CUDDY +FEDER LLP

300 Westage Business Center, Suite 380
Fishkill, New York 12524
T 845 896 2229
F 845 896 3672
cuddyfeder.com

Alec R. Gladd, Esq.
agladd@cuddyfeder.com

March 30, 2022

BY EMAIL AND FEDEX

Chairperson Loretta Taylor
And Members of the Planning Board
Cortlandt Town Hall
1 Heady Street
Cortlandt Manor, New York 10567

RE:	Applicant:	DISH Wireless/Crown Castle Eligible Facilities Request
	Property/Site:	3105 E. Main St., Cortlandt, New York (Cortlandt Town Center)
	Tax Parcel:	Section 24.10, Block 1, Lot 1
	Tower Owner:	Crown Castle USA, Inc. ("Crown Castle")

Dear Chairperson Taylor and Members of the Planning Board:

On behalf of our client, DISH Wireless L.L.C. ("DISH" or "Applicant), we respectfully submit this letter and attachments in connection with DISH's proposed collocation of a wireless communications facility at the existing Crown Castle facility located at the above Property. We understand a building permit application was filed by inRange Solutions, LLC on November 5, 2021, and pursuant to discussions with Town Staff at the January 7, 2022 pre-application meeting, we are submitting this application and requesting it be forwarded to Town Staff/Consultants for technical review and approval.

Project Summary:

DISH acquired Federal Communications Commission ("FCC") Licenses to provide wireless telecommunications services as part of the Spring/T-Mobile merger and plans to deploy a nationwide 5G network. As detailed in the enclosed Exhibits, DISH is proposing to collocate 3 antenna at a centerline height of 79' on the existing 140'-tall tower along with associated equipment within the existing fenced compound at the base. DISH's proposed collocation will not increase the height of the existing tower, nor will there be an expansion of the existing fenced compound.

Since this project involves modifications as defined in Federal Communications Commission ("FCC") regulations, the nature of any land use and discretionary permitting reviews are fairly limited.[i] Typically, only a building permit is required because federal regulations require the issuance of all municipal permits within 60 days of filing for sites involving eligible modifications like the above-described facility.

Enclosed to facilitate the Planning Board's review is DISH's Eligible Facilities Request and twelve (12) copies of the supporting materials, all of which demonstrate DISH's upgrade does not involve a substantial modification of the site in accordance with federal requirements:

Exhibit A: Planning Board Application Form and Proxy Statement

Exhibit B: Applicable Laws and Regulations (47 USC § 1455 and 47 CFR § 1.6100)

Exhibit C: Structural Analysis Report, dated June 29, 2021.

Exhibit D: Radio Frequency – Electromagnetic Energy (RF-EME) Report, prepared by EBI Consulting, dated March 11, 2022.

Exhibit E: Copies of the November 5, 2021 inRange Solutions, LLC Building Permit Application:

- Cover Letter
- Building Permit Application
- COI[ii]

Exhibit F: Drawings, last revised November 5, 2021, including 2 full sized drawings as an attachment.

Please also find enclosed two check in the amounts of $5,000.00 and $7,500.00 each made payable to the Town of Cortlandt representing the Planning Board review fee and escrow, respectively.

To the extent that any provisions of Town Code require any further information beyond demonstrating that DISH's upgrade is an eligible facilities request, DISH respectfully requests a waiver given that the requirements of Section 6409(a) and FCC regulations. We further ask that the Building Inspector review the building permit application filed on November 5, 2021 and the enclosed updated Drawings, last revised November 5, 2021 for compliance with the New York State Building Code in furtherance of issuing a Building Permit.

Please do not hesitate to contact me should you have any questions. Thank you for your assistance.

Very truly yours,

Alec Gladd

Alec R. Gladd
Enc.

[i] See FCC Report and Order, adopted October 17, 2014 (FCC 14-153) adopting regulations at 47 C.F.R. § 1.6100 and implementing Section 6409(a) of the Spectrum Act.

[ii] The Structural Evaluation and Drawings are included as Exhibits C and F to this letter.

EXHIBIT A

TOWN OF CORTLANDT – PLANNING BOARD APPLICATION

CHECK TYPE OF APPROVAL(S) REQUESTED

- ☐ Preliminary Subdivision ☐ Conventional ☐ Cluster ☐
- ☐ Lot Line Adjustment ☐ Change of Use
- ☐ Site Development Plan ☐ Site Plan Amendment
- ☐ Special Permit ☐ Wetlands Permit
- ☐ Steep Slopes Permit ☐ Tree Removal Permit
- ☒ Cell Tower ☐ Accessory Apartment

For Official Use Only
PB Case No._____
Date Received:_____
Fee Paid:_____

NOTE: Please see INSTRUCTIONS AND CHECKLIST.

NAME OF PROJECT: Dish Wireless **SBL:** 24.10-1-1

ADDRESS OF PROJECT: 3105 East Main Street Corlandt **OR SITE LOCATION: ON THE**

_____ **SIDE OF** _____ **ZONING DISTRICT:** CD
DIRECTION STREET

OWNER:
NAME: Crown Castle USA, Inc. (Tower Owner)
MAILING ADDRESS: 1200 MacArthur Boulevard, Suite 200 Mahwah, New Jersey 07430
EMAIL: kimberly.myl@crowncastle TELEPHONE #: 201-236-9069

APPLICANT: (*IF NOT OWNER, AN OWNER CONSENT FORM MUST BE ATTACHED)
NAME: Derek Picinic OBO CROWN CASTLE DISH NETWORK LLC
MAILING ADDRESS: 695 Route 46 West, Suite 300, Fairfield, NJ 07004
EMAIL: DPicinic@inrange-llc.com TELEPHONE #: 551-655-7086

ENGINEER/ARCHITECT
NAME: Kimley-Horn & Associates
ADDRESS: 1 N Lexington Ave, Suite 1575 White Plains, NY10601
EMAIL: michael.krieg@kimley-horn TELEPHONE #: 330 495 9080

ATTORNEY OR OTHER CONTACT FOR THIS APPLICATION
NAME: Alec R Gladd, Esq.
ADDRESS: 300 Westage Business Center Suite 380, Fishkill, New York 12524
EMAIL: AGladd@cuddyfeder.com TELEPHONE #: 845 896 2229

SCOPE/DESCRIPTION OF PROJECT

Dish 5G- Dish proposes to add (3) antennas, (6) RRH, (1) OVP and (1) hybrid to the tower. Dish will have a 5'x7' lease area with (1) cabinet

(ATTACH ADDITIONAL DOCUMENT IF NECESSARY)

CONTINUED ON BACK.....

CONFIRMATION OF ALL TAXES PAID: _____

RECEIVER OF TAXES DATE

STATE OF NEW YORK
COUNTY OF WESTCHETER
TOWN OF CORTLANDT

I Derek Picinic hereby depose and say that the above statements and the statements contained in the papers submitted in association with this application are true.

Derek Picinic

SIGNATURE OF OWNER, APPLICANT, REPRESENTATIVE Derek Picinic Agent OBO Crowncastle DISH network LLC

If signing on behalf of an entity*: _____

_____

NAME TITLE

PLEASE PRINT
NAME: _____ DATE: _____

NOTARY PUBLIC
STATE OF NEW YORK
COUNTY OF WESTCHETER
TOWN OF CORTLANDT

On this, the 21st day of December 2021, before me a notary public, the undersigned personally appeared _____, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained. In witness hereof, I hereunto set my hand and official seal. _____
Notary Public.

CORI M. POFF
NOTARY PUBLIC OF NEW JERSEY
Comm. # 50068940
My Commission Expires 9/29/2022

Cori M Poff
NOTARY PUBLIC

*If you are not the owner you need to fill out a separate "Owner Authorization" form.

TOWN OF CORTLANDT

DEPARTMENT OF TECHNICAL SERVICES
Code Enforcement Division
Town Hall, 1 Heady Street, Cortlandt Manor, NY 10567
914-734-1011 FAX 914-293-0991
http://www.townofcortlandt.com e-mail: code@townofcortlandt.com

PROXY STATEMENT

COURTLANDT TOWN CENTER is the owner of the property located at 3105 East Main Street and has authorized INRANGE SOLUTIONS LLC to make the attached application for CROWN CASTLE - DISH NETOWRK LLC and to represent them at all Board meetings.

Signature of Owner

NOTARY:

Sworn to before me

this 22ND day of MARCH, 2022

Notary Public:

CORI M. POFF
NOTARY PUBLIC OF NEW JERSEY
Comm. # 50068940
My Commission Expires 9/29/2022

EXHIBIT B

United States Code Annotated
Title 47. Telecommunications (Refs & Annos)
Chapter 13. Public Safety Communications and Electromagnetic Spectrum Auctions
Subchapter IV. Spectrum Auction Authority

47 U.S.C.A. § 1455

§ 1455. Wireless facilities deployment

Effective: March 23, 2018
Currentness

(a) Facility modifications

(1) In general

Notwithstanding section 704 of the Telecommunications Act of 1996 (Public Law 104-104) or any other provision of law, a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.

(2) Eligible facilities request

For purposes of this subsection, the term "eligible facilities request" means any request for modification of an existing wireless tower or base station that involves--

(A) collocation of new transmission equipment;

(B) removal of transmission equipment; or

(C) replacement of transmission equipment.

(3) Applicability of environmental laws

Nothing in paragraph (1) shall be construed to relieve the Commission from the requirements of the National Historic Preservation Act or the National Environmental Policy Act of 1969.

(b) Federal easements, rights-of-way, and leases

(1) Grant

If an executive agency, a State, a political subdivision or agency of a State, or a person, firm, or organization applies for the grant of an easement, right-of-way, or lease to, in, over, or on a building or other property owned by the Federal Government for the right to install, construct, modify, or maintain a communications facility installation, the executive agency having control of the building or other property may grant to the applicant, on behalf of the Federal Government, subject to paragraph (3), an easement, right-of-way, or lease to perform such installation, construction, modification, or maintenance.

(2) Application

(A) In general

The Administrator of General Services shall develop a common form for applications for easements, rights-of-way, and leases under paragraph (1) for all executive agencies that, except as provided in subparagraph (B), shall be used by all executive agencies and applicants with respect to the buildings or other property of each such agency.

(B) Exception

The requirement under subparagraph (A) for an executive agency to use the common form developed by the Administrator of General Services shall not apply to an executive agency if the head of an executive agency notifies the Administrator that the executive agency uses a substantially similar application.

(3) Timely consideration of applications

(A) In general

Not later than 270 days after the date on which an executive agency receives a duly filed application for an easement, right-of-way, or lease under this subsection, the executive agency shall--

(i) grant or deny, on behalf of the Federal Government, the application; and

(ii) notify the applicant of the grant or denial.

(B) Explanation of denial

If an executive agency denies an application under subparagraph (A), the executive agency shall notify the applicant in writing, including a clear statement of the reasons for the denial.

(C) Applicability of environmental laws

Nothing in this paragraph shall be construed to relieve an executive agency of the requirements of division A of subtitle III of Title 54 or the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(D) Point of contact

Upon receiving an application under subparagraph (A), an executive agency shall designate one or more appropriate individuals within the executive agency to act as a point of contact with the applicant.

(c) Master contracts for communications facility installation sitings

(1) In general

Notwithstanding section 704 of the Telecommunications Act of 1996 (Public Law 104-104; 110 Stat. 151) or any other provision of law, the Administrator of General Services shall--

(A) develop one or more master contracts that shall govern the placement of communications facility installations on buildings and other property owned by the Federal Government; and

(B) in developing the master contract or contracts, standardize the treatment of the placement of communications facility installations on building rooftops or facades, the placement of communications facility installations on rooftops or inside buildings, the technology used in connection with communications facility installations placed on Federal buildings and other property, and any other key issues the Administrator of General Services considers appropriate.

(2) Applicability

The master contract or contracts developed by the Administrator of General Services under paragraph (1) shall apply to all publicly accessible buildings and other property owned by the Federal Government, unless the Administrator of General Services decides that issues with respect to the siting of a communications facility installation on a specific building or other property warrant nonstandard treatment of such building or other property.

(3) Application

(A) In general

The Administrator of General Services shall develop a common form or set of forms for communications facility installation siting applications that, except as provided in subparagraph (B), shall be used by all executive agencies and applicants with respect to the buildings and other property of each such agency.

(B) Exception

The requirement under subparagraph (A) for an executive agency to use the common form or set of forms developed by the Administrator of General Services shall not apply to an executive agency if the head of the executive agency notifies the Administrator that the executive agency uses a substantially similar application.

(d) Definitions

In this section:

(1) Communications facility installation

The term "communications facility installation" includes--

(A) any infrastructure, including any transmitting device, tower, or support structure, and any equipment, switches, wiring, cabling, power sources, shelters, or cabinets, associated with the licensed or permitted unlicensed wireless or wireline transmission of writings, signs, signals, data, images, pictures, and sounds of all kinds; and

(B) any antenna or apparatus that--

(i) is designed for the purpose of emitting radio frequency;

(ii) is designed to be operated, or is operating, from a fixed location pursuant to authorization by the Federal Communications Commission or is using duly authorized devices that do not require individual licenses; and

(iii) is added to a tower, building, or other structure.

(2) Executive agency

The term "executive agency" has the meaning given such term in section 102 of Title 40.

CREDIT(S)

(Pub.L. 112-96, Title VI, § 6409, Feb. 22, 2012, 126 Stat. 232; Pub.L. 115-141, Div. P, Title VI, § 606(a), Mar. 23, 2018, 132 Stat. 1101.)

Notes of Decisions (10)

47 U.S.C.A. § 1455, 47 USCA § 1455
Current through P.L. 117-80.

End of Document

Code of Federal Regulations
Title 47. Telecommunication
Chapter I. Federal Communications Commission (Refs & Annos)
Subchapter A. General
Part 1. Practice and Procedure (Refs & Annos)
Subpart U. State and Local Government Regulation of the Placement, Construction, and Modification of Personal Wireless Service Facilities (Refs & Annos)

47 C.F.R. § 1.6100

§ 1.6100 Wireless Facility Modifications.

Effective: January 4, 2021
Currentness

(a) [Reserved by 83 FR 51886]

(b) Definitions. Terms used in this section have the following meanings.

(1) Base station. A structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower as defined in this subpart or any equipment associated with a tower.

(i) The term includes, but is not limited to, equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(ii) The term includes, but is not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks).

(iii) The term includes any structure other than a tower that, at the time the relevant application is filed with the State or local government under this section, supports or houses equipment described in paragraphs (b)(1)(i) through (ii) of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.

(iv) The term does not include any structure that, at the time the relevant application is filed with the State or local government under this section, does not support or house equipment described in paragraphs (b)(1)(i)-(ii) of this section.

(2) Collocation. The mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

(3) Eligible facilities request. Any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving:

(i) Collocation of new transmission equipment;

(ii) Removal of transmission equipment; or

(iii) Replacement of transmission equipment.

(4) Eligible support structure. Any tower or base station as defined in this section, provided that it is existing at the time the relevant application is filed with the State or local government under this section.

(5) Existing. A constructed tower or base station is existing for purposes of this section if it has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, provided that a tower that has not been reviewed and approved because it was not in a zoned area when it was built, but was lawfully constructed, is existing for purposes of this definition.

(6) Site. For towers other than towers in the public rights-of-way, the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site, and, for other eligible support structures, further restricted to that area in proximity to the structure and to other transmission equipment already deployed on the ground. The current boundaries of a site are the boundaries that existed as of the date that the original support structure or a modification to that structure was last reviewed and approved by a State or local government, if the approval of the modification occurred prior to the Spectrum Act or otherwise outside of the section 6409(a) process.

(7) Substantial change. A modification substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

(i) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10% or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10% or more than ten feet, whichever is greater;

(A) Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.

(ii) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six feet;

(iii) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no pre-existing ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10% larger in height or overall volume than any other ground cabinets associated with the structure;

(iv) It entails any excavation or deployment outside of the current site, except that, for towers other than towers in the public rights-of-way, it entails any excavation or deployment of transmission equipment outside of the current site by more than 30 feet in any direction. The site boundary from which the 30 feet is measured excludes any access or utility easements currently related to the site;

(v) It would defeat the concealment elements of the eligible support structure; or

(vi) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would not exceed the thresholds identified in § 1.40001(b)(7)(i) through (iv).

(8) Transmission equipment. Equipment that facilitates transmission for any Commission-licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply. The term includes equipment associated with wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(9) Tower. Any structure built for the sole or primary purpose of supporting any Commission-licensed or authorized antennas and their associated facilities, including structures that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site.

(c) Review of applications. A State or local government may not deny and shall approve any eligible facilities request for modification of an eligible support structure that does not substantially change the physical dimensions of such structure.

(1) Documentation requirement for review. When an applicant asserts in writing that a request for modification is covered by this section, a State or local government may require the applicant to provide documentation or information only to the extent reasonably related to determining whether the request meets the requirements of this section. A State or local government may not require an applicant to submit any other documentation, including but not limited to documentation intended to illustrate the need for such wireless facilities or to justify the business decision to modify such wireless facilities.

(2) Timeframe for review. Within 60 days of the date on which an applicant submits a request seeking approval under this section, the State or local government shall approve the application unless it determines that the application is not covered by this section.

(3) Tolling of the timeframe for review. The 60–day period begins to run when the application is filed, and may be tolled only by mutual agreement or in cases where the reviewing State or local government determines that the application is incomplete. The timeframe for review is not tolled by a moratorium on the review of applications.

(i) To toll the timeframe for incompleteness, the reviewing State or local government must provide written notice to the applicant within 30 days of receipt of the application, clearly and specifically delineating all missing documents or information. Such delineated information is limited to documents or information meeting the standard under paragraph (c)(1) of this section.

(ii) The timeframe for review begins running again when the applicant makes a supplemental submission in response to the State or local government's notice of incompleteness.

(iii) Following a supplemental submission, the State or local government will have 10 days to notify the applicant that the supplemental submission did not provide the information identified in the original notice delineating missing information. The timeframe is tolled in the case of second or subsequent notices pursuant to the procedures identified in this paragraph (c)(3). Second or subsequent notices of incompleteness may not specify missing documents or information that were not delineated in the original notice of incompleteness.

(4) Failure to act. In the event the reviewing State or local government fails to approve or deny a request seeking approval under this section within the timeframe for review (accounting for any tolling), the request shall be deemed granted. The deemed grant does not become effective until the applicant notifies the applicable reviewing authority in writing after the review period has expired (accounting for any tolling) that the application has been deemed granted.

(5) Remedies. Applicants and reviewing authorities may bring claims related to Section 6409(a) to any court of competent jurisdiction.

Credits

[80 FR 28203, May 18, 2015; 83 FR 51886, Oct. 15, 2018; 85 FR 78018, Dec. 3, 2020]

SOURCE: 56 FR 57598, Nov. 13, 1991; 57 FR 187, Jan. 3, 1992; 58 FR 27473, May 10, 1993; 59 FR 22985, May 4, 1994; 61 FR 45618, Aug. 29, 1996; 61 FR 46561, Sept. 4, 1996; 61 FR 52899, Oct. 9, 1996; 62 FR 37422, July 11, 1997; 63 FR 67429, Dec. 7, 1998; 63 FR 71036, Dec. 23, 1998; 64 FR 63251, Nov. 19, 1999; 65 FR 10720, Feb. 29, 2000; 65 FR 19684, April 12, 2000; 65 FR 31281, May 17, 2000; 69 FR 77938, Dec. 29, 2004; 71 FR 26251, May 4, 2006; 74 FR 39227, Aug. 6, 2009; 75 FR 9797, March 4, 2010; 76 FR 43203, July 20, 2011; 77 FR 71137, Nov. 29, 2012; 78 FR 10100, Feb. 13, 2013; 78 FR 15622, March 12, 2013; 78 FR 41321, July 10, 2013; 78 FR 50254, Aug. 16, 2013; 79 FR 48528, Aug. 15, 2014; 80 FR 1268, Jan. 8, 2015; 81 FR 40821, June 23, 2016; 81 FR 52362, Aug. 8, 2016; 81 FR 79930, Nov. 14, 2016; 81 FR 86601, Dec. 1, 2016; 82 FR 8171, Jan. 24, 2017; 82 FR 18581, April 20, 2017; 82 FR 20839, May 4, 2017; 82 FR 24561, May 30, 2017; 82 FR 41103, Aug. 29, 2017; 82 FR 41544, Sept. 1, 2017; 82 FR 55331, Nov. 21, 2017; 82 FR 58758, Dec. 14, 2017; 83 FR 2556, Jan. 18, 2018; 83 FR 4600, Feb. 1, 2018; 83 FR 7401, Feb. 21, 2018; 83 FR 46836, Sept. 14, 2018; 83 FR 47095, Sept. 18, 2018; 83 FR 48963, Sept. 28, 2018; 83 FR 51884, Oct. 15, 2018; 83 FR 61089, Nov. 27, 2018; 83 FR 63095, Dec. 7, 2018; 84 FR 8618, March 11, 2019; 84 FR 50999, Sept. 26, 2019; 84 FR 57363, Oct. 25, 2019; 86 FR 12547, March 4, 2021; 86 FR 15797, March 25, 2021, unless otherwise noted.

AUTHORITY: 47 U.S.C. chs. 2, 5, 9, 13; 28 U.S.C. 2461 note, unless otherwise noted.

Notes of Decisions (5)

Current through December 30, 2021; 86 FR 74531.

End of Document

EXHIBIT C

Date: **June 29, 2021**

Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	NJJER01235A
	Site Name:	NY-CCI-T-822188
Crown Castle Designation:	**BU Number:**	822188
	Site Name:	3100 East Main Street
	JDE Job Number:	640328
	Work Order Number:	1964513
	Order Number:	548713 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1964513
Site Data:	**3105 East Main Street, Mohegan Lake, Westchester County, NY** **Latitude *41° 18' 28.54"*, Longitude *-73° 52' 15.78"*** **140 Foot - Monopole Tower**	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 114 mph as required by the 2020 New York State Uniform Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Fabiaye Arinyedokiari / MAS

Respectfully submitted by:

Jamal A. Huwel, P.E.
Director Engineering

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by PENNSUMMIT TUBULAR, LLC.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	114 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	40 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
79.0	79.0	3	fujitsu	TA08025-B604	1	1-3/8
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
137.0	137.0	3	ericsson	KRY 112 144/1	13	1-5/8
		3	ericsson	RRUS 11 B12		
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	rfs celwave	APXVF24-C-A20 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 1201-1]		
130.0	130.0	1	site pro 1	HRK-14 Handrail Kit	3 6	1-3/8 1-5/8
		1	site pro 1	PRK-1245		
		1	tower mounts	Platform Mount [LP 304-1]		
	127.0	3	commscope	TD-850B-LTE78-43		
		6	commscope	NHH-65A-R2B w/ Mount Pipe		
		3	raycap	RXXDC-3315-PF-48		
		3	samsung telecommunications	CBRS w/ Mount Pipe		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
117.0	117.0	3	alcatel lucent	RRH2x40-07L-DE	3	3/8

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	alcatel lucent	RRH4x25-WCS	6	3/4
		12	commscope	NNHH-65B-R4 w/ Mount Pipe		
		3	nokia	AHFIB		
		3	nokia	AHLBA		
		3	nokia	AIRSCALE RRH 4T4R B5 160W		
		3	raycap	DC6-48-60-18-8F		
		1	tower mounts	Platform Mount [LP 1301-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	3496611	CCIsites
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3893186	CCIsites
4-GEOTECHNICAL REPORTS	3496610	CCIsites

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	140 - 95	Pole	TP31.585x20x0.2188	1	-16.20	1293.80	33.9	Pass
L2	95 - 70	Pole	TP37.584x30.1177x0.2813	2	-24.27	2045.43	39.3	Pass
L3	70 - 45.25	Pole	TP43.956x37.584x0.3125	3	-28.08	2568.82	40.2	Pass
L4	45.25 - 0	Pole	TP54.98x41.8506x0.375	4	-42.71	3992.24	39.5	Pass
							Summary	
						Pole (L3)	40.2	Pass
						Rating =	40.2	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	46.8	Pass
1	Base Plate	0	37.0	Pass
1	Base Foundation (Structure)	0	29.1	Pass
1	Base Foundation (Soil Interaction)	0	48.9	Pass
1	Flange Bolts	70	60.4	Pass
1	Flange Plate	70	35.5	Pass

Structure Rating (max from all components) =	**60.4%**

Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity consumed.

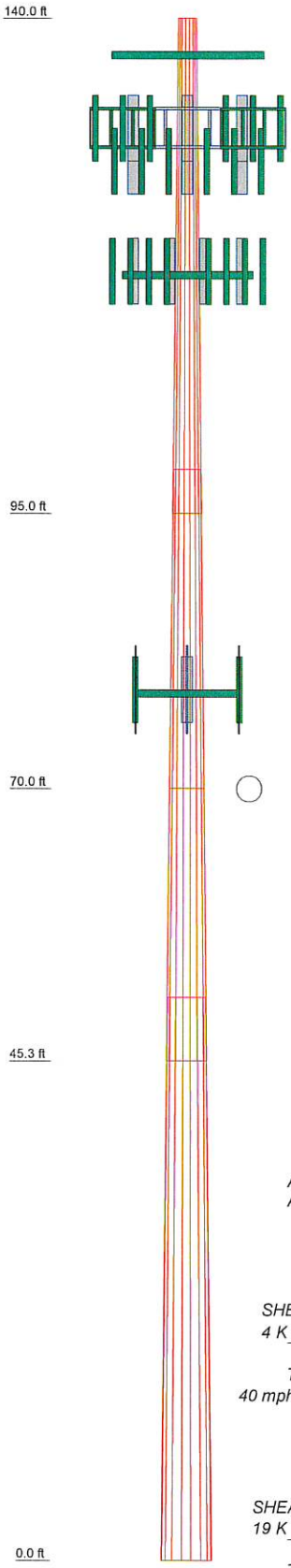
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	4	
Length (ft)	45.00	29.00	24.75	51.00
Number of Sides	18	18	18	18
Thickness (in)	0.2188	0.2813	0.3125	0.3750
Socket Length (ft)	4.00		5.75	
Top Dia (in)	20.0000	30.1177	37.5840	41.8506
Bot Dia (in)	31.5850	37.5840	43.9560	54.9800
Grade	A572-65			
Weight (K)	2.7	3.0	3.4	9.9



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 114 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 40.2%

ALL REACTIONS ARE FACTORED

AXIAL 60 K
SHEAR 4 K
MOMENT 377 kip-ft
TORQUE 0 kip-ft
40 mph WIND - 1.0000 in ICE

AXIAL 43 K
SHEAR 19 K
MOMENT 1911 kip-ft
TORQUE 1 kip-ft
REACTIONS - 114 mph WIND

Crown Castle
2000 Corporate Drive
Canonsburg, PA
Phone: (724) 416-2000
FAX:
The Pathway to Possible

Job: 822188			
Project:			
Client:	Drawn by: Mishka Stueber		App'd:
Code: TIA-222-H	Date: 06/29/21		Scale: NTS
Path: C:\Working\822188\WO 1964513 - SA\QA\822188.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 base elevation above sea level: 317.00 ft.
- Basic wind speed of 114 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 40 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: 1.05.
- 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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	140.00-95.00	45.00	4.00	18	20.0000	31.5850	0.2188	0.8750	A572-65 (65 ksi)
L2	95.00-70.00	29.00	0.00	18	30.1177	37.5840	0.2813	1.1250	A572-65 (65 ksi)
L3	70.00-45.25	24.75	5.75	18	37.5840	43.9560	0.3125	1.2500	A572-65 (65 ksi)
L4	45.25-0.00	51.00		18	41.8506	54.9800	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	20.2748	13.7344	678.9748	7.0223	10.1600	66.8282	1358.8429	6.8685	3.1350	14.331
	32.0385	21.7780	2706.9500	11.1350	16.0452	168.7080	5417.4619	10.8911	5.1740	23.652
L2	31.5847	26.6346	2995.5689	10.5919	15.2998	195.7913	5995.0795	13.3199	4.8057	17.087
	38.1204	33.2997	5854.0908	13.2425	19.0927	306.6145	11715.8845	16.6530	6.1198	21.759
L3	38.1156	36.9687	6488.2117	13.2314	19.0927	339.8273	12984.9607	18.4878	6.0648	19.407
	44.5859	43.2889	10417.2505	15.4934	22.3296	466.5210	20848.2084	21.6486	7.1863	22.996
L4	43.9415	49.3664	10728.8905	14.7239	21.2601	504.6486	21471.8984	24.6879	6.7057	17.882
	55.7703	64.9936	24483.4646	19.3848	27.9298	876.6060	48999.1453	32.5030	9.0165	24.044

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 140.00-95.00				1	1	1			
L2 95.00-70.00				1	1	1			
L3 70.00-45.25				1	1	1			
L4 45.25-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
****** ***											

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
Step Pegs (5/8" SR) 7-in. w/30"	A	No	No	CaAa (Out Of Face)	140.00 - 8.00	1	No Ice	0.03	0.49
							1/2" Ice	0.14	1.01

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
step Safety Line (3/8")	A	No	No	CaAa (Out Of Face)	140.00 - 8.00	1	1" Ice	0.23	2.07
							No Ice	0.04	0.22
							1/2" Ice	0.14	0.75
							1" Ice	0.24	1.28
***									
LDF7-50A(1-5/8)	B	No	No	Inside Pole	137.00 - 8.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
MLE Hybrid 9Power/18Fiber RL 2(1-5/8)	B	No	No	Inside Pole	137.00 - 8.00	1	No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
***									
LDF7-50A(1-5/8)	A	No	No	Inside Pole	130.00 - 8.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
MLCH HYBRID 6X12(1-3/8)	A	No	No	Inside Pole	130.00 - 8.00	3	No Ice	0.00	1.72
							1/2" Ice	0.00	1.72
							1" Ice	0.00	1.72
***									
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	117.00 - 8.00	3	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	117.00 - 8.00	6	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
***									
CU12PSM9P8XXX (1-3/8)	C	No	No	Inside Pole	79.00 - 8.00	1	No Ice	0.00	1.66
							1/2" Ice	0.00	1.66
							1" Ice	0.00	1.66
******									
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	140.00-95.00	A	0.000	0.000	0.000	3.263	0.38
		B	0.000	0.000	0.000	0.000	0.46
		C	0.000	0.000	0.000	0.000	0.08
L2	95.00-70.00	A	0.000	0.000	0.000	1.813	0.27
		B	0.000	0.000	0.000	0.000	0.27
		C	0.000	0.000	0.000	0.000	0.11
L3	70.00-45.25	A	0.000	0.000	0.000	1.794	0.27
		B	0.000	0.000	0.000	0.000	0.27
		C	0.000	0.000	0.000	0.000	0.13
L4	45.25-0.00	A	0.000	0.000	0.000	2.701	0.40
		B	0.000	0.000	0.000	0.000	0.41
		C	0.000	0.000	0.000	0.000	0.20

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	140.00-95.00	A	0.964	0.000	0.000	0.000	20.614	0.50
		B		0.000	0.000	0.000	0.000	0.46
		C		0.000	0.000	0.000	0.000	0.08
L2	95.00-70.00	A	0.931	0.000	0.000	0.000	11.452	0.33
		B		0.000	0.000	0.000	0.000	0.27

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
		C		0.000	0.000	0.000	0.000	0.11
L3	70.00-45.25	A	0.898	0.000	0.000	0.000	10.687	0.32
		B		0.000	0.000	0.000	0.000	0.27
		C		0.000	0.000	0.000	0.000	0.13
L4	45.25-0.00	A	0.816	0.000	0.000	0.000	16.084	0.49
		B		0.000	0.000	0.000	0.000	0.41
		C		0.000	0.000	0.000	0.000	0.20

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	140.00-95.00	0.0000	-0.6467	0.0000	-1.9481
L2	95.00-70.00	0.0000	-0.6549	0.0000	-2.0586
L3	70.00-45.25	0.0000	-0.6588	0.0000	-2.0064
L4	45.25-0.00	0.0000	-0.5364	0.0000	-1.6853

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight K
APXVF24-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00		0.0000	137.00	No Ice 1/2" Ice 1" Ice	8.11 8.75 9.40	5.21 5.82 6.44	0.08 0.17 0.27
APXVF24-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00		0.0000	137.00	No Ice 1/2" Ice 1" Ice	8.11 8.75 9.40	5.21 5.82 6.44	0.08 0.17 0.27
APXVF24-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00		0.0000	137.00	No Ice 1/2" Ice 1" Ice	8.11 8.75 9.40	5.21 5.82 6.44	0.08 0.17 0.27
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0.00 0.00		0.0000	137.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.77	2.59 2.88 3.19	0.11 0.16 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00 0.00		0.0000	137.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.77	2.59 2.88 3.19	0.11 0.16 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 0.00		0.0000	137.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.77	2.59 2.88 3.19	0.11 0.16 0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.00 0.00 0.00		0.0000	137.00	No Ice 1/2" Ice 1" Ice	3.14 3.45 3.77	2.59 2.88 3.19	0.11 0.16 0.22
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.00 0.00		0.0000	137.00	No Ice 1/2"	3.14 3.45	2.59 2.88	0.11 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00				Ice	3.77	3.19	0.22
							1" Ice			
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.00	0.0000		137.00	No Ice	3.14	2.59	0.11
			0.00				1/2"	3.45	2.88	0.16
			0.00				Ice	3.77	3.19	0.22
							1" Ice			
RRUS 11 B12	A	From Leg	4.00	0.0000		137.00	No Ice	2.83	1.18	0.05
			0.00				1/2"	3.04	1.33	0.07
			0.00				Ice	3.26	1.48	0.10
							1" Ice			
RRUS 11 B12	B	From Leg	4.00	0.0000		137.00	No Ice	2.83	1.18	0.05
			0.00				1/2"	3.04	1.33	0.07
			0.00				Ice	3.26	1.48	0.10
							1" Ice			
RRUS 11 B12	C	From Leg	4.00	0.0000		137.00	No Ice	2.83	1.18	0.05
			0.00				1/2"	3.04	1.33	0.07
			0.00				Ice	3.26	1.48	0.10
							1" Ice			
KRY 112 144/1	A	From Leg	4.00	0.0000		137.00	No Ice	0.35	0.17	0.01
			0.00				1/2"	0.43	0.23	0.01
			0.00				Ice	0.51	0.30	0.02
							1" Ice			
KRY 112 144/1	B	From Leg	4.00	0.0000		137.00	No Ice	0.35	0.17	0.01
			0.00				1/2"	0.43	0.23	0.01
			0.00				Ice	0.51	0.30	0.02
							1" Ice			
KRY 112 144/1	C	From Leg	4.00	0.0000		137.00	No Ice	0.35	0.17	0.01
			0.00				1/2"	0.43	0.23	0.01
			0.00				Ice	0.51	0.30	0.02
							1" Ice			
Platform Mount [LP 304-1_KCKR-HR-1]	C	None		0.0000		137.00	No Ice	32.63	32.63	1.88
							1/2"	40.84	40.84	2.47
							Ice	49.05	49.05	3.20
							1" Ice			
***										
(2) NHH-65A-R2B w/ Mount Pipe	A	From Leg	4.00	0.0000		130.00	No Ice	3.04	2.45	0.07
			0.00				1/2"	3.34	2.75	0.12
			-3.00				Ice	3.65	3.05	0.18
							1" Ice			
(2) NHH-65A-R2B w/ Mount Pipe	B	From Leg	4.00	0.0000		130.00	No Ice	3.04	2.45	0.07
			0.00				1/2"	3.34	2.75	0.12
			-3.00				Ice	3.65	3.05	0.18
							1" Ice			
(2) NHH-65A-R2B w/ Mount Pipe	C	From Leg	4.00	0.0000		130.00	No Ice	3.04	2.45	0.07
			0.00				1/2"	3.34	2.75	0.12
			-3.00				Ice	3.65	3.05	0.18
							1" Ice			
CBRS w/ Mount Pipe	A	From Leg	4.00	0.0000		130.00	No Ice	1.45	0.99	0.03
			0.00				1/2"	1.67	1.18	0.05
			-3.00				Ice	1.90	1.39	0.07
							1" Ice			
CBRS w/ Mount Pipe	B	From Leg	4.00	0.0000		130.00	No Ice	1.45	0.99	0.03
			0.00				1/2"	1.67	1.18	0.05
			-3.00				Ice	1.90	1.39	0.07
							1" Ice			
CBRS w/ Mount Pipe	C	From Leg	4.00	0.0000		130.00	No Ice	1.45	0.99	0.03
			0.00				1/2"	1.67	1.18	0.05
			-3.00				Ice	1.90	1.39	0.07
							1" Ice			
RXXDC-3315-PF-48	A	From Leg	4.00	0.0000		130.00	No Ice	3.01	1.96	0.02
			0.00				1/2"	3.23	2.15	0.05
			-3.00				Ice	3.46	2.35	0.08
							1" Ice			
RXXDC-3315-PF-48	B	From Leg	4.00	0.0000		130.00	No Ice	3.01	1.96	0.02
			0.00				1/2"	3.23	2.15	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			-3.00				Ice	3.46	2.35	0.08
							1" Ice			
RXXDC-3315-PF-48	C	From Leg	4.00	0.0000		130.00	No Ice	3.01	1.96	0.02
			0.00				1/2"	3.23	2.15	0.05
			-3.00				Ice	3.46	2.35	0.08
							1" Ice			
TD-850B-LTE78-43	A	From Leg	4.00	0.0000		130.00	No Ice	1.98	0.83	0.05
			0.00				1/2"	2.15	0.95	0.07
			-3.00				Ice	2.33	1.08	0.09
							1" Ice			
TD-850B-LTE78-43	B	From Leg	4.00	0.0000		130.00	No Ice	1.98	0.83	0.05
			0.00				1/2"	2.15	0.95	0.07
			-3.00				Ice	2.33	1.08	0.09
							1" Ice			
TD-850B-LTE78-43	C	From Leg	4.00	0.0000		130.00	No Ice	1.98	0.83	0.05
			0.00				1/2"	2.15	0.95	0.07
			-3.00				Ice	2.33	1.08	0.09
							1" Ice			
RFV01U-D1A	A	From Leg	4.00	0.0000		130.00	No Ice	1.88	1.25	0.08
			0.00				1/2"	2.05	1.39	0.10
			-3.00				Ice	2.22	1.54	0.12
							1" Ice			
RFV01U-D1A	B	From Leg	4.00	0.0000		130.00	No Ice	1.88	1.25	0.08
			0.00				1/2"	2.05	1.39	0.10
			-3.00				Ice	2.22	1.54	0.12
							1" Ice			
RFV01U-D1A	C	From Leg	4.00	0.0000		130.00	No Ice	1.88	1.25	0.08
			0.00				1/2"	2.05	1.39	0.10
			-3.00				Ice	2.22	1.54	0.12
							1" Ice			
RFV01U-D2A	A	From Leg	4.00	0.0000		130.00	No Ice	1.88	1.01	0.07
			0.00				1/2"	2.05	1.14	0.09
			-3.00				Ice	2.22	1.28	0.11
							1" Ice			
RFV01U-D2A	B	From Leg	4.00	0.0000		130.00	No Ice	1.88	1.01	0.07
			0.00				1/2"	2.05	1.14	0.09
			-3.00				Ice	2.22	1.28	0.11
							1" Ice			
RFV01U-D2A	C	From Leg	4.00	0.0000		130.00	No Ice	1.88	1.01	0.07
			0.00				1/2"	2.05	1.14	0.09
			-3.00				Ice	2.22	1.28	0.11
							1" Ice			
14' Horizontal HSS 3x3x1/4 Tube	A	From Leg	4.00	0.0000		130.00	No Ice	7.00	0.03	0.12
			0.00				1/2"	8.43	0.09	0.16
			0.00				Ice	9.88	0.17	0.21
							1" Ice			
14' Horizontal HSS 3x3x1/4 Tube	B	From Leg	4.00	0.0000		130.00	No Ice	7.00	0.03	0.12
			0.00				1/2"	8.43	0.09	0.16
			0.00				Ice	9.88	0.17	0.21
							1" Ice			
14' Horizontal HSS 3x3x1/4 Tube	C	From Leg	4.00	0.0000		130.00	No Ice	7.00	0.03	0.12
			0.00				1/2"	8.43	0.09	0.16
			0.00				Ice	9.88	0.17	0.21
							1" Ice			
Platform Mount [LP 304-1]	C	None		0.0000		130.00	No Ice	17.49	17.49	1.35
							1/2"	21.37	21.37	1.71
							Ice	25.28	25.28	2.13
							1" Ice			
***										
(4) NNHH-65B-R4 w/ Mount Pipe	A	From Leg	4.00	0.0000		117.00	No Ice	7.55	4.23	0.11
			0.00				1/2"	8.04	4.67	0.20
			0.00				Ice	8.53	5.12	0.30
							1" Ice			
(4) NNHH-65B-R4 w/ Mount Pipe	B	From Leg	4.00	0.0000		117.00	No Ice	7.55	4.23	0.11
			0.00				1/2"	8.04	4.67	0.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	8.53	5.12	0.30
						1" Ice			
(4) NNHH-65B-R4 w/ Mount Pipe	C	From Leg	4.00	0.0000	117.00	No Ice	7.55	4.23	0.11
			0.00			1/2"	8.04	4.67	0.20
			0.00			Ice	8.53	5.12	0.30
						1" Ice			
RRH2x40-07L-DE	A	From Leg	4.00	0.0000	117.00	No Ice	3.43	2.25	0.07
			0.00			1/2"	3.68	2.46	0.10
			0.00			Ice	3.93	2.67	0.13
						1" Ice			
RRH2x40-07L-DE	B	From Leg	4.00	0.0000	117.00	No Ice	3.43	2.25	0.07
			0.00			1/2"	3.68	2.46	0.10
			0.00			Ice	3.93	2.67	0.13
						1" Ice			
RRH2x40-07L-DE	C	From Leg	4.00	0.0000	117.00	No Ice	3.43	2.25	0.07
			0.00			1/2"	3.68	2.46	0.10
			0.00			Ice	3.93	2.67	0.13
						1" Ice			
RRH4x25-WCS	A	From Leg	4.00	0.0000	117.00	No Ice	3.34	3.84	0.09
			0.00			1/2"	3.59	4.09	0.13
			0.00			Ice	3.84	4.36	0.16
						1" Ice			
RRH4x25-WCS	B	From Leg	4.00	0.0000	117.00	No Ice	3.34	3.84	0.09
			0.00			1/2"	3.59	4.09	0.13
			0.00			Ice	3.84	4.36	0.16
						1" Ice			
RRH4x25-WCS	C	From Leg	4.00	0.0000	117.00	No Ice	3.34	3.84	0.09
			0.00			1/2"	3.59	4.09	0.13
			0.00			Ice	3.84	4.36	0.16
						1" Ice			
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	117.00	No Ice	1.21	1.21	0.02
			0.00			1/2"	1.89	1.89	0.04
			0.00			Ice	2.11	2.11	0.07
						1" Ice			
DC6-48-60-18-8F	B	From Leg	4.00	0.0000	117.00	No Ice	1.21	1.21	0.02
			0.00			1/2"	1.89	1.89	0.04
			0.00			Ice	2.11	2.11	0.07
						1" Ice			
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	117.00	No Ice	1.21	1.21	0.02
			0.00			1/2"	1.89	1.89	0.04
			0.00			Ice	2.11	2.11	0.07
						1" Ice			
AIRSCALE RRH 4T4R B5 160W	A	From Leg	4.00	0.0000	117.00	No Ice	1.29	0.72	0.04
			0.00			1/2"	1.43	0.83	0.05
			0.00			Ice	1.58	0.96	0.06
						1" Ice			
AIRSCALE RRH 4T4R B5 160W	B	From Leg	4.00	0.0000	117.00	No Ice	1.29	0.72	0.04
			0.00			1/2"	1.43	0.83	0.05
			0.00			Ice	1.58	0.96	0.06
						1" Ice			
AIRSCALE RRH 4T4R B5 160W	C	From Leg	4.00	0.0000	117.00	No Ice	1.29	0.72	0.04
			0.00			1/2"	1.43	0.83	0.05
			0.00			Ice	1.58	0.96	0.06
						1" Ice			
AHLBA	A	From Leg	4.00	0.0000	117.00	No Ice	3.67	2.31	0.10
			0.00			1/2"	3.92	2.51	0.13
			0.00			Ice	4.18	2.73	0.16
						1" Ice			
AHLBA	B	From Leg	4.00	0.0000	117.00	No Ice	3.67	2.31	0.10
			0.00			1/2"	3.92	2.51	0.13
			0.00			Ice	4.18	2.73	0.16
						1" Ice			
AHLBA	C	From Leg	4.00	0.0000	117.00	No Ice	3.67	2.31	0.10
			0.00			1/2"	3.92	2.51	0.13
			0.00			Ice	4.18	2.73	0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							1" Ice			
AHFIB	A	From Leg	4.00	0.0000		117.00	No Ice	3.68	2.31	0.09
			0.00				1/2"	3.92	2.52	0.12
			0.00				Ice	4.18	2.73	0.15
							1" Ice			
AHFIB	B	From Leg	4.00	0.0000		117.00	No Ice	3.68	2.31	0.09
			0.00				1/2"	3.92	2.52	0.12
			0.00				Ice	4.18	2.73	0.15
							1" Ice			
AHFIB	C	From Leg	4.00	0.0000		117.00	No Ice	3.68	2.31	0.09
			0.00				1/2"	3.92	2.52	0.12
			0.00				Ice	4.18	2.73	0.15
							1" Ice			
Platform Mount [LP 1301-1]	C	None			0.0000	117.00	No Ice	51.70	51.70	2.26
							1/2"	62.70	62.70	2.94
							Ice	73.70	73.70	3.61
							1" Ice			
***										
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.0000		79.00	No Ice	8.01	4.23	0.11
			0.00				1/2"	8.52	4.69	0.19
			0.00				Ice	9.04	5.16	0.29
							1" Ice			
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.0000		79.00	No Ice	8.01	4.23	0.11
			0.00				1/2"	8.52	4.69	0.19
			0.00				Ice	9.04	5.16	0.29
							1" Ice			
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.0000		79.00	No Ice	8.01	4.23	0.11
			0.00				1/2"	8.52	4.69	0.19
			0.00				Ice	9.04	5.16	0.29
							1" Ice			
TA08025-B604	A	From Leg	4.00	0.0000		79.00	No Ice	1.96	0.98	0.06
			0.00				1/2"	2.14	1.11	0.08
			0.00				Ice	2.32	1.25	0.10
							1" Ice			
TA08025-B604	B	From Leg	4.00	0.0000		79.00	No Ice	1.96	0.98	0.06
			0.00				1/2"	2.14	1.11	0.08
			0.00				Ice	2.32	1.25	0.10
							1" Ice			
TA08025-B604	C	From Leg	4.00	0.0000		79.00	No Ice	1.96	0.98	0.06
			0.00				1/2"	2.14	1.11	0.08
			0.00				Ice	2.32	1.25	0.10
							1" Ice			
TA08025-B605	A	From Leg	4.00	0.0000		79.00	No Ice	1.96	1.13	0.08
			0.00				1/2"	2.14	1.27	0.09
			0.00				Ice	2.32	1.41	0.11
							1" Ice			
TA08025-B605	B	From Leg	4.00	0.0000		79.00	No Ice	1.96	1.13	0.08
			0.00				1/2"	2.14	1.27	0.09
			0.00				Ice	2.32	1.41	0.11
							1" Ice			
TA08025-B605	C	From Leg	4.00	0.0000		79.00	No Ice	1.96	1.13	0.08
			0.00				1/2"	2.14	1.27	0.09
			0.00				Ice	2.32	1.41	0.11
							1" Ice			
RDIDC-9181-PF-48	A	From Leg	4.00	0.0000		79.00	No Ice	2.31	1.29	0.02
			0.00				1/2"	2.50	1.45	0.04
			0.00				Ice	2.70	1.61	0.06
							1" Ice			
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.0000		79.00	No Ice	1.90	1.90	0.03
			0.00				1/2"	2.73	2.73	0.04
			0.00				Ice	3.40	3.40	0.06
							1" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.0000		79.00	No Ice	1.90	1.90	0.03
			0.00				1/2"	2.73	2.73	0.04
			0.00				Ice	3.40	3.40	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.00	0.0000	79.00	1" Ice			
							No Ice	1.90	1.90	0.03
							1/2" Ice	2.73	2.73	0.04
							1" Ice	3.40	3.40	0.06
Commscope MC-PK8-DSH	C	None			0.0000	79.00	No Ice	34.24	34.24	1.75
							1/2" Ice	62.95	62.95	2.10
							1" Ice	91.66	91.66	2.45
****** ***										

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service

Comb. No.	Description
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	140 - 95	Pole	Max Tension	14	0.00	0.00	0.00
			Max. Compression	26	-27.47	0.00	0.15
			Max. Mx	8	-16.20	-297.17	0.04
			Max. My	2	-16.20	0.00	297.23
			Max. Vy	8	11.98	-297.17	0.04
			Max. Vx	2	-11.98	0.00	297.23
			Max. Torque	9			0.11
L2	95 - 70	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.44	0.00	0.63
			Max. Mx	8	-24.27	-686.31	0.21
			Max. My	2	-24.27	0.00	686.77
			Max. Vy	8	15.66	-686.31	0.21
			Max. Vx	2	-15.68	0.00	686.77
			Max. Torque	8			0.37
L3	70 - 45.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.03	0.00	0.74
			Max. Mx	8	-28.08	-992.84	0.24
			Max. My	2	-28.08	0.00	993.81
			Max. Vy	8	16.64	-992.84	0.24
			Max. Vx	2	-16.66	0.00	993.81
			Max. Torque	8			0.43
L4	45.25 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.26	0.00	1.00
			Max. Mx	8	-42.71	-1909.08	0.32
			Max. My	2	-42.71	0.00	1911.39
			Max. Vy	8	19.26	-1909.08	0.32
			Max. Vx	2	-19.29	0.00	1911.39
			Max. Torque	8			0.58

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	60.26	0.00	0.00
	Max. H_x	20	42.72	19.24	0.00
	Max. H_z	2	42.72	0.00	19.27
	Max. M_x	2	1911.39	0.00	19.27
	Max. M_z	8	1909.08	-19.24	0.00
	Max. Torsion	8	0.58	-19.24	0.00
	Min. Vert	19	32.04	16.66	-9.63
	Min. H_x	8	42.72	-19.24	0.00
	Min. H_z	14	42.72	0.00	-19.27
	Min. M_x	14	-1910.76	0.00	-19.27
	Min. M_z	20	-1909.08	19.24	0.00
	Min. Torsion	20	-0.58	19.24	0.00

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	35.60	0.00	0.00	-0.25	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	42.72	0.00	-19.27	-1911.39	0.00	0.00
0.9 Dead+1.0 Wind 0 deg - No Ice	32.04	0.00	-19.27	-1891.77	0.00	0.00
1.2 Dead+1.0 Wind 30 deg - No Ice	42.72	9.62	-16.69	-1655.36	-954.54	-0.29
0.9 Dead+1.0 Wind 30 deg - No Ice	32.04	9.62	-16.69	-1638.35	-944.78	-0.29
1.2 Dead+1.0 Wind 60 deg - No Ice	42.72	16.66	-9.63	-955.86	-1653.32	-0.50
0.9 Dead+1.0 Wind 60 deg - No Ice	32.04	16.66	-9.63	-946.00	-1636.40	-0.50
1.2 Dead+1.0 Wind 90 deg - No Ice	42.72	19.24	-0.00	-0.32	-1909.08	-0.58
0.9 Dead+1.0 Wind 90 deg - No Ice	32.04	19.24	-0.00	-0.23	-1889.55	-0.58
1.2 Dead+1.0 Wind 120 deg - No Ice	42.72	16.66	9.63	955.23	-1653.32	-0.50
0.9 Dead+1.0 Wind 120 deg - No Ice	32.04	16.66	9.63	945.54	-1636.40	-0.50
1.2 Dead+1.0 Wind 150 deg - No Ice	42.72	9.62	16.69	1654.73	-954.54	-0.29
0.9 Dead+1.0 Wind 150 deg - No Ice	32.04	9.62	16.69	1637.89	-944.78	-0.29
1.2 Dead+1.0 Wind 180 deg - No Ice	42.72	0.00	19.27	1910.76	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	32.04	0.00	19.27	1891.30	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice	42.72	-9.62	16.69	1654.73	954.54	0.29
0.9 Dead+1.0 Wind 210 deg - No Ice	32.04	-9.62	16.69	1637.89	944.78	0.29
1.2 Dead+1.0 Wind 240 deg - No Ice	42.72	-16.66	9.63	955.23	1653.32	0.50
0.9 Dead+1.0 Wind 240 deg - No Ice	32.04	-16.66	9.63	945.54	1636.40	0.50
1.2 Dead+1.0 Wind 270 deg - No Ice	42.72	-19.24	-0.00	-0.32	1909.08	0.58
0.9 Dead+1.0 Wind 270 deg - No Ice	32.04	-19.24	-0.00	-0.23	1889.55	0.58
1.2 Dead+1.0 Wind 300 deg - No Ice	42.72	-16.66	-9.63	-955.86	1653.32	0.50
0.9 Dead+1.0 Wind 300 deg - No Ice	32.04	-16.66	-9.63	-946.00	1636.40	0.50
1.2 Dead+1.0 Wind 330 deg - No Ice	42.72	-9.62	-16.69	-1655.36	954.54	0.29
0.9 Dead+1.0 Wind 330 deg - No Ice	32.04	-9.62	-16.69	-1638.35	944.78	0.29
1.2 Dead+1.0 Ice+1.0 Temp	60.26	0.00	0.00	-1.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	60.26	0.00	-3.91	-376.65	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	60.26	1.95	-3.38	-326.33	-187.65	-0.17
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	60.26	3.38	-1.95	-188.87	-325.01	-0.29
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	60.26	3.90	-0.00	-1.09	-375.29	-0.33
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	60.26	3.38	1.95	186.69	-325.01	-0.29
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	60.26	1.95	3.38	324.16	-187.65	-0.17
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	60.26	0.00	3.91	374.47	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	60.26	-1.95	3.38	324.16	187.65	0.17

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	60.26	-3.38	1.95	186.69	325.01	0.29
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	60.26	-3.90	-0.00	-1.09	375.29	0.33
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	60.26	-3.38	-1.95	-188.87	325.01	0.29
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	60.26	-1.95	-3.38	-326.33	187.65	0.17
Dead+Wind 0 deg - Service	35.60	0.00	-5.03	-496.19	0.00	0.00
Dead+Wind 30 deg - Service	35.60	2.51	-4.36	-429.75	-247.71	-0.08
Dead+Wind 60 deg - Service	35.60	4.35	-2.52	-248.23	-429.04	-0.13
Dead+Wind 90 deg - Service	35.60	5.02	0.00	-0.26	-495.41	-0.15
Dead+Wind 120 deg - Service	35.60	4.35	2.52	247.70	-429.04	-0.13
Dead+Wind 150 deg - Service	35.60	2.51	4.36	429.22	-247.70	-0.08
Dead+Wind 180 deg - Service	35.60	0.00	5.03	495.67	0.00	0.00
Dead+Wind 210 deg - Service	35.60	-2.51	4.36	429.22	247.70	0.08
Dead+Wind 240 deg - Service	35.60	-4.35	2.52	247.70	429.04	0.13
Dead+Wind 270 deg - Service	35.60	-5.02	0.00	-0.26	495.41	0.15
Dead+Wind 300 deg - Service	35.60	-4.35	-2.52	-248.23	429.04	0.13
Dead+Wind 330 deg - Service	35.60	-2.51	-4.36	-429.75	247.71	0.08

Solution Summary

Load Comb.	Sum of Applied Forces PX	PY	PZ	Sum of Reactions PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-35.60	0.00	0.00	35.60	0.00	0.000%
2	0.00	-42.72	-19.27	0.00	42.72	19.27	0.000%
3	0.00	-32.04	-19.27	0.00	32.04	19.27	0.000%
4	9.62	-42.72	-16.69	-9.62	42.72	16.69	0.000%
5	9.62	-32.04	-16.69	-9.62	32.04	16.69	0.000%
6	16.66	-42.72	-9.63	-16.66	42.72	9.63	0.000%
7	16.66	-32.04	-9.63	-16.66	32.04	9.63	0.000%
8	19.24	-42.72	0.00	-19.24	42.72	0.00	0.000%
9	19.24	-32.04	0.00	-19.24	32.04	0.00	0.000%
10	16.66	-42.72	9.63	-16.66	42.72	-9.63	0.000%
11	16.66	-32.04	9.63	-16.66	32.04	-9.63	0.000%
12	9.62	-42.72	16.69	-9.62	42.72	-16.69	0.000%
13	9.62	-32.04	16.69	-9.62	32.04	-16.69	0.000%
14	0.00	-42.72	19.27	0.00	42.72	-19.27	0.000%
15	0.00	-32.04	19.27	0.00	32.04	-19.27	0.000%
16	-9.62	-42.72	16.69	9.62	42.72	-16.69	0.000%
17	-9.62	-32.04	16.69	9.62	32.04	-16.69	0.000%
18	-16.66	-42.72	9.63	16.66	42.72	-9.63	0.000%
19	-16.66	-32.04	9.63	16.66	32.04	-9.63	0.000%
20	-19.24	-42.72	0.00	19.24	42.72	0.00	0.000%
21	-19.24	-32.04	0.00	19.24	32.04	0.00	0.000%
22	-16.66	-42.72	-9.63	16.66	42.72	9.63	0.000%
23	-16.66	-32.04	-9.63	16.66	32.04	9.63	0.000%
24	-9.62	-42.72	-16.69	9.62	42.72	16.69	0.000%
25	-9.62	-32.04	-16.69	9.62	32.04	16.69	0.000%
26	0.00	-60.26	0.00	0.00	60.26	0.00	0.000%
27	0.00	-60.26	-3.91	0.00	60.26	3.91	0.000%
28	1.95	-60.26	-3.38	-1.95	60.26	3.38	0.000%
29	3.38	-60.26	-1.95	-3.38	60.26	1.95	0.000%
30	3.90	-60.26	0.00	-3.90	60.26	0.00	0.000%
31	3.38	-60.26	1.95	-3.38	60.26	-1.95	0.000%
32	1.95	-60.26	3.38	-1.95	60.26	-3.38	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
33	0.00	-60.26	3.91	0.00	60.26	-3.91	0.000%
34	-1.95	-60.26	3.38	1.95	60.26	-3.38	0.000%
35	-3.38	-60.26	1.95	3.38	60.26	-1.95	0.000%
36	-3.90	-60.26	0.00	3.90	60.26	0.00	0.000%
37	-3.38	-60.26	-1.95	3.38	60.26	1.95	0.000%
38	-1.95	-60.26	-3.38	1.95	60.26	3.38	0.000%
39	0.00	-35.60	-5.03	0.00	35.60	5.03	0.000%
40	2.51	-35.60	-4.36	-2.51	35.60	4.36	0.000%
41	4.35	-35.60	-2.52	-4.35	35.60	2.52	0.000%
42	5.02	-35.60	0.00	-5.02	35.60	0.00	0.000%
43	4.35	-35.60	2.52	-4.35	35.60	-2.52	0.000%
44	2.51	-35.60	4.36	-2.51	35.60	-4.36	0.000%
45	0.00	-35.60	5.03	0.00	35.60	-5.03	0.000%
46	-2.51	-35.60	4.36	2.51	35.60	-4.36	0.000%
47	-4.35	-35.60	2.52	4.35	35.60	-2.52	0.000%
48	-5.02	-35.60	0.00	5.02	35.60	0.00	0.000%
49	-4.35	-35.60	-2.52	4.35	35.60	2.52	0.000%
50	-2.51	-35.60	-4.36	2.51	35.60	4.36	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00049447
3	Yes	4	0.00000001	0.00025045
4	Yes	5	0.00000001	0.00051686
5	Yes	5	0.00000001	0.00025493
6	Yes	5	0.00000001	0.00052918
7	Yes	5	0.00000001	0.00026141
8	Yes	4	0.00000001	0.00059933
9	Yes	4	0.00000001	0.00034309
10	Yes	5	0.00000001	0.00051327
11	Yes	5	0.00000001	0.00025314
12	Yes	5	0.00000001	0.00052534
13	Yes	5	0.00000001	0.00025945
14	Yes	4	0.00000001	0.00049426
15	Yes	4	0.00000001	0.00025038
16	Yes	5	0.00000001	0.00052534
17	Yes	5	0.00000001	0.00025945
18	Yes	5	0.00000001	0.00051327
19	Yes	5	0.00000001	0.00025314
20	Yes	4	0.00000001	0.00059933
21	Yes	4	0.00000001	0.00034309
22	Yes	5	0.00000001	0.00052918
23	Yes	5	0.00000001	0.00026141
24	Yes	5	0.00000001	0.00051686
25	Yes	5	0.00000001	0.00025493
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00026389
28	Yes	5	0.00000001	0.00027246
29	Yes	5	0.00000001	0.00027229
30	Yes	5	0.00000001	0.00026284
31	Yes	5	0.00000001	0.00027085
32	Yes	5	0.00000001	0.00027073
33	Yes	5	0.00000001	0.00026188
34	Yes	5	0.00000001	0.00027073
35	Yes	5	0.00000001	0.00027085
36	Yes	5	0.00000001	0.00026284
37	Yes	5	0.00000001	0.00027229
38	Yes	5	0.00000001	0.00027246
39	Yes	4	0.00000001	0.00010239
40	Yes	4	0.00000001	0.00024067
41	Yes	4	0.00000001	0.00025074
42	Yes	4	0.00000001	0.00010469

43	Yes	4	0.00000001	0.00023797
44	Yes	4	0.00000001	0.00024719
45	Yes	4	0.00000001	0.00010225
46	Yes	4	0.00000001	0.00024719
47	Yes	4	0.00000001	0.00023797
48	Yes	4	0.00000001	0.00010469
49	Yes	4	0.00000001	0.00025074
50	Yes	4	0.00000001	0.00024067

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 95	13.501	39	0.8492	0.0005
L2	99 - 70	6.660	39	0.6762	0.0004
L3	70 - 45.25	3.175	39	0.4538	0.0002
L4	51 - 0	1.666	39	0.3049	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
137.00	APXVF24-C-A20 w/ Mount Pipe	39	12.967	0.8396	0.0005	59644
130.00	(2) NHH-65A-R2B w/ Mount Pipe	39	11.727	0.8168	0.0004	29822
117.00	(4) NNHH-65B-R4 w/ Mount Pipe	39	9.486	0.7685	0.0004	12966
79.00	MX08FRO665-21 w/ Mount Pipe	39	4.106	0.5277	0.0003	7139

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 95	52.128	2	3.2830	0.0018
L2	99 - 70	25.699	2	2.6119	0.0013
L3	70 - 45.25	12.247	2	1.7514	0.0009
L4	51 - 0	6.423	2	1.1760	0.0005

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
137.00	APXVF24-C-A20 w/ Mount Pipe	2	50.064	3.2459	0.0018	15475
130.00	(2) NHH-65A-R2B w/ Mount Pipe	2	45.272	3.1570	0.0017	7737
117.00	(4) NNHH-65B-R4 w/ Mount Pipe	2	36.614	2.9697	0.0016	3362
79.00	MX08FRO665-21 w/ Mount Pipe	2	15.838	2.0374	0.0011	1850

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
L1	140 - 95 (1)	TP31.585x20x0.2188	45.00	0.00	0.0	21.0630	-16.20	1232.19	0.013
L2	95 - 70 (2)	TP37.584x30.1177x0.2813	29.00	0.00	0.0	33.2997	-24.27	1948.03	0.012
L3	70 - 45.25 (3)	TP43.956x37.584x0.3125	24.75	0.00	0.0	41.8206	-28.08	2446.50	0.011
L4	45.25 - 0 (4)	TP54.98x41.8506x0.375	51.00	0.00	0.0	64.9936	-42.71	3802.13	0.011

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	140 - 95 (1)	TP31.585x20x0.2188	297.23	869.98	0.342	0.00	869.98	0.000
L2	95 - 70 (2)	TP37.584x30.1177x0.2813	686.77	1719.48	0.399	0.00	1719.48	0.000
L3	70 - 45.25 (3)	TP43.956x37.584x0.3125	993.81	2425.68	0.410	0.00	2425.68	0.000
L4	45.25 - 0 (4)	TP54.98x41.8506x0.375	1911.39	4739.31	0.403	0.00	4739.31	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V_u	ϕV_n	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u	ϕT_n	Ratio $\frac{T_u}{\phi T_n}$
	ft		K	K		kip-ft	kip-ft	
L1	140 - 95 (1)	TP31.585x20x0.2188	11.98	369.66	0.032	0.00	982.07	0.000
L2	95 - 70 (2)	TP37.584x30.1177x0.2813	15.68	584.41	0.027	0.00	1909.14	0.000
L3	70 - 45.25 (3)	TP43.956x37.584x0.3125	16.66	733.95	0.023	0.00	2710.07	0.000
L4	45.25 - 0 (4)	TP54.98x41.8506x0.375	19.29	1140.64	0.017	0.00	5454.57	0.000

Pole Interaction Design Data

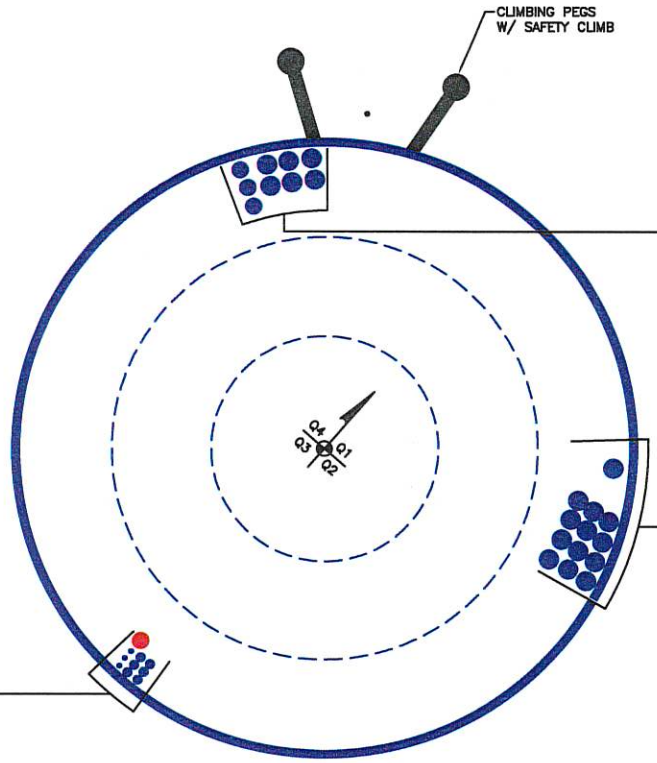
Section No.	Elevation	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	ft								
L1	140 - 95 (1)	0.013	0.342	0.000	0.032	0.000	0.356	1.050	4.8.2
L2	95 - 70 (2)	0.012	0.399	0.000	0.027	0.000	0.413	1.050	4.8.2
L3	70 - 45.25 (3)	0.011	0.410	0.000	0.023	0.000	0.422	1.050	4.8.2
L4	45.25 - 0 (4)	0.011	0.403	0.000	0.017	0.000	0.415	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	140 - 95	Pole	TP31.585x20x0.2188	1	-16.20	1293.80	33.9	Pass
L2	95 - 70	Pole	TP37.584x30.1177x0.2813	2	-24.27	2045.43	39.3	Pass
L3	70 - 45.25	Pole	TP43.956x37.584x0.3125	3	-28.08	2568.82	40.2	Pass
L4	45.25 - 0	Pole	TP54.98x41.8506x0.375	4	-42.71	3992.24	39.5	Pass
							Summary	
						Pole (L3)	40.2	Pass
						RATING =	**40.2**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(3) 1-3/8" TO 130 FT LEVEL
(6) 1-5/8" TO 130 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(13) 1-5/8" TO 137 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-3/8" TO 79 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 3/8" TO 117 FT LEVEL
(6) 3/4" TO 117 FT LEVEL
Q1
Q2
Q3
Q4

APPENDIX C

ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

Elevation = 70 ft.

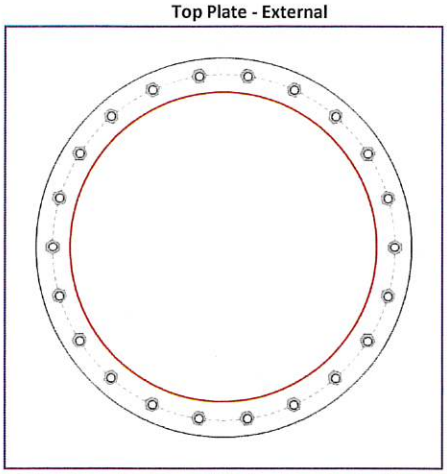
BU #	822188
Site Name	3100 East Main Street
Order #	548713 REV 0

TIA-222 Revision	H

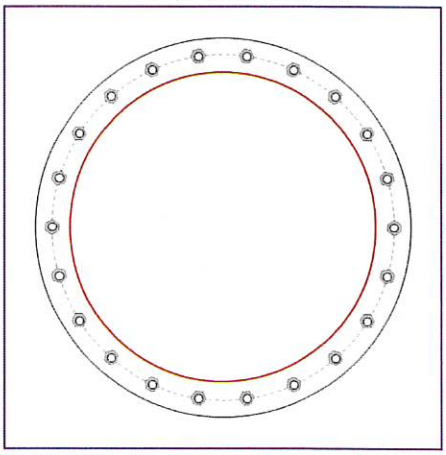
Applied Loads	
Moment (kip-ft)	686.77
Axial Force (kips)	24.27
Shear Force (kips)	15.68

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(22) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 42" BC

Top Plate Data

46" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

46" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

37.584" x 0.28125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Bottom Pole Data

37.584" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	34.57	
Allowable (kips)	54.53	
Stress Rating:	**60.4%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	16.79	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	**35.5%**	**Pass**
Tension Side Stress Rating:	**17.6%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	16.79	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	**35.5%**	**Pass**
Tension Side Stress Rating:	**17.6%**	**Pass**

Monopole Base Plate Connection

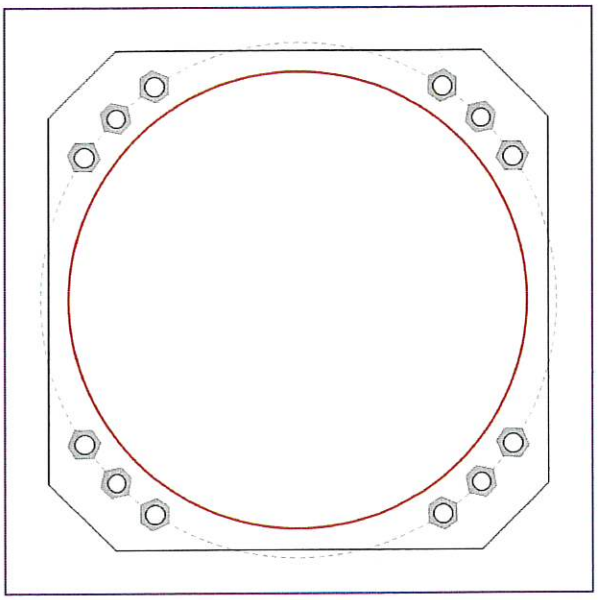
CROWN CASTLE

Site Info	
BU #	822188
Site Name	3100 East Main Street
Order #	548713 REV 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1

Applied Loads	
Moment (kip-ft)	1911.39
Axial Force (kips)	42.71
Shear Force (kips)	19.29

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 62" BC

Anchor Spacing: 6 in

Base Plate Data

60" W x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 8 in

Stiffener Data

N/A

Pole Data

54.98" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 119.69	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.61	ϕVn = 149.1	**46.8%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	17.47	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**37.0%**	**Pass**

Pier and Pad Foundation

BU # :	822188
Site Name:	3100 East Main Str
App. Number:	548713 REV 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	42.72	kips
Base Shear, Vu_comp:	19.27	kips
Moment, M_u:	1911.39	ft-kips
Tower Height, **H**:	140	ft
BP Dist. Above Fdn, bp_{dist}:	3.25	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	10	
Pier Rebar Quantity, **mc**:	32	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	6	ft
Pad Width, W_1:	26	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	10	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	26	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	4.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	18	
Base Friction, μ:	0.4	
Neglected Depth, **N**:	4.17	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)	224.96	19.27	**8.2%**	**Pass**
Bearing Pressure (ksf)	3.00	1.54	**48.9%**	**Pass**
*Overturning (kip*ft)*	4968.63	2041.86	**41.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6478.10	1978.84	**29.1%**	**Pass**
Pier Compression (kip)	31187.52	73.59	**0.2%**	**Pass**
*Pad Flexure (kip*ft)*	4481.65	709.58	**15.1%**	**Pass**
Pad Shear - 1-way (kips)	920.38	105.87	**11.0%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.021	**10.8%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	5432.87	1187.30	**20.8%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**29.1%**
Soil Rating*:	**48.9%**

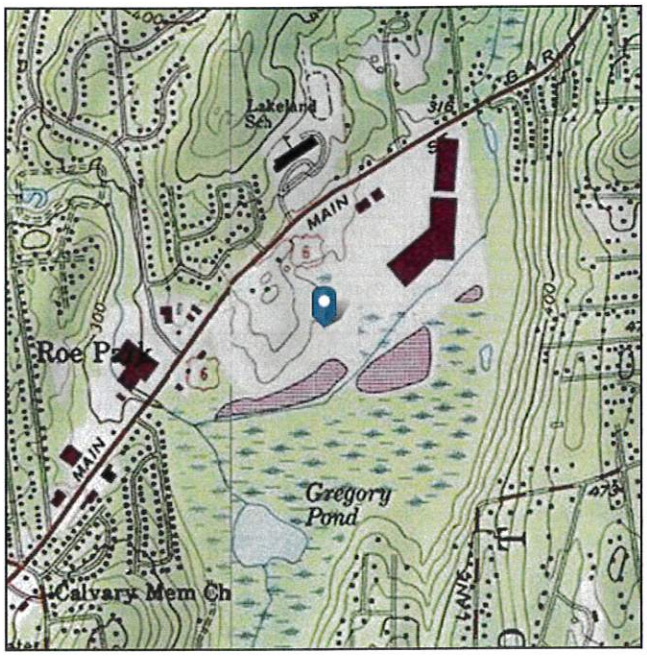
Version 4.1.0

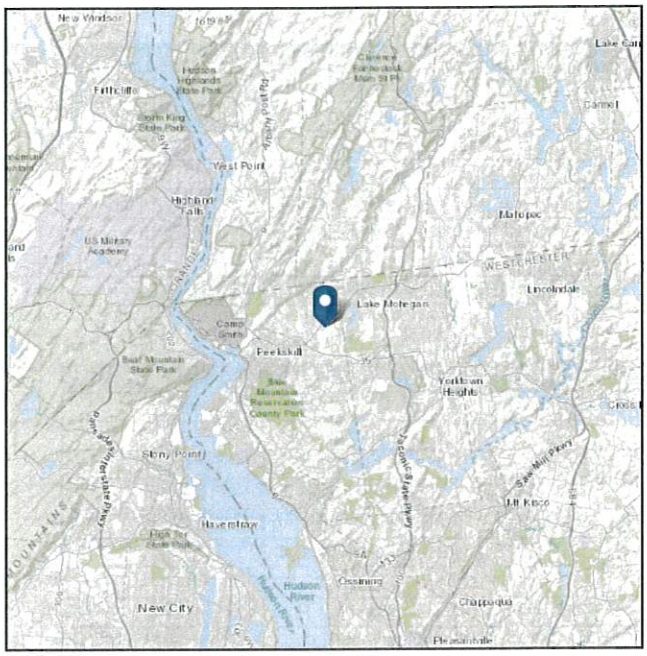
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 317.4 ft (NAVD 88)
Latitude: 41.307928
Longitude: -73.87105





Wind

Results:

Wind Speed:	114 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 Vmph
100-year MRI	95 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: Sat May 15 2021

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 not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

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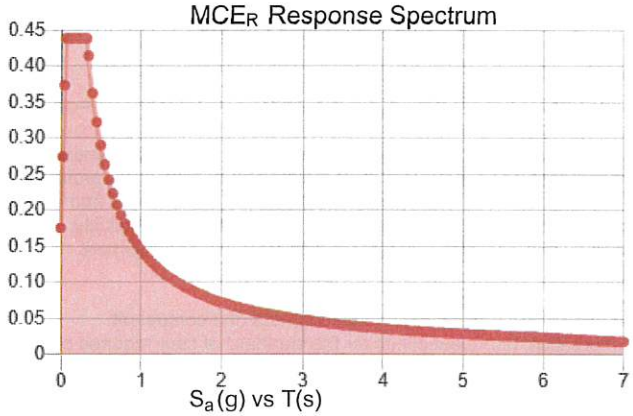
Seismic

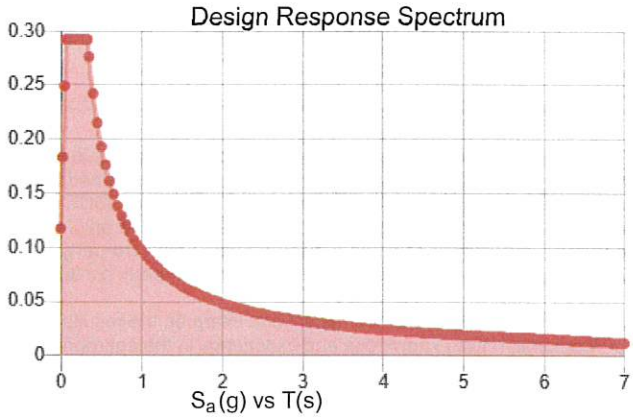
Site Soil Class: D - Default (see Section 11.4.3)

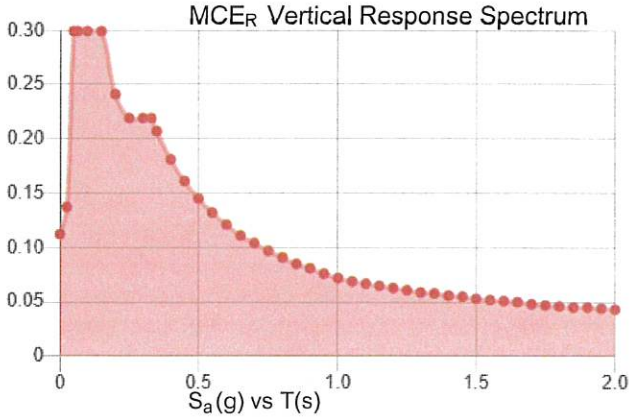
Results:

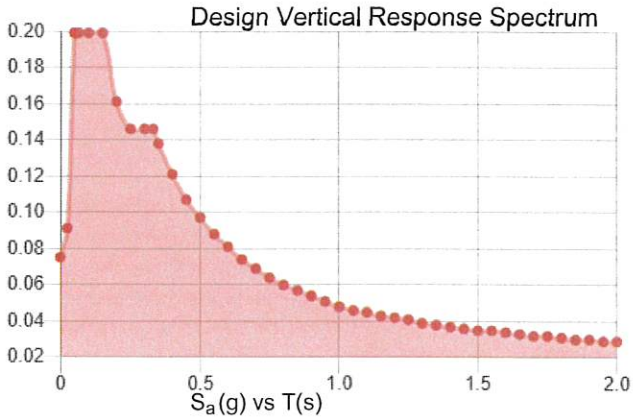
S_S :	0.277	S_{D1} :	0.097
S_1 :	0.06	T_L :	6
F_a :	1.578	PGA :	0.169
F_v :	2.4	PGA_M :	0.247
S_{MS} :	0.438	F_{PGA} :	1.462
S_{M1} :	0.145	I_e :	1
S_{DS} :	0.292	C_v :	0.854

Seismic Design Category B









Data Accessed: Sat May 15 2021

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.

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Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	40 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Sat May 15 2021

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 D

Radio Frequency - Electromagnetic Energy (RF-EME) Jurisdictional Report

Site No. NJJER01235A
NJJER01235A
3105 East Main st
Mohegan Lake, New York 10547
41° 18' 28.54" N, -73° 52' 15.78" W NAD83

EBI Project No. 6222001454
March 11, 2022

Prepared for:

Dish Wireless

Prepared by:

EBI Consulting
environmental | engineering | due diligence

TABLE OF CONTENTS

APPENDICES

REFERENCE DOCUMENTS (NOT ATTACHED)
CDs: FCDs
RFDS: RFDS

EXECUTIVE SUMMARY

Purpose of Report

EnviroBusiness Inc. (dba EBI Consulting) has been contracted by Dish Wireless to conduct radio frequency electromagnetic (RF-EME) modeling for Dish Wireless Site NJJER01235A located at 3105 East Main st in Mohegan Lake, New York to determine RF-EME exposure levels from proposed Dish Wireless communications equipment at this site. As described in greater detail in Appendix C of this report, the Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for the general public and for occupational activities. This report summarizes the results of RF-EME modeling in relation to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields.

Statement of Compliance

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

As presented in the sections below, based on worst-case predictive modeling, there are no modeled areas on any accessible rooftop or ground-level walking/working surface related to the proposed antennas that exceed the FCC's occupational or general public exposure limits at this site. Additionally, there are areas where workers who may be elevated above the rooftop or ground may be exposed to power densities greater than the occupational limits. Therefore, workers should be informed about the presence and locations of antennas and their associated fields.

At the nearest walking/working surfaces to the Dish Wireless antennas, the maximum power density generated by the DISH antennas is approximately **0.64** percent of the FCC's general public limit (**0.13** percent of the FCC's occupational limit).

The composite exposure level from all carriers on this site is approximately **0.74** percent of the FCC's general public limit (**0.15** percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

Recommended control measures are outlined in Section 4.0 and within the Site Safety Plan (attached); Dish Wireless should also provide procedures to shut down and lockout/tagout this wireless equipment in accordance with their own standard operating protocol. Non-telecom workers who will be working in areas of exceedance are required to contact Dish Wireless since only DISH has the ability to lockout/tagout the facility, or to authorize others to do so.

1.0 INTRODUCTION

Radio frequency waves are electromagnetic waves from the portion of the electromagnetic spectrum at frequencies lower than visible light and microwaves. The wavelengths of radio waves range from thousands of meters to around 30 centimeters. These wavelengths correspond to frequencies as low as 3 cycles per second (or hertz [Hz]) to as high as one gigahertz (one billion cycles per second).

Personal Communication (PCS) facilities used by Dish Wireless in this area will potentially operate within a frequency range of 600 to 5000 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed a distance above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of in areas in the immediate vicinity of the antennas.

MPE limits do not represent levels where a health risk exists, since they are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size or health.

2.0 SITE DESCRIPTION

This project site includes the following proposed wireless telecommunication antennas on a monopole located at 3105 East Main st in Mohegan Lake, New York.

Ant #	Operator	Antenna Make	Antenna Model	Frequency (MHz)	Azimuth (deg.)	Mechanical Downtilt (deg.)	Horizontal Beamwidth (Degrees)	Aperture (feet)	Total Power Input (Watts)	Gain (dBd)*	Total ERP (Watts)	Total EIRP (Watts)
1	Dish	Commscope	FFVV-65B-R2 02DT 600 PRELIM	600	0	0	67	6.0	120	17.55	6083.89	9977.58
1	Dish	Commscope	FFVV-65B-R2 02DT 1900 PRELIM	1900	0	0	70	6.0	160	22.05	22862.30	37494.18
1	Dish	Commscope	FFVV-65B-R2 02DT 2100 PRELIM	2100	0	0	65	6.0	160	22.05	22862.30	37494.18
2	Dish	Commscope	FFVV-65B-R2 02DT 600 PRELIM	600	120	0	67	6.0	120	17.55	6083.89	9977.58
2	Dish	Commscope	FFVV-65B-R2 02DT 1900 PRELIM	1900	120	0	70	6.0	160	22.05	22862.30	37494.18
2	Dish	Commscope	FFVV-65B-R2 02DT 2100 PRELIM	2100	120	0	65	6.0	160	22.05	22862.30	37494.18
3	Dish	Commscope	FFVV-65B-R2 02DT 600 PRELIM	600	240	0	67	6.0	120	17.55	6083.89	9977.58
3	Dish	Commscope	FFVV-65B-R2 02DT 1900 PRELIM	1900	240	0	70	6.0	160	22.05	22862.30	37494.18
3	Dish	Commscope	FFVV-65B-R2 02DT 2100 PRELIM	2100	240	0	65	6.0	160	22.05	22862.30	37494.18
4	Unknown	GENERIC	PANEL 4FT 00DT 850	850	0	0	61	4.0	100	11.52	1419.06	2327.25
5	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	0	0	65	4.0	100	14.65	2917.43	4784.58
6	Unknown	GENERIC	PANEL 4FT 00DT 850	850	0	0	61	4.0	100	11.52	1419.06	2327.25
7	Unknown	GENERIC	PANEL 4FT 00DT 850	850	120	0	61	4.0	100	11.52	1419.06	2327.25
8	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	120	0	65	4.0	100	14.65	2917.43	4784.58
9	Unknown	GENERIC	PANEL 4FT 00DT 850	850	120	0	61	4.0	100	11.52	1419.06	2327.25
10	Unknown	GENERIC	PANEL 4FT 00DT 850	850	240	0	61	4.0	100	11.52	1419.06	2327.25
11	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	240	0	65	4.0	100	14.65	2917.43	4784.58

Ant #	Operator	Antenna Make	Antenna Model	Frequency (MHz)	Azimuth (deg.)	Mechanical Downtilt (deg.)	Horizontal Beamwidth (Degrees)	Aperture (feet)	Total Power Input (Watts)	Gain (dBd)*	Total ERP (Watts)	Total EIRP (Watts)
12	Unknown	GENERIC	PANEL 4FT 00DT 850	850	240	0	61	4.0	100	11.52	1419.06	2327.25
13	Unknown	GENERIC	PANEL 4FT 00DT 850	850	0	0	61	4.0	100	11.52	1419.06	2327.25
14	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	0	0	65	4.0	100	14.65	2917.43	4784.58
15	Unknown	GENERIC	PANEL 4FT 00DT 850	850	0	0	61	4.0	100	11.52	1419.06	2327.25
16	Unknown	GENERIC	PANEL 4FT 00DT 850	850	120	0	61	4.0	100	11.52	1419.06	2327.25
17	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	120	0	65	4.0	100	14.65	2917.43	4784.58
18	Unknown	GENERIC	PANEL 4FT 00DT 850	850	120	0	61	4.0	100	11.52	1419.06	2327.25
19	Unknown	GENERIC	PANEL 4FT 00DT 850	850	240	0	61	4.0	100	11.52	1419.06	2327.25
20	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	240	0	65	4.0	100	14.65	2917.43	4784.58
21	Unknown	GENERIC	PANEL 4FT 00DT 850	850	240	0	61	4.0	100	11.52	1419.06	2327.25
22	Unknown	GENERIC	PANEL 4FT 00DT 850	850	0	0	61	4.0	100	11.52	1419.06	2327.25
23	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	0	0	65	4.0	100	14.65	2917.43	4784.58
24	Unknown	GENERIC	PANEL 4FT 00DT 850	850	0	0	61	4.0	100	11.52	1419.06	2327.25
25	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	0	0	65	4.0	100	14.65	2917.43	4784.58
26	Unknown	GENERIC	PANEL 4FT 00DT 850	850	120	0	61	4.0	100	11.52	1419.06	2327.25
27	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	120	0	65	4.0	100	14.65	2917.43	4784.58
28	Unknown	GENERIC	PANEL 4FT 00DT 850	850	120	0	61	4.0	100	11.52	1419.06	2327.25
29	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	120	0	65	4.0	100	14.65	2917.43	4784.58
30	Unknown	GENERIC	PANEL 4FT 00DT 850	850	240	0	61	4.0	100	11.52	1419.06	2327.25
31	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	240	0	65	4.0	100	14.65	2917.43	4784.58
32	Unknown	GENERIC	PANEL 4FT 00DT 850	850	240	0	61	4.0	100	11.52	1419.06	2327.25
33	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	240	0	65	4.0	100	14.65	2917.43	4784.58

• Note there is 1 Dish Wireless antenna per sector at this site. For clarity, the different frequencies for each antenna are entered on separate lines.
• Gain includes antenna and combiner.

Ant #	NAME	X	Y	Antenna Radiation Centerline	Z-Height Equipment Shelter	Z-Height Ground
1	Dish	27.4	1.3	79.0	69.0	79.0
2	Dish	37.6	4.1	79.0	69.0	79.0
3	Dish	28.3	10.4	79.0	69.0	79.0
4	Unknown	28.5	0.6	137.0	127.0	137.0
5	Unknown	31.0	0.5	137.0	127.0	137.0
6	Unknown	33.3	0.6	137.0	127.0	137.0
7	Unknown	35.8	4.6	137.0	127.0	137.0
8	Unknown	34.6	6.4	137.0	127.0	137.0
9	Unknown	33.4	8.1	137.0	127.0	137.0
10	Unknown	29.0	8.8	137.0	127.0	137.0
11	Unknown	28.1	6.9	137.0	127.0	137.0
12	Unknown	26.8	4.4	137.0	127.0	137.0
13	Unknown	28.6	0.5	130.0	120.0	130.0
14	Unknown	31.1	0.4	130.0	120.0	130.0

Ant #	NAME	X	Y	Antenna Radiation Centerline	Z-Height Equipment Shelter	Z-Height Ground
15	Unknown	33.1	0.5	130.0	120.0	130.0
16	Unknown	36.0	4.3	130.0	120.0	130.0
17	Unknown	34.5	6.3	130.0	120.0	130.0
18	Unknown	33.3	8.3	130.0	120.0	130.0
19	Unknown	29.1	8.4	130.0	120.0	130.0
20	Unknown	28.3	6.6	130.0	120.0	130.0
21	Unknown	26.6	4.1	130.0	120.0	130.0
22	Unknown	27.3	0.6	117.0	107.0	117.0
23	Unknown	29.8	0.5	117.0	107.0	117.0
24	Unknown	32.3	0.5	117.0	107.0	117.0
25	Unknown	34.6	0.6	117.0	107.0	117.0
26	Unknown	36.4	3.1	117.0	107.0	117.0
27	Unknown	35.3	5.3	117.0	107.0	117.0
28	Unknown	33.9	7.1	117.0	107.0	117.0
29	Unknown	32.6	9.3	117.0	107.0	117.0
30	Unknown	29.6	9.4	117.0	107.0	117.0
31	Unknown	28.8	7.6	117.0	107.0	117.0
32	Unknown	27.5	5.5	117.0	107.0	117.0
33	Unknown	26.3	3.4	117.0	107.0	117.0

• Note the Z-Height represents the distance from the antenna centerline in feet.

The above tables contain an inventory of proposed Dish Wireless antennas and other carrier antennas if sufficient information was available to model them. Note that EBI uses an assumed set of antenna specifications and powers for unknown and other carrier antennas for modeling purposes. The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general population/uncontrolled exposure limits for members of the general public that may be exposed to antenna fields. While access to this site is considered controlled, the analysis has considered exposures with respect to both controlled and uncontrolled limits as an untrained worker may access adjacent rooftop locations. Additional information regarding controlled/uncontrolled exposure limits is provided in Appendix C. Appendix B presents a site safety plan that provides a plan view of the monopole with antenna locations.

3.0 WORST-CASE PREDICTIVE MODELING

EBI has performed theoretical MPE modeling using RoofMaster™ software to estimate the worst-case power density at the site's nearby broadcast levels resulting from operation of the antennas. RoofMaster™ is a widely-used predictive modeling program that has been developed by Waterford Consultants 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 Commission (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.

For this report, EBI utilized antenna and power data provided by Dish Wireless and compared the resultant worst-case MPE levels to the FCC's occupational/controlled exposure limits outlined in OET Bulletin 65. The assumptions used in the modeling are based upon information provided by Dish Wireless and information gathered from other sources. Elevations of walking/working surfaces were estimated based on elevations provided and available aerial imagery. Sector orientation assignments were made assuming coverage is directed to areas of site. Changes to antenna mount heights or placement will impact site compliance. The parameters used for modeling are summarized in the Site Description antenna inventory table in Section 2.0.

Other carriers also have antennas on the monopole. Information about these antennas was included in the modeling analysis.

Based on worst-case predictive modeling, there are no modeled areas on any accessible rooftop or ground-level walking/working surface related to the proposed Dish Wireless antennas that exceed the FCC's occupational or general public exposure limits at this site. At the nearest walking/working surfaces to the Dish Wireless antennas, the maximum power density generated by the Dish Wireless antennas is approximately 0.64 percent of the FCC's general public limit (0.13 percent of the FCC's occupational limit). The composite exposure level from all carriers on this site is approximately 0.74 percent of the FCC's general public limit (0.15 percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

The Site Safety Plan also presents areas where Dish Wireless antennas contribute greater than 5% of the applicable MPE limit for a site. A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

There are no modeled areas on the rooftop and ground that exceed the FCC's limits for general public or occupational exposure in front of the other carrier antennas.

The inputs used in the modeling are summarized in the Site Description antenna inventory table in Section 2.0. A graphical representation of the RoofMaster™ modeling results is presented in Appendix B. Microwave dish antennas are designed for point-to-point operations at the elevations of the installed equipment rather than ground level coverage. The maximum power density generated by all carrier antennas, including microwaves and panel antennas, is included in the modeling results presented within this report.

4.0 MITIGATION/SITE CONTROL OPTIONS

EBI's modeling indicates that there are no areas in front of the Dish Wireless antennas that exceed the FCC standards for occupational or general public exposure. All exposures above the FCC's safe limits require that individuals be elevated above the rooftop and/or ground. In order to alert people accessing the monopole, a Warning sign and an NOC Information sign are recommended for installation 10 feet above ground level at the base of the monopole.

Barriers are recommended for installation when possible to block access to the areas in front of the antennas that exceed the FCC general public and/or occupational limits. Barriers may consist of rope,

chain, or fencing. Painted stripes should only be used as a last resort. There are no barriers recommended on this site. Barriers are not recommended for installation because there are no exceedances on any walking/working surface.

These protocols and recommended control measures have been summarized and included with a graphic representation of the antennas and associated signage and control areas in a RF-EME Site Safety Plan, which is included as Appendix B. Individuals and workers accessing the monopole should be provided with a copy of the attached Site Safety Plan, made aware of the posted signage, and signify their understanding of the Site Safety Plan.

To reduce the risk of exposure, EBI recommends that access to areas associated with the active antenna installation be restricted and secured where possible.

Implementation of the signage recommended in the Site Safety Plan and in this report will bring this site into compliance with the FCC's rules and regulations.

5.0 SUMMARY AND CONCLUSIONS

EBI has prepared a Radiofrequency – Electromagnetic Energy (RF-EME) Compliance Report for telecommunications equipment installed by Dish Wireless Site Number NJJER01235A located at 3105 East Main st in Mohegan Lake, New York to determine worst-case predicted RF-EME exposure levels from wireless communications equipment installed at this site. This report summarizes the results of RF-EME modeling in relation to relevant Federal Communications Commission (FCC) RF-EME compliance standards for limiting human exposure to RF-EME fields.

As presented in the sections above, based on the FCC criteria, there are no modeled areas on any accessible rooftop or ground-level walking/working surface related to the proposed antennas that exceed the FCC's occupational or general public exposure limits at this site.

Workers should be informed about the presence and locations of antennas and their associated fields. Recommended control measures are outlined in Section 4.0 and within the Site Safety Plan (attached); Dish Wireless should also provide procedures to shut down and lockout/tagout this wireless equipment in accordance with their own standard operating protocol. Non-telecom workers who will be working in areas of exceedance are required to contact Dish Wireless since only Dish Wireless has the ability to lockout/tagout the facility, or to authorize others to do so.

6.0 LIMITATIONS

This report was prepared for the use of Dish Wireless. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by EBI are based solely on the information provided by the client. The observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to EBI so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

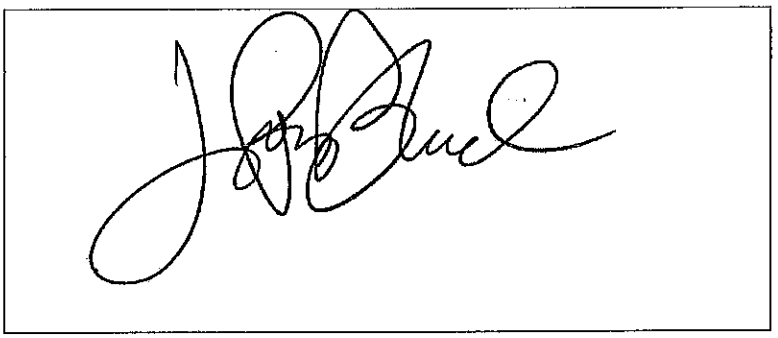
Appendix A

Certifications

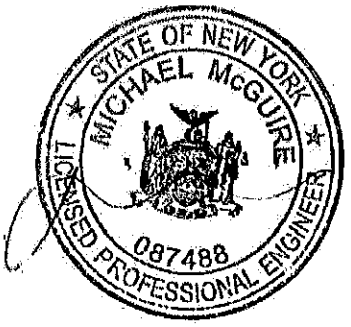
Preparer Certification

I, John-Pierre Blanchard, state that:

- I am an employee of EnviroBusiness Inc. (d/b/a EBI Consulting), which provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed RF-EME safety training, and I am aware of the potential hazards from RF-EME and would be classified "occupational" under the FCC regulations.
- I am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation.
- I have reviewed the data provided by the client and incorporated it into this Site Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.



Reviewed and Approved by:



sealed 11mar2022 mike@h2dc.com
H2DC PLLC NY CoA#: 0015410

Michael McGuire
Electrical Engineer
mike@h2dc.com

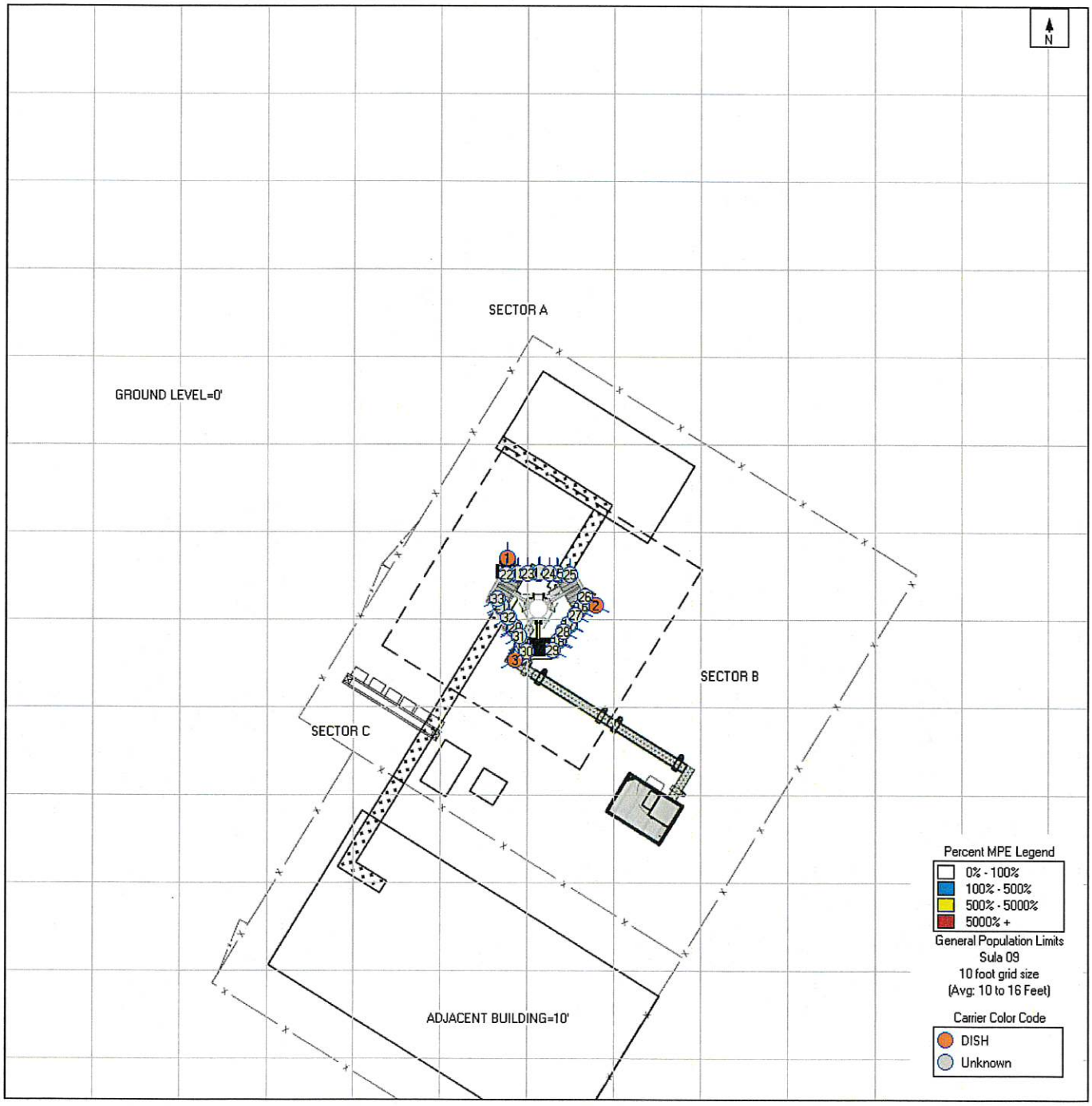
Note that EBI's scope of work is limited to an evaluation of the Radio Frequency – Electromagnetic Energy (RF-EME) field generated by the antennas and broadcast equipment noted in this report. The engineering and design of the building and related structures, as well as the impact of the antennas and broadcast equipment on the structural integrity of the building, are specifically excluded from EBI's scope of work.

Appendix B

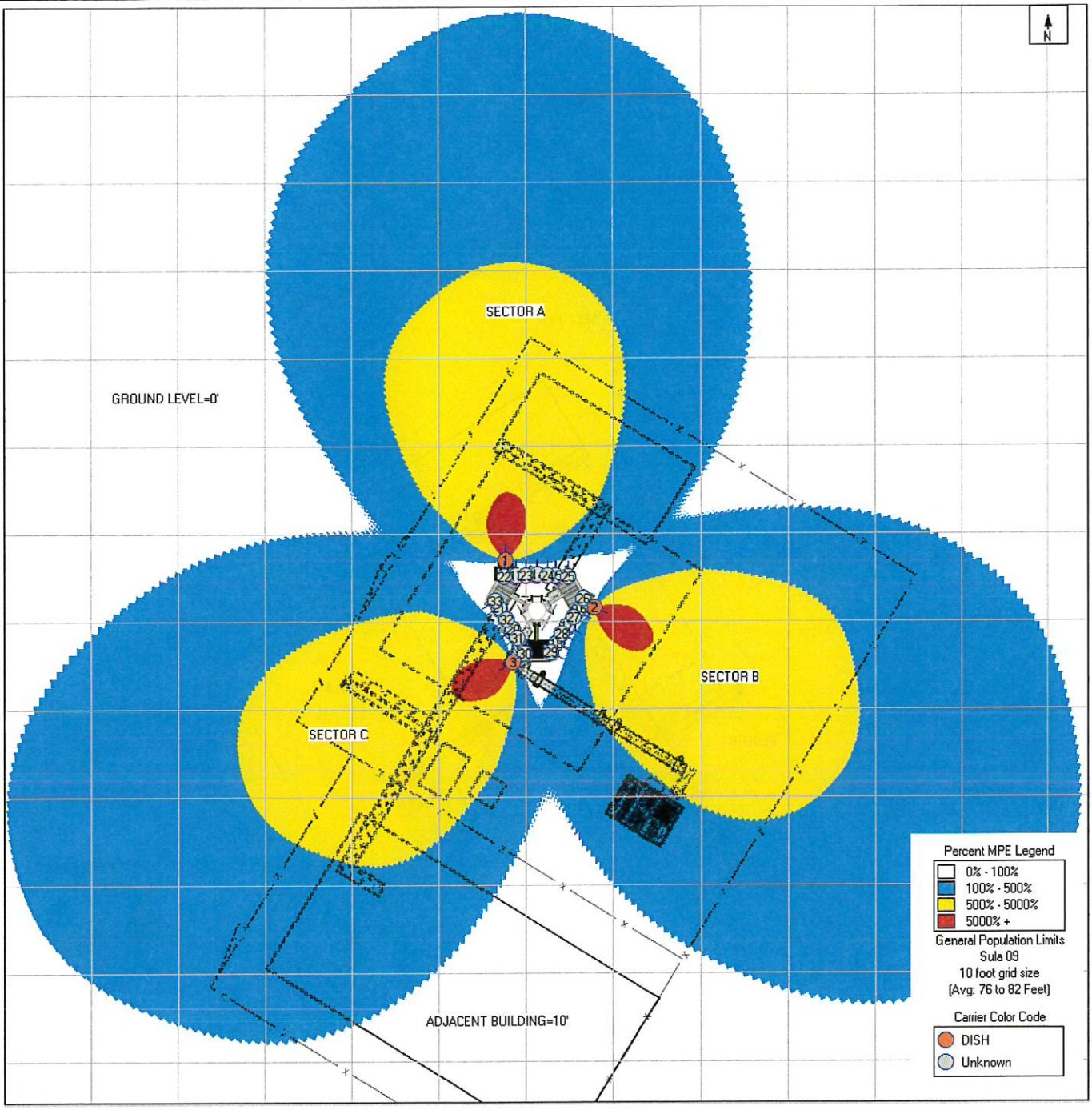
Radio Frequency Electromagnetic Energy

Safety Information and Signage Plans

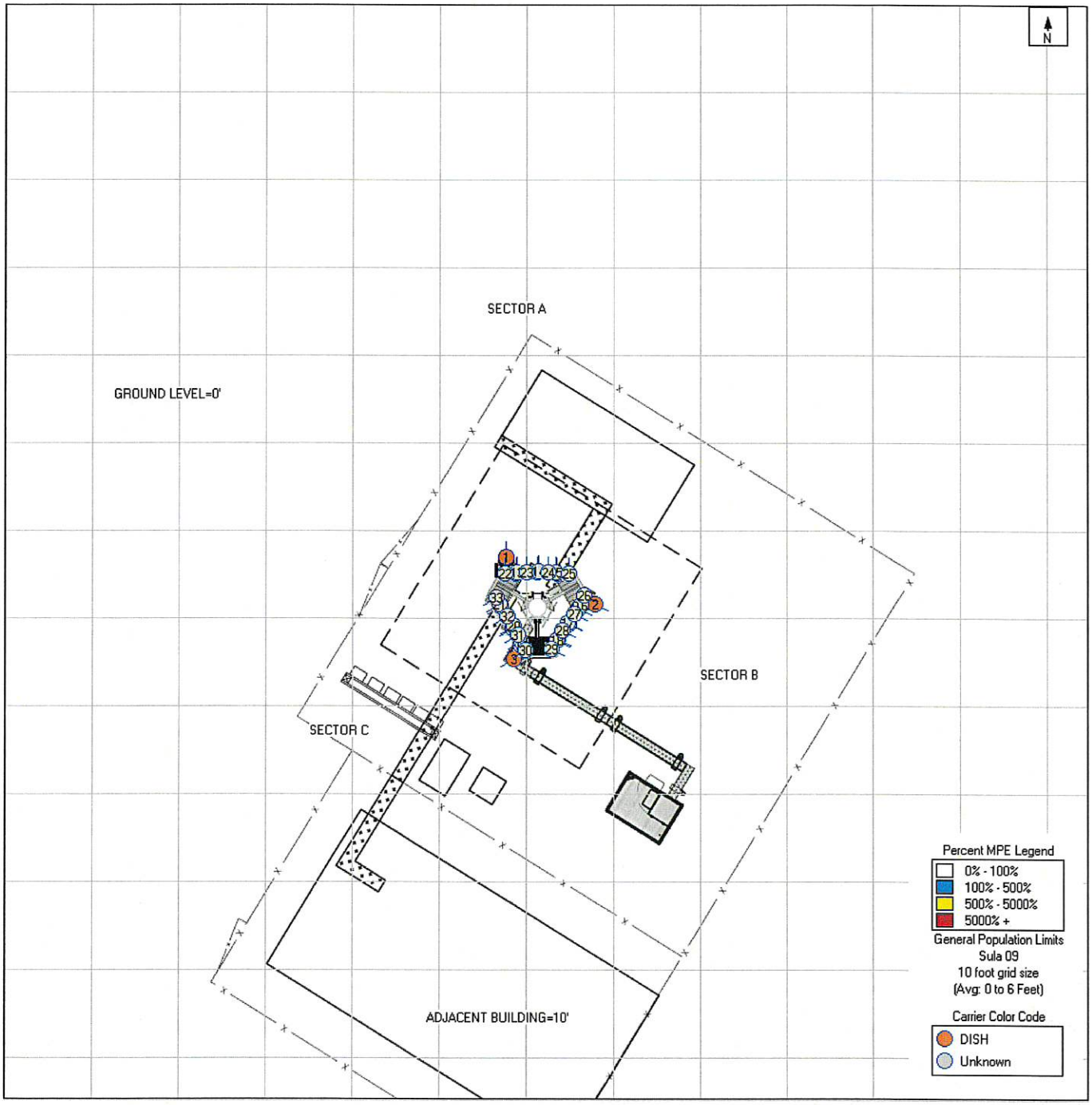
Nearest Walking Surface (Equipment Shelter Roof) Simulation



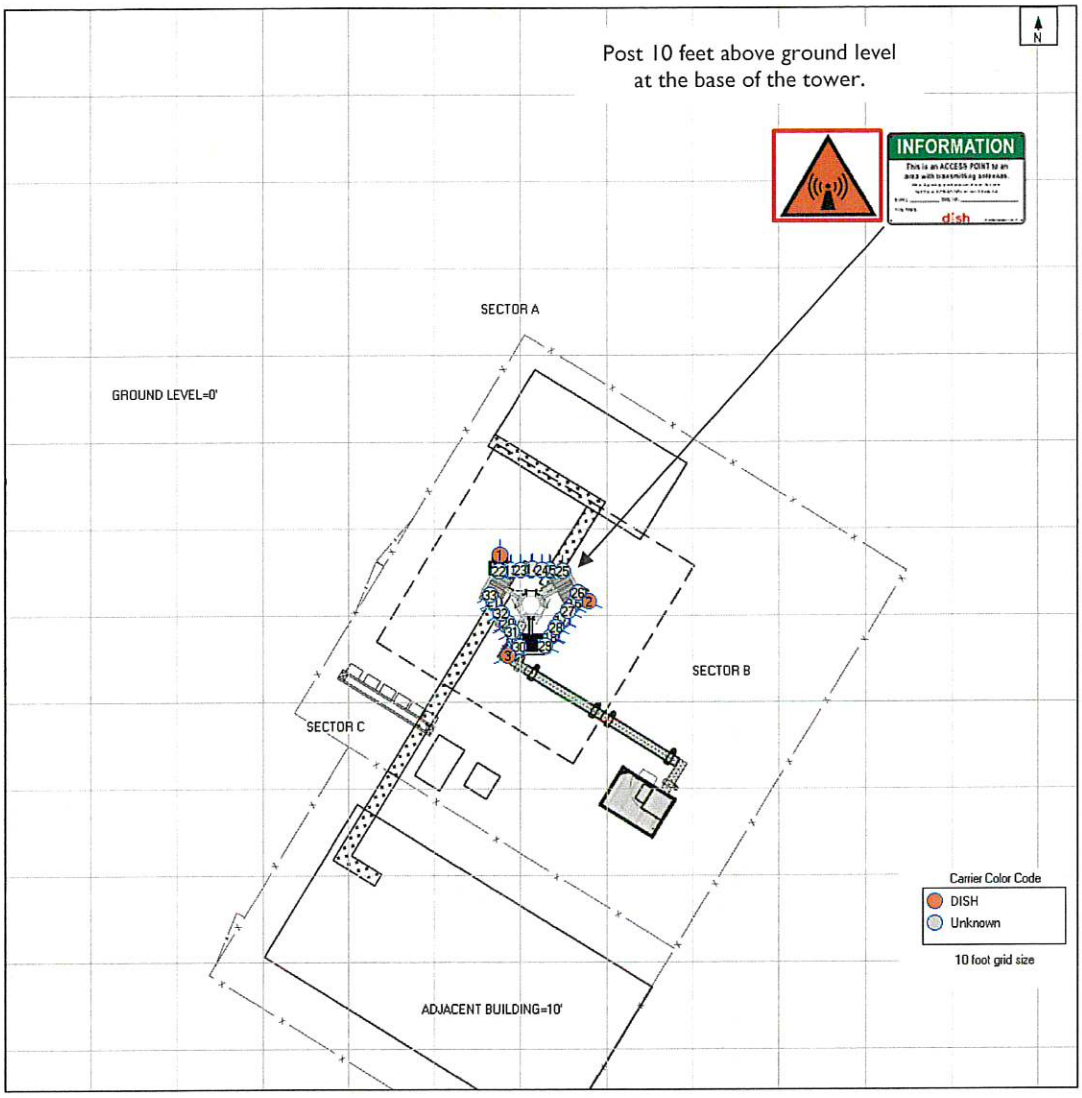
Antenna Face Level Simulation



Ground Level Simulation



Dish Wireless Safety (Signage) Plan



Sign	Posting Instructions	Required Signage / Mitigation
	**NOC Information** Information signs are used to provide contact information for any questions or concerns for personnel accessing the site.	Securely post 10 feet above ground level at the base of the monopole in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.
	**Guidelines** Informational sign used to notify workers that there are active antennas installed and provide guidelines for working in RF environments.	Signage not required.
	**Notice** Used to notify individuals they are entering an area where the power density emitted from transmitting antennas may exceed the FCC's MPE limit for the general public or occupational exposures.	Signage not required.
	**Caution** Used to notify individuals that they are entering a hot spot where either the general public or occupational FCC's MPE limit is or could be exceeded.	Signage not required.
	**Warning** Used to notify individuals that they are entering a hot zone where the occupational FCC's MPE limit has been exceeded by 10x.	Securely post 10 feet above ground level at the base of the monopole in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.

Appendix C

Federal Communications

Commission (FCC) Requirements

The FCC has established Maximum Permissible Exposure (MPE) limits for human exposure to Radiofrequency Electromagnetic (RF-EME) energy fields, based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general public/uncontrolled exposure limits for members of the general public.

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 public/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.

General public/uncontrolled exposure limits apply to situations in which the general public 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 public 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.

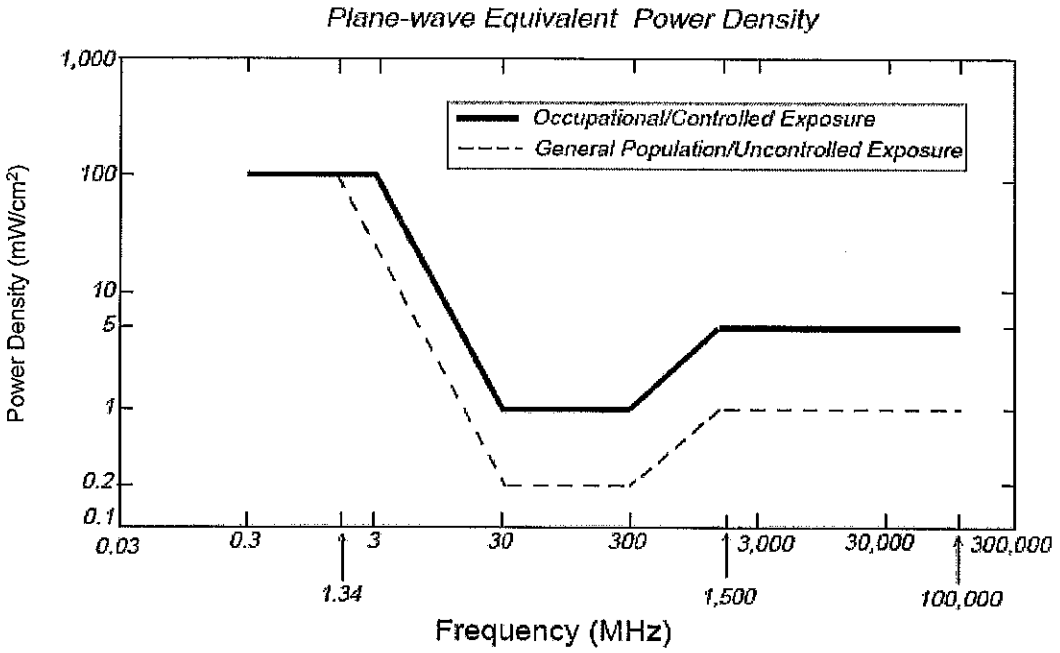
Table 1 and Figure 1 (below), which are included within the FCC's OET Bulletin 65, summarize the MPE limits for RF emissions. These limits are designed to provide a substantial margin of safety. They vary by frequency to take into account the different types of equipment that may be in operation at a particular facility and are "time-averaged" limits to reflect different durations resulting from controlled and uncontrolled exposures.

The FCC's MPEs are measured in terms of power (mW) over a unit surface area (cm^2). Known as the power density, the FCC has established an occupational MPE of 5 milliwatts per square centimeter (mW/cm^2) and an uncontrolled MPE of 1 mW/cm^2 for equipment operating in the 1900 MHz frequency range. For the Dish Wireless equipment operating at 600 MHz or 850 MHz, the FCC's occupational MPE is 2.83 mW/cm^2 and an uncontrolled MPE of 0.57 mW/cm^2. For the Dish Wireless equipment operating at 1900 MHz, the FCC's occupational MPE is 5.0 mW/cm^2 and an uncontrolled MPE limit of 1.0 mW/cm^2. These limits are considered protective of these populations.

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

f = Frequency in (MHz)
* Plane-wave equivalent power density

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)



Based on the above, the most restrictive thresholds for exposures of unlimited duration to RF energy for several personal wireless services are summarized below:

Personal Wireless Service	Approximate Frequency	Occupational MPE	Public MPE
Microwave (Point-to-Point)	5,000 - 80,000 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Broadband Radio (BRS)	2,600 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Wireless Communication (WCS)	2,300 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Advanced Wireless (AWS)	2,100 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Personal Communication (PCS)	1,950 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Cellular Telephone	870 MHz	2.90 mW/cm^2	0.58 mW/cm^2
Specialized Mobile Radio (SMR)	855 MHz	2.85 mW/cm^2	0.57 mW/cm^2
Long Term Evolution (LTE)	700 MHz	2.33 mW/cm^2	0.47 mW/cm^2
Most Restrictive Frequency Range	30-300 MHz	1.00 mW/cm^2	0.20 mW/cm^2

MPE limits are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

Personal Communication (PCS) facilities used by Dish Wireless in this area will potentially operate within a frequency range of 600 to 2100 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of areas directly in front of the antennas.

FCC Compliance Requirement

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

EXHIBIT E

INRANGE SOLUTIONS

695 Route 46 West,
Suite 103
Fairfield, NJ 07004

November 5, 2021

Township of Courtlandt
Building Department
1 Heady St,
Cortlandt, NY 10567

RE: Request for Minor Modification to Existing Wireless Facility – Section 624.10
Site Address 3105 E Main St, Cortlandt, NY 10567 (Block: 1, Lot: 1)
Crown Site Number: 822188 / Customer Site Number: NJJER01235A / Application Number: 548713

Dear Building Department:

On behalf of DISH Wireless LLC. ("Applicant"), Crown Castle USA Inc. ("Crown Castle") is pleased to submit this request to modify the existing wireless facility noted above through the collocation, replacement and/or removal of the Applicant's equipment as an eligible facilities request for a minor modification under Section 6409[1] and the rules of the Federal Communications Commission ("FCC").[2]

Section 6409 mandates that state and local governments must approve any eligible facilities request for the modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station. Under Section 6409, to toll the review period, if the reviewing authority determines that the application is incomplete, it must provide written notice to the applicant within 30 days, which clearly and specifically delineates all missing documents or information reasonably related to whether the request meets the federal requirements.[3] Additionally, if a state or local government, fails to issue any approvals required for this request within 60 days, these approvals are deemed granted. The FCC has clarified that the 30-day and 60-day deadlines begins when an applicant: (1) takes the first step required under state or local law; and (2) submits information sufficient to inform the jurisdiction that this modification qualifies under the federal law[4]. Please note that with the submission of this letter and enclosed items, the thirty and sixty-day review periods have started. Based on this filing, the deadline for written notice of incomplete application is December 5, 2021 and the deadline for issuance of approval is January 5, 2021.

The proposed scope of work for this project includes:
Install antennas, ancillary tower and ground equipment etc at an unmanned wireless facility with no change to structure height or ground space as per plans.

At the end of this letter is a checklist of the applicable substantial change criteria under Section 6409. Additionally, please find enclosed the following information in support of this request:

(1) Building Permit Application
(2) Two (2) Sets of Construction Drawings
(3) One (1) Structural Analysis Reports
(4) COI
(5) App Fee is 100.00

As these documents indicate, (i) the modification involves the collocation, removal or replacement of transmission equipment; and (ii) such modification will not substantially change the physical dimensions of such tower or base station. As such, it is an "eligible facilities request" as defined in the FCC's rules to which the 60-day deadline for approval applies. Accordingly, Applicant requests all authorization necessary for this proposed minor modification under Section 6409.

---

[1] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6409 (2012) (codified at 47 U.S.C. § 1455).

[2] *Acceleration of Broadband Deployment by Improving Wireless Facility Siting Policies*, 29 FCC Rcd. 12865 (2014) (codified at 47 CFR § 1.6100); and *Implementation of State & Local Governments' Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012*, WT Docket No. 19-250 (June 10, 2020).

[3] *See* 47 CFR § 1.6100 (c)(3). [4] *See* 2020 Upgrade Order at paragraph 16.

Our goal is to work with you to obtain approvals earlier than the deadline. We will respond promptly to any request for related information you may have in connection with this request. Please let us know how we can work with you to expedite the approval process. We look forward to working with you on this important project, which will improve wireless telecommunication services in your community using collocation on existing infrastructure. If you have any questions, please do not hesitate to contact me.

Sincerely,

Derek Picinic

inRange Solutions, LLC
695 Route 46 West, Suite 300
Fairfield, NJ 07004
Mobile: 551-655-7086
Fax: 973.860.2424
E-mail: dpicinic@inrange-LLC.com

INRANGE SOLUTIONS

Permit No. _____
Date: _____
SCA: _____

TOWN OF CORTLANDT

DEPARTMENT OF TECHNICAL SERVICES
Code Enforcement Division
Town Hall, 1 Heady Street, Cortlandt Manor, NY 10567
914-734-1010 FAX 914-788-0294
http://www.townofcortlandt.com e-mail: code@townofcortlandt.com

CO No. _____
CC No. _____
Date: _____

BUILDING PERMIT APPLICATION

Application is hereby made to the Code Enforcement Division for the issuance of Permits pursuant to the Code of the Town of Cortlandt. The applicant agrees to comply with all applicable laws, ordinances and regulations. The applicant attests that the proposed work outlined in this application conforms to all provisions of the Code of the Town of Cortlandt and laws of New York State. It is further agreed that the premises will not be occupied until a Certificate of Occupancy has been issued and all fees are paid in full.

Permit type:

___Residential (new)
___Residential (addition/alteration)
___Accessory Structure
_X_Commercial/Business
___Assembly (includes restaurants)
___Industrial
___Demolition
___Pools and Decks
___Sign
___Topographic Alteration
___Wetlands
___Other _____

Site Data:

Section 24.10 Block 1 Lot 1 Zone: CD Area of lot(s): _____

Street Address: 3105 EAST MAIN STREET

Project Description: Dish 5G- Dish proposes to add (3) antennas, (6) RRH, (1) OVP and (1) hybrid to the tower. Dish will have a 5'x7' lease area with (1) cabinet

Sewer: _____ Septic: _____ WCDH File #: _____ No. of approved Bedrooms: _____

Subdivision Name: _____ Filed Map No. _____ Dated Filed _____

Total Square Footage of Project: _____

Floor Area (Provide Square Footage): Existing _____ Proposed _____

Construction Classification: Type: _____

Occupancy/Use: _____

Applicant:

Name: Derek Picinic OBO CROWN CASTLE DISH NETWORK LLC

Address: 695 RT 46 SUITE 300 FAIRFIELD NJ 07004

Phone: _____ Mobile: 551-655-7086

E-mail: Dpicinic@inrange-llc.com

Owner:

Name: COURTLAND TOWN CENTER

Address: 3105 MAIN STREET
MOHEGAN LAKE, NY 10547

Phone: _____ Mobile: _____

E-mail: _____

Lessee:

Name: _____

Address: _____

Phone: _____ Mobile: _____

E-mail: _____

Architect/Engineer:

Name: Michael Krieg OBO Kimley-Horn &

Address: 1 N Lexington Ave, Suite 1575White Plains NY 10601

Phone: 216 505 7749 Mobile: _____

E-mail: michael.krieg@kimley-horn.com

Builder/Contractor/Developer:

Name: MIKE ORONZIO OBO J.T.ORONZIO GENERAL CONTRACTING & DEVELOPMENT, INC. Phone: 914-699-0300 Mobile: 917-468-9202

Address: 443 NORTH MAC QUESTEN PKWY MOUNT VERNON, NY 10552 E-mail: OFFICE@JTORONZIO.COM

Westchester County License #: WC08594-H97

Electrician:

Name: _____

Address: _____

Phone: _____ Mobile: _____

E-mail: _____

Westchester County License #: _____

Plumber:

Name: _____

Address: _____

Phone: _____ Mobile: _____

E-mail: _____

Westchester County License #: _____

Cost of Construction:

Cost of Construction $ 33,000 (Cost for the work described in the Application for Building Permit, include the cost of all of the construction and other work done in connection therewith, exclusive of the cost of the land).

Authorization:

State of New York, County of Westchester, _____ being duly sworn deposes and says they are the owner or authorized representative by **attached completed proxy statement** and are duly authorized to perform or have performed said work and to make and file this application: that all statements are true to the best of their knowledge and belief, and that the work will be performed in the manner set forth in the application and in the plans and specifications filed therewith.

Sworn to before me this 3rd day of November, 2021 Owner or Authorized Representive Signature: Derek A Pietnic

Print Name: Derek A Pietnic

Notary Public: COURTNEY M. POFF NOTARY PUBLIC OF NEW JERSEY Comm. #. 50068940 My Commission Expires 9/29/2022

Confirmation All Taxes Paid: _____ *Date:* _____

********** DO NOT WRITE BELOW THIS LINE – FOR OFFICE USE ONLY **********

Fee:

Building Permit	$_____	Driveway Permit	$_____
Environ. Insp.	$_____	Steep Slope Permit	$_____
Plumbing Permit	$_____	Wetland Permit	$_____
C of O fee	$_____	Tree Removal Permit	$_____
		Total	$_____

Wetlands/Steep Slope: Out _____ Return _____

Engineering: Out _____ Return _____

Planning Board: ___No ___Yes _____Date

Open Building Permit ____No _____Yes # _____

ARB: _____No _____Yes ____Date

Open Space Committee: _____No ____Yes _____Date

Fill out all spaces on the permit application. All information is essential and no application for permit will be reviewed until all the required items are provided.

No building permit application will be accepted or issued after 3:30 PM

TOWN OF CORTLANDT

DEPARTMENT OF TECHNICAL SERVICES
Code Enforcement Division
Town Hall, 1 Heady Street, Cortlandt Manor, NY 10567
914-734-1011 FAX 914-293-0991
http://www.townofcortlandt.com e-mail: code@townofcortlandt.com

PROXY STATEMENT

CORTLANDT TOWN CENTER is the owner of the property located at 3105 East Main Street and has authorized inrange Solutions LLC to make the attached application for Crown Castle / Dish Network LLC and to represent them at all Board meetings.

SEE ATTACHED LOA.

Signature of Owner

NOTARY:

Sworn to before me

this 3rd day of November, 2021

Notary Public: Cori M Poff

CORI M. POFF
NOTARY PUBLIC OF NEW JERSEY
Comm. # 50068940
My Commission Expires 9/29/2022

DATED 1/29/19

AFFIDAVIT - Property Owner

State of ~~New York~~ New Jersey)
County of ~~Rockland~~ Essex) SS.:
Town/Village of Fairfield)

I, Kimberly Myl on behalf of Crown Castle USA Inc, being duly sworn, deposes and says that Crown Castle USA, Inc. is the owner in fee of the premises to which this application applies; that he (the applicant) is duly authorized to make this application and that the statements contained in the papers submitted herein are true to the best of his knowledge and belief, and that the work will be performed in the manner set forth in the application and in the plans and specifications filed therewith, and in accordance with the State Uniform Building Code and all other applicable laws, ordinances and regulations of the municipality. I also declare that the structure or area described in this application will not be occupied or used until I have obtained a Certificate of Occupancy.

Kimyl

1200 MacArthur Blvd, Ste 200, Mahwah, New Jersey 07430
Mailing Address

SWORN to before me this

_____ day of _____, ____

Cori M Poff

Notary Public

CORI M. POFF
NOTARY PUBLIC OF NEW JERSEY
Comm. # 50068940
My Commission Expires 9/29/2022

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/03/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Adam Antoinette	
BNC Insurance Agency, Inc. 90 South Ridge Street Rye Brook NY 10573	PHONE (A/C, No, Ext): (914) 937-1230	FAX (A/C, No): (914) 937-1124
	E-MAIL ADDRESS: aantoinette@bncagency.com	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
J. T. Oronzio General Contracting and Development Inc. 443 North Macquesten Parkway Mount Vernon NY 10552	INSURER A: Stillwater Property and Casualty Insurance Company	16578
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** CL2162401725 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR [X] CONTRACTUAL LIABILITY GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:	Y		MPGR3864-00	06/29/2021	06/29/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 100,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000
A	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY			BAGR3864-00	06/29/2021	06/29/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
B	[X] UMBRELLA LIAB [X] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 10,000			XSGR3864-00	06/29/2021	06/29/2022	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [ ] N/A If yes, describe under DESCRIPTION OF OPERATIONS below						[ ] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: CROWN CASTLE SITE # NJJERO1235
The Town of Cortlandt is named as Additional Insured per policy form.

CERTIFICATE HOLDER

Town of Cortlandt
1 Heady Street
Cortlandt Manor NY 10567

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

NYSIF
New York State Insurance Fund

PO Box 66699, Albany, NY 12206
| nysif.com

CERTIFICATE OF WORKERS' COMPENSATION INSURANCE

^^^^^^ 133601932
J T ORONZIO ELECTRICAL
CONTRACTING INC
109 MAMARONECK ROAD
SCARSDALE NY 10583

SCAN TO VALIDATE
AND SUBSCRIBE

POLICYHOLDER	CERTIFICATE HOLDER
J.T ORONZIO GENERAL CONTRACTING & DEVELOPMENT INC 443 N. MACQUESTEN PKWY, MOUNT VERNON NY 10552	TOWN OF CORTLANDT 1 HEADY STREET CORTLANDT MANOR NY 10567

POLICY NUMBER	CERTIFICATE NUMBER	POLICY PERIOD	DATE
Z2476 830-1	57615	04/01/2021 TO 04/01/2022	11/3/2021

THIS IS TO CERTIFY THAT THE POLICYHOLDER NAMED ABOVE IS INSURED WITH THE NEW YORK STATE INSURANCE FUND UNDER POLICY NO. 2476 830-1, COVERING THE ENTIRE OBLIGATION OF THIS POLICYHOLDER FOR WORKERS' COMPENSATION UNDER THE NEW YORK WORKERS' COMPENSATION LAW WITH RESPECT TO ALL OPERATIONS IN THE STATE OF NEW YORK, EXCEPT AS INDICATED BELOW, AND, WITH RESPECT TO OPERATIONS OUTSIDE OF NEW YORK, TO THE POLICYHOLDER'S REGULAR NEW YORK STATE EMPLOYEES ONLY.

IF YOU WISH TO RECEIVE NOTIFICATIONS REGARDING SAID POLICY, INCLUDING ANY NOTIFICATION OF CANCELLATIONS, OR TO VALIDATE THIS CERTIFICATE, VISIT OUR WEBSITE AT HTTPS://WWW.NYSIF.COM/CERT/CERTVAL.ASP. THE NEW YORK STATE INSURANCE FUND IS NOT LIABLE IN THE EVENT OF FAILURE TO GIVE SUCH NOTIFICATIONS.

THE POLICY INCLUDES A WAIVER OF SUBROGATION ENDORSEMENT UNDER WHICH NYSIF AGREES TO WAIVE ITS RIGHT OF SUBROGATION TO BRING AN ACTION AGAINST THE CERTIFICATE HOLDER TO RECOVER AMOUNTS WE PAID IN WORKERS' COMPENSATION AND/OR MEDICAL BENEFITS TO OR ON BEHALF OF AN EMPLOYEE OF OUR INSURED IN THE EVENT THAT, PRIOR TO THE DATE OF THE ACCIDENT, THE CERTIFICATE HOLDER HAS ENTERED INTO A WRITTEN CONTRACT WITH OUR INSURED THAT REQUIRES THAT SUCH RIGHT OF SUBROGATION BE WAIVED.

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS NOR INSURANCE COVERAGE UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICY.

NEW YORK STATE INSURANCE FUND

DIRECTOR,INSURANCE FUND UNDERWRITING

VALIDATION NUMBER: 745133625

U-26.3

NEW YORK STATE | Workers' Compensation Board

CERTIFICATE OF INSURANCE COVERAGE
DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

PART 1. To be completed by Disability and Paid Family Leave Benefits Carrier or Licensed Insurance Agent of that Carrier

1a. Legal Name & Address of Insured (use street address only)
J.T. ORONZIO GENERAL CONTRACTING AND DEVELOPMENT INC.

443 NORTH MACQUESTEN PARKWAY
MOUNT VERNON, NY 10552

Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., Wrap-Up Policy)*

1b. Business Telephone Number of Insured
914-699-0300

1c. Federal Employer Identification Number of Insured or Social Security Number
133601932

2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)
Town of Cortlandt
1 Heady Street
Cortlandt Manor, NY 10567

3a. Name of Insurance Carrier
ShelterPoint Life Insurance Company

3b. Policy Number of Entity Listed in Box "1a"
DBL188943

3c. Policy effective period
01/01/2021 to 12/31/2022

4. Policy provides the following benefits:
- [X] A. Both disability and paid family leave benefits.
- [ ] B. Disability benefits only.
- [ ] C. Paid family leave benefits only.

5. Policy covers:
- [X] A. All of the employer's employees eligible under the NYS Disability and Paid Family Leave Benefits Law.
- [ ] B. Only the following class or classes of employer's employees:

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has NYS Disability and/or Paid Family Leave Benefits insurance coverage as described above.

Date Signed 11/3/2021 By _____
(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number 516-829-8100 Name and Title Richard White, Chief Executive Officer

IMPORTANT: If Boxes 4A and 5A are checked, and this form is signed by the insurance carrier's authorized representative or NYS Licensed Insurance Agent of that carrier, this certificate is COMPLETE. Mail it directly to the certificate holder.

If Box 4B, 4C or 5B is checked, this certificate is NOT COMPLETE for purposes of Section 220, Subd. 8 of the NYS Disability and Paid Family Leave Benefits Law. It must be mailed for completion to the Workers' Compensation Board, Plans Acceptance Unit, PO Box 5200, Binghamton, NY 13902-5200.

PART 2. To be completed by the NYS Workers' Compensation Board (Only if Box 4C or 5B of Part 1 has been checked)

State of New York
Workers' Compensation Board

According to information maintained by the NYS Workers' Compensation Board, the above-named employer has complied with the NYS Disability and Paid Family Leave Benefits Law with respect to all of his/her employees.

Date Signed _____ By _____
(Signature of Authorized NYS Workers' Compensation Board Employee)

Telephone Number _____ Name and Title _____

Please Note: *Only insurance carriers licensed to write NYS disability and paid family leave benefits insurance policies and NYS licensed insurance agents of those insurance carriers are authorized to issue Form DB-120.1.* ***Insurance brokers are NOT authorized to issue this form.***

DB-120.1 (10-17)

DISH Wireless L.L.C. SITE ID:

NJJER01235A

DISH Wireless L.L.C. SITE ADDRESS:

3105 EAST MAIN ST
MOHEGAN LAKE, NY 10547

NEW YORK 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	2018 IBC
MECHANICAL	2018 IMC
ELECTRICAL	2017 NEC

SHEET INDEX

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

SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET

SITE PHOTO

UNDERGROUND SERVICE ALERT - NEW YORK 811
UTILITY NOTIFICATION CENTER OF NEW YORK
(800) 272-4480
WWW.NEWYORK-811.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	CORTLAND TOWN CENTER LLC
ADDRESS:	3105 MAIN ST MOHEGAN LAKE, NY 10547
TOWER TYPE:	MONOPOLE
CROWN CASTLE SITE ID:	822188
CROWN CASTLE APP NUMBER:	548713
COUNTY:	WESTCHESTER
LATITUDE (NAD 83):	41° 18' 28.54" N 41.307917° N
LONGITUDE (NAD 83):	73° 52' 15.78" W 73.871056° W
ZONING JURISDICTION:	TOWN OF CORTLANDT
ZONING DISTRICT:	CD
PARCEL NUMBER:	02401000010010000000
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CON ED
TELEPHONE COMPANY:	VERIZON

PROJECT DIRECTORY

APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	KIMLEY-HORN OF NEW YORK, P.C. 1 NORTH LEXINGTON AVENUE, STE. 1575 WHITE PLAINS, NY 10601 (914) 368-9200 COA #: 80369
SITE ACQUISITION:	VICTOR NUNEZ (917) 563-3682
CONSTRUCTION MANAGER:	MICHAEL NARDUCCI MICHAEL.NARDUCCI@DISH.COM
RF ENGINEER:	MURUGABIRAN JAYAPAL MURUGABIRAN.JAYAPAL@DISH.COM

11/05/21
Exp. 4/30/23

DIRECTIONS

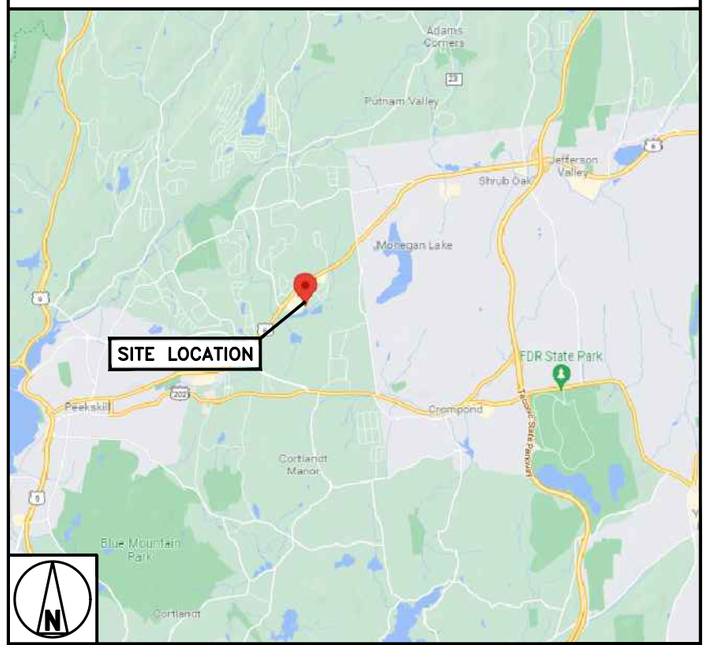
DIRECTIONS FROM LAGUARDIA AIRPORT:

x CONTINUE TO GRAND CENTRAL PKWY

x TAKE I-87 N, SPRAIN BROOK PKWY N AND TACONIC STATE PARKWAY N TO BEAR MOUNTAIN STATE PKWY IN CROMPOND. TAKE EXIT 17 B FROM TACONIC STATE PARKWAY N

x CONTINUE ON BEAR MOUNTAIN STATE PKWY. TAKE US-202 W/CROMPOND RD AND BEAR MOUNTAIN STATE PKWY TO CANAL IN MOHEGAN LAKE

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
of New York, P.C.

COA #: 80369
1 NORTH LEXINGTON AVENUE, STE. 1575
WHITE PLAINS, NY 10601

STATE OF NEW YORK
MICHAEL OGLESBY
094118
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/11/2021	ISSUED FOR REVIEW
0	11/05/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16843

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE

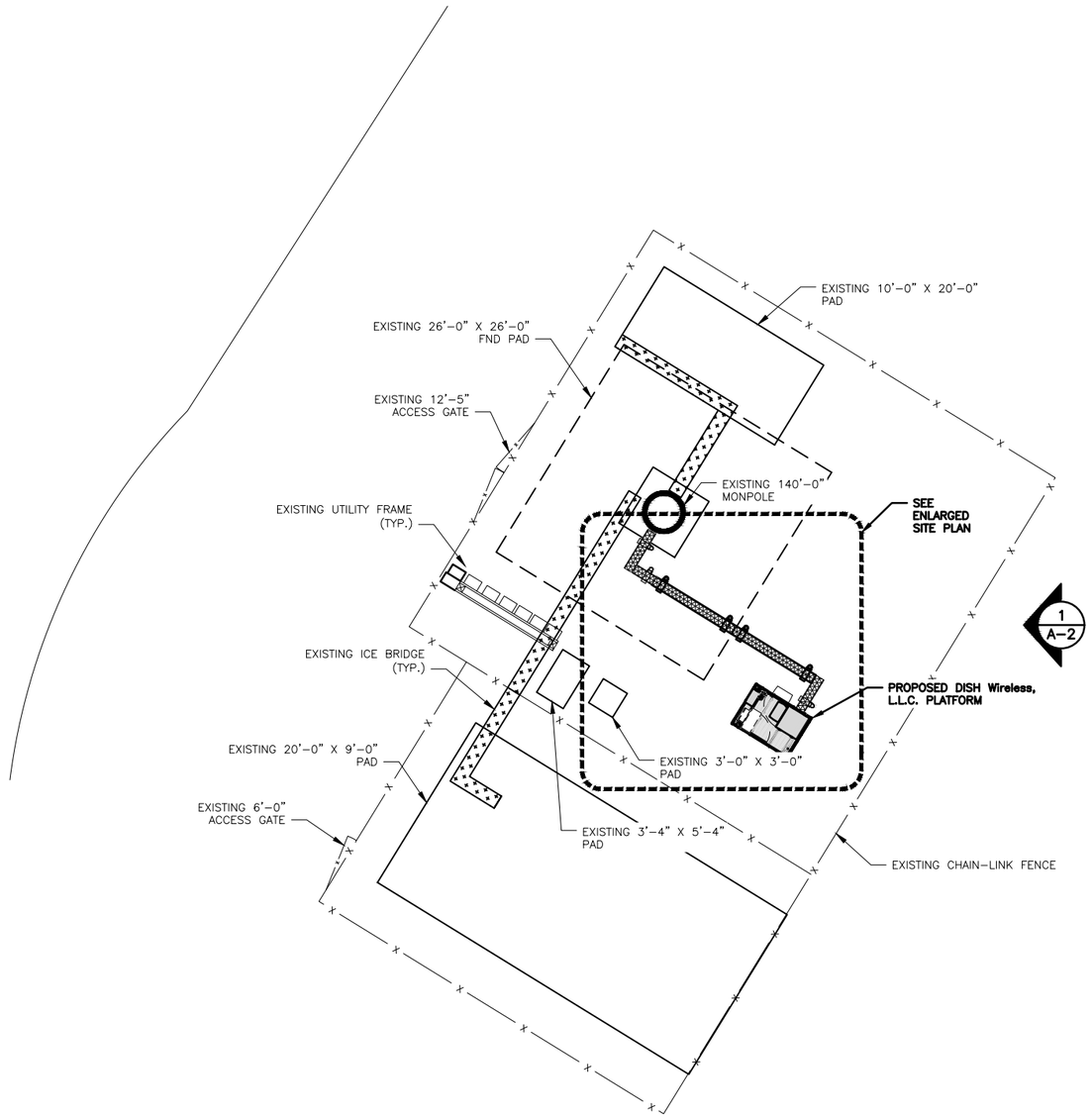
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



N

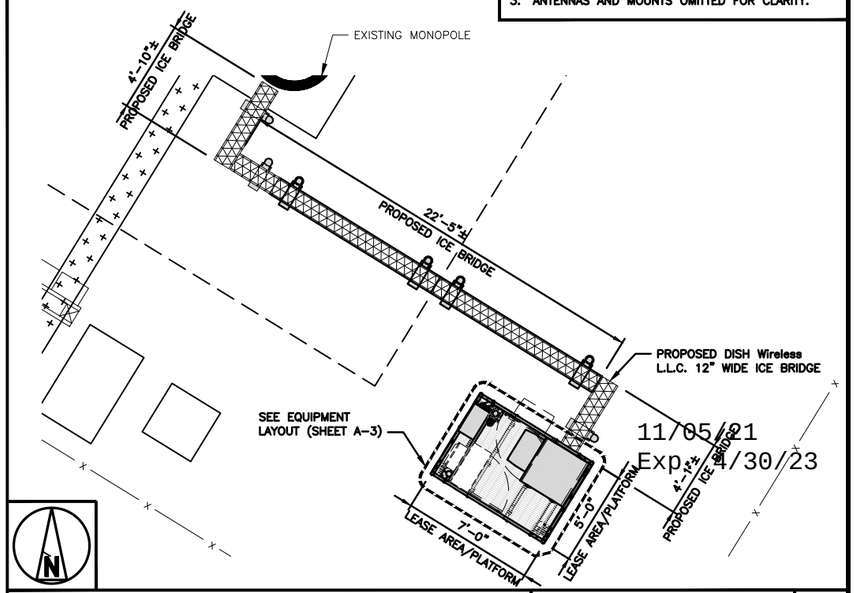
OVERALL SITE PLAN

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

1

NOTES

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

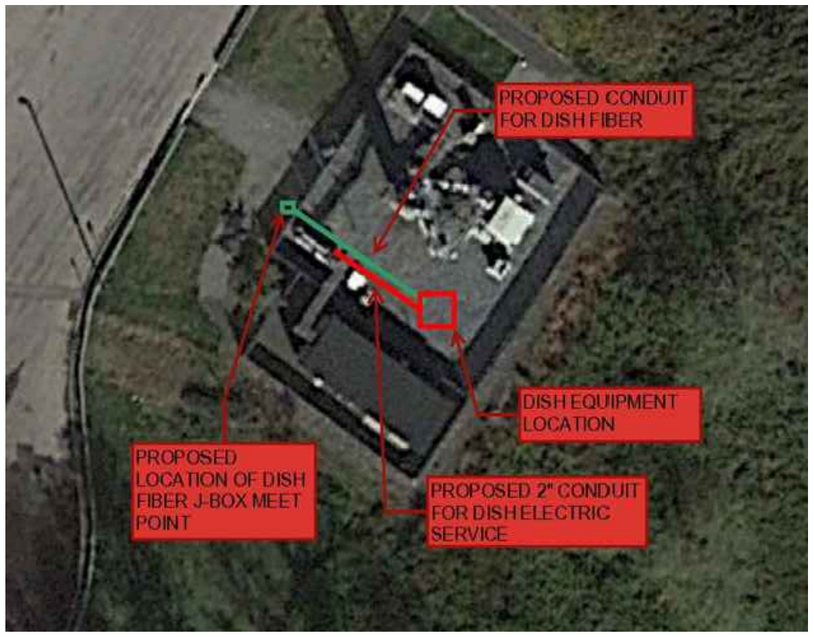


N

ENLARGED SITE PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

2



OVERALL UTILITY ROUTE PLAN

NO SCALE

3

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LITTLETON, CO 80120

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of New York, P.C.

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WHITE PLAINS, NY 10601

STATE OF NEW YORK
MICHAEL OGLESBY
094118
LICENSED PROFESSIONAL ENGINEER

11/05/21
Exp. 4/30/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER

KHCLE-16843

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE

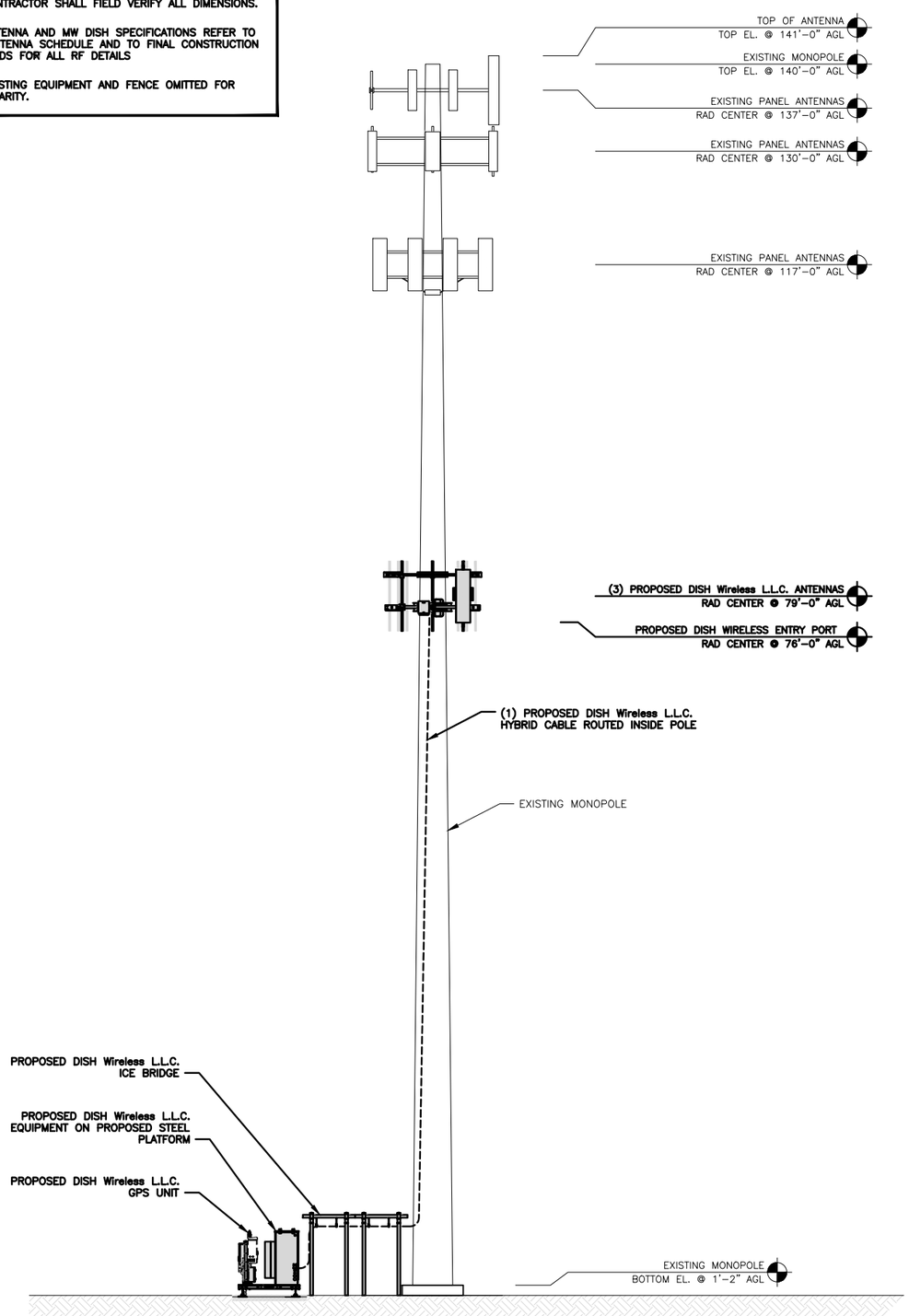
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

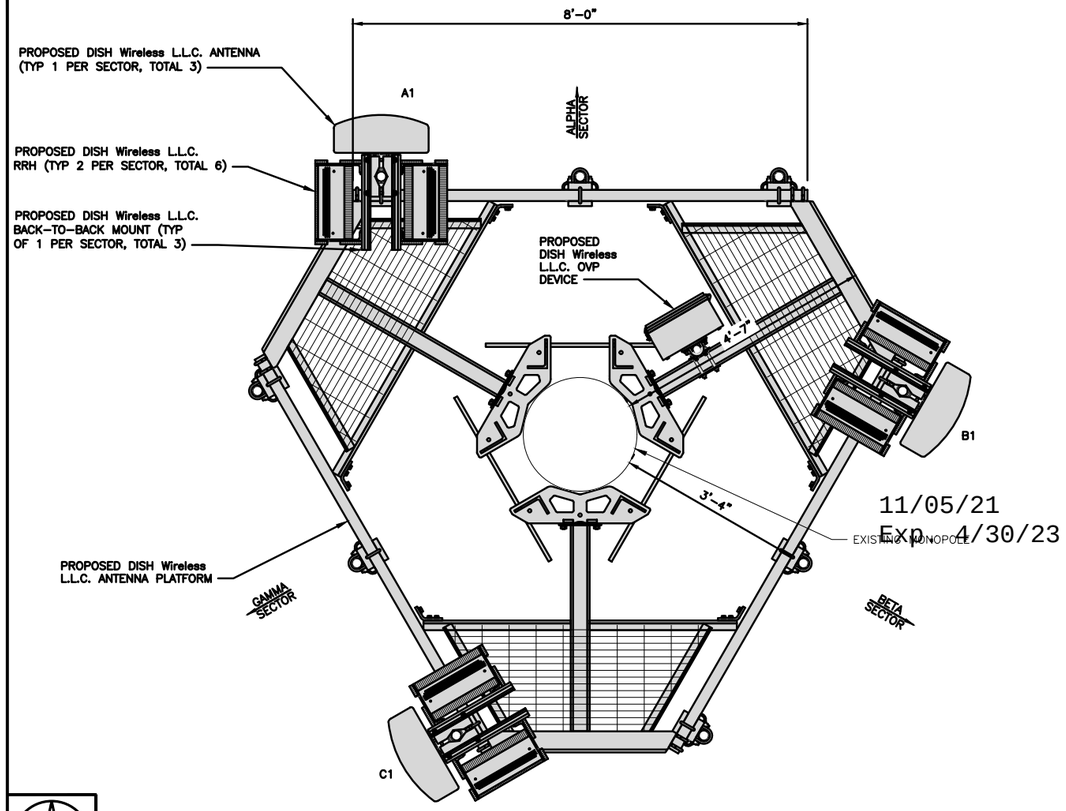
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED EAST ELEVATION

8' 4' 0 8' 16'
1/8"=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	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	0°	79'-0"	(1) HIGH-CAPACITY HYBRID CABLE (135'-0" LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	120°	79'-0"	
GAMMA	C1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	240°	79'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	5G
	A1	FUJITSU – TA08025-B605	5G
BETA	B1	FUJITSU – TA08025-B604	5G
	B1	FUJITSU – TA08025-B605	5G
GAMMA	C1	FUJITSU – TA08025-B604	5G
	C1	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
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1 NORTH LEXINGTON AVENUE, STE. 1575
WHITE PLAINS, NY 10601

STATE OF NEW YORK
MICHAEL OGLESBY
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LICENSED PROFESSIONAL ENGINEER

11/05/21
Exp. 4/30/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

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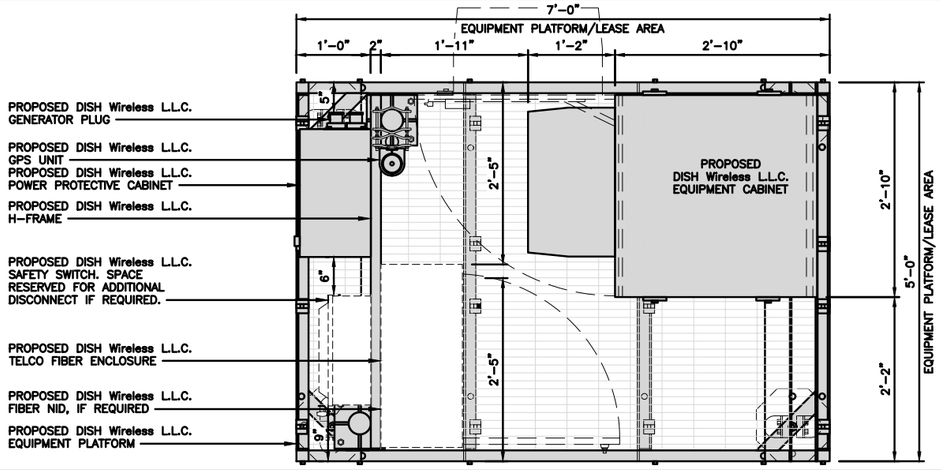
NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



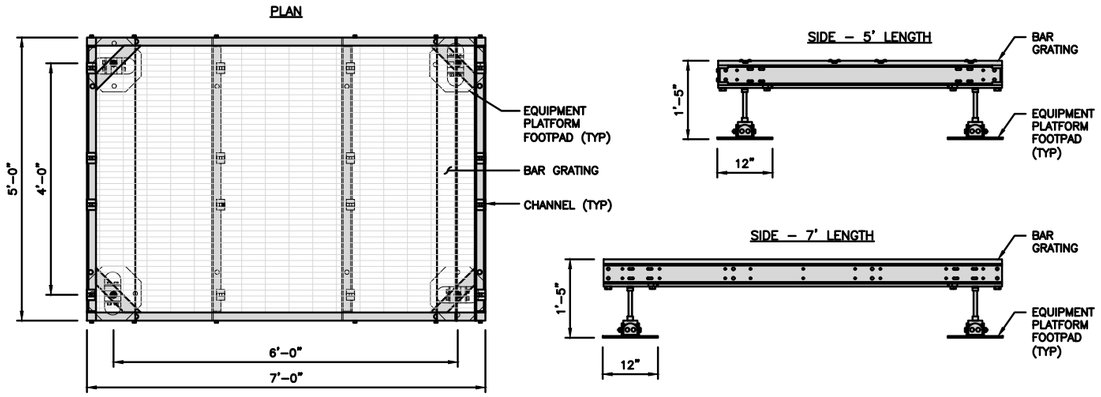
PLATFORM EQUIPMENT PLAN

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

1

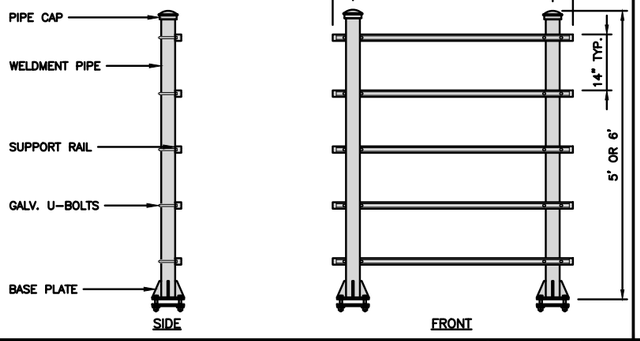
COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

NOTE:
1. GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"
2. PLATFORM TO BE LEVEL WITHIN 1"



PLATFORM DETAIL | NO SCALE | 2

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

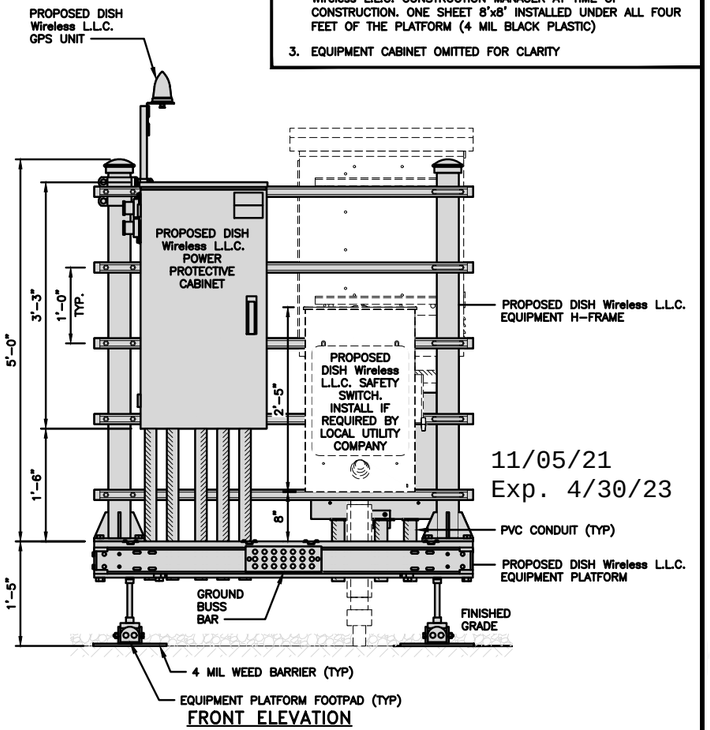


H-FRAME DETAIL | NO SCALE | 3

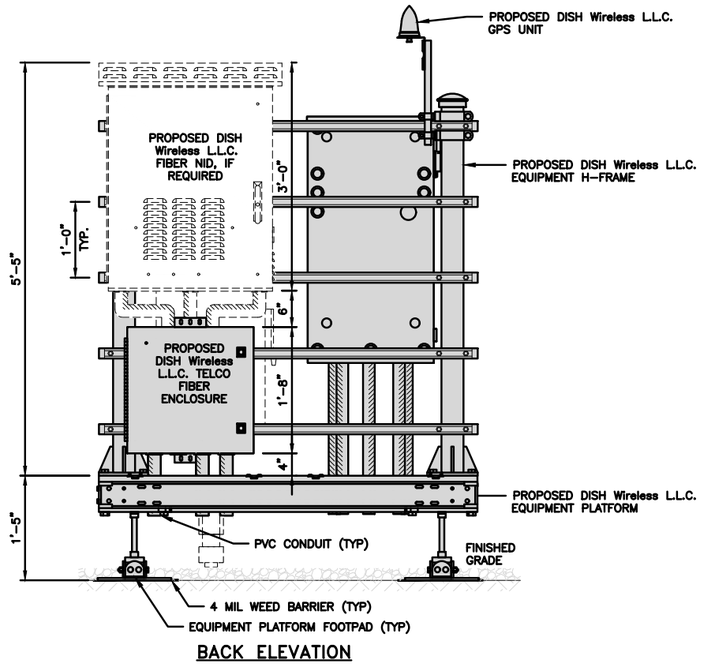
NOT USED | NO SCALE | 4

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 L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION | 12" 9" 6" 3" 0 1' 2' 1"=1'-0" | 5

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11/05/21
Exp. 4/30/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

RFDS REV #: 1

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DISH Wireless L.L.C.
PROJECT INFORMATION
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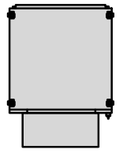
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

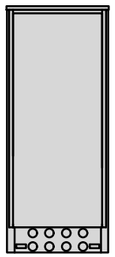
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

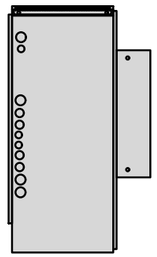
ENERSYS HEX 20000059996	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HEATER	800W
TOTAL WEIGHT (EMPTY)	376 lbs



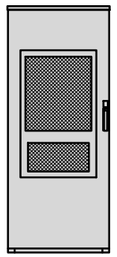
PLAN



BACK



SIDE

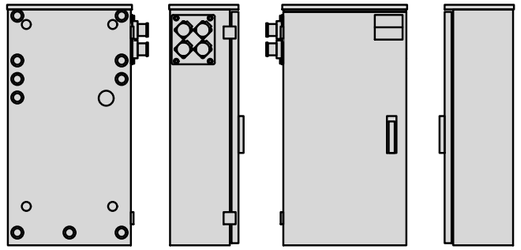


FRONT

CABINET DETAIL | NO SCALE | 1

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

TOP

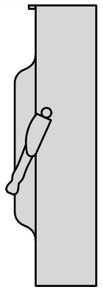


BACK SIDE FRONT SIDE

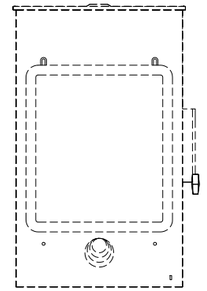
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

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

TOP



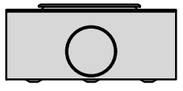
SIDE



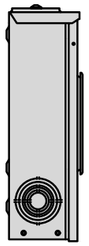
FRONT

SAFETY SWITCH DETAIL | NO SCALE | 3

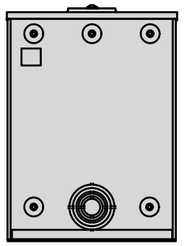
EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS



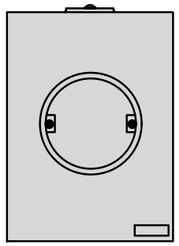
PLAN



SIDE



BACK

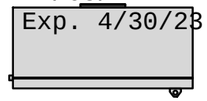


FRONT

METER SOCKET DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

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



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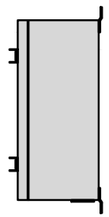
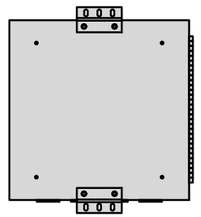


SIDE



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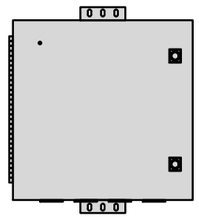
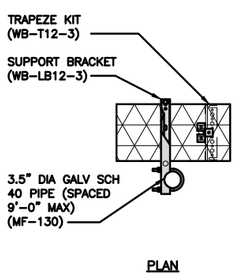


FRONT

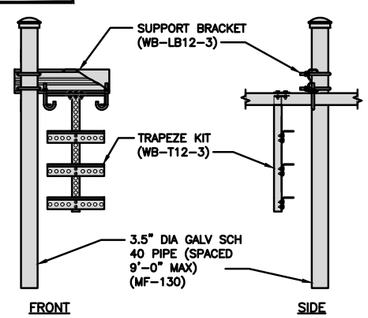
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

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

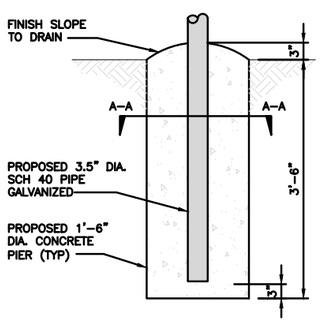


PLAN

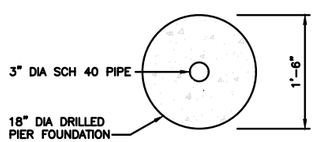


FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

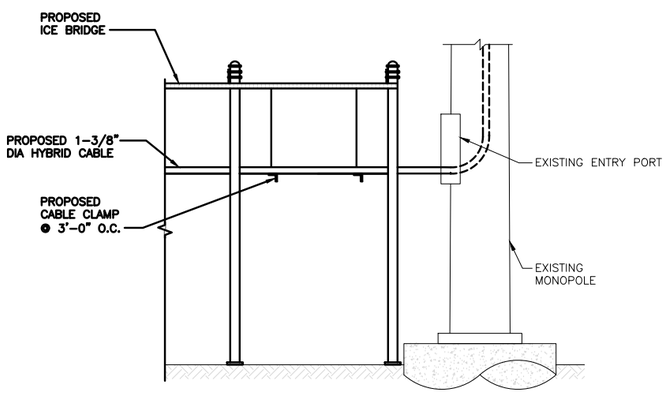


CONCRETE PIER



A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

DISH Wireless L.L.C. TEMPLATE VERSION 44 - 10/01/2021

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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COA #: 80369
1 NORTH LEXINGTON AVENUE, STE. 1575
WHITE PLAINS, NY 10601

STATE OF NEW YORK
MICHAEL OGLESBY
LICENSED PROFESSIONAL ENGINEER
094118

11/05/21
Exp. 4/30/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/11/2021	ISSUED FOR REVIEW
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A&E PROJECT NUMBER

KHCLE-16843

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

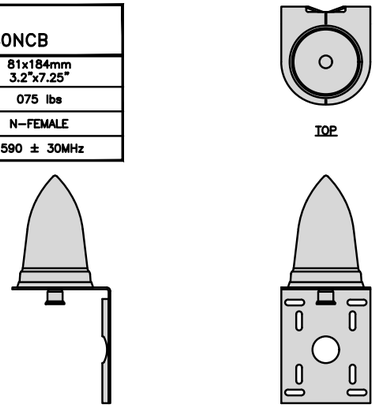
SHEET TITLE

EQUIPMENT DETAILS

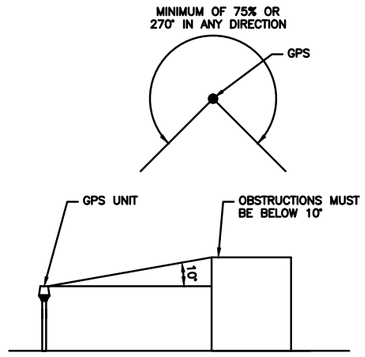
SHEET NUMBER

A-4

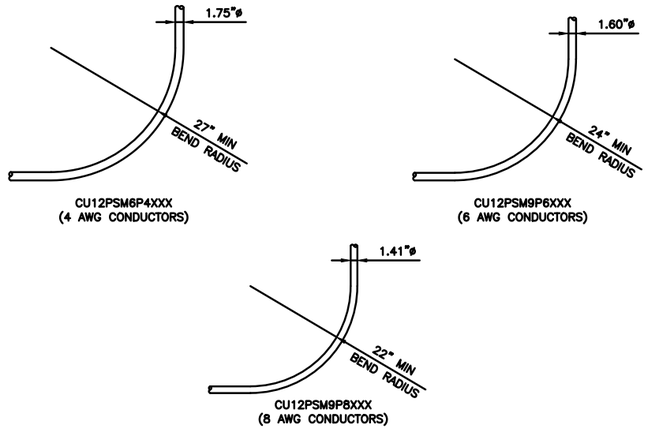
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES | NO SCALE | 3

11/05/21
Exp. 4/30/23

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

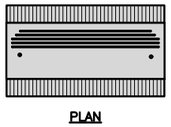
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

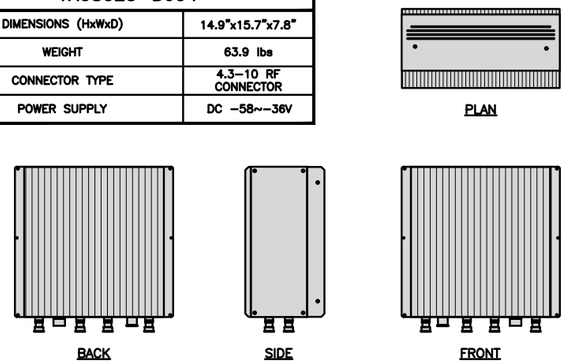
A-5

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



RRH DETAIL | NO SCALE | 1

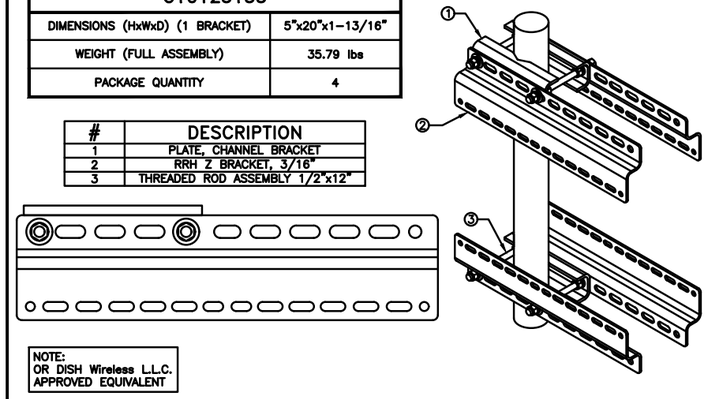
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 2

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

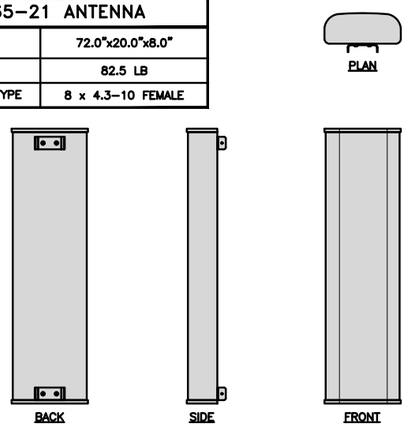
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

RRH MOUNT DETAIL | NO SCALE | 3

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	82.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



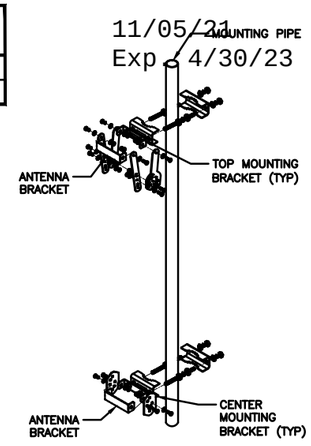
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

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

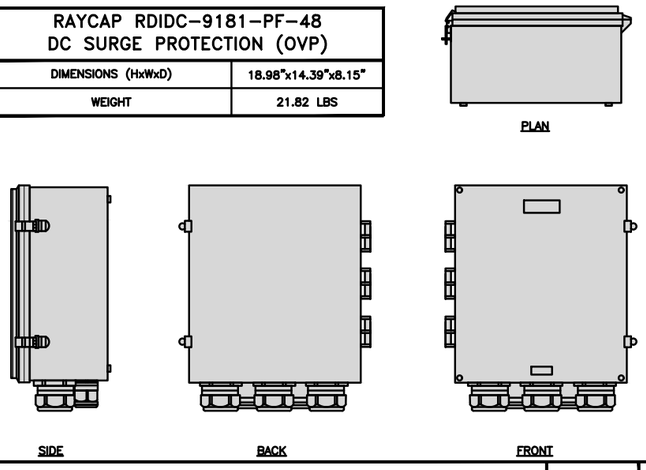
NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

ANTENNA BRACKET NOT PART OF KIT



ANTENNA BRACKET DETAIL | NO SCALE | 6

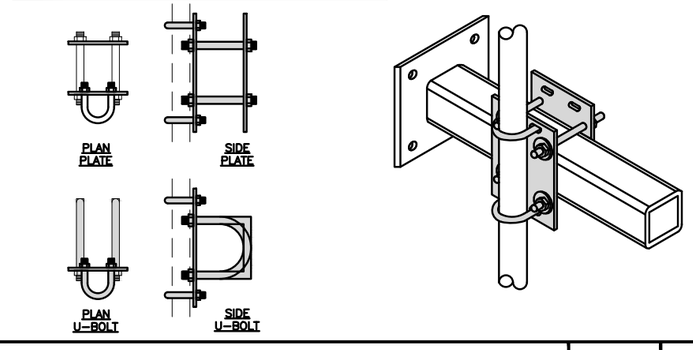
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

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

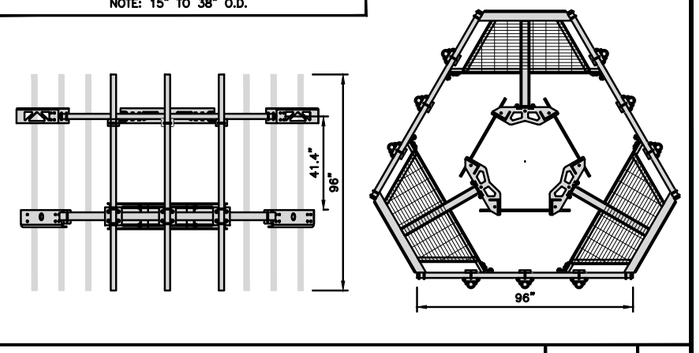
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL | NO SCALE | 8

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

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



ANTENNA PLATFORM DETAIL | NO SCALE | 9

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WHITE PLAINS, NY 10601

11/05/21
Exp 4/30/23

STATE OF NEW YORK
MICHAEL OGLESBY
LICENSED PROFESSIONAL ENGINEER
094118

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER
KHCLE-16843

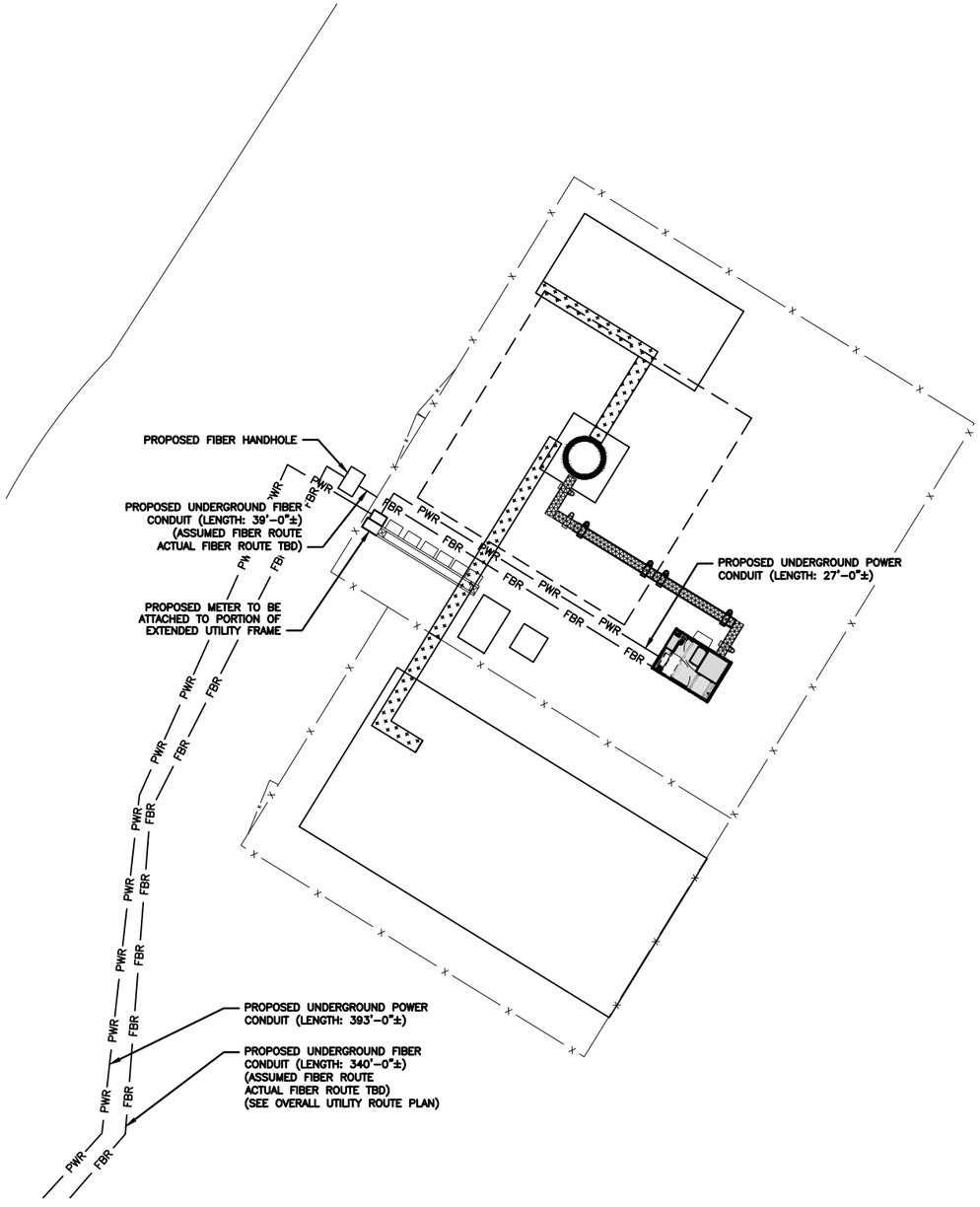
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

NOTES

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



N

UTILITY ROUTE PLAN

8' 4' 0 8' 16'
1/8"=1'–0"

1

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

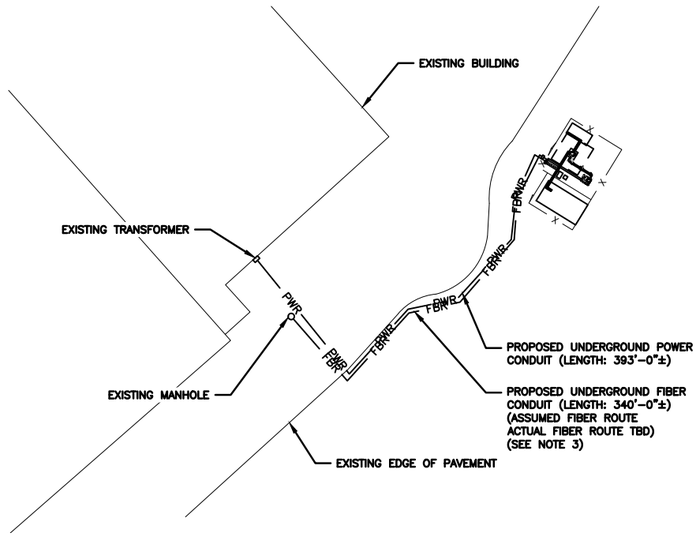
1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION,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

11/05/21
Exp. 4/30/23

ELECTRICAL NOTES

NO SCALE

2



OVERALL UTILITY ROUTE PLAN

32' 24'16' 8' 0 32' 64'
1/32"=1'–0"

3

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DRAWN BY:	CHECKED BY:	APPROVED BY:
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KHCLE–16843

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE

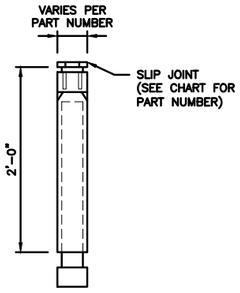
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

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"

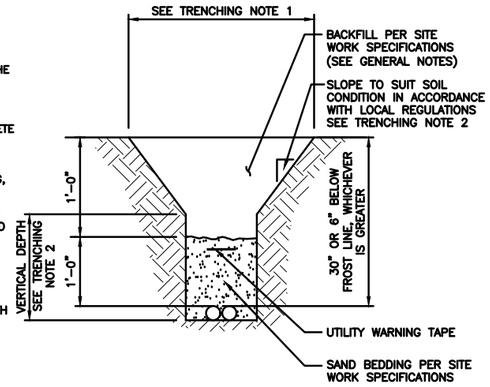


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

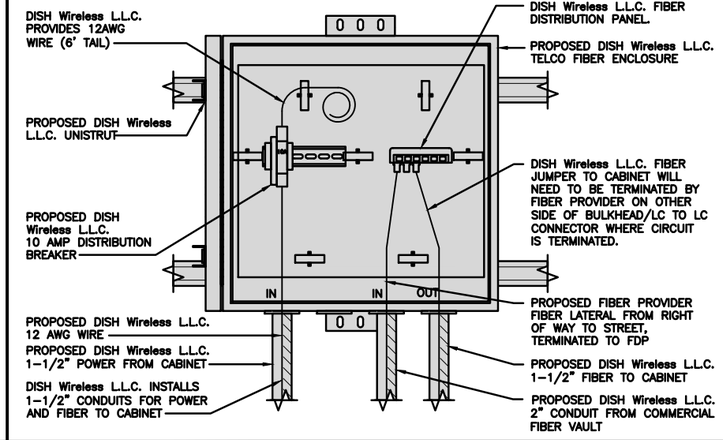
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

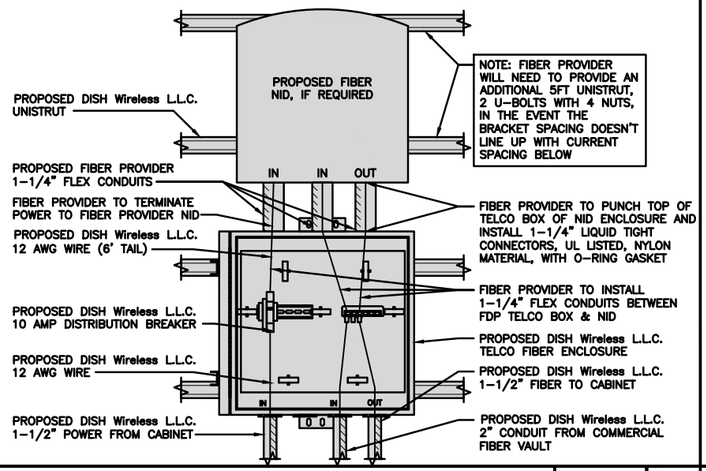
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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

11/05/21
Exp. 4/30/23

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

Kimley»Horn
of New York, P.C.
COA #: 80369
1 NORTH LEXINGTON AVENUE, STE. 1575
WHITE PLAINS, NY 10601

STATE OF NEW YORK
MICHAEL OGLESBY
094118
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

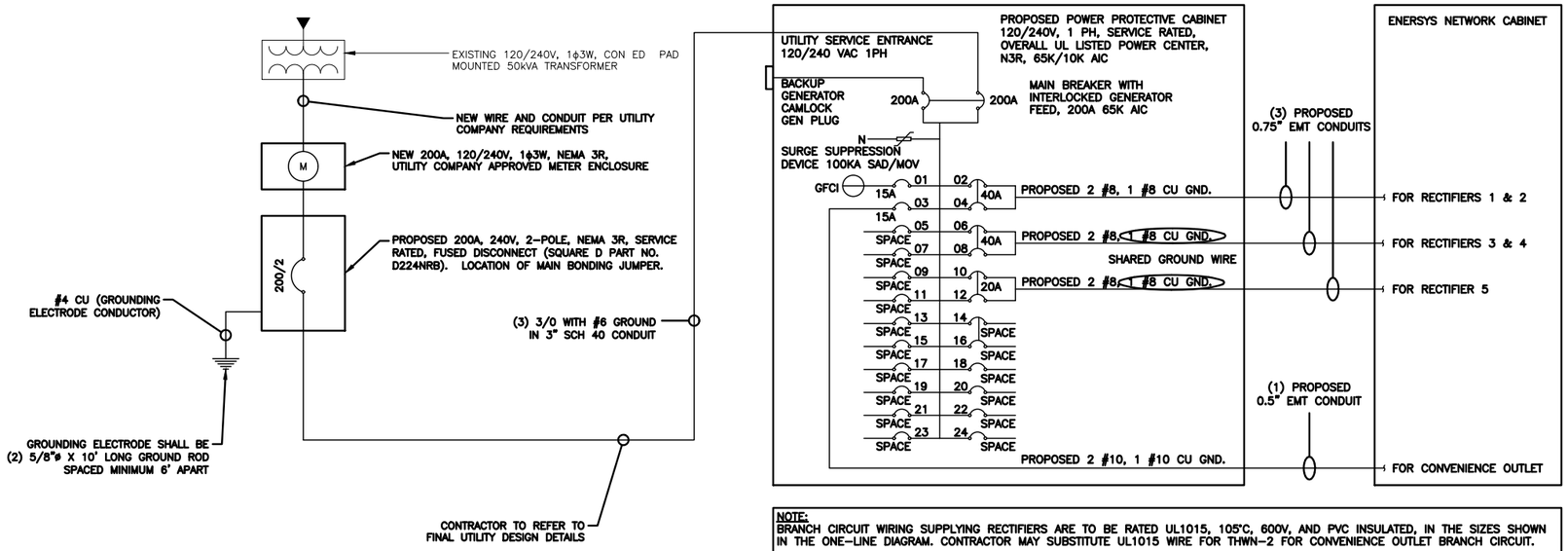
REV	DATE	DESCRIPTION
A	10/11/2021	ISSUED FOR REVIEW
0	11/05/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16843

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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

BREAKERS REQUIRED:
(2) 40A, 2P BREAKER - SQUARE D P/N:QO240
(1) 20A, 2P BREAKER - SQUARE D P/N:QO220
(1) 20A, 1P BREAKER - SQUARE D P/N:QO120

PPC ONE-LINE DIAGRAM

NO SCALE | 1

NOTES

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

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

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

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

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

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

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

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

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

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

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

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

11/05/21
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PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET		180	15A	3	B	4			3840	RECTIFIERS 1 & 2
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
-SPACE-				7	B	8			3840	RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
-SPACE-				11	B	12			1920	RECTIFIER 5
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9500	9500	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			9680		9680		VOLTAGE AMPS			
			81		81		AMPS			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

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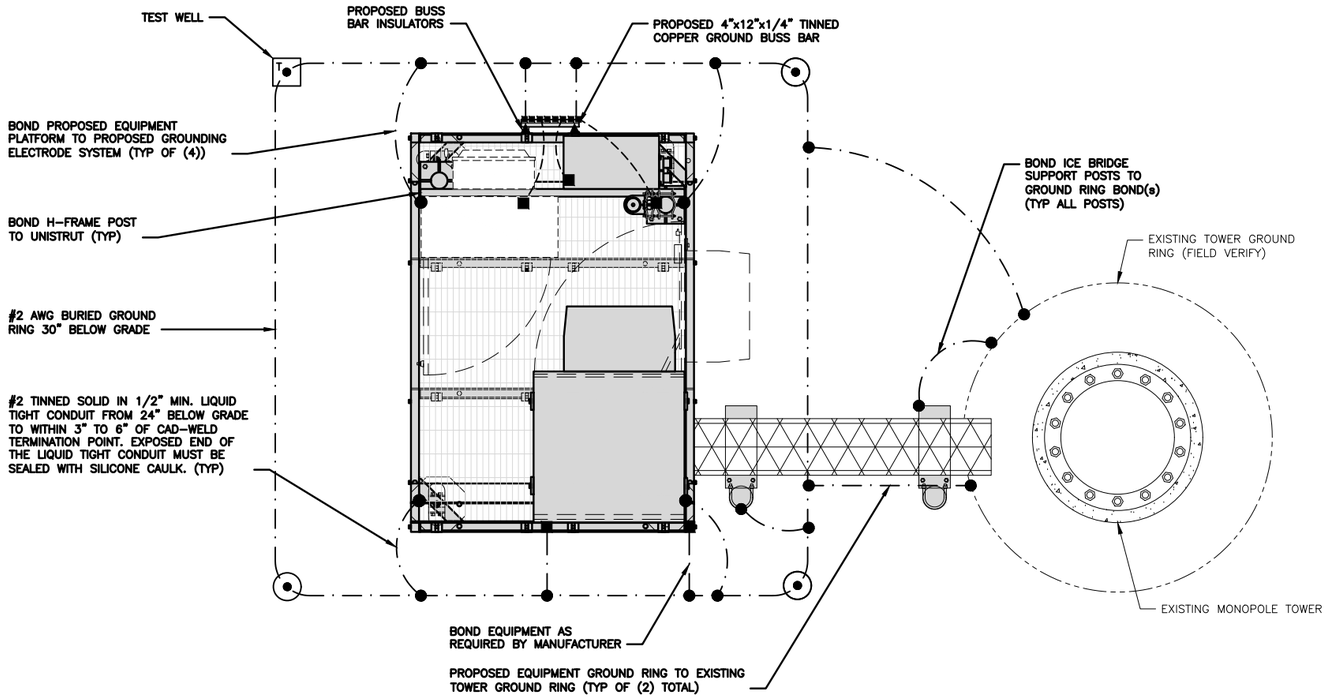
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

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

SHEET NUMBER
E-3

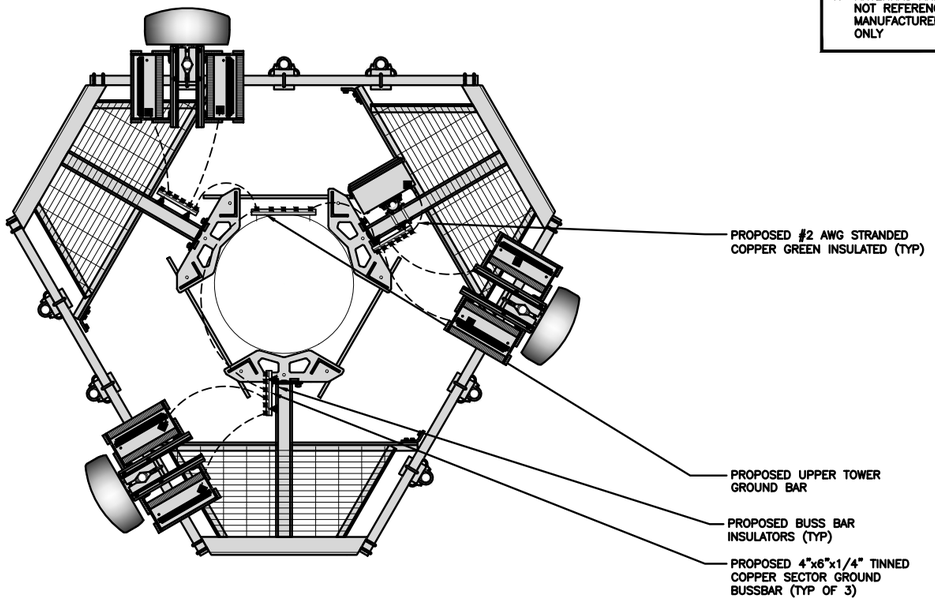


TYPICAL EQUIPMENT GROUNDING PLAN

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 L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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LICENSED PROFESSIONAL ENGINEER
Exp. 4/30/23

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A&E PROJECT NUMBER
KHCLE-16843

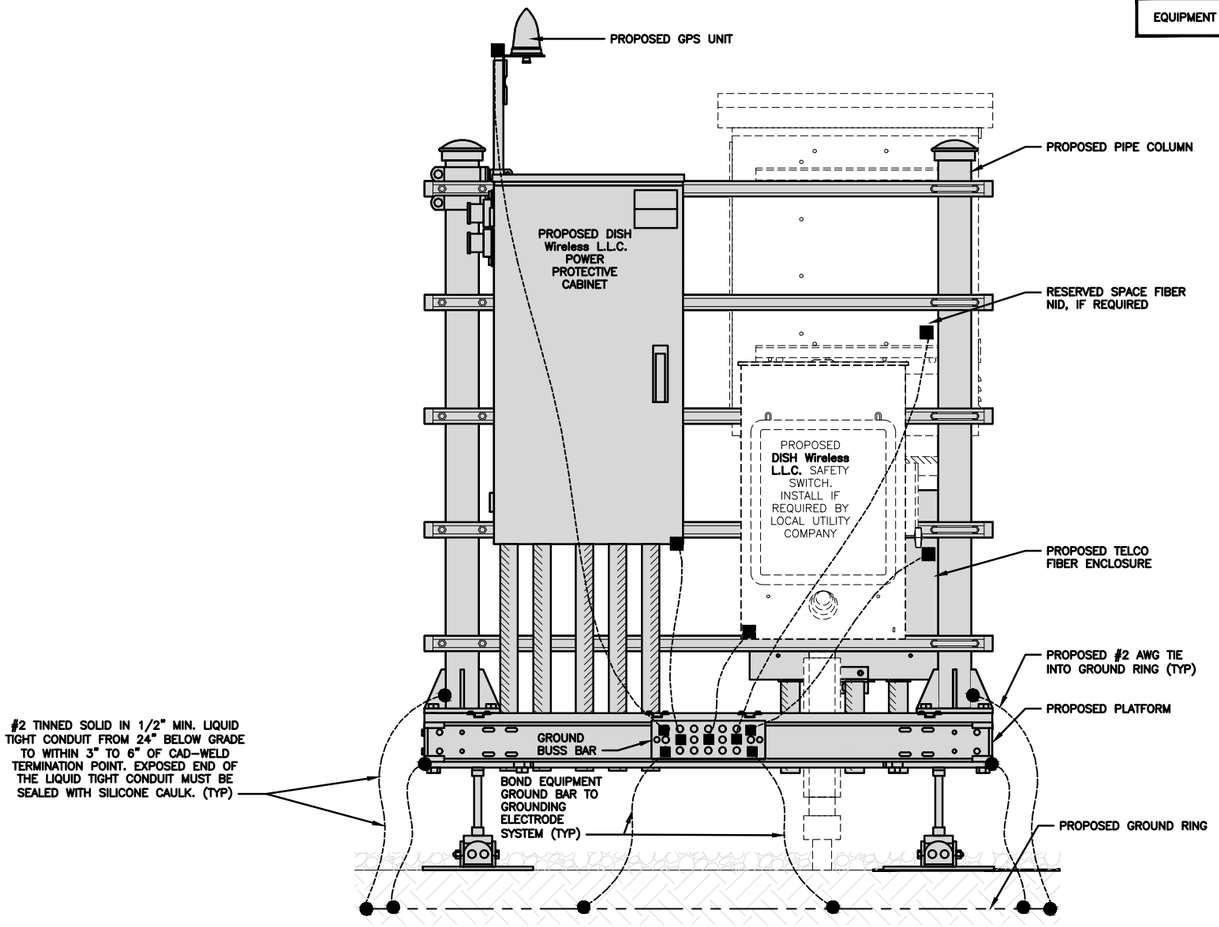
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

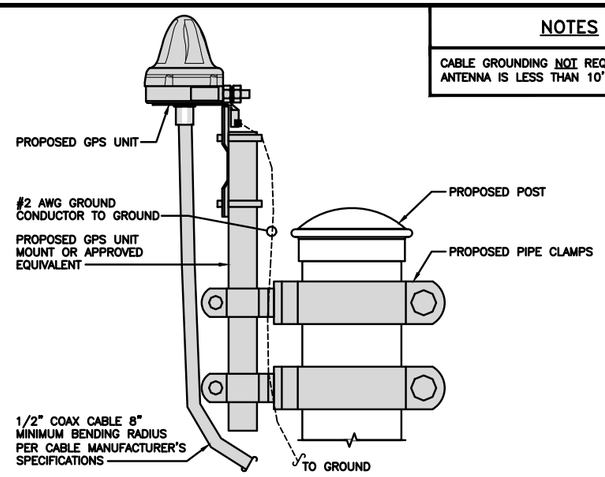
EQUIPMENT CABINET OMITTED FOR CLARITY



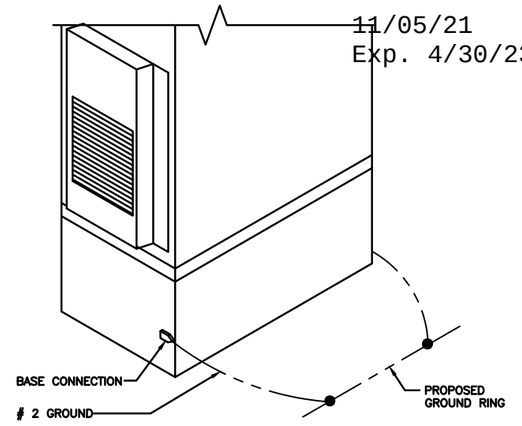
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

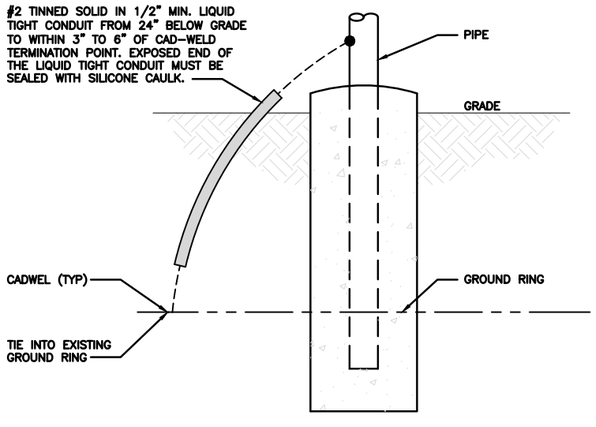
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



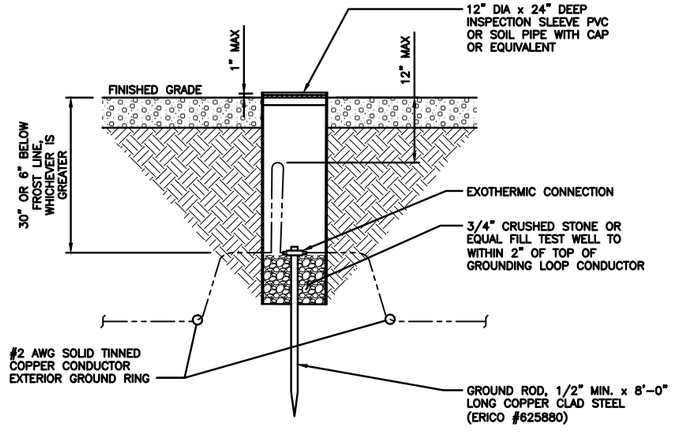
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



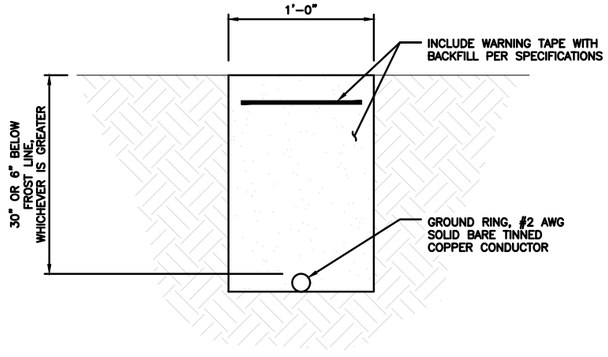
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE

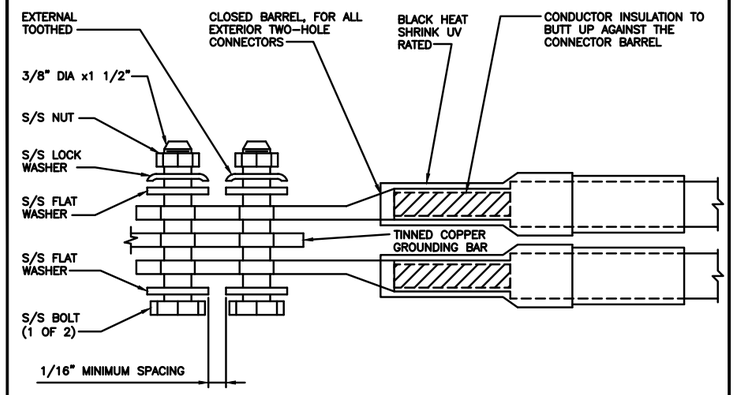
GROUNDING DETAILS

SHEET NUMBER

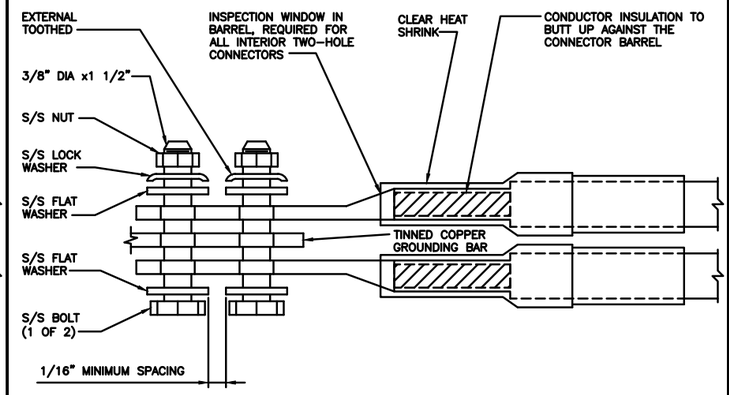
G-2

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

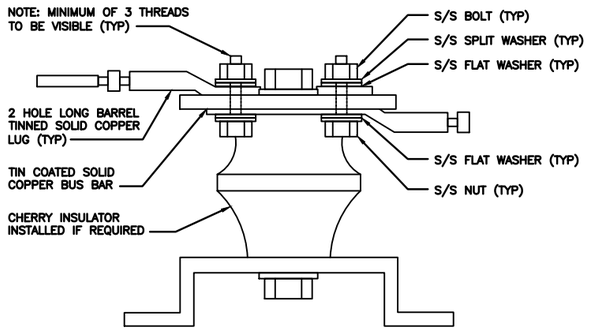
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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SHEET TITLE
GROUNDING DETAILS

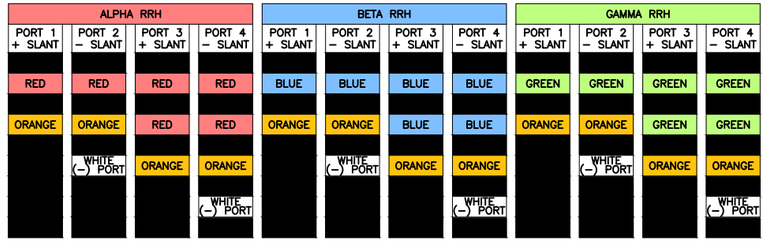
SHEET NUMBER
G-3

HYBRID/DISCREET CABLES

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

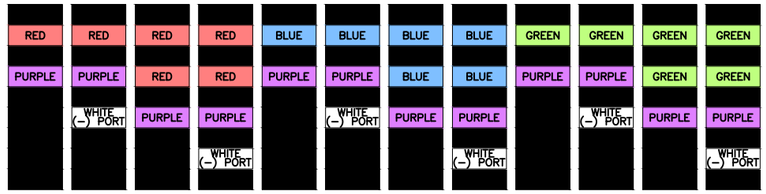
LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH
(AWS BANDS N66+N70)

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



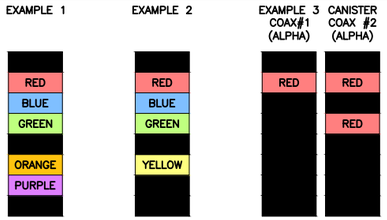
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

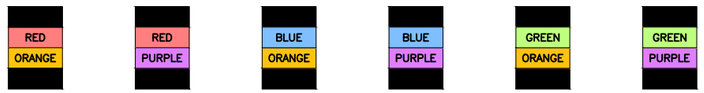
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



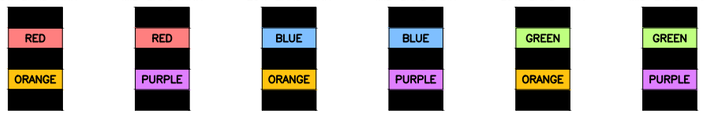
FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



POWER CABLES TO RRHs

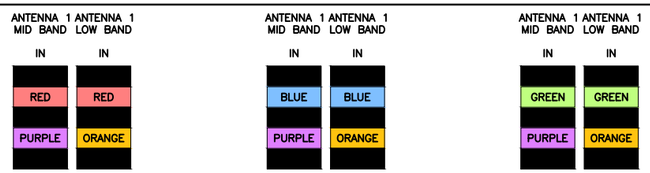
LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

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

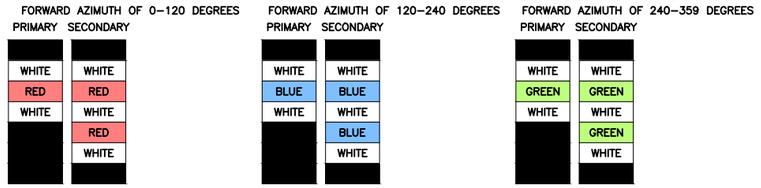
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

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

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



LOW BANDS (N71+N26) OPTIONAL – (N29): ORANGE

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

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER		2
NOT USED		3
RF CABLE COLOR CODES		1
NOT USED		4

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
of New York, P.C.

COA #: 80369
1 NORTH LEXINGTON AVENUE, STE. 1575
WHITE PLAINS, NY 10601

FOR REFERENCE PURPOSES ONLY

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/11/2021	ISSUED FOR REVIEW
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A&E PROJECT NUMBER
KHCLE-16843

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

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 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X — X — X — X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W

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

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

OVERHEAD POWER — OHP — OHP — OHP — OHP

OVERHEAD TELCO — OHT — OHT — OHT — OHT

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

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

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

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

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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

11/05/21
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A&E PROJECT NUMBER

KHCLE–16843

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

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.

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dish wireless.

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A&E PROJECT NUMBER

KHCLE–16843

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

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

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

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

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

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

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

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

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

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

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

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

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

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

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

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

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

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

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
of New York, P.C.

COA #: 80369
1 NORTH LEXINGTON AVENUE, STE. 1575
WHITE PLAINS, NY 10601

STATE OF NEW YORK
MICHAEL OGLESBY
094118
LICENSED PROFESSIONAL ENGINEER

11/05/21
Exp. 4/30/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
XQD	MCK	---

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/11/2021	ISSUED FOR REVIEW
0	11/05/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16843

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01235A
3105 EAST MAIN ST
MOHEGAN LAKE, NY
10547

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

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