



# Type I Application (Administrative Review)

File #: MIMD122-0001

**TYPES – PLEASE CHECK ONE:**

- Code Adjustment
- Final Plat
- Minor Design Review
- Property Line Adjustment
- Property Line Consolidation
- Type I Extension or Type I Minor/Major Modification
- Type II or Type III Extension or Minor Modification
- Other: (Explain) \_\_\_\_\_

**APPLICANT INFORMATION:**

APPLICANT: Crown Castle for Dish Wireless (Emilie Deschamps)  
 ADDRESS: PO Box 2006, Bellevue, WA 98009  
 EMAIL ADDRESS: Emilie@GMAnetworkservices.com  
 PHONE: (802)777-3358 MOBILE: \_\_\_\_\_ FAX: \_\_\_\_\_  
 OWNER (if different from above): Crown Castle as Tower and Facility Owner PHONE: (309)269-7254  
 ADDRESS: 1505 Westlake Ave N, Suite 800, Seattle, WA 98109  
 ENGINEER/SURVEYOR: PM&A, Chad Wilhoit PHONE: (678)280-2325  
 ADDRESS: 1000 Holcomb Woods PKWY, Suite 210, Roswell, GA 30076

**GENERAL INFORMATION:**

PROJECT NAME: Crown Castle for Dish Wireless PROJECT LOCATION: 2400 Douglas Ave, Newberg, OR 97132  
 PROJECT DESCRIPTION/USE: See attached project description. PROJECT VALUATION: \$25,000.00  
 MAP/TAX LOT NO. (i.e. 3200AB-400): R3217-02500 ZONE: R-1 SITE SIZE: 72 SQ. FT.  ACRE   
 COMP PLAN DESIGNATION: PQ TOPOGRAPHY: \_\_\_\_\_  
 CURRENT USE: Newberg High School, with a Wireless Tower and Facility  
 SURROUNDING USES:  
 NORTH: Newberg High School/Sports Field SOUTH: Sports Field  
 EAST: Newberg High School WEST: Newberg High School

**SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED**

General Checklist:  Fees  Current Title Report  Written Criteria Response  Owner Signature

For detailed checklists, applicable criteria for the written criteria response, and number of copies per application type, turn to:

Code Adjustment .....	p. 4
Final Plat .....	p. 6
Minor Design Review .....	p. 10
Property Line Consolidation.....	p. 11
Property Line Adjustment.....	p. 12

The above statements and information herein contained are in all respects true, complete, and correct to the best of my knowledge and belief. Tentative plans must substantially conform to all standards, regulations, and procedures officially adopted by the City of Newberg. All owners must sign the application or submit letters of consent. Incomplete or missing information may delay the approval process.

Emilie Deschamps 12/30/2021  
 Applicant Signature Date  
 \_\_\_\_\_  
 Emilie Deschamps  
 Print Name

See Attached 12/30/2021  
 Owner Signature Date  
 \_\_\_\_\_  
 See Attached Crown Signature  
 Print Name

## § 15.220.020 TYPE I DESIGN REVIEW

**Definition:** A process to provide for review and approval of the design of certain developments and improvements in order to promote functional, safe and innovative site development that is compatible with the surrounding environment. Approval of a Type I design review project cannot be granted unless certain criteria have been satisfied. Design review approval shall be based on written findings. Site design review shall be required prior to issuance of building permits or commencement of work for all improvements noted below.

**Type I site design review applies to the following activities:**

- (a) Single-family dwellings.
- (b) Duplexes.
- (c) Institutional, commercial, or industrial additions which do not exceed 1,000 square feet in gross floor area.
- (d) Multi-family additions which do not exceed 1,000 square feet in gross floor area and do not add any new units, or new construction incidental to the main use on an existing developed site which do not exceed 1,000 square feet in gross floor area and do not add any new units.
- (e) Institutional, commercial, or industrial interior remodels which do not exceed 25 percent of the assessed valuation of the existing structure.
- (f) Multi-family remodels which do not exceed 25 percent of the assessed valuation of the existing structure and do not add any new units.
- (g) Signs which are not installed in conjunction with a new development or remodel.
- (h) Modifications, paving, landscaping, re-striping, or re-grading of an existing duplex, multi-family, institutional, commercial or industrial parking lot.
- (i) Fences and trash enclosures.

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## TYPE I DESIGN REVIEW CRITERIA

Type I applications require a written response to applicable criteria to determine whether approval is justified. Please provide a written response to each of the applicable criteria for a Type I design review. **Your written response should address how you meet each of the following criteria.**

- (1) Parking. Parking areas shall meet the requirements of § 15.440.010.
- (2) Setbacks and general requirements – The proposal shall comply with §§ 15.415.010 et seq. dealing with height restrictions and public access; and §§ 15.410.010 et seq. dealing with setbacks, coverage, vision clearance, and yard requirements.
- (3) Landscaping requirements – The proposal shall comply with § 15.420.010 dealing with landscape requirements and landscape screening.
- (4) Signs – Signs shall comply with §§ 15.435.010 et seq. dealing with signs.
- (5) Zoning district compliance – The proposed use shall be listed as a permitted or conditionally permitted use in the zoning district in which it is located as found in §§ 15.304.010 through 15.328.040 of this code.

## TYPE I DESIGN REVIEW APPLICATION CHECKLIST

The following items must be submitted with each application. All diagrams, maps and plans must be drawn to scale. Incomplete applications will not be processed and incomplete or missing information may delay the review process. Check with the Planning Division regarding additional requirements for your project.

- FEES**
- APPLICATION FORM**
- CURRENT TITLE REPORT**
- WRITTEN CRITERIA RESPONSE** – Provide a written response that addresses how your project meets the Type I design review criteria.
- SITE PLAN.** Make sure the plans are prepared so that they are at least 8 ½ x 11 inches in size and the scale is standard, being 10, 20, 30, 40, 50, 100 or multiples of 100 to the inch (such as 1":10', 1":20' or other multiples of 10). Include the following information in the plan set (information may be shown on multiple pages):
  - Existing Site Features:** Indicate the location and design of all on-site buildings and other facilities such as mail delivery, trash disposal, above ground utilities, loading areas, and outdoor recreation areas. Include appropriate buffering and screening as required by the code.
  - Drainage & Grading:** Show the direction and location of on and off-site drainage on the plans. This shall include site drainage, parking lot drainage, size and location of storm drain lines, and any retention or detention facilities necessary for the project. Provide an engineered grading plan if necessary.
  - Utilities:** Show the location of and access to all public and private utilities, including sewer, water, storm water and any overhead utilities.
  - Public Improvements:** Indicate any public improvements that will be constructed as part of the project, including sidewalks, roadways, and utilities.
  - Access, Parking, and Circulation:** Show proposed vehicular and pedestrian circulation, parking spaces, parking aisles, and the location and number of access points from adjacent streets. Provide dimensions for parking aisles, back-up areas, and other items as appropriate. Indicate where required bicycle parking will be provided on the site along with the dimensions of the parking spaces.
  - Exterior Lighting Plan:** Show all exterior lighting, including the direction of the lighting, size and type of fixtures, and an indication of the amount of lighting using foot candles for analysis.
  - Landscape Plan:** Include a comprehensive plan that indicates the size, species and locations of all planned landscaping for the site. The landscape plan should have a legend that indicates the common and botanical names of plants, quantity and spacing, size (caliper, height, or container size), planned landscaping materials, and description of the irrigation system. Include a calculation of the percentage of landscaped area.
  - ADA Plan Compliance:** Indicate compliance with any applicable ADA provisions, including the location of accessible parking spaces, accessible routes from the entrance to the public way, and ramps for wheelchairs.
  - Architectural Drawings:** Provide floor plans and elevations for all planned structures.
  - Signs and Graphics:** Show the location, size, colors, materials, and lighting of all exterior signs, graphics or other informational or directional features if applicable.
  - Other:** Show any other site elements which will assist in the evaluation of the site and the project.



**Crown Castle**  
1505 Westlake Avenue North  
Suite 800  
Seattle, WA 98109

September 17, 2020

Re: Crown Castle – PNW  
Subject: Gary Abrahams – Authorized Consultant for Crown Castle

Dear Reviewing Parties:

This letter serves to notify you that Crown Castle has retained the services of Gary Abrahams, as approved agent to submit application for and obtain local jurisdiction approvals including but not limited to zoning and building permits. This includes applicable permitting for any and all customers seeking to install or modify their equipment on Crown Castle towers.

Please feel free to contact me directly with any questions. Thank you for your expeditious processing of applications filed by Mr. Abrahams.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Chris Listfeld'.

Chris Listfeld  
Site Acquisition Project Manager – Seattle  
[Chris.Listfeld@crowncastle.com](mailto:Chris.Listfeld@crowncastle.com)  
(206) 336-7403



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December 31, 2021

**Via FedEx**

**Newberg, OR**

City of Newberg  
Community Development  
Planning Department  
414 E. First Street  
Newberg, OR 97132  
Phone: (503)537-1240

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

**RE: Eligible Facilities Request to modify equipment on a communications tower located at:**

- **2400 Douglas Ave, Newberg, OR 97132**
- **Parcel ID: R3217 02500**
- **Assessors Tax Parcel ID number: 33895**

**Jurisdiction: City of Newberg, OR**

**Application for Type I Permit**

**Crown Site Number: 856521**  
**Application ID: 576279**  
**Crown Name: Newberg East**

**Carrier: Dish Wireless LLC**  
**Carrier site ID: PRPDX00328B**  
**Carrier site name: N/A**

Dear Reviewing Parties:

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

<sup>1</sup> Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6409 (2012) (codified at 47 U.S.C. § 1455).  
<sup>2</sup> *Acceleration of Broadband Deployment by Improving Wireless Facility Siting Policies*, 29 FCC Rcd. 12865 (2014) (codified at 47 CFR § 1.6100); and *Implementation of State & Local Governments' Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012*, WT Docket No. 19-250 (June 10, 2020).  
<sup>3</sup> See 47 CFR § 1.6100 (c)(3). <sup>4</sup> See 2020 Upgrade Order at paragraph 16.



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Section 6409 mandates that state and local governments must approve any eligible facilities request for the modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station. Under Section 6409, to toll the review period, if the reviewing authority determines that the application is incomplete, it must provide written notice to the applicant within 30 days, which clearly and specifically delineates all missing documents or information reasonably related to whether the request meets the federal requirements.<sup>3</sup> Additionally, if a state or local government, fails to issue any approvals required for this request within 60 days, these approvals are deemed granted. The FCC has clarified that the 30-day and 60-day deadlines begins when an applicant: (1) takes the first step required under state or local law; and (2) submits information sufficient to inform the jurisdiction that this modification qualifies under the federal law<sup>4</sup>. Please note that with the submission of this letter and enclosed items, the thirty and sixty-day review periods have started. Based on this filing, the deadline for written notice of incomplete application is February 2, 2022, and the deadline for issuance of approval is March 4, 2022.

The proposed scope of work for this project includes:

Add antennas, ancillary equipment and ground equipment as per plans for a new carrier on an existing wireless communication facility.

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

- Fees: to be paid by credit card upon issuance of notification by the city.
- Two (2) copies, City of Newberg Type I Application;
- Two (2) copies, EFR Cover Letter with Section 6409 Substantial Change Checklist (see this document)
- Two (2) copies, Written Response to Type I Design Review Criteria;
- Two (2) copies, Construction Drawings, by PM&A, dated 12/17/21;
- Two (2) copies, Crown Castle Agent Authorization to Submit for Permits.

#### **RE: Title Report (No Older Than 60 Days)**

A request for a title report that is no older than 60 days is not “reasonably related” to determining whether the Application is an EFR and therefore does not toll the 60-day period for review of the Application. According to Section 6409, a local government, like the City, “may not require [Dish Wireless] to submit any documentation” other than that which is “reasonably related” to determining whether the Application is an EFR. A title report that is no older than 60 days in no way bears on whether the Application qualifies as an EFR and is therefore entitled to streamlined processing and mandatory approval under federal law. Notwithstanding the foregoing, Crown Castle explains that there has been a wireless facility located at the Site since 2006 pursuant to that certain Oregon Lease Agreement dated July 21, 2006 by and between the tower operator and the Newberg School District. See Yamhill Cty. Rec. No. 2006-18092. Based on federal law, Crown Castle will not be providing the requested information.

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

Our goal is to work with you to obtain approvals earlier than the deadline. We will respond promptly to any request for related information you may have in connection with this request. Please let us know how we can work with you to expedite the approval

**The Foundation for a Wireless World**

[CrownCastle.com](http://CrownCastle.com)



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process. We look forward to working with you on this important project, which will improve wireless telecommunication services in your community using collocation on existing infrastructure. If you have any questions, please do not hesitate to contact me.

Regards,

*Emilie Deschamps*

Emilie Deschamps for Crown Castle on behalf of Dish Wireless



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

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

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

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

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





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**Written Response to Type I Design Review Criteria**

We are pleased to provide the following information explaining why the Application meets all requirements to be a Type I Design Review Request. Each enumerated criteria is on a separate page or pages.

The remainder of this page left intentionally blank



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Criteria 1: Parking. Parking areas shall meet the requirements of NMC 15.440.010.

**Applicant's Response: This is an unmanned existing Wireless Communications Facility and parking is not required.**



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Criteria 2: Setbacks and General Requirements. The proposal shall comply with NMC 15.415.010 through 15.415.060 dealing with height restrictions and public access; and NMC 15.405.010 through 15.405.040 and 15.410.010 through 15.410.070 dealing with setbacks, coverage, vision clearance, and yard requirements.

**Applicant's Response: See sections 15.415.010 through 15.415.060; 15.405.010 through 15.405.040; 15.410.010 through 15.410.070.**

**This is an existing Wireless Communications Facility and no ground expansion is proposed. The tower is proposed to be extended by 10 feet. All analysis below is based upon this scope of work.**

**Only applicable sections are analyzed.**

#### Analysis of 15.415.010 through 15.415.060

##### 15.415.010 Main buildings and uses as accessory buildings.

A. Hereinafter, any building which is the only building on a lot is a main building.

B. In any residential district except RP, there shall be only one main use per lot or development site; provided, that home occupations shall be allowed where permitted.

C. In any residential district, there shall be no more than two accessory buildings on any lot or development site. [Ord. 2451, 12-2-96. Code 2001 § 151.535.]

##### 15.415.020 Building height limitation.

A. Residential.

1. In the R-1 district, no main building shall exceed 30 feet in height.

2. In the R-2, AR, and RP districts, no main building shall exceed 35 feet in height.

3. In the R-3 district, no main building shall exceed 45 feet in height, except, where an R-3 district abuts upon an R-1 district, the maximum permitted building height shall be limited to 30 feet for a distance of 50 feet from the abutting boundary of the aforementioned district.

4. Accessory buildings in the R-1, R-2, R-3, AR, and RP districts are limited to 16 feet in height, except as follows:

a. Up to 800 square feet of an accessory building may have a height of up to 24 feet.

b. Aircraft hangars in the AR district may be the same height as the main building.

5. Single-family dwellings permitted in commercial or industrial districts shall not exceed 35 feet in height, or the maximum height permitted in the zone, whichever is less.

B. Commercial, Industrial and Mixed Employment.

1. In the C-1 district no main building or accessory building shall exceed 30 feet in height.



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2. In the AI, C-2, C-3, M-E, M-1, M-2, and M-3 districts there is no [building height](#) limitation, except, where said districts [abut](#) upon a residential district, the maximum permitted [building height](#) shall not exceed the maximum [building height](#) permitted in the abutting residential district for a distance of 50 feet from the abutting boundary.

3. In the C-4 district, [building height](#) limitation is described in NMC [15.352.040\(J\)\(1\)](#).

4. In the M-E district within the riverfront overlay subdistrict, [building height](#) limitation is described in NMC [15.352.060](#).

C. The maximum height of [buildings](#) and [uses](#) permitted conditionally shall be stated in the [conditional use permits](#).

D. Institutional. The maximum height of any [building](#) or [structure](#) will be 75 feet except as follows:

1. Within 50 feet of an interior property line abutting a C-1, R-1, R-2 or R-P district, no [main building](#) may exceed 30 feet.

2. Within 50 feet of an interior property line abutting an R-3 district, no [main building](#) may exceed 45 feet.

3. Within 100 feet of a property line abutting a public [street](#) or railroad [right-of-way](#), or within 100 feet of property lines abutting [parcels](#) with an R-1, R-2, R-3, R-P, C-1, C-2, C-3, M-1, M-2, or M-3 zoning designation, no [main building](#) may exceed 50 feet in height.

4. To utilize the maximum permitted height standard, at least 80 percent of the [building](#)'s ground coverage must be beyond the setback area designated in subsection (D)(3) of this section. The maximum encroachment may not exceed 25 feet.

E. Alternative [Building Height](#) Standard. As an alternative to the [building height](#) standards above, any project may elect to [use](#) the following standard (see Figure 24 in Appendix A). To meet this standard:

1. Each point on the [building](#) must be no more than 20 feet higher than the ground level at all points on the property lines, plus one vertical foot for each horizontal foot of distance from that property line; and

2. Each point on the [building](#) must be no more than 20 feet higher than the ground level at a point directly north on a property line, plus one vertical foot for each two horizontal feet of distance between those points. This second limit does not apply if the property directly to the north is a [right-of-way](#), parking [lot](#), protected natural resource, or similar unbuildable property.

F. [Buildings](#) within the [airport](#) overlay subdistrict are subject to the height limits of that subdistrict. [Ord. [2880](#) § 2 (Exh. B § 41), 6-7-21; Ord. [2868](#) § 1 (Exh. A), 11-16-20; Ord. [2730](#) § 1 (Exh. A (4)), 10-18-10; Ord. [2720](#) § 1(10), 11-2-09; Ord. [2647](#), 6-5-06; Ord. [2564](#), 4-[15](#)-02; Ord. [2550](#), 5-21-01; Ord. [2451](#), 12-2-96. Code 2001 § 151.536.]

Penalty: See NMC [15.05.120](#).

**Applicant's Response: The existing height of the tower is 90 feet and it was legally permitted under CUP-06-002. This proposal includes a 10 foot extension of the existing tower to a height of 100 feet with the tip height of the proposed antennas at 102 feet. The NMC sited above does not apply to this project. However, section 6409a does apply to the proposal for additional height. Section 6409a states as follows:**

*"For towers outside of public rights-of-way, it increases the height of the tower by more than 10%, or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater; for those towers in the rights-of-way and for all base stations, it increases the height of the tower or base station by more than 10% or 10 feet, whichever is greater."*



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The existing tower height is 90 feet and section 6409a would allow for a 20 foot separation from the nearest antennas plus the height of an additional antenna array. The proposed height extension is less than what is allowed under section 6409a. Therefore, the proposed project complies with section 6409a as an EFR.

#### 15.415.030 Building height exemptions.

Roof [structures](#) and architectural features for the housing of elevators, stairways, tanks, ventilating fans and similar equipment required to operate and maintain the [building](#), fire or parapet walls, skylights, towers, flagpoles, chimneys, smokestacks, wireless masts, TV [antennas](#), steeples and similar [structures](#) may be erected above the height limits prescribed in this [code](#); provided, that no roof [structure](#), feature or any other device above the prescribed height limit shall be allowed or used for the purpose of providing additional floor space. Further, no roof [structure](#) or architectural feature under this exemption shall be erected more than 18 feet above the height of the [main building](#), whether such [structure](#) is attached to it or freestanding, nor shall any such [structure](#) or feature exceed the height limits of the [airport](#) overlay subdistrict. [Ord. [2730](#) § 1 (Exh. A (4)), 10-18-10; Ord. [2451](#), 12-2-96. Code 2001 § 151.537.]

#### 15.415.040 Public access required.

No [building](#) or [structure](#) shall be erected or altered except on a [lot](#) fronting or abutting on a public [street](#) or having [access](#) to a public [street](#) over a [private street](#) or [easement](#) of record approved in accordance with provisions contained in this [code](#). New [private streets](#) may not be created to provide [access](#) except as allowed under NMC [15.332.020](#)(B)(24), [15.336.020](#)(B)(8), and in the M-4 zone. Existing [private streets](#) may not be used for [access](#) for new [dwelling units](#), except as allowed under NMC [15.405.030](#). No [building](#) or [structure](#) shall be erected or altered without provisions for [access](#) roadways as required in the Oregon Fire [Code](#), as adopted by the [city](#). [Ord. [2720](#) § 1(11), 11-2-09; Ord. [2647](#), 6-5-06; Ord. [2507](#), 3-1-99; Ord. [2451](#), 12-2-96. Code 2001 § 151.538.]

Penalty: See NMC [15.05.120](#).

#### 15.415.050 Rules and exceptions governing single-family attached dwellings.

In all residential districts, [single-family attached dwelling](#) units may be permitted, provided:

- A. Each [dwelling unit](#) shall be situated on an individual, legally subdivided or partitioned [lot](#) which includes existing [lots](#) of record.
- B. The [dwelling units](#) shall have a common wall at the [zero lot line](#).
- C. The combined area of [lots](#) shall not be less than the [lot](#) area required in the residential district.
- D. The [lot](#) or [development site](#) area requirement per [dwelling unit](#) listed in this [code](#) shall apply to each individual [lot](#).
- E. The setback requirements will apply to each [dwelling unit](#) independently, except that the setback for the [zero lot line](#) shall be waived.
- F. Each [dwelling unit](#) shall have independent services which include, but are not limited to, wastewater, water and electricity.
- G. Authorization of [single-family attached dwelling](#) units does not waive any requirement specified within the current edition of the Oregon Residential Specialty [Code](#) or other applicable requirements.
- H. Maximum [lot coverage](#) requirements specified in this [code](#) shall apply to each individual [lot](#).
- I. A site plan is approved by the [director](#) prior to issuance of a [building](#) permit. In approving a site plan, the [director](#) may attach any conditions necessary to fulfill the purpose of this [code](#). [Ord. [2451](#), 12-2-96. Code 2001 § 151.539.]



**15.415.060 Home occupation.**

Home occupations shall be processed as a Type I procedure. Home occupation uses shall comply with the following standards:

- A. Signs shall comply with the standards of NMC 15.435.010 et seq.
- B. There is no display that will indicate from the exterior that the building is used in whole or in part for any purpose other than a dwelling.
- C. The building retains the characteristics of a residence.
- D. There is no outside storage of materials, parts, tools, supplies, or other items related to the use as a home occupation, other than nursery plants.
- E. No more than one outside paid employee shall be permitted to work at the residence at any given time.
- F. The use does not destroy the residential character of the neighborhood.
- G. All work being performed at the site is done within the confines of a building and no noise, odor, dust, smoke or other evidence of the home occupation permeates beyond the confines of the property.
- H. The home occupation is incidental to the use of the building and site for residential purposes.
- I. The work does not involve the use of hazardous substances or materials which might create a fire hazard or danger to the environment or neighboring properties, including but not limited to gasoline, paint, oxygen/acetylene tanks, or other flammable or hazardous materials. [Ord. 2499, 11-2-98; Ord. 2451, 12-2-96. Code 2001 § 151.540.]

**Penalty:** See NMC 15.05.120.

**Analysis of 15.405.010 through 15.405.040**

**15.405.010 Lot area – Lot areas per dwelling unit.**

- A. In the following districts, each lot or development site shall have an area as shown below except as otherwise permitted by this code:
  - 1. In the R-1 district, each lot or development site shall have a minimum area of 5,000 square feet or as may be established by a subdistrict. The average size of lots in a subdivision intended for single-family or duplex dwelling development shall not exceed 10,000 square feet.
  - 2. In the R-2 and RP districts, each lot or development site shall have a minimum area of 3,000 square feet or as may be established by a subdistrict. The average size of lots in a subdivision intended for single-family or duplex dwelling development shall not exceed 5,000 square feet.
  - 3. In the R-3 district, each lot or development site shall have a minimum area of 2,500 square feet or as may be established by a subdistrict. The average size of lots in a subdivision intended for duplex dwelling development shall not exceed 5,000 square feet.
  - 4. In the AI, AR, C-1, C-2, and C-3 districts, each lot or development site shall have a minimum area of 5,000 square feet or as may be established by a subdistrict.



5. In the M-1, M-2, M-3, and M-E districts, each lot or development site shall have a minimum area of 20,000 square feet.

6. Institutional districts shall have a minimum size of five contiguous acres in order to create a large enough campus to support institutional uses; however, additions to the district may be made in increments of any size.

7. Within the commercial and mixed employment district(s) of the riverfront overlay subdistrict, there is no minimum lot size required, provided the other standards of this code can be met.

**B. Lot or Development Site Area per Dwelling Unit.**

1. In the R-1 district, there shall be a minimum of 5,000 square feet per dwelling unit, except that there shall be a minimum of 5,000 square feet per duplex dwelling.

2. In the R-2, AR, and R-P districts, there shall be a minimum of 3,000 square feet of lot or development site area per dwelling unit, except that there shall be a minimum of 3,000 square feet per duplex dwelling. In the R-2 and R-P districts, lots or development sites in excess of 15,000 square feet used for multiple single-family, duplex or multifamily dwellings shall be developed at a minimum of one dwelling per 5,000 square feet lot area.

3. In the R-3 district, there shall be a minimum of 1,500 square feet of lot or development site area per dwelling unit for multifamily dwellings. There shall be a minimum of 2,500 square feet per duplex dwelling. Lots or development sites in excess of 15,000 square feet used for multiple single-family, duplex or multifamily dwellings shall be developed at a minimum of one dwelling per 2,500 square feet lot area.

C. In calculating lot area for this section, lot area does not include land within public or private streets. In calculating lot area for maximum lot area/minimum density requirements, lot area does not include land within stream corridors, land reserved for public parks or open spaces, commons buildings, land for preservation of natural, scenic, or historic resources, land on slopes exceeding 15 percent or for avoidance of identified natural hazards, land in shared access easements, public walkways, or entirely used for utilities, land held in reserve in accordance with a future development plan, or land for uses not appurtenant to the residence.

D. Lot size averaging is allowed for any subdivision. Some lots may be under the minimum lot size required in the zone where the subdivision is located, as long as the average size of all lots is at least the minimum lot size. [Ord. 2880 § 2 (Exh. B §§ 36, 37), 6-7-21; Ord. 2868 § 1 (Exh. A), 11-16-20; Ord. 2763 § 1 (Exh. A § 12), 9-16-13; Ord. 2730 § 1 (Exh. A (2)), 10-18-10; Ord. 2720 § 1(14), 11-2-09; Ord. 2647, 6-5-06; Ord. 2564, 4-15-02; Ord. 2507, 3-1-99; Ord. 2451, 12-2-96. Code 2001 § 151.565.]

**Penalty:** See NMC 15.05.120.

**15.405.020 Lot area exceptions.**

The following shall be exceptions to the required lot areas:

A. Lots of record with less than the area required by this code.

B. Lots or development sites which, as a process of their creation, were approved in accordance with this code.

C. Planned unit developments, provided they conform to requirements for planned unit development approval. [Ord. 2451, 12-2-96. Code 2001 § 151.566.]



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15.405.030 Lot dimensions and frontage.

A. Width. Widths of lots shall conform to the standards of this code.

B. Depth to Width Ratio. Each lot and parcel shall have an average depth between the front and rear lines of not more than two and one-half times the average width between the side lines. Depths of lots shall conform to the standards of this code. Development of lots under 15,000 square feet are exempt from the lot depth to width ratio requirement.

C. Area. Lot sizes shall conform to standards set forth in this code. Lot area calculations shall not include area contained in public or private streets as defined by this code.

D. Frontage.

1. No lot or development site shall have less than the following lot frontage standards:

a. Each lot or development site shall have either frontage on a public street for a distance of at least 25 feet or have access to a public street through an easement that is at least 25 feet wide. No new private streets, as defined in NMC 15.05.030, shall be created to provide frontage or access except as allowed by NMC 15.240.020(L)(2).

b. Each lot in R-2 zone shall have a minimum width of 25 feet at the front building line and R-3 zone shall have a minimum width of 30 feet at the front building line, except that duplex lots in the R-3 zone shall have a minimum width of 25 feet at the front building line.

c. Each lot in R-1 zone shall have a minimum width of 35 feet at the front building line and AI or RP shall have a minimum width of 50 feet at the front building line.

d. Each lot in an AR zone shall have a minimum width of 45 feet at the front building line.

2. The above standards apply with the following exceptions:

a. Legally created lots of record in existence prior to the effective date of the ordinance codified in this code.

b. Lots or development sites which, as a process of their creation, were approved with sub-standard widths in accordance with provisions of this code.

c. Existing private streets may not be used for new dwelling units, except private streets that were created prior to March 1, 1999, including paving to fire access roads standards and installation of necessary utilities, and private streets allowed in the airport residential and airport industrial districts. However, existing single-family detached dwellings on existing private streets may be converted to duplex dwellings. [Ord. 2880 § 2 (Exh. B § 38), 6-7-21; Ord. 2830 § 1 (Exh. A), 4-2-18; Ord. 2822 § 1 (Exh. A), 2-5-18; Ord. 2730 § 1 (Exh. A (3)), 10-18-10; Ord. 2720 § 1(15), 11-2-09; Ord. 2647, 6-5-06; Ord. 2507, 3-1-99; Ord. 2451, 12-2-96. Code 2001 § 151.567.]

**Penalty:** See NMC 15.05.120.

15.405.040 Lot coverage and parking coverage requirements.

A. Purpose. The lot coverage and parking coverage requirements below are intended to:

1. Limit the amount of impervious surface and storm drain runoff on residential lots.





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2. Provide [open space](#) and recreational space on the same [lot](#) for occupants of that [lot](#).
3. Limit the bulk of residential development to that appropriate in the applicable zone.

B. Residential [uses](#) in residential zones shall meet the following maximum [lot coverage](#) and [parking coverage](#) standards. See the definitions in NMC [15.05.030](#) and Appendix A, Figure 4.

1. Maximum [Lot Coverage](#).

- a. R-1: 40 percent, or 50 percent if all [structures](#) on the [lot](#) are one [story](#).
- b. R-2 and RP: 60 percent.
- c. AR and R-3: 60 percent.

2. Maximum [Parking Coverage](#). R-1, R-2, R-3, and RP: 30 percent.

3. Combined Maximum [Lot](#) and [Parking Coverage](#).

- a. R-1: 60 percent.
- b. R-2, R-3 and RP: 70 percent.

C. All other districts and [uses](#) not listed in subsection (B) of this section shall not be limited as to [lot coverage](#) and [parking coverage](#) except as otherwise required by this [code](#). [Ord. [2880](#) § 2 (Exh. B § 39), 6-7-21; Ord. [2832](#) § 1 (Exh. A), 7-2-18; Ord. [2746](#) § 1 (Exh. A § 1), 8-~~15~~-11; Ord. [2730](#) § 1 (Exh. A (3)), 10-18-10; Ord. [2647](#), 6-5-06; Ord. [2451](#), 12-2-96. Code 2001 § 151.568.]

**Applicant's Response: None of the code sections of 15.405 are applicable to this project since it is an existing facility with no ground expansion.**

**Analysis of 15.410.010 through 15.410.070**

**15.410.010** General yard regulations.

A. No [yard](#) or [open space](#) provided around any [building](#) for the purpose of complying with the provisions of this [code](#) shall be considered as providing a [yard](#) or [open space](#) for any other [building](#).

B. No [yard](#) or [open space](#) on adjoining property shall be considered as providing required [yard](#) or [open space](#) for another [lot](#) or [development site](#) under the provisions of this [code](#).

C. No [front yards](#) provided around any [building](#) for the purpose of complying with the regulations of this [code](#) shall be used for public or [private parking areas](#) or garages, or other [accessory buildings](#), except as specifically provided elsewhere in this [code](#).

D. When the common property line separating two or more contiguous [lots](#) is covered by a [building](#) or a permitted group of [buildings](#) with respect to such common property line or lines does not fully conform to the required [yard](#) spaces on each side of such common property line or lines, such [lots](#) shall constitute a single [development site](#) and the [yards](#) as required by this [code](#) shall then not apply to such common property lines.

E. Dwellings Where Permitted above Nonresidential Buildings. The front and interior yard requirements for residential uses shall not be applicable; provided, that all yard requirements for the district in which such building is located are complied with.

F. In the AI airport industrial district, clear areas, safety areas, object-free areas, taxiways, parking aprons, and runways may be counted as required yards for a building, even if located upon an adjacent parcel.

G. In the AR airport residential district, clear areas, safety areas, object-free areas, taxiways, parking aprons, and runways may be counted as required yards for a building, if located upon an adjacent parcel. [Ord. 2647, 6-5-06; Ord. 2451, 12-2-96. Code 2001 § 151.550.]

**Penalty:** See NMC 15.05.120.

15.410.020 Front yard setback.

#### A. Residential (see Appendix A, Figure 10).

1. AR, R-1 and R-2 districts shall have a front yard of not less than 15 feet. Said yard shall be landscaped and maintained.
2. R-3 and RP districts shall have a front yard of not less than 12 feet. Said yard shall be landscaped and maintained.
3. The entrance to a garage or carport, whether or not attached to a dwelling, shall be set back at least 20 feet from the nearest property line of the street to which access will be provided. However, the foregoing setback requirement shall not apply where the garage or carport will be provided with access to an alley only.

#### B. Commercial.

1. All lots or development sites in the C-1 district shall have a front yard of not less than 10 feet. There shall be no minimum front yard setback for C-1 zoned property that has frontage on E. Portland Road or Highway 99 W. The maximum front yard setback for C-1 zoned property that has frontage on E. Portland Road or Highway 99 W. shall be no greater than 10 feet. A greater front yard setback is allowed for C-1 zoned property having frontage on E. Portland Road or Highway 99 W. when a plaza or other pedestrian amenity is provided; however, said front yard setback should be the minimum setback needed to accommodate a pedestrian amenity. Said yard shall be landscaped and maintained.
2. All lots or development sites in the C-2 district shall have a front yard of not less than 10 feet. There shall be no minimum front yard setback for C-2 zoned property that has frontage on E. Portland Road or Highway 99 W. The maximum front yard setback for C-2 zoned property that has frontage on E. Portland Road or Highway 99 W. shall be no greater than 10 feet. A greater front yard setback is allowed for C-2 zoned property having frontage on E. Portland Road or Highway 99 W. when a plaza or other pedestrian amenity is provided; however, said front yard setback should be the minimum setback needed to accommodate a pedestrian amenity. No parking shall be allowed in said yard. Said yard shall be landscaped and maintained.
3. All lots or development sites in the C-3 district shall have no minimum front yard requirements. The maximum allowable front yard shall be 20 feet. In the case of a through lot with two front yards, at least one front yard must meet the maximum setback requirement. In the case of three or more front yards, at least two front yards must meet the maximum setback requirements. No parking shall be allowed in said yard. Said yard shall be landscaped and maintained.
4. All lots or development sites in the C-4 district will comply with the front yard requirements described in NMC 15.352.040(E).

C. Industrial. All lots or development sites in the M-1, M-2 or M-3 districts shall have a front yard of 20 feet. Lots or development sites in the AI district shall have a front yard of 10 feet. Lots or development sites in the M-4 district shall have a front yard of 20 feet where abutting Highway 219, arterials, and collectors, and a front yard of 10 feet along other streets.



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D. Institutional and Community Facility. All [lots](#) or [development sites](#) in the I and CF district shall have a [front yard](#) of 25 feet. Outdoor activity facilities, such as pools, basketball courts, tennis courts, or baseball diamonds, including any accessory [structures](#) and [uses](#), are not permitted within the required setback.

E. Mixed Employment. All [lots](#) or [development sites](#) in the M-E district shall have no minimum [front yard](#) requirements. The maximum allowable [front yard](#) shall be 10 feet. No parking shall be allowed in said [yard](#). Said [yard](#) shall be landscaped and maintained. [Lots](#) or [development sites](#) within the riverfront overlay subdistrict will comply with the [front yard](#) requirements described in NMC [15.352.060\(E\)](#). [Ord. [2868](#) § 1 (Exh. A), 11-16-20; Ord. [2862](#) § 1 (Exh. A § 4), 6-[15](#)-20; Ord. [2720](#) § 1(12), 11-2-09; Ord. [2647](#), 6-5-06; Ord. [2564](#), 4-[15](#)-02; Ord. [2561](#), 4-1-02; Ord. [2550](#), 5-21-01; Ord. [2451](#), 12-2-96. Code 2001 § 151.551.]

**Penalty:** See NMC [15.05.120](#).

[15.410.030](#) Interior yard setback.

#### A. Residential.

1. All [lots](#) or [development sites](#) in the AR, R-1, R-2 and R-3 districts shall have [interior yards](#) of not less than five feet, except that where a utility [easement](#) is recorded adjacent to a side [lot](#) line, there shall be a side [yard](#) no less than the width of the [easement](#).
2. All [lots](#) or [development sites](#) in the RP district shall have [interior yards](#) of not less than eight feet.

#### B. Commercial.

1. All [lots](#) or [development sites](#) in the C-1 and C-2 districts have no [interior yards](#) required where said [lots](#) or [development sites](#) abut property lines of commercially or industrially zoned property. When [interior lot](#) lines of said districts are common with property zoned residentially, [interior yards](#) of not less than 10 feet shall be required opposite the residential districts.
2. All [lots](#) or [development sites](#) in the C-3 district shall have no [interior yard](#) requirements.
3. All [lots](#) or [development sites](#) in the C-4 district will comply with the [interior yard](#) requirements described in NMC [15.352.040\(E\)](#).

C. Industrial and Mixed Employment. All [lots](#) or [development sites](#) in the AI, M-1, M-2, M-3, M-4, and M-E districts shall have no [interior yards](#) where said [lots](#) or [development sites](#) abut property lines of commercially or industrially zoned property. When [interior lot](#) lines of said districts are common with property zoned residentially, [interior yards](#) of not less than 10 feet shall be required opposite the residential districts.

D. Institutional and Community Facility. All [lots](#) or [development sites](#) in the I and CF district shall have [interior yards](#) of not less than 10 feet, except outdoor activity facilities, such as pools, basketball courts, tennis courts, or baseball diamonds, including any accessory [structures](#) and [uses](#), shall have an [interior yard](#) setback of 25 feet when abutting a residential district. [Ord. [2868](#) § 1 (Exh. A), 11-16-20; Ord. [2720](#) § 1(13), 11-2-09; Ord. [2647](#), 6-5-06; Ord. [2564](#), 4-[15](#)-02; Ord. [2550](#), 5-21-01; Ord. [2451](#), 12-2-96. Code 2001 § 151.552.]

**Penalty:** See NMC [15.05.120](#).

[15.410.040](#) Setback and yard restrictions as to schools, churches, public buildings.

A. **Building** Setback. No [buildings](#) shall be erected, used or maintained for a school, church or public or semi-public [building](#) or [use](#), [institution](#) or similar [use](#) under the regulations of this [code](#) unless such [building](#) is removed at least 25 feet from every boundary line of any property included in any residential district.



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B. Required [Yard](#). No required front or [interior yard](#) of the [lot](#) on which such [building](#) or [use](#) is located shall be used for play or parking purposes. [Ord. [2451](#), 12-2-96. Code 2001 § 151.553.]

**Penalty:** See NMC [15.05.120](#).

[15.410.050](#) Special setback requirements to planned rights-of-way.

A. [Yard](#) Requirements for Property Abutting Partial or Future [Street](#) Rights-of-Way.

1. Except as provided in subsection (A)(2) of this section, no [building](#) shall be erected on a [lot](#) which [abuts](#) a [street](#) having only a portion of its required width dedicated, unless the [yards](#) provided and maintained in connection with such [building](#) have a width and/or depth needed to complete the [street](#) width plus the width and/or depths of the [yards](#) required on the [lot](#) by this [code](#).

2. Where a [comprehensive plan](#) street design or a future [street](#) plan exists, the placement of [buildings](#) and the establishment of [yards](#) where required by this [code](#) shall relate to the future [street](#) boundaries as determined by said plans.

B. Planned [Street](#) Right-of-Way Widths. Planned [street](#) right-of-way widths are established as indicated in subsection (C) of this section for the various categories of [streets](#) shown in the transportation system plan.

C. A [lot](#) or [parcel](#) of land in any district adjoining a [street](#) for which the planned [right-of-way](#) width and alignment have been determined shall have a [building](#) setback line equal to the [yard](#) required in the district, plus a distance of:

1. Fifty feet from and parallel with the centerline of [expressways](#).
2. Thirty-five feet from and parallel with the centerline of major and [minor arterials](#).
3. Thirty feet from and parallel with the centerline of multifamily, commercial and industrial [streets](#) and single-family [collector](#) streets.
4. Thirty feet from and parallel with the centerline of single-family local [streets](#).
5. Twenty-five feet from and parallel with the centerline of single-family hillside, cul-de-sacs and local streets which will never be extended more than 2,400 feet in length and which will have a relatively even division of traffic to two or more exits.

Exceptions to the above five classifications are shown in the transportation system plan.

D. The centerline of planned [streets](#) shall be either the officially surveyed centerline or a centerline as on a precise plan. In the event of conflict between the two, the latter-described line shall prevail. In all other cases, a line midway between properties abutting the [right-of-way](#) shall be the centerline for the purposes of this [code](#). [Ord. [2763](#) § 1 (Exh. A § 13), 9-16-13; Ord. [2602](#), 9-20-04; Ord. [2451](#), 12-2-96. Code 2001 § 151.554.]

**Penalty:** See NMC [15.05.120](#).

[15.410.060](#) Vision clearance setback.

The following vision clearance standards shall apply in all zones (see Appendix A, Figure 9).

A. At the intersection of two [streets](#), including [private streets](#), a triangle formed by the intersection of the [curb lines](#), each leg of the vision clearance triangle shall be a minimum of 50 feet in length.

B. At the intersection of a [private drive](#) and a [street](#), a triangle formed by the intersection of the [curb lines](#), each leg of the vision clearance triangle shall be a minimum of 25 feet in length.

C. Vision clearance triangles shall be kept free of all visual obstructions from two and one-half feet to nine feet above the [curb line](#). Where curbs are absent, the edge of the asphalt or future curb location shall be used as a guide, whichever provides the greatest amount of vision clearance.

D. There is no vision clearance requirement within the commercial zoning district(s) located within the riverfront (RF) overlay subdistrict. [Ord. [2564](#), 4-[15](#)-02; Ord. [2507](#), 3-1-99; Ord. [2451](#), 12-2-96. Code 2001 § 151.555.]

**Penalty:** See NMC [15.05.120](#).

[15.410.070](#) Yard exceptions and permitted intrusions into required yard setbacks.

The following intrusions may project into required [yards](#) to the extent and under the conditions and limitations indicated:

A. Depressed Areas. In any district, open work fences, hedges, guard railings or other landscaping or architectural devices for safety protection around depressed ramps, stairs or retaining walls may be located in required [yards](#); provided, that such devices are not more than three and one-half feet in height.

B. [Accessory Buildings](#). In [front yards](#) on [through lots](#), where a [through lot](#) has a depth of not more than 140 feet, [accessory buildings](#) may be located in one of the required [front yards](#); provided, that every portion of such [accessory building](#) is not less than 10 feet from the nearest [street line](#).

C. Projecting [Building](#) Features. The following [building](#) features may project into the required [front yard](#) no more than five feet and into the required [interior yards](#) no more than two feet; provided, that such projections are no closer than three feet to any [interior lot](#) line:

1. Eaves, cornices, belt courses, sills, [awnings](#), buttresses or other similar features.
2. Chimneys and fireplaces, provided they do not exceed eight feet in width.
3. Porches, platforms or landings which do not extend above the level of the first floor of the [building](#).
4. Mechanical [structures](#) (heat pumps, air conditioners, emergency generators and pumps).

D. Fences and Walls.

1. In the residential district, a fence or wall shall be permitted to be placed at the property line or within a [yard](#) setback as follows:
  - a. Not to exceed six feet in height. Located or maintained within the required [interior yards](#). For purposes of fencing only, [lots](#) that are [corner lots](#) or [through lots](#) may select one of the [street](#) frontages as a [front yard](#) and all other [yards](#) shall be considered as [interior yards](#), allowing the placement of a six-foot fence on the property line. In no case may a fence extend into the clear vision zone as defined in NMC [15.410.060](#).

- b. Not to exceed four feet in height. Located or maintained within all other [front yards](#).

2. In any commercial, industrial, or mixed employment district, a fence or wall shall be permitted to be placed at the property line or within a [yard](#) setback as follows:



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a. Not to exceed eight feet in height. Located or maintained in any [interior yard](#) except where the requirements of vision clearance apply. For purposes of fencing only, [lots](#) that are [corner lots](#) or [through lots](#) may select one of the [street](#) frontages as a [front yard](#) and all other [yards](#) shall be considered as [interior yards](#), allowing the placement of an eight-foot fence on the property line.

b. Not to exceed four feet in height. Located or maintained within all other [front yards](#).

3. If chain link (wire-woven) fences are used, they are manufactured of corrosion-proof materials of at least 11-1/2 gauge.

4. The requirements of vision clearance shall apply to the placement of fences.

E. Parking and [Service Drives](#) (Also Refer to NMC [15.440.010](#) through [15.440.080](#)).

1. In any district, [service drives](#) or [accessways](#) providing ingress and egress shall be permitted, together with any appropriate traffic control devices in any required [yard](#).

2. In any residential district, public or [private parking areas](#) and [parking spaces](#) shall not be permitted in any required [yard](#) except as provided herein:

a. Required [parking spaces](#) shall be permitted on [service drives](#) in the required [front yard](#) in conjunction with any single-family or [duplex dwelling](#) on a single [lot](#).

b. [Recreational vehicles](#), boat [trailers](#), camperettes and all other vehicles not in daily [use](#) are restricted to parking in the [front yard](#) setback for not more than 48 hours; and [recreational vehicles](#), boat [trailers](#), camperettes and all other vehicles not in daily [use](#) are permitted to be located in the required [interior yards](#).

c. Public or [private parking areas](#), [parking spaces](#) or any [building](#) or portion of any [building](#) intended for parking which have been identified as a [use](#) permitted in any residential district shall be permitted in any [interior yard](#) that [abuts](#) an alley, provided said parking areas, [structures](#) or spaces shall comply with NMC [15.440.070](#). Parking tables and diagrams (Diagrams 1 through 3).

d. Public or [private parking areas](#), [service drives](#) or [parking spaces](#) which have been identified as a [use](#) permitted in any residential district shall be permitted in [interior yards](#); provided, that said parking areas, [service drives](#) or [parking spaces](#) shall comply with other requirements of this [code](#).

3. In any commercial or industrial district, except C-1, C-4, M-1, and M-E, public or [private parking areas](#) or [parking spaces](#) shall be permitted in any required [yard](#) (see NMC [15.410.030](#)). Parking requirements in the C-4 district and the M-E district within the riverfront overlay subdistrict are described in NMC [15.352.040](#)(H).

4. In the I district, public or [private parking areas](#) or [parking spaces](#) may be no closer to a front property line than 20 feet, and no closer to an interior property line than five feet.

F. Public Telephone Booths and Public Transit Shelters. Public telephone booths and public transit shelters shall be permitted; provided, that vision clearance is maintained for vehicle requirements for vision clearance.

G. [Hangars](#) within the AR [airport](#) residential district may be constructed with no [yard](#) setbacks to property lines adjacent to other properties within the [airport](#) residential or [airport](#) industrial districts. [Ord. [2880](#) § 2 (Exh. B § 40), 6-7-21; Ord. [2868](#) § 1 (Exh. A), 11-16-20; Ord. [2647](#), 6-5-06; Ord. [2619](#), 5-16-05; Ord. [2564](#), 4-~~15~~-02; Ord. [2561](#), 4-1-02; Ord. [2451](#), 12-2-96. Code 2001 § 151.556.]



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**Applicant's Response: None of the code sections of 15.410 are applicable to this project since it is an existing facility with no ground expansion.**



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Criteria 3: Landscaping Requirements. The proposal shall comply with NMC 15.420.010 dealing with landscape requirements and landscape screening.

**Applicant's Response: Existing Wireless Communications Facility. No change proposed to landscaping.**





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Criteria 4: Signs. Signs shall comply with NMC 15.435.010 et seq. dealing with signs.

**Applicant's Response: Existing Wireless Communications Facility. No change to signs proposed.**



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Criteria 5: Zoning District Compliance. The proposed use shall be listed as a permitted or conditionally permitted use in the zoning district in which it is located as found in NMC 15.305.010 through 15.336.020.

**Applicant's Response: Existing Wireless Communications Facility. Tower originally permitted under CUP-06-002.**



DISH Wireless L.L.C. SITE ID:

**PRPDX00328B**

DISH Wireless L.L.C. SITE ADDRESS:

**2400 DOUGLAS AVENUE  
NEWBERG, OR 97132**

**SCOPE OF WORK**

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

- TOWER SCOPE OF WORK:**
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
  - INSTALL (1) PROPOSED PLATFORM ANTENNA MOUNT
  - INSTALL PROPOSED JUMPERS
  - INSTALL (6) PROPOSED RRU's (2 PER SECTOR)
  - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
  - INSTALL (1) PROPOSED HYBRID CABLE
  - INSTALL (1) PROPOSED 10' TOWER EXTENSION

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

**SITE INFORMATION**

PROPERTY OWNER: NEWBERG SCHOOL DIS. 29J 1  
 ADDRESS: 714 E 6TH ST  
 ATTN BUSINESS OFFICE  
 NEWBERG, OR 97132

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: 856521

TOWER APP NUMBER: 576279

COUNTY: YAMHILL

LATITUDE (NAD 83): 45° 18' 39.29" N  
 49.327581X N

LONGITUDE (NAD 83): 122° 57' 9.79" W  
 -122.952719

ZONING JURISDICTION: CITY OF NEWBERG, OR

ZONING DISTRICT: TBD

PARCEL NUMBER: 33895

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: V-B

POWER COMPANY: PORTLAND GENERAL ELECTRIC

TELEPHONE COMPANY: VERIZON WIRELESS

**PROJECT DIRECTORY**

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

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

SITE DESIGNER: PM&A  
 1000 HOLCOMB WOODS PKWY  
 SUITE 210  
 ROSWELL, GA 30076  
 (678) 280-2325

SITE ACQUISITION: ANDREW MAGOON  
 (602) 845-1793

FIELD CONST. MANAGER: TONY FILIPPELLO  
 (360) 430-4084

RF MANAGER: MIKE ZIEHNERT  
 (503) 754-9725

**OREGON CODE 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 OSSC/2018 IBC
MECHANICAL	2019 OMSC/2018 IMC
ELECTRICAL	2017 OESC/2017 NEC

**SITE PHOTO**



**DIRECTIONS**

**DIRECTIONS FROM PORTLAND INTERNATIONAL AIRPORT:**  
 GET ON I-205 S FROM NE AIRPORT WAY 6 MIN (2.7 MI) TAKE I-84 W/US-30 W, I-5 S AND OR-99W S/PACIFIC HWY W TO N SPRINGBROOK RD IN NEWBERG 43 MIN (30.6 MI) TAKE DEBORAH RD TO E DOUGLAS AVE 3 MIN (0.8 MI) 2400 DOUGLAS AVE NEWBERG, OR 97132

**VICINITY MAP**



**SHEET INDEX**

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	PARCEL SITE PLAN
A-1.1	COMPOUND, OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	CONCRETE PAD AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES



UNDERGROUND SERVICE ALERT - OREGON 811  
 UTILITY NOTIFICATION CENTER OF OREGON  
 (800) 332-2344  
 WWW.DIGSAFELYOREGON.COM



CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

**GENERAL NOTES**

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

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

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



5701 SOUTH SANTA FE DRIVE  
 LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
 SUITE 210  
 ROSWELL, GA 30076  
 678-280-2325



EXPIRES: 6/30/2022

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

DRAWN BY: LTH CHECKED BY: DM APPROVED BY: MSB

RFDS REV #: ---

**CONSTRUCTION DOCUMENTS**

REV	DATE	DESCRIPTION
A	11/15/2021	ISSUED FOR REVIEW
0	12/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
 21CCD12N-0051

DISH Wireless L.L.C.  
 PROJECT INFORMATION

PRPDX00328B  
 2400 DOUGLAS AVE.  
 NEWBERG, OR 97132

SHEET TITLE  
 TITLE SHEET

SHEET NUMBER

**T-1**

**NOTES**

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



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
SUITE 210  
ROSWELL, GA 30076  
678-280-2325



EXPIRES: 6/30/2022

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RFDS REV #: ---

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SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/19/2021	ISSUED FOR REVIEW
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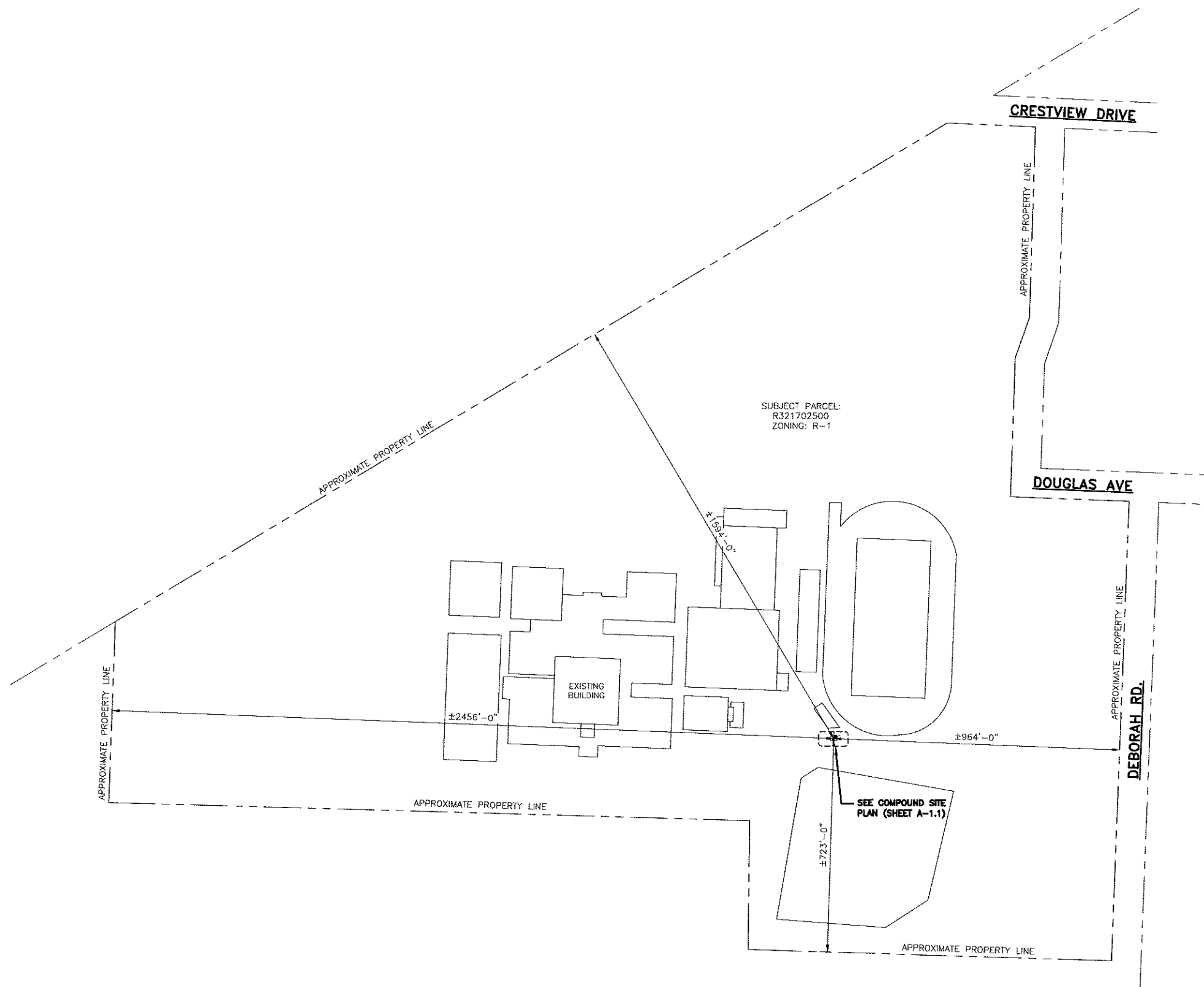
A&E PROJECT NUMBER  
21CCD12N-0051

DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRPDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

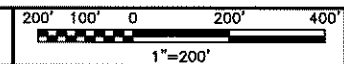
SHEET TITLE  
PARCEL  
SITE PLAN

SHEET NUMBER

**A-1**



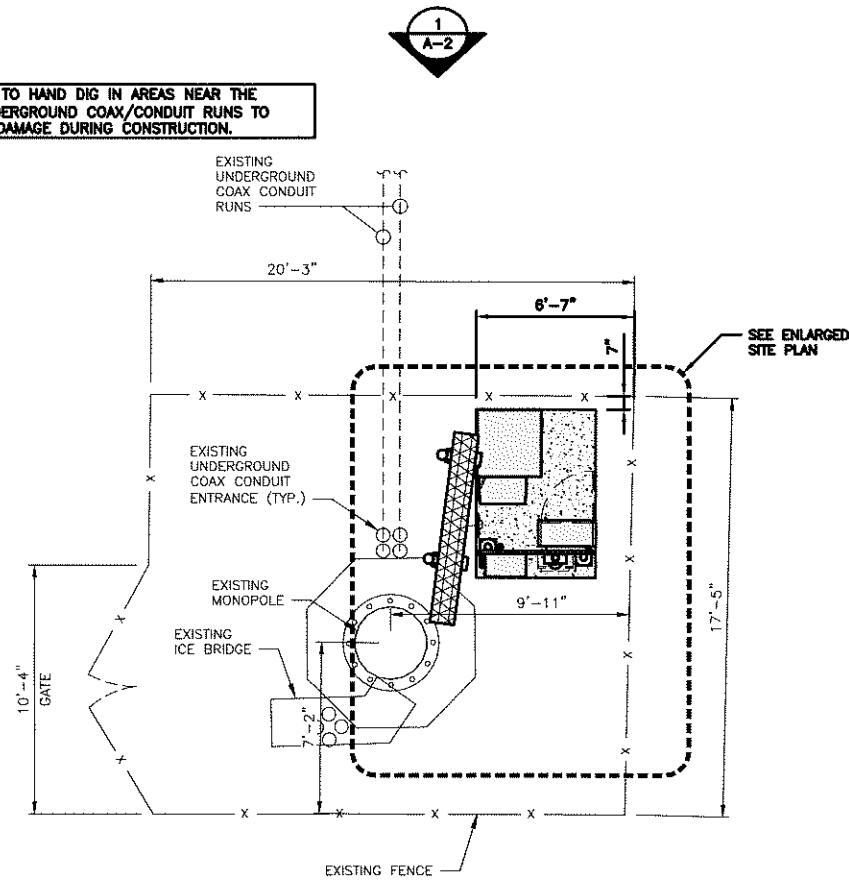
**PARCEL SITE PLAN**



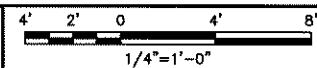
**NOTES**

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

CONTRACTOR TO HAND DIG IN AREAS NEAR THE EXISTING UNDERGROUND COAX/CONDUIT RUNS TO ENSURE NO DAMAGE DURING CONSTRUCTION.



PROPOSED DISH Wireless L.L.C. HANDHOLE (CONTRACTOR TO FIELD DETERMINE LOCATION)

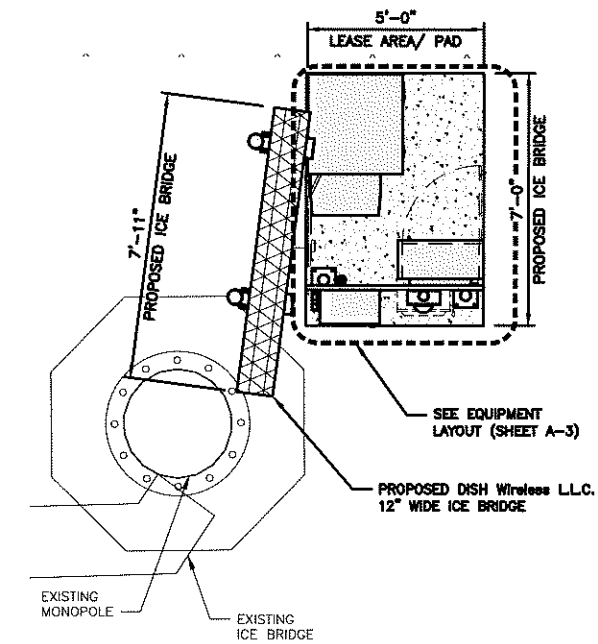


**COMPOUND SITE PLAN**

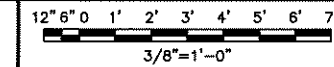
1

**NOTES**

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



**ENLARGED SITE PLAN**



2

**OVERALL SITE PLAN**

NO SCALE

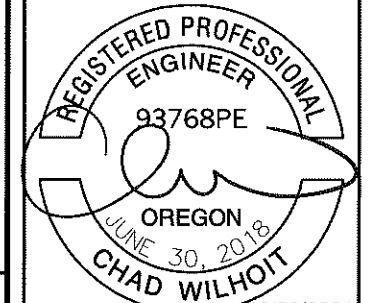
3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
SUITE 210  
ROSWELL, GA 30076  
678-280-2325



12/20/2021  
EXPIRES: 6/30/2022

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DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

SHEET TITLE  
COMPOUND, OVERALL AND ENLARGED SITE PLAN

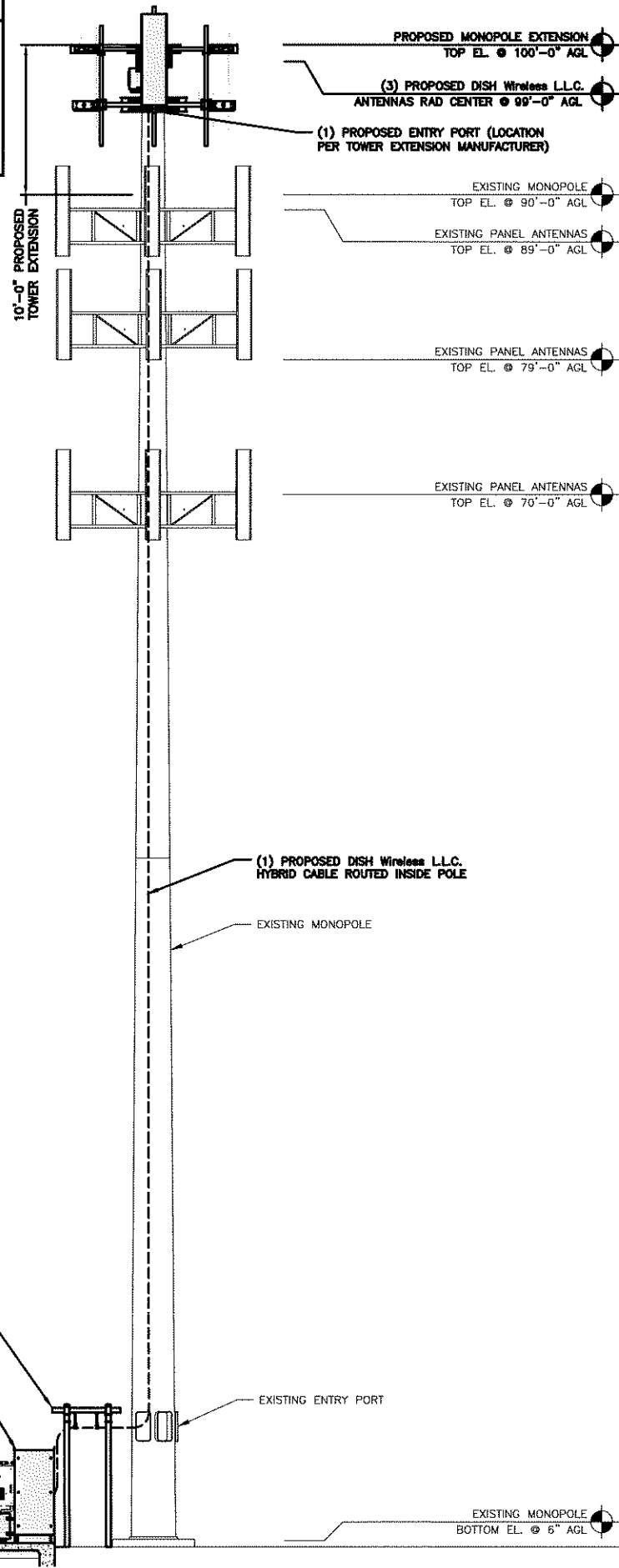
SHEET NUMBER

**A-1.1**

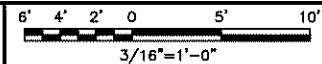


**NOTES**

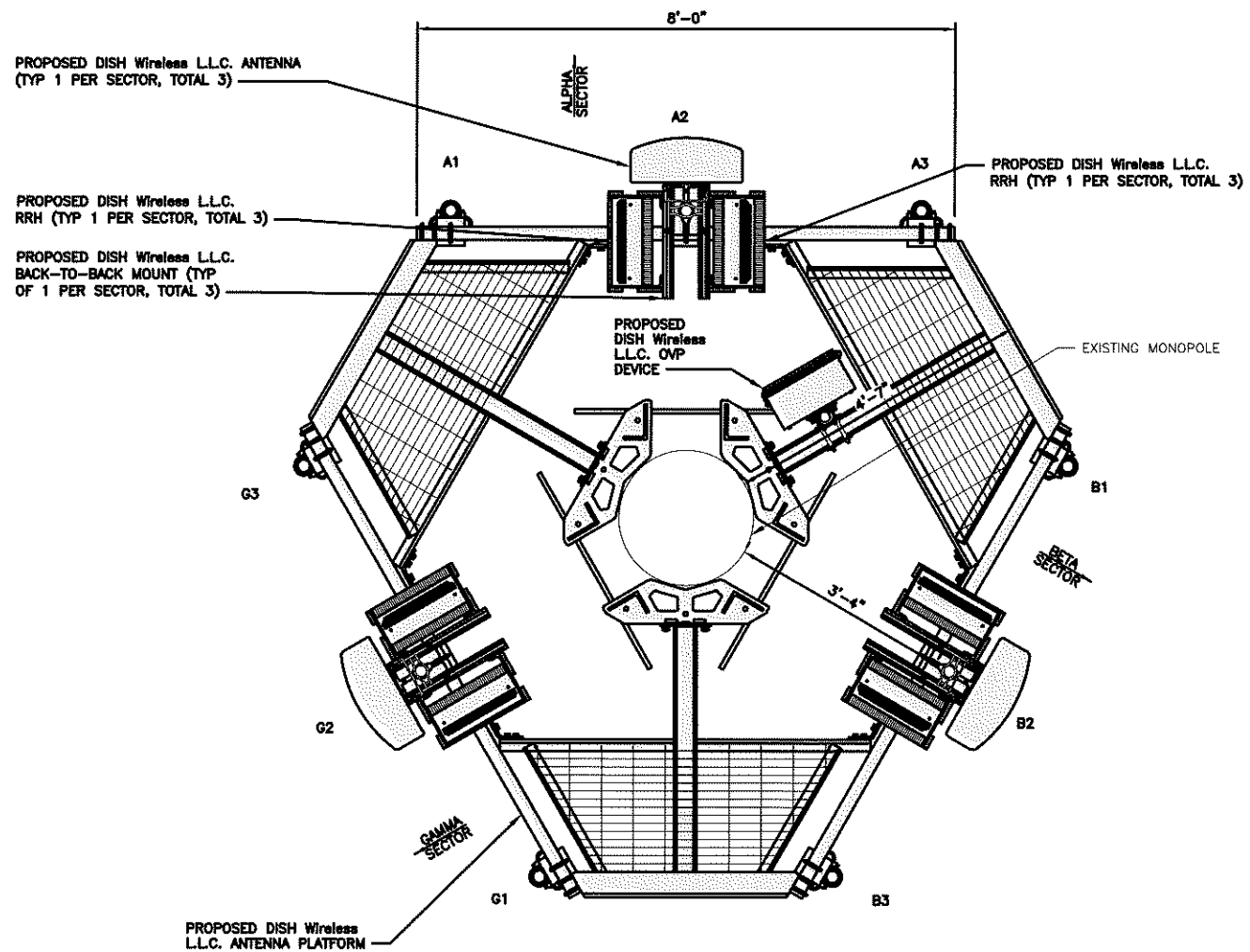
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



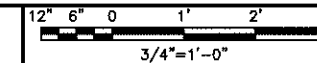
**PROPOSED NORTH ELEVATION**



1



**ANTENNA LAYOUT**



2

SECTOR POS.	ANTENNA						TRANSMISSION CABLE FEED LINE TYPE AND LENGTH	RRH			OVP MANUFACTURER MODEL
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	MECH TILT	RAD CENTER		MANUFACTURER - MODEL NUMBER	TECH	POS.	
A1	---	---	---	---	---	---	(1) HIGH-CAPACITY HYBRID CABLE (150' LONG)	FUJITSU TA08025-B804	5G	A2	RAYCAP RDIDC-8181-PF-48
A2	PROPOSED	JMA - MX08FRO885-21	5G	0°	-4°	99°-0°		FUJITSU TA08025-B805	5G	A2	
A3	---	---	---	---	---	---		---	---	---	
B1	---	---	---	---	---	---	SHARED W/ALPHA	FUJITSU TA08025-B804	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA - MX08FRO885-21	5G	120°	-4°	99°-0°		FUJITSU TA08025-B805	5G	B2	
B3	---	---	---	---	---	---		---	---	---	
C1	---	---	---	---	---	---	SHARED W/ALPHA	FUJITSU TA08025-B804	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA - MX08FRO885-21	5G	240°	0°	99°-0°		FUJITSU TA08025-B805	5G	C2	
C3	---	---	---	---	---	---		---	---	---	

**NOTES**

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

**ANTENNA SCHEDULE**

NO SCALE

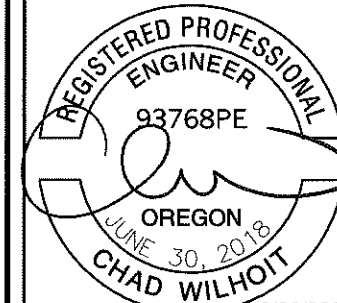
3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
SUITE 210  
ROSWELL, GA 30076  
678-280-2325



EXPIRES: 6/30/2022

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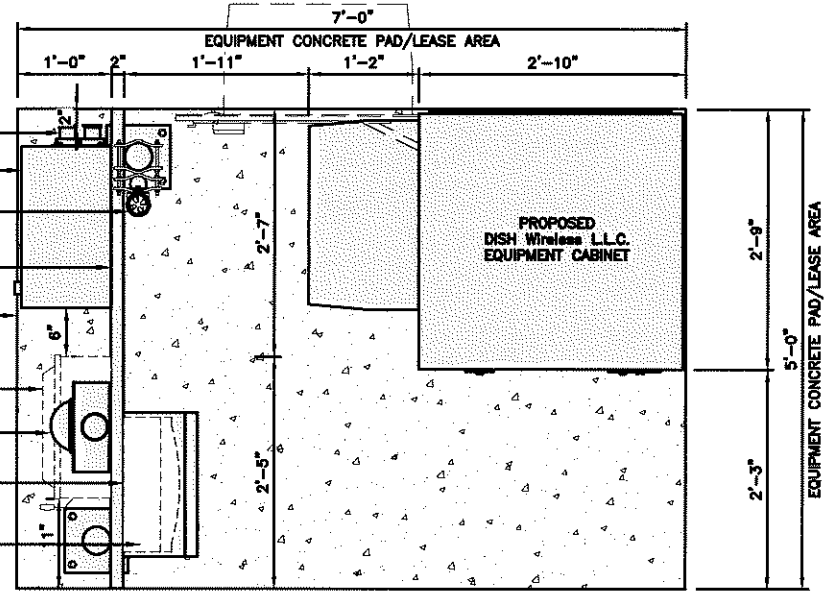
DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRPDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

SHEET TITLE  
ELEVATION, ANTENNA  
LAYOUT AND SCHEDULE

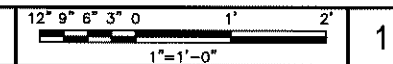
SHEET NUMBER

**A-2**

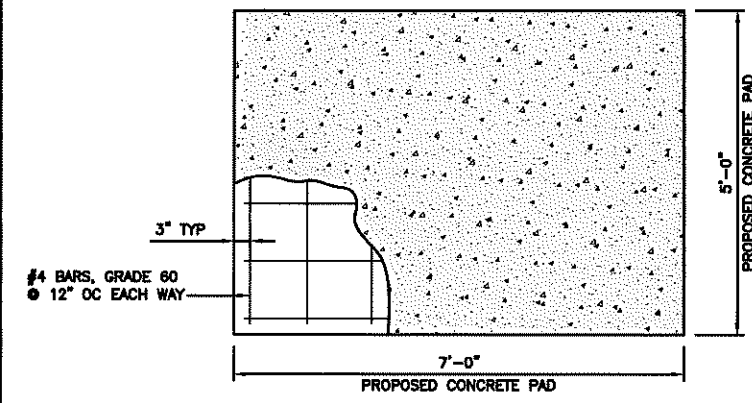
- PROPOSED DISH Wireless L.L.C. GENERATOR PLUG
- PROPOSED DISH Wireless L.L.C. POWER PROTECTIVE CABINET
- PROPOSED DISH Wireless L.L.C. GPS UNIT
- PROPOSED DISH Wireless L.L.C. H-FRAME
- PROPOSED DISH Wireless L.L.C. EQUIPMENT PAD
- PROPOSED DISH Wireless L.L.C. SAFETY SWITCH. SPACE RESERVED FOR ADDITIONAL DISCONNECT IF REQUIRED.
- PROPOSED DISH Wireless L.L.C. 200AMP METER SOCKET
- PROPOSED DISH Wireless L.L.C. TELCO FIBER ENCLOSURE
- PROPOSED DISH Wireless L.L.C. FIBER NID, IF REQUIRED



EQUIPMENT PLAN

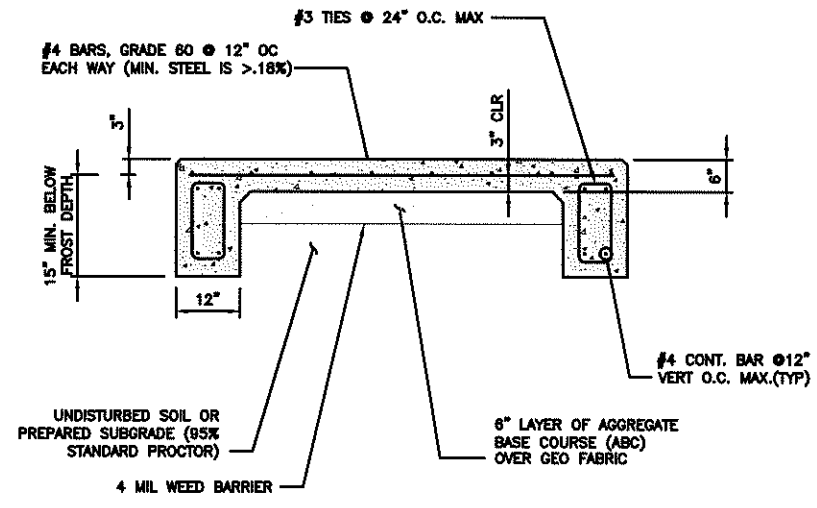


CONTRACTOR TO PROVIDE AND INSTALL BREAKOUT FOR POWER AND FIBER CONDUITS. COORDINATE SIZE AND LOCATION WITH DISH CM.



TYPICAL CONCRETE PAD DETAIL

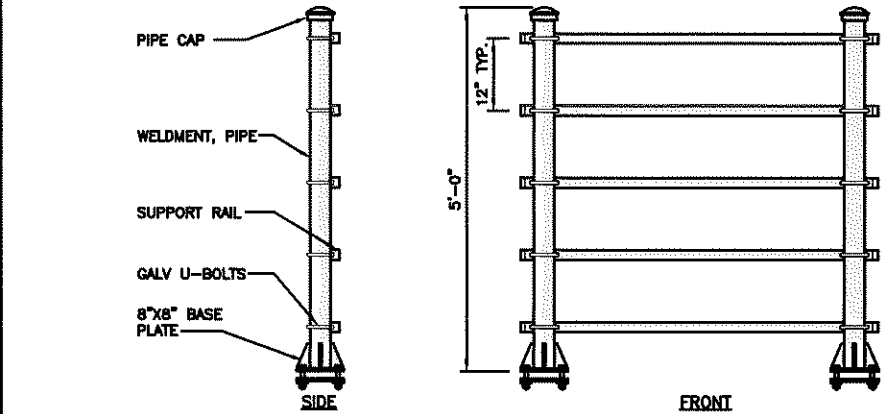
NO SCALE 2



TYPICAL CONCRETE SECTION DETAIL

NO SCALE 3

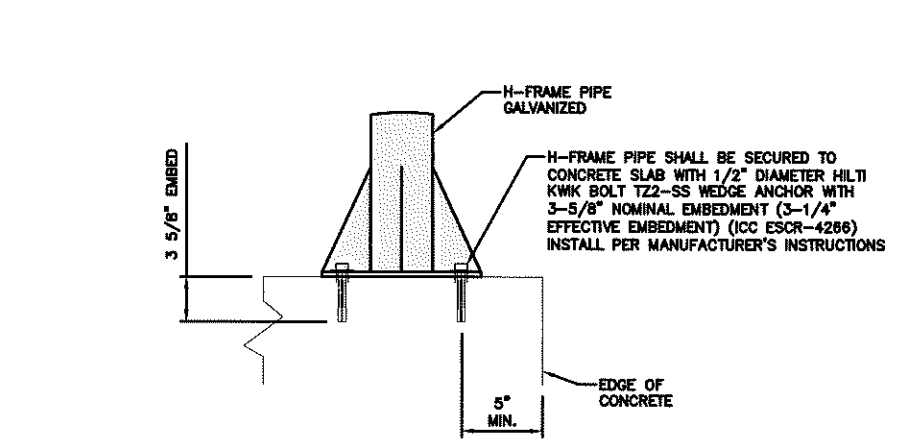
KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS



H-FRAME DETAIL

NO SCALE 4

H-FRAME	
UNISTRUT/SUPPORT RAIL	6

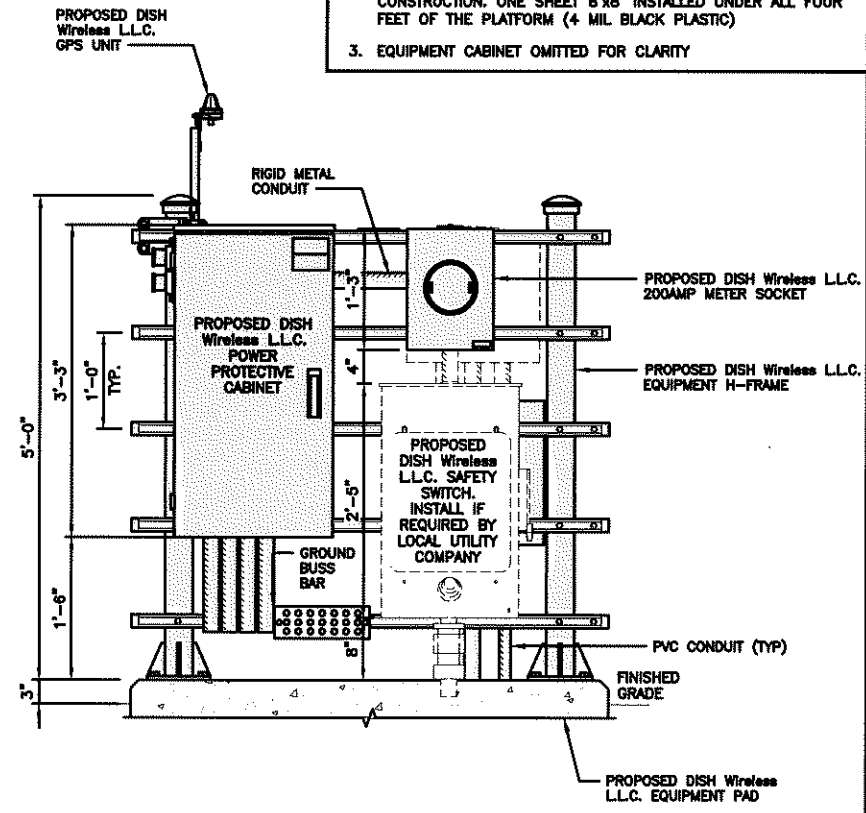


H-FRAME CONCRETE SLAB INSTALLATION DETAIL

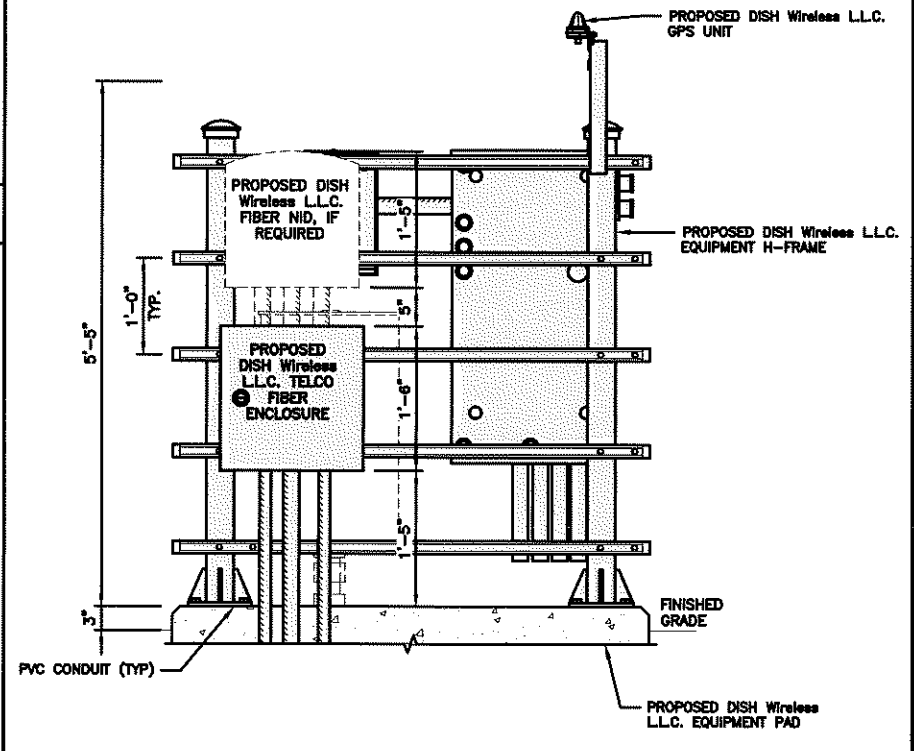
NO SCALE 5

NOTES

- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
- WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
- EQUIPMENT CABINET OMITTED FOR CLARITY

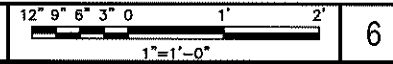


FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
SUITE 210  
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678-280-2325



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LTH	DM	MSB
RFDS REV #:		

CONSTRUCTION DOCUMENTS

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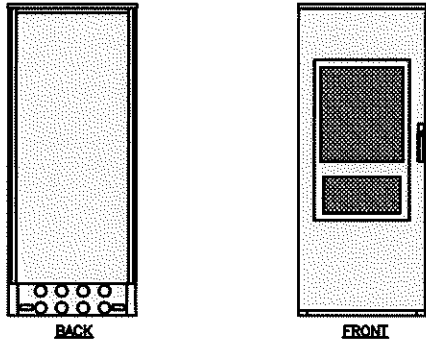
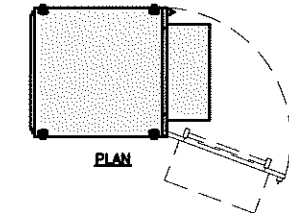
DISH Wireless L.L.C. PROJECT INFORMATION  
PRPDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

SHEET TITLE  
CONCRETE PAD AND H-FRAME DETAILS

SHEET NUMBER

A-3

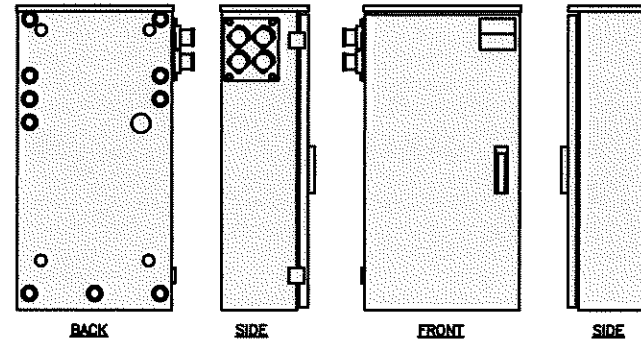
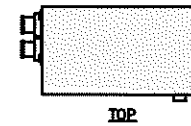
ENERSYS HEX CABINET 200005996	
DIMENSIONS (HxWxD):	73"x30"x32"
WEIGHT EMPTY:	376 lbs
HEATER	800W
POWER SYSTEM	-48V ALPHA/800A



CABINET DETAIL

NO SCALE 1

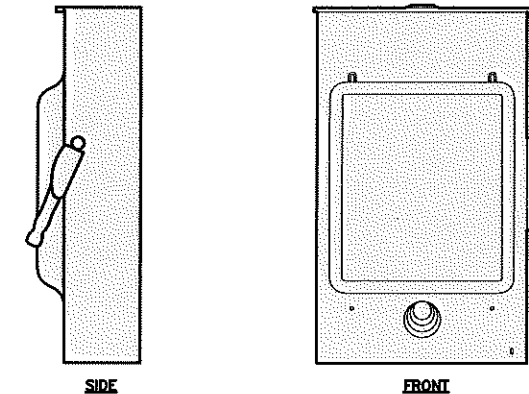
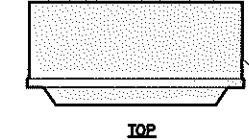
RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G



POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE 2

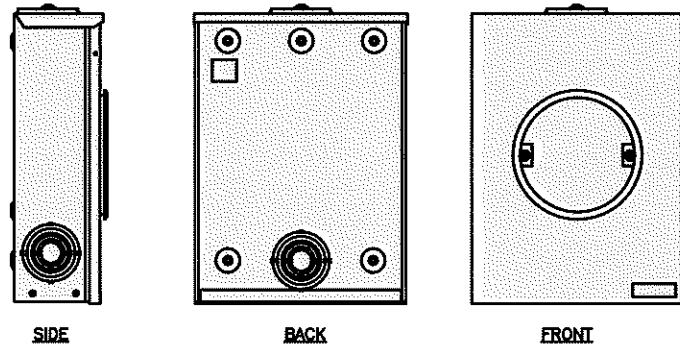
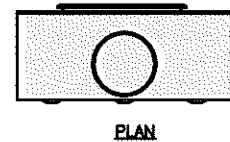
SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E-2875



SAFETY SWITCH DETAIL

NO SCALE 3

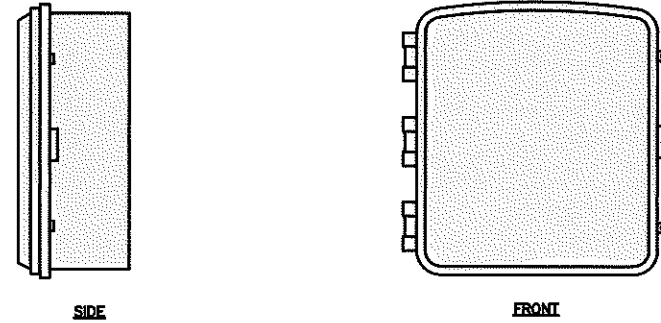
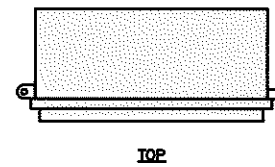
EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS



METER SOCKET DETAIL

NO SCALE 4

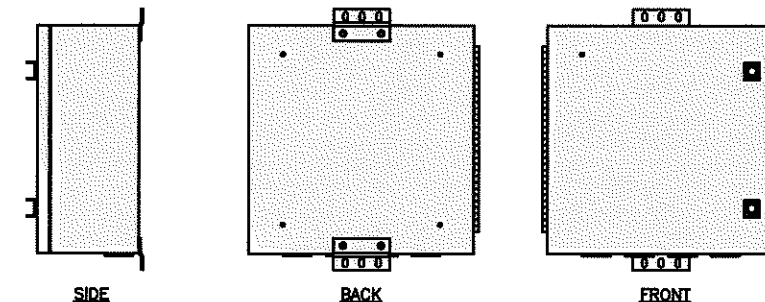
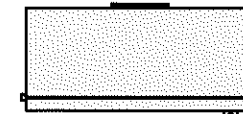
PROPOSED FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	17"x16.8"x7"
WEIGHT	28.6 lbs



FIBER NID ENCLOSURE DETAIL

NO SCALE 5

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

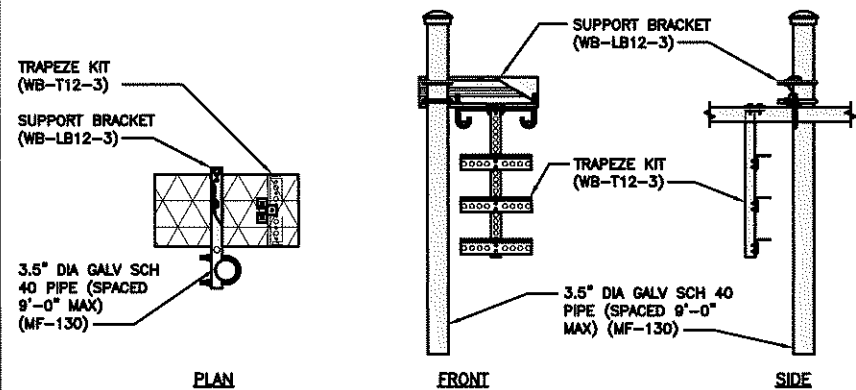


FIBER TELCO ENCLOSURE DETAIL

NO SCALE 6

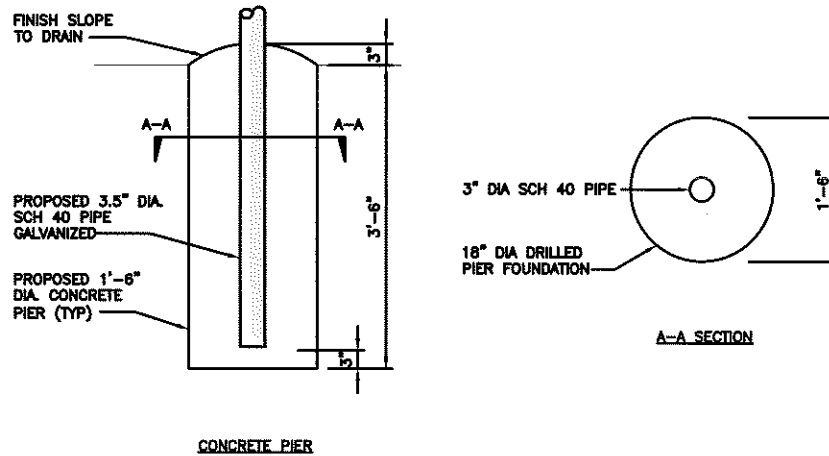
COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	180"x10"
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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



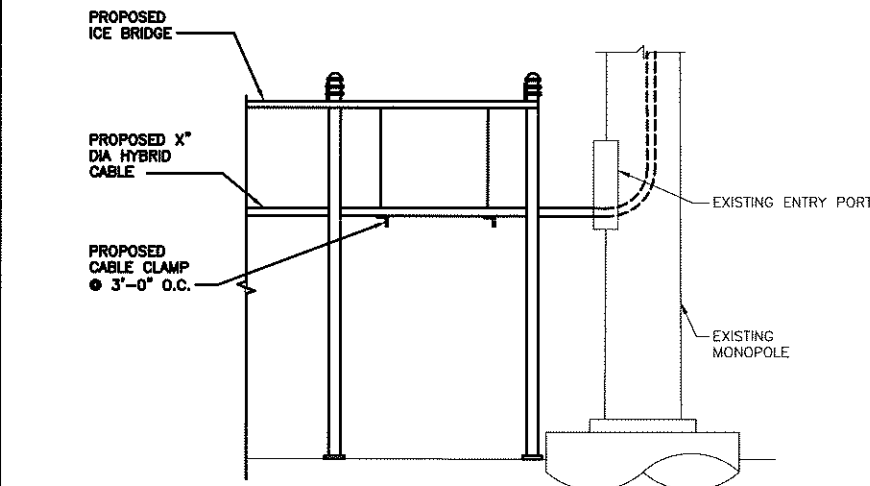
ICE BRIDGE DETAIL

NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE 8



HYBRID CABLE RUN

NO SCALE 9



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
SUITE 210  
ROSWELL, GA 30076  
678-280-2325



12/20/2021  
EXPIRES: 6/30/2022

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LTH DM MSB

RFDS REV #:

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/18/2021	ISSUED FOR REVIEW
0	12/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
21CCD12N-0051

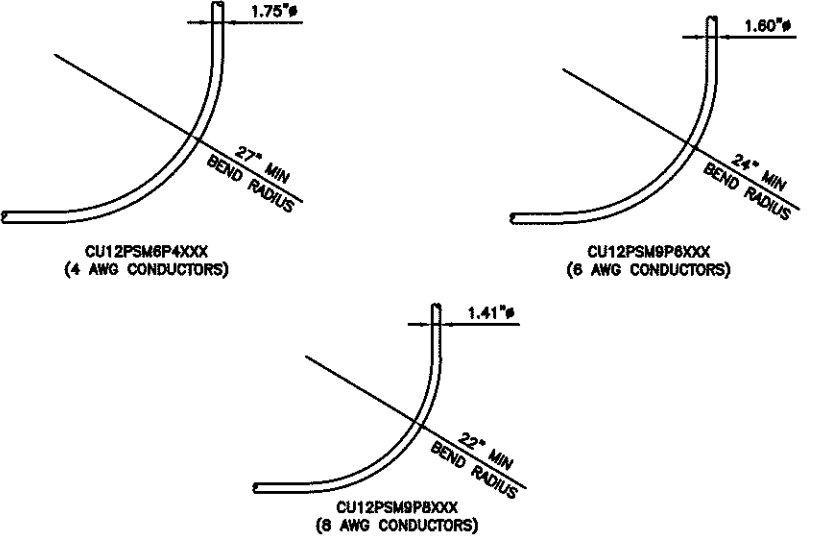
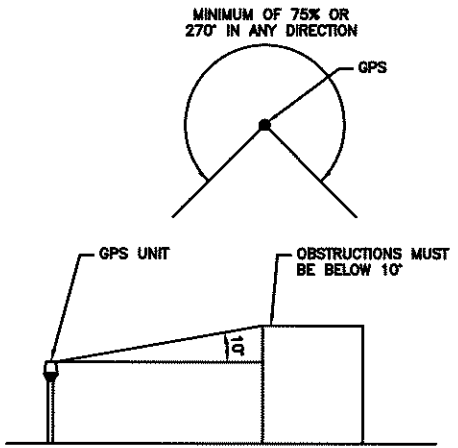
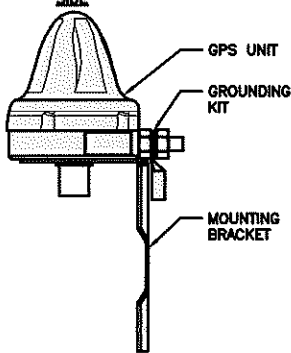
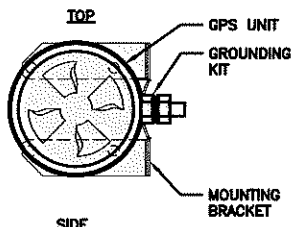
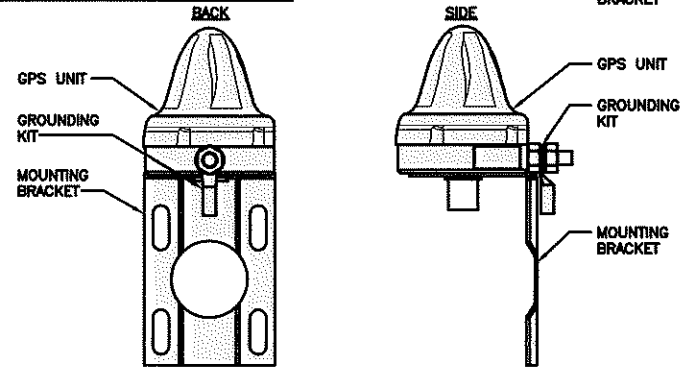
DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRPDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-4**



<b>ROSENBERGER GPSGLONASS-36-N-S</b>	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1810.5MHz

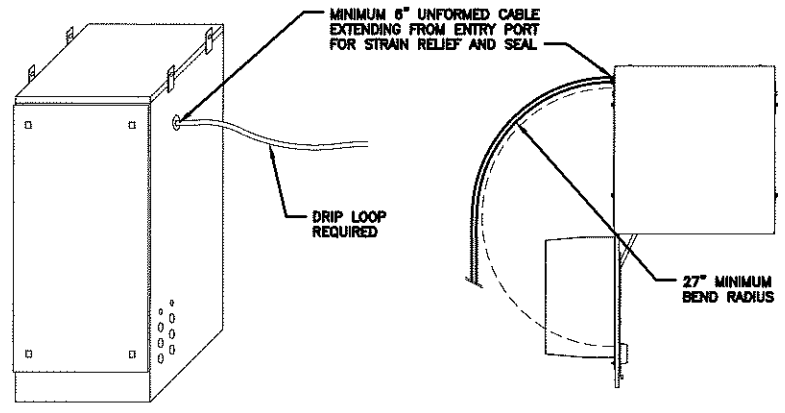
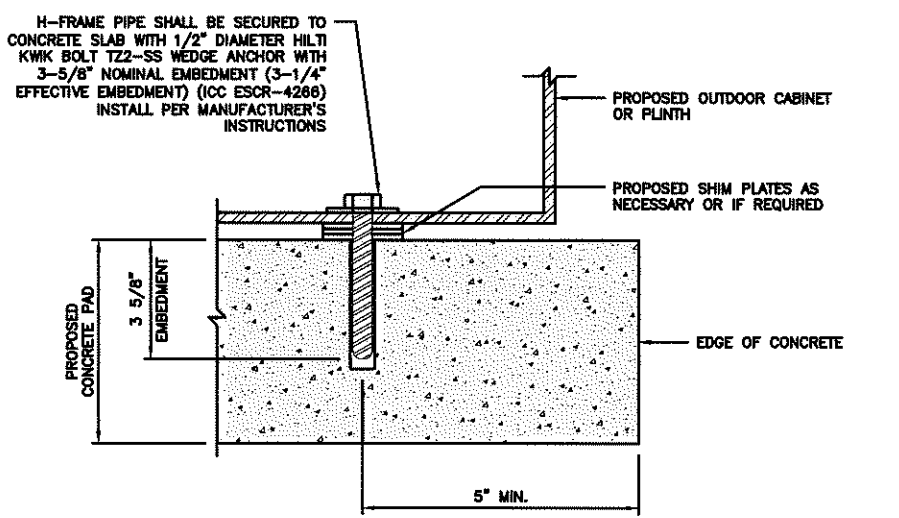
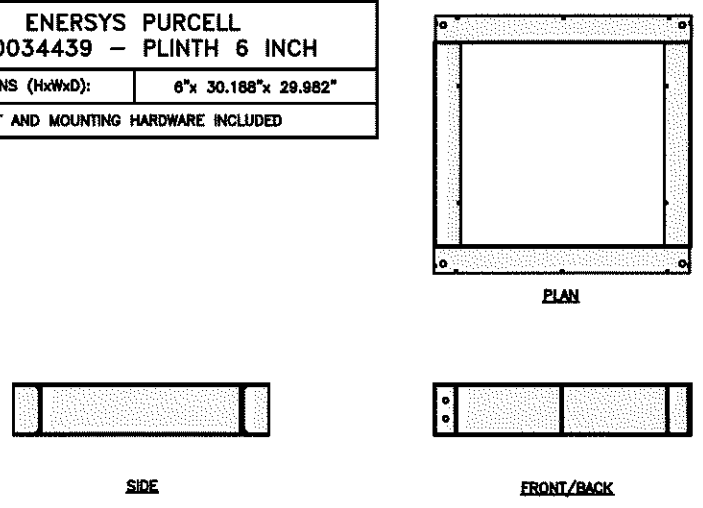


**GPS ANTENNA DETAIL** NO SCALE 1

**GPS MINIMUM SKY VIEW REQUIREMENTS** NO SCALE 2

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

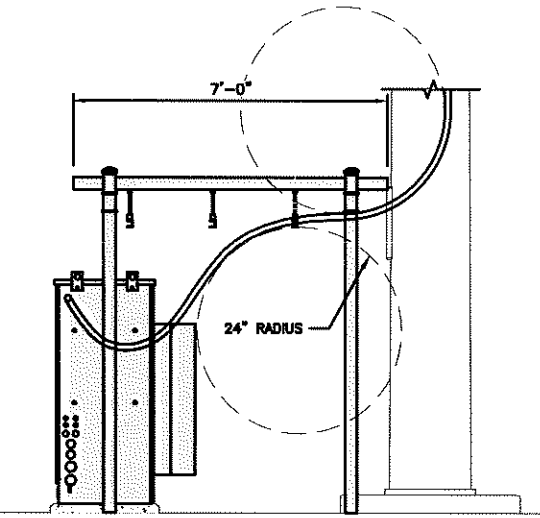
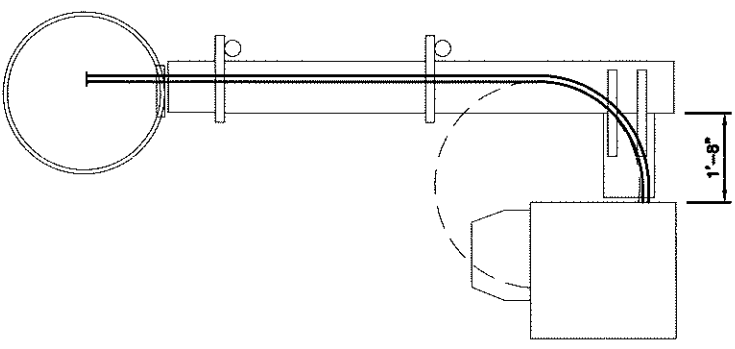
<b>ENERSYS PURCELL 1000034439 - PLINTH 6 INCH</b>	
DIMENSIONS (HxWxD)	6" x 30.188" x 29.982"
NOTE: GASKET AND MOUNTING HARDWARE INCLUDED	



**PLINTH DETAIL** NO SCALE 4

**TYPICAL OUTDOOR EQUIPMENT TO CONCRETE SLAB ANCHORAGE** NO SCALE 5

**DRIP LOOP DETAIL** NO SCALE 6



**CABLE BEND DETAIL** NO SCALE 7

**CABLE BEND DETAIL** NO SCALE 8

**NOT USED** NO SCALE 9

**dish wireless.**

5701 SOUTH SANTA FE DRIVE  
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**PM&A**

1000 HOLCOMB WOODS PKWY,  
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ROSWELL, GA 30076  
678-280-2325



12/20/2021  
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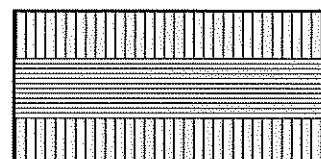
A&E PROJECT NUMBER  
21CCD12N-0051

DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

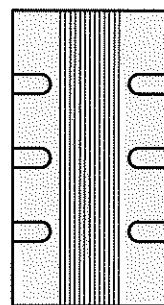
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-5**

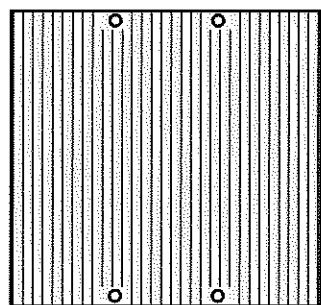
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58V-36V



PLAN

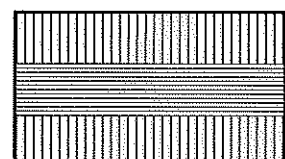


SIDE

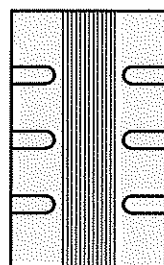


FRONT

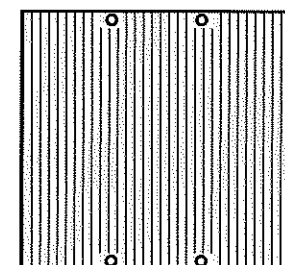
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58V-36V



PLAN



SIDE



FRONT

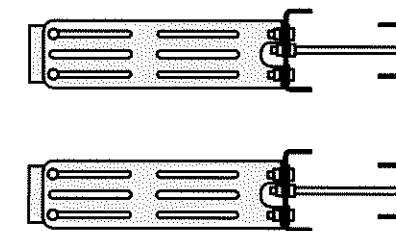
COMMSCOPE RR-FA2 LARGE STABILIZER	
DIMENSIONS (HxWxD)	16.4"x8.5"x18"
WEIGHT	39.2 lbs

DESIGN NOTES:  
MOUNT WILL FIT LEGS UP TO:  
- 5.6" ROUND  
- 6.0" 60° ANGLE  
- 4.5" 90° ANGLE



PLAN

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



SIDE

REMOTE RADIO HEAD DETAIL

NO SCALE

1

REMOTE RADIO HEAD DETAIL

NO SCALE

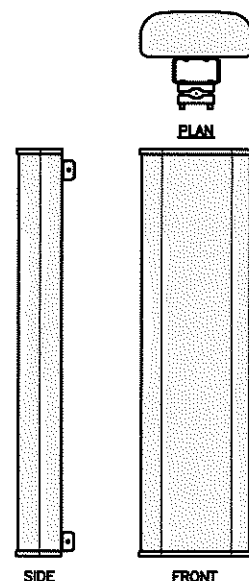
2

RRH MOUNT DETAIL

NO SCALE

3

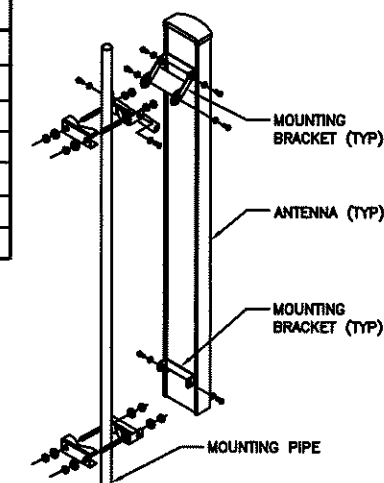
JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



SIDE

FRONT

M04 MOUNTING BRACKET HPA-33R-BUU-H4-K	
WIDTH	5" (135mm)
DEPTH	2" (51mm)
HEIGHT	6" (213mm)
TOTAL WEIGHT (WITH BRACKETS)	1.5 LBS (15.50 Kg)
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1X8-PIN DAISY CHAIN



MOUNTING BRACKET (TYP)

ANTENNA (TYP)

MOUNTING BRACKET (TYP)

MOUNTING PIPE

NOT USED

NO SCALE

4

ANTENNA DETAIL

NO SCALE

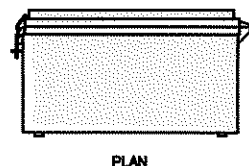
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ANTENNA MOUNTING DETAIL

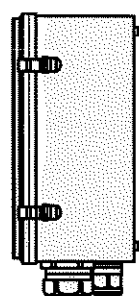
NO SCALE

6

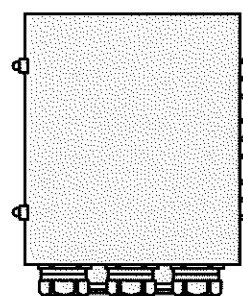
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



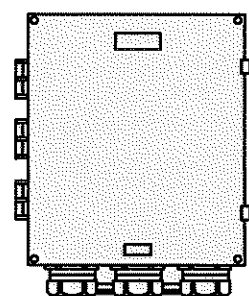
PLAN



SIDE

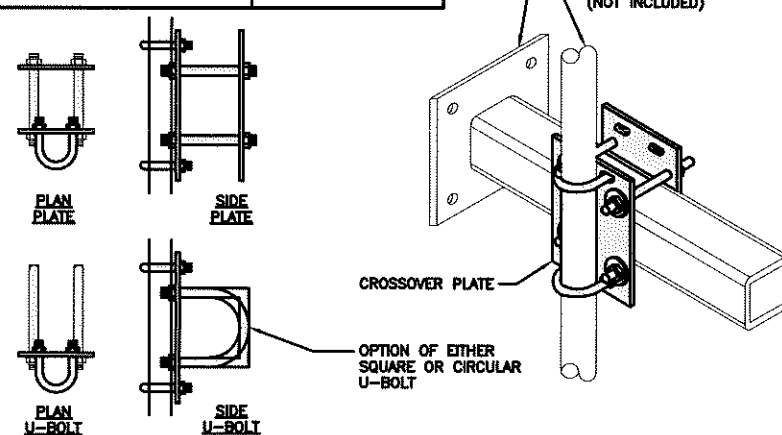


BACK



FRONT

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



ANTENNA PLATFORM  
(NOT INCLUDED)

ANTENNA PIPE MOUNT  
(NOT INCLUDED)

CROSSOVER PLATE

OPTION OF EITHER  
SQUARE OR CIRCULAR  
U-BOLT

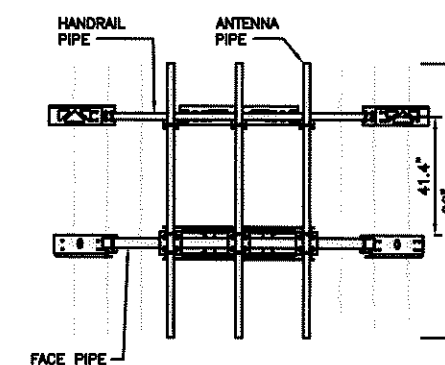
PLAN  
PLATE

SIDE  
PLATE

PLAN  
U-BOLT

SIDE  
U-BOLT

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



FACE PIPE

HANDRAIL  
PIPE

ANTENNA  
PIPE

PLATFORM

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

RRH/OVP MOUNT DETAIL

NO SCALE

8

ANTENNA PLATFORM DETAIL

NO SCALE

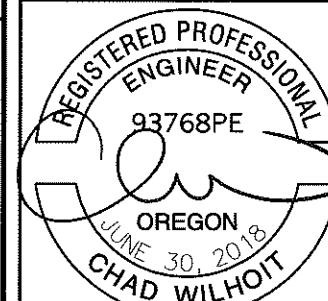
9



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
SUITE 210  
ROSWELL, GA 30076  
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRPDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

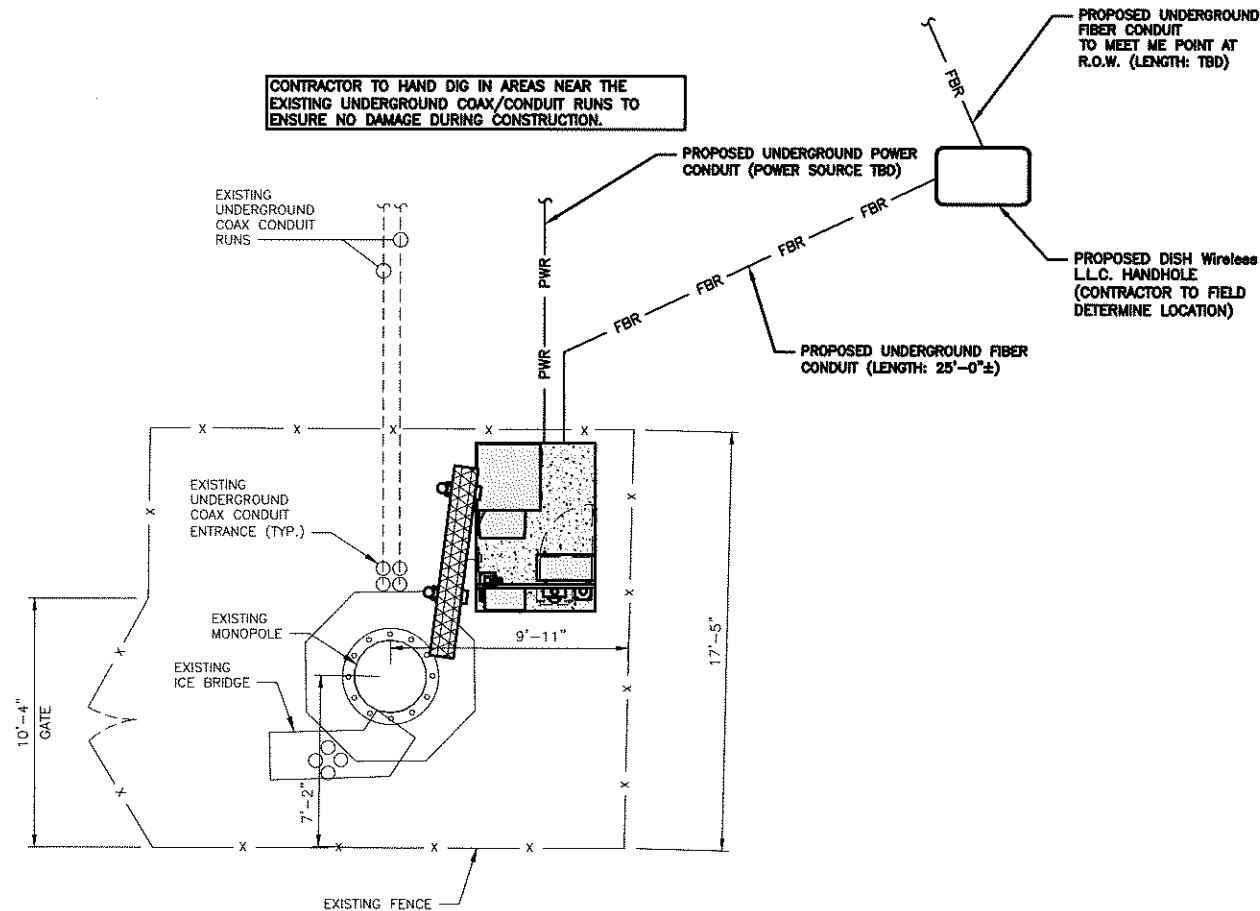
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

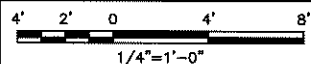
A-6

**NOTES**

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



**UTILITY ROUTE PLAN**



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

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

**ELECTRICAL NOTES**

NO SCALE



NOTE:  
UTILITY EASEMENT SHOWN PER SURVEY PROVIDED BY OTHERS. CONTRACTOR TO COORDINATE AND ROUTE UTILITIES WITHIN EXISTING UTILITY EASEMENT. DISH WIRELESS L.L.C. SHALL BE RESPONSIBLE FOR OBTAINING EASEMENT RIGHTS AS REQUIRED FOR INSTALLATION OF ALL UTILITIES.

**OVERALL UTILITY PLAN**

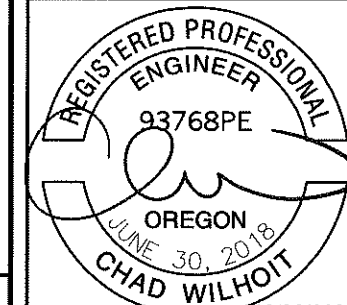
NO SCALE



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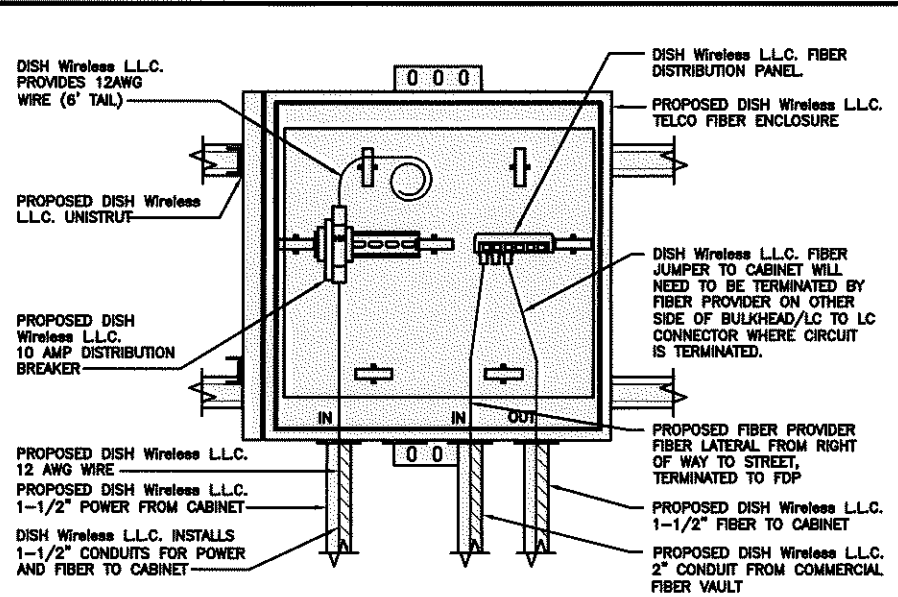
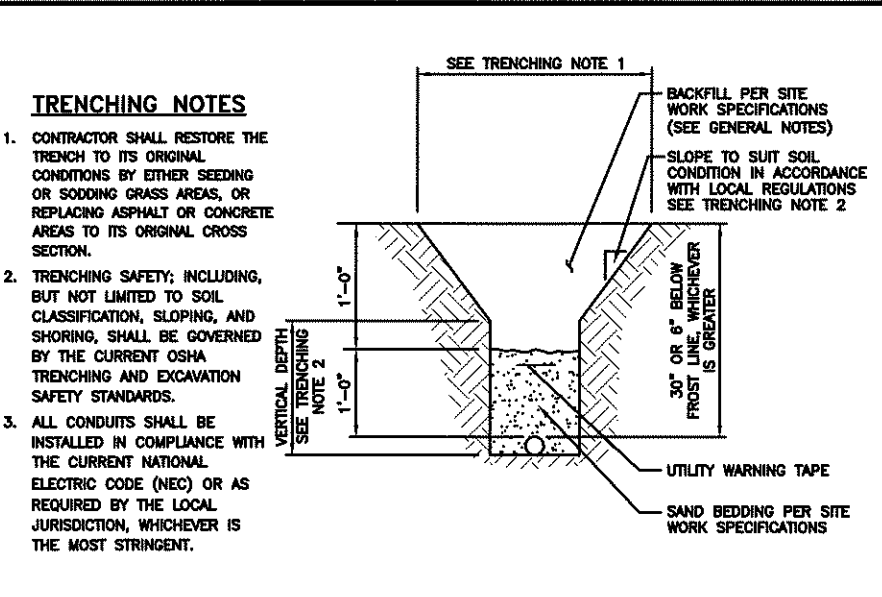
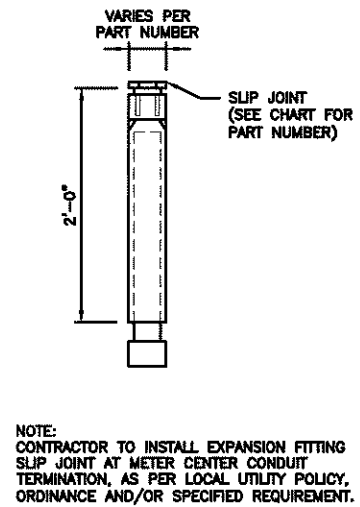
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRPDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER

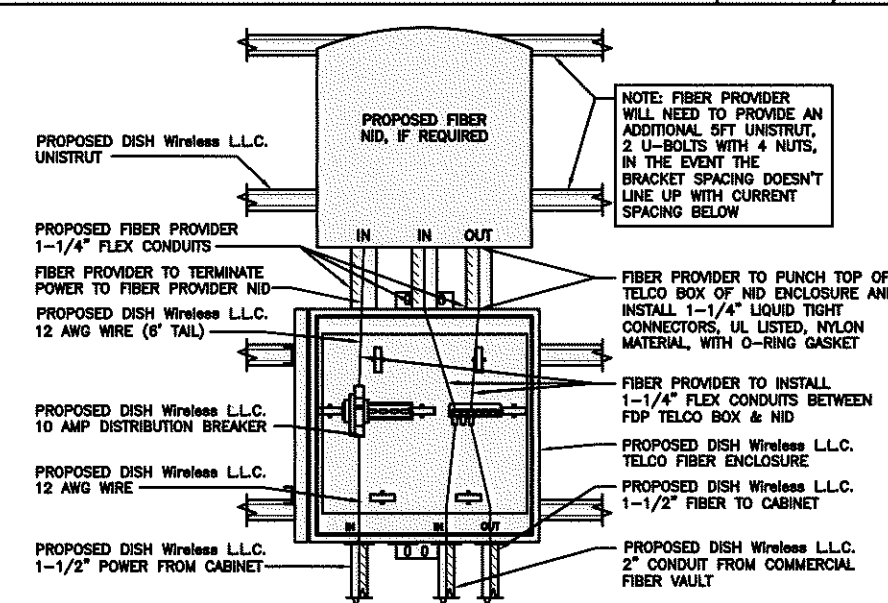
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"



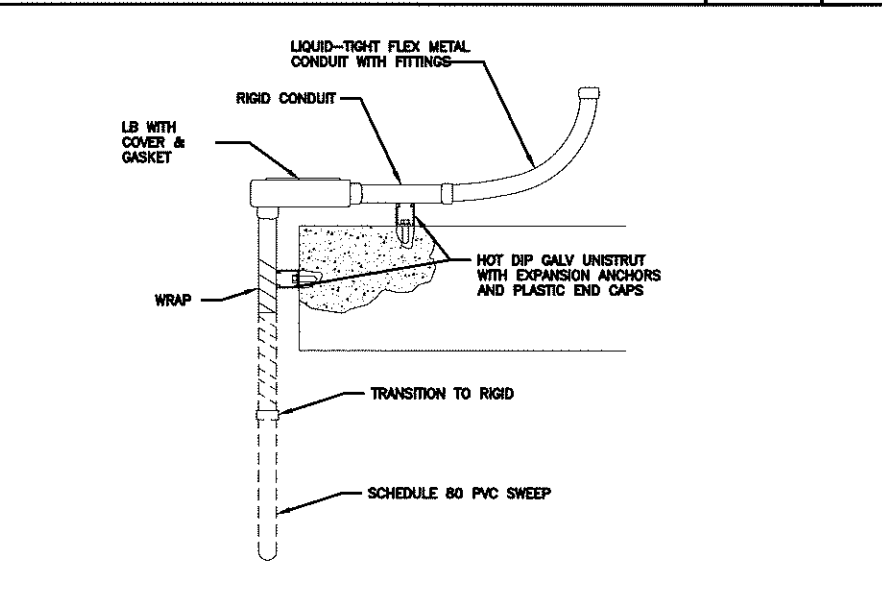
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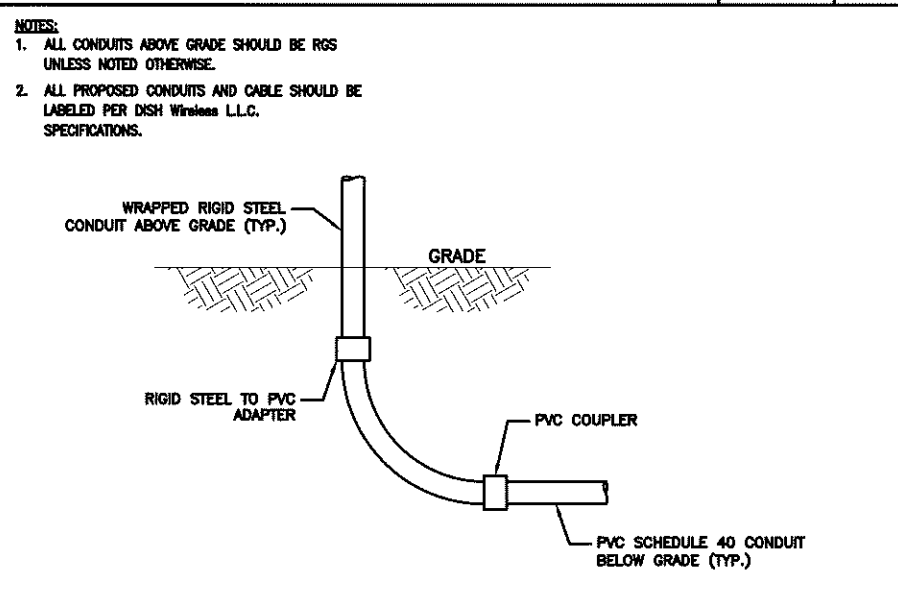
**EXPANSION JOINT DETAIL** NO SCALE 1



**TYPICAL UNDERGROUND TRENCH DETAIL** NO SCALE 2



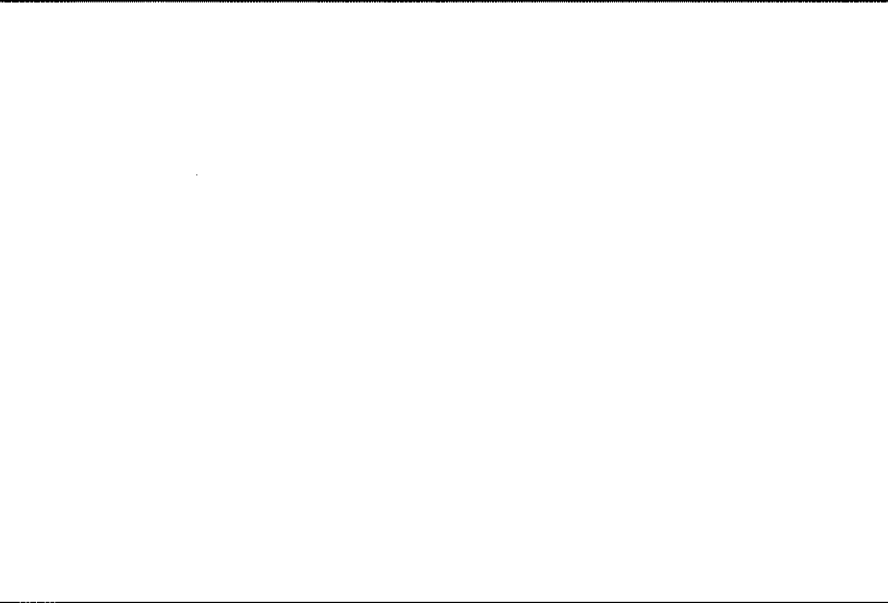
**DARK TELCO BOX - INTERIOR WIRING LAYOUT** NO SCALE 3



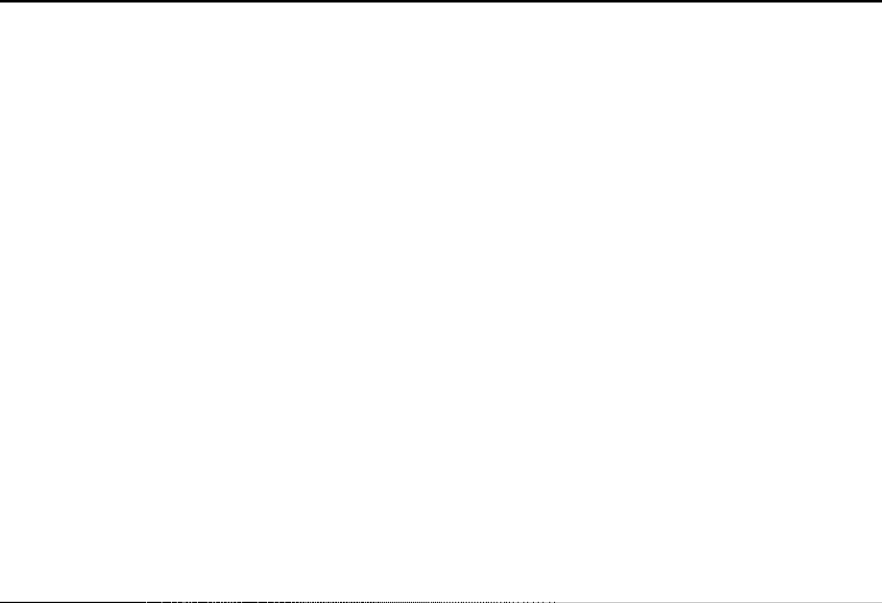
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DRAWN BY: LTH CHECKED BY: DM APPROVED BY: MSB  
RFDS REV #:

**LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL)** NO SCALE 4



**CABINET CONDUIT DETAIL** NO SCALE 5



**TYPICAL UNDERGROUND TUB-UP DETAIL** NO SCALE 6



**NOT USED** NO SCALE 7

**NOT USED** NO SCALE 8

**NOT USED** NO SCALE 9

### CONSTRUCTION DOCUMENTS

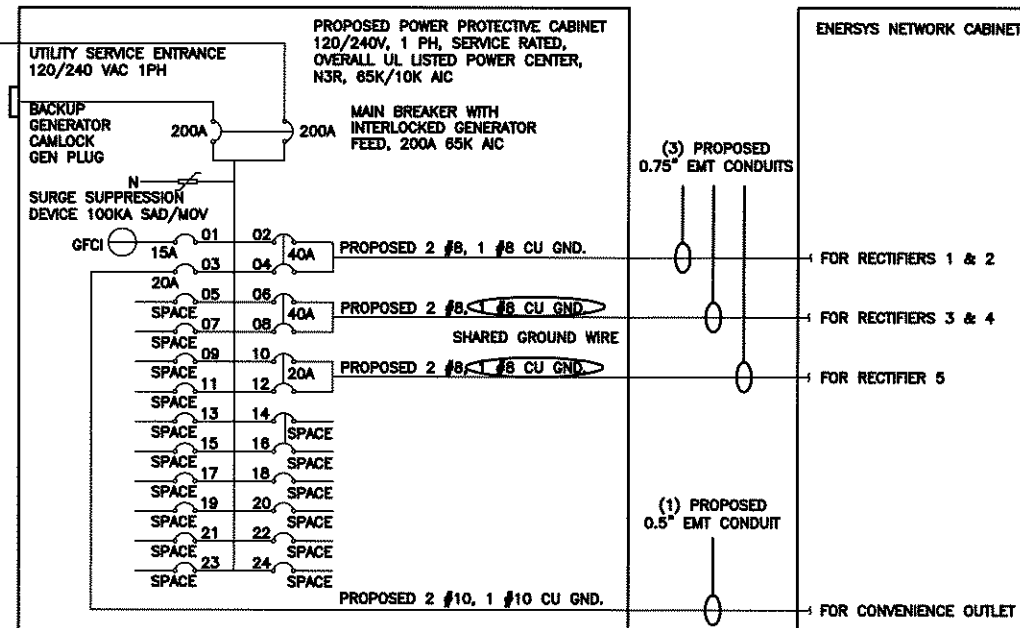
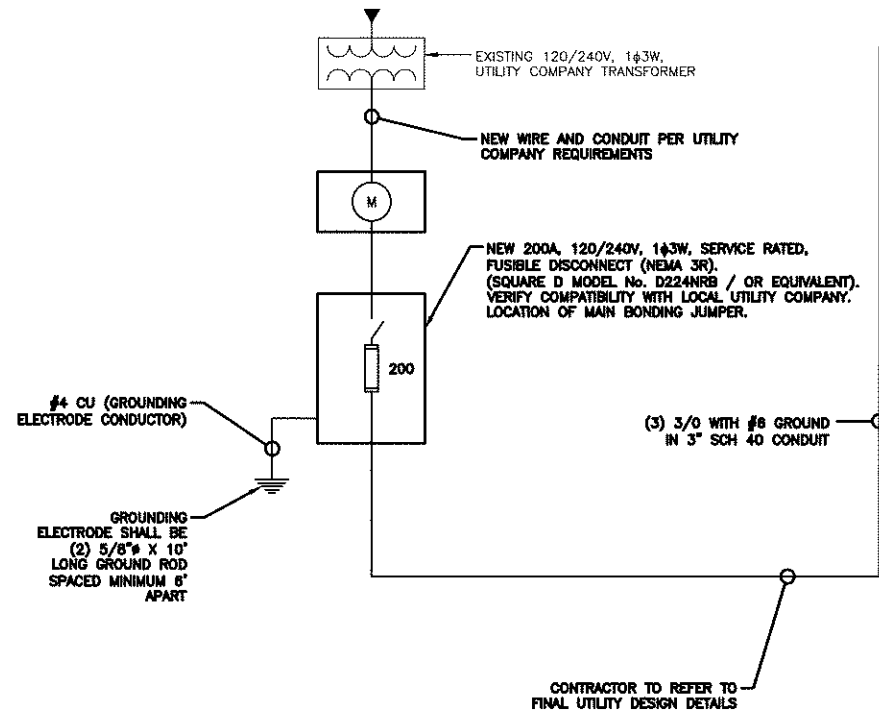
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NEWBERG, OR 97132

SHEET TITLE  
ELECTRICAL  
DETAILS

SHEET NUMBER  
**E-2**



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

**BREAKERS REQUIRED:**  
 (2) 40A, 2P BREAKER - SQUARE D P/N:Q0240  
 (1) 20A, 2P BREAKER - SQUARE D P/N:Q0220  
 (1) 20A, 1P BREAKER - SQUARE D P/N:Q0120

**NOTES**

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 - 0.2879 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 ENERSYS PANEL SCHEDULE**

LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIERS 1 & 2
ENERSYS GFCI OUTLET			20A	3	B	4	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				5	A	6	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				7	B	8	20A	1920	1920	ENERSYS ALPHA CORDEX RECTIFIER 5
-SPACE-				9	A	10				-SPACE-
-SPACE-				11	B	12				-SPACE-
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9500	9500	
200A MCB, 1ϕ, 24 SPACE, 120/240V				L1	L2					
MB RATING: 65,000 AIC				9580	9580			VOLTAGE AMPS		
				81	81			AMPS		
								MAX AMPS		
								MAX 125%		

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



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678-280-2325



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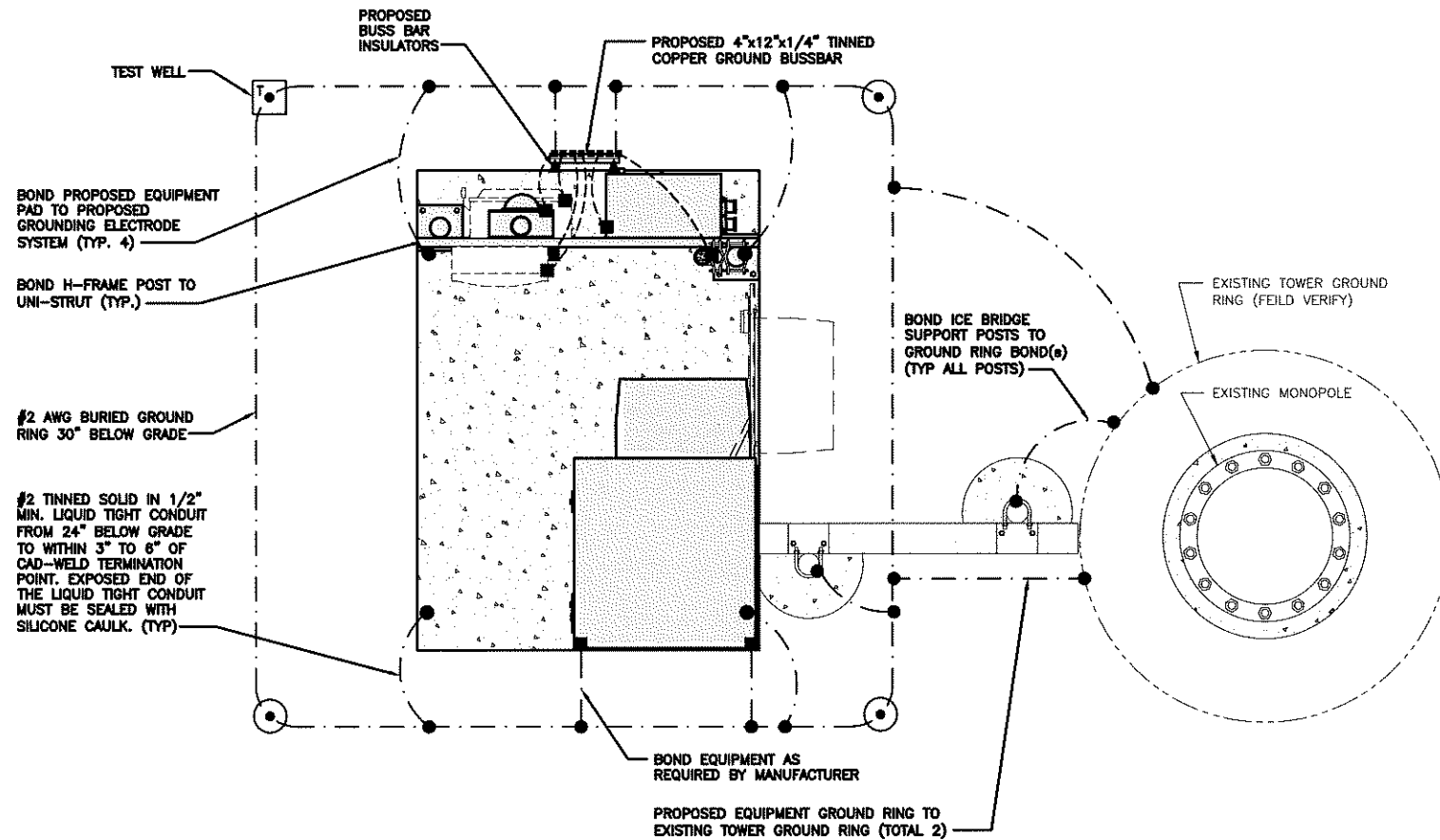
A&E PROJECT NUMBER  
21CCD12N-0051

DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRPDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

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

SHEET NUMBER

E-3

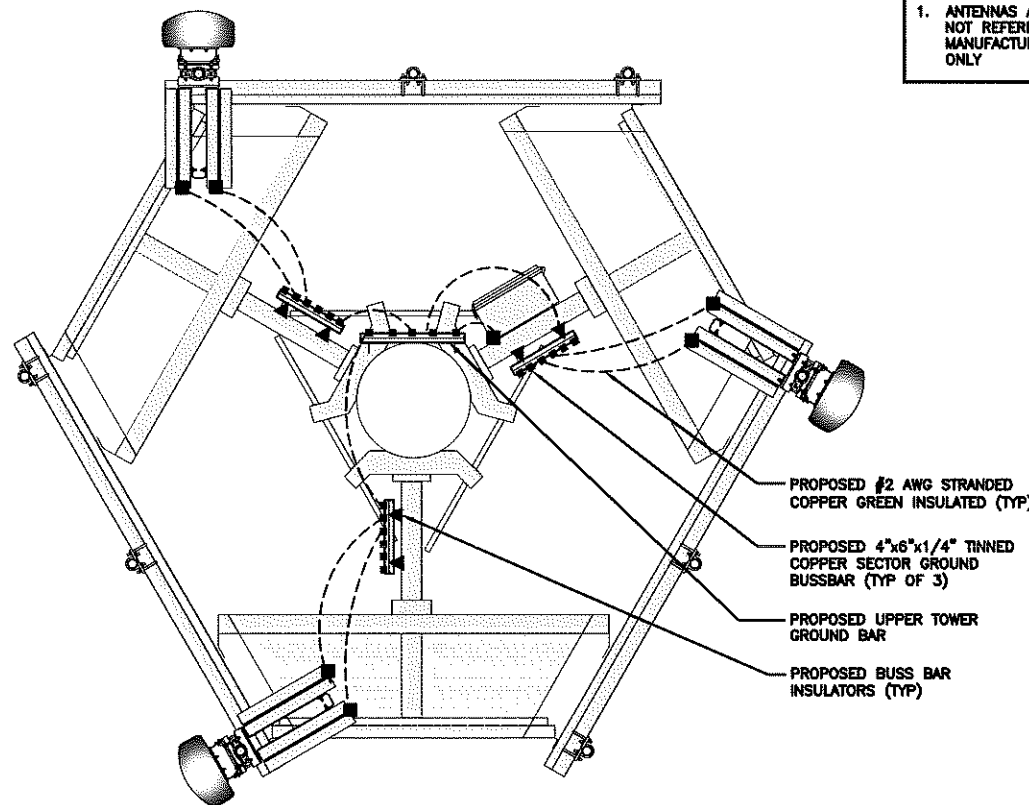


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

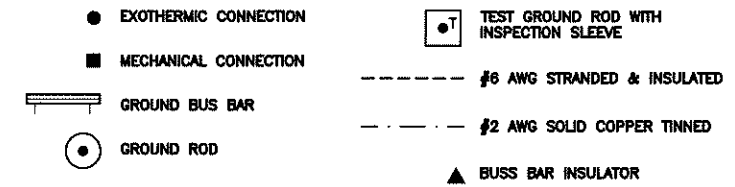
NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- 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.
- ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL, MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE
- (N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR
- (P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

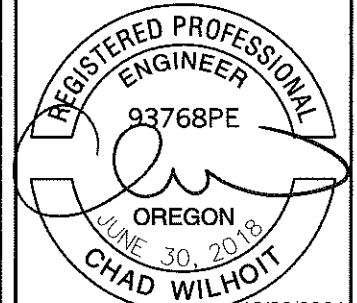
NO SCALE 3



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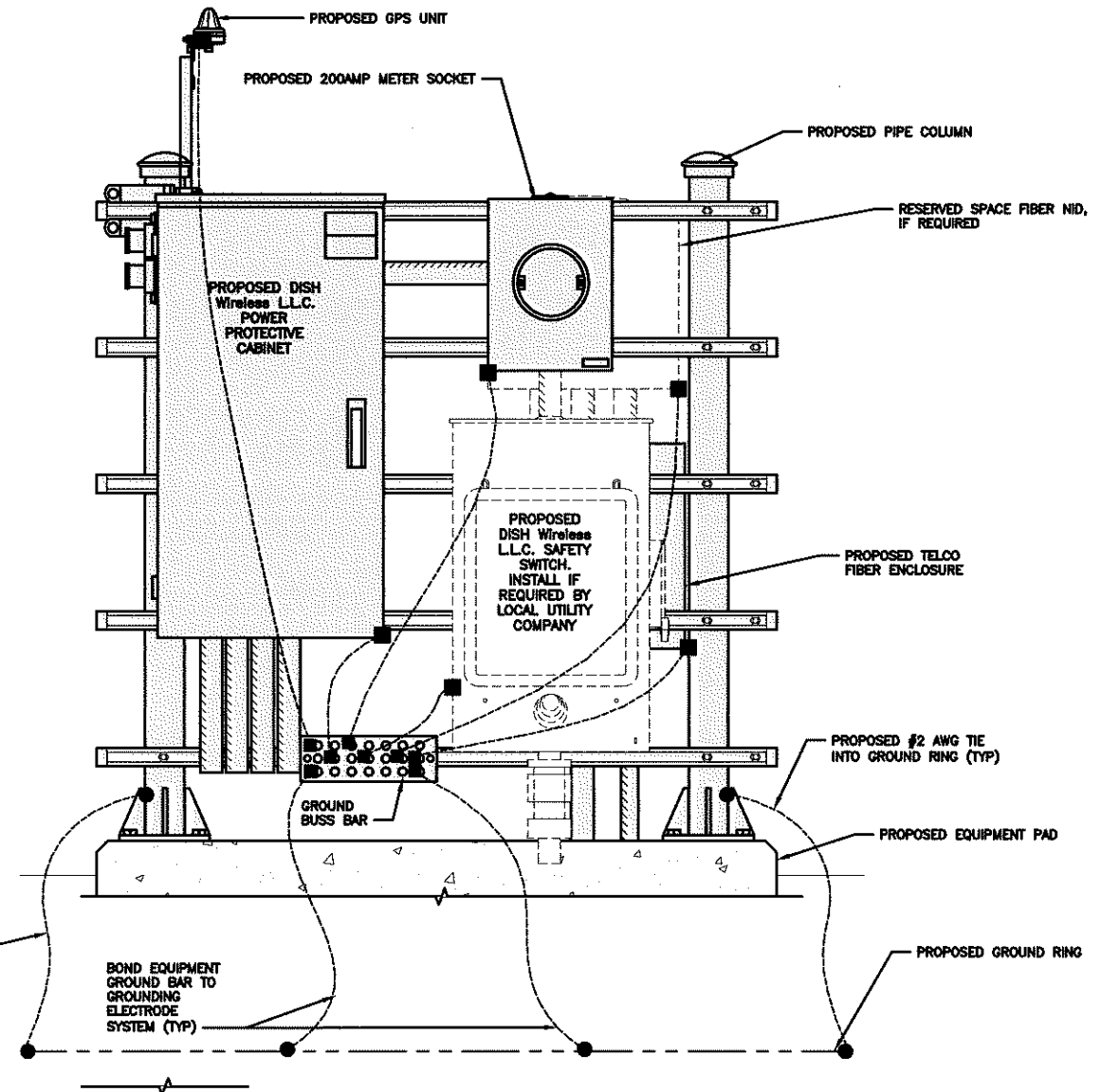
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NEWBERG, OR 97132

SHEET TITLE  
GROUNDING PLANS  
AND NOTES

SHEET NUMBER

G-1

**NOTES**  
EQUIPMENT CABINET OMITTED FOR CLARITY



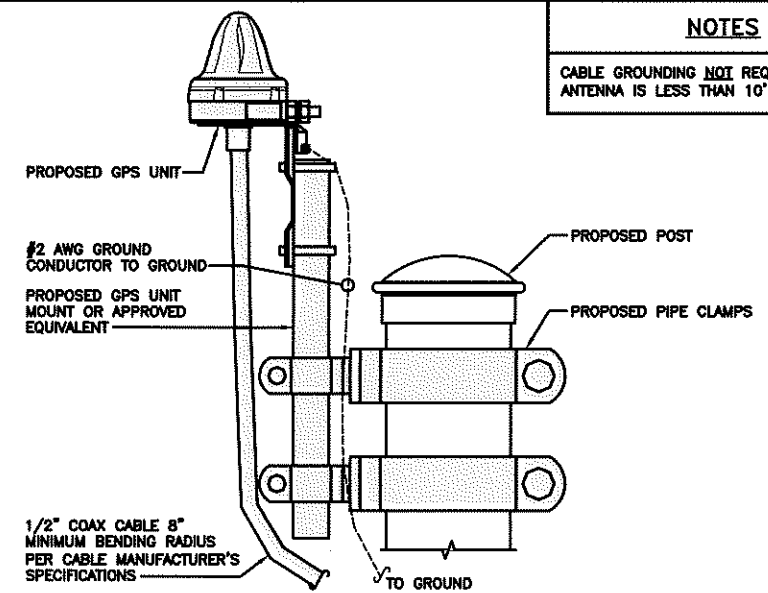
#2 TINNED SOLID IN 1/2" MIN. LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (TYP)

BOND EQUIPMENT GROUND BAR TO GROUNDING ELECTRODE SYSTEM (TYP)

**H-FRAME GROUNDING DETAIL**

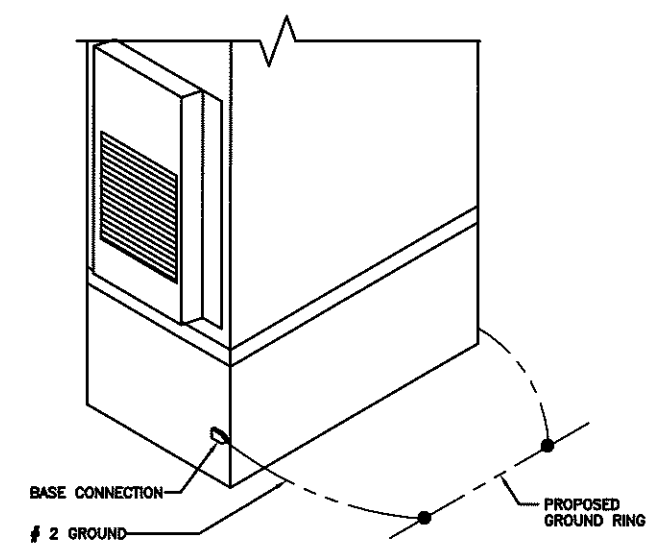
NO SCALE 1

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



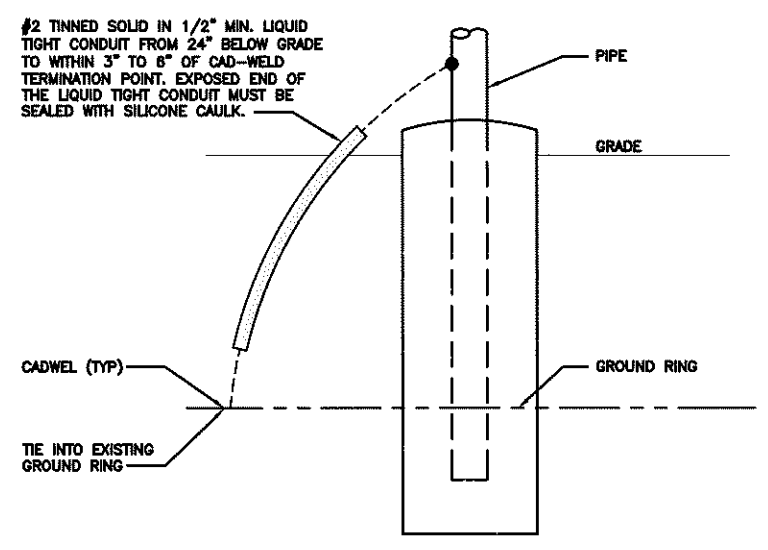
**TYPICAL GPS UNIT GROUNDING**

NO SCALE 2



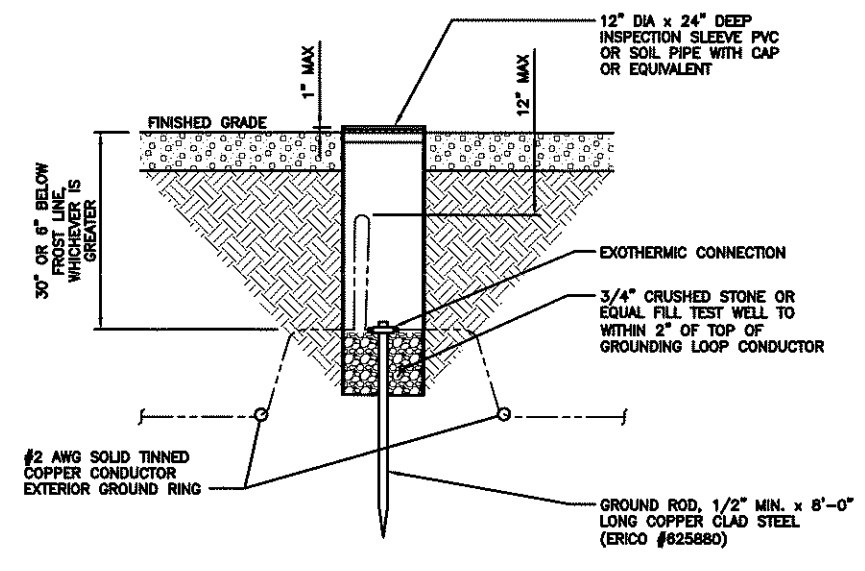
**OUTDOOR CABINET GROUNDING**

NO SCALE 3



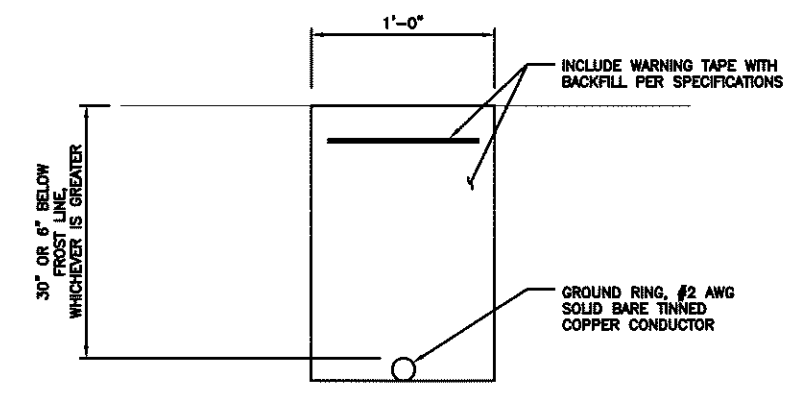
**TRANSITIONING GROUND DETAIL**

NO SCALE 4



**TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE**

NO SCALE 5



**TYPICAL GROUND RING TRENCH**

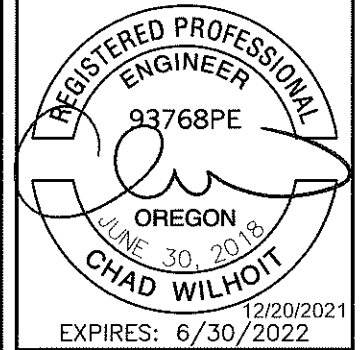
NO SCALE 6



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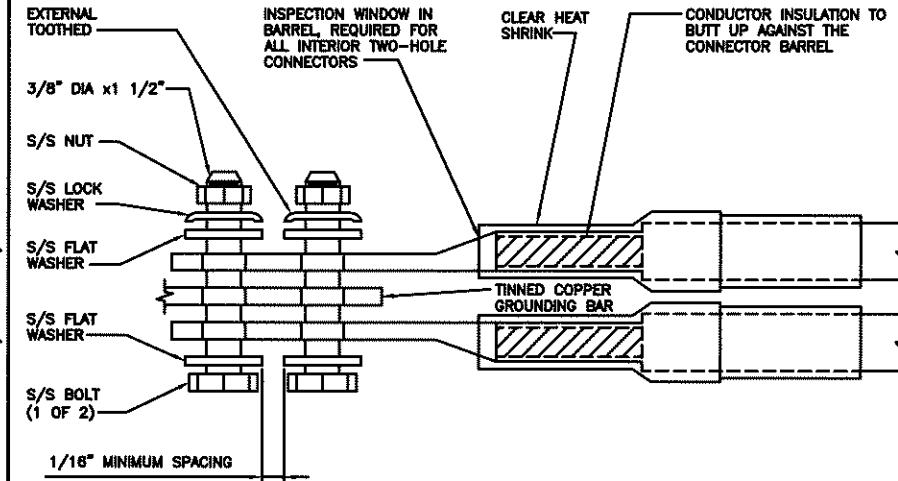
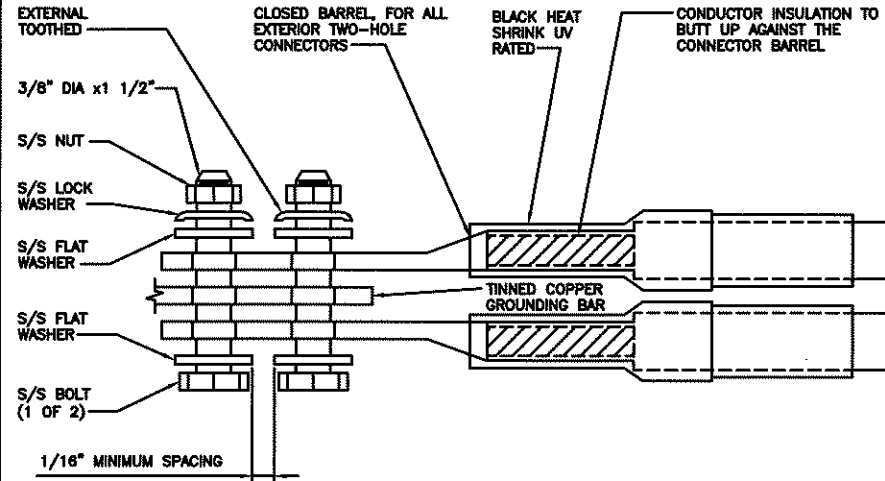
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SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

**G-2**

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



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

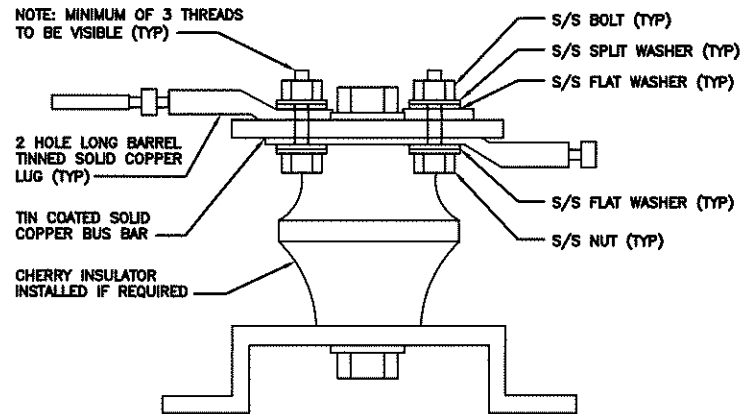
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

**dish**  
wireless.

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LITTLETON, CO 80120

**PM&A**

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NEWBERG, OR 97132

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**G-3**



RF JUMPER COLOR CODING		3/4" TAPE WIDTHS WITH 3/4" SPACING											
LOW-BAND RRH - (600MHz N71 BASEBAND) + (850MHz N26 BAND) + (700MHz N29 BAND) - OPTIONAL PER MARKET  ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)	ALPHA RRH				BETA RRH				GAMMA RRH				
	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	
	RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN	
	ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN	
		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE	
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT		
MID-BAND RRH - (AWS BANDS N66+N70)	ALPHA RRH				BETA RRH				GAMMA RRH				
	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	
	RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN	
	PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN	
		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE	
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT		
HYBRID/DISCREET CABLES  INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS  EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS  EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS	EXAMPLE 1	EXAMPLE 2	EXAMPLE 3										
	RED	RED	RED										
	BLUE	BLUE	ORANGE										
	GREEN	GREEN	PURPLE										
	ORANGE	YELLOW											
	PURPLE												
FIBER JUMPERS TO RRHs  LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH							
	RED	RED	BLUE	BLUE	GREEN	GREEN							
		PURPLE		PURPLE		PURPLE							
POWER CABLES TO RRHs  LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH							
	RED	RED	BLUE	BLUE	GREEN	GREEN							
		PURPLE		PURPLE		PURPLE							
RET MOTORS AT ANTENNAS	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"							
	RED	RED	BLUE	BLUE	GREEN	GREEN							
		PURPLE		PURPLE		PURPLE							
MICROWAVE RADIO LINKS  LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE. ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.  MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID'S	FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-360 DEGREES								
	PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY							
	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE							
	RED	RED	BLUE	BLUE	GREEN	GREEN							
	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE							
		RED		BLUE		GREEN							
		WHITE		WHITE		WHITE							

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	BETA SECTOR	GAMMA SECTOR
RED	BLUE	GREEN
COLOR IDENTIFIER	NO SCALE	2
NOT USED	NO SCALE	3
RF CABLE COLOR CODES	NO SCALE	4



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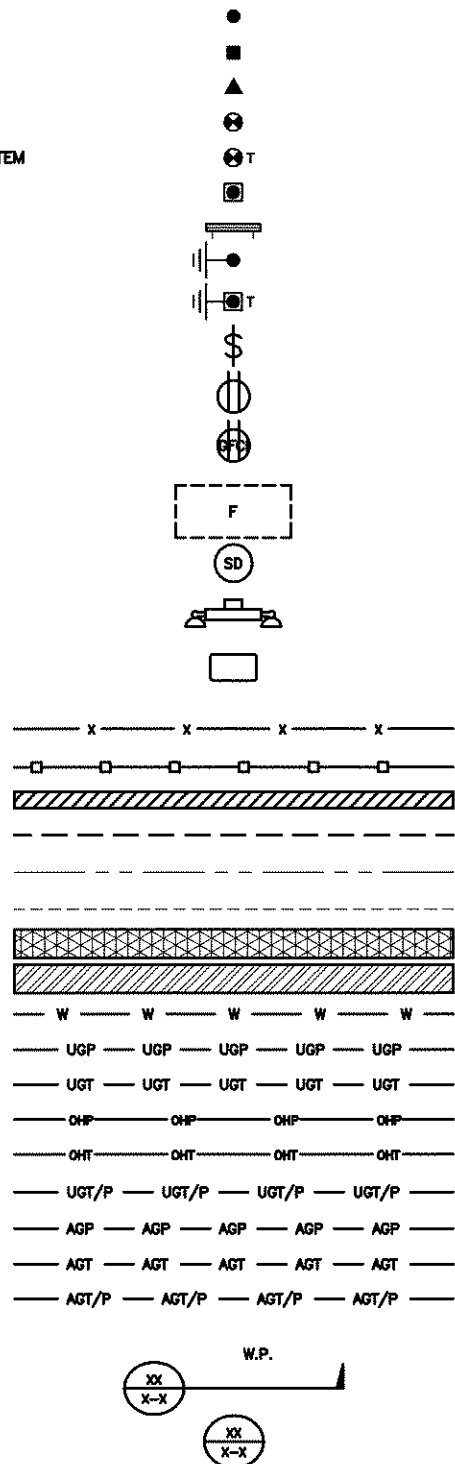
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PROJECT INFORMATION  
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2400 DOUGLAS AVE.  
NEWBERG, OR 97132

SHEET TITLE  
RF  
CABLE COLOR CODES

SHEET NUMBER  
RF-1

EXOTHERMIC CONNECTION  
 MECHANICAL CONNECTION  
 BUSS BAR INSULATOR  
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 EXOTHERMIC WITH INSPECTION SLEEVE  
 GROUNDING BAR  
 GROUND ROD  
 TEST GROUND ROD WITH INSPECTION SLEEVE  
 SINGLE POLE SWITCH  
 DUPLEX RECEPTACLE  
 DUPLEX GFCI RECEPTACLE  
 FLUORESCENT LIGHTING FIXTURE  
 (2) TWO LAMPS 48-T8  
 SMOKE DETECTION (DC)  
 EMERGENCY LIGHTING (DC)  
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW  
 LED-1-25A400/51K-SR4-120-PE-DDBTXD  
 CHAIN LINK FENCE  
 WOOD/WROUGHT IRON FENCE  
 WALL STRUCTURE  
 LEASE AREA  
 PROPERTY LINE (PL)  
 SETBACKS  
 ICE BRIDGE  
 CABLE TRAY  
 WATER LINE  
 UNDERGROUND POWER  
 UNDERGROUND TELCO  
 OVERHEAD POWER  
 OVERHEAD TELCO  
 UNDERGROUND TELCO/POWER  
 ABOVE GROUND POWER  
 ABOVE GROUND TELCO  
 ABOVE GROUND TELCO/POWER  
 WORKPOINT  
 SECTION REFERENCE  
 DETAIL REFERENCE



**LEGEND**

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

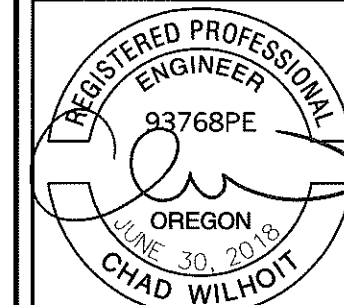
**ABBREVIATIONS**



5701 SOUTH SANTA FE DRIVE  
 LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
 SUITE 210  
 ROSWELL, GA 30076  
 678-280-2325



12/20/2021  
 EXPIRES: 6/30/2022

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

DRAWN BY: CHECKED BY: APPROVED BY:

LTH DM MSB

RFDS REV #: ---

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/15/2021	ISSUED FOR REVIEW
0	12/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
 21CCD12N-0051

DISH Wireless L.L.C.  
 PROJECT INFORMATION  
 PRPDX00328B  
 2400 DOUGLAS AVE.  
 NEWBERG, OR 97132

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



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



1000 HOLCOMB WOODS PKWY,  
SUITE 210  
ROSWELL, GA 30076  
678-280-2325



EXPIRES: 6/30/2022

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DRAWN BY: CHECKED BY: APPROVED BY:

LTH DM MSB

RFDS REV #: ---

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/15/2021	ISSUED FOR REVIEW
0	12/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
21CCD12N-0051

DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRPD00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
**GN-2**

**CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:**

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:  
 #4 BARS AND SMALLER 40 ksi  
 #5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
  - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
  - CONCRETE EXPOSED TO EARTH OR WEATHER:
    - #6 BARS AND LARGER 2"
    - #5 BARS AND SMALLER 1-1/2"
  - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
    - SLAB AND WALLS 3/4"
    - BEAMS AND COLUMNS 1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

**ELECTRICAL INSTALLATION NOTES:**

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. TIE WRAPS ARE NOT ALLOWED.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

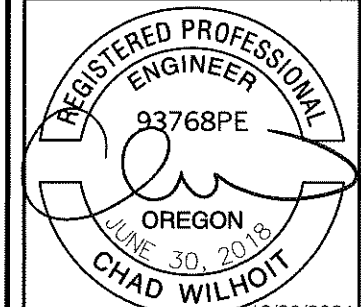
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



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EXPIRES: 6/30/2022

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LTH	DM	MSB

RFDS REV #: ---

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/18/2021	ISSUED FOR REVIEW
0	12/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
21CCD12N-0051

DISH Wireless L.L.C.  
PROJECT INFORMATION  
PRPDX00328B  
2400 DOUGLAS AVE.  
NEWBERG, OR 97132

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
**GN-3**

**GROUNDING NOTES:**

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.



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SHEET TITLE  
GENERAL NOTES

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**GN-4**