Community & Economic Development Department

www.adcogov.org



4430 South Adams County Parkway 1st Floor, Suite W2000 Brighton, CO 80601-8204 РНОМЕ 720.523.6800 FAX 720.523.6998

CONDITIONAL USE PERMIT

Application submittals must include all documents on this checklist as well as this page. Please use the reference guide (pgs. 3-4) included in this packet for more information on each submittal item.

All submittals shall include one (1) hard copy of all documents and one (1) electronic copy with all documents combined in a single PDF. For hard copies, each document shall be labeled or tabbed with the corresponding checklist number.

- 1. Development Application Form (pg. 5)
- 2. Application Fees (see pg. 2)
- 3. Written Explanation of the Project
- 4. Site Plan Showing Proposed Development
- 5. Proof of Ownership (warranty deed or title policy)
- 6. Proof of Water and Sewer Services
- 7. Proof of Utilities (e.g. electric, gas)
- 8. Legal Description
- 9. Certificate of Taxes Paid
- 10.Certificate of Notice to Mineral Estate Owners/and Lessees(pg. 7)
- 11.Certificate of Surface Development (pg. 8-10)

Supplemental Items (if applicable) *Contact County staff for supplemental forms

- 1. Traffic Impact Study
- 2. Neighborhood Meeting Summary
- 3. Solid waste transfer station*
- 4. Solid waste composting facility*
- 5. Scrap tire recycling facility*
- 6. Inert fill*

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Application Fees	Amount	Due
Conditional Use Permit	\$1,000 (\$300 per additional	With application submittal
	residential request/ \$500 per	
	additional non-residential)	
Tri-County Health		With application submittal
*made payable to Tri-County	\$245	
Health		

Conditional Use-Guide to Development Application Submittal

The submittal documents for all Land Use/Development Applications are listed below. Detailed explanations of the submittal documents are also provided.

All development application submittals shall comprise of one (1) electronic copy (USB or CD) and one (1) hard copy of each document. Application submittals that do not conform to these guidelines shall not be accepted.

3. Written Explanation:

• A clear and concise, yet thorough, description of the proposal. Please include, if applicable, timeframe, purpose of project, and improvements that will be made to the site.

4. Site Plan:

- A detailed drawing of existing and proposed improvements.
- Including:
 - Streets, roads, and intersections
 - Driveways, access points, and parking areas
 - Existing and proposed structures, wells, and septic systems,
 - Easements, utility lines, and no build or hazardous areas
 - Scale, north arrow, and date of preparation
- An Improvement Location Certificate or Survey <u>may be required</u> during the official review

5. Proof of Ownership:

- A deed may be found in the Office of the Clerk and Recorder.
- A title commitment is prepared by a professional title company.

6. Proof of Water:

- A written statement from the appropriate water district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider.
- Well permit(s) information can be obtained from the Colorado State Division of Water Resources at (303) 866-3587.

Proof of Sewer:

- A written statement from the appropriate sanitation district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider.
- A written statement from Tri-County Health indicating the viability of obtaining Onsite Wastewater Treatment Systems.

7. Proof of Utilities (Gas, Electric, etc):

- A written statement from the appropriate utility provider indicating that they will provide service to the property.
- Copy of a current bill from the service provider.

8. Legal Description:

- Geographical description used to locate and identify a property.
- Visit <u>http://gisapp.adcogov.org/quicksearch/</u> to find the legal description for your property.

9. Proof of Taxes Paid:

- All taxes on the subject property must be paid in full. Please contact the Adams County Treasurer's Office.
- Or <u>http://adcogov.org/index.aspx?NID=812</u>

10. Certificate of Notice to Mineral Estate Owners/ Certificate of Surface Development:

• The State of Colorado requires notification to mineral rights owners of applications for surface development (i.e. zoning, plats, etc.)

• Mineral or Surface right owners may be found in the title commitment for the subject property

• You may also search the Office of the Clerk and Recorder for any recorded deeds, easements, or other documents

SUPPLEMENTAL:

1. Preliminary Traffic Impact Study:

- This shall include, but not limited to:
 - Trip generation estimates from the development,
 - Current traffic counts,
 - Projected future traffic counts to include background traffic projections and future traffic projections from the development.
 - A description of the traffic impacts that the development will have on the surrounding area.

Final Traffic Study:

• Shall have all of the information contained in a Preliminary Traffic Impact Study and it shall also include recommendations on how to mitigate the traffic impacts that are caused by the development. (See chapter 8 for full description of requirements).

2. Neighborhood Meeting Summary:

- Please refer to Section 2-01-02 of the Adams County Development Standards and Regulations for the specific requirements regarding time, location, and notice
- A written summary shall be prepared including the materials submittal presented at the meeting, any issues identified at the meeting, and how those issues have been addressed

Community & Economic Development Department www.adcogov.org



4430 South Adams County Parkway 1st Floor, Suite W2000 Brighton, CO 80601-8204 PHONE 720.523.6800 FAX 720.523.6998

DEVELOPMENT APPLICATION FORM

Application Type:

	ceptual Review	Preliminary PUD	Tempora	-	
Subo	livision, Final	Rezone	Conditio	nal Use	
Plat	Correction/ Vacation	Special Use	Other:		
PROJECT NAME	:				
APPLICANT					
Name(s):			Phone #:		
Address:					
City, State, Zip:					
2nd Phone #:			Email:		
OWNER					
Name(s):			Phone #:		
Address:					
City, State, Zip:					
2nd Phone #:			Email:		
TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)					
Name:			Phone #:		
Address:					
City, State, Zip:					
2nd Phone #:			Email:		

DESCRIPTION OF SITE

Address:	
City, State, Zip:	
Area (acres or square feet):	
Tax Assessor Parcel Number	
Existing Zoning:	
Existing Land Use:	
Proposed Land Use:	
Have you attended	d a Conceptual Review? YES NO
If Yes, please list I	PRE#:

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name:		Date:	
	Owner's Printed Name		
Name:			

Owner's Signature

CERTIFICATION OF NOTICE TO MINERAL ESTATE OWNERS

I/We,				
I/We, (the "Applicant") by signi	ng below, hereby dec	lare and certify as fo	ollows:	
With respect to the proper Physical Address: Legal Description:	-			
Parcel #(s):				
(PLEASE CHECK ONE):				
to mineral es I/We have se Clerk and Re	day of itial public hearing, no tate owners pursuant arched the records of corder for the above in tified therein.	to section 24-65.5-1 or the Adams County	03 of the Colorado Tax Assessor and t	Revised Statutes; he Adams County
Date:	Applicant:			
	Print Name:			
STATE OF COLORADO				
COUNTY OF ADAMS)			
Subscribed and swor	n to before me this	day of	, 20_	, by
Witness my hand and	d official seal.			
My Commission expires:		Notary Public		
After Recording Return	То:		of Person Preparing L	egal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.

APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT, PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)

I/We, _		, (the "Applicant") by signing below, hereby declare and certify as follows:
	proper cal Add Descri	lress:
Parcel	l #(s):	
With respect to	o qualit	fying surface developments, that (PLEASE CHECK ONE):
	propo	nineral estate owner has entered an appearance or filed an objection to the osed application for development within thirty days after the initial public ing on the application; or
	propo appea thirty surfac devel for de record as to	Applicant and any mineral estate owners who have filed an objection to the osed application for development or have otherwise filed an entry of arance in the initial public hearing regarding such application no later than days following the initial public hearing on the application have executed a ce use agreement related to the property included in the application for opment, the provisions of which have been incorporated into the application evelopment or are evidenced by a memorandum or otherwise recorded in the ds of the clerk and recorder of the county in which the property is located so provide notice to transferees of the Applicant, who shall be bound by such ce use agreements; or
	The a (i) (ii) (iii)	pplication for development provides: Access to mineral operations, surface facilities, flowlines, and pipelines in support of such operations existing when the final public hearing on the application for development is held by means of public roads sufficient to withstand trucks and drilling equipment or thirty-foot-wide access easements; An oil and gas operations area and existing well site locations in accordance with section 24-65.5-103.5 of the Colorado Revised Statutes; and That the deposit for incremental drilling costs described in section 24-
	()	65.5-103.7 of the Colorado Revised Statutes has been made.
Date:		Applicant:
After Recording	Return	To: By: Print Name: Address:

STATE OF COLORADO)		
) COUNTY OF ADAMS)		
Subscribed and sworn to before me this	day of	, 20, by
Witness my hand and official seal.		
My Commission expires:	Notary Public	

Name and Address of Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department within thirty days after the initial public hearing on all applicable land use applications.

<u>APPLICANT'S CERTIFICATION CONCERNING QUALIFYING SURFACE DEVELOPMENT,</u> <u>PURSUANT TO C.R.S. §24-65.5-103.3 (1)(b)</u>

I, _____ (the "Applicant") by signing below, hereby declare and certify as follows concerning the property located at:

Physical Address:

Legal Description:

Parcel # (s):

With respect to qualifying surface developments:

in support of such exist production, including equipment or thirty-fo area as recorded in Re	sting and prop provisions for oot-wide acces eception #	neral operations, surface facilit posed operations for oil and ga r public roads sufficient to wit as easements, were provided for	s exploration and hstand trucks and drilling or in a "
Date:	Applicant: By:		
	Address:		
STATE OF COLORADO COUNTY OF ADAMS))		
COUNTY OF ADAMS)		
Subscribed and sworn to bef		day of	, 20, by
Witness my hand and officia	l seal.		
My Commission expires:		Notary Public	
After Recording Return 1	o:	2	Person Preparing Legal Description:

A recorded copy of this Certification shall be submitted to the Adams County Community and Economic Development Department with all applicable land use applications.



July 15, 2019

Adams County Planning Division 4430 South Adams County 1st Floor, Suite W2000 Brighton, CO80601-8204

Re Application for the continued operation and issuance of a Conditional Use Permit for the existing Wireless Telecommunication Facility located at 18490 ½ E. 88th Ave., Commerce City APN: 1723-00-0-00-174 Crown Castle – 877036 – United Power Station

INTRODUCTION / OVERVIEW

Crown Castle, hereafter referred to as "Crown Castle" or "applicant", is requesting a Conditional Use Approval to permit the continued operation of a Wireless Communication Facility (tower) in an A-3 zoned district in Adams County. This parcel is surrounded on all for sides by Commerce City. This existing communication facility is currently supporting Sprint in this area and is designed to provide for their current and future technologies, modifications and 5G upgrades. The existing site was originally permitted and installed in 1999 and renewed in 2009 through Adams County and has been in continuous operation since its construction. The permit is set to expire on October 19th, of this year and prompted this Conditional Use Permit application for the on-going use and re-permitting of the existing site. This facility is an important part of the existing Sprint network and has been one of the foundation sites that the surrounding network has been designed and built from.

In addition to traditional wireless telephone services, other benefits of this installation will include wireless internet connections and wireless data transmission. This facility will also support emergency services by providing wireless communications to paramedics, firefighters and law enforcement agencies. These needs have become established and accepted as an integral part of the communications infrastructure, as these services promote public health, safety, comfort and general welfare.

Some examples of the benefits of wireless to community services are:

• Wireless networks are the primary communication source for numerous federal, state, and local emergency service organizations. It is critical that these groups have the coverage and capacity in their wireless networks to meet their E911 and other needs. Wireless



MMI Titan Inc.

service acts as a backup for radio systems, connectivity for in-vehicle computers, and realtime cameras.

- These sites generally have battery backup at a majority of its facilities. This is a critical element to keeping a site operating during a natural disaster or other emergency.
- 80% of 911 calls originate from a personal cell phone. (National Emergency Number Association, Enhancing 9-1-1 Operations with Automated Abandoned Callback & Location Accuracy (Motorola Solutions) (August 23, 2018)
- 240 million 911 calls are made annually from wireless phones. (Answers, March 2015)
- 74% of wireless subscribers have used devices in an emergency. (Pew Research)
- 55% of American homes are wireless only. (CDC's 2018 Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, January-July, 2018)
- There have been 360 Amber Alert notification children recovered since 2005. (www.wirelessamberalerts.org)

In order to continue to meet the above listed needs, Crown Castle is requesting approval for the continued use and operation of this existing Facility. Like traditional cellular phone systems, these facilities operate on a grid type system, whereby overlapping cells mesh to form a seamless wireless network. The technical criteria for establishing cell sites are very exacting as to both the height and location of the facility. Based on this information, as well as local population density, traffic patterns, future development and topography, this site is integral to the existing network.

Crown Castle is one of the largest providers of shared communications infrastructure in the United States, with roughly 40,000 cell towers comprising approximately 91,000 installations. Together with its small cell networks and approximately 60,000 miles of fiber optic cable, Crown Castle's extensive infrastructure serves as the backbone of the nation's largest communications networks. This project will continue to serve the residents and extended community throughout this portion of the county.

PROJECT DESCRIPTION

The existing facility consists of a 50' x 50' equipment compound with two equipment cabinets and other interconnect equipment as depicted on the drawings. Along with that, the facility includes an existing 45' tall monopole with Sprint's antennas located at the top. This application is only for the use and continued operation of the existing facility and does not include any alterations or modifications to the facility as it operates today.

CODE

The Adams County Code requires that the following Criteria for Approval be made for the consistency and approval of a Conditional Use Permit. While this application is somewhat nonconventional due to it being an existing site all of the following findings can be made.



The Planning Commission, in making their recommendation, and the Board of County Commissioners, in approving a conditional use permit, shall find:

1. The conditional use is permitted in the applicable zone district.

The Existing site is located within the A-3 Zone and has been in operation since 1999 and is still an allowed use within this district.

2. The conditional use is consistent with the purposes of these standards and regulations.

The Existing site has been constructed and has met all of the previous conditions of approval. The facility has been in compliance with the standards and regulations for a facility of this type.

3. The conditional use will comply with the requirements of these standards and regulations including, but not limited to, all applicable performance standards.

As conditioned, this facility has and will continue to operate with all of the previous standards and regulations as well as all reasonable standards and conditions as part of this current application.

4. The conditional use is compatible with the surrounding area, harmonious with the character of the neighborhood, not detrimental to the immediate area, not detrimental to the future development of the area, and not detrimental to the health, safety, or welfare of the inhabitants of the area and the County. In making this determination, the Planning Commission and the Board of County Commissioners shall find, at a minimum, that the conditional use will not result in excessive traffic generation, noise, vibration, dust, glare, heat, smoke, fumes, gas, odors, or inappropriate hours of operation.

As noted, this facility has been in continuous operation for the last 20 years and has been an integral part of the communication background for this area for the last two decades. This Facility is not detrimental in any way and the impact to the community by way of traffic, visits and noise are negligible.



5. The conditional use permit has addressed all off-site impacts.

This facility will not create or impact any off-site properties.

6. The site is suitable for the conditional use including adequate usable space, adequate access, and absence of environmental constraints.

This site meets all of the requirements and criteria for the re-issuance of a Conditional Use Permit to allow for the on-going operation and maintenance of this Communication Facility. As this site has been on the property and operating over the last 20 years it has not created any adverse environmental impacts and will not if approved to proceed.

7. The site plan for the proposed conditional use will provide the most convenient and functional use of the lot including the parking scheme, traffic circulation, open space, fencing, screening, landscaping, signage, and lighting.

The existing facility has been in place and has not nor will it create any additional impact to traffic circulation or parking. The facility, as required by the original conditions, has a 7' fence securing the equipment and base of the facility from the surrounding viewsheds.

8. Sewer, water, storm water drainage, fire protection, police protection, and roads are to be available and adequate to serve the needs of the conditional use as designed and proposed.

This facility does not utilize water and doesn't impede any storm water drainage. Access by all first responders to the property is unobstructed and in fact, supported by the existing communication facility.

This facility has, and if approved, will continue to benefit the community, people working in and travelling through this area. As noted above, this facility has been a tremendous backbone of communications and connectivity for this area and the network as a whole.

SHOT CLOCK

Under the Federal Telecommunications Act, local governments must act on wireless facility permit applications within a "reasonable period of time." In 2009, the Federal Communications Commission ("FCC") issued a declaratory ruling, commonly known as the "Shot Clock Ruling," which clarified this obligation. Under the Shot Clock ruling, local governments generally must take final action on a wireless facility permit application within 90 days after it was filed for a collocation application, or 150 days after any other application was filed.



Crown Castle expects final action on this Application on or before 150 days after the filing date, and Crown Castle stands ready to cooperate with any reasonable requests to facilitate a timely decision.

CONCLUSION

Crown Castle and their partner carriers endeavor to provide the most reliable communication networks in the nation. Crown Castle and Sprint's existing location in this area will continue to reinforce a tremendous public safety and emergency benefit to this community by using the least intrusive means to fill the need for coverage in this area. The facility will continue to serve the area by providing high speed data connectivity to meet the demands of residents, visitors, businesses and emergency responders alike.

We look forward to working closely with the County's Planning Staff in the processing of this application. If there are any questions that we may address or information that is needed, please do not hesitate to contact us.

Sincerely,

Justin Robinson (714) 863-4366 Justin.robinson@mmi-titan.com

DF	RAWING INDEX	MAP
T1	TITLE SHEET	The second s
A1	SITE PLAN	
A2	EQUIPMENT LAYOUT PLAN	
A3	ELEVATIONS	
		TowerRd
04	TOTAL SHEETS	
LE	GAL DESCRIPTION	DRIVING DIRECTIONS
_		FROM CROWN CASTLE OFFICE
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		– CONTINUE ONTO I–225 N – MERGE ONTO I–70 E – KEEP RIGHT AT FORM TO PENA BLVD
		 – KEET KIGHT AT FORM TO FERA BEVD – TAKE THE TOWER ROAD EXIT – LEFT ONTO TOWER ROAD
		- LEFT ONTO E 88TH AVENUE



UNITED POWER STATION BUN 877036

18490 1/2 E 88TH AVENUE **COMMERCE CITY, CO 80022**

(ZONING RENEWAL PROJECT)

	PROJECT DESCRIPTION	SITE INF
	THIS APPLICATION IS FOR THE RENEWAL OF AN EXISTING TELECOMMUNICATIONS FACILITY, NO NEW SCOPE PROPOSED. THE FOLLOWING ARE EXISTING ON SITE: • (1) 45'H MONOPOLE • EQUIPMENT CABINETS	SITE ADDRES 18490 1/2 E COMMERCE CIT APPLICANT: CROWN CASTLE ADDRESS: 11 EN CONTACT: SA PHONE: (7 EMAIL: SA
E 88th Ave		APPLICANT R MMI TITAN, INC ADDRESS: 65 VII DE CONTACT: JU PHONE: 71 EMAIL: JU A&E: DRAFTLINK 27068 LA PAZ ALISO VIEJO, 0 CONTACT: JC PHONE: 94 EMAIL: JC
	<u>NOTE</u> : PRIOR TO ACCESSING/ENTERING THE SITE, CONTACT CCI NOC AT (800) 788–7011 AND/OR CCI CONSTRUCTION MANAGER	<u>GEODETIC CC</u> LATITUDE: 39 LONGITUDE: 10
	CODE COMPLIANCE	ASSESSOR'S
C0 80112)	 ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES. 1. 2015 INTERNATIONAL BUILDING CODE (AS ADOPTED BY THE COLORADO STATE BUILDINGS PROGRAM AS FOLLOWS: CHAPTER 1 AS AMENDED, CHAPTERS 2-35 AND APPENDICES C AND I) 2. 2015 INTERNATIONAL MECHANICAL CODE (AS ADOPTED BY THE COLORADO STATE BUILDINGS PROGRAM AS FOLLOWS: CHAPTER 2-15 AND APPENDIX A) 3. 2015 INTERNATIONAL ENERGY CONSERVATION CODE 4. 2017 NATIONAL ELECTRICAL CODE 5. 2015 INTERNATIONAL PLUMBING CODE 6. THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS 7. 2012 INTERNATIONAL FIRE CODE 8. CURRENT EDITION OF ICC/ANSI A117.1, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES (AS REFERENCED IN THE ADOPTED IBC AND AS ADOPTED BY THE COLORADO GENERAL ASSEMBLY AS FOLLOWS: CRS 9-5-101, AS AMENDED, FOR ACCESSIBLE HOUSING) 	 O17230000017 <u>ZONING JURI</u> ADAMS COUNT <u>ZONING DIST</u> A-3 <u>POWER COMF</u> - <u>AAV / TELCO</u> - <u>PROJECT INF</u> OCCUPANCY: CONSTRUCTION NUMBER OF ST SPRINKLER: <u>OCCUPANCY</u> UNMANNED TEL

FORMATION

E 88TH AVENUE CITY, CO 80022

TLE, INC. 116 INVERNESS DRIVE EAST, SUITE 300 NGLEWOOD, CO 80112 SARAH EAMES (720) 450-3020 SARAH.EAMES@CROWNCASTLE.COM

REPRESENTATIVE:

3500 W MANSFIELD AVE VILLA 51 DENVER, CO 80235 JUSTIN ROBINSON 714 863 4366 JUSTIN.ROBINSON@MMI—TITAN.COM

AZ ROAD #561 , CA 92656 OYCE YU 949 232 5045 JOYCE@DRAFTLINK.COM

COORDINATES (NAD83):

39°51'23.77"N 104°46'21.37"W

<u> PARCEL NUMBER (APN):</u> 174

RISDICTION:

ITY

STRICT:

<u>MPANY:</u>

<u>CO PROVIDER</u>

FORMATION (IBC):

I TYPE: V-B STORY:

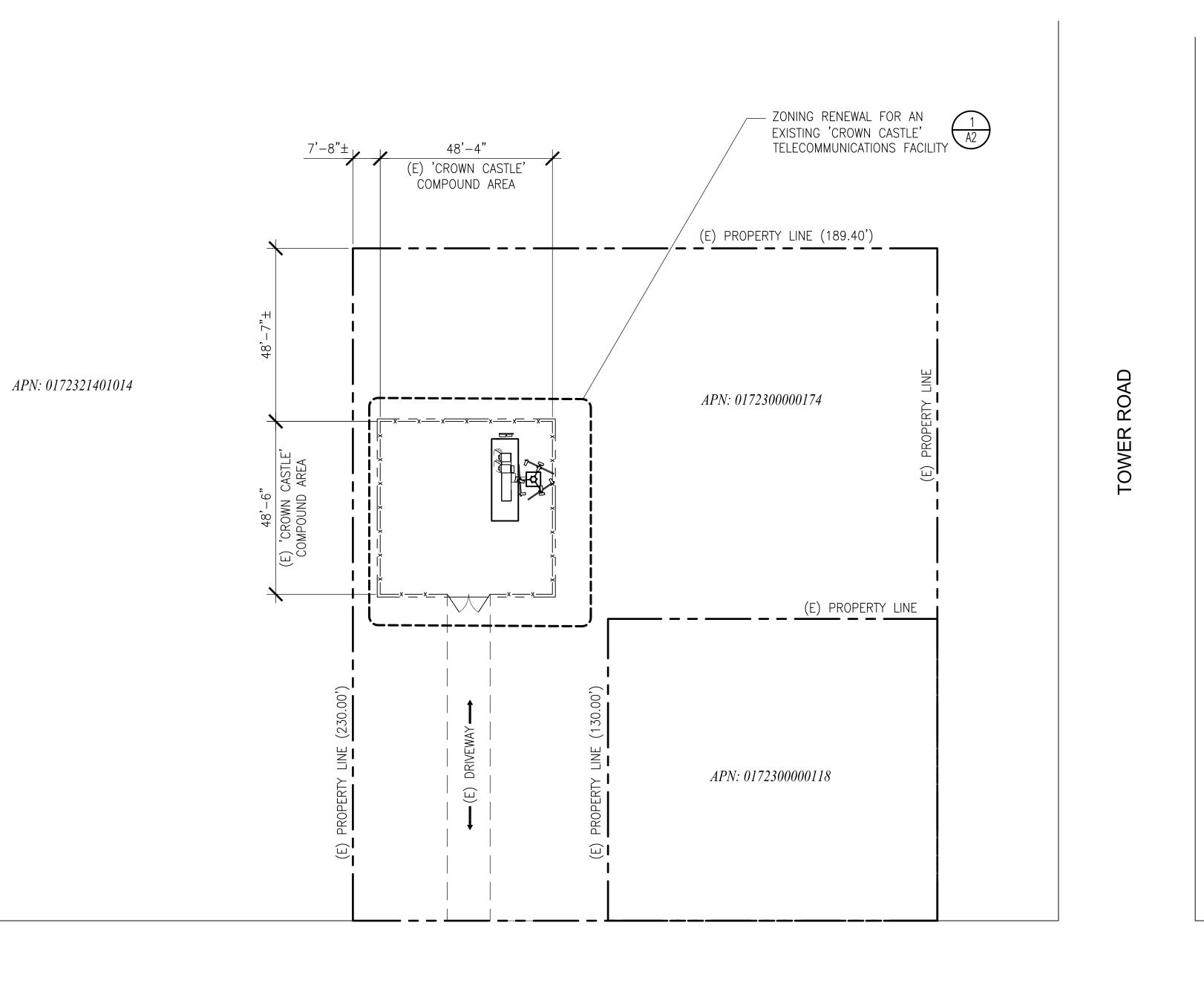
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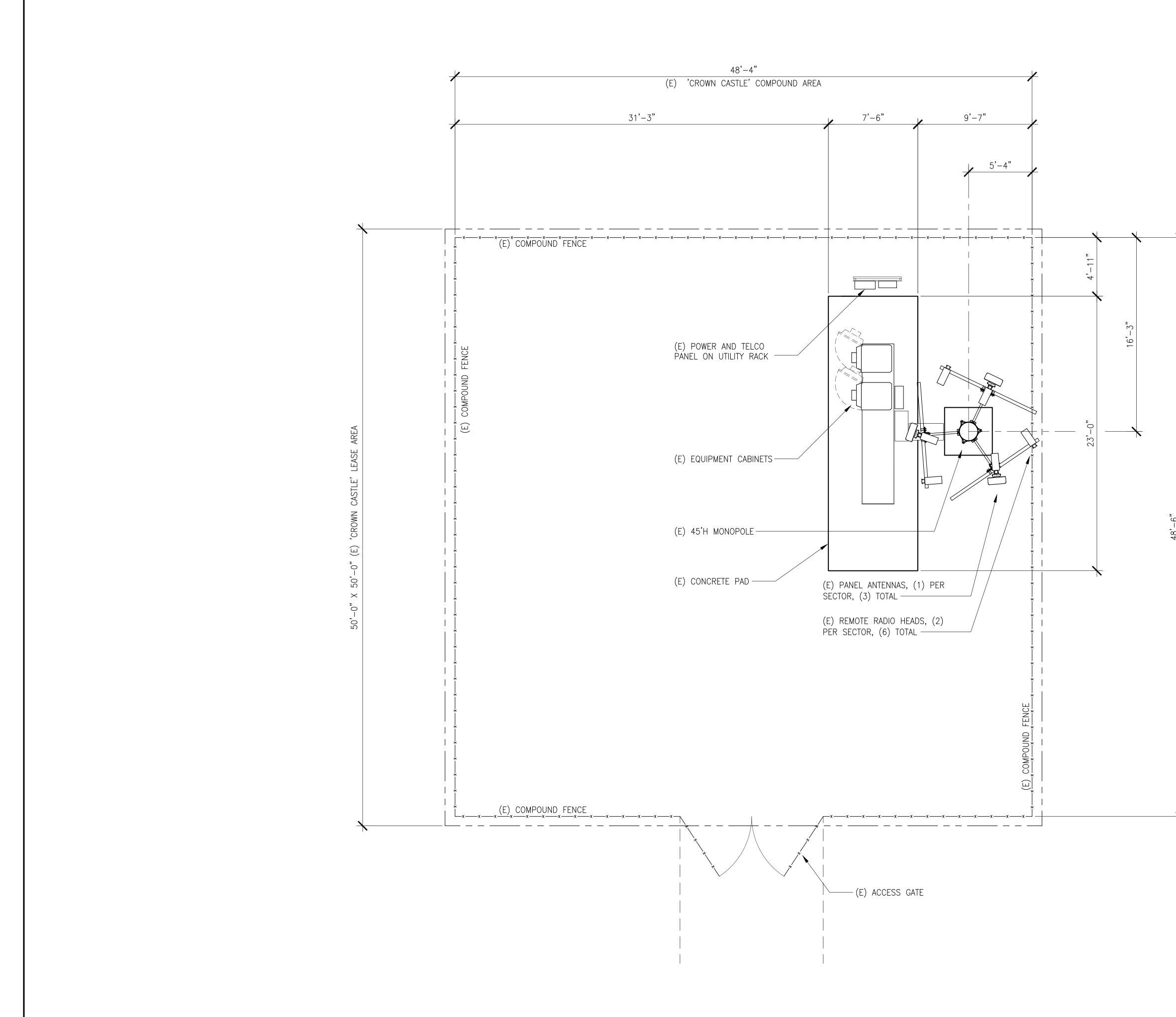
EAST 88TH AVENUE

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SITE PLAN

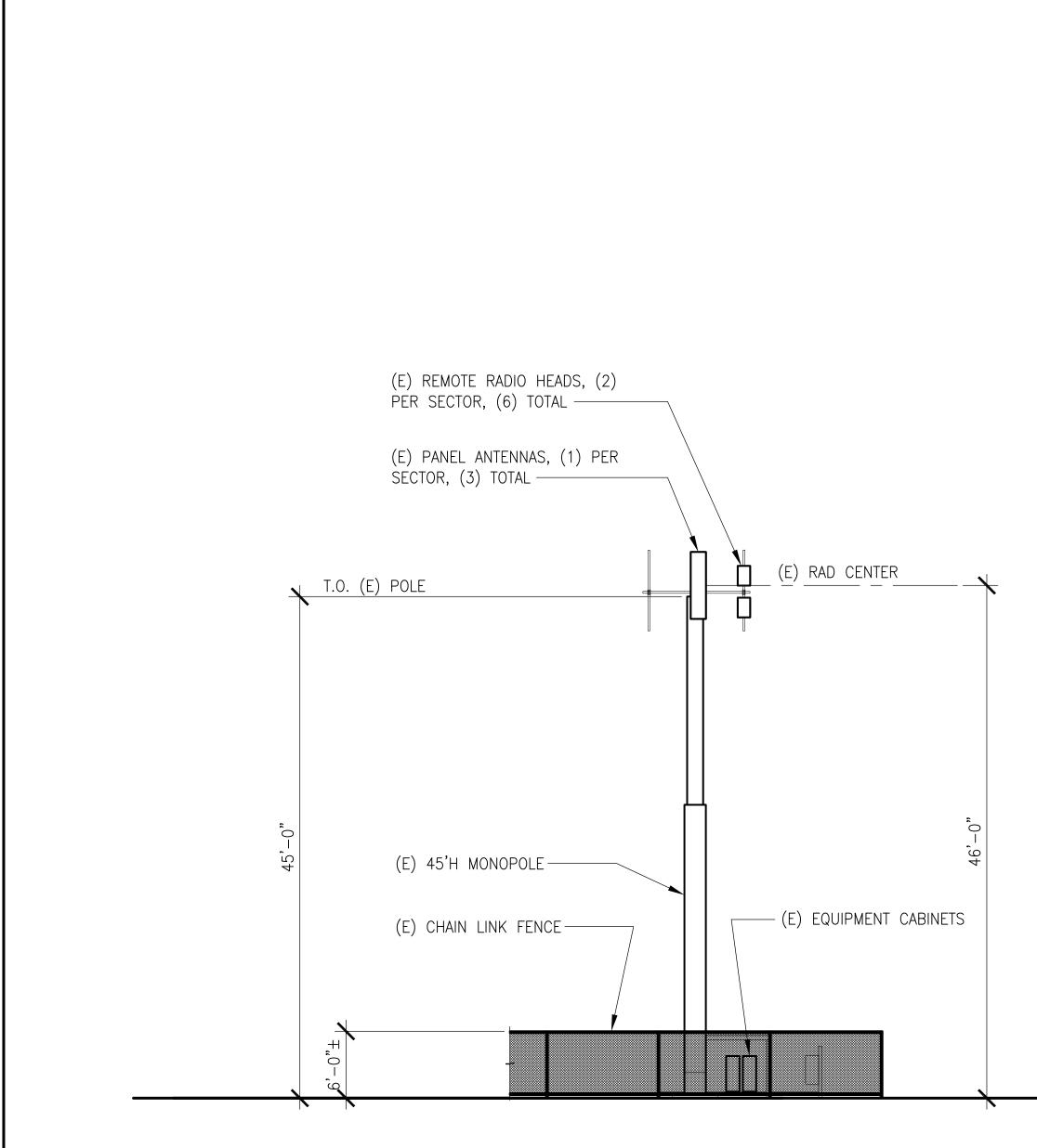
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EQUIPMENT LAYOUT PLAN

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CROWN	877036 UNITED POWER STATION 18490 E1 ₂ 88TH AVENUE COMMERCE CITY, CO 80022
VIEW	SHEET
Α	1 / 4





EXISTING (VIEW FROM SOUTH)



CROWN	877036 UNITED POWER STATION 18490 E1 ₂ 88TH AVENUE COMMERCE CITY, CO 80022
VIEW	SHEET
В	2/4





EXISTING (VIEW FROM WEST)



CROWN	877036 UNITED POWER STATION 18490 E1 ₂ 88TH AVENUE COMMERCE CITY, CO 80022
VIEW	SHEET
C	3/4





EXISTING (VIEW FROM NORTH)



CROWN	877036 UNITED POWER STATION 18490 E1 ₂ 88TH AVENUE COMMERCE CITY, CO 80022
VIEW	SHEET
D	4/4





EXISTING (VIEW FROM EAST)

AMENDED AND RESTATED PCS SITE AGREEMENT

THIS AMENDED AND RESTATED PCS SITE AGREEMENT (the "Agreement") is made this day of <u>september</u>, 2008, by and between **UNITED POWER**, **INC.**, a Colorado corporation f/k/a Union Rural Electric Association, Inc., having a principal place of business located at 500 Cooperative Way, Brighton, Colorado 80603 ("Lessor") and **STC FIVE LLC**, a Delaware limited liability company ("Lessee") by and through its attorney in fact Global Signal Acquisitions II LLC, a Delaware limited liability company, with its principal place of business located at 2000 Corporate Drive, Canonsburg, Pennsylvania 15317-8564.

Recitals

WHEREAS, Lessor and Lessee's predecessor in interest, Sprint Spectrum L.P. ("Sprint"), entered into a PCS Site Agreement dated April 28, 1999 (the "Original Lease"), whereby Sprint leased from Lessor the Leased Premises (as hereinafter defined) in Adams County, Colorado, together with access and utility easements, all located within the Lessor's Property; and

WHEREAS, Lessor and Lessee desire to replace the Original Lease with the terms and conditions of this Agreement.

NOW THEREFORE, effective upon the Commencement Date (as hereinafter defined), this Agreement will amend and restate the Original Lease by deleting the Original Lease in its entirety and replacing it with the terms and conditions set forth herein.

1. Definitions.

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"Agreement" means this Amended and Restated PCS Site Agreement.

"<u>Approvals</u>" means all certificates, permits, licenses and other approvals that Lessee, in its sole discretion, deems necessary for its intended use of the Leased Premises.

"<u>Commencement Date</u>" means the first day of the month following the full execution of this Agreement.

"<u>Defaulting Party</u>" means the party to this Agreement that has defaulted as provided for in Section 26 of this Agreement.

"Easements" and "Utility Easement" have the meanings set forth in Section 8 of this Agreement.

"Hazardous Material" means any substance which is (i) designated, defined, classified or regulated as a hazardous substance, hazardous material, hazardous waste, pollutant or contaminant under any Environmental Law, as currently in effect or as hereafter amended or enacted; (ii) a petroleum hydrocarbon, including crude oil or any fraction thereof and all petroleum products; (iii) PCBs; (iv) lead; (v) asbestos; (vi) flammable explosives; (vii) infectious materials; or (viii) radioactive materials. "Environmental Law(s)" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601, et seq., the Resource Conservation and Recovery Act of 1976, 42 U.S.C. Sections 6901, et seq., the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq., the Hazardous Materials Transportation Act, 49 U.S.C. 5101, et seq., and the Clean Water Act, 33 U.S.C. Sections 1251, et seq., as said laws have been supplemented or amended to date, the regulations promulgated pursuant to said laws and any other federal, state or local law, statute, rule, regulation or

Site Name: United Power Substation Business Unit #: 877036 BUS_RE\1981693.1 ordinance which regulates or proscribes the use, storage, disposal, presence, clean-up, transportation or release or threatened release into the environment of Hazardous Material.

"<u>Improvements</u>" means a wireless communications facility, including tower structures, equipment shelters, meter boards and related improvements and structures and uses incidental thereto.

"Initial Term" means a period of five (5) years beginning the Commencement Date.

"Lease Term" means the Initial Term together with any Renewal Terms.

"<u>Leased Premises</u>" means that portion of Lessor's Property consisting of a parcel of approximately two thousand five hundred (2,500) square feet, as described in the sketch attached hereto as **Exhibit** "**B**". The boundaries of the Leased Premises may be subject to modification as set forth in Section 7.

"Lessee's Notice Address" means c/o Crown Castle International Corp., E. Blake Hawk, General Counsel, Attn: Real Estate Department, 2000 Corporate Drive, Canonsburg, PA 15317-8564, 1-866-482-8890.

"Lessor's Notice Address" means 500 Cooperative Way, Brighton, Colorado 80603.

"<u>Lessor's Property</u>" means the parcel of land located in Adams County, Colorado, as shown on the Tax Map of said County as Tax Parcel Number 0172300000174, being further described on **Exhibit** "**A**" attached hereto.

"<u>Non-Defaulting Party</u>" means the party to this Agreement that has not defaulted as provided for in Section 26 of this Agreement.

"<u>Renewal Term</u>" means a period of five (5) years commencing upon the expiration of the Initial Term or prior Renewal Term, as the case may be.

"<u>Rent</u>" means the consideration payable by Lessee to Lessor in exchange for the Leased Premises in the amount of **Construction** on the Commencement Date. Commencing on the anniversary of the Commencement Date and on the anniversary of that date each year thereafter (the "Adjustment Date"), the annual Rent shall increase based on the Consumer Price Index published by the Bureau of Labor and Statistics of the United States Department of Labor for all Urban Consumers, US City Average ("CPI-U") indicator and shall be determined by dividing the CPI-U indicator, published three (3) months prior to the Adjustment Date, by the CPI-U indicator published one (1) year and three (3) months prior to the Adjustment Date, and multiplying the resultant number by the annual lease rental amount of the most recent Rent. In no event shall the increase in rent calculated for any one (1) year period exceed 3% of the most recent rent.

"Signing Bonus" means the consideration payable by Lessee to Lessor in exchange for executing this Agreement in the amount of **Bonus** and **Bonus** and

"<u>Sublease Component</u>" means the consideration payable by Lessee to Lessor for subleases or licenses of the Leased Premises as set forth in Section 5.

2. Subdivision. INTENTIONALLY DELETED.

Site Name: United Power Substation Business Unit #: 877036 BUS_RE\1981693.1 3. **Lease Term**. Effective upon the Commencement Date, Lessor leases the Leased Premises to Lessee for the Initial Term. The term of this Agreement shall automatically be extended for seven (7) successive Renewal Terms of five years each, unless this Agreement is terminated pursuant to the provisions set forth herein.

4. **<u>Rent</u>**. Beginning on the Commencement Date, Lessee shall pay Rent to Lessor for the Leased Premises.

5. <u>Signing Bonus.</u> The Signing Bonus shall be payable by Lessee to Lessor within thirty (30) days after full execution of this Agreement.

6. Assignment, Sublease, Licensing and Encumbrance.

(a) Lessee has the right, at its sole discretion, to assign its interest in this Agreement and to sublease or license use of the Leased Premises, Easements and Improvements. Assignment of this Agreement by Lessee shall be effective upon Lessee sending written notice to Lessor and shall relieve Lessee from any further liability or obligation, except for those events arising prior to the Assignment. Lessee has the further right to pledge or encumber its interest in this Agreement. Upon request to Lessor from any leasehold mortgagee, Lessor agrees to give the holder of such leasehold mortgage written notice of any default by Lessee and an opportunity to cure any such default within fifteen (15) days after such notice with respect to monetary defaults and within a commercially reasonable period of time after such notice with respect to any non-monetary default.

(b) If Lessee subleases, licenses or grants similar right of use or occupancy in the Leased Premises to an unaffiliated third party, Lessee agrees provide Lessor written notice of such sublease or license and to pay Lessor **Constitution of the sublease** per year for each such sublease or license beyond the base tenant. Lessee's payment obligations for the subletting outlined in this section shall be referred to herein as "The Sublease Component." The Sublease Component will not be applicable in the event there is no more than one sublease or license of the Leased Premises, and shall not apply to nominal providers that occupy small portions of Lessee's facilities and pay less than five hundred dollars per month in rent. Lessee shall have sole discretion as to whether, and on what terms, to sublease, license or otherwise allow occupancy of the Leased Premises and there shall be no express or implied obligation of Lessee to do so, so long as any such sublease, license or occupancy of the Leased Premises does not materially interfere with Lessor's use of the Property.

(c) The Sublease Component will be due and payable on the same day on which Rent is due and payable under this Agreement, and will also be subject to the CPI-U increase on the same date and the same manner as Rent. The term "Sublease Component Start Date" means the commencement of such sublessee's use of the Leased Premises pursuant to the subleasing arrangement with Lessee. The Sublease Component will be prorated on an annual basis for the number of days between the Sublease Component Start Date and the next following Rent payment date.

7. Leased Premises; Survey. Within six (6) months following the Commencement Date, Lessee may obtain an "as-built" survey which shall depict and identify the boundaries of the Leased Premises and the Easements and replace and supersede the sketch attached hereto as **Exhibit** "**B**". If obtained, the "as-built" survey shall be deemed to be incorporated into this Agreement as **Exhibit** "**C**" even if not physically affixed hereto and Lessee shall provide Lessor a copy. The description of the Leased Premises set forth in **Exhibit** "**C**" shall control in the event of discrepancies between **Exhibit** "**B**" and **Exhibit** "**C**".

8. **Easements**. Lessor grants the following non-exclusive easements and rights-of-way over, under and upon Lessor's Property to Lessee, Lessee's employees, agents, contractors, sublessees, licensees and their

Site Name: United Power Substation Business Unit #: 877036 -BUS_RE\1981693.1 employees, agents and contractors: (i) a mutually agreeable easement over such portions of Lessor's Property as is reasonably necessary for the construction, repair, maintenance, replacement, demolition and removal of the facility to be located upon the Leased Premises; (ii) a mutually agreeable easement over such portion of Lessor's Property as is reasonably necessary to obtain or comply with any Approvals; (iii) a twenty foot (20') wide easement in the location shown in Exhibit "B", as may be amended by Exhibit "C", for construction, use, maintenance and repair of an access road for ingress and egress seven (7) days per week, twenty-four (24) hours per day, for pedestrians and all types of motor vehicles, to extend from the nearest public right-of-way to the Leased Premises; and (iv) a utility easement (the "Utility Easement") in the location shown in Exhibit "B", as may be amended by Exhibit "C", for the installation, repair, replacement and maintenance of utility wires, poles, cables, conduits and pipes, provided that in the event that any public utility is unable or unwilling to use the Utility Easement in the location shown in Exhibit "B", as may be amended by Exhibit "C", at the sole option of Lessee, Lessor shall grant an alternate easement either to Lessee or directly to the public utility at no cost to and in a location acceptable to Lessee and the public utility (collectively, the "Easements"). The Easements provided herein shall exist for the Lease Term and for a reasonable time thereafter as necessary for Lessee to remove its improvements from Lessor's Property.

9. Lessee's Right to Terminate; Effect of Termination by Lessee. Lessee shall have the right to terminate this Agreement at any time, without cause, by providing Lessor one hundred eighty (180) days' prior written notice. Lessor shall have the right to terminate this Agreement prior to the expiration of the Lease Term only in the event that Lessor requires use of the Leased Premises for expansion of its electrical substation. In such event, Lessor shall give Lessee three hundred sixty five (365) days notice of termination. This right of termination will terminate in the event Lessor transfers or assigns its interest under this Lease to any entity that is not a principal, affiliate, or subsidiary of Lessor or has a primary source of business similar to that of Lessor. Upon termination by either party as provided above, this Agreement shall become null and void and neither party shall have any further rights or duties hereunder, except that any monies owed by either party to the other up to the date of termination shall be paid within thirty (30) days of the termination date.

10. **Use of Property**. The Leased Premises and the Easements shall be used for the purpose of constructing, maintaining and operating the Improvements and uses incidental thereto. Lessee may place a security fence around the perimeter of the Leased Premises. All Improvements shall be constructed at Lessee's sole expense. Lessee will maintain the Leased Premises in a safe condition. It is the intent of the parties that Lessee's wireless communications facility shall not constitute a fixture.

11. **Removal of Obstructions**. Lessee has the right to remove obstructions from Lessor's Property, including but not limited to vegetation, which may encroach upon, interfere with, or present a hazard to Lessee's use of the Leased Premises or the Easements. Lessee shall properly dispose of any materials removed. With the exception of vegetation, Lessee must obtain Lessor's prior written approval for the removal of any obstructions which could materially alter the Property or affect Lessor's use thereof.

12. Hazardous Materials.

(a) Lessee's Obligation and Indemnity. Lessee shall remain in compliance with all applicable Environmental Laws. Lessee shall not (either with or without negligence) cause or permit the escape, disposal or release of any Hazardous Materials on or from the Leased Premises in any manner prohibited by law. Lessee shall indemnify, defend, and hold Lessor harmless from any and all claims, damages, fines, judgments, penalties, costs, liabilities or losses (including, without limitation, any and all sums paid for settlement of claims, attorneys' fees, and consultants' and experts' fees) from the failure to comply with all applicable Environmental Laws or from the release of any Hazardous Materials on the Leased Premises if caused by Lessee, its subtenants, licensees, or persons acting under Lessee. If Lessee causes

Site Name: United Power Substation Business Unit #: 877036 BUS_RE\1981693.1 or permits the release of any Hazardous Materials, Lessee shall complete all remedial, removal, and other actions necessary to clean up and remove all Hazardous Materials on, from or affecting the Leased Premises in accordance with all applicable laws and to the satisfaction of Lessor.

(b) <u>Lessor's Obligation and Indemnity</u>. Lessor shall not (either with or without negligence) cause or permit the escape, disposal or release of any Hazardous Materials on or from the Leased Premises in any manner prohibited by law. Lessor shall indemnify, defend, and hold Lessee harmless from any and all claims, damages, fines, judgments, penalties, costs, liabilities or losses (including, without limitation, any and all sums paid for settlement of claims, attorneys' fees, and consultants' and experts' fees) from the presence or release of any Hazardous Materials on the Leased Premises unless caused by Lessee or persons acting under Lessee.

13. **Real Estate Taxes**. Lessor shall pay all real estate taxes on Lessor's Property. Lessee agrees to reimburse Lessor for any documented increase in real estate or personal property taxes levied against Lessor's Property that are directly attributable to the Improvements constructed by Lessee, its subtenants, or licensors. Lessor agrees to provide Lessee any documentation evidencing the increase. Lessee reserves the right to challenge any such assessment and Lessor agrees to reasonably cooperate with Lessee in connection with any such challenge.

14. **Insurance**. Lessee will procure and maintain commercial general liability insurance, with limits of not less than \$2,000,000 combined single limit per occurrence for bodily injury and property damage with a certificate of insurance to be furnished to Lessor within sixty (60) days after full execution of this Agreement and at any other time within thirty (30) days after request by Lessor. Such policy will provide that cancellation will not occur without at least thirty (30) days' prior written notice to Lessor.

15. Waiver of Claims and Rights of Subrogation. The parties hereby waive any and all rights of action for negligence against the other on account of damage to the Improvements, Lessor's Property or to the Leased Premises resulting from any fire or other casualty of the kind covered by property insurance policies with extended coverage, regardless of whether or not, or in what amount, such insurance is carried by the parties. All policies of property insurance carried by either party for the Improvements, Lessor's Property or the Leased Premises shall include a clause or endorsement denying to the insurer rights by way of subrogation against the other party to the extent rights have been waived by the insured before the occurrence of injury or loss.

16. Eminent Domain. If Lessor receives notice of a proposed taking by eminent domain of any part of the Leased Premises or the Easements, Lessor will notify Lessee of the proposed taking within fifteen (15) days after receiving said notice and Lessee will have the option to: (i) declare this Agreement null and void and thereafter neither party will have any liability or obligation hereunder, except those that expressly survive the termination of this Agreement; or (ii) remain in possession of that portion of the Leased Premises and Easements that will not be taken, in which event there shall be an equitable adjustment in Rent on account of the portion of the Leased Premises and Easements so taken. With either option Lessee shall have the right to contest the taking and directly pursue an award, as long as any such award does not diminish the amount of the award to which Lessor is entitled.

17. **<u>Right of First Refusal.</u>** If Lessor elects, during the Lease Term (i) to sell or otherwise transfer all or any portion of Lessor's Property, whether separately or as part of a larger parcel of which Lessor's Property is a part, to any third party whose primary source of revenue is generated from the management and leasing of communications facilities, or (ii) grant to any such third party by easement or other legal instrument an interest in and to that portion of the Leased Premisés, or a larger portion thereof, for the purpose of operating and maintaining communications facilities or the management thereof, with or without an assignment of this Agreement to such third party, Lessee shall have the right of first refusal to

Site Name: United Power Substation Business Unit #: 877036 BUS RE\1981693.1 meet any bona fide offer of sale or transfer on the same terms and conditions of such offer. If Lessee fails to meet such bona fide offer within thirty (30) days after written notice thereof from Lessor, Lessor may sell or grant the easement or interest in Lessor's Property or portion thereof to such third person in accordance with the terms and conditions of such third party offer.

18. <u>Sale of Property</u>. If during the Lease Term, Lessor sells all or part of Lessor's Property, of which the Leased Premises is a part, then such sale shall be under and subject to this Agreement.

19. <u>Surrender of Property</u>. Upon expiration or termination of this Agreement, Lessee shall, within ninety (90) days, remove all above ground Improvements and restore the Leased Premises as nearly as reasonably possible to its original condition, reasonable wear and tear excepted.

20. **Hold Harmless**. Each party shall indemnify, defend, and hold the other party harmless from and against any claim of liability or loss from personal injury or property damage arising from the use and occupancy of the Leased Premises or Lessor's Property by such indemnifying party, its employees, contractors, servants or agents, except to the extent such claims are caused by the intentional misconduct or negligent acts or omissions of the other party, its employees, contractors, servants or agents.

21. **Lessor's Covenant of Title**. Lessor covenants that Lessor holds good and marketable fee simple title to Lessor's Property and the Leased Premises and has full authority to enter into and execute this Agreement. Lessor further covenants that to Lessor's knowledge there are no encumbrances or other impediments of title that might interfere with or be adverse to Lessee.

22. Interference with Lessee's Business. Lessee and its tenants shall have the right to construct, install and operate wireless communications facilities that emit radio frequencies on Lessor's Property; however, such radio frequencies will not cause harmful interference which is measurable with any of Lessor's equipment installed before the equipment of Lessee or its tenants. In the event any of Lessee's equipment or the equipment of its tenants cause such interference, and after Lessor has notified Lessee in writing of the interference, Lessee will take all commercially reasonable steps to eliminate or ensure that its tenants eliminate the interference. Lessor agrees to use commercially reasonable efforts to ensure that any equipment of other tenants on the Property installed after the installation of any of Lessee's or its tenant's equipment will not cause harmful interference which is measurable with Lessee's or its tenants' use of the Leased Property for wireless communications facilities. In the event any of Lessor's tenant's equipment causes such interference, and after Lessee has notified Lessor in writing of the interference, Lessor will take all commercially reasonable steps to ensure that its tenants eliminate the interference.

23. **Quiet Enjoyment**. Lessor covenants that Lessee, on paying Rent and performing the covenants of this Agreement, shall peaceably and quietly have, hold and enjoy the Leased Premises and Easements.

24. **Deeds of Trust**. This Agreement, Lessee's leasehold interest and the Easements shall be subordinate to any deed of trust given by Lessor which currently encumbers the Leased Premises, provided that any lender shall recognize the validity of this Agreement in the event of foreclosure. In the event that the Leased Premises is or shall be encumbered by such a mortgage, Lessor shall use commercially reasonable efforts to obtain and furnish to Lessee a non-disturbance agreement for each such deed of trust, in a form acceptable to Lessee.

25. <u>Title Insurance</u>. Lessee, at Lessee's option, may obtain title insurance on the Leased Premises and Easement. Lessor shall reasonably cooperate with Lessee's efforts to obtain title insurance by executing documents or obtaining requested documentation as required by the title insurance company.

Site Name: United Power Substation Business Unit #: 877036 BUS RE\1981693.1

26. Default.

(a) Notice of Default; Cure Period. In the event that there is a default by Lessor or Lessee (the "Defaulting Party") with respect to any of the provisions of this Agreement or Lessor's or Lessee's obligations under this Agreement, the other party (the "Non-Defaulting Party") shall give the Defaulting Party written notice of such default. After receipt of such written notice, the Defaulting Party shall have fifteen (15) days in which to cure any monetary default and thirty (30) days in which to cure any non-monetary default. The Defaulting Party shall have such extended periods as may be required beyond the thirty (30) day cure period to cure any non-monetary default if the nature of the cure is such that it reasonably requires more than thirty (30) days to cure, and Defaulting Party commences the cure within the thirty (30) day period and thereafter continuously and diligently pursues the cure to completion. The Non-Defaulting Party unless and until the Defaulting Party has failed to cure the same within the time periods provided in this Section.

(b) <u>Consequences of Lessee's Default</u>. In the event that Lessor maintains any action or effects any remedies for default against Lessee, resulting in Lessee's dispossession or removal, (i) this Agreement will be terminated and be of no further force and effect and (i) the Rent shall be paid up to the date of such dispossession or removal and (ii) Lessor shall be entitled to recover from Lessee a sum equal to six (6) months of Rent. In no event shall Lessee be liable to Lessor for consequential, indirect, speculative or punitive damages in connection with or arising out of any default.

(c) <u>Consequences of Lessor's Default</u>. In the event that Lessor is in default beyond the applicable periods set forth above, Lessee may, at its option, upon written notice: (i) terminate the Lease, vacate the Leased Premises and be relieved from all further obligations under this Agreement (ii) if the cost of cure is less than \$5,000, Lessee may perform the obligation(s) of Lessor specified in such notice, in which case any expenditures reasonably made by Lessee in so doing shall be deemed paid for the account of Lessor and Lessor agrees to reimburse Lessee for said expenditures upon demand in an amount not to exceed \$5,000; (iii) sue for injunctive relief, specific performance, damages or set-off from Rent any amount reasonably expended by Lessee as a result of such default. In no event shall Lessor be liable to Lessee for consequential, indirect, speculative or punitive damages in connection with or arising out of any.

27. Lessor's Waiver. INTENTIONALLY DELETED.

28. **Applicable Law**. This Agreement and the performance thereof shall be governed, interpreted, construed and regulated by the laws of the State where the Leased Premises is located. The parties agree that the venue for any litigation regarding this Agreement shall be the County in which the Leased Premises is located.

29. Miscellaneous.

<u>Recording</u>. Lessee shall have the right to record a memorandum of this Agreement with the appropriate recording officer. Lessor shall execute and deliver the memorandum, for no additional consideration, promptly upon Lessee's request; however, upon the expiration or earlier termination of this Agreement, Lessee shall immediately execute and record a memorandum of termination of this Agreement.

<u>Entire Agreement</u>. Lessor and Lessee agree that this Agreement contains all of the agreements, promises and understandings between Lessor and Lessee. No oral agreements, promises or understandings shall be binding upon either Lessor or Lessee in any dispute, controversy or proceeding at

Site Name: United Power Substation Business Unit #: 877036 BUS_RE\1981693.1 law. Any addition, variation or modification to this Agreement shall be void and ineffective unless made in writing and signed by the parties hereto.

<u>Captions</u>. The captions preceding the Sections of this Agreement are intended only for convenience of reference and in no way define, limit or describe the scope of this Agreement or the intent of any provision hereof.

<u>Construction of Document</u>. Lessor and Lessee acknowledge that this document shall not be construed in favor of or against the drafter by virtue of said party being the drafter and that this Agreement shall not be construed as a binding offer until signed by Lessee.

Notices. All notices hereunder shall be in writing and shall be given by (i) established national courier service which maintains delivery records, (ii) hand delivery, or (iii) certified or registered mail, postage prepaid, return receipt requested. Notices are effective upon receipt, or upon attempted delivery if delivery is refused or if delivery is impossible because of failure to provide reasonable means for accomplishing delivery. The notices shall be sent to Lessor at Lessor's Notice Address and to Lessee at Lessee's Notice Address.

<u>Partial Invalidity</u>. If any term of this Agreement is found to be void or invalid, then such invalidity shall not affect the remaining terms of this Agreement, which shall continue in full force and effect.

[Signatures on following two pages]

IN WITNESS WHEREOF, Lessor and Lessee having read the foregoing and intending to be legally bound hereby, have executed this Agreement as of the day and year this Agreement is fully executed.

•	LESSOR:
	UNITED POWER INC., a Colorado corporation
	By: Peut Marks
	Name: Ruth Marks
	Title: C_0, D_1
	Date: September 24th 2008
	STATE OF <u>Colorado</u>
	COUNTY OF Adams)ss:
	On this <u>H</u> day of <u>September</u> , 2008, before me, <u>Adrian Jay Mendora</u> a Notary
	Public in and for the said county and state, personally appeared <u>Kuth Marks</u> , the <u>C.O.D.</u>
	, of United Power Inc., a Colorado corporation, and acknowledged to me that he/she executed the
	same in his/her authorized capacity, and that by his/her signature on the instrument the person, or the
	entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

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ADRIAN JAY MENDOZA	Notary Public in and for Said County and State
Notary Public	
[SEAL]State of Colorado	

LESSEE:

STC FIVE LLC, a Delaware limited liability company

By: Global Signal Acquisitions II LLC, a Delaware limited liability company lts: Attorney-In-Fact

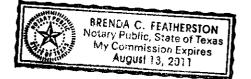
,	By: Global Signal Services LLC, a Delaware limited liability company
ву:	Its: Manager
Name:	R.Christopher Moone Director - Land Acquisition Operations
Title: _	

STATE OF	exas)		
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instrument the per	rson, or the entity upon beh	alf of which the person	n acted, executed the instrument.	,

WITNESS my hand and official seal.

Notary Public in and for Said County and State

[SEAL]



Site Name: United Power Substation Business Unit #: 877036 BUS_RE\1981693,1

EXHIBIT "A"

[Lessor's Property]

That part of the SE 1/4 of Section 21, Township 2 South, Range 66 West of the 6th P.M., Adams County, Colorado, described as follows:

Beginning at the Southeast corner of said SE 1/4;

Thence North 00°00'00" East on an assumed bearing along the East line of said SE 1/4, a distance of 230.00 feet;

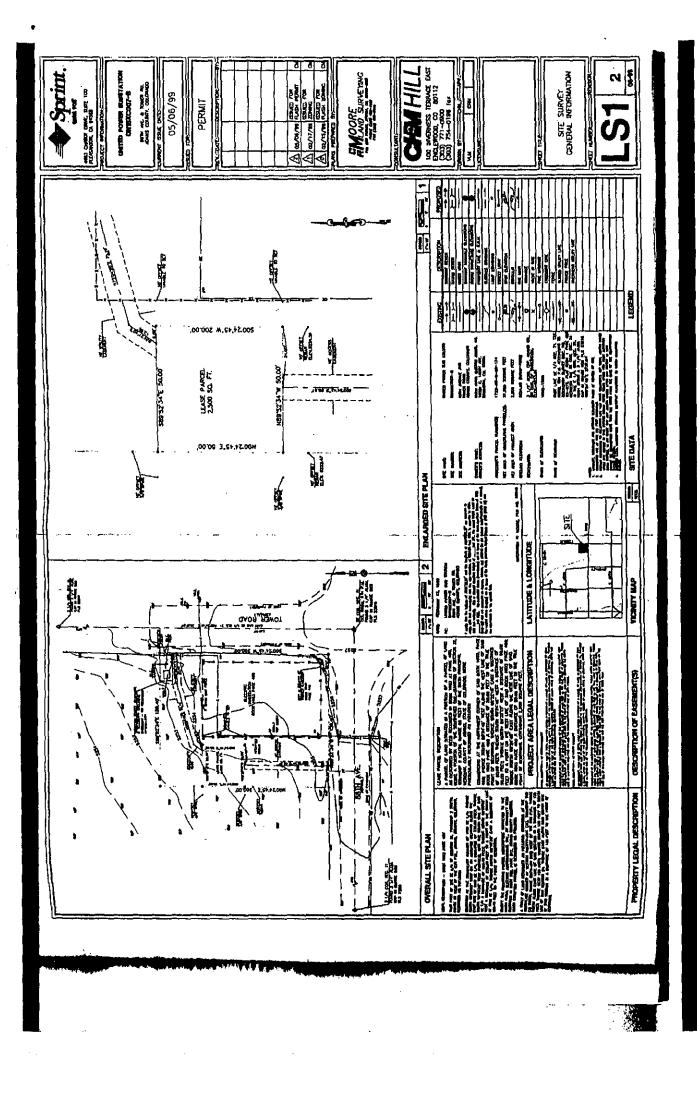
Thence South 89°40'30" West parallel with the South line said SE 1/4 a distance of 189.40 feet; Thence South 00°00'00" West a distance of 230.00 feet to a point on the South line said SE 1/4; Thence North 89⁵40'30" East a distance of 189.40 feet to the Point of Beginning.

Site Name: Rocky Flats Business Unit #: 877007 BUS_RE\1981693.1 EXHIBIT "B" [Site Sketch]

Site Name: United Power Substation Business Unit #: 877036 BUS_RE\1981693.1

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Version 1

Site Name United Power

'CS SITE AGREEMENT

Site I. D. DN18XC007B

1. Premises and Use. Owner leases to Sprint Spectrum L.P., a Delaware limited partnership (*SSLP*), the site described below:

[Check appropriate box(es)]

I Land consisting of approximately 2,500 square feet upon which SSLP will construct its
equipment base station and
antenna structure;

Building interior space consisting of approximately _____ square feet;

Building exterior space for attachment of antennas; Building exterior space for placement of base station equipment; Tower antenna space between the _____ foot and _____ foot level on the

Tower; IX Space required for cable runs to connect PCS equipment and antennas

in the location(s) ("Site") shown on Exhibit A attached hereto and by this reference made a part of this Agreement, together with a non-exclusive easement for reasonable access thereto and to the appropriate source of electric and telephone facilities. The location of the foregoing easement shall be generally depicted on Exhibit B attached hereto and by this reference made a part of this Agreement. The Site will be used by SSLP for the purpose of installing, removing, replacing, modifying, maintaining and operating, at SSLP's sole cost and expense, a personal communications service system facility ("PCS"), including, without limitation, antenna equipment, cable wiring, back-up power sources (including self-contained back-up generators), related fixtures and, if applicable to the Site, an antenna structure. SSLP will use the Site in a manner which will not disturb the occupancy of Owner and Owner's other tenants or their business operations. Owner warrants to SSLP that no other leases on the property prohibit the use which SSLP intends for the Site and that SSLP's normal operations of its Site, as represented by SSLP to Owner, will not disturb Owner. SSLP will have access to the Site 24 hours per day, 7 days per week, unless Owner is required by emergency or law to restrict such access.

2. Term. The term of this Agreement (the "Initial Term") is 5 years, commencing on the date ("Commencement Date") both SSLP and Owner have executed this Agreement. Provided that SSLP is not in default (monetary or non-monetary) under this Agreement, this Agreement will be automatically renewed for four additional terms (each a "Renewal Term") of 5 years each, unless SSLP provides Owner notice of intention not to renew not less than 180 days prior to the expiration of the Initial Term or any Renewal Term. Owner shall have the right to terminate this Agreement upon 6 months prior written notice to SSLP in the event Owner is required to terminate this Agreement by events beyond Owner's control or is forced by a third party to sell the property (i.e., condemnation proceeding), provided that Owner agrees to assist (at no cost or expense to Owner) SSLP in its negotiations with such third party to maintain the existing PCS facilities on the Site.

3. Rent. Until the earlier of (a) that date which is 30 days after the issuance of a building permit, or (b) the first day of the month following the commencement of any physical preparation of the Site, the rent will be a one-time aggregate payment of he receipt of which Owner acknowledges. Thereafter, rent will be paid in equal monthly installments of (until increased as set forth herein), partial months to be prorated, in advance. Rent for each Renewal Term will be the annual rent in effect for the final year of the Initial Term or prior Renewal Term, as the case may be, increased by

4. Title and Quiet Possession. Owner represents and agrees (a) that it is the Owner of the Site; (b) that it has the right to enter into this Agreement; (c) that the person signing this Agreement has the authority to sign; (d) that SSLP is entitled to access to the Site at all times and to the quiet possession of the Site throughout the Initial Term and each Renewal Term so long as SSLP is not in default beyond the expiration of any cure period; and (e) that Owner shall not have unsupervised access to the Site or to the PCS equipment. SSLP represents and agrees (a) that it has the right to enter into this Agreement; and (b) that the person signing this Agreement has the authority to sign.

5. Assignment/Subletting. SSLP shall have the right to sublease or assign its rights under this Agreement to any entity controlling, controlled by, or under common control with SSLP, or in connection with a merger with another telecommunications provider or as part of the sale of substantially all of SSLP's assets without consent of Owner. In the event of any of the foregoing events SSLP will give written notice to Owner of such event. Except as set forth in the preceding sentence, SSLP may not assign its rights under this Agreement or sublet the Site without the prior written

consent of Owner, which may not be unreasonably withheld, conditioned. delayed.

CRIGINAL

6. Notices. All notices under this Agreement shall be in writing, signed the party giving the same or by its attorneys on behalf of such party, a sent to the addresses set forth below, and shall be deemed given a received when (a) actually delivered and received, in person or messenger service or fax transmission, or, (b) the next business day atdeposit for delivery by a reputable overnight delivery service that kee records of when and to whom packages are delivered, or (c) three business days after deposit in the U.S. mail, certified and postage prepa Notices to SSLP are to be sent to: 4683 Chabot Dr., Ste. 100, Pleasantc CA 94588, with a copy to Sprint Spectrum L.P., 4900 Main, Kansas C MO 64112. Notices to Owner must be sent to the address show underneath Owner's signature. Either party may change its notice addreby giving written notice to the other party.

7. Improvements. With the prior written consent of Owner, which may be unreasonably withheld, conditioned or delayed, SSLP may, at its s: cost and expense, make such improvements on the Site as it deenecessary from time to time for the operation of the PCS system. Owagrees to cooperate (at no cost or expense to Owner) with SSLP w respect to obtaining any required zoning approvals for the Site and su improvements. Upon termination or expiration of this Agreement, SS: shall remove its equipment and other improvements and shall restore t Site to substantially the condition existing on the Commencement Da: including restoration of natural vegetation. If Owner does not respond to request for approval of improvements within 15 business days after su request is given, such approval shall be deemed to have been granted.

8. Compliance with Laws. Owner represents that to the best of Owner knowledge Owner's property (including the Site), and all improvemen located thereon, comply with all laws, codes and regulations of applicat governmental authorities. SSLP represents to Owner that it will comp with all applicable laws, codes and regulations of applicable governmen: authorities relating to its possession and use of the Site.

9. Interference. SSLP will resolve technical interference problems will other equipment located on Owner's property (including the Site) on tr Commencement Date, or with any equipment that becomes attached to the Site at any future date when SSLP desires to add additional equipment the Site. Likewise, Owner will not permit or suffer the installation of a future equipment which (a) results in technical interference problems w SSLP's then existing equipment or (b) encroaches onto the Site.

10. Utilities. Owner makes no representation that utilities adequate SSLP's use of the Site are available, and, accordingly, SSLP agrees that is SSLP's sole responsibility to investigate and determine whether sufficie utilities are available to the Site. SSLP will pay for all utilities used by it the Site. Owner (at no cost or expense to Owner) will cooperate with SS: in SSLP's efforts to obtain utilities from any location provided by Owner the servicing utility, including signing any easement or other instrume reasonably required by the utility company.

11. Termination. SSLP may terminate this Agreement at any time by days' prior written notice to Owner without further liability if SSLP does obtain all permits or other approvals (collectively, "approval") required fr: any governmental authority or any easements required from any third pe to operate the PCS system, or if any such approval is canceled, expires is withdrawn or terminated, or if Owner fails to have proper ownership of Site or authority to enter into this Agreement, or if SSLP, for any of reason, in its sole discretion, determines that it will be unable to use Site. Upon termination, all prepaid rent, if any, will be retained by Ow: unless such termination is due to Owner's failure of proper ownership authority, or such termination is a result of Owner's default.

12. Default. If either party is in default under this Agreement for a per of (a) ten (10) days following receipt of notice from the non-defaulting pa with respect to a default which may be cured solely by the payment money, or (b) thirty (30) days following receipt of notice from the n defaulting party with respect to a default which may not be cured solely the payment of money, then, in either event, the non-defaulting party π oursue any remedies available to it against the defaulting party unc applicable law, including, but not limited to, the right to terminate t Agreement. If the non-monetary default may not reasonably be cul within a thirty-day period, this Agreement may not be terminated if : defaulting party commences action to cure the default within such thirty-c period and proceeds with due diligence to fully cure the default, but in event shall such cure period extend beyond ninety (90) days without written consent of the non-defaulting party.

13. Indemnity. Owner and SSLP each indemnifies the other against a holds the other harmless from any and all costs (including reasona

attorneys' fees) and claims of liability or to which arise out of the ownership, use and/or occupancy of the Site by the indemnifying party. This indemnity does not apply to any claims arising from the sole negligence or intentional misconduct of the indemnified party. The indemnity obligations under this Paragraph will survive termination of this Agreement.

14. Hazardous Substances. Owner represents that it has no knowledge of any substance, chemical or waste (collectively, "substance") on the Site that is identified as hazardous, toxic or dangerous in any applicable federal, state or local law or regulation. SSLP will not introduce or use any such substance on the Site in violation of any applicable law.

15. Subordination and Non-Disturbance. This Agreement is subordinate to any mortgage or deed of trust now of record against the Site. However, promptly after the Agreement is fully executed. Owner will use diligent efforts to obtain a non-disturbance agreement reasonably acceptable to SSLP from the holder of any such mortgage or deed of trust. SSLP will subordinate to future lien holders, but only in return for a satisfactory nondisturbance agreement with such future lien holders.

16. Taxes. SSLP will be responsible for payment of all personal property taxes assessed directly upon and arising solely from its use of the PCS on the Site. SSLP will pay to Owner any increase in real property taxes attributable solely to any improvements to the Site made by SSLP within thirty (30) days after receipt of satisfactory documentation indicating calculation of SSLP's share of such real estate taxes. Owner will provide SSLP with evidence of payment of such taxes by Owner. Owner will pay when due all other real estate taxes and assessments attributable to the property of Owner of which the Site is a part.

17. Insurance. SSLP will procure and maintain commercial general liability insurance, with limits of not less than \$2,000,000 combined single limit per occurrence for bodily injury and property damage liability, with a certificate of insurance to be furnished to Owner within fifteen (15) days after execution of this Agreement by Owner and at any other time within thirty (30) days after request by Owner. Such policy will provide that cancellation will not occur without at least thirty (30) days' prior written notice to Owner. Each party hereby waives its right of recovery against the other for any loss or damage covered by any insurance policies maintained by it to provide that the insurance company waives all rights of recovery against the other party in connection with any damage covered by such policy.

18. Maintenance. SSLP will be responsible for repairing and maintaining the PCS system and any other improvements installed by SSLP at the Site in proper working order and safe condition, and in compliance with any and all laws, rules and regulations applicable to the PCS system; provided, however if any such repair or maintenance is required due to the acts of Owner, its agents or employees, Owner shall reimburse SSLP for the reasonable costs incurred by SSLP to restore the damaged areas to the condition which existed immediately prior to such damage. Owner will maintain and repair all other portions of the property of which the Site is a part in a proper operating and reasonably safe condition.

19. Miscellaneous. (a) This Agreement applies to and binds the heirs, successors, executors, administrators and assigns of the parties to this Agreement; (b) this Agreement is governed by the laws of the state of Colorado; (c) if requested by SSLP, Owner agrees promptly to execute and deliver to SSLP a recordable Memorandum of this Agreement in the form of Exhibit C; (d) this Agreement (including the Exhibits) constitutes the entire agreement between the parties and supersedes all prior written and verbal agreements, representations, promises or understandings between the parties. Any amendments to this Agreement must be in writing and executed by both parties; (e) if any provision of this Agreement is invalid or unenforceable with respect to any party, the remainder of this Agreement or the application of such provision to persons other than those as to whom it is held invalid or unenforceable, will not be affected and each provision of this Agreement will be valid and enforceable to the fullest extent permitted by law; and (f) the prevailing party in any action or proceeding in court or mutually agreed upon arbitration proceeding to enforce the terms of this Agreement is entitled to receive its reasonable attorneys' fees and other reasonable enforcement costs and expenses from the non-prevailing party; (g) time is of the essence with respect to the performance of every provision of this Agreement.

20. Estoppel Certificate. Upon written request of Owner, SSLP shall promptly execute and deliver to Owner an estoppel certificate (a) certifying that this Agreement is unmodified and in full force and effect, or, if modified, stating the nature of such modification and certifying that this Agreement, as so modified, is in full force and effect; and (b) certifying such other factual information about this Agreement as may reasonably be requested by Owner.

21. Holding Over. Any holding over by SSLP after the expiration of this Agreement shall be deemed an unlawful detainer of the Site unless Owner has consented to such holding over. Any such holding over shall be construed as a month-to-month tenancy, on the same terms and conditions as in this Agreement, except that rent shall be increased to an amount equal to one ht 2d fifty percent (150%) of the rent for the mc immediately preceding such holding over.

22. Non-Binding Until Fully Executed. This Agreement is for discuss purposes only and does not constitute a formal offer by either party. \top Agreement is not and shall not be binding on either party until and unles is fully executed by both parties.

The following Exhibits are attached to and made a part of Agreement: Exhibits A, B, and C.

h:client/ve/sprint/leases/msword/unitedpower4.doc

OWNER: Unit	ed Power, Inc			corporation
By: 21	Thi			
Its: ASS	istant	(nev	revel	Manager
S.S./Tax No.:				
Address:	18551 [East 160 th	Avenue	
	Brighto	n, Colorad	o 80601	
See Exh	- ibit A1 for cor	tinuation (of Owner	signatures
		Date: _	4-3	2-99
Sprint Spectru a Delaware jin By: Its:		hip	l	
	MLR		. 1.	

MIKE TODD

Date: 4/29/99

Version 1

EXHIBIT A

March 97

Site Name United Power

PCS SITE AGREEMENT

Site I. D. DN18XC007B

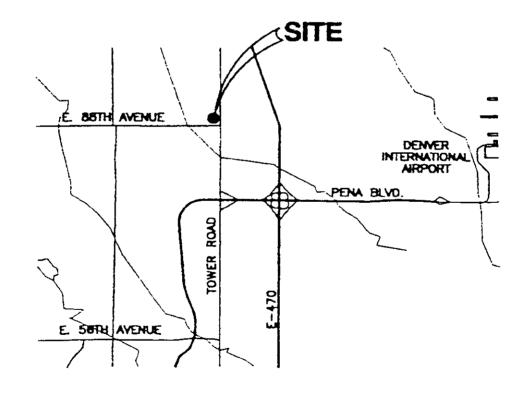
Site Description

Site situated in the City of Brighton, County of Adams, State of Colorado commonly described as follows:

Legal Description:

That part of the SE1/4 of Section 21, Township 2 South, Range 66 West of the 6th P.M., Adams County, Colorado, described as follows:

Beginning at the Southeast corner of said SE1/4; thence North 00 deg. 00 min. 00 sec. East on an assumed bearing along the East line of said SE1/4, a distance of 230.00 feet; thence South 89 deg. 40 min. 30 sec. West parallel with the South line said SE1/4 a distance of 189.40 feet; thence South 00 deg. 00 min. 00 sec. West a distance of 230.00 feet to a point on the South line said SE1/4; thence North 89 deg. 40 min. 30 sec. East a distance of 189.40 feet to the Point of Beginning.



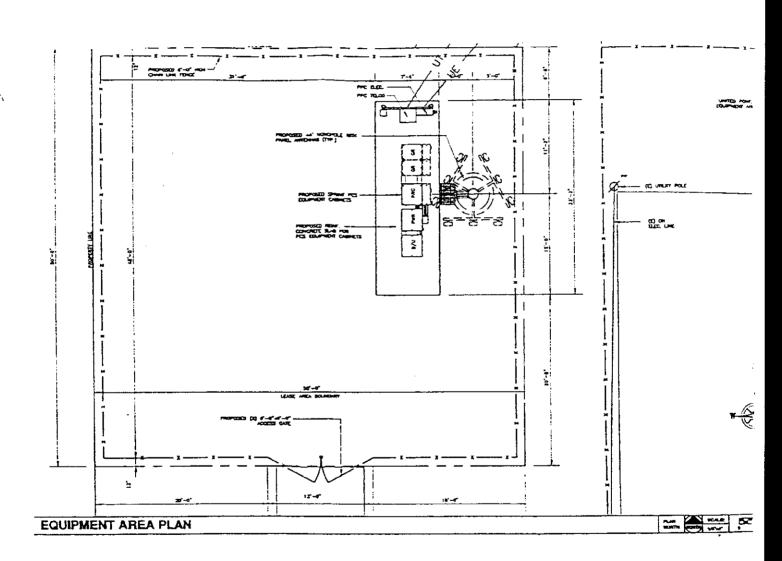
Owner Initials SSLP Initials

Note: Owner and SSLP may, upon mutual agreement, replace this Exhibit with an exhibit setting forth the legal description of the property on which the Site is located and/or an as-built drawing depicting the Site.

Site Name United Power

PCS SITE AGREEMENT

Site I. D. DN18XC007B



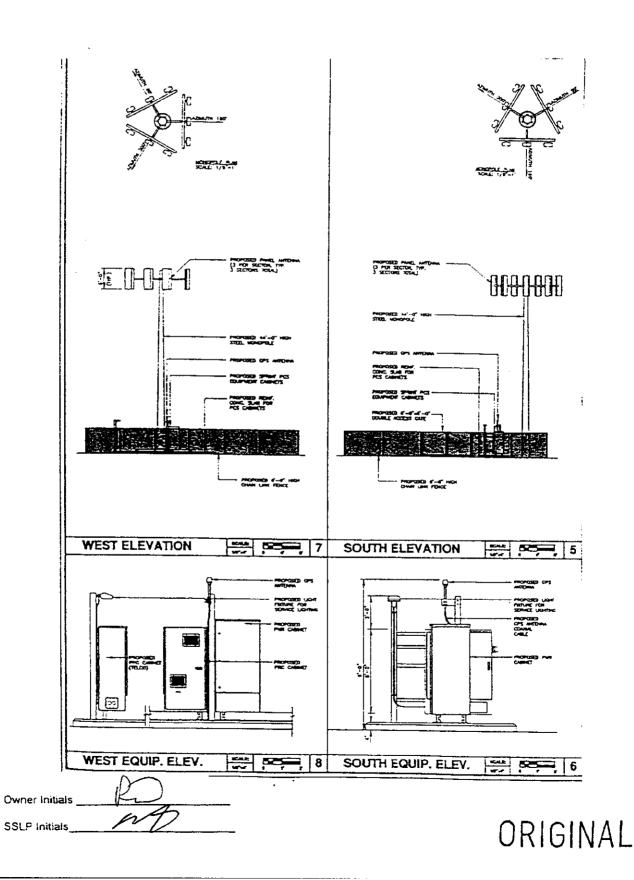
Owner Initials 7 SSLP Initials

EXHIBIT A continued

Site Name United Power

PCS SITE AGREEMENT

Site I. D. DN18XC007B



March 97

EXHIBIT A continued

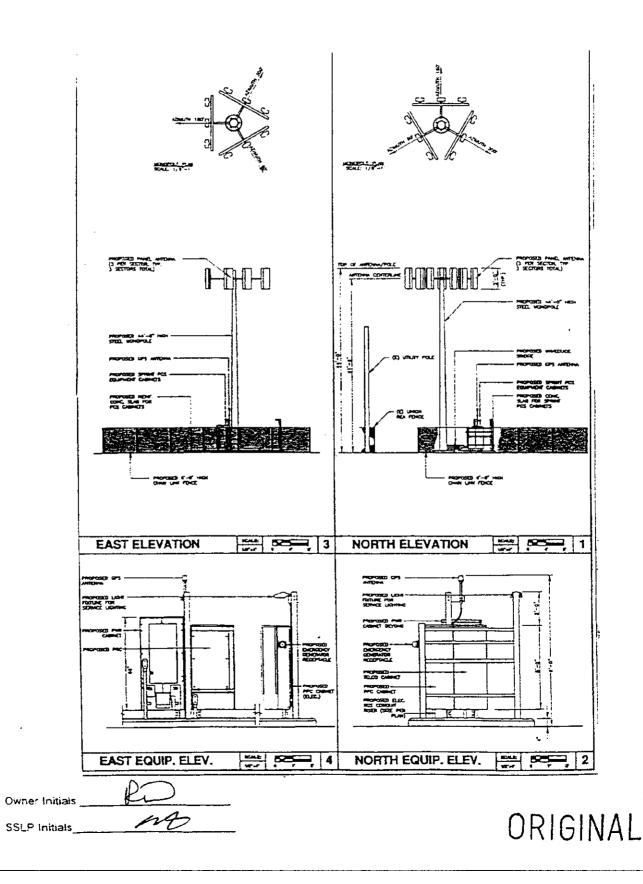
March 97

Site Name United Power

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PCS SITE AGREEMENT

Site I. D. DN18XC007B

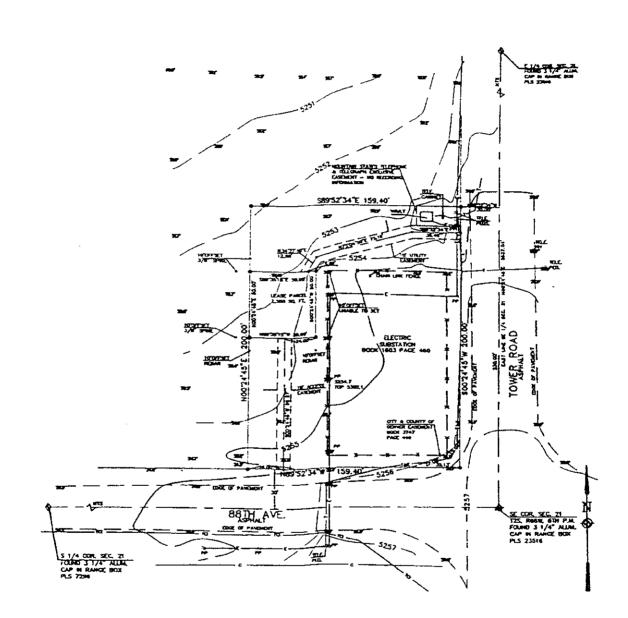


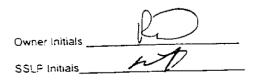
Site Name United Power

PCS SITE AGREEMENT

Site I. D. DN18XC0078







Version 1

Site Name United Power

EXHIBIT C

PCS SITE AGREEMENT

Site I. D. DN18XC007B

Memorandum of PCS Site Agreement

This memorandum evidences that a lease was made and entered into by written PCS Site Agreement dated ______, 19____, between United Power, Inc., a ______ corporation ("Owner") and Sprint Spectrum L.P., a Delaware limited partnership ("SSLP").

Such Agreement provides Owner SSLP in part that leases to а certain site ("Site") located at County of Adams, City of State of Colorado, within the property of Owner which is described in Exhibit A attached hereto, with grant of easement for rights of access thereto and to electric and telephone facilities for a term of five (5) years commencing on ______19__, which term is subject to four (4) additional five (5) year extension periods by SSLP. Owner shall have the right to terminate this Agreement upon 6 months prior written notice to SSLP in the event Owner is required to terminate this Agreement by events beyond Owner's control or is forced by a third party to sell the property (i.e., condemnation proceeding), provided that Owner agrees to assist (at no cost or expense to Owner) SSLP in its negotiations with such third party to maintain the existing PCS facilities on the Site.

IN WITNESS WHEREOF, the parties have executed this Memorandum as of the day and year first above written.

"OWNER"	"SSLP"
United Power, Inc.	Sprint Spectrum L.P.
Ву:	By: MITM
Name:	Name: GPYINT GPECTRUM (LR. Mike TODD
Title:	Title:
See Exhibit C1 for continuation of Owner signatures	Address: 4683 Chabot Dr., Ste. 100, Pleasanton, CA 94588
Address: 18551 East 160th Avenue, Brighton, CO 80601	

Owner Initials _	RO
SSLP Initials	M



March 97

Version 3			March 97	
Site Name <u>United Power</u>	PCS SITE AGREEMENT	Site I. D.	DN18XC007B	
	Memorandum of PCS Site Agreement			
	Continuation of Owner Signatures			
"OWNER":	"OWNER":			
Ву:	Ву:		·	
lts:	Its:			
S.S./Tax No.:	S.S./Tax No.:		· · · · · · · · · · · · · · · · · · ·	
Ву:	Ву:	<u></u>		

.

Its:	 	
S.S./Tax No.:	 	
Ву:	 	
Its:	 	
S S./Tax No.:		

Ву:
lts:
S.S./Tax No.:
By:
its:

S.S./Tax No.:_____

Owner Initials

•

SSLP Initials



OWNER NOTARY BLOCK:	
STATE OF <u>California</u>	
COUNTY OF San Mateu	
The foregoing instrument was acknowledged before me this by by by of <u>Sprint Spectrum L.P.</u> , a <u>Delcuar</u> by by by by by by by by by by by by by by by by by	as <u>Regional Director</u> <u>L. P.</u> corporation, on behalf of the corporation,
STATE OF	
COUNTY OF	
The foregoing instrument was acknowledged before me this by, () by,	
of, a,	
by, partner (or agent) on bet	
(AFFIX NOTARIAL SEAL)	(OFFICIAL NOTARY SIGNATURE) NOTARY PUBLICSTATE OF
My commission expires:	(PRINTED, TYPED OR STAMPED NAME OF NOTARY) COMMISSION NUMBER:



SSLP NOTARY BLOCK:

STATE OF _____

COUNTY OF

The foregoing instrument was acknowledged before me this day of	, 19, b	íУ
---	---------	----

Sprint Spectrum L.P., a Delaware limited partnership, who executed the foregoing instrument on behalf of such corporation.

(AFFIX NOTARIAL SEAL)

(OFFICIAL NOTARY SIGNATURE) NOTARY PUBLIC-STATE OF

My commission expires:

(PRINTED, TYPED OR STAMPED NAME OF NOTARY)

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this ______ day of ______ day of ______, 19____, by

_____ of

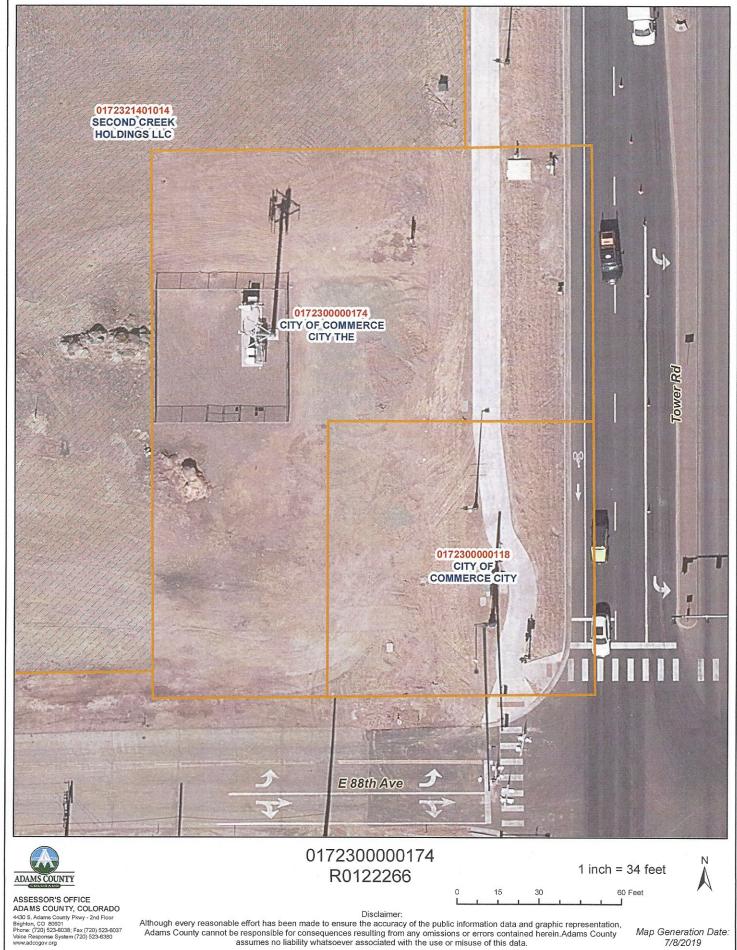
(AFFIX NOTARIAL SEAL)

(OFFICIAL NOTARY SIGNATURE) NOTARY PUBLIC-STATE OF

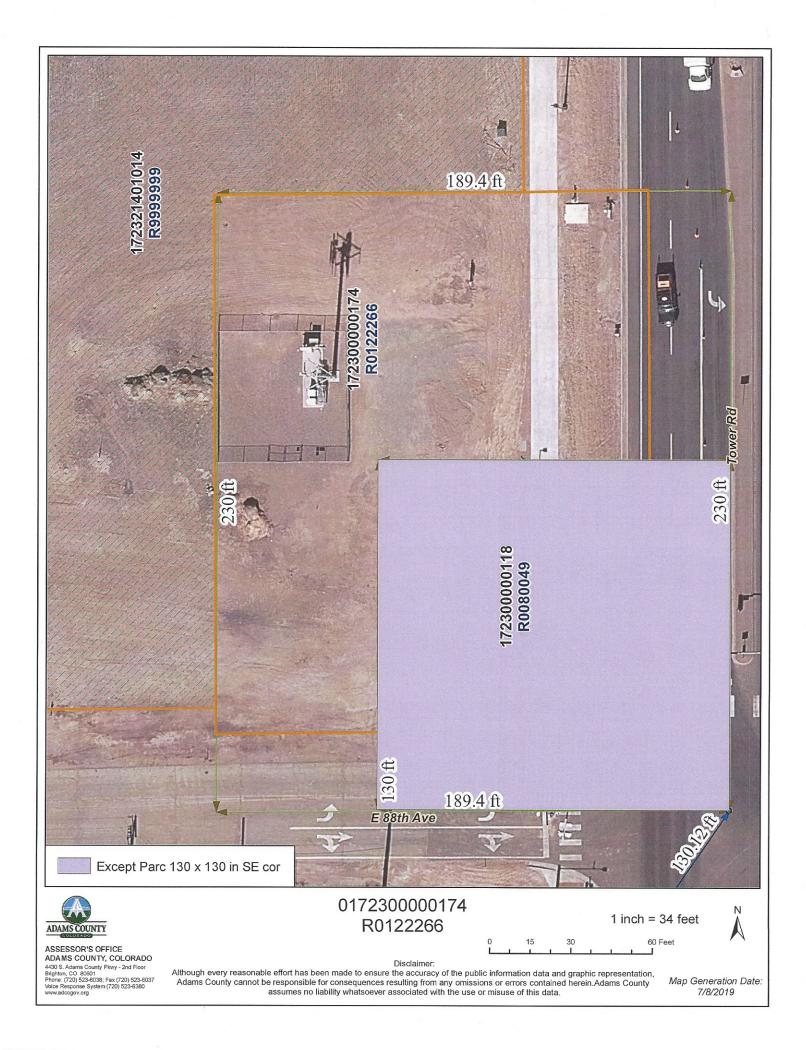
My commission expires:

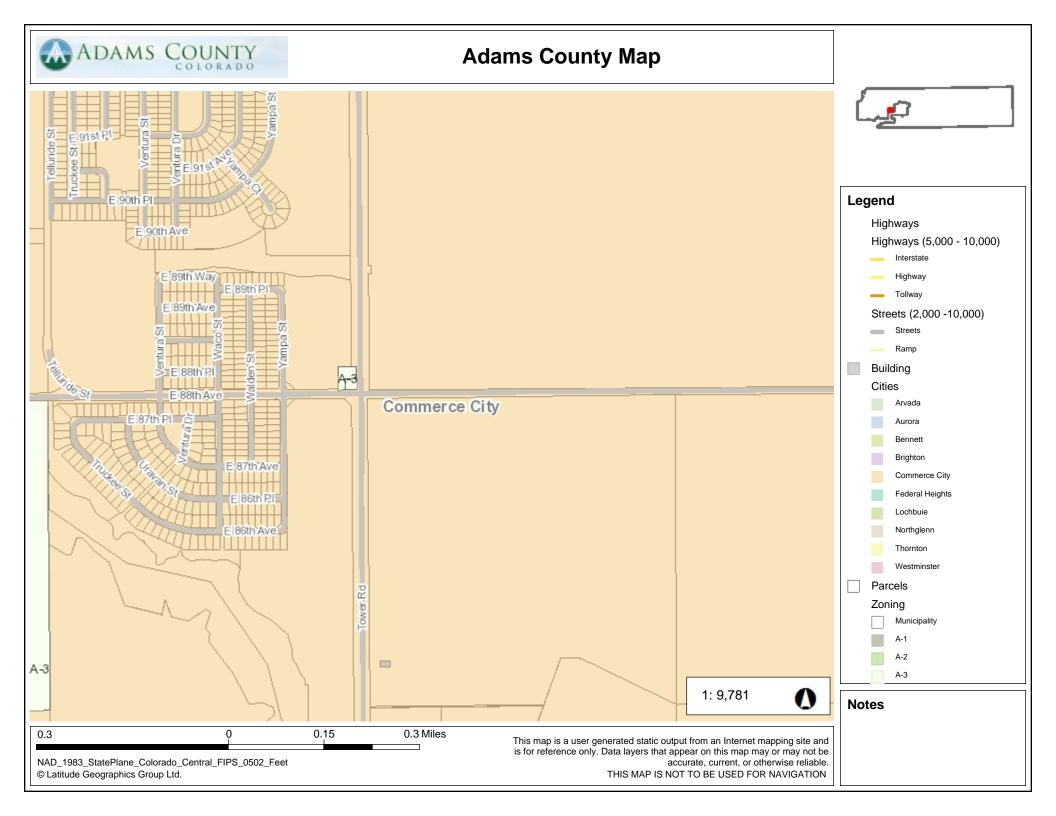
(PRINTED TYPED OR STAMPED NAME OF NOTARY)





7/8/2019



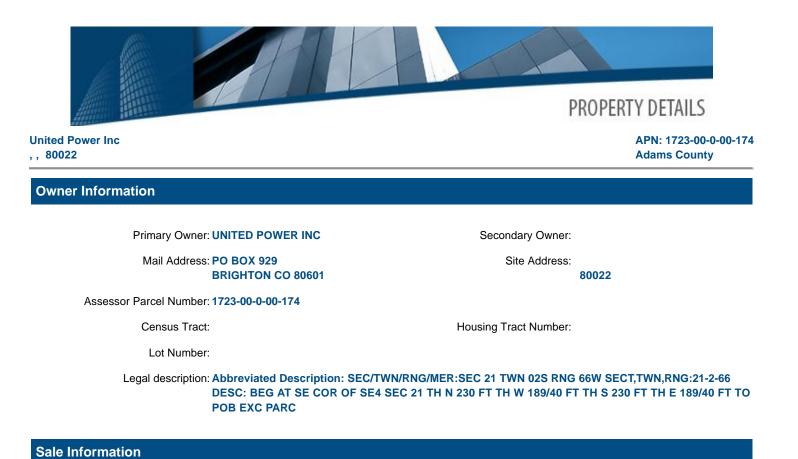




Property:

, 80022 APN: 1723-00-0-00-174

Data deemed reliable, but not guaranteed. TM SM ® Trademark(s) of Black Knight IP Holding Company, LLC, or an affiliate. © 2017 Black Knight Financial Technology Solutions, LLC. All Rights Reserved.



Sale Date:	Document #:	Sale Amount: N/A
Seller:	Sale Type:	Cost/SF: N/A
Assessment & Tax Information		
Assessed Value:	Land Value:	Imp. Value:
Homeowner Exemption:	% Improvement:	
Tax Amount:	Tax Status:	Tax Year: 2018
Tax Rate Area: 275	Tax Account ID: R0122266	
Property Characteristics		

Bedrooms:	Year Built:	Pool:	
Bathrooms:	Square Feet:	Lot Size: 26,572 SF	
Partial Baths:	Number of Units: 0	No of Stories:	
Total Rooms:	Garage:	Fire Place:	
Property Type: Unknown Ty	уре	Building Style:	Owner Exclusions:
Use Code: Parcels Wit	h Improvements, Use Not Specified	Zoning:	

Aerial Map





United Power Inc , , 80022

APN: 1723-00-0-00-174 Adams County



United Power Inc

Neighbors

SECOND CREEK HOLDINGS LLC

COMMERCE CITY CO 80022

APN: 1723-28-1-07-019

COMMERCE CITY CO 80022 APN: 1723-21-4-02-023

COMMERCE CITY CO 80022

APN: 1723-21-4-02-022

COMMERCE CITY CO 80022

APN: 1723-21-4-02-020

COMMERCE CITY CO 80022

APN: 1723-21-4-02-019

8821 YAMPA ST

Bedrooms:

Year Built:

Square Feet:

Square Feet:

8781 YAMPA ST

Square Feet:

8861 YAMPA ST

Square Feet:

8851 YAMPA ST

Square Feet:

8831 YAMPA ST

APN: 1723-00-0-00-174 Adams County

SECOND CREEK HOLDINGS LLC 8811 YAMPA ST COMMERCE CITY CO 80022 APN: 1723-21-4-02-018

Bedrooms: Square Feet: Year Built:

Bathrooms: Lot Size: 5,489 SF Garage:

SECOND CREEK HOLDINGS LLC 8801 YAMPA ST COMMERCE CITY CO 80022

APN: 1723-21-4-02-017 Bedrooms: Square Feet: Year Built:

Bathrooms: Lot Size: 6,578 SF Garage:

SECOND CREEK HOLDINGS LLC 8841 YAMPA ST COMMERCE CITY CO 80022 APN: 1723-21-4-02-021 Bedrooms:

Bedrooms: Square Feet: Year Built:

Bathrooms: Lot Size: 5,489 SF Garage:

SECOND CREEK HOLDINGS LLC 8791 YAMPA ST COMMERCE CITY CO 80022 APN: 1723-28-1-07-020 Bedrooms: Square Feet: Year Built:

SECOND CREEK HOLDINGS LLC 8871 YAMPA ST COMMERCE CITY CO 80022 APN: 1723-21-4-02-024 Bedrooms:

Square Feet: Year Built:

SECOND CREEK HOLDINGS LLC 8881 YAMPA ST COMMERCE CITY CO 80022

APN: 1723-21-4-02-025 Bedrooms: Square Feet: Year Built:

SECOND CREEK HOLDINGS LLC 8891 YAMPA ST COMMERCE CITY CO 80022 APN: 1723-21-4-02-026

Bedrooms:

Bathrooms: Lot Size: 6,752 SF Garage:

Bathrooms: Lot Size: 5,489 SF Garage:

Bathrooms: Lot Size: 5,489 SF Garage:

Bathrooms:

SECOND CREEK HOLDINGS LLC 8771 YAMPA ST COMMERCE CITY CO 80022 APN: 1723-28-1-07-018

Bedrooms: Square Feet: Year Built:

SECOND CREEK HOLDINGS LLC 8810 WALDEN ST COMMERCE CITY CO 80022 APN: 1723-21-4-02-015

Bedrooms:

Bathrooms: Lot Size: 5,489 SF Garage:

Bathrooms: Lot Size: 5,532 SF Garage:

Bathrooms: Lot Size: 5,489 SF Garage:

Bathrooms: Lot Size: 5,489 SF Garage:

Bathrooms: Lot Size: 5,706 SF Garage:

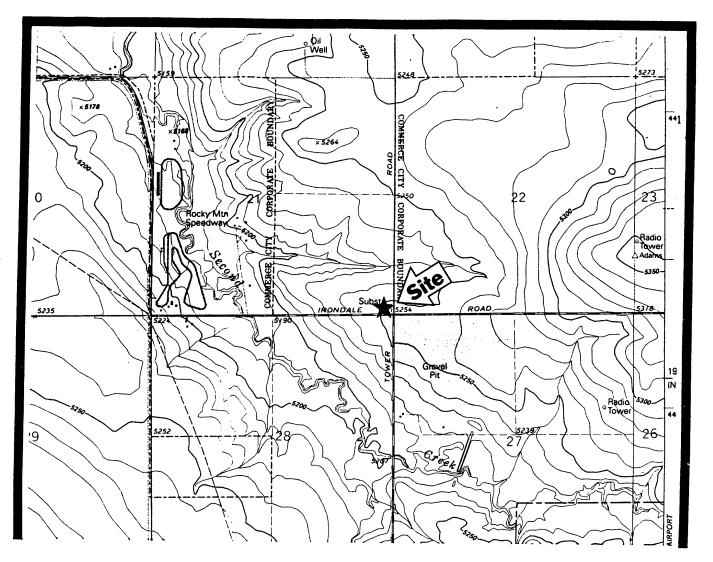
Bathrooms: Lot Size: 5,706 SF Garage:

Bathrooms:

Square Feet: Year Built: Lot Size: 5,489 SF Garage: Square Feet: Year Built: Lot Size: 5,489 SF Garage:

SECOND CREEK HOLDINGS LLC 8820 WALDEN ST COMMERCE CITY CO 80022 APN: 1723-21-4-02-014

Bedrooms: Square Feet: Year Built: Bathrooms: Lot Size: 5,489 SF Garage:



HUMBAND REG **GEOGRAPHIC COORDINATES** 39°51'23.77" North (NAD-1983) 104°46'21.37" West (NAD-1983) Elevation - Ground 5254.00' (NAVD-1988) SCALE 1"=2000' The All LAND SUPPORT DRIENCOTA

Date: January 15, 1999

Latitude:

Longitude:

RE: UNITED POWER SUB STATION - 88TH & TOWER RD. LOCATED IN ADAMS COUNTY, COLORADO

I certify that the latitude of 39°51'23.77" and the longitude of 104°46'21.37" are accurate to within +/- 50 feet horizontally; and that the site elevation of 5254.00 ' AMSL is accurate to within +/- 10 feet vertically. With a planned structure height of AGL, the overall height would be 'AMSL. The horizontal datum (coordinates) are in terms of the North American Datum of 1983 (NAD-1983) and are expressed as degrees, minutes and seconds, to the nearest hundredth of a second. The vertical datum (heights) are in terms of the North American Vertical Datum of 1988 (NAVD-1988) and are determined to the nearest foot.

> Creighton R. Moore PLS No. 10945

RECEIVED)
JAN z 1 1999	
BY:	

SPR-71



Federal Aviation Administration Air Traffic Airspace Branch, ASW-520 2601 Meacham Blvd. Fort Worth, TX 76137-0520

Aeronautical Study No. 2010-ANM-1999-OE

Issued Date: 10/05/2010

Janis Merritts Crown Castle USA for Sprint 5350 N. 48th Street, Suite 305 Chandler, AZ 85226

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower 877036-107532 United Power Substation
Location:	Commerce City, CO
Latitude:	39-51-23.77N NAD 83
Longitude:	104-46-21.37W
Heights:	53 feet above ground level (AGL)
	5307 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study included evaluation of a structure that exists at this time. Action will be taken to ensure aeronautical charts are updated to reflect the most current coordinates, elevation and height as indicated in the case description.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (310) 725-6591. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2010-ANM-1999-OE.

Signature Control No: 130872046-131765797

(DNE)

Tameria Burch Technician

Attachment(s) Frequency Data

cc: FCC

cc: AeroNav Services w/map

Frequency Data for ASN 2010-ANM-1999-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
698	806	MHz	1000	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1525	1559	MHz	1105	W
1850	1910	MHz	1640	W
1930	1990	MHz	1640	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W



Planning Commission 12200 Pecos Street Westminster, CO 80234 PHONE 303.453.8800 FAX 303.453.8829 www.co.adams.co.us

October 7, 2009

Crown Castle John Tyke 5350 N 48th Street #305 Chandler, AZ 85226

RE: RCU2009-00019

Crown Castle #3 NW Corner of 88th and Tower Road

Dear Applicant:

At a regular meeting of the Adams County Planning Commission held on September 24, 2009, your request for:

Conditional Use Permit to allow an extension in time for an existing Commercial Mobile Radio Service (CMRS) tower 51 feet high in the A-3 Zone District

was considered. Through a motion duly made and seconded, the Planning Commission made the following recommendation regarding your case:

Approval, subject to the following:

- 1. The conditional use is permitted in the applicable zone district.
- 2. The conditional use is consistent with the purposes of these standards and regulations.
- 3. The conditional use will comply with the requirements of these standards and regulations, including but not limited to, all applicable performance standards.
- 4. The conditional use is compatible with the surrounding area, harmonious with the character of the neighborhood, not detrimental to the immediate area, not detrimental to the future development of the area, and not detrimental to the health, safety, or welfare of the inhabitants of the area and the County.
- 5. The conditional use permit has addressed all off-site impacts.
- 6. The site is suitable for the proposed conditional use including adequate usable space, adequate access, and absence of environmental constraints.

-- BOARD OF COUNTY COMMISSIONERS

- 7. The site plan for the proposed conditional use will provide the most convenient and functional use of the lot including the parking scheme, traffic circulation, open space, fencing, screening, landscaping, signage, and lighting.
- 8. Sewer, water, storm water drainage, fire protection, police protection, and roads are to be available and adequate to serve the needs of the conditional use as designed and proposed.

Recommended Condition Precedent:

1. The applicant will be required to submit a performance bond in the amount of the removal costs and give the County the right to enter the property for removal of the tower.

Recommended Conditions:

- 1. The Conditional Use Permit shall expire on October 19, 2019.
- 2. The tower shall provide for co-location opportunities for other telecommunications providers.
- 3. Any telecommunications facility that ceases to be in operation for a consecutive period of six (6) months or more shall be removed from the site within ninety (90) days of the end of such period of non-use.

Recommended Note to the Applicant:

1. The proposal shall adhere to all fire, health, engineering, zoning, and building codes.

Your request will be heard before the Board of County Commissioners on October 19, 2009 at 10:00 am.

If you have any questions, or if we can be of further assistance, please do not hesitate to contact the Department of Planning and Development at (303) 453–8800.

Sincerely,

jeiste thier

Keisha Hirsch Planning Technician

cc: Building Department Pat Bishop, Code Enforcement Chris LaRue, Case Manager Interested Citizen and Referral Agencies WIRELESS PLANNING SERVICES, LLC

PLANNING & ZONING SERVICES FOR THE WIRELESS INDUSTRY 306 East Main Street, Suite 202, Lakeland, FL 33801 PHONE 863-838-9686 E-MAIL jim@wiley-malless.com

Site Name / #:		OWER SUE	3STATION-877036				
Site Address:			ommerce City, CO 80022		Stru	cture Type:	Tower Easement
Jurisdiction:	Adams Co			Websi	te Address:		
Junsaiction.	Auanis Co			44000	.c / (ddi 000.	mm.co.ad	4110.00.00
Contact Person/	Title:	Dennis Bel	I-Planner		Phone No.:	303-453-88	
Is the Zoning Co	de available	e online?	X Yes		No		
permitted by CU	P. CUP mu e. Fee is \$5	ist be renev	SUES. The county does ved every 5 years. CUP for hearing required. Board c	or this tow	er expires I	May 3, 2009	. Application for
DOCUMENTS F	ROVIDED	BY CLIENT	- <u>-</u> .				
	X	Zoning App	proval		Planning C	ommission	Meeting Minutes
		Zoning Ord	linance		Board of A	djustment M	leeting Minutes
	x	Other:			Other Minu	ites	
		Specify:	Title Curative Memo; Survey; L Estoppel Certificate	ease;	Specify:		
ANALYSIS OF	TOWER ZO		ROVAL				1
	Date tower	received zo	oning approval:		May 3, 1999		
			ning ordinance adopted:	L	an. 22, 200	17	
	current or a	a previous z	zoning approval under the coning code?		Current	x	Previous
	Current sta	tus of towe					
	×	Conforming	g Use	Legal Non	Conforming	g Use	
		Illegal Non	-Conforming Use				
	Co-location	n requires m	ninor amendment to CUP.	See attach	ed Admini	istrative revi	ew & approval.
	**						
Does the zoning	approval e	xpire?			X	Yes	No No
	CUP is val	id for period	of 5 years, expires May 3	3, 2009. Se	e above for	details.	

Was the tower approved consistent with of approval? Are there any non-compliance or notice against this site?	X Yes	No X No	
If yes, explain:			
Are there any annual reports, renewals, this site?	Yes	x No	
If yes, are all filings current as of the da	Yes	No No	

CERTIFICATION

This report was prepared for and may be relied upon by Morgan Stanley, Crown Castle International, Global Signal Inc., Pinnacle Towers, LCC, their respective Subsidiaries, and their respective successors and assigns. Any rating agency or issuer or purchaser of any security collateralized or otherwise backed by the property or any loans placed upon the property may further rely upon the report. We also consent to the inclusion of this report in any form, whether in paper or digital format, including any electronic media such as CD-ROM or the internet, in the Prospectus Supplement relating to any Pinnacle securitization, and we consent to the reference to our firm under the caption "Experts" in such Prospectus Supplement.

Mireless Planning Services, LLC BY James B. Malless, AICP

Signature/Date

+3038537015

STATE OF COLORADO COUNTY OF ADAMS

At a regular meeting of the Board of County Commissioners for Adams County, Colorado, held at the Administration Building in Brighton, Colorado on the 28th day of <u>February</u>, 2005 there were present:

Larry W. Pace	Chairman
Alice J. Nichol	Commissioner
W.R. "Skip" Fischer	Commissioner
James D. Robinson	County Attorney
Kristen Hood, Deputy	Clerk of the Board

when the following proceedings, among others were held and done, to-wit:

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ZONING HEARING DECISION - CASE #RCU2004-00046 SPRINT PCS - UNITED POWER

WHEREAS, on the 28th day of February 2005, the Board of County Commissioners, held a public hearing on the application of Sprint PCS Case #RCU2004-00046; and,

WHEREAS, this case involved an application for: Major Amendment to Conditional Use Permit for an approved CMRS tower 44 feet in height to permit 1) additional antenna and 2) extend the approval period on the following described property:

LEGAL DESCRIPTION: SECT, TWN, RNG:21-2-66 DESC: BEG AT SE COR OF SE4 SEC 21 TH N 230 FT TH W 189/40 FT TH S 230 FT TH E 189/40 FT TO POB EXC PARC 130 BY 130 IN SE COR 0/61A.

APPROXIMATE LOCATION: NW Cor 88th Ave & Tower Rd.

WHEREAS, substantial testimony was presented by members of the public and the applicant; and,

WHEREAS, the Adams County Planning Commission held a public hearing on the 27th day of January 2005, and forwarded a recommendation of APPROVAL to the Board of County Commissioners.

NOW, THEREFORE, BE IT RESOLVED, by the Board of County Commissioners, County of Adams, State of Colorado, that based upon the evidence presented at the hearing and the recommendations of the Department of Planning and Development and the Planning Commission, the application in this case be hereby APPROVED based upon the following findings of fact and subject to the fulfillment of the following stipulations by the applicant:

Findings of Fact:

- 1. The conditional use is permitted in the applicable zone district.
- 2. The conditional use is consistent with the purposes of these standards and regulations.
- 3. The conditional use will comply with the requirements of these standards and regulations, including but not limited to, all applicable performance standards.
- 4. The conditional use is compatible with the surrounding area, harmonious with the character of the neighborhood, not detrimental to the immediate area, not detrimental to the future development of the area, and not detrimental to the health, safety, or welfare of the inhabitants of the area and the County.

- 5. The conditional use permit has addressed all off site impacts,
- 6. The site is suitable for the proposed conditional use including adequate usable space, adequate access, and absence of environmental constraints.
- The site plan for the proposed conditional use will provide the most convenient and functional use of the lot including the parking scheme, traffic circulation, screening, landscaping, signage and lighting.
- Sewer, water, storm water drainage, fire protection, police protection, and roads are to be available and adequate to serve the needs of the conditional use as designed and proposed.

Stipulations:

- 1. This Conditional Use Permit shall expire on May 3, 2009.
- Any telecommunication facility that ceases to be in operation for a consecutive period of six
 (6) months shall be removed from the site within (90) days of the end of such period of non-use.
- In order to ensure compliance, the applicant will be required to submit a performance bond in the amount of the removal costs and give the County the right to enter the property for removal of the tower.
- 4. The tower shall be located so a one-to-one (setback is equal to the height of the tower) setback is achieved from all property lines.

Notes to the Applicant:

- 1. All applicable building, fire, zoning, engineering and health codes shall be adhered to with the request.
- 2. A building permit will be required prior to commencing any construction on the site.

Upon motion duly made and seconded the foregoing resolution was adopted by the following vote:

	Pare	Aye
	Niebot	Aye
	Fischer	Aye
		Commissioners
STATE OF COLORADO)	
County of Adams)	

I, <u>Carol Snyder</u>, County Clerk and ex-officio Clerk of the Board of County Commissioners in and for the County and State aforesaid do hereby certify that the annexed and foregoing Order is truly copied from the Records of the Proceedings of the Board of County Commissioners for sair Adams County, now in my office.

IN WITNESS WHEREOF, I have bereuato set my hand and affixed the seal of said County, at Brighton, Colorado this 28th day of <u>February</u>, A.D. 2005.

County Clerk and ex-officio Clerk of the Board of Connty Commissioners Carol Suyder:



By:

Deputy

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					¥	D	A	м	S		С	0	U	N	т	Y,		С	0	L	0	R	A	D	0			
	DEPARTMENT OF PLANNING AND DEVELOPMENT ROBERT D. CONEY, DIRECTOR							(30	3) 85	3-70	AVEN 00 7015	UE			co	омм	ERC	E CII	г Ү, С	OLO	RADO	8002	2-1535					

May 4, 1999

Liberty Wirestar, Inc. Attn: Ms. Marti Laird 730 17th Street, Suite 830 Denver, CO 80202

RE: Case # 030-99-C

Dear Ms. Laird:

At a regular meeting of the Board of County Commissioners of Adams County held on May 3, 1999, your requests for: Conditional Use Permit for a freestanding commercial communications tower, a maximum of 44 feet high was considered. Through a motion duly made and seconded, the Board of County Commissioners approved your case subject to the following:

Stipulations:

- 1. The Conditional Use Permit shall expire five years from the date of approval by the Board of County Commissioners.
- 2. Any telecommunications facility that ceases to be in operation for a consecutive period of six (6) months or more shall be removed from the site within ninety (90) days of the end of such period of non-use. In order to ensure compliance, the applicant will be required to submit a performance bond in the amount of the removal costs and give the County the right to enter the property for removal of the tower.

Notes to the Applicant:

- 1. The tower shall be placed a minimum of forty-four (44) feet from any property line to ensure that the setback is equal to the height of the tower.
- 2. A Building Permit will be required prior to commencing any construction on the site.

Stipulations are items, which run with the approval of the Conditional Use Permit, while notes to the applicant are requirements during the Building Permit stage of development. Please submit the required performance bond prior to or with your Building Permit submittal. Failure to adhere to all stipulations may lead to a show cause hearing before the Board of County Commissioners, where the Permit may be suspended or revoked.

BOARD OF COUNTY COMMISSIONERS ELAINE T. VALENTE DISTRICT 1

LENTE TED STRICKLAND DISTRICT 2 PEOPLE, PRIDE AND PROGRESS

MARTIN J. FLAUM DISTRICT 3



ClibPDF - www.fastio.com

If you have questions, or if we can be of further assistance, please do not hesitate to contact me in our office at (303) 853-7006.

Sincerely, emo a. H.

James A. Hayes, AICP Planning Manager

cc:

<u>,</u> i

case file (#030-99-C) correspondence file Larry Haynie, Chief Building Official

United Power 18551 E. 160th Avenue Brighton, CO 80601

Kraig-Clark RF Engineering for Sprint Spectrum, LP 6860 S. Yosemite St., Suite 200 Englewood, CO 80112

enclosures: Draft Resolution from the Board of County Commissioners



3. Under Section 6.200 of the Zoning Regulations, the Board of County Commissioners may require conditions of approval to make a land use compatible with the area. Staff is proposing that a landscape plan, performance bond for removal, and co-location requirement would make this project compatible with the surrounding area. This are of the County is a mix of agricultural and emerging urban land uses. While this proposal may be harmonious with the character of the area, steps should be taken to ensure that adjacent properties may also be developed in the future. If all of the stipulations are adhered to, this Conditional Use Permit will not be detrimental to the health, safety, or general welfare of the inhabitants of the area and the County.

Recommended Stipulations:

- 1. The Conditional Use Permit shall expire five years from the date of approval by the Board of County Commissioners.
- 2. Any telecommunications facility that ceases to be in operation for a consecutive period of (6) months or more shall be removed from the site within ninety (90) days of the end of such period of non-use. In
- - order to ensure compliance, the applicant will be required to submit a performance bond in the amount of the removal costs and give the County the right to enter the property for removal of the tower.

Notes to the Applicant:

2.

- 1. The tower shall be placed a minimum of forty-four (44) feet from any property line to ensure that the setback is equal to the height of the tower.
 - A Building Permit will be required prior to commencing any construction on the site.

ZONING SUBMITTAL OUTLINE

TO: LARRY BEER

CC:

FROM: MARTI LAIRD

SUBJECT: ZONING SUBMITTAL OUTLINE - DN18XC007B - UNITED POWER

DATE: 02/10/99

Below is the Zoning Submittal information, requirements and owner design comments, based on the site walk, 1/14/99.

ZONING PROCESS:	Conditional Use Review							
FORMAT REQTS:	See attached sheet for Adams County							
DESIGN REQTS:	See attached sheet for Adams County							
SUBMITTAL LIST:	40 copies of site plan (18 x 24), Warranty deed, one set of typed labels and two copies of names & addresses of property owners within 500'							
OWNER INFO:	United Power, 18551 E. 160th Ave., Brighton, CO 80601							
	(303) 659-0051 fax (303)659-2172							
OWNER DESIGN CMT	No particular design comments. Only that Owner request explanation for the type of foundations to be used for this monopole, i.e. Platform vs poured foundation. Owner requests structural calculations for the proposed monopole prior to signing lease.							
APN:	1723-00-0-00-174							
LEGAL DESC:	Located in the SE 1/4 of Section 21, Township 2 South, Range 66 West of the 6th PM, Adams, CO.							
ADDITIONAL COMME	VTS: Approval time is 60 to 90 days. Two hearings, one with the Planning Commission and one with the Board of County Commissioners.							

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PROCESS AND CRITERIA FOR REVIEW OF CONDITIONAL USE APPLICATIONS*

Conditional Use applications are heard by the Planning Commission and the Board of County Commissioners. The Board of County Commissioners makes the final decision in all cases. Planning Commission hearings are held on the second and Furth Thursdays of each month (except for November and December). Normally, County Commissioner's hearings are held on most Mondays during the year. When a complete application is received, processing begins and a Planning Commission hearing date is assigned. This is normally about five weeks after application submittal. Normally, eleven days after the Planning Commission hearing, the County Commissioners hear the case.

Information needed for submittal of Conditional Use applications:

- 1. (Original and one copy) of completed application form, signed by the property owner or legal representative.
- 2. A check payable to Adams County

Conditional Use : \$500

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Conditional Use $$500 \text{ base} + ($75 X \sqrt{acres})$ for Excavation and Rehabilitation Plan in accordance with §11.330 (ie. gravel mining applications)

If a conditional use application is filed concurrently with an application for rezoning, the conditional use fee shall be reduced to \$125; however, each concurrently filed conditional use application shall be charged the \$125 fee. This provision does not affect the rezoning application fee. In addition, any review fees due to any state agency which a referral of the rezoning or conditional use case is made, must be paid prior to the Planning Commission's consideration of the application.

3. Tax Assessor Parcel Number(s).

4. Thirty-five copies of site plan showing all relevant details of the proposed development or change including, but not limited to: location of all buildings and structures, parking and loading area, ingress and egress, waste disposal area, landscaping (existing and proposed), screening (including fencing), lighting, signs, and other constructional features. These details must conform to minimum requirements of the Zone District in which the use is to be located, unless a variance is granted. Site plans must conform to Section 8.210 of the Adams County Zoning Regulations.

5. Thirty five copies of description of proposed change or operation and construction in sufficient detail as to indicate effects of operation on the area.

6. Time schedule for the development (may be included in item 5).

7. Four copies of proof of water and sewer service. If serviced by a public utility, a letter from that agency will suffice. If serviced by well and septic, a letter or permit fom the Colorado Divison of Water Resources (866-3581) for the well, and a letter or permit from Tri-County Health Department (220-9200) for a septic system are required.

8. One original set of typed labels and three copies of names and addresses of adjacent property owners within a minimum of 500 feet. However, the Planning Director may require the names of property owners in excess of the 500 foot distance, for cases with greater impact.

9. Land Use/Subdivision pre-application Conference Form, signed by the applicant.

10. One copy of ownership (tax certificate or warranty deed).

11. Additional information may be required by the Planning Director, as appropriate.

**12. Four copies of Soil and Geologic reports. Jum

CONTINUED ON NEXT PAGE

**13. Four copies of Plans for drainage and drainage facilites. Contact the Adams County Engineering Department at 287-5249 for questions concerning detail required.

**14. Four Copies of Certified boundary survey of property, if previously subdivided, or a subdivision preliminary plat for \checkmark unsubdivided property.

**The above noted requirements are determined on a case by case basis.

Your application for condtional use will be reviewed by comparison with the following criteria:

- 1. Will the conditional use comply with the requirements of the <u>Zoning Regulations</u> and be the area in which it is to be located?
- 2. Will the conditional use be consistent with the purposes of the Zoning Regulations and with the Comprehensive Plan.
- 3. Will the conditional use be compatible with the surrounding area, harmonious with the character of the neighborhood, not detrimental to the immediate area, not detrimental to the future development of the area, and not detrimental to the health, safety, or welfare of the inhabitants of the area and the County?

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Restrictions on a Conditional Use:

If the conditonal use application is approved, in order to make it compatible with the area in which it is to locted, the Board of County Commissioners may require conditions addressing, but not limited to, the following factors:

- 1. Hours of operation.
- 2. Street and road capacity.
- 3. Off-street parking.
- Fencing, screening, and landscaping.
- 5. Building bulk, height, setback, location, and external appearance.
- 6. Usable open space.
- 7. Noise, vibration, air polution, or similar environmental considerations.

*This information is paraphrased from the applicable text of the Zoning Regulations for ease of understanding and in order to organize the information to be helpful to applicants. The definitive rules, requirements and procedures for conditional use applications are found in Chapter 6 of the Adams County Zoning Regulations.



ADAMS COUNTY DEVELOPMENT SERVICES BUILDING PERMIT

OWNER UNITED POWER INC

ADDRESS 18499 1/2 E 88TH AVE

GENERAL CONTRACTOR

DATE ISSUED 11/08/2017

THIS PERMIT ISSUED FOR:

COM-Cell: Sprint proposes to replace (3) panels, add (6) RRUS, (1) 1-1/4" line. Final configuration: (3) panels, (4) lines, (12) RRU, (3) splitters

PERMIT NUMBER

BDP17-5186

POST THIS CARD AT OR NEAR THE FRONT OF THE BUILDING, INSPECTION WILL NOT BE MADE UNLESS THIS CARD IS POSTED
Permit Issued

DO NOT POUR CONCRETE UNTIL INSPECTED AND APPROVED

TYPE OF INSPECTION & CODE	DATE	INSPECTOR'S SIGNATURE	TYPE OF INSPECTION & CODE	DATE	INSPECTOR'S SIGNATURE
100 FOOTING/CAISSONS			105 CONCRETE ENCLOSED		
110 WALL REINFORCING		ENGINEER INSPECTED	ELECTRODE 115 TEMP POWER		
			□ 135 UNDERGROUND ELECTRICAL		
□ 120 WEATHER PROOFING					
130 UNDERGROUND PLUMBING			165 ROUGH ELECTRICAL		
☐ 140 STRUCTURAL FLOOR			235 ABOVE CEILING ELECTRICAL		
ROUGH FIRE DISTRICT			245 FINAL ELECTRICAL		
South Adams County Fire District			250 CHANGE OF SERVICE		
□ 150 EXTERIOR SHEATHING			260 SERVICE EQUIPMENT		
160 ALL ROUGHS/GAS (170, 180, 190, 200)			This card must be signed by all required agenci		
170 ROUGH FRAMING			Occupancy or use prior to approved final inspe- order to vacate. Notify Building Section twenty	ction is not permi	tted under penalty of fine and in advance for inspections by
180 ROUGH PLUMBING			calling the automated request line at 720.523.63		
190 ROUGH HEATING			wait for a confirmation #.		
200 ROUGH GASLINE					
205 INSULATION					
210 DRYWALL					
220 LATH/WIRE					
230 CEILING GRID					
240 SHOWER RECEPTOR					
FINAL FIRE DISTRICT South Adams County Fire District					
INFRASTRUCTURE MGMT PRIOR TO FINAL 720-523-6965					
PLANNER - DEV SERVICES PRIOR TO FINAL 720-523-6800					
STORMWATER MANAGEMENT PRIOR TO FINAL 720-523-6869					
TRI-COUNTY HEALTH PRIOR TO FINAL 303-288-6816					
WATER DISTRICT PRIOR TO FINAL					
300 FINAL BUILDING INSPECTION					

SUBJECT TO FIELD INSPECTION

APPROVED PLANS MUST BE ONSITE AT ALL TIMES

SPRINT SITE NUMBER: SPRINT SITE NAME: SITE TYPE: **TOWER HEIGHT:**

DN18CX007 DN18XC007 MONOPOLE 45'-0"

SITE I	NFORMATION		DRAWING INDEX			
SITE NAME:	UNITED POWER SUBSTATION	SHEET #	SHEET DESCRIPTION			
SITE ADDRESS:	18490 E1/2 88TH AVENUE COMMERCE CITY, CO 80022	T-1	TITLE SHEET			
COUNTY:	ADAMS	Т-2	GENERAL NOTES			
MAP/PARCEL #:	0172300000174	T-3	GENERAL NOTES			
AREA OF CONSTRUCTION:	EXISTING	C-1.1	SITE PLAN			
LATITUDE:	39° 51' 23.77"	C-1.2	ENLARGED SITE PLAN			
LONGITUDE:	-104° 46' 21.37"	C-2	EXISTING AND NEW ELEVATION			
LAT/LONG TYPE:	NAD83	C-3	ANTENNA PLANS AND SCHEMATIC			
GROUND ELEVATION:	±5254 FT	C-4	CONDUIT ROUTING SCHEMATIC			
CURRENT ZONING:	A-3	C-5	INSTALLATION SPECS AND DETAILS			
JURISDICTION: OCCUPANCY CLASSIFICATION:	ADAMS COUNTY	G-1	GROUNDING DETAILS			
TYPE OF CONSTRUCTION:	VB	0-1				
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION					
PROPERTY OWNER:	UNITED POWER PO BOX 929 BRIGHTON, CO 80601	FULL SIZE	 NGS CONTAINED HEREIN ARE FORMATT 2. CONTRACTOR SHALL VERIFY ALL PLANS			
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317	AND SHALL IN OF ANY DI	DIMENSIONS AND CONDITIONS ON THE JO MMEDIATELY NOTIFY THE ENGINEER IN SCREPANCIES BEFORE PROCEEDING WIT WORK OR BE RESPONSIBLE FOR SAME.			
CARRIER/APPLICANT:	SPRINT 6391 SPRINT PARKWAY OVERLAND PARK, KS 66251	PRO	DJECT DESCRIPTION			
CROWN CASTLE APPLICATION ID:	406103	THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.				
ELECTRIC PROVIDER:	N/A N/A	• REMOVE ((3) ANTENNAS			
TELCO PROVIDER:	N/A N/A	• INSTALL (• INSTALL (3) NEW KMW ETCR-654L12H6 ANTENNAS 3) NEW RRUS-11 B26A RRHs 3) NEW RRH-C2 1) NEW TYPE 1 HYBRID CABLE 			
PRC	DJECT TEAM					
AKRON, OH 44 JBUTTERFIEL	AIN STREET, SUITE 2531					
CROWN CASTLE CONTACTS: 2055 S. STEARN CHANDLER, A						
(602) 845-1783	GOON - AE SPECIALIST IS- PROJECT MANAGER					
		DESIGN PA REVISION: - DATE:	CKAGE BASED ON THE RFDS			
SPRINT CONTACT: AMANDA BER AMANDA.BER	NARD NARD@SPRINT.COM	DESIGN PA ID: 406103 REVISION: (CKAGE BASED ON THE APPLICATION			



ANY CHANGES TO PLANS **REQUIRES PRIOR APPROVAL**

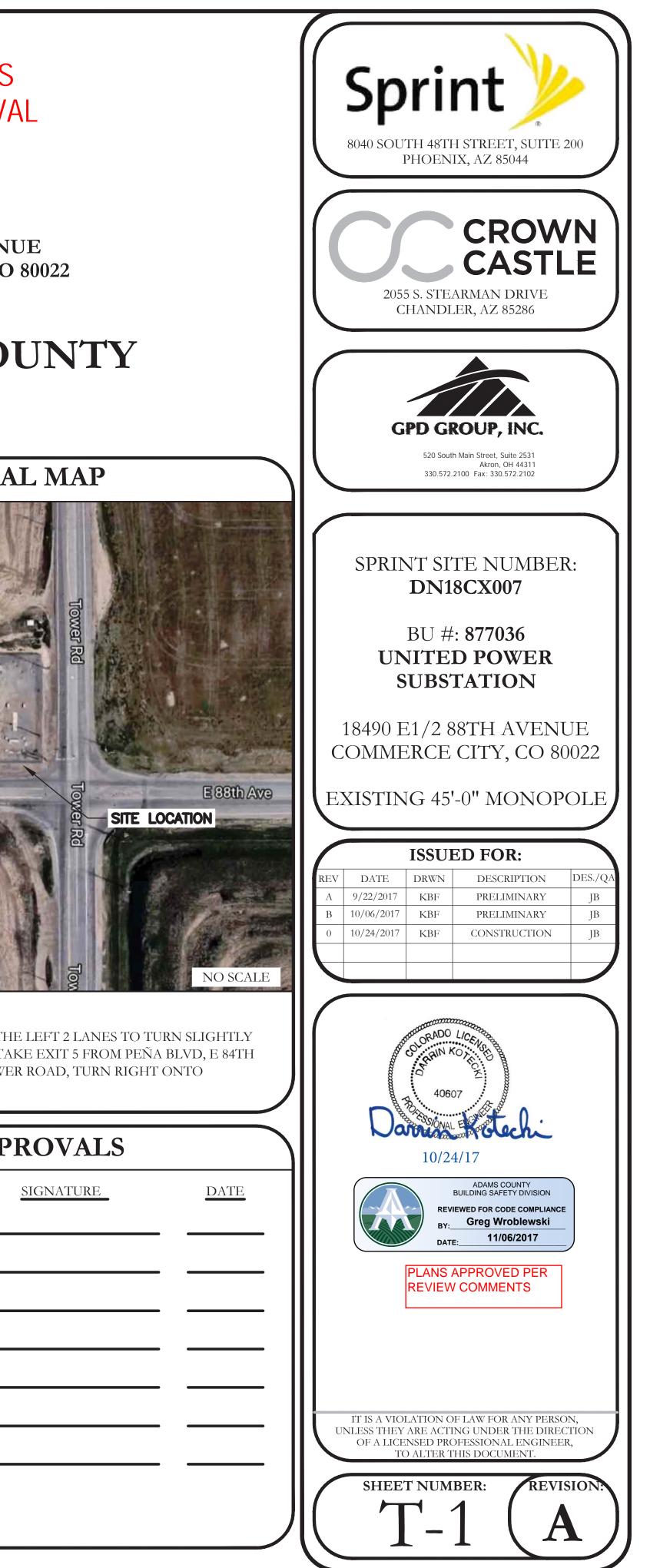
CROWN CASTLE BU #: 877036 SITE ADDRESS: COUNTY: JURISDICTION:

18490 E1/2 88TH AVENUE **COMMERCE CITY, CO 80022**

ADAMS **ADAMS COUNTY**

SPRINT DO MACRO UPGRADE

	VICINITY MAP	AERIA
	Charmbers Pd E 104th Ave P6th Ave	
S	Rocky Mountain Areas	E 88th Ave E 88th Ave
ATTED FOR ANS AND IE JOB SITE IN WRITING WITH THE	Arsenal National E-470	A Gap St
DN IE AS	6th Ave DRIVING DIRECTIONS FROM DENVER INTERNATIONAL AIRPORT: USE THE LEFT 2 LANES TO TURN SLIGHTLY LEFT TOWARD PARKING - TERMIN LEFT ONTO PARKING - TERMINAL W, KEEP LEFT, TURN LEFT ONTO E 84TH A AVE TURNS SLIGHTLY RIGHT AND BECOMES PEÑA BLVD, KEEP RIGHT TO ST TOWER RD, DESTINATION WILL BE ON THE LEFT	VE, FOLLOW PEÑA BLVD TO TOWER RD. TA
	APPLICABLE CODES/REFERENCE	APP
	DOCUMENTS ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES OF THE FOLLOWING TO THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CODE CODE TYPE CODE BUILDING 2012 INTERNATIONAL BUILDING CODE MECHANICAL 2012 INTERNATIONAL BUILDING CODE ELECTRICAL 2014 NATIONAL ELECTRIC CODE REFERENCE DOCUMENTS: STRUCTURAL ANALYSIS: TOWER ENGINEERING PROFESSIONALS MOUNT ANALYSIS: TBD	APPROVAL SITE ACQ. & ZONING CONSTRUCTION MGR A&E MGR PLANNING CONSULTANT RF MGR
	CALL COLORADO ONE CALL (800) 922-1987 CALL 3 WORKING DAYS BEFORE YOU DIG!	PROPERTY OWNER



CROWN CASTLE SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION. 2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK. SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES, SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.

3. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE TOWER SITE" AND LATEST VERSION OF TIA 1019 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

4. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.

5. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

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

7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE. 8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND

TOWER AREAS.

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

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

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

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

13. NOTICE TO PROCEED- NO WORK TO COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.

14. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/TIA 1019 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-1019 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.

SPRINT CONSTRUCTION NOTES <u>SECTION 01 100 - SCOPE OF WORK</u>

THE WORK:

MUST COMPLY WITH ALL APPLICABLE ADOPTED CODES AND STANDARDS, AND PORTIONS THEREOF. SPRINT METHOD OF PROCEDURE (MOP) AND SPRINT STANDARDS AT THE TIME OF CONSTRUCTION START.

PRECEDENCE:

SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS. INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. ALONG WITH SPRINT CONSTRUCTION MANAGER APPROVAL

SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD

CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

ON-SITE SUPERVISION:

THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE FUNCTIONING SYSTEM. MODIFICATIONS MAY BE REQUIRED TO SUITE JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

B. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

C. MARK THE FIELD SET OF DRAWINGS IN RED, DOCUMENTING ANY CHANGES FROM THE CONSTRUCTION DOCUMENTS.

METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION:

CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS. CONTRACTOR IS RESPONSIBLE FOR DISTRIBUTION OF LATEST MOPS.

A. TOP HAT

- B. HOW TO INSTALL A NEW CABINET
- C. BASE BAND UNIT IN EXISTING UNIT
- D. INSTALLATION OF BATTERIES
- E. INSTALLATION OF FIBER CABLE
- F. INSTALLATION OF RRU'S
- G. CABLING
- H. TS-0200 REV 5 ANTENNA LINE ACCEPTANCE STANDARDS
- I. SPRINT CELL SITE ENGINEERING NOTICE EN 2012-001, REV 1.
- J. COMMISSIONING MOPS

<u> SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT</u>

- COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DRAWINGS.
- CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT TO ENSURE IT IS PROTECTED AND HANDLED PROPERLY THROUGHOUT THE CONSTRUCTION DURATION.
- С. CONTRACTOR IS RESPONSIBLE FOR RECEIPT OF SPRINT FURNISHED EQUIPMENT AT CELL SITE OR CONTRACTORS LOCATION. CONTRACTOR TO COMPLETE SHIPPING AND RECEIPT DOCUMENTATION

IN ACCORDANCE WITH COMPANY PRACTICE. CONTRACTOR MAY BE REQUIRED TO PICK UP MATERIAL AT LOCATION PRESCRIBED BY SPRINT.

SECTION 01 300 - CELL SITE CONSTRUCTION

NOTICE TO PROCEED: OF WORK ORDER.

SITE CLEANLINESS TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

SECTION 01 400 - SUBMITTALS AND TESTS

ALTERNATIVES:

TESTS AND INSPECTIONS

DOCUMENTATION.

B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING: 1. COAX SWEEPS AND FIBER TESTS PER TS-200 REV 5 ANTENNA LINE ACCEPTANCE STANDARDS. 2. AGL, AZIMUTH AND DOWNTILT: PROVIDE AN AUTOMATED REPORT UPLOADED TO SITERRA USING A COMMERCIAL MADE-FOR PURPOSE ELECTRONIC ANTENNA ALIGNMENT TOOL (AAT). INSTALLED AZIMUTH, CENTERLINE AND DOWNTILT MUST CONFORM WITH RF CONFIGURATION DATA. 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING. 4. ALL TESTING REQUIRED BY APPLICABLE INSTALLATION MOPS.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING: 1. AZIMUTH, DOWNTILT, AGL FROM SUNSIGHT INSTRUMENTS - ANTENNA ALIGNMENT TOOL (AAT) 2. SWEEP AND FIBER TESTS. 3. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT. 4. ALL AVAILABLE JURISDICTIONAL PERMIT AND OCCUPANCY INFORMATION 5. PDF SCAN OF REDLINES PRODUCED IN FIELD. 6. A PDF SCAN OF REDLINE MARK-UPS SUITABLE FOR USE IN ELECTRONIC AS-BUILT DRAWING PRODUCTION. 7. LIEN WAIVERS. 8. FINAL PAYMENT APPLICATION. 9. REQUIRED FINAL CONSTRUCTION PHOTOS. 10. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS. 11. APPLICABLE POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINT'S DOCUMENT REPOSITORY OF RECORD). 12. CLOSEOUT PHOTOGRAPHS AND CLOSEOUT CHECKLIST: SPRINT WILL PROVIDE SEPARATE GUIDANCE. PROVIDE PHOTOGRAPHS OF FINAL PROJECT PER THE FOLLOWING LIST. ADDITIONAL PHOTOS MAY BE REQUIRED TO SUPPORT ACCEPTANCE PROCESSES (i) BACK MAIN FIBER CABLE ROUTE (MINIMUM TWO PHOTOS) (ii) OF EACH ANTENNA AND RRU MANUFACTURERS NAME TAG FOR ALL SERIALIZED EQUIPMENT (iii) PULL AND DISTRIBUTION BOXES INTERMEDIATE BETWEEN RRU'S AND RBS (DOOR OPEN) (iv) (v) RBS CABINET WITH DOOR OPEN SHOWING MODIFICATIONS POWER CABINET, DOORS OPEN, BATTERIES INSTALLED (vi)

BREAK OUT CYLINDERS (vii) ASR SIGNAGE FOR SPRINT OWNED TOWERS (viii) (ix) RADIATION EXPOSURE WARNING SIGNS (x) PHOTOGRAPH FROM EACH SECTOR FROM APPROXIMATELY RAD CENTER OF ANY NEW ANTENNA AT HORIZON. LOAD PHOTOS TO SITERRA PROJECT LIBRARY 15. IN 15 CREATE NEW CATEGORY; 2.5 DEPLOYMENT, AND SECTION; PERMANENT CONSTRUCTION. LABEL PHOTOS WITH SITE CASCADE AND VIEW BEING DEPICTED. CAMERAS USED TO TAKE PHOTOS SHALL BE GPS ENABLED SUCH THAT THE GPS COORDINATES ARE INCLUDED IN THE PHOTO

MEDIA-FILE INFORMATION. COMMISSIONING:

h

PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPS

INTEGRATION:

QUALITY ASSURANCE:

A. COMPLY WITH GOVERNING CODES AND REGULATIONS. PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS. USE EXPERIENCED INSTALLERS. DELIVER, HANDLE, AND STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

COMPLY WITH ALL ENVIRONMENTAL REGULATIONS FOR VOLATILE ORGANIC COMPOUNDS. B.

MATERIALS:

A. MANUFACTURERS: BENJAMIN MOORE, ICI DEVOE COATINGS, PPG, SHERWIN WILLIAMS OR APPROVED PROVIDE PREMIUM GRADE, PROFESSIONAL-QUALITY PRODUCTS FOR COATING SYSTEMS.

PAINT SCHEDULE:

A. EXTERIOR ANTENNAE AND ANTENNA MOUNTING HARDWARE: ONE COAT OF PRIMER AND TWO FINISH COATS. PAINT FOR ANTENNAE SHALL BE NON-METALLIC BASED AND CONTAIN NO METALLIC PARTICLES. PROVIDE COLORS AND PATTERNS AS REQUIRED TO MASK APPEARANCE OF ANTENNAE ON ADJACENT BUILDING SURFACES AND AS ACCEPTABLE TO THE OWNER. REFER TO ANTENNA MANUFACTURER'S INSTRUCTION WHENEVER POSSIBLE.

B. WATER TANKS: TOUCH UP - PREPARE SURFACES TO BE REPAIRED. FOLLOW INDUSTRY STANDARDS AND REQUIREMENTS OF OWNER TO MATCH EXISTING COATING AND FINISH.

PAINTING APPLICATION:

NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE

CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS,

AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED.

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT

PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPS

SECTION 09 900 - PAINTING

- 1. INSPECT SURFACES, REPORT UNSATISFACTORY CONDITIONS IN WRITING; BEGINNING WORK MEANS ACCEPTANCE OF SUBSTRATE.
- 2. COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR PREPARATION, PRIMING AND COATING WORK. COORDINATE WITH WORK OF OTHER SECTIONS. MATCH APPROVED MOCK-UPS FOR COLOR, TEXTURE, AND PATTERN. RE-COAT OR REMOVE AND
- REPLACE WORK WHICH DOES NOT MATCH OR SHOWS LOSS OF ADHESION.
- 4. CLEAN UP, TOUCH UP AND PROTECT WORK.

TOUCHUP PAINTING:

- GALVANIZING DAMAGE AND ALL BOLTS AND NUTS SHALL BE TOUCHED UP AFTER TOWER ERECTION WITH "GALVANOX." "DRY GALV." OR "ZINC-IT"."
- FIELD TOUCHUP PAINT SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN 2. INSTRUCTIONS.
- ALL METAL COMPONENTS SHALL BE HANDLED WITH CARE TO PREVENT DAMAGE TO THE COMPONENTS, 3. THEIR PRESERVATIVE TREATMENT, OR THEIR PROTECTIVE COATINGS

SECTION 11 700 – ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION

SUMMARY:

THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRU'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

ANTENNAS AND RRU'S:

THE NUMBER AND TYPE OF ANTENNAS AND RRU'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

NV FIBER CABLE: EXISTING NV FIBER CABLE WILL BE USED AT EACH SITE. CABLE SHALL BE USED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

JUMPERS AND CONNECTIONS:

FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRU'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE JUMPERS BETWEEN THE RRU'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2" FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE, MINIMUM LENGTH FOR JUMPER SHALL BE SO AS TO ALLOW FOR THE PROPER BEND RADIUS PER MANUFACTURER OR SPRINT SPECIFICATIONS.

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS: INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT

ANTENNA INSTALLATION:

THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH AND FEED ORIENTATION INFORMATION SHALL BE AS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE. B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE CONSTRUCTION DRAWINGS.

FIBER CABLE INSTALLATION:

A. THE CONTRACTOR SHALL ROUTE, TEST AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAT THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.

C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.

1. FASTENING MAIN FIBER CABLES:

a. LATTICE AND GUYED TOWERS:

ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'-0" OC USING NON-MAGNETIC STAINLESS STEEL CLIPS. HOISTING GRIPS SHOULD BE INSTALLED AT MID-POINT IF CABLE RUN EXCEEDS 200' AS WELL AS TOP SIDE.

MONOPOLE: ALL CABLES SHALL BE PERMANENTLY SUPPORTED WITH HOISTING GRIPS AT INTERVALS OF NO MORE THAN 200' (ONE HOISTING GRIP PER COAX).

1. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA). WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES.

a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH AT 18" O.C. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.

b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.

2. FASTENING OR SECURING JUMPERS SHOULD CONSIST OF STAINLESS STEEL CLIPS, 18" FROM REAR OF CONNECTOR AND 24" THEREAFTER AND AT NO TIME SHALL THEY CONTACT TOWER OR STRUCTURAL STEEL.

3. CABLE INSTALLATION:

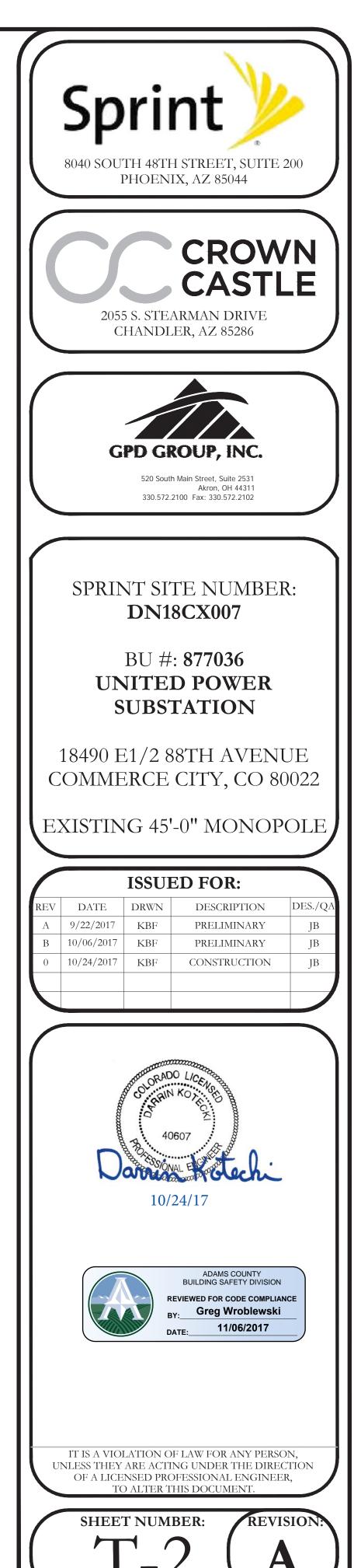
a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE. NOTIFY THE CONSTRUCTION MANAGER.

b. CABLE ROUTING CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOPE AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.

c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM BEND RADIUS.

5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS

6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 REV 5. 7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY A ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1.



WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS: BY THE APPLICABLE INSTALLATION MOPS. A. ALL FIBER AND COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED. B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF AMALGAMATING TAPE. SUMMARY: 2. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED. 3. JMA-WPS SERIES ENCLOSURE. 4. BUTYL AND TAPE, 1 COMPLETE WRAP OF 3/4" PRE-TAPE, BUTYL WRAPPED IN HALF INCH LAP LAYERS, ENDED WITH SHINGLED DOWNWARD 3 WRAPS OF 2" TAPE, 3 WRAPS OF 3/4" TAPE SHINGLED DOWNWARD, FREE OF WRINKLES, BUCKLES AND FLAGGING. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE C. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE CONSTRUCTION DRAWINGS. FIBER CABLE INSTALLATION: A. THE CONTRACTOR SHALL ROUTE, TEST AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. DEFECTS. B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAT THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII. C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION. 1. FASTENING MAIN FIBER CABLES: LATTICE AND GUYED TOWERS: 2. B-LINE SYSTEM. ALL CABLES SHALL BE PERMANENTLY FASTENED TO THE COAX LADDER AT 4'-0" OC USING NON-MAGNETIC UNISTRUT DIVERSIFIED PRODUCTS. STAINLESS STEEL CLIPS. HOISTING GRIPS SHOULD BE INSTALLED AT MID-POINT IF CABLE RUN EXCEEDS 200' AS WELL AS TOP SIDE. MONOPOLE: ALL CABLES SHALL BE PERMANENTLY SUPPORTED WITH HOISTING GRIPS AT INTERVALS OF NO MORE THAN 200' (ONE HOISTING GRIP PER COAX). SERVICE. 2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA). WITHIN THE MMBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES. a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH AT 18" O.C. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL. 3. FASTENING OR SECURING JUMPERS SHOULD CONSIST OF STAINLESS STEEL CLIPS, 18" FROM REAR OF

4. CABLE INSTALLATION:

a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE. NOTIFY THE CONSTRUCTION MANAGER.

CONNECTOR AND 24" THEREAFTER AND AT NO TIME SHALL THEY CONTACT TOWER OR STRUCTURAL STEEL.

b. CABLE ROUTING CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOPE AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSOVERS.

HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM BEND RADIUS.

5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.

HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 REV 5.

HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001. REV 1.

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

A. ALL FIBER AND COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.

WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.

1. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF AMALGAMATING TAPE.

- 2. 3M SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
- 3. JMA-WPS SERIES ENCLOSURE.
- 4. BUTYL AND TAPE, 1 COMPLETE WRAP OF 3/4" PRE-TAPE, BUTYL WRAPPED IN HALF INCH LAP LAYERS, ENDED WITH SHINGLED DOWNWARD 3 WRAPS OF 2" TAPE, 3 WRAPS OF 3/4" TAPE SHINGLED DOWNWARD, FREE OF WRINKLES, BUCKLES AND FLAGGING.
- OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT

SUMMARY:

A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BUT NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCI).

B. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRED

DC CIRCUIT BREAKER LABELING:

A. LABEL CIRCUIT BREAKERS ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1. SECTION 26 100 - BASIC ELECTRICAL REQUIREMENTS

THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS.

QUALITY ASSURANCE:

A. ALL EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTING ARE AVAILABLE IN THE INDUSTRY.

B. MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE NEW USE FOR THIS PROJECT.

SUPPORTING DEVICES:

A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS. PROVIDE PRODUCTS BY THE FOLLOWING:

- 1. ALLIED TUBE AND CONDUIT.
- 4. THOMAS & BETTS

SUPPORTING DEVICES:

ACCORDANCE WITH NEC.

B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.

C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING: ENSURE THAT THE LOAD APPLIED BY ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.

ELECTRICAL IDENTIFICATION:

A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.

B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT

CONDUIT:

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR UNDERGROUND RUNS. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.

B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.

ELBOWS.

D. ALL UNDERGROUND CONDUIT OR CONDUIT IN CONCRETE SHOULD BE PVC. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED. ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATIONS C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.

E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6-FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRED BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.

F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

C. COMPLY WITH MANUFACTURER'S INSTALLATION AND START-UP REQUIREMENTS.

MATERIALS AND EQUIPMENT: ALL MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM

B. FASTENERS: TYPES, MATERIALS AND CONSTRUCTION FEATURES AS FOLLOWS: 1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE. 2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL. DESIGNED SPECIFICALLY FOR THE INTENDED

3. FASTEN BY MEANS OF WOOD SCREWS IN WOOD. 4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL

7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED. 8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES. 9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS

A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN

2. USE VIBRATION AND SHOCK-RESISTANT FASTNERS FOR ATTACHMENTS TO CONCRETE SLABS.

C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS

HUBS AND BOXES:

A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED HUB SHALL INCLUDE LOCK NUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION

B. CABLE TERMINATION FITTINGS FOR CONDUIT

1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL BY ROXTEC.

CABLE TERMINATORS FOR LFMC SHALL BE ETCO - CL2075, OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.

EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.

CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKET COVERS. OUTLET BODIES SHALL D. BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION, PROVIDE CROUSE-HINDS FORM 8 OR EQUAL.

E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL SUPPLEMENTAL GROUNDING SYSTEM:

A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM TO THE EXTENT INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMET. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS EXCEPT AS OTHERWISE NOTED.

B. SUPPLEMENTAL GROUNDING SYSTEM: ALL CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO-HOLE SPADES WITH NO-OX.

FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

EXISTING STRUCTURE:

A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

CONDUIT AND CONDUCTOR INSTALLATION:

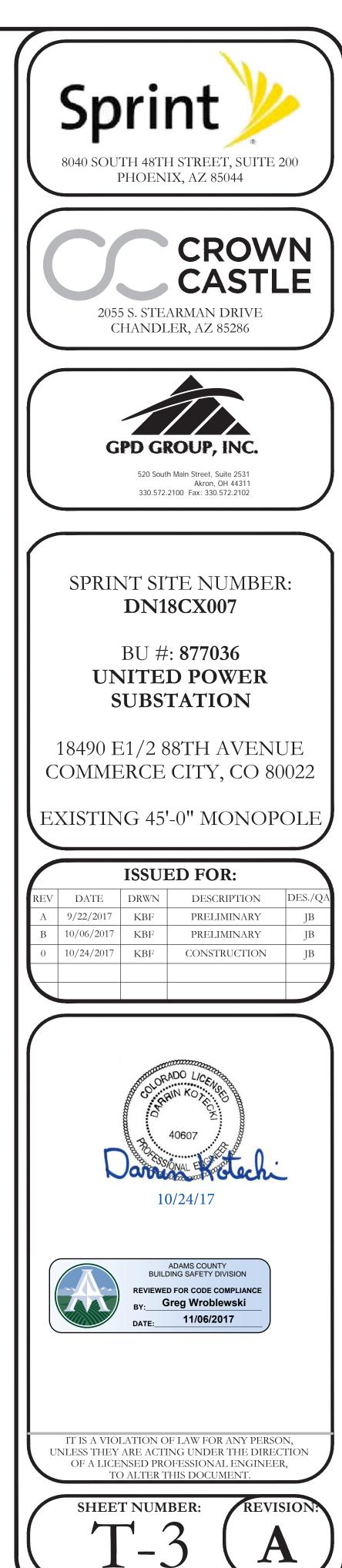
A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES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

B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

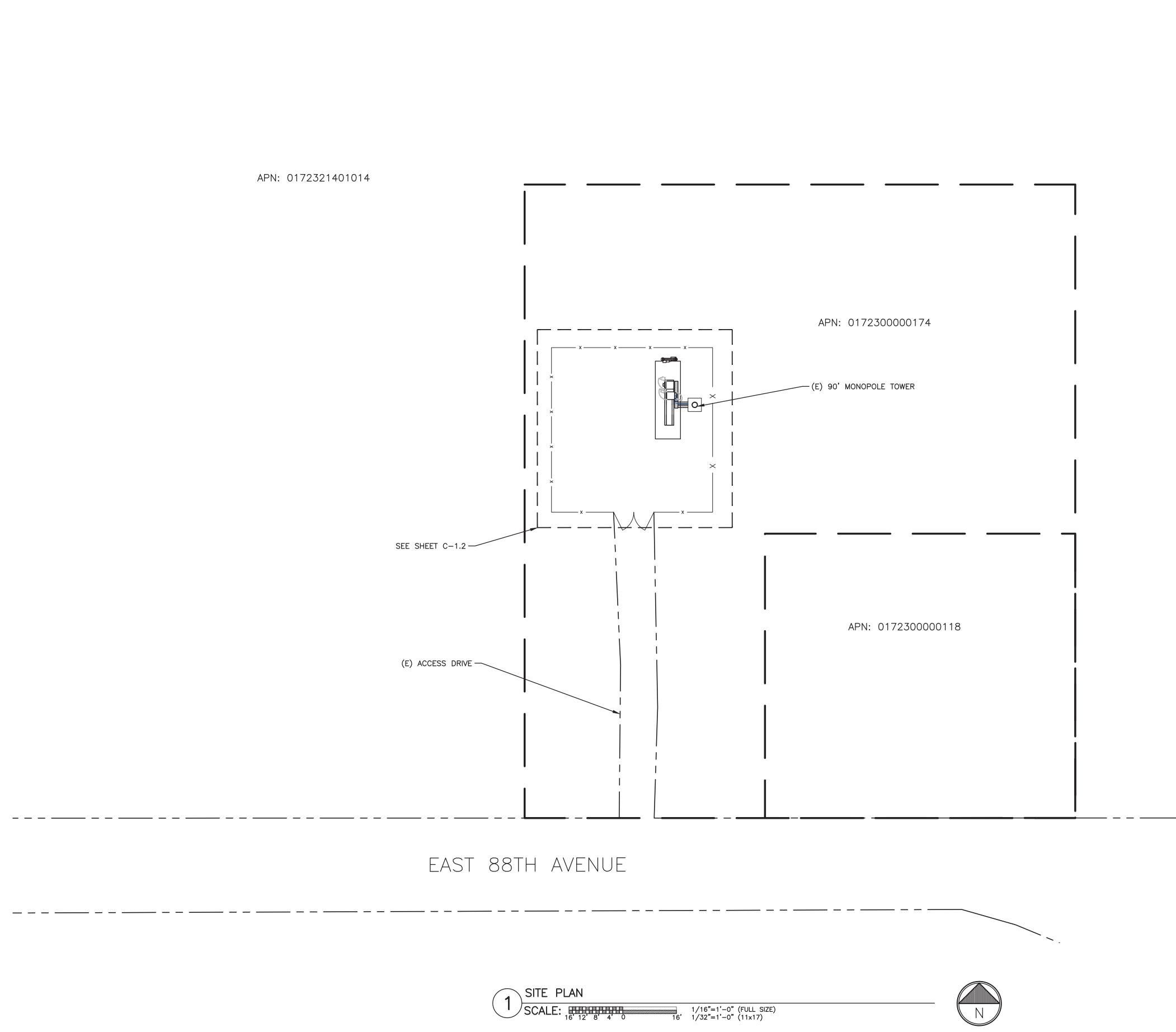
ADDITIONAL REQUIRED NOTES:

- GC IS RESPONSIBLE FOR HIRING ALL 3RD PARTY SPECIAL INSPECTIONS AS REQUIRED PER MUNICIPALITY
- GC IS RESPONSIBLE FOR VERIFYING ALL FIELD MEASUREMENTS PRIOR TO STARTING CONSTRUCTION
- DO NOT OPEN RRU PACKAGES IN THE RAIN
- NO OPEN FLAME ON SITE
- GC TO ENSURE HYBRIDS ARE SUPPORTED EVERY 3'-0" ON HORIZONTAL AND 4'-0" ON VERTICAL RUNS

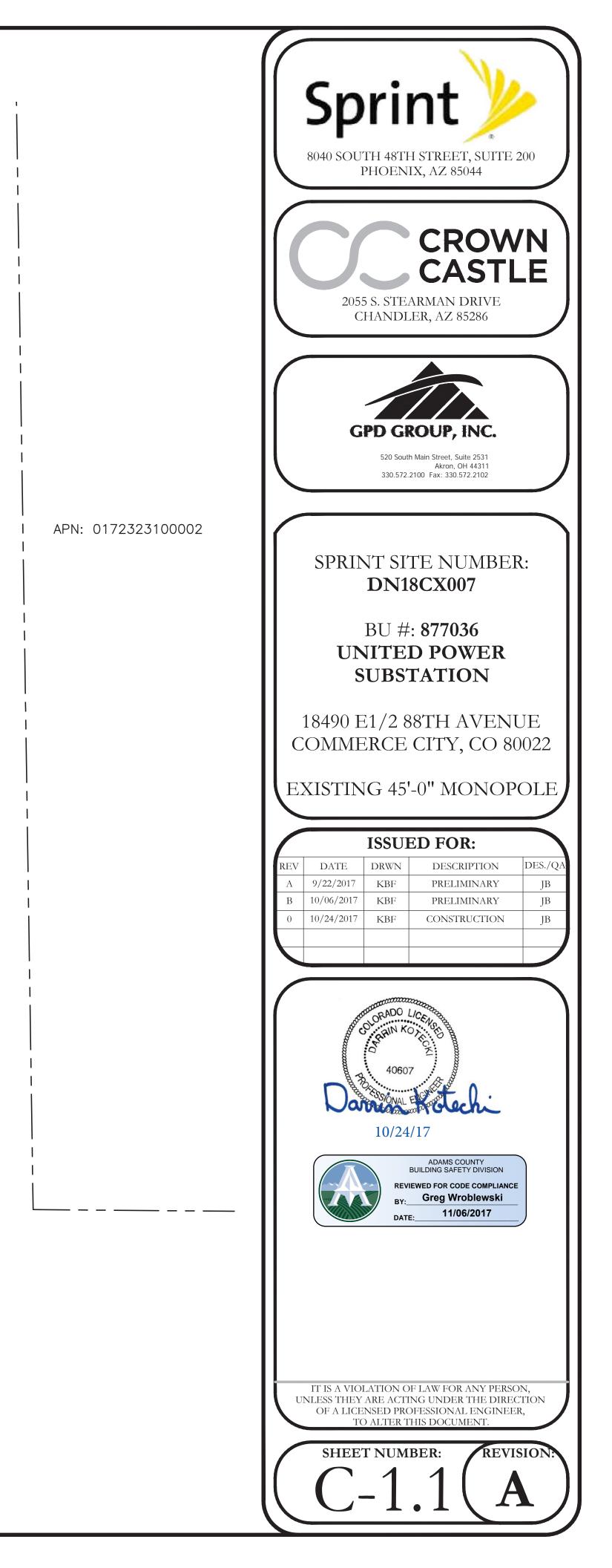
STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CONSTRUCTION MANAGER

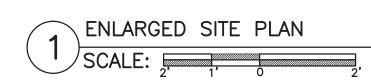


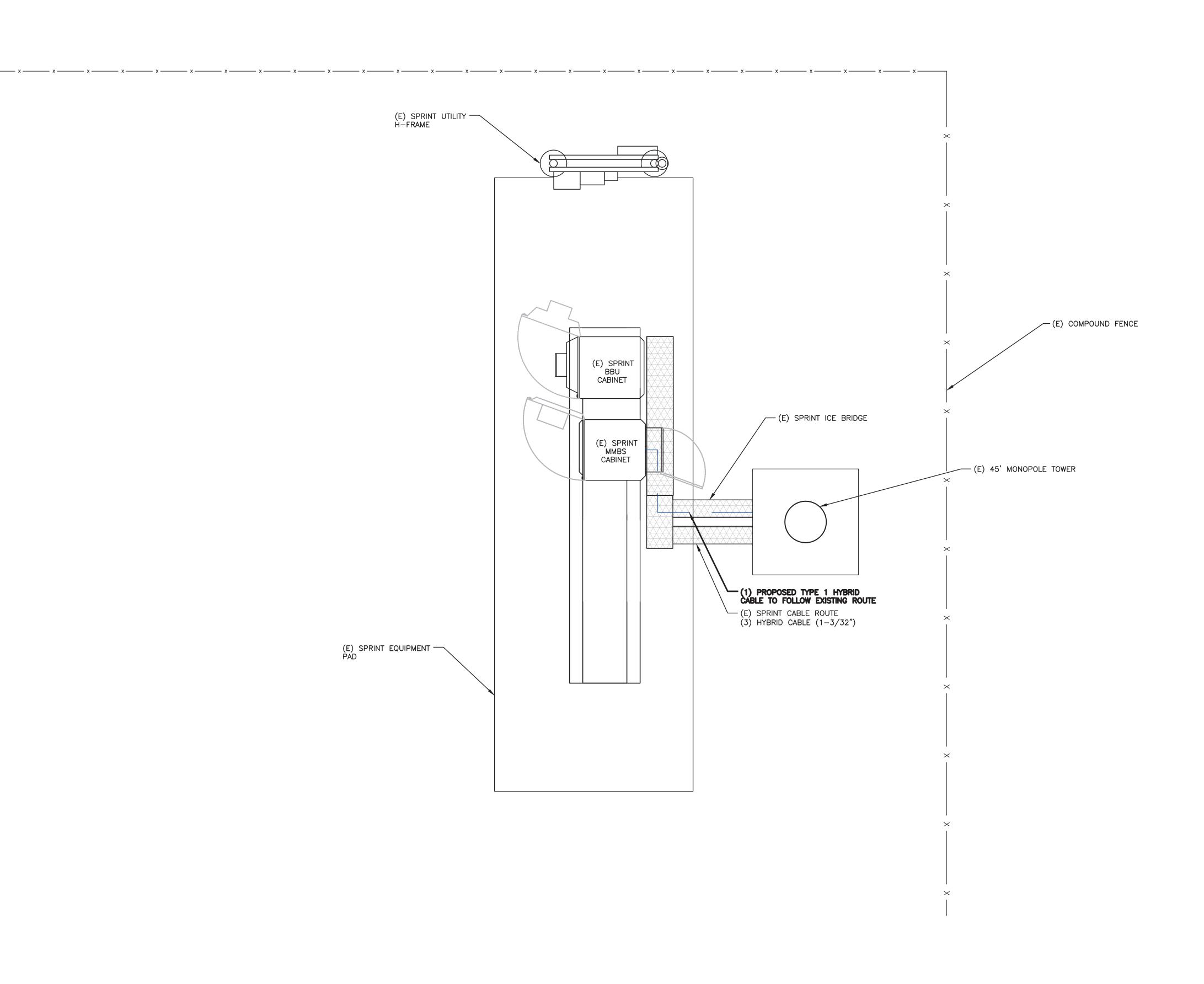


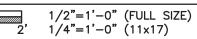


TOWER ROAD

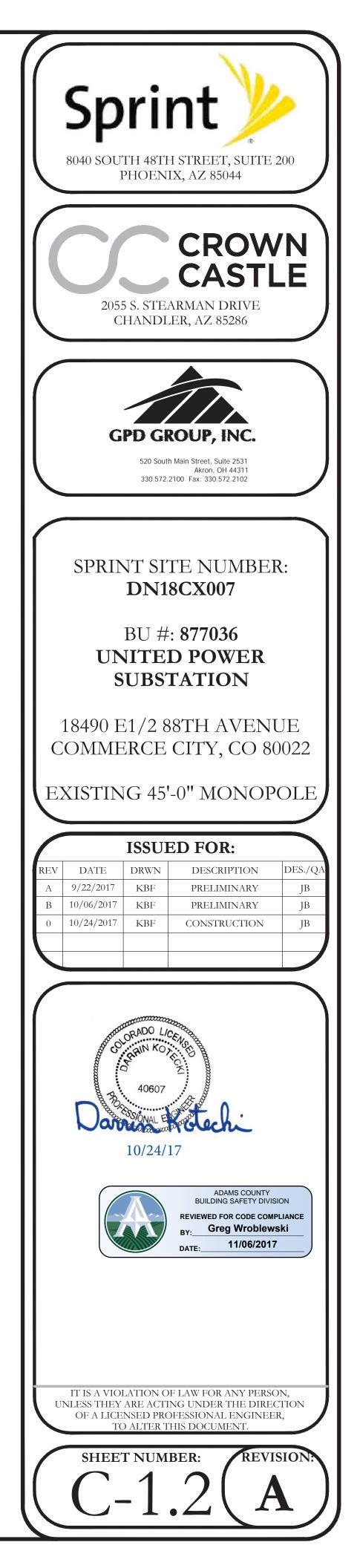


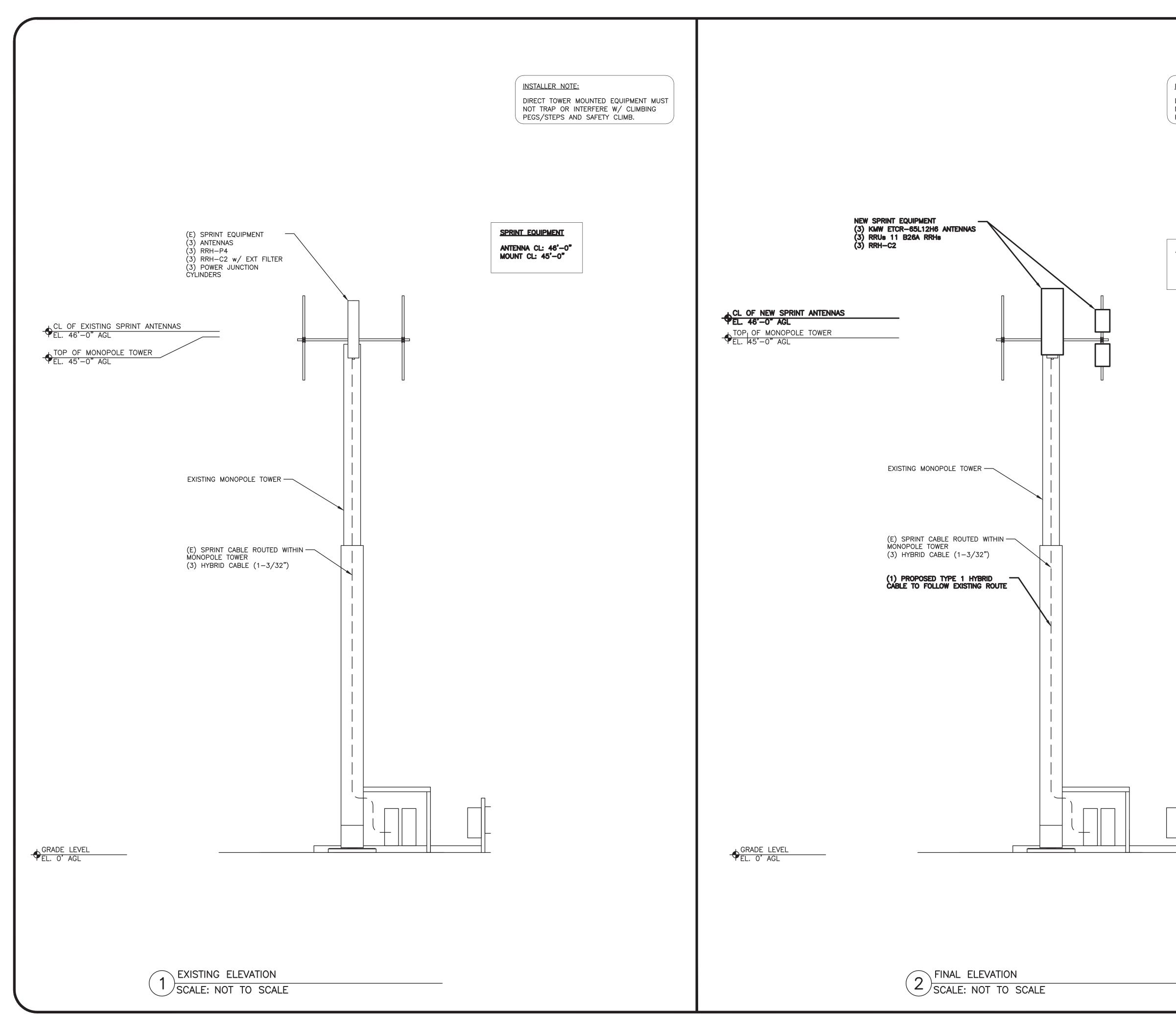


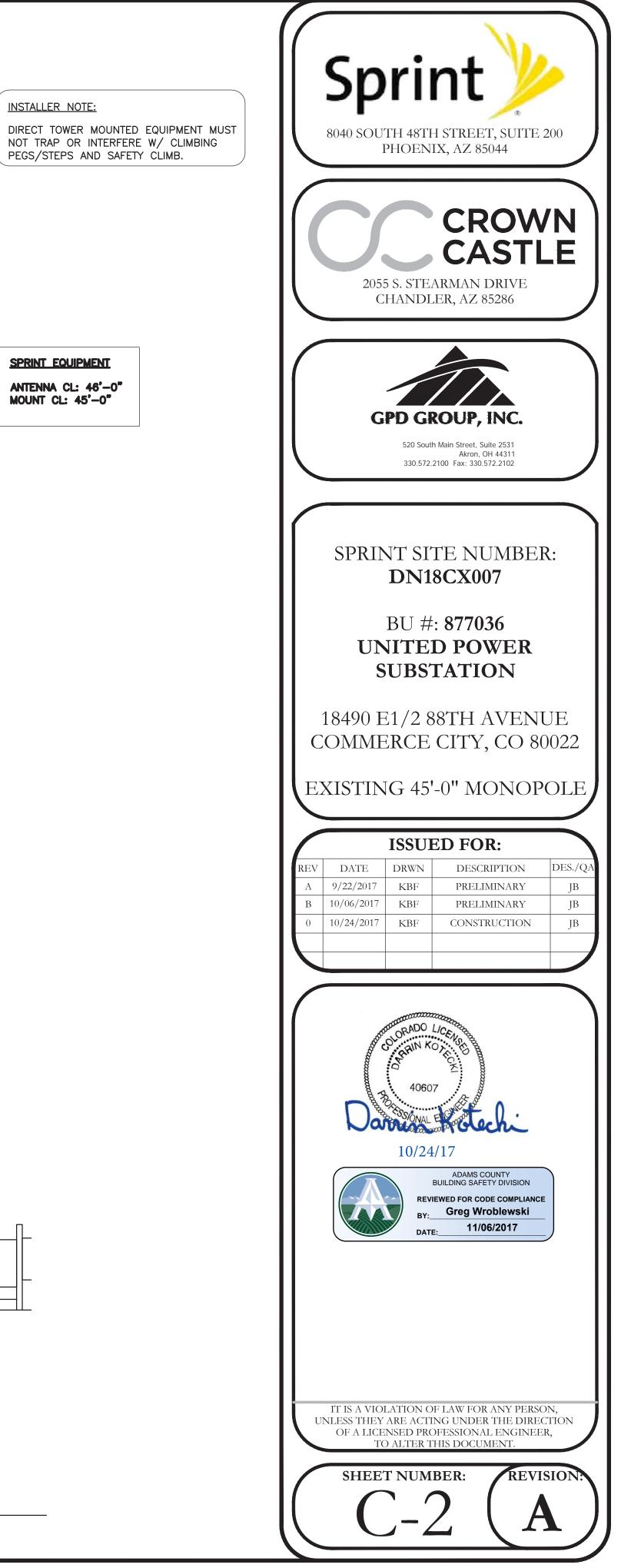




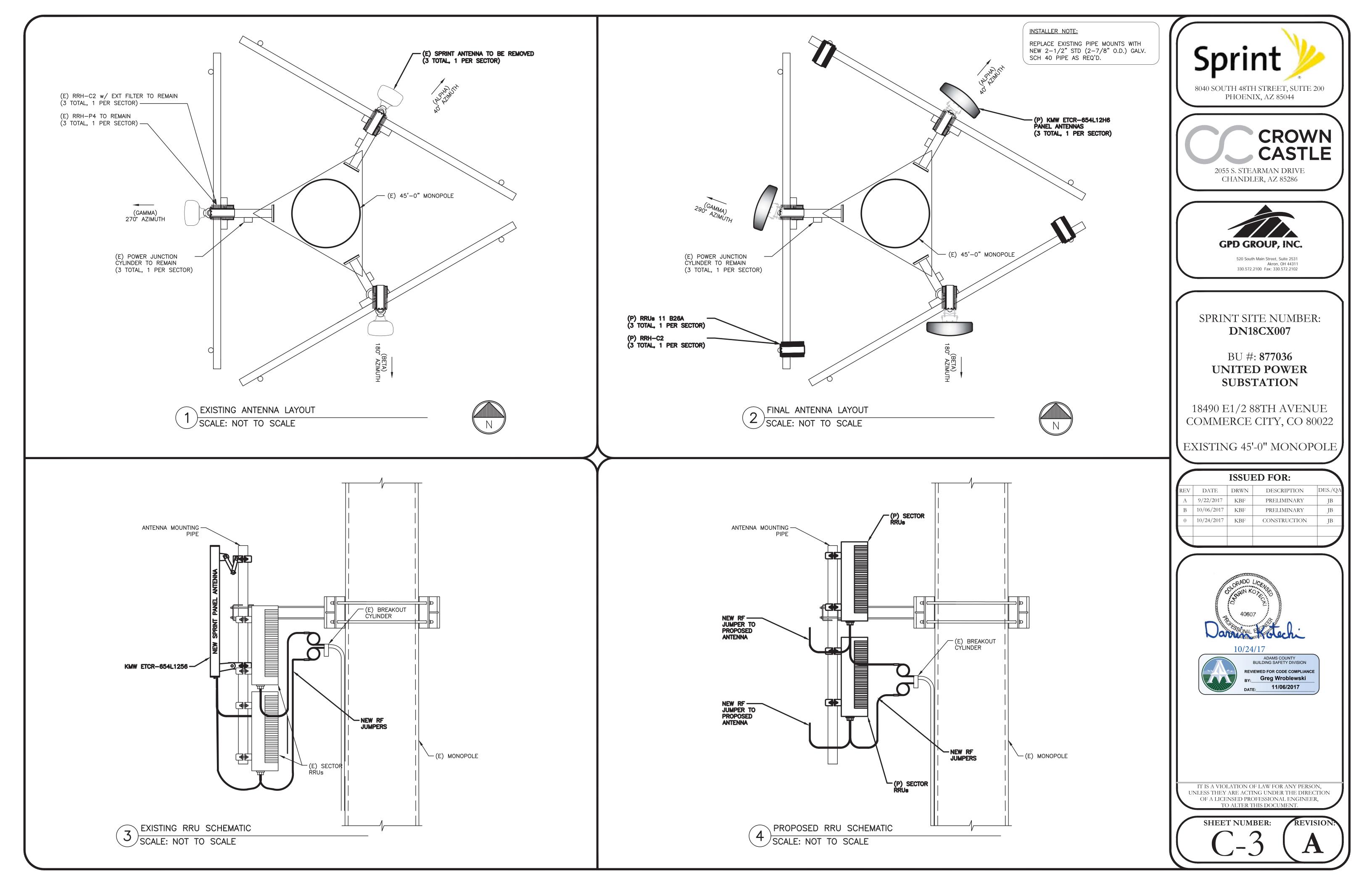


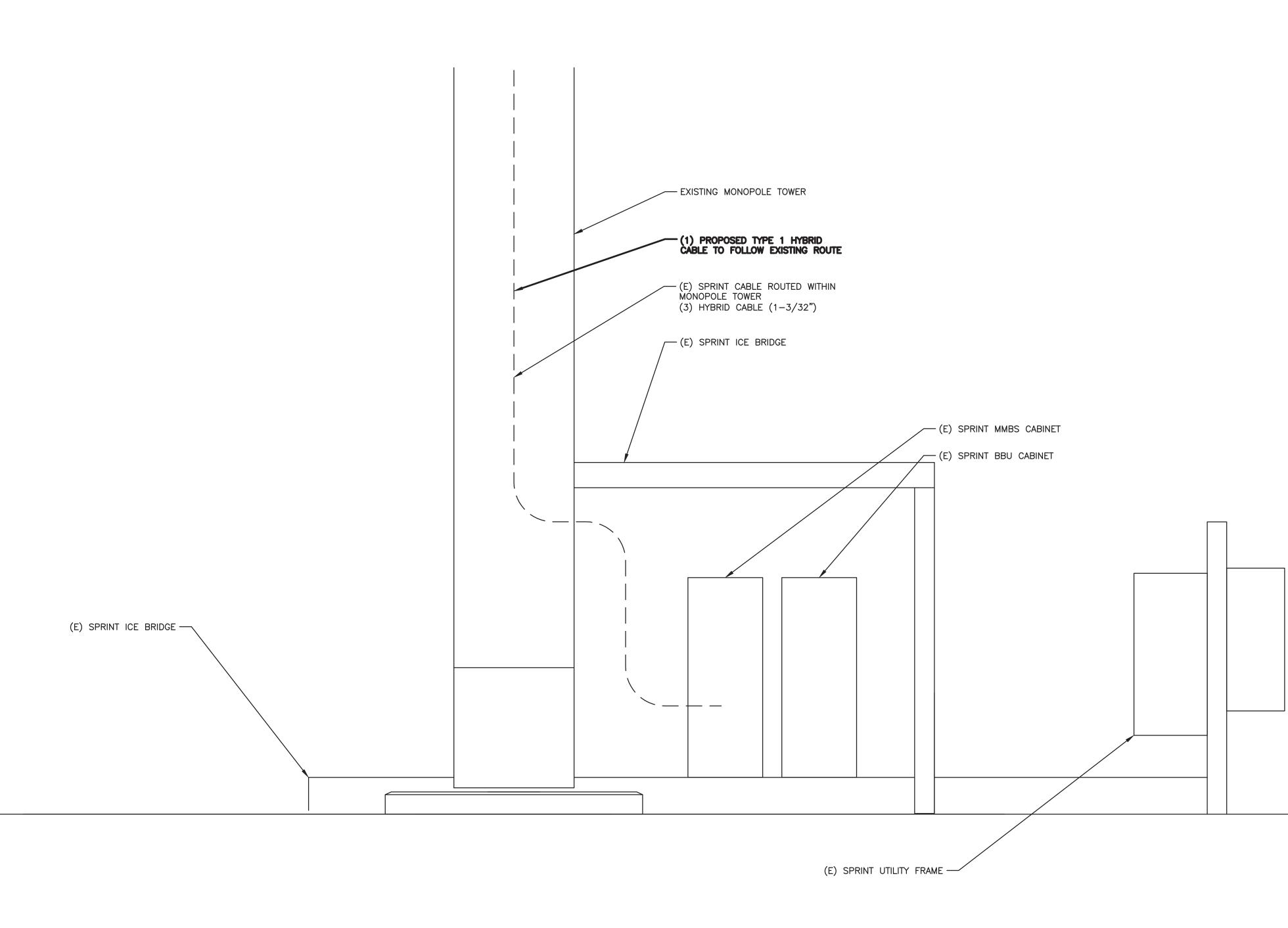




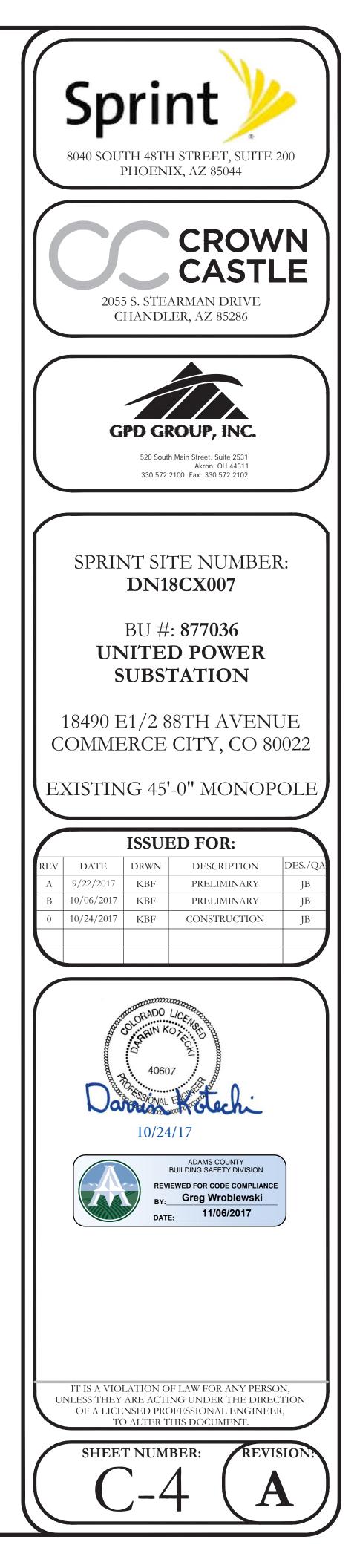


ANTENNA CL: 46'-0" MOUNT CL: 45'-0"





1) CONDUIT ROUTING SCHEMATIC SCALE: NOT TO SCALE



REV. 0 7/25/16

SPRINT CONSTRUCTION SPECIFICATIONS MINI-MACRO CELL SITES

1) BASIC REQUIREMENTS

a) MEET ALL REQUIREMENTS OF JURISDICTIONS.

b) IF EQUIPMENT FURNISHED BY THE COMPANY DOES NOT MATCH THE EQUIPMENT LISTED ON THE RFDS AND SHOWN ON THE PERMITTING DRAWINGS, RESOLVE DISCREPANCY THROUGH INSTALLER'S CONSTRUCTION MANAGER AND COMPANY'S POINT OF CONTACT

c) CABLE INSTALLATIONS

i) ALL CABLES MUST BE OUTDOOR RATED AND HAVE UV RESISTANT OUTER JACKETS

- ii) CABLE BENDS MUST NOT EXCEED MANUFACTURER'S ALLOWABLE CABLE BEND RADII
- iii) AT RADIOS INSTALL SERVICE LOOPS FOR POWER, FIBER, AND ETHERNET SECURED AT LEAST TWICE 180° TO THE STRUCTURE
- iv) SPARE FIBERS MUST BE ENCASED IN A LOW PROFILE WEATHERTIGHT ASSEMBLY
- d) FIBERS MUST BE FIELD-TERMINATED WITH LC TYPE CONNECTORS

e) CONDUITS IN EARTH: PROVIDE PVC. CONDUITS EXPOSED IN FACILITIES: PROVIDE RGS. HAND DIG TRENCHES IN COMPOUNDS

f) SECURE AND SUPPORT CONDUITS AND CABLES ON NO MORE THAN 48" INTERVALS

g) ON TOWER SITES RGS CONDUITS MAY BE SURFACE MOUNTED AWAY FROM WALKWAYS AND ACCESS/EGRESS PATHS. IF INSTALLATIONS IN WALKWAYS AND ACCESS/EGRESS PATHS CANNOT BE AVOIDED, IDENTIFY THE CONDUIT ENVELOPE/TRIP HAZARD BY ALTERNATING YELLOW AND BLACK STRIPES PAINTED ON CONCRETE AND CONDUIT.

2) SPRINT – FURNISHED EQUIPMENT

a) INSTALL THE FOLLOWING EQUIPMENT AT LOCATIONS AND AZIMUTHS SHOWN ON THE CONSTRUCTION DRAWINGS.

- i) PANEL ANTENNAS
- ii) RADIOS
- iii) GPS ANTENNAS
- iv) FILTERS
- v) 120 VOLT DIN-RAIL CIRCUIT BREAKER ASSEMBLY

3) TOWER INSTALLATIONS

a)MEET ALL REQUIREMENTS OF THE TOWER OWNER

b) INSTALL CORRUGATED FLEXIBLE CONDUIT UP THE TOWER TO COMPANY'S RAD CENTER

c) PROVIDE HANGING GRIPS OR CONDUIT CLAMPS AND ENSURE CONDUITS AS WELL AS INNER CABLES ARE SUPPORTED

d) CONDUIT RISERS: AT THE TOP OF THE TOWER TURN CONDUIT DOWN AND PROVIDE CABLE TERMINATION FITTINGS. EXTEND CABLES TO RADIOS EXPOSED AND SECURED TO THE STRUCTURE, AT CONDUIT EXIT FROM TOWER, PROVIDE DRIP LOOPS AND WEEP HOLES.

e) AT THE ICE BRIDGE RUN CABLES IN RGS CONDUIT. UTILIZE CONDULETS TO MAKE COMPACT 90 DEGREE TURNS

4) AC POWER TIE-IN

a) INSTALL SPRINT'S 120 VOLT DIN-RAIL CIRCUIT BREAKER ASSEMBLY IN THE EXISTING POWER PROTECTION CABINET TELCO SECTION

b) INSTALL A 20 AMPERE MOLDED CASE CIRCUIT BREAKER IN AVAILABLE SPACE IN THE ADJACENT PPC POWER SECTION LOAD CENTER

5) GROUNDING

a) 120 VOLT CIRCUITS: POWER CABLES MUST BE 3-WIRE WITH EQUIPMENT GROUNDING CONDUCTOR b) SUPPLEMENTAL GROUNDING: ALL GROUNDING HARDWARE MUST BE UL STAMPED AS SUITABLE FOR GROUNDING HARDWARE

c) RADIOS: BOND RADIO TO THE TOWER TOP OR SECTOR GROUND BAR WITH #6 BARE TINNED COPPER WIRE (GREEN INSULATED ON ROOFTOPS)

d) DIN-RAIL CIRCUIT BREAKER ASSEMBLY: BOND SURGE ARRESTOR TO PPC TELCO BOARD GROUND BAR

6) MINOR MATERIALS

a) CONDUIT

i) RIGID GALVANIZED STEEL CONDUIT (RGS): UL LISTED, COMPLIANT WITH ANSI STANDARD C80, HOT-DIP GALVANIZED. WITH THREADED FITTINGS. MANUFACTURERS: ALLIED, REPUBLIC, WHEATLAND, OR EQUAL. ii)CORRUGATED FLEXIBLE CONDUIT: DURALINE OR EQUAL.

iii) LIQUID-TIGHT FLEXIBLEMETALLIC CONDUIT (LFMC): UL LABLED, UC RESISTANT, FLAME RETARDANT PVC JACKET, HOT-DIP GALVANIZED, GREY. MANUFACTURERS: AFC, ANACONDA, SOUTHWIRE, OR EQUAL.

iv) PVC CONDUIT: SCHEDULE 40. CARLON OR EQUAL

v) CABINET HUBS AND CABLE TERMINATION FITTINGS: OZ GEDNEY OR ROXTEC

b) COAXIAL CABLE JUMPERS: $\frac{1}{2}$ " LDF-4 MANUFACTURERS: COMMSCOPE, RFS OR FCT.

c)FASTENERS AND HARDWARE

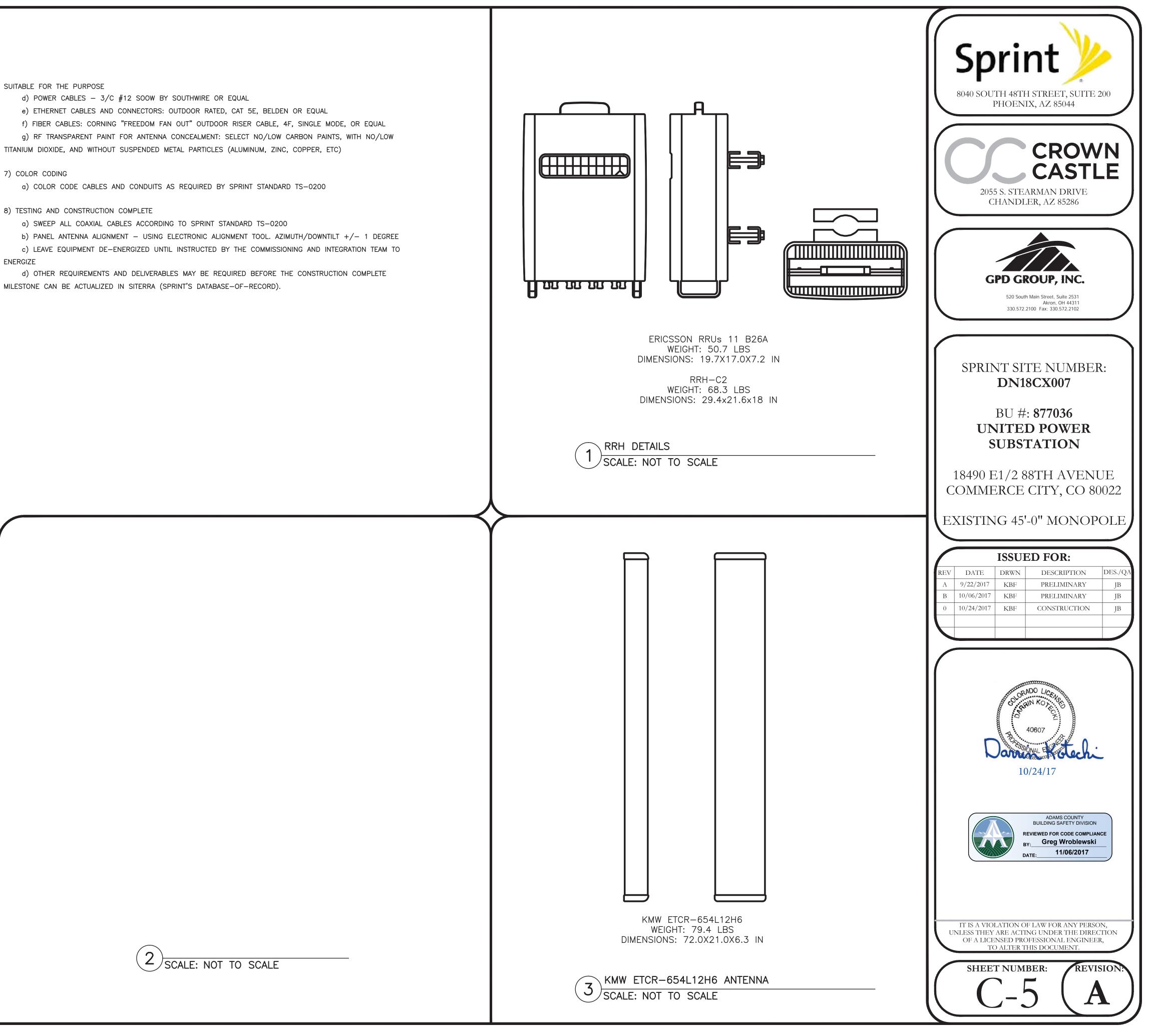
i) TO SECURE RACEWAYS, UTILIZE NON CORRODING NON-MAGNETS METALLIC FASTENERS AND HARDWARE

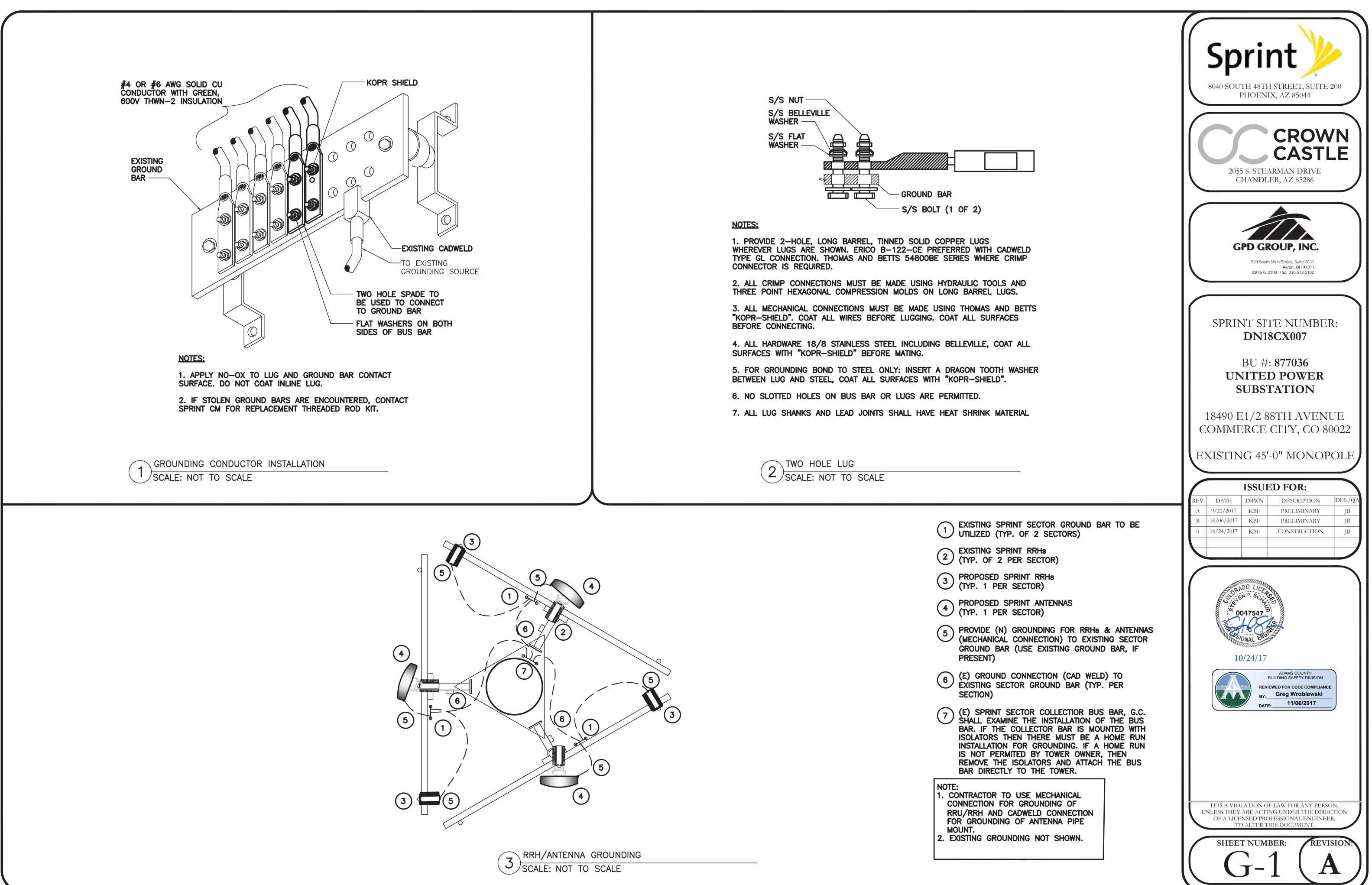
SUITABLE FOR THE PURPOSE

7) COLOR CODING

8) TESTING AND CONSTRUCTION COMPLETE

ENERGIZE





Date: September 14, 2017

Simona Dixon Crown Castle 2055 S. Stearman Drive Chandler, AZ 85286 (480) 735-6948

Tower Engineering Professionals 326 Tryon Road Raleigh, NC 27603 (919) 661-6351 crown@tepgroup.net

Subject: Structural Analysis Report

Carrier Designation:	<i>Sprint PCS</i> Co-Locate Carrier Site Number: Carrier Site Name:	DN18XC007 N/A			
Crown Castle Designation:	Crown Castle BU Number: Crown Castle Site Name: Crown Castle JDE Job Number: Crown Castle Work Order Number: Crown Castle Application Number:	877036 United Power Substation 459542 1456763 406103 Rev. 0			
Engineering Firm Designation:	TEP Project Number:	80367.132028			
Site Data:	18490 1/2 88th Ave., Commerce City, A Latitude 39° <i>51' 23.77"</i> , Longitude <i>-104</i> 45 Foot - Monopole Tower				

Dear Simona Dixon,

Tower Engineering Professionals is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1079780, in accordance with application 406103, revision 0.

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

LC5: Existing + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the 2012 <u>International Building Code</u> based upon an ultimate 3-second gust wind speed of 115 mph converted to a nominal 3-second gust wind speed of 89 mph per Section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Tables 1 and 2 and the attached drawing for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing pur continuing professional services to you and *Crown Castle*. If you have any questions or need further essistance on this or any other projects please give us a call.

Structural analysis prepared by: Dustin T. Smith, P.E. / ZRH

Respectfully submitted by



Graham M. Andres, P.E.

ADAMS COUNTY BUILDING SAFETY DIVISION REVIEWED FOR CODE COMPLIANCE BY: Regina Lopilato DATE: 11/06/2017



Electronic Copy

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1) INTRODUCTION

This tower is a 45-ft monopole tower designed by Paul J. Ford and Company and manufactured by Summit Manufacturing, Inc. in March of 1999. The tower was originally designed for a wind speed of 100 mph per TIA/EIA-222-F for the appurtenances listed in Table 3. TEP did not visit the site. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

The analysis has been performed in accordance with the ANSI/TIA-222-G-2-2009 <u>Structural Standard for</u> <u>Antenna Supporting Structures and Antennas – Addendum 2</u> using a nominal 3-second gust wind speed of 89 mph with no ice and 60 mph under service loads with the following design criteria:

 Type of Analysis:
 Rigorous Structural Analysis

 Classification of Structure:
 Class II

 Exposure Category:
 Exposure C

 Topographic Category:
 Category 1

 Earthquake Category:
 Not Considered

 Earthquake effects may be ignored per this standard for site locations where Ss does not exceed 1.0.

 (Adams County Max Ss = 0.21).

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)			Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
45.0	46.0	3	KMW Communications	ETCR-654L12H6 w/ Mount Pipe	-	-	-
		3	3 Ericsson RRUS 11 B26A				

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)		Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	KMW Communications	ET-X-TS-70-15-62-18-iR- RD w/ Mount Pipe	-	-	1
	46.0	3	Samsung Telecommunications	RRH-C2 w/EXT FILTER		1	2
45.0	40.0	3	Samsung Telecommunications	RRH-P4	3		
		3	Samsung Telecommunications	Power Junction Cylinder			
	45.0	1	Tower Mounts	Sector Mount [SM 901-3]			

Notes:

1) Existing equipment to be removed; not considered in this analysis

2) Existing equipment

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)		Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
45.0	45.0	9	Swedcom	ALP-9212-N	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Reports	CTC-Geotek, Inc.	1539574	CCISites
Tower Foundation Drawings	Paul J. Ford and Company	1446291	CCISites
Tower Manufacturer Drawings	Summit Manufacturing, Inc.	1463297	CCISites
Tower Manufacturer Calculations	Paul J. Ford and Company	1445488	CCISites

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and foundation were built in accordance with the manufacturer's specifications.
- 2) The tower and foundation have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and "Appendix B Base Level Drawing".
- 4) All tower components are in sufficient condition to carry their full design capacity.
- 5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.

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

4) ANALYSIS RESULTS

Section No.	Flevation (ft) Compone		Size	Critical Element	P (lb)	¢P _{allow} (Ib)	% Capacity	Pass / Fail
L1 45 - 0 Pole		Pole	TP18.75x12x0.188	1	-4618	820737	53.0	Pass
							Summary	
						Pole (L1)	53.0	Pass
						RATING =	53.0	Pass

Table 5 - Section Capacity (Summary)

Table 6 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	-	32.8	Pass
1	Base Plate	-	18.6	Pass
1	Base Foundation Soil Interaction	-	58.6	Pass
1	Base Foundation Structural	-	19.7	Pass

Structure Rating (max from all components) =	58.6%	

Notes:

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

4.1) Recommendations

- 1) If the load differs from that described in Tables 1 and 2 of this report, "Appendix B Base Level Drawing" or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

								45.0 ft								
													DE		RTENANCE LOADING	
													TYPE	ELEVATION	TYPE	ELEVATION
												2' Top Hat		46	POWER JUNCTION CYLINDER	45
												Lightning Rod	5/8" x 4' 2H6 w/ Mount Pipe	45 45	POWER JUNCTION CYLINDER POWER JUNCTION CYLINDER	45 45
													2H6 w/ Mount Pipe	45	RRUS 11 B26A	45
												ETCR-654L12 RRH-C2 w/E2	2H6 w/ Mount Pipe	45 45	RRUS 11 B26A RRUS 11 B26A	45 45
												RRH-C2 W/E		45	(2) 2.4" Dia. x 6-ft	45
												RRH-C2 w/E>	KT FILTER	45	(2) 2.4" Dia. x 6-ft	45
												RRH-P4 RRH-P4		45 45	(2) 2.4" Dia. x 6-ft Sector Mount [SM 901-3]	45 45
												RRH-P4		45		
															L STRENGTH	
												GRADE	Fy		GRADE Fy	Fu
												A607-65	65 ksi	80 ksi		
												4 T			ESIGN NOTES	
												 1. Tower is 2. Tower c 	s located in Adam lesigned for Expo	is County, Colorado sure C to the TIA-22	22-G Standard.	
												Tower c	lesigned for a 89	mph basic wind in a	accordance with the TIA-222-0	Standard.
												 Deflecti Tower S 	ons are based up Structure Class II.	on a 60 mph wind.		
												6. Topogra	aphic Category 1	with Crest Height of	0.000 ft	
												7. TOWER	R RATING: 53%			
	8	~	88	8	50	-65	1384.0		\frown							
-	45.000	18	0.188	12.000	18.750	A607-65	138		\bigcirc							
										ALL REACTIO	NS					
										ARE FACTOR	ΕU					
										AXIAL 4626 lb						
										4020 ID						
									SHEAF		MOMEN 163925 lb	T				
								0.04	4106 lb		▼ 163925 lb	o-ft				
							1384.0	0.0 ft		TORQUE 6 lb CTIONS - 89 m)-ft					
		ş					138		REAC	;110NS - 89 mp	oh WIND					
	£	of Sic	ss (in)	(ii)	<u>(</u>		वि									
Section	Length (ft)	Number of Sides	Thickness (in)	Top Dia (in)	Bot Dia (in)	đe	Weight (lb)									
Sec	Len	Nur	Η̈́Η	Top	Bot	Grade	We.									

Tower Engineering Professionals	

Tower Engineering Professionals 326 Tryon Rd. Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350

^{ob:} United Power Substation (BU 877036)									
Project: TEP# 80367.132028									
Client: Crown Castle	Drawn by: Dustin T. Smith, P.E.	App'd:							
		Scale: NTS							
Path: Wep-netapp-01%owerd80367/79635_133									

tnxTower

Tower Engineering Professionals 326 Tryon Rd. Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350

Use Diamond Inner Bracing (4 Sided)

SR Members Have Cut Ends

SR Members Are Concentric

Job		Page
	United Power Substation (BU 877036)	1 of 6
Project	TEP# 80367.132028	Date 11:16:11 09/14/17
Client	Crown Castle	Designed by Dustin T. Smith, P.E.

Tower Input Data

There is a pole section.

This tower is designed using the TIA-222-G standard. The following design criteria apply: Tower is located in Adams County, Colorado.

Basic wind speed of 89 mph. Structure Class II. Exposure Category C. Topographic Category 1. Crest Height 0.000 ft. Deflections calculated using a wind speed of 60 mph. A non-linear (P-delta) analysis was used. Pressures are calculated at each section. Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Distribute Leg Loads As Uniform Consider Moments - Horizontals Assume Legs Pinned Assume Rigid Index Plate Consider Moments - Diagonals Use Clear Spans For Wind Area Use Moment Magnification Use Code Stress Ratios Use Clear Spans For KL/r $\sqrt{}$ Use Code Safety Factors - Guys Retension Guys To Initial Tension Bypass Mast Stability Checks Escalate Ice Always Use Max Kz Use Azimuth Dish Coefficients Use Special Wind Profile Project Wind Area of Appurt. Autocalc Torque Arm Areas Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Add IBC .6D+W Combination Secondary Horizontal Braces Leg $\sqrt{}$

√ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation

- ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption Poles
- ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets

Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
L1	<i>ft</i> 45.000-0.000	<i>ft</i> 45.000	ft	Sides 18	12.000	18.750	0.188	0.750	A607-65 (65 ksi)

Tapered Pole Properties

i	tnxTower			Job United Power Substation (BU 877036)						Page	Page 2 of 6	
Tower Engineering Professionals 326 Tryon Rd.			g P	roject	TE	P# 80367	7.132028			Date 11:1	Date 11:16:11 09/14/1	
326 Tryon Rd. Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350		-	Client Crown Castle						-	Designed by Dustin T. Smith P.E.		
Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in^4	It/Q in ²	w in	w/t	_	
L1	12.185 19.039	7.030 11.047	123.928	4.193	6.096 9.525	20.329 50.488	248.020 962.433	3.516 5.525	1.782 2.970	9.504 15.84		
Tower Elevatio	Guss on Are (per fo	a	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mul	Stitch E Spacii	solt St	uble Angle titch Bolt Spacing orizontals	Double Angle Stitch Bolt Spacing Redundants	
<i>ft</i> L1 45.000-0.0	ft ²		in		1	1	1	Diagon in	uis Ho	in	in	

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component	Placement	Total	Number	Start/End	Width or	Perimeter	Weight
		Type		Number	Per Row	Position	Diameter		
			ft				in	in	klf
Step Pegs (5/8" SR) 7-in. w/30"	А	Surface Ar	45.000 - 0.000	1	1	0.500	0.350		0.000
step		(CaAa)				0.500			
Safety Line 3/8	А	Surface Ar	45.000 - 0.000	1	1	0.500	0.375		0.000
		(CaAa)				0.500			
HC-24LCSM6GAB-XXXF(1")	А	Surface Ar	45.000 - 37.000	3	3	-0.250	0.993		0.001
		(CaAa)				-0.250			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or	Allow Shield	Component Type	Placement	Total Number		$C_A A_A$	Weight
	Leg		21	ft			ft²/ft	klf
***				·				
HC-24LCSM6GAB-XX XF(1") ***	А	No	Inside Pole	37.000 - 0.000	3	No Ice	0.000	0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation	Face	A_R	A_F	C _A A _A In Face	C _A A _A Out Face	Weight
	ft		ft^2	ft^2	ft^2	ft^2	lb
L1	45.000-0.000	А	0.000	0.000	5.646	0.000	127
		В	0.000	0.000	0.000	0.000	0
		С	0.000	0.000	0.000	0.000	0

Feed Line Center of Pressur								
Section	Elevation	CP _X	CPz	CP _X	CPz			
	ft	in	in	Ice in	Ice in			

		Job				Page
tnx	Tower		United P	3 of 6		
Tower Engineering Professionals 326 Tryon Rd. Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350		Project		TEP# 80367.	Date 11:16:11 09/14/17	
		Client		Designed by Dustin T. Smith, P.E.		
Section	Elevation	СРх	CPz	CP _X	CP _Z	
	ft	in	in	Ice	Ice	

	ft	in	in	in	in
L1	45,000-0.000	-0.063	-0.100	-0.063	-0.100

Shielding Factor Ka

ſ	Tower	Feed Line	Description	Feed Line	Ka	Ka
	Section	Record No.		Segment Elev.	No Ice	Ice
ſ	L1	1	Step Pegs (5/8" SR) 7-in.	0.00 - 45.00	1.0000	1.0000
			w/30" step			
	L1	2	Safety Line 3/8	0.00 - 45.00	1.0000	1.0000
	L1	5	HC-24LCSM6GAB-XXXF(1	37.00 - 45.00	1.0000	1.0000
			")			

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement		$C_A A_A$ Front	C _A A _A Side	Weight
	0		Vert ft ft	o	ft		ft ²	ft ²	lb
Lightning Rod 5/8" x 4'	С	From Leg		0.000	45.000	No Ice	0.250	0.250	31
2' Top Hat ***	С	None	4.000	0.000	46.000	No Ice	2.133	2.133	83
ETCR-654L12H6 w/ Mount Pipe	А	From Leg	3.000 0.000	0.000	45.000	No Ice	13.271	6.537	105
ETCR-654L12H6 w/ Mount Pipe	В	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	13.271	6.537	105
ETCR-654L12H6 w/ Mount Pipe	С	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	13.271	6.537	105
RRH-C2 w/EXT FILTER	А	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	5.292	4.410	68
RRH-C2 w/EXT FILTER	В	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	5.292	4.410	68
RRH-C2 w/EXT FILTER	С	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	5.292	4.410	68
RRH-P4	А	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	2.735	1.789	60
RRH-P4	В	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	2.735	1.789	60
RRH-P4	С	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	2.735	1.789	60
POWER JUNCTION CYLINDER	А	From Leg	1.000 3.000 0.000	0.000	45.000	No Ice	0.369	0.369	3

tnxTow	er	Job	Job United Power Substation (BU 877036)							Page 4 of 6	
Tower Enginee Professiona 326 Tryon Rd.	Projec	Project TEP# 80367.132028							Date 11:16:11 09/14/17		
Raleigh, NC 276 Phone: (919) 661- FAX: (919) 661-6	Client	Client Crown Castle						Designed by Dustin T. Smith, P.E.			
Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placement		C _A A _A Front	C _A A _A Side	Weight		
			Vert ft ft ft	o	ft		ft²	ft ²	lb		
POWER JUNCTION CYLINDER	В	From Leg	$ \begin{array}{r} 1.000 \\ 3.000 \\ 0.000 \\ 1.000 \end{array} $	0.000	45.000	No Ice	0.369	0.369	3		
POWER JUNCTION CYLINDER	С	From Leg	3.000 0.000 1.000	0.000	45.000	No Ice	0.369	0.369	3		
RRUS 11 B26A	А	From Leg	3.000 0.000 1.000	0.000	45.000	No Ice	1.639	1.262	44		
RRUS 11 B26A	В	From Leg	3.000 0.000 1.000	0.000	45.000	No Ice	1.639	1.262	44		
RRUS 11 B26A	С	From Leg	3.000 0.000 1.000	0.000	45.000	No Ice	1.639	1.262	44		
(2) 2.4" Dia. x 6-ft	А	From Leg	3.000 0.000 -2.000	0.000	45.000	No Ice	1.425	1.425	22		
(2) 2.4" Dia. x 6-ft	В	From Leg	3.000 0.000 -2.000	0.000	45.000	No Ice	1.425	1.425	22		
(2) 2.4" Dia. x 6-ft	С	From Leg	3.000 0.000 -2.000	0.000	45.000	No Ice	1.425	1.425	22		
ector Mount [SM 901-3]	С	None		0.000	45,000	No Ice	12 900	12 900	1257		

Load Combinations

45.000

No Ice

12.900

12.900

1257

0.000

Sector Mount [SM 901-3] ****

С

None

Comb.		Description
No.		
1	Dead Only	
2	1.2 Dead+1.6 Wind 0 deg - No Ice	
3	0.9 Dead+1.6 Wind 0 deg - No Ice	
4	1.2 Dead+1.6 Wind 30 deg - No Ice	
5	0.9 Dead+1.6 Wind 30 deg - No Ice	
6	1.2 Dead+1.6 Wind 60 deg - No Ice	
7	0.9 Dead+1.6 Wind 60 deg - No Ice	
8	1.2 Dead+1.6 Wind 90 deg - No Ice	
9	0.9 Dead+1.6 Wind 90 deg - No Ice	
10	1.2 Dead+1.6 Wind 120 deg - No Ice	
11	0.9 Dead+1.6 Wind 120 deg - No Ice	
12	1.2 Dead+1.6 Wind 150 deg - No Ice	
13	0.9 Dead+1.6 Wind 150 deg - No Ice	
14	1.2 Dead+1.6 Wind 180 deg - No Ice	
15	0.9 Dead+1.6 Wind 180 deg - No Ice	
16	1.2 Dead+1.6 Wind 210 deg - No Ice	
17	0.9 Dead+1.6 Wind 210 deg - No Ice	
18	1.2 Dead+1.6 Wind 240 deg - No Ice	
19	0.9 Dead+1.6 Wind 240 deg - No Ice	
20	1.2 Dead+1.6 Wind 270 deg - No Ice	
21	0.9 Dead+1.6 Wind 270 deg - No Ice	
22	1.2 Dead+1.6 Wind 300 deg - No Ice	

	<i>tnxTower</i>		United Power Substation (BU 877036)	Page 5 of 6
	Tower Engineering Professionals 326 Tryon Rd.	Project	TEP# 80367.132028	Date 11:16:11 09/14/17
Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Client	Crown Castle	Designed by Dustin T. Smith, P.E.	
Comb. No.			Description	

23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	Dead+Wind 0 deg - Service
27	Dead+Wind 30 deg - Service
28	Dead+Wind 60 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 120 deg - Service
31	Dead+Wind 150 deg - Service
32	Dead+Wind 180 deg - Service
33	Dead+Wind 210 deg - Service
34	Dead+Wind 240 deg - Service
35	Dead+Wind 270 deg - Service
36	Dead+Wind 300 deg - Service
 37	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section	Elevation	Horz.	Gov.	Tilt	Twist
No.		Deflection	Load		
	ft	in	Comb.	0	0
L1	45 - 0	4.637	35	0.829	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	0	0	ft
46.000	2' Top Hat	35	4.637	0.829	0.000	Inf
45.000	Lightning Rod 5/8" x 4'	35	4.637	0.829	0.000	Inf

Maximum Tower Deflections - Design Wind

Section	Elevation	Horz.	Gov.	Tilt	Twist
No.		Deflection	Load		
	ft	in	Comb.	0	0
L1	45 - 0	18.338	20	3.282	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load	Deflection	Tilt	Twist	Radius of Curvature
ft		Comb.	in	0	0	ft
46.000	2' Top Hat	20	18.338	3.282	0.000	Inf
45.000	Lightning Rod 5/8" x 4'	20	18.338	3.282	0.000	Inf

Compression Checks

<i>tnxTower</i>	Job	United Power Substation (BU 877036)	Page 6 of 6
Tower Engineering Professionals 326 Tryon Rd.	Project	TEP# 80367.132028	Date 11:16:11 09/14/17
Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350	Client	Crown Castle	Designed by Dustin T. Smith, P.E.

	Pole Design Data								
Section No.	Elevation	Size	L	L_u	Kl/r	Α	P_u	f P _n	Ratio Pu
	ft		ft	ft		in^2	lb	lb	$f P_n$
L1	45 - 0 (1)	TP18.75x12x0.188	45.000	0.000	0.0	11.047	-4618	820737	0.006

	Pole Bending Design Data									
Section No.	Elevation	Size	M _{ux}	f M _{nx}	Ratio M _{ux}	M _{uy}	f M _{ny}	Ratio M		
110.	ft		lb-ft	lb-ft	$f M_{nx}$	lb-ft	lb-ft	$\frac{M_{uy}}{f M_{ny}}$		
L1	45 - 0 (1)	TP18.75x12x0.188	163924	312585	0.524	0	312585	0.000		

Pole Shear Design Data										
Section No.	Elevation	Size	Actual V _u	f V _n	Ratio V _u	Actual T_{μ}	f T _n	Ratio T_{u}		
	ft		lb	lb	f V _n	lb-ft	lb-ft	f_n		
L1	45 - 0 (1)	TP18.75x12x0.188	4115	410369	0.010	5	625935	0.000		

Pole Interaction Design Data

Section No.	Elevation	Ratio P _u	Ratio M _{ux}	Ratio M _{uy}	$Ratio V_u$	Ratio T_u	Comb. Stress	Allow. Stress	Criteria
	ft	$f P_n$	$f M_{nx}$	$f M_{ny}$	$f V_n$	f T _n	Ratio	Ratio	
L1	45 - 0 (1)	0.006	0.524	0.000	0.010	0.000	0.530	1.000	4.8.2

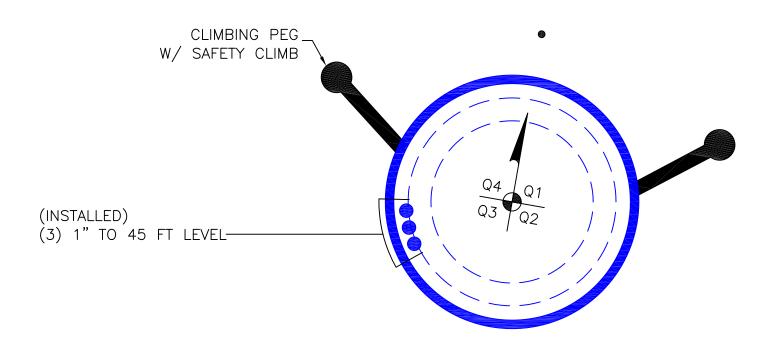
Section Capacity Table

Section	Elevation	Component	Size	Critical	Р	ϕP_{allow}	%	Pass
No.	ft	Type		Element	lb	lb	Capacity	Fail
L1	45 - 0	Pole	TP18.75x12x0.188	1	-4618	820737	53.0	Pass
							Summary	
						Pole (L1)	53.0	Pass
						RATING =	53.0	Pass

Program Version 7.0.5.1 - 2/1/2016 File://tep-netapp-01/towers/80367/79635_132028_877036 UNITED POWER SUBSTATION SA/tnxTower/877036_LC5.eri

APPENDIX B

BASE LEVEL DRAWING



APPENDIX C

ADDITIONAL CALCULATIONS

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions: 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner). 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner) 3) Clear space between bottom of leveling nut and top of concrete not exceeding (1)*(Rod Diameter)

3) Clear	space between bottom	of leveling nut and top of concrete not excee	ding (1)*(Rod Diameter)	
Site Data		Base Reactions		
BU#: 877036		TIA Revision: G		
Site Name: United I	Power Substation	Factored Moment, Mu: 163.925	ft-kips	
App #: 406103	Rev. 0	Factored Axial, Pu: 4.626	kips	
Anchor Ro	d Data	Factored Shear, Vu: 4.106	kips	
Eta Factor, η 0.5	TIA G (Fig. 4-4)	· · · · · · · · · · · · · · · · · · ·		
Qty: 4				
Diam: 2.25	in	Anchor Rod Results		
Rod Material: A615	-J	TIA G> Max Rod (Cu+ Vu/η):	85.2 Kips	
Yield, Fy: 75	ksi	Axial Design Strength, Φ*Fu*Anet:	260.0 Kips	
Strength, Fu: 100	ksi	Anchor Rod Stress Ratio:	32.8% Pass	
Bolt Circle: 24	in			
Plate D		Base Plate Results	Flexural Check	PL Ref. Data
W=Side: 23	in	Base Plate Stress:	8.4 ksi	Yield Line (in):
Thick: 2.75		PL Design Bending Strength, Φ*Fy:		13.78
Grade: 50	ksi	Base Plate Stress Ratio:	18.6% Pass	Max PL Length:
Clip Distance: 1	in			13.78
		N/A - Unstiffened		
Stiffener Data (Weld		Stiffener Results		
Configuration: Unstiffe		Horizontal Weld :	N/A	
Weld Type:	**	Vertical Weld:	N/A	
Groove Depth:	in **	Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A	
Groove Angle:	degrees	Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A	
Fillet H. Weld:	< Disregard	Plate Comp. (AISC Bracket):	N/A	
Fillet V. Weld:	in	Pole Results	N1/A	
Width:	in	Pole Punching Shear Check:	N/A	1
Height:	in	Max PL Length		
Thick:	in	# Anchors 5t 5t A DASE DI		
Notch: Grade:	in	at corner= Oty/4 dt corner= Oty/4 t= BASE PL THICKNESS		
Weld str.:	ksi	Q Anchor, 1	Тур.	
Clear Space	ksi		IFFENED CONFIGURATION SUMED IN TOOL	
between			B.C.	
Stiffeners at	in		SH-	
B.C.				
0.0.			Input Clear Space at B.C. for <u>Single</u> Anchor Case	
		Pole w/ DIAM =	Anchor Case	
Pole Data		Pole W/ DIAM =		
Diam: 18.7	5 lin		D / ing Same As	
Thick: 0.187		Anchor Spac Stiffener Spac Except for S	icing,	
Grade: 65	ksi		it Clear Space)	

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

of Sides:

18

"0" IF Round

Drilled Pier Foundation

BU # : 877036 Site Name: United Power Substatid									
App. Number:									
TIA-222 Revison:		G							
Tower Type:	Monopole								
Applied		11.116							
	Comp.	Uplift							
Moment (kip-ft)	163.925								
Axial Force (kips)	4.626								
Shear Force (kips)	4.106								
Material P	roperties								
Concrete Strength, f'c:	3	ksi							
Rebar Strength, Fy:	60	ksi							
	-								
Pier Des	ign Data								
Depth	11	ft							
Ext. Above Grade	0.5	ft							
Pier Se	ction 1								
From 0.5' above grad	le to 11' below	grade							
Pier Diameter	4	ft							
Rebar Quantity	10								
Rebar Size	9								
Clear Cover to Ties	4	in							
Tie Size	5								

Analysi	is Results	
Soil Lateral Capacity	Compression	Uplift
D _{v=0} (ft from TOC)	1.43	-
Soil Safety Factor	2.27	-
Max Moment (kip-ft)	169.05	-
Rating	58.6%	-
Soil Vertical Capacity	Compression	Uplift
Skin Friction (kips)	28.88	-
End Bearing (kips)	37.70	-
Weight of Concrete (kips)	26.01	-
Total Capacity (kips)	66.58	-
Axial (kips)	30.64	-
Rating	46.0%	-
Reinforced Concrete Capacity	Compression	Uplift
Critical Depth (ft from TOC)	1.37	-
Critical Moment (kip-ft)	169.05	-
Critical Moment Capacity	859.59	-
Rating	19.7%	-
Soil Interaction Rating	58	.6%
Structural Foundation Rating	19	.7%

0	~	CROWN	
\cup	-	CASTLE	

Groundwater Depth	n/a	ft

of Layers 2

L	.ayer	Top (ft)	Bottom (ft)	Thickness (ft)	Y _{soil} (pcf)	Yconcrete (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Ultimate Skin	Ultimate Skin Friction Comp Override (ksf)	Elltimato Skin	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
	1	0	4.17	4.17	100	150	0.3125		0.172	0.172					Cohesive
	2	4.17	11	6.83	100	150	0.625		0.344	0.344			4	14	Cohesive

EXHIBIT "A"

[Lessor's Property]

That part of the SE 1/4 of Section 21, Township 2 South, Range 66 West of the 6th P.M., Adams County, Colorado, described as follows:

Beginning at the Southeast corner of said SE 1/4;

Thence North 00°00'00" East on an assumed bearing along the East line of said SE 1/4, a distance of 230.00 feet;

Thence South $89^{\circ}40'30''$ West parallel with the South line said SE 1/4 a distance of 189.40 feet; Thence South $00^{\circ}00'00''$ West a distance of 230.00 feet to a point on the South line said SE 1/4; Thence North $89^{5}40'30''$ East a distance of 189.40 feet to the Point of Beginning.

Site Name: Rocky Flats Business Unit #: 877007 BUS_RE\1981693 1