

## **Staff Report**

PLANNING DIVISION DEPARTMENT of COMMUNITY and NEIGHBORHOODS

### To: Administrative Hearing Officer, Salt Lake City Planning Division

From:	David J. Gellner, AICP, Principal Planner
	(801) 535-6107
	david.gellner@slcgov.com

Date: May 23, 2019

Re: Conditional Use for a New Antenna Addition to an Existing Wall-Mounted Wireless Telecommunications Installation (PLNPCM2019-00158)

## **Conditional Use**

### **PROPERTY ADDRESS:** 1955 E. Stratford Avenue **MASTER PLAN:** Sugar House Master Plan (2005) **ZONING DISTRICT:** Institutional (I) zoning district

**REQUEST:** The petitioner, Don Shiveley representing AT&T, is seeking Conditional Use approval for a new parabolic antenna to be added to the existing wall-mounted telecommunications site located on the Redeemer Evangelical Lutheran Church located at 1955 E. Stratford Avenue. Per section 21A.40.090.E, since the antenna will extend above the wall line of the building, it is considered a roof-mounted antenna and must be approved as a Conditional Use in the Institutional (I) zoning district.

**RECOMMENDATION/MOTION:** Based on the information in this staff report, planning staff recommends that the Administrative Hearing Officer approve the proposed antenna addition to the existing wall-mounted telecommunications facility subject to the conditions listed below.

The following motion is provided in support of the recommendation:

Based on the findings and information listed in the staff report and the testimony and plans presented, I move that the Administrative Hearing Officer approve the requested conditional use application for the antenna addition filed under Planning application PLNPCM2019-00158 subject to the following conditions:

- 1. Any modifications to the approved plans after the issuance of a building permit must be specifically requested by the applicant and approved by the Planning Division prior to execution.
- 2. Applicant shall comply with all other department/division requirements.

### **ATTACHMENTS:**

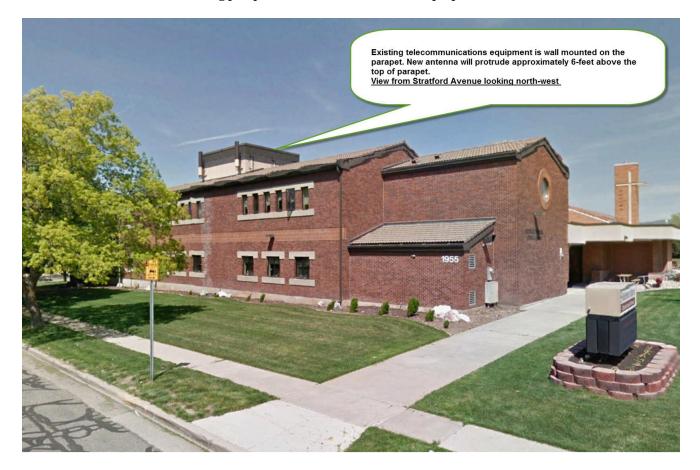
- A. Vicinity Aerial
- B. Applicant's Narrative
- C. Site and Facility Plans
- D. Existing Conditions
- E. Analysis of Standards
- F. <u>Public Process and Comments</u>
- G. Department Review Comments

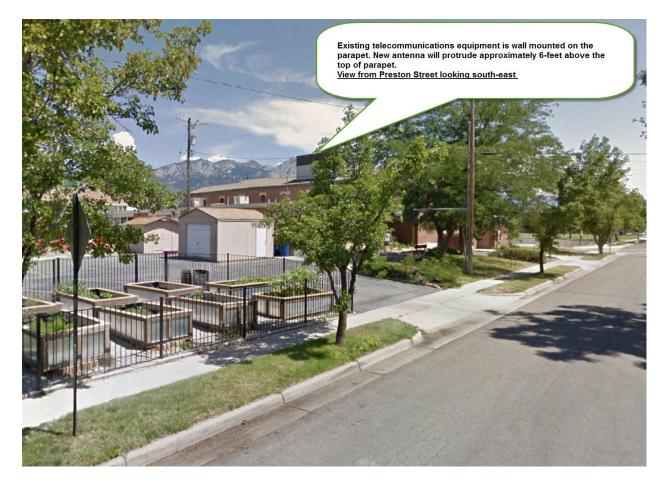
### **PROJECT DESCRIPTION:**

The petition is for a new parabolic antenna to be added to the existing wall-mounted telecommunications site already established on the Redeemer Evangelical Lutheran Church located at 1955 E. Stratford Avenue. Wall mounted antennas are a Permitted Use in the Institutional zone. Per section 21A.40.090.E of the Zoning Ordinance, since the antenna will extend above the wall line of the building, the proposed antenna is classified as "roof mounted" which is only allowed as a Conditional Use in the Institutional (I) zoning district.

### Background

The subject property is approximately 1.66 acres in size and is used for a church. The proposed wireless facility will be located on the parapet wall and will extend approximately 6-feet above the parapet. The location of the facility in relation to Zoning Ordinance requirements is discussed in more detail below. The photographs below also show the location of the existing parapet where the antenna has been proposed.





### **KEY CONSIDERATIONS:**

The key considerations were identified through the analysis of the project (<u>Attachment E</u>) and department review comments (<u>Attachment G</u>) and are discussed further in the following section of this report.

### Consideration 1 – Visual and Neighborhood Impacts:

The property is used for a church, specifically the Redeemer Evangelical Lutheran Church. The church has an existing wall-mounted telecommunications site that is on the building's parapet. The top of the parapet wall sits 37-feet above grade with the existing antennas mounted at approximately 32-feet in elevation. The proposed antenna would extend 6-feet above the parapet wall which is considered a "roof-mounted" antenna per the definition in the Salt Lake City Zoning Ordinance.

The nearest residential structures are located on Preston Street to the west of the church so the greatest concern of visual impact would presumably be experienced on those properties. The existing antennas and parapet are however partially obscured by mature street trees along Preston making the antennas hard to see when there are leaves on the trees. The antenna dish is relatively small (approximately 2 feet by 3 feet in diameter) and will be located on a pole approximately 43-feet above the ground.

Given the proposed design and size of the antenna, it's location on a parapet adjacent to existing equipment, it's location approximately at a substantial distance above grade and the partial screening provided by the mature trees, no detrimental impacts either visually, or on other properties are anticipated from the proposed antenna.

### **DISCUSSION:**

The proposed antenna is allowed as a conditional use in the Institutional (I) zoning district. The wireless antenna should be approved if reasonable conditions are proposed, or can be imposed, to mitigate the reasonably detrimental effects of the proposed use.

The proposed use meets the Conditional Use standards and Detrimental Effects Determination as analyzed and discussed in <u>Attachment E</u> of this report. No detrimental impacts are anticipated and as such, the conditional use should be approved by the Administrative Hearing Officer.

### **NEXT STEPS:**

If the conditional use is approved, the applicant will be required to comply with all other department/division requirements and obtain all necessary building permits for the project.

## ATTACHMENT A: VICINITY AERIAL



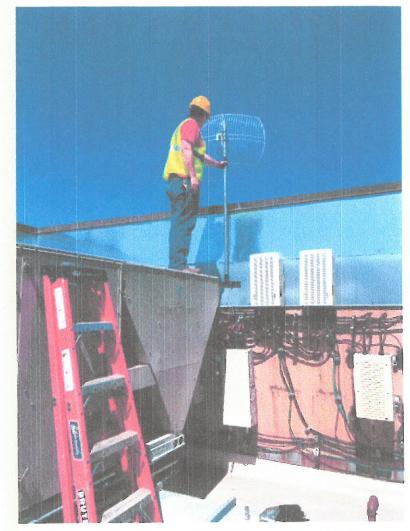
## **ATTACHMENT B: APPLICANT'S NARRATIVE**

The following page contains the narrative provided by the applicant for the proposed project.



## **Conditional Use**

	OFFICE USE ONI	.Y	
Project #:	Received By:	Date Received:	Zoning:
PLNPCM2019-00158	CHRIS	2/19/2019	I
Project Name:		· · · ·	
200FTOP ANTE	ANA		
PLEASE	PROVIDE THE FOLLOWIN		
Request: AT T DESIRES TO AL	•		
ALDED DY AT THE EXISTING Address of Subject Property:	COMMUNICATION SIT	E. THE BATTENNA K	MUST RE LOCATED
1955 E. STRATFORD AVE	S.L.C.		
		Phone:	
AT: T BY GENERSL DYI	NOMICS	·	
Address of Applicant:	N- Jane A	in the prove	7
1152 W. 2400 S. Suite C	, WEST VOLA L	ITY UT 34110	1
F-mail of Applicant		Cell/Fax:	
			and the second
Applicant's Interest in Subject Proper	ty:		
🗌 Owner 📄 Contractor	🗌 Architect 🛛 🕅	Other: IENSNT	
Name of Property Owner (if different	from applicant):		
REDEEMER EVANGELICS	L LUTHERDN	CHURCH	
E-mail of Property Owner:		Phone:	
Please note that additional inform	nation may be required b	y the project planner to	ensure adequate
information is provided for staff a	analysis. All information r	equired for staff analysis	s will be copied and
made public, including profession	al architectural or engine	ering drawings, for the p	ourposes of public
review by any interested party.			
	AVAILABLE CONSULT	ATION	
V Planners are available for consult	ation prior to submitting	this application. Please o	all (801) 535-7700 if
you have any questions regarding			
WHE	RE TO FILE THE COMPLET	E APPLICATION	
Mailing Address: Planning Count	· · · · · · · · · · · · · · · · · · ·	erson: Planning Co	unter
PO Box 145471			tate Street, Room 215
Salt Lake City, U	JT 84114	Telephone:	(801) 535-7700
	REQUIRED FEE		
Filing fee of \$758			
Plus additional cost of postage for i	mailing notice.		
	SIGNATURE		
lf applicable, a notarized stateme	nt of consent authorizing	applicant to act as an ag	gent will be required.
Signature of Owner or Agent:		Date:	
2 and	)	2-18	-19
	2		
		Updated	7/1/17



Preferred location (1) of Donor Antenna (NW view mounted to existing antenna mount.)

## ATTACHMENT C: SITE AND FACILITY PLANS

The following pages contain the site plans and wireless facility plans provided by the applicant for the proposed project.



### SITE NAME:

## **ROSSLYN HEIGHTS**

FA NUMBER: PTN NUMBER: 10088386 3752A0F768

## SALT LAKE COUNTY EXISTING 37' ROOFTOP cci echo upgrade

**PROJECT SUMMARY AREA MAP** LOCATION MAP DRAWI Garfield Ave SHEET SHEET # PROPERTY OWNER REDEEMER LUTHERAN CHURCH AND SCHOOL hinster Ave TOWER OWNER: REDEEMER LUTHERAN CHURCH AND SCHOOL TITLE SHEET T-1 Count Citv Redondo 🗛 Sugarhous SITE NAME: ROSSLYN HEIGHTS GN-1 GENERAL NOTES = 2100 S SITE ADDRESS: 1955 E STRATFORD AVE C-1OVERALL SITE PLAN Elm Av SALT LAKE CITY, UT 84106 ENLARGED SITE PL C-1.1 C-2 TOWER ELEVATION Sugarhouse Par COUNTY: SALT LAKE C-3 ANTENNA AZIMUTH OSSLYN HEIGHTS Hillcrest Ave ZONING JURISDICTION: ANTENNA SPECIFIC SALT LAKE COUNTY C-4Salt Lake QAY EQUIPMENT SPECIF Hillcrest Ave. C-5NAD83 C-5.1 EQUIPMENT SPECIF LATITUDE: 40.7157800° N 181 C-6EQUIPMENT SPECIF 111.835420° W LONGITUDE ₱ 2700 \$ GROUND ELEVATION: 4539' AMSL RF - 1REPEATER WIRING Tanne AT&T MOBILITY CORPORATION 4393 RIVERBOAT ROAD, SUITE 400 Park Crystal Ave CUSTOMER/ APPLICANT: TAYLORSVILLE, UT 84123 Zenith Ave Canyon Rim isher I n ₩ 3000 € E 3045 S fumont Ave Greason Avia 3080 8 OCCUPANCY TYPE: UNMANNED E 3115 S 311 195 Lambourne A E Clavhourne Ave A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT E 3205 s FOR HUMAN HABITATION NO SCALE NO SCALE A/E DOCUMEN **CONTACT INFORMATION DRIVING DIRECTIONS** TITLE A&E FIRM: B+T GROUP DEPART SALT LAKE CITY INTERNATIONAL AIRPORT ON (N) TERMINAL DR. ROAD NAME CHANGES TO LOCAL ROAD. KEEP LEFT 2833 SW 119TH, SUITE B OKLAHOMA CITY, OK 73170 PERRY KUYKENDALL CONSTRUCTION MGR ONTO RAMP. TAKE RAMP (LEFT) ONTO I-80. TURN OFF ONTO RAMP. TAKE RAMP (LEFT) ONTO I-15 [I-80]. AT EXIT 304, TAKE RAMP (RIGHT) ONTO I-80. AT EXIT 126. TURN RIGHT ONTO RAMP. KEEP RIGHT TO STAY ON RAMP. BEAR RIGHT CONTACT: AT&T RF ENGINEER: PHONE (405) 708-2507 ONTO UT-181 [S 1300 E]. TURN LEFT ONTO E STRATFORD AVE. TURN LEFT ONTO PRESTON ST. ARRIVE AT ROSSLYN ZONING APPROVAL: HEIGHTS SITE ACQ .: ROXY COLETTE SITE ACQUISITION: (425) 201-3736 RF ENGINEER .: CHRIS LOO PROPERTY OWNER: (801) 313-8356 STATUS CODE: CONST. MGR .: ALEX LAWSON (385) 226-0954 ACCEPTED: WITH OR NO NOT ACCEPTED: RESOLVE 2 ACCEPTANCE DOES NOT CONSTIL **PROJECT DESCRIPTION CODE COMPLIANCE DO NOT SCALE DRAWINGS** ANALYSIS, TEST METHODS OF MA SUBCONTRACTOR AND DOES N COMPLIANCE WITH ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ALL DRAWINGS CONTAINED HEREIN THE PROPOSED PROJECT INCLUDES: ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING ARE FORMATTED FOR 11X17. • INSTALL (1) NEW DONOR ANTENNA AT 43'. CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING • INSTALL (1) NEW 3-WAY POWER DIVIDER. IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CALL UT DIMENSIONS AND CONDITIONS ON THE JOB SITE AND • INSTALL (3) NEW ECHO REPEATERS. CONFORMING TO THESE CODES: SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING • INSTALL (3) NEW 1/2" COAX. (800 CODE TYPE CODE OF ANY DISCREPANCIES BEFORE PROCEEDING WITH BUILDING/DWELLING IBC 2015 THE WORK OR BE RESPONSIBLE FOR SAME. CALL 3 W STRUCTURAL IBC 2015 BEFO MECHANICAL IMC 2015 SEE SHEET GN-1 FOR ADDITIONAL CONSTRUCTION NOTES ELECTRICAL NEC 2017

		B+T GRP
		AT&T
		GENERAL DYNAMICS
ING INDEX DESCRIPTION DESCRIPTION N AN PLAN PLAN CATIONS TICATIONS TICATIONS DIAGRAM	REV. # 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FA: 10088386         FA: 1088386         FA:
NT REVIEW STA SIGNATURE COMMENTS, CONSTRUCTION MAY COMMENTS AND RESUBMIT TUTE APPROVAL OF DESIGN, CALCUL ATERIALS DEVELOPED OR SELECTED NOT RELIEVE SUBCONTRACTOR FROM I CONTRACTUAL OBLIGATIONS. TAH ONE CALL D) 662-4111 WORKING DAYS PRE YOU DIG!	DATE	B&T ENGINEERING, INC. B&T ENGINEERING, INC. B&T ENGINEERING, INC. NO. B&T ENGINEERING, INC. B&T ENGINEERING, INC

### COAXIAL ANTENNA CABLE NOTES:

- TYPES AND SIZES OF THE ANTENNA FEEDLINES ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
- 2. CONTRACTOR SHALL VERIFY THE DOWNTILT OF EACH ANTENNA WITH A DIGITAL I EVEL
- 3. CONTRACTOR TO CONFIRM FEEDLINE COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027 LATEST VERSION.
- 4. JUMPERS TO ANTENNAS FROM THE MAIN TRANSMISSION LINE WILL BE 1/2" DIA. SUPPORT JUMPERS AT A MAXIMUM OF 3'-O" INTERVALS.
- 5 FEEDLINES WILL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE STARTING AT 12" FROM THE CONNECTOR THEN AT DISTANCES NOT TO EXCEED 3'-0" O.C.
- 6. CONTRACTOR MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS REGARDING THE INSTALLATION OF FEEDLINES, CONNECTORS, AND ANTENNAS.
- 7. AT CONNECTORS, FEEDLINES SHALL BE STRAIGHT A MINIMUM OF 6" FOR 1/2" CONNECTIONS AND A MINIMUM OF 12" FOR CONNECTIONS > 1/2"
- 8. WEATHERPROOF ANTENNA CONNECTORS WITH BUTYL TAPE, BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING, NO BUTYL BLEEDING ALLOWED.
- 9. FEEDLINES SHALL NOT BE DAMAGED BY OVERBENDING. CONTRACTOR SHALL FOLLOW MANUFACTURER RECOMMENDATIONS FOR MAXIMUM SINGLE BEND RADIUS.
- 10. CONTRACTOR SHALL INSTALL DRIP LOOPS TO PREVENT WATER MIGRATION TO THE FOUIPMENT.

#### TORQUE REQUIREMENTS:

- 1. RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
- 2. RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
  - RF CONNECTION: BOTH SIDES OF THE CONNECTOR.
  - GROUNDING AND ANTENNA HARDWARE: ON THE NUT SIDE STARTING FROM THE B. THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
- 3. 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM)
- 4. 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM)
- 5. GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
- 6. DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 29.9 NM)
- 7. N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 2.3 NM)

### LTE RET AND COAXIAL CABLE INSTALLATION NOTES:

- 1. FOR BOTTOM JUMPERS (FROM THE MAIN FEEDLINE TO THE BTS CONNECTOR) LONGER THAN 15'-0" USE 7/8" COAX. FOR BOTTOM JUMPERS LESS THAN 15'-0" USE 1/2" EC4 OR APPROVED FOUAL
- 2. FABRICATE JUMPERS TO ASSURE THAT THE 90" CONNECTOR IS 56" FROM THE FLOOR ALLOWING ENOUGH SLACK TO REACH ALL BTS (DUAMCO) CONNECTIONS IF CABINET IS NOT IN PLACE.
- 3. MOUNT PDU IN FIF RACK AND ASSURE THAT THE PREFABRICATED CONDUCTORS WILL REACH THE DESIGNATED TERMINATION POINTS.
- 4. SUPPLY AND INSTALL 6 AWG GROUNDING TO TELCO RACK FROM THE MAIN GROUNDING BUS SUPPLIED AND INSTALLED BY CONTRACTOR.
- 5. ALL TRUNK CABLES AND JUMPERS SHALL BE SIZED AS REQUIRED.
- 6. LIMIT OVERALL RET CABLE RUN TO LESS THAN 400 FT.
- 7. SUPPORT RET AISG COMM CABLE TO BE SUPPORTED USING 1/2" CLIPS WITH 3/8" RUBBER INSERT GROMMETS.
- 8. USE 6 AWG STRANDED COPPER THHN-2 GREEN INSULATED GROUNDING CONDUCTOR UNLESS OTHERWISE NOTED. CONNECT THE PCU TO EXISTING TELCO RACK GROUNDING BAR
- ROUTE CONDUITS IN CABLE TRAY OR EMT CONDUITS TO THE EXISTING +240VOC PCU OR +48VOC PCU PANELS. PROVIDE THE APPROPRIATE SIZE OF OVERCURRENT PROTECTION AND FOLLOW THE TERMINATION PROCEDURES IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- 10. TOWER MOUNT APPLICATION WILL DICTATE THE LENGTH OF CABLE TO BE USED.
- 11. AISG CABLES PROVIDE CONTROL AND POWER TO ELECTRICAL DOWN TILT DRIVES ON THE ANTENNAS.
- 12. THE CABLES ARE FACTORY ASSEMBLED WITH ONE MALE AND ONE FEMALE CONNECTOR ON EACH END. SUPPORT EVERY 18" USING TIE WRAPS SUITABLE FOR OUTDOOR USE. INSTALL DRIP LOOPS AT EVERY LOCATION WHERE WATER MAY ACCUMULATE.
- 13. NO TESTING OF THE CABLE IS REQUIRED.
- 14. NOT USED
- 15. DURING INSTALLATION, RECORD THE FOLLOWING INFORMATION FOR USE DURING THE COMMENCING PHASE:
  - RET ACTUATOR/MOTOR SERIAL NUMBER
  - B. ANTENNA SERIÁL NUMBER
- C. LOCATION (SECTOR IN WHICH THE ANTENNA WILL OPERATE)
- 16. ANTENNA CONFIGURATION IS SHOWN DIAGRAMMATICALLY ONLY AS A REPRESENTATION.
- 17. IF A JUNCTION BOX WILL NOT BE USED AT THE TOP OF THE RET SYSTEM, IT IS RECOMMENDED THAT AN ADDITIONAL LIGHTNING PROTECTION UNIT BE INSTALLED AT THE TOP OF THE TOWER
- 18. FOR RET CABLES 50 METERS OR LESS, THE AISG CABLE GROUNDING KIT IS NOT REQUIRED AT THE SHELTER END.
- 19. ALL RET CONNECTIONS SHALL BE WEATHERPROOFED. PREFERRED METHOD OF WEATHER PROOFING SHALL BE TO HEAT SHRINK ALL RET CONNECTIONS PER NG-136 RET GUIDELINES SECTION 3.3 AISG (RS 450) CABLE - "ALL CABLE CONNECTIONS REQUIRE WEATHERPROOFING.

### ANTENNA CABLE AND ACCESSORY NOTES AND REQUIREMENTS:

FOR RECEIVING, INSTALLING, TESTING, AND ADJUSTING ANTENNA CABLES FROM THE ANTENNA TO THE CONNECTIONS AT THE BASE TRANSCEIVER STATION (BTS). THIS SHALL INCLUDE ALL EQUIPMENT SHOWN OR REQUIRED FOR A COMPLETE OPERATING SYSTEM. ANTENNA, ANTENNA CABLES, CONNECTORS, AND FITTING SHALL BE THIRD PARTY FURNISHED COMPONENTS AS SHOWN ON THE BILL OF MATERIALS.

#### 2. MATERIALS

- A. ANTENNA CABLES: AS SCHEDULED
- B. ANTENNA CONNECTORS: AS SCHEDULED
- C. CABLE HANGERS: INSTALLED AT MAXIMUM 4' SPACING
- D. GROUNDING KITS: AS SPECIFIED

#### 3. INSTALLATION

I FNGTH REQUIRED

MATERIALS AND METHODS SPECIFICATIONS.

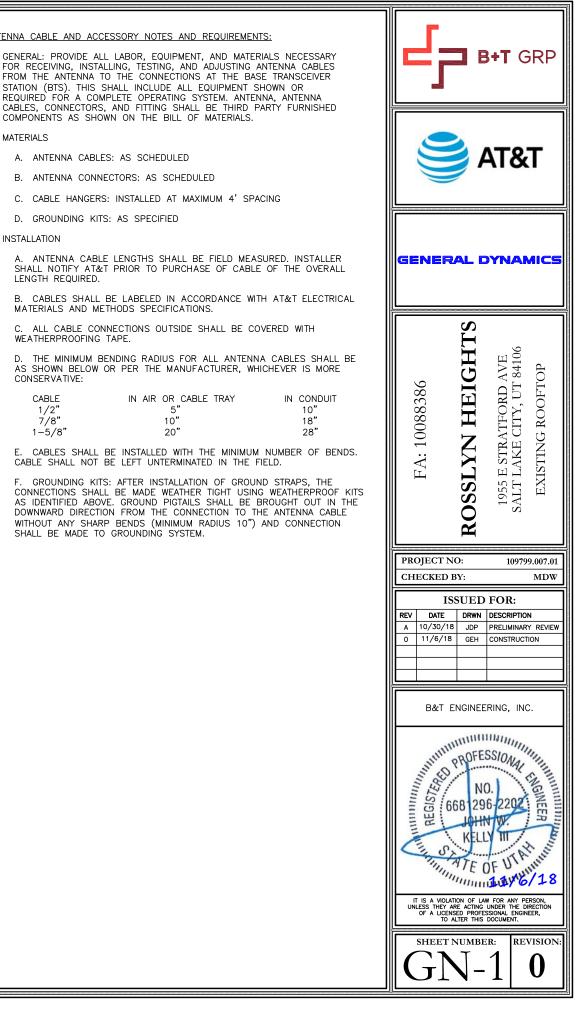
WEATHERPROOFING TAPE

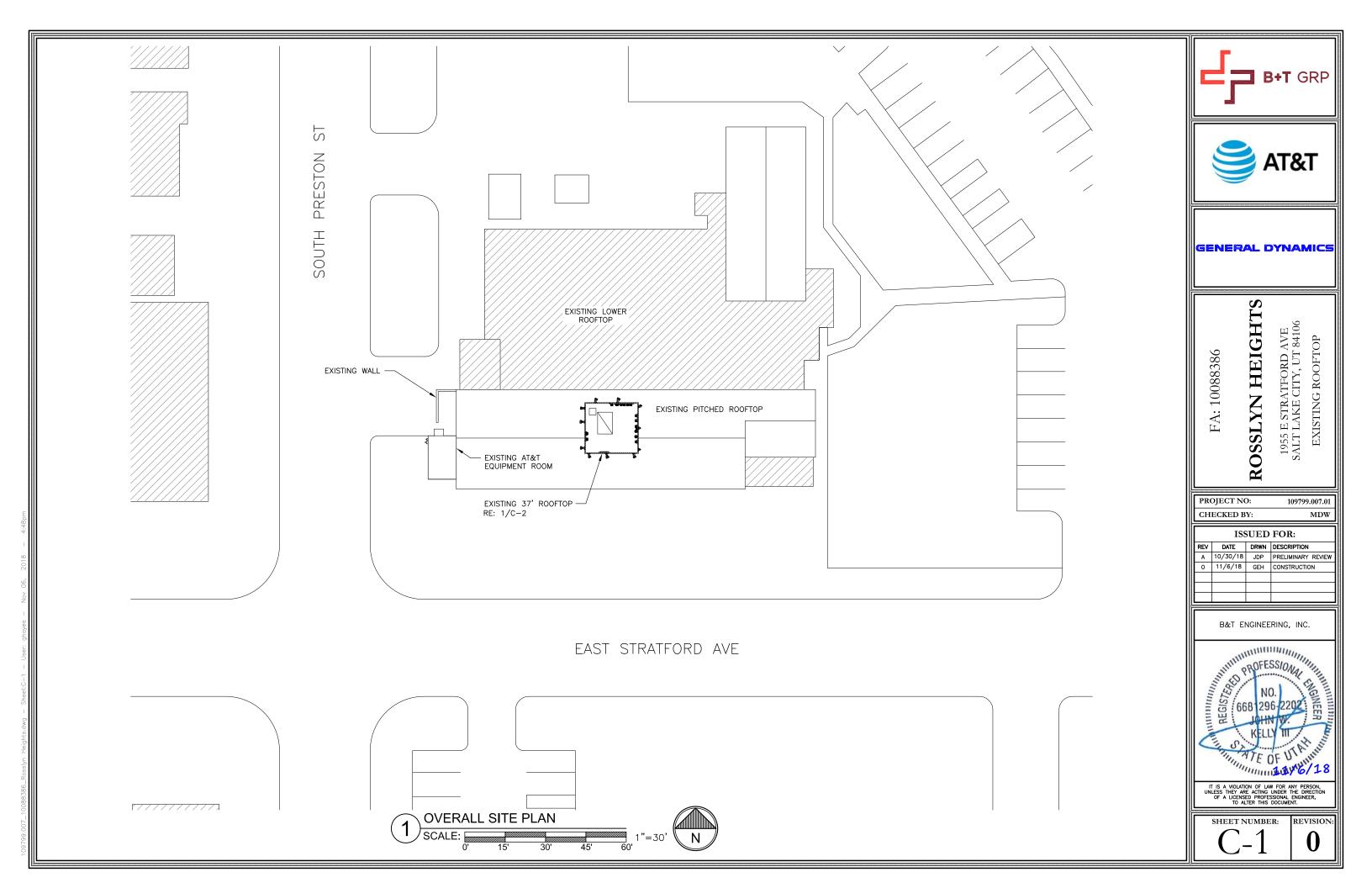
CONSERVATIVE:

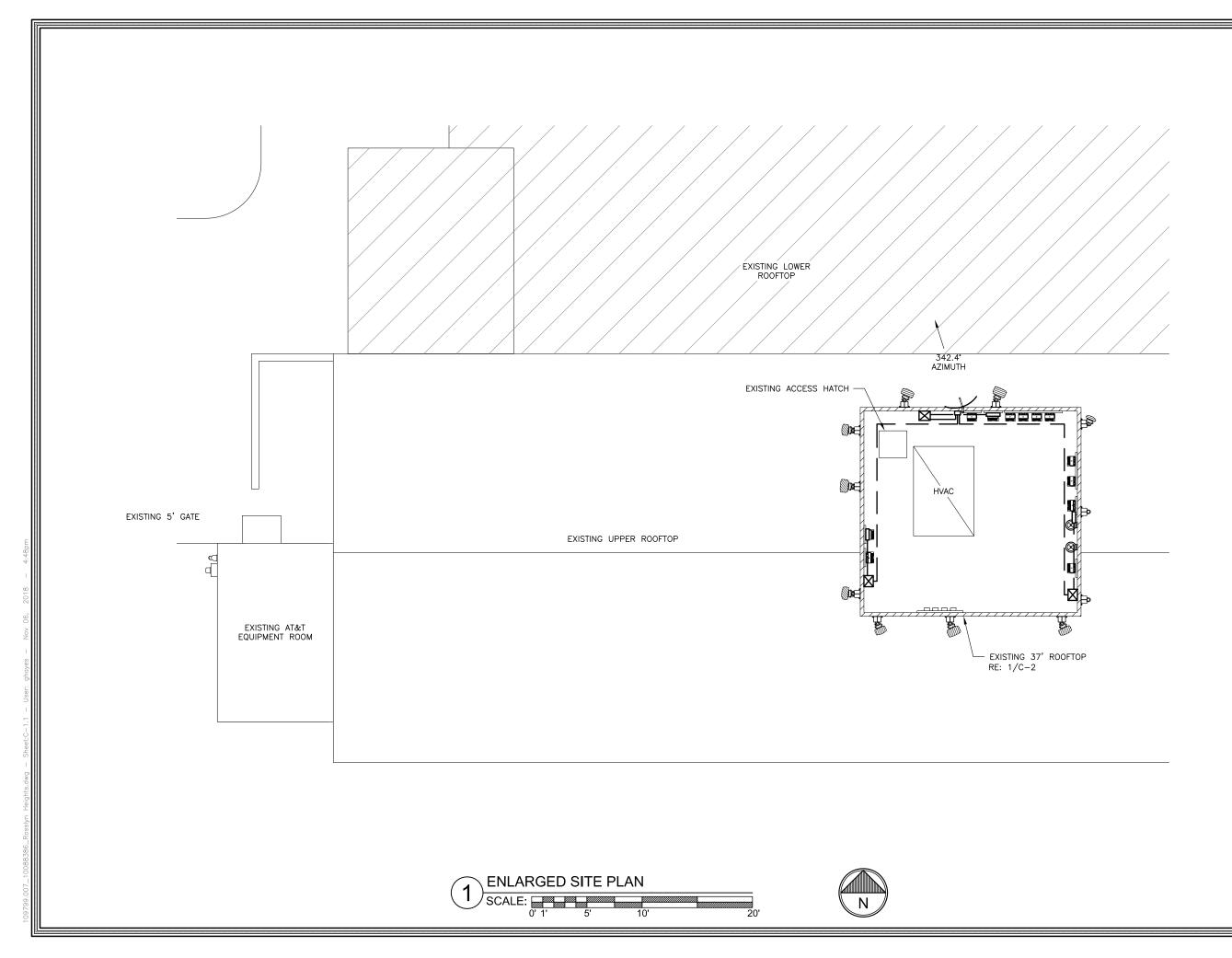
CABLE	IN	AIR	OR
1/2"			5
7/8"			10
1-5/8"			20

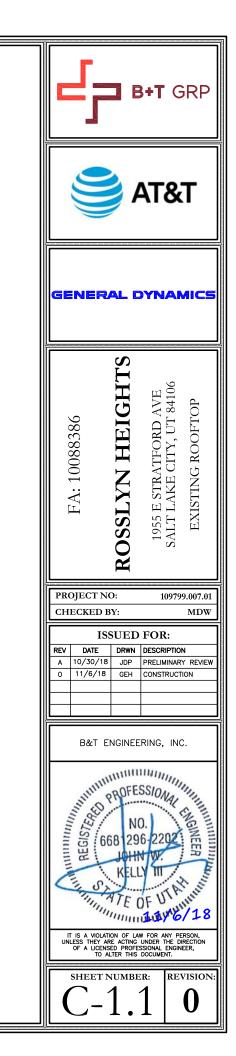
CABLE SHALL NOT BE LEFT UNTERMINATED IN THE FIELD

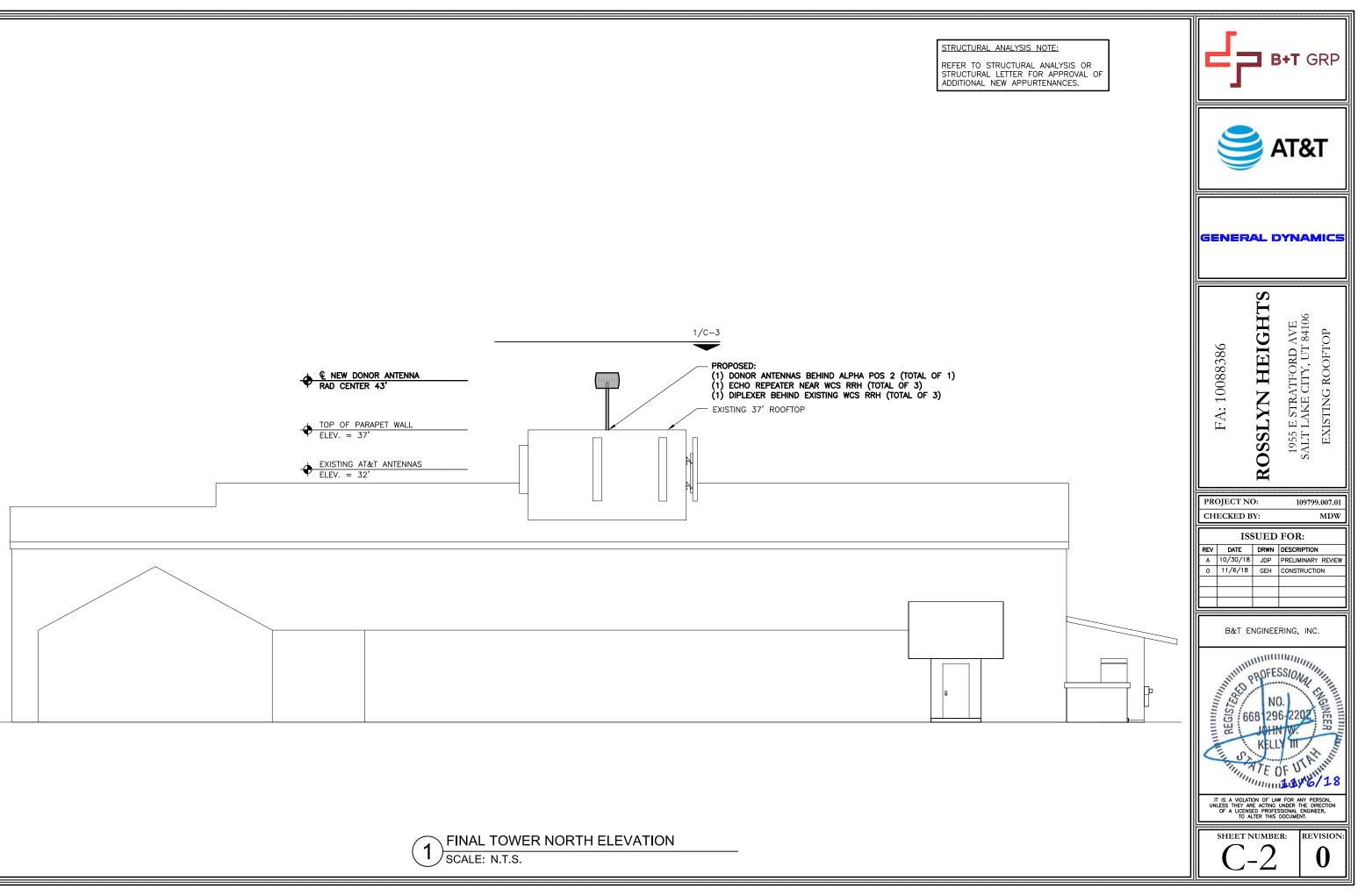
SHALL BE MADE TO GROUNDING SYSTEM.

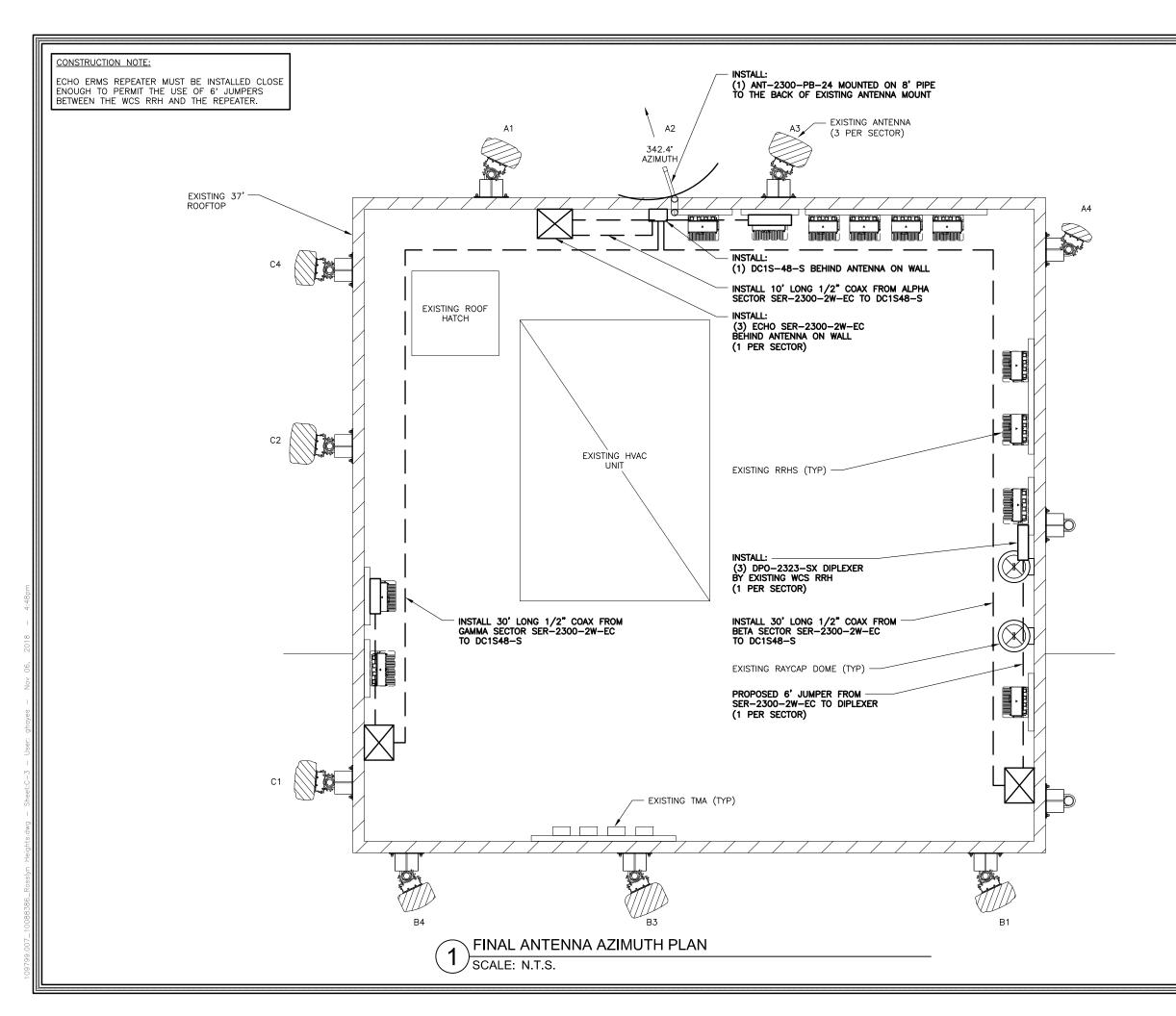


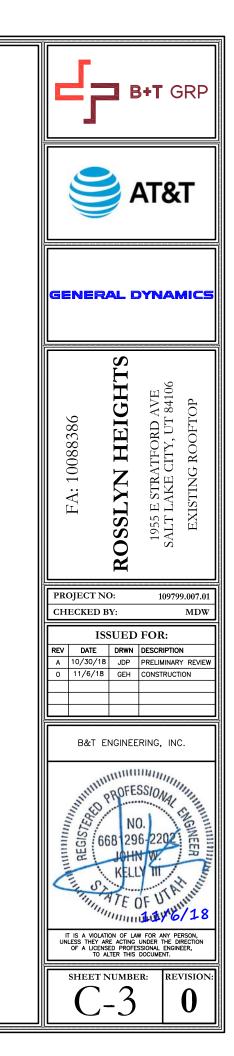














# Antennas

### SPECIFICATIONS

Parabolic Antenna for 'ECHO' Repester

ANT-2300-PB-24

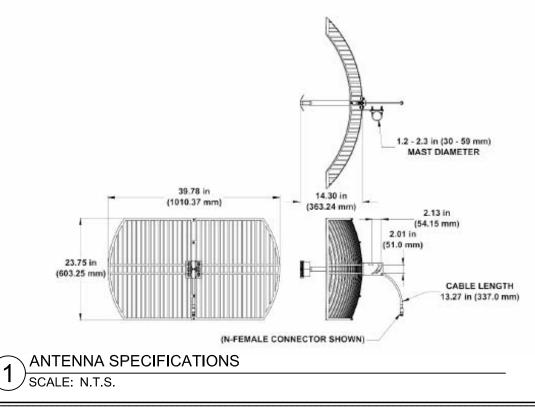
### Electrical

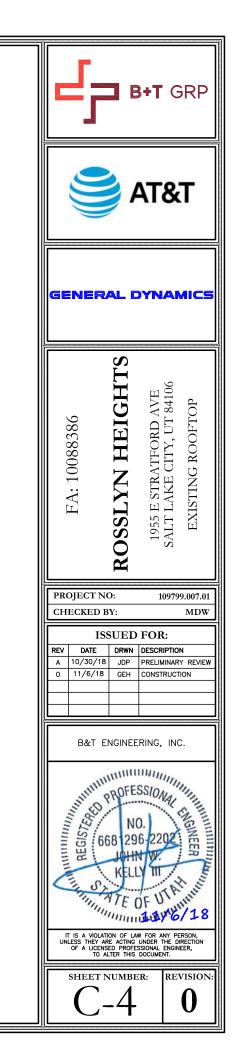
Ports	1 x 2300 Band Port
Frequency Range	2324.54-2341.285 MHz
Gain	24 dBi
HPBW/H	13*
HPBW/V	9.5*
Voltage Standing Wave Ratio(VSWR)	< 1.5:1
Passive Intermodulation (2x20W)	≤ -150 dBc?
Input Power Continuous Wave (CW)	100 watts
Polarization	Vertical or Horizontal
Input Impedance	50 ohms
Lightning Protection	DC Short

### Mechanical

Dimensions (LxWxD)	40.2×23.6×15.0 in (1021×600×380 mm)	
Survival Wind Speed	> 134 mph (> 216 kph)	
Weight	5.15 lbs (2.3 kg)	
Operating Temperature	-40° C to +65° C	
Connector	1 × N-female	
Cable Length	15 inch	
Mounting Pole	12 to 2.0 in (30 to 50 mm)	

### Outline Drawing







SPECIFICATIONS

# Amplifiers

SER-2300-2W-EC



SPECIFICATIONS

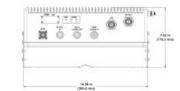
### 2W SDARS ECHO Repeater

Constitue (Chiles Book)	For all only the data the	
	Specification (XM Band) 2338.755 MHz +2.53 MHz	
	93 dB Typ.	
±3.0 dB	<u>±3.0 dB</u>	
70 -10	30 dB	
	1.0 dB	
	1.0 dB	
-40 dBC ±0.5 dB		
0.5 dB		
21 dB Min.		
34 dB Min.		
30 dB Min.		
30 dB Min.		
41 dB Min		
35 dB Min.		
34 dB Min.		
≤ -90 dBW/MHz (≤ -75 dBW/M	Hz)**	
1.5:1 Max. (14 dB Min.)		
	Specification (Sirius Band) 2326.25 MHz ±2.006 MHz 93 dB Typ. ±3.0 dB 30 dB 1.0 dB +33 dBm 6 dB min. @ 0.1% CCDF -40 dBc ±0.5 dB +33 dBm Typ. 31 dB 0.5 dB 24 dB Min. 24 dB Min. 24 dB Min. 24 dB Min. 21 dB Min. 30 dB Min. 30 dB Min. 30 dB Min. 30 dB Min. 41 dB Min. 34 dB Min. 35 dB Min. 35 dB Min. 34 dB Min. 35 dB Min. 35 dB Min. 36 dB Min. 37 dB Min. 37 dB Min. 38 dB Min. 39 dB Min. 30 dB Min. 30 dB Min. 30 dB Min. 30 dB Min. 31 dB Min. 32 dB Min. 33 dB Min. 34 dB Min. 35 dB Min. 34 dB Min. 35 dB Min. 36 dB Min. 37 dB Min. 39 dB Min. 30 dB Min. 31 dB Min. 30 dB Min. 31 dB Min. 30 dB	

2W SDARS ECHO Repeater

Mechanical	
RF Connectors	3 × 4.3-10 female
DC Input Connector	Amphenol C091D Series 3 pin recepta
Alarm Connector	Amphenol 4 pin C09131G100 Series
ECHO Repeater Monitoring System (ERMS) Connector	Amphenol 6 pin C09131G100 Series
Dimensions (w/Brackets)(H×W×D)	14.56 × 13.46 × 7.02 in. (369.8 × 341.9
Weight	20.75 lbs (9.45 kg)
Mounting	Included Mounting Bracket accommo





SER-2300-2W-EC Outline Drawing

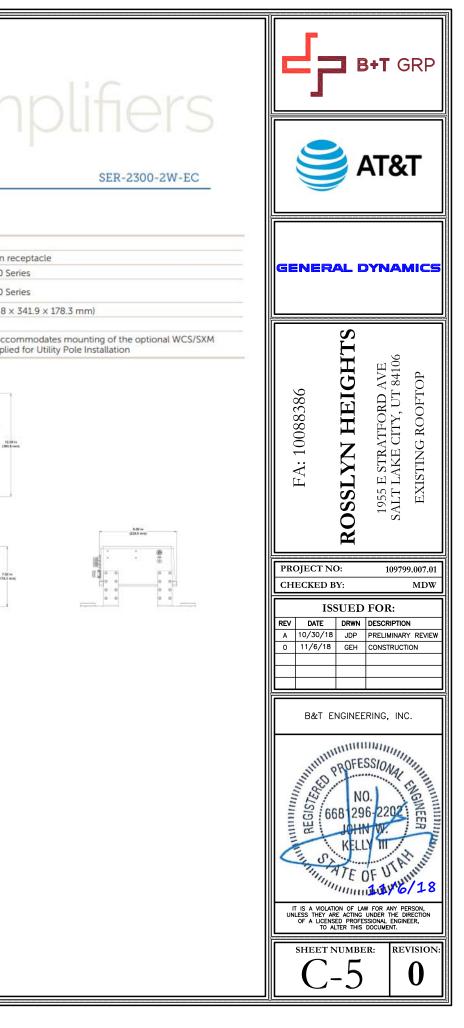
\*Relative to Input \*\* ≥ 2W EIRP w/ DPO-2323-Sx Diplexer (<2W EIRP w/o DPO-2323-Sx)

General Characteristics Impedance 50 ohms Operating Voltage ±48 VDC Nominal Current at Rated Power 1A @ ±48 VDC Monitoring and Alarm Interface Dry Contact Relay

Environmental

Operating Temperature -40 °C to +65 °C Enclosure NEMA 4X Weather Proof MTBF >500,000 hours

> SER-2300-2W-EC SPECIFICATIONS SCALE: N.T.S.



## Filters & Combiners



SPECIFICATIONS

/	1	

WCS (A &	B Band)/SDA	ARS Band Diplexer		DPO-2323-Sx
SPECIFICATIONS				
Electrical				
RF Parameters	Ports	Frequency(MHz)	Specification	
Return Loss	COMMON	2305 - 2315	18 dB min., 20 dB Typ.	
		2324.54 - 2341.285	18 dB min., 20 dB Typ.	
		2350 - 2360	18 dB min., 20 dB Typ.	
	SXM	2324.54 - 2341.285	18 dB min., 20 dB Typ.	
	WCS	2305 - 2315	18 dB min., 20 dB Typ.	
		2350 - 2360	18 dB min., 20 dB Typ.	
Insertion Loss	COMMON to SXM	2324.54 - 2341.285	0.8 dB typ., 1.25 dB max.	
	COMMON to WC	S 2305 - 2315	0.8 dB typ., 1.25 dB max.	
		2350 - 2360	0.8 dB typ., 1.25 dB max.	
Isolation	COMMON to WC	S 2324.54 - 2341.285	60 dB min.	
	COMMON to SXM	2305 - 2315	60 dB min.	
	COMMON LO SAM	2350 - 2360	60 dB min.	
Continuous Average Power Peak Envelope Power Intermodulation Performance(all ports) DC/AISG Pass current (AWS or PCS port to COMMON port) A/AISG signal (2 Environmental Operating Temperature Enclosure MTBF		dBc) typical (2 × +43 dBm ton	nector)	
Mechanic	Connectors imensions - (w/o connectors & panel)(H×W×D)	3 × 4.3-10 female long neck 9.84 × 13.22 × 1.95 in. (250.	k	
D	imensions - (with connectors & panel)(H×W×D) Weight	13.46 × 13.60 × 2.45 in. (342	2.0 × 345.2 × 62.1 mm)	
	Weight	19.8 lbs (9 kg)		

DPO-2323-Sx DIPLEXER SPECIFICATIONS 1

Mounting Pole/Wall Mount

SCALE: N.T.S.

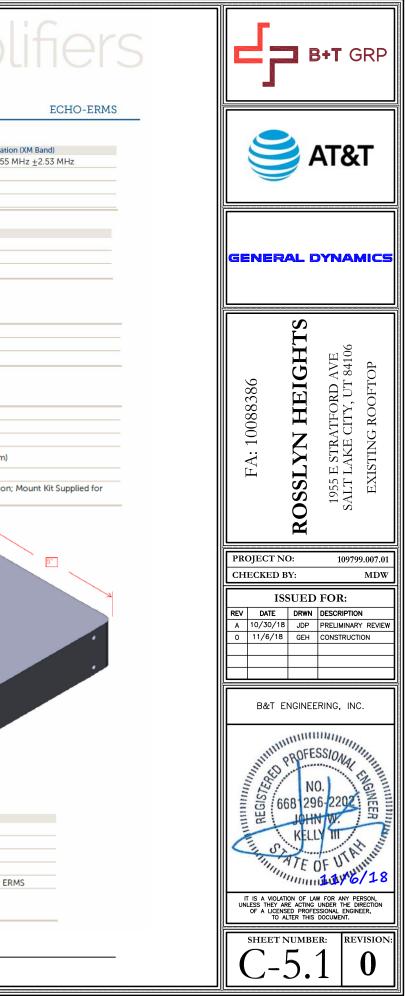
ECHO Repeater Moni	toring System
Electrical	
RF Parameters	Specification (Sirius Band) Specificati
	2326.25 MHz ±2.006 MHz 2338.755
5	-10 dBm to -50 dBm
	1.5:1 Max. (14 dB Min.)
Impedance	50 ohms
General Characteristics Operating Voltage	+7 VDC
Nominal Current at Rated Power	
Monitoring and Alarm Interface	
Environmental	
Operating Temperature	-40°C to +65°C
Enclosure	NEMA 4X Weather Proof
MTBF	>500,000 hours
Mechanical	
RF Connectors	1 × 4.3-10 female
ECHO Repeater Connector	Amphenol 6 pin C09131G100 Series
Event Recorder Interface	Micro USB
Dimensions (w/o Mtg. Brackets or Connectors)(H×W×D)	$6.0 \times 5.0 \times 1.5$ in. (152.4 × 127.0 × 38.1 mm)
Weight	3.0 lbs (1.4 kg)
Mounting	Mounting Ears for Surface Mount Installation piggyback Installation on ECHO Repeater
15	E. FRIE

ECHO-ERMS Outline Drawing

Pin Number	Signal	Description
1	RS-232	ECHO Repeater to ERMS
2	RS-232	ERMS to ECHO Repeater
3	Shutdown +5V TTL	Used by ERMS to Turn Off Repeater
4	TTL Ground	Supplied by ERMS
5	+7 VDC	Supplied by ECHO Repeater to power E
6	Common	Ground Supplied by ECHO Repeater
	ECHO Repeater Monitoring System (ERMS	) Connector Pinout

ECHO ERMS MONITOR SPECIFICATIONS 1 SCALE: N.T.S.

CCI



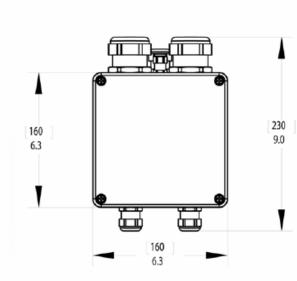
## **DC1S-48-S**

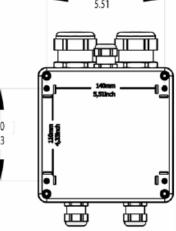
### DC Surge Suppression Solution

The DC1S-48-S surge protector is designed to provide surge protection for the DC power circuits for today's third and fourth generation distributed architecture radio systems. The DC1S-48-S provides -48 V to return and return to ground protection for a single 48 VDC circuit.

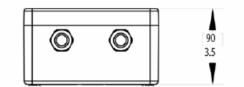
### FEATURES

- Provides protection for a single 48 VDC circuit
- Robust DC surge protection of 60 kA 8/20 µs •
- IEC 61643-1 Class II Protection
- NEMA 4/IP67 Rated Enclosure
- Form C relay contacts





140



## **DC1S-48-S**

DC Power Surge Protection

Electrical Specifications		
Model Number	DC1S-48-S	
Protector Type	IEC 61643-1 Class II	
Nominal Operating Voltage	48 VDC	
Protection Modes	-48 V to Return, Return to Ground	
Nominal Discharge Current (I <sub>n</sub> )	20 kA 8/20 µs	
Maximum Discharge Current (I <sub>max</sub> ) per NEMA I.S-1	60 kA 8/20 µs	
Maximum Continuous Operating Voltage (U <sub>c</sub> )	75 VAC, 100 VDC	
Voltage Protection Level (U <sub>p</sub> )	500 V	

Mechanical Specifications		
Suppression Connection Method	Compression lug, #14 to #2 AWG	
Weight	8 lbs.	
Storage Temperature	-70° C to +80° C	
Operating Temperature	-40° C to +80° C	
Environmental Rating	NEMA 4/IP67	

The Strikesorb modules are fully Recognized to UL 1449 3rd Edition (September 29, 2009) Safety Standard, meeting all intermediate and high current fault requirements to facilitate use in OEM applications.

In addition, Strikesorb modules are compliant to the following Surge Protection Device (SPD) Standards:

- -ANSI/UL 1449 3rd Edition
- -IEEE C62.41
- -NEMA LS 1, IEC 61643-1:2005 2nd Edition 2005
- -IEC 61643-12
- -EN 61643-11 2002 (Including A11:2007)

They are CE labeled accordingly.



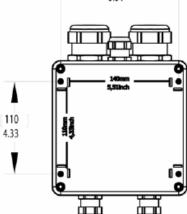
## Raycap

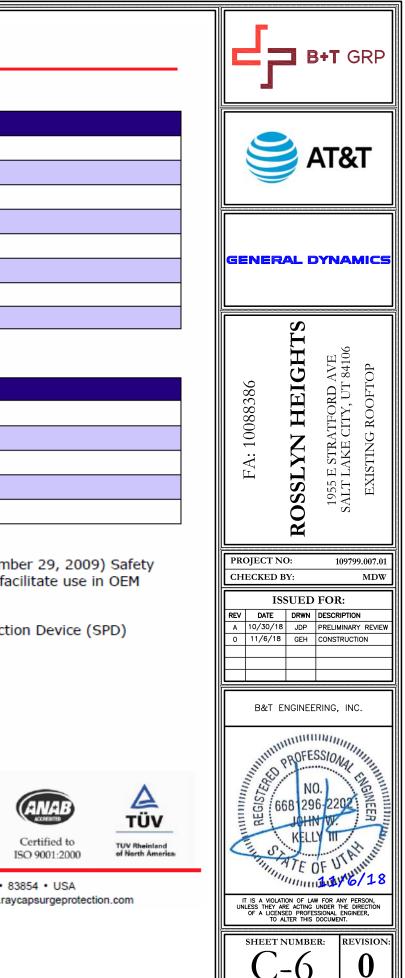
REV 010410

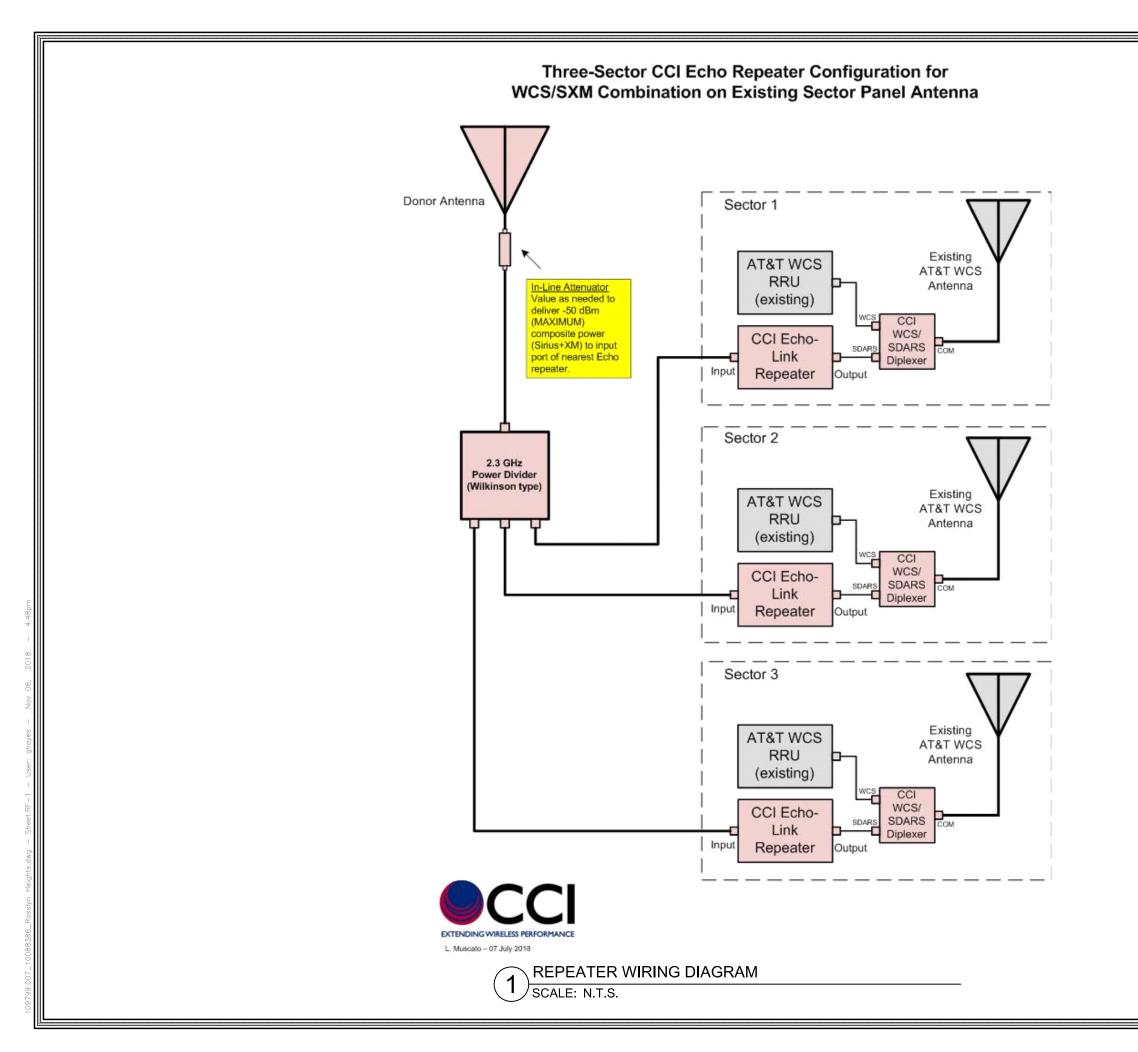
Raycap, Inc. 806 W. Clearwater Loop • Post Falls • Idaho • 83854 • USA Phone 208.777.1166 • Toll Free 800.890.2569 • Fax 208.777.4466 • www.raycapsurgeprotection.com

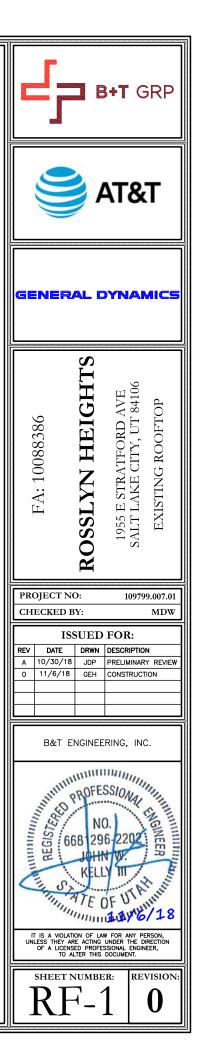
**RAYCAP SPECIFICATIONS** SCALE: N.T.S.











### **ATTACHMENT D: EXISTING CONDITIONS**

### Adjacent Land Uses and Zoning

- North and Northeast: OS Open Space Hillcrest Park and Interstate 80
- South: R-1/7000 A church and additional OS Open Space to the south of that used for a park.
- East: R-1/7000 Single family residential development
- West: R-1/7000 Single family residential development

The property is located in a largely residential area south of I-80. The general area is zoned R-1/7000 (Single-Family Residential) with some OS (Open Space) zoning to the north and north-east, adjacent to the Interstate 80 corridor. Adjacent properties have been developed for single-family residential uses, with another church immediately south of the subject property and Hillcrest Park to the north and north-east between the subject property and I-80.

### **Applicable Master Plan Policies**

The property is included within the Sugar House Master Plan adopted in 2005. The Master Plan does not address matters related to wireless telecommunication equipment but wireless antennas are allowed uses in all zoning districts. Because this specific proposal must be reviewed as a Conditional Use, if the proposal meets all of the conditions and standards listed, it should be considered as meeting this standard.

The proposed use does not conflict with the Master Plan and the existing character of the area.

Staff finds that wireless antennas are common in residential neighborhoods where they are needed to provide connectivity to residents of the area. Though the antenna will protrude above the parapet, this addition will not create a substantial change in comparison to the equipment that already exists on the site. The proposal is generally compatible with the nature of the area.

### Salt Lake City Zoning Ordinance Provisions

21A.40.090: ANTENNA REGULATIONS: E. Wireless Telecommunications Facilities Roof mounted antennas in the I – Institutional zoning district require Conditional Use approval.

b. Roof Mounted Antenna: The following provisions apply to roof mounted antennas: (1) Roof mounted antennas shall be allowed on top of existing penthouses or mechanical equipment rooms and shall not extend more than eight feet (8') above the existing roofline of the penthouse or mechanical equipment room.

21A.62.040: DEFINITIONS ANTENNA, ROOF MOUNTED: An antenna or series of individual antennas mounted on a flat roof, mechanical room or penthouse of a building.

## **ATTACHMENT E: ANALYSIS OF STANDARDS**

### 21A.54.080 Standards for Conditional Use

**Approval Standards**: A conditional use shall be approved unless the planning commission, or in the case of administrative conditional uses, the planning director or designee, concludes that the following standards cannot be met:

Standard	Finding	Rationale
1. The use complies with	Complies	See detailed analysis below.
applicable provisions of this title		
2. The use is compatible, or with	Complies	See detailed analysis below.
conditions of approval can be		
made compatible, with		
surrounding uses		
3. The use is consistent with	Complies	See detailed analysis below.
applicable adopted city planning		
policies, documents, and master		
plans		
4. The anticipated detrimental	Complies	See detailed analysis below.
effects of a proposed use can be		
mitigated by the imposition of		
reasonable conditions		

### 21A.54.080 Standards for Conditional Use

**Approval Standards**: A conditional use shall be approved unless the planning commission, or in the case of administrative conditional uses, the planning director or designee, concludes that the following standards cannot be met:

### 1. The use complies with applicable provisions of this title

**Analysis:** The proposed wireless facility will be constructed on a property in the I – Institutional zoning district. Roofmounted antennas are allowed as a Conditional Use in the Institutional zone. **Finding:** The proposal complies with the applicable provisions of the Salt Lake City Zoning Ordinance, provided that the request meets any conditions recommended as part of this staff report.

## 2. The use is compatible, or with conditions of approval can be made compatible, with surrounding uses;

**Analysis:** Staff finds that wireless antennas are common in residential neighborhoods where they are needed to provide connectivity to residents of the area. The church has an existing wall-mounted telecommunications site that is on the building's parapet and this antenna would be located in the same area although it would protrude past the parapet. The existing antennas and parapet are however partially obscured by mature street trees along Preston Street. In addition, the antenna dish is relatively small (approximately 2 feet by 3 feet in diameter) and will be located on a pole at a substantial distance above the ground. The proposal is generally compatible with the nature of the area.

### **Finding:**

Given the proposed design and size of the antenna, it's location on a parapet adjacent to existing equipment, it's location approximately 43-feet off grade and the screening provided by the mature trees, no detrimental impacts either visually, or on other properties are anticipated from the proposed antenna.

## 3. The use is consistent with applicable adopted city planning policies, documents, and master plans; and

**Analysis:** The Sugar House Master Plan does not specifically address the issue of wireless antennas although they are common in many residential areas and allowed in all zoning districts.

**Finding:** The use is consistent with the adopted Master Plan and the existing character of the area. The proposed use is listed as a conditional use in this zoning district.

## 4. The anticipated detrimental effects of a proposed use can be mitigated by the imposition of reasonable conditions. (Refer to Detrimental Effects Table below for details)

**21a.54.080B: Detrimental Effects Determination**: In analyzing the anticipated detrimental effects of a proposed use, the planning commission, or in the case of administrative conditional uses, the planning director or designee, shall determine compliance with each of the following:

Criteria	Finding	Rationale
1. This title specifically authorizes the use where it is located	Complies	A roof-mounted antenna is allowed as a Conditional Use in the Institutional zoning district. If the conditional use is approved according to the Zoning Ordinance process and all required standards, the proposal will not create a detrimental effect.
2. The use is consistent with applicable policies set forth in adopted citywide, community, and small area master plans and future land use maps	Complies	Wireless antennas are allowed in all zoning districts and provide service to the residents therein.
3. The use is well-suited to the character of the site, and adjacent uses as shown by an analysis of the intensity, size, and scale of the use compared to existing uses in the surrounding area	Complies	Wireless antennas are commonly found in residential neighborhoods where they are needed to provide connectivity to residents of the area. Though the antenna will protrude above the parapet, this addition will not create a substantial change in comparison to the equipment that already exists on the site. The proposal is generally compatible with the nature of the area.
4. The mass, scale, style, design, and architectural detailing of the surrounding structures as they relate to the proposed have been considered	Complies	The surrounding structures have been considered and the proposed antenna will not present conflicts in terms of mass, scale, styles, design and architectural detailing.
5. Access points and driveways are designed to minimize grading of natural topography, direct vehicular traffic onto major streets, and not impede traffic flows	Complies	The proposal will have no traffic impact.
6. The internal circulation system is designed to mitigate adverse impacts on adjacent property from motorized, non-motorized, and pedestrian traffic	Complies	The proposal will have no traffic impact.
7. The site is designed to enable access and circulation for pedestrian and bicycles	Complies	The proposal will have no traffic impact.
8. Access to the site does not unreasonably impact the service level of any abutting or adjacent street	Complies	The proposal will have no traffic impact.

9. The location and design of off-street parking complies with applicable standards of this code	Complies	The proposal will not require additional off-street parking.
10. Utility capacity is sufficient to support the use at normal service levels	Complies	The proposal will not require additional utility service.
11. The use is appropriately screened, buffered, or separated from adjoining dissimilar uses to mitigate potential use conflicts	Complies	The proposal will not change the land use.
12. The use meets City sustainability plans, does not significantly impact the quality of surrounding air and water, encroach into a river or stream, or introduce any hazard or environmental damage to any adjacent property, including cigarette smoke	Complies	The proposal will not significantly impact the environment or introduce any hazard.
13. The hours of operation and delivery of the use are compatible with surrounding uses	Complies	The equipment will be serviced by a technician as needed for routine maintenance and repair.
14. Signs and lighting are compatible with, and do not negatively impact surrounding uses	Complies	The proposal will not require signs and lighting.
15. The proposed use does not undermine preservation of historic resources and structures	Complies	The proposal is not associated with any historic resources or structures.

### Section 21A.40.090.E.9 Additional Conditional Use Requirements (for antennas)

In addition to conditional use standards outlined in Section 21A.54 (above) of the zoning ordinance; the following shall be considered by the Planning Commission:

- a. Compatibility of the proposed structure with the height and mass of existing buildings and utility structures;
- b. Whether collocation of the antenna on the other existing structures in the same vicinity such as other towers, buildings, water towers, utility poles, etc., is possible without significantly impacting antenna transmission or reception;
- c. The location of the antenna in relation to existing vegetation, topography and buildings to obtain the best visual screening;
- d. Whether the spacing between monopoles and lattice towers creates detrimental impacts to adjoining properties.

### Analysis:

The proposed antenna will be located on a church next to an existing wall-mounted telecommunications site located on the building's parapet. This antenna would be adjacent but will extend above the parapet. Wireless facilities are fairly common in residential neighborhoods where they are needed to provide connectivity to residents of the area. The existing antennas and parapet will be partially obscured by mature street trees along Preston Street. In addition, the antenna dish is relatively small (approximately 2 feet by 3 feet in diameter) and will be located on a pole at a substantial distance above the ground. The proposal is generally compatible with the nature of the area.

Finding: This project satisfies the additional requirements of Section 21A.40.090.E.9.

### ATTACHMENT F: PUBLIC PROCESS AND COMMENTS

### Public Notice, Meetings, Comments

The following is a list of public meetings that have been held, and other public input opportunities, related to the proposed project:

- Notice of the project and request for comments sent to the Chair of the Sugar House Community Council (SHCC) on March 6, 2019 in order to solicit comments.
- Staff sent an early notification announcement of the project to all residents and property owners located within 300 feet of the project site on March 6, 2019 providing notice about the project and information on how to give public input on the project.
- The 45-day recognized organization comment period expired on November 12, 2018

### Notice of the public hearing for the proposal included:

- Public hearing notice mailed on: May 9, 2019
- Public hearing notice sign posted on the property: May 9, 2019
- Public notice posted on City and State websites & Planning Division list serve: May 9, 2019

### **Public Input:**

The SHCC Chair did not ask staff or the applicant to attend a meeting to discuss the proposal. To date, no comments in relation to the proposal have been submitted by the SHCC to Planning Staff and now public comments have been submitted by any neighboring property owners or residents.

### **ATTACHMENT G: DEPARTMENT REVIEW COMMENTS**

### **CITY DEPARTMENT COMMENTS**

**Building/Zoning Review Comments** No comments provided by Building or Zoning.

### Sustainability

No comments or concerns from Sustainability.