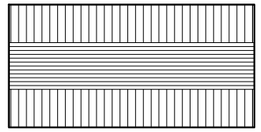
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
EQUIPMENT DETAILS

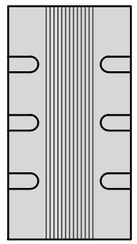
SHEET NUMBER
A-5

FUJITSU TA08025-B604 RRH

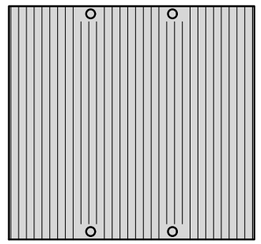
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

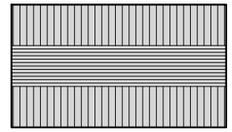
NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

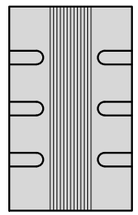
REMOTE RADIO HEAD DETAIL | NO SCALE | 1

FUJITSU TA08025-B605 RRH

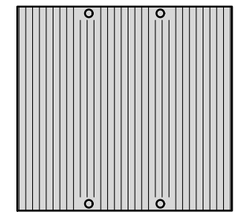
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

NOTES

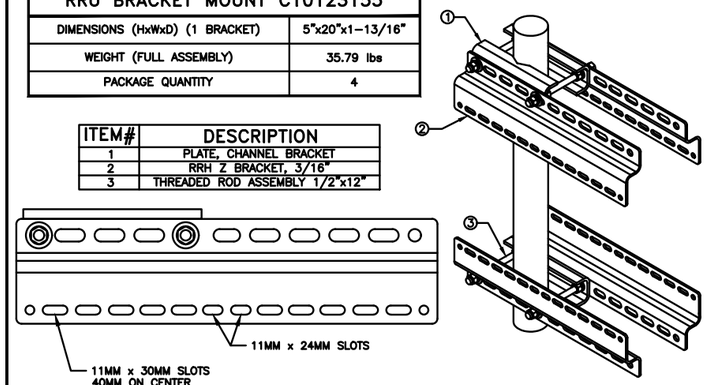
FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 2

SABRE INDUSTRIES RRU BRACKET MOUNT C10123155

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

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

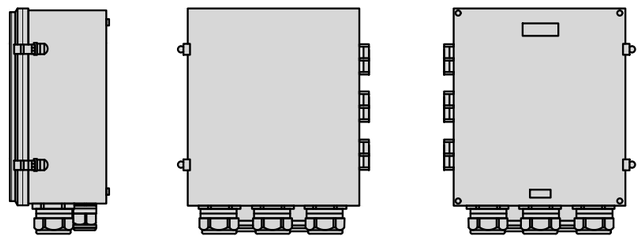


REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION

DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS

PLAN



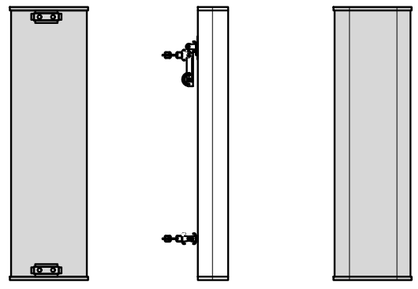
SIDE BACK FRONT

SURGE SUPPRESSION DETAIL | NO SCALE | 4

JMA WIRELESS MX08FRO665-21 ANTENNA

DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	54 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

PLAN



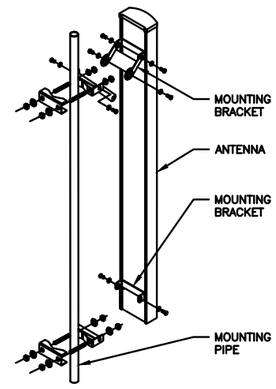
NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

ANTENNA DETAIL | NO SCALE | 5

JMA MOUNTING BRACKET

WIDTH	5"
DEPTH	2"
HEIGHT	8"
TOTAL WEIGHT	1.5 lbs
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1x8-PIN DAISY CHAIN

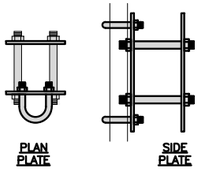


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA MOUNTING DETAIL | NO SCALE | 6

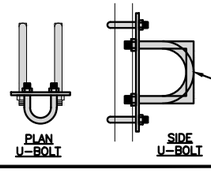
COMMSCOPE XP-2040 CROSSOVER PLATE

DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



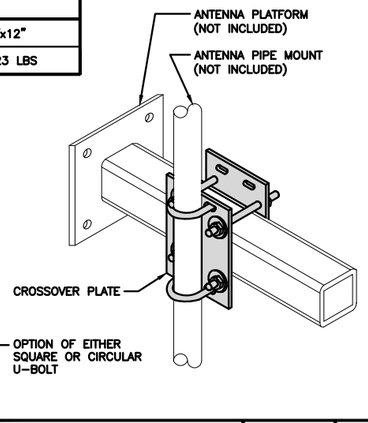
PLAN PLATE

SIDE PLATE



PLAN U-BOLT

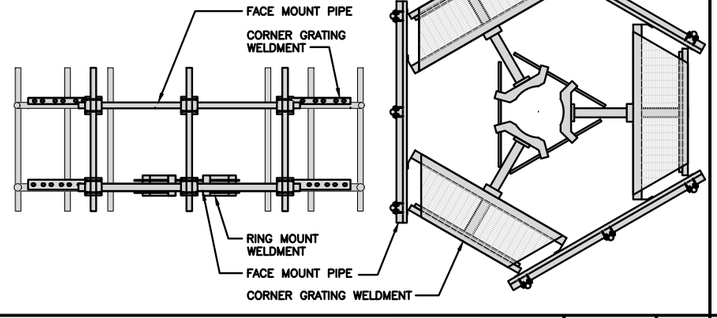
SIDE U-BOLT



RRH/OVP MOUNT DETAIL | NO SCALE | 7

SITEPRO1 SNP8HR-396 SNUB-NOSE PLATFORM

FACE SIZE	8'-0""
WEIGHT	1786.28 LB
ANTENNA PIPE MOUNTS	(6) 2-3/8" O.D.



ANTENNA PLATFORM DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

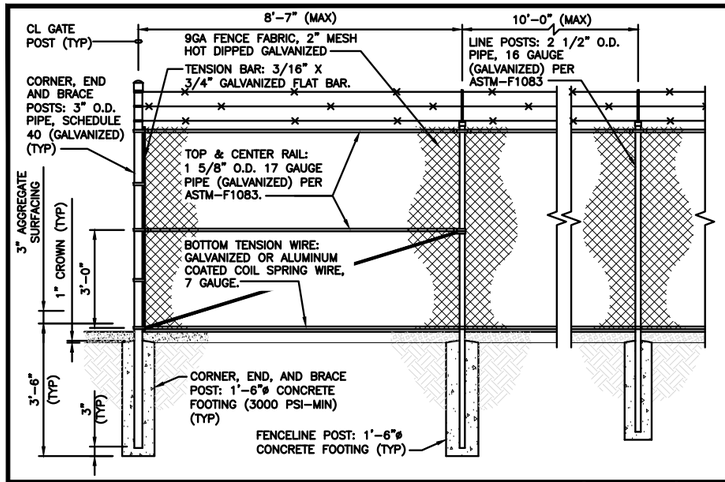
REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

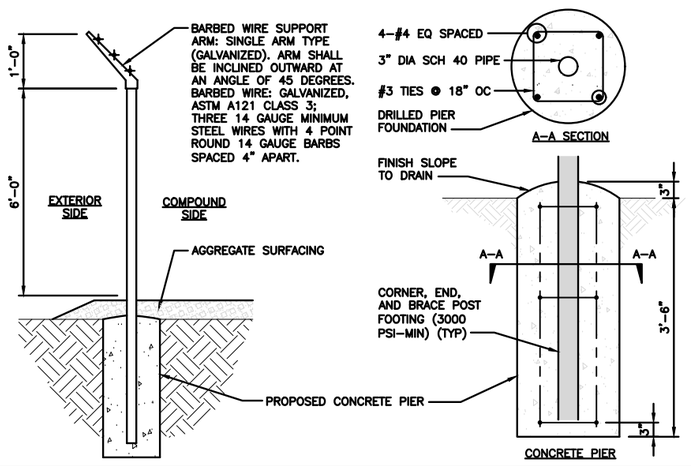
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



TYPICAL FENCE DETAIL | NO SCALE | 1



TYPICAL FENCE & CONCRETE PIER SECTION | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

MATERIAL DESCRIPTION | NO SCALE | 8

1. LINE POSTS: PIPE 2 1/2" STD (GALVANIZED) PER ASTM-F1083.
2. CORNER, END AND BRACE POSTS: 3" O.D. PIPE, SCHEDULE 40 (GALVANIZED).
3. TOP RAIL: PIPE 1 1/2" STD (GALVANIZED) PER ASTM-F1083.
4. BRACE RAIL: PIPE 1 1/2" STD (GALVANIZED).
5. DIAGONAL TRUSS ROD: 3/8" GALVANIZED ROD WITH TURNBUCKLE.
6. TENSION BAR: 3/16" X 3/4" GALVANIZED FLAT BAR.
7. BOTTOM TENSION WIRE: GALVANIZED OR ALUMINUM COATED COIL SPRING WIRE, 7 GAUGE.
8. GATE POSTS: PIPE 3" STD (GALVANIZED).
9. COMBINATION PADLOCK ACCORDING TO DISH WIRELESS REQUIREMENTS.
10. GATE FRAMES: PIPE 2" STD (GALVANIZED).
11. BARBED WIRE SUPPORT ARM: SINGLE ARM TYPE (GALVANIZED). ARM SHALL BE INCLINED OUTWARD AT AN ANGLE OF 45 DEGREES.
12. BARBED WIRE: GALVANIZED, ASTM A121 CLASS 3; THREE 14 GAUGE MINIMUM STEEL WIRES WITH 4 POINT ROUND 14 GAUGE BARBS SPACED 4" APART.
13. 9GA FENCE FABRIC, 2" MESH HOT DIPPED GALVANIZED
14. MISCELLANEOUS:
    - A. RAIL COUPLINGS: SLEEVE TYPE, 6" LONG EXPANSION SPRING EVERY FIFTH COUPLING.
    - B. POST TOPS: PRESSED STEEL, MALLEABLE IRON WITH PRESSED STEEL EXTENSION ARM, OR ONE-PIECE ALUMINUM CASTING; WITH HOLE FOR TOP, ALL DESIGNED TO FIT OVER THE OUTSIDE OF THE POSTS AND TO PREVENT ENTRY OF MOISTURE INTO TUBULAR POSTS.
    - C. LATCHES SHALL BE FORKED TYPE AND SHALL BE ARRANGED FOR PADLOCKING WITH THE PADLOCK ACCESSIBLE FROM BOTH SIDES OF THE GATE.
    - D. KEEPERS SHALL CONSIST OF MECHANICAL DEVICES FOR SECURING AND SUPPORTING THE FREE END OF THE GATES WHEN IN THE FULL OPEN POSITION. KEEPERS SHALL BE MOUNTED ON 2 7/8" O.D. PIPE POSTS FILLED WITH CONCRETE AND SET IN CONCRETE FOUNDATIONS.
    - E. INSTALL FENCING PER ASTM-F567.
    - F. INSTALL SWING GATES PER ASTM-F900. GATE FRAMES SHALL BE WELDED.
    - G. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLETED IF REQUIRED.
    - H. USE GALVANIZED HOG RING WIRE TO MOUNT ALL SIGNS.
    - I. ALL SIGNS MUST BE MOUNTED ON INSIDE OF FENCE.

NOTE:
PROPOSED FENCE WILL BE IN THE OLD SPRINT EQUIPMENT AREA, THE EXISTING COMPOUND IS TO REMAIN THE SAME SIZE.

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

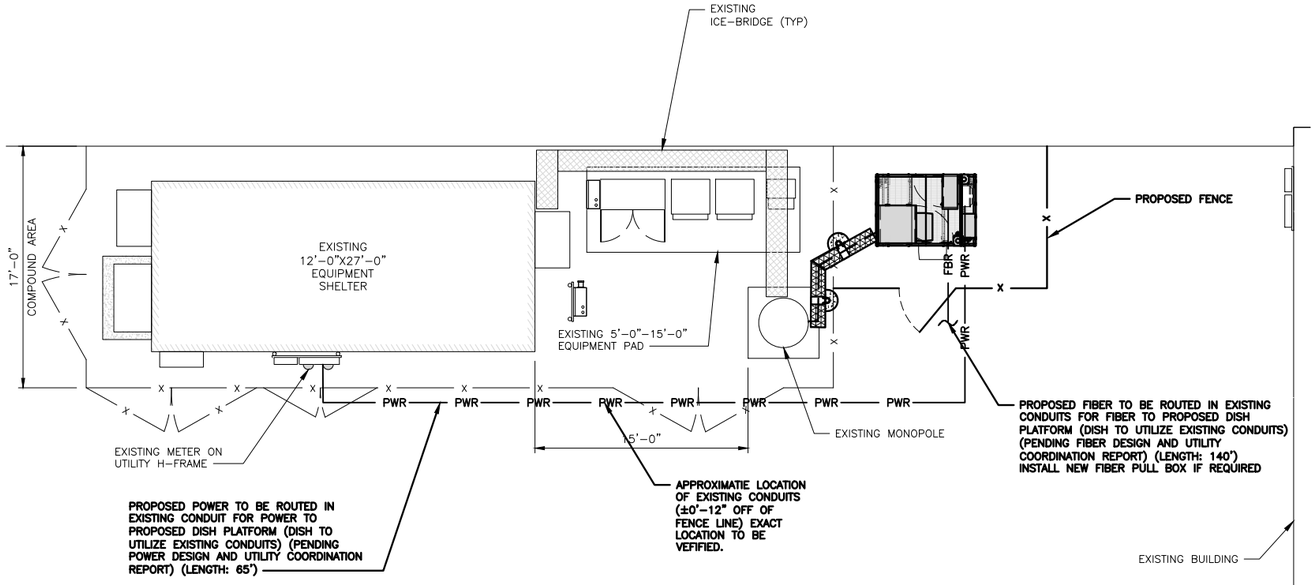
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
FENCING DETAILS

SHEET NUMBER
A-7

NOTES

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



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

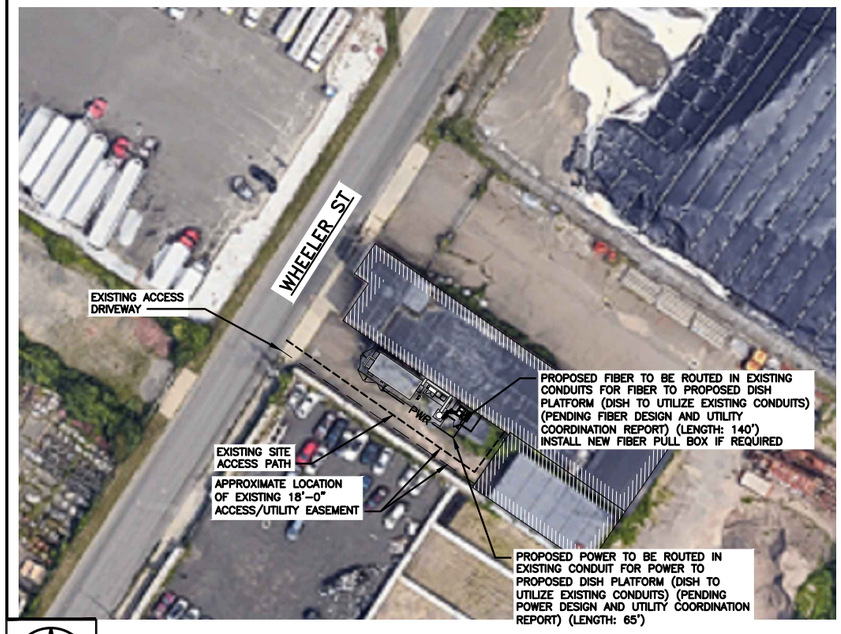
1

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. FIBER ROUTE IS PRELIMINARY, FINAL FIBER ROUTE TO BE DETERMINED ONCE UCR (UTILITY COORDINATION REPORT) HAS BEEN FINALIZED.

ELECTRICAL NOTES

2



OVERALL UTILITY ROUTE PLAN

40' 20' 0 40' 80'
1"=40'

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

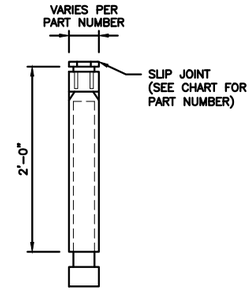
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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"

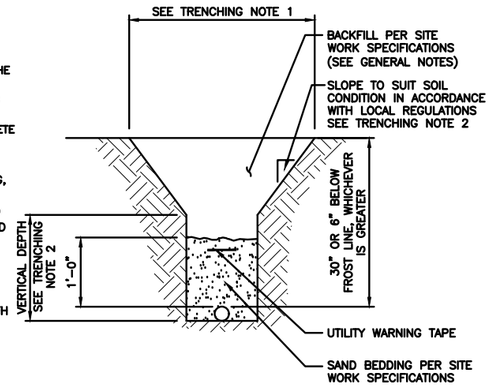


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

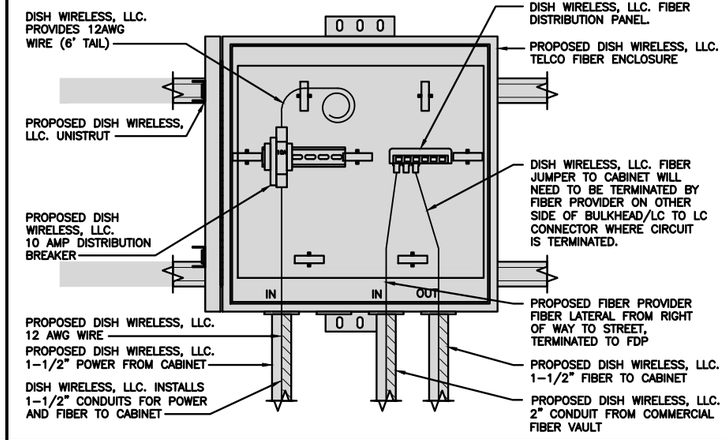
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

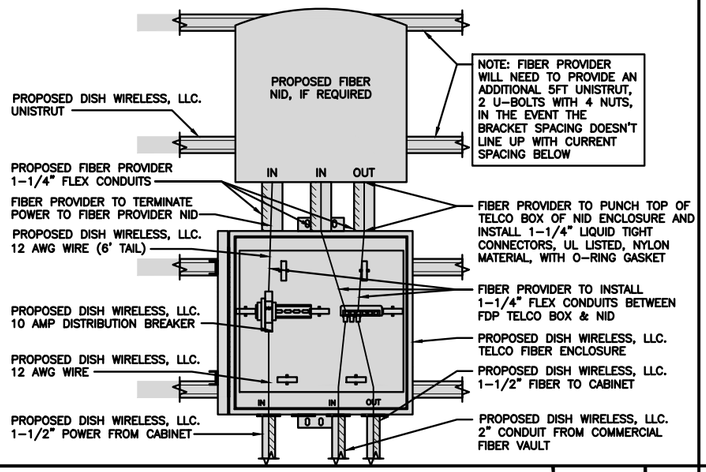
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

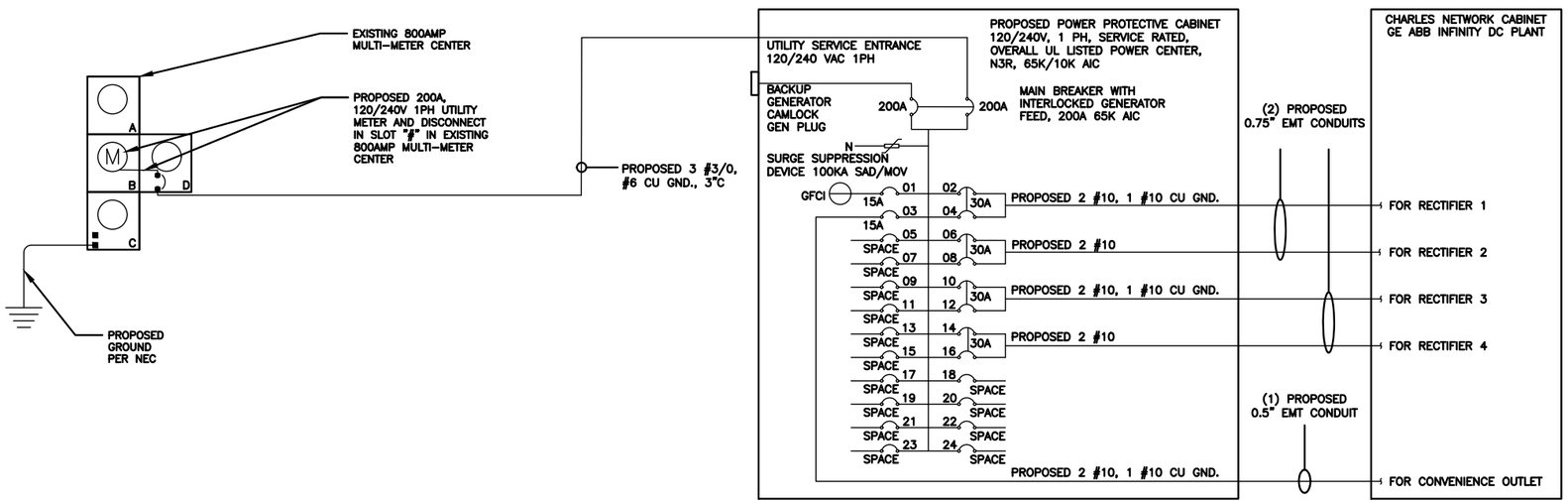
REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
ELECTRICAL/FIBER 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: (OR EQUIVALENT MANUFACTURER)
(4) 30A, 2P BREAKER – SQUARE D P/N:QO230
(1) 15A, 1P BREAKER – SQUARE D P/N:QO115
(1) 20A, 1P BREAKER – SQUARE D P/N:QO120

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.

(1) OPTIONAL ALUMINUM SERVICE CONDUCTOR:
- 4/0 AL + #2 GRD MAY BE USED INSTEAD OF 3/0 CU + #6 GRD IF THE TOTAL LENGTH OF THE CONDUCTOR IS LESS THAN 300 FT FROM THE TRANSFORMER.
- ALUMINUM CONDUCTORS MUST BE 90°C TO CARRY THE FULL 200A LOAD REQUIRED
- ALUMINUM TO COPPER BUSS CONNECTIONS MUST MEET AND CONFORM TO ANSI AND BE UL LISTED. USE ANTI CORROSION CONDUCTIVE LUBRICANT ON CONNECTIONS

(CHARLES ABB GE INFINITY DC PLANT) WITH MULTI-METER CENTER 120V240V 1PH SOURCE — NO SCALE — 1

PROPOSED CHARLES PANEL SCHEDULE
GE ABB INFINITY DC PLANT

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
(CHARLES ABB GE INFINITY DC PLANT) WITH MULTI-METER CENTER 120V240V 1PH SOURCE — NO SCALE — 2

NOT USED — NO SCALE — 4

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

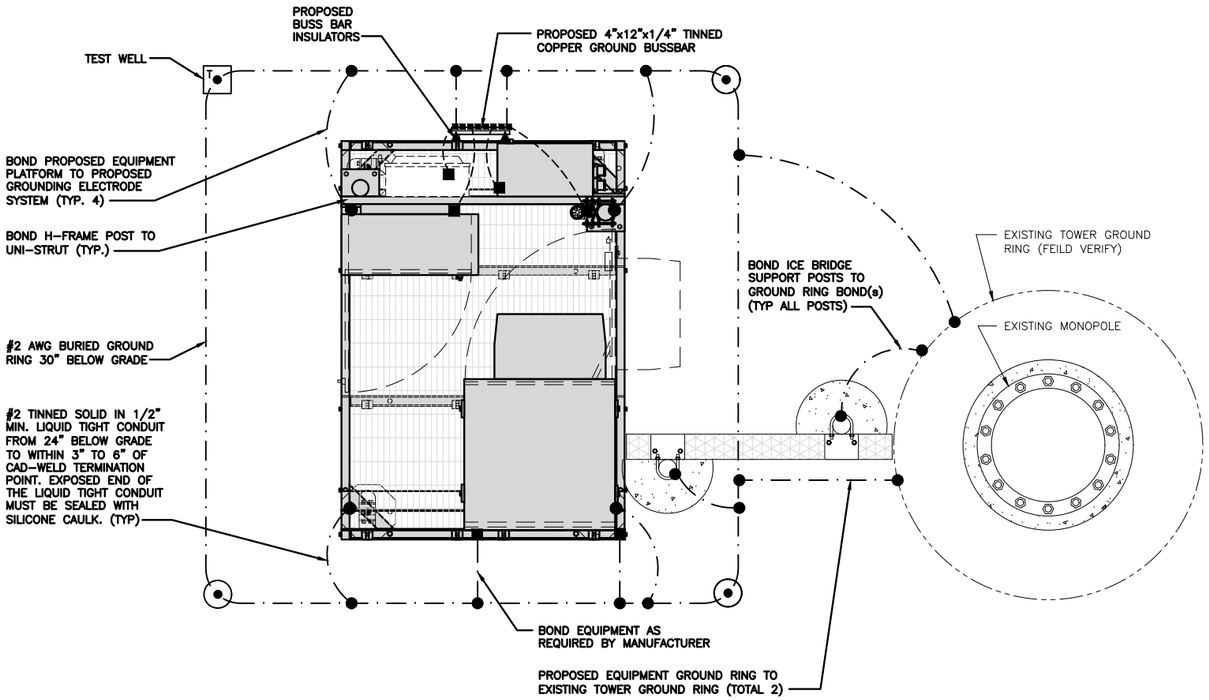
REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
ELECTRICAL ONE-LINE & PANEL SCHEDULE

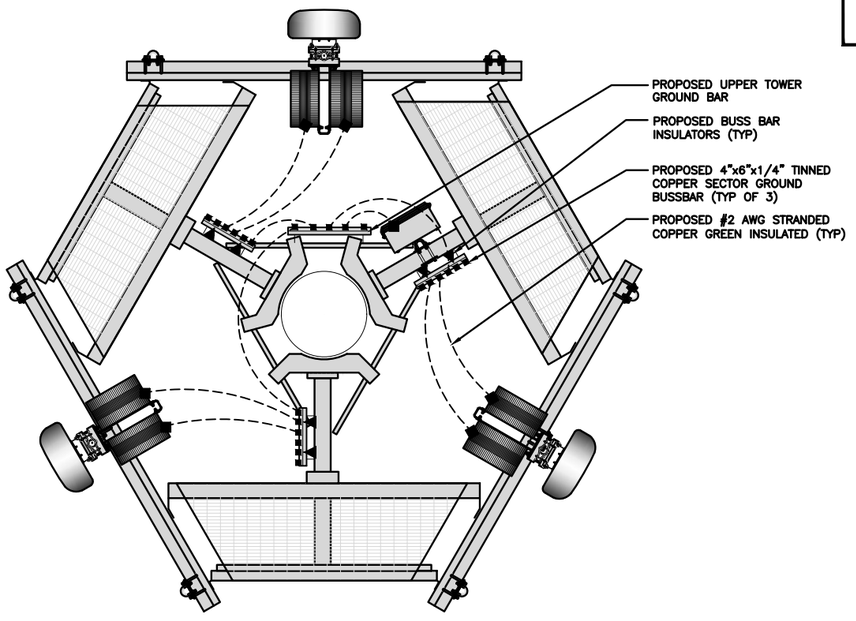
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- 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, LLC. 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 5/8" DIAMETER BY 10' 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, LLC. GROUNDING NOTES.

GROUNDING KEY NOTES | 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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

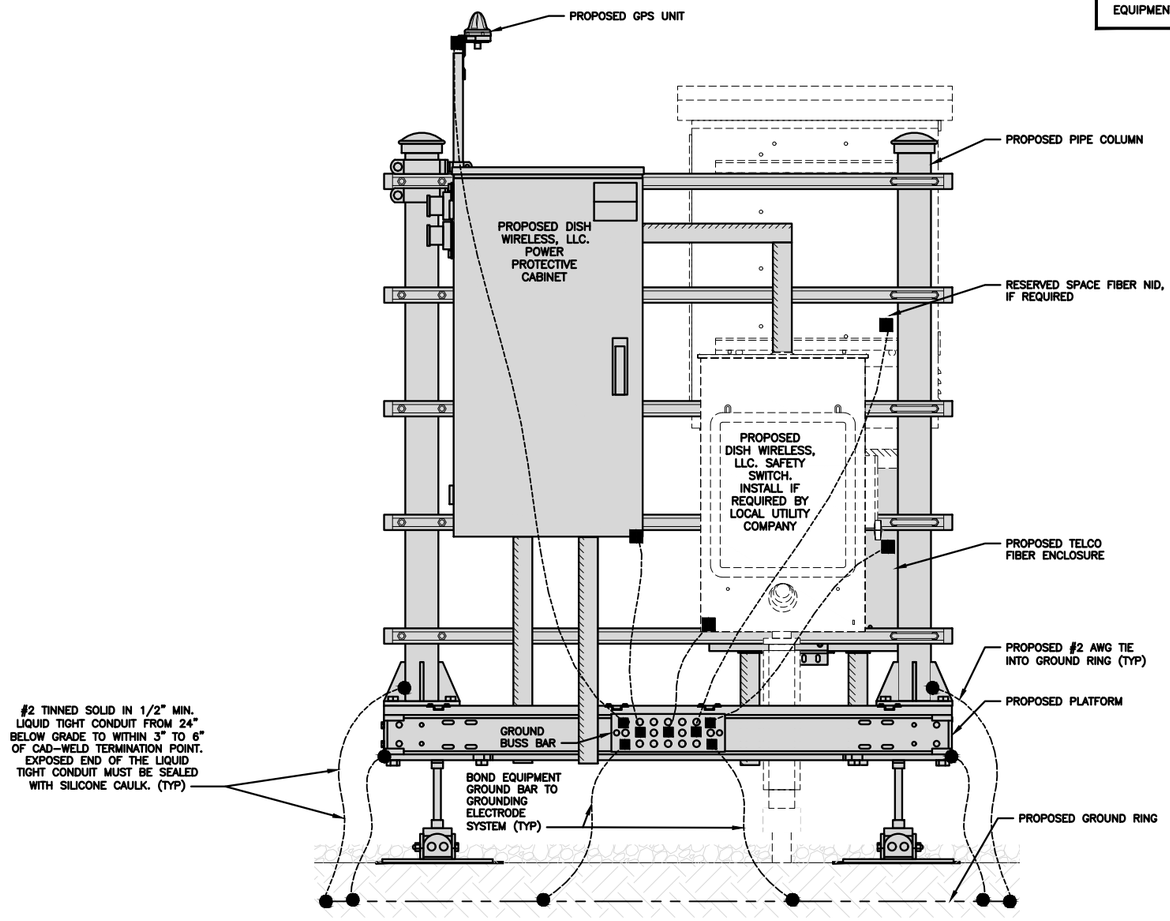
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

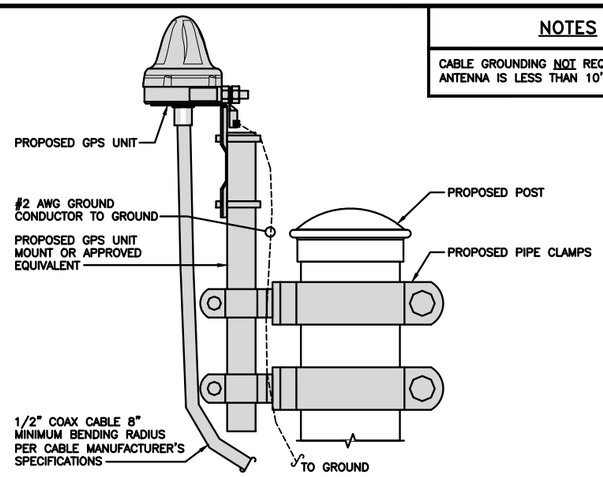
EQUIPMENT CABINET OMITTED FOR CLARITY



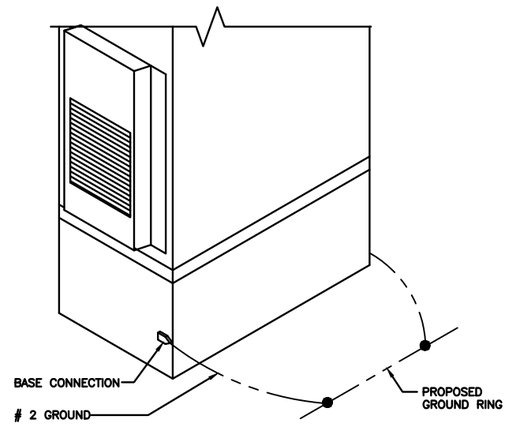
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

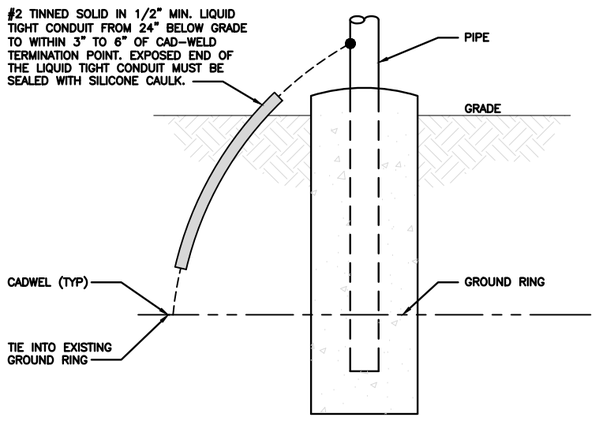
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



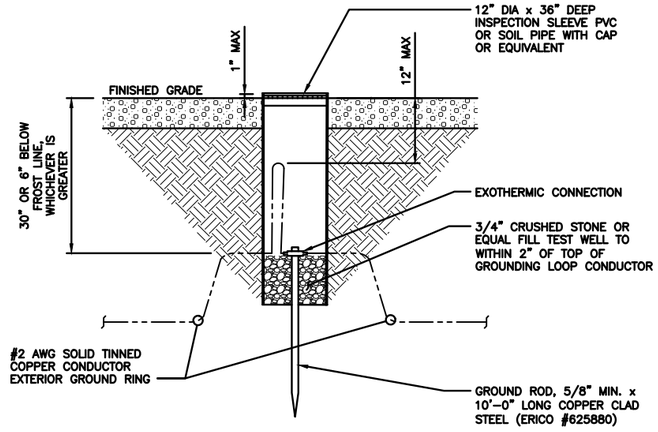
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



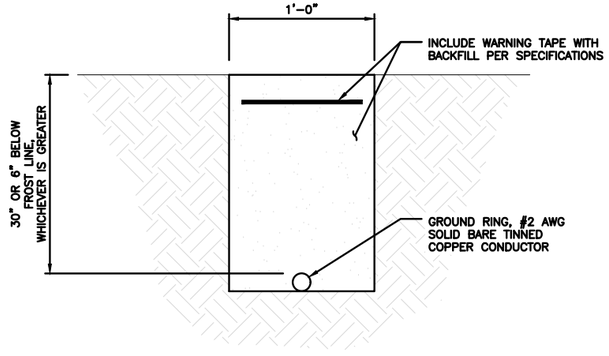
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

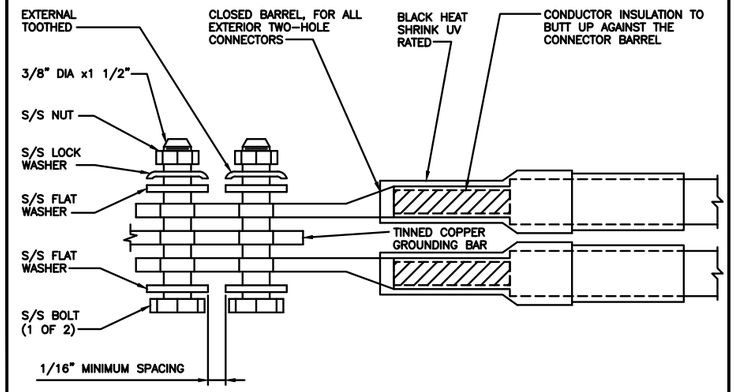
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
GROUNDING DETAILS

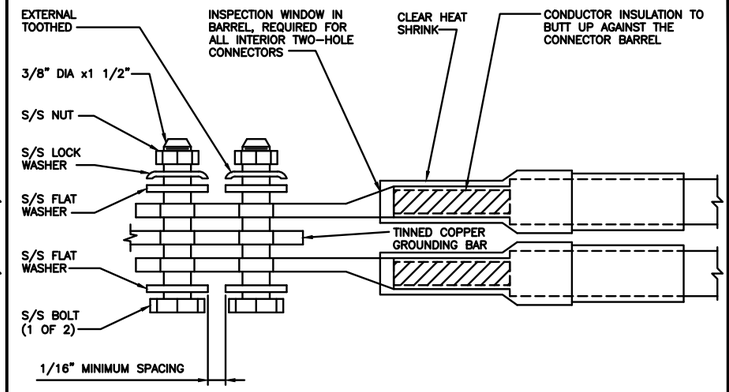
SHEET NUMBER
G-2

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).

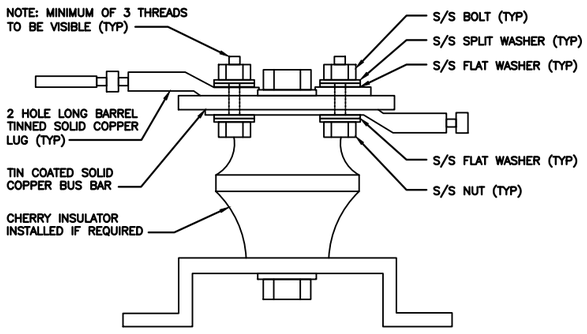
TYPICAL GROUNDING NOTES | NO SCALE | 1



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

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
GROUNDING DETAILS

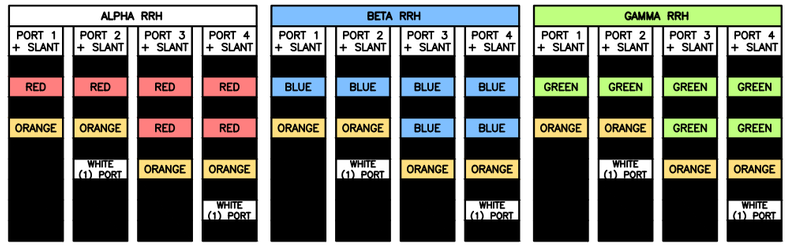
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

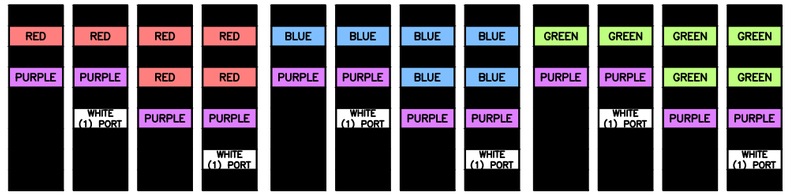
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

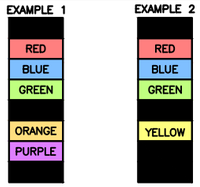


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM LONG WITH FREQUENCY BANDS

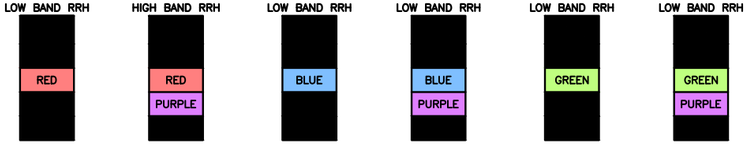
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



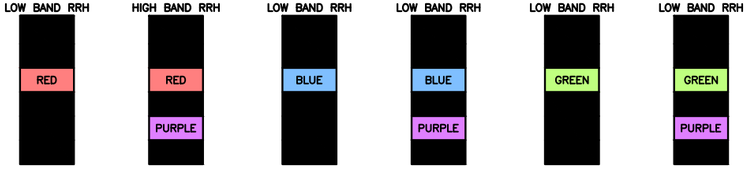
HYBRID/DISCREET CABLES

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

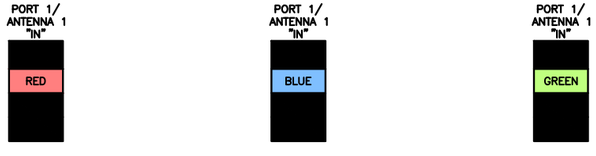


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



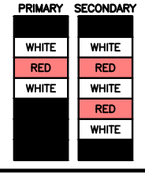
RET MOTORS AT ANTENNAS



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



RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71–N28)
OPTIONAL – (N29)
ORANGE

AWS
(N65+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANTRRH
WHITE

ALPHA SECTOR
RED

BETA SECTOR
BLUE

GAMMA SECTOR
GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

W.P.

SECTION REFERENCE

XX
X–X

DETAIL REFERENCE

XX
X–X

LEGEND

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

ABBREVIATIONS

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
7/20/23
LICENSED
PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197–F0001–C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

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

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

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

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

⚠ CAUTION

Transmitting Antenna(s)

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

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

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

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

⚠ WARNING

Transmitting Antenna(s)

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

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

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

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

RF SIGNAGE

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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.

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197–F0001–C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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 60 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.

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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
7/20/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS
9	07/20/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-5

Exhibit D

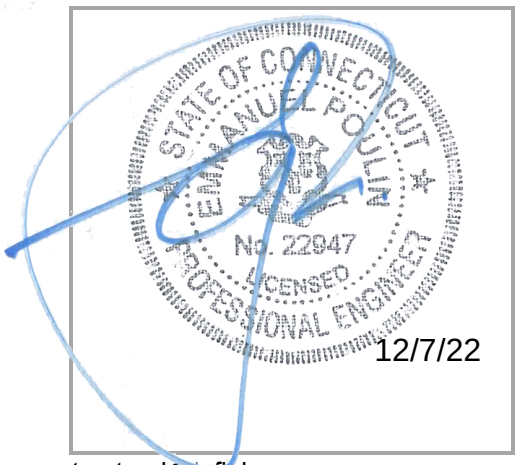
Structural Analysis Report

TOWER STRUCTURAL ANALYSIS REPORT

December 7, 2022

DISH Wireless Site Number	BOHVN00189A
Infinigy Job Number	1197-F0001-B
Client	DISH Wireless
Carrier	DISH Wireless
Site Location	69 Wheeler Street New Haven, CT 06512 New Haven County 41° 17' 45.48" N NAD83 72° 53' 52.55" W NAD83
Structure Type	Monopole
Structure Height	98.0 ft
Structural Usage Ratio	**89.0%**
Overall Result	**Pass**

The enclosed tower analysis has been performed in accordance with the 2022 Connecticut State Building Code, based on an ultimate 3-second gust wind speed of 120 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



structural@infinigy.com

CONTENTS

1. INTRODUCTION

Infinigy Engineering has been requested to perform a structural analysis on the existing 98.0 ft Monopole tower. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The structure was analyzed using tnxTower version 8.1.1 analysis software.

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	120 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.0" ice
Adopted Code	2021 IBC / 2022 Connecticut State Building Code
Standard(s)	TIA-222-H
Risk Category	II
Exposure Category	C
Topographic Category	1
Seismic Spectral Response	S_S = 0.200 g / S_1 = 0.054 g
Live Load Wind Speed	60 mph
Seismic Soil Class	D-Stiff Soil (Assumed)
HMSL	7.6 ft

3. PROPOSED LOADING CONFIGURATION

RAD Center (ft)	Mount Center (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
81.0	81.0	3	JMA Wireless MX08FRO665-21	Platform Mount	(1) 1.75" Coax	Dish Wireless
		3	Fujitsu TA08025-B605			
		3	Fujitsu TA08025-B604			
		1	Raycap RDIDC-9181-PF-48			

4. OTHER CONSIDERED LOADING

RAD Center (ft)	Mount Center (ft)	Qty.	Appurtenance	Mount Type	Coax& Lines	Carrier
98.0	98.0	3	Ericsson AIR 32	Platform Mount	(9) 1-5/8" Coax	T-Mobile
		3	RFS/Celwave APXVAALL24_43-U-NA20			
		3	Ericsson AIR6449 B41			
		3	RFS/Celwave ATMAA1421D-1A20			
		3	Ericsson RRUS 4415 B25			
		3	Ericsson Radio 4449 B12/B71			
		3	Commscope SDX1926Q-43			
91.0	91.0	4	CCI HPA-65R-BUU-H6	Sector Mount	(2) RG6-Fiber (8) #8 AWG Copper Wire (6) 7/8" Coax	AT&T
		2	Commscope SBNHH-1D65A			
		3	CCI OPA65R-BU4D			
		3	Quintel QS46512-2			
		6	Ericsson RRUS 32			
		3	Ericsson E2 B29			
		6	Ericsson RRUS 4478 B14			
		3	Ericsson RRUS 11			
		3	Ericsson RRUS 4426 B66			
		3	Raycap DC6-48-60-18-8F			
82.0	82.0	2	ANT-18G-2-C	Dish Mount	(2) 2" conduit	Clearwire

5. SUPPORTING DOCUMENTATION

Construction Drawings	Infinigy, Site ID: BOHVN00189A, Rev.1, dated February 18, 2022
Proposed Loading	DISH Wireless RFDS, dated April 23, 2021
Structural Analysis Report	Centek Engineering Inc., Project No.: 20074.60, dated July 31, 2020

6. RESULTS

Structural Components	Capacity	Pass/Fail
Pole	75.9%	Pass
Base Plate	73.4%	Pass
Anchor Bolts	87.9%	Pass
Soil Interaction	89.0%	Pass
Structural Foundation	68.2%	Pass
RATING =	**89.0%**	**Pass**

6.1 DEFLECTION, TWIST, AND SWAY

Antenna Elevation (ft)	Deflection (in)	Sway (°)	Twist (°)
81.0	12.161	1.404	0.004

***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.**

7. RECOMMENDATIONS

Infinigy recommends installing DISH Wireless' proposed equipment loading configuration on the mounts at 81.0 ft on this structure. The installation shall be performed in accordance with the construction documents issued 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.

Alex Mercado, E.I.T.
Senior Project Engineer | **INFINIGY**

8. 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.

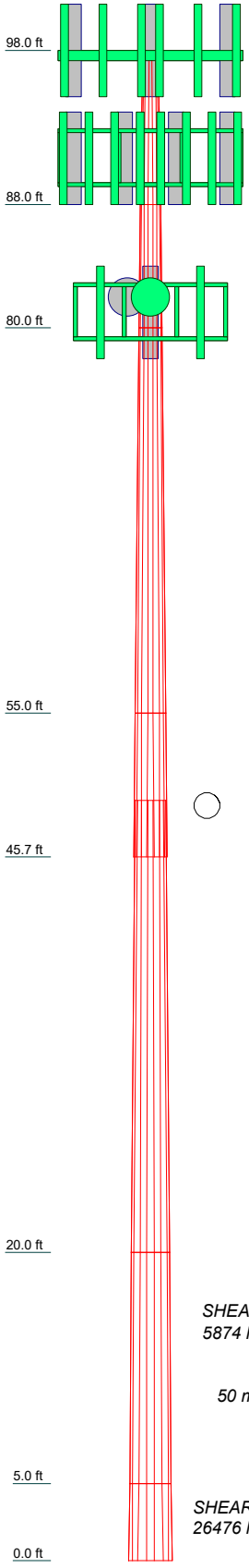
9. LIABILITY WAIVER AND LIMITATIONS

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.

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	10.00	18	0.1880		12.7500	16.5000		307.8
2	8.00	18	0.1880		16.5000	18.1400		292.2
3	25.00	18	0.4950		18.1400	23.2500		2834.8
4	9.32	18	0.5880	3.64	23.2500	25.1500	A572-65	1467.4
5	29.32	18	0.6000		23.2319	29.9100		5181.3
6	15.00	18	0.4900		29.9100	32.9800		2580.2
7	5.00	18	0.5000		32.9800	34.0000		935.3
								13599.0



ALL REACTIONS ARE FACTORED

AXIAL 46590 lb

SHEAR 5874 lb *MOMENT 465059 lb-ft*

TORQUE 358 lb-ft
50 mph WIND - 1.0000 in ICE

AXIAL 32448 lb

SHEAR 26476 lb *MOMENT 1994406 lb-ft*

TORQUE 1495 lb-ft
REACTIONS - 120 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
AIR 32	98	QS46512-2	91
AIR 32	98	(2) RRUS 32	91
AIR 32	98	(2) RRUS 32	91
APXVAALL24_43-U-NA20 w/ mount pipe	98	(2) RRUS 32	91
APXVAALL24_43-U-NA20 w/ mount pipe	98	RRUS E2 B29	91
APXVAALL24_43-U-NA20 w/ mount pipe	98	RRUS E2 B29	91
AIR6449 B41 w/ mount pipe	98	RRUS E2 B29	91
AIR6449 B41 w/ mount pipe	98	(2) RRUS 4478 B14	91
AIR6449 B41 w/ mount pipe	98	(2) RRUS 4478 B14	91
ATMAA1412D-1A20	98	(2) RRUS 4478 B14	91
ATMAA1412D-1A20	98	RRUS 11	91
ATMAA1412D-1A20	98	RRUS 11	91
RRUS 4415 B25	98	RRUS 11	91
RRUS 4415 B25	98	RRUS 4426 B66	91
RRUS 4415 B25	98	RRUS 4426 B66	91
RADIO 4449 B12/B71	98	RRUS 4426 B66	91
RADIO 4449 B12/B71	98	HPA-65R-BUU-H6	91
RADIO 4449 B12/B71	98	DC6-48-60-18-8F	91
SDX1926Q-43	98	DC6-48-60-18-8F	91
SDX1926Q-43	98	T-Arm Mount [TA 1301-3]	91
SDX1926Q-43	98	ANT-18G-2-C	82
Platform Mount [LP 404-1]	98	ANT-18G-2-C	82
DC6-48-60-18-8F	94	MX08FRO665-21	81
HPA-65R-BUU-H6	91	TA08025-B604	81
HPA-65R-BUU-H6	91	TA08025-B604	81
HPA-65R-BUU-H6	91	TA08025-B605	81
SBNHH-1D65A	91	TA08025-B605	81
SBNHH-1D65A	91	TA08025-B605	81
OPA65R-BU4D	91	RDIDC-9181-PF-48	81
OPA65R-BU4D	91	8' x 3" Mount Pipe	81
OPA65R-BU4D	91	8' x 3" Mount Pipe	81
QS46512-2	91	8' x 3" Mount Pipe	81
QS46512-2	91	Platform Mount [LP 716-1]	81
		MX08FRO665-21	81
		MX08FRO665-21	81

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 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. TOWER RATING: 75.9%

Infinigy Engineering
26455 Rancho Pkwy. South
Lake Forest, CA
Phone: (518) 690-0790
FAX:

Job: ***BOHVN00189A***			
Project: ***1197-F0001-B***			
Client: Dish/NSS	Drawn by: Alex Mercado	App'd:	
Code: TIA-222-H	Date: 12/07/22	Scale: NTS	
Path: I:\Albany\Telecom\DISH\NSS\CT - Private sites\BOHVN00189A\Structural\12.06.2022 - SA Re-Run\Report\TNX\BOHVN00189A.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 New Haven County, Connecticut.
Tower base elevation above sea level: 7.60 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Maximum demand-capacity ratio 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

Pier and Pad Foundation

Project # :	1197-F0001-B
Site Name:	BOHVN00189A

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, **P_{comp}**:	46.59	kips
Base Shear, Vu_comp:	26.476	kips
Moment, **M_u**:	1994.406	ft-kips
Tower Height, **H**:	98	ft
BP Dist. Above Fdn, **bp_{dist}**:		in

Pier Properties

Pier Shape:	Circular	
Pier Diameter, **dpier**:	6	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	10	
Pier Rebar Quantity, **mc**:	17	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, **cc_{pier}**:	3	in

Pad Properties

Depth, **D**:	4.25	ft
Pad Width, **W_1**:	18	ft
Pad Width, **W_2**:	26	ft
Pad Thickness, **T**:	3.25	ft
Pad Rebar Size (Bottom dir. 1), **Sp_1**:	7	
Pad Rebar Quantity (Bottom dir. 1), **mp_1**:	26	
Pad Rebar Size (Bottom dir. 2), **Sp_2**:	7	
Pad Rebar Quantity (Bottom dir. 2), **mp_2**:	37	
Pad Clear Cover, **cc_{pad}**:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, **δc**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	110	pcf
Ultimate Gross Bearing, Qult:	8.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, **N_{blows}**:		
Base Friction, μ:	0.45	
Neglected Depth, **N**:	0.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

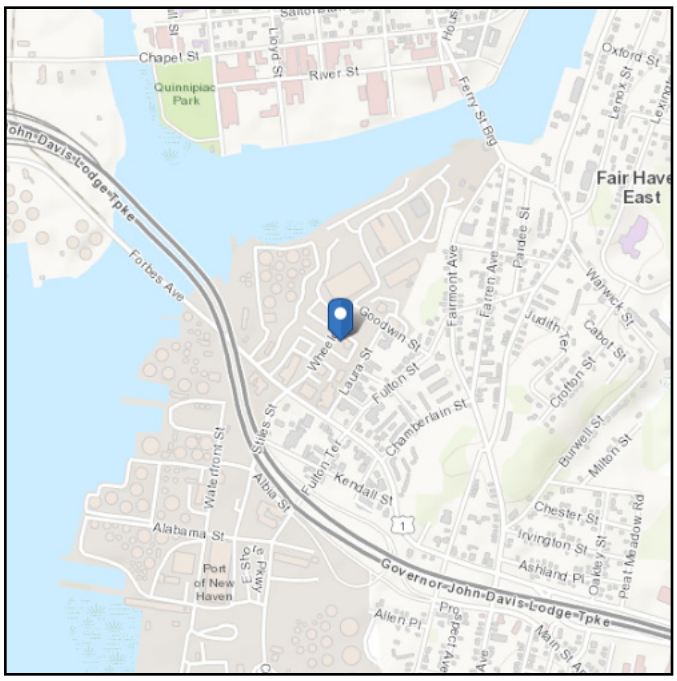
	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	136.47	26.48	**19.4%**	**Pass**
Bearing Pressure (ksf)	6.00	3.06	**51.0%**	**Pass**
*Overturning (kip*ft)*	2381.06	2120.17	**89.0%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	2984.13	2034.12	**68.2%**	**Pass**
Pier Compression (kip)	13497.04	54.22	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	2375.42	883.27	**37.2%**	**Pass**
Pad Shear - 1-way (kips)	889.16	203.79	**22.9%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.022	**13.6%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4076.61	1220.47	**29.9%**	**Pass**

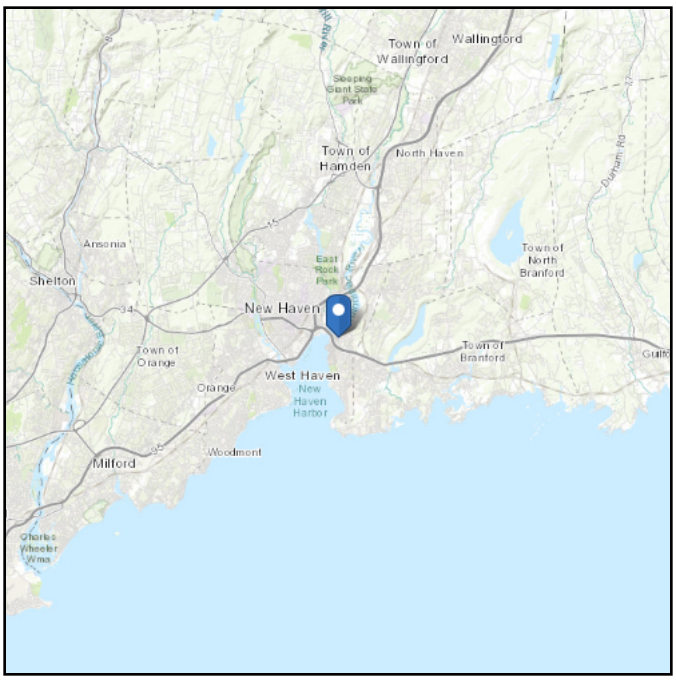
Structural Rating:	**68.2%**
Soil Rating:	**89.0%**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.29597
Risk Category:	II	**Longitude:**	-72.89793
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	7.6 ft (NAVD 88)





Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	99 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 Dec 06 2022

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

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

Seismic

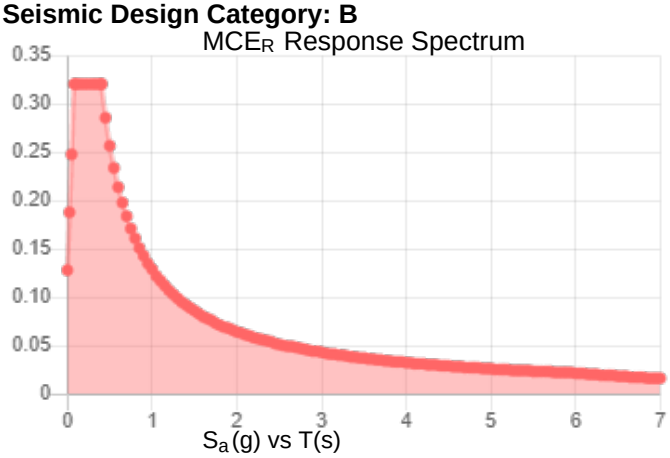
D - Default (see Section 11.4.3)

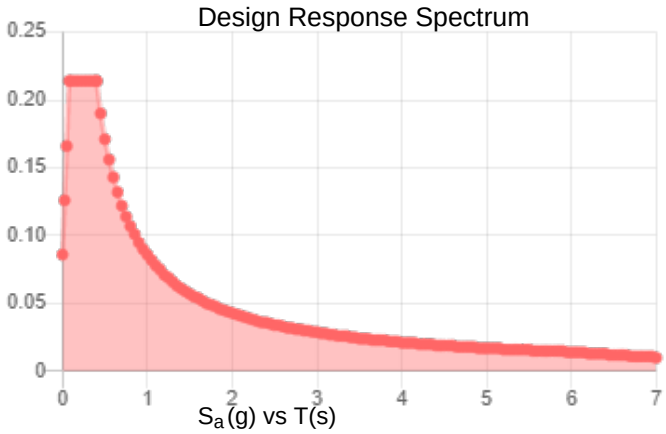
Site Soil Class:

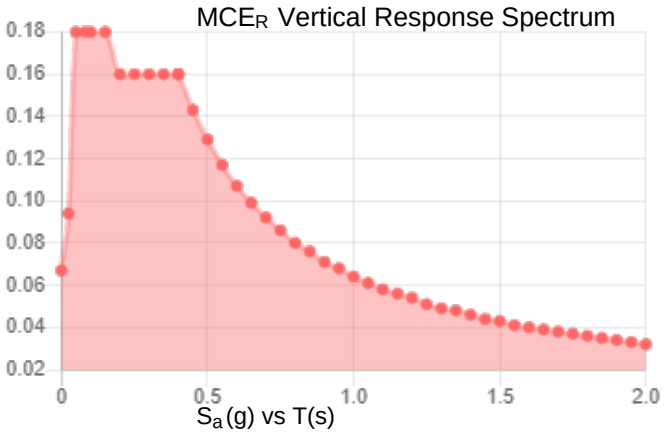
Results:

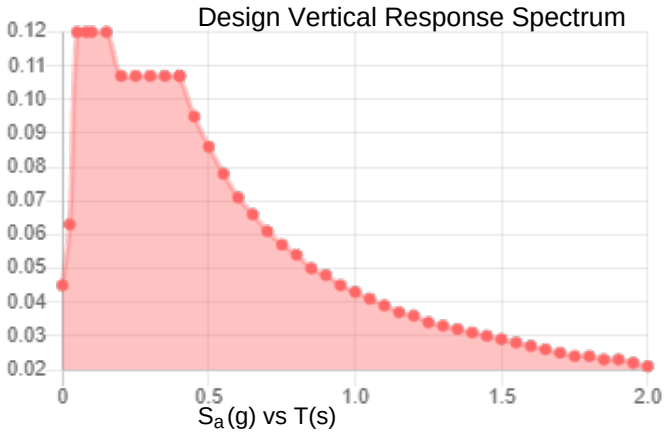
S_S :	0.2	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA_M :	0.177
S_{MS} :	0.321	F_{PGA} :	1.576
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category: B









Data Accessed: **Tue Dec 06 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Dec 06 2022

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

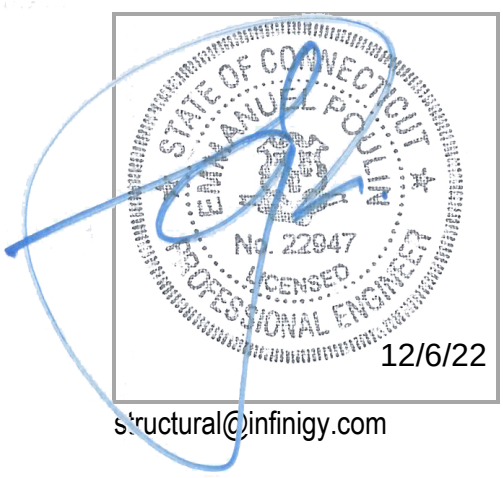
Mount Analysis

MOUNT ANALYSIS REPORT

December 6, 2022

DISH Wireless Site Number	BOHVN00189A
Infinigy Job Number	1197-F0001-B
Client	DISH Wireless
Carrier	DISH Wireless
Site Location	69 Wheeler Street New Haven, CT 06512 New Haven County 41° 17' 45.48" N NAD83 72° 53' 52.55" W NAD83
Structure Type	Monopole
Structure Height	98.0 ft
Mount Type	8.0 ft Platform
Mount Elevation	81.0 ft AGL
Structural Usage Ratio	**75.8%**
Overall Result	**Pass**

The enclosed structural analysis has been performed in accordance with the 2022 Connecticut State Building Code based on an ultimate 3-second gust wind speed of 120 mph. The evaluation criteria and applicable standards 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. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA 3-D version 20.0 analysis software.

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	120 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.0" ice thickness
Adopted Code	2022 Connecticut State Building Code / 2021 IBC
Standard(s)	TIA-222-H
Risk Category	II
Exposure Category	C
Topographic Factor	1.0
Seismic Spectral Response	S_s = 0.200 g / S_1 = 0.054 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)	7.6 ft

3. PROPOSED LOADING CONFIGURATION - 81.0 ft. AGL Platform

Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
81.0	3	JMA WIRELESS	MX08FRO665-21
	3	FUJITSU	TA08025-B605
	3	FUJITSU	TA08025-B604
	1	RAYCAP	RDIDC-9181-PF-48

4. SUPPORTING DOCUMENTATION

Construction Drawings	Infinigy, Site ID: BOHVN00189A, dated February 18, 2022
DISH Wireless Proposed Loading	DISH Wireless dated April 23, 2021
Mount Manufacturer Drawings	Site Pro 1 SPN8HR-396, dated November 21, 2014

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipe(s)	75.8%	Pass
Horizontal(s)	18.2%	Pass
Handrail(s)	26.6%	Pass
Standoff(s)	50.6%	Pass
Connection(s)	31.7%	Pass
RATING =	**75.8%**	**Pass**

Notes:

1. See additional documentation in Appendix for calculations supporting the capacity consumed and detailed mount connection calculations.
2. All sectors are typical.

6. RECOMMENDATIONS

Infinigy recommends installing DISH Wireless's proposed equipment loading configuration on the Platform at 81.0 ft. The installation shall be performed in accordance with the construction documents issued 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.

Alex Mercado, E.I.T.
Senior Project Engineer | **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, Angle, Plate	ASTM A36 Q345
HSS (Rectangular)	ASTM A500-B GR 46 Q235-GB
HSS (Circular)	ASTM A500-B GR 42 Q235-GB
Pipe	ASTM A53-B GR 35 Q235-GB
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 V2.3.3

PROJECT INFORMATION	
Site Name:	BOHVN00189A
Carrier:	DISH Wireless
Engineer:	Alex Mercado

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	7.60	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	81.00	ft
Tower Height AGL:	98.00	ft

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):	1.000	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Height Esc. Fact. (K_{iz}):	1.094	
Gust Effect Factor (G_h):	1.000	
Shielding Factor (K_a):	0.900	
Velocity Pressure Co.(K_z):	1.211	(Mount Elev)

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

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	120	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1	in
Radial Ice Thickness (t_{iz}):	1.094	in
Flat Pressure:	84.776	psf
Round Pressure:	50.866	psf
Ice Wind Pressure:	8.831	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.200	g
1-Second Accel. (S_1):	0.054	g
Short-Period Design (S_{DS}):	0.213	
1-Second Design (S_{D1}):	0.086	
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):	0.107	
Total App. Weight:	225.210	lb
Total Shear Force (V_s):	24.022	lb
Hor. Seismic Load (E_h):	24.022	lb
Vert. Seismic Load (E_v):	9.609	lb *

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

INFINIGY

Bolt Calculation Tool, V1.6.4

PROJECT DATA	
Site Name:	BOHVN00189A
Site Number:	BOHVN00189A
Connection Description:	Platform to Tower

ENVELOPE BOLT LOADS		
(LC6 S2) Bolt Tension:	6443.09	lbs
(LC11 S3) Bolt Shear:	1363.34	lbs

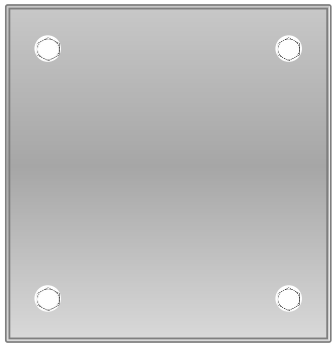
MAX BOLT USAGE LOADS[1]		
Bolt Tension:	6443.09	lbs
Bolt Shear:	452.37	lbs

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 #6 on member S2 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of S1, S3, S2,

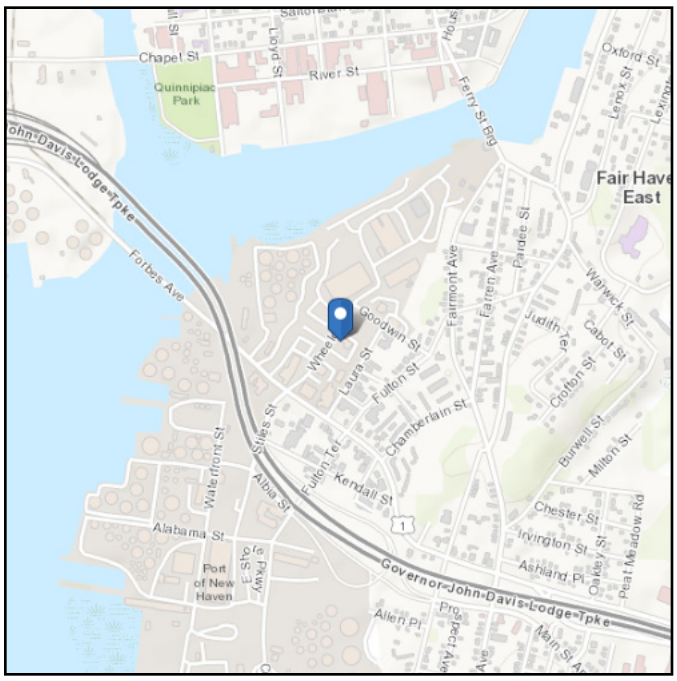
BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	31.7%	
Max Shear Usage	9.9%	
Interaction Check (Max Usage)	0.10	***≤1.05***
Result	Pass	

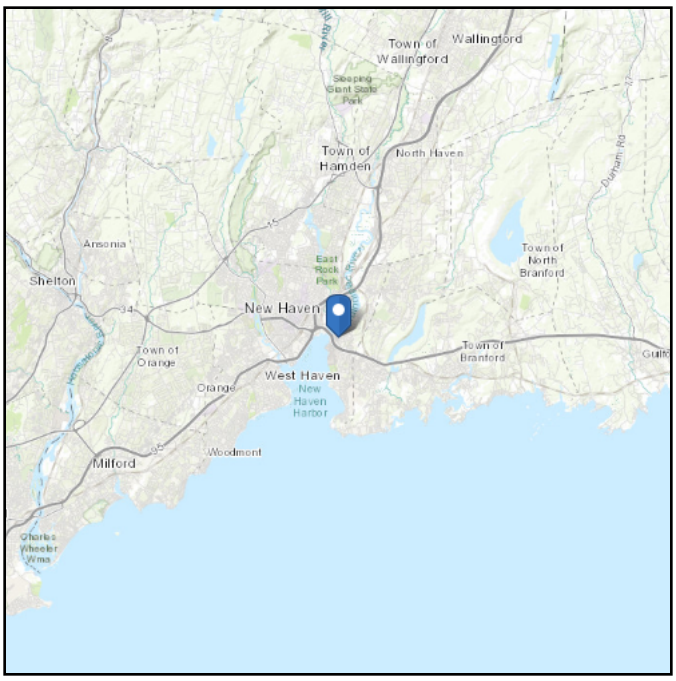


ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.29597
Risk Category:	II	**Longitude:**	-72.89793
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	7.6 ft (NAVD 88)





Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	91 Vmph
100-year MRI	99 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 Dec 06 2022

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

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

Seismic

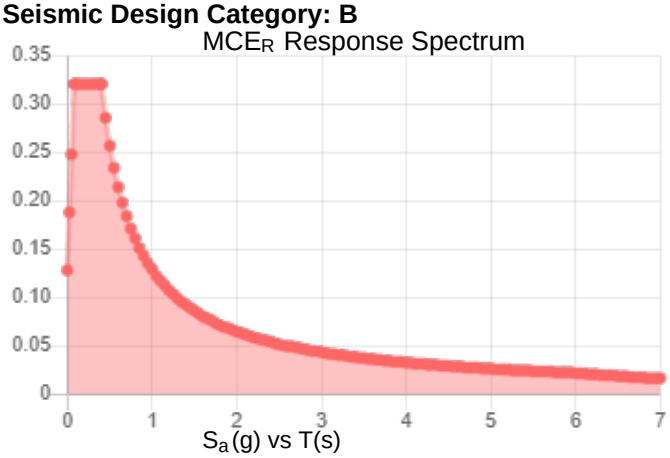
D - Default (see Section 11.4.3)

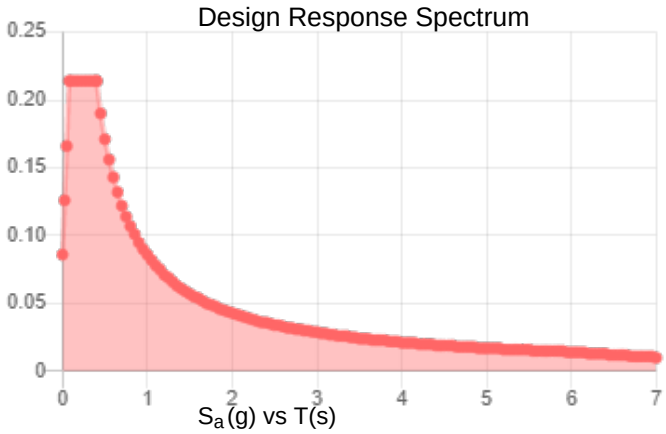
Site Soil Class:

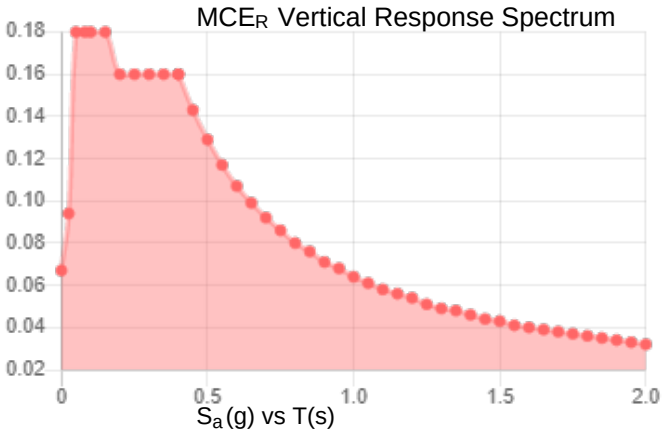
Results:

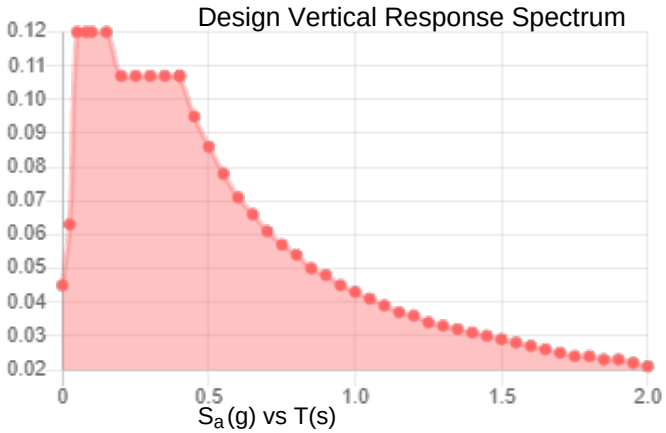
S_S :	0.2	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA_M :	0.177
S_{MS} :	0.321	F_{PGA} :	1.576
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category: B









Data Accessed: **Tue Dec 06 2022**

Date Source:

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

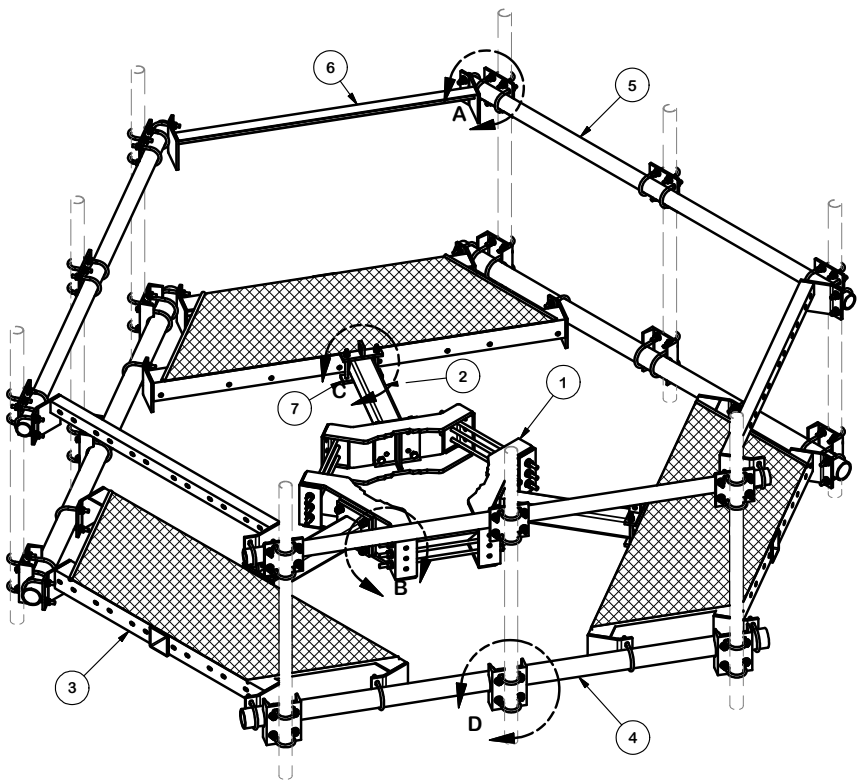
Ice

Results:

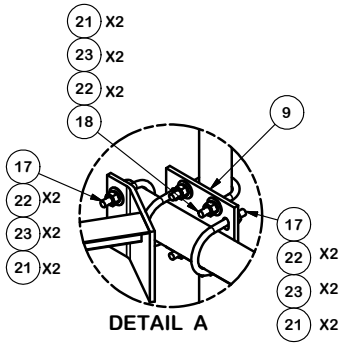
Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Dec 06 2022

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

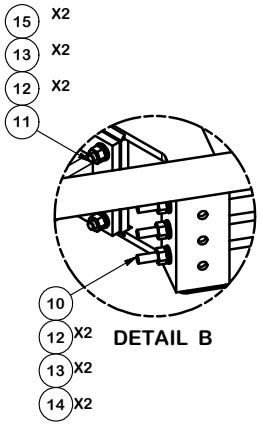
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.



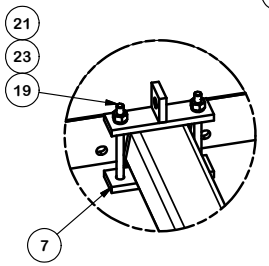
PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-SNP-ST8	PLATFORM STANDOFF ARM WELDMENT, 43-3/4" LONG		60.39	181.16
3	3	X-SNPC	CORNER GRATING WELDMENT		199.69	599.08
4	3	P396	3-1/2" X 96" (3" SCH 40) GALVANZIED PIPE	96.000 in	60.75	182.25
5	3	P3096	2-7/8" X 96" (2-1/2" SCH 40) GALVANIZED PIPE	96	49.24	147.72
6	3	X-SNP-HRA	CORNER BRACKET FOR SNPX PLATFORMS		25.95	77.86
7	3	X-SNPP1G	CLAMP PLATE	7.250 in	2.03	6.10
8	9	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	77.50
9	9	SCX2	CROSSOVER PLATE	7.000 in	4.80	43.17
10	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	37.63
10	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	18.82
11	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
12	30	A58FW	5/8" HDG A325 FLATWASHER		0.03	1.02
13	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
14	18	A58NUT	5/8" HDG A325 HEX NUT		0.13	2.34
15	12	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	1.56
16	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.77	9.27
17	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.67	16.05
18	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.60	21.50
19	6	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6-1/2	0.41	2.46
20	18	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	14.91
21	186	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	13.32
22	180	G12FW	1/2" HDG USS FLATWASHER	0.095	0.03	6.13
23	186	G12LW	1/2" HDG LOCKWASHER	.125	0.01	2.59
24	9	A	2-3/8" (2" SCH. 40) GALVANIZED PIPE	B	C	D



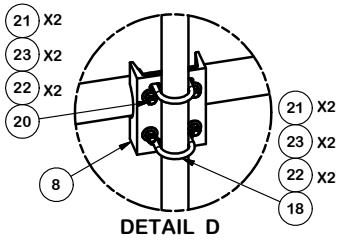
DETAIL A



DETAIL B



DETAIL C



DETAIL D

2-3/8" O.D. VERTICAL MOUNTING PIPES					
ASSEMBLY NO.	PART NO. "A"	LENGTH "B"	UNIT WEIGHT "C	NET WEIGHT "D"	TOTAL WEIGHT
SNP8HR-372	P272	6'-0"	23.07	207.63	1717.07
SNP8HR-384	P284	7'-0"	26.91	242.19	1751.63
SNP8HR-396	P296	8'-0"	30.76	276.84	1786.28
SNP8HR-3126	P2126	10'-6"	40.75	366.75	1876.19

TOLERANCE NOTES

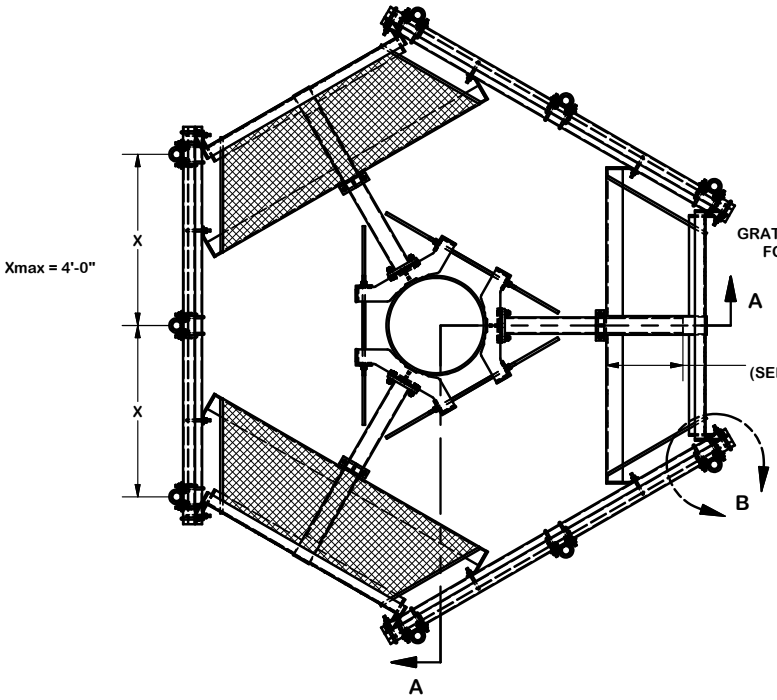
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

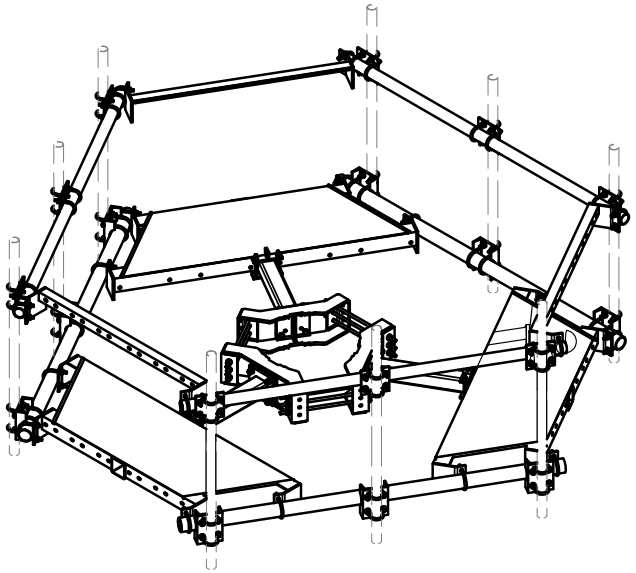
DESCRIPTION: 8' SNUB NOSE PLATFORM WITH HANDRAIL

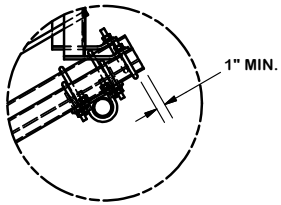
SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 11/19/2014		SEE ASSEMBLY NO.

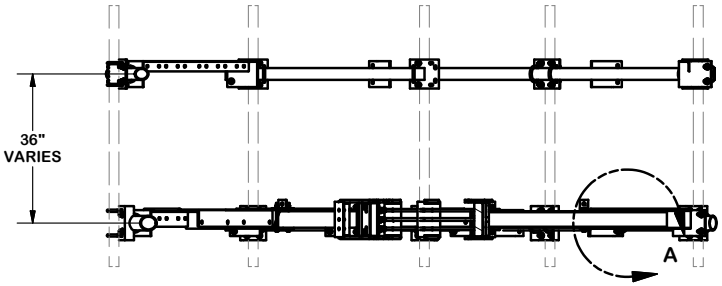
CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 11/21/2014	SNP8HR-3XX



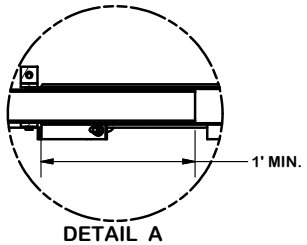




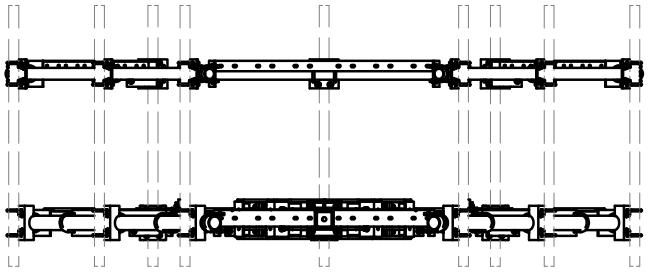
DETAIL B



SECTION A-A



DETAIL A



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION
8' SNUB NOSE
PLATFORM WITH
HANDRAIL

SITE PRO 1
A valmont COMPANY

Engineering
Support Team:
1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	CEK 11/19/2014		SEE ASSEMBLY NO.

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	CUSTOMER	BMC 11/21/2014	SNP8HR-3XX

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Existing Facility

Site ID: BOHVN00189A

BOHVN00189A
69 Wheeler Street
New Haven, Connecticut 06512

March 8, 2023

EBI Project Number: 6223000789

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**7.99%**

March 8, 2023

Dish

Emissions Analysis for Site: BOHVN00189A - BOHVN00189A

EBI Consulting was directed to analyze the proposed Dish facility located at **69 Wheeler Street** in **New Haven, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish 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 ($\mu W/cm^2$). 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless antenna facility located at 69 Wheeler Street in New Haven, Connecticut using the equipment information listed below. Modeling of the antennas and associated equipment was completed using RoofMaster™ software, which is a widely-used predictive modeling program that has been developed to predict RF power density values for rooftop and tower telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. Using the computational methods set forth in Federal Communications (FCC) Office of Engineering & Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65), RoofMaster™ calculates predicted power density in a scalable grid based on the contributions of all RF sources characterized in the study scenario. At each grid location, the cumulative power density is expressed as a percentage of the FCC limits. Manufacturer antenna pattern data is utilized in these calculations. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

Since Dish is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, telecommunications equipment was modeled using the following assumptions:

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 2007 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 n66 channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

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

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

6) The antennas used in this modeling are the JMA MX08FRO665-21 02DT 600 for the 600 MHz / 600 MHz / 2007 MHz channel(s) in Sector A, the JMA MX08FRO665-21 02DT 600 for the 600 MHz / 2007 MHz / 2100 MHz channel(s) in Sector B, the JMA MX08FRO665-21 02DT 600 for the 600 MHz / 2007 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 81 feet above ground level (AGL).

8) Emissions values for additional carriers were calculated in Far Field utilizing the antenna models provided in the structural analysis.

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

Dish Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21 02DT 600	Make / Model:	JMA MX08FRO665-21 02DT 600	Make / Model:	JMA MX08FRO665-21 02DT 600
Frequency Bands:	600 MHz / 600 MHz / 2007 MHz	Frequency Bands:	600 MHz / 2007 MHz / 2100 MHz	Frequency Bands:	600 MHz / 2007 MHz / 2100 MHz
Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd
Height (AGL):	81 feet	Height (AGL):	81 feet	Height (AGL):	81 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts
ERP (W):	13,566.01	ERP (W):	13,566.01	ERP (W):	13,566.01
Antenna A1 MPE %:	**10.07%**	Antenna B1 MPE %:	**10.07%**	Antenna C1 MPE %:	**10.07%**

Site Composite MPE %	
Carrier	**MPE %**
Dish (Combined Sectors):	0.91%
T-Mobile	4.67%
AT&T	2.41%
Clearwire	0.001%
Site Total MPE % :	7.99%

Dish MPE % Per Sector	
Dish Sector A Total:	0.90%
Dish Sector B Total:	0.90%
Dish Sector C Total:	0.90%
Dish Total MPE % :	0.91%

Dish Maximum MPE Power Values (Sector A)

Dish Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish 600 MHz n71	4	364.8558002	81	9.327714841	600 MHz n71	400.0	2.33%
Dish 2007 MHz n70	4	1339.861757	81	34.25421327	2007 MHz n70	1000.0	3.43%
Dish 2100 MHz n66	4	1686.786014	81	43.12349955	2100 MHz n66	1000.0	4.31%
						Dish Total:	**0.91%**

• NOTE: Total Dish MPE values reflect all Dish antennas as reported by RoofMaster™ combined modeling.
• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

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:	0.90%
Sector B:	0.90%
Sector C:	0.90%
Dish Maximum MPE % (Sector A):	0.90%
Dish Combined Sectors MPE %:	0.91%
Site Total:	7.99%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.99%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions or documents available on the Connecticut Siting Council website.

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.

Exhibit G

Letter of Authorization

LETTER OF AUTHORIZATION

I, Whitney Realty, the owner representative for the telecommunications tower located at 69 Wheeler Street, New Haven, Connecticut 06512 (the "Property"), hereby authorize DISH Wireless L.L.C., through its designated agent, Northeast Site Solutions, to apply for all necessary municipal, state, federal and other permits necessary to accommodate the installation of Dish antennas and ancillary equipment on the subject tower and base station equipment at the Property.

Sincerely,

7.17.23

Jeffrey Laydon
Whitney Realty Corp.

Reviewed
9-17-23

DISH WIRELESS, LLC. SITE ID:

BOHVN00189A

DISH WIRELESS, LLC. SITE ADDRESS:

69 WHEELER STREET
NEW HAVEN, CT 06512

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PARTS 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 PLATFORM
- 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
- UTILIZE (1) EXISTING POWER CONDUIT
- UTILIZE (1) EXISTING TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET
- INSTALL PROPOSED FENCE

SITE INFORMATION

PROPERTY OWNER:	WHITNEY REALTY ENTERPRISES LLC
ADDRESS:	51 LONGHINI LANE NEW HAVEN, CT 06519
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	TC132451
TOWER APP NUMBER:	TBD
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41° 17' 45.48" N 41.295970 N
LONGITUDE (NAD 83):	72° 53' 52.55" W 72.897930 W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	IH
PARCEL NUMBER:	3459
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	AT&T

PROJECT DIRECTORY

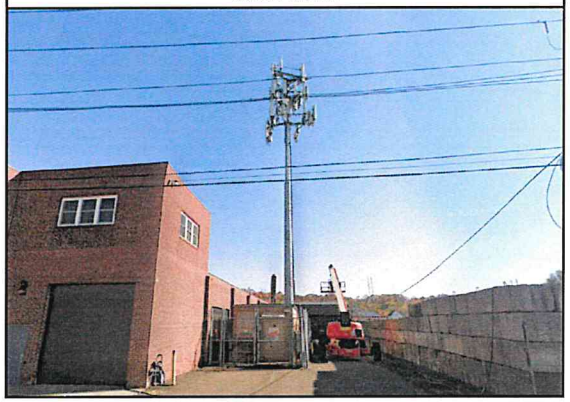
APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	LANDMARK DIVIDEND, LLC 400 N. CONTINENTAL BLVD, SUITE 500 EL SEGUNDO, CA 90245
SITE DESIGNER:	INFINIGY 500 WEST OFFICE CENTER DRIVE SUITE 150 FORT WASHINGTON, PA 19034
SITE ACQUISITION:	DAVID GOODFELLOW DAVID.GOODFELLOW@DISH.COM
CONSTRUCTION MANAGER:	CHAD WILCOX CHAD.WILCOX@DISH.COM
RF ENGINEER:	DIPESH PARIKH DIPESH.PARIKH@DISH.COM

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

SITE PHOTO



DIRECTIONS

DIRECTIONS FROM TWEED NEW HAVEN AIRPORT:

DEPART AND HEAD (NORTHEAST), TURN LEFT, AVIS RENT A CAR ON THE CORNER, TURN RIGHT, TURN RIGHT TOWARD FORT HALE RD, BUDGET CAR RENTAL ON THE CORNER, KEEP STRAIGHT TO GET ONTO FORT HALE RD, TURN RIGHT ONTO CT-337 / TOWNSEND AVE, TURN LEFT ONTO US-1 S / FORBES AVE, TURN RIGHT ONTO WHEELER ST, ARRIVE AT 69 WHEELER STREET, NEW HAVEN, CT 06512

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
A-7	FENCING DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL/FIBER DETAILS
E-3	ELECTRICAL ONE-LINE & 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

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.

VICINITY MAP

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
CERTIFIED WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

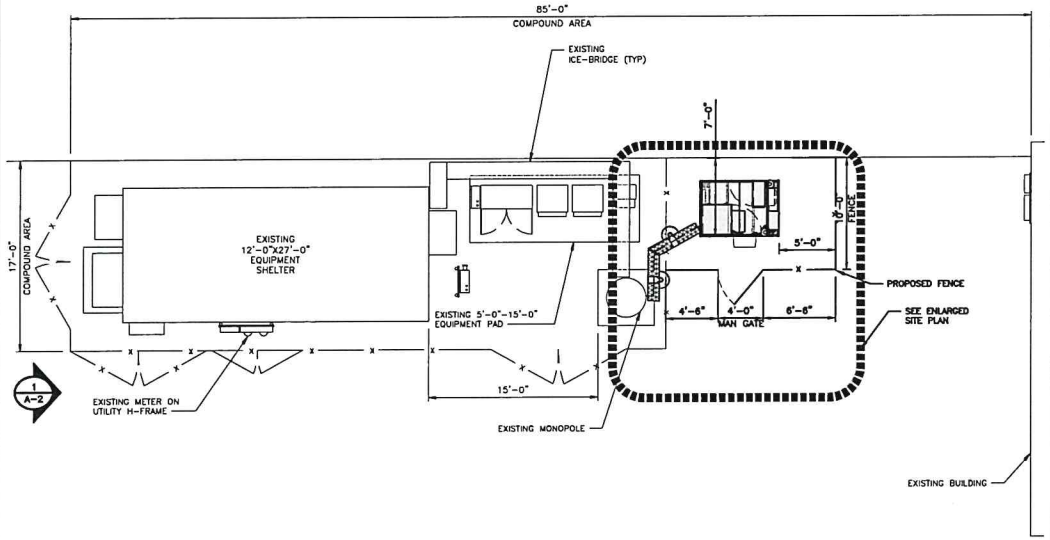
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

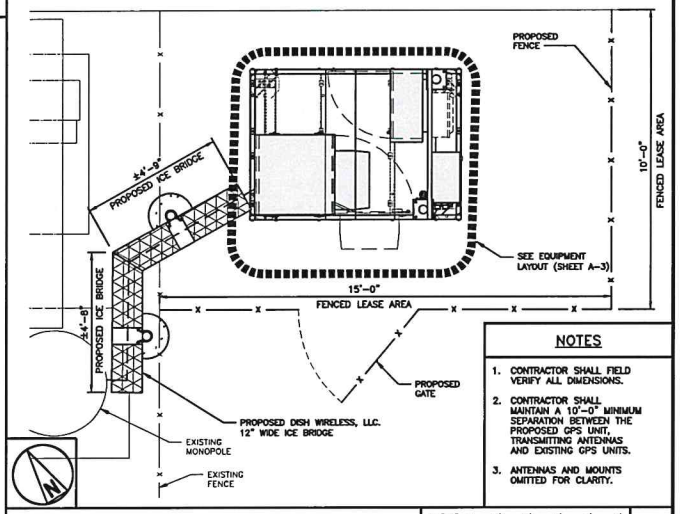
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



COMPOUND PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1



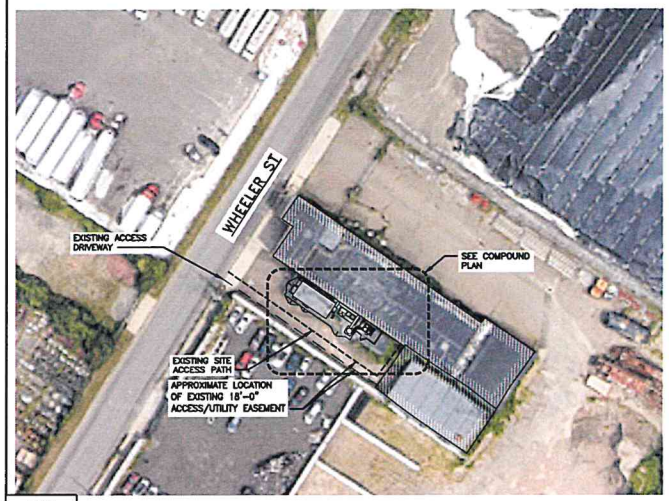
NOTES

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

40' 20' 0 40' 80'
1"=40'

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/18/22	REVISED PER COMMENTS
4	11/28/22	REVISED BLDG CODES
5	12/13/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION

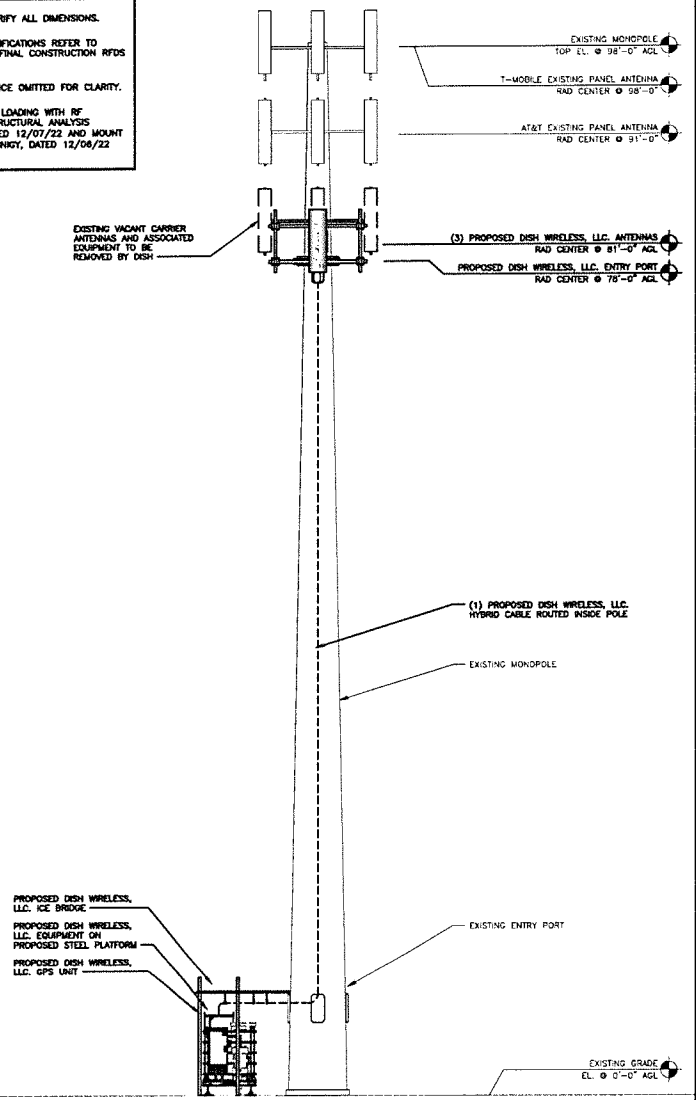
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

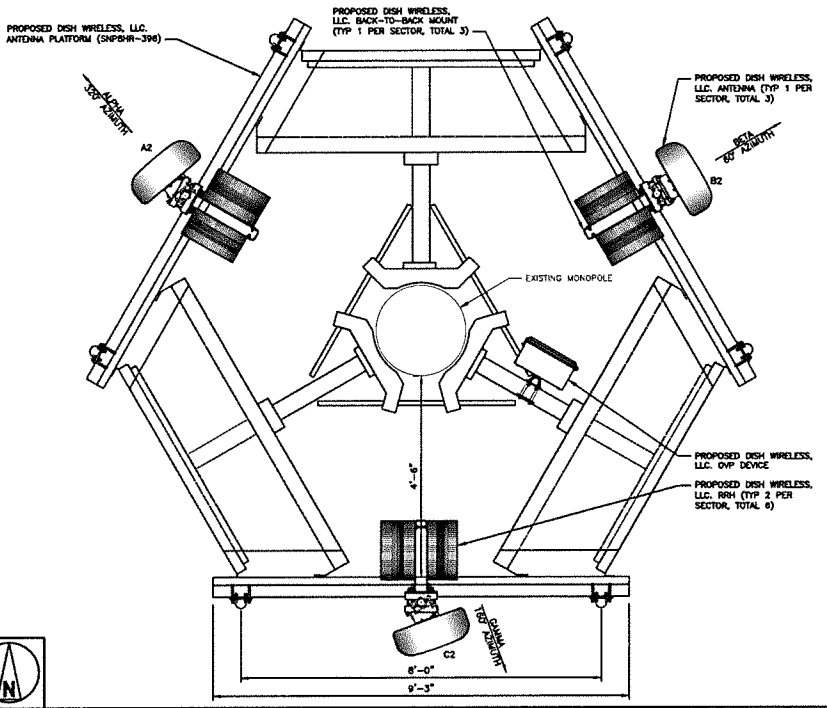
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. CONTRACTOR TO COORDINATE LOADING WITH RF ENGINEER, AND REFER TO STRUCTURAL ANALYSIS PERFORMED BY INFINIGY, DATED 12/07/22 AND MOUNT ANALYSIS PERFORMED BY INFINIGY, DATED 12/06/22 PRIOR TO CONSTRUCTION.



PROPOSED NORTHWEST ELEVATION

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	320°	81'-0"	(1) HIGH-CAPACITY HYBRID CABLE (130 FT APPROX.)
BETA	B2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	60°	81'-0"	
GAMMA	C2	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	160°	81'-0"	

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR 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.

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A2	FUJITSU – TA08025-B604	5G
	A2	FUJITSU – TA08025-B605	5G
BETA	B2	FUJITSU – TA08025-B604	5G
	B2	FUJITSU – TA08025-B605	5G
GAMMA	C2	FUJITSU – TA08025-B604	5G
	C2	FUJITSU – TA08025-B605	5G

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
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

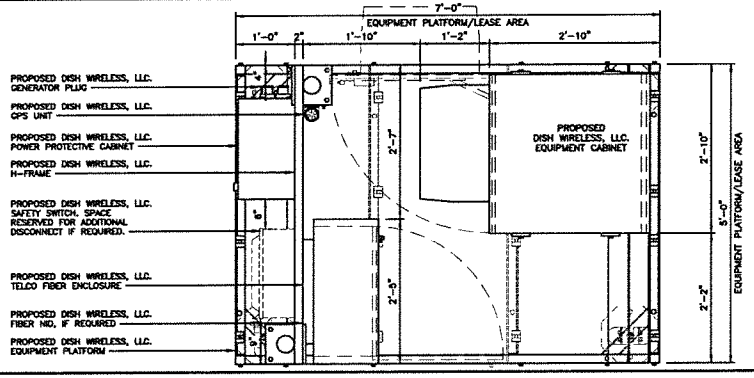
REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/18/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

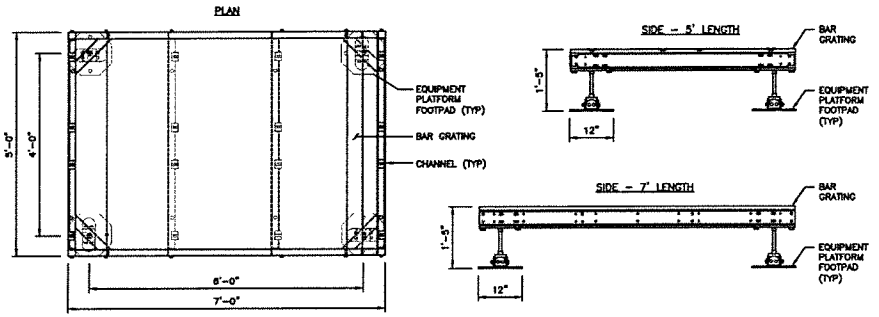


PLATFORM EQUIPMENT PLAN

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

1

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

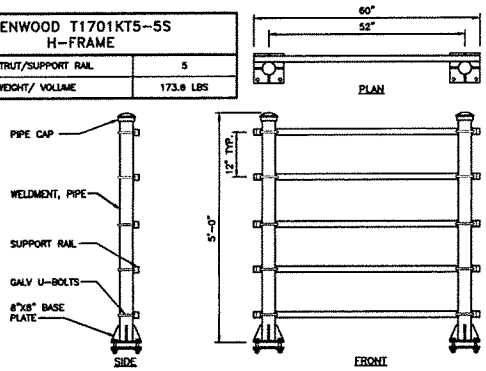


PLATFORM DETAIL

NO SCALE

2

KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.0 LBS



H-FRAME DETAIL

NO SCALE

3

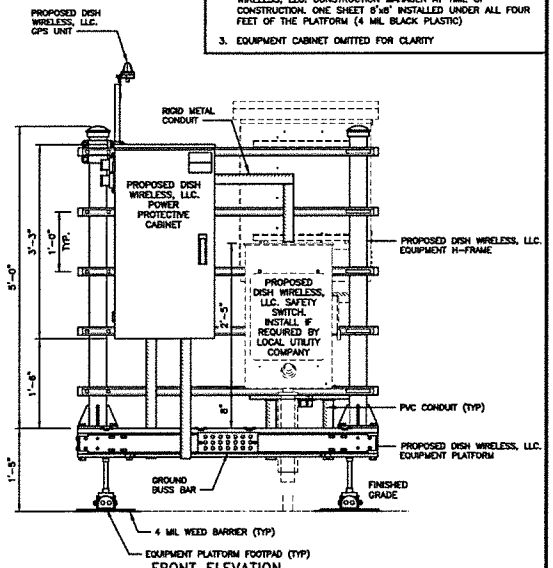
NOT USED

NO SCALE

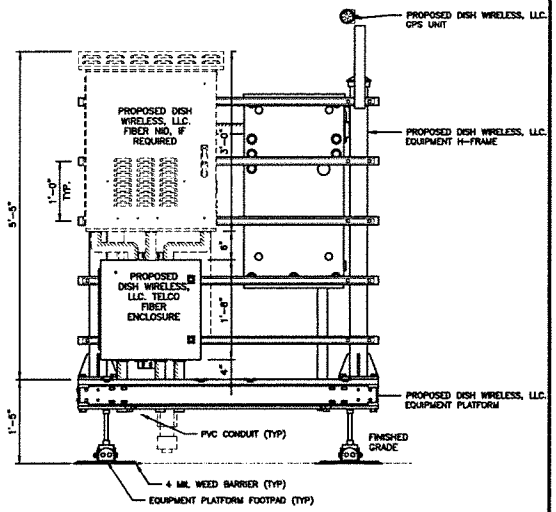
4

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, LLC. 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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/23/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

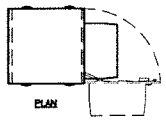
A&E PROJECT NUMBER
1197-F0001-C

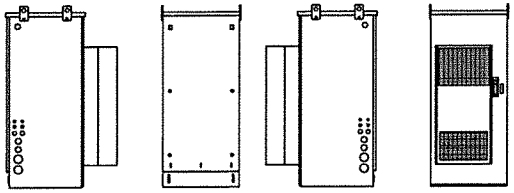
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

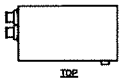
CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS

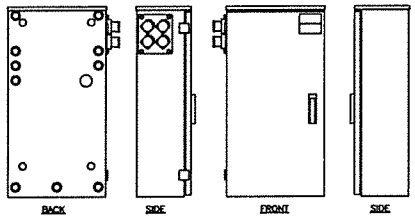




CABINET DETAIL | NO SCALE | 1

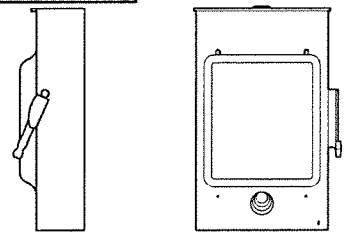
RAYCAP PPC RDIAC–2465–P–240–MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.655"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G





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

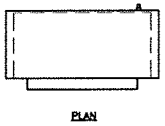
SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E-2875

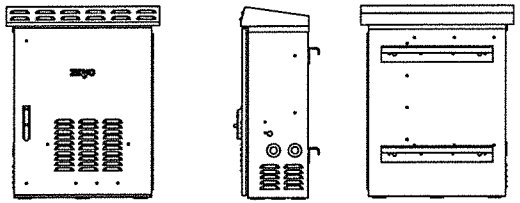


SAFETY SWITCH DETAIL | NO SCALE | 3

NOT USED | NO SCALE | 4

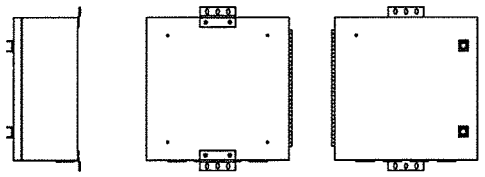
ZAYO 5RU CABINET ("LIT" SITES)	
DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, –48VDC





NETWORK INTERFACE UNIT DETAIL | NO SCALE | 5

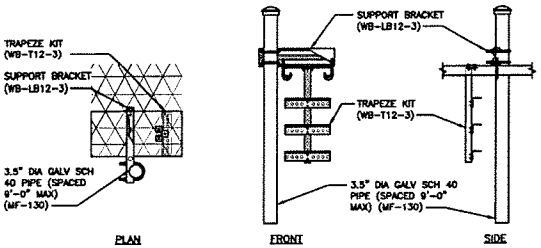
CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



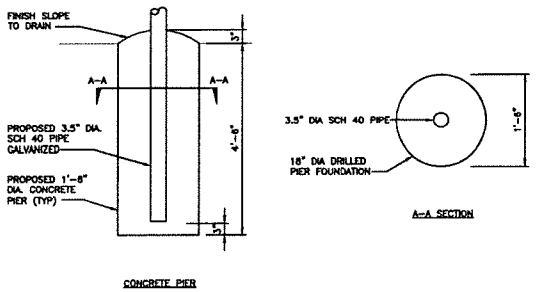
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

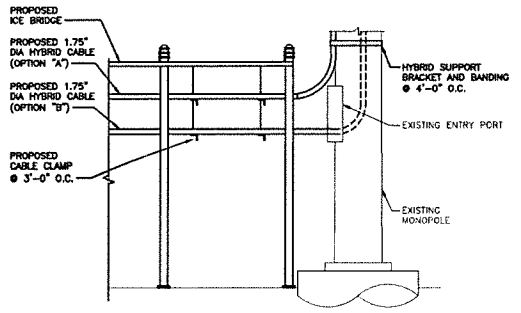
INCLUDED PRODUCTS:
- WB–T12–3 TRAPEZE KIT, 3 RUNGS
- WB–LB12–3 SUPPORT BRACKET
- MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/23	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

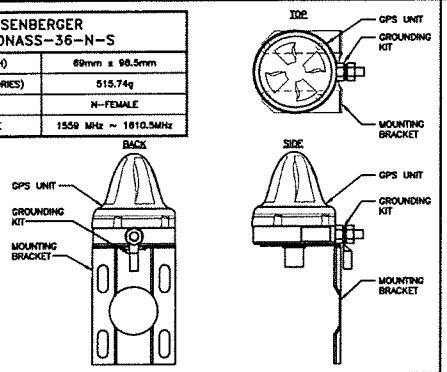
A&E PROJECT NUMBER
1197–F0001–C

DISH WIRELESS, LLC. PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

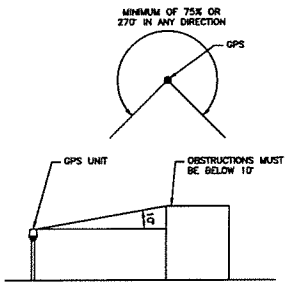
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

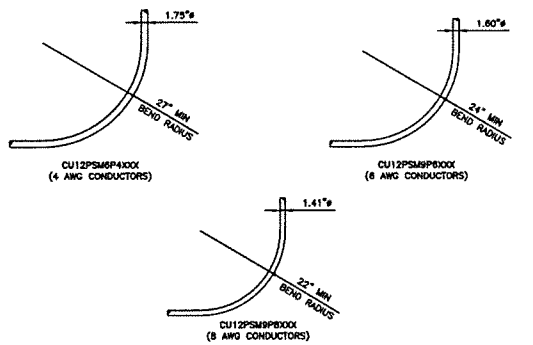
ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA 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

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

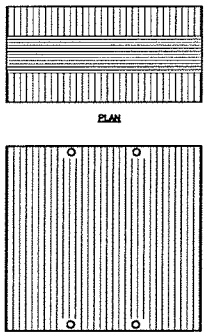
A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC. PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-56~-36V

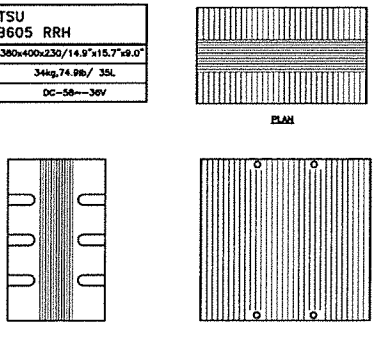


NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 1

FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



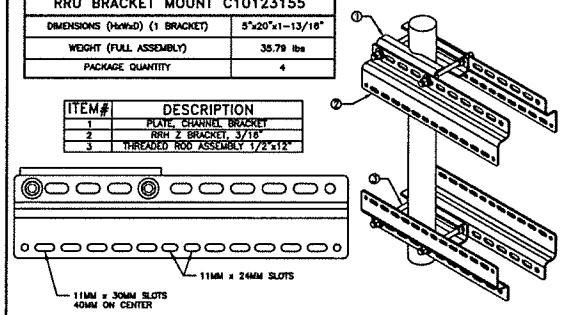
NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 2

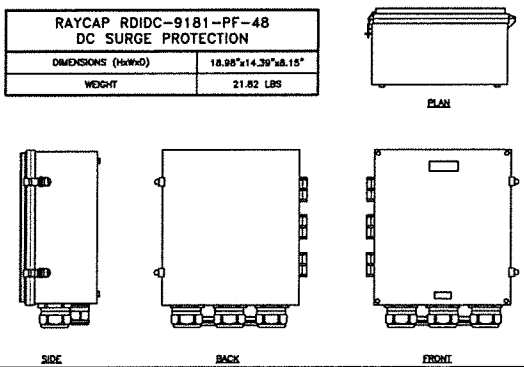
SABRE INDUSTRIES RRU BRACKET MOUNT C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

ITEM#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/18"
3	THREADED ROD ASSEMBLY 1/2"x12"



REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

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

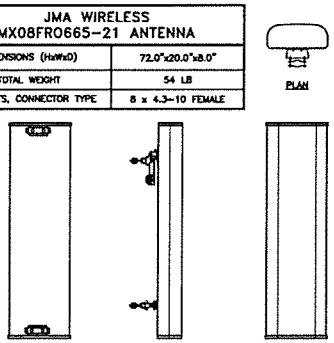


SURGE SUPPRESSION DETAIL | NO SCALE | 4

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	54 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

NOTES

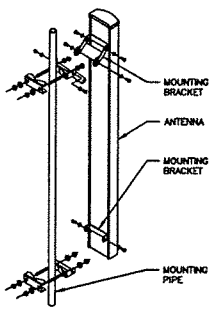
FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC



ANTENNA DETAIL | NO SCALE | 5

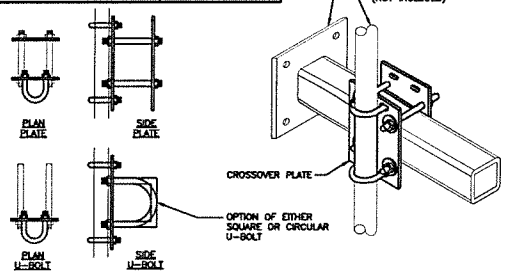
JMA MOUNTING BRACKET	
WIDTH	5"
DEPTH	2"
HEIGHT	8"
TOTAL WEIGHT	1.5 lbs
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1x8-PIN DAISY CHAIN

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



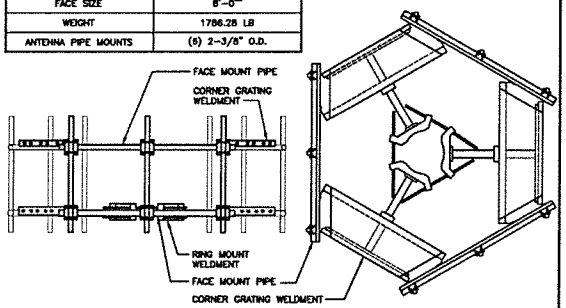
ANTENNA MOUNTING DETAIL | NO SCALE | 6

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



RRH/OVP MOUNT DETAIL | NO SCALE | 7

SITEPRO1 SNP8HR-396 SNUB-NOSE PLATFORM	
FACE SIZE	8'-0"
WEIGHT	1786.28 LB
ANTENNA PIPE MOUNTS	(8) 2-3/8" O.D.



ANTENNA PLATFORM DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST MTE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

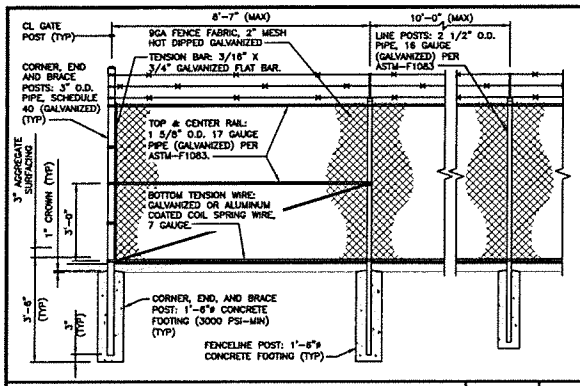
REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

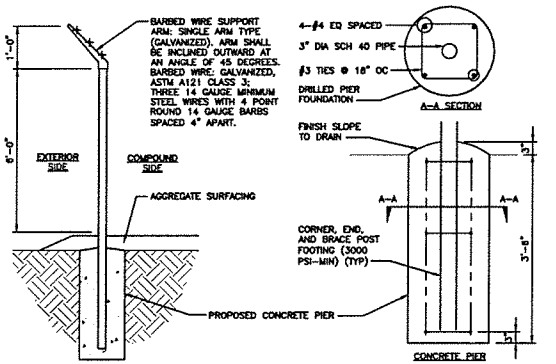
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



TYPICAL FENCE DETAIL | NO SCALE | 1



TYPICAL FENCE & CONCRETE PIER SECTION | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

MATERIAL DESCRIPTION | NO SCALE | 8

1. LINE POSTS: PIPE 2 1/2" STD (GALVANIZED) PER ASTM-F1083.
2. CORNER, END AND BRACE POSTS: 3" O.D. PIPE, SCHEDULE 40 (GALVANIZED).
3. TOP RAIL: PIPE 1 1/2" STD (GALVANIZED) PER ASTM-F1083.
4. BRACE RAIL: PIPE 1 1/2" STD (GALVANIZED).
5. DIAGONAL TRUSS ROD: 3/8" GALVANIZED ROD WITH TURNBUCKLE.
6. TENSION BAR: 3/16" X 3/4" GALVANIZED FLAT BAR.
7. BOTTOM TENSION WIRE: GALVANIZED OR ALUMINUM COATED COIL SPRING WIRE, 7 GAUGE.
8. GATE POSTS: PIPE 3" STD (GALVANIZED).
9. COMBINATION PADLOCK ACCORDING TO DISH WIRELESS REQUIREMENTS.
10. GATE FRAMES: PIPE 2" STD (GALVANIZED).
11. BARBED WIRE SUPPORT ARM: SINGLE ARM TYPE (GALVANIZED). ARM SHALL BE INCLINED OUTWARD AT AN ANGLE OF 45 DEGREES.
12. BARBED WIRE: GALVANIZED, ASTM A121 CLASS 3; THREE 14 GAUGE MINIMUM STEEL WIRES WITH 4 POINT ROUND 14 GAUGE BARBS SPACED 4" APART.
13. 9GA FENCE FABRIC, 2" MESH HOT DIPPED GALVANIZED
14. MISCELLANEOUS:
    - A. RAIL COUPLINGS: SLEEVE TYPE, 6" LONG EXPANSION SPRING EVERY FIFTH COUPLING.
    - B. POST TOPS: PRESSED STEEL, MALLEABLE IRON WITH PRESSED STEEL EXTENSION ARM, OR ONE-PIECE ALUMINUM CASTING; WITH HOLE FOR TOP, ALL DESIGNED TO FIT OVER THE OUTSIDE OF THE POSTS AND TO PREVENT ENTRY OF MOISTURE INTO TUBULAR POSTS.
    - C. LATCHES SHALL BE FORKED TYPE AND SHALL BE ARRANGED FOR PADLOCKING WITH THE PADLOCK ACCESSIBLE FROM BOTH SIDES OF THE GATE.
    - D. KEEPERS SHALL CONSIST OF MECHANICAL DEVICES FOR SECURING AND SUPPORTING THE FREE END OF THE GATES WHEN IN THE FULL OPEN POSITION. KEEPERS SHALL BE MOUNTED ON 2 7/8" O.D. PIPE POSTS FILLED WITH CONCRETE AND SET IN CONCRETE FOUNDATIONS.
    - E. INSTALL FENCING PER ASTM-F567.
    - F. INSTALL SWING GATES PER ASTM-F900. GATE FRAMES SHALL BE WELDED.
    - G. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLETED IF REQUIRED.
    - H. USE GALVANIZED HOG RING WIRE TO MOUNT ALL SIGNS.
    - I. ALL SIGNS MUST BE MOUNTED ON INSIDE OF FENCE.

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/28/22	REVISED BLDG CODES
5	12/13/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/23/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

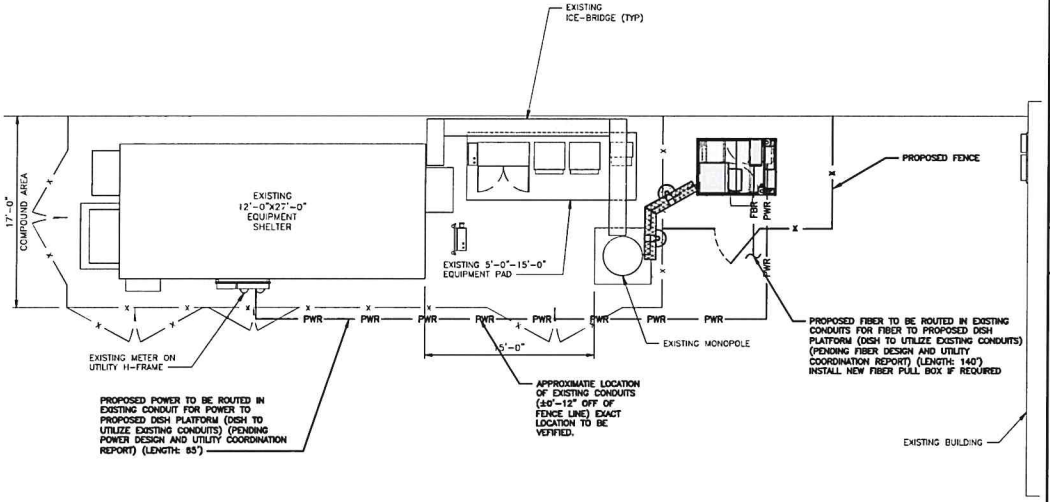
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
FENCING DETAILS

SHEET NUMBER
A-7

NOTES

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



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

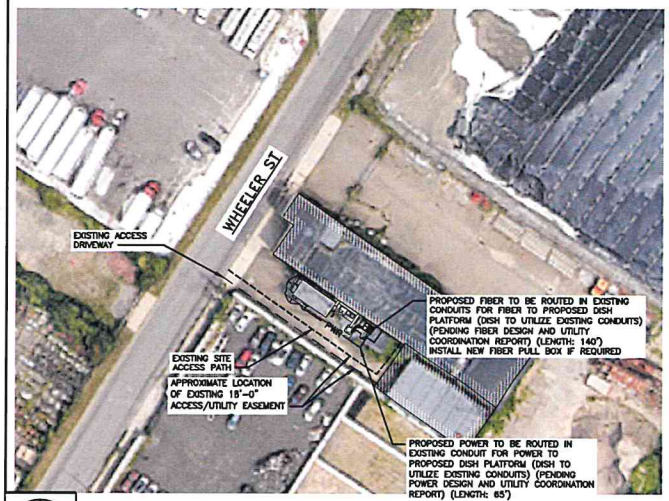
1

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. FIBER ROUTE IS PRELIMINARY, FINAL FIBER ROUTE TO BE DETERMINED ONCE UCR (UTILITY COORDINATION REPORT) HAS BEEN FINALIZED.

ELECTRICAL NOTES

2



OVERALL UTILITY ROUTE PLAN

40' 20' 0 40' 80'
1"=40'

3

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

NORTHEAST SITE SOLUTIONS
Serving Wireless Development
CERTIFIED WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/15/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

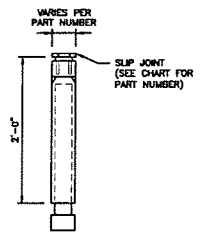
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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"

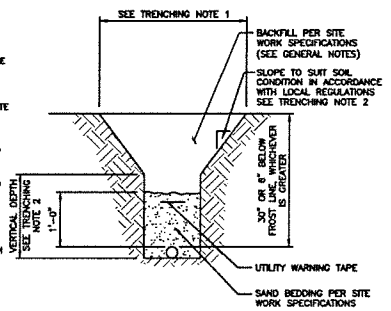


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

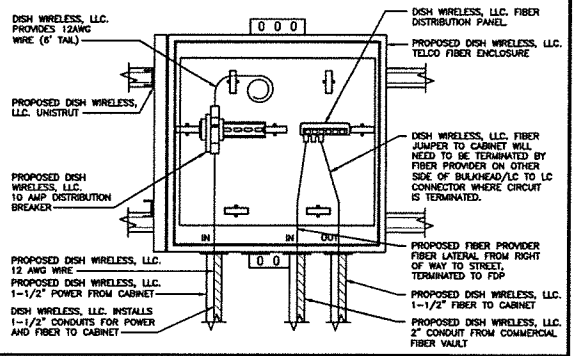
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

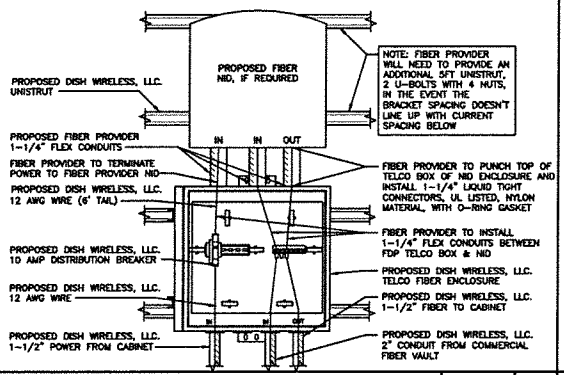
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

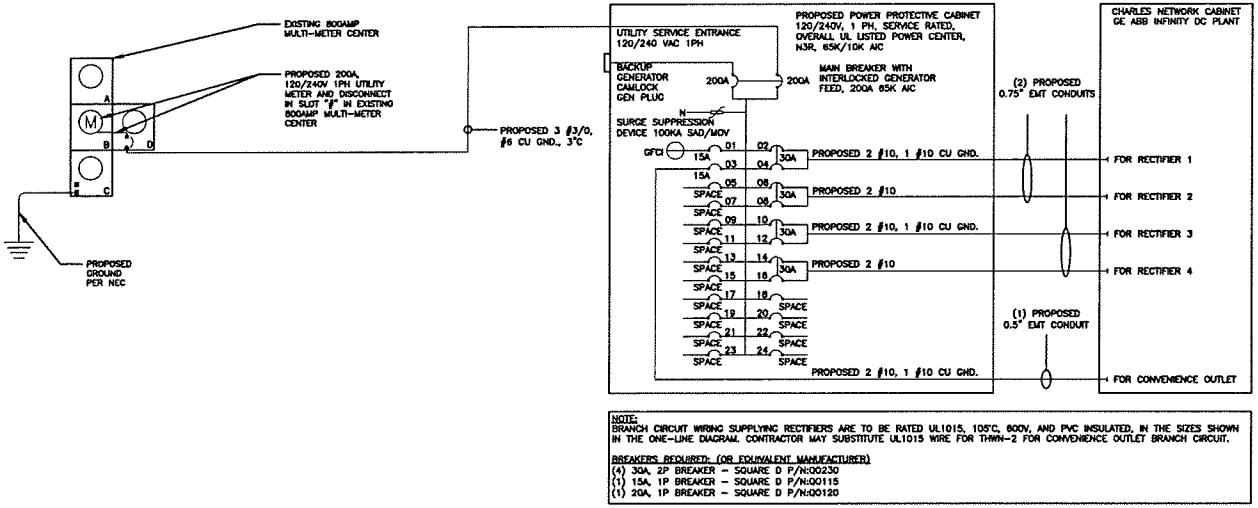
REV	DATE	DESCRIPTION
1	02/16/23	REVISED PER COMMENTS
2	03/06/23	REVISED PER COMMENTS
3	03/15/23	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/23/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197--F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
ELECTRICAL/FIBER 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: (OR EQUIVALENT MANUFACTURER)
(4) 30A, 2P BREAKER – SQUARE D P/N:QO230
(1) 15A, 1P BREAKER – SQUARE D P/N:QO115
(1) 20A, 1P BREAKER – SQUARE D P/N:QO120

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.

(1) OPTIONAL ALUMINUM SERVICE CONDUCTOR:
- 4/0 AL + #2 GRD MAY BE USED INSTEAD OF 3/0 CU + #6 GRD IF THE TOTAL LENGTH OF THE CONDUCTOR IS LESS THAN 300 FT FROM THE TRANSFORMER.
- ALUMINUM CONDUCTORS MUST BE 90°C TO CARRY THE FULL 200A LOAD REQUIRED
- ALUMINUM TO COPPER BUSS CONNECTIONS MUST MEET AND CONFORM TO ANSI AND BE UL LISTED. USE ANTI CORROSION CONDUCTIVE LUBRICANT ON CONNECTIONS

(CHARLES ABB GE INFINITY DC PLANT) WITH MULTI-METER CENTER 120V240V 1PH SOURCE — NO SCALE — 1

PROPOSED CHARLES PANEL SCHEDULE
GE ABB INFINITY DC PLANT

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		2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4	30A		2880	
--SPACE--				5	A	6		2880		ABB/GE INFINITY RECTIFIER 2
--SPACE--				7	B	8	30A		2880	
--SPACE--				9	A	10		2880		ABB/GE INFINITY RECTIFIER 3
--SPACE--				11	B	12	30A		2880	
--SPACE--				13	A	14		2880		ABB/GE INFINITY RECTIFIER 4
--SPACE--				15	B	16	30A		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, 16, 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
(CHARLES ABB GE INFINITY DC PLANT) WITH MULTI-METER CENTER 120V240V 1PH SOURCE — NO SCALE — 2

NOT USED — NO SCALE — 4

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

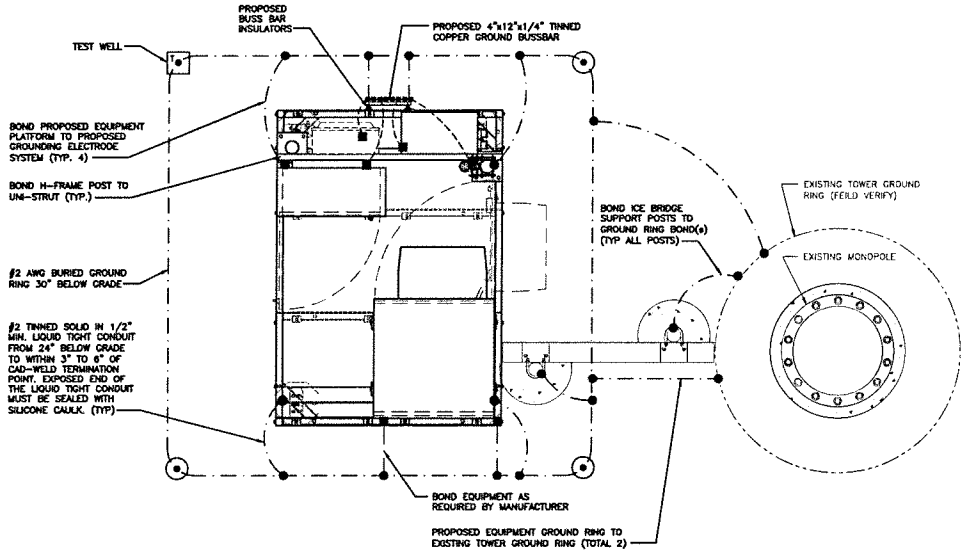
REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/28/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/23/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
ELECTRICAL ONE-LINE & PANEL SCHEDULE

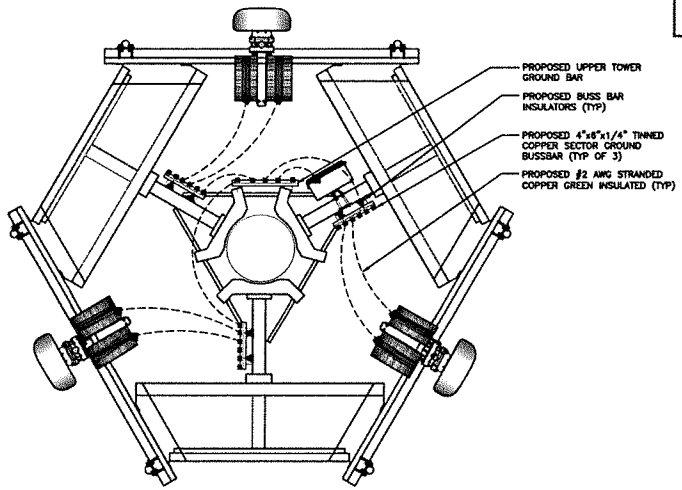
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- 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, LLC. 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 5/8" DIAMETER BY 10' 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, LLC. GROUNDING NOTES.

GROUNDING KEY NOTES | NO SCALE | 3

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

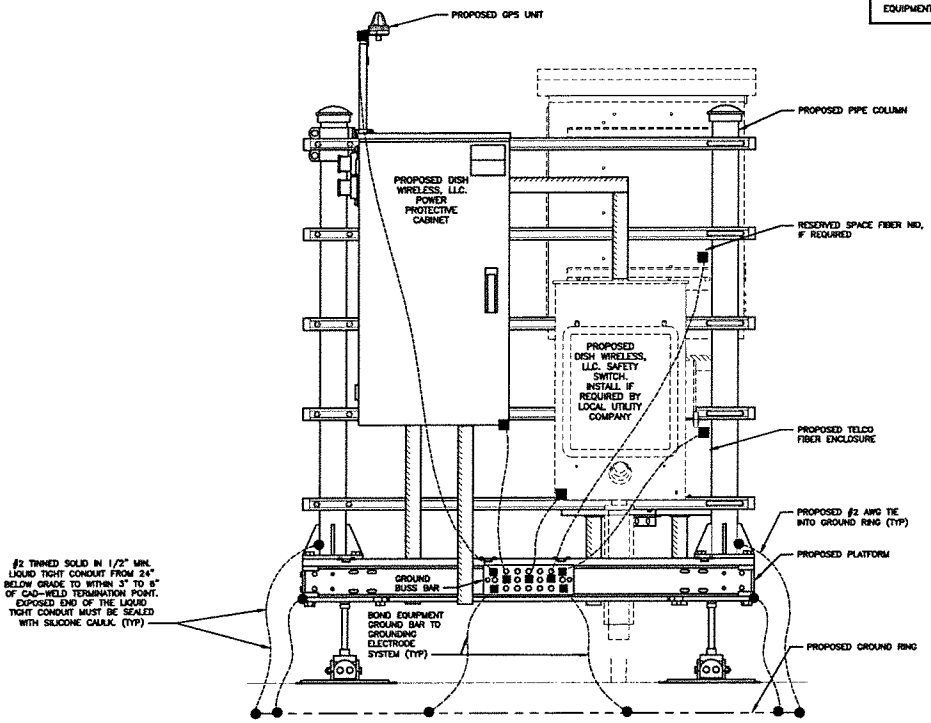
DISH WIRELESS, LLC. PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

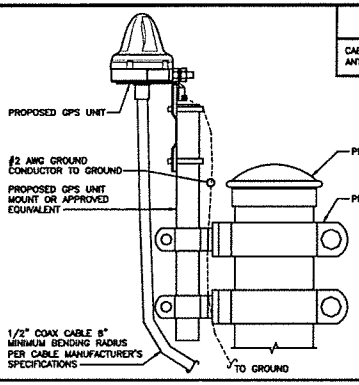
EQUIPMENT CABINET OMITTED FOR CLARITY



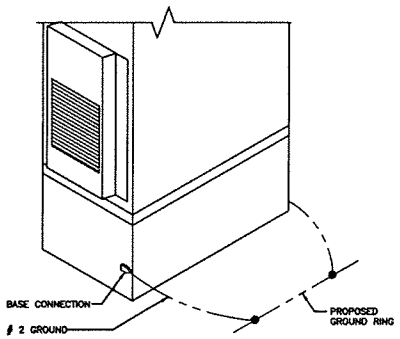
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

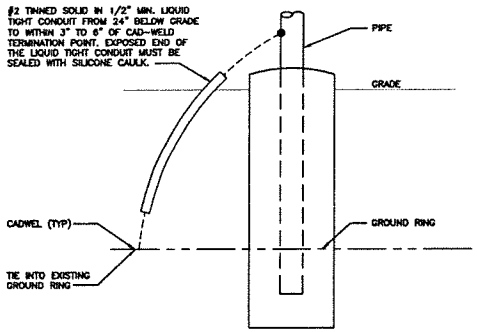
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



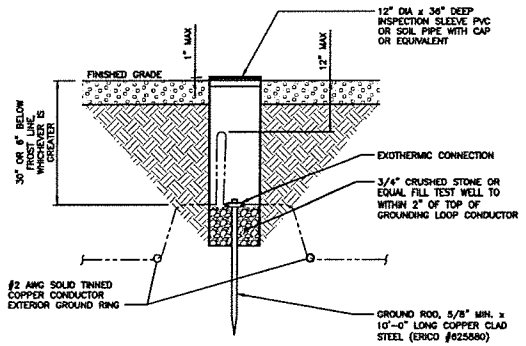
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



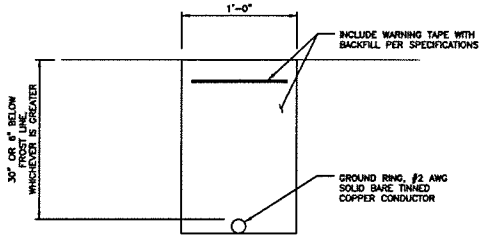
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/18/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/15/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

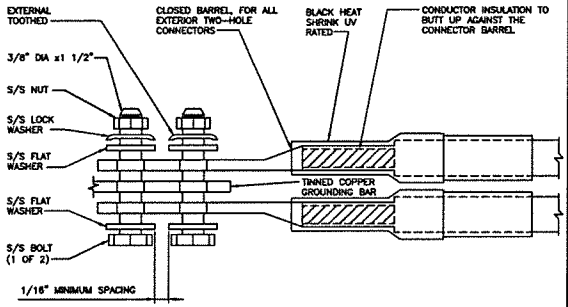
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
GROUNDING DETAILS

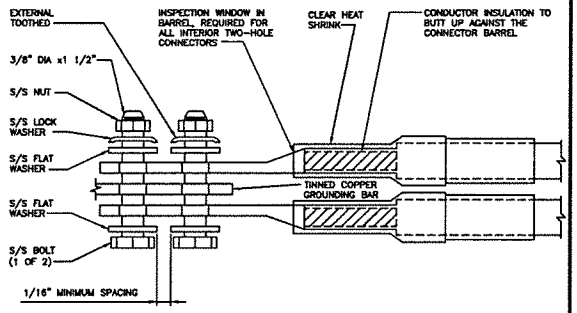
SHEET NUMBER
G-2

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).

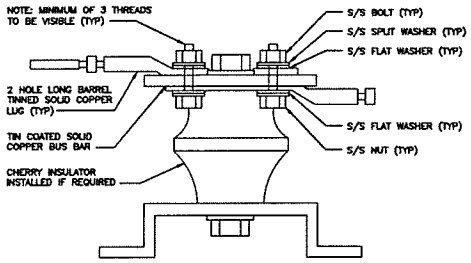
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

| NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/23/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
GROUNDING DETAILS

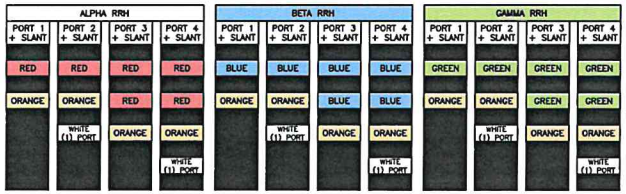
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

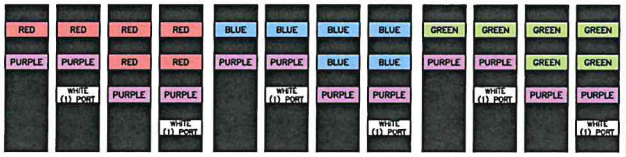
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

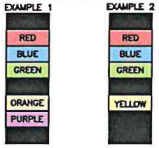


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM LONG WITH FREQUENCY BANDS

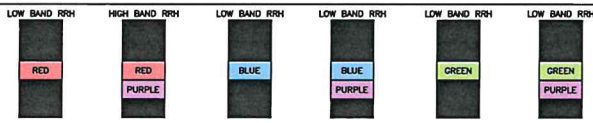
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



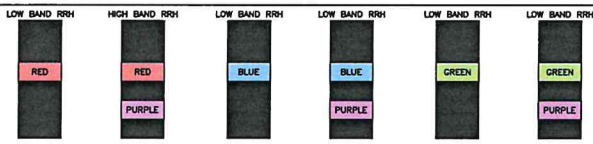
HYBRID/DISCREET CABLES

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY



POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

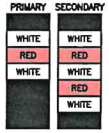


RET MOTORS AT ANTENNAS

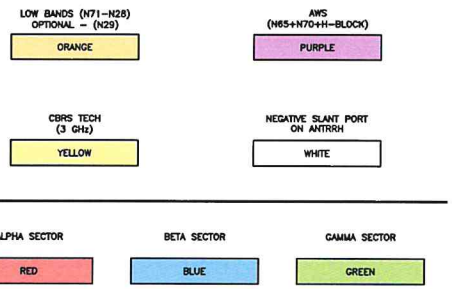
MICROWAVE RADIO LINKS

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



RF CABLE COLOR CODES | NO SCALE | 1



COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/18/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

W.P.

SECTION REFERENCE

DETAIL REFERENCE

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
verified WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/18/22	REVISED PER COMMENTS
4	11/28/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

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

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

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

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

CAUTION

Transmitting Antenna(s)

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

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

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

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

WARNING

Transmitting Antenna(s)

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

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

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

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

RF SIGNAGE

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

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
certified WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/16/23	REVISED PER COMMENTS
2	03/06/23	REVISED PER COMMENTS
3	03/15/23	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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 60 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.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NORTHEAST SITE SOLUTIONS
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/16/22	REVISED PER COMMENTS
2	03/08/22	REVISED PER COMMENTS
3	03/15/22	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/22/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

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
WBENC

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

NOT FOR CONSTRUCTON

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

RFDS REV #: N/A

PRELIMINARY DOCUMENTS

REV	DATE	DESCRIPTION
1	02/15/23	REVISED PER COMMENTS
2	03/08/23	REVISED PER COMMENTS
3	03/15/23	REVISED PER COMMENTS
4	11/29/22	REVISED BLDG CODES
5	12/12/22	REVISED BLDG CODES
6	12/21/22	REVISED PER RFDS
7	03/23/23	REVISED PER COMMENTS
8	03/27/23	REVISED PER COMMENTS
A	03/27/23	REVISED PER COMMENTS

A&E PROJECT NUMBER
1197-F0001-C

DISH WIRELESS, LLC.
PROJECT INFORMATION

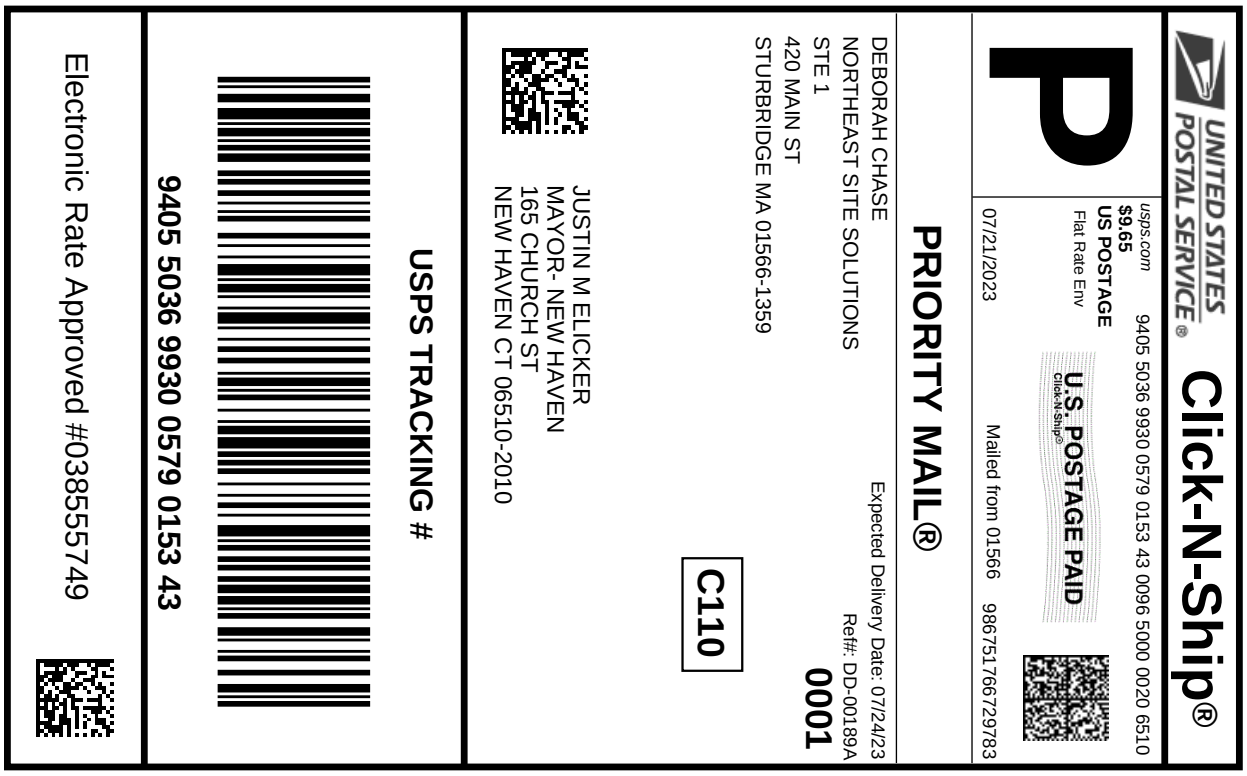
BOHVN00189A
69 WHEELER STREET
NEW HAVEN, CT 06512

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-5

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0579 0153 43

Trans. #:	592110200
Print Date:	07/21/2023
Ship Date:	07/21/2023
Expected Delivery Date:	07/24/2023

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

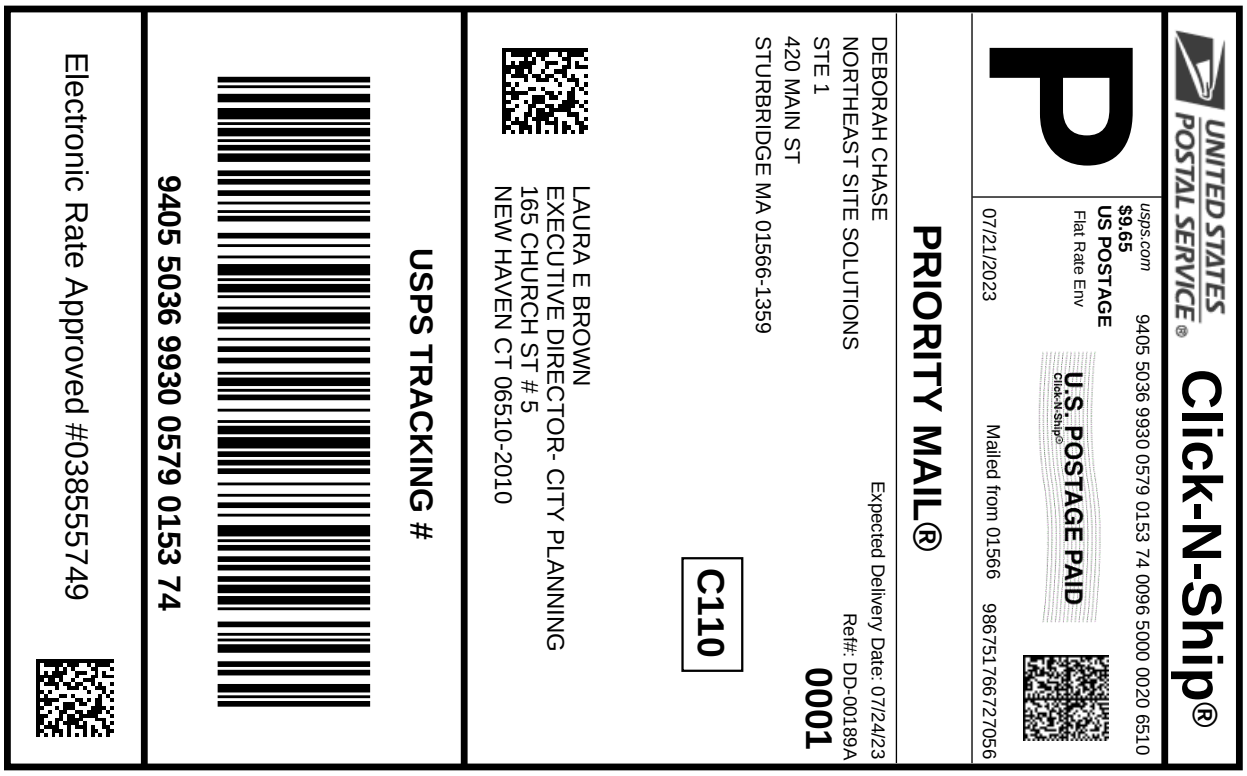
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DD-00189A

To: JUSTIN M ELICKER
MAYOR- NEW HAVEN
165 CHURCH ST
NEW HAVEN CT 06510-2010

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

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0579 0153 74

Trans. #:	592110200
Print Date:	07/21/2023
Ship Date:	07/21/2023
Expected Delivery Date:	07/24/2023

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

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

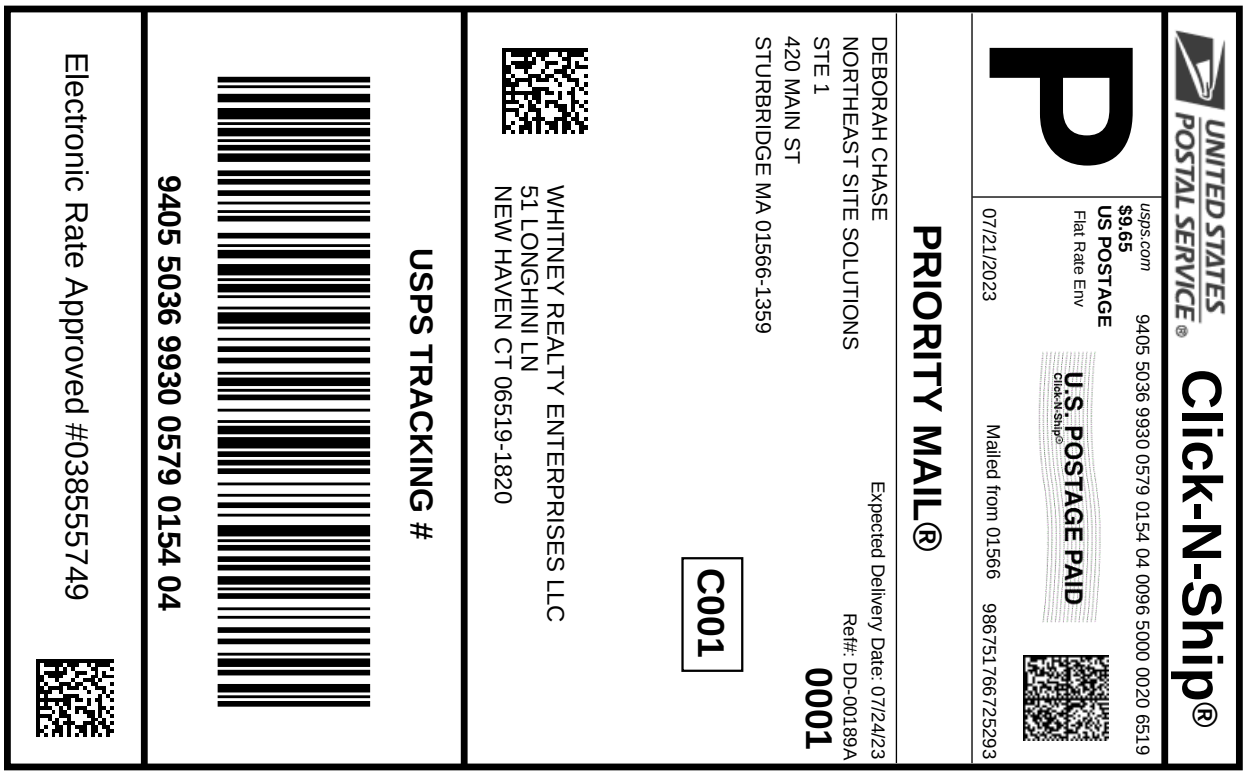
Ref#: DD-00189A

To: LAURA E BROWN
EXECUTIVE DIRECTOR- CITY PLANNING DEPARTMENT
165 CHURCH ST # 5
NEW HAVEN CT 06510-2010

* 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.

UNITED STATES POSTAL SERVICE®

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0579 0154 04

Trans. #:	592110200
Print Date:	07/21/2023
Ship Date:	07/21/2023
Expected Delivery Date:	07/24/2023

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

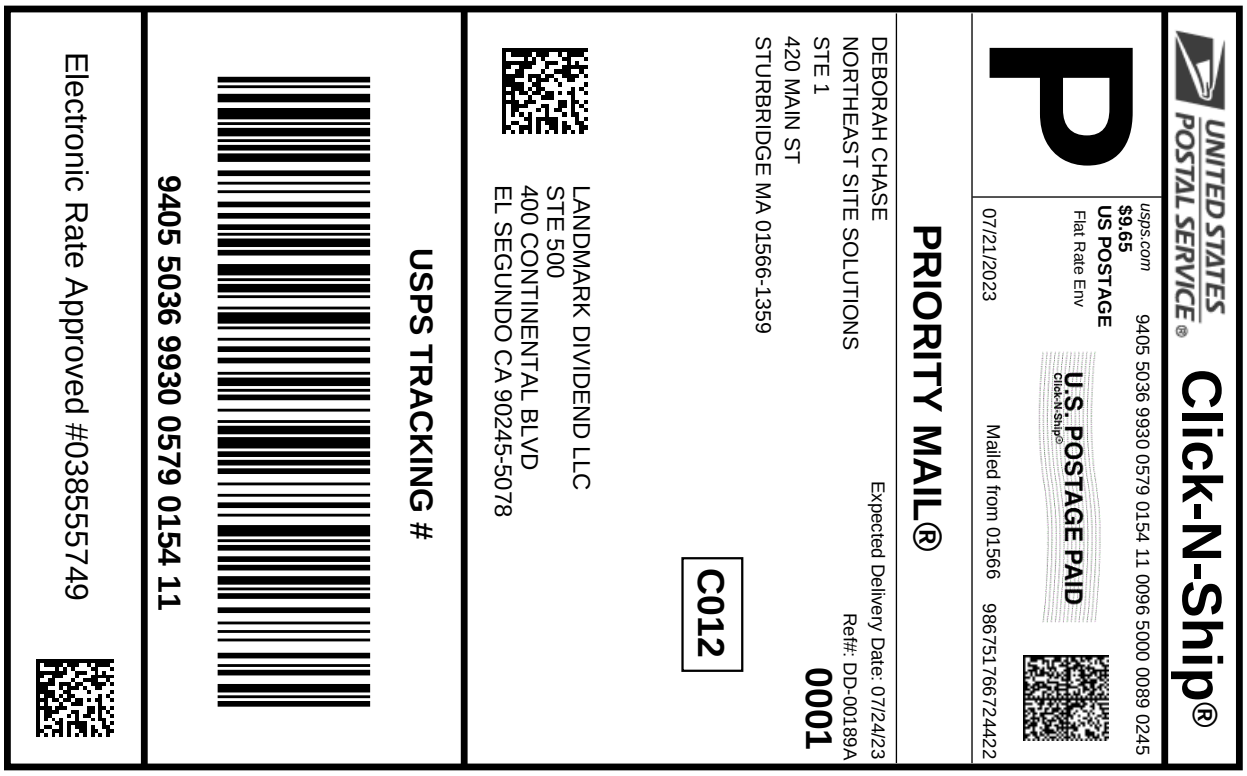
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: DD-00189A

To: WHITNEY REALTY ENTERPRISES LLC
51 LONGHINI LN
NEW HAVEN CT 06519-1820

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

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0579 0154 11

Trans. #:	592110200
Print Date:	07/21/2023
Ship Date:	07/21/2023
Expected Delivery Date:	07/24/2023

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-00189A

To: LANDMARK DIVIDEND LLC
STE 500
400 CONTINENTAL BLVD
EL SEGUNDO CA 90245-5078

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

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

UNITED STATES POSTAL SERVICE.

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

07/21/2023 04:12 PM

Product	Qty	Unit Price	Price
Prepaid Mail New Haven, CT 06510 Weight: 0 lb 10.20 oz Acceptance Date: Fri 07/21/2023 Tracking #: 9405 5036 9930 0579 0153 43	1		$0.00
Prepaid Mail El Segundo, CA 90245 Weight: 0 lb 9.20 oz Acceptance Date: Fri 07/21/2023 Tracking #: 9405 5036 9930 0579 0154 11	1		$0.00
Prepaid Mail New Haven, CT 06519 Weight: 0 lb 9.20 oz Acceptance Date: Fri 07/21/2023 Tracking #: 9405 5036 9930 0579 0154 04	1		$0.00
Prepaid Mail New Haven, CT 06510 Weight: 0 lb 11.30 oz Acceptance Date: Fri 07/21/2023 Tracking #: 9405 5036 9930 0579 0153 74	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.

Preview your Mail
Track your Packages
Sign up for FREE @
https://informeddelivery.usps.com

All sales final on stamps and postage.
Refunds for guaranteed services only.
Thank you for your business.

Tell us about your experience.
Go to: https://postalexperience.com/Pos
or scan this code with your mobile device,

or call 1-800-410-7420.

UFN: 242703-0518
Receipt #: 840-50180227-1-4377656-1
Clerk: 1