

Development Services

From Concept to Construction

Phone: 503-823-7300 Email: bds@portlandoregon.gov 1900 SW 4th Ave, Portland, OR 97201

More Contact Info (<http://www.portlandoregon.gov/bds/article/519984>)



APPEAL SUMMARY

Status: Decision Rendered

Appeal ID: 26350	Project Address: 1705 SW 11th Ave
Hearing Date: 12/8/21	Appellant Name: Courtnee Gomez
Case No.: B-014	Appellant Phone: 916-527-4157
Appeal Type: Building	Plans Examiner/Inspector: Kent Hegsted, Lisa Buellesbach
Project Type: residential	Stories: 8 Occupancy: R-2 Construction Type: II-A, II-B
Building/Business Name: AT&T	Fire Sprinklers: Yes - Full
Appeal Involves: Alteration of an existing structure	LUR or Permit Application No.: 11-137393-CO
Plan Submitted Option: pdf [File 1] [File 2] [File 3] [File 4] Proposed use: Unmanned Rooftop Telecom Facility	

APPEAL INFORMATION SHEET

Appeal item 1

Code Section IBC/26/#1

Requires Code Guide- IBC/26/#1. Structural Specialty Code-Use of Fiber Plastic Material for rooftop antenna sectors. DESIGN & CONSTRUCTION: #7: "The height of the FRP screen shall not exceed 10' above the elevation of the roof at any point where the FRP screen is attached."

Code Modification or Alternate Requested The intent of this appeal is to allow the FRP screens to stay at the existing 15'-6" above the roof.

Proposed Design AT&T has an existing telecommunications facility/cell-site located on the roof of Blumel Hall at Portland State University. The installation consists of three antenna sectors mounted on steel frames attached to the roof and located behind FRP Screens and a rooftop equipment shelter. The cell site originally received land use approval per case file number LU 11-137393 CU DZ and the initial installation was constructed under building permit 11-180157-000-00-CO.

The existing and proposed screens do not meet the current Code-Guide IBC/26/#1, which limit screen height to 10' above the roof. The subject proposal is to match the height of the existing screens. Each antenna sector/frame that is existing is approximately 15' long by 6' deep. The screens are setback between approx. 5' and 12' from the edge of the roof. Due to the additional wind and weight of the screens at antenna sectors Alpha and Gamma, reinforcement to the horizontal FRP angles is needed and a full replacement FRP screening for Beta Sector is needed. The proposal is illustrated on the attached construction drawings (Exhibit A). Note the structural drawings (Sheets S-1 through S-10) include detailed information about the design of the proposed FRP screens.

Reason for alternative As previously described, the alternate design is to keep the currently approved overall height. If required to comply with the 10' rule would expose the existing equipment and defeat the stealthing design required by the Jurisdiction. The alternative design provides equivalent structural capacity,

life safety and fire protection to what the code requires. Except for the 10' height limitation, the proposed FRP screens comply with the City's requirements for use of fiber reinforced plastics in rooftop screen applications. As documented in the attached Structural Analysis report dated September 3, 2021 by Tylon (Exhibit B), once the proposed structural modifications are made to the existing roof structure, the screen additions will be acceptable and will meet all applicable Codes. Therefore, the subject proposal will provide adequate structural capacity. The City requires that Fiber Reinforced Plastic (FRP) products proposed for use within the jurisdiction of the City of Portland shall have a valid approval report such as an International Code Council Evaluation Service (ICC-ES) report or City of Los Angeles Research Report (LA-RR). The applicant is proposing to use FRP screens manufactured by Hi-Tech Composite Structures, which have an approval report. See Exhibit B: which specifies the use of LA-RR approved FRP by Hi-Tech Composite Structures. A copy of the approval report (City of Los Angeles Research Report (LA-RR)) is attached as Exhibit C. The use of this tested and approved material will ensure that the project meets or exceeds all safety standards. Regarding fire protection, the City further requires that FRP material used for rooftop screening applications shall be classified as CC1 or better and have a maximum flame spread of 50. As noted on Page 2 of the LA-RR report, the screens designed by High Tech Composite Structures that will be used for this installation (Exhibit D), have a flame spread index of 25. Furthermore, it should be noted that the existing building is fully sprinkled. This was confirmed on August 30, 2016 by Jeff Herman, City of Portland Fire Plans Reviewer. Additionally, the proposed screens that will enclose the existing antenna frames have adequate clearance for access around them, are well away from roof top mechanical equipment, and do not obstruct any means of egress for emergencies or access to the roof for the fire department. Based on the foregoing, the alternative design provides equivalent structural capacity, life safety and fire protection and meets the intent of the guidelines. The proposed screens that extend 15'-6" above the roof, should be approved for this installation.

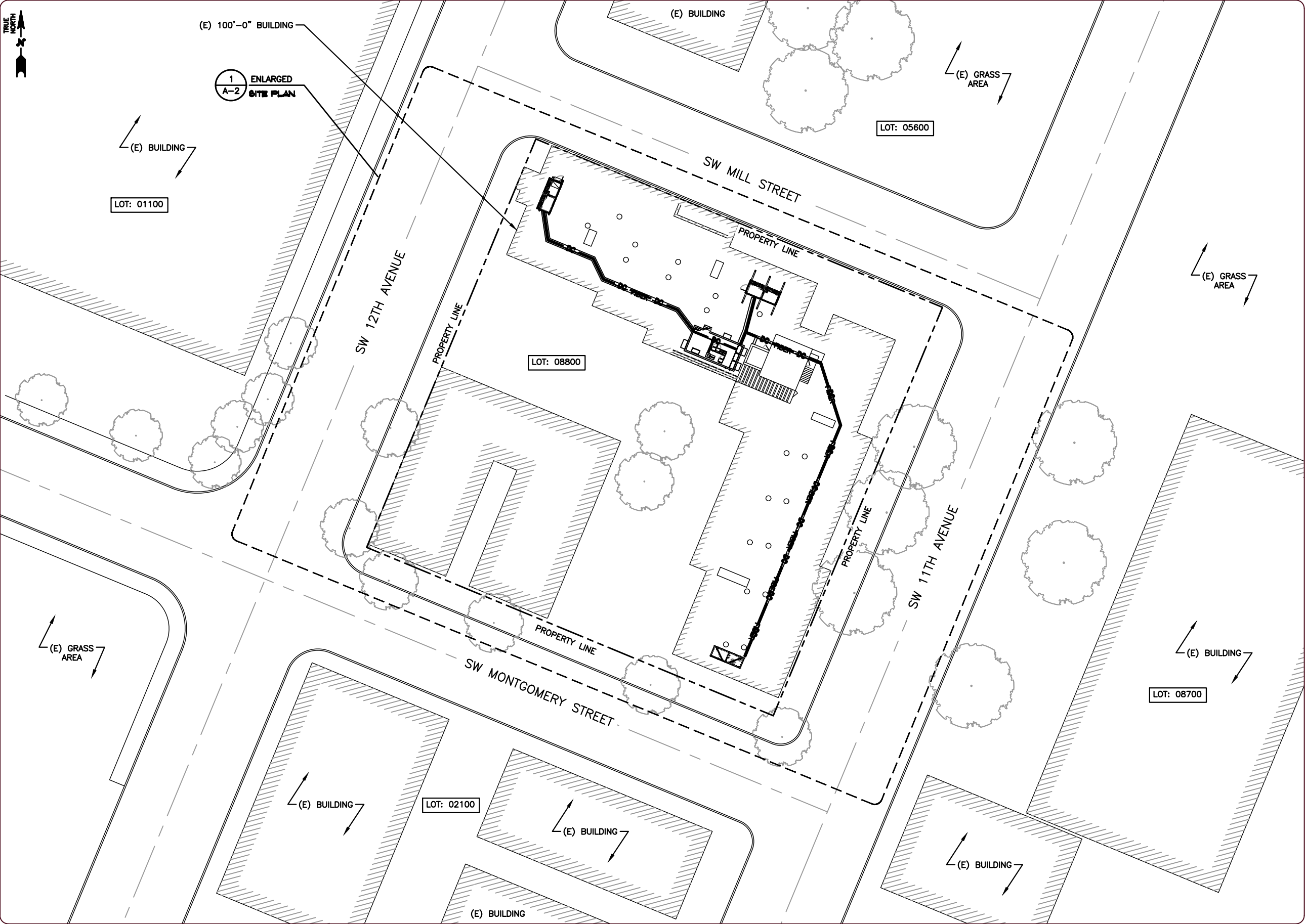
APPEAL DECISION

Increase in the maximum allowable height of FRP screen from 10 feet to 15 feet 6 inches above the roof of a Type IIA building: Denied. Proposal does not provide equivalent Life Safety protection.

Appellant may contact John Butler (503 865-6427) or e-mail at John.Butler@portlandoregon.gov with questions.

Pursuant to City Code Chapter 24.10, you may appeal this decision to the Building Code Board of Appeal within 90 calendar days of the date this decision is published. For information on the appeals process, go to www.portlandoregon.gov/bds/appealsinfo, call (503) 823-7300 or come in to the Development Services Center.

THIS IS NOT A SURVEY. ALL PROPERTY BOUNDARIES, ORIENTATION OF TRUE NORTH, EASEMENTS, STREET WIDTHS, AND SETBACKS WERE OBTAINED FROM A GEOGRAPHIC INFORMATION SYSTEM (GIS) OR OTHER MEANS, AND ARE APPROXIMATE.



1 OVERALL SITE PLAN
A-1 SCALE (11" x 17") 1" = 20'-0" 0 10 20 40 60



1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421



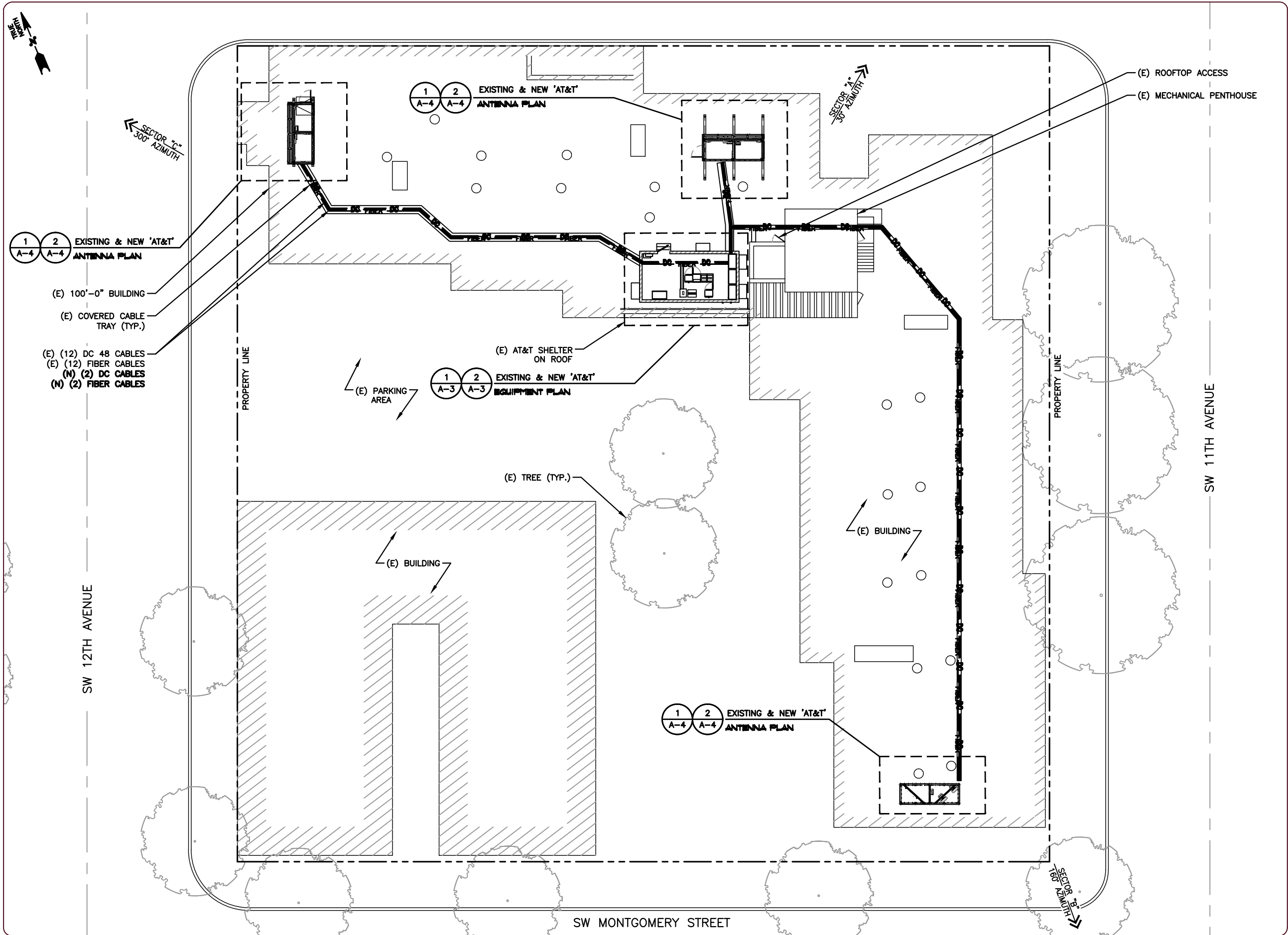
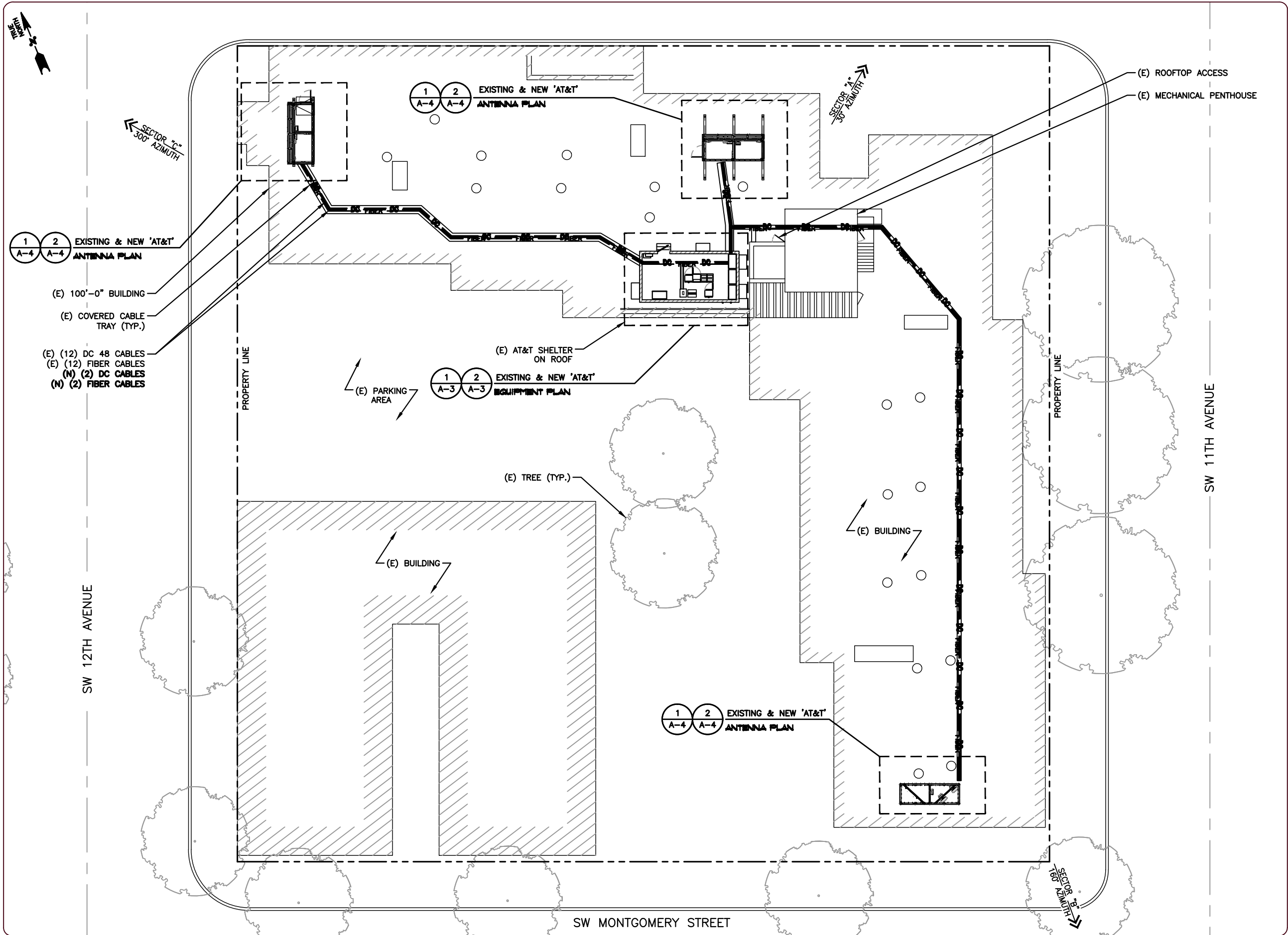
DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE
PRINTED MEDIA ONLY.

SUBMITTALS			
REV	DATE	DESCRIPTION	BY
0	03/15/21	100% CD	RCD
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3	05/26/21	100% CD	RCD
4	08/16/21	100% CD	RCD
5	09/23/21	100% CD	RCD
6	10/21/21	100% CD	RCD

SITE INFORMATION	
SITE ID:	PR46
FA NUMBER:	10094246
RFDS NAME & ID:	PR46 & 3547802
SITE NAME:	PSU
SITE ADDRESS:	1705 SW 11TH AVENUE PORTLAND, OR 97201

SHEET DESCRIPTION
OVERALL SITE PLAN

SHEET No.
A-1



1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421



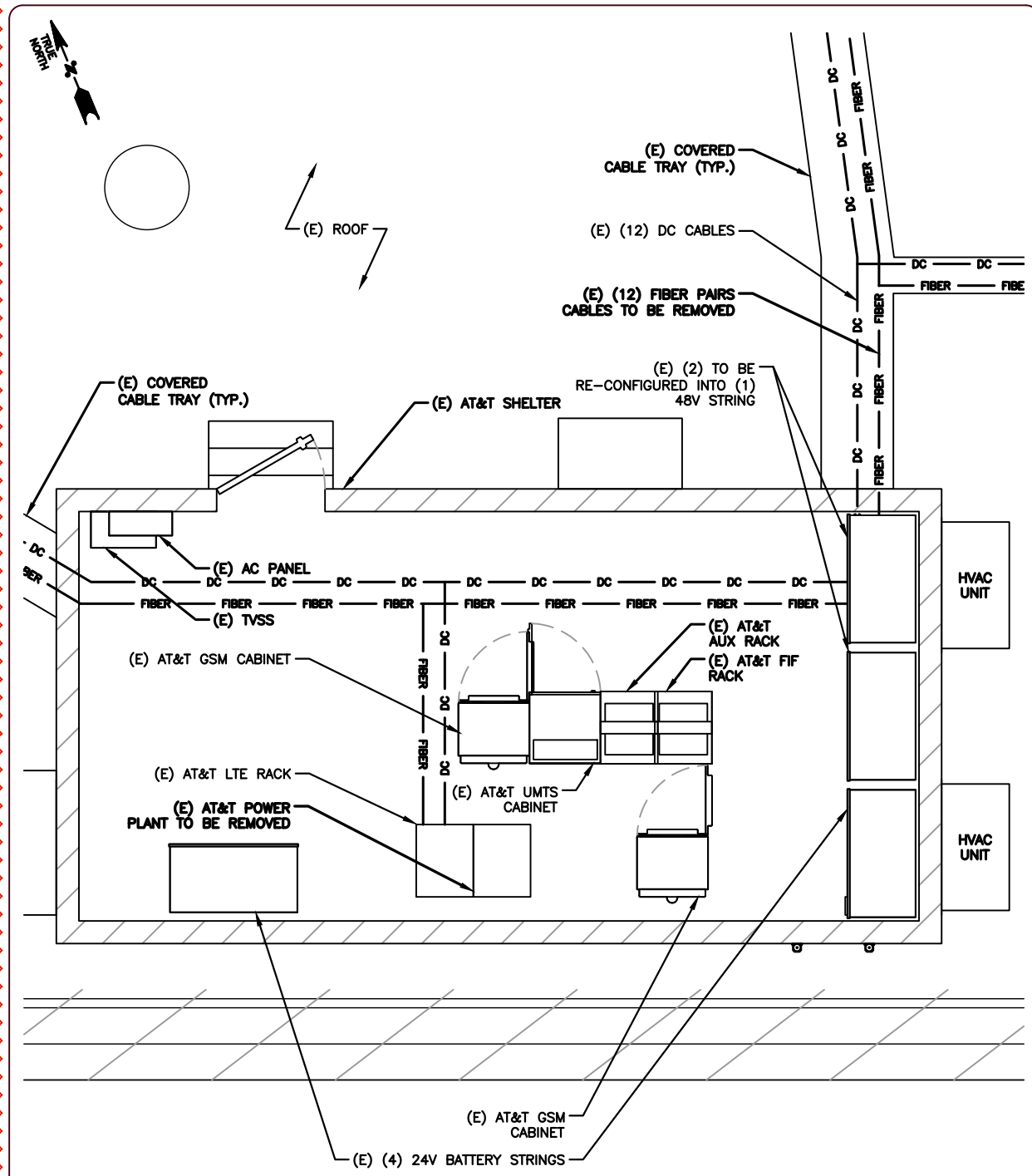
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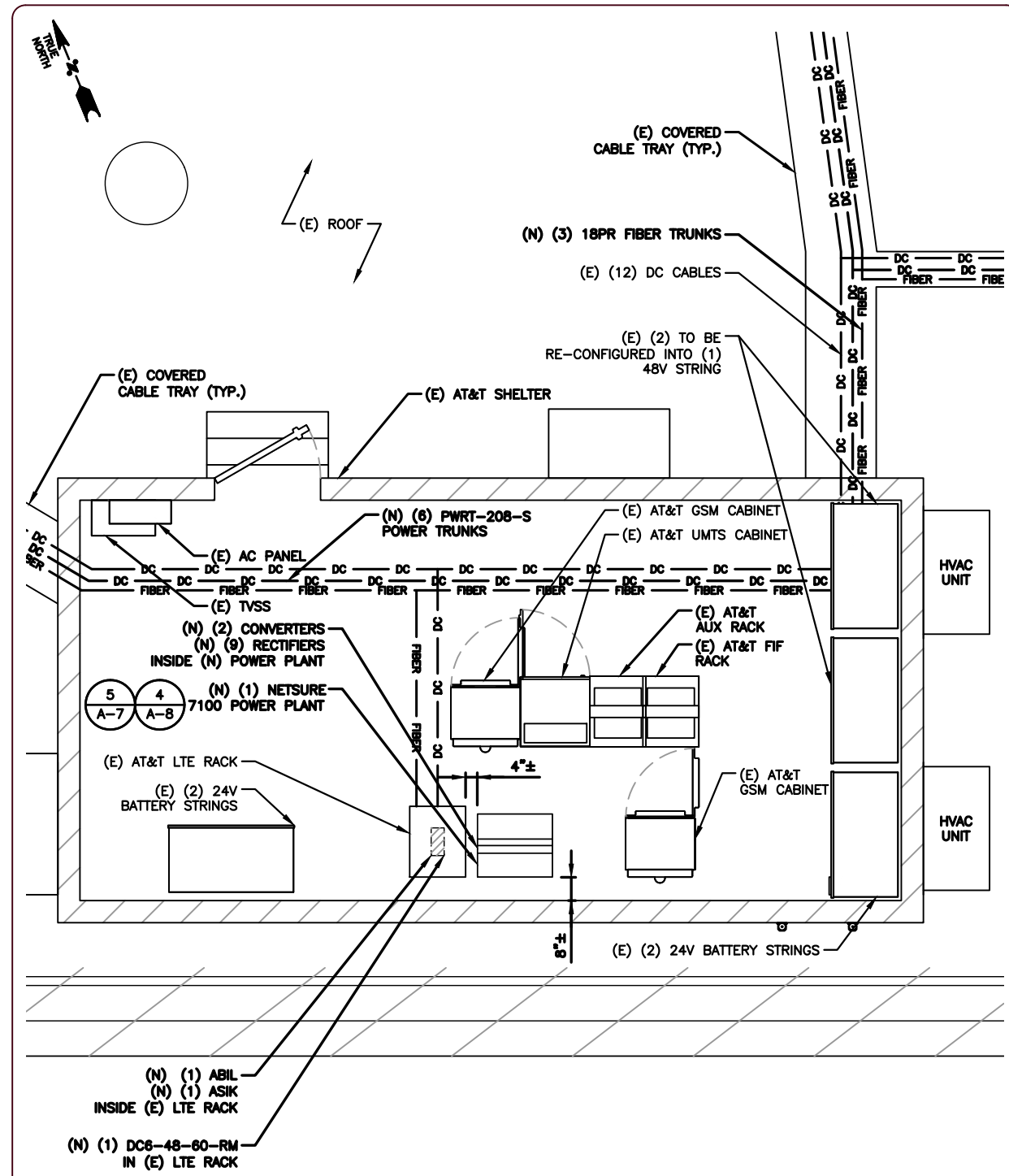
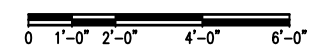
SHEET DESCRIPTION
ENLARGED SITE PLAN

SHEET No.
A-2



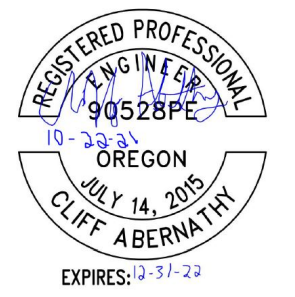
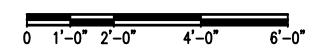
NOTE:
EQUIPMENT ROOM IS LOCATED ON THE ROOFTOP.

1 EXISTING EQUIPMENT LAYOUT PLAN
A-3 SCALE (11" x 17") 1/2" = 1'-0"



NOTE:
EQUIPMENT ROOM IS LOCATED ON THE ROOFTOP.

2 PROPOSED EQUIPMENT LAYOUT PLAN
A-3 SCALE (11" x 17") 1/2" = 1'-0"



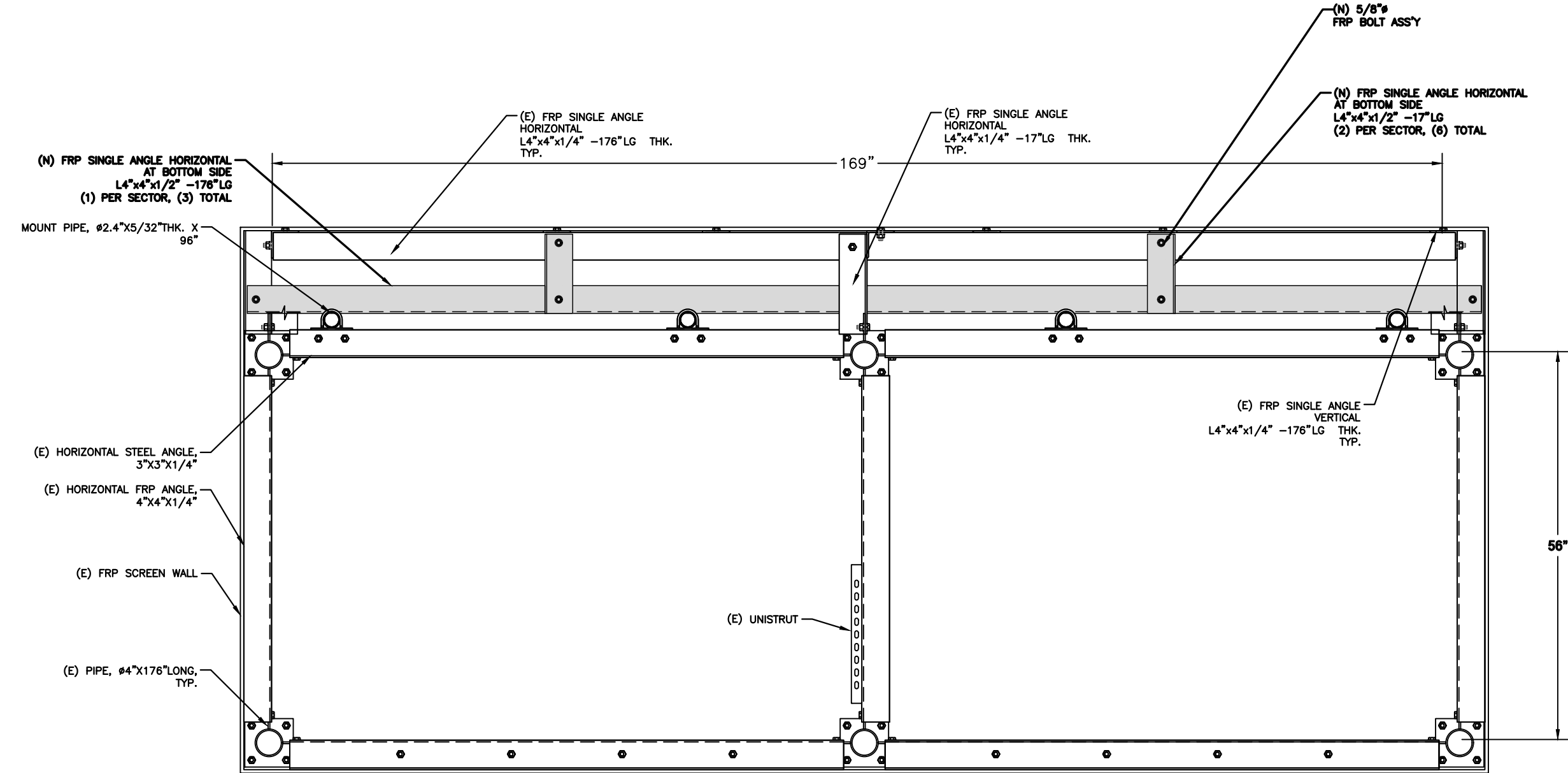
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5	09/23/21	100% CD	RCD
6	10/21/21	100% CD	

PR46 ANTENNA AND EQUIPMENT SCHEDULE PR46 & 3547802										
SECTOR		TECH	AZIMUTH	ANTENNA				RADIOS/TMAs		HYBRID CABLES
				MANUFACTURER	MODEL NO. (PORT)	SIZE & WEIGHT	STATUS			
SECTOR '1'	1	U850/1900	15°	KATHREIN	742-264	51.8"x10.3"x5.5" (36.4 lbs)	EXISTING	90°-7"	(2) TMA5 2-LGP 21401	(4) (E) 1 5/8" COAX (4) (E) 7/8" COAX (12) (E) PWRT-208-S DC CABLE (12) (E) FIBER CABLES (TO BE REMOVED)
	2	G850/LTE WCS	30°	KMW	ET-X-UW-70-16-70-18-IR-AT-RA	91.7"x12.0"x6.3" (48.5 lbs)	EXISTING	90°-7"	(1) RRUS 4x25-WCS-4R	
	3	LTE AWS	30°	KMW	ET-X-UW-70-16-70-18-IR-AT-RA	91.7"x12.0"x6.3" (48.5 lbs)	EXISTING	90°-7"	(1) RRUS B66A 4X45-4R	
	4	L700/1900	30°	KMW	ET-X-UW-70-16-70-18-IR-AT-RA	91.7"x12.0"x6.3" (48.5 lbs)	EXISTING	90°-7"	(1) RRUS 2x40W_7L (1) RRUS B25 4X30-4R	
SECTOR '2'	1	U850/1900	145°	KATHREIN	742-264	51.8"x10.3"x5.5" (36.4 lbs)	EXISTING	90°-7"	(2) TMA5 2-LGP 21401	
	2	G850/LTE WCS	160°	KMW	ET-X-UW-70-16-70-18-IR-AT-RA	91.7"x12.0"x6.3" (48.5 lbs)	EXISTING	90°-7"	(1) RRUS 4x25-WCS-4R	
	3	LTE AWS	160°	KMW	ET-X-UW-70-16-70-18-IR-AT-RA	91.7"x12.0"x6.3" (48.5 lbs)	EXISTING	90°-7"	(1) RRUS B66A 4X45-4R	
	4	L700/1900	160°	KMW	ET-X-UW-70-16-70-18-IR-AT-RA	91.7"x12.0"x6.3" (48.5 lbs)	EXISTING	90°-7"	(1) RRUS B25 4X30-4R (1) RRUS 2X40-07L-AT	
SECTOR '3'	1	U850/1900	285°	KATHREIN						

(N) - NEW
(E) - EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



INSTALLATION NOTES:

- REINFORCE EACH FRP SHROUD;

1
S-4
PROPOSED PLAN VIEW
SCALE: 1-1/2" = 1'-0"

NOTE:
- ALL NEW PLATE AND ANGLE STEEL BE ASTM A36 (GR36).
- ALL PIPE STEEL TO BE ASTM A53
- NEW FRP ANGLE WILL BE 4"x4"x1/2"
- NEW FRP HSS SQUARE WILL BE 4"x4"x1/2"
- ALL NEW FRP BOLTS FOR CONNECTION FRP PROFILE WILL BE 5/8"x6".
- ALL NEW STEEL BOLTS TO BE (A307).
- USE FRP 3/8"x8"x12" BOLTS ASS'Y EACH FRP PANEL ITEMS TOGETHER.
- PAINT THE SHROUD TO MATCH THE EXISTING BUILDING.

NOTE:
- CONTRACTOR SHALL OBTAIN PASSING STRUCTURAL ANALYSIS BY TRYLON PRIOR TO ANY INSTALLATION SHOWN IN THE DRAWING.
- FIELD CHECK ALL THE DIMENSIONS BEFORE CUTTING ANGLES, SQUARE, PIPES, FRP SCREENS.
- 11/16" HOLES TO BE FIELD DRILLED.
- 11/16" HOLE REQUIRE A MINIMUM OF 1-1/4" EDGE DISTANCE
- APPLY TWO COATS OF GALVICON TO ALL FIELD CUT OR DRILLED EDGES.

NOTE:
CONTRACTOR TO ENSURE PURCHASED MATERIALS TO BE SUPPLIED FROM FIBERGRATE COMPOSITE STRUCTURE ([HTTPS://WWW.FIBERGRATE.COM/](https://www.fibergrate.com/)). MANUFACTURERS ARE APPROVED ACCORDING DOCUMENT SUMMARY OF LARR APPROVALS AS OF NOVEMBER 1, 2018. ([HTTPS://WWW.LADBS.ORG/FORMS-PUBLICATIONS/PUBLICATIONS/RESEARCH-REPORTS](https://www.ladbs.org/forms-publications/publications/research-reports))

LADBS APPROVES ALTERNATE BUILDING MATERIALS OR PRODUCTS THAT ARE AT LEAST EQUIVALENT TO THE MATERIALS PRESCRIBED IN THE CODE IN TERMS OF QUALITY, EFFECTIVE TIME PERIOD OF FIRE RESISTANCE, STRENGTH, EFFECTIVENESS, DURABILITY AND SAFETY. APPROVED MATERIALS ARE PUBLISHED AS LOS ANGELES RESEARCH REPORTS (LARR).

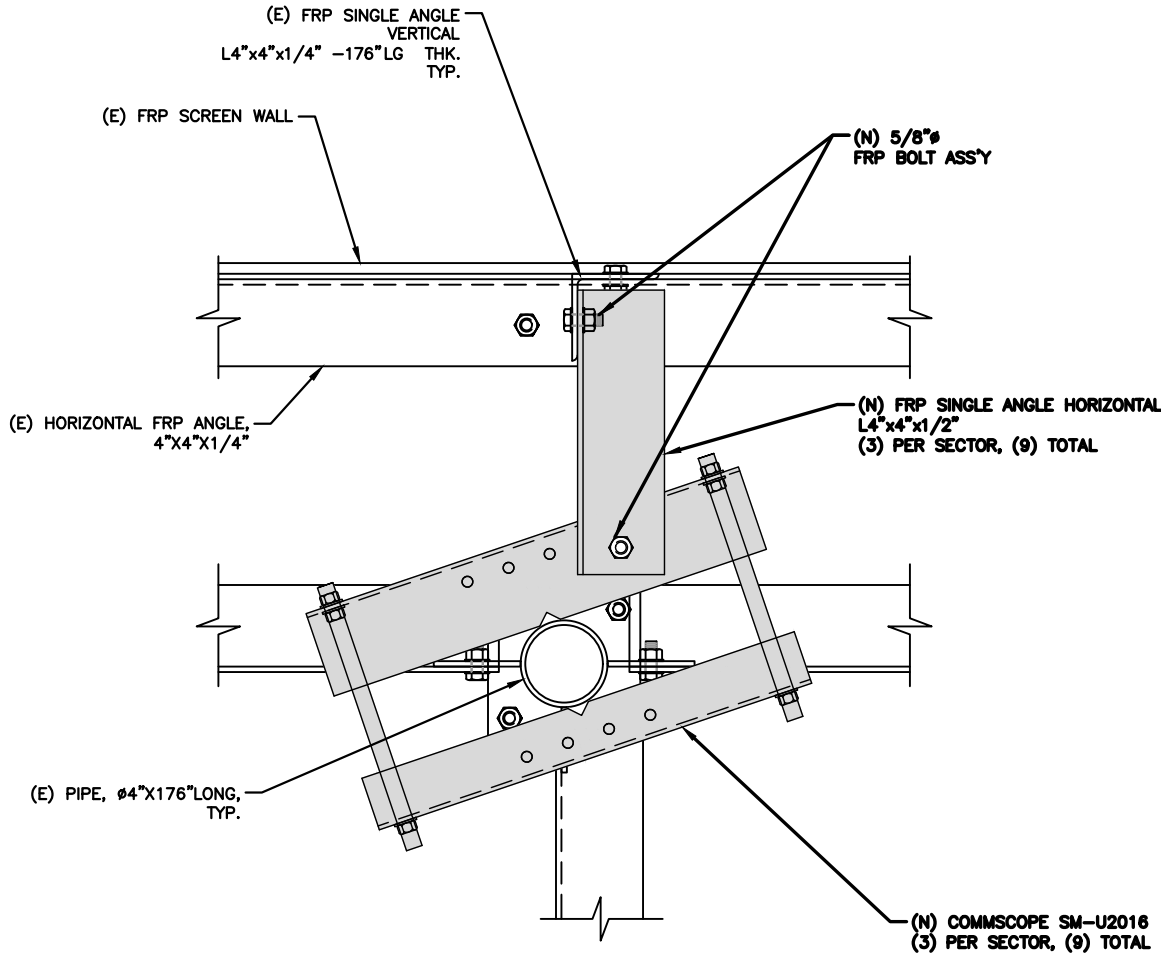


1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421



(N) - NEW
(E) - EXISTING

EQUIPMENT NOT SHOWN FOR CLARITY.



INSTALLATION NOTES:

- REINFORCE EACH FRP SHROUD;

1 SECTION B-B
S-5 SCALE: 3" = 1'-0"



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1-855-669-5421



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SITE INFORMATION

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PR46

FA NUMBER:
10094246

RFDS NAME & ID:
PR46 & 3547802

SITE NAME:
PSU

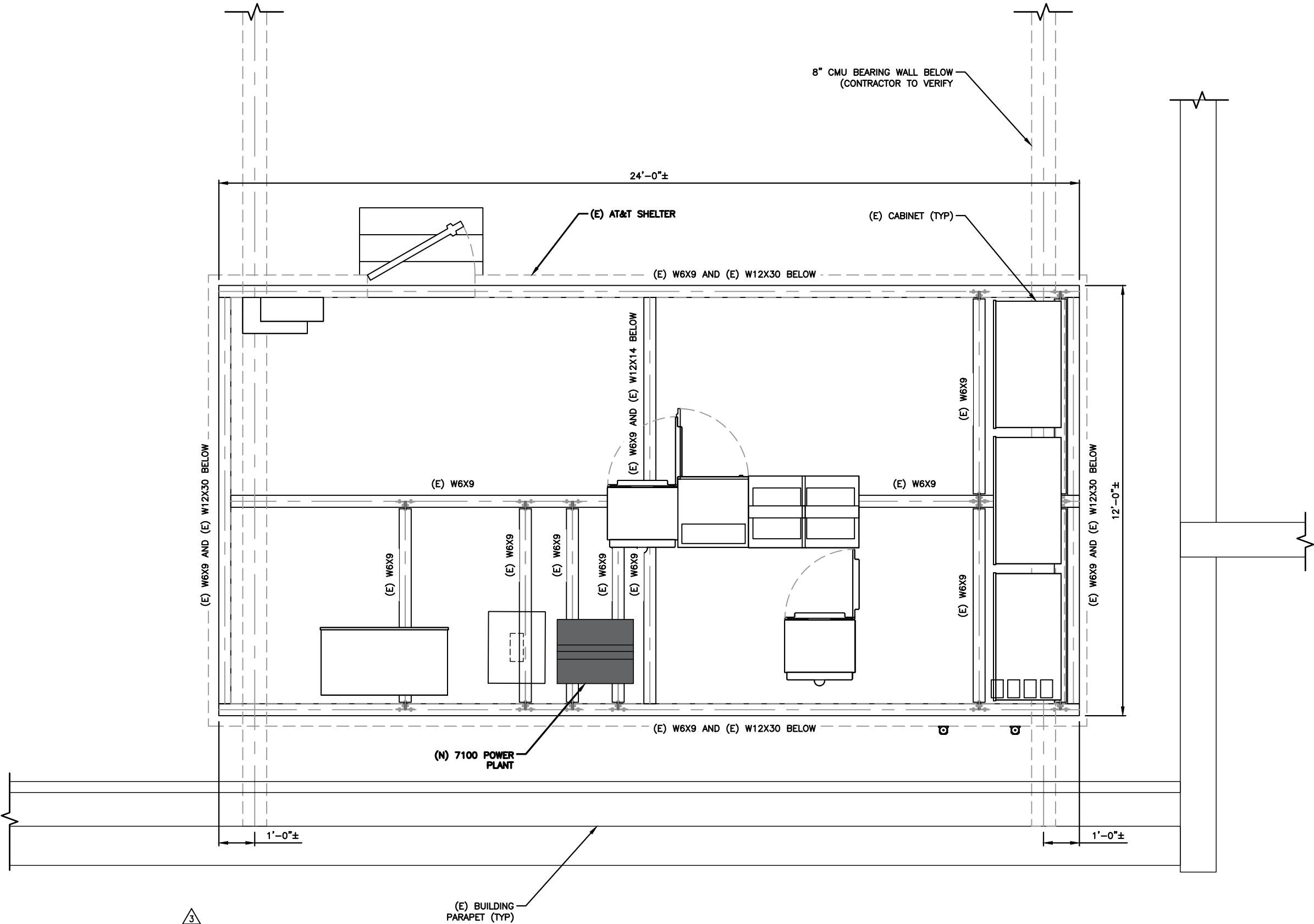
SITE ADDRESS:
1705 SW 11TH AVENUE
PORTLAND, OR 97201

SHEET DESCRIPTION

**FRP SHROUD
REINFORCING SECTOR
ALPHA & GAMMA**

SHEET No.

S-5



NOTE:
EQUIPMENT ROOM IS LOCATED ON THE ROOFTOP.



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PR46 & 3547802

SITE NAME:
PSU

SITE ADDRESS:
1705 SW 11TH AVENUE
PORTLAND, OR 97201

SHEET DESCRIPTION

STRUCTURAL
EQUIPMENT ROOM
FRAMING PLAN

SHEET No.</

Hi Tech Composite Structures, Inc.
RE: Cell Solution Panel Enclosure System

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

QUAN NGHIEM, Chief
Engineering Research Section
201 N. Figueroa St., Room 880
Los Angeles, CA 90012
Phone- 213-202-9812
Fax- 213-202-9943

EB
RR25520
R05/22/15
1509

Attachment: Detail Sheet, Design Values Load Chart (2 Pages)



Mount Modification Report

Trylon Project # 166962

September 3, 2021

Project Information	
Client	Smartlink
Carrier Name	AT&T
Carrier Site ID	PR46
Carrier Site Name	PSU
PACE Number	MRWOR046226
PTN Number	3898A0SWM7
FA Number	10094246
Site Address	1705 Southwest 11TH Avenue, Portland, Multnomah, OR 97201
Site Coordinates	45.51389, -122.68611
Structure Type	Building
Structure Height	84 ft
Mount Type	FRP Structure
Mount Elevation	90.6 ft

STRUCTURE RATING =	76.3%	PASS
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Analysis Performed by:

Alexandru Ciuca

Reviewed and Approved by:

Cliff Abernathy, P.E.

Cliff Abernathy, P.E. Digitally signed by Cliff Abernathy
 DN: cn=Cliff Abernathy, o=Smartlink, email=cliff@smartlink.com, c=US



Mount Analysis Report

Smartlink

11410 NE 122nd Ave, Ste 102 Kirkland, WA 98034

Subject: Analysis of the Proposed FRP Structure at 90.6 ft. ElevationDear **Smartlink**,

We have been provided with RF information, photos and sketches of the structure for the above referenced sites. AT&T is proposing to change the equipment configuration on the Proposed mounting hardware.

A revised antenna, coax and miscellaneous equipment schematic have been provided to us. We have been asked to evaluate this information to determine whether the mounting apparatus is adequate to safely support the proposed loading change.

RISA 3D (Version 17), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

1. Source Data

Document Type	Source	Reference	Date
RFDS	AT&T	RFDS ID: 3547802	May 5, 2020
Construction Drawings	Trylon	Site ID: PR46	March 2, 2021
Mount Modification Drawings	Trylon	J.N:166962	August 9, 2021
Audit Photos	Trylon	Site ID: PR46	October 7, 2020

2. Analysis Criteria

Adopted Codes and Site Parameters	
Building Code / Local Code	2018 IBC / 2019 OSSC
Code Standard	ASCE 7-16
Design Wind Speed (mph)	98
Design Wind Speed with Ice (mph)	30
Design Ice Thickness (in)	2.0
Risk Category/Structure Class	II
Exposure Category	C
Topographic Factor, K_{zt}	1.0
Seismic Response Acceleration, S_s (g)	0.888
Seismic Response Acceleration, S_1 (g)	0.398

3. Final Loading Configuration

Mount CL (ft)	Equipment CL (ft)	Qty.	Manufacturer	Model	Carrier
90.6	95	6	Commscope	NNHH-65C-R4	AT&T
		2	KMW	ET-X-UW-70-16-70-18-iR-AT-RA	
		3	Nokia	AHCA	
		3	Alcatel	B66A RRH4X45-4R	
		3	Alcatel	RRH4x25-WCS-4R	
		3	Nokia	AHLBBA	
		3	Alcatel	B25 RRH4X30-4R	
		3	Raycap	DC6-48-60-0-1B-01-SS	
		2	Kaelus	DBC0135F3V92-1	

5. Analysis Results

Mount CL (ft.)	Component	% Capacity	Pass/Fail	Notes
90.6	Mount Pipe(s)	9.8	PASS	1
	FRP Horizontal(s)	70.1	PASS	
	Steel Horizontal(s)	20.8	PASS	
	FRP Vertical(s)	71.4	PASS	
	Steel Vertical(s)	20.9	PASS	
	FRP Bracing(s)	59.3	PASS	
	Steel Bracing(s)	19.0	PASS	
	Connection(s)	76.3	PASS	

Structure Rating (max from all components) =	76.3%
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Notes:

1) See additional documentation in "Appendix A – Additional Calculations" for calculations supporting the % capacity consumed.

6. Conclusions and Recommendations

Based on the information provided, our calculations conclude that the Proposed AT&T FRP Structure installed at 90.6 ft. elevation has sufficient capacity to carry the final loading configuration.

APPENDIX

ADDITIONAL CALCULATIONS

LOAD COMBINATIONS [LRFD] cont..

#	Description
87	$0.9D + Di + Wi_{210^\circ}$
88	$0.9D + Di + Wi_{240^\circ}$
89	$0.9D + Di + Wi_{270^\circ}$
90	$0.9D + Di + Wi_{300^\circ}$
91	$0.9D + Di + Wi_{330^\circ}$
92	$(1.2 + 0.2Sds)D + L + 0.2S + E_{0^\circ}$
93	$(1.2 + 0.2Sds)D + L + 0.2S + E_{30^\circ}$
94	$(1.2 + 0.2Sds)D + L + 0.2S + E_{60^\circ}$
95	$(1.2 + 0.2Sds)D + L + 0.2S + E_{90^\circ}$
96	$(1.2 + 0.2Sds)D + L + 0.2S + E_{120^\circ}$
97	$(1.2 + 0.2Sds)D + L + 0.2S + E_{150^\circ}$
98	$(1.2 + 0.2Sds)D + L + 0.2S + E_{180^\circ}$
99	$(1.2 + 0.2Sds)D + L + 0.2S + E_{210^\circ}$
100	$(1.2 + 0.2Sds)D + L + 0.2S + E_{240^\circ}$
101	$(1.2 + 0.2Sds)D + L + 0.2S + E_{270^\circ}$
102	$(1.2 + 0.2Sds)D + L + 0.2S + E_{300^\circ}$
103	$(1.2 + 0.2Sds)D + L + 0.2S + E_{330^\circ}$
104	$(0.9 - 0.2Sds)D + E_{0^\circ}$
105	$(0.9 - 0.2Sds)D + E_{30^\circ}$
106	$(0.9 - 0.2Sds)D + E_{60^\circ}$
107	$(0.9 - 0.2Sds)D + E_{90^\circ}$
108	$(0.9 - 0.2Sds)D + E_{120^\circ}$
109	$(0.9 - 0.2Sds)D + E_{150^\circ}$
110	$(0.9 - 0.2Sds)D + E_{180^\circ}$
111	$(0.9 - 0.2Sds)D + E_{210^\circ}$
112	$(0.9 - 0.2Sds)D + E_{240^\circ}$
113	$(0.9 - 0.2Sds)D + E_{270^\circ}$
114	$(0.9 - 0.2Sds)D + E_{300^\circ}$
115	$(0.9 - 0.2Sds)D + E_{330^\circ}$

LOAD COMBINATIONS [LRFD] cont..

#	Description
87	$0.9D + Di + Wi_{210^\circ}$
88	$0.9D + Di + Wi_{240^\circ}$
89	$0.9D + Di + Wi_{270^\circ}$
90	$0.9D + Di + Wi_{300^\circ}$
91	$0.9D + Di + Wi_{330^\circ}$
92	$(1.2 + 0.2Sds)D + L + 0.2S + E_{0^\circ}$
93	$(1.2 + 0.2Sds)D + L + 0.2S + E_{30^\circ}$
94	$(1.2 + 0.2Sds)D + L + 0.2S + E_{60^\circ}$
95	$(1.2 + 0.2Sds)D + L + 0.2S + E_{90^\circ}$
96	$(1.2 + 0.2Sds)D + L + 0.2S + E_{120^\circ}$
97	$(1.2 + 0.2Sds)D + L + 0.2S + E_{150^\circ}$
98	$(1.2 + 0.2Sds)D + L + 0.2S + E_{180^\circ}$
99	$(1.2 + 0.2Sds)D + L + 0.2S + E_{210^\circ}$
100	$(1.2 + 0.2Sds)D + L + 0.2S + E_{240^\circ}$
101	$(1.2 + 0.2Sds)D + L + 0.2S + E_{270^\circ}$
102	$(1.2 + 0.2Sds)D + L + 0.2S + E_{300^\circ}$
103	$(1.2 + 0.2Sds)D + L + 0.2S + E_{330^\circ}$
104	$(0.9 - 0.2Sds)D + E_{0^\circ}$
105	$(0.9 - 0.2Sds)D + E_{30^\circ}$
106	$(0.9 - 0.2Sds)D + E_{60^\circ}$
107	$(0.9 - 0.2Sds)D + E_{90^\circ}$
108	$(0.9 - 0.2Sds)D + E_{120^\circ}$
109	$(0.9 - 0.2Sds)D + E_{150^\circ}$
110	$(0.9 - 0.2Sds)D + E_{180^\circ}$
111	$(0.9 - 0.2Sds)D + E_{210^\circ}$
112	$(0.9 - 0.2Sds)D + E_{240^\circ}$
113	$(0.9 - 0.2Sds)D + E_{270^\circ}$
114	$(0.9 - 0.2Sds)D + E_{300^\circ}$
115	$(0.9 - 0.2Sds)D + E_{330^\circ}$

