DISH Wireless L.L.C. SITE ID:

SFSFO01158A

DISH Wireless L.L.C. SITE ADDRESS:

1300 COMMERCE ST
PETALUMA, CA 94954

CALIFORNIA 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	2019 CALIFORNIA BUILDING CODE (CBC)/2018 IBC
MECHANICAL	2019 CALIFORNIA MECHANICAL CODE (CMC)/2018 UMC
ELECTRICAL	2019 CALIFORNIA ELECTRICAL CODE (CEC)/2020 NEC

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A-5	EXISTING AND PROPOSED SOUTHEAST ELEVATIONS
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A-7	EQUIPMENT DETAILS
A-8	EQUIPMENT DETAILS
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E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
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E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES
GN-5	RF SIGNAGE

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:

C

SECTOR SCOPE OF WORK:
- INSTALL (3) PROPOSED ANTENNA RF SCREEN (1 PER SECTOR)
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (3) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) (1 PER SECTOR)
- INSTALL (3) PROPOSED POWER AND FIBER TRUNK CABLES

EQUIPMENT SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM WITH H-FRAME
- INSTALL (1) PROPOSED BBU IN CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED NEMA 3 TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT

SITE PHOTO

UNDERGROUND SERVICE ALERT
UTILITY NOTIFICATION CENTER OF CALIFORNIA
(800) 642-2444
WWW.CALIFORNIA811.ORG

CALL 2-14 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	PUBLIC STORAGE INC
ADDRESS:	PO BOX 25025 GLENDALE, CA 91201-5025
STRUCTURE TYPE:	ROOFTOP
COUNTY:	SONOMA
LATITUDE (NAD 83):	38.257311
LONGITUDE (NAD 83):	-122.640886
ZONING JURISDICTION:	CITY OF PETALUMA
ZONING DISTRICT:	I - INDUSTRIAL
PARCEL NUMBER:	007-630-001-000
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	X
TELEPHONE COMPANY:	X

PROJECT DIRECTORY

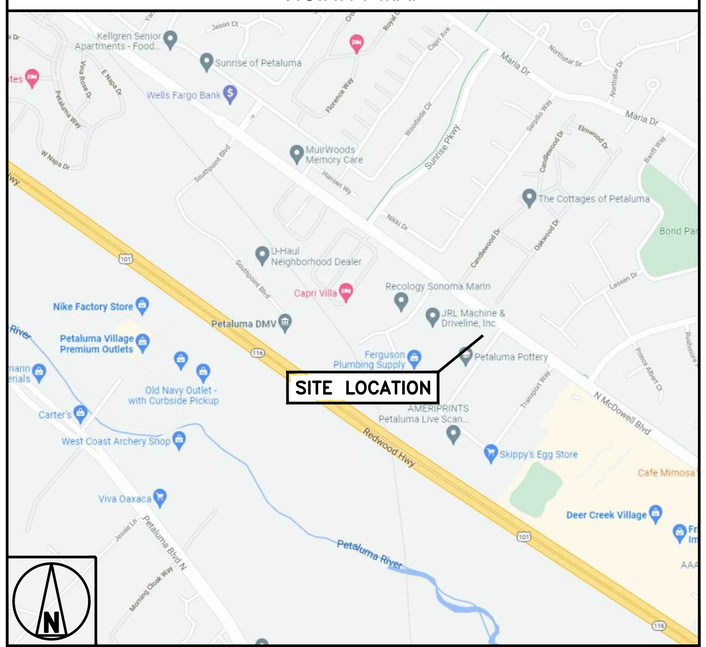
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
SITE DESIGNER:	THE CBR GROUP 2840 HOWE ROAD, SUITE E MARTINEZ, CA 94553 (925) 246-3212
SITE ACQUISITION:	PHAN FRONTERA phan@thecbrgroup.com
CONSTRUCTION MANAGER:	JAMES GONZALEZ jim@thecbrgroup.com

DIRECTIONS

DIRECTIONS FROM SAN FRANCISCO INTERNATIONAL AIRPORT:

X GET ON I-380 W FROM INTERNATIONAL TERMINAL ARRIVALS LEVEL
X TAKE I-280 N TO CA-1 N/JUNIPERO SERRA BLVD. TAKE EXIT 49B FROM I-280 N
X GET ON US-101 N FROM 19TH AVE
X FOLLOW US-101 N TO E WASHINGTON ST IN PETALUMA. TAKE EXIT 474 FROM US-101 N
X FOLLOW N MCDOWELL BLVD TO COMMERCE ST
X USE THE 2ND FROM THE RIGHT LANE TO TURN RIGHT ONTO E WASHINGTON ST
X USE THE LEFT 2 LANES TO TURN LEFT AT THE 1ST CROSS STREET ONTO N MCDOWELL BLVD
X TURN LEFT ONTO COMMERCE ST

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

THE CBR GROUP

2840 HOWE ROAD, SUITE E
MARTINEZ, CA 94553
www.TheCBRGroup.com

REGISTERED PROFESSIONAL ENGINEER
NASIB PANDEY
No. C-93621
CIVIL
STATE OF CALIFORNIA

DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

RFDS REV #: 02/02/2022 REV 4

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	02/10/2022	90% CD'S ISSUED FOR REVIEW
B	04/19/2022	100% CONSTRUCTION DRAWINGS
C	08/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER

SFSF001158A

DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

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

Site No. SFSFO01158A

1300 Commerce St
Petaluma, California 94954
38° 15' 26.32" N, -122° 38' 27.19" W NAD83

EBI Project No. 6222002267
April 9, 2022

Prepared for:
Dish Wireless

Prepared by:
EBI Consulting
environmental | engineering | due diligence

TABLE OF CONTENTS

APPENDICES

REFERENCE DOCUMENTS (NOT ATTACHED)
CDs: SFSFO01158A_ZD_20220317094453
RFDS: RFDS-SFSFO01158A-PRELIMINARY-20220202-v.4_20220202164743

EXECUTIVE SUMMARY

Purpose of Report

EnviroBusiness Inc. (dba EBI Consulting) has been contracted by Dish Wireless to conduct radio frequency electromagnetic (RF-EME) modeling for Dish Wireless Site SFSFO01158A located at 1300 Commerce St in Petaluma, California to determine RF-EME exposure levels from proposed Dish Wireless communications equipment at this site. As described in greater detail in Appendix C of this report, the Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for the general public and for occupational activities. This report summarizes the results of RF-EME modeling in relation to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields.

Statement of Compliance

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

As presented in the sections below, based on worst-case predictive modeling, the worst-case emitted power density may exceed the FCC's general public limit within approximately 34 feet of DISH's proposed antennas at the main roof level. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 12 feet of DISH's proposed antennas at the main roof level.

At the nearest walking/working surfaces to the Dish Wireless antennas, the maximum power density generated by the DISH antennas is approximately **1,440.82** percent of the FCC's general public limit (**288.16** percent of the FCC's occupational limit).

The maximum composite exposure level from all carriers on this site is approximately **1,440.88** percent of the FCC's general public limit (**288.18** percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

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

1.0 INTRODUCTION

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

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

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

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

2.0 SITE DESCRIPTION

This project site includes the following proposed wireless telecommunication antennas on a rooftop located at 1300 Commerce St in Petaluma, California.

Ant #	Operator	Antenna Make	Antenna Model	Frequency (MHz)	Azimuth (deg.)	Mechanical Downtilt (deg.)	Horizontal Beamwidth (Degrees)	Aperture (feet)	Total Power Input (Watts)	Gain (dBd)*	Total ERP (Watts)	Total EIRP (Watts)
1	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 600	600	10	0	71	6.0	120	19.25	8998.73	14757.92
1	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 1900	1900	10	0	63	6.0	160	24.05	36234.31	59424.27
1	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 2100	2100	10	0	66	6.0	160	24.05	36234.31	59424.27
2	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 600	600	130	0	71	6.0	120	19.25	8998.73	14757.92
2	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 1900	1900	130	0	63	6.0	160	24.05	36234.31	59424.27
2	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 2100	2100	130	0	66	6.0	160	24.05	36234.31	59424.27
3	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 600	600	250	0	71	6.0	120	19.25	8998.73	14757.92
3	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 1900	1900	250	0	63	6.0	160	24.05	36234.31	59424.27
3	Dish	CELLMAX	CMA-UBTULBULBHH-6516-16-21-21 02DT 2100	2100	250	0	66	6.0	160	24.05	36234.31	59424.27
4	Unknown	GENERIC	PANEL 4FT 00DT 850	850	10	0	61	4.0	100	11.52	1419.06	2327.25
5	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	10	0	65	4.0	100	14.65	2917.43	4784.58
6	Unknown	GENERIC	PANEL 4FT 00DT 850	850	10	0	61	4.0	100	11.52	1419.06	2327.25
7	Unknown	GENERIC	PANEL 4FT 00DT 850	850	130	0	61	4.0	100	11.52	1419.06	2327.25
8	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	130	0	65	4.0	100	14.65	2917.43	4784.58
9	Unknown	GENERIC	PANEL 4FT 00DT 850	850	130	0	61	4.0	100	11.52	1419.06	2327.25
10	Unknown	GENERIC	PANEL 4FT 00DT 850	850	250	0	61	4.0	100	11.52	1419.06	2327.25
11	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	250	0	65	4.0	100	14.65	2917.43	4784.58

Ant #	Operator	Antenna Make	Antenna Model	Frequency (MHz)	Azimuth (deg.)	Mechanical Downtilt (deg.)	Horizontal Beamwidth (Degrees)	Aperture (feet)	Total Power Input (Watts)	Gain (dBd)*	Total ERP (Watts)	Total EIRP (Watts)
12	Unknown	GENERIC	PANEL 4FT 00DT 850	850	250	0	61	4.0	100	11.52	1419.06	2327.25
13	Unknown	GENERIC	PANEL 4FT 00DT 850	850	130	0	61	4.0	100	11.52	1419.06	2327.25
14	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	130	0	65	4.0	100	14.65	2917.43	4784.58
15	Unknown	GENERIC	PANEL 4FT 00DT 850	850	130	0	61	4.0	100	11.52	1419.06	2327.25
16	Unknown	GENERIC	PANEL 4FT 00DT 850	850	250	0	61	4.0	100	11.52	1419.06	2327.25
17	Unknown	GENERIC	PANEL 4FT 00DT 1900	1900	250	0	65	4.0	100	14.65	2917.43	4784.58
18	Unknown	GENERIC	PANEL 4FT 00DT 850	850	250	0	61	4.0	100	11.52	1419.06	2327.25

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

Ant #	NAME	X	Y	Antenna Radiation Centerline	Z-Height Top Of Screens	Z-Height Main Roof	Z-Height Lower Roof	Z-Height Ground
1	Dish	88.0	72.0	42.0	-1.0	9.0	17.0	42.0
2	Dish	152.0	52.0	42.0	-1.0	9.0	17.0	42.0
3	Dish	57.5	6.5	42.0	-1.0	9.0	17.0	42.0
4	Unknown	148.4	30.2	42.0	-1.0	9.0	17.0	42.0
5	Unknown	152.0	27.6	42.0	-1.0	9.0	17.0	42.0
6	Unknown	154.9	25.5	42.0	-1.0	9.0	17.0	42.0
7	Unknown	181.1	0.7	42.0	-1.0	9.0	17.0	42.0
8	Unknown	177.8	2.9	42.0	-1.0	9.0	17.0	42.0
9	Unknown	175.3	6.9	42.0	-1.0	9.0	17.0	42.0
10	Unknown	24.0	33.5	42.0	-1.0	9.0	17.0	42.0
11	Unknown	26.5	36.0	42.0	-1.0	9.0	17.0	42.0
12	Unknown	29.1	40.0	42.0	-1.0	9.0	17.0	42.0
13	Unknown	173.1	29.8	42.0	-1.0	9.0	17.0	42.0
14	Unknown	170.5	33.8	42.0	-1.0	9.0	17.0	42.0
15	Unknown	168.0	37.8	42.0	-1.0	9.0	17.0	42.0
16	Unknown	39.3	66.9	42.0	-1.0	9.0	17.0	42.0
17	Unknown	41.8	70.2	42.0	-1.0	9.0	17.0	42.0
18	Unknown	44.4	74.5	42.0	-1.0	9.0	17.0	42.0

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

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

3.0 WORST-CASE PREDICTIVE MODELING

EBI has performed theoretical MPE modeling using RoofMaster™ software to estimate the worst-case power density at the site's nearby broadcast levels resulting from operation of the antennas. RoofMaster™

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

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

There are other carriers that also have antennas on the rooftop. Information about these antennas was included in the modeling analysis.

Based on worst-case predictive modeling, the worst-case emitted power density may exceed the FCC's general public limit within approximately 12 feet of Dish Wireless's Sector B antennas on the main roof level and 12 feet of Dish Wireless's Sector C antennas on the main rooftop level. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 34 feet of Dish Wireless's Sector B antennas on the main rooftop level. At the nearest walking/working surfaces to the Dish Wireless antennas, the maximum power density generated by the Dish Wireless antennas is approximately 1,440.82 percent of the FCC's general public limit (288.16 percent of the FCC's occupational limit). The maximum composite exposure level from all carriers on this site is approximately 1,440.88 percent of the FCC's general public limit (288.18 percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

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

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

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

4.0 MITIGATION/SITE CONTROL OPTIONS

EBI's modeling indicates that there are areas in front of the Dish Wireless antennas that exceed the FCC standards for general public exposure. Modeling also indicates that the worst-case emitted power density does not exceed the FCC's occupational limit in front of the Dish Wireless antennas. In order to alert people accessing the rooftop, a Guidelines sign and an NOC Information sign are recommended for installation at each access point to the rooftop. Additionally, yellow caution signs are recommended for installation on the barrier in front of the Dish Wireless antennas. Yellow caution signs are recommended for installation behind each Dish Wireless antenna. These signs must be placed in a conspicuous manner so that they are visible to any person approaching the barrier from any direction.

Barriers are recommended for installation when possible to block access to the areas in front of the antennas that exceed the FCC general public and/or occupational limits. Barriers may consist of rope, chain, or fencing. Painted stripes should only be used as a last resort. Barriers are recommended 6 feet in front of the Dish Wireless antennas. At sector C, there should be an 8.5ft x 16ft barrier around the sector, and at sector A, there should be an 8ft barrier blocking pedestrians and workers from the exceedances on the surface.

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

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

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

5.0 SUMMARY AND CONCLUSIONS

EBI has prepared a Radiofrequency – Electromagnetic Energy (RF-EME) Compliance Report for telecommunications equipment installed by Dish Wireless Site Number SFSFO01158A located at 1300 Commerce St in Petaluma, California to determine worst-case predicted RF-EME exposure levels from wireless communications equipment installed at this site. This report summarizes the results of RF-EME modeling in relation to relevant Federal Communications Commission (FCC) RF-EME compliance standards for limiting human exposure to RF-EME fields.

As presented in the sections above, based on the FCC criteria, the worst-case emitted power density may exceed the FCC's general public limit within approximately 34 feet of Dish Wireless's proposed antennas at the main roof level. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 12 feet of Dish Wireless's proposed antennas at the main roof level.

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

6.0 LIMITATIONS

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

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

THE CBR GROUP
2840 HOWE ROAD, SUITE E
MARTINEZ, CA 94553
www.TheCBRGroup.com

DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

RFDS REV #: 02/02/2022 REV 4

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE
EME REPORT
(PAGES 1-8)

SHEET NUMBER
T-2

Appendix A

Certifications

Preparer Certification

I, Andy Crum, state that:

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

Reviewed and Approved by:

sealed 11apr2022

Michael McGuire
Electrical Engineer
mike@h2dc.com

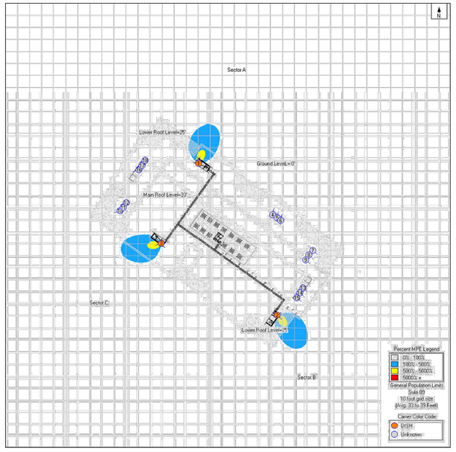
Note that EBI's scope of work is limited to an evaluation of the Radio Frequency – Electromagnetic Energy (RF-EME) field generated by the antennas and broadcast equipment noted in this report. The engineering and design of the building and related structures, as well as the impact of the antennas and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

Appendix B

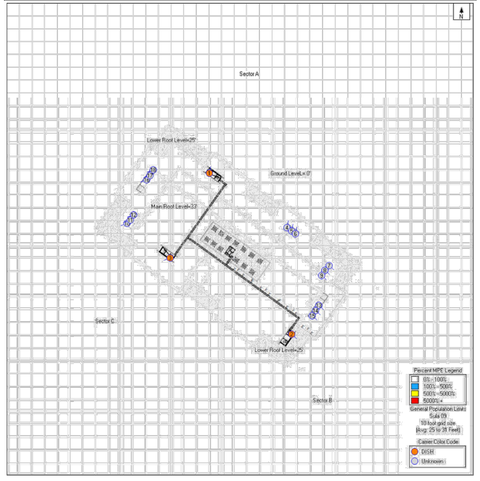
Radio Frequency Electromagnetic Energy

Safety Information and Signage Plans

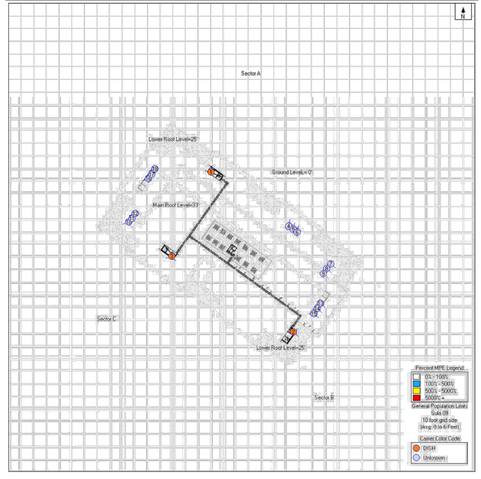
Nearest Walking Surface (Main Roof Level) Simulation



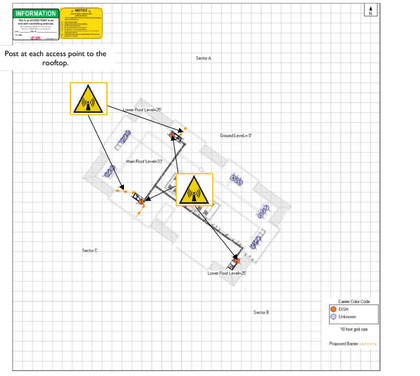
Lower Roof Level Simulation



Ground Level Simulation



Dish Wireless Safety (Signage) Plan



Sign	Posting Instructions	Required Signage / Mitigation
INFORMATION	**NOC Information** Information signs are used to provide contact information for any questions or concerns for personnel accessing the site.	Securely post at the main rooftop access door and every point of access to the site in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.
NOTICE	**Guidelines** Informational sign used to notify workers that there are active antennas installed and provide guidelines for working in RF environments.	Securely post at the main rooftop access door and every point of access to the site in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.
	Notice Used to notify individuals they are entering an area where the power density emitted from transmitting antennas may exceed the FCC's MPE limit for the general public or occupational exposures.	Post every 8ft on the barriers
CAUTION	**Caution** Used to notify individuals that they are entering a hot spot where either the general public or occupational FCC's MPE limit is or could be exceeded.	Post behind each Dish Wireless antenna and every 8ft on the barriers
WARNING	**Warning** Used to notify individuals that they are entering a hot zone where the occupational FCC's MPE limit has been exceeded by 10x.	N/A

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DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

RFDS REV #: 02/02/2022 REV 4

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	02/10/2022	90% CD'S ISSUED FOR REVIEW
B	04/19/2022	100% CONSTRUCTION DRAWINGS
C	08/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER

SFSF001158A

DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

EME REPORT
(PAGES 9–16)

SHEET NUMBER

T-3

Appendix C

Federal Communications Commission (FCC) Requirements

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

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

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

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

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

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

Table 1: Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	$(900/f^2)$*	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	$(1800/f^2)$*	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

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

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

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

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

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

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

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

FCC Compliance Requirement

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

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JG/WM	---	---

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DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

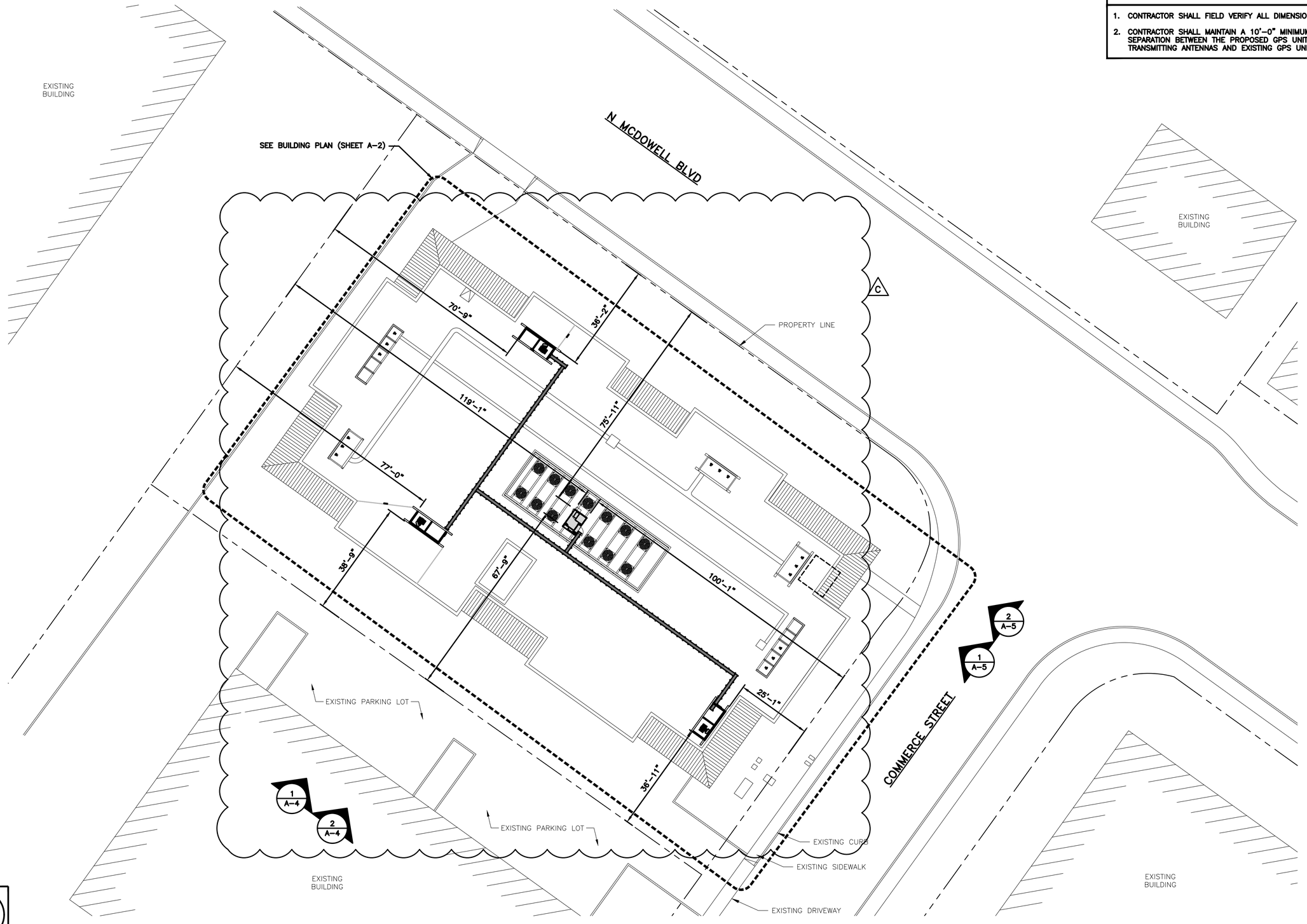
EME REPORT
(PAGES 17–20)

SHEET NUMBER

T-4

NOTES

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



OVERALL SITE PLAN

16' 12' 8' 4' 0 16' 32'

1/16"=1'-0"

1

DISH Wireless L.L.C. TEMPLATE VERSION 45 – 10/29/2021

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STATE OF CALIFORNIA

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SHEET TITLE

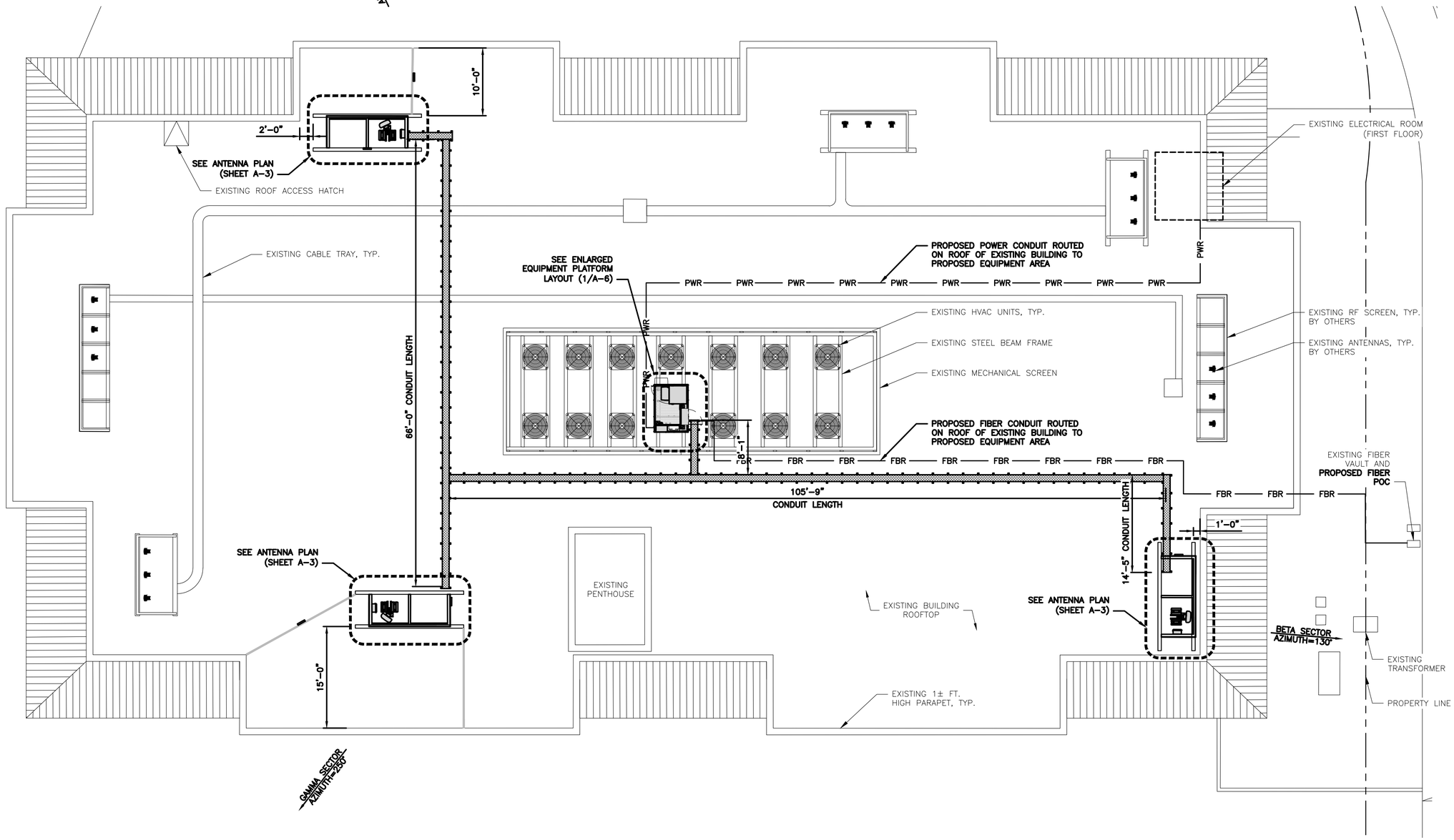
OVERALL SITE PLAN

SHEET NUMBER

A-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. CONTRACTOR TO VERIFY WITH DISH Wireless L.L.C. C.M. THE LOCATION OF THE POWER AND FIBER SOURCE PRIOR TO CONSTRICTION.
4. UTILITY RUBBER MAT TO BE IN STALLED UNDER ALL DISH Wireless L.L.C. EQUIPMENT THAT IS RESTING ON OR AFFIXED TO ROOF MEMBRANE



ENLARGED BUILDING PLAN

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

1

DISH Wireless L.L.C. TEMPLATE VERSION 45 – 10/29/2021

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PROJECT INFORMATION

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1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

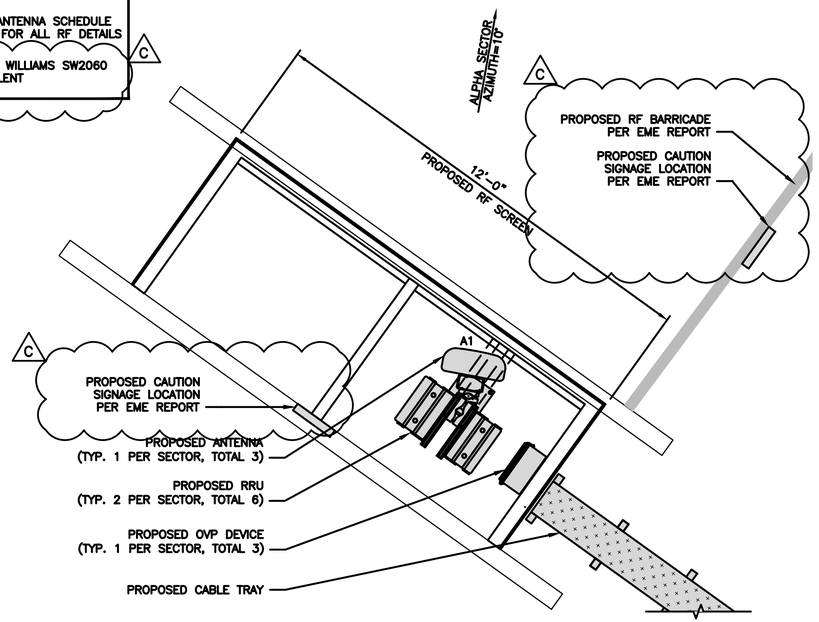
ENLARGED BUILDING PLAN

SHEET NUMBER

A-2

NOTES

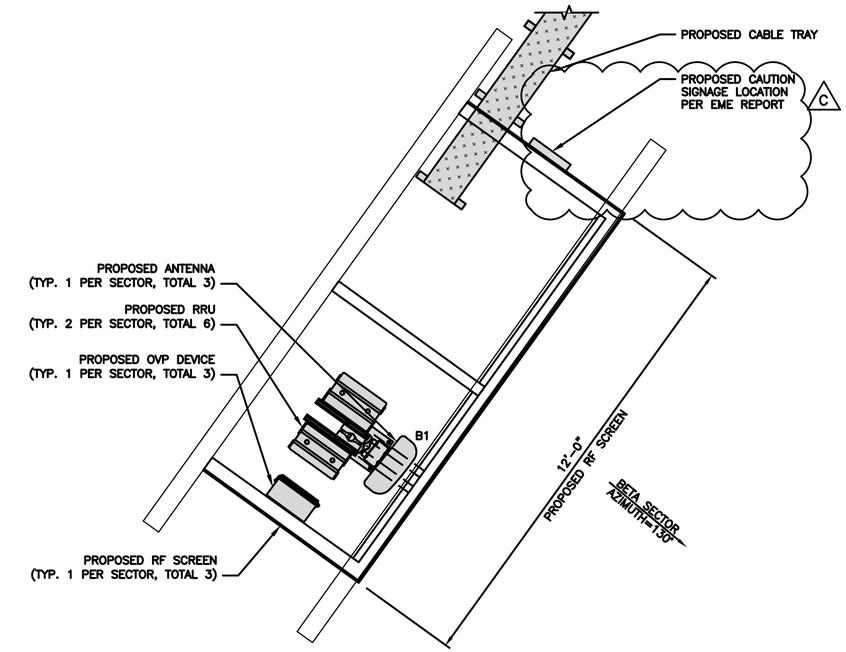
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. RF SCREEN TO BE PAINTED SHERWIN WILLIAMS SW2060 CASA BLANCA OR APPROVED EQUIVALENT



ANTENNA PLAN – ALPHA SECTOR

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

1



ANTENNA PLAN – BETA SECTOR

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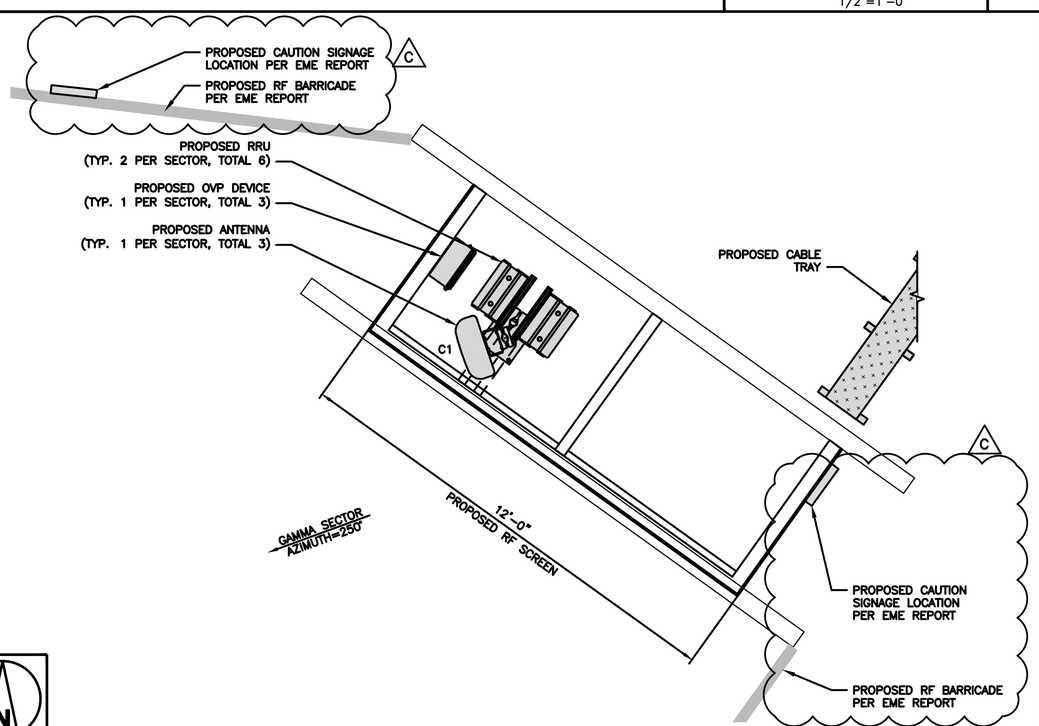
1/2"=1'-0"

2



ANTENNA PLAN – GAMMA SECTOR

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

3

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxWxD)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	CELLMAX – CX12044x	5G	72.4"X26.7"X7.7"	10°	42'-0"	(1) POWER AND FIBER TRUNK (105'± LONG)
BETA	B1	PROPOSED	CELLMAX – CX12044x	5G	72.4"X26.7"X7.7"	130°	42'-0"	(1) POWER AND FIBER TRUNK (100'± LONG)
GAMMA	C1	PROPOSED	CELLMAX – CX12044x	5G	72.4"X26.7"X7.7"	250°	42'-0"	(1) POWER AND FIBER TRUNK (75'± LONG)

SECTOR	POSITION	RRH		
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxWxD)
ALPHA	A1	MTI – G060708–50–02	n71	16.93"x13.89"x11.1"
		MTI – G2021–49–02B	n70 | n66	16.93"x13.89"x9.84"
BETA	B1	MTI – G060708–50–02	n71	16.93"x13.89"x11.1"
		MTI – G2021–49–02B	n70 | n66	16.93"x13.89"x9.84"
GAMMA	C1	MTI – G060708–50–02	n71	16.93"x13.89"x11.1"
		MTI – G2021–49–02B	n70 | n66	16.93"x13.89"x9.84"

NOTES

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

ANTENNA SCHEDULE

NO SCALE

4

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DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

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DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

ANTENNA PLAN,
RRU PLAN AND SCHEDULE

SHEET NUMBER

A-3

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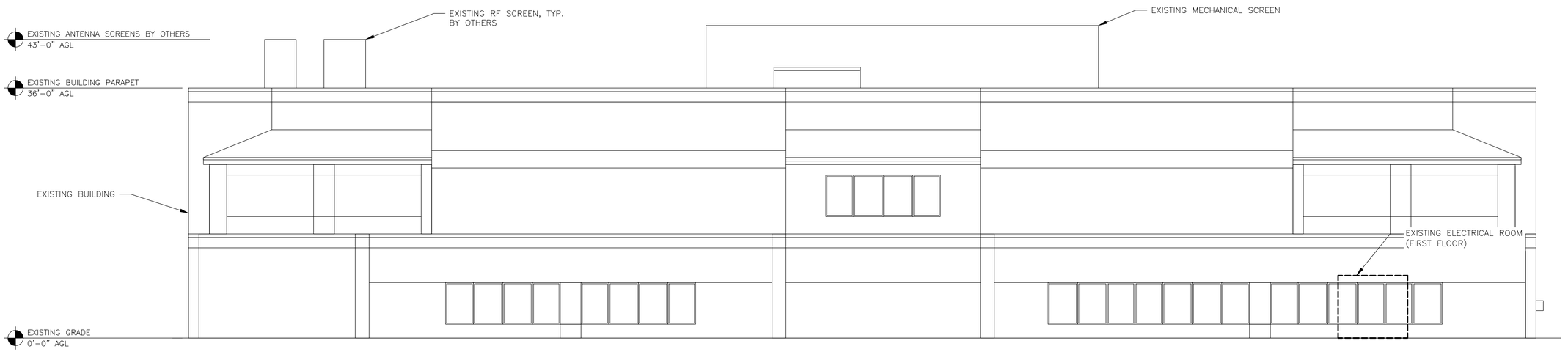

EXISTING SOUTHWEST ELEVATION

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

1

NOTES

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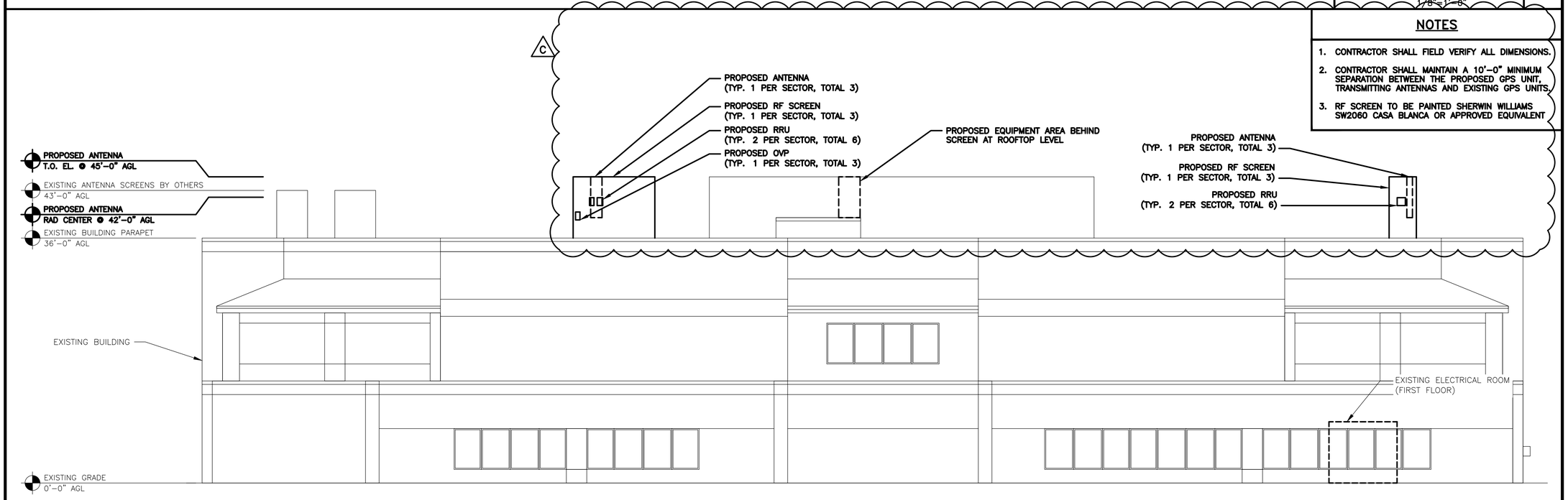
3. RF SCREEN TO BE PAINTED SHERWIN WILLIAMS SW2060 CASA BLANCA OR APPROVED EQUIVALENT



PROPOSED SOUTHWEST ELEVATION

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

2

dish wireless.

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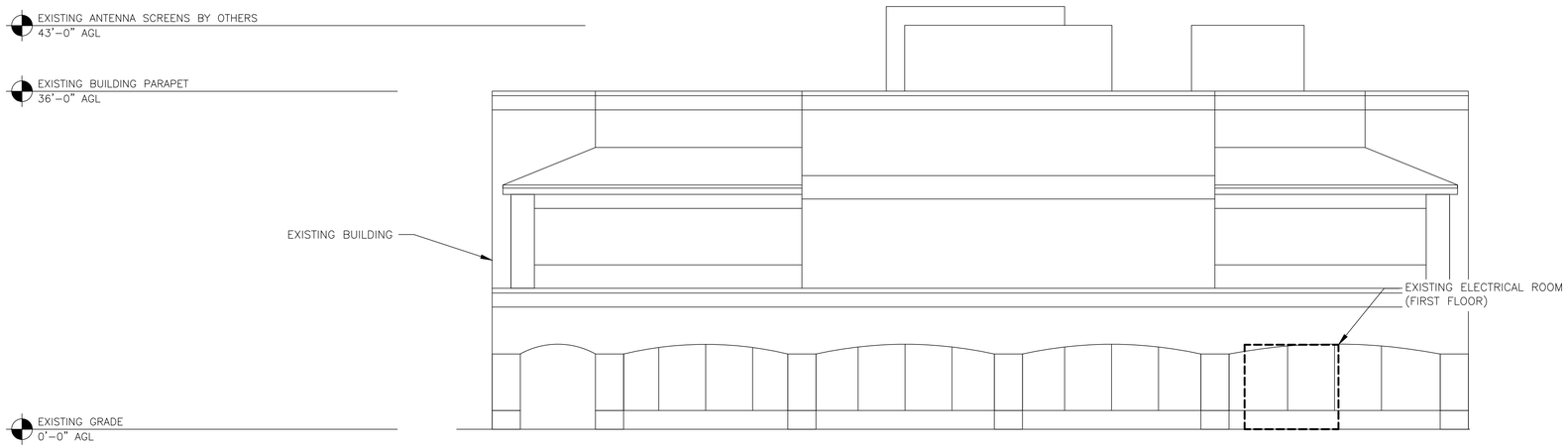
EXISTING AND PROPOSED SOUTHWEST ELEVATIONS

SHEET NUMBER

A-4



EXISTING SOUTHEAST ELEVATION

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

1

NOTES

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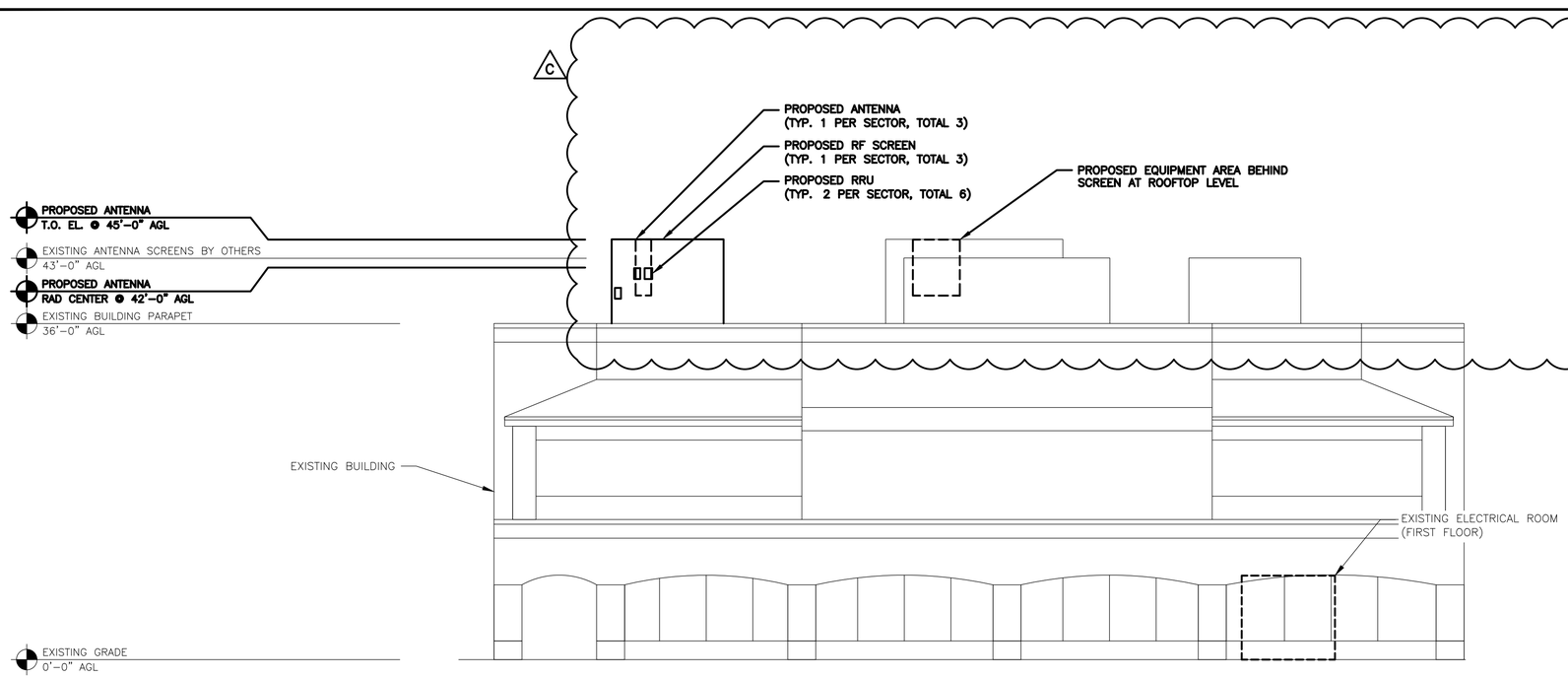

PROPOSED SOUTHEAST ELEVATION

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

2

NOTES

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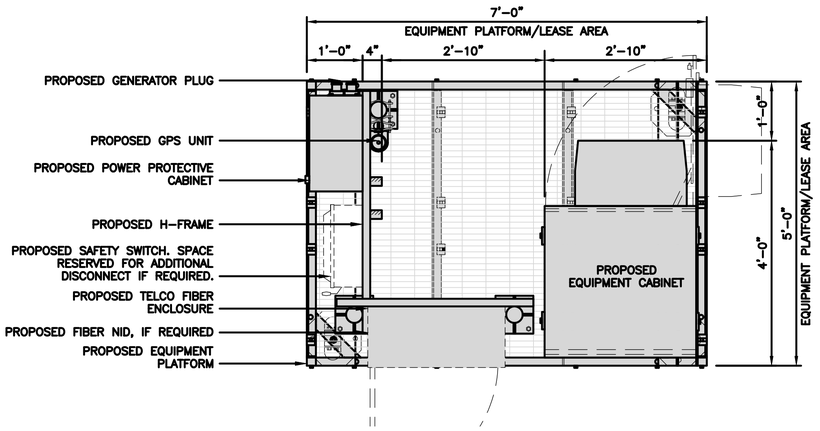
PETALUMA, CA 94954

SHEET TITLE

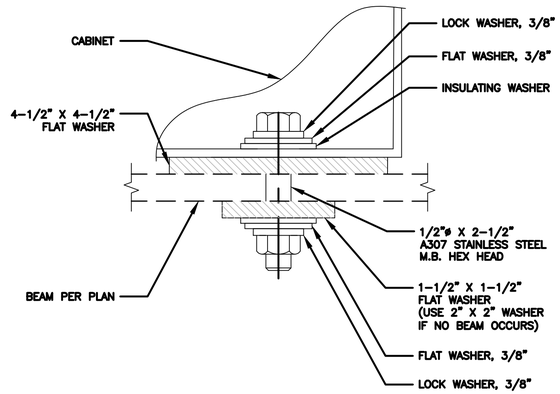
EXISTING AND PROPOSED SOUTHEAST ELEVATIONS

SHEET NUMBER

A-5



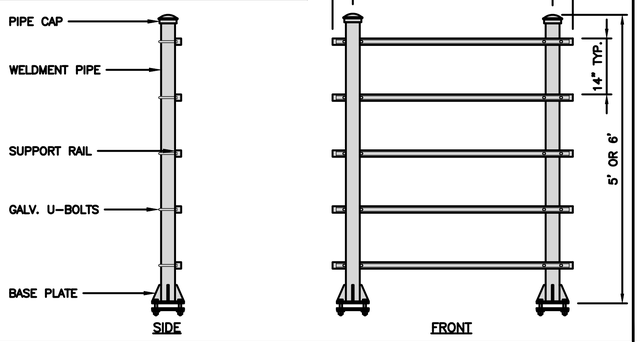
PLATFORM EQUIPMENT PLAN | 12" 6" 0 1' 2' 3" 3/4"=1'-0" | 1



CABINET ANCHORAGE DETAIL | NO SCALE | 2

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

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



H-FRAME DETAIL | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | 12" 9" 6" 3" 0 1' 2' 1"=1'-0" | 5

DISH Wireless L.L.C. TEMPLATE VERSION 45 – 10/29/2021

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THE CBR GROUP
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REGISTERED PROFESSIONAL ENGINEER
NASIB PANDEY
No. C-93821
CIVIL
STATE OF CALIFORNIA

DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

RFDS REV #: 02/02/2022 REV 4

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	02/10/2022	90% CD'S ISSUED FOR REVIEW
B	04/19/2022	100% CONSTRUCTION DRAWINGS
C	08/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER

SFSF001158A

DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

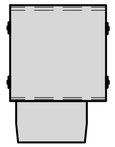
SHEET TITLE

EQUIPMENT PLATFORM AND H-FRAME DETAILS

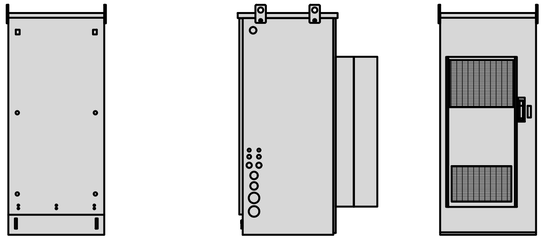
SHEET NUMBER

A-6

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



PLAN

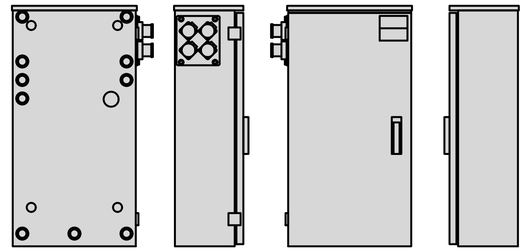


BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

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

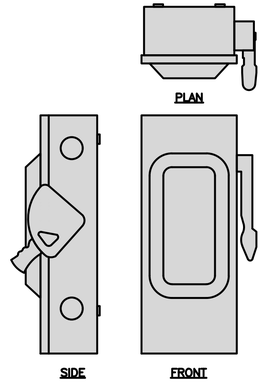
TOP



BACK SIDE FRONT SIDE

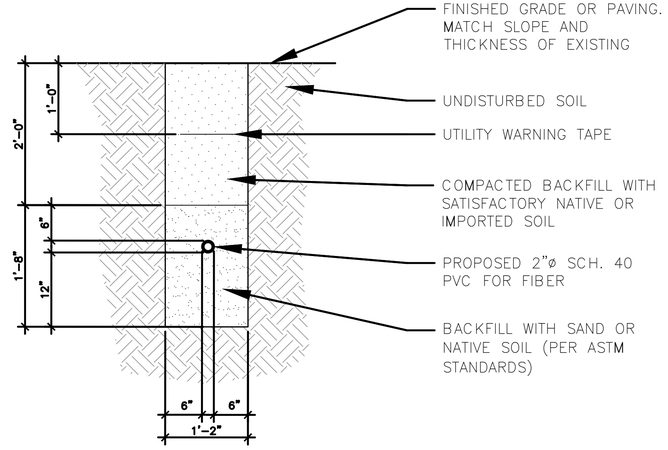
CABINET DETAIL | NO SCALE | 2

SQUARE D H363 HEAVY DUTY SAFETY SWITCH	
DIMENSIONS (HxWxD)	21.25"x10.25"x6.38"
WEIGHT	19.84 lbs
PRODUCT	SINGLE THROW
DEVICE APPLICATION	HEAVY APPLICATION
DISCONNECT TYPE	FUSIBLE DISCONNECT
FACTORY INSTALLED NEUTRAL	NONE
PHASE	3 PHASE
NUMBER OF POLES	3
CURRENT RATING	100A
VOLTAGE RATING	600 V AC/DC
ENCLOSURE RATING	NEMA 1 STEEL



PLAN SIDE FRONT

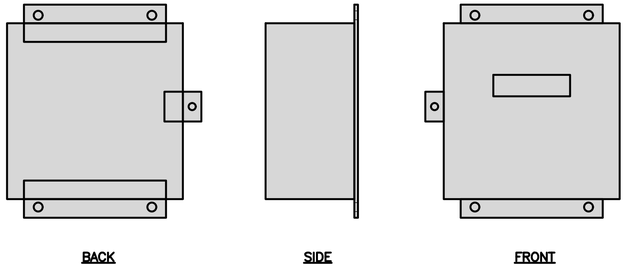
SAFETY SWITCH DETAIL | NO SCALE | 3



TRENCHING DETAIL | NO SCALE | 4

LEVITON 1N240–2D SUBMETER	
WIRE	3
AMPS	200
VOLTS AC	120, 208, 240
PHASE	1

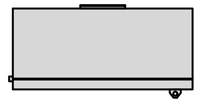
PLAN



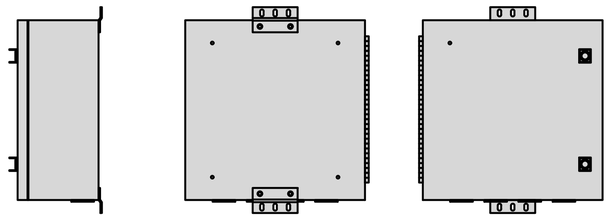
BACK SIDE FRONT

SUBMETER DETAIL | NO SCALE | 5

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



FRONT

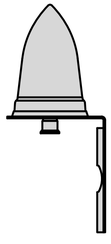


SIDE BACK FRONT

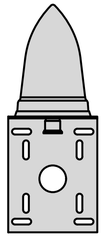
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

TOP

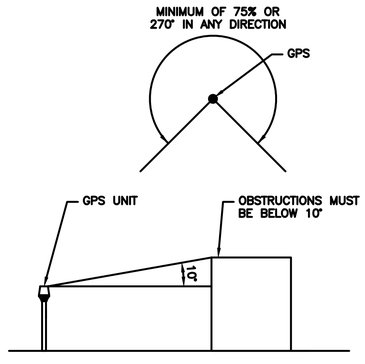


BACK

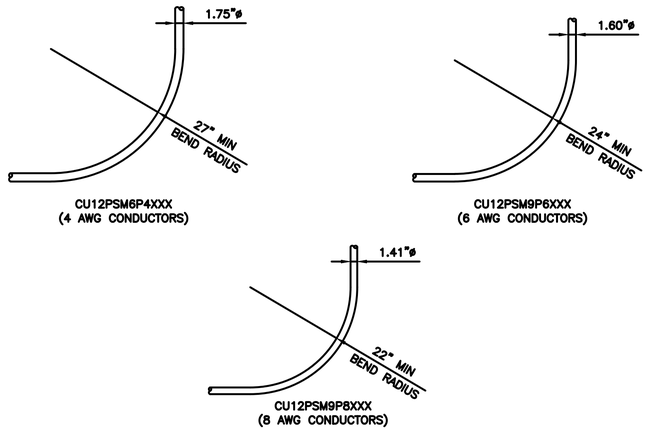


SIDE

GPS DETAIL | NO SCALE | 7



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 8



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 9

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DISH Wireless L.L.C.
PROJECT INFORMATION

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PETALUMA, CA 94954

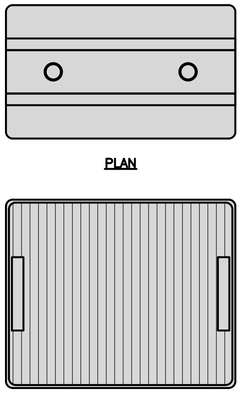
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

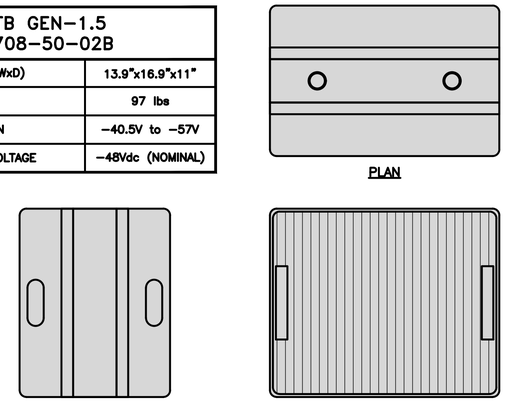
A-7

MTI DB GEN-1.5 G2021-49-02B	
DIMENSIONS (HxWxD)	13.9"x16.9"x9.8"
WEIGHT	86 lbs
DC POWER IN	-40.5V to -57V
POWER SUPPLY VOLTAGE	-48Vdc (NOMINAL)



RRH DETAIL | NO SCALE | 1

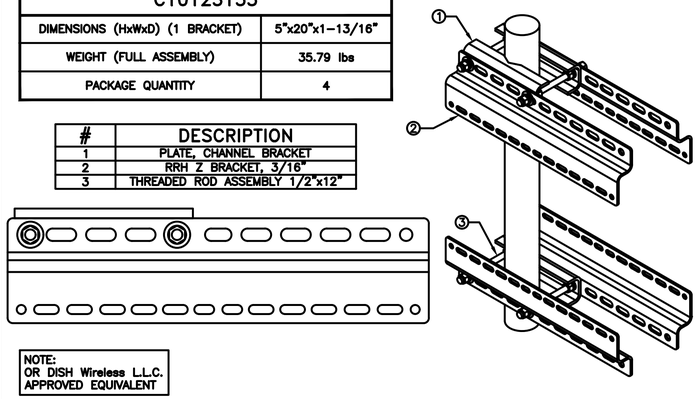
MTI TB GEN-1.5 G060708-50-02B	
DIMENSIONS (HxWxD)	13.9"x16.9"x11"
WEIGHT	97 lbs
DC POWER IN	-40.5V to -57V
POWER SUPPLY VOLTAGE	-48Vdc (NOMINAL)



RRH DETAIL | NO SCALE | 2

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

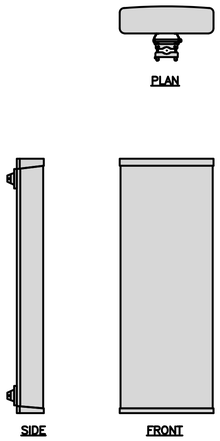
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

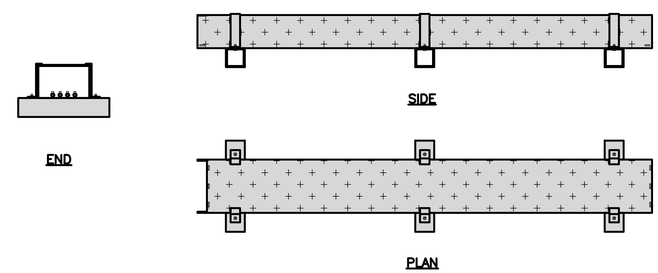
RRH MOUNT DETAIL | NO SCALE | 3

CELLMAX 12044x CMA-UBTULBULBHH/6516/16/21/21	
DIMENSIONS (HxWxD)(MM/IN)	1840x680x196 72.4"x26.7"x7.7"
CONNECTORS	8 x 4.3-10 FEMALE
WEIGHT (kg/lb)	48/105
WEIGHT WITH BRACKETS (kg/lb)	53/116



ANTENNA DETAIL | NO SCALE | 4

COMMSCOPE RT-CB4D ROOFTOP COVER KIT		MOUNTING	NON-PENETRATING
DIMENSIONS (HxWxL)	7"x 11.25"x 96"	INCLUDED PRODUCTS:	RTCB4D.01 CHANNEL (1)
WEIGHT/ VOLUME	85.98 LBS		MT-F1598 SLEEPERS (3)
CABLE RUN (QTY)	4		RTCUH HARDWARE
			RTHC.01 HOLD-DOWN CLAMPS (6)

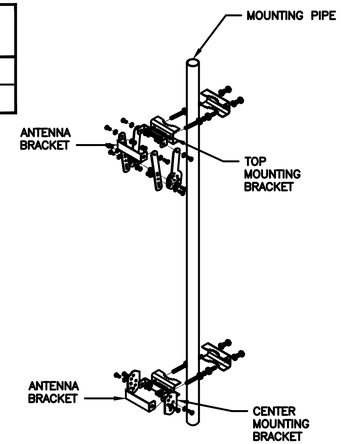


ROOFTOP CABLE TRAY DETAIL | NO SCALE | 5

CELLMAX ANTENNA MOUNT BRACKET CX12044x	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

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

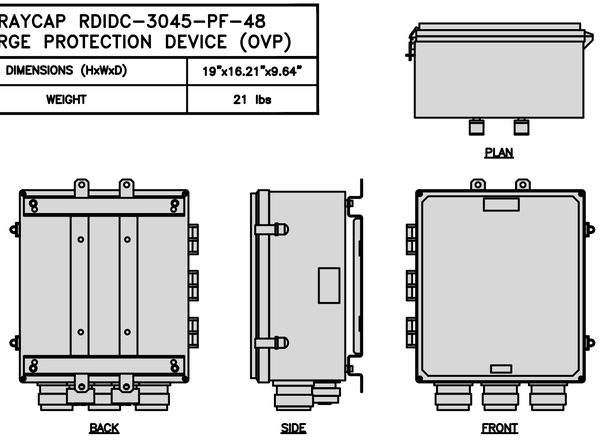
ANTENNA BRACKET NOT PART OF KIT



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

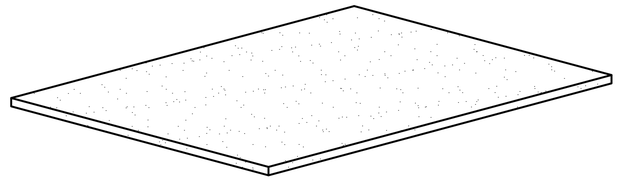
ANTENNA BRACKET DETAIL | NO SCALE | 6

RAYCAP RDIDC-3045-PF-48 SURGE PROTECTION DEVICE (OVP)	
DIMENSIONS (HxWxD)	19"x16.21"x9.64"
WEIGHT	21 lbs



SURGE PROTECTION DEVICE (OVP) DETAIL | NO SCALE | 7

UTILITY RUBBER MAT, BLACK	
DIMENSIONS	4'x 3'x 1/2"
WEIGHT/ VOLUME	36.5 LB AVERAGE
MATERIAL	100% RECYCLE RUBBER



UTILITY RUBBER MAT DETAIL | NO SCALE | 8

NO SCALE | 9

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SFSF001158A
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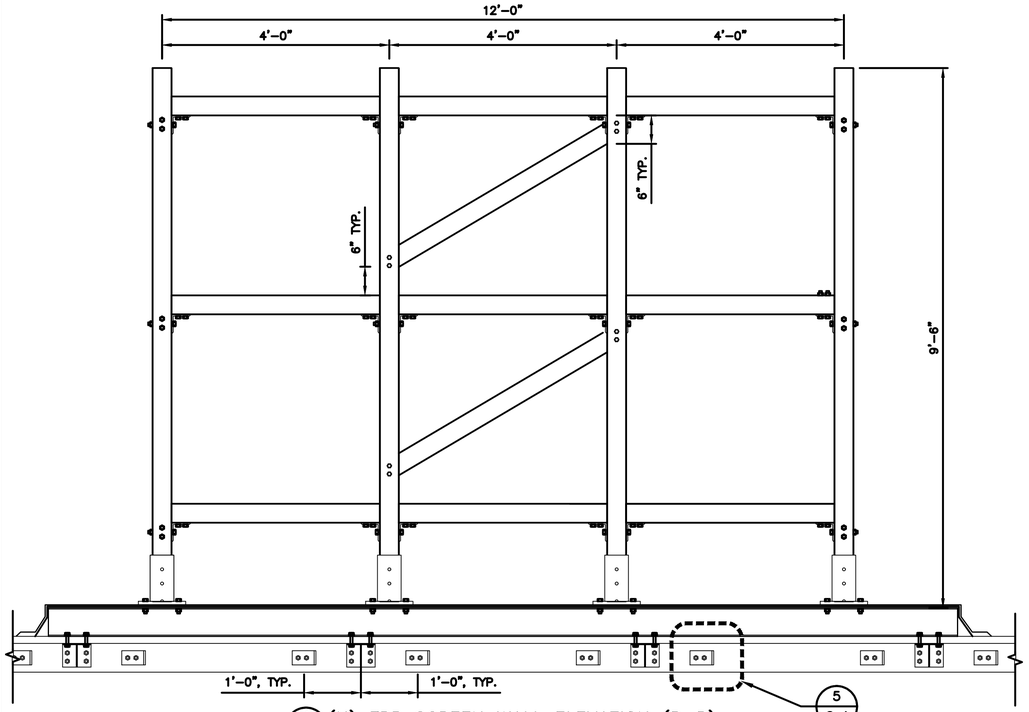
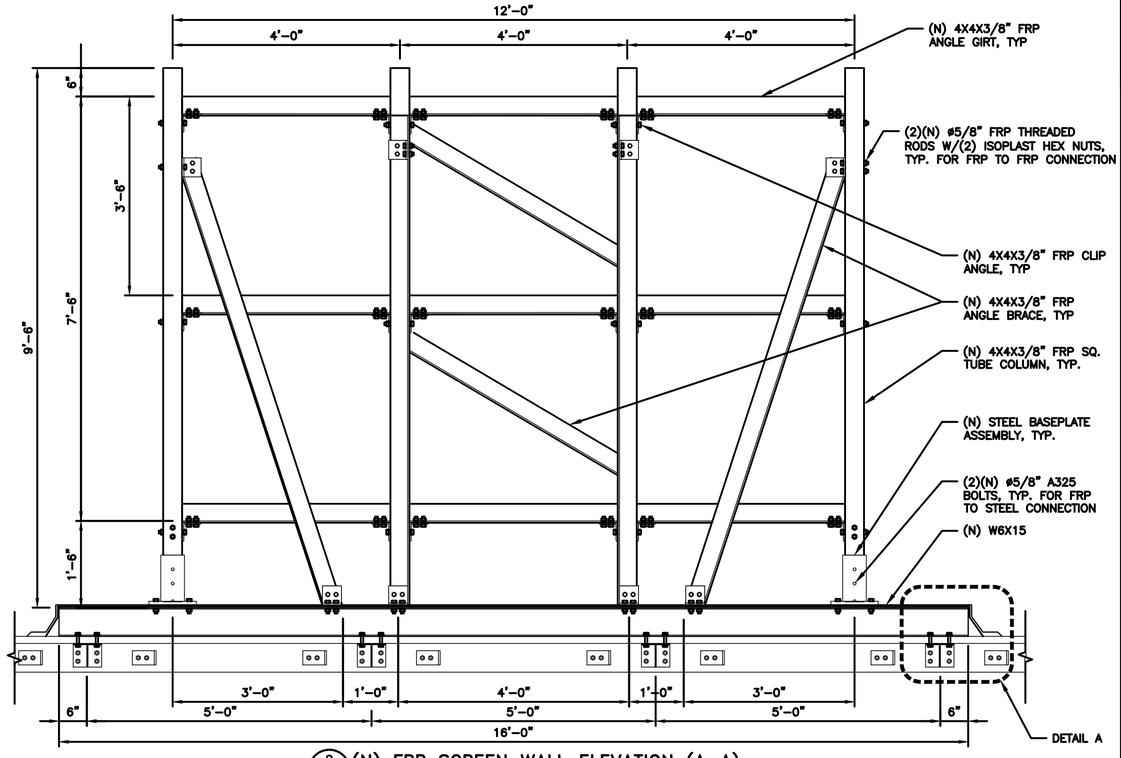
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-8

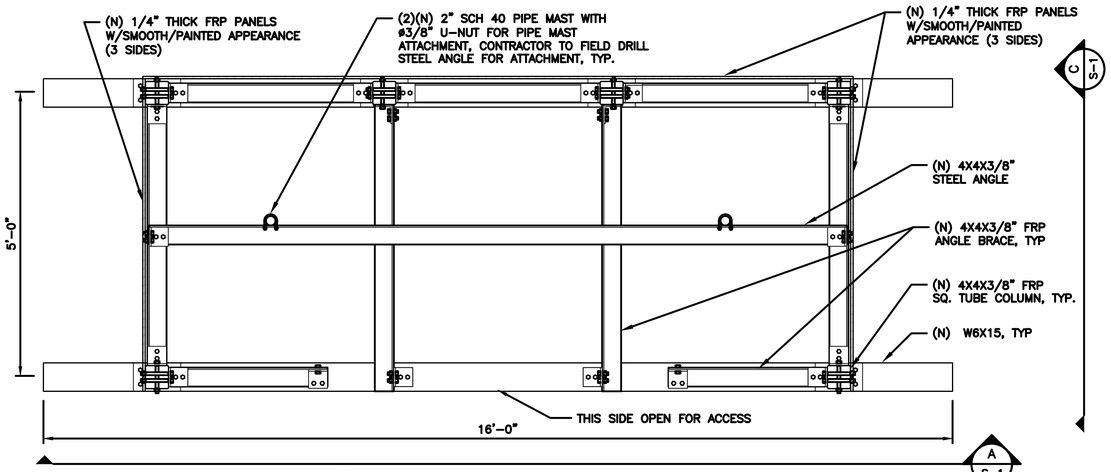


1 S-1 (N) FRP SCREEN WALL ELEVATION (B-B)
SCALE: 3/4" = 1'-0"

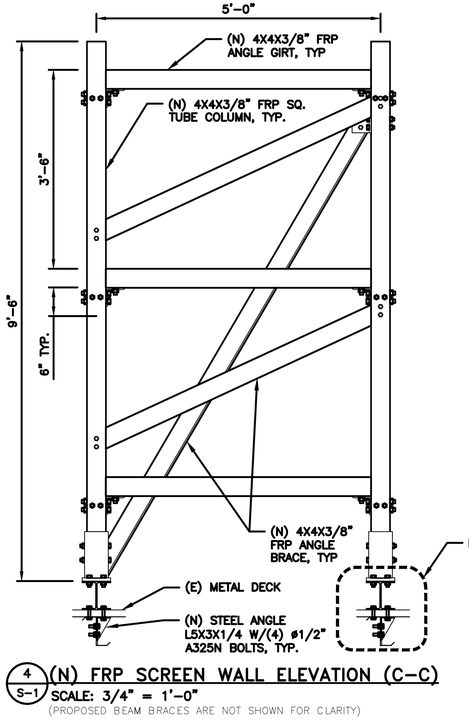


2 S-1 (N) FRP SCREEN WALL ELEVATION (A-A)
SCALE: 3/4" = 1'-0"

B S-1



3 S-1 (N) FRP SCREEN WALL PLAN
SCALE: 3/4" = 1'-0"

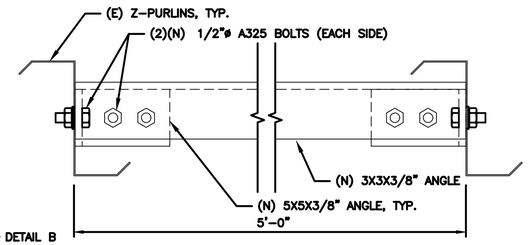


4 S-1 (N) FRP SCREEN WALL ELEVATION (C-C)
SCALE: 3/4" = 1'-0"
(PROPOSED BEAM BRACES ARE NOT SHOWN FOR CLARITY)

NOTE:
WEATHER PROOF ALL WALL & ROOF PENETRATIONS AS REQUIRED, USING SILICON SEALANT, SO AS TO PREVENT WATER PENETRATION INTO BUILDING WALLS. ALL WEATHERPROOFING SHALL BE APPROVED BY OWNER ROOFING CONTRACTOR.

PROVIDED DIMENSIONS ARE FOR REFERENCE ONLY. BEFORE ANY FABRICATION CONTRACTOR SHALL FIELD VERIFY ALL NEW MEMBER DIMENSIONS FOR FIT & POSSIBLE INTERFERENCE.

NOTE:
EXISTING BUILDING COLUMNS,BEAMS AND WALL TO BE FIELD LOCATED AND SIZE VERIFIED BY GC PRIOR TO ANY CONSTRUCTION & FABRICATION. PLEASE NOTIFY THE CBR GROUP, FOR ANY DISCREPANCY FOR A REDESIGN.



5 S-1 (N) ANGLE BRACES CONNECT TO (E) Z-PURLINS (SIDE VIEW)
SCALE: 3" = 1'-0"
(ADD NEW ANGLE BRACES TO Z-PURLINS AT 1 FT EACH SIDE OF THE POINT OF THE FRAME CONNECTION, TYP.)

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1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-1

NOTE:
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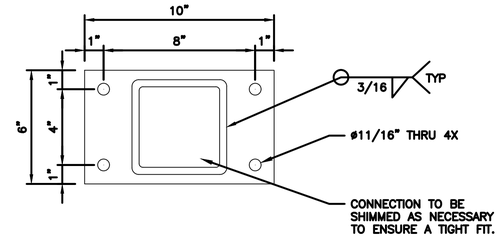
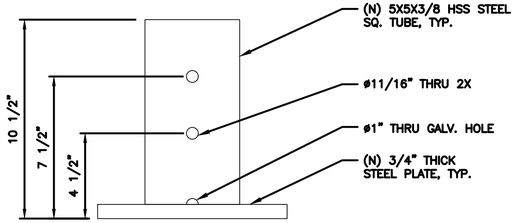
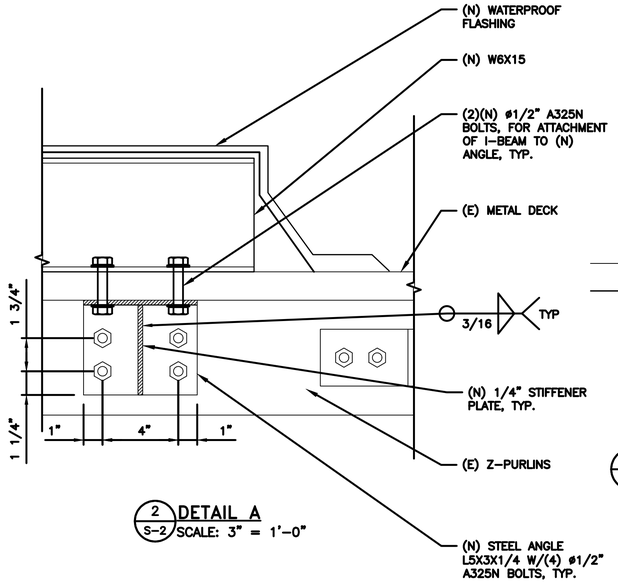
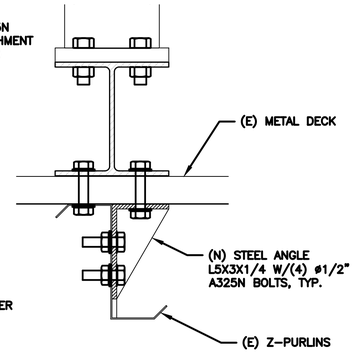




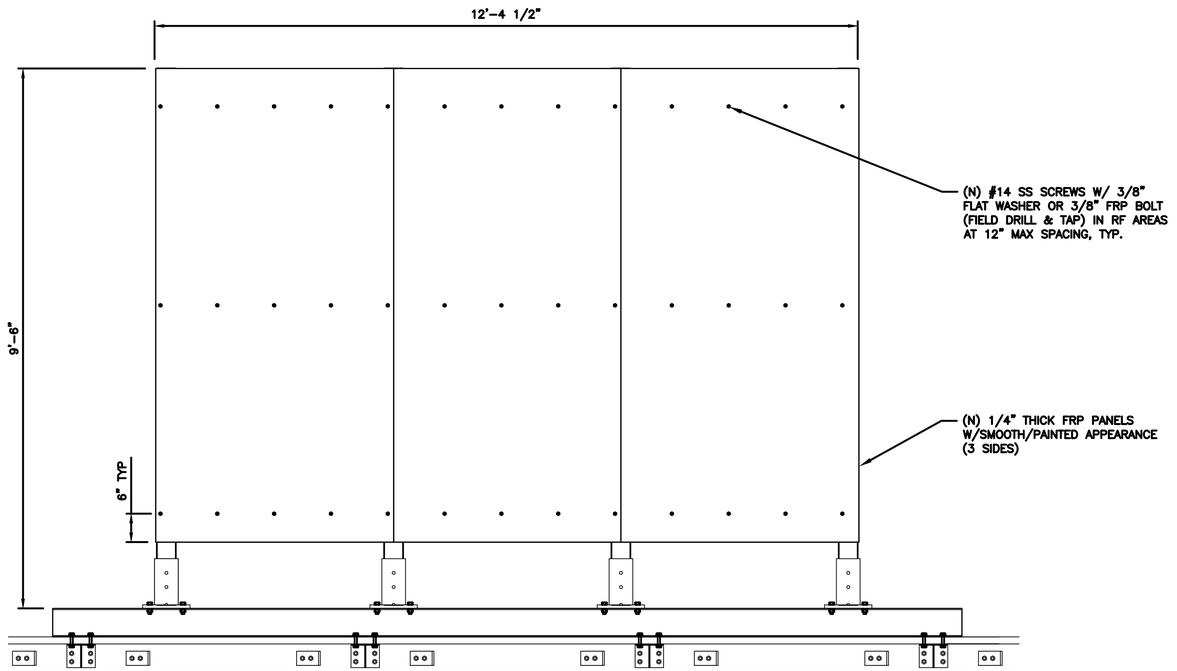
1 S-2 STEEL BASEPLATE ASSEMBLY
SCALE: 3" = 1'-0"



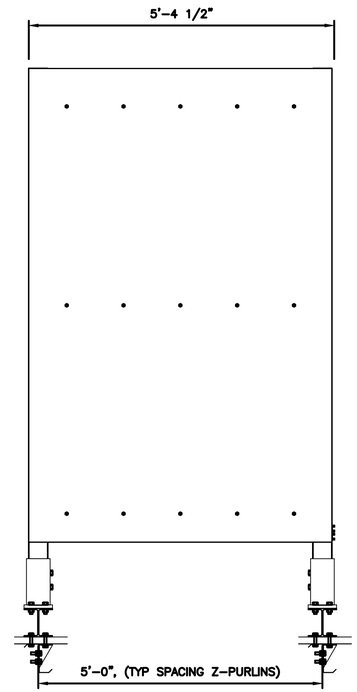
2 S-2 DETAIL A
SCALE: 3" = 1'-0"



3 S-2 DETAIL B
SCALE: 3" = 1'-0"



4 S-2 (N) FRP PANEL ELEVATION (B/S-1)
SCALE: 3/4" = 1'-0"



5 S-2 (N) FRP PANEL ELEVATION (C/S-1)
SCALE: 3/4" = 1'-0"

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CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	02/10/2022	90% CD'S ISSUED FOR REVIEW
B	04/19/2022	100% CONSTRUCTION DRAWINGS
C	08/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSF001158A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

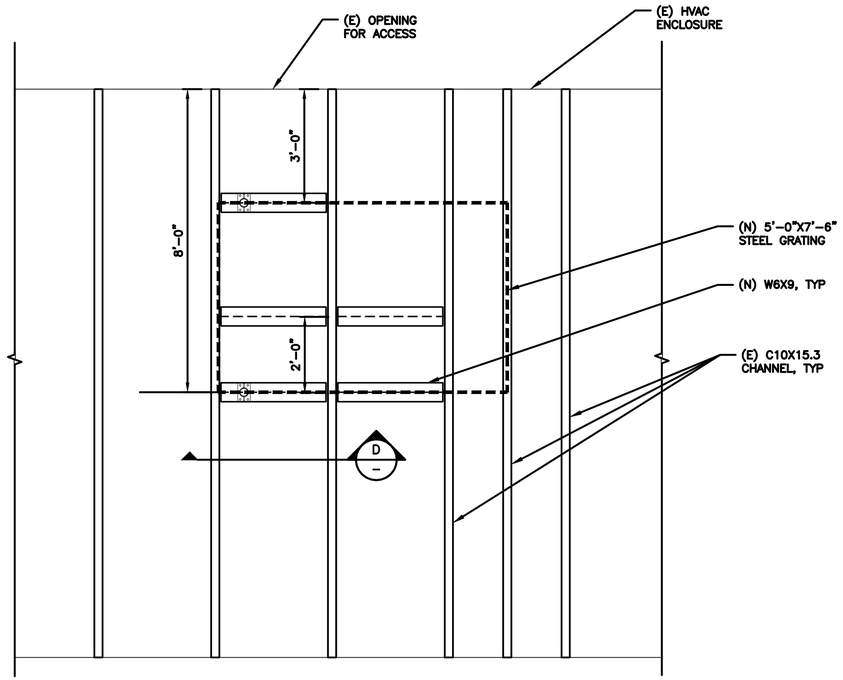
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-2

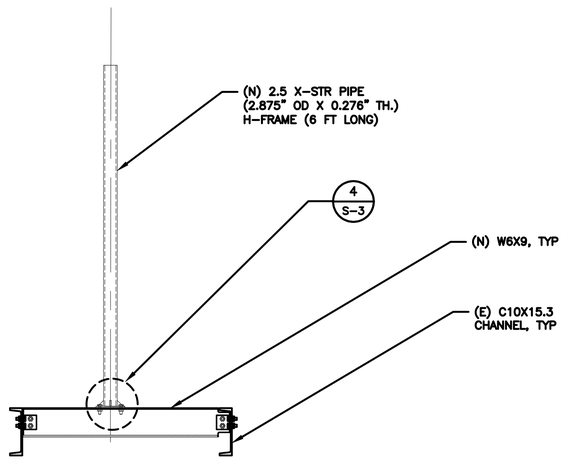
NOTE:
WEATHER PROOF ALL WALL & ROOF PENETRATIONS AS REQUIRED, USING SILICON SEALANT, SO AS TO PREVENT WATER PENETRATION INTO BUILDING WALLS. ALL WEATHERPROOFING SHALL BE APPROVED BY OWNER ROOFING CONTRACTOR.

PROVIDED DIMENSIONS ARE FOR REFERENCE ONLY. BEFORE ANY FABRICATION CONTRACTOR SHALL FIELD VERIFY ALL NEW MEMBER DIMENSIONS FOR FIT & POSSIBLE INTERFERENCE

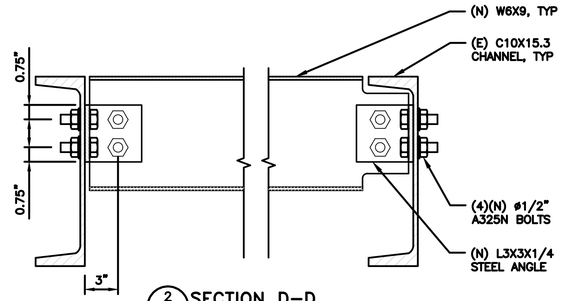
NOTE:
EXISTING BUILDING COLUMNS,BEAMS AND WALL TO BE FIELD LOCATED AND SIZE VERIFIED BY GC PRIOR TO ANY CONSTRUCTION & FABRICATION. PLEASE NOTIFY THE CBR GROUP, FOR ANY DISCREPANCY FOR A REDESIGN.



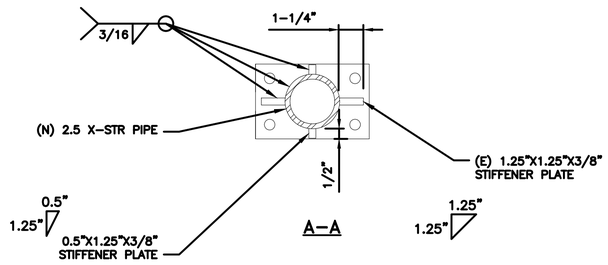
1 S-3 EQUIPMENT PLATFORM PLAN
SCALE: 1/2" = 1'-0"



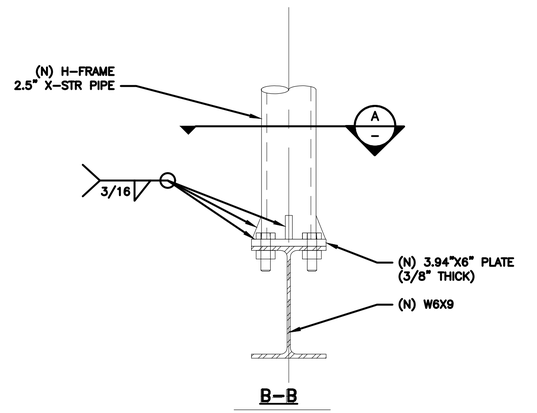
3 S-3 EQUIPMENT PLATFORM ELEVATION VIEW
SCALE: 3/4" = 1'-0"



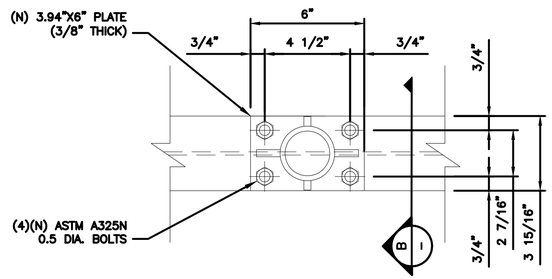
2 S-3 SECTION D-D
SCALE: 3" = 1'-0"



A-A



B-B



4 S-3 H-FRAME PIPE CONNECTION DETAILS
SCALE: 3" = 1'-0"

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

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REGISTERED PROFESSIONAL ENGINEER
NASIB PANDEY
No. C-93621
CIVIL
STATE OF CALIFORNIA

DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

RFDS REV #: 02/02/2022 REV 4

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S-3

DESIGN NOTES

- SS: 1.559
- S1: 0.6
- SDS: 1.247
- RISK CATEGORY: II
- IMPORTANCE FACTOR: I
- ULTIMATE WIND SPEED (ASCE 7-16): 91 MPH
- ROOF DEAD LOAD: 5PSF
- ROOFTOP DATA AS PER ORIGINAL BUILDING DRAWINGS BY JAMES GOODMAN ARCHITECTURE, PROJECT# 9917, DATED 10/13/2000

STRUCTURAL STEEL

1. ALL STEEL WORK SHALL BE ACCORDANCE WITH STEEL CONSTRUCTION MANUAL, 15th EDITION AND ALL EXTERIOR EXPOSED STEEL AND HARDWARE SHALL BE HOT DIP GALVANIZED. FILL MODIFICATIONS ARE TO BE COATED WITH ZINC ENRICHED PAINTED.
2. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A307 BOLTS UNLESS NOTED OTHERWISE. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYP 3/4" DIA. CONNECTIONS AND SHALL BE HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. ALL STEEL CONSTRUCTION INCLUDING FABRICATION, ERECTION AND MATERIALS SHALL COMPLY WITH ALL REQUIREMENTS OF THE AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND THE 2019 CBC.
4. STRUCTURAL STEEL MEMBERS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS UNLESS OTHERWISE NOTED (U.O.N.):
   A. WIDE FLANGE & TEE SHAPES, ASTM A992 (Fy=50,000 PSI).
   B. STRUCTURAL TUBING (TS OR HSS), ASTM A500 GRADE B (Fy=46,000 PSI).
   C. STEEL PIPE, ASTM A53 (TYPE E OR S, GRADE B (Fy=35,000 PSI)) SCHEDULE 40 WITH OUTSIDE DIAMETERS GIVEN.
   D. ALL STRUCTURAL STEEL, ASTM A36.
5. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO AISC & AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC SPECIFICATION. PAINTED SURFACES SHALL BE TOUCHED UP. WELDING SHALL CONFORM TO AISC AND THE LATEST EDITION OF AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" PAINTED SURFACES SHALL BE TOUCHED UP.
6. ALL WELDING SHALL BE PERFORMED BY QUALIFIED, CERTIFIED WELDERS.
7. BOLTS SHALL BE ASTM A307 GRADE A MINIMUM AND HOT DIP GALVANIZED PER ASTM A153. BOLTED CONNECTIONS SHALL BE BEARING TYPE. SEE PLANS FOR LOCATION, NUMBER, AND SIZE OF BOLTS. SPECIAL INSPECTION NOT REQUIRED U.O.N.
8. THREADED RODS SHALL BE ASTM F593 CW 304 /316 STAINLESS STEEL. BOLTED CONNECTIONS SHALL BE BEARING TYPE. SEE PLANS FOR LOCATION, NUMBER, & SIZE OF BOLTS.
9. ALL HOLES FOR BOLTED CONNECTIONS SHALL BE 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER. USE STANDARD AISC GAGE AND PITCH FOR BOLTS EXCEPT AS NOTED OTHERWISE. HOLES FOR ANCHOR BOLTS IN BASE PLATES MAY BE AISC "OVERSIZE" HOLES WHERE ACCOMPANIED BY OVERSIZED HARDENED HOT DIP GALVANIZED WASHERS.
10. ALL SHOP FABRICATED STEEL STRUCTURAL MEMBERS FOR EXTERIOR USE SHALL BE HOT DIP GALVANIZED PER ASTM A123 AFTER FABRICATION & PAINTED PER CUSTOMER SPECIFICATIONS AS REQUIRED. STEEL FOR INTERIOR USE SHALL BE SHOP COAT OR GALVANIZED & PAINTED PER PLAN.
11. ALL FIELD FABRICATED GALVANIZED STEEL THAT IS CUT, GROUND, DRILLED, WELDED OR DAMAGED SHALL BE TREATED WITH "ZINC RICH" COLD GALVANIZING SPRAY OR COATING. NO RAW STEEL SHALL BE EXPOSED.

CONCRETE AND REINFORCEMENT STEEL

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318-14, ACI 301-16 AND THE CAST-IN-PLACE CONCRETE SPECIFICATIONS.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 28 DAYS UNLESS NOTED OTHERWISE.
3. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHER.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
5. SPLICES CLASS "B" AND ALL HOOKS SHALL BE STANDARD UNLESS NOTED OTHERWISE.
6. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE U.N.O. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
7. 7. CONCRETE COVER FOR REINFORCEMENT STEEL SHALL BE ACCORDING TO ACI 318-14, TABLE 20.6.1.3.1:

CONCRETE EXPOSURE	MEMBER	REINFORCEMENT	SPECIFIED COVER, IN.
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	ALL	ALL	3
EXPOSED TO WETHER OR IN CONTACT WITH GROUND	ALL	NO.6 THROUGH NO.18 BARS	2
		NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER	1-1/2
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	SLABS, JOISTS, AND WALLS	NO. 14 AND NO.18 BARS	1-1/2
		NO.11 BAR AND SMALLER	3/4
	BEAMS, COLUMNS PEDESTALS, AND TENSION TIES	PRIMARY REINFORCEMENT, STIRRUPS, TIES, SPIRALS, AND HOOPS	1-1/2

EXPANSION AND EPOXY ANCHOR NOTES

1. ALL ANCHORS PROVIDED SHALL BE INCLUDED IN EVALUATION REPORTS OF THE INTERNATIONAL CODE COUNCIL (ICC), AND SHALL BE EVALUATED FOR 2018 IBC MINIMUM REQUIREMENTS IN THE ICC REPORT.
2. CONCRETE EXPANSION ANCHORS SHALL BE KWIK BOLT TZ BY HILTI, INC., TULSA, OKLAHOMA AS PER ICC REPORT NO. ESR-1917 OR APPROVED EQUIVALENT.
3. CMU EXPANSION ANCHORS SHALL BE KWIK BOLT 3 BY HILTI, INC., TULSA, OKLAHOMA AS PER ICC REPORT NO. ESR-1385 OR APPROVED EQUIVALENT. ANCHORS SHALL BE INSTALLED A MINIMUM OF 1¼" FROM ANY VERTICAL MORTAR JOINT TYPICAL.
4. CONCRETE & GROUT FILLED CMU ADHESIVE EPOXY ANCHORS SHALL BE HIT RE-500SD BY HILTI, INC., TULSA, OKLAHOMA AS PER ICC REPORT NO. ESR-2322 OR APPROVED EQUIVALENT.
5. INSTALL EXPANSION AND EPOXY ANCHORS WITH SPECIAL INSPECTION AND PER ALL REQUIREMENTS OF THE MANUFACTURER, THE MANUFACTURER'S ICC APPROVAL AND THESE DRAWINGS.
6. EXPANSION ANCHORS SHALL BE 304/316 STAINLESS STEEL U.O.N. EPOXY ANCHOR THREADED ROD SHALL BE ASTM F593 CW 304/316 STAINLESS STEEL U.O.N.
7. LOCATE AND AVOID REINFORCEMENT AND OTHER EMBEDDED ITEMS WHEN INSTALLING ANCHORS, TYPICAL. SEE CONCRETE CORE DRILLING NOTES FOR ADDITIONAL INFORMATION.

CONCRETE MASONRY

1. MORTAR SHALL BE HAVE TYPE "S" WITH A MINIMUM 1,800 PSI AT 28 DAYS. GROUT SHALL BE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS AND ALL GROUT SHALL BE CONSOLIDATED WITH A MECHANICAL VIBRATOR.
2. CONCRETE MASONRY UNITS SHALL BE MEDIUM WEIGHT (115 PCF) UNITS CONFORMS TO ASTM C90, GRADE N-1, f'M OF 1,500 PSI.
3. ALL CELLS IN CONCRETE BLOCKS SHALL BE FILLED SOLID WITH GROUT, EXCEPT AS NOTED IN THE DRAWINGS OR SPECIFICATIONS. CELL SHALL BE IN VERTICAL ALIGNMENT, DOWELS IN FOOTINGS SHALL BE SET TO ALIGN WITH CORES CONTAINING STEEL. ALL BOND BEAM BLOCK SHALL BE "DEEP CUT" UNITS.
4. ALL CELLS CONTAINING REINFORCING STEEL OR EMBEDDED ITEMS AND ALL CELLS IN RETAINING WALLS AND WALLS BELOW GRADE SHALL BE SOLID GROUTED. ALL HORIZONTAL REINFORCING STEEL SHALL BE PLACED IN BOND OR LINTEL BEAM UNITS.
5. WHEN GROUTING IS STOPPED FOR ONE LONGER, HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE GROUT POUR 1-1/2" BELOW TOP OF THE UPPERMOST UNIT. LOW LIFT CONSTRUCTION, MAXIMUM GROUT POUR HEIGHT IS 4 FEET.
6. PROVIDE INSPECTION AND CLEAN OUT HOLES AT BASE OF VERTICAL CELLS HAVING GROUT LIFTS IN EXCESS OF 4'-0" OF HEIGHT.
7. PROVIDE ONE BAR DIAMETER (A MINIMUM OF 1/2") GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.
8. SAND SHALL BE CLEAN, SHARP AND WELL GRADED, FREE FROM INJURIOUS AMOUNTS OF DUST, LUMPS, SHALE, ALKAU OR ORGANIC MATERIAL.
9. BRICK SHALL CONFORM TO ASTM C-62 AND SHALL BE GRADE MW OR BETTER.

FIBERGLASS REINFORCED PLASTIC (FRP):

1. ALL STRUCTURAL SHAPES SHALL BE BEDFORD FRP SERIES 1525, PRODUCED USING THE PULTRUSION PROCESS.
2. ALL CUT EDGES AND HOLES SHALL BE SEALED WITH A RESIN COMPATIBLE WITH THE RESIN MATRIX USED IN THE STRUCTURAL SHAPE.
3. THE FABRICATOR AND CONTRACTOR SHALL EXERCISE PRECAUTIONS NECESSARY TO PROTECT THE FIBERGLASS PULTRUDED STRUCTURAL SHAPES FROM ABUSE TO PREVENT BREAKAGE, NICKS, GOUGES, ETC. DURING FABRICATION, HANDLING, AND INSTALLATION.
4. STRUCTURAL SHAPES SHALL BE FABRICATED AND ASSEMBLED AS INDICATED ON THE DESIGN DRAWINGS.
5. FRP BOLTS AND NUTS SHALL BE TIGHTENED TO SNUG TIGHT AND TURNED AN ADDITIONAL 1/2 TURN AND LOCKED WITH EPOXY.
6. FRP OR STEEL BOLTS THROUGH FRP MEMBERS SHALL MEET THE FOLLOWING SPACING AND EDGE DISTANCE REQUIREMENTS, MEASURE FROM BOLT CENTERS:
   MIN. BOLT SPACING = 4 X BOLT DIAMETER
   MIN. EDGE DISTANCE = 3 X BOLT DIAMETER IN DIRECTION OF PULTRUSION
   MIN. EDGE DISTANCE = 2 X BOLT DIAMETER PERPENDICULAR TO DIRECTION OF PULTRUSION

FLASHING

1. ALL FLASHING SHALL BE 26 GA. GALV. IRON UNLESS OTHERWISE NOTED. PRIME AND PAINT TO MATCH ADJACENT CONSTRUCTION
2. FLASH AND COUNTER-FLASH AT ALL ROOF/WALL CONNECTIONS

WOOD

3. NOTCHES ON THE ENDS OF JOISTS SHALL NOT EXCEED ONE-FOURTH OF THE JOIST DEPTH
4. HOLES BORED IN JOISTS SHALL NOT BE WITHIN 2" OF THE TOP OR BOTTOM OF THE JOIST, AND THE DIAMETER OF ANY HOLE SHALL NOT EXCEED ONE-THIRD THE DEPTH OF THE JOIST. NOTCHES IN THE TOP OR BOTTOM OF JOISTS SHALL NOT EXCEED ONE-SIXTH THE DEPTH AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE JOIST SPAN.
5. NOTCHING IN EXTERIOR WALLS AND BEARING PARTITIONS SHALL NOT EXCEED 25% OF THE STUD WIDTH. CUTTING OR NOTCHING OF STUDS IN NON-BEARING PARTITIONS SHALL NOT EXCEED 40% OF THE STUD WIDTH.
6. ALL NUTS SHALL BE TIGHTENED WHEN PLACED AND RE-TIGHTENED PRIOR TO APPLICATION OF FINISH OR AT COMPLETION OF JOB.
7. CONNECTIONS FOR WOOD MEMBERS SHALL BE DESIGNED IN ACCORDANCE WITH THE APPROPRIATE METHODOLOGY IN SECTION 2302.1. THE NUMBER AND SIZE OF FASTENERS CONNECTING WOOD MEMBERS SHALL BE NOT LESS THAN THAT SET FORTH IN TABLE 2304.10.1.

TABLE 2304.10.1
FASTENING SCHDULE

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
BLOCKING BETWEEN CEILING JOISTS, RAFTERS OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW	3-8D COMMON (2½"X0.131") OR 3-10D BOX (3"X0.128") OR 3-3"X0.131" NAILS OR 3-3" 14 GAUGE STAPLES, 7/16" CROWN	EACH END, TOENAIL
BLOCKING BETWEEN RAFTERS OR TRUSS NOT AT THE WALL TOP PLATE, TO RAFTER OR TRUSS	2-8D COMMON (2½"X0.131") 2-3" X 0.131" NAILS 2-3" GAUGE STAPLES	EACH END, TOENAIL
	2-16D COMMON (3½"X0.162") 3-3"X0.131" NAILS 3-3" 14 GAUGE STAPLES	END NAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	16D COMMON (3½"X0.162") @ 6" O.C. 3"X0.131" NAILS @ 6" O.C. 3"X14 GAUGE STAPLES @ 6" O.C.	END NAIL
CEILING JOISTS TO TOP PLATE	3-8D COMMON (2½"X0.131") OR 3-10D BOX (3"X0.128") OR 3-3"X0.131" NAILS OR 3-3" 14 GAUGE STAPLES, 7/16" CROWN	EACH END, TOENAIL
CEILING JOIST NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (NO THRUST) (SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	3-16D COMMON (3½"X0.162") OR 4-10D BOX (3"X0.128") OR 4-3"X0.131" NAILS OR 4-3" 14 GAUGE STAPLES, 7/16" CROWN	FACE NAIL
CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOIST) (SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	PER TABLE 2308.7.3.1	FACE NAIL
COLLAR TIE TO RAFTER	3-10D COMMON (3"X0.148") OR 4-10D BOX (3"X0.128") OR 4-3"X0.131" NAILS OR 4-3" 14 GAUGE STAPLES, 7/16" CROWN	FACE NAIL
RAFTER OR ROOF TRUSS TO TOP PLATE (SEE SECTION 2308.7.5, TABLE 2308.7.3.5)	3-10 COMMON (3"X0.148") OR 3-16D BOX (3½"X0.135") OR 4-10D BOX (3"X0.128") OR 4-3"X0.131" NAILS OR 4-3" GAUGE STAPLES, 7/16" CROWN	TOENAIL
ROOF RAFTERS TO RIDGE VALLEY OR HIP RAFTERS; OR ROOF RAFTER TO 2" RIDGE BEAM	2-16D COMMON (3½"X0.162") OR 3-10D BOX (3"X0.128") OR 3-3"X0.131" NAILS OR 3-3" 14 GAUGE STAPLES, 7/16" CROWN	END NAIL
	3-10 COMMON (3"X0.148") OR 4-16D BOX (3½"X0.135") OR 4-10D BOX (3"X0.128") OR 4-3"X0.131" NAILS OR 4-3" GAUGE STAPLES, 7/16" CROWN	TOENAIL

PAINTING

1. PERFORM ALL WORK NECESSARY AND REQUIRED FOR COMPLETION OF THE PROJECT AS REQUIRED TO COMPLETE THE FINISHING OF THE BUILDING. PAINTING OF ELECTRICAL WORK IN FINISHED AREAS OF THE BUILDING AND ACCESS DOORS ARE INCLUDED.
2. NO PAINTING OR FINISHING SHALL BE STARTED UNTIL THE SURFACES TO BE PAINTED OR FINISHED ARE IN THE PROPER CONDITION IN EVERY RESPECT. APPLICATION OF THE FIRST COAT SHALL CONSTITUTE ACCEPTANCE.
3. WOOD SURFACES SHALL BE SANDED AND DUSTED CLEAN. PUTTY ALL NAIL HOLES, CRACKS, ETC. AFTER FIRST PRIME COAT.
4. LEAVE ALL GLASS AREA, STUCCO SURFACES, FLOOR WALKS, HARDWARE, AND ANY OTHER SURFACES CLEAN AND FREE OF PAINT, STAIN, SPATTERINGS, SMEARS, SMUDGES WHICH ARE THE RESULT OF THESE OPERATIONS. REPLACE ANY GLASS DAMAGED IN ANY WAY.

SPECIAL INSPECTION

1. SPECIAL INSPECTION IS REQUIRED FOR THE INSTALLATION OF HILTI STAINLESS STEEL ANCHOR BOLTS ACCORDING TO ICC-ESR# 1917. THE INSTALLATION OF ANCHOR BOLTS BY OTHER MANUFACTURERS ARE NOT ALLOWED.
2. HILTI ANCHORS SHALL BE INSTALLED IN NORMAL WEIGHT CONCRETE WITH A MINIMUM CONCRETE STRENGTH OF 2,500 PSI AT 28 DAYS. UNDER NO CIRCUMSTANCES SHALL THE ANCHORS BE INSTALLED IN MASONRY CONCRETE.
3. HOLES TO RECEIVE EXPANSION/WEDGE ANCHORS SHALL BE 1/8" LARGER IN DIAMETER THAN THE ANCHOR BOLTS, DOWEL OR ROD.
4. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE INSTALLATION OF HILTI ANCHORS DOES NOT CUT THE EXISTING REBARS IN CONCRETE. ANY ISSUES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD IMMEDIATELY.

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STRUCTURAL NOTES

SHEET NUMBER

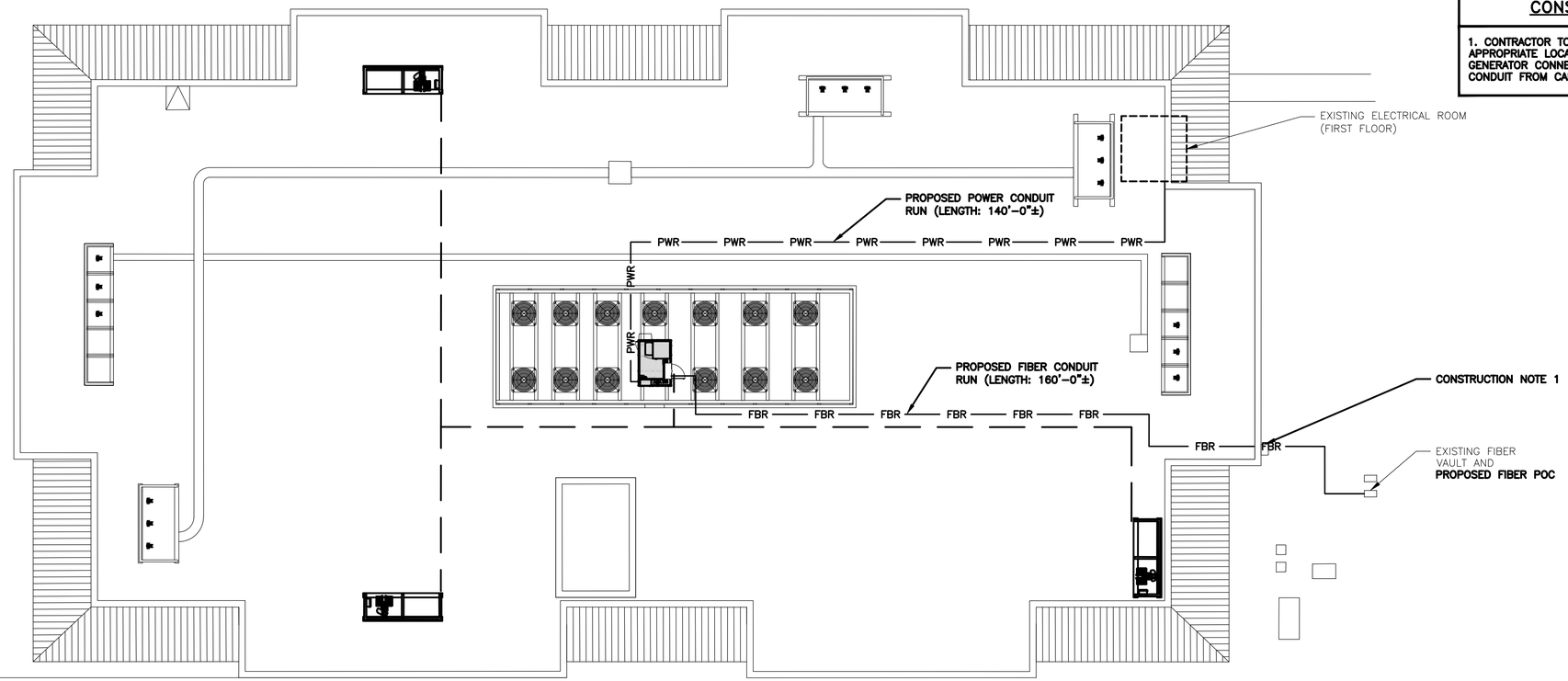
S-4

NOTE

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.

CONSTRUCTION NOTE

1. CONTRACTOR TO FIND ACCESSIBLE AND APPROPRIATE LOCATION TO INSTALL (N) CAMLOCK GENERATOR CONNECTOR INTERSECT ICL AND RUN 3" CONDUIT FROM CAMLOCK TO THE (N) PPC CABINET



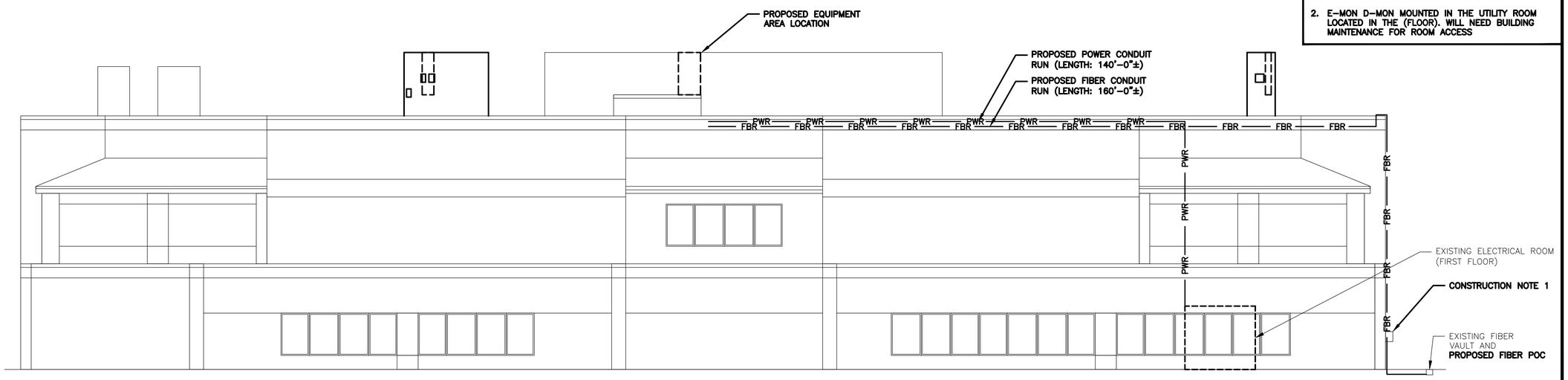
UTILITY ROUTE PLAN

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

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. E-MON D-MON MOUNTED IN THE UTILITY ROOM LOCATED IN THE (FLOOR). WILL NEED BUILDING MAINTENANCE FOR ROOM ACCESS



UTILITY ROUTE ELEVATION

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

2

dish wireless.

5701 SOUTH SANTA FE DRIVE
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REGISTERED PROFESSIONAL ENGINEER
PIYUSH MADHUKAR MAPARE
No. E-22405
Exp. 9/30/22
ELECTRICAL
STATE OF CALIFORNIA

DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

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SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

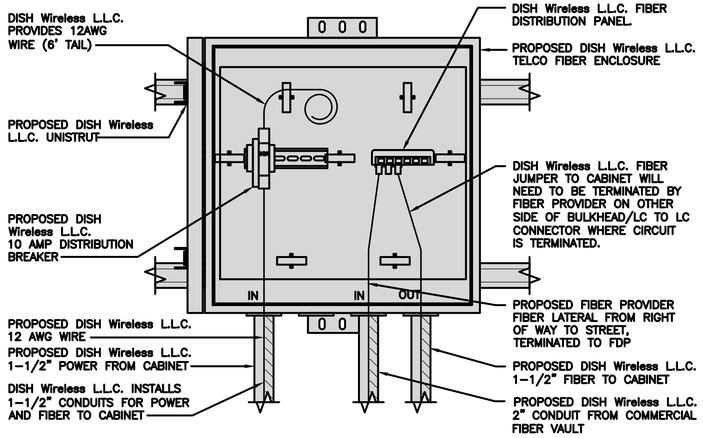
SHEET NUMBER

E-1

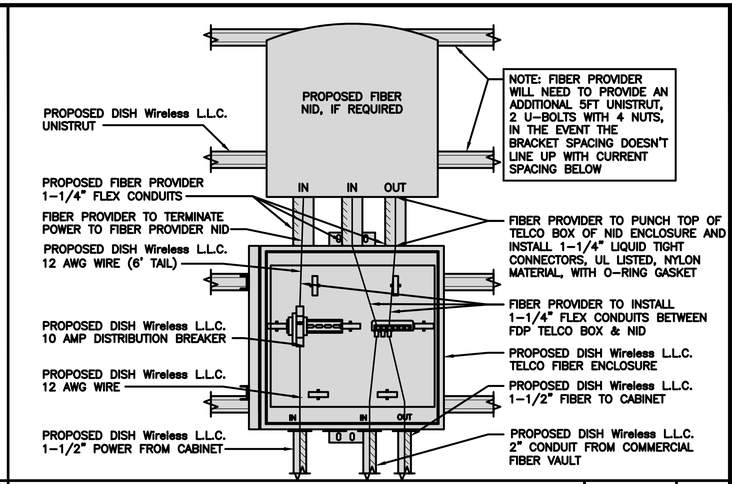
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

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.

ELECTRICAL NOTES | NO SCALE | 1

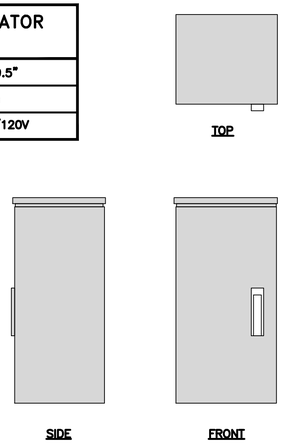


DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 2



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 3

INTERSECT CAM-LOCK GENERATOR CONNECTOR ICGC-1P	
ENCLOSURE DIMENSIONS (HxWxD):	23"x10"x9.5"
WEIGHT:	14 lbs
OPERATING AC VOLTAGE	400A, 208/120V



GEN PLUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

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REGISTERED PROFESSIONAL ENGINEER
PIYUSH MADHUKAR MAPARE
No. E-22405
Exp. 9/30/22
ELECTRICAL
STATE OF CALIFORNIA

DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

RFDS REV #: 02/02/2022 REV 4

CONSTRUCTION DOCUMENTS

SUBMITTALS

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A&E PROJECT NUMBER

SFSF001158A

DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

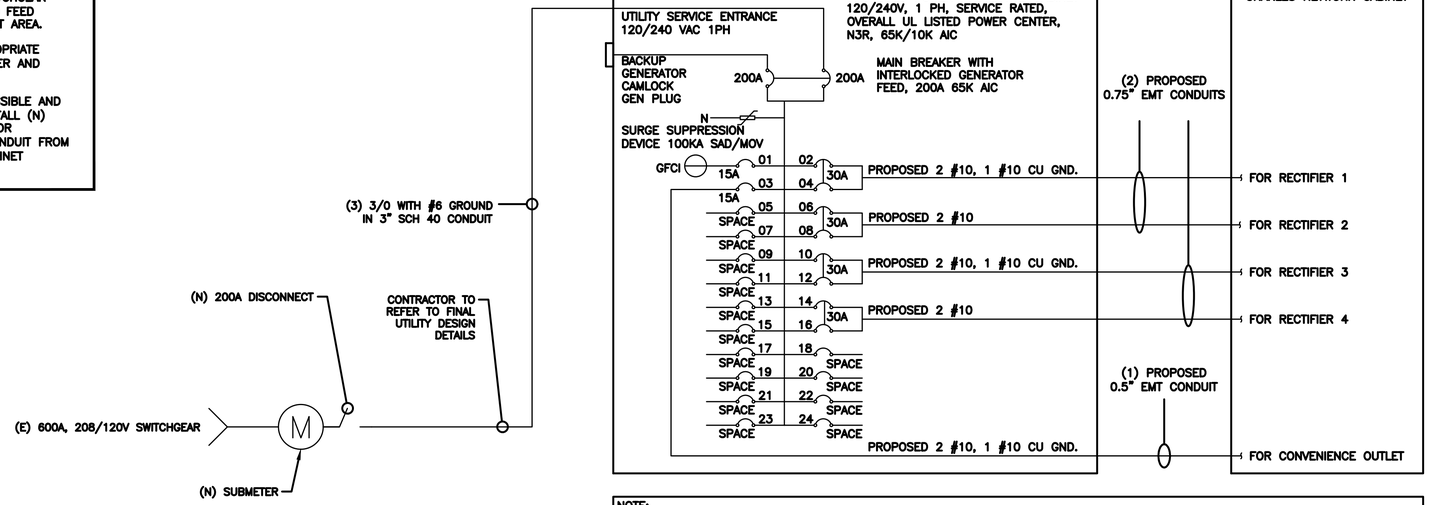
E-2

CONSTRUCTION NOTE

1. CONTRACTOR TO USE SPARE 225A BREAKER IN THE (E) 600A SWITCHGEAR AND INSTALL (N) SUBMETER TO FEED POWER TO THE DISH EQUIPMENT AREA.

2. CONTRACTOR TO FIND APPROPRIATE PLACE TO INSTALL (N) SUBMETER AND DISCONNECT.

3. CONTRACTOR TO FIND ACCESSIBLE AND APPROPRIATE LOCATION TO INSTALL (N) CAMLOCK GENERATOR CONNECTOR INTERSECT ICL AND RUN 3" CONDUIT FROM CAMLOCK TO THE (N) PPC CABINET



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

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

NOTES

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

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

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

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

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

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

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

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

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

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

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

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

PPC ONE-LINE DIAGRAM — NO SCALE — 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1φ, 24 SPACE, 120/208V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			56.25		56.25		AMPS			
			112.5				MAX AMPS			
			140.63				MAX 125%			

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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JG/WM	---	---

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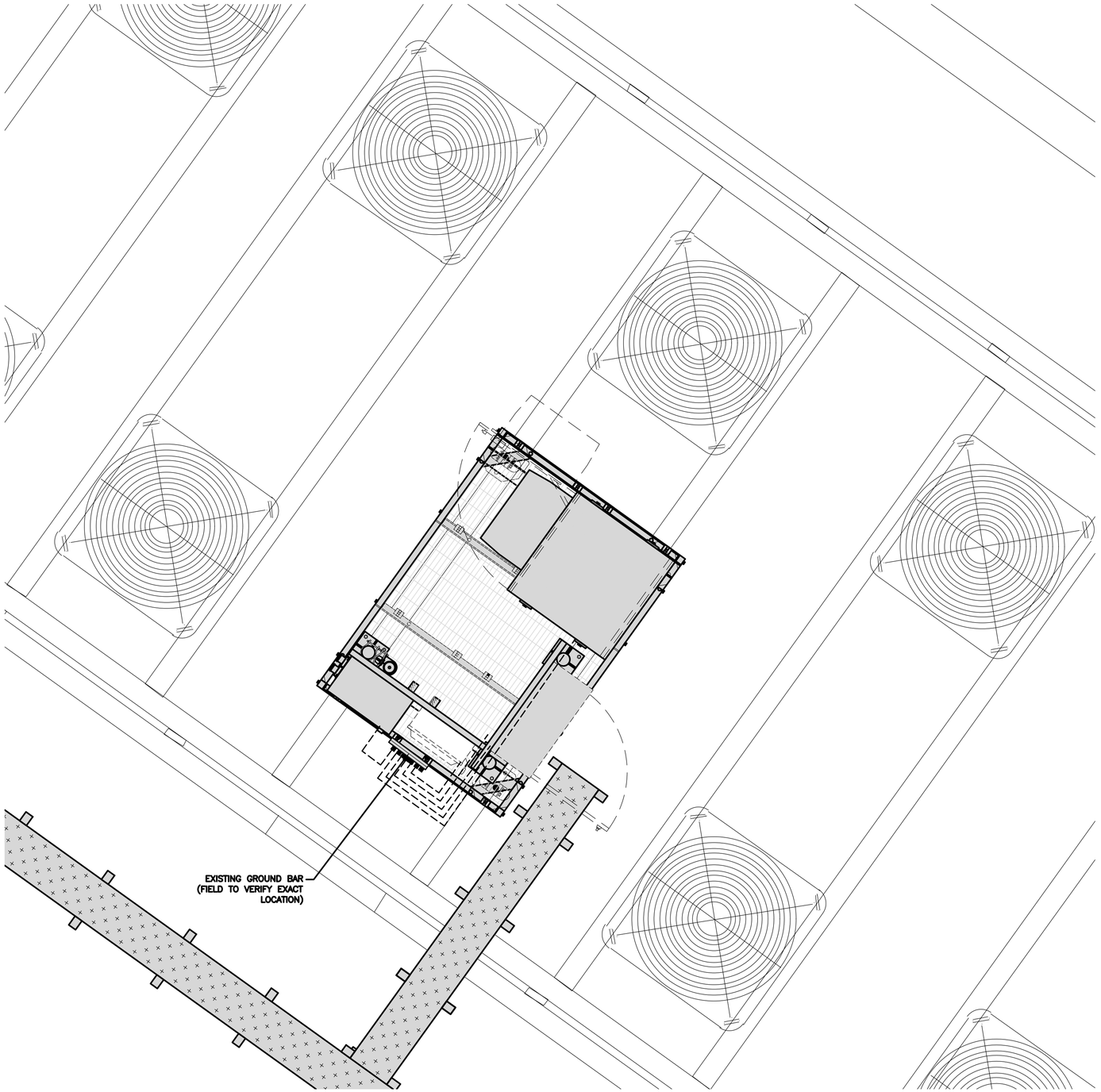
DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

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

SHEET NUMBER
E-3



EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

GROUND BUS BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

#6 AWG STRANDED & INSULATED

#2 AWG SOLID COPPER TINNED

BUSS BAR INSULATOR

GROUNDING LEGEND

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

GROUNDING ROOFTOP 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) ROOFTOP GROUND SYSTEM: THE 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 OR ROOM.

(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 (CRGB): 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 COMMON BUILDING GROUND SYSTEM WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE COMMON BUILDING GROUND SYSTEM 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 ROOM. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH MECHANICAL CONNECTIONS.

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

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

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

(L) FENCE AND GATE GROUNDING: METAL FENCES SHALL BE BONDED TO THE COMMON BUILDING GROUND SYSTEM 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 COMMON BUILDING GROUND SYSTEM. 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) ROOFTOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO COMMON BUILDING GROUND SYSTEM.

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

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STATE OF CALIFORNIA

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JG/WM	---	---

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DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

GROUNDING PLANS AND NOTES

SHEET NUMBER

G-1

N

GROUNDING PLAN

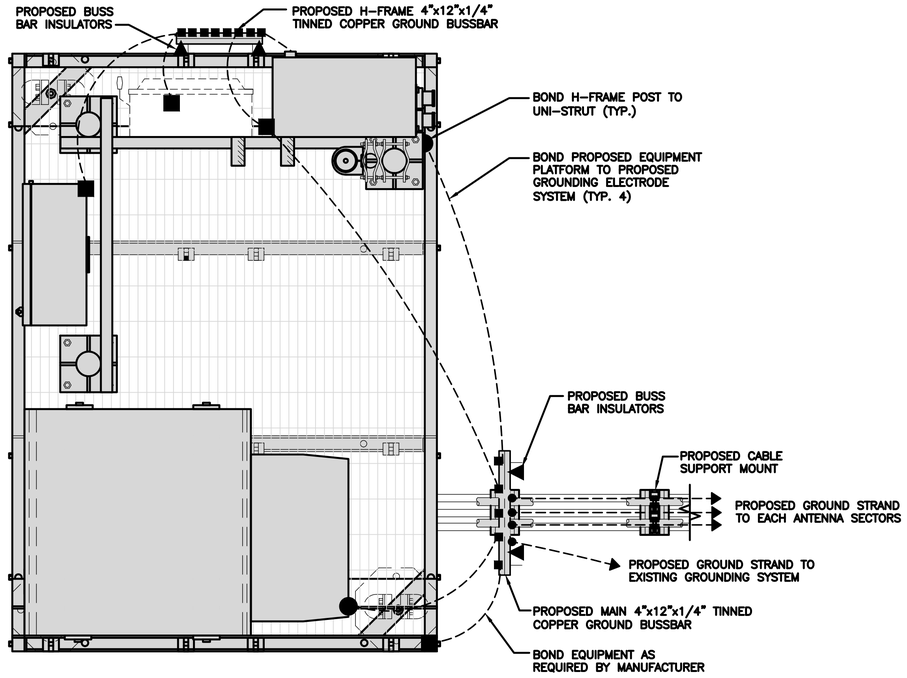
12" 6" 0 1' 2' 3'
3/4"=1'-0"

1

GROUNDING KEY NOTES

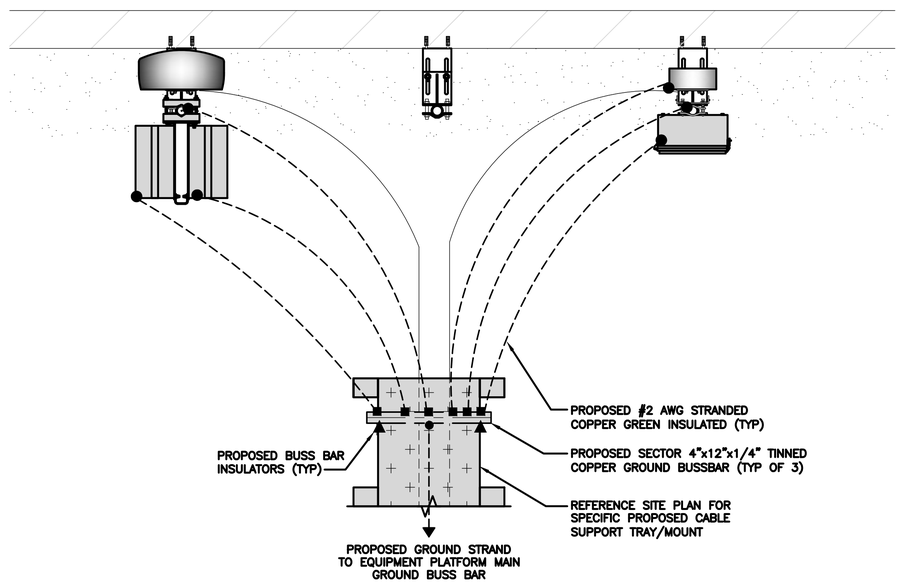
NO SCALE

2



TYPICAL ROOFTOP EQUIPMENT GROUNDING PLAN

NO SCALE | 1

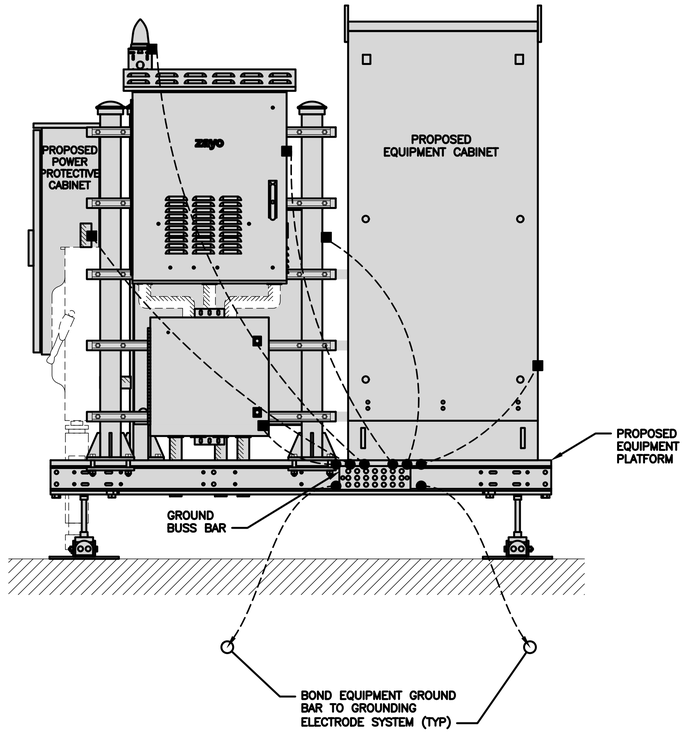


TYPICAL ROOFTOP ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTE

EQUIPMENT CABINET OMITTED FOR CLARITY



H-FRAME GROUNDING DETAIL

NO SCALE | 3

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SHEET TITLE

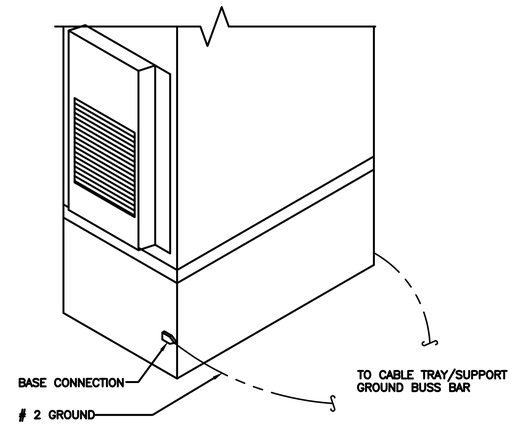
GROUNDING DETAILS

SHEET NUMBER

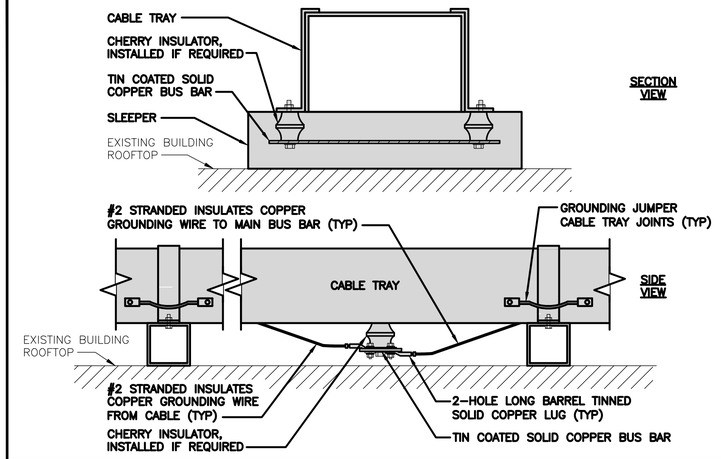
G-2

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

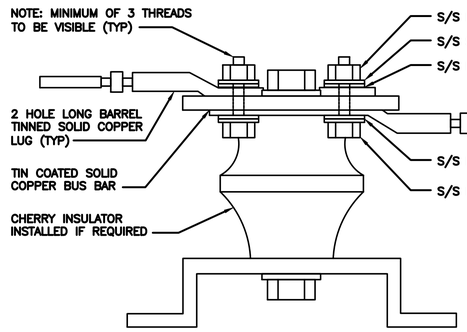
TYPICAL GROUNDING NOTES | NO SCALE | 1



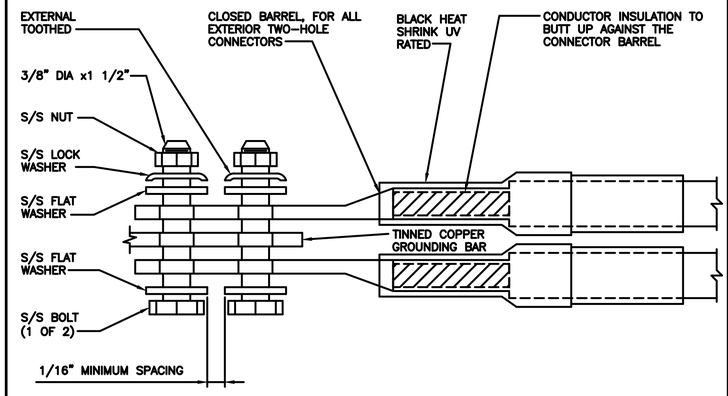
OUTDOOR CABINET GROUNDING | NO SCALE | 2



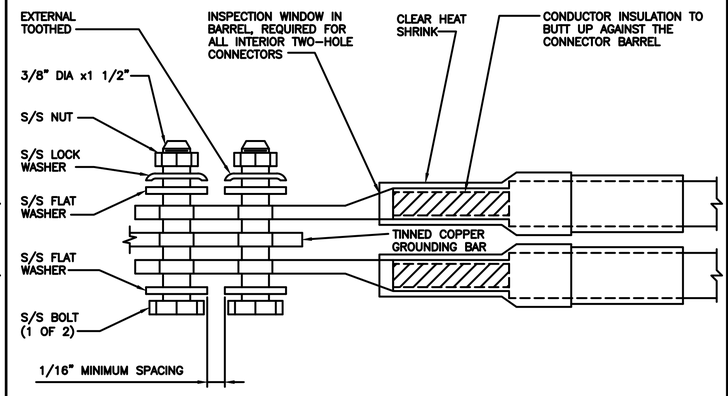
TYPICAL CABLE TRAY GROUND BUSS BAR | NO SCALE | 3



LUG DETAIL | NO SCALE | 4



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 5



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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SHEET TITLE

GROUNDING DETAILS

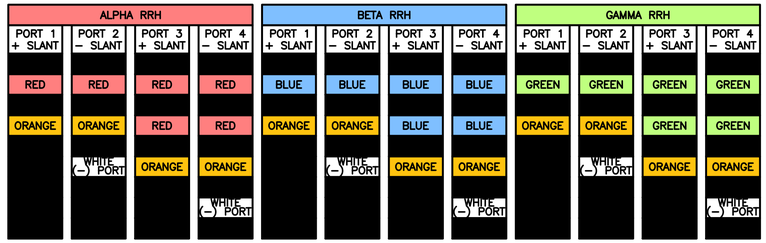
SHEET NUMBER

G-3

HYBRID/DISCREET CABLES — 3/4" TAPE WIDTHS WITH 3/4" SPACING

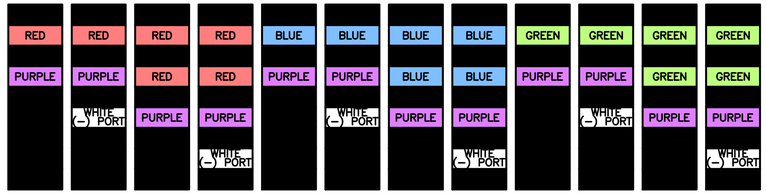
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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



MID–BAND RRH
(AWS BANDS N66+N70)

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



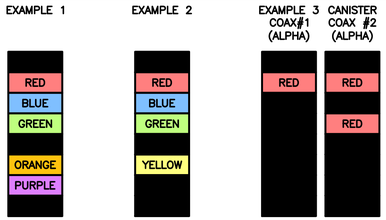
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

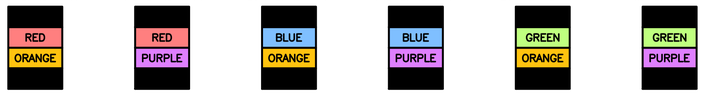
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



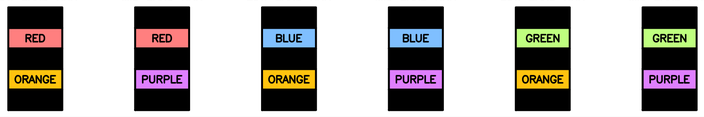
FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



POWER CABLES TO RRHs

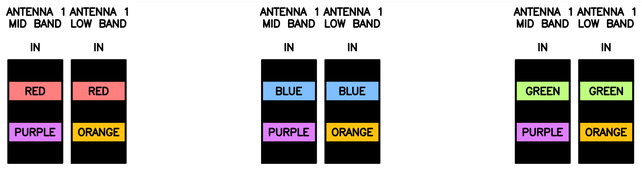
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

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

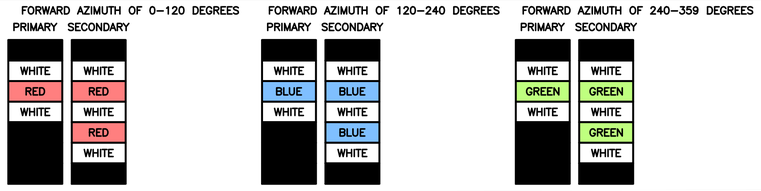
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

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

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



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

AWS (N66+N70+H–BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

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DRAWN BY:	CHECKED BY:	APPROVED BY:
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DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

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

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X — X — X — X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W

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

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

OVERHEAD POWER — OHP — OHP — OHP — OHP

OVERHEAD TELCO — OHT — OHT — OHT — OHT

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

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

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

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

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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

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DISH Wireless L.L.C.
PROJECT INFORMATION

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1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

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

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

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

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

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

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

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

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

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

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

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

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

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

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dish wireless.

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DRAWN BY:	CHECKED BY:	APPROVED BY:
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1300 COMMERCE ST
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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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REGISTERED PROFESSIONAL ENGINEER
NASIB PANDEY
No. C-93821
CIVIL
STATE OF CALIFORNIA

DRAWN BY:	CHECKED BY:	APPROVED BY:
JG/WM	---	---

RFDS REV #: 02/02/2022 REV 4

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	02/10/2022	90% CD'S ISSUED FOR REVIEW
B	04/19/2022	100% CONSTRUCTION DRAWINGS
C	08/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER

SFSF001158A

DISH Wireless L.L.C.
PROJECT INFORMATION

SFSF001158A
1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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CONSTRUCTION DOCUMENTS

SUBMITTALS

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A&E PROJECT NUMBER

SFSF001158A

DISH Wireless L.L.C.
PROJECT INFORMATION

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1300 COMMERCE ST
PETALUMA, CA 94954

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

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

SIGN PLACEMENT:

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

NOTES:

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

INFORMATION

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

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

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

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

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

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

Site ID: _____

dish

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⚠ CAUTION

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⚠ WARNING

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RF SIGNAGE

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SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-5