

**TOWN OF BARRE  
PLANNING BOARD**

**APPLICATION**

(See Instructions and Procedures Attached)

Date Received: 4/11/23

1. I (we) hereby apply to the Town Board:



for Site Plan Review



for a Special Use Permit

*Modification*

Pursuant to Section for the Town of Barre Zoning Regulations: \_\_\_\_\_

Section 719 - Telecommunication Facility

2. LOCATION: Address 15085 East Barre Road, Barre, NY 14411 Tax Lot No. 96.-1-45./TOWR

Current Zoning: A/R Agricultural/Residential

3. OWNER: Crown Castle, USA Inc. (Tower Owner) Telephone: 856.912.0707

Address: 3200 Horizon Drive, Suite 150, King of Prussia, PA Zip: 19406

APPLICANT: Crown Castle, USA Inc. on behalf of Dish Wireless Telephone: 856.912.0707

Address: 3200 Horizon Drive, Suite 150, King of Prussia, PA Zip: 19406

AGENT: Valore, LLC Telephone: 856.912.0707

Address: 3304 Wesley Avenue, Ocean City, NJ Zip: 08226

If the applicant is not the owner or if there is an applicant/agent, please explain:

Applicant is a legal tenant of the Tower Owner. Tenant has authorized the Tower Owner to make submission.  
Tower Owner has authorized Valore, LLC as their agent.

4. DESCRIBE BRIEFLY THE DETAILS OF THIS REQUEST: Modification to an existing telecommunication facility.  
Modification shall include the placement of Dish Wireless equipment at the existing facility. Dish equipment  
will include a 5'x7' equipment platform at grade and (3) antennas installed on the existing tower at 150' AGL.  
This is an eligible facilities request in accordance with Federal Act 6409

SIGNATURE(s): Frank DeGenova DATE: 4/11/2023  
Authorized Agent for Crown Castle, on behalf of Dish  
Wireless DATE: \_\_\_\_\_

August, 2021

**TOWN OF BARRE  
PLANNING BOARD  
APPLICANT ACKNOWLEDGEMENT**

Date: 4/11/2023

Applicant: Name: Crown Castle, USA Inc on behalf of Dish Wireless

Address: 3200 Horizon Drive, Suite 150, King of Prussia PA 19406

Telephone: 856.912.0707

Subject Property: Address: 15085 East Barre Road, Barre, NY 14411

Tax Lot No. 96.-1-45./TOWR

Referred to Planning Board for:

☒ Special Use Permit

☒ Site Plan Review

Applicant shall reimburse the Town of Barre for all engineering, legal, or other extraordinary or unanticipated expenses incurred by the Town in review of the proposed action. The applicant shall reimburse the Town as expenses are incurred.

Where such expenses are estimated to be greater than \$1,000.00, the Planning Board will require an escrow account be established in an amount determined by such Board. The escrow account will be replenished as expenses are paid by the Town.

All monies due the Town of Barre shall be paid in full before issuance of any required permit OR within thirty (30) days of final action taken by the Planning Board.

Frank DeGenova, Authorized Agent  
for Crown Castle, on behalf of Dish

I, Wireless have read the above statement and agree to the terms and conditions thereof.

Frank DeGenova  
Applicant's Signature

4/11/2023  
Date

☒ Fee's paid

August, 2021

# Short Environmental Assessment Form

## Part 1 - Project Information

### Instructions for Completing

**Part 1 – Project Information.** The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

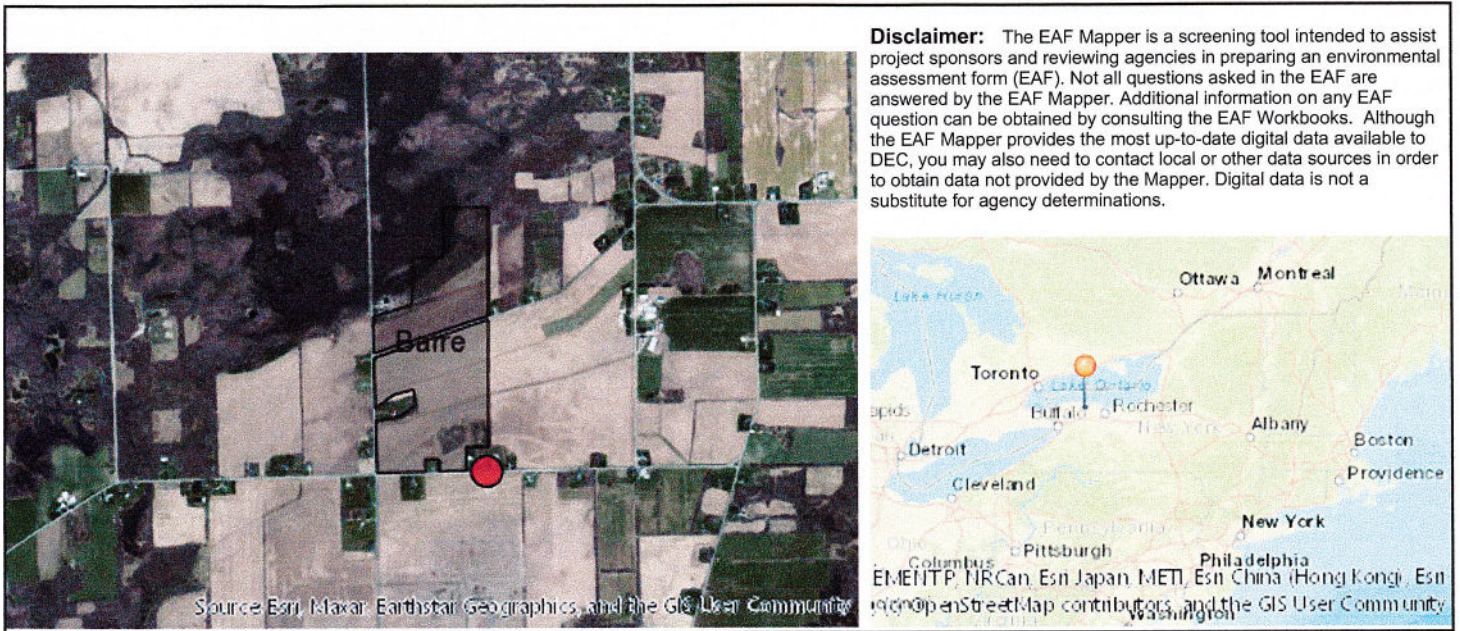
Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

<b>Part 1 – Project and Sponsor Information</b>			
Name of Action or Project: Barre/Albion / SYSYR03042A / 816547 / 644889			
Project Location (describe, and attach a location map): 15085 East Barre Road, Barre, NY 14411			
Brief Description of Proposed Action: The install consists of a new 5'x7' Platform (at grade level) and (3) new antennas to be installed on the existing tower.			
Name of Applicant or Sponsor: DISH Wireless L.L.C. by Crown Castle USA Inc		Telephone: 856.912.0707 E-Mail: fdegenova@valorellc.com	
Address: 3200 Horizon Drive, Suite 150			
City/PO: King of Prussia		State: PA	Zip Code: 19406
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.			NO <input type="checkbox"/> YES <input checked="" type="checkbox"/>
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval:			NO <input type="checkbox"/> YES <input checked="" type="checkbox"/>
3. a. Total acreage of the site of the proposed action? _____			<1 acres
b. Total acreage to be physically disturbed? _____			<1 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____			<1 acres
4. Check all land uses that occur on, are adjoining or near the proposed action:			
5. <input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural (non-agriculture) <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential (suburban) <input checked="" type="checkbox"/> Forest <input checked="" type="checkbox"/> Agriculture <input type="checkbox"/> Aquatic <input checked="" type="checkbox"/> Other(Specify): Existing Wireless Communications Facility <input type="checkbox"/> Parkland			

5. Is the proposed action,	NO	YES	N/A
a. A permitted use under the zoning regulations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Consistent with the adopted comprehensive plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	NO	YES	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?	NO	YES	
If Yes, identify: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO	YES	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Are public transportation services available at or near the site of the proposed action?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Does the proposed action meet or exceed the state energy code requirements?	NO	YES	
If the proposed action will exceed requirements, describe design features and technologies: _____ _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Will the proposed action connect to an existing public/private water supply?	NO	YES	
If No, describe method for providing potable water: _____ This is an unmanned facility as such no potable water is required. _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11. Will the proposed action connect to existing wastewater utilities?	NO	YES	
If No, describe method for providing wastewater treatment: _____ This is an unmanned facility as such no wastewater is generated. _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	NO	YES	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO	YES	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ _____ _____			







Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	Yes
Part 1 / Question 12b [Archeological Sites]	No
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	Yes
Part 1 / Question 15 [Threatened or Endangered Animal - Name]	Northern Harrier
Part 1 / Question 16 [100 Year Flood Plain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
Part 1 / Question 20 [Remediation Site]	No





1 Cityplace Dr, Suite 490  
Creve Coeur, MO 63141

Phone: (314) 513-0147  
www.crowncastle.com

April 13, 2023

NY - TOWN OF BARRE

Shellye Dale-Hall

14317 W Barre Road

Albion, NY 14411

Via: FedEx

\*\*\*\*\*NOTICE OF ELIGIBLE FACILITIES REQUEST\*\*\*\*\*

RE: Request for Minor Modification to Existing Wireless Facility – Section 6409

Site Address: 15085 East Barre Road, Barre, NY 14411

Crown Site Number: 816547 / Crown Site Name: BARRE/ALBION

Customer Site Number: SYSYR03042A / Application Number: 644889

Dear Shellye Dale-Hall:

On behalf of DISH Wireless L.L.C. (“Dish Wireless” or “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<sup>1</sup> and the rules of the Federal Communications Commission (“FCC”).<sup>2</sup>

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.<sup>3</sup> 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<sup>4</sup>. 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

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

<sup>2</sup> *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).



1 Cityplace Dr, Suite 490  
Creve Coeur, MO 63141

Phone: (314) 513-0147  
[www.crowncastle.com](http://www.crowncastle.com)

written notice of incomplete application is May 13, 2023, and the deadline for issuance of approval is June 12, 2023.

The proposed scope of work for this project includes: Collocation of antennas, ancillary equipment and ground equipment as per plans for a new carrier on an existing wireless communication facility.

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) Completed Planning Board Application;
  - a. Check in the Amount of \$100.00
- (2) Completed Building Permit Application;
  - a. Check in the Amount of \$325.00
- (3) (5) Signed and Sealed sets of Construction Drawings;
- (4) (5) Signed and Sealed Structural Analysis Reports;
- (5) Completed Short Environmental Assessment Form;
- (6) Certificate of Insurance from our General Contractor; and
- (7) Section 6409 Substantial Change Checklist.

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.

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.

Regards,

*Frank DeGenova*

Frank DeGenova  
Authorized Agent for Crown Castle, USA Inc.  
o/b/o Dish Wireless  
[fdegenova@valorellc.com](mailto:fdegenova@valorellc.com)  
856.912.0707



**Section 6409 Substantial Change Checklist  
Towers Outside of the Public Right of Way**

The Federal Communications Commission has determined that a modification substantially changes the physical dimension of a wireless tower or base station under 47 U.S.C. § 1455(a) if it meets one of six enumerated criteria under 47 C.F.R. § 1.6100.

**Criteria for Towers Outside the Public Rights of Way**

YES/ <b><u>NO</u></b>	Does the modification increase the height of the tower by more than the greater of: (a) 10%; or (b) the height of an additional antenna array plus separation of up to 20 feet from the top of the nearest existing antenna?
YES/ <b><u>NO</u></b>	Does the modification add an appurtenance to the body of the tower that would protrude from the edge of the tower more than 20 feet or more than the width of the tower structure at the level of the appurtenance, whichever is greater?
YES/ <b><u>NO</u></b>	Does the modification involve the installation of more than the standard number of new equipment cabinets for the technology involved or add more than four new equipment cabinets?
YES/ <b><u>NO</u></b>	Does the modification entail any excavation or deployment outside the current site by more than 30 feet in any direction, not including any access or utility easements?
YES/ <b><u>NO</u></b>	Does the modification defeat the concealment elements of the eligible support structure?
YES/ <b><u>NO</u></b>	Does the modification violate conditions associated with the siting approval with the prior approval the tower or base station other than as specified in 47 C.F.R. § 1.6100(c)(7)(i) – (iv)?

If all questions in the above are answered “NO,” then the modification does not constitute a substantial change to the existing tower under 47 C.F.R. § 1.6100.

Date: **March 2, 2023**



Tower Engineering Professionals  
326 Tryon Road  
Raleigh, NC 27603  
(919) 661-6351

**Subject: Structural Modification Analysis Report**

**Carrier Designation:** **DISH Network Co-Locate**  
**Site Number:** SYSYR03042A  
**Site Name:** N/A

**Crown Castle Designation:** **BU Number:** 816547  
**Site Name:** Barre/Albion  
**JDE Job Number:** 740713  
**Work Order Number:** 2208977  
**Order Number:** 644889 Rev. 0

**Engineering Firm Designation:** **TEP Project Number:** 58490.829919

**Site Data:** **15085 East Barre Road, Barre, Orleans County, NY 14411**  
**Latitude 43° 11' 18.14", Longitude -78° 8' 41.37"**  
**195 Foot - Guyed Tower**

*Tower Engineering Professionals* is pleased to submit this "**Structural Modification 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 including the proposed modifications as outlined in the attached drawings, "Appendix D". Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC4: Modified Structure w/ Proposed Equipment Configuration

**Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 109 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: Zachary S. Chartraw, E.I. / MGY

Respectfully submitted by:

Adam Howe, P.E.



ELECTRONIC COPY 3-2-2023

## TABLE OF CONTENTS

### 1) INTRODUCTION

### 2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration  
Table 2 - Other Considered Equipment

### 3) ANALYSIS PROCEDURE

Table 3 - Documents Provided  
3.1) Analysis Method  
3.2) Assumptions

### 4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)  
Table 5 - Tower Component Stresses vs. Capacity  
4.1) Recommendations

### 5) APPENDIX A

tnxTower Output

### 6) APPENDIX B

Base Level Drawing

### 7) APPENDIX C

Additional Calculations

### 8) APPENDIX D

Structural Design Drawings



## 1) INTRODUCTION

This tower is a 195-ft guyed tower designed by Rohn. The tower has been modified multiple times in the past to accommodate additional loading.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	109 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor:</b>	1.0
<b>Ice Thickness:</b>	2.0 in
<b>Wind Speed with Ice:</b>	40 mph
<b>Service Wind Speed:</b>	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)
150.0	150.0	3	Cellmax Technologies	CMA-UBTULBULBHH/6516/16/21/21	1	1-1/2
		3	Fujitsu	TA08025-B604		
		3	Fujitsu	TA08025-B605		
		1	Raycap	RDIDC-9181-PF-48_V2		
		1	Tower Mounts	Commscope MTC3975083 (3)		

**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)
191.0	193.0	3	Samsung Telecom.	MT6407-77A w/ Mount Pipe	2	1-5/8
	191.0	1	Tower Mounts	Sector Mount [SM 802-3]		
	190.0	6	Commscope	NHH-65C-R2B w/ Mount Pipe		
		1	Raycap	RVZDC-6627-PF-48_CCIV2		
		3	Samsung Telecom.	RF4439D-25A		
		3	Samsung Telecom.	RF4440D-13A		
171.0	171.0	1	GPS	GPS_A	1	1/4
167.0	167.0	1	Andrew	HPX6-107	4	3/8
		4	Aviat Networks	ODU600T		
		1	Tower Mounts	Side Arm Mount [SO 203-1]		
132.0	135.0	1	Commscope	MD-SQ2	4	3/8
	132.0	4	Aviat Networks	ODU600T		
		1	Tower Mounts	Pipe Mount [PM 601-1]		
	130.0	1	Commscope	UHX6-59W-P3A/B		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110.0	110.0	3	RFS Celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	3	1/2 1-5/8
		1	GPS	GPS_A		
		3	Ericsson	Radio 4480 B71_TMO		
		3	Ericsson	Radio 4460 B2/B25 B66_TMO		
		3	Site Pro 1	VFA12-HD Sector Mount		
100.0	100.0	2	RFS Celwave	UXA6-107BC	4	13/64 3/8
		1	Aben Wireless	AW.33.51.0001_CCIV2		
		4	Aben Wireless	AW.RFU.LL.XX		
		2	Tower Mounts	Pipe Mount [PM 601-1]		

### 3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	922038	CCISites
Tower Foundation Drawings	765530	CCISites
Tower Manufacturer Drawings	765536	CCISites
Tower Reinforcement Drawings	959570	CCISites
Tower Reinforcement Drawings	4452150	CCISites
Post-Modification Inspection	5573963	CCISites
Tower Reinforcement Drawings	6505020	CCISites
Post-Modification Inspection	6644411	CCISites
Tower Structural Analysis Report	10826581	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) The 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.
- 3) The reinforcement steel specified in the foundation drawings (CCI Doc ID 765530) was assumed to be oriented horizontally within the mast foundation.

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals 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)	$\phi P_{allow}$ (k)	% Capacity	Pass / Fail
T1	195 - 180	Leg	ROHN 2.5 EH	1	-10.66	80.55	13.2	Pass
T2	180 - 160	Leg	ROHN 2 STD	30	-18.69	46.00	40.6	Pass
T3	160 - 140	Leg	ROHN 2 STD	87	-22.57	34.22	65.9	Pass
T4	140 - 120	Leg	ROHN 2 STD	118	-22.88	34.22	66.8	Pass
T5	120 - 100	Leg	ROHN 2 STD	152	-32.49	34.22	94.9	Pass
T6	100 - 80	Leg	ROHN 2 STD	186	-35.38	46.00	76.9	Pass
T7	80 - 60	Leg	ROHN 2 STD	242	-35.67	46.00	77.5	Pass
T8	60 - 40	Leg	ROHN 2 STD	299	-40.70	46.00	88.5	Pass
T9	40 - 20	Leg	ROHN 2 STD	353	-42.90	46.00	93.3	Pass
T10	20 - 4.81771	Leg	ROHN 2.5 EH	407	-43.25	79.98	54.1	Pass
T11	4.81771 - 0	Leg	ROHN 2.5 EH	434	-46.67	102.60	45.5	Pass
T1	195 - 180	Diagonal	ROHN 1.5 x 16GA	12	-3.03	6.27	48.3	Pass
T2	180 - 160	Diagonal	ROHN 1.5 x 16GA	83	-2.85	6.16	46.4	Pass
T3	160 - 140	Diagonal	ROHN 1.5 x 16GA	99	-2.24	6.16	36.5	Pass
T4	140 - 120	Diagonal	ROHN 1.5 x 16GA	127	-2.95	6.16	48.0	Pass
T5	120 - 100	Diagonal	ROHN 1.5 x 16GA	176	-3.77	6.16	61.2	Pass
T6	100 - 80	Diagonal	ROHN 1.5 x 16GA	195	-2.11	6.16	34.3	Pass
T7	80 - 60	Diagonal	ROHN 1.5 x 16GA	252	-2.47	6.16	40.1	Pass
T8	60 - 40	Diagonal	ROHN 1.5 x 16GA	343	-2.25	6.16	36.5	Pass
T9	40 - 20	Diagonal	ROHN 1.5 x 16GA	403	-1.72	6.16	28.0	Pass
T10	20 - 4.81771	Diagonal	ROHN 1.5 x 16GA	416	-0.90	6.24	14.4	Pass
T8	60 - 40	Horizontal	L2x2x1/4	322	-0.71	28.26	2.5	Pass
T9	40 - 20	Horizontal	L2x2x1/4	370	-0.75	28.26	2.6	Pass
T11	4.81771 - 0	Horizontal	C25.5x2x3/16	440	-0.85	173.76	3.0	Pass
T1	195 - 180	Top Girt	ROHN 1.5 x 16GA	5	-0.11	7.40	1.4	Pass
T2	180 - 160	Top Girt	ROHN 1.5 x 16GA	33	-1.20	7.33	16.3	Pass
T3	160 - 140	Top Girt	ROHN 1.5 x 16GA	88	-0.76	7.33	10.4	Pass
T4	140 - 120	Top Girt	ROHN 1.5 x 16GA	123	-0.91	7.33	12.5	Pass
T5	120 - 100	Top Girt	ROHN 1.5 x 16GA	154	-0.57	7.33	7.7	Pass
T6	100 - 80	Top Girt	ROHN 1.5 x 16GA	188	-0.61	7.33	8.4	Pass
T7	80 - 60	Top Girt	ROHN 1.5 x 16GA	244	-0.64	7.33	8.7	Pass
T8	60 - 40	Top Girt	ROHN 1.5 x 16GA	303	-1.98	7.33	27.1	Pass
T9	40 - 20	Top Girt	ROHN 1.5 x 16GA	355	-0.75	7.33	10.2	Pass
T10	20 - 4.81771	Top Girt	ROHN 1.5 x 16GA	409	-0.75	7.40	10.1	Pass
T11	4.81771 - 0	Top Girt	C25.5x2x3/16	437	9.48	185.78	5.1	Pass
T1	195 - 180	Bottom Girt	ROHN 1.5 x 16GA	9	-1.28	7.40	17.3	Pass
T2	180 - 160	Bottom Girt	ROHN 1.5 x 16GA	35	-0.33	7.33	4.5	Pass
T3	160 - 140	Bottom Girt	ROHN 1.5 x 16GA	93	-1.03	7.33	14.1	Pass
T4	140 - 120	Bottom Girt	ROHN 1.5 x 16GA	125	-1.47	7.33	20.1	Pass
T5	120 - 100	Bottom Girt	ROHN 1.5 x 16GA	157	-0.57	7.33	7.7	Pass
T6	100 - 80	Bottom Girt	ROHN 1.5 x 16GA	191	-0.61	7.33	8.4	Pass



Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	$\Phi P_{allow}$ (k)	% Capacity	Pass / Fail
T7	80 - 60	Bottom Girt	ROHN 1.5 x 16GA	249	-1.20	7.33	16.4	Pass
T8	60 - 40	Bottom Girt	ROHN 1.5 x 16GA	304	-0.71	7.33	9.7	Pass
T9	40 - 20	Bottom Girt	ROHN 1.5 x 16GA	358	-0.75	7.33	10.2	Pass
T10	20 - 4.81771	Bottom Girt	ROHN 1.5 x 16GA	412	-0.75	7.40	10.1	Pass
T2	180 - 160	Guy A@176.977	7/16	453	8.12	13.10	61.9	Pass
T5	120 - 100	Guy A@119.385	1/2	462	12.66	16.95	74.7	Pass
T8	60 - 40	Guy A@59.3854	5/16	471	4.18	7.06	59.2	Pass
T2	180 - 160	Guy B@176.977	7/16	450	8.13	13.10	62.0	Pass
T5	120 - 100	Guy B@119.385	1/2	461	13.02	16.95	76.8	Pass
T8	60 - 40	Guy B@59.3854	5/16	468	4.17	7.06	59.0	Pass
T2	180 - 160	Guy C@176.977	7/16	445	7.75	13.10	59.2	Pass
T5	120 - 100	Guy C@119.385	1/2	457	11.84	16.95	69.9	Pass
T8	60 - 40	Guy C@59.3854	5/16	463	3.80	7.06	53.9	Pass
T5	120 - 100	Top Guy Pull-Off@119.385	4 1/2x3/8	460	4.51	57.41	7.8	Pass
T2	180 - 160	Torque Arm Top@176.977	C10x15.3	455	-2.35	129.63	49.2	Pass
T8	60 - 40	Torque Arm Top@59.3854	C10x15.3	473	-2.11	129.63	17.2	Pass
							Summary	
							Leg (T5)	94.9 Pass
							Diagonal (T5)	61.2 Pass
							Horizontal (T11)	3.0 Pass
							Top Girt (T8)	27.1 Pass
							Bottom Girt (T4)	20.1 Pass
							Guy A (T5)	74.7 Pass
							Guy B (T5)	76.8 Pass
							Guy C (T5)	69.9 Pass
							Top Guy Pull-Off (T5)	7.8 Pass
							Torque Arm Top (T2)	49.2 Pass
							Bolt Checks	60.8 Pass
							<b>RATING =</b>	<b>94.9 Pass</b>

**Table 5 - Tower Component Stresses vs. Capacity - LC4**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Mast Foundation Structural	-	3.6	Pass
1,2	Mast Foundation Soil Interaction	-	61.5	Pass
1,2	Guy Anchor Shaft	-	23.0	Pass
1,2	Guy Anchor Structural	-	50.8	Pass
1,2	Guy Anchor Soil Interaction	-	42.4	Pass
<b>Structure Rating (max from all components) =</b>				<b>94.9%</b>

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H Section 15.5

#### 4.1) Recommendations

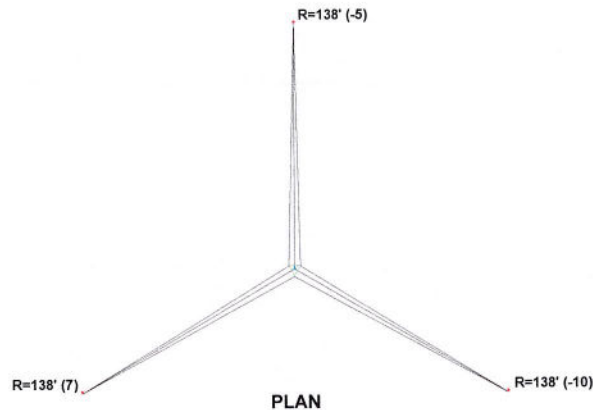
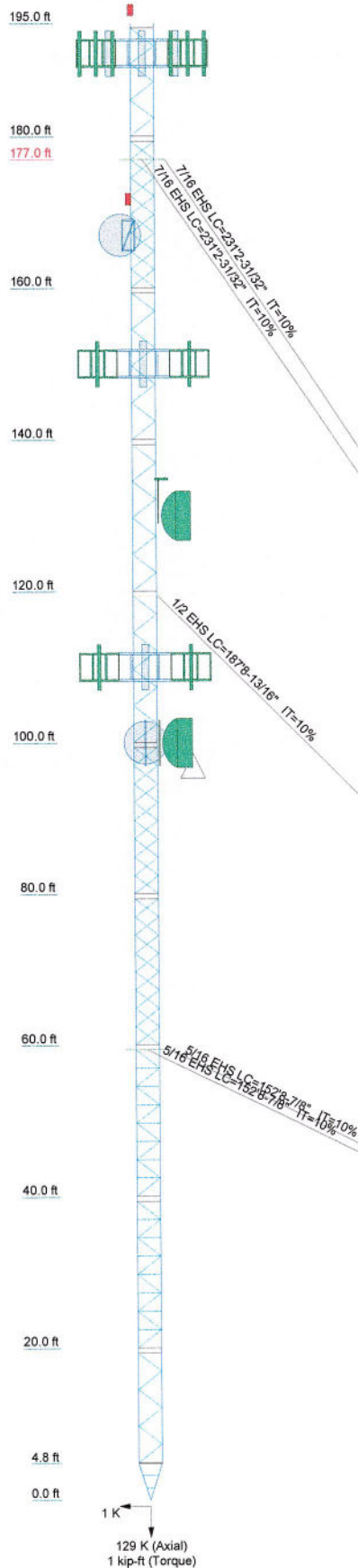
- 1) The modifications depicted in "Appendix D - Structural Design Drawings" shall be installed and, upon completion, inspected. The tower and its base and anchor foundations have sufficient capacity to carry the proposed load configuration once the proposed modifications are installed.

## APPENDIX A

### TNXTOWER OUTPUT



Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 2.5 EH	ROHN 2.5 EH				ROHN 2 STD					ROHN 2.5 EH
Leg Grade						A572-50					
Diagonals	N.A.					ROHN 1.5 x 16GA					
Diagonal Grade	N.A.					A53-B42					
Top Girts	A					ROHN 1.5 x 16GA					
Bottom Girts	N.A.					ROHN 1.5 x 16GA					
Horizontals	A	N.A.									
Top Guy Pull-Offs							4 1/2x3/8				
Face Width (ft)											3.41667
# Panels @ (ft)	B					70 @ 2.40885					6 @ 2.37847
Weight (K)	5.6	0.5	0.6	0.9	0.4	0.4	0.4	0.3	0.3	0.8	0.5



#### SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	C25.5x2x3/16	B	3 @ 1.6059

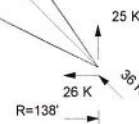
#### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-42	42 ksi	63 ksi

#### TOWER DESIGN NOTES

1. Tower is located in Orleans County, New York.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 109 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 40 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0'
8. TOWER RATING: 94.9%

ALL REACTIONS ARE FACTORED



 Tower Engineering Professionals	<b>Tower Engineering Professionals</b> 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350		<b>Job: Barre/Albion (BU 816547)</b> Project: <b>TEP No. 58490.829919</b>	
	Client: Crown Castle	Drawn by: zschartraw	App'd:	
	Code: TIA-222-H	Date: 02/28/23	Scale: NTS	
	Path:		Dwg No. E-1	





DISH Wireless L.L.C. SITE ID:

**SYSYR03042A**

DISH Wireless L.L.C. SITE ADDRESS:

**15085 EAST BARRE ROAD  
BARRE, NY 14411**

#### 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 2020 IBC  
MECHANICAL 2020 IMC  
ELECTRICAL 2017 NEC

#### SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	COMPOUND AND ENLARGED SITE PLANS
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 & PANEL SCHEDULE
E-4	PPC NEUTRAL-TO-GROUND SCHEMATIC
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	RF SIGNAGE
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES
GN-5	GENERAL NOTES

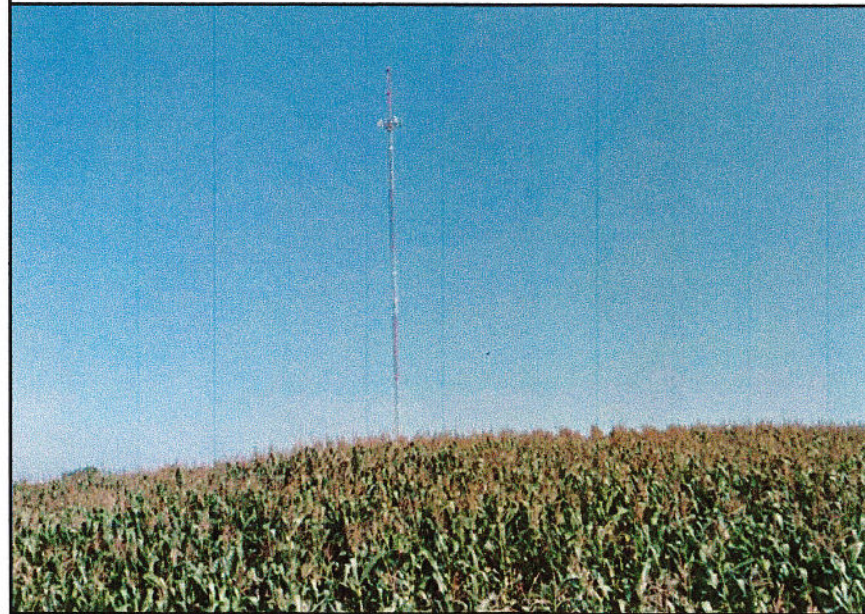
#### SCOPE OF WORK

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 (3) PROPOSED ANTENNA SECTOR FRAMES
  - INSTALL PROPOSED JUMPERS
  - INSTALL (6) PROPOSED RRU's (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)

#### 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: CROWN ATLANTIC COMPANY LLC  
ADDRESS: 4017 WASHINGTON ROAD PH 353  
MCMURRAY PA 15317

TOWER TYPE: GUYED

TOWER CO SITE ID: 818547

TOWER APP NUMBER: 644889

COUNTY: ORLEANS

LATITUDE (NAD 83): 43° 11' 18.1" N  
43.188372

LONGITUDE (NAD 83): 78° 08' 41.4" W  
-78.144825

ZONING JURISDICTION: ORLEANS COUNTY

ZONING DISTRICT: TOWN OF BARRE

PARCEL NUMBER: 96.-1-45./TOWR

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: NATIONAL GRID

TELEPHONE COMPANY: VERIZON

#### PROJECT DIRECTORY

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

TOWER OWNER: CROWN CASTLE  
2000 CORPORATE DRIVE  
CANONSBURG, PA 15317  
(877) 486 - 9377

SITE DESIGNER: KMB DESIGN GROUP, LLC  
1800 ROUTE 34, SUITE 209  
WALL, NJ 07719  
(732) 280-5623

SITE ACQUISITION: TBD

CONSTRUCTION MANAGER: TBD

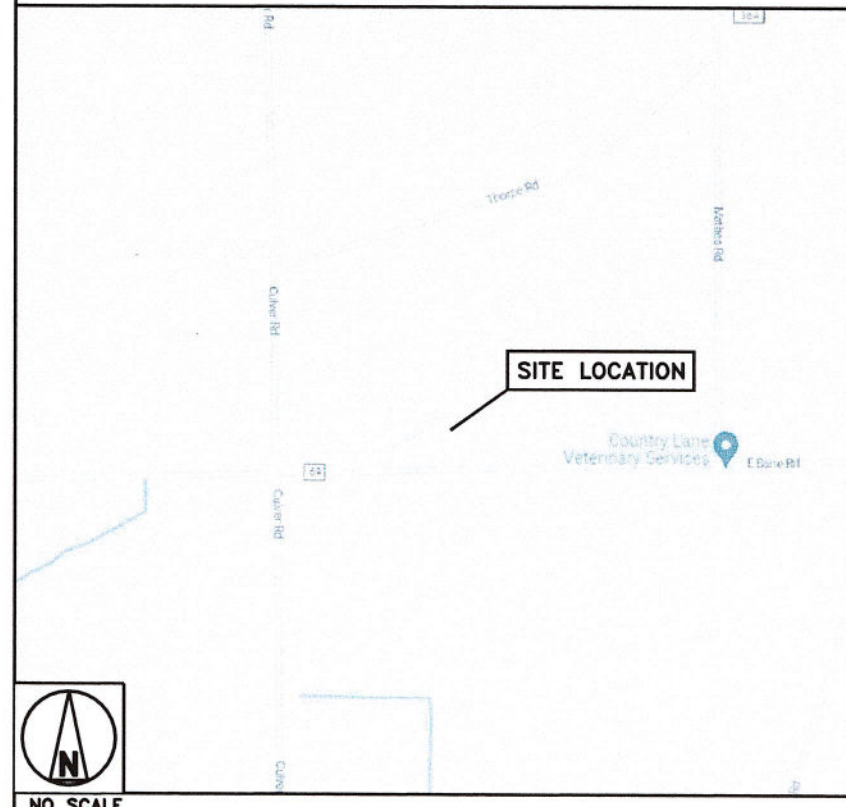
RF ENGINEER: TBD

#### DIRECTIONS

##### DIRECTIONS FROM BUFFALO NIAGARA INTERNATIONAL AIRPORT:

DEPART AND HEAD NORTH ON LUIZ F KAHL WAY, KEEP STRAIGHT, HEADING TOWARD BUFFALO / NIAGARA FALLS, TAKE THE RAMP ON THE RIGHT FOR I-290 / I-90 EAST AND HEAD TOWARD ALBANY / NIAG FALLS, AT EXIT 48, HEAD RIGHT ON THE RAMP FOR NY-98 TOWARD BATAVIA, KEEP RIGHT, HEADING TOWARD ALBION, BEAR RIGHT ONTO NY-98 / OAK ST, PASS MOBIL, TURN RIGHT ONTO E BARRE RD / COUNTY HWY-25B, ARRIVE AT 15085 EAST BARRE ROAD BARRE, NY 14411

#### VICINITY MAP



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1800 ROUTE 34, SUITE 209  
WALL, NJ 07719  
(732) 280-5623

N.Y. CERTIFICATE OF AUTHORIZATION: 081784



**Stephen A. Bray**

PROFESSIONAL ENGINEER  
EXPIRATION DATE: 06/30/25  
NY LICENSE: 086064 3/8/23

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

DRAWN BY: CHECKED BY: APPROVED BY:

RC JRB ---

RFDS REV #: ---

#### CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	03/08/2023	ISSUED FOR PERMIT FILING

A&E PROJECT NUMBER

**336.4330.A10**

DISH Wireless L.L.C.  
PROJECT INFORMATION

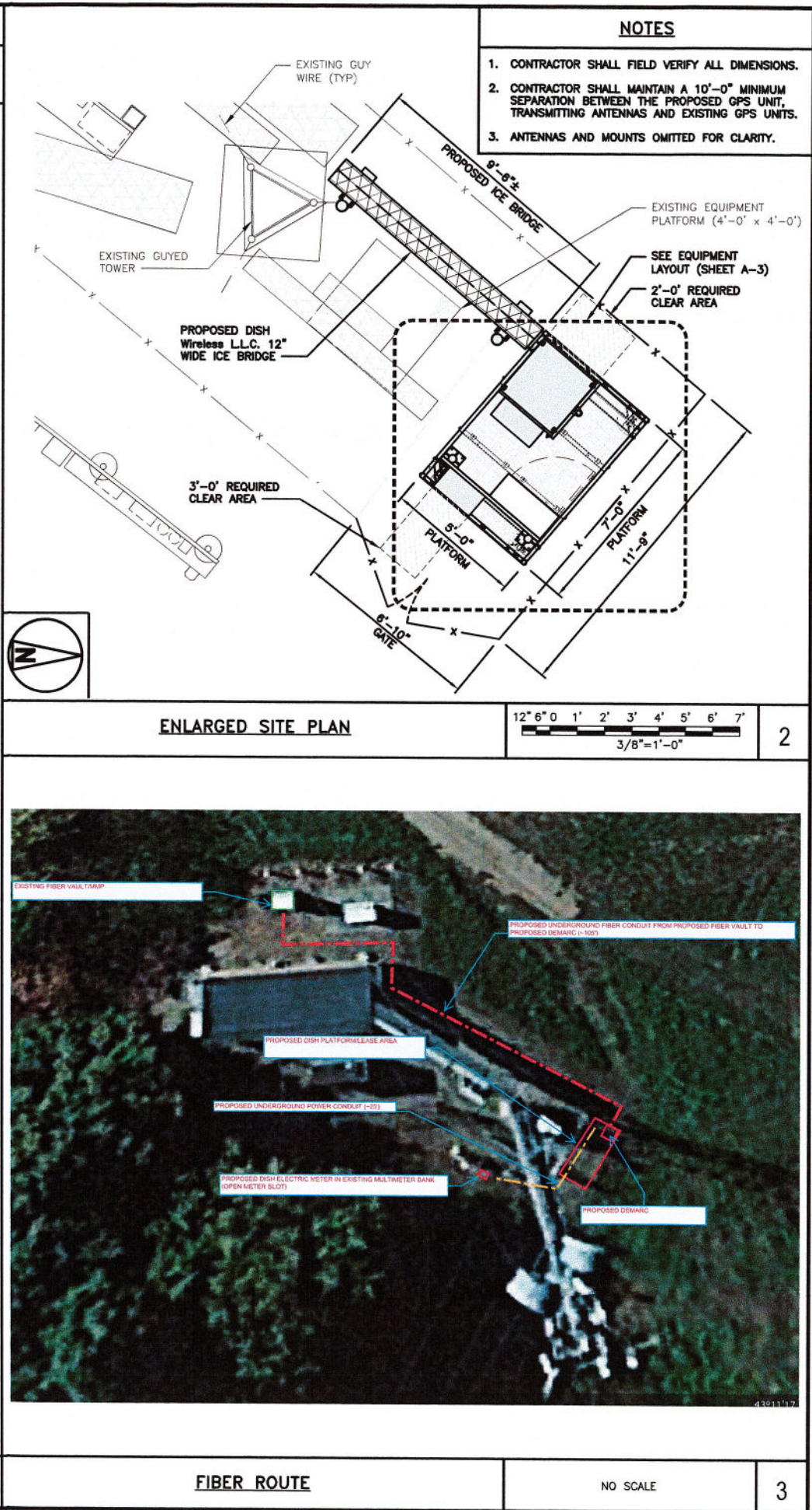
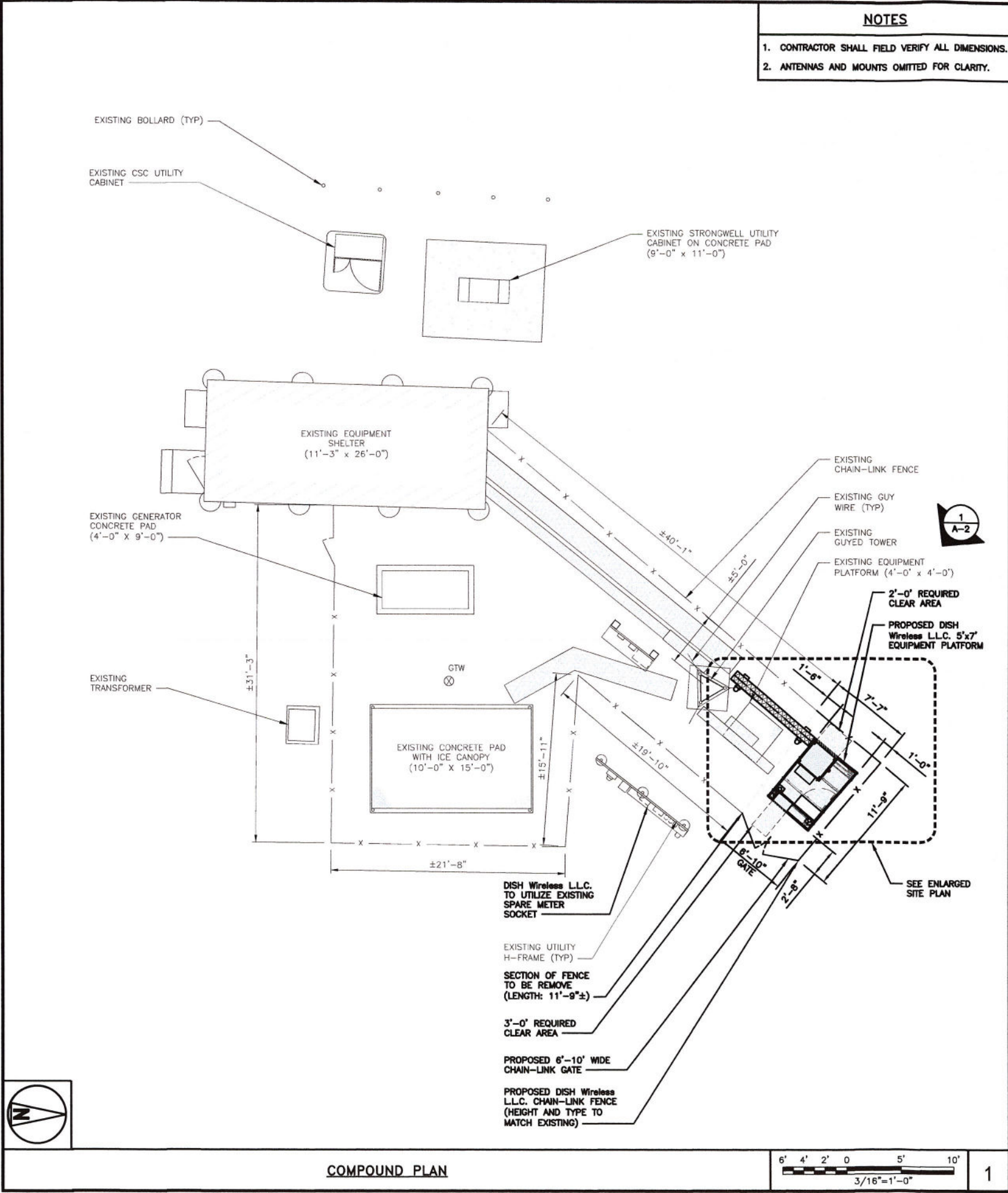
**SYSYR03042A**  
**15085 EAST BARRE ROAD**  
**BARRE, NY 14411**

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER

**T-1**





**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**KMB**  
DESIGN GROUP  
kmbdg.com

1800 ROUTE 34, SUITE 209  
WALL, NJ 07719  
(732) 280-5623

N.Y. CERTIFICATE OF AUTHORIZATION: 081784

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EXPIRATION DATE: 06/30/25  
NY LICENSE: 086064

3/8/23

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DRAWN BY: RC  
CHECKED BY: JRB  
APPROVED BY: ---

RFDS REV #: ---

**CONSTRUCTION DOCUMENTS**

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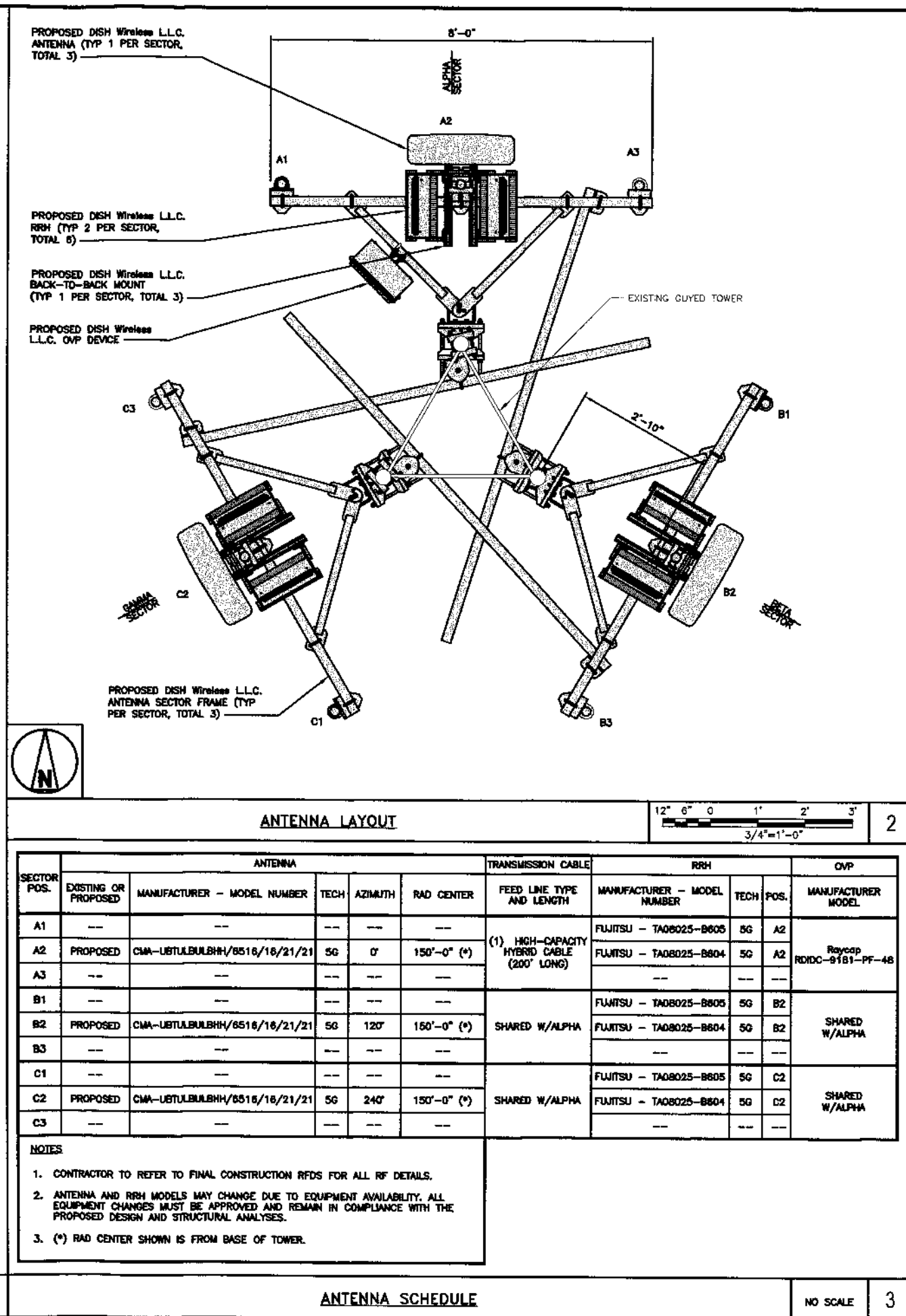
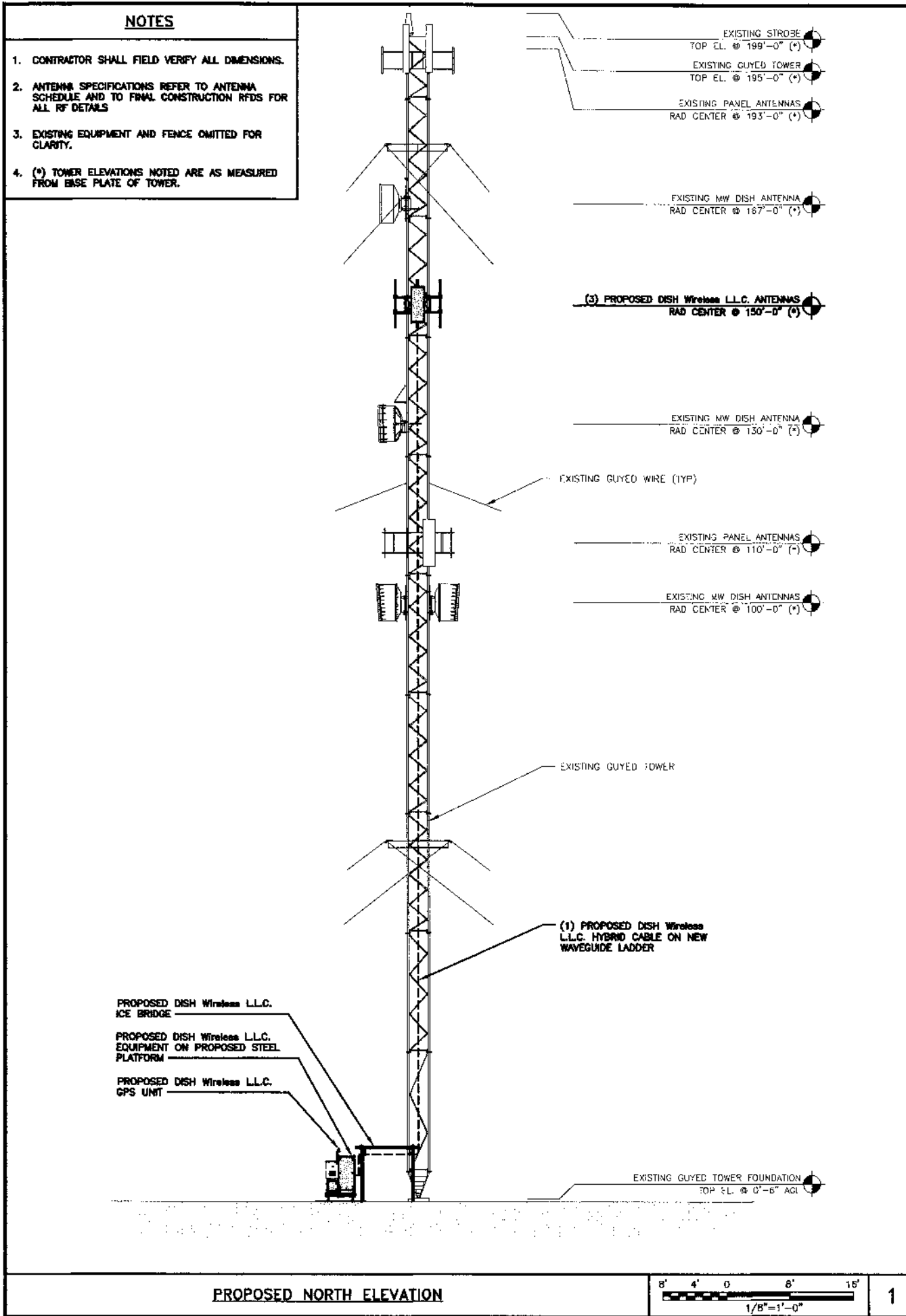
DISH Wireless L.L.C.  
PROJECT INFORMATION

SYSYR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

SHEET TITLE  
COMPOUND AND ENLARGED SITE PLANS

SHEET NUMBER  
A-1





5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

1800 ROUTE 26, SUITE 100  
WALL, NJ 07716  
(732) 280-1633  
kmbdgc.com

N.Y. CERTIFICATE OF AUTHORIZATION: 081764

**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
EXPIRATION DATE: 08/30/25  
NY LICENSE: 086064 3/8/23

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RC	JRB	---

RFDS REV #:

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
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A&E PROJECT NUMBER  
336.4330.A10

DISH Wireless L.L.C.  
PROJECT INFORMATION

SYSYR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

SHEET TITLE  
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER  
**A-2**

PROPOSED DISH Wireless L.L.C.  
GENERATOR PLUG

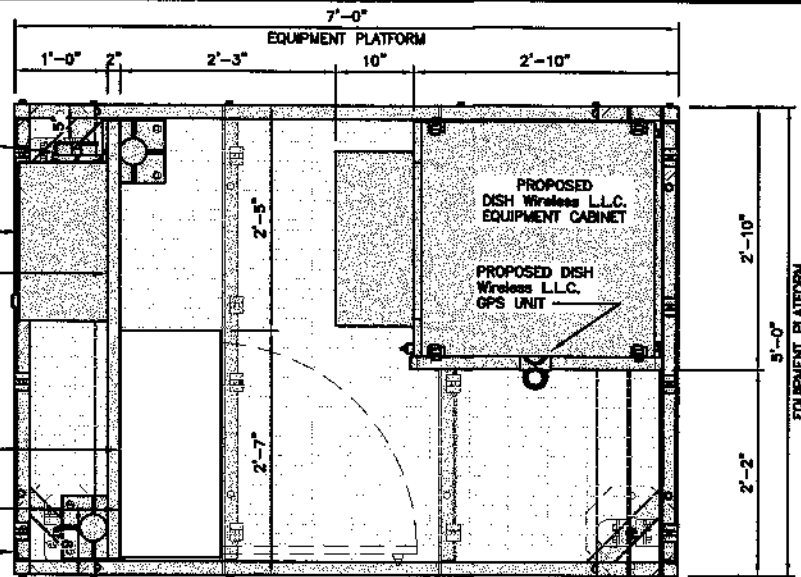
PROPOSED DISH Wireless L.L.C.  
POWER PROTECTIVE CABINET

PROPOSED DISH Wireless L.L.C.  
H-FRAME

PROPOSED DISH Wireless L.L.C.  
TELCO FIBER ENCLOSURE

PROPOSED FIBER CARRIER  
FIBER NO. IF REQUIRED

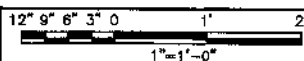
PROPOSED DISH Wireless L.L.C.  
EQUIPMENT PLATFORM



#### NOTES

1. INSTALL POSTS BASES TO GRATING JUST INSIDE PLATFORM FRAME. NO DRILLING REQUIRED.
2. GPS MAY BE MOVED TO ICE BRIDGE OR H-FRAME.
3. ALL CONDUIT TO BE ROUTED THROUGH PLATFORM GRATING USING LIQUIDTIGHT, EMT, RIGID OR PVC COUPLERS. CONDUIT QUANTITY AND SIZES ARE PER ONE-LINE DIAGRAM ON E-3 SHEET OF CDS. (DC PLANT DEPENDENT.)
4. CONTRACTOR MAY FIELD INSTALL CONDUIT HOLES IN BOTTOM OF PPC CABINET TO MATCH CONDUIT SIZES. (SEAL TO PPC MANUFACTURER SPECIFICATIONS).
5. H-FRAME POSTS ARE STAGGERED TO ALLOW FIBER NO BOXES TO BE INSTALLED CLOSE TO PERIMETER FRAME OF PLATFORM.
6. CONDUITS FROM PPC/FIBER DEMARK CABINETS TO EQUIPMENT CABINET (BBU) SHALL BE INSTALLED INSIDE PERIMETER OF PLATFORM AND UNDER GRATING.

PLATFORM EQUIPMENT PLAN

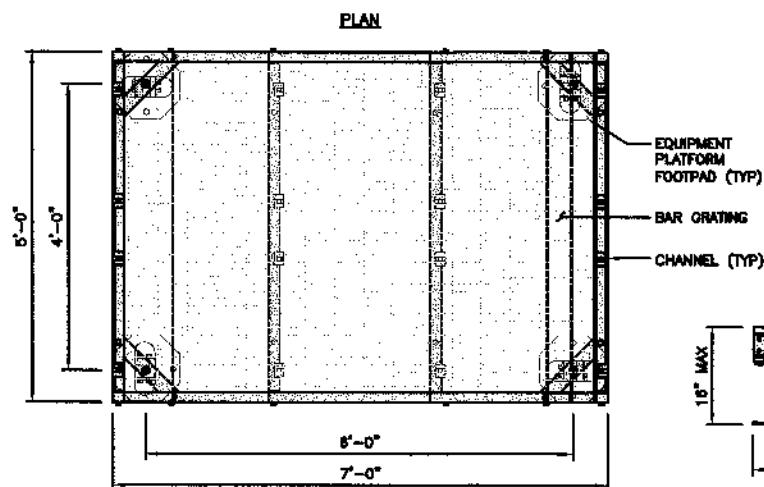


1

#### COMMSCOPE MTC4045LP 5X7 PLATFORM

DIMENSIONS (HxDxW)	16"x24"x60"
TOTAL WEIGHT	423 LBS

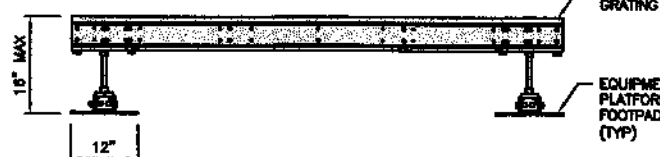
NOTE:  
GC TO PROVIDE EXTENDED  
THREAD FOR PLATFORM IF  
REQUIRED HEIGHT EXCEEDS 17"



SIDE - 5' LENGTH



SIDE - 7' LENGTH



PLATFORM DETAIL

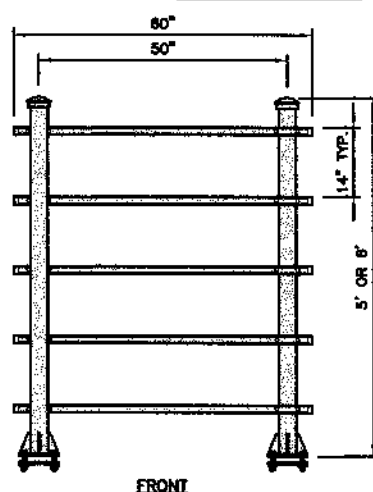
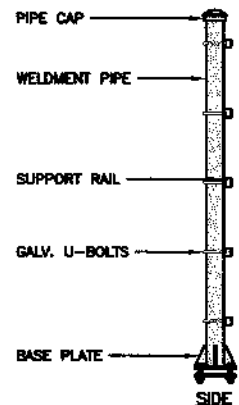
NO SCALE

2

#### COMMSCOPE MTC4045HFLD H-FRAME

UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

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



H-FRAME DETAIL

NO SCALE

3

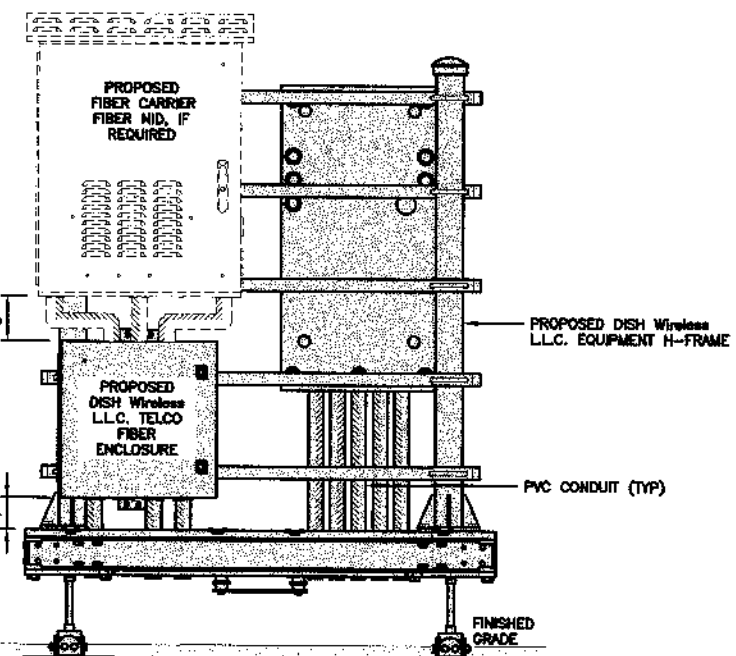
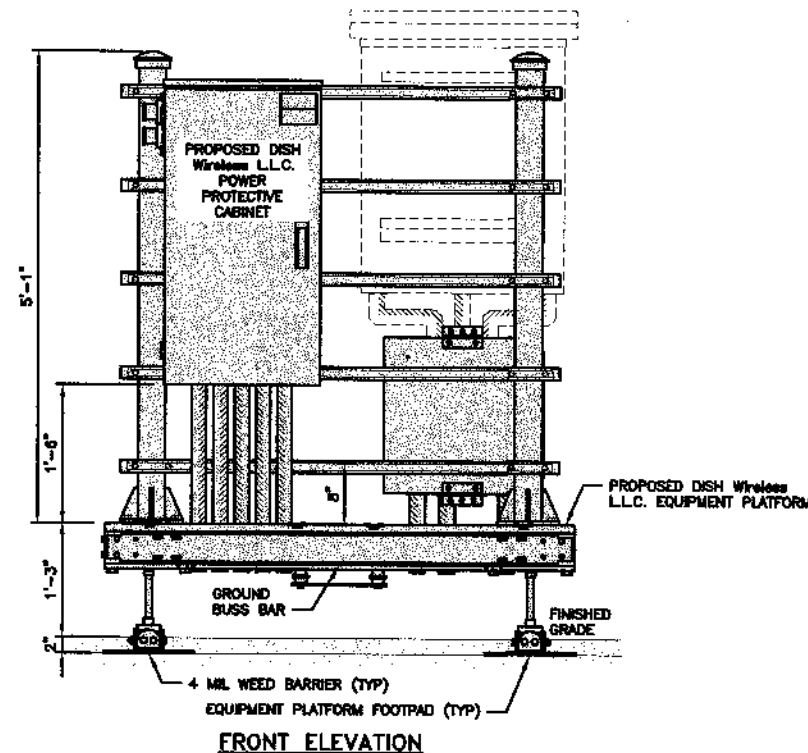
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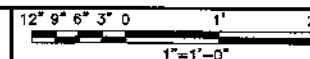
4

#### 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



H-FRAME EQUIPMENT ELEVATION



5

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1500 ROUTE 7E, SUITE 100  
WALL, NJ 07719  
(732) 260-5222

N.Y. CERTIFICATE OF AUTHORIZATION: 081784



**Stephen A. Bray**

PROFESSIONAL ENGINEER  
EXPIRATION DATE: 06/30/25  
NY LICENSE: 086064

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RFDS REV #:

#### CONSTRUCTION DOCUMENTS

##### SUBMITTALS

REV	DATE	DESCRIPTION
0	03/08/2023	ISSUED FOR PERMIT FILING

A&E PROJECT NUMBER

336.4330.A10

DISH Wireless L.L.C.  
PROJECT INFORMATION

SYSYR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

SHEET TITLE  
EQUIPMENT PLATFORM AND  
H-FRAME DETAILS

SHEET NUMBER

**A-3**

ENERSYS HEX  
2000005996

DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/500A
HEATER	800W
TOTAL WEIGHT (EMPTY)	376 lbs

BACK

SIDE

FRONT

CABINET DETAIL

NO SCALE

1

RAYCAP PPC  
RDIAC-2465-P-240-MTS

ENCLOSURE DIMENSIONS (HxWxD)	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+0

TOP

BACK

SIDE

FRONT

SIDE

POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

2

NOT USED

NO SCALE

3

ZAYO 5RU (LEFT SWING DOOR)  
FIBER NID ENCLOSURE

DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

BACK

SIDE

FRONT

FIBER NID ENCLOSURE DETAIL

NO SCALE

5

CHARLES CFIT-PF2020DSH1  
FIBER TELCO ENCLOSURE

ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4

SIDE

BACK

FRONT

FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

COMMSCOPE WB-K110-B  
WAVEGUIDE BRIDGE KIT

DIMENSIONS (HxL)	180"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"

TRAPEZE KIT (WB-T12-3)

SUPPORT BRACKET (WB-LB12-3)

3.5" DIA GALV SCH 40 PIPE (SPACED 9'-0" MAX) (MF-130)

FRONT

SIDE

ICE BRIDGE DETAIL

NO SCALE

7

FINISH SLOPE TO DRAIN

A-A

A-A

PROPOSED 3.5" DIA. SCH 40 PIPE GALVANIZED

PROPOSED 1'-6" DIA. CONCRETE PIER (TYP)

CONCRETE PIER

3" DIA SCH 40 PIPE

18" DIA DRILLED PIER FOUNDATION

A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8

EXISTING GUYED TOWER

PROPOSED ICE BRIDGE

PROPOSED 1.8" DIA HYBRID CABLE

PROPOSED CABLE CLAMP @ 3'-0" O.C.

HYBRID CABLE RUN

NO SCALE

9

dish  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

KMB  
DESIGN GROUP  
kmbdg.com

1850 ROUTE 74, SUITE 100  
WALL, NJ 07719  
1/202 280-5625

N.Y. CERTIFICATE OF AUTHORIZATION: 081784

STATE OF NEW YORK  
STEPHEN A. BRAY  
LICENSED PROFESSIONAL ENGINEER  
086064

Stephen A. Bray  
PROFESSIONAL ENGINEER  
EXPIRATION DATE: 06/30/25  
NY LICENSE: 086064 3/8/23

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TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:  
RC JRB ---

RFDS REV #:

CONSTRUCTION  
DOCUMENTS

REV	DATE	DESCRIPTION
0	03/08/2023	ISSUED FOR PERMIT PLANS

A&E PROJECT NUMBER  
336.4330.A10

DISH Wireless L.L.C.  
PROJECT INFORMATION  
SYSYR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

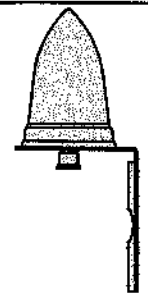
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
A-4

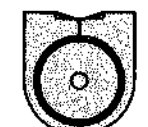
DISH Wireless L.L.C. TEMPLATE VERSION 50 - 11/11/2022

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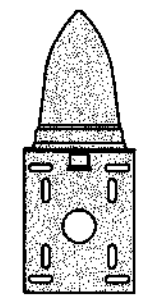
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAM) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	0.75 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



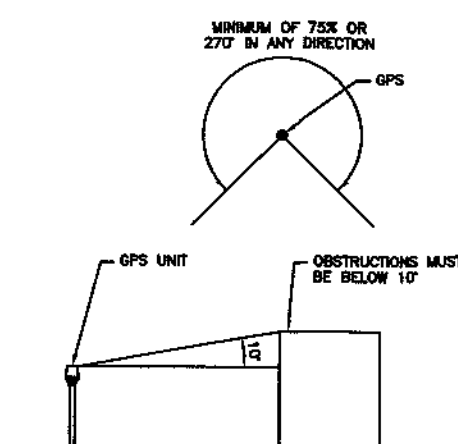
BACK



TOP

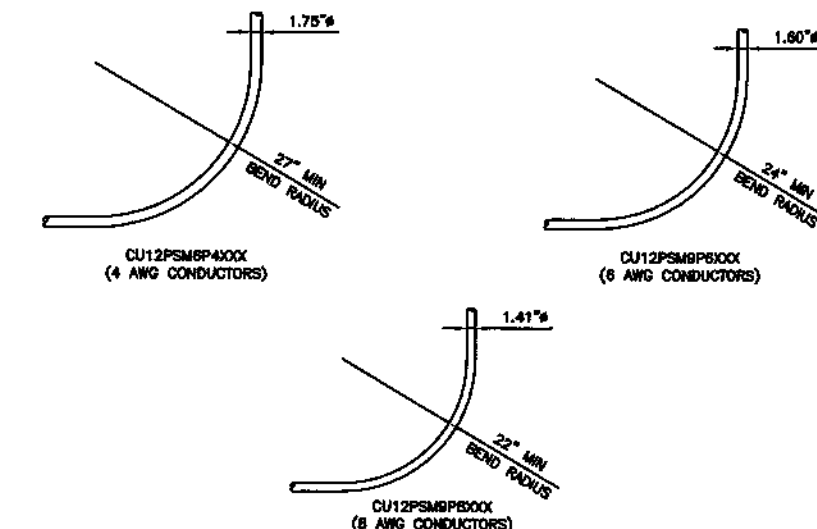


SIDE



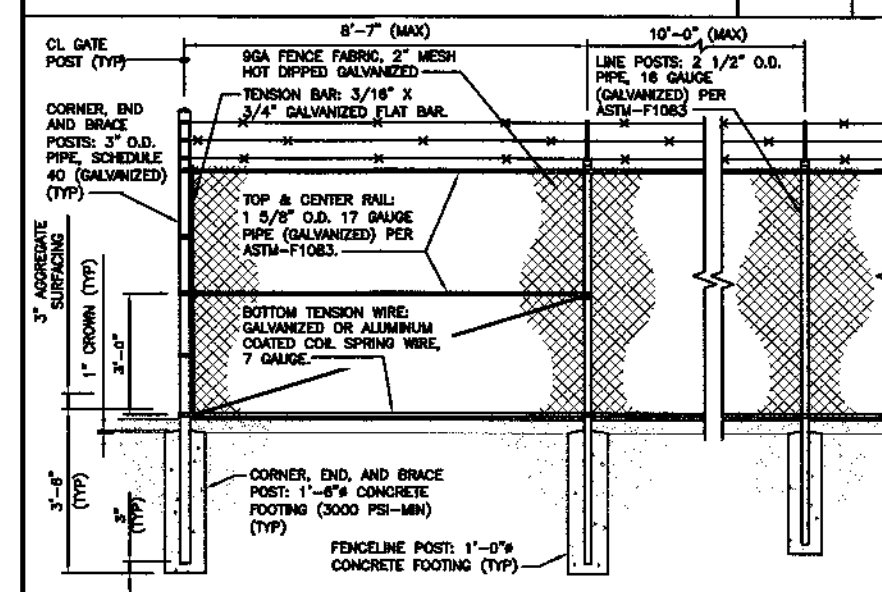
GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE 2



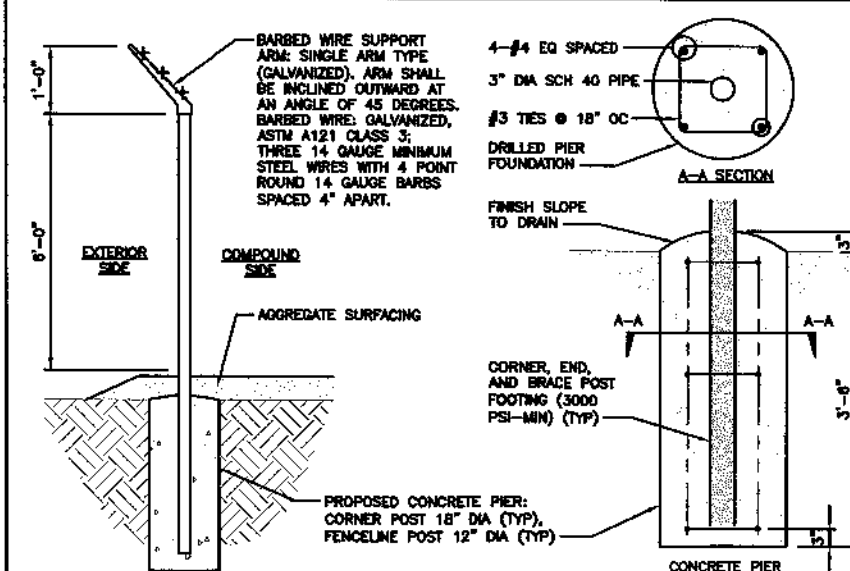
CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUSES

NO SCALE 3



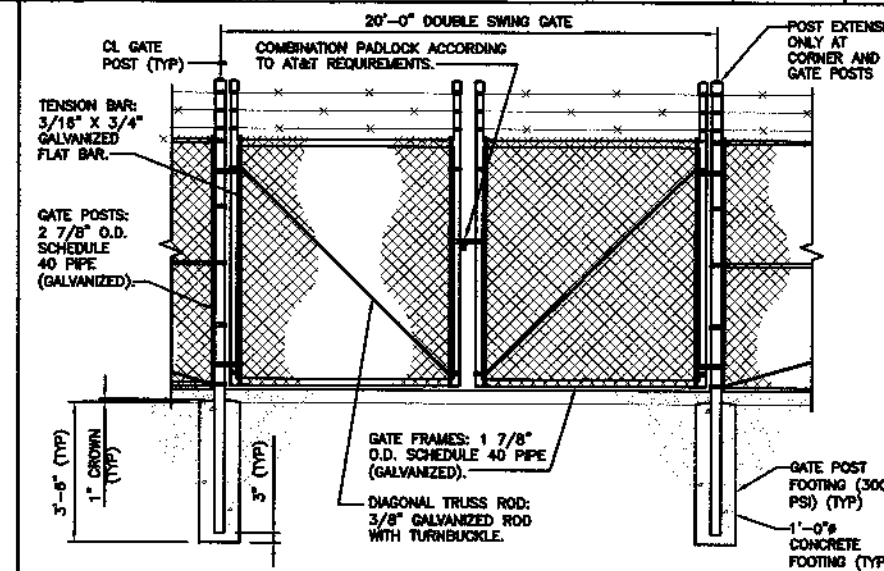
TYPICAL FENCE DETAIL

NO SCALE 4



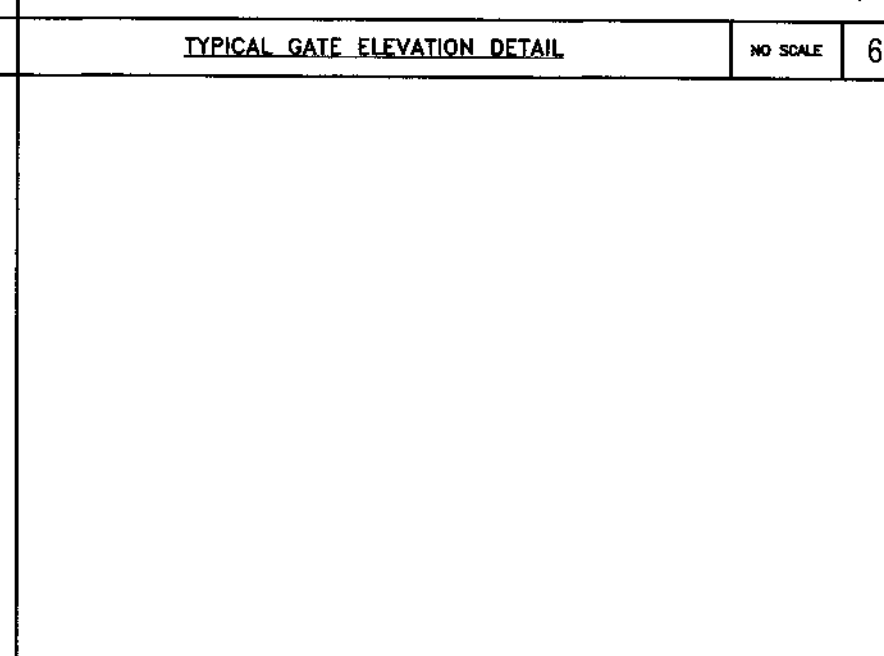
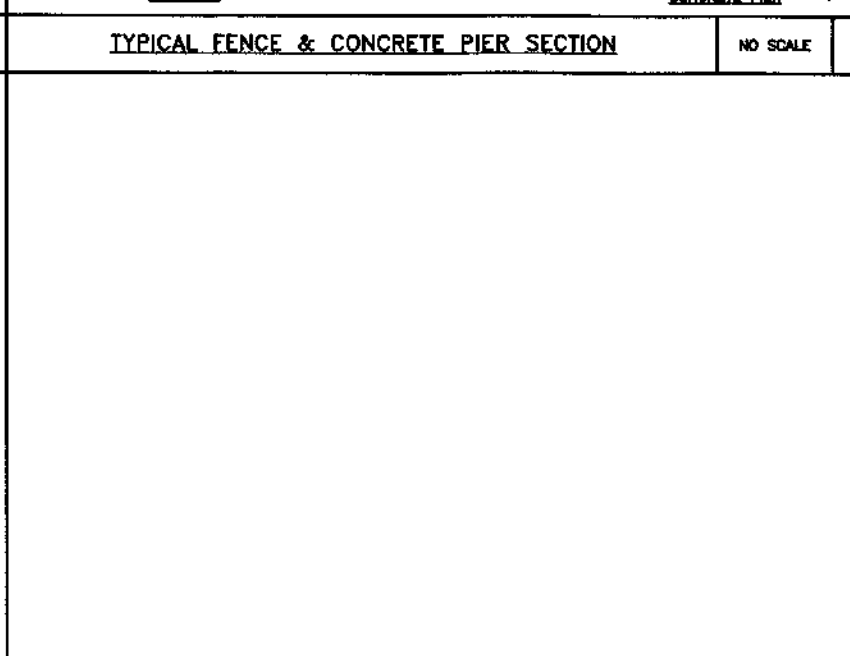
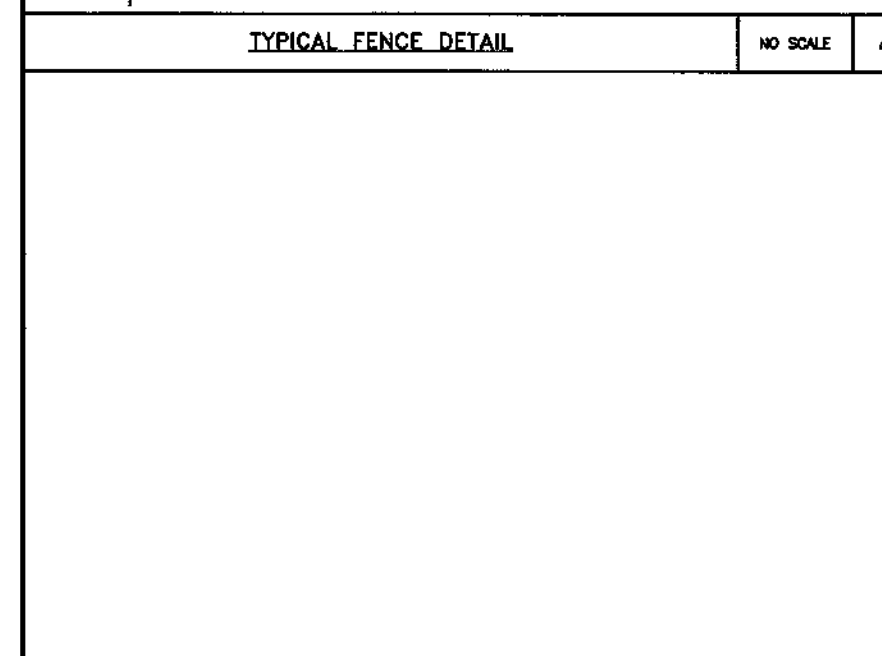
TYPICAL FENCE & CONCRETE PIER SECTION

NO SCALE 5



TYPICAL GATE ELEVATION DETAIL

NO SCALE 6



NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**KMB**  
DESIGN GROUP  
kmbdg.com

1000 ROUTE 14, SUITE 209  
WALL, NJ 07719  
(732) 385-5623

N.Y. CERTIFICATE OF AUTHORIZATION: 081784



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BARRE, NY 14411

### SHEET TITLE

EQUIPMENT DETAILS

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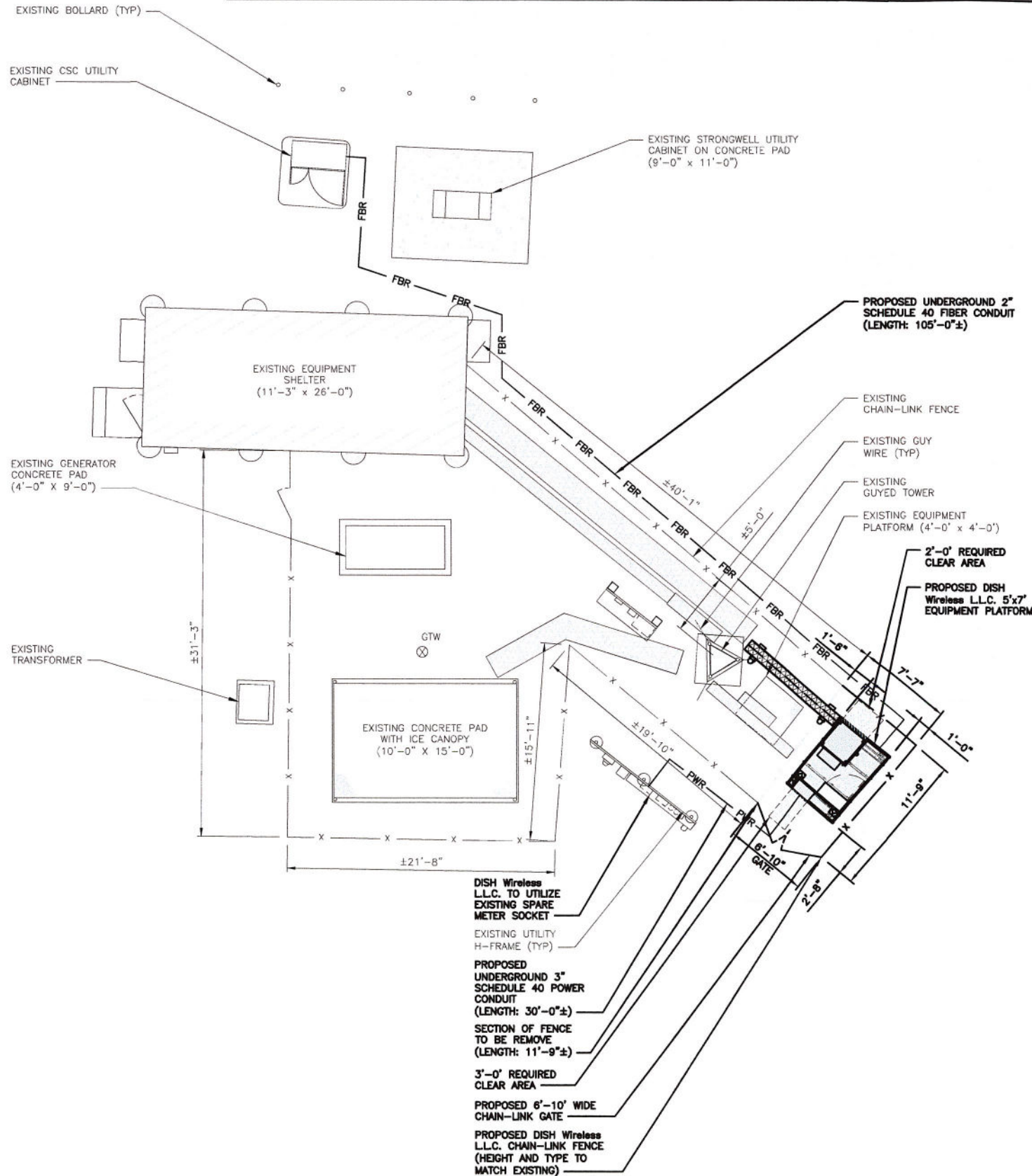
A-5



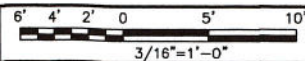


# NOTES

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



UTILITY ROUTE PLAN



1

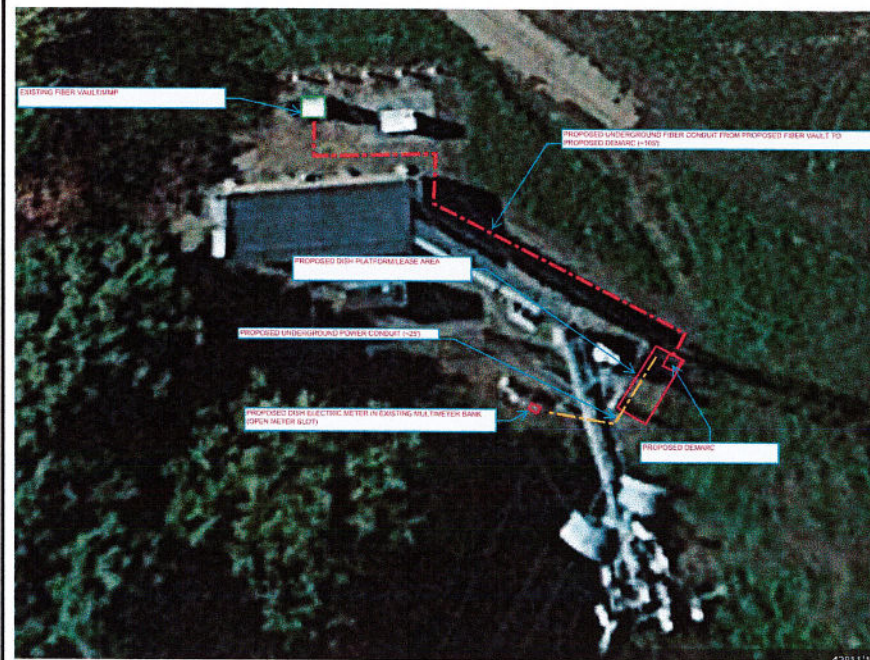
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

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

## ELECTRICAL NOTES

NO SCALE

2



FIBER ROUTE

NO SCALE

3

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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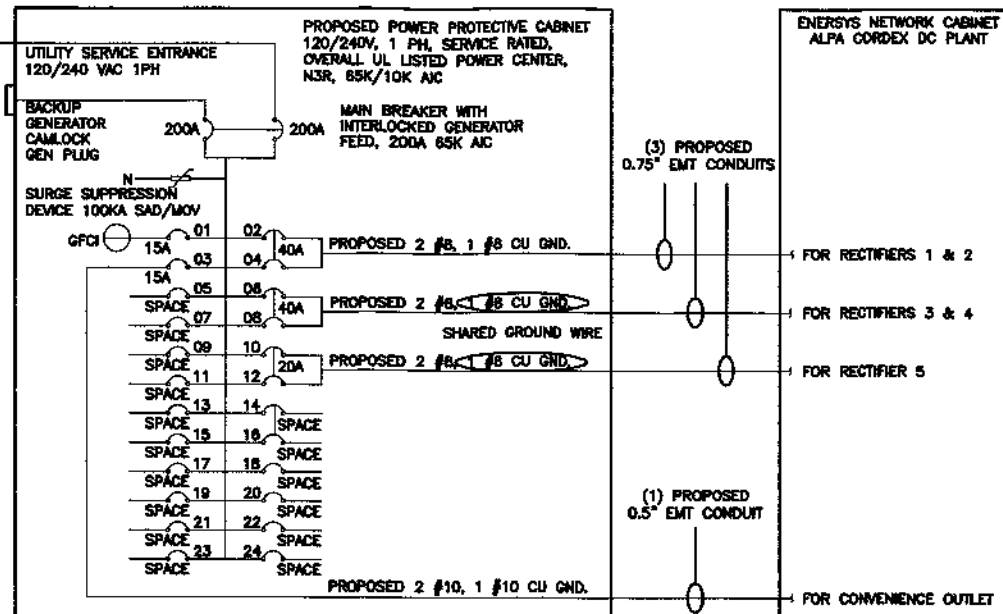
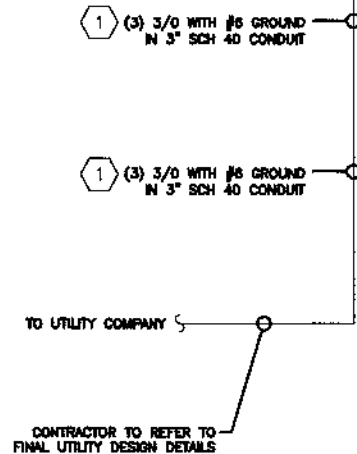
SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER

E-1







SERVICE/FEEDER CONDUCTOR LENGTH TABLE (BASED ON INDUSTRY STANDARD 3% VOLTAGE DROP AND 5% NEC ALLOWABLE LIMIT)						
DESIGN LOADS	250 kcmil AL	300 kcmil AL	3/0 CU	4/0 CU	250 kcmil CU	300 kcmil CU
DISH WIRELESS L.L.C. WIRELESS CONTINUOUS LOAD (100A) (NEC ARTICLE 220 & 230 3% VOLTAGE DROP)	130'	155'	145'	180'	215'	255'
DISH WIRELESS L.L.C. WIRELESS CONTINUOUS LOAD (100A) (NEC ARTICLE 220 & 230 5% VOLTAGE DROP)	220'	280'	240'	300'	360'	425'

- NOTES:
- 250 kcmil/kcmil AL + #2 AL GND MAY BE USED AS A REPLACEMENT FOR 3/0 CU + #6 CU GND SERVICE CONDUCTOR FROM THE DISH WIRELESS L.L.C. FIRST MEANS OF DISCONNECT/UTILITY COMPANY MEET-ING POINT. REFER TO VALUES ABOVE TO LIMIT VOLTAGE DROP TO 3%.
  - ALUMINUM/COPPER CONDUCTORS MUST BE RATED 75°C.
  - ALUMINUM TO COPPER BUSS CONNECTIONS MUST MEET AND CONFORM TO ANSI AND BE UL LISTED. USE ANTI CORROSION CONDUCTIVE LUBRICANT ON CONNECTIONS.
  - PPC MAIN DISCONNECT CIRCUIT BREAKERS ACCEPT #4 - 300KCMIL AL OR CU CONDUCTORS.
  - VOLTAGE DROP FOR SINGLE METER ENCLOSURE FED FROM TRANSFORMER WITH MULTIPLE CUSTOMERS IS CALCULATED FROM THE TRANSFORMER TO PPC. (SERVICE AND FEEDER CONDUCTOR LENGTH).
  - VOLTAGE DROP FOR MULTI-METER ENCLOSURE IS CALCULATED FROM THE METER TO PPC. (FEEDER CONDUCTOR LENGTH).
  - VOLTAGE DROP CALCULATIONS ARE BASED ON A POWER FACTOR OF 1. A LINE TO GROUND VOLTAGE PER CONDUCTOR OF 120V, NO CORRECTION FACTOR FOR AMBIENT TEMPERATURE OR ADJUSTMENT FACTOR FOR MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A SINGLE CONDUIT OR RACEWAY. A POWER FACTOR LESS THAN 1 OR VOLTAGE LESS THAN 120 WILL RESULT IN SHORTER DISTANCES THAN SHOWN IN TABLE.

NOTE:  
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 800V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED: (OR EQUIVALENT MANUFACTURER)  
(2) 40A, 2P BREAKER - SQUARE D P/N:Q0240  
(1) 20A, 2P BREAKER - SQUARE D P/N:Q0220  
(2) 215A, 1P BREAKER - SQUARE D P/N:Q0115

**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	- 1.318 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	
<b>TOTAL</b>	<b>= 0.0633 SQ. IN</b>

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	
<b>TOTAL</b>	<b>= 0.1234 SQ. IN</b>

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 - 0.2678 SQ. IN X 3 = 0.8037 SQ. IN	
#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND	
<b>TOTAL</b>	<b>= 0.8544 SQ. IN</b>

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

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

250kcmil AL - 0.3970 SQ. IN X 3 = 1.191 SQ. IN	
#4 AL - 0.0824 SQ. IN X 1 = 0.0824 SQ. IN <GROUND	
<b>TOTAL</b>	<b>= 1.2734 SQ. IN</b>

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

PPC ONE-LINE DIAGRAM

PROPOSED ENERSYS PANEL SCHEDULE													
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED			
PPC GFCI OUTLET	180	180	15A	1	A	2	40A	3640	3640	ENERSYS ALPHA CORDEX RECTIFIERS 1 & 2			
ENERSYS GFCI OUTLET	180	180	15A	3	B	4	40A	3640	3640	ENERSYS ALPHA CORDEX RECTIFIER 3 & 4			
SPACE				5	A	6	40A	3640	3640	ENERSYS ALPHA CORDEX RECTIFIER 5			
SPACE				7	B	8				SPACE			
SPACE				9	A	10	20A	1820	1820	SPACE			
SPACE				11	B	12				SPACE			
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						3640	3640				
200A MCB, N, 24 SPACE, 120/240V				L1		L2							
MB RATING: 65,000 AIC				81		81		VOLTAGE AMPS					
								81					
								102					

PANEL SCHEDULE

NO SCALE

2

NOT USED

NO SCALE

3

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5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1550 ROUTE 74, SUITE 207  
WYCKS, NJ 07715  
(732) 581-5621

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BARRE, NY 14411

SHEET TITLE  
ELECTRICAL ONE-LINE  
& PANEL SCHEDULE

SHEET NUMBER

**E-3**

NOTES:

- HAZARD OF ELECTRICAL SHOCK OR BURN. TURN OFF POWER SUPPLYING THIS EQUIPMENT BEFORE WORKING INSIDE.
- 100 OR 200 AMP, 240 VOLTS, SINGLE PHASE ALTERNATING CURRENT CIRCUIT ONLY
- GENERATOR SHORT CIRCUIT RATING: 10,000 / 20,000 AMPS RMS SYMMETRICAL, AMPERES AT 240 VOLTS
- UTILITY SHORT CIRCUIT RATING: 65,000 AMPS RMS SYMMETRICAL, AMPERES AT 240 VOLTS
- SUITABLE FOR USE AS SERVICE EQUIPMENT
- SUITABLE FOR USE IN ACCORDANCE WITH ARTICLE 702 OF THE NATIONAL ELECTRIC CODE ANSI/NFPA 70
- BONDED NEUTRAL WHEN INSTALLED AS SHOWN IN WIRING DIAGRAM
- RAIN PROOF TYPE 3R
- USE CU-AL WIRE 60-75 °C
- EQUIPPED WITH SLIDE BAR MECHANICAL INTERLOCK
- INTERLOCK PROHIBITS BOTH POWER SOURCES FROM BEING IN THE ON POSITION SIMULTANEOUSLY
- EQUIPPED WITH SQUARE D BREAKERS OR ALTERNATIVE MANUFACTURER EQUIVALENT
- WHEN REPLACE LOAD CENTER BREAKERS, USE ONLY SQUARE D (QO TYPE) OF THE SAME RATING OR EQUIVALENT
- WHEN RESETTING BREAKERS TURN TO OFF POSITION, THEN TO ON POSITION
- WARNING: MAKE CONTINUITY CHECK WITH OHM METER TO VERIFY CORRECT PHASING AND GROUNDING CONNECTIONS BEFORE POWER UP
- VERIFY PIN OUT CONFIGURATION OF GENERATOR PRIOR TO USE.
- RISK OF ELECTRIC SHOCK, BOTH ENDS OF DISCONNECTING MEANS MAY BE ENERGIZED. TEST BEFORE SERVICING
- THIS SWITCH BOARD MAY CONTAIN A TAP ON THE SERVICE SIDE OF THE MAIN POWER DISCONNECT FOR REMOTE MONITORING OF UTILITY/STANDBY POWER
- THE NORMAL AC POWER MONITORING CIRCUIT MUST UTILIZE A DISCONNECTING MEANS WITH A SHORT CIRCUIT RATING GREATER THAN THE AVAILABLE INTERRUPTING CURRENT
- A RED PUSH-TO-TRIP BUTTON PROVIDES A MEANS TO MECHANICALLY TRIP THE CIRCUIT BREAKER. THIS ACTION EXERCISES THE TRIPPING PORTION OF THE MECHANISM AND ALLOWS MAINTENANCE CHECK ON THE BREAKER

SUITABLE FOR USE AS  
SERVICE EQUIPMENT

ELECTRICAL RATING 120/240 VOLTS SINGLE PHASE 60 Hz	
NORMAL AC POWER 100A	GENERATOR POWER 100A
200A	200A

CAUTION:

- THE OPERATING HANDLE ASSUMES A CENTER POSITION WHEN THE CIRCUIT BREAKER IS TRIPPED
- THE BREAKER CAN BE RESET BY OPERATING THE HANDLE TO THE EXTREME OFF POSITION AND THEN TO ON
- SLIDE BAR MECHANICAL INTERLOCK TRANSFERS NORMAL AC POWER TO GENERATOR POWER. THE SLIDE BAR MECHANICAL INTERLOCK PROHIBITS BOTH POWER SOURCES FROM BEING IN THE ON POSITION SIMULTANEOUSLY
- TO TRANSFER FROM ON POWER SOURCE TO THE OTHER POWER SOURCE, SWITCH ON BREAKER TO THE OFF POSITION, MOVE THE SLIDE BAR TO THE OTHER SIDE AND THE SWITCH THE OTHER BREAKER TO THE ON POSITION

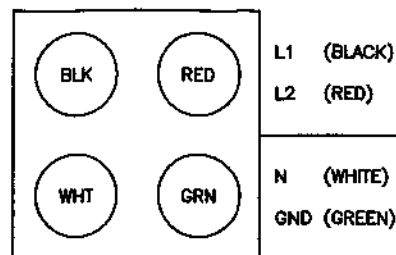
THIS SWITCHBOARD UTILITY MAIN BREAKER IS SUITABLE FOR USE ON A CIRCUIT CAPABLE OF DELIVERING NOT MORE THAN 65,000 RMS SYMMETRICAL AMPS, 240 VOLTS MAXIMUM.

200A UTILITY FEED									
LOAD SIZE CIRCUIT BREAKERS				LINE SIDE MAIN CIRCUIT BREAKER					
MFR.	TYPE	POLES	AMP RATING	MFR.	TYPE	AMP RATING	SYMMET. AMP RMS	VOLTS AC	PHASES
SQ-D	QO	1 2	15-100A	SQ-D	QGL	200A	65,000A	240V	2

THIS SWITCHBOARD GENERATOR POWER CIRCUIT IS SUITABLE FOR USE ON A CIRCUIT CAPABLE OF DELIVERING NOT MORE THAN 10,000 RMS SYMMETRICAL AMPS, 240 VOLTS MAXIMUM.

200A GENERATOR FEED									
LOAD SIZE CIRCUIT BREAKERS				LINE SIDE MAIN CIRCUIT BREAKER					
MFR.	TYPE	POLES	AMP RATING	MFR.	TYPE	AMP RATING	SYMMET. AMP RMS	VOLTS AC	PHASES
SQ-D	QO	1 2	15-100A	SQ-D	QGL	200A	65,000A	240V	2

MAXIMUM CONTINUOUS LOADS NOT TO EXCEED 80% OF THE OVER-CURRENT PROTECTIVE DEVICE (CIRCUIT BREAKER AND FUSES) RATINGS EMPLOYED IN OTHER THAN MOTOR CIRCUITS, EXCEPT FOR THOSE CIRCUITS EMPLOYING CIRCUIT BREAKERS MARKED AS SUITABLE FOR CONTINUOUS OPERATION AT 100% OF THEIR RATINGS. CONDUCTORS ARE NOT TO ENTER OR LEAVE THE ENCLOSURE DIRECTLY OPPOSITE THE WIRING TERMINAL



CAM-LOCK GENERATOR RECEPTACLE  
(AS VIEWED FROM OUTSIDE OF ENCLOSURE)  
USE LINE UP PIN AS REFERENCE

REFER TO RECEPTACLE FOR MODEL NUMBER

**DANGER:**  
HAZARD OF ELECTRICAL SHOCK OR BURN.  
TURN OFF POWER SUPPLYING THIS  
EQUIPMENT BEFORE WORKING INSIDE.

RAYCAP CUSTOMER SERVICE  
(800) 890-2569

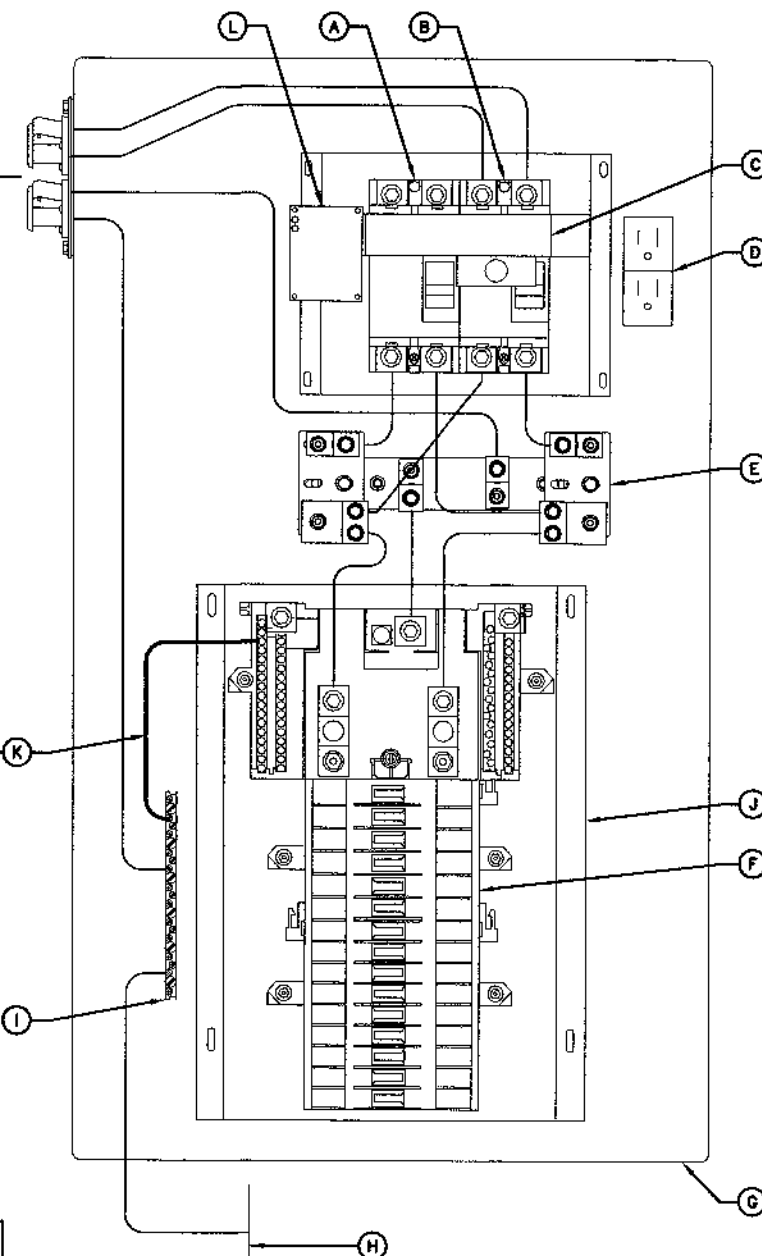
NEUTRAL-TO-GROUND NOTES:

- WHEN THE PPC IS USED AS THE SERVICE ENTRANCE DEVICE, THE NEUTRAL TO GROUND BOND NEEDS TO BE ESTABLISHED IN THE PPC.
- WHEN THE SERVICE ENTRY DEVICE IS A MULTI-METER CENTER OR A PRE-PPC DISCONNECT IS USED AND HAS "NEUTRAL TO GROUND" ACCOMMODATIONS, THE NEUTRAL TO GROUND WIRE IN THE PPC IS NOT REQUIRED.
- THE GREEN #6 WIRE IS PROVIDED WITH THE PPC CABINET AS A SEPARATE UNINSTALLED PART TO BE INSTALLED BY CONTRACTOR IF NEEDED.

NEUTRAL-TO-GROUND BONDING JUMPER

INSTALLATION INSTRUCTIONS:

- IF REQUIRED, THE N-G BONDING KIT SHOULD BE INSTALLED BY QUALIFIED PERSONNEL
- ENSURE THE MAIN BREAKERS ARE OFF
- USE THE GREEN #6 WIRE PROVIDED WITH THE PPC
- INSTALL THE JUMPER AS SHOWN IN THE WIRING DIAGRAM
- TIGHTEN TERMINALS TO TORQUE VALUE SHOWN IN TORQUE TABLE
- PLACE THE PROVIDED "SERVICE" LABEL IN THE SPACE BELOW THE WORDS "AC POWER" LOCATED ABOVE THE MAIN CIRCUIT BREAKER IN THE UPPER PORTION OF THE DEAD FRONT



LEGEND:

- A. UTILITY DISCONNECT (SERVICE RATED)
- B. GENERATOR DISCONNECT
- C. MAIN DISCONNECT CIRCUIT BREAKERS W/ MECHANICAL INTERLOCK
- D. GFCI RECEPTACLE 15A
- E. SPD STRIKESORBS KELVIN CONNECTION (TYP OF 2)
- F. BREAKER PANEL - 24 POSITION (CONTRACTOR TO ADD APPROPRIATE BREAKER PER ONE-LINE DIAGRAM PANEL SCHEDULE)
- G. POWER PROTECTION CABINET (PPC) (FULLY ASSEMBLED FROM MANUFACTURER)
- H. CONTRACTOR TO ATTACH TO UNDERGROUND GROUNDING HALD OR INSTALL GROUND ROD WHEN REQUIRED BY CODE
- I. GROUND BAR
- J. SQUARE D Q SERIES LOAD CENTER
- K. NEUTRAL-TO-GROUND (N-G) BONDING JUMPER (CONTRACTOR INSTALLED IF REQUIRED)
- L. OPTIONAL SPD STATUS INDICATORS

RAYCAP POWER PROTECTION CABINET - RDIAC-2465-P-240-MTS (NEUTRAL-TO-GROUND)

NO SCALE

1

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



100 ROUTE 74, SUITE 200  
WALL MOUNTED  
1337, 206-5525

N.Y. CERTIFICATE OF AUTHORIZATION: 081784



**Stephen A. Bray**

PROFESSIONAL ENGINEER  
EXPIRATION DATE: 08/30/25  
NY LICENSE: 086064

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CONSTRUCTION  
DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/06/2023	ISSUED FOR PERMIT FILING

A&E PROJECT NUMBER

336.4330.A10

DISH Wireless L.L.C.

PROJECT INFORMATION

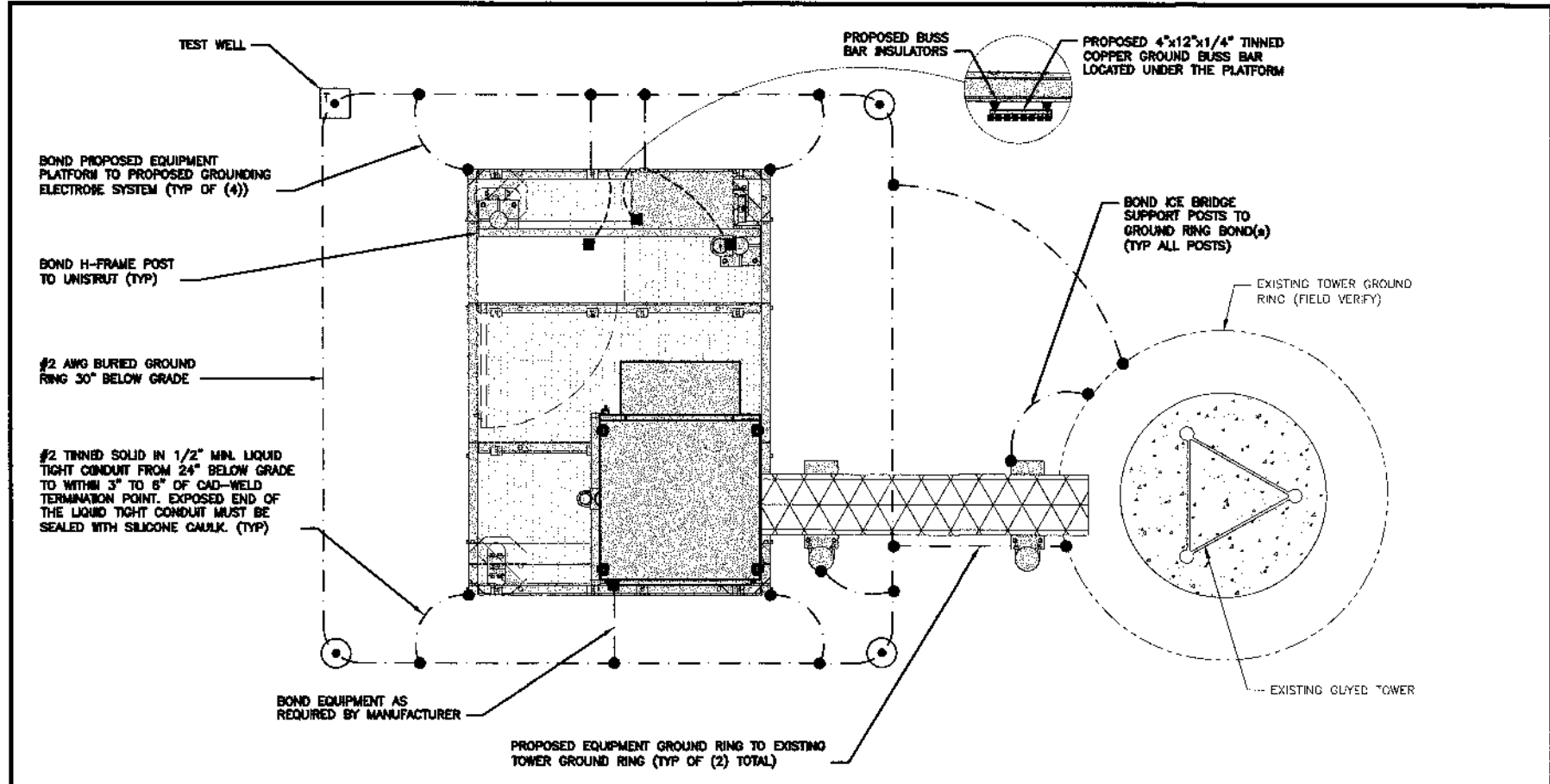
SYSR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

SHEET TITLE

PPC NEUTRAL-TO-GROUND  
SCHEMATIC

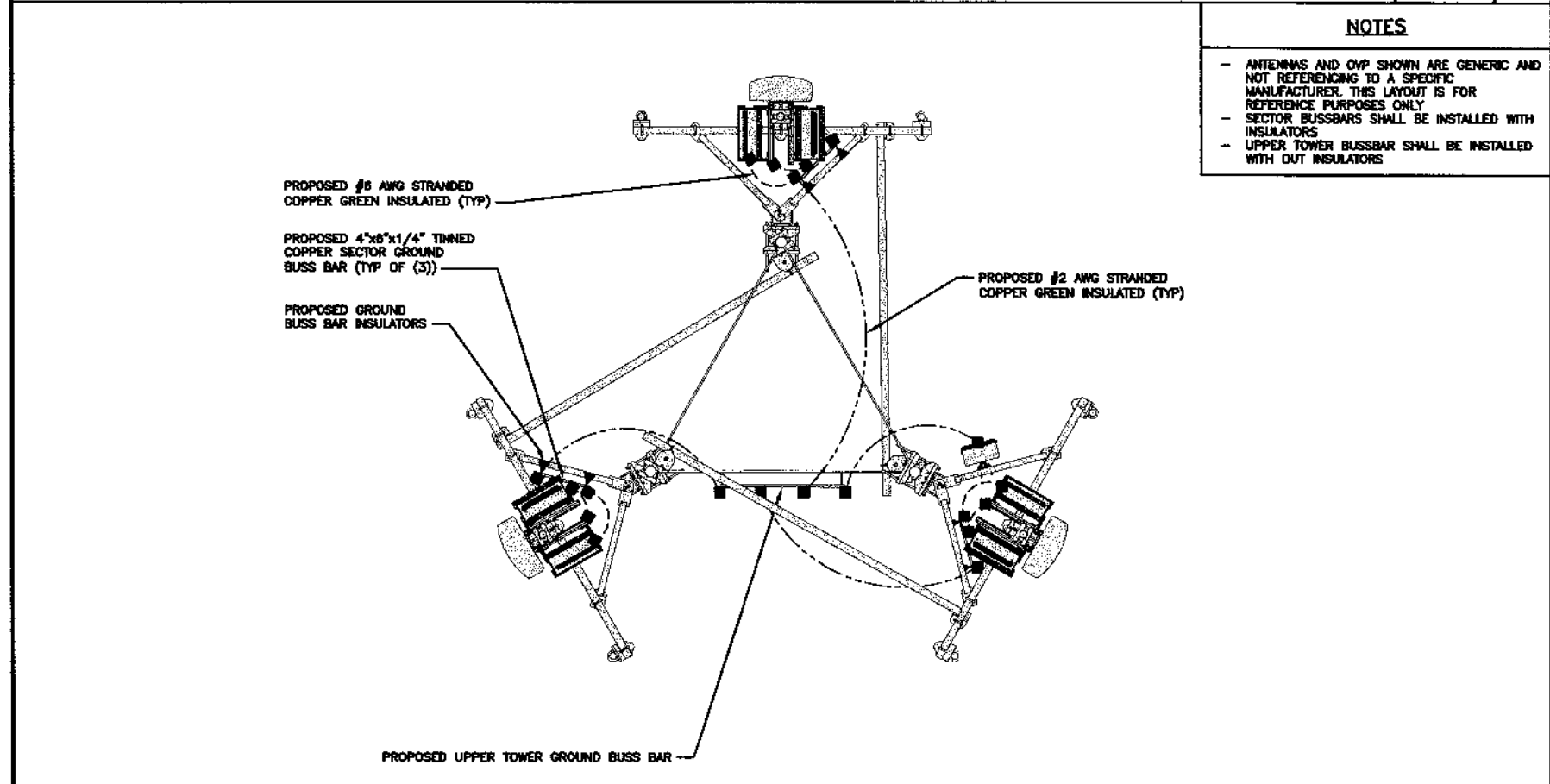
SHEET NUMBER

**E-4**



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

- NOTES**
- ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY.
  - SECTOR BUSSBARS SHALL BE INSTALLED WITH INSULATORS
  - UPPER TOWER BUSSBAR SHALL BE INSTALLED WITH OUT INSULATORS

● EXOTHERMIC CONNECTION  
■ MECHANICAL CONNECTION  
— GROUND BUS BAR  
○ GROUND ROD  
□ TEST GROUND ROD WITH INSPECTION SLEEVE  
— #6 AWG STRANDED & INSULATED  
— #2 AWG SOLID COPPER TINNED  
— #2 AWG STRANDED & INSULATED  
▲ BUSS BAR INSULATOR

**GROUNDING LEGEND**

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

**GROUNDING KEY NOTES**

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.  
(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.  
(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.  
(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.  
(E) GROUND ROD: UL LISTED COPPER CLAD STEEL, MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.  
(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.  
(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.  
(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.  
(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.  
(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENT'S 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 TOWER STEEL.  
REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

**GROUNDING KEY NOTES**

NO SCALE 3

**dish wireless.**

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**KMB**  
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1500 RIVERVIEW BLVD, SUITE 209  
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N.Y. CERTIFICATE OF AUTHORIZATION: 081784

**Stephen A. Bray**  
PROFESSIONAL ENGINEER  
EXPIRATION DATE: 09/30/25  
NY LICENSE: 086064 3/8/23

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**CONSTRUCTION DOCUMENTS**

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336.4330.A10

DISH Wireless L.L.C.  
PROJECT INFORMATION  
SYSR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

SHEET TITLE  
GROUNDING PLANS AND NOTES

SHEET NUMBER  
G-1



<div>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.</div> <div>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.</div> <div>3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.</div> <div>4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.</div> <div>5. NUT &amp; WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.</div> <div>6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.</div> <div>7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.</div> <div>8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHIMMERS).</div>														
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

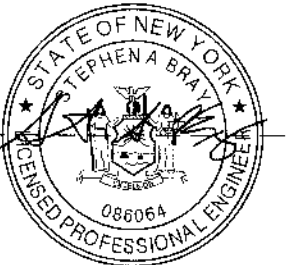
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wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1500 ROUTE 74, SUITE 100  
SMALL Hg 07719  
(732, 380-5522)

N.Y. CERTIFICATE OF AUTHORIZATION: 081764



**Stephen A. Bray**

PROFESSIONAL ENGINEER  
EXPIRATION DATE: 06/30/25  
NY LICENSE: 086064 3/8/23

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336.4330.A10

DISH Wireless L.L.C.  
PROJECT INFORMATION

SYSR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

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)

ALPHA RRH				BETA RRH				GAMMA RRH			
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (- PORT)	ORANGE	ORANGE		WHITE (- PORT)	ORANGE	ORANGE		WHITE (- PORT)	ORANGE	ORANGE
			WHITE (- PORT)				WHITE (- PORT)				WHITE (- PORT)

MID-BAND RRH  
(AWS BANDS N66+N70)

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

RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (- PORT)	PURPLE	PURPLE		WHITE (- PORT)	PURPLE	PURPLE		WHITE (- PORT)	PURPLE	PURPLE
			WHITE (- PORT)				WHITE (- PORT)				WHITE (- PORT)

## 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.

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3 COAX #1 (ALPHA)	CANISTER COAX #2 (ALPHA)
RED	RED	RED	RED
BLUE	BLUE		
GREEN	GREEN		
ORANGE	YELLOW		
PURPLE			RED

## FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR  
STRIPE ONLY.

LOW BAND RRH	MID BAND RRH	LOW BAND RRH	MID BAND RRH	LOW BAND RRH	MID BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
ORANGE	PURPLE	ORANGE	PURPLE	ORANGE	PURPLE

## POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR  
STRIPE ONLY.

LOW BAND RRH	MID BAND RRH	LOW BAND RRH	MID BAND RRH	LOW BAND RRH	MID BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
ORANGE	PURPLE	ORANGE	PURPLE	ORANGE	PURPLE

## 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.

ANTENNA 1 MID BAND	ANTENNA 1 LOW BAND	ANTENNA 1 MID BAND	ANTENNA 1 LOW BAND	ANTENNA 1 MID BAND	ANTENNA 1 LOW BAND
IN	IN	IN	IN	IN	IN
RED	RED	BLUE	BLUE	GREEN	GREEN
PURPLE	ORANGE	PURPLE	ORANGE	PURPLE	ORANGE

## 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.

FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-359 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

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

NO SCALE

2

NOT USED

NO SCALE

3

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N.Y. CERTIFICATE OF AUTHORIZATION: 081784



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PROJECT INFORMATION

SYSR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

SHEET TITLE

RF  
CABLE COLOR CODE

SHEET NUMBER

RF-1



EXOTHERMIC CONNECTION  
MECHANICAL CONNECTION  
BUSS BAR INSULATOR  
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR  
GROUND ROD  
TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX BFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

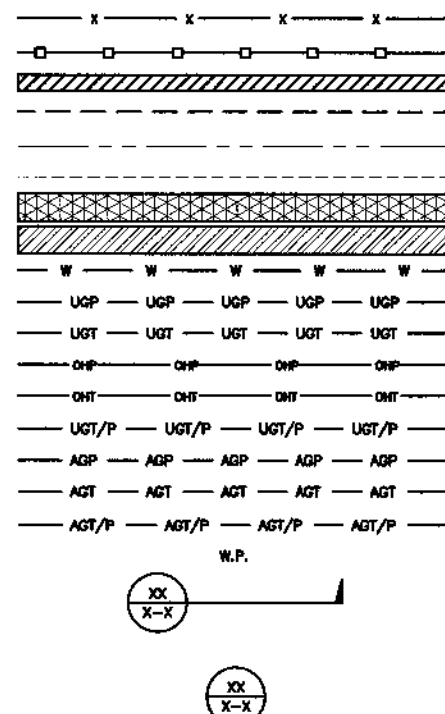
ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE



## LEGEND

AB ANCHOR BOLT  
ABV ABOVE  
AC ALTERNATING CURRENT  
ADDL ADDITIONAL  
AFF ABOVE FINISHED FLOOR  
AFG ABOVE FINISHED GRADE  
AGL ABOVE GROUND LEVEL  
AIC AMPERAGE INTERRUPTION CAPACITY  
ALUM ALUMINUM  
ALT ALTERNATE  
ANT ANTENNA  
APPROX APPROXIMATE  
ARCH ARCHITECTURAL  
ATS AUTOMATIC TRANSFER SWITCH  
AWG AMERICAN WIRE GAUGE  
BATT BATTERY  
BLDG BUILDING  
BLK BLOCK  
BLKG BLOCKING  
BM BEAM  
BTC BARE TINNED COPPER CONDUCTOR  
BOF BOTTOM OF FOOTING  
CAB CABINET  
CANT CANTILEVERED  
CHG CHARGING  
CLG CEILING  
CLR CLEAR  
COL COLUMN  
COMM COMMON  
CONC CONCRETE  
CONSTR CONSTRUCTION  
DBL DOUBLE  
DC DIRECT CURRENT  
DEPT DEPARTMENT  
DF DOUGLAS FIR  
DIA DIAMETER  
DIAO DIAGONAL  
DIM DIMENSION  
DWG DRAWING  
DWL DOWEL  
EA EACH  
EG 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  
FDM 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  
HWAC 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 RACENWAY  
SCH SCHEDULE  
SHT SHEET  
SIAD SMART INTEGRATED ACCESS DEVICE  
SIM SIMILAR  
SPEC SPECIFICATION  
SQ SQUARE  
SS STAINLESS STEEL  
STD STANDARD  
STL STEEL  
TEMP TEMPORARY  
THK THICKNESS  
TMA TOWER MOUNTED AMPLIFIER  
TN TOE NAIL  
TOA TOP OF ANTENNA  
TOC TOP OF CURB  
TOF TOP OF FOUNDATION  
TOP TOP OF PLATE (PARAPET)  
TOS TOP OF STEEL  
TOW TOP OF WALL  
TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION  
TYP TYPICAL  
UG UNDERGROUND  
UL UNDERWRITERS LABORATORY  
UNO UNLESS NOTED OTHERWISE  
UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM  
UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)  
VIF VERIFIED IN FIELD  
W WIDE  
W/ WITH  
WD WOOD  
WP WEATHERPROOF  
WT WEIGHT

## ABBREVIATIONS

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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732.384.5625

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SYSYR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

SHEET TITLE

LEGEND AND  
ABBREVIATIONS

SHEET NUMBER

**GN-1**



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

**SIGN PLACEMENT:**

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

**NOTES:**

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

# INFORMATION

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

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

Site ID: \_\_\_\_\_



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

## NOTICE



Transmitting Antenna(s)

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

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

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

Site ID: \_\_\_\_\_

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

## CAUTION



Transmitting Antenna(s)

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## WARNING



Transmitting Antenna(s)

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Site ID: \_\_\_\_\_

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**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1800 ROUTE 24, SUITE 209  
WALL, NJ 07719  
(732) 288-5623

N.Y. CERTIFICATE OF AUTHORIZATION: 081784



**Stephen A. Bray**

PROFESSIONAL ENGINEER  
EXPIRATION DATE: 06/30/25  
NY LICENSE: 086064 3/8/23

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DRAWN BY: CHECKED BY: APPROVED BY:

RC JRB ---

RFDS REV #: ---

### CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	03/08/2023	ISSUED FOR PERMIT FILING

A&E PROJECT NUMBER  
336.4330.A10

DISH Wireless L.L.C.  
PROJECT INFORMATION  
SYSYR03042A  
15085 EAST BARRE ROAD  
BARRE, NY 14411

SHEET TITLE  
RF  
SIGNAGE

SHEET NUMBER

**GN-2**

RF SIGNAGE



**SITE ACTIVITY REQUIREMENTS:**

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

**GENERAL NOTES:**

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

**dish**  
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N.Y. CERTIFICATE OF AUTHORIZATION: 081784



**Stephen A. Bray**

PROFESSIONAL ENGINEER  
EXPIRATION DATE: 06/30/25  
NY LICENSE: 086064 3/8/23

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DRAWN BY: CHECKED BY: APPROVED BY:

RC JRB ---

RFDS REV #: ---

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
0	03/08/2023	ISSUED FOR PERMIT FILING

A&E PROJECT NUMBER  
**336.4330.A10**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**SYSYR03042A**  
**15085 EAST BARRE ROAD**  
**BARRE, NY 14411**

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 B1) 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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DISH Wireless L.L.C.  
PROJECT INFORMATION

SYSYR03042A  
15085 EAST BARRE ROAD  
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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5