



# TOWN OF JACKSON PLANNING & BUILDING DEPARTMENT

## TRANSMITTAL MEMO

**Town of Jackson**

- Public Works/Engineering
- Building
- Title Company
- Town Attorney
- Police

**Joint Town/County**

- Parks and Recreation
- Pathways
- Joint Housing Dept

**Teton County**

- Planning Division

- Engineer
- Surveyor- *Nelson*
- Assessor
- Clerk and Recorder
- Road and Levee

**State of Wyoming**

- Teton Conservation
- WYDOT
- TC School District #1
- Game and Fish
- DEQ

**Federal Agencies**

- Army Corp of Engineers

**Utility Providers**

- Qwest
- Lower Valley Energy
- Bresnan Communications

**Special Districts**

- START
- Jackson Hole Fire/EMS
- Irrigation Company

Date: December 17, 2024	<b>REQUESTS:</b>
Item #: P24-183	
Planner: Katelyn Page	The applicant is submitting a request for a Basic Use Permit to modify existing wireless communication facility located at 1024 Gregory Lane, legally known as PT NE1/4NE1/4, SEC. 6, TWP. 40, RNG. 116
Phone: 307-733-0440 ext. 1302	PIDN: 22-40-16-06-1-00-031
Email: <a href="mailto:kpage@jacksonwy.gov">kpage@jacksonwy.gov</a>	For questions, please call Katelyn Page at 307-733-0440, x1302 or email to the address shown below. Thank you.
<b>Owner</b> THE APARTMENTS AT DUSTY ACRES LLC PO Box 2075 Jackson, WY 83001	
<b>Applicant:</b> Mia Warstler Smart Link Group/AT&T Mobility 10 Church Cir. Annapolis, MD 21404	
<b>Please respond by: January 7, 2025 (with Comments)</b>	

**Owner**  
THE APARTMENTS AT DUSTY  
ACRES LLC  
PO Box 2075  
Jackson, WY 83001

**Applicant:**  
Mia Warstler  
Smart Link Group/AT&T Mobility  
10 Church Cir.  
Annapolis, MD 21404

The applicant is submitting a request for a Basic Use Permit to modify existing wireless communication facility located at 1024 Gregory Lane, legally known as PT NE1/4NE1/4, SEC. 6, TWP. 40, RNG. 116

PIDN: 22-40-16-06-1-00-031

For questions, please call Katelyn Page at 307-733-0440, x1302 or email to the address shown below. Thank you.

**RESPONSE:** For Departments not using Trak-it, please send responses via email to: [planning@jacksonwy.gov](mailto:planning@jacksonwy.gov)



**PLANNING PERMIT APPLICATION**  
**Planning & Building Department**

150 E Pearl Ave. | ph: (307) 733-0440  
P.O. Box 1687 | [www.townofjackson.com](http://www.townofjackson.com)  
Jackson, WY 83001

***For Office Use Only***

Fees Paid \_\_\_\_\_

Date & Time Received \_\_\_\_\_

Application #s \_\_\_\_\_

***Please note: Applications received after 3 PM will be processed the next business day.***

**PROJECT.**

Name/Description: \_\_\_\_\_

Physical Address: \_\_\_\_\_

Lot, Subdivision: \_\_\_\_\_ PIDN: \_\_\_\_\_

**PROPERTY OWNER.**

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ ZIP: \_\_\_\_\_

E-mail: \_\_\_\_\_

**APPLICANT/AGENT.**

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ ZIP: \_\_\_\_\_

E-mail: \_\_\_\_\_

**DESIGNATED PRIMARY CONTACT.**

\_\_\_\_\_ Property Owner \_\_\_\_\_ Applicant/Agent

**TYPE OF APPLICATION.** Please check all that apply; review the type of application at [www.townofjackson.com/200/Planning](http://www.townofjackson.com/200/Planning)

**Use Permit**

Basic Use

Conditional Use

Special Use

**Relief from the LDRs**

Administrative Adjustment

Variance

Beneficial Use Determination

Appeal of an Admin. Decision

**Physical Development**

Sketch Plan

Development Plan

Design Review

**Subdivision/Development Option**

Subdivision Plat

Boundary Adjustment (replat)

Boundary Adjustment (no plat)

Development Option Plan

**Interpretations**

Formal Interpretation

Zoning Compliance Verification

**Amendments to the LDRs**

LDR Text Amendment

Map Amendment

**Miscellaneous**

Other: \_\_\_\_\_

Environmental Analysis

**PRE-SUBMITTAL STEPS.** To see if pre-submittal steps apply to you, go to [www.townofjackson.com/200/Planning](http://www.townofjackson.com/200/Planning) and select the relevant application type for requirements. Please submit all required pre-submittal steps with application.

Pre-application Conference #: \_\_\_\_\_

Environmental Analysis #: \_\_\_\_\_

Original Permit #: \_\_\_\_\_

Date of Neighborhood Meeting: \_\_\_\_\_

**SUBMITTAL REQUIREMENTS.** Please ensure all submittal requirements are included. The Planning Department will not hold or process incomplete applications. Partial or incomplete applications will be returned to the applicant. Go to [www.townofjackson.com/200/Planning](http://www.townofjackson.com/200/Planning) and select the relevant application type for submittal requirements.

Have you attached the following?

**Application Fee.** Fees are cumulative. Go to [www.townofjackson.com/200/Planning](http://www.townofjackson.com/200/Planning) and select the relevant application type for the fees.

**Notarized Letter of Authorization.** A notarized letter of consent from the landowner is required if the applicant is not the owner, or if an agent is applying on behalf of the landowner. Please see the Letter of Authorization template at <http://www.townofjackson.com/DocumentCenter/View/845/LetterOfAuthorization-PDF>.

**Response to Submittal Requirements.** The submittal requirements can be found on the TOJ website for the specific application. If a pre-application conference is required, the submittal requirements will be provided to applicant at the conference. The submittal requirements are at [www.townofjackson.com/200/Planning](http://www.townofjackson.com/200/Planning) under the relevant application type.

**Note:** Information provided by the applicant or other review agencies during the planning process may identify other requirements that were not evident at the time of application submittal or a Pre-Application Conference, if held. Staff may request additional materials during review as needed to determine compliance with the LDRs.

Under penalty of perjury, I hereby certify that I have read this application and associated checklists and state that, to the best of my knowledge, all information submitted in this request is true and correct. I agree to comply with all county and state laws relating to the subject matter of this application, and hereby authorize representatives of Teton County to enter upon the above-mentioned property during normal business hours, after making a reasonable effort to contact the owner/applicant prior to entering.

  
Signature of Property Owner or Authorized Applicant/Agent

08/29/2024

Date

Name Printed

Title



November 21, 2024

**Town of Jackson**

150 E. Pearl Avenue  
Jackson, WY 83001

*Via Electronic Delivery*

**RE: Request for Minor Modification to Existing Wireless Facility- Section 6409/47 CFR §1.6100 ("6409")**  
Site Address: 1024 Gregory Lane Jackson, WY 83001  
AT&T Site Info: IDL04527 KSGY Radio Relo, Project: CBand & CBand D0D, FA: 14471313

Town of Jackson Planning and Building Department:

On behalf of New Cingular Wireless PCS, LC ("AT&T") we are pleased to submit this request to modify AT&T's existing wireless communication site at the location referenced above, as an Eligible Facilities Request for a minor modification under Section 6409 and Federal Communications Commission ("FCC") rules. This request is being made pursuant to Section 6409 of the federal Middle Class Tax Relief and Job Creation Act of 2012, 47 U.S.C 1455(a) and complies with all regulations set forth therein.

**Scope of Work:**

AT&T proposes the following minor modifications to this site. (Please note: all work will be performed wholly within the existing premises and utility easements; this site contains a stealth wall as concealment and the project otherwise complies with the site's prior conditions of approval.)

Component	Federal Section 6409 Limits	AT&T's Proposed Modification
Increase height of original structure	10 feet or less	No increase in Height
Antennas extending horizontally from edge of structure	6 feet or less	Antennas extend 0 feet horizontally from edge of structure
Additional equipment cabinets	4 or fewer (does not include separately mounted radios and other pieces of equipment); no new ground-mounted cabinets if there were none before; if there were ground-mounted cabinets, then no new ground-mounted cabinets more than 10% larger than the existing cabinets	0 additional equipment cabinets; No new ground-mounted cabinets

**Concealment Elements:**

This wireless facility consists of locating all the rooftop equipment behind the existing screen walls. The proposed modification will continue to conceal all equipment, new and proposed behind the existing screen walls. There will be no increase or changes made to the existing screen walls therefore the conditions imposed through the original CUP – P18-274, 323 approval issued on 2/6/2019 will continue to be in effect.



**FCC Shot Clock for Section 6409 Minor Modifications:**

AT&T requests approval of the following applications, as well as any other authorizations necessary, for its proposed minor modification under Section 6409:

- Basic Use - Planning Permit

The FCC requires that all authorizations related to 6409 applications be completed within 60 days after filing. Based on a filing date of 11/21/2024, the projected shot-clock deadline for a decision is 1/20/2025. Our goal is to work with you to obtain approval of this minor modification earlier than the deadline. We will respond promptly to any request for information you may have for our application. Please let us know how we can work with you to expedite the approval process. We look forward to working with you on this important project, which will significantly improve wireless telecommunications services in your community without requiring an additional site. Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

*Mia Warstler*

Mia Warstler

Smartlink Group  
Real Estate Specialist  
[Mia.Warstler@SmartlinkGroup.com](mailto:Mia.Warstler@SmartlinkGroup.com)  
(574) 527-0554



November 21, 2024

**Town of Jackson**  
150 E. Pearl Avenue  
Jackson, WY 83001

**RE: Proposed modifications of AT&T Wireless Communication Facility located in the Town of Jackson**

**Project Site Info: IDL04527 KSGT Radio Relo/ FA 14471313/ 5G NR 1SR CBAND, DoD**  
**Site Address: 1024 Gregory Lane Jackson, WY 83001**

Town of Jackson Planning and Building Department:

AT&T will be performing a technology upgrade project on a pre-existing wireless communication site located at 1024 Gregory Lane. There will be no increase to the height of the structure, no expansion or disturbance of the ground space involved in this project. All current stealthing measures will remain in place. Construction is estimated to take place 6/2/2025-6/16/2025 during normal business hours.

**AT&T is proposing the following changes:**

Rooftop Work - all equipment is located behind stealth screening and will not be visible from public view:

- Remove (9) Antennas
- Remove (15) Remote radio heads (RRHs)
- Install (3) Antennas - Air6492 B77G/B77M
- Install (3) Air 6419 B770D Antennas
- Install (6) RRH's

**Shelter Work:**

- Remove (1) LTE cabinet and replace with (1) FLX2 Purcell cabinet
- Remove (1) Nokia FMS4 unit
- Remove (2) converters
- Install (1) Ericsson baseband unit in new FLX2
- Install (7) new converters in existing DC power plant
- Install (1) new retrofit kit in existing DC power plant

I certify that this project scope of work is in compliance with all non-discretionary structural, electrical, energy, building and safety codes.

Sincerely,

*Mia Warstler*

Mia Warstler

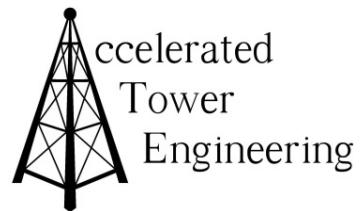
Smartlink Group  
Real Estate Specialist  
[Mia.Warstler@SmartlinkGroup.com](mailto:Mia.Warstler@SmartlinkGroup.com)  
(574) 527-0554



# BLACK & VEATCH

Date: June 20, 2024

Ashlee Lee  
Black & Veatch  
300 Rancheros Dr., Suite 250  
San Marcos, CA 92069  
[LeeAM@BV.com](mailto:LeeAM@BV.com)



Shawn D. Cook, P.E.  
Accelerated Tower Engineering LLC  
4710 Portofino Drive  
Longmont, CO 80503  
(479) 530-8627  
[shawn.cook@atowereng.com](mailto:shawn.cook@atowereng.com)

**Subject:** Roof Top Structural Opinion Report

**Carrier Designation:** AT&T Mobility  
**Carrier Site Number:** 203864  
**Carrier Site Name:** KSGT\_RADIO\_RELO (14471313)

**Engineering Firm Designation:** ATE Project Number: 019420240355

**Site Data:** 1024 Gregory Ln, Jackson, WY 83001, Teton County  
Latitude 43°27'52.7", Longitude -110°47'39.8"  
29.4 Foot Roof Top Site

Dear Ashlee Lee,

Accelerated Tower Engineering, LLC is pleased to submit this “**Roof Top Structural Opinion Report**” for the structural integrity of the existing roof top structure. The purpose of the analysis is to determine the adequacy of the existing roof top structure with the addition of proposed equipment as specified in the construction drawings Rev.1 (Redlines) prepared by AT&T, issued on 11/17/2022.

Analysis Results:

**Existing Roof Top Stress Level with Existing + Proposed Equipment:** **Adequate**

We at Accelerated Tower Engineering, LLC appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

Respectfully submitted,

Shawn D. Cook, P.E.  
Structural Engineer  
WY PE#: 14053



## 1) ANALYSIS CRITERIA

**Table 1 – Analysis Parameters**

Parameter	Remarks
International Building Code	2021
TIA-222 Revision	TIA-222-H
Risk Category	II
Basic Wind Speed	105 mph
Exposure Category	C
Topographic Factor at Mount	1.00
Rooftop Wind Speed-Up Factor	1.00
Ground Elevation Factor	0.80
Wind Speed with Ice	50 mph
Ice Thickness	0.00 in
Seismic S <sub>s</sub>	1.054
Seismic S <sub>1</sub>	0.347

**Table 2 – Final Configuration Loading**

Mount Elevation (ft)	Antenna Centerline (ft)	Quantity	Manufacturer	Model	Notes
37.0	37.0	38.0	2	Ericsson	AIR 6472 B77G B77M
		4	Raycap	DC6-48-60-18-8F	Existing
		2	Commscope	NNH4-65A-R6H4	Proposed
		3	Ericsson	RRUS 4478 B14	
		3	Ericsson	RRUS 4890 B25/B66	
27.0	28.0	1	Ericsson	AIR 6472 B77G B77M	Proposed
	27.0	1	Commscope	NNH4-65A-R6H4	

## 2) ANALYSIS PROCEDURE

**Table 3 – Documents Provided**

Document	Remarks	Source
Previous Analysis	Trileaf, dated 11/16/2022	B&V
Previous Mount Analysis	Trileaf, dated 11/16/2022	B&V
Construction Drawings	AT&T Rev. 1 (Redlines), dated 11/17/2022	B&V

### 2.1) Analysis Method

Selected output from the analysis is included in Appendices.

### 2.2) Assumptions

- 1) The roof top was built, installed, and maintained in accordance with the manufacturers' specifications and recommendations.
- 2) Material grades were not provided and were assumed to be in accordance with Table 2-3 "Applicable ASTM Specifications for Various Structural Shapes" per the AISC "Steel Construction Manual."
- 3) All bolted and welded connections are assumed to develop, at a minimum, a capacity equal to the members connected unless determined and explicitly stated in this report.

This analysis may be affected if any assumptions are not valid or have been made in error. Accelerated Tower Engineering, LLC should be notified immediately to determine the effect on the structural integrity of the mount.

### **2.3) Structural Analysis of Existing Building Roof**

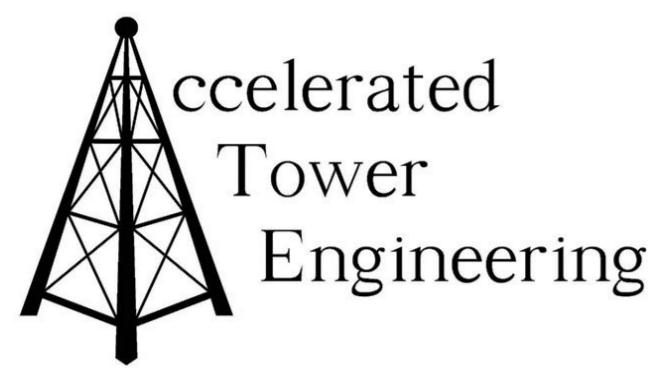
Some of the existing antennas will be replaced with new antennas with a similar centerline to the existing antennas. The additional gravity loading is insignificant. Based upon requirements of the 2021 IEBC, Section 503, it is our professional opinion that the existing building structure IS sufficient to support the proposed condition.

## **3) RECOMMENDATIONS**

The roof top has sufficient capacity to carry the final loading configuration. No modifications are required at this time.

## Appendix A

### Select Output



## Appurtenance Wind Loading (Existing)

TIA-222-H

Project Data	
ATE #	019420240355
Site Name	KSGT_RADIO_REL0
Site Number	205864

Site Information	
TIA Revision	H
Structure Class	II
Exposure Category	C
Basic Wind Speed (mph)	105
Basic Wind Speed with Ice (mph)	50
Density of Ice (pcf), $\delta_{ice}$	56
Design Ice Thickness (in), $t_i$	0.00
Total Height of Structure (ft), $h$	29.4
Mount Centerline (ft), $h_m$	37.0
Wind Direction Probability Factor, $K_d$	0.95
Gust Response Factor, $G_h$	1.00
Appurtenance Shielding Factor, $K_s$	0.90
Ground Elevation Factor, $K_e$	0.80
Use CFD values for EPAs where available	TRUE

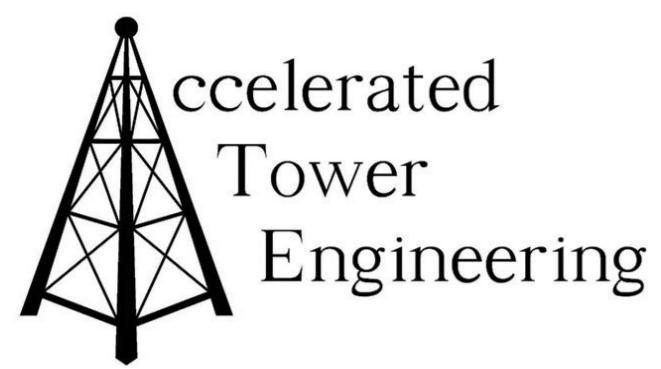
Seismic Information	
Short-Period Response Parameter, $S_s$	1.054
1Sec-Period Response Parameter, $S_1$	0.347
Soil Category	D
Short-Period Design Response Parameter, $SD_s$	0.758
1Sec-Period Design Response Parameter, $SD_1$	0.452
Response Modification Coefficient, $R$	2.000
Seismic Response Coefficient, $C_s$	0.379
Earthquake Amplification Factor, $A_s$	1.000
Vertical Seismic Load Factor	0.152
Horizontal Seismic Load Factor	0.379

Mount Pipe Loading																			
Mount Pipe	Mount Location	Vertical Offset (ft)	Length (in)	Diameter (in)	Weight (lbs)	Velocity Pressure Coefficient	Velocity Pressure (psf)	Front Force Coefficient	Top Front Design Wind Force (plf)	Base Front Design Wind Force (plf)	Side Force Coefficient	Side Design Wind Force (plf)	Ice Weight (plf)	Ice Velocity Pressure (psf)	Ice Front Force Coefficient	Ice Top Front Design Wind Force (plf)	Ice Base Front Design Wind Force (lbf)	Ice Side Force Coefficient	Ice Side Design Wind Force (plf)
Pipe 2 Std. x 120	1	0.0	120.0	2.375	36.6	1.03	22.0	1.00	3.9	3.9	1.20	4.7	0.0	5.0	1.00	0.9	0.9	1.20	1.1
Pipe 2 Std. x 120	2	0.0	120.0	2.375	36.6	1.03	22.0	1.00	3.9	3.9	1.20	4.7	0.0	5.0	1.00	0.9	0.9	1.20	1.1
Pipe 2 Std. x 120	3	0.0	120.0	2.375	36.6	1.03	22.0	1.00	3.9	3.9	1.20	4.7	0.0	5.0	1.00	0.9	0.9	1.20	1.1
Pipe 2 Std. x 120	4	0.0	120.0	2.375	36.6	1.03	22.0	1.20	4.7	4.7	1.20	4.7	0.0	5.0	1.20	1.1	1.1	1.20	1.1

Appurtenance Loading																								
Appurtenance	Appurtenance Type	Mount Location	Quantity	Vertical Offset (ft)	Horizontal Offset (in)	Length (in)	Width (in)	Depth (in)	Weight (lbs)	Allow Shielding (Front)	% Shielded (Front)	Velocity Pressure Coefficient	Velocity Pressure (psf)	Front Force Coefficient	Front EPA (sqft)	Front Design Wind Force (lbf)	Side Force Coefficient	Side Design Wind Force (lbf)	Ice Weight (lbs)	Ice Velocity Pressure (psf)	Ice Front Force Coefficient	Ice Front Design Wind Force (lbf)	Ice Side Force Coefficient	Ice Side Design Wind Force (lbf)
NOKIA: AEQU	Antenna	1	1	1.1	8.8	29.5	17.7	9.5	99.2	No	0%	1.03	22.2	1.20	4.35	86.9	1.23	47.7	0.0	5.0	0.70	19.7	0.71	10.8
NOKIA: AEQK	Antenna	2	1	1.1	8.8	29.5	17.2	9.5	99.2	No	0%	1.03	22.2	1.20	4.23	84.4	1.23	47.7	0.0	5.0	0.70	19.1	0.71	10.8
COMMSCOPE: NNH4-65A-R6	Antenna	3	1	0.0	7.9	55.1	19.6	7.8	72.8	No	0%	1.03	22.0	1.21	5.20	103.2	1.40	33.7	0.0	5.0	0.71	41.0	0.80	18.8
ALCATEL LUCENT: RRH4X25-WCS-4R	TME	1	1	0.0	-9.7	34.7	13.2	11.3	91.0	Yes	100%	1.03	22.0	1.21	0.00	0.0	1.23	66.2	0.0	5.0	0.70	0.0	0.71	15.0
NOKIA: AirScale Dual RRH 4T4R B25/B66 320W AHFIB	TME	1	1	0.0	-8.7	28.7	15.4	9.5	88.0	Yes	100%	1.03	22.0	1.20	0.00	0.0	1.22	45.8	0.0	5.0	0.70	0.0	0.71	10.4
NOKIA: AirScale Dual RRH 4T4R B12/B14 320W AHLBA	TME	2	1	0.0	-8.7	28.7	15.4	9.5	101.2	Yes	100%	1.03	22.0	1.20	0.00	0.0	1.22	45.8	0.0	5.0	0.70	0.0	0.71	10.4
RAYCAP: DCG-48-60-18-8F	TME	2	1	0.0	-9.5	24.0	11.0	11.0	32.8	Yes	100%	1.03	22.0	0.50	0.00	0.0	0.50	18.2	0.0	5.0	0.70	0.0	0.70	5.8
RAYCAP: DCG-48-60-18-8F	TME	3	1	0.0	-9.5	24.0	11.0	11.0	32.8	Yes	100%	1.03	22.0	0.50	0.00	0.0	0.50	18.2	0.0	5.0	0.70	0.0	0.70	5.8

Distributed Loads																
Mount Members	Vertical Offset (ft)	Height/Dia. (in)	Depth (in)	Shape	Min Velocity Pressure Coefficient	Max Velocity Pressure Coefficient	Min Velocity Pressure (psf)	Max Velocity Pressure (psf)	Min Force Coefficient	Max Force Coefficient	Min Ice Weight (plf)	Max Ice Weight (plf)	Min Ice Velocity Pressure (psf)	Max Ice Velocity Pressure (psf)	Min Ice Force Coefficient	Max Ice Force Coefficient

Surface Loads								
Surface Label	Velocity Pressure Coefficient	Velocity Pressure (psf)	Force Coefficient	Ice Weight (psf)	Ice Velocity Pressure (psf)	Ice Force Coefficient		



## Appurtenance Wind Loading (Proposed)

TIA-222-H

Project Data	
ATE #	019420240355
Site Name	KSGT_RADIO_REL0
Site Number	205864

Site Information	
TIA Revision	H
Structure Class	II
Exposure Category	C
Basic Wind Speed (mph)	105
Basic Wind Speed with Ice (mph)	50
Density of Ice (pcf), $\delta_{ice}$	56
Design Ice Thickness (in), $t_i$	0.00
Total Height of Structure (ft), $h$	29.4
Mount Centerline (ft), $h_m$	37.0
Wind Direction Probability Factor, $K_d$	0.95
Gust Response Factor, $G_h$	1.00
Appurtenance Shielding Factor, $K_s$	0.90
Ground Elevation Factor, $K_e$	0.80
Use CFD values for EPAs where available	TRUE

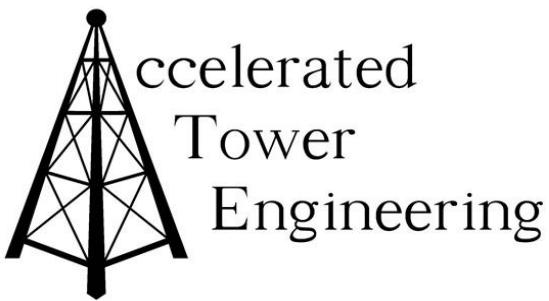
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Short-Period Response Parameter, $S_s$	1.054
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Mount Pipe Loading																			
Mount Pipe	Mount Location	Vertical Offset (ft)	Length (in)	Diameter (in)	Weight (lbs)	Velocity Pressure Coefficient	Velocity Pressure (psf)	Front Force Coefficient	Top Front Design Wind Force (plf)	Base Front Design Wind Force (plf)	Side Force Coefficient	Side Design Wind Force (plf)	Ice Weight (plf)	Ice Velocity Pressure (psf)	Ice Front Force Coefficient	Ice Top Front Design Wind Force (plf)	Ice Base Front Design Wind Force (lbf)	Ice Side Force Coefficient	Ice Side Design Wind Force (plf)
Pipe 2 Std. x 120	1	0.0	120.0	2.375	36.6	1.03	22.0	1.20	4.7	4.7	1.20	4.7	0.0	5.0	1.20	1.1	1.1	1.20	1.1
Pipe 2 Std. x 120	2	0.0	120.0	2.375	36.6	1.03	22.0	1.00	3.9	3.9	1.20	4.7	0.0	5.0	1.00	0.9	0.9	1.20	1.1
Pipe 2 Std. x 120	3	0.0	120.0	2.375	36.6	1.03	22.0	1.00	3.9	3.9	1.20	4.7	0.0	5.0	1.00	0.9	0.9	1.20	1.1
Pipe 2 Std. x 120	4	0.0	120.0	2.375	36.6	1.03	22.0	1.20	4.7	4.7	1.20	4.7	0.0	5.0	1.20	1.1	1.1	1.20	1.1

Appurtenance Loading																								
Appurtenance	Appurtenance Type	Mount Location	Quantity	Vertical Offset (ft)	Horizontal Offset (in)	Length (in)	Width (in)	Depth (in)	Weight (lbs)	Allow Shielding (Front)	% Shielded (Front)	Velocity Pressure Coefficient	Velocity Pressure (psf)	Front Force Coefficient	Front EPA (sqft)	Front Design Wind Force (lbf)	Side Force Coefficient	Side Design Wind Force (lbf)	Ice Weight (lbs)	Ice Velocity Pressure (psf)	Ice Front Force Coefficient	Ice Front Design Wind Force (lbf)	Ice Side Force Coefficient	Ice Side Design Wind Force (lbf)
ERICSSON: AIR 6472 B77G B77M	Antenna	2	1	0.9	7.7	36.3	15.8	7.4	86.9	No	0%	1.03	22.2	1.20	4.79	95.5	1.31	48.6	0.0	5.0	0.70	21.7	0.75	11.0
COMMSCOPE: NNH-65A-RH4	Antenna	3	1	0.0	7.9	59.0	19.6	7.8	73.9	No	0%	1.03	22.0	1.22	5.60	111.1	1.42	35.7	0.0	5.0	0.71	44.2	0.81	20.3
ERICSSON: RRUS 4478 B14	TME	1	1	0.0	-8.1	18.1	13.4	8.3	59.4	Yes	0%	1.03	22.0	1.20	2.02	40.1	1.20	24.7	0.0	5.0	0.70	9.1	0.70	5.6
ERICSSON: RRUS 4890 B25/B66	TME	1	1	0.0	-7.5	17.5	15.1	6.9	68.0	Yes	0%	1.03	22.0	1.20	2.20	43.7	1.20	20.0	0.0	5.0	0.70	9.9	0.70	4.5
RAYCAP: DC6-48-60-18-8F	TME	2	1	0.0	-9.5	24.0	11.0	11.0	32.8	Yes	100%	1.03	22.0	0.50	0.00	0.0	0.50	18.2	0.0	5.0	0.70	0.0	0.70	5.8
RAYCAP: DC6-48-60-18-8F	TME	3	1	0.0	-9.5	24.0	11.0	11.0	32.8	Yes	100%	1.03	22.0	0.50	0.00	0.0	0.50	18.2	0.0	5.0	0.70	0.0	0.70	5.8

Distributed Loads																
Mount Members	Vertical Offset (ft)	Height/Dia. (in)	Depth (in)	Shape	Min Velocity Pressure Coefficient	Max Velocity Pressure Coefficient	Min Velocity Pressure (psf)	Max Velocity Pressure (psf)	Min Force Coefficient	Max Force Coefficient	Min Ice Weight (plf)	Max Ice Weight (plf)	Min Ice Velocity Pressure (psf)	Max Ice Velocity Pressure (psf)	Min Ice Force Coefficient	Max Ice Force Coefficient

Surface Loads								
Surface Label	Velocity Pressure Coefficient	Velocity Pressure (psf)	Force Coefficient	Ice Weight (psf)	Ice Velocity Pressure (psf)	Ice Force Coefficient		



## Wind Area Comparison

Project Data	
ATE #	019420240355
Site Number	203864
Site Name	KSGT Radio Relo

Original Data	
Trileaf, dated 11/16/2022	

Current Wind Area		Proposed Wind Area	
Building Type	Original Area (sqft)	Proposed Area (sqft)	Use Increase
Stealth Screen	150	150	0.0%

Increase	
Use Ratio	0.0%

## Dead Load Comparison

Current Load		Proposed Load	
Building Type	Original Load (lb)	Proposed Load (lb)	Use Increase
Stealth Screen	763	500	-34.5%

Increase	
Use Ratio	-34.5%





188 INVERNESS DRIVE WEST  
SUITE 400  
ENGLEWOOD, CO 80112



BLACK & VEATCH

4600 SOUTH SYRACUSE STREET  
SUITE 800  
DENVER, COLORADO 80237

4600 SOUTH SYRACUSE STREET  
SUITE 800  
DENVER, COLORADO 80237

PROJECT/PHASE NO: 129551/XXXX

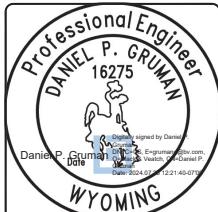
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RFDS: 1.00

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REV	DATE	DESCRIPTION
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IDL04527  
1024 GREGORY LANE  
JACKSON, WY 83001  
CELL SITE RF MODIFICATIONS

SHEET TITLE  
**SITE PLAN**

SHEET NUMBER

C-1

SITE PLAN

16' 12' 8' 4' 0      16'      32'      1  


1

### COAX & CABLE INFORMATION

- ALL EXISTING CABLES/COAX TO REMAIN UNLESS NOTED OTHERWISE
- (6) EXISTING #8 AWG DC POWER TRUNKS
- (3) EXISTING 18-PAIR FIBER TRUNKS ROUTED ON EXISTING ROOFTOP

### NOTE

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.



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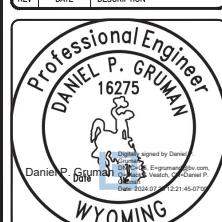
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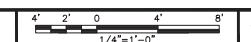
KSGT RELO  
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1024 GREGORY LANE  
JACKSON, WY 83001  
CELL SITE RF MODIFICATIONS

SHEET TITLE  
ENLARGED SITE PLAN

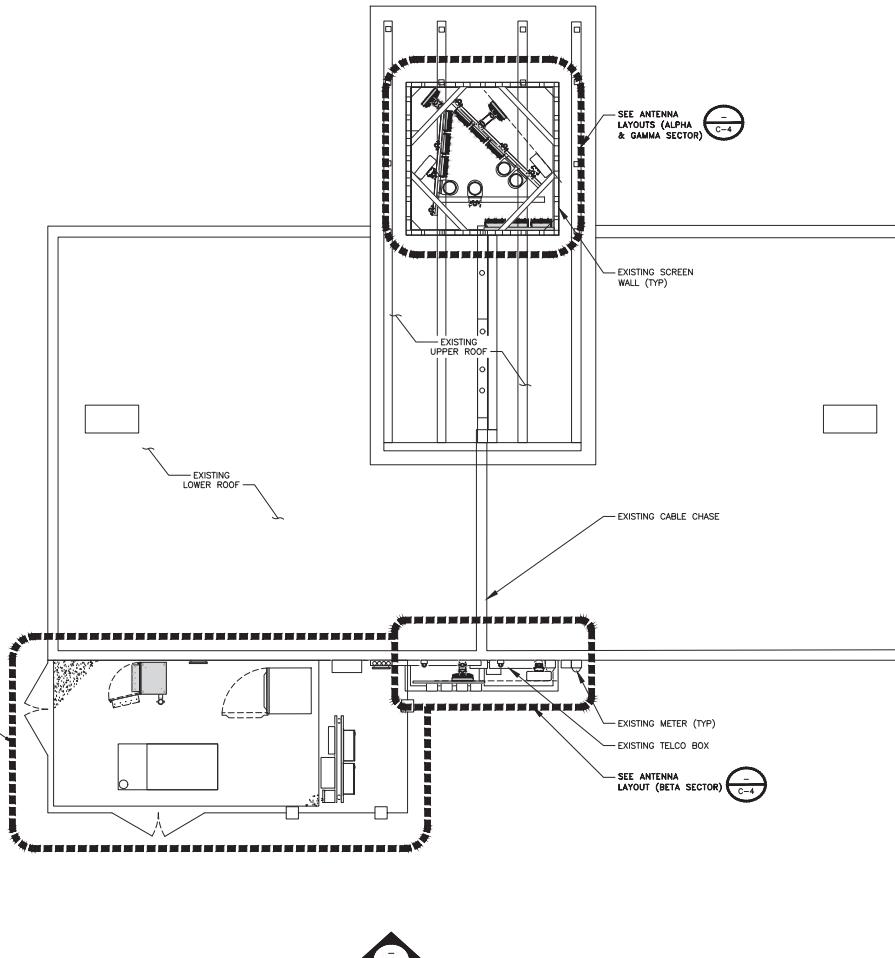
SHEET NUMBER  
C-1.1



ENLARGED SITE PLAN



1



## NOTE

1. ALL EXISTING EQUIPMENT TO REMAIN UNLESS NOTED OTHERWISE.
2. NO ELECTRICAL SCOPE REQUIRED FOR THIS PROPOSED SCOPE.



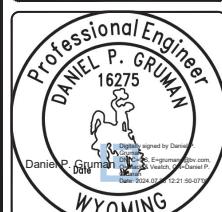
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SUITE 400  
ENGLEWOOD, CO 80112



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SUITE 800  
DENVER, COLORADO 80237

PROJECT/PHASE NO: 129551/XXXX  
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RFDs: 1.00

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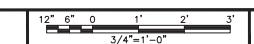
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1024 GREGORY LANE  
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CELL SITE RF MODIFICATIONS

SHEET TITLE  
EQUIPMENT LAYOUT

SHEET NUMBER

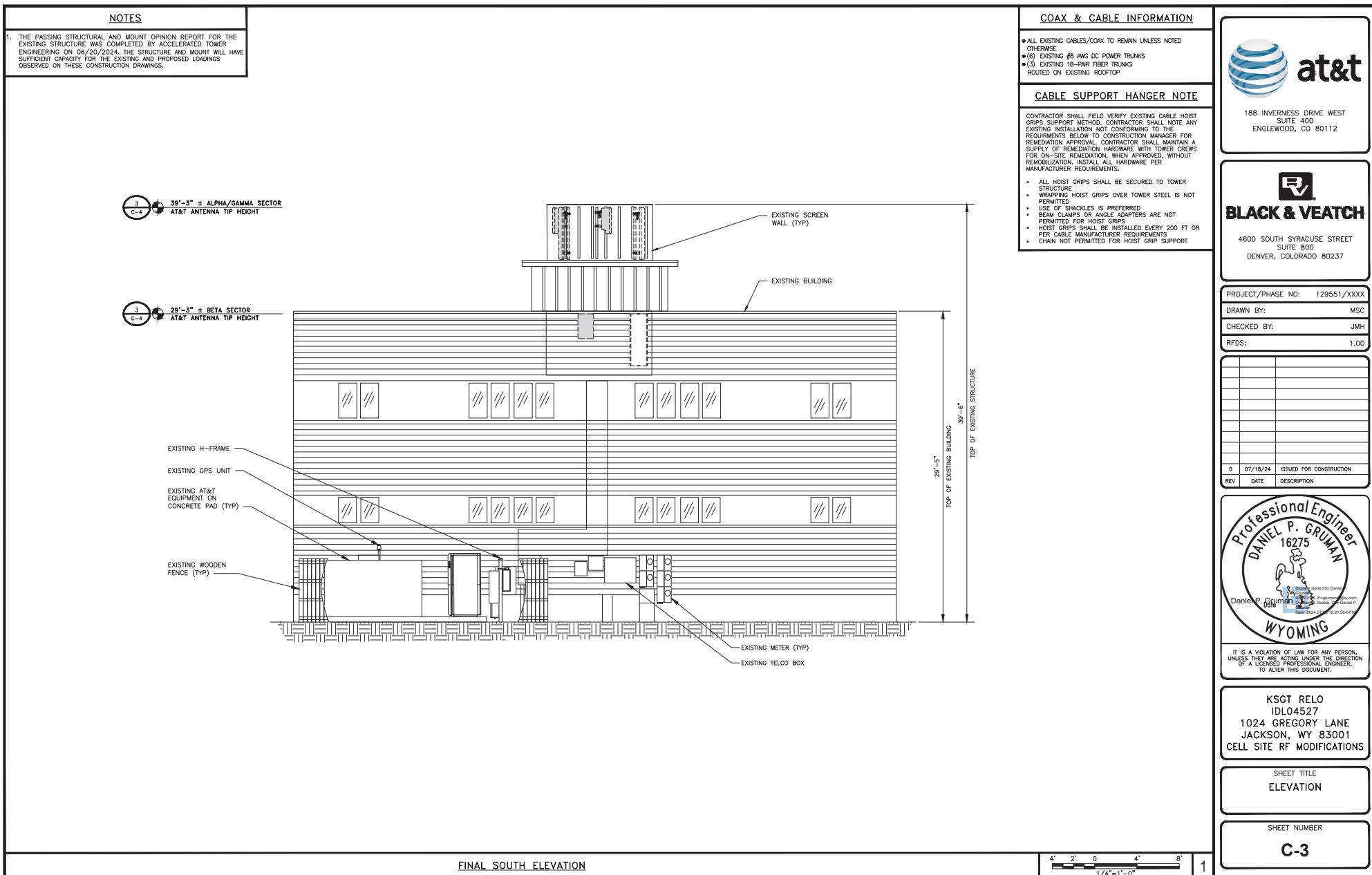
C-2

FINAL EQUIPMENT LAYOUT



1





#### COAX & CABLE INFORMATION

- ALL EXISTING CABLES/COAX TO REMAIN UNLESS NOTED OTHERWISE
  - (6) EXISTING #8 AWG DC POWER TRUNKS
  - (3) EXISTING 18-PAIR FIBER TRUNKS  
ROUTED ON EXISTING ROOFTOP



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SECTOR	TECH.		ANTENNA MODEL		AZIMUTH		TIP HEIGHT		RRU/MODEL & RELATED EQUIPMENT			
	EXIST.	FINAL	EXIST.	FINAL	EXIST.	FINAL	EXIST.	FINAL	EXIST.		FINAL	
A1	LTE	LTE	*SNHH-1065A	AIR6472 B77G/B77M	50°	50°	39°-3"		*B25 RRH4X30-4R	INTEGRATED WITHIN: ERICSSON 6472 B77G/B77M		
A2	LTE	LTE	*SNHH-1065A	NNHH-65A-R6H4	50°	50°	39°-3"		*RRH4X25-WCS-4R			
A3	LTE	--	*SNHH-1065A	--	50°	--	--		*4T4R B25/66 320W AHRB			
A4	LTE	LTE	NNHH-65A-R4	--	50°	50°	39°-3"		*4T4R B12/14 320W AHRB			
B1	LTE	LTE	*SNHH-1065A	NNHH-65A-R6H4	170°	180°	29°-3"		*B25 RRH4X30-4R			
B2	LTE	LTE	*SNHH-1065A	AIR6472 B77G/B77M	170°	180°	29°-3"		*RRH4X25-WCS-4R	INTEGRATED WITHIN: ERICSSON 6472 B77G/B77M		
B3	LTE	--	*SNHH-1065A	--	170°	--	--		*4T4R B25/66 320W AHRB			
B4	LTE	LTE	NNHH-65A-R4	--	170°	180°	29°-3"		*4T4R B12/14 320W AHRB			
B4	LTE	--	*SNHH-1065A	--	310°	--	--		*4T4R B25/66 320W AHRB			
C1	LTE	--	*SNHH-1065A	--	310°	--	--		*B25 RRH4X30-4R			
C2	LTE	LTE	*SNHH-1065A	NNHH-65A-R6H4	310°	310°	39°-3"		*RRH4X25-WCS-4R			
C3	LTE	LTE	*SNHH-1065A	AIR6472 B77G/B77M	310°	310°	39°-3"		*4T4R B25/66 320W AHRB	INTEGRATED WITHIN: ERICSSON 6472 B77G/B77M		
C4	LTE	LTE	NNHH-65A-R4	--	310°	310°	39°-3"		*4T4R B12/14 320W AHRB			
C4	LTE	--	*SNHH-1065A	--	310°	--	--		*4T4R B25/66 320W AHRB			

\*TO BE REMOVED

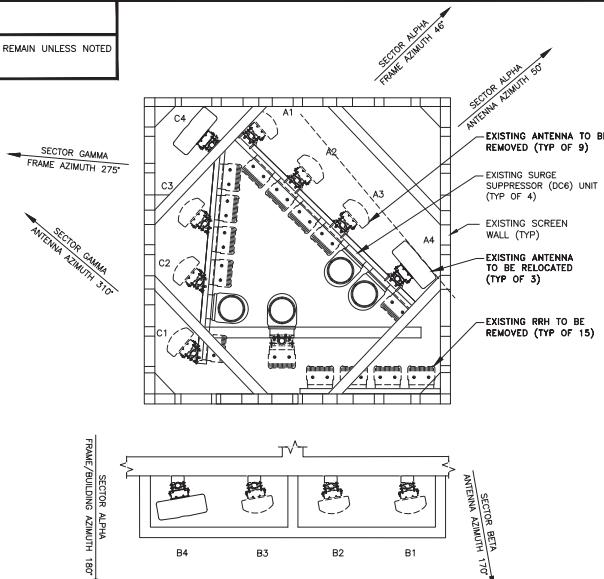
## ANTENNA SCHEDULE

NO SCAL

1

**NOTE**

1. ALL EXISTING EQUIPMENT TO REMAIN UNLESS NOTED OTHERWISE.

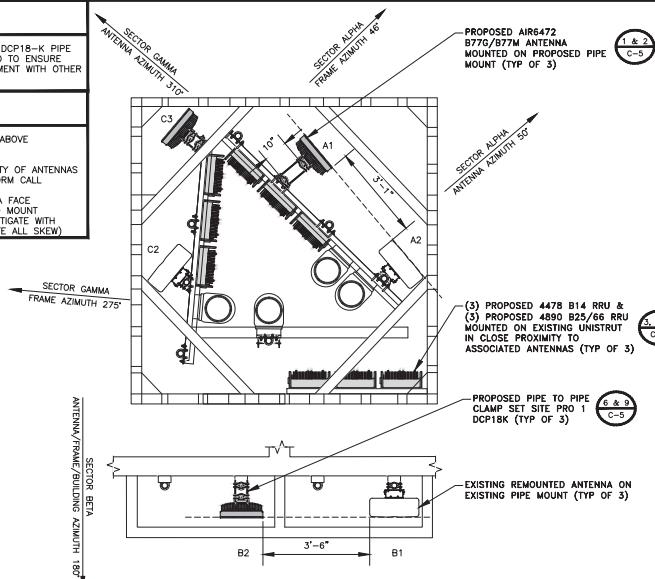


NOT

1. GENERAL CONTRACTOR TO INSTALL DCP18-K PIPE TO PIPE CLAMP SETS AS REQUIRED TO ENSURE ANTENNA FACE PLANE IS IN ALIGNMENT WITH OTHER ANTENNAS.

## EXCEPTIONS

  1. EXCEPTION REQUIRED FOR HEIGHT ABOVE ROOF-APPROVED ON DRM CALL
  2. EXCEPTION REQUIRED FOR PROXIMITY OF ANTENNAS TO FRP MATERIAL-APPROVED ON DRM CALL
  3. EXCEPTION REQUIRED FOR ANTENNA FACE PLANE-APPROVED ON DRM CALL (MITIGATE WITH STANDOFFS BUT WILL NOT ELIMINATE ALL SKEW)



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ELL SITE RF MODIFICATIONS

SHEET TITLE  
**ANTENNA SCHEDULE &  
LAYOUTS**

---

SHEET NUMBER

### EXISTING ANTENNA LAYOUT

2

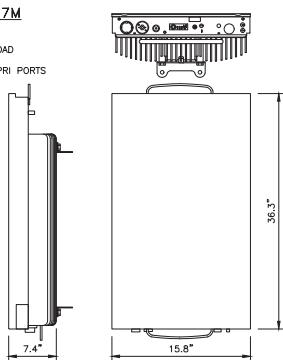
### PROPOSED ANTENNA LAYOUT

12" 6" 0 1' 2' 3' 4'

5'



**ERICSSON AIR 6472 B77G/B77M**  
 DIMENSIONS, WxDxH: 15.8" x 7.4" x 36.3"  
 (402mm x 192mm x 922mm)  
 POWER CONSUMPTION: 400 WATTS @ MAX LOAD  
 TOTAL WEIGHT: 154.4 lbs  
 PORTS: 2 x 10/25 Gbps eCPRI PORTS



CROSSOVER PLATES  
 ROUND MEMBER HORIZONTAL  
 FACE PIPES SHALL USE  
 SITERPRO # SCX7-U (OR  
 APPROVED EQUIVALENT)  
 ——————  
 SQUARE MEMBER  
 HORIZONTAL FACE PIPES  
 SHALL USE SITERPRO #  
 SIT45-K (OR APPROVED  
 EQUIVALENT)  
 ——————  
 (1) PER HORIZONTAL PIPE

HORIZONTAL FACE PIPE  
 ——————  
 TYP. TOP & BOTTOM

ANTENNA MOUNTING PIPE FOR  
 STACKED AIR6419 ANTENNAS SHALL  
 BE P2.5 STD (2-7/8" O.D.)  
 SITESPEC 4619-AIR6419  
 (OR APPROVED EQUIVALENT)

CROSSOVER PLATE NOTE:  
 FOR MOUNT REPLACEMENTS, IF  
 CROSSOVER PLATES OF  
 EQUIVALENT SIZE ARE SUPPLIED  
 WITH THE, THOSE CROSSOVER  
 PLATES SHALL BE USED

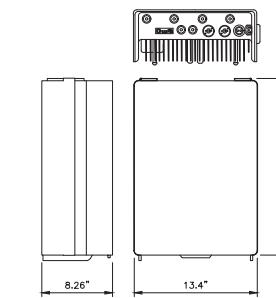
PROPOSED ANTENNA SPECIFICATIONS

NO SCALE

1

ANTENNA PIPE MOUNTING DETAIL

**ERICSSON RADIO 4478 B14**  
 DIMENSIONS, WxDxH: 13.4" x 6.26" x 16.1"  
 (342mm x 160mm x 410mm)  
 POWER CONSUMPTION: 650W  
 TOTAL WEIGHT: 59.4 lbs

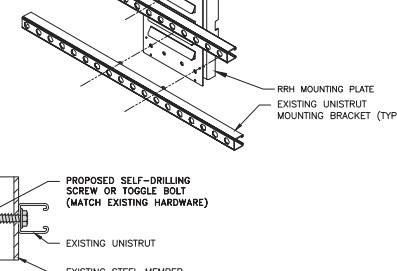
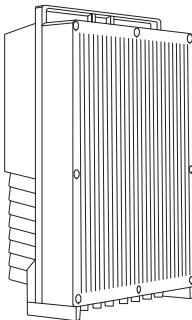


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**ERICSSON RADIO 4890 B25/66**  
 DIMENSIONS, HxWxD: 17.5" x 15.1" x 6.9"  
 (444mm x 384mm x 176mm)  
 POWER CONSUMPTION: 450 WATTS  
 TOTAL WEIGHT: 68 lbs



**RRU SPECIFICATIONS**

NO SCALE

4

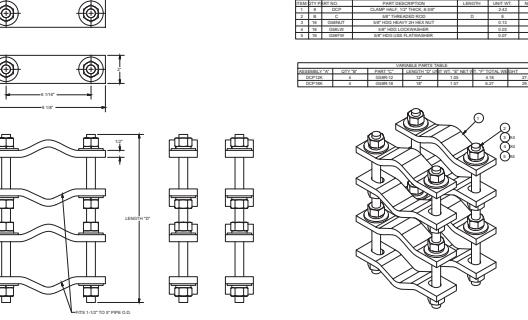
RRH UNISTRUT MOUNTING DETAIL

**RRU SPECIFICATIONS**

NO SCALE

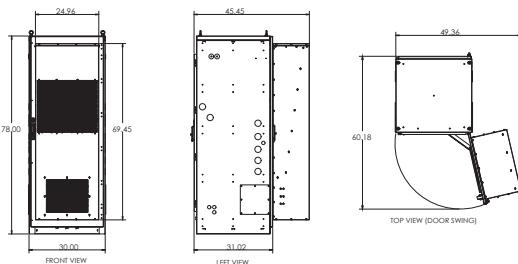
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RRU SPECIFICATIONS

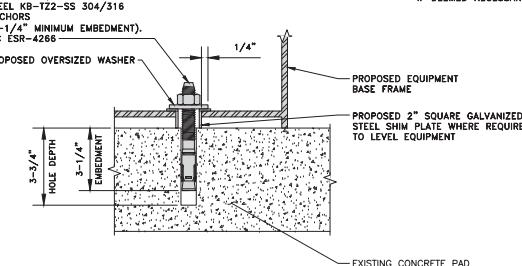


**PURCELL FLX42 RU CABINET**

DIMENSIONS, WxDxH: 762x789.7x1982mm (30" x 31" x 78")  
 WEIGHT: 440 lbs. (199.581 KG)



NOTE:  
 CONTRACTOR TO USE PAD  
 GASKET DURING INSTALL  
 IF DEEMED NECESSARY



FLX42 RU DETAIL

NO SCALE

7

CONCRETE ANCHOR DETAIL

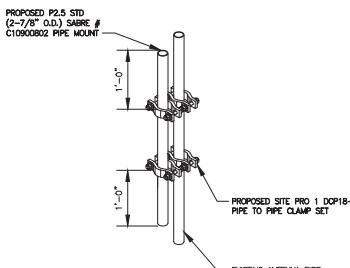
NOT USED

8

STAND-OFF MOUNT DETAIL

NO SCALE

9



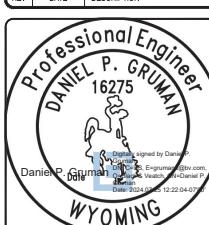
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RFDs: 1.00

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 CELL SITE RF MODIFICATIONS

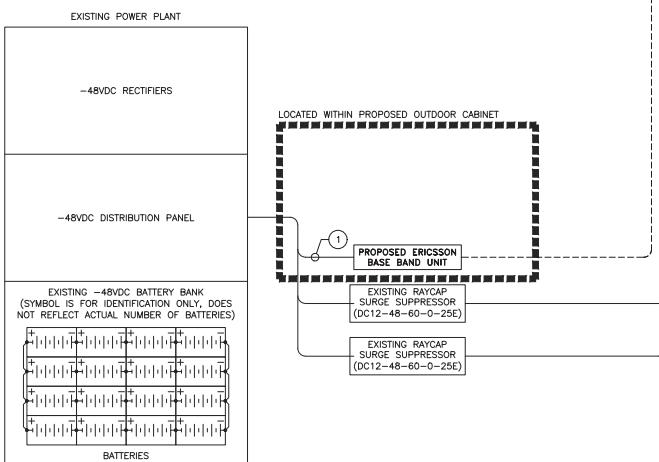
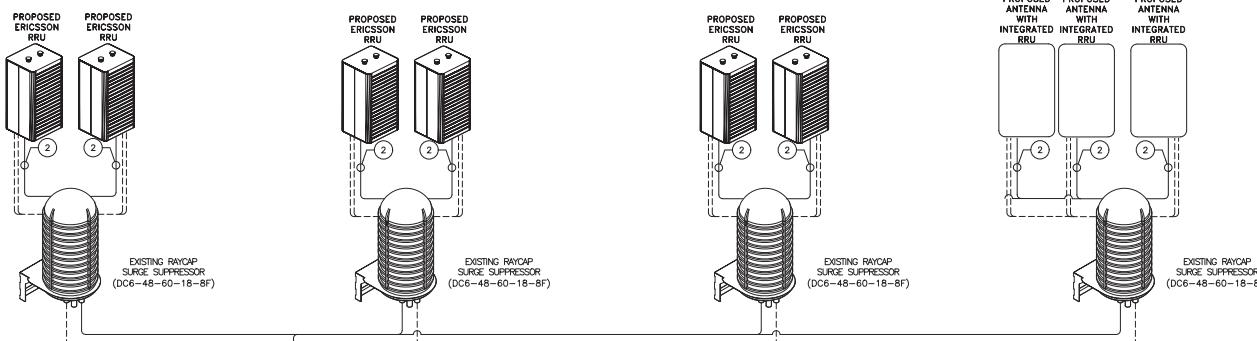
SHEET TITLE  
 EQUIPMENT DETAILS

SHEET NUMBER  
 C-5

DC CIRCUIT SCHEDULE			
NO.	FROM	TO	CONFIGURATION
①	EXISTING -48VDC DISTRIBUTION PANEL	PROPOSED FLX42 CABINET (PROPOSED CABINET FUSE BOX)	(4) 1#-#1 TELCOFLEX IV DC CABLE
②	EXISTING RAYCAP SURGE SUPPRESSOR (DC6-48-60-18-BF)	PROPOSED REMOTE RADIO UNIT (RRU)	(1) 2#-#8 THHN/THHN/VW-1 TYPE TC-ER DC CABLE

#### NOTES

1. DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V. REFER TO ATT-002-290-701.
2. NON-LTE DC POWER WIRING SIZE 14 AWG TO 10 AWG SHALL BE TELCOFLEX III. DC POWER WIRING 8 AWG AND LARGER SHALL BE TELCOFLEX IV.
3. LTE POWER WIRING SHALL BE IN ACCORDANCE WITH ATT-002-290-531.
4. DC ELECTRICAL DEMAND FOR THE PROPOSED ADDITIONS WERE INCLUDED IN AC LOAD CALCULATIONS.
5. CONNECT ALL PROPOSED ERICSSON RRU SECOND CPRI TO SURGE SUPPRESSOR FOR FUTURE USE.
6. CONTRACTOR TO RECONNECT ALL EXISTING EQUIPMENT TO PROPOSED POWER PLANT.

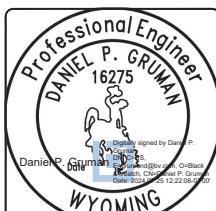


ELECTRICAL\_DC\_ONE-LINE\_DIAGRAM

NO SCALE



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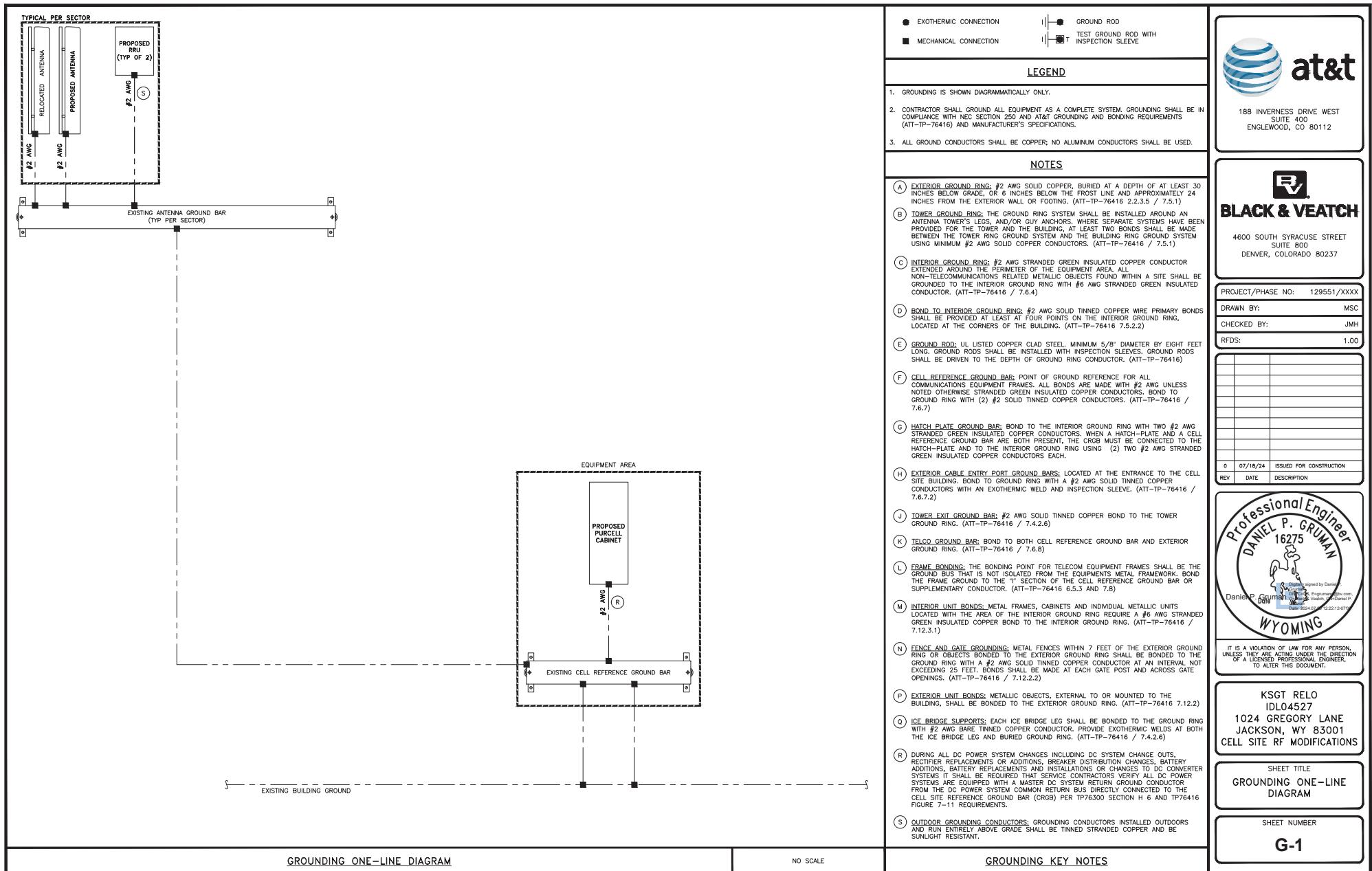
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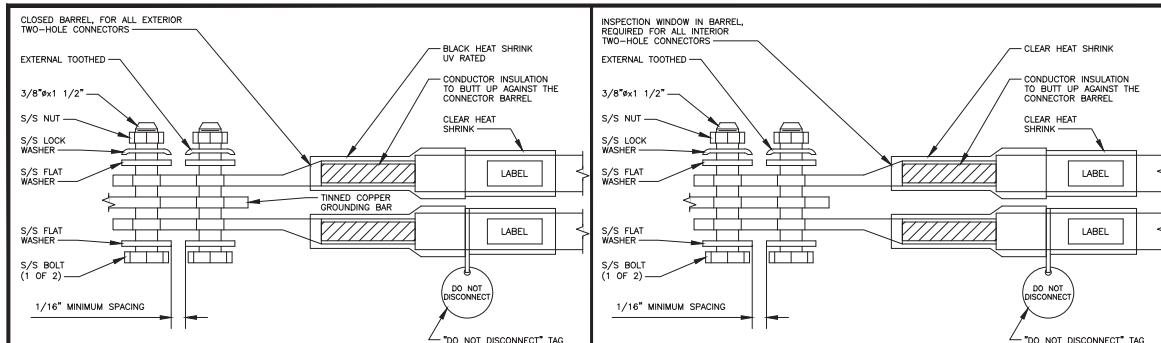
KSGT RELO  
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1024 GREGORY LANE  
JACKSON, WY 83001  
CELL SITE RF MODIFICATIONS

SHEET TITLE  
ELECTRICAL\_DC\_ONE-LINE  
DIAGRAM

SHEET NUMBER

E-1





INTERIOR TWO HOLE LUG

NO SCALE

1

EXTERIOR TWO HOLE LUG

NO SCALE

2

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

#### SECTION "P" - SURGE PROTECTORS

- (EC) CABLE ENTRY PORTS (HATCH PLATES) (#2)
- (EC) TELCO GROUND BAR (#2)
- (EC) COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- (AT&T) CELL SITE +24V POWER SUPPLY RETURN BAR (#2)
- (AT&T) CELL SITE -48V POWER SUPPLY RETURN BAR (#2)
- (EC) GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- (AT&T) RECTIFIER FRAMES
- (AT&T) ANTENNA SUPPRESSION

#### SECTION "A" - SURGE ABSORBERS

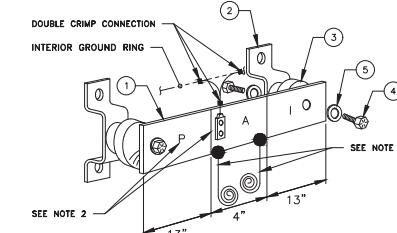
- (EC) INTERIOR GROUND RING (#2)
- (EC) EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- (EC) METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- (EC) BUILDING STEEL (IF AVAILABLE) (#2)

#### SECTION "I" - ISOLATED GROUNDING ZONE

- (AT&T) ALL CELL SITE COMMUNICATIONS EQUIPMENT FRAMES

#### DETAIL NOTES

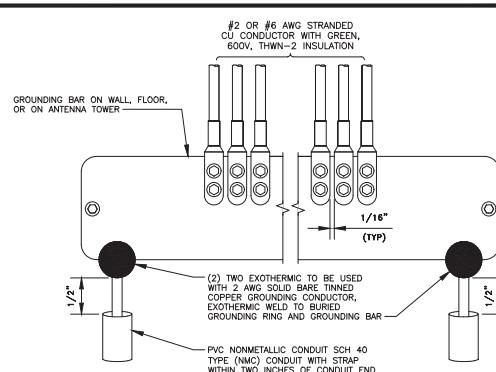
1. EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. EC SHALL PERMANENTLY MARK THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.
3. GROUND BAR SHALL BE ENGRAVED PER AT&T SPECIFICATIONS TO PREVENT THEFT.



(MGB) REFERENCE GROUNDING BAR

NO SCALE

4



INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE

3

1. ALL MAIN CABLES WILL BE GROUNDED W/ COAXIAL CABLE GROUND KITS AT:

- A. THE ANTENNA LEVEL
- B. MID LEVEL IF TOWER IS OVER 200FT.
- C. BASE OF TOWER PRIOR TO TURNING HORIZONTAL
- D. OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
- E. INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
- 2. ALL PROPOSED GROUND BAR DOWNLOADS ARE TO BE COLDWELDED TO THE EXISTING ADJACENT GROUND BAR DOWNLOADS A MINIMUM DISTANCE OF FOUR FEET BELOW GROUND BAR.
- 3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ANTENNA AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
- 4. DO NOT ALLOW THE COPPER CONDUCTOR TO TOUCH THE GALVANIZED GUY WIRE AT THE CONNECTION POINT OR AT ANY OTHER POINT. NO EXOTHERMICALLY WELDED CONNECTION SHALL BE MADE TO THE GUY WIRE.
- 5. SUBCONTRACTOR SHALL GROUND ALL EQUIPMENT INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED PERSONNEL IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- 6. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUNDING CONDUCTOR DOWN TO GROUNDING BAR.
- 7. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
- 8. WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
- 9. ALL EXTERIOR HEAT SHRINK OR HEAT SHRINK EXPOSED TO U/V LIGHT SHALL BE BLACK. ALL INTERIOR HEAT SHRINK SHALL BE CLEAR.
- 10. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION DETAILS. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUNDING BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
- 11. PROVIDE GROUNDING KIT 6' BEFORE TURN TRANSITION FROM TOWER TO ICE BRIDGE.

NOTES

NO SCALE

5



168 INVERNESS DRIVE WEST  
SUITE 400  
ENGLEWOOD, CO 80112



4600 SOUTH SYRACUSE STREET  
SUITE 800  
DENVER, COLORADO 80237

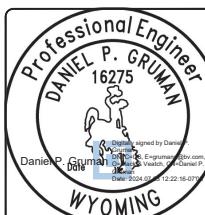
PROJECT/PHASE NO: 129551/XXXX

DRAWN BY: MSC

CHECKED BY: JMH

RFDs: 1.00

0	07/18/24	ISSUED FOR CONSTRUCTION
REV	DATE	DESCRIPTION



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLICENSED OR OTHERWISE, TO PRACTICE OR ATTEMPT TO PRACTICE ANY OF THE DISCIPLINES OF ENGINEERING OR ARCHITECTURE, OR ANY PART THEREOF, IN THIS STATE. IT IS ALSO A VIOLATION OF LAW FOR ANY PERSON TO ALTER THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF THE LICENSED PROFESSIONAL ENGINEER.

KSGT RELO  
IDL04527  
1024 GREGORY LANE  
JACKSON, WY 83001  
CELL SITE RF MODIFICATIONS

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

G-2

NOT USED

NO SCALE

6

NOT USED

NO SCALE

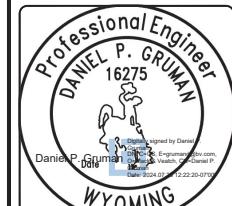
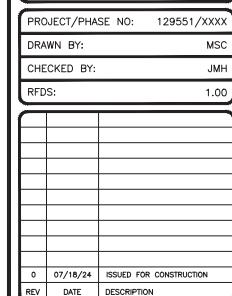
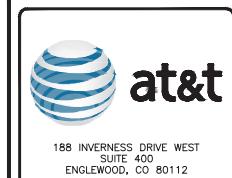
7

NOT USED

NO SCALE

8

EXOTHERMIC CONNECTION	
MECHANICAL CONNECTION	
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 ALWX 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	
AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AGF	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAmeter
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISHED(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 RADAR 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 CURE
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



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UNLESS THEY ARE ACTING UNDER THE DIRECTION  
OF A LICENSED PROFESSIONAL ENGINEER,  
TO ALTER THIS DOCUMENT.

KSGT RELO  
IDL04527  
1024 GREGORY LANE  
JACKSON, WY 83001  
CELL SITE RF MODIFICATIONS

SHEET TITLE  
LEGEND & ABBREVIATIONS

SHEET NUMBER

GN-1

## GENERAL CONSTRUCTION NOTES

### GENERAL CONSTRUCTION

- FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:  
GENERAL CONTRACTOR: OVERLAND CONTRACTING INC. (B&V)  
CONTRACTOR: (CONSTRUCTION)  
OWNER: AT&T
- ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
- GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE NECESSARY PROVISIONS, PRIOR TO PROCEEDING WITH CONSTRUCTION, GENERAL CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL CONTRACT DOCUMENTS, SITE CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON PLAN, ANY DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
- MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. THE 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 WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS IN ADDITION TO LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS SHOWN ON THE DRAWINGS.
- PLANS SHALL NOT BE SCALLED, THE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS OTHERWISE STATED DIMENSIONS SHOWN ARE THE TRUE SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. IT IS CRITICAL TO FIELD VERIFY ALL DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE PLAN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DIMENSIONS PROVIDED TO SHOW EQUIPMENT LOCATIONS MAY BE SUBJECT TO ADJUST TO SUIT JOB CONDITIONS OR CONDITIONS, SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND APPROVED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THE PLAN, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS, AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
- GENERAL CONTRACTOR SHALL COORDINATE AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
- ERCTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT, EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
- SEAL PENETRATIONS THROUGH FIRE RATED AREAS, SHALL BE MADE WITH UL LISTED MATERIALS, APPROVED BY THE LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN AND HAZARD FREE, AND DISPOSE OF ALL DEBRIS DAILY.
- AS-BUILT CONDITIONS ARE REPRESENTED BY LIGHT SHADDED LINES AND NOTES. THE SCOPE OF WORK FOR THE PROJECT IS REDEFINED BY DARK SHADDED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEViate FROM THE DRAWINGS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER, 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING, AND STRUCTURES DURING CONSTRUCTION OPERATIONS. ANY DAMAGED AREAS/ SITE ELEMENTS SHALL BE REPAiRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR IS ALSO RESPONSIBLE FOR THE NOTIFICATION OF TIER-TWO FACILITY/UTILITY OWNERS.
- GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
- THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS, ON THE PREMISES, AT ALL TIMES.
- THE CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A:10-B:C LOCATED WITHIN 25 FEET OF TRAVEL DISTANCE TO WORK ALL AREAS OR WHERE WORK IS BEING PERFORMED DURING CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERCS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CONTRACTOR. CONTRACTOR SHALL INCORPORATE, BUT NOT BE LIMITED TO: A) FULL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED, OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
- THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK, AND NOT COVERED BY THE TOWER, EQUIPMENT, OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND PROPERLY STABILIZED TO PREVENT EROSION.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE SITE DURING CONSTRUCTION. EROSION CONTROL AND SEDIMENT CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH FEDERAL AND/OR LOCAL JURISDICTIONS.
- FILL OR EMBANKMENT MATERIAL SHALL NOT BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW, OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR IN OPEN SPACE. ALL TRENCHES IN THE PUBLIC RIGHT-OF-WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL, PRE-APPROVED BY THE LOCAL JURISDICTION.
- ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
- ALL BROCHURES, OPERATION MANUALS, MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.

- CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
- THE PROPOSED FACILITY WILL BE UNMANNED, DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
- OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION OF APPROXIMATELY TWO TIMES PER MONTH BY AT&T TECHNICIANS.
- NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
- ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST Revision AT&T MOBILE GROUNDING STANDARD TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM WIRELESS SYSTEMS. TECHNICAL SPECIFICATION FOR FACILITY OPERATIONS, IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATIONS AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
- CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
- CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
- CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
- INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE OBSERVATIONS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- WHITE STROBE LIGHTS ARE NOT PERMITTED. IF LIGHTING IS REQUIRED, IT SHALL MEET FAA STANDARDS AND REQUIREMENTS.
- ALL COAXIAL CABLE CONTRACTOR SHALL INSTALL PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP) GALVANIZED" COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAiRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK WASHERS AND/OR DOUBLE NUTS, AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL INSTALL ANTENNA AND ASSOCIATED GROUNDING PER MANUFACTURER'S RECOMMENDATIONS.
- ALL UNUSED PORTS ON ANY ANTENNA OR TMA SHALL BE COVERED BY CONCEALER CAP WITH PROPER WEATHER PROOFING OR BE TERMINATED WITH A 50 Q LOAD.
- PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHES SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 3 DEGREES AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5 DEGREES AS DEFINED BY THE RFDS. REFER TO ATT-002-290-210.
- JUMPERS FROM THE TOWER MOUNTED AMPLIFIERS MUST TERMINATE TO OPPOSITE POLARIZATIONS IN EACH SECTOR.
- CONTRACTOR SHALL RECORD THE SERIAL NUMBER, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
- TOWER MOUNTED AMPLIFIERS SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.
- ANTENNAS SHALL HAVE A 4'-0" MINIMUM CENTER-TO-CENTER HORIZONTAL SEPARATION.
- TORQUE REQUIREMENTS
- ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
- A TORQUE MARK FORMING A CONTINUOUS STRAIGHT LINE IS TO BE MADE IN THE FOLLOWING APPLICATIONS:
- RF CONNECTIONS - MARK BOTH SIDES OF THE CONNECTOR
- GROUNDING AND ANTENNA HARDWARE - MARK ON THE NUT SIDE OF THE BOLT, STARTING FROM THE THREADS TO THE SOLID SURFACE. SOLID SURFACE EXAMPLES INCLUDE A GROUND BAR OR ANTENNA BRACKET METAL.
- ALL BM ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
- ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
- ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
- ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 - 29.8 NM).
- ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).
- FIBER & POWER CABLE MOUNTING
- THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED IN CONDUITS OR INNERDUCT. WHEN UTILIZING A CABLE TRAY SYSTEM, PLACE FIBER OPTIC TRUNK CABLE INTO AN INNERDUCT. A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER-DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVER (6) SIX FEET AND SHALL BE SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
- TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS OR CABLE TRAYS, AND SHALL BE SECURED AT INTERFACtES. NOT EXCEEDING 10' IN LENGTH, TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE. CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS OR CABLE TRAYS THAT ARE SERVICING UTILIZATION EQUIPMENT OR DEVICES. A TRANSITION DISTANCE EXCEEDING (6) FEET REQUIRES CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
- WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

### COAXIAL CABLE NOTES

- TYPES AND SIZES OF THE ANTENNA CABLES ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
- CONTRACTOR SHALL VERIFY THAT THE DOWNTILT OF EACH ANTENNA IS WITHIN +/- 0.5 DEGREES OF SPECIFICATION WITH AN OCI APPROVED DIGITAL LEVEL.
- CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO LASTEST REVISION OF THE "ANTENNA SYSTEM LABELING STANDARD".

- ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE IN AN APPROVED MANNER, NOT TO EXCEED MANUFACTURER'S RECOMMENDATIONS.
- COAXIAL CABLE SHALL BE SECURED TO THE DESIGNATED SUPPORT STRUCTURE(S) PER MANUFACTURER'S SPECIFICATIONS.

### GENERAL CABLE AND EQUIPMENT NOTES

- CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TIMAS, DIPLEXERS, COAX CONFIGURATION, MAKES, AND MODELS PRIOR TO INSTALLATION.
- ALL CABLES FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.

- CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
- AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE, ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED. SELF BONDING TAPE AND PLASTIC ENCLOSURES ARE PERMITTED FOR ATT-002-290-041, SECTION 7.

### IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:

A. TEMPERATURE SHALL BE ABOVE 50 DEGREES FAHRENHEIT.

B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.

C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.

D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.

### 73. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. AT THE FOLLOWING LOCATIONS PER MANUFACTURER'S RECOMMENDATIONS:

A. THE ANTENNA LEVEL.

B. THE MID LEVEL, TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDS REQUIRED.

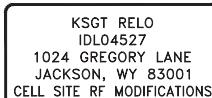
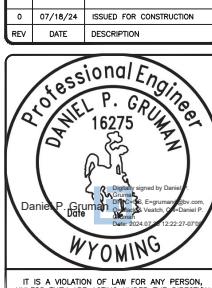
C. BASE OF TOWER PRIOR TO TURNING HORIZONTAL.

D. OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.

74. ANTENNA CONTRACTOR SHALL FURNISH AND INSTALL A 12'-0" T-BOOM SECTOR ANTENNA MOUNT INCLUDING ALL HARDWARE, IF APPLICABLE.



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CHECKED BY:	JMH
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## GENERAL SITE WORK AND DRAINAGE NOTES

### PART 1 - GENERAL

CONTRACTOR SHALL PROVIDE CLEARING, GRUBBING, STRIPPING, EROSION CONTROL, SURVEY, LAYOUT, SUBGRADE PREPARATION, AND FINISH GRADING AS REQUIRED TO COMPLETE THE PROPOSED WORK SHOWN IN THESE PLANS.

#### 1.1 REFERENCES:

- A. DOT (STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION)
- B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
- C. OSHA (OCCUPATION SAFETY AND HEALTH ADMINISTRATION)

#### 1.2 INSPECTION AND TESTING:

- A. FIELD TESTING OF EARTHWORK COMPACTION AND CONCRETE CYLINDERS SHALL BE PERFORMED BY AN INDEPENDENT TESTING LAB. THIS WORK SHALL BE COORDINATED BY THE SUBCONTRACTOR.
- B. ALL WORK SHALL BE INSPECTED AND RELEASED BY THE GENERAL CONTRACTOR. THE INSPECTIONS SHALL BE CARRIED OUT WITH SPECIFIC CONCERN FOR PROPER PERFORMANCE OF THE WORK AS SPECIFIED AND AS CALLED FOR IN THE PLANS. IT IS THE SUBCONTRACTOR'S RESPONSIBILITY TO REQUEST THE REQUIRED INSPECTIONS PRIOR TO PROCEEDING WITH FURTHER WORK THAT WOULD MAKE PARTS OF WORK INACCESSIBLE OR DIFFICULT TO INSPECT.

#### 1.3 SITE MAINTENANCE AND PROTECTION:

- A. PROVIDE ALL NECESSARY JOB SITE MAINTENANCE FROM COMMENCEMENT OF WORK UNTIL COMPLETION OF THE SUBCONTRACT.
- B. AVOID DAMAGE TO THE SITE AND TO EXISTING FACILITIES, STRUCTURES, TREES, AND SHRUBS DESIGNATED TO REMOVE. TAKE PROTECTIVE MEASURES TO PREVENT DAMAGE TO EXISTING FACILITIES THAT ARE NOT DESIGNATED FOR MODIFICATION OR REMOVAL.
- C. KEEP SITE FREE OF PONDING WATER.
- D. PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH STATE DOT AND EPA REQUIREMENTS.
- E. PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNS, AND SIMILAR DEVICES NECESSARY TO PROTECT AGAINST THEFT, PROPERTY DAMAGE, OR PERSONAL INJURY DURING THE ENTIRE DURATION OF CONSTRUCTION. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.
- F. DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE ENGINEER AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.

1. NOTICE TO ENGINEER SHALL BE PROVIDED A MINIMUM OF 48 HOURS PRIOR TO OUTAGE.

### PART 2 - PRODUCTS

2.1 SUITABLE BACKFILL: ASTM D2321 (CLASS I, II, III OR IV A) FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN THREE (3) INCHES IN ANY DIMENSION.

2.2 NON-POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS III, IV A OR IV B) COARSE AGGREGATE, FREE FROM FROZEN LUMPS, REFUSE, STONES OR ROCKS LARGER THAN THREE (3) INCHES IN ANY DIMENSION.

2.3 POROUS GRANULAR EMBANKMENT AND BACKFILL: ASTM D2321 (CLASS IA, IB OR II) COARSE AGGREGATE FREE FROM FROZEN LUMPS, REFUSE, STONES, OR ROCKS LARGER THAN THREE (3) INCHES IN DIAMETER, OR OTHER MATERIAL THAT MAY MAKE THE INORGANIC MATERIAL UNSUITABLE FOR BACKFILL.

2.4 SELECT STRUCTURAL FILL: GRANULAR FILL MATERIAL MEETING THE REQUIREMENTS OF ASTM E850-95, FOR USE AROUND AND UNDER STRUCTURES WHERE STRUCTURAL FILL MATERIAL IS REQUIRED.

2.5 GRANULAR BEDDING AND TRENCH BACKFILL: WELL-GRDED SAND MEETING THE GRADATION REQUIREMENTS OF ASTM D2487 (CLASSIFIED AS SE OR SW-SM SOILS).

2.6 COARSE AGGREGATE FOR ACCESS ROAD SUBBASE COURSE SHALL CONFORM TO ASTM D2940.

2.7 UNSUITABLE MATERIAL: HIGH AND MODERATELY PLASTIC SILTS AND CLAYS (LL>45), MATERIAL CONTAINING REFRACTORY FROZEN LUMPS, DEMOLISHED BITUMINOUS MATERIAL, VEGETATIVE MATTER, WOOD, STONES IN EXCESS OF 3 INCHES IN DIAMETER, AND DEBRIS. THESE WILL BE SOILS CLASSIFIED AS PT, MH, CH, OH, ML, AND OL.

2.8 GEOTEXTILE FABRIC: MIRAFI 500X OR APPROVED EQUIVALENT.

2.9 PLASTIC MARKING TAPE SHALL BE ACID AND ALKALI RESISTANT POLYETHYLENE FILM SPECIFICALLY MANUFACTURED FOR MARKING AND LOCATING UNDERGROUND UTILITIES, SIX (6) INCHES WIDE WITH A MINIMUM LENGTH OF 100 FEET. SHALL BE MARKED WITH THE WORD "PIPE" IN PINK IN A DURABLE INK AND MANUFACTURED WITH INTEGRAL CONDUCTORS, FOIL BACKING OR OTHER MEANS TO ENABLE DETECTION BY A METAL DETECTOR WHEN BURIED UP TO 3 FEET DEEP. THE METALLIC CORE OF THE TAPE SHALL BE ENCASED IN A PROTECTIVE JACKET OR PROVIDED WITH OTHER MEANS TO PROTECT IT FROM CORROSION. TAPE COLOR SHALL BE RED FOR ELECTRIC UTILITIES AND ORANGE FOR TELECOMMUNICATION UTILITIES.

### PART 3 - EXECUTION

#### 3.1 GENERAL:

- A. BEFORE STARTING GENERAL SITE PREPARATION ACTIVITIES, INSTALL EROSION AND SEDIMENT CONTROL MEASURES. THE WORK AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUCH CONDITION THAT IN THE EVENT OF A RAIN EVENT, THE SITE CAN PROPERLY DRAIN AT THE WORK SITE.
- B. PRIOR TO SURVEY, LAYOUT, STAKING, AND MARKING, ESTABLISH AND MAINTAIN ALL LINES, GRADES, ELEVATIONS, AND BENCHMARKS REQUIRED FOR EXECUTION OF THE WORK.
- C. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE. REMOVE TREES, BRUSH, STUMPS, RUBBISH, OTHER DEBRIS, AND VEGETATION RESTING ON OR PROTRUDING THROUGH THE GROUND SURFACE.
- 1. REMOVE THE FOLLOWING MATERIALS TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE ORIGINAL GROUND SURFACE: ROOTS, STUMPS, BRUSH, REFUSE, AND OTHER DEBRIS EMBEDDED IN OR PROTRUDING THROUGH THE GROUND SURFACE. REMOVE DISK OR PLOW THE AREA TO A DEPTH OF NO LESS THAN 6 INCHES, AND REMOVE MATERIAL TO A DEPTH OF 12 INCHES BELOW THE BOTTOM DEPTH OF ROOTS AND OTHER DEBRIS.
- 2. REMOVE TOPSOIL MATERIAL COMPLETELY FROM THE SURFACE UNTIL THE SOIL NO LONGER MEETS THE DEFINITION OF TOPSOIL. AVOID MIXING TOPSOIL WITH SUBSOIL OR OTHER MATERIALS.
- 3. EXCEPT WHERE EXCAVATION TO GREATER DEPTH IS INDICATED, FILL DEPRESSIONS RESULTING FROM CLEARING, GRUBBING, AND DEMOLITION WORK COMPLETELY WITH SUITABLE FILL.

- D. ALL DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN AN AUTHORIZED LANDFILL. BURNING OF DEBRIS WILL NOT BE PERMITTED.

- E. PRIOR TO EXCAVATING, THOROUGHLY EXAMINE THE AREA TO BE EXCAVATED AND/OR TRENCHER TO VERIFY THE LOCATIONS OF FEATURES INDICATED ON THE DRAWINGS AND TO ASCERTAIN THE EXISTENCE AND LOCATION OF ANY STRUCTURE, UNDERGROUND STRUCTURE, OR OTHER ITEM NOT SHOWN THAT MIGHT INTERFERE WITH THE PROPOSED CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER OF ANY OBSTRUCTIONS THAT WILL PREVENT ACCOMPLISHMENT OF THE WORK AS INDICATED ON THE PLANS.
- F. SEPARATE AND STOCKPILE ALL EXCAVATED MATERIALS SUITABLE FOR BACKFILL. ALL EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.

#### 3.2 BACKFILL:

- A. AFTER COMPLETING CONSTRUCTION OF A STRUCTURE, INCLUDING EXPIRATION OF THE SPECIFIED MINIMUM CURING PERIOD FOR CAST-IN-PLACE CONCRETE, BACKFILL THE EXCAVATION WITH APPROVED MATERIAL TO RESTORE THE REQUIRED GRADE.
- 1. PRIOR TO PLACING BACKFILL AROUND STRUCTURES, ALL FORMS SHALL BE REMOVED AND THE EXCAVATION CLEANED OF ALL TRASH, DEBRIS, AND UNSUITABLE MATERIALS.

- 2. BACKFILL BY PLACING AND COMPACTING SUITABLE BACKFILL MATERIAL IN UNIFORM HORIZONTAL LAYERS OF NO GREATER THAN 8-INCHES LOOSE THICKNESS. WHERE HAND OPERATED COMPACTORS ARE USED, THE FILL MATERIAL SHALL BE PLACED IN LAYS NOT TO EXCEED 4 INCHES IN LOOSE DEPTH.
- 3. IF THE DENSITY TESTING INDICATES THAT THE CONTRACTOR HAS NOT OBTAINED THE SPECIFIED DENSITY, THE SUCCEEDING LAYER SHALL NOT BE PLACED UNTIL THE SPECIFICATION REQUIREMENTS ARE MET UNLESS OTHERWISE AUTHORIZED BY THE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL TAKE WHATEVER APPROPRIATE ACTION IS NECESSARY, SUCH AS DISKING AND DRYING, ADDING WATER, OR INCREASING THE COMPACTIVE EFFORT TO MEET THE MINIMUM COMPACTION REQUIREMENTS.

- B. THOROUGHLY COMPACT EACH LAYER OF BACKFILL TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D698.
- 3.3 TRENCH EXCAVATION:
- A. UTILITY TRENCHES SHALL BE EXCAVATED AT LOCATIONS, DEPTHS, AND WIDTHS SHOWN ON PLAN, OR AS DIRECTED BY THE GENERAL CONTRACTOR. EXCAVATION CONTRACTOR SHALL PROVIDE SHORING, SHEETING, AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE TRENCH WALLS.
- B. THE TRENCH WIDTH SHALL EXTEND A MINIMUM OF 6 INCHES BEYOND THE OUTSIDE EDGE OF THE OUTERMOST CONDUIT.

#### 3.4 TRENCH BACKFILL:

- A. NOTIFY THE GENERAL CONTRACTOR 24 HOURS IN ADVANCE OF BACKFILLING.
- B. PROVIDE GRANULAR BEDDING MATERIAL IN ACCORDANCE WITH THE PLAN AND THE UTILITY REQUIREMENTS.
- C. CONDUCT UTILITY CHECK TESTS BEFORE BACKFILLING. BACKFILL AND COMPACT TRENCH BEFORE ACCEPTANCE TESTING.
- D. PLACE GRANULAR TRENCH BACKFILL UNIFORMLY ON BOTH SIDES OF THE CONDUITS IN 6-INCH UNCOMPACTED LIFTS AND TO 12 INCHES OVER THE CONDUITS. SOLIDLY RAM AND TAMP BACKFILL INTO SPACE AROUND CONDUITS.
- E. PROTECT CONDUIT FROM LATERAL MOVEMENT, IMPACT DAMAGE, OR UNBALANCED LOADING.
- F. ABOVE THE CONDUIT EMBODIMENT ZONE, PLACE AND COMPACT THE BACKFILL MATERIAL IN MAXIMUM 8-INCH THICK LOOSE LIFTS TO RESTORE THE REQUIRED FINISHED SURFACE GRADE.
- G. COMPACT THE TRENCH BACKFILL A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE STANDARD PROCTOR TEST, ASTM D698.

### 3.5 AGGREGATE ACCESS ROAD:

- A. CLEAR, GRUB, STRIP, AND EXCAVATE FOR THE ACCESS ROAD AS SHOWN ON PLAN. SCARIFY TO A DEPTH OF 6 INCHES AND PROOF-ROLL. ALL HOLES, RUTS, SOFT PLACES, AND OTHER DEFECTS SHALL BE CORRECTED.
- B. THE SUBGRADE OF THE DISTURBED AREA SHALL BE COMPAKED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS PROVIDED BY THE MODIFIED PROCTOR TEST, ASTM D1557.
- C. AFTER PREPARATION OF THE ROAD SUBGRADE IS COMPLETE, INSTALL THE GEOTEXTILE FABRIC (MIRAFI 500X) AT LOCATIONS INDICATED ON THE PLAN BY ROLLING THE FABRIC OUT LONGITUDINALLY ALONG THE ROADWAY. THE FABRIC SHALL NOT BE DRAGGED ACROSS THE SUBGRADE. PLACE THE ENTIRE ROLL IN A SINGLE OPERATION AND ROLL IT OUT AS SMOOTHLY AS POSSIBLE.
- 1. GEOTEXTILE FABRIC OVERLAPS THAT ARE PARALLEL TO THE ROADWAY WILL BE PERMITTED ALONG THE CENTERLINE OF THE ROAD AND AT LOCATIONS BEYOND THE ROADWAY SURFACE WIDTH (I.E. WITHIN THE SHOULDER WIDTH) ONLY. NO LONGITUDINAL OVERLAPS SHALL BE LOCATED BETWEEN THE CENTERLINE AND THE SHOULDER. PARALLEL OVERLAPS SHALL BE A MINIMUM OF 3 FEET WIDE.

- 2. TRANSVERSE (PERPENDICULAR TO THE ROADWAY) GEOTEXTILE FABRIC OVERLAPS AT THE END OF A ROLL SHALL OVERLAP IN THE DIRECTION OF THE AGGREGATE PLACEMENT WITH THE PREVIOUS ROLL ON TOP OF THE NEW ROLL, AND SHALL HAVE A MINIMUM LENGTH OF 3 FEET.

- 3. ALL GEOTEXTILE FABRIC OVERLAPS SHALL BE PINNED WITH STAPLES OR NAILS A MINIMUM OF 10 INCHES LONG. INSURE PROPER POSITIONING AND EMBODIMENT OF THE GEOTEXTILE FABRIC. PIN LONGITUDINAL SEAMS AT A MINIMUM OF 25-FOOT INTERVALS AND TRANSVERSE SEAMS AT A MINIMUM OF 5-FOOT INTERVALS.

- D. THE AGGREGATE BASE AND SURFACE AGGREGATE SHALL BE CONSTRUCTED IN LAYERS NOT MORE THAN 4 INCHES (COMPACTED) IN THICKNESS. AGGREGATE TO BE PLACED ON GEOTEXTILE FABRIC SHALL BE END-DUMPED ON THE FABRIC FROM THE FREE END OF THE FABRIC OR OVER PREVIOUSLY PLACED AGGREGATE. AGGREGATE SHALL BE SHAKED DOWN AND THOUGHTFULLY PLACED IN LAYERS IN ACCORDANCE TO COMPACTION. AT NO TIME SHALL EQUIPMENT, EITHER TRANSPORTING OR GRADING THE AGGREGATE, BE PERMITTED ON THE ROADWAY WITH LESS THAN 4 INCHES OF MATERIAL COVERING THE GEOTEXTILE FABRIC.

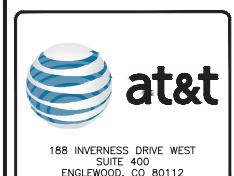
- E. THE AGGREGATE SHALL BE IMMEDIATELY COMPAKED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST, ASTM D1557. A TAMPING ROLLER, PNEUMATIC-TIRED ROLLER, OR VIBRATORY MACHINE, OR ANY COMBINATION THEREOF MAY BE USED FOR COMPACTION PROCEDURES. THE TOP LAYER SHALL BE GIVEN A FINAL ROLLING WITH A THREE-WHEEL OR TANDEM ROLLER.

#### 3.6 FINISH GRADING:

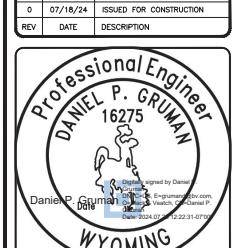
- A. PERFORM ALL GRADING TO PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES AND SMOOTH SURFACE DRAINAGE OF THE ENTIRE AREA WITHIN THE LIMITS OF CONSTRUCTION. GRADING SHALL PROPERLY BLEND WITH SURROUNDING TOPOGRAPHY AND STRUCTURES.
- B. IF DEEMED SUITABLE PER GEOTECHNICAL ENGINEER, UTILIZE FILL MATERIAL RESULTING FROM EXCAVATION FOR THE CONSTRUCTION OF FILLS, EMBANKMENTS, AND FOR REPLACEMENT OF REMOVED UNSUITABLE MATERIALS.
- C. ACHIEVE FINISHED GRADE BY PLACING A MINIMUM OF 4 INCHES OF 1/2" - 3/4" CRUSHED STONE ON IF APPLICABLE, TOP OF SOIL STABILIZER FABRIC.
- D. REPAIR ALL ACCESS ROADS AND SURROUNDING AREAS DISTURBED DURING THE COURSE OF THIS WORK TO THEIR ORIGINAL CONDITION.

#### 3.7 ASPHALT PAVING:

SHALL BE PERFORMED PER COLORADO DEPARTMENT OF TRANSPORTATION (CDOT), DIVISION 400 - CDOT PAVEMENT STANDARDS AND SPECIFICATIONS.



PROJECT/PHASE NO: 129551/XXXX  
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KSGT RELO  
IDL04527  
1024 GREGORY LANE  
JACKSON, WY 83001  
CELL SITE RF MODIFICATIONS

SHEET TITLE  
GENERAL SITE WORK & DRAINAGE NOTES

SHEET NUMBER  
GN-3

## GENERAL CONCRETE WORK NOTES

### PART 1 – GENERAL

#### 1.1 SCOPE:

A. FORM WORK, REINFORCING STEEL, ACCESSORIES, CAST-IN PLACE CONCRETE, FINISHING, CURING, AND TESTING FOR STRUCTURAL CONCRETE FOUNDATIONS.

#### 1.2 REFERENCES:

A. ACI (AMERICAN CONCRETE INSTITUTE)

1. ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.
2. ACI 304 RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE.
3. ACI 305 RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING.
4. ACI 306 RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING.
5. ACI 308 STANDARD PRACTICE FOR CURING CONCRETING.
6. ACI 309 STANDARD PRACTICE FOR CONSOLIDATION OF CONCRETE.
7. ACI 318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
8. ACI 347 RECOMMENDED PRACTICE FOR CONCRETE FORMWORK.

B. THE APPLICABLE STANDARDS OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) ARE REFERENCED IN THE ACI STANDARDS AND ARE A PART OF THIS SPECIFICATION.

### PART 2 – PRODUCTS:

#### 2.1 REINFORCING MATERIALS:

B. REINFORCING BARS: ASTM A615, GRADE 60, PROPOSED DEFORMED BILLET-STEEL BARS, PLAIN FINISH. C. CONTRACTOR SHALL FURNISH CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS AS REQUIRED FOR SUPPORT OF REINFORCING STEEL AND WIRE FABRIC.

#### 2.2 CONCRETE MATERIALS:

A. PORTLAND CEMENT SHALL BE TYPE II, CONFORMING TO ASTM C-150.

B. AGGREGATE SHALL CONFORM TO ASTM C-33.

1. FINE AGGREGATE SHALL BE UNIFORMLY GRADED, CLEAN, SHARP, AND WASHED NATURAL OR CRUSHED SAND, FREE FROM ORGANIC IMPURITIES.
2. COARSE AGGREGATE SHALL BE NATURAL WASHED GRAVEL OR CRUSHED ROCK CONSISTING HARD, STRONG, DURABLE PIECES, FREE FROM ADHERENT COATINGS.

3. MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 3/4 INCH IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C-33 GRADATION SIZE NO. 67.

C. WATER USED IN CONCRETE MIX SHALL BE POTABLE, CLEAN, AND FREE FROM OILS, ACIDS, SALTS, CHLORIDES, ALKALI, SUGAR, VEGETABLE, OR OTHER DELETERIOUS SUBSTANCES.

D. THE CONCRETE SHALL CONTAIN AN AIR-ENTRAINING ADMIXTURE COMPLYING WITH THE REQUIREMENTS OF ASTM C-260 AND ACI 212.1R AND A WATER-REDUCING ADMIXTURE COMPLYING WITH THE REQUIREMENTS OF ASTM C-494 AND ACI 212.1R. ADMIXTURES SHALL BE PURCHASED AND BATCHED IN INDIVIDUAL BAGS. USE OF CALCIUM CHLORIDE OR AN ADMIXTURE CONTAINING CALCIUM CHLORIDE IS PROHIBITED. ADMIXTURES SHALL BE OF THE SAME MANUFACTURER TO ASSURE COMPATIBILITY. ACCEPTABLE MANUFACTURERS ARE:

1. W.R. GRACE

2. SIKA CORPORATION

3. MASTER BUILDERS

4. EUCLID CHEMICAL COMPANY

E. CURING COMPOUND SHALL CONFORM TO ASTM C309, TYPE I, ID, CLASS A AND B, AND ASTM C171 AS APPLICABLE.

#### 2.3 CONCRETE MIX:

A. PROPORTION CONCRETE, MIX IN ACCORDANCE WITH REQUIREMENTS OF ACI 301. THE STRENGTH OF CONCRETE SHALL BE AS INDICATED ON THE DRAWINGS, WHERE STRENGTH IS NOT CLEARLY INDICATED, CONCRETE OF MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI SHALL BE USED.

B. THE CONCRETE MIX SHALL BE DESIGNED FOR A MAXIMUM SLUMP OF THREE INCHES AT THE POINT OF DISCHARGE. MIXES OF THE STIFFEST CONSISTENCY THAT CAN BE EFFICIENTLY PLACED SHALL BE USED.

C. ALL CONCRETE SHALL HAVE THREE (3) TO FIVE (5) PERCENT ENTRAINED AIR.

D. ALL STRUCTURAL CONCRETE SHALL CONTAIN A WATER-REDUCING AGENT.

### PART 3 – EXECUTION

#### 3.1 GENERAL:

A. CONSTRUCT AND ERECT THE FORM WORK IN ACCORDANCE WITH ACI 301 AND ACI 347.

B. COLD-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 306.

C. HOT-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 305.

#### 3.2 INSERTS, EMBEDDED COMPONENTS, AND OPENINGS:

A. CONTRACTOR SHALL CHECK ALL CIVIL, ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHOR BOLTS, INSERTS, AND OTHER ITEMS TO BE INCORPORATED INTO THE CONCRETE WORK.

B. COORDINATE THE WORK OF OTHER SECTION IN FORMING AND SETTING OPENINGS, RECESSES, SLOTS, CHASES, ANCHORS, INSERTS, AND OTHER ITEMS TO BE EMBEDDED.

C. EMBEDDED ITEMS SHALL BE SET ACCURATELY IN LOCATION, ALIGNMENT, ELEVATION AND PLUMBNESS, LOCATED AND MEASURED FROM ESTABLISHED SURVEY LINE REFERENCE BENCHMARKS.

D. EMBEDDED ITEMS SHALL BE ANCHORED INTO PLACE IN A MANNER TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT AND CONSOLIDATION. COMPONENTS FORMING A PART OF A COMPLETE ASSEMBLY SHALL BE ALIGNED BEFORE ANCHORING INTO PLACE, PROVIDE TEMPORARY BRACING, ANCHORAGE, AND TEMPLATES AS REQUIRED TO MAINTAIN THE SETTING AND ALIGNMENT.

#### 3.3 REINFORCEMENT PLACEMENT:

A. PLACE REINFORCEMENT ACCORDING TO CONSTRUCTION PLAN SET DRAWINGS AND IN ACCORDANCE WITH ACI 301 AND ACI 318.

B. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT FROM FORM WORK CONSTRUCTION OR CONCRETE PLACEMENT AND CONSOLIDATION. SUPPORT REINFORCING ON METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS AND HANGERS.

C. SPlices OF REINFORCING BARS SHALL BE CLASS B UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS. SPLICES SHALL BE STAGGERED AND FULL DEVELOPMENT LENGTH SHALL BE PROVIDED ACROSS JOINTS.

D. LOCATE REINFORCING TO PROVIDE CONCRETE COVER AND SPACING SHOWN ON THE DRAWINGS. MINIMUM COVER SHALL BE AS REQUIRED BY ACI 318.

E. WELDING OF AND TO ANY REINFORCING MATERIALS, INCLUDING TACK WELDING OF CROSSING BARS, IS STRICTLY PROHIBITED.

#### 3.4 CONCRETE PLACEMENT:

A. PRIOR TO PLACING CONCRETE, THE FORMS AND REINFORCEMENT SHALL BE THOROUGHLY INSPECTED; ALL TEMPORARY BRACING, TIES, AND CLEATS REMOVED; ALL OPENINGS FOR REINFORCING PROPERLY BOXED; ALL FORMS PROPERLY SECURED IN POSITION; ALL JOINTS MADE TIGHT; ALL REINFORCING, EMBEDDED ITEMS SHALL BE SECURED IN THEIR PROPER LOCATIONS; ALL OLD AND DRY CONCRETE AND DIRT SHALL BE CLEANED OFF AND ALL STANDING WATER AND OTHER FOREIGN MATERIAL REMOVED.

B. CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301 AND ACI 304 AND SHALL BE PLACED AT SUCH A RATE THAT THE CONCRETE PREVIOUSLY PLACED IS STILL PLASTIC AND INTEGRATED WITH THE FRESH CONCRETE. CONCRETE PLACEMENT, ONCE STARTED, SHALL BE CARRIED ON AS A CONTINUOUS OPERATION UNTIL THE SECTION IS COMPLETED. COOL JOINTS ARE NOT ALLOWED UNLESS PRE-APPROVED BY ENGINEER.

C. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED AND COMPACTED BY VIBRATION, SPACING, RODDING, OR FORCING DURING THE OPERATION OF PLACING IN ACCORDANCE WITH ACI 309. THE CONCRETE SHALL BE THOROUGHLY WORKED AROUND REINFORCEMENT, EMBEDDED ITEMS, AND INTO THE CORNER OF THE FORMS SO AS TO ELIMINATE ALL AIR POCKETS AND Voids.

#### 3.5 FINISHING:

A. FINISHING OF THE FLOOR SLABS SHALL BE IN ACCORDANCE WITH ACI 302.1 SECTION 7.2 AND SHALL INCLUDE A MINIMUM OF THREE TROWELINGS. IN ACCORDANCE WITH ASTM E 1155 THE SLAB FINISH TOLERANCE AS MEASURED SHALL HAVE AN OVERALL TEST NUMBER FOR FLATNESS OF  $F_t = 20$  AND  $F_l = 15$ . THE MINIMUM LOCAL NUMBER FOR FLATNESS,  $F_t = 15$  AND  $F_l = 10$ .

B. SURFACE OF FLOOR SLAB SHALL RECEIVE TWO COATS OF CLEAR SEALER/HARDNER.

C. ABOVE GRADE WALL SURFACES SHALL HAVE A SMOOTH FORM FINISH AS DEFINED IN CHAPTER 10 OF ACI 301.

#### 3.6 CURING:

A. FRESHLY DEPOSITED CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING AND EXCESSIVELY HOT AND COLD TEMPERATURES, AND SHALL BE MAINTAINED WITH MINIMUM MOISTURE LOSS AT A RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD OF TIME NECESSARY FOR THE HYDRATION OF THE CEMENT AND PROPER CURING OF THE CONCRETE.

B. CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST AT LEAST OVERNIGHT, IMMEDIATELY FOLLOWING THE INITIAL CURING, BEFORE THE CONCRETE HAS DRIED. ADDITIONAL CURING SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING MATERIALS OR METHODS:

1. PONDING OR CONTINUOUS SPRINKLING.
2. ABSORPTIVE MAT OR FABRIC KEPT CONTINUOUSLY WET.

3. NON-ABSORPTIVE FILM (POLYETHYLENE) OVER PREVIOUSLY SPRINKLED SURFACE.

4. SAND OR OTHER COVERING KEPT CONTINUOUSLY WET.

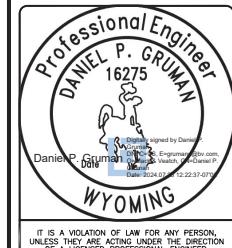
5. CONTINUOUS STEAM (NOT EXCEEDING 150 DEGREES FAHRENHEIT) OR VAPOR MIST BATH.

6. CURING COMPOUND APPLIED IN TWO COATS, SPRAYED IN PERPENDICULAR DIRECTION

C. THE FINAL CURING SHALL CONTINUE UNTIL THE CUMULATIVE NUMBER OF DAYS OR FRACTION THEREOF, NOT NECESSARILY CONSECUTIVE, DURING WHICH TEMPERATURE OF THE AIR IN CONTACT WITH CONCRETE IS ABOVE 50 DEGREES FAHRENHEIT HAS TOTALLED SEVEN (7) DAYS. CONCRETE SHALL NOT BE PERMITTED TO FREEZE DURING THE CURING PERIOD. RAPID DRYING AT THE END OF THE CURING PERIOD SHALL BE PREVENTED.



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KSGT RELO  
ID#04527  
1024 GREGORY LANE  
JACKSON, WY 83001  
CELL SITE RF MODIFICATIONS

SHEET TITLE  
GENERAL CONCRETE WORK NOTES

SHEET NUMBER  
GN-4

## GENERAL STRUCTURAL STEEL NOTES

### PART 1 — GENERAL

#### 1.1 SCOPE:

- A. PROVIDE FABRICATION AND ERECTION OF STRUCTURAL STEEL AND OTHER ELEMENTS AS SHOWN ON THE DRAWINGS OR REQUIRED BY OTHER SECTIONS OF THESE SPECIFICATIONS.

#### 1.2 REFERENCES:

- A. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN (ASD).  
 ASTM A36: STRUCTURAL STEEL.  
 ASTM A53: PIPE, STEEL BLACK AND HOT DIPPED, ZINC-COATED WELDED AND SEAMLESS.  
 ASTM A103: STEEL BARS, CARBON, COLD FINISHED, STANDARD QUALITY.  
 ASTM A123: ZINC (HOT-DIPPED GALVANIZED) COATING FOR IRON AND STEEL PRODUCTS.  
 ASTM A325: HIGH-STRENGTH BOLT FOR STRUCTURAL STEEL JOINTS.  
 ASTM A325: HIGH-STRENGTH BOLT FOR STRUCTURAL STEEL JOINTS.  
 ASTM A490: HEAT-TREATED, STRUCTURAL STEEL BOLTS, 150 (KSI) (1035MPA) TENSILE STRENGTH.  
 ASTM A500: COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SQUARES.  
 ASTM A563: CARBON AND ALLOY NUTS.  
 ASTM B695: COATINGS OF ZINC MECHANICALLY DEPOSITED ON IRON AND STEEL.  
 ASTM F939: HARDENED STEEL WASHERS.  
 ASTM F939: COMPRESSIBLE-WASHER-TYPE DIRECT TENSION INDICATOR FOR USE WITH STRUCTURAL FASTENERS.
- C. AMERICAN WELDING SOCIETY (AWS):  
 AWS A5.1: COVERED CARBON STEEL ARC WELDING ELECTRODES.  
 AWS A5.5: LOW ALLOY STEEL COVERED ARC WELDING ELECTRODES.  
 AWS D1.1: STRUCTURAL WELDING CODE – STEEL.
- D. RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC): "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS OR ASTM A490 BOLTS." AS ENDORSED BY AISC.

- E. STEEL STRUCTURES PAINTING COUNCIL (SSPC):  
 SSPC-SP3: POWER TOOL CLEANING.  
 SSPC-PAINT 11: RED IRON OXIDE, ZINC CHROME, RAW LINSEED OIL OR ALKYD PAINT.

#### 1.3 SUBMITTALS:

- A. SUBMIT THE FOLLOWING FOR APPROVAL:  
 1. FABRICATION AND ERECTION DRAWINGS SHOWING ALL DETAILS, CONNECTIONS, MATERIAL DESIGNATIONS, AND ALL TOP STEEL ELEVATIONS.  
 B. WELDERS SHALL BE QUALIFIED AS PRESCRIBED IN AWS D1.1.

### PART 2 — PRODUCTS

#### 2.1 STRUCTURAL STEEL:

- A. SHAPES, PLATES, AND BARS SHALL CONFORM TO ASTM A36.  
 B. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B. STEEL PIPE SHALL CONFORM TO ASTM A53, TYPE E OR S, GRADE B.

#### 2.2 ANCHOR BOLTS:

- A. ANCHOR BOLTS SHALL CONFORM TO ASTM A307 WITH HEAVY HEXAGONAL NUTS.

#### 2.3 BOLTS:

- A. COMMON (MACHINE) BOLTS SHALL CONFORM TO ASTM A307 GRADE A AND NUTS TO ASTM A563, ONE COMMON BOLT ASSEMBLY SHALL CONSIST OF A BOLT, A HEAVY HEX NUT, AND A HARDENED WASHER.  
 B. HIGH-STRENGTH BOLTS SHALL CONFORM TO ASTM A325. ONE HIGH-STRENGTH BOLT ASSEMBLY SHALL CONSIST OF A HEAVY HEX STRUCTURAL BOLT, A HEAVY HEX NUT, AND A HARDENED WASHER CONFORMING TO ASTM A325. THE HARDENED WASHER SHALL BE INSTALLED AGAINST THE ELEMENT TURNED IN TIGHTENING. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS.

#### 2.4 WELDING ELECTRODES:

- A. WELDING ELECTRODES SHALL COMPLY WITH AWS D1.1 USING A5.1 OR A5.5 E70XX AND SHALL BE COMPATIBLE WITH THE WELDING PROCESS SELECTED.

#### 2.5 PRIMER:

- A. PRIMER SHALL BE RED OXIDE-CHROMATE PRIMER COMPLYING WITH SSPC PAINT SPECIFICATION NO. 11.

### PART 3 — EXECUTION

#### 3.1 FABRICATION:

- A. SHOP FABRICATE AND ASSEMBLY MATERIALS AS SPECIFIED HEREIN.  
 1. FABRICATE ITEMS OF STRUCTURAL STEEL IN ACCORDANCE WITH THE AISC-ASD SPECIFICATIONS, AND AS INDICATED ON THE APPROVED SHOP DRAWINGS.  
 2. ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED PER ASTM.  
 3. PROPERLY MARK AND MATCH-MARK MATERIALS FOR FIELD ASSEMBLY AND FOR IDENTIFICATION AS TO INTENDED LOCATION.  
 4. FABRICATE AND DELIVER IN A SEQUENCE WHICH WILL EXPEDITE ERECTION AND MINIMIZE FIELD HANDLING OF MATERIALS.  
 5. WHERE FINISHING IS REQUIRED, COMPLETE THE ASSEMBLY, INCLUDING THE WELDING OF UNITS, BEFORE START OF FINISHING OPERATIONS.  
 6. THE FINISH SURFACE OF MEMBERS EXPOSED IN THE FINISHED STRUCTURE SHALL BE FREE FROM MARKINGS, BURNS, AND OTHER DEFECTS.  
 B. PROVIDE CONNECTIONS AS SPECIFIED HEREIN:  
 1. PROVIDE BOLTS AND WASHERS OF TYPES AND SIZE REQUIRED FOR COMPLETION OF FIELD ERECTION. USE 3/4" DIAMETER A325 BOLTS UNLESS NOTED OTHERWISE.  
 2. INSTALL HIGH STRENGTH THREADED FASTENERS IN ACCORDANCE WITH "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR ASTM A490 BOLTS."

3. WELDED CONSTRUCTION SHALL COMPLY WITH AWS D1.1 FOR PROCEDURES, APPEARANCE, QUALITY OF WELD, AND METHODS USED IN CORRECTING WELDED WORK.

4. THE FABRICATOR SHALL FURNISH AND INSTALL ERECTION CLIPS FOR FIT-UP OF WELDED CONNECTIONS.  
 5. DOUBLE ANGLE MEMBERS SHALL HAVE WELDED FILLERS SPACED IN ACCORDANCE WITH CHAPTER E4 OF THE AISC-ASD SPECIFICATION.  
 6. GUSSET AND STIFFENER PLATES SHALL BE 3/8" THICK MINIMUM.

#### 3.2 PRIMING:

- A. STRUCTURAL STEEL SHALL BE PRIMED AS SPECIFIED HEREIN, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.  
 B. STRUCTURAL STEEL SURFACE PREPARATION SHALL CONFIRM TO SSPC-SP3, "POWER TOOL CLEANING."  
 C. SURFACE PREPARATION AND PRIMER SHALL BE IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE IN THE ASD MANUAL OF STEEL CONSTRUCTION.  
 D. MATERIALS SHALL REMAIN CLOSED UNTIL REQUIRED FOR USE. MANUFACTURER'S POT-LIFE REQUIREMENTS SHALL BE STRICTLY ADHERED TO.  
 E. PRIMER SHALL BE APPLIED TO DRY, CLEAN, PREPARED SURFACE AND UNDER FAVORABLE CONDITIONS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. UNLESS OTHERWISE RECOMMENDED BY THE MANUFACTURER, PRIMING SHALL NOT BE DONE WHEN AMBIENT TEMPERATURE IS LESS THAN 50 DEGREES FAHRENHEIT, THE RELATIVE HUMIDITY IS MORE THAN 90 PERCENT, OR THE SURFACE TEMPERATURE IS LESS THAN 5 DEGREES FAHRENHEIT ABOVE THE DEW POINT.  
 F. GENERALLY ALL PRIMER SHALL BE SPRAY APPLIED, BRUSH OR ROLLER APPLICATION SHALL BE LIMITED TO TOUCHUP AND TO AREAS NOT ACCESSIBLE BY SPRAY GUN.  
 G. PRIMER SHALL BE UNIFORMLY APPLIED WITHOUT RUNS, SAGS, SOLVENT BLISTERS, DRY SPRAY, OR OTHER BLEMISHES. ALL BLEMISHES AND OTHER IRRREGULARITIES SHALL BE REPAIRED OR REMOVED AND THE AREA RE-COATED. SPECIAL ATTENTION SHALL BE MADE TO CAVITIES, CREEVIES, WELD LINES, BOLT HEADS, CORNERS, EDGES, ETC., TO OBTAIN THE REQUIRED NOMINAL FILM THICKNESS.  
 H. DRY COAT FILM THICKNESS OF THE PRIMER SHALL BE 2.0 MILLIMETERS.  
 I. IF THE PRIMER IS DAMAGED BY WELDING OR IN ANY OTHER MANNER, THE AREA SHALL BE TOUCHED UP AND REPAIRED. THE TOUCHUP PAINT SHALL BE COMPATIBLE WITH THE PREVIOUS APPLIED PRIMER COAT WITH MINIMUM DRY FILM THICKNESS OF 1.5 MILLIMETERS.

#### 3.3 INSTALLATION:

- A. INSTALLATION OF STRUCTURAL STEEL SHALL COMPLY WITH AISC "CODE OF STANDARD PRACTICE."  
 B. STRUCTURAL FIELD WELDING SHALL BE DONE BY THE ELECTRIC SUBMERGED OR SHIELDED METAL ARC PROCESS. WELDED CONSTRUCTION METHODS SHALL COMPLY WITH AWS D1.1.  
 C. PROVIDE ANCHOR BOLTS AND OTHER CONNECTORS REQUIRED FOR SECURING STRUCTURAL STEEL TO MASONRY WALLS AND TO OTHER IN-PLACE WORK. PROVIDE TEMPLATES AND OTHER DEVICES NECESSARY FOR PRESETTING BOLTS AND ANCHORS TO ACCURATE LOCATIONS.  
 D. SPLICING MEMBERS ONLY WHERE INDICATED ON THE DRAWINGS.  
 E. PROVIDE TEMPORARY SHORING BRACKETS WITH CONNECTIONS OF SUFFICIENT STRENGTH TO BEAR IMPOSED LOADS. REMOVE TEMPORARY CONNECTIONS AND MEMBERS WHEN PERMANENT MEMBERS ARE IN PLACE AND THE FINAL CONNECTIONS HAVE BEEN MADE.  
 F. BEFORE ASSEMBLY ALIGN AND ADJUST MEMBERS AND OTHER SURFACES WHICH WILL BE IN THE PERMANENT CONTACT, BEFORE ASSEMBLY.
- G. AS A MINIMUM, HIGH-STRENGTH BOLTS, SHALL BE TIGHTENED TO A "SLUG-TIGHT" CONDITION AS DEFINED IN THE LATEST AISC SPECIFICATIONS. ALL HIGH-STRENGTH BOLTS SPECIFIED ON THE DESIGN DRAWINGS TO BE USED IN PRETENSIONED OR SLIP-CRITICAL JOINTS SHALL BE TIGHTENED TO A BOLT TENSION NOT LESS THAN SPECIFIED IN AISC TABLE J3.1. INSTALLATION SHALL BE BY ANY OF THE FOLLOWING METHODS: TURN-OF NUT METHOD, A DIRECT-TENSION-INDICATOR, TWIST-OFF-TYPE TENSION-CONTROL BOLT, CALIBRATED WRENCH, OR ALTERNATIVE DESIGN BOLT.



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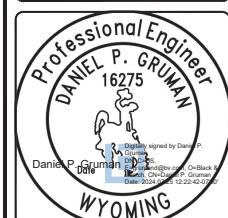
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IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS OTHERWISE SPECIFICALLY AUTHORIZED BY LAW, TO ALTER THIS DOCUMENT.

KSGT RELO  
 IDL04527  
 1024 GREGORY LANE  
 JACKSON, WY 83001  
 CELL SITE RF MODIFICATIONS

SHEET TITLE  
 GENERAL STRUCTURAL  
 STEEL NOTES

SHEET NUMBER

GN-5

## GENERAL ELECTRICAL NOTES

### PART 1 – GENERAL

#### 1.1 GENERAL CONDITIONS:

- A. CONTRACTOR SHALL INSPECT THE EXISTING SITE CONDITIONS PRIOR TO PERFORMING WORK, ANY QUESTIONS ARISING DURING THE BID PERIOD REGARDING 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, PRIOR TO THE AWARD OF THE CONTRACT.
- B. THE CONTRACTOR SHALL OBTAIN PERMITS, LICENSES, MAKE ALL DEPOSITS, AND PAY ALL FEES REQUIRED FOR THE CONSTRUCTION PERFORMANCE OF THE WORK UNDER THIS SECTION.

#### 1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES, AND CODES:

- A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES, AND CODES. CONDUIT BENDS SHALL BE THE RADIUS BEND FOR THE TRADE SIZE OF CONDUIT IN COMPLIANCE WITH THE LATEST EDITIONS OF NEC.

#### 1.3 REFERENCES:

- A. THE PUBLICATIONS LISTED BELOW ARE PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE OF CONSTRUCTION, EXCEPT AS MODIFIED BY THE REQUIREMENT SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISION OF THESE PUBLICATIONS.
- 1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
- 2. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
- 3. ICE (INSULATED CABLE ENGINEERS ASSOCIATION)
- 4. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
- 5. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
- 6. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
- 7. UL (UNDERWRITERS LABORATORIES, INC.)
- 8. AT&T GROUNDING AND BONDING STANDARDS TP-76416

#### 1.4 SCOPE OF WORK:

- A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL, AND ASSOCIATED SERVICES REQUIRED TO COMPLETE REQUIRED CONSTRUCTION AND TO ACHIEVE OPERATIONAL STATUS.
- B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNING BY THE CONTRACTOR.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHING, BACKFILLING, AND REMOVAL OF EXCESS SOIL, FILL, AND DEBRIS.
- D. THE CONTRACTOR SHALL FURNISH THE OWNER WITH CERTIFICATES OF A FINAL INSPECTION AND APPROVAL FROM THE JURISDICTIONAL AUTHORITIES.
- E. IF APPLICABLE, THE CONTRACTOR SHALL PREPARE A COMPLETE SET OF AS-BUILT DRAWINGS TO DOCUMENT ALL WIRING EQUIPMENT CONDITIONS AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED AT COMPLETION OF THE PROJECT TO THE APPROPRIATE PARTY.

### PART 2 – PRODUCTS

#### 2.1 GENERAL:

- A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, UL LISTED, AND FREE FROM DEFECTS.
- B. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES (UL) LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- C. ALL ITEMS, MATERIALS, AND EQUIPMENT SHALL BE ACCEPTABLE TO THE JURISDICTIONAL AUTHORITY AND SUITABLE FOR THE USE INTENDED.
- D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING RATING OF GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED (10,000 AIC MINIMUM). CONTRACTOR SHALL NOT RATE THE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PER THE GOVERNING JURISDICTION.

#### 2.2 MATERIALS AND EQUIPMENT:

##### A. CONDUIT:

1. RIGID METAL CONDUIT (RMC) SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS, AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
2. LIQUIDtight FLEXIBLE METAL CONDUIT SHALL BE UL LISTED.
3. CONDUIT CLAMPS, STRAPS, AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION AND CONCRETE-TIGHT TYPE. GROUNDING BUSHINGS WITH INSULATED THROATS SHALL BE INSTALLED ON ALL CONDUIT TERMINATIONS.
4. NONMETALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 PVC AND INSTALLED USING SOLVENT-CEMENT/TITE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

##### B. CONDUCTORS AND CABLE:

1. CONDUCTORS AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, SIZE AS INDICATED, ON PLANS THE MINIMUM SIZE CONDUCTOR USED SHALL BE #12 AWG.
2. #10 AWG AND SMALLER CONDUCTOR SHALL BE SOLID OR STRANDED. #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS COMPRESSION TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
4. STRAN-RELIEF SUPPORTS GRIPS SHALL BE HUBBELL KELLEMS OR APPROVED EQUAL CABLES SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC AND CABLE MANUFACTURER'S RECOMMENDATIONS.
5. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, J-BOXES, EQUIPMENT CABINETS SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS (ACTION CRAFT, BRADY, OR APPROVED EQUAL).

##### C. DISCONNECT SWITCHES:

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-MAKE, QUICK-BREAK, INTERLOCK OPERATED HANDLE LOCKABLE INTERLOCK WITH COVER IN CLOSED POSITION, RATINGS AS INDICATED, UL LABELED, FURNISHED IN NEMA 3R ENCLOSURE, SQUARE-D, OR ENGINEERED APPROVED EQUAL.

#### D. CHEMICAL ELECTROLYTIC GROUNDING SYSTEM:

1. INSTALL CHEMICAL GROUNDING AS REQUIRED. THE SYSTEM SHALL BE ELECTROLYTIC, MAINTENANCE FREE ELECTRODE CONSISTING OF RODS WITH A MINIMUM #2 AWG CU EXOTHERMALLY WELDED PIGTAIL, PROTECTIVE BOXES, AND BACKFILL MATERIAL. MANUFACTURER SHALL BE LYNCOLE XIT GROUNDING ROD TYPES KX-100 OR KX-200 (KCS™) VENDORS AS REQUIRED.
2. GROUND ACCESS BOX SHALL BE A POLYPLASTIC BOX FOR NON-TRAFFIC APPLICATIONS, INCLUDING BOX DOORS, FLUSH COVER WITH "BREAK-OUT" SOLAR XIT MODEL #XB-22, ALL DISCONNECT SWITCHES AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED ALUMINUM NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS IDENTIFICATION NUMBERING, AND THE ELECTRICAL POWER SOURCE.
3. BACKFILL MATERIAL SHALL BE LYNCONITE AND LYNCOLE GROUNDING GRAVEL.

#### E. SYSTEM GROUNDING:

1. ALL GROUNDING COMPONENTS SHALL BE TINNED AND GROUNDING CONDUCTOR SHALL BE #2 AWG BARE, SOLID, TINNED COPPER. ABOVE-GRADE GROUNDING CONDUCTORS SHALL BE INSULATED WHERE NOTED.
2. GROUNDING BUSES SHALL BE BARE, TINNED, ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION. STANDARD BUS BARS MGB SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AND THEY SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD. ALL GROUNDING BUSES SHALL BE IDENTIFIED WITH MINIMUM 3/4" LETTERS BY STENCILING OR DESIGNATION PLATE.

3. CONNECTORS SHALL BE HIGH CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONDUCTOR MATERIAL. CONNECTORS SHALL BE TIGHTLY SECURED WITH CLEAR HEAT SHRINK FOR MECHANICAL CONNECTIONS. USE TWO-HOLE COMPRESSION LUGS WITH INSPECTION WINDOW AND CLEAR HEAT SHRINK FOR INTERIOR AND BLACK HEAT SHRINK FOR EXTERIOR.

4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.

5. GROUND RODS SHALL BE ERICO #615800, COPPER-CLAD STEEL WITH HIGH STRENGTH STEEL CORE AND ELECTROLYTIC GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, AND 5/8" x 10'-0". ALL GROUNDING RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES AS SHOWN ON DRAWINGS.
6. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS IN COMPLIANCE WITH THE AT&T SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.

#### F. OTHER MATERIALS:

1. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.
2. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.

#### G. PANELS AND LOAD CENTERS:

1. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

#### PART 3 – EXECUTION

##### 3.1 GENERAL:

- A. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. DURING INSTALLATION AND CONSTRUCTION PERIODS EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT, WATER, AND CHEMICAL OR MECHANICAL INJURY.

##### 3.2 LABOR AND WORKMANSHIP:

- A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE INSTALLED BY EXPERIENCED WIREMEN IN A NEAT AND WORKMAN-LIKE MANNER.
- B. ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED, ALIGNED, AND TESTED BY THE CONTRACTOR AS REQUIRED TO CONFIRM THE INTENDED PERFORMANCE.
- C. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL NECESSARY LABELS, DEBRIS, CRATING, OR CARTONS, AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

##### 3.3 COORDINATION:

- A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE SCHEDULED WORK.

##### 3.4 INSTALLATION:

###### B. CONDUIT:

1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4" TRADE SIZE SHALL BE UTILIZED.
2. PROVIDE RIGID PVC SCHEDULE 80 CONDUITS FOR ALL RISERS UNLESS OTHERWISE NOTED. EMT MAY BE INSTALLED FOR EXTERIOR CONDUITS WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
3. INSTALL SCHEDULE 40 PVC CONDUIT WITH A MINIMUM COVER OF 24" UNDER ROADWAYS, PARKING LOTS, STREETS, AND ALLEYS. CONDUIT SHALL HAVE A MINIMUM COVER OF 18" IN ALL NON-TRAFFIC APPLICATIONS (REFER TO 2020 OR LATEST NEC, TABLE 300).
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT AT LOCATIONS OF DIRECT CONNECTION TO EQUIPMENT THAT REQUIRE IT. USE A 1/2" DIA. SWIVEL COUPLING TO JOIN FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORTS TO ALLOW FOR EXPANSION AND CONTRACTION.
5. A RUN OF CONDUIT BETWEEN BOXES OR EQUIPMENT SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE QUARTER-BENDS. CONDUIT BEND SHALL BE MADE WITH THE UL LISTED BENDER OR FACTORY 90 DEGREE ELBOWS MAY BE USED.
6. FIELD FABRICATED CONDUITS SHALL BE CUT SQUARE WITH A CONDUIT CUTTING TOOL AND REAMED TO PROVIDE A SMOOTH INSIDE SURFACE.
7. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY CONDUITS SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
8. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
9. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
10. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUITS AND CONDUCTORS.
11. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.

12. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS TO ALLOW FOR PEEWEE'S AND CABLES TO BE ROUTED THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS, SLEEVES, AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL BE INSTALLED TO PREVENT PASSAGE OF WATER, SMOKE, FIRE, AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

##### B. CONDUCTORS AND CABLE:

1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:

DESCRIPTION	208/240/120 VOLT SYSTEMS
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GND	GREEN

2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAY CONDUITS APPROVED FOR THIS PURPOSE.

3. PULLING LUBRICANTS SHALL BE UL APPROVED. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CONDUCTORS OR CABLES INTO THE CONDUIT.

4. CABLES SHALL BE NEATLY TRAILED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES AND EQUIPMENT TO ALLOW FOR A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANUFACTURED CONDUIT. GROUNDING CONDUCTORS SHALL BE PROTECTED FROM MECHANICAL INJURY AND MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS ARE PROHIBITED. DAMAGED CABLES SHALL BE REPAVED AT THE CONTRACTOR'S EXPENSE.

##### C. DISCONNECT SWITCHES:

1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB, AND CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS REQUIRED.

##### D. GROUNDING:

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING MANUFACTURER, AT&T GROUNDING AND BONDING STANDARDS TP-76416, TP-76300, AND THE NATIONAL ELECTRICAL CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRICAL BONDING JUMPERS, AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.

3. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND. GROUNDING CONDUCTORS SHALL NOT BE LOOPEd, OR SHARPLY BENT. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.

4. AT BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND WHERE THE MAIN GROUNDED CONDUCTOR IS NOT LOCATED IN THE GROUNDING CONDUCTOR, THE CONTRACTOR SHALL ROUTE TWO GROUNDED CONDUCTORS FROM THE ROOFTOP TOWERS AND WATER TOWER GROUND RING TO THE EXISTING GROUNDING SYSTEM. THE GROUNDED CONDUCTORS SHALL NOT BE SMALLER THAN #2 AWG. THE ROOFTOP GROUND RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM. THE BUILDING SHALL BE PROVIDED WITH A GROUNDING PROTECTION DEVICE AND THE BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). SEE STANDARD 6.3.2.2.
5. TIGHTEN GROUNDED BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING SPECIFICATIONS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDED CONNECTIONS.

6. CONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN POINTS TO THE EXISTING GROUNDING SYSTEM. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION PRIOR TO PERMANENT CONCEALMENT.

8. APPLY CORROSION-RESISTANCE FINISH TO FIELD CONNECTIONS AND AREAS/COMPONENTS WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED.
9. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDERS AND BRANCH CIRCUITS.

10. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE #6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.

11. DIRECT-BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 30" MINIMUM BELOW GRADE, OR 6" MINIMUM BELOW THE FROST LINE, USING THE GREATER OF THE TWO DISTANCES.

12. ALL GROUNDED CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.

13. THE INSTALLATION OF A CHEMICAL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL THE PROTECTIVE BOX FLUSH WITH GROUT.

14. IF COAX ON THE ICE BRIDGE IS MORE THAN 6 FEET FROM THE GROUND BAR AT THE BASE OF THE TOWER, INSTALL A SECOND GROUND BAR AT THE END OF THE ICE BRIDGE TO GROUND THE COAX CABLE GROUNDING KITS AND LINEAR ARRESTORS.

15. CONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTOR'S EXPENSE.

##### E. ACCEPTANCE TESTING:

- A. CERTIFIED PERSONNEL USING CERTIFIED EQUIPMENT SHALL PERFORM REQUIRED TESTS AND SUBMIT WRITTEN TEST REPORTS UPON COMPLETION.
- B. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND TO BE NON-COMPLIANT WITH THE SPECIFIED REQUIREMENTS, THE NON-COMPLIANT ITEMS/ELEMENTS SHALL BE PROMPTLY REMOVED FROM THE PROJECT SITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS.

##### C. TEST PROCEDURES:

1. ALL FEEDERS SHALL HAVE INSULATION TESTED AFTER INSTALLATION, BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE USING 1,000VOLT DC.
2. PRIOR TO ENERGIZING CIRCUITY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE CONDUCTORS AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES TO APPROPRIATE PARTS.
4. PERFORM GROUNDING TEST TO MEASURE RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

168 INNERSIDE DRIVE WEST SUITE 400 ENGLEWOOD, CO 80112	
R BLACK & VEATCH	
4600 SOUTH SYRACUSE STREET SUITE 800 DENVER, COLORADO 80237	

PROJECT/PHASE NO:	129551/XXXX
DRAWN BY:	MSC
CHECKED BY:	JMH
RFDs:	1.00
0 07/18/24 ISSUED FOR CONSTRUCTION	
REV DATE	DESCRIPTION



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS AUTHORIZED BY THE CONTRACTOR, TO ALTER THIS DOCUMENT.

KSGT RELO  
IDL04527  
1024 GREGORY LANE  
JACKSON, WY 83001  
CELL SITE RF MODIFICATIONS

SHEET TITLE  
GENERAL ELECTRICAL  
NOTES

SHEET NUMBER  
GN-6

## BATTERY SAFETY NOTES

### PART 1 - GENERAL

#### 1.1 LAWS, REGULATIONS, ORDINANCES, STATUTES, AND CODES:

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES, AND CODES.

#### 1.2 REFERENCES:

A. THE PUBLICATIONS LISTED BELOW ARE PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND EDITION IN EFFECT ON THE DATE OF CONSTRUCTION, EXCEPT AS MODIFIED BY THE CONTRACTOR'S SPECIFICATIONS. THE CONTRACTOR'S DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISION OF THESE PUBLICATIONS.

1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)

2. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

3. ICE (INSULATED CABLE ENGINEERS ASSOCIATION)

4. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)

5. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)

6. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)

7. UL (UNDERWRITERS LABORATORIES, INC.)

8. AT&T GROUNDING AND BONDING STANDARDS TP-76416

9. IFC (INTERNATIONAL FIRE CODE)

10. IMC (INTERNATIONAL MECHANICAL CODE)

#### 1.3 SCOPE OF WORK:

A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL, AND ASSOCIATED SERVICES REQUIRED TO COMPLETE REQUIRED CONSTRUCTION AND TO ACHIEVE OPERATIONAL STATUS.

B. ALL ELECTRICAL EQUIPMENT UNDER THE CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE CONTRACTOR.

C. THE BATTERY & POWER SYSTEMS ARE EQUIPPED WITH TEMPERATURE SENSORS & ARE PRE-PROGRAMMED WITH THE BATTERY VOLTAGE, TEMPERATURE COMPENSATION & BATTERY THERMAL RUNAWAY MANAGEMENT FEATURES ENABLED PER AT&T MOBILITY'S SPECIFICATIONS.

D. DOOR(S) INTO EQUIPMENT ROOM MUST BE PROVIDED WITH APPROVED SIGNS AND APPROPRIATE MARKINGS, INCLUDING BUT NOT LIMITED TO:

- EQUIPMENT ROOM CONTAINS ENERGIZED BATTERY SYSTEMS
- EQUIPMENT ROOM CONTAINS ENERGIZED ELECTRICAL CIRCUITS
- BATTERY ELECTROLYTE SOLUTIONS WHERE PRESENT, ARE CORROSIVE LIQUIDS

E. CABINETS SHALL HAVE EXTERIOR LABELS THAT IDENTIFY THE MANUFACTURER AND MODEL NUMBER OF THE SYSTEM AND ELECTRICAL RATING (VOLTAGE AND CURRENT) OF THE CONTAINED BATTERY SYSTEM. SIGNS WITHIN THE CABINET SHALL INDICATE RELEVANT ELECTRICAL, CHEMICAL, AND FIRE HAZARDS.

### PART 2 - PRODUCTS

#### 2.1 GENERAL:

A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, UL LISTED, AND FREE FROM DEFECTS.

B. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES (UL) LABEL OF APPROVAL AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

C. ALL ITEMS, MATERIALS, AND EQUIPMENT SHALL BE ACCEPTABLE TO THE JURISDICTIONAL AUTHORITY AND SUITABLE FOR THE USE INTENDED.

D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING RATING OF GREATER THAN THE SHORT CIRCUIT CURRENT AND ARE SUBJECTED (10,000 CYCLES) TO MINIMUM CONTRACTOR TEST. ALL VEHICULAR AND 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 PER THE GOVERNING JURISDICTION.

#### 2.2 MATERIALS AND EQUIPMENT:

##### A. BATTERIES:

1. BATTERIES SHALL BE VRLA/VALVE REGULATED LEAD-ACID) BATTERIES COMPLYING WITH IFC 608.

2. CONTRACTOR TO INSTALL ENERSYS POWERSAFE SBS BATTERIES OR ENGINEERING APPROVED EQUIVALENT.

##### B. POWER PLANTS/CABINETS:

1. POWER PLANTS/CABINETS SHALL BE EQUIPPED WITH TEMPERATURE SENSORS AND ARE PRE-PROGRAMMED WITH THE BATTERY VOLTAGE, TEMPERATURE COMPENSATION & BATTERY THERMAL RUNAWAY MANAGEMENT FEATURES ENABLED PER AT&T MOBILITY'S SPECIFICATIONS.

2. CONTRACTOR TO INSTALL VERTIV POWER PLANTS/CABINETS PER AT&T SPECIFICATIONS; AND COMPLYING WITH IFC 608 AND IMC 502.4.

##### C. BATTERY RACKS/CABINETS:

1. BATTERY RACKS/CABINETS SHALL BE EQUIPPED WITH TEMPERATURE SENSORS PER AT&T MOBILITY'S SPECIFICATIONS.

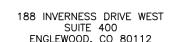
2. CONTRACTOR TO INSTALL VERTIV BATTERY RACKS/CABINETS PER AT&T SPECIFICATIONS; AND COMPLYING WITH IFC 608 AND IMC 502.4.

## IFC 608 CODE ANALYSIS & COMPLIANCE INFORMATION

- SAFETY CAPS (IFC 608.2.2) – EXISTING POWERSAFE SBS 190F VRLA BATTERIES HAVE SELF-RESEALING SAFETY VENTS WITH FLASH ARRESTORS WHICH SATISFY THIS CODE REQUIREMENT.
- THERMAL RUNAWAY MANAGEMENT (IFC 608.3) – POWER PLANTS/CABINETS SHALL BE EQUIPPED WITH TEMPERATURE SENSORS AND ARE PRE-PROGRAMMED WITH THE BATTERY VOLTAGE, TEMPERATURE COMPENSATION & BATTERY THERMAL RUNAWAY MANAGEMENT FEATURES ENABLED. BATTERY RACKS/CABINETS SHALL BE EQUIPPED WITH TEMPERATURE SENSORS.
- SPILL CONTROL (IFC 608.5) – NOT REQUIRED FOR VRLA BATTERIES PER EXCEPTION.
- NEUTRALIZATION (IFC 608.5.2) – CONTRACTOR TO ENSURE THAT BATTERY SPILL CLEAN-UP KIT IS PROVIDED ON SITE, CAPABLE OF NEUTRALIZING A MINIMUM OF X GALLONS OF SPILLED ELECTROLYTE (WHERE X=3% OF THE TOTAL VOLUME CALCULATED IN THE ELECTROLYTE CALCULATIONS).
- VENTILATION (IFC 608.5.2) – EXHAUST FAN WILL LIMIT CONCENTRATION TO 1% VIA HYDROGEN SENSOR AND MAKEUP AIR INTAKE. HYDROGEN SENSOR TO ACTIVATE DAMPER/FAN AT 1% CONCENTRATION AND SIGNAL AN ALARM TO A MONITORED FACILITY AT 2% CONCENTRATION.
- SIGNAGE (IFC 608.7) – AT&T WILL PLACE LIV-RESISTANT SIGNS ON THE EXTERIOR OF THE SHELTER DOOR CAPABLE OF WITHSTANDING THE HARSH SUNLIGHT OUTDOORS PER IFC 608.7.1. IN THE CASE THAT BATTERIES ARE INSTALLED IN A CABINET, CONTRACTOR SHALL PLACE SIGNAGE ON THE CABINET DOOR PER IFC 608.7.2.
- SEISMIC PROTECTION (IFC 608.8) – CONTRACTOR WILL ENSURE THAT THE NEW BATTERY RACKS HAVE THE REQUIRED BRACING TO MEET SEISMIC ZONE 4.
- SMOKE DETECTION (IFC 608.9) – SMOKE DETECTORS TO BE TIED INTO EXISTING ALARMING SYSTEMS. AT&T TO VERIFY OPERATION OF SMOKE DETECTOR/ALARM.

## IMC 502.4 CODE ANALYSIS & COMPLIANCE INFORMATION

- (IMC 502.4) STATIONARY STORAGE BATTERY SYSTEMS: STATIONARY STORAGE BATTERY SYSTEMS, AS REGULATED BY SECTION 608 OF THE INTERNATIONAL FIRE CODE, SHALL BE PROVIDED WITH VENTILATION IN ACCORDANCE WITH IMC 502.4 AND SECTION 502.4.1 OR 502.4.2. EXCEPTION: LITHIUM-ION AND LITHIUM METAL POLYMER BATTERIES SHALL NOT REQUIRE ADDITIONAL VENTILATION BEYOND THAT WHICH WOULD NORMALLY BE REQUIRED FOR HUMAN OCCUPANCY OF THE SPACE.
- (SECTION 502.4.1) HYDROGEN LIMIT IN ROOMS: FOR FLOODED LEAD ACID, FLOODED NICKEL CADMIUM AND VRLA BATTERIES, THE VENTILATION SYSTEM SHALL BE PROVIDED TO LIMIT THE MAXIMUM CONCENTRATION OF HYDROGEN TO 1.0 PERCENT OF THE TOTAL VOLUME OF THE ROOM.
- (SECTION 502.4.2) VENTILATION RATE IN ROOMS: CONTINUOUS VENTILATION SHALL BE PROVIDED AT A RATE OF NOT LESS THAN 1 CUBIC FOOT PER MINUTE PER SQUARE FOOT OF FLOOR AREA OF THE ROOM.
- (SECTION 502.4.3) SUPERVISION: MECHANICAL VENTILATION SYSTEMS REQUIRED BY SECTION 502.4 SHALL BE SUPERVISED BY AN APPROVED CENTRAL, PROPRIETARY OR REMOTE STATION SERVICE OR SHALL INITIATE AN AUDIBLE AND VISUAL SIGNAL AT A CONSTANTLY ATTENDED ON-SITE LOCATION.

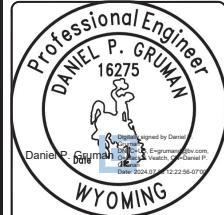


168 INVERNESS DRIVE WEST  
SUITE 400  
ENGLEWOOD, CO 80112

4600 SOUTH SYRACUSE STREET  
SUITE 800  
DENVER, COLORADO 80237

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BATTERY SAFETY NOTES

SHEET NUMBER

GN-7



November 21, 2024

Town of Jackson Planning Department

150 E Pearl Ave Jackson, WY 83001

VIA Electronic Delivery

**RE: Standards for Wireless Facility Basic Use Permit**

**Site Address: 1024 Gregory Lane Jackson, WY 83001**

**AT&T Site Info: IDL04527 KSGY Radio Relo, Project: CBand & CBand D0D, FA: 14471313**

To Whom it May Concern:

Please find attached our notice-only application, which has been prepared to specifically address the jurisdictional Planning requirements outlined in the code.

All notice-only applications must contain the following:

1. Statement certifying that the request is being made pursuant to Section 6409 of the federal Middle Class Tax Relief and Job Creation Act of 2012, 47 U.S.C. 1455(a) and complies with all regulations set forth therein.

Outlined in submittal document titled: "KSGT\_RADIO\_REL0 - 6409"

2. The location of where the modification work will take place.

Site Address: 1024 Gregory Lane Jackson, WY 83001

3. The date(s) and time(s) during which the work will take place.

The construction start date is targeted for 6/2/2025 and will finalize 6/16/2025. Work will be during regular business hours of 9AM-5PM.

4. Statement certifying compliance with all non-discretionary structural, electrical, energy, building, and safety codes.

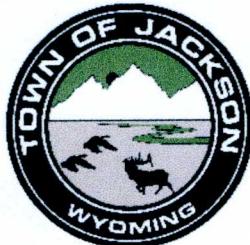
We hereby certify that this project is designed, planned, and will be executed in full compliance with all applicable non-discretionary codes and regulations, including but not limited to structural, electrical, energy, building, and safety standards. The construction process will adhere strictly to the requirements set forth by local, state, and federal authorities, ensuring the safety, integrity, and sustainability of the completed project.

Thank you for your time and consideration.

Mia Warstler

*Mia Warstler*

Smartlink Group  
Real Estate Specialist  
[Mia.Warstler@SmartlinkGroup.com](mailto:Mia.Warstler@SmartlinkGroup.com)  
(574) 527-0554



Town of Jackson  
150 E Pearl Avenue  
PO Box 1687, Jackson, WY 83001  
P: (307)733-3932 F: (307)739-0919  
[www.jacksonwy.gov](http://www.jacksonwy.gov)

**LETTER OF AUTHORIZATION**  
NAMING APPLICANT AS OWNER'S AGENT

The Apartments at Dusty Acres, LLC is the owner in fee of the premises located at:

Print legal name of property owner as listed on warranty deed

Address of Premises: 1024 Gregory Lane, Jackson, WY 83001

**Legal Description:** A portion of the NE1/4 NE1/4 of Section 6, T40N, R116W, 6th P.M. Teton County - Parcel No.22401606100031

Please attach additional sheet for additional addresses and legal descriptions

And, that the person named as follows: Name of Applicant/agent: Valerie Cardenas - Smartlink Group on behalf of AT&T

**Mailing address of Applicant/agent:** 3775 Jay Street, Wheat Ridge, CO 80033

Email address of Applicant/agent: valerie.cardenas@smartlinkgroup.com

Phone Number of Applicant/agent: (303) 903-3990

Is authorized to act as property owner's agent and be the applicant for the application(s) checked below for a permit to perform the work specified in this(these) application(s) at the premises listed above:

Development/Subdivision Plat Permit Application       Building Permit Application

Public Right of Way Permit    Grading and Erosion Control Permit    Business License Application

Demolition Permit     All Applications     Other (describe) Planning & Zoning for Rooftop Wireless Facility Modification (AS REQUIRED)

Under penalty of perjury, the undersigned swears that the foregoing is true and, if signing on behalf of a corporation, partnership, limited liability company or other entity, the undersigned swears that this authorization is given with the appropriate approval of such entity, if required.

**Applicant/Agent Signature**

**Applicant/Agent Signature** Learne Moore, Managing Partner  
This is signed by officer, partner or member of corporation, LLC secretary or corporate owner.

**Title** if signed by officer, partner or member of corporation, LLC (secretary or corporate owner), partnership or other non-individual Owner

STATE OF Wyoming )  
COUNTY OF Teton ) SS.

The foregoing instrument was acknowledged before me by Leanne Moore this 23<sup>rd</sup> day of August, 2024. WITNESS my hand and official seal.

## Notary Public

My commission expires:

11/19/2027

