

INCORPORATED COUNTY OF LOS ALAMOS ORDINANCE NO. 739

AN ORDINANCE NOVATING AND AUTHORIZING A FIRST AMENDMENT OF A LEASE WITH AT&T MOBILITY, LLC, FOR REPLACEMENT OF EXISTING ANTENNA COLLOCATION AND FACILITIES AT 280 NORTH MESA ROAD, LOS ALAMOS, ON THE NORTH MESA WATER TOWER

WHEREAS, the Incorporated County of Los Alamos ("County") entered into a Lease for Antenna Collocation and Facilities Site ("Lease") with Commnet Wireless, LLC, ("Commnet") on August 11, 2021, for the placement and use of certain wireless telecommunication equipment on the North Mesa Water Tower ("Water Tower"); and

WHEREAS, the leased space is located at 280 North Mesa Road, Los Alamos, New Mexico 87544 ("Property") and includes both ground equipment and certain antennas on County's Water Tower; and

WHEREAS, the original Lease with Commnet did not have an internal County tracking number designation, and has been assigned the number AGR26-823, with a first amendment designation of AGR26-823-A1, attached hereto as Exhibit A; and

WHEREAS, AT&T Mobility LLC, ("AT&T") became a successor in interest of the 2021 Lease with Commnet; and

WHEREAS, on December 17, 2024, County received a request from AT&T to modify the existing antenna equipment and ground lease on the Water Tower and Property; and

WHEREAS, County has worked with AT&T since that time to identify current ground and antenna equipment including the proposed additions and/or equipment replacements and reviewed and approved an AT&T produced structural analysis and engineered site plan; and

WHEREAS, the Department of Public Utilities ("DPU") and other affected departments have reviewed the proposed plans and specifications as provided by AT&T and find that the proposed amendment is appropriate for the further improvement of wireless telecommunication services within the County.

BE IT ORDAINED BY THE GOVERNING BODY OF THE INCORPORATED COUNTY OF LOS ALAMOS:

Section 1. The County Council finds novation and amendment of the Lease is appropriate and will improve wireless telecommunication services in the County.

Section 2. The Utilities Manager is hereby authorized to take all action necessary to carry out the amendment of the Lease with AT&T.

Section 3. Severability. Should any section, paragraph, clause or provision of this Ordinance, for any reason, be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining provisions of this Ordinance.

Section 4. Effective Date. This Ordinance shall become effective thirty (30) days after publication of notice of its adoption.

Section 5. Repealer. All other ordinances or resolutions, or parts thereof, inconsistent herewith are hereby repealed only to the extent of such inconsistency. This repealer shall not be construed to revive any ordinance or resolution, or part thereof, heretofore repealed.

PASSED AND ADOPTED this 18th day of November 2025.

INCORPORATED COUNTY OF LOS ALAMOS

**Theresa Cull,
Council Chair**

ATTEST:

**Michael D. Redondo,
Los Alamos County Clerk**

**FIRST AMENDMENT AND NOVATION OF A LEASE FOR ANTENNA
COLLOCATION AND FACILITIES SITE,
WITH AT&T MOBILITY LLC, FOR REPLACEMENT OF EXISTING ANTENNA AT
280 NORTH MESA ROAD, LOS ALAMOS, ON THE BARRANCA NORTH MESA
WATER TOWER**

This First Amendment and Novation of a *Lease for Antenna Collocation and Facilities Site* (this "*First Amendment*") is entered into as of the date last signed below (the "new Effective Date") and is by and between the **Incorporated County of Los Alamos**, an incorporated county of the State of New Mexico (the "County" or "Landlord"), and novate **AT&T Mobility LLC**, ("AT&T"), a Delaware limited liability company ("Tenant"), successor in interest to Commnet Wireless, LLC, ("Exiting Tenant" or "Commnet") a Delaware limited liability company, collectively (the "Parties").

WHEREAS, the Landlord, in its proprietary capacity, owns and controls that certain real property commonly known as the North Mesa Water Tank located at 280 North Mesa Road, Los Alamos, New Mexico 87544 (the "Property"); and

WHEREAS, the Property's primary use is for the installation and operation of a County owned water tank tower, the ("Facility"); and

WHEREAS, the Parties' original Lease Agreement was not assigned a County agreement number, yet the contract has now been assigned the County internal tracking number AGR26-823, and with this Amendment is numbered AGR26-823-A1; and

WHEREAS, the County Council is authorized to lease real property and utility facilities under County Code 14-31(6) and NMSA 1978, Section 3-54-1, (A); and

WHEREAS, Landlord and Commnet entered into that certain *Lease for Antenna Collocation and Facilities Site* dated August 11, 2021 (the "Lease"), which is incorporated herein by reference for all purposes, pursuant to which Commnet had the right to install, operate, and maintain its wireless communication equipment at the Facility; and

WHEREAS, the Department of Public Utilities ("DPU") and other affected departments have reviewed the proposed plans and specifications as provided by AT&T and find that the amended facility changes are appropriate for the further improvement of wireless telecommunication services within the County; and

WHEREAS, The Parties desire that the Lease be amended and assumed through a novation of the Lease from the Exiting Tenant to the Tenant; and

WHEREAS, Exiting Tenant desires to assign and transfer the Lease to Tenant, and Tenant wishes to accept the assignment, transfer, and assumption of all the rights, interests, covenants, obligations, and liabilities of Exiting Tenant described in the Lease, under the terms and conditions of this Novation; and

WHEREAS, the first five (5) year term of the Lease expires on August 11, 2026, and remains unmodified by this *First Amendment* except as explicitly described herein; and

WHEREAS, Landlord and Tenant desire to amend and supplement the Lease to allow for the construction/installation of additional/updated equipment to be installed at the Facility on the terms and conditions in this *First Amendment*; and

WHEREAS, the additional/updated equipment being added to the Facility doubles the number of existing attachment points on the Facility, and the Landlord and Tenant agree to increase the annual rent, beginning on June 1, 2026, or at the start of the installation/construction of the additional/updated equipment, whichever occurs first; and

WHEREAS, each reference to Exhibit B and Exhibit C in the Lease are amended to read “Exhibit B-1” and “Exhibit C-1”, respectively, to reflect that former Exhibit B and Exhibit C are replaced in their entirety by amendment herein, with Exhibit B-1 and Exhibit C-1, respectively, attached hereto; and

WHEREAS, the Council of the Incorporated County of Los Alamos (“County Council”) finds that a Novation of the Lease from the Exiting Tenant to the Tenant is in the best interest of County; and

WHEREAS, the County Council approved this *First Amendment and Novation of a Lease for Antenna Collocation and Facilities Site* at a public meeting held on September 30, 2025.

NOW, THEREFORE, for good, valuable, and sufficient consideration, Landlord, Exiting Tenant and Tenant acknowledge, agree, and stipulate as follows:

1. Full Force and Effect. All terms and conditions set forth in the Lease shall continue in full force and effect unless specifically modified or supplemented herein.
2. As of the new Effective Date, Tenant assumes all assets and liabilities, the equity interests, contractual obligations, and terms and conditions of Exiting Tenant, including the Lease.
3. Tenant shall be bound by all obligations and terms and conditions created by the Lease between Exiting Tenant and County.
4. Tenant shall be bound by and perform all duties, obligations, and work required by the Lease in strict accordance with the terms and conditions of the Lease.
5. Tenant shall assume all past and future duties, obligations, liabilities created under the Lease by the Exiting Tenant as if the Tenant were the Exiting Tenant when the Lease was originally entered.
6. Exiting Tenant confirms the transfer of all Lease assets and liabilities to Tenant and waives any claim or right that it may have against County with respect to the Lease.
7. The Parties agree that all payments previously made to Landlord by Exiting Tenant, and all other previous actions taken by Exiting Tenant under the Lease, shall be considered to have discharged those parts of the Exiting Tenant’s obligations under the Lease.

8. A one-time administrative review fee in the amount of FIFTEEN THOUSAND DOLLARS (\$15,000.00) is appropriate for this Amendment and shall be paid within sixty (60) days of the last signatory's endorsement.

9. The annual rent shall be increased to TWENTY-ONE THOUSAND AND NO/100 DOLLARS (\$21,000.00), paid monthly, *i.e.*, ONE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS (\$1,750.00), beginning June 1, 2026, or at the start of the installation/construction of the additional/updated equipment, whichever occurs first, and subject to the same annual escalation thereafter, as the original term of 3% annual increase on the anniversary date of the increase herein.

10. The title page is amended by replacing "COMMNET WIRELESS, LLC", as Exiting Tenant" with "AT&T MOBILITY LLC", as Tenant.

11. The Table of Contents is amended such that "EXHIBIT B. PREMISES" is amended to "EXHIBIT B-1. PREMISES" and "EXHIBIT C. OTHER COMMUNICATION USES" is amended to "EXHIBIT C-1. OTHER COMMUNICATION USES".

12. Replace in its entirety EXHIBIT B PREMISES document, Registered Architect #004076 Sealed drawing dated December 31, 2021, with the attached EXHIBIT B-1 PREMISES, Licensed Professional Engineer #15496 Sealed Drawing dated November 21, 2024.

13. Delete in its entirety EXHIBIT C OTHER COMMUNICATION USES document, CO-LOCATION INTERFERENCE ANALYSIS REPORT, dated August 30, 2020, and replace it with the attached EXHIBIT C-1 OTHER COMMUNICATION USES, "Appurtenance Mount Analysis Report" by B+T GRP dated November 1, 2024, and the "Water Tower- Structural Analysis Report" by B+T GRP dated November 14, 2024.

14. Only the following numbered subsections of the Lease are hereby amended, primarily to replace "Exhibit B" and "Exhibit C" with "Exhibit B-1" and "Exhibit C-1", respectively, and to update the new Tenant's contact information.

1.1.5. Other Communication Uses: Those uses described on the attached Exhibit "C-1", incorporated herein by reference.

1.1.6. Permitted Use: Tenant shall use the Premises only for the purpose of installing, maintaining, repairing, replacing, removing and operating certain communications equipment, which equipment is more particularly described in the attached Exhibit "B-1" ("Tenant's Equipment") and uses incidental thereto to provide communications services, and for no other purpose.

1.1.7. Premises: The portion of the Land and the Facility hereby leased to Tenant, as shown on the attached Exhibit "B-1", incorporated herein by reference, containing approximately two hundred forty-seven (247) square feet and space on the Facility at the seventy-five (75) foot above ground level.

1.1.8 Rent: Payment of Lease fees shall commence on the Effective Date. For the primary Term, Tenant shall pay annual rental in the amount of TWENTY-ONE THOUSAND AND 00/100

DOLLARS (\$21,000.00) (hereafter “Rent” or “Lease Payment”) in advance, to Landlord’s Address stated below.

1.1.10. Tenant's Address: For notices under this Lease, the Tenant’s address is:

AT&T Mobility LLC
ATTN: TAG – LA
Re: Cell Site# NML02662A
Cell Site Name: North Mesa Water Tank
Fixed Asset #: 15066552
1025 Lenox Park Blvd NE
3rd Floor
Atlanta, GA 30319

With a Copy To:

New Cingular Wireless PCS, LLC
Attn: Legal Department
Re: Cell Site# NML02662A
Cell Site Name: North Mesa Water Tank
Fixed Asset #: 15066552
208 S. Akard Street
Dallas, Texas, 75202-4206

2.1. Landlord, in consideration of the Rent and other charges to be paid and the other covenants and agreements to be performed by Tenant, hereby leases to Tenant, and Tenant hereby takes from Landlord, the Premises commencing on the Effective Date and ending on the last day of the Lease Term unless sooner terminated as herein provided. Tenant acknowledges and agrees that Tenant’s use of space on the Facility at the seventy-five (75) foot elevation is exclusive. Tenant may install and maintain transmission and utility wires, cables, conduits and pipes on the Facilities necessary to carry out the Permitted Use, provided that Tenant obtains Landlord’s prior written consent of the specific location of all such installations, such consent not to be unreasonably withheld.

5.6. Tenant shall not cause electrical interference to Landlord or to any other tenant or user who is occupying or using a portion of the Land or the Facility as of the date Tenant proposes to lease the Premises from Landlord. At Landlord’s request, Tenant shall perform an intermod and interference study at the Facility and perform an interference evaluation. Tenant acknowledges that the Other Communication Uses as provided in **Exhibit “C-1”**, will not, if properly and lawfully operated, interfere with Tenant’s use, and that Tenant’s use will not interfere with the Other Communication Uses.

7.1 Except as contemplated in **Exhibit “B-1”**, Tenant shall not make or permit to be made any alterations, additions or improvements to the Premises or paint, install lighting or decorations, or install any signs, window or door lettering or advertising media of any type on or about the Premises without the prior written consent of Landlord, which shall not be unreasonably conditioned, withheld or delayed.

15. A new section 18.16 is added as follows:

Incorporated County of Los Alamos
AGR26-823-A1

18.6 Unmanned Aircraft System. Landlord grants Tenant, and any Unmanned Aircraft System (“UAS”) operator acting on Tenant’s behalf, express permission to use a UAS to fly over the applicable Property and Premises in connection with Tenant’s installation, construction, monitoring, site audits, inspections, maintenance, repair, modification, or alteration activities at the Property, and to use audio and video navigation and recording in connection with the use of the UAS.

16. A new section 18.17 is added as follows:

18.7 Severability. Should any section, paragraph, clause or provision of this amended Lease, for any reason, be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining provisions of this amended Lease.

17. The signature page is replaced in its entirety, and the **List of Exhibits:** is amended as follows:

Exhibit A – Land

Exhibit B-1 – Premises

Exhibit C-1 – Other Communication Uses (This exhibit describes the communications uses existing at the Facility as of the Effective Date and other anticipated communications frequencies and uses with which Tenant’s Equipment must not interfere.)

IN WITNESS WHEREOF, the parties have duly executed this *First Amendment and Novation of a Lease for Antenna Collocation and Facilities Site* on the latter date of the signatures below.

ATTEST:

Michael D. Redondo,
Los Alamos County Clerk

Approved as to form:

J. Alvin Leaphart,
County Attorney

LANDLORD:
INCORPORATED COUNTY OF LOS
ALAMOS

By: _____
PHILO S. SHELTON, III, P.E. Date
UTILITIES MANAGER

TENANT:

AT&T MOBILITY LLC
A Delaware limited liability company

Its: Manager

By: _____
Print Name: _____
Date: _____



6000 LAS COLINAS BLVD, FLOOR 1
IRVING, TX 75039



7150 STANDARD DRIVE
HANOVER, MD 21076
PHONE: (410) 712-4174



1717 S. BOULDER
SUITE 300
DENVER, CO 80202
PH: (303) 587-4830
www.bttg.com

AT&T SITE NUMBER:
NML0262A

AT&T SITE NAME:
LOS ALAMOS

280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

ISSUED FOR:

REV	DATE	DESCRIPTION	DESIGN
A	10/22/24	CD PRELIMINARY REVIEW	YX
0	11/02/24	CLS CONSTRUCTION	YX
1	11/21/24	AB CONSTRUCTION	YX

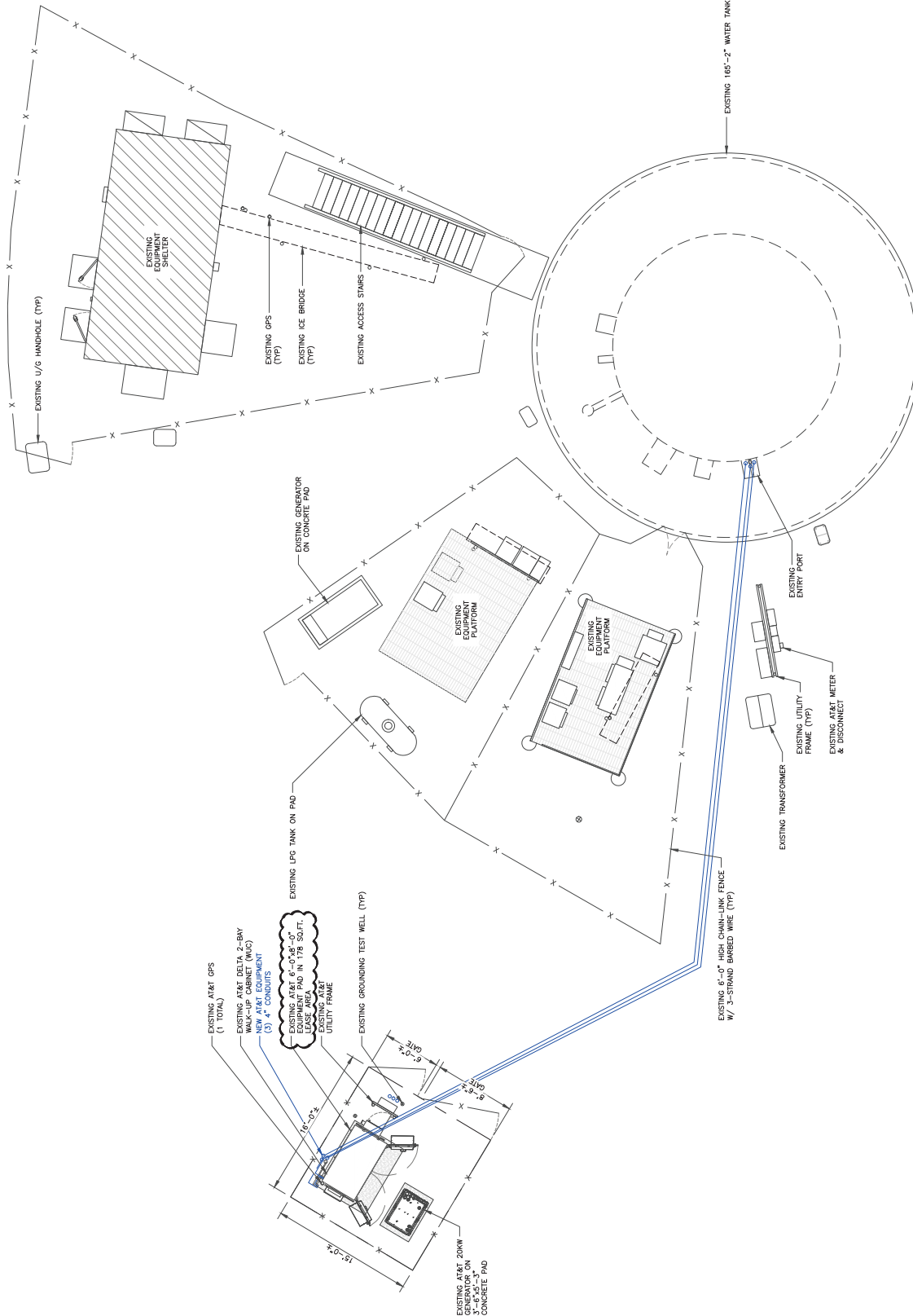


B&T ENGINEERING, INC.

THIS AGREEMENT IS VALID FOR ANY PERSON,
FIRM, OR CORPORATION WHOSE NAME IS
UNITED TO THE PROFESSIONAL ENGINEER,
TO ALTER THE DOCUMENT.

SHEET NUMBER: C-1

REVISION: 1



3/16"=1'-0" (EAL SIZE)

1 SITE PLAN

1 SCALE: 3/16"=1'-0"

Exhibit B-1 to AGR26-823-A1





Jacobs
7150 STANDARD DRIVE
HANOVER, MD 21076
PHONE: (410) 712-4174



AT&T SITE NUMBER:
NML0262A

AT&T SITE NAME:
LOS ALAMOS

280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

REV	DATE	DESCRIPTION	DIS. BY
A	10/20/24	CD PRELIMINARY REVIEW	YX
0	11/14/24	CLS CONSTRUCTION	YX
1	11/21/24	AB CONSTRUCTION	YX



B&T ENGINEERING, INC.
THIS SEALATION IS VALID FOR ANY PERSON
UNLESS A LICENSED PROFESSIONAL ENGINEER
TO ALTER THE DOCUMENT.

SHEET NUMBER:
C-3

REVISION:
1

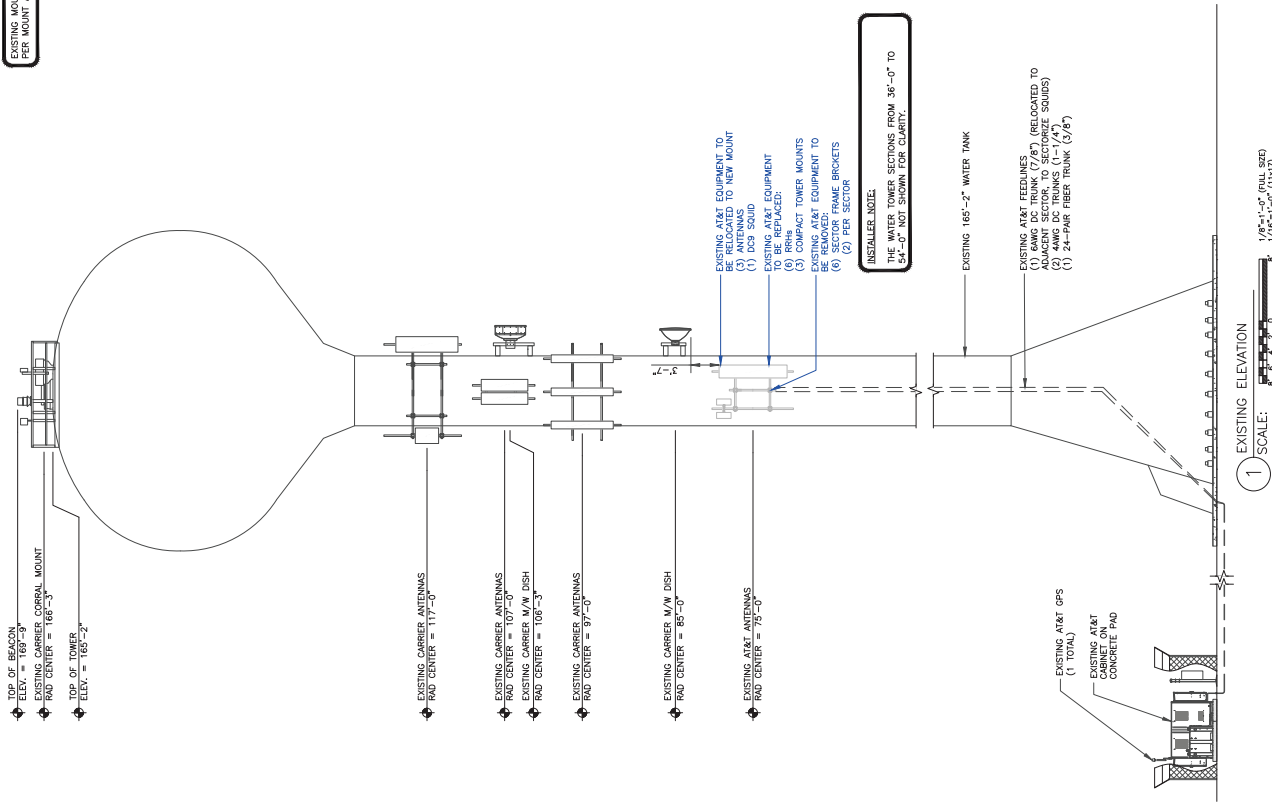
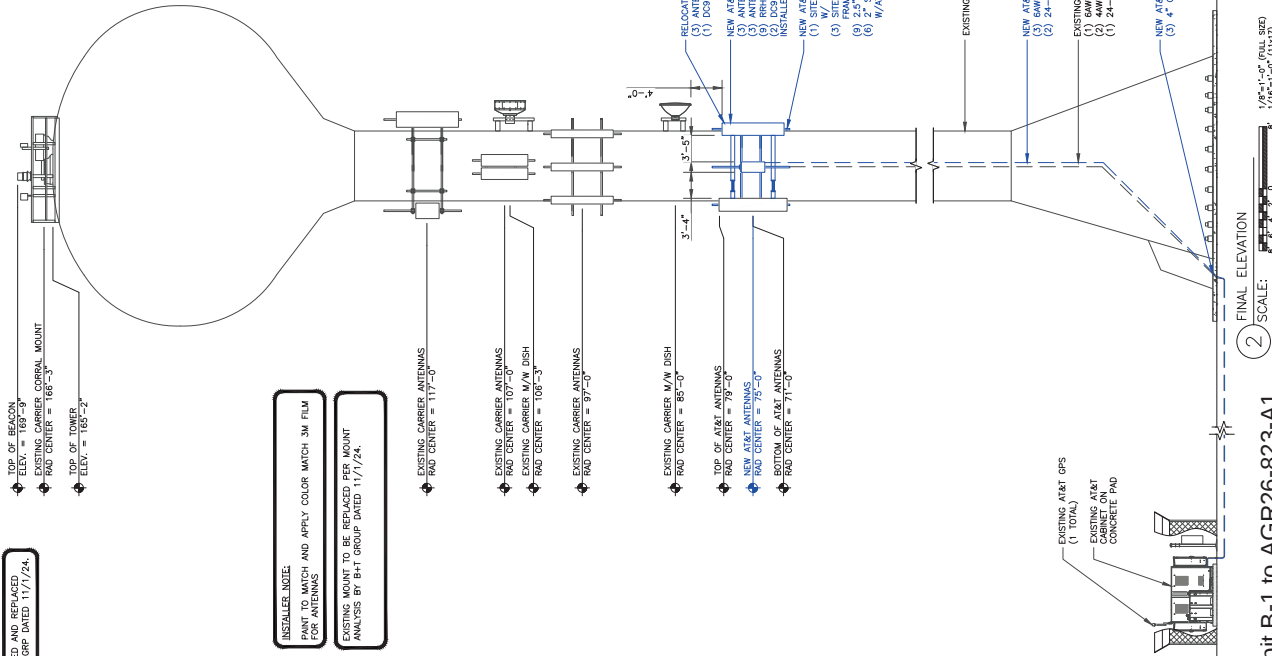


Exhibit B-1 to AGR26-823-A1



6000 LAS COLINAS BLVD, FLOOR 1
IRVING, TX 75039



7150 STANDARD DRIVE
HANOVER, MD 21076
PHONE: (410) 712-4174



177 S. BOULDER
SUITE 300
IRVING, TX 75039
PH: (972) 587-4830
www.btgpp.com

AT&T SITE NUMBER:
NML02662A

AT&T SITE NAME:
LOS ALAMOS

280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DIS. BY
A	10/29/24	CP	PRELIMINARY REVIEW	YS
0	11/21/24	CLS	CONSTRUCTION	YS
1	11/21/24	AB	CONSTRUCTION	YS



B&T ENGINEERING, INC.

THIS AGREEMENT IS IN FULL PAYMENT FOR ANY PERSON,
FIRM OR COMPANY, WHOSE NAME IS LISTED ON THIS DOCUMENT,
UNLESS OTHERWISE NOTED, TO ALTER THE DOCUMENT.

SHEET NUMBER: **E-1** REVISION: **1**

DISCLAIMER:

THE FINAL AC PANEL SCHEDULE IS BASED ON
EXISTING CONDITIONS IN SITE WALK PHOTOS. FINAL
PANEL TO BE SUBMITTED BY CLIENTS ELECTRICAL.

NOTE:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER
CHANGES IS TO BE PERFORMED BY OTHERS AND IS
NOT THE RESPONSIBILITY OF B&T ENGINEERING, INC.
B&T IS SOLELY RESPONSIBLE FOR THE ELECTRICAL
POWER DESIGN.

PANEL 'DISTRIBUTION PANEL' SCHEDULE																Square D #000 200A MAIN BKR	
120/240V, 1 PHASE, 3W 200A BUS																	
DESCRIPTION	MAIN BREAKER RATING (A):				SYSTEM VOLTAGE (V): 240												
	VA	LINE	BKR	POSN	L1	L2	POSN	BKR	LINE	VA	DESCRIPTION						
Rectifier	2150	c	30	3	2150			2									
	2150	c	30	1	2150			4									
Rectifier	2150	c	30	5	2150			6									
	2150	c	30	7	2150			8									
Rectifier	2150	c	30	9	2150			10									
	2150	c	30	11	2150			12									
Rectifier	2150	c	30	13	2150			14									
	2150	c	30	15	2150			16									
Rectifier	1075	c	30	17	1075			18									
	1075	c	30	19	1075			20									
Blank				21	0			22									
Blank				23	0			24									
				25	0			26									
WUC GFCI	240	nc	20	27		240		28									
PTLC Receptacles	180	nc	20	29	180			30									
				31		0		32									
				33	0			34									
				35		0		36									
				37	0			38									
				39		0		40									
				41	0			42									
PHASE TOTALS (VA): 9855 9915																	
CURRENT PER PHASE (A): 102 103																	
PANEL TOTAL (VA): 19770																	
PANEL CAPACITY (KVA): 48.0																	
PANEL LOADING (100% non-cont. load) (KVA): 0.4																	
PANEL LOADING (125% continuous load) (KVA): 24.2																	
PANEL LOADING (TOTAL) (KVA): 24.6																	
SPARE CAPACITY (KVA): 23.4																	
Legend: c = continuous nc = non-continuous																	
CONNECTED LOAD (KVA): 19.8																	

PANEL 'DISTRIBUTION PANEL' SCHEDULE																Square D #000 200A MAIN BKR				
120/240V, 1 PHASE, 3W 200A BUS																				
DESCRIPTION	MAIN BREAKER RATING (A):				SYSTEM VOLTAGE (V):				POSN				BKR				VA			
	VA	LINE	BKR	POSN	L1	L2	1	2	3	4	5	6	7	8	9	10	11	12		
Rectifier	2150	c	30	3	1	2150					2150	4								
	2150	c																		
Rectifier	2150	c	30	5	2150							6								
	2150	c																		
Blank				9	0						2150	8								
Blank																				
Blank				11						0		12								
Blank				13	0							14								
Blank				15						0		16								
Blank				17	0							18								
Blank				19						0		20								
Blank				21	0							22								
Blank				23						0		24								
Blank				25	0							26								
WUC GFCI	240	nc	20	27						240		28								
PTLC Receptacles	180	nc	20	29	180							30								
				31						0		32								
				33	0							34								
				35						0		36								
				37	0							38								
				39						0		40								
				41	0							42								
PHASE TOTALS (VA): 4480 4540																				
CURRENT PER PHASE (A): 46 47																				
PANEL TOTAL (VA): 9020																				
PANEL CAPACITY (KVA): 48.0																				
PANEL LOADING (100% non-cont. load) (KVA): 0.4																				
PANEL LOADING (125% continuous load) (KVA): 10.8																				
PANEL LOADING (TOTAL) (KVA): 11.2																				
SPARE CAPACITY (KVA): 36.8																				
Legend: c = continuous, nc = non-continuous																				
CONNECTED LOAD (KVA): 9.0																				

1 EXISTING AC PANEL SCHEDULE
SCALE: N.T.S.

2 FINAL AC PANEL SCHEDULE
SCALE: N.T.S.

Exhibit B-1 to AGR26-823-A1



6000 LAS COLINAS BLVD, FLOOR 1
IRVING, TX 75039



7150 STANDARD DRIVE
HANOVER, MD 21076
PHONE: (410) 712-4174



177 S. BOULDER
SUITE 300
DENVER, CO 80202
PH: (303) 587-4830
www.btgpp.com

AT&T SITE NUMBER:
NML02662A

AT&T SITE NAME:
LOS ALAMOS

280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

INSTALLER NOTE:
PAINT TO MATCH AND APPLY COLOR MATCH 3M FILM
FOR ANTENNAS

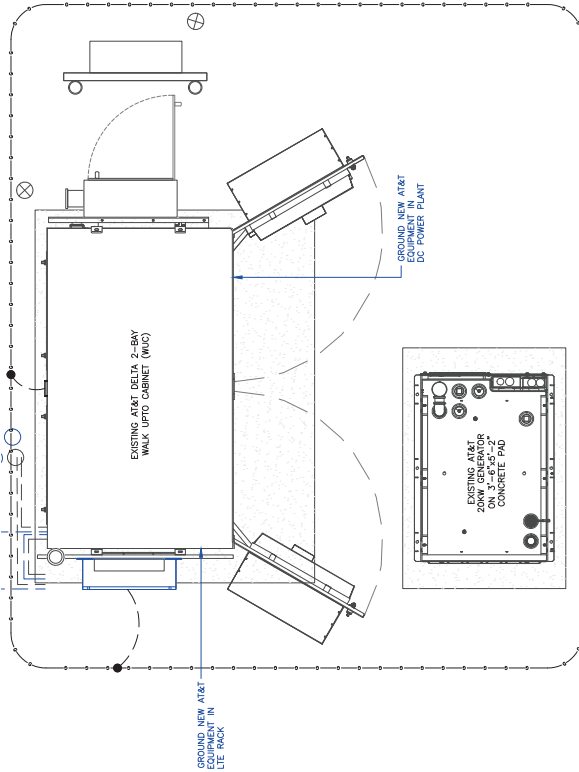
REV	DATE	DRAWN	DESCRIPTION	DESIGN
A	10/22/24	CP	PRELIMINARY REVIEW	YES
0	11/01/24	CLS	CONSTRUCTION	YES
1	11/21/24	AB	CONSTRUCTION	YES



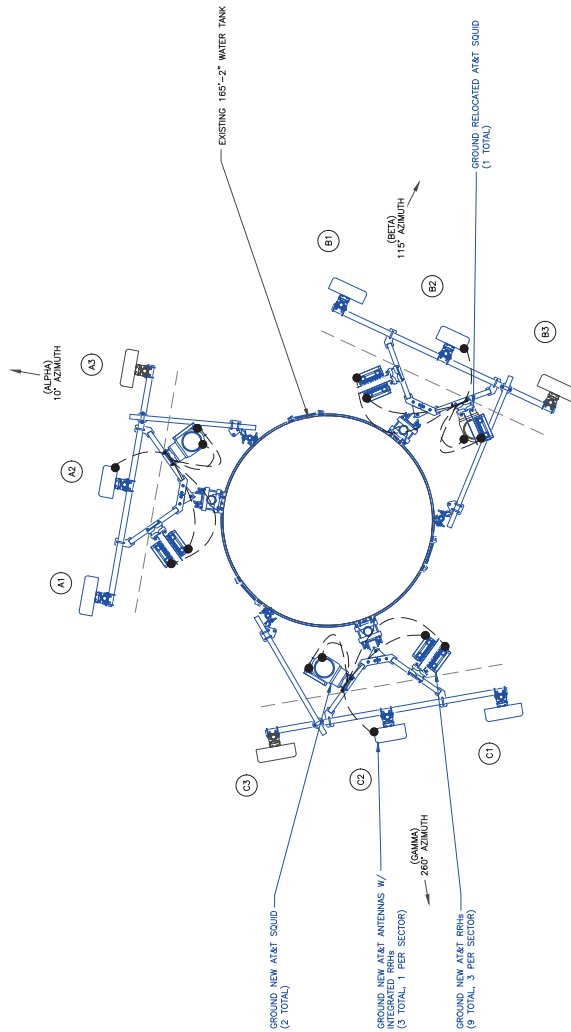
B&T ENGINEERING, INC.

THIS SEAL IS VALID FOR ANY PERSON,
UNITED STATES OF AMERICA, WHO IS A
LICENSED PROFESSIONAL ENGINEER,
TO SEAL THE DOCUMENT.

SHEET NUMBER: **E-2** REVISION: **1**



1 EQUIPMENT GROUNDING PLAN
SCALE: 3/4" = 1'-0" (R&S, S&S)
3/4" = 1'-0" (T&T)



2 ANTENNA GROUNDING PLAN
SCALE: 3/4" = 1'-0" (R&S, S&S)
3/4" = 1'-0" (T&T)



AT&T SITE NUMBER:
NML02662A

AT&T SITE NAME:
LOS ALAMOS

280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

ISSUED FOR:			
REV	DATE	DESCRIPTION	DESIGN
A	10/29/24	PRELIMINARY REVIEW	YX
0	11/01/24	CLS CONSTRUCTION	YX
1	11/21/24	AB CONSTRUCTION	YX



SHEET NUMBER: **T-1B**

REVISION: **1**



NML02662A - PART "B" STANDARD DETAIL, NOTES, SCHEMATICS AND DIAGRAMS

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1B	TITLE SHEET
T-2B	GENERAL NOTES
D-1B	EQUIPMENT DETAILS
D-2B	EQUIPMENT DETAILS
D-3B	EQUIPMENT DETAILS
D-4B	EQUIPMENT DETAILS
G-1B	GROUNDING DETAILS

APPLICABLE CODES & REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE
202 NEW MEXICO COMMERCIAL BUILDING CODE/2021 IBC
202 NEW MEXICO MECHANICAL CODE/2021 IMC
202 NEW MEXICO ELECTRICAL CODE/2021 NEC

CODE TYPE
BUILDING
MECHANICAL
ELECTRICAL

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION. THE ENGINEER SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL NEW MEXICO ONE CALL
800.321.2537
CALL 3 WORKING DAYS
Exhibit B-1 to AGR26-823-A1

ANTENNA MOUNTING NOTES:

1. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
2. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC HOT-DIP GALVANIZED" COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
3. ALL BOLTS, ANCHORS (HOT-DIP) OR IRON/STEEL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
4. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY GALT GALVANIZING IN ACCORDANCE WITH ASTM A780.
5. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND PERFORMANCE AS DESIGNED.
7. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-ohm LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
8. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN ± 7 -5% AS DEFINED BY THE PIDS. REFER TO ND-00246.
9. JUMPERS FROM THE TWA MUST BE INSTALLED TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
10. CONTRACTOR SHALL RECORD THE SERIAL A, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO ATEI.
- TORQUE REQUIREMENTS:**
1. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
2. ALL 1/2" CONNECTIONS SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
3. ALL GROUNDING HARDWARE SHALL BE TIGHTENED TO 15-20 LB-FT (2.4 - 2.8 NM).
4. ALL DOWNSIDE TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (2.4 - 2.9 NM).
5. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).
6. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
7. ALL 3/8" ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
8. ALL 1/2" ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
9. ALL GROUNDING HARDWARE SHALL BE TIGHTENED TO 15-20 LB-FT (2.4 - 2.8 NM).
10. ALL DOWNSIDE TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (2.4 - 2.9 NM).
11. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).
12. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
- FIBER & POWER CABLE MOUNTING NOTES:**
1. THE FIBER TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS OR CABLE TRAYS OR CABLE TRAYS WITH INSULATING BARRIER. CABLES WITH CABLE TRAY SYSTEM THEY SHALL BE INSTALLED INTO AN INTERLUCK AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE FIBER CABLES. FIBER TRUNK CABLES SHALL BE SECURED AT 4' INTERVALS (4' MAX) WITH CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
2. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION, WHERE TYPE TC-ER CABLES ARE USED IN CONDUITS, SHALL BE ALLOWED. THE TYPE TC-ER CABLES ARE SERVING UTILIZATION EQUIPMENT BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY CABLES ARE SERVING UTILIZATION EQUIPMENT OR DEVICES. A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 306 AND 392 RULES SHALL APPLY.
3. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WITHIN 500 FEET RULES SHALL APPLY.
4. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, NFPA 70 (NEC)

ADDITIONAL NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ANTENNA, TUNER, DIRECTIONAL, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
2. ALL CONNECTIONS FOR WANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/PLACING.
4. ALL OUTRIG OR REINFORCEMENTS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET. CONNECTORS, WHICH SHALL BE WEATHERPROOFED WITH AN APPROVED WEATHERPROOFING METHOD. ALL WEATHERPROOFING SHALL BE OF ONE-SHAFT TYPE WITH OVERLAP ON EACH TURN AND EACH LATER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
5. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
 - a. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
 - b. FOR REGULATED TOWERS, AN APPROVED PAINTING CONTRACTOR IS REQUIRED.
 - c. FOR UNREGULATED TOWERS, AN APPROVED PAINTING CONTRACTOR IS NOT REQUIRED.

2. THE TYPE TC-CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (A) SIX FEET AN EXCEPT

5. CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE. CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAYS THAT WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 382 SHALL APPLY.

ANTENNA MOUNTING NOTES:

1. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
 2. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 ZINC HOT-DIP GALVANIZED COATINGS ON IRON AND STEEL COMPONENTS, UNLESS NOTED OTHERWISE.
 3. ALL BOLTS, ANCHORS, AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE, UNLESS NOTED OTHERWISE.
 4. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY GALVANAIZING IN ACCORDANCE WITH ASTM A780.
 5. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
 6. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
 7. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
 8. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA FOR CORRECTION OF THE FOLLOWING: A. ANTENNA SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN $\pm 0.5^\circ$ AS DEFINED BY THE PDS. REFER TO ND-00246.
 9. JUMPERS FROM THE TMA MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
 10. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO A/E/T.
- ### TORQUE REQUIREMENTS:
1. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
 2. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
 3. GROUNDING HARDWARE SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).
 4. GROUNDING HARDWARE ON THE INSIDE SURFACE OF SOLID SURFACE GROUND BAR, ANTENNA BRACKET METAL, SURFACE, EXAMPLE OF SOLID SURFACE GROUND BAR, ANTENNA BRACKET METAL.
 5. ALL SW ANTENNA HARDWARE SHALL BE TORQUED TO 9 LB-FT (12 NM).
 6. ALL 12M ANTENNA HARDWARE SHALL BE TORQUED TO 43 LB-FT (58 NM).
 7. ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
 8. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 - 29.8 NM).
 9. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).

TORQUE REQUIREMENTS:

1. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
2. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
3. RE-CONNECTION BOTH SIDES OF THE CONNECTION.
4. THE CONNECTION SHALL BE MADE TO THE SIDE OF THE HARDWARE, NOT THE TOP OR BOTTOM SURFACE. EXAMPLE OF SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
5. ALL SW ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
6. ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
7. ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
8. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 – 29.8 NM).
9. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 – 2.3 NM).

FIBER & POWER CABLE MOUNTING NOTES:

1. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAYS. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM THAT SHALL BE INSTALLED IN THE FUTURE, THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED IN THE CABLE TRAY SYSTEM WITH THE FIBER OPTIC TRUNK CABLES THAT HAVE BEEN APPROVED FOR THE SYSTEM AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70A (NEC) ARTICLE 770 SHALL APPLY.
2. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAYS. THE TYPE TC-ER CABLES SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET, AN EXCEPTION, WHERE THE TYPE TC-ER CABLES ARE USED IN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAYS ARE SERVING UTILIZATION EQUIPMENT BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAYS SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70A (NEC) ARTICLES 336 AND 392 SHALL APPLY.
3. WHEN INSTALLING FIBER OPTIC TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70A (NEC) ARTICLE 770 SHALL APPLY.

ADDITIONAL NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ANTENNA, TUNER, DIRECTIONAL, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
2. ALL CONNECTIONS FOR WANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/PLACING.
4. ALL OUTRIG OR REINFORCEMENTS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET. CONNECTORS, WHICH SHALL BE WEATHERPROOFED WITH AN APPROVED WEATHERPROOFING METHOD. ALL WEATHERPROOFING SHALL BE OF ONE-SHAFT TYPE WITH OVERLAP ON EACH TURN AND EACH LATER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
5. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
 - a. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
 - b. FOR REGULATED TOWERS, AN APPROVED PAINTING CONTRACTOR IS REQUIRED.
 - c. FOR UNREGULATED TOWERS, AN APPROVED PAINTING CONTRACTOR IS NOT REQUIRED.





6000 LAS COLINAS BLVD, FLOOR 1
IRVING, TX 75039



7150 STANDARD DRIVE
HANOVER, MD 21076
PHONE: (410) 712-4174



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177 S. BOULDER
IRVING, TX 75039
PH: (972) 587-4830
www.bttg.com

AT&T SITE NUMBER:
NML02662A

AT&T SITE NAME:
LOS ALAMOS

280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

REV	DATE	DRWN	DESCRIPTION	DIS. BY
A	10/22/24	CP	PRELIMINARY REVIEW	YX
0	11/12/24	CLS	CONSTRUCTION	YX
1	11/21/24	AB	CONSTRUCTION	YX

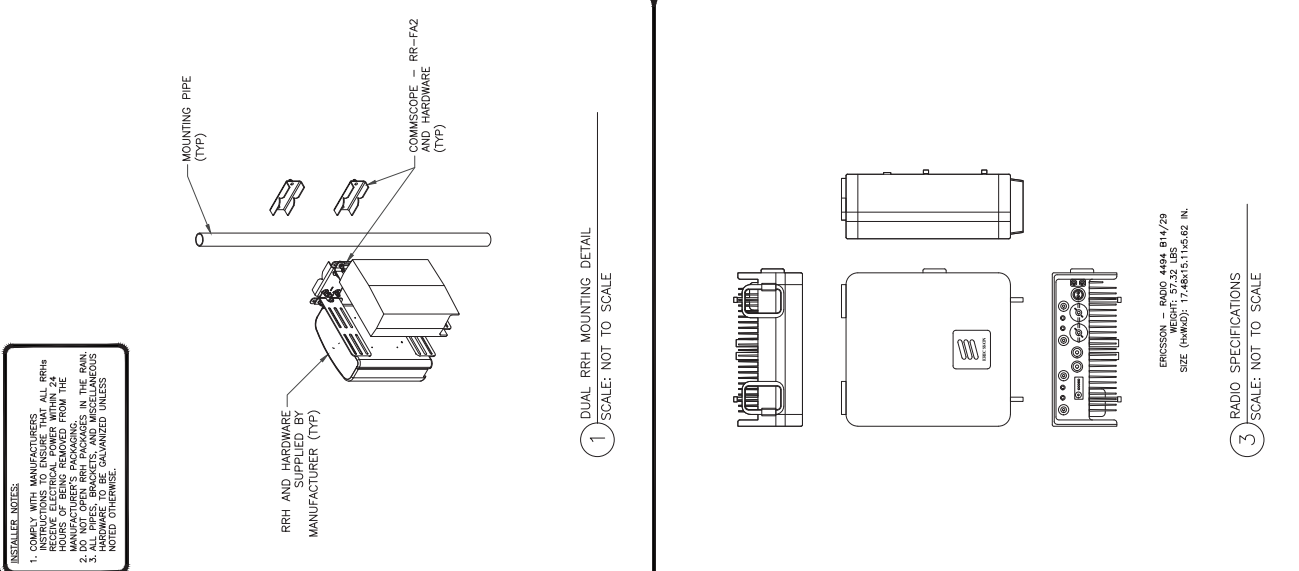
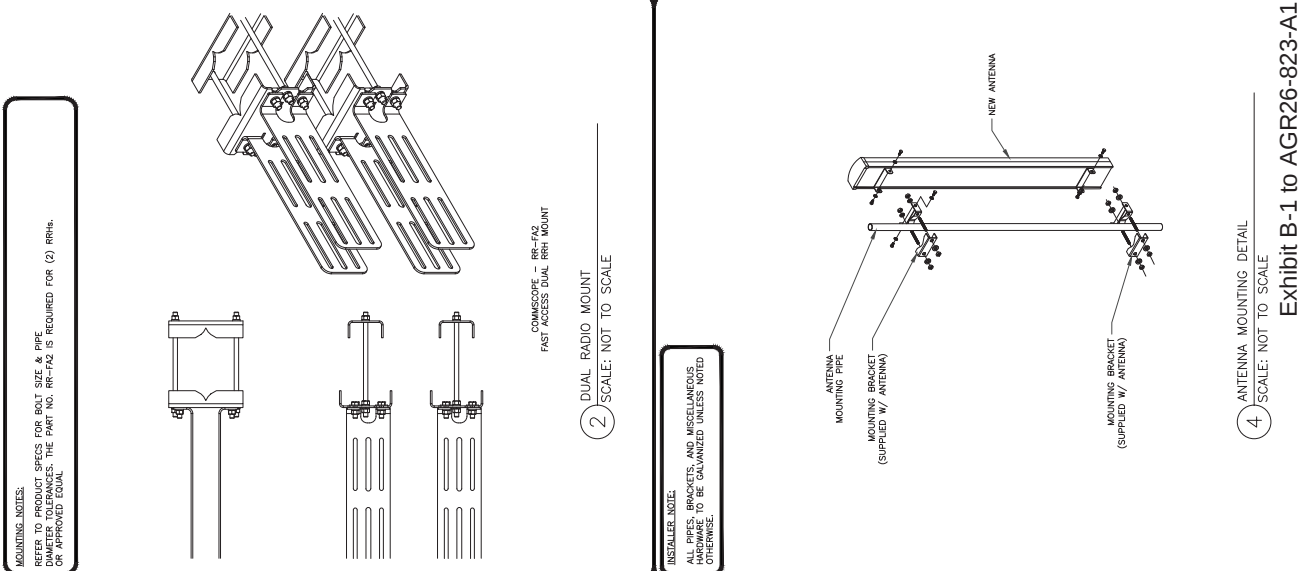
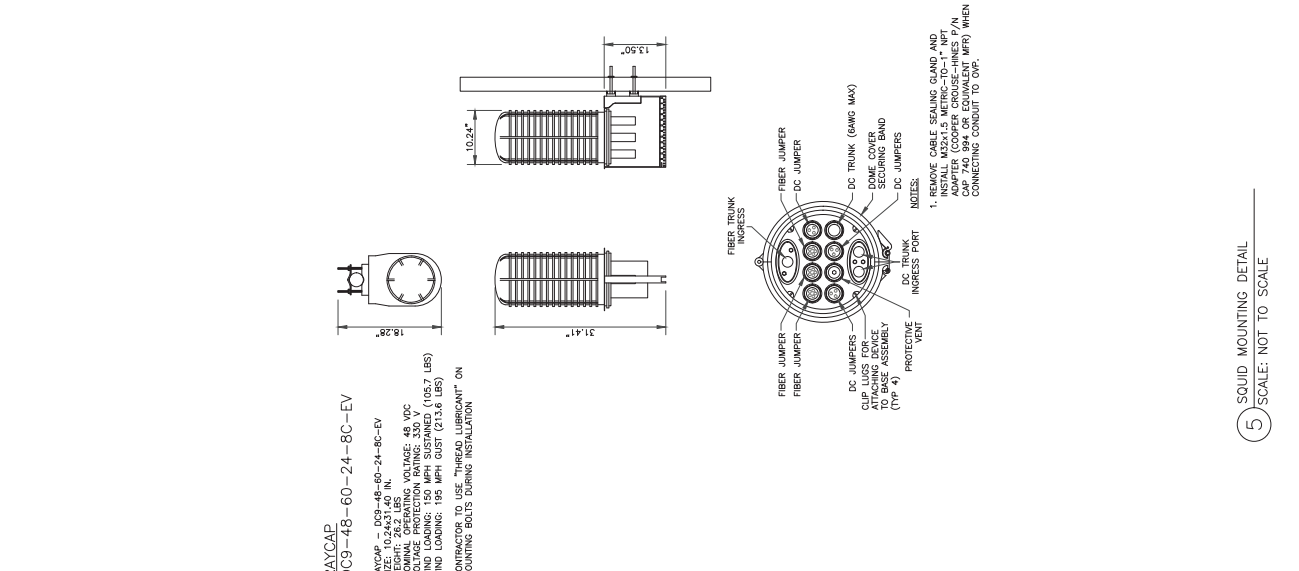


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www.btrp.com

AT&T SITE NUMBER:
NML0262A

AT&T SITE NAME:
LOS ALAMOS

280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

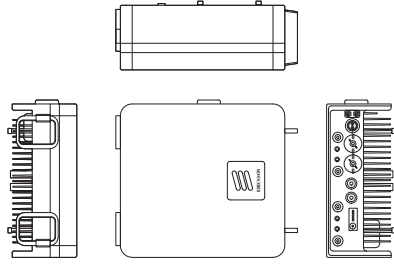
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0	11/02/24	CLS	CONSTRUCTION	YX
1	11/21/24	AB	CONSTRUCTION	YX



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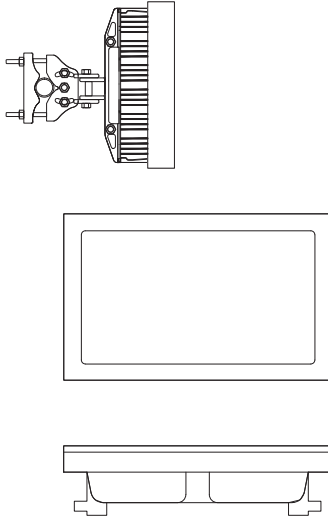
ERICSSON - RADIO 4890 B25/B26A
WEIGHT: 2.49 LBS
SIZE (H*W*D): 20.59*15.86*7.04 IN.

3 RADIO SPECIFICATIONS
SCALE: NOT TO SCALE

CONTROLLER 6610
MANUFACTURER: ERICSSON
MODEL NO: CONTROLLER 6610
DIMENSIONS (H*W*D): 1.6"x5.5"x1.26"
HEIGHT: 0.2808



6 6610 CONTROLLER
SCALE: NOT TO SCALE



ANTENNA DIMENSIONS (INCHES)				
MANUFACTURER	MODEL	HEIGHT	WIDTH	DEPTH
ERICSSON	AGR472 B77G B77A	36.42"	16.14"	7.48"
				92.61 LBS

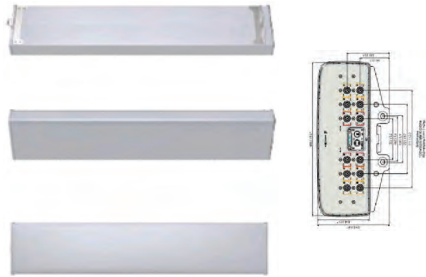
2 ANTENNA SPECIFICATIONS
SCALE: NOT TO SCALE



VERTIV -48V-2000A3 48VURE RECTIFIER
WEIGHT: 2.49 LBS
SIZE (H*W*D): 1.61x3.33x9.94 IN.

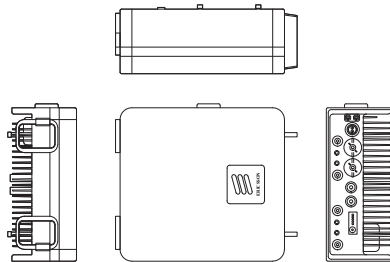
5 -48V VERTV RECTIFIER
SCALE: NOT TO SCALE

Exhibit B-1 to AGR26-823-A1



ANTENNA DIMENSIONS (INCHES)				
MANUFACTURER	MODEL	HEIGHT	WIDTH	DEPTH
ERICSSON	2586/TK	95.9"	19.2"	6.5"
				80 LBS

1 ANTENNA SPECIFICATIONS
SCALE: NOT TO SCALE



ERICSSON - RADIO 4890 B25/B26A
WEIGHT: 2.49 LBS
SIZE (H*W*D): 20.59*15.86*7.04 IN.

4 RADIO SPECIFICATIONS
SCALE: NOT TO SCALE



AT&T SITE NUMBER:
NML02662A

AT&T SITE NAME:
LOS ALAMOS

280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

REV	DATE	DESCRIPTION	BY	CHK	DATE
1	11/21/24	AB	CONSTRUCTION	YX	
0	11/21/24	CP	PRELIMINARY REVIEW	YX	
A	10/22/24	CP	PRELIMINARY REVIEW	YX	

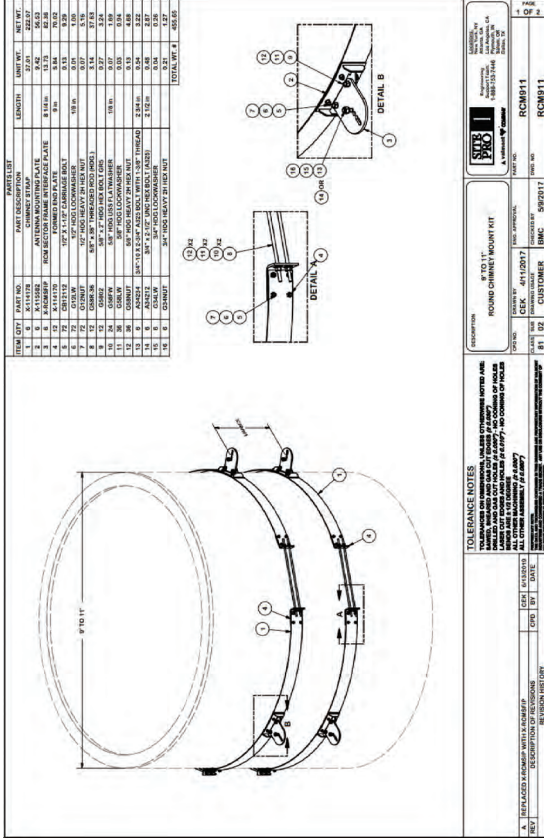


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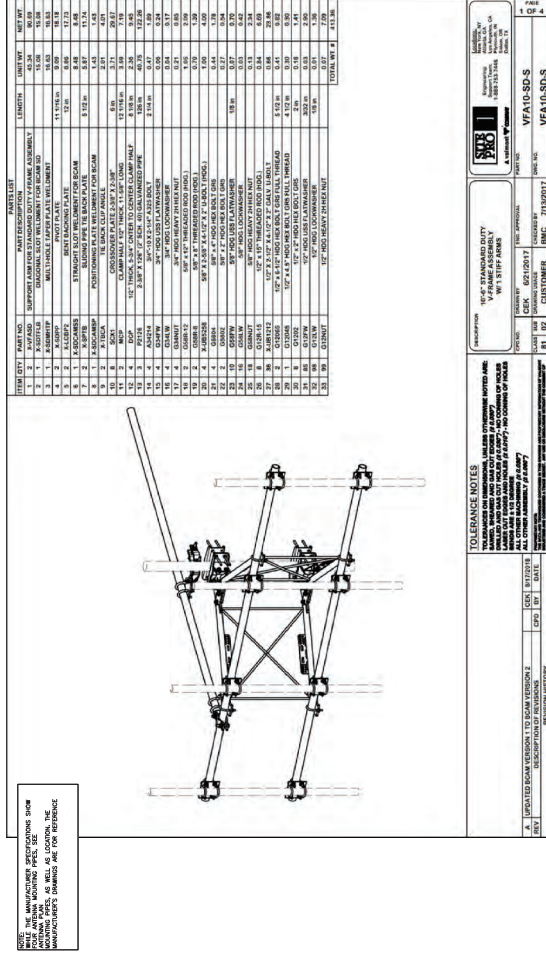
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2 SITEPRO1 - SP1 RCM911 CHIMNEY MOUNT KIT
SCALE: NOT TO SCALE



5 SITEPRO1 - VFA10-SD-S-NLB SECTOR FRAMES
SCALE: NOT TO SCALE
Exhibit B-1 to AGR26-823-A1



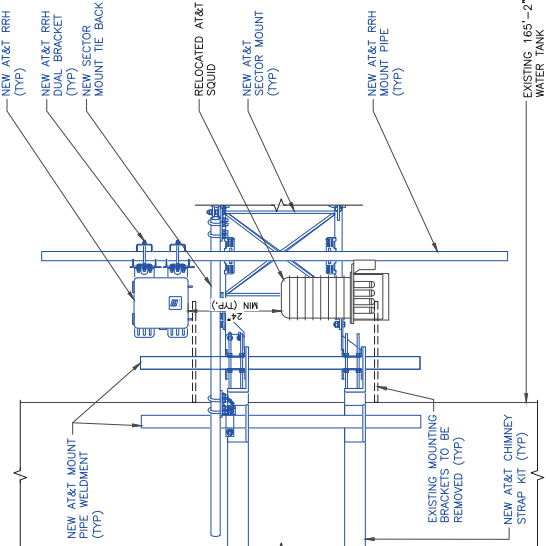
Mechanical

System weight:
180 43.6mm x 442.4mm x 250mm
Air flow:
Filter-less design. Front to Back with field swappable fan tray

Electrical

Power supply DC:
-48 V, dual feed
Power supply AC:
100-240 V, single feed
Power consumption:
Typical 110 Watts, Max 165 Watts

1 6672 BBU
SCALE: NOT TO SCALE





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EXISTING
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ISSUED FOR:			
REV	DATE	DESCRIPTION	DESIGN
A	10/22/24	CP PRELIMINARY REVIEW	YX
0	11/02/24	CLS CONSTRUCTION	YX
1	11/21/24	AB CONSTRUCTION	YX

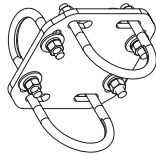


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PRODUCT	PLATE (QTY 1)	U-BOLT #1 QTY	U-BOLT #2 QTY
XP-2020	XP101	GU8-4240 4	-
XP-2025	XP101	GU8-4240 2	GU8-4352 2
XP-2030	XP101	GU8-4240 2	GU8-4355 2
XP-2035	XP102	GU8-4240 2	GU8-5356 2
XP-2040	XP102	GU8-4240 2	GU8-5456 2
XP-2525	XP101	GU8-4352 4	GU8-4355 2
XP-2530	XP101	GU8-4352 2	GU8-4355 2
XP-2540	XP102	GU8-53015 2	GU8-5456 2
XP-3030	XP101	GU8-4355 4	-
XP-3040	XP102	GU8-5356 2	GU8-5456 2
XP-4040	XP102	GU8-5456 4	-



2 COMMSCOPE - XP-2020 & XP-2025
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE
Exhibit B-1 to AGR26-823-A1



SITEPROJ: X-BR65
SHEET: 001-001
SIZE (HW): 60"x4" SCH. 40 PIPE

1 PIPE MOUNT WELDMENT
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE



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280 NORTH MESA ROAD
LOS ALAMOS, NM 87544

EXISTING
165'-2" WATER TANK

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DESIGN
A	10/29/24	CP	PRELIMINARY REVIEW	YES
0	11/14/24	CLS	CONSTRUCTION	YES
1	11/21/24	AB	CONSTRUCTION	YES



B&T ENGINEERING, INC.

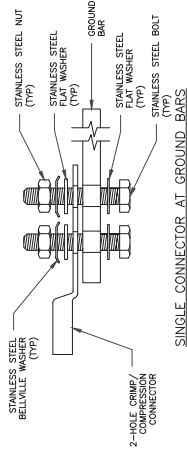
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SHEET NUMBER: **G-1B** REVISION: **1**

1 NOT USED
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE



6 NOT USED
SCALE: NOT TO SCALE

7 NOT USED
SCALE: NOT TO SCALE

8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE

Exhibit B-1 to AGR26-823-A1

Exhibit C-1



November 1, 2024

Ryan Cullen
Jacobs Telecommunications, Inc.
2 Ash St # 3000
Conshohocken PA 19428
(484) 322-2254

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject: **Appurtenance Mount Analysis Report**

Carrier Designation: **Site Number:** 15066552
Site Name: Los Alamos NML02662A
IWM Job Number: WSANM0043740

Engineering Firm Designation: **B+T Group Project Number:** 173282.001.01.0002

Site Data: **280 North Mesa Road, Los Alamos, NM, 87544, Los Alamos County**
Latitude 35.89663°, Longitude -106.29505°
165.2' Water Tank
Proposed (3) 10.5' SitePro1 Part# VFA10-SD-S-NLB Sector Mounts
w/ SitePro1 - SP1 RCM911 & (6) X-B965 pipes

Dear Ryan Cullen,

B+T Group is pleased to submit this “**Appurtenance Mount Analysis Report**” to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount’s stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Existing + Proposed Equipment
Note: See Table 1 for the final loading configuration

Sufficient Capacity
(Passing at 36.8% with
Requirements in Section 5)

This analysis has been performed in accordance with the 2021 New Mexico Commercial Building Code (2021 International Building Code) based upon an ultimate 3-second gust wind speed of 104 mph. Applicable standard references and design criteria are listed in Section 2 - Analysis Criteria.

All the equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and Jacobs Telecommunications, Inc. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Angela Ashwood

Respectfully submitted by: B&T Engineering, Inc.



Chad E. Tuttle, P.E.

Exhibit C-1 to AGR26-823-A1

Exhibit A to Ordinance No. 739

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3.2) Assumptions

4) ANALYSIS RESULTS

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6) APPENDIX A

RISA-3D Output

7) APPENDIX B

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8) APPENDIX C

Supplemental Drawings

1) INTRODUCTION

The appurtenance mount consists of (3) SitePro1 Part# VFA10-SD-S-NLB sector mounts w/ (1) SitePro1 - SP1 RCM911 & (6) X-B965 pipes at 75 ft., attached to water tank at 280 N. Mesa Rd. Los Alamos, NM, 87544, Los Alamos County. The proposed antenna loading information was obtained from Jacobs Telecommunications, Inc. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 104 mph with no ice and 40 mph with 0 inch escalated ice thickness. Exposure Category C, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the sector mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 250-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30° increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed and Existing Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Manufacturer	Model / Type	Note
Proposed	75	1	3	Ericsson	KRE 101 2586/1K	1
		2	3	Ericsson	AIR6472 B77G B77M	
		3	3	Kathrein	80010992	
		--	3	Ericsson	4490 B5/B12A	2
			3	Ericsson	4494 B14/B29	
			3	Ericsson	4890 B25/B66A	
			2	Raycap	DC9-48-60-24-8C-EV	
Existing	75	-	1	Raycap	DC9-48-60-24-8C-EV	3

Note:

- (1) Proposed Antennas to be installed on proposed mounting pipes attached to the proposed mount.
- (2) Proposed Equipment to be installed on the Equipment Mounting Pipes attached to the proposed mount.
- (3) Existing Equipment to be relocated on the Equipment Mounting Pipes attached to the proposed mount.

Table 2 – Documents Provided

Documents	Remarks	Reference	Source
10.14.2022. 15066552.NML02662A.WSANM004374 0.3903A1E50K.DE130.240928 – DE130	Existing Loading Proposed Loading	Date: 10/14/2024	Jacobs Telecommunications, Inc.
Redlined CDs by B+T Group		Date: 10/30/2024	On File

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 22.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.

Exhibit C-1 to AGR26-823-A1

Exhibit A to Ordinance No. 739

2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
6. 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.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
 - a) Connection Bolts : ASTM A325
 - b) Steel Pipe : ASTM A53 (GR. 35)
 - c) HSS (Round) : ASTM 500 (GR. B-42)
 - d) HSS (Rectangular) : ASTM 500 (GR. B-46)
 - e) Channel : ASTM A36 (GR. 36)
 - f) Steel Solid Rod : ASTM A36 (GR. 36)
 - g) Steel Plate : ASTM A36 (GR. 36)
 - h) Steel Angle : ASTM A36 (GR. 36)
 - i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Sector Mount)

Notes	Component	Elevation (ft.)	% Capacity*	Pass / Fail
-	Face Horizontals	75	36.8	Pass
-	Support Arms	75	26.3	Pass
-	Verticals	75	36.0	Pass
-	Diagonals	75	17.0	Pass
-	Mount Pipes	75	20.0	Pass
-	Tieback	75	6.2	Pass
-	Connection Plates	75	30.3	Pass
-	Equipment Mounting Pipes	75	5.8	Pass
-	Connection Pipe	75	2.2	Pass
-	Connection Bolts	75	32.0	Pass

Note: *Member Capacity based on Recommended Modification on Section 5.

5) REQUIREMENTS

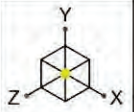
The proposed (3) SitePro1 Part# VFA10-SD-S-NLB sector mounts or approved equal w/ (1) SitePro1 - SP1 RCM911 & (6) X-B965 pipes has sufficient capacity to carry the existing and proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading and existing loading, with the modifications described below. (Refer to the RISA output for the specific members).

1. (9) New 2-1/2" Std. x 10'-0" long SitePro1 Part# P30120 (P/N: ANT.16008) Antenna Mount Pipes attached to the face horizontals of the mount using (18) Commscope Part# XP-2025 (P/N: ANT.54856) or approved equal cross over plates in all positions.
2. Install (6) new 2" Std. x 10'-0" long SitePro1 Part# P2120 (P/N: ANT.55993) or approved equal mount pipes ached to the support arms of the mount using (12) new U-Bolts to install RRH and Raycap.

Install proposed mount pipes per requirements set by ATT-790-202-083.

APPENDIX A

(RISA-3D Output)



Envelope Only Solution



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RP

173282.001.01.0002

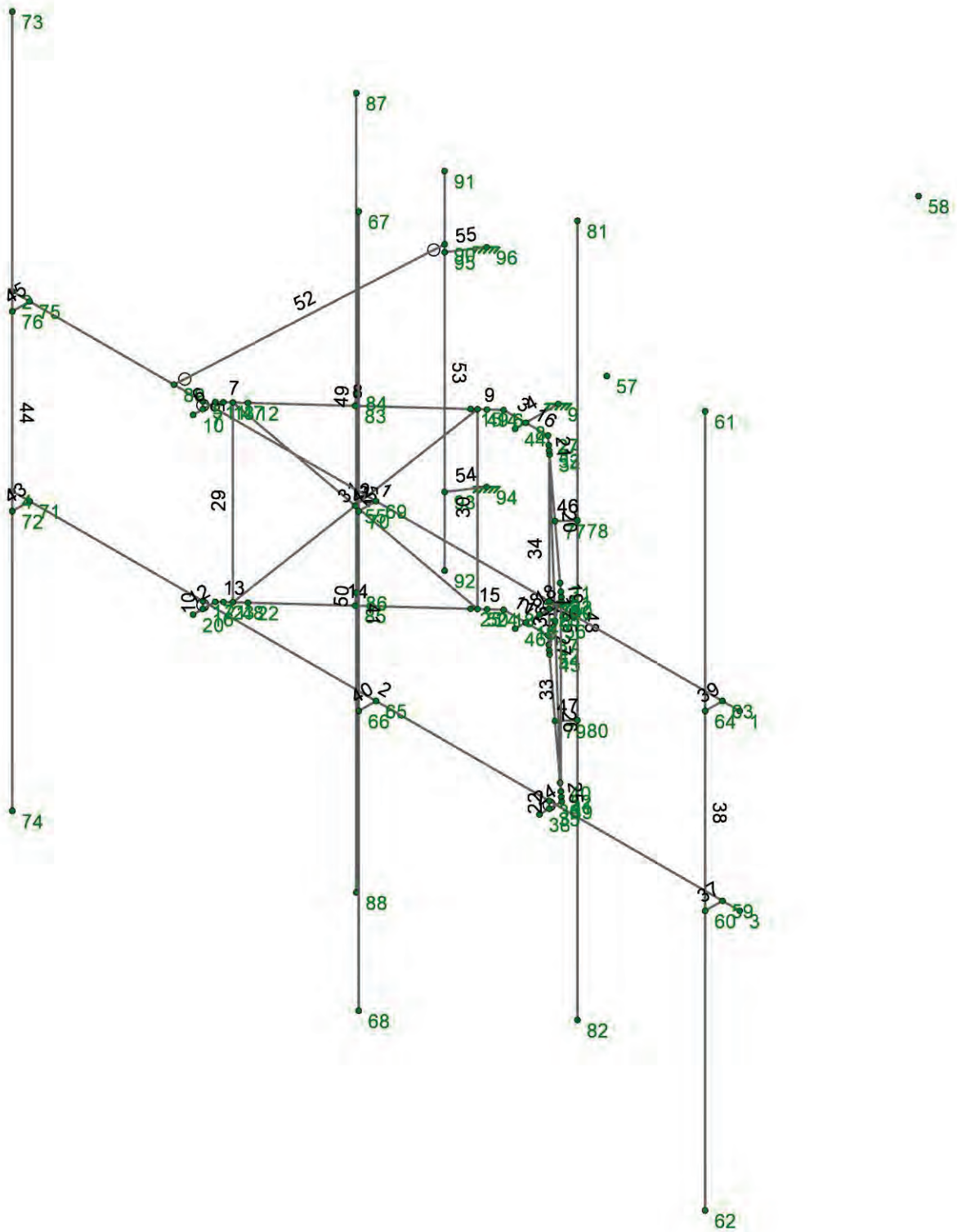
15066552 - Los Alamos NML02662A

Exhibit C 1 to AGR26 823 A1

SK-1

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Envelope Only Solution



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RP

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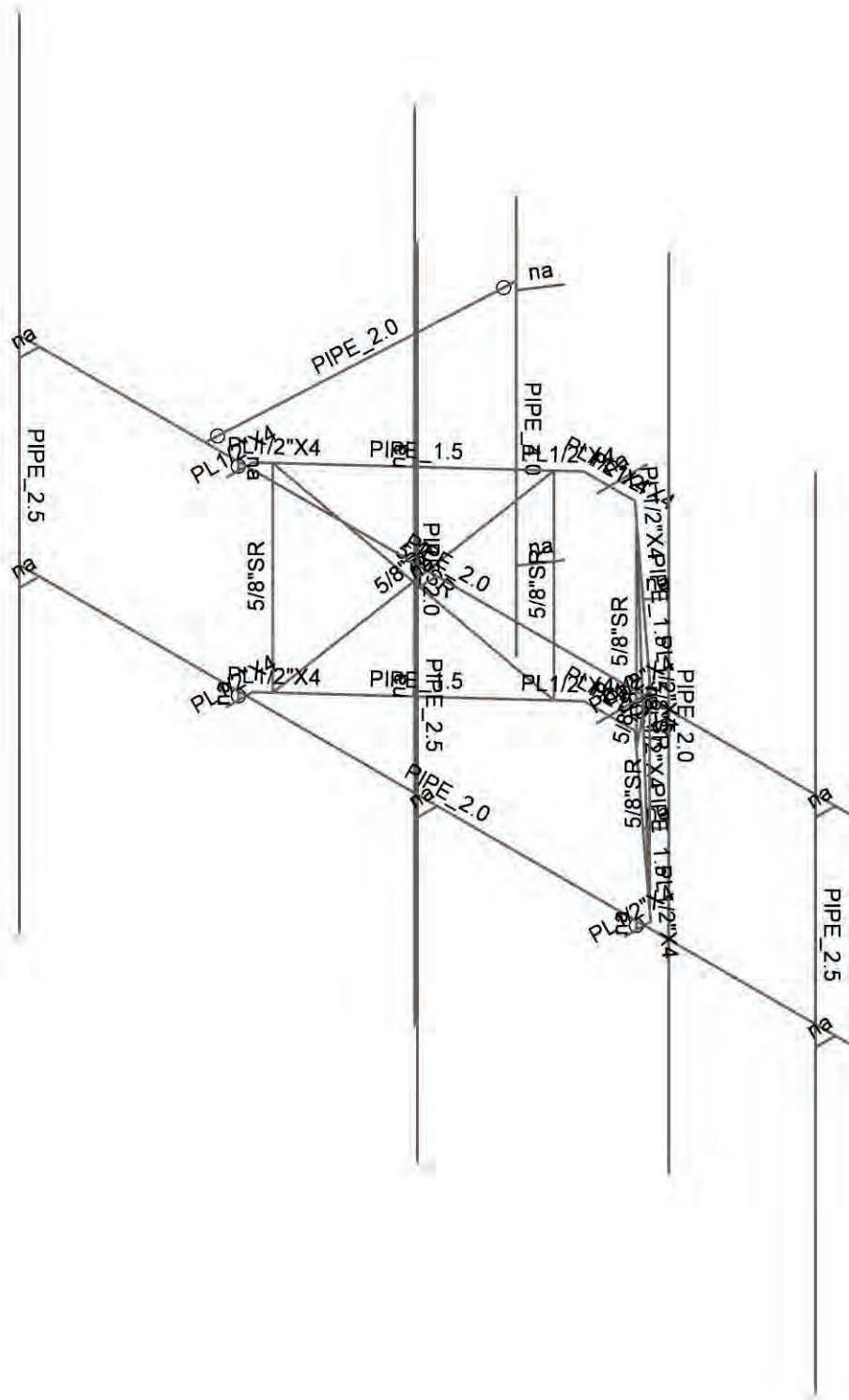
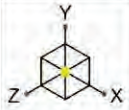
15066552 - Los Alamos NML02662A

Exhibit C 1 to AGR26 823 A1

SK-2

Nov 01, 2024 at 03:43 PM

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RP

173282.001.01.0002

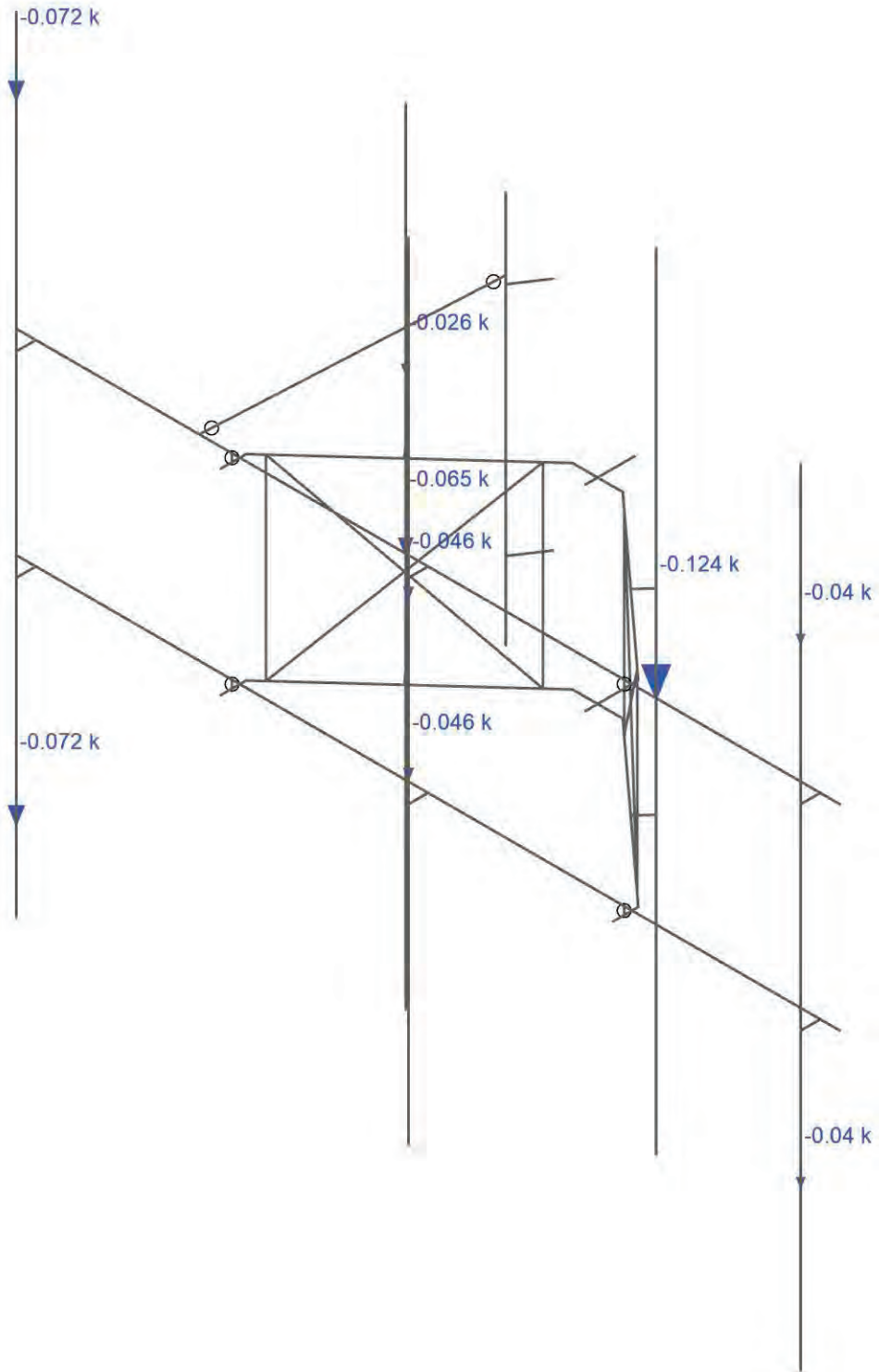
15066552 - Los Alamos NML02662A

Exhibit C 1 to AGR26 823 A1

SK-3

Nov 01, 2024 at 03:43 PM

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Loads: BLC 1, Dead
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Exhibit C 1 to AGR26 823 A1

Exhibit A to Ordinance No. 739

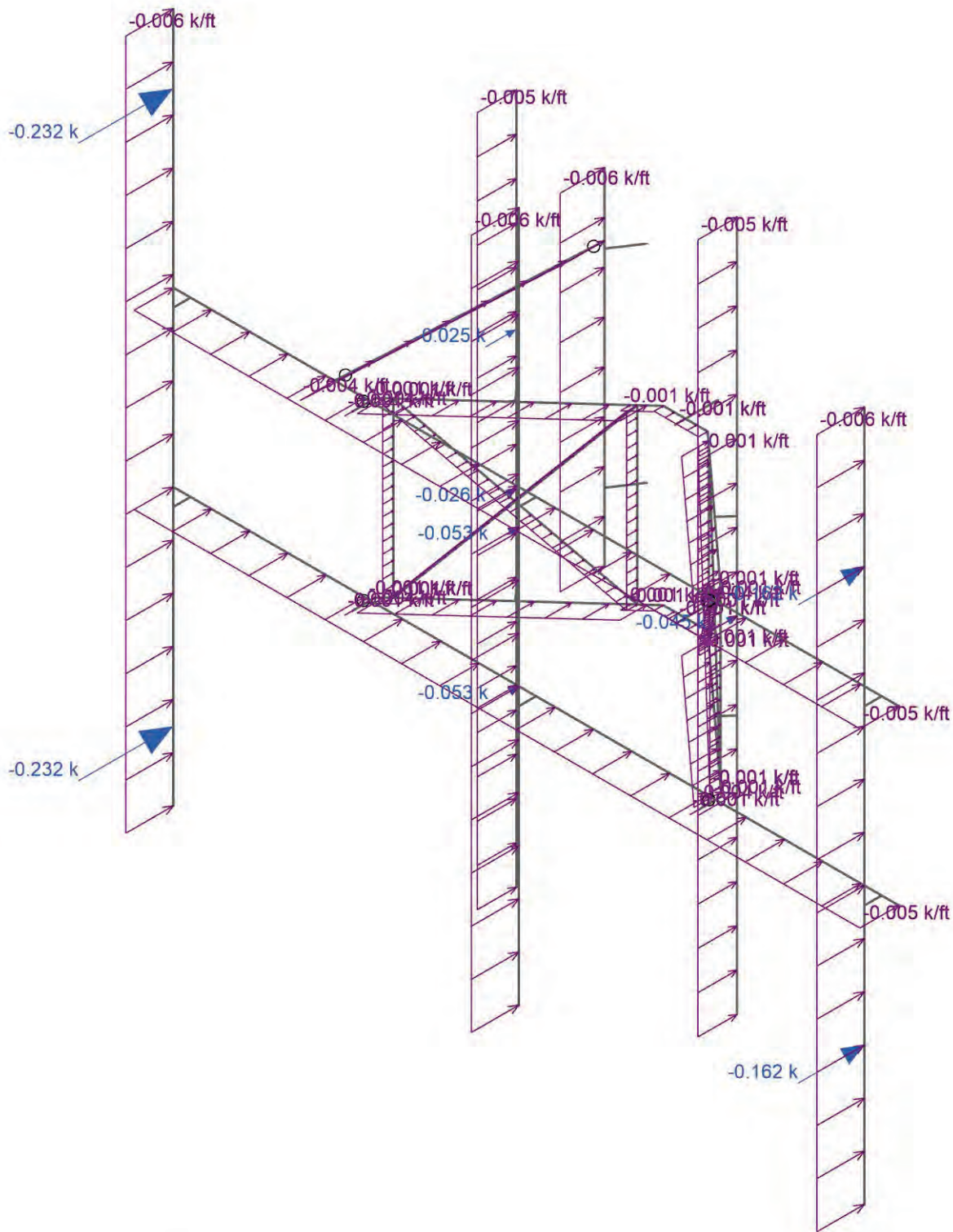
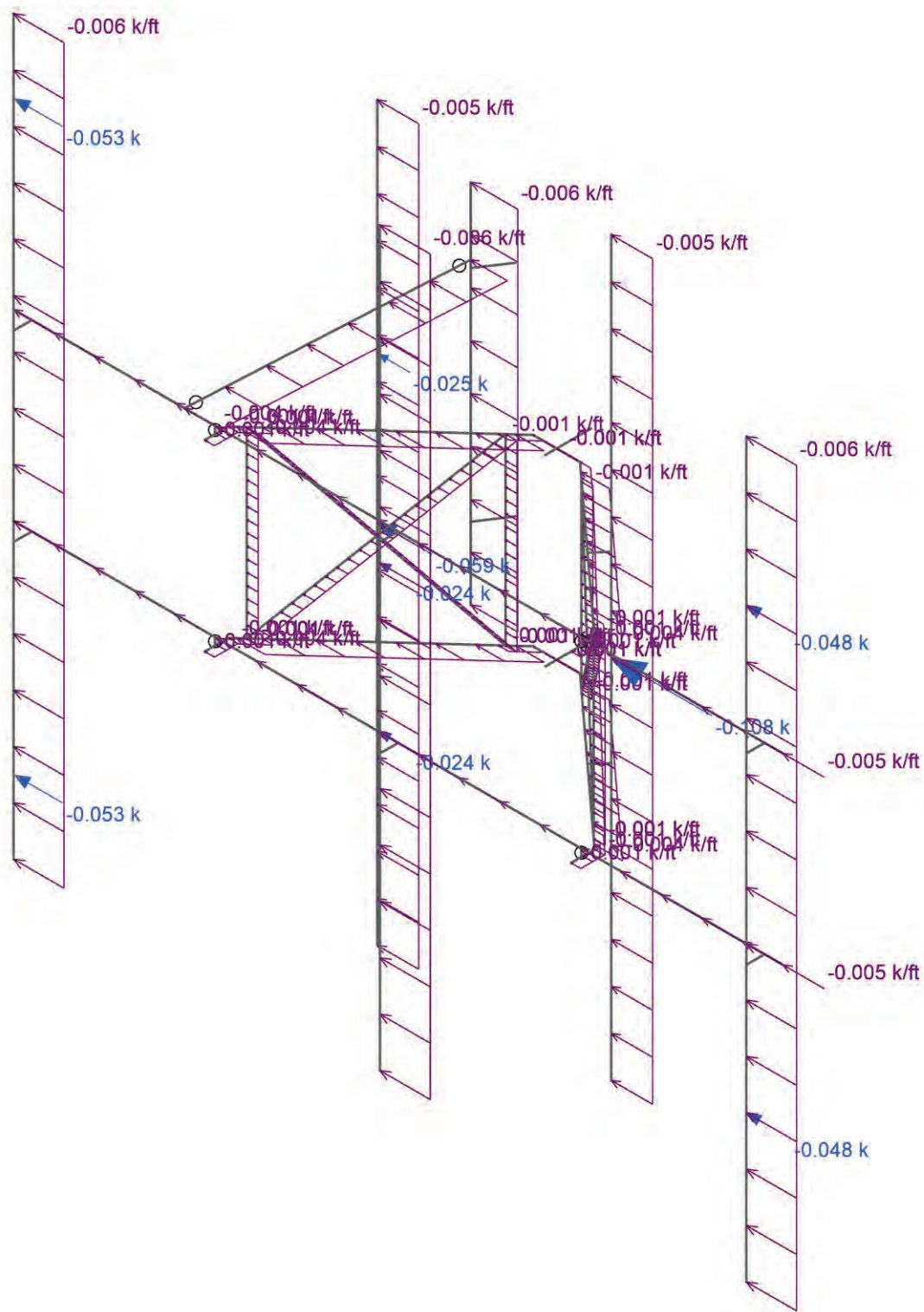


Exhibit A to Ordinance No. 739

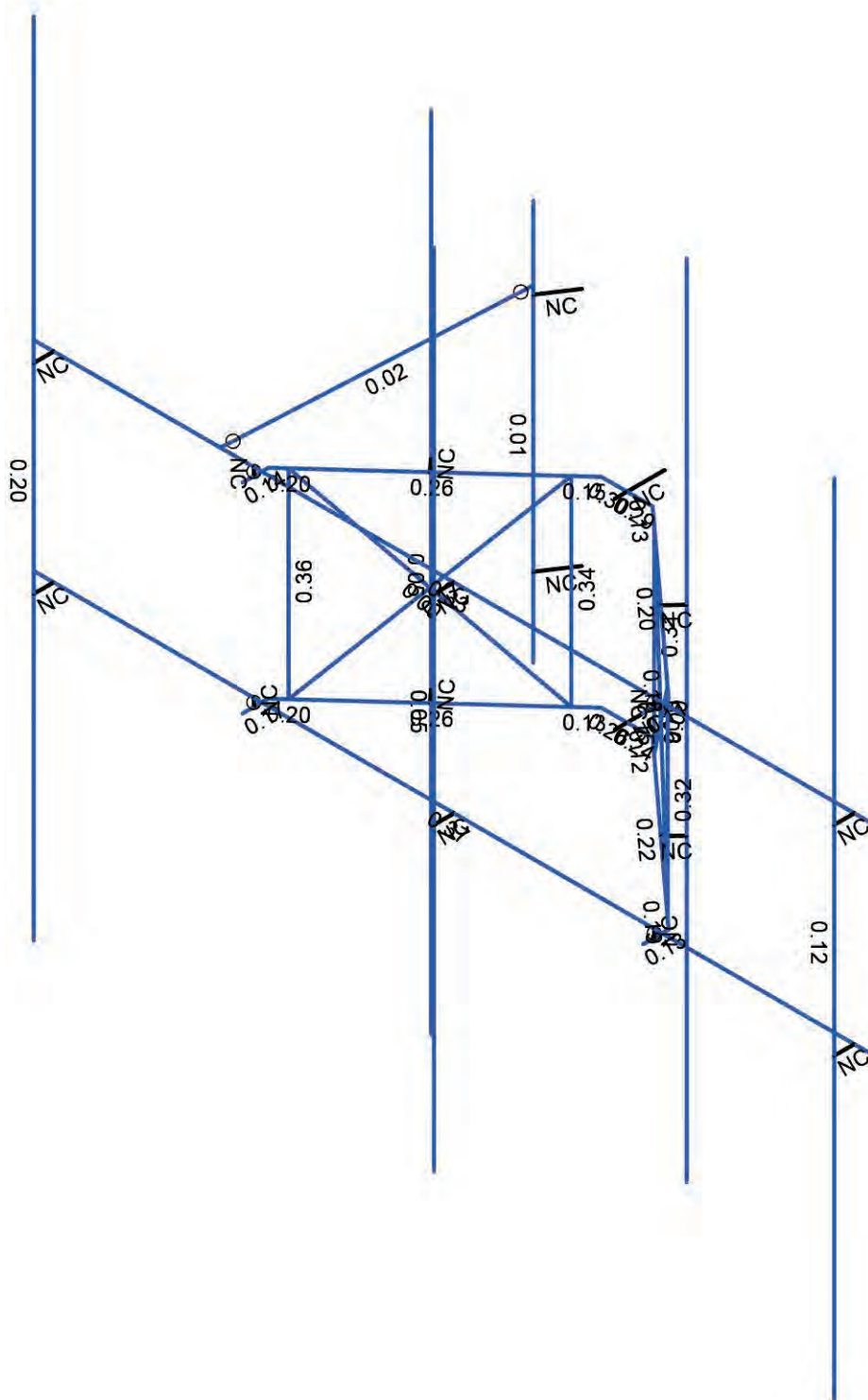
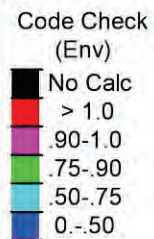


IRISA
A NEMETSCHEK COMPANY

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Exhibit A to Ordinance No. 739



Member Code Checks Displayed (Enveloped)
Envelope Only Solution



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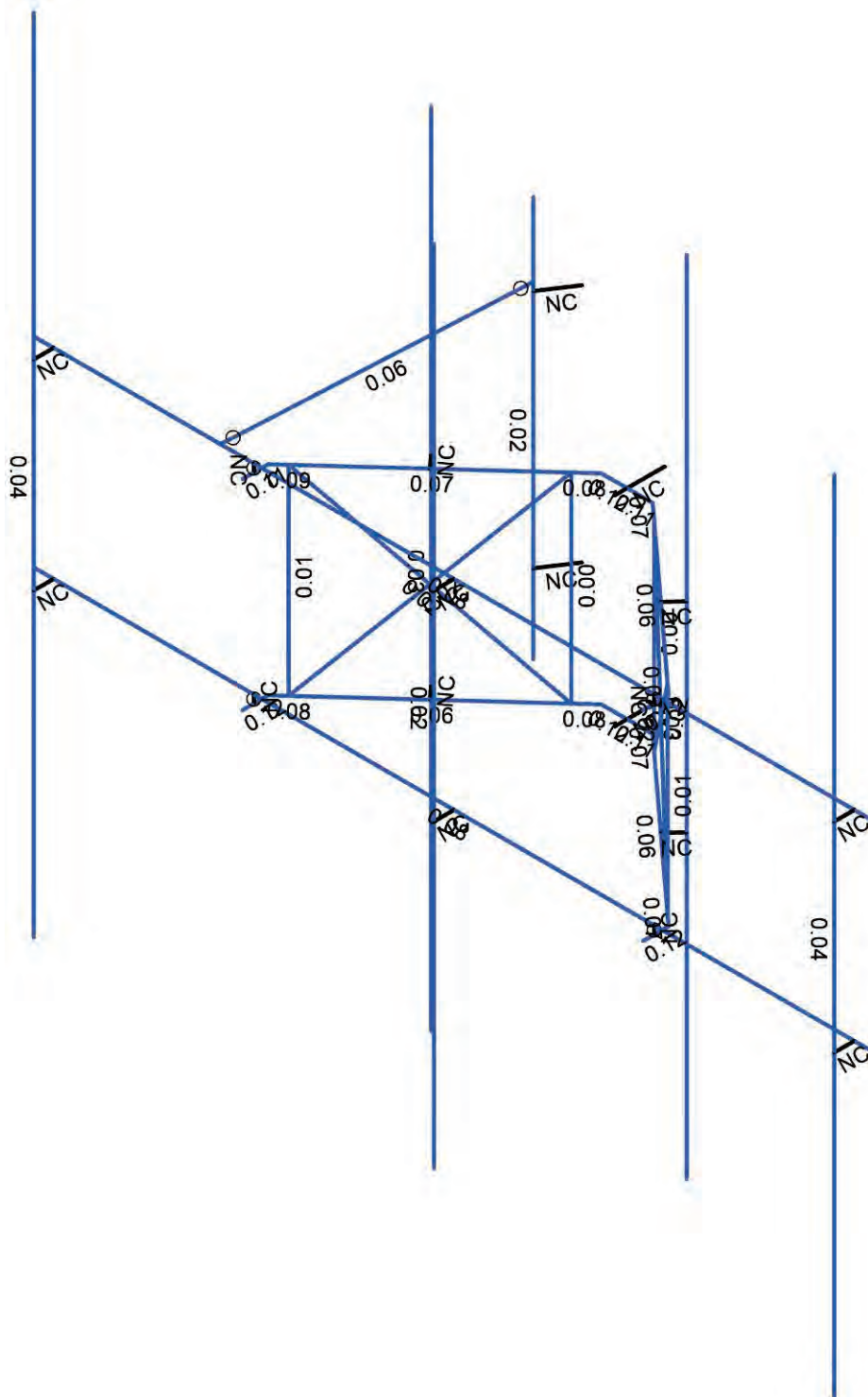
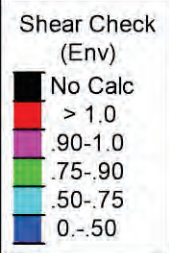
15066552 - Los Alamos NML02662A

SK-7

Nov 01, 2024 at 03:44 PM

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~~Exhibit C 1 to AGR26 823 A1~~



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution



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SK-8

Nov 01, 2024 at 03:44 PM

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~~Exhibit C 1 to AGR26 823 A1~~

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	5.25	0.098958	7.830715	
2	2	-5.25	0.098958	7.830715	
3	3	5.25	-2.401042	7.830715	
4	4	-5.25	-2.401042	7.830715	
5	5	-2.5	0.098958	7.830715	
6	6	-0.320333	0	5.669228	
7	7	-2.5	0	7.830715	
8	8	0	0	5.669228	
9	9	0	0	5.2005	
10	10	-2.5	0	7.971342	
11	11	-2.5	0	7.651029	
12	12	-2.253369	0	7.426787	
13	13	-2.438342	0	7.594969	
14	14	-0.44603	0	5.783514	
15	15	-0.569345	0	5.895635	
16	16	-2.5	-2.500084	7.830715	
17	17	-2.5	-2.401042	7.830715	
18	18	-0.320333	-2.500084	5.669228	
19	19	0	-2.500084	5.669228	
20	20	-2.5	-2.500084	7.971342	
21	21	-2.5	-2.500084	7.651029	
22	22	-2.253369	-2.500084	7.426787	
23	23	-2.438342	-2.500084	7.594969	
24	24	-0.44603	-2.500084	5.783514	
25	25	-0.569345	-2.500084	5.895635	
26	26	2.5	0.098958	7.830715	
27	27	0.320333	0	5.669228	
28	28	2.5	0	7.830715	
29	29	2.5	0	7.971342	
30	30	2.5	0	7.651029	
31	31	2.253369	0	7.426787	
32	32	2.438342	0	7.594969	
33	33	0.44603	0	5.783514	
34	34	0.569345	0	5.895635	
35	35	2.5	-2.500084	7.830715	
36	36	2.5	-2.401042	7.830715	
37	37	0.320333	-2.500084	5.669228	
38	38	2.5	-2.500084	7.971342	
39	39	2.5	-2.500084	7.651029	
40	40	2.253369	-2.500084	7.426787	
41	41	2.438342	-2.500084	7.594969	
42	42	0.44603	-2.500084	5.783514	
43	43	0.569345	-2.500084	5.895635	
44	44	0	0	5.822878	
45	45	0	-2.500084	5.2005	
46	46	0	-2.500084	5.822878	
47	47	-2.367035	0	7.530135	
48	48	-2.367035	-2.500084	7.530135	
49	49	-0.517337	0	5.848348	
50	50	-0.517337	-2.500084	5.848348	
51	51	2.367035	0	7.530135	
52	52	2.367035	-2.500084	7.530135	
53	53	0.517337	0	5.848348	
54	54	0.517337	-2.500084	5.848348	
55	55	-1.442186	-1.250042	6.689241	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	1.442186	-1.250042	6.689241	
57	57	0	0	4.5	
58	58	0	0	0	
59	59	5	-2.401042	7.830715	
60	60	5	-2.401042	8.08071	
61	61	5	3.84896	8.08071	
62	62	5	-6.15104	8.08071	
63	63	5	0.098958	7.830715	
64	64	5	0.098958	8.08071	
65	65	0	-2.401042	7.830715	
66	66	0	-2.401042	8.08071	
67	67	0	3.84896	8.08071	
68	68	0	-6.15104	8.08071	
69	69	0	0.098958	7.830715	
70	70	0	0.098958	8.08071	
71	71	-4.999998	-2.401042	7.830715	
72	72	-4.999998	-2.401042	8.080714	
73	73	-4.999998	3.84896	8.080714	
74	74	-4.999998	-6.15104	8.080714	
75	75	-4.999998	0.098958	7.830715	
76	76	-4.999998	0.098958	8.080714	
77	77	1.442185	0	6.68924	
78	78	1.596351	0	6.519682	
79	79	1.442185	-2.500084	6.68924	
80	80	1.596351	-2.500084	6.519682	
81	81	1.596351	3.74996	6.519682	
82	82	1.596351	-6.25004	6.519682	
83	83	-1.442185	0	6.68924	
84	84	-1.596351	0	6.519682	
85	85	-1.442185	-2.500084	6.68924	
86	86	-1.596351	-2.500084	6.519682	
87	87	-1.596351	3.74996	6.519682	
88	88	-1.596351	-6.25004	6.519682	
89	89	-2.91667	0.098958	7.830715	
90	90	-2.719438	0.098958	4.121112	
91	91	-2.719438	1.015625	4.121112	
92	92	-2.719438	-3.984375	4.121112	
93	93	-2.719438	-3	4.121112	
94	94	-2.478475	-3	3.75595	
95	95	-2.719438	0	4.121112	
96	96	-2.478475	0	3.75595	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	9	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	45	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	96	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	94	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁵ F ⁻¹]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2

Hot Rolled Steel Properties (Continued)

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [10^{-6}F^{-1}]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	Fe-410	29007.787	11156.841	0.3	0.667	0.49	36.26	1.5	58.016	1.5
9	Fe-570	29007.787	11156.841	0.3	0.667	0.49	49.313	1.5	58.016	1.5

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
1	MF-H1	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
2	SF-H1	PIPE 1.5	Beam	Pipe	A53 Gr.B	Typical	0.749	0.293	0.293	0.586
3	SF-V1	5/8"SR	Column	BAR	A36 Gr.36	Typical	0.307	0.007	0.007	0.015
4	SF-D1	5/8"SR	HBrace	BAR	A36 Gr.36	Typical	0.307	0.007	0.007	0.015
5	MF-P1	PIPE 2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
6	Tieback	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
7	CP-1	PL1/2"X4	Beam	RECT	A36 Gr.36	Typical	2	0.042	2.667	0.154
8	Eq Pipes	PIPE 2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
9	Connection Pipes	PIPE 4.0	Column	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		MF-H1	Beam	Pipe	A53 Gr.B	Typical
2	2	3	4		MF-H1	Beam	Pipe	A53 Gr.B	Typical
3	3	8	6	90	CP-1	Beam	RECT	A36 Gr.36	Typical
4	4	44	9	90	RIGID	None	None	RIGID	Typical
5	5	5	7	90	RIGID	None	None	RIGID	Typical
6	6	10	11	90	CP-1	Beam	RECT	A36 Gr.36	Typical
7	7	11	12	90	CP-1	Beam	RECT	A36 Gr.36	Typical
8	8	13	14	90	SF-H1	Beam	Pipe	A53 Gr.B	Typical
9	9	15	6	90	CP-1	Beam	RECT	A36 Gr.36	Typical
10	10	16	17	90	RIGID	None	None	RIGID	Typical
11	11	19	18	90	CP-1	Beam	RECT	A36 Gr.36	Typical
12	12	20	21	90	CP-1	Beam	RECT	A36 Gr.36	Typical
13	13	21	22	90	CP-1	Beam	RECT	A36 Gr.36	Typical
14	14	23	24	90	SF-H1	Beam	Pipe	A53 Gr.B	Typical
15	15	25	18	90	CP-1	Beam	RECT	A36 Gr.36	Typical
16	16	8	27	90	CP-1	Beam	RECT	A36 Gr.36	Typical
17	17	26	28	90	RIGID	None	None	RIGID	Typical
18	18	29	30	90	CP-1	Beam	RECT	A36 Gr.36	Typical
19	19	30	31	90	CP-1	Beam	RECT	A36 Gr.36	Typical
20	20	32	33	90	SF-H1	Beam	Pipe	A53 Gr.B	Typical
21	21	34	27	90	CP-1	Beam	RECT	A36 Gr.36	Typical
22	22	35	36	90	RIGID	None	None	RIGID	Typical
23	23	19	37	90	CP-1	Beam	RECT	A36 Gr.36	Typical
24	24	38	39	90	CP-1	Beam	RECT	A36 Gr.36	Typical
25	25	39	40	90	CP-1	Beam	RECT	A36 Gr.36	Typical
26	26	41	42	90	SF-H1	Beam	Pipe	A53 Gr.B	Typical
27	27	43	37	90	CP-1	Beam	RECT	A36 Gr.36	Typical
28	28	46	45	90	RIGID	None	None	RIGID	Typical
29	29	48	47	90	SF-V1	Column	BAR	A36 Gr.36	Typical
30	30	50	49	90	SF-V1	Column	BAR	A36 Gr.36	Typical
31	31	48	49	90	SF-D1	HBrace	BAR	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
32	32	47	50	90	SF-D1	HBrace	BAR	A36 Gr.36	Typical
33	33	52	51	90	SF-V1	Column	BAR	A36 Gr.36	Typical
34	34	54	53	90	SF-V1	Column	BAR	A36 Gr.36	Typical
35	35	52	53	90	SF-D1	HBrace	BAR	A36 Gr.36	Typical
36	36	51	54	90	SF-D1	HBrace	BAR	A36 Gr.36	Typical
37	37	59	60		RIGID	None	None	RIGID	Typical
38	38	61	62		MF-P1	Column	Pipe	A53 Gr.B	Typical
39	39	63	64		RIGID	None	None	RIGID	Typical
40	40	65	66		RIGID	None	None	RIGID	Typical
41	41	67	68		MF-P1	Column	Pipe	A53 Gr.B	Typical
42	42	69	70		RIGID	None	None	RIGID	Typical
43	43	71	72		RIGID	None	None	RIGID	Typical
44	44	73	74		MF-P1	Column	Pipe	A53 Gr.B	Typical
45	45	75	76		RIGID	None	None	RIGID	Typical
46	46	77	78		RIGID	None	None	RIGID	Typical
47	47	79	80		RIGID	None	None	RIGID	Typical
48	48	81	82		Eq Pipes	Column	Pipe	A53 Gr.B	Typical
49	49	83	84		RIGID	None	None	RIGID	Typical
50	50	85	86		RIGID	None	None	RIGID	Typical
51	51	87	88		Eq Pipes	Column	Pipe	A53 Gr.B	Typical
52	52	89	90		Tieback	Beam	Pipe	A53 Gr.B	Typical
53	53	91	92		Connection Pipes	Column	Pipe	A53 Gr.B	Typical
54	54	93	94		RIGID	None	None	RIGID	Typical
55	55	95	96		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	Col-Wall Vert Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
1	1					Yes	N/A	None
2	2					Yes	N/A	None
3	3					Yes	Default	None
4	4					Yes	** NA **	None
5	5	OOOOOX				Yes	** NA **	None
6	6					Yes	N/A	None
7	7					Yes	N/A	None
8	8					Yes	N/A	None
9	9					Yes	N/A	None
10	10		OOOOOX			Yes	** NA **	None
11	11					Yes	Default	None
12	12					Yes	N/A	None
13	13					Yes	N/A	None
14	14					Yes	N/A	None
15	15					Yes	N/A	None
16	16					Yes	Default	None
17	17	OOOOOX				Yes	** NA **	None
18	18					Yes	N/A	None
19	19					Yes	N/A	None
20	20					Yes	N/A	None
21	21					Yes	N/A	None
22	22		OOOOOX			Yes	** NA **	None
23	23					Yes	Default	None
24	24					Yes	N/A	None
25	25					Yes	N/A	None
26	26					Yes	N/A	None
27	27					Yes	N/A	None
28	28					Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Col-Wall Vert Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
29	29					Yes	** NA **	None
30	30					Yes	** NA **	None
31	31				Euler Buckling	Yes	** NA **	None
32	32				Euler Buckling	Yes	** NA **	None
33	33					Yes	** NA **	None
34	34					Yes	** NA **	None
35	35				Euler Buckling	Yes	** NA **	None
36	36				Euler Buckling	Yes	** NA **	None
37	37					Yes	** NA **	None
38	38					Yes	** NA **	None
39	39					Yes	** NA **	None
40	40					Yes	** NA **	None
41	41					Yes	** NA **	None
42	42					Yes	** NA **	None
43	43					Yes	** NA **	None
44	44					Yes	** NA **	None
45	45					Yes	** NA **	None
46	46					Yes	** NA **	None
47	47					Yes	** NA **	None
48	48					Yes	** NA **	None
49	49					Yes	** NA **	None
50	50					Yes	** NA **	None
51	51					Yes	** NA **	None
52	52	BenPIN	BenPIN			Yes	Default	None
53	53					Yes	** NA **	None
54	54					Yes	** NA **	None
55	55					Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	MF-H1	10.5	Lbyy	N/A	N/A	Lateral
2	2	MF-H1	10.5	Lbyy	N/A	N/A	Lateral
3	3	CP-1	0.32	Lbyy	N/A	N/A	Lateral
4	6	CP-1	0.32	Lbyy	N/A	N/A	Lateral
5	7	CP-1	0.333	Lbyy	N/A	N/A	Lateral
6	8	SF-H1	2.693	Lbyy	N/A	N/A	Lateral
7	9	CP-1	0.337	Lbyy	N/A	N/A	Lateral
8	11	CP-1	0.32	Lbyy	N/A	N/A	Lateral
9	12	CP-1	0.32	Lbyy	N/A	N/A	Lateral
10	13	CP-1	0.333	Lbyy	N/A	N/A	Lateral
11	14	SF-H1	2.693	Lbyy	N/A	N/A	Lateral
12	15	CP-1	0.337	Lbyy	N/A	N/A	Lateral
13	16	CP-1	0.32	Lbyy	N/A	N/A	Lateral
14	18	CP-1	0.32	Lbyy	N/A	N/A	Lateral
15	19	CP-1	0.333	Lbyy	N/A	N/A	Lateral
16	20	SF-H1	2.693	Lbyy	N/A	N/A	Lateral
17	21	CP-1	0.337	Lbyy	N/A	N/A	Lateral
18	23	CP-1	0.32	Lbyy	N/A	N/A	Lateral
19	24	CP-1	0.32	Lbyy	N/A	N/A	Lateral
20	25	CP-1	0.333	Lbyy	N/A	N/A	Lateral
21	26	SF-H1	2.693	Lbyy	N/A	N/A	Lateral
22	27	CP-1	0.337	Lbyy	N/A	N/A	Lateral
23	29	SF-V1	2.5	Lbyy	N/A	N/A	Lateral
24	30	SF-V1	2.5	Lbyy	N/A	N/A	Lateral
25	31	SF-D1	3.536	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
26	32	SF-D1	3.536	Lbyy	N/A	N/A	Lateral
27	33	SF-V1	2.5	Lbyy	N/A	N/A	Lateral
28	34	SF-V1	2.5	Lbyy	N/A	N/A	Lateral
29	35	SF-D1	3.536	Lbyy	N/A	N/A	Lateral
30	36	SF-D1	3.536	Lbyy	N/A	N/A	Lateral
31	38	MF-P1	10	Lbyy	N/A	N/A	Lateral
32	41	MF-P1	10	Lbyy	N/A	N/A	Lateral
33	44	MF-P1	10	Lbyy	N/A	N/A	Lateral
34	48	Eq Pipes	10	Lbyy	N/A	N/A	Lateral
35	51	Eq Pipes	10	Lbyy	N/A	N/A	Lateral
36	52	Tieback	3.715	Lbyy	N/A	N/A	Lateral
37	53	Connection Pipes	5	Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	38	Y	-0.04	%20
2	38	Y	-0.04	%80
3	38	Y	0	0
4	38	Y	0	0
5	38	Y	0	0
6	41	Y	-0.046	%40
7	41	Y	-0.046	%60
8	41	Y	0	0
9	41	Y	0	0
10	41	Y	0	0
11	44	Y	-0.072	%10
12	44	Y	-0.072	%90
13	44	Y	0	0
14	44	Y	0	0
15	44	Y	0	0
16	51	Y	-0.065	%50
17	51	Y	-0.026	%30
18	51	Y	0	0
19	51	Y	0	0
20	51	Y	0	0
21	48	Y	-0.057	%50
22	48	Y	-0.067	%50
23	48	Y	0	0
24	48	Y	0	0
25	48	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	38	Z	-0.163	%20
2	38	Z	-0.163	%80
3	38	Z	0	0
4	38	Z	0	0
5	38	Z	0	0
6	41	Z	-0.053	%40
7	41	Z	-0.053	%60
8	41	Z	0	0
9	41	Z	0	0
10	41	Z	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
11	44	Z	-0.232	%10
12	44	Z	-0.232	%90
13	44	Z	0	0
14	44	Z	0	0
15	44	Z	0	0
16	51	Z	-0.026	%50
17	51	Z	-0.025	%30
18	51	Z	0	0
19	51	Z	0	0
20	51	Z	0	0
21	48	Z	-0.018	%50
22	48	Z	-0.026	%50
23	48	Z	0	0
24	48	Z	0	0
25	48	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	38	X	-0.048	%20
2	38	X	-0.048	%80
3	38	X	0	0
4	38	X	0	0
5	38	X	0	0
6	41	X	-0.025	%40
7	41	X	-0.025	%60
8	41	X	0	0
9	41	X	0	0
10	41	X	0	0
11	44	X	-0.053	%10
12	44	X	-0.053	%90
13	44	X	0	0
14	44	X	0	0
15	44	X	0	0
16	51	X	-0.059	%50
17	51	X	-0.025	%30
18	51	X	0	0
19	51	X	0	0
20	51	X	0	0
21	48	X	-0.049	%50
22	48	X	-0.059	%50
23	48	X	0	0
24	48	X	0	0
25	48	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	38	Z	-0.013	%20
2	38	Z	-0.013	%80
3	38	Z	0	0
4	38	Z	0	0
5	38	Z	0	0
6	41	Z	-0.004	%40
7	41	Z	-0.004	%60

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
8	41	Z	0	0
9	41	Z	0	0
10	41	Z	0	0
11	44	Z	-0.019	%10
12	44	Z	-0.019	%90
13	44	Z	0	0
14	44	Z	0	0
15	44	Z	0	0
16	51	Z	-0.002	%50
17	51	Z	-0.002	%30
18	51	Z	0	0
19	51	Z	0	0
20	51	Z	0	0
21	48	Z	-0.002	%50
22	48	Z	-0.002	%50
23	48	Z	0	0
24	48	Z	0	0
25	48	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	38	X	-0.004	%20
2	38	X	-0.004	%80
3	38	X	0	0
4	38	X	0	0
5	38	X	0	0
6	41	X	-0.002	%40
7	41	X	-0.002	%60
8	41	X	0	0
9	41	X	0	0
10	41	X	0	0
11	44	X	-0.004	%10
12	44	X	-0.004	%90
13	44	X	0	0
14	44	X	0	0
15	44	X	0	0
16	51	X	-0.005	%50
17	51	X	-0.002	%30
18	51	X	0	0
19	51	X	0	0
20	51	X	0	0
21	48	X	-0.004	%50
22	48	X	-0.005	%50
23	48	X	0	0
24	48	X	0	0
25	48	X	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	38	Z	-0.059	%20
2	38	Z	-0.059	%80
3	38	Z	0	0
4	38	Z	0	0

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
5	38	Z	0	0
6	41	Z	-0.068	%40
7	41	Z	-0.068	%60
8	41	Z	0	0
9	41	Z	0	0
10	41	Z	0	0
11	44	Z	-0.106	%10
12	44	Z	-0.106	%90
13	44	Z	0	0
14	44	Z	0	0
15	44	Z	0	0
16	51	Z	-0.048	%50
17	51	Z	-0.019	%30
18	51	Z	0	0
19	51	Z	0	0
20	51	Z	0	0
21	48	Z	-0.042	%50
22	48	Z	-0.05	%50
23	48	Z	0	0
24	48	Z	0	0
25	48	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	38	X	-0.059	%20
2	38	X	-0.059	%80
3	38	X	0	0
4	38	X	0	0
5	38	X	0	0
6	41	X	-0.068	%40
7	41	X	-0.068	%60
8	41	X	0	0
9	41	X	0	0
10	41	X	0	0
11	44	X	-0.106	%10
12	44	X	-0.106	%90
13	44	X	0	0
14	44	X	0	0
15	44	X	0	0
16	51	X	-0.048	%50
17	51	X	-0.019	%30
18	51	X	0	0
19	51	X	0	0
20	51	X	0	0
21	48	X	-0.042	%50
22	48	X	-0.05	%50
23	48	X	0	0
24	48	X	0	0
25	48	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	8	Y	-0.25	%50

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	14	Y	-0.25	%50

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	20	Y	-0.25	%50

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	26	Y	-0.25	%50

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.005	-0.005	0	%100
2	2	Z	-0.005	-0.005	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	6	Z	-0.001	-0.001	0	%100
5	7	Z	-0.001	-0.001	0	%100
6	8	Z	-0.004	-0.004	0	%100
7	9	Z	-0.001	-0.001	0	%100
8	11	Z	-0.001	-0.001	0	%100
9	12	Z	-0.001	-0.001	0	%100
10	13	Z	-0.001	-0.001	0	%100
11	14	Z	-0.004	-0.004	0	%100
12	15	Z	-0.001	-0.001	0	%100
13	16	Z	-0.001	-0.001	0	%100
14	18	Z	-0.001	-0.001	0	%100
15	19	Z	-0.001	-0.001	0	%100
16	20	Z	-0.004	-0.004	0	%100
17	21	Z	-0.001	-0.001	0	%100
18	23	Z	-0.001	-0.001	0	%100
19	24	Z	-0.001	-0.001	0	%100
20	25	Z	-0.001	-0.001	0	%100
21	26	Z	-0.004	-0.004	0	%100
22	27	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
23	29	Z	-0.001	-0.001	0	%100
24	30	Z	-0.001	-0.001	0	%100
25	31	Z	-0.001	-0.001	0	%100
26	32	Z	-0.001	-0.001	0	%100
27	33	Z	-0.001	-0.001	0	%100
28	34	Z	-0.001	-0.001	0	%100
29	35	Z	-0.001	-0.001	0	%100
30	36	Z	-0.001	-0.001	0	%100
31	38	Z	-0.006	-0.006	0	%100
32	41	Z	-0.006	-0.006	0	%100
33	44	Z	-0.006	-0.006	0	%100
34	48	Z	-0.005	-0.005	0	%100
35	51	Z	-0.005	-0.005	0	%100
36	52	Z	-0.004	-0.004	0	%100
37	53	Z	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.005	-0.005	0	%100
2	2	X	-0.005	-0.005	0	%100
3	3	X	-0.001	-0.001	0	%100
4	6	X	-0.001	-0.001	0	%100
5	7	X	-0.001	-0.001	0	%100
6	8	X	-0.004	-0.004	0	%100
7	9	X	-0.001	-0.001	0	%100
8	11	X	-0.001	-0.001	0	%100
9	12	X	-0.001	-0.001	0	%100
10	13	X	-0.001	-0.001	0	%100
11	14	X	-0.004	-0.004	0	%100
12	15	X	-0.001	-0.001	0	%100
13	16	X	-0.001	-0.001	0	%100
14	18	X	-0.001	-0.001	0	%100
15	19	X	-0.001	-0.001	0	%100
16	20	X	-0.004	-0.004	0	%100
17	21	X	-0.001	-0.001	0	%100
18	23	X	-0.001	-0.001	0	%100
19	24	X	-0.001	-0.001	0	%100
20	25	X	-0.001	-0.001	0	%100
21	26	X	-0.004	-0.004	0	%100
22	27	X	-0.001	-0.001	0	%100
23	29	X	-0.001	-0.001	0	%100
24	30	X	-0.001	-0.001	0	%100
25	31	X	-0.001	-0.001	0	%100
26	32	X	-0.001	-0.001	0	%100
27	33	X	-0.001	-0.001	0	%100
28	34	X	-0.001	-0.001	0	%100
29	35	X	-0.001	-0.001	0	%100
30	36	X	-0.001	-0.001	0	%100
31	38	X	-0.006	-0.006	0	%100
32	41	X	-0.006	-0.006	0	%100
33	44	X	-0.006	-0.006	0	%100
34	48	X	-0.005	-0.005	0	%100
35	51	X	-0.005	-0.005	0	%100
36	52	X	-0.004	-0.004	0	%100
37	53	X	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z		-0.0002	-0.0002	0	%100
2	2	Z		-0.0002	-0.0002	0	%100
3	3	Z		-0.0001	-0.0001	0	%100
4	6	Z		-0.0001	-0.0001	0	%100
5	7	Z		-0.0001	-0.0001	0	%100
6	8	Z		-0.0002	-0.0002	0	%100
7	9	Z		-0.0001	-0.0001	0	%100
8	11	Z		-0.0001	-0.0001	0	%100
9	12	Z		-0.0001	-0.0001	0	%100
10	13	Z		-0.0001	-0.0001	0	%100
11	14	Z		-0.0002	-0.0002	0	%100
12	15	Z		-0.0001	-0.0001	0	%100
13	16	Z		-0.0001	-0.0001	0	%100
14	18	Z		-0.0001	-0.0001	0	%100
15	19	Z		-0.0001	-0.0001	0	%100
16	20	Z		-0.0002	-0.0002	0	%100
17	21	Z		-0.0001	-0.0001	0	%100
18	23	Z		-0.0001	-0.0001	0	%100
19	24	Z		-0.0001	-0.0001	0	%100
20	25	Z		-0.0001	-0.0001	0	%100
21	26	Z		-0.0002	-0.0002	0	%100
22	27	Z		-0.0001	-0.0001	0	%100
23	29	Z		-0.0001	-0.0001	0	%100
24	30	Z		-0.0001	-0.0001	0	%100
25	31	Z		-0.0001	-0.0001	0	%100
26	32	Z		-0.0001	-0.0001	0	%100
27	33	Z		-0.0001	-0.0001	0	%100
28	34	Z		-0.0001	-0.0001	0	%100
29	35	Z		-0.0001	-0.0001	0	%100
30	36	Z		-0.0001	-0.0001	0	%100
31	38	Z		-0.0003	-0.0003	0	%100
32	41	Z		-0.0003	-0.0003	0	%100
33	44	Z		-0.0003	-0.0003	0	%100
34	48	Z		-0.0002	-0.0002	0	%100
35	51	Z		-0.0002	-0.0002	0	%100
36	52	Z		-0.0002	-0.0002	0	%100
37	53	Z		-0.0004	-0.0004	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X		-0.0002	-0.0002	0	%100
2	2	X		-0.0002	-0.0002	0	%100
3	3	X		-0.0001	-0.0001	0	%100
4	6	X		-0.0001	-0.0001	0	%100
5	7	X		-0.0001	-0.0001	0	%100
6	8	X		-0.0002	-0.0002	0	%100
7	9	X		-0.0001	-0.0001	0	%100
8	11	X		-0.0001	-0.0001	0	%100
9	12	X		-0.0001	-0.0001	0	%100
10	13	X		-0.0001	-0.0001	0	%100
11	14	X		-0.0002	-0.0002	0	%100
12	15	X		-0.0001	-0.0001	0	%100
13	16	X		-0.0001	-0.0001	0	%100
14	18	X		-0.0001	-0.0001	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
15	19	X	-0.0001	-0.0001	0	%100
16	20	X	-0.0002	-0.0002	0	%100
17	21	X	-0.0001	-0.0001	0	%100
18	23	X	-0.0001	-0.0001	0	%100
19	24	X	-0.0001	-0.0001	0	%100
20	25	X	-0.0001	-0.0001	0	%100
21	26	X	-0.0002	-0.0002	0	%100
22	27	X	-0.0001	-0.0001	0	%100
23	29	X	-0.0001	-0.0001	0	%100
24	30	X	-0.0001	-0.0001	0	%100
25	31	X	-0.0001	-0.0001	0	%100
26	32	X	-0.0001	-0.0001	0	%100
27	33	X	-0.0001	-0.0001	0	%100
28	34	X	-0.0001	-0.0001	0	%100
29	35	X	-0.0001	-0.0001	0	%100
30	36	X	-0.0001	-0.0001	0	%100
31	38	X	-0.0003	-0.0003	0	%100
32	41	X	-0.0003	-0.0003	0	%100
33	44	X	-0.0003	-0.0003	0	%100
34	48	X	-0.0002	-0.0002	0	%100
35	51	X	-0.0002	-0.0002	0	%100
36	52	X	-0.0002	-0.0002	0	%100
37	53	X	-0.0004	-0.0004	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.003	-0.003	0	%100
2	2	Z	-0.003	-0.003	0	%100
3	3	Z	-0.005	-0.005	0	%100
4	6	Z	-0.005	-0.005	0	%100
5	7	Z	-0.005	-0.005	0	%100
6	8	Z	-0.002	-0.002	0	%100
7	9	Z	-0.005	-0.005	0	%100
8	11	Z	-0.005	-0.005	0	%100
9	12	Z	-0.005	-0.005	0	%100
10	13	Z	-0.005	-0.005	0	%100
11	14	Z	-0.002	-0.002	0	%100
12	15	Z	-0.005	-0.005	0	%100
13	16	Z	-0.005	-0.005	0	%100
14	18	Z	-0.005	-0.005	0	%100
15	19	Z	-0.005	-0.005	0	%100
16	20	Z	-0.002	-0.002	0	%100
17	21	Z	-0.005	-0.005	0	%100
18	23	Z	-0.005	-0.005	0	%100
19	24	Z	-0.005	-0.005	0	%100
20	25	Z	-0.005	-0.005	0	%100
21	26	Z	-0.002	-0.002	0	%100
22	27	Z	-0.005	-0.005	0	%100
23	29	Z	-0.001	-0.001	0	%100
24	30	Z	-0.001	-0.001	0	%100
25	31	Z	-0.001	-0.001	0	%100
26	32	Z	-0.001	-0.001	0	%100
27	33	Z	-0.001	-0.001	0	%100
28	34	Z	-0.001	-0.001	0	%100
29	35	Z	-0.001	-0.001	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
30	36	Z	-0.001	-0.001	0	%100
31	38	Z	-0.004	-0.004	0	%100
32	41	Z	-0.004	-0.004	0	%100
33	44	Z	-0.004	-0.004	0	%100
34	48	Z	-0.003	-0.003	0	%100
35	51	Z	-0.003	-0.003	0	%100
36	52	Z	-0.003	-0.003	0	%100
37	53	Z	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.003	-0.003	0	%100
2	2	X	-0.003	-0.003	0	%100
3	3	X	-0.005	-0.005	0	%100
4	6	X	-0.005	-0.005	0	%100
5	7	X	-0.005	-0.005	0	%100
6	8	X	-0.002	-0.002	0	%100
7	9	X	-0.005	-0.005	0	%100
8	11	X	-0.005	-0.005	0	%100
9	12	X	-0.005	-0.005	0	%100
10	13	X	-0.005	-0.005	0	%100
11	14	X	-0.002	-0.002	0	%100
12	15	X	-0.005	-0.005	0	%100
13	16	X	-0.005	-0.005	0	%100
14	18	X	-0.005	-0.005	0	%100
15	19	X	-0.005	-0.005	0	%100
16	20	X	-0.002	-0.002	0	%100
17	21	X	-0.005	-0.005	0	%100
18	23	X	-0.005	-0.005	0	%100
19	24	X	-0.005	-0.005	0	%100
20	25	X	-0.005	-0.005	0	%100
21	26	X	-0.002	-0.002	0	%100
22	27	X	-0.005	-0.005	0	%100
23	29	X	-0.001	-0.001	0	%100
24	30	X	-0.001	-0.001	0	%100
25	31	X	-0.001	-0.001	0	%100
26	32	X	-0.001	-0.001	0	%100
27	33	X	-0.001	-0.001	0	%100
28	34	X	-0.001	-0.001	0	%100
29	35	X	-0.001	-0.001	0	%100
30	36	X	-0.001	-0.001	0	%100
31	38	X	-0.004	-0.004	0	%100
32	41	X	-0.004	-0.004	0	%100
33	44	X	-0.004	-0.004	0	%100
34	48	X	-0.003	-0.003	0	%100
35	51	X	-0.003	-0.003	0	%100
36	52	X	-0.003	-0.003	0	%100
37	53	X	-0.008	-0.008	0	%100

Node Loads and Enforced Displacements (BLC 11 : Live Load a)

Node	Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1	59	L	Y	-0.25

Node Loads and Enforced Displacements (BLC 12 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1	65	L	Y	-0.25

Node Loads and Enforced Displacements (BLC 13 : Live Load c)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1	71	L	Y	-0.25

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		25	
2	0 Wind - No Ice	WLZ			25	37
3	90 Wind - No Ice	WLX			25	37
4	0 Wind - Ice	WLZ				
5	90 Wind - Ice	WLX				
6	0 Wind - Service	WLZ			25	37
7	90 Wind - Service	WLX			25	37
8	Ice	OL1				
9	0 Seismic	ELZ			25	37
10	90 Seismic	ELX			25	37
11	Live Load a	LL		1		
12	Live Load b	LL		1		
13	Live Load c	LL		1		
14	Live Load d	LL				
15	Maint LL 1	LL			1	
16	Maint LL 2	LL			1	
17	Maint LL 3	LL			1	
18	Maint LL 4	LL			1	
19	Maint LL 5	LL			1	
20	Maint LL 6	LL			1	
21	Maint LL 7	LL				
22	Maint LL 8	LL				

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5

Envelope Node Reactions

Node Label			X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	9	max	0.81	65	0.808	68	-0.069	12	-0.294	2	0.35	6	0.089	40
2		min	-0.604	47	0.543	13	-1.443	6	-0.431	69	-0.247	12	-0.108	70
3	45	max	0.59	41	0.748	90	1.443	2	-0.288	8	0.394	29	0.063	40
4		min	-0.799	71	0.542	7	0.092	8	-0.417	91	-0.427	35	-0.08	70
5	96	max	0.018	8	0.045	1	0.606	28	0.046	28	0.142	28	-0.018	52
6		min	-0.017	2	0.038	28	-0.632	34	-0.073	10	-0.148	34	-0.11	70
7	94	max	0.02	29	0.035	1	0.02	26	-0.009	26	0.009	28	-0.005	35
8		min	-0.02	35	0.03	28	-0.02	32	-0.013	32	-0.009	34	-0.009	29
9	Totals:	max	0.995	29	1.564	91	1.51	2						
10		min	-0.995	35	1.189	6	-1.51	8						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

Member	Shape	Code Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PIPE 2.0	0.329	8.094	8	0.077	7.766		29	8.922	32.13	1.872	1.872	1	H1-1b
2	2	PIPE 2.0	0.368	7.766	2	0.076	7.766		2	8.922	32.13	1.872	1.872	1	H1-1b
3	3	PL1/2"x4	0.303	0	62	0.117	0.32	y	88	62.425	64.8	0.675	5.4	1.877	H1-1b
4	6	PL1/2"x4	0.144	0.32	7	0.114	0.32	y	66	62.425	64.8	0.675	5.4	1.391	H1-1b
5	7	PL1/2"x4	0.204	0.083	67	0.087	0.083	y	53	62.232	64.8	0.675	5.4	1.193	H1-1b
6	8	PIPE 1.5	0.263	0.252	8	0.065	1.346		88	20.581	23.593	1.105	1.105	1	H1-1b
7	9	PL1/2"x4	0.154	0.168	68	0.076	0.175	y	67	62.184	64.8	0.675	5.4	1.159	H1-1b
8	11	PL1/2"x4	0.261	0	88	0.117	0.32	y	89	62.425	64.8	0.675	5.4	2.063	H1-1b
9	12	PL1/2"x4	0.171	0.32	8	0.117	0.143	y	66	62.425	64.8	0.675	5.4	1.388	H1-1b
10	13	PL1/2"x4	0.205	0.083	8	0.084	0.003	y	56	62.232	64.8	0.675	5.4	1.148	H1-1b
11	14	PIPE 1.5	0.262	0.252	2	0.064	1.346		89	20.581	23.593	1.105	1.105	1	H1-1b
12	15	PL1/2"x4	0.125	0.168	73	0.075	0.337	y	89	62.184	64.8	0.675	5.4	1.141	H1-1b
13	16	PL1/2"x4	0.289	0	40	0.113	0.32	y	90	62.425	64.8	0.675	5.4	1.718	H1-1b
14	18	PL1/2"x4	0.112	0.32	7	0.12	0.32	y	44	62.425	64.8	0.675	5.4	1.396	H1-1b
15	19	PL1/2"x4	0.182	0.083	87	0.073	0.083	y	53	62.232	64.8	0.675	5.4	1.311	H1-1b
16	20	PIPE 1.5	0.198	0.252	8	0.063	1.346		90	20.581	23.593	1.105	1.105	1	H1-1b
17	21	PL1/2"x4	0.131	0.168	44	0.071	0.337	y	90	62.184	64.8	0.675	5.4	1.265	H1-1b

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc [ft]	LC	Shear	Check	Loc [ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
18	23	PL1/2"X4	0.239	0	90	0.113	0.32	y	91	62.425	64.8	0.675	5.4	2.157	1	H1-1b
19	24	PL1/2"X4	0.129	0.32	8	0.12	0.32	y	44	62.425	64.8	0.675	5.4	1.392	1	H1-1b
20	25	PL1/2"X4	0.187	0.083	86	0.072	0.003	y	56	62.232	64.8	0.675	5.4	1.231	1	H1-1b
21	26	PIPE 1.5	0.217	0.252	2	0.062	1.346		91	20.581	23.593	1.105	1.105	1	1	H1-1b
22	27	PL1/2"X4	0.117	0.168	39	0.071	0.337	y	91	62.184	64.8	0.675	5.4	1.132	1	H1-1b
23	29	5/8"SR	0.36	2.5	70	0.009	2.5		10	1.88	9.94	0.104	0.104	1	1	H1-1a
24	30	5/8"SR	0.336	0	70	0.002	2.5		29	1.88	9.94	0.104	0.104	1	1	H1-1a
25	31	5/8"SR	0.17	3.536	69	0.024	1.768		8	0.94	9.94	0.104	0.104	1	1	H1-1b*
26	32	5/8"SR	0	3.536	93	0.016	0		2	0.94	9.94	0.104	0.104	1	1	H1-1a
27	33	5/8"SR	0.318	2.5	87	0.008	2.5		35	1.88	9.94	0.104	0.104	1	1	H1-1a
28	34	5/8"SR	0.309	0	40	0.002	2.5		34	1.88	9.94	0.104	0.104	1	1	H1-1a
29	35	5/8"SR	0.154	3.536	40	0.017	1.768		2	0.94	9.94	0.104	0.104	1	1	H1-1b*
30	36	5/8"SR	0	3.536	93	0.017	1.768		8	0.94	9.94	0.104	0.104	1	1	H1-1a
31	38	PIPE 2.5	0.12	6.25	43	0.037	3.75		45	22.373	50.715	3.596	3.596	1	1	H1-1b
32	41	PIPE 2.5	0.053	3.75	10	0.02	3.75		34	22.373	50.715	3.596	3.596	1	1	H1-1b
33	44	PIPE 2.5	0.2	3.75	2	0.038	3.75		67	22.373	50.715	3.596	3.596	1	1	H1-1b
34	48	PIPE 2.0	0.058	6.25	90	0.027	6.25		34	9.837	32.13	1.872	1.872	1	1	H1-1b
35	51	PIPE 2.0	0.053	6.25	88	0.025	6.25		34	9.837	32.13	1.872	1.872	1	1	H1-1b
36	52	PIPE 2.0	0.022	3.715	28	0.062	3.715		70	27.23	32.13	1.872	1.872	1	1	H1-1b*
37	53	PIPE 4.0	0.01	0.99	69	0.022	0.99		34	86.074	93.24	10.631	10.631	1	1	H1-1b

APPENDIX B

(Additional Calculations)

PROJECT	173282.001.01.0002 - Los Alamos NM KSC		
SUBJECT	Sector Mount Analysis		
DATE	11/01/24		



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Tower Type	:	Other		
Ground Elevation	z_s	: 7348	ft	[ASCE7 Hazard Tool]
Tower Height	:	165.17	ft	
Mount Elevation	:	75.00	ft	
Antenna Elevation	:	75.00	ft	
Crest Height	:	0	ft	
Risk Category	:	II		[Table 2-1]
Exposure Category	:	C		[Sec. 2.6.5.1.2]
Topography Category	:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	: 104	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	: 40	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	: 30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	: 0.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.	:	D		[ASCE7 Hazard Tool]
	S_S	: 0.54		
	S_1	: 0.17		
	S_{DS}	: 0.49		
	S_{D1}	: 0.26		
Gust Factor	G_h	: 1.00		[Sec. 16.6]
Pressure Coefficient	K_z	: 1.19		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	: 1.00		[Sec. 2.6.6]
Elevation Factor	K_e	: 0.77		[Sec. 2.6.8]
Directionality Factor	K_d	: 0.95		[Sec. 16.6]
Shielding Factor	K_a	: 0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	: 0.00	in	[Sec. 2.6.10]
Importance Factor	I_e	: 1		[Table 2-3]
Response Coefficient	C_s	: 0.246		[Sec. 2.7.7.1]
Amplification	A_s	: 3		[Sec. 16.7]
	q_z	: 24.02	psf	

PROJECT	173282.001.01.0002 - Los Alamos NM KSC		
SUBJECT	Sector Mount Analysis		
DATE	11/01/24		

Bolded Equipment EPA has been adjusted per wind tunnel & CFD testing



B+T Group

1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

B+T GRP

Manufacturer	Model	Qty	Height (in ²)	Width (in ²)	Depth (in ²)	Weight (lbs)	C _a A _a (N) (ft ²)	C _a A _a (T) (ft ²)	C _a A _a (N) Ice (ft ²)	C _a A _a (T) Ice (ft ²)	F _A (N) (k)	F _A (T) (k)	F _A (N) Ice (k)	F _A (T) Ice (k)
ERICSSON	KRE 101 2586/1K	0.5	95.9	19.2	6.5	80.0	5.16	1.52	8.38	3.59	0.16	0.05	0.02	0.01
ERICSSON	KRE 101 2586/1K	0.5					5.16	1.52	8.38	3.59	0.16	0.05	0.02	0.01
ERICSSON	AIR6472 B77G B77M	0.5	36.4	16.1	7.5	92.6	2.45	1.23	2.45	1.23	0.05	0.02	0.01	0.00
ERICSSON	AIR6472 B77G B77M	0.5					2.45	1.23	2.45	1.23	0.05	0.02	0.01	0.00
KATHREIN	80010992	0.5	105.2	20.0	6.9	144.4	7.31	1.66	9.66	4.22	0.23	0.05	0.03	0.01
KATHREIN	80010992	0.5					7.31	1.66	9.66	4.22	0.23	0.05	0.03	0.01
ERICSSON	4490 B5/B12A	1	20.6	7.0	15.6	65.0	1.22	2.68	1.22	2.68	0.03	0.06	0.00	0.01
RAYCAP	DC9-48-60-24-8C-EV	1	31.4	10.2	10.2	26.2	1.14	1.14	1.14	1.14	0.02	0.02	0.00	0.00
ERICSSON	4494 B14/B29	1	17.5	5.6	15.1	57.3	0.84	2.20	0.84	2.20	0.02	0.05	0.00	0.01
ERICSSON	4890 B25/B66A	1	20.6	7.0	15.7	67.2	1.22	2.70	1.22	2.70	0.03	0.06	0.00	0.01

PROJECT	173282.001.01.0002 - Los Alamos NM KSC			
SUBJECT	Sector Mount Analysis			
DATE	11/01/24	PAGE	1	OF 1



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	1.443	k
Vertical Shear	:	0.808	k
Horizontal Shear	:	0.81	k
Torsion	:	0.108	k.ft
Moment from Horizontal Forces	:	0.35	k.ft
Moment from Vertical Forces	:	0.431	k.ft

Bolt Parameters

Bolt Grade	:	A307	
Bolt Diameter	:	0.5	in
Nominal Bolt Area	:	0.1963495	in ²
Bolt spacing, Horizontal	:	9.5	in
Bolt spacing, Vertical	:	3.5	in
Bolt edge distance, plate height	:	1.25	in
Bolt edge distance, plate width	:	1.25	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	1.14	k
Force from Horz. Moment	:	0.42	k
Force from Vert. Moment	:	1.29	k
Shear Load / Bolt	:	0.29	k
Tension Load / Bolt	:	0.36	k
Resultant from Moments / Bolt	:	0.68	k

Bolt Checks

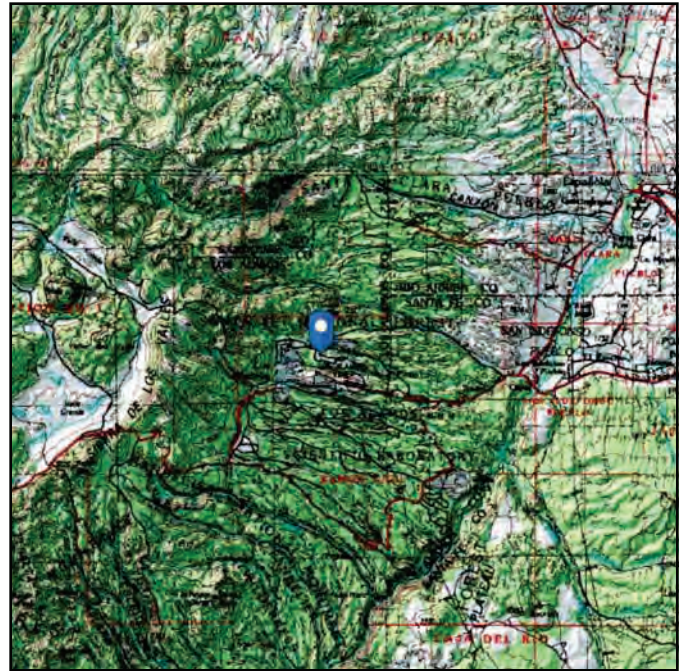
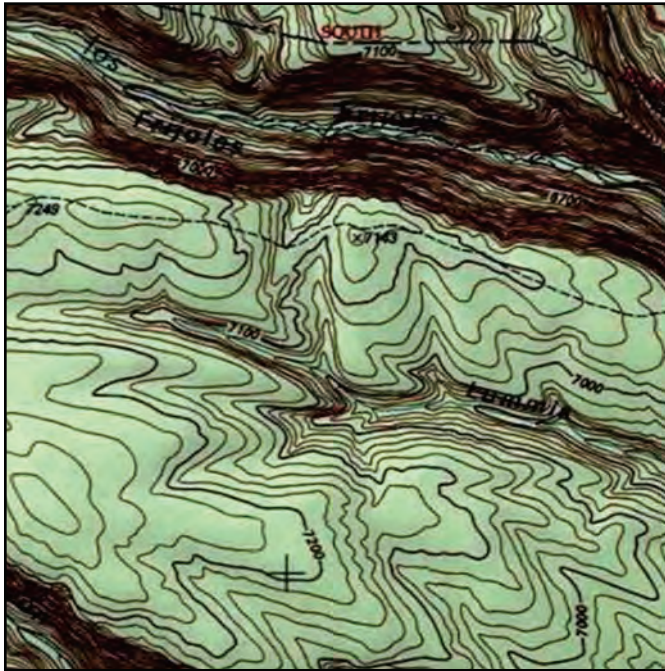
Nominal Tensile Stress, F_{nt}	:	45.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	6.63	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	15.70%		OKAY
Nominal Shear Stress, F_{nv}	:	27.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	3.98	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	16.27%		OKAY
Unity Check, Combined	:	31.97%		OKAY
Available Bearing Strength, ΦR_n	:	28.55	k/bolt	
Unity Check, Bolt Bearing	:	1.00%		OKAY

ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Latitude: 35.896638
Longitude: -106.295055
Elevation: 7348.458432637539 ft (NAVD 88)



Wind

Results:

Wind Speed	104 Vmph
10-year MRI	75 Vmph
25-year MRI	82 Vmph
50-year MRI	87 Vmph
100-year MRI	91 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Thu Oct 31 2024

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

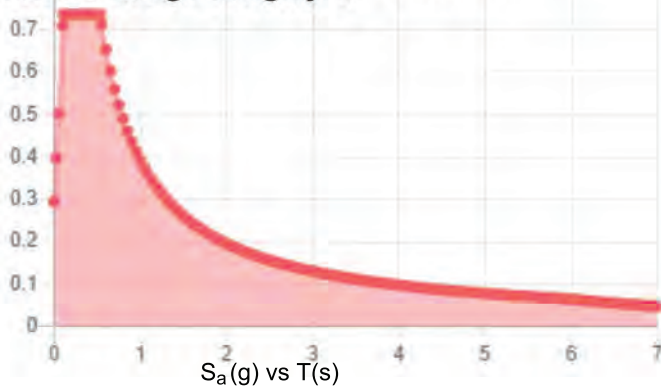
Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

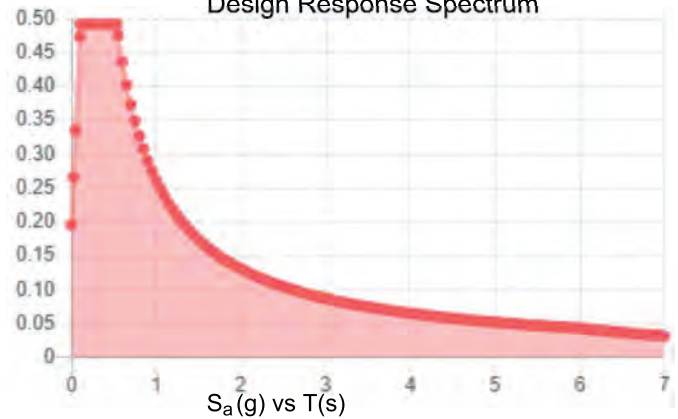
Results:

S_S :	0.538	S_{D1} :	0.261
S_1 :	0.174	T_L :	6
F_a :	1.37	PGA :	0.232
F_v :	2.252	PGA _M :	0.318
S_{MS} :	0.736	F_{PGA} :	1.368
S_{M1} :	0.392	I_e :	1
S_{DS} :	0.491	C_v :	1.058

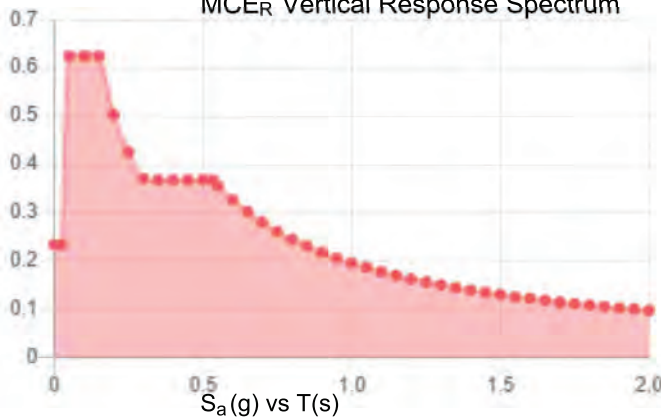
Seismic Design Category: D
MCE_R Response Spectrum



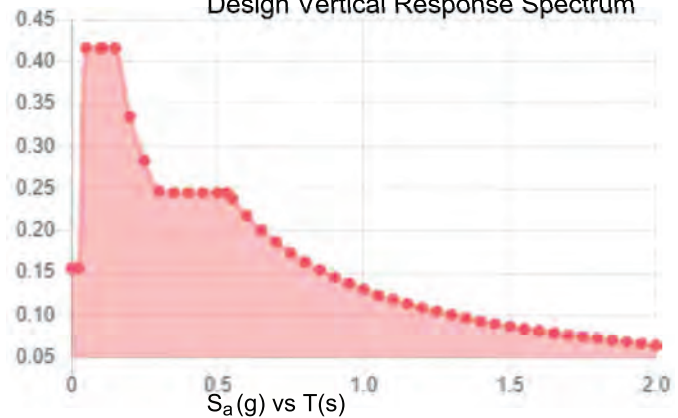
Design Response Spectrum



MCE_R Vertical Response Spectrum



Design Vertical Response Spectrum



Data Accessed: Thu Oct 31 2024

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.25 in.
Concurrent Temperature: 15 F
Gust Speed 40 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Thu Oct 31 2024

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

In the mountain west, ice thicknesses may exceed the mapped values in the foothills and passes. However, at elevations above 5,000 ft, freezing rain is unlikely.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

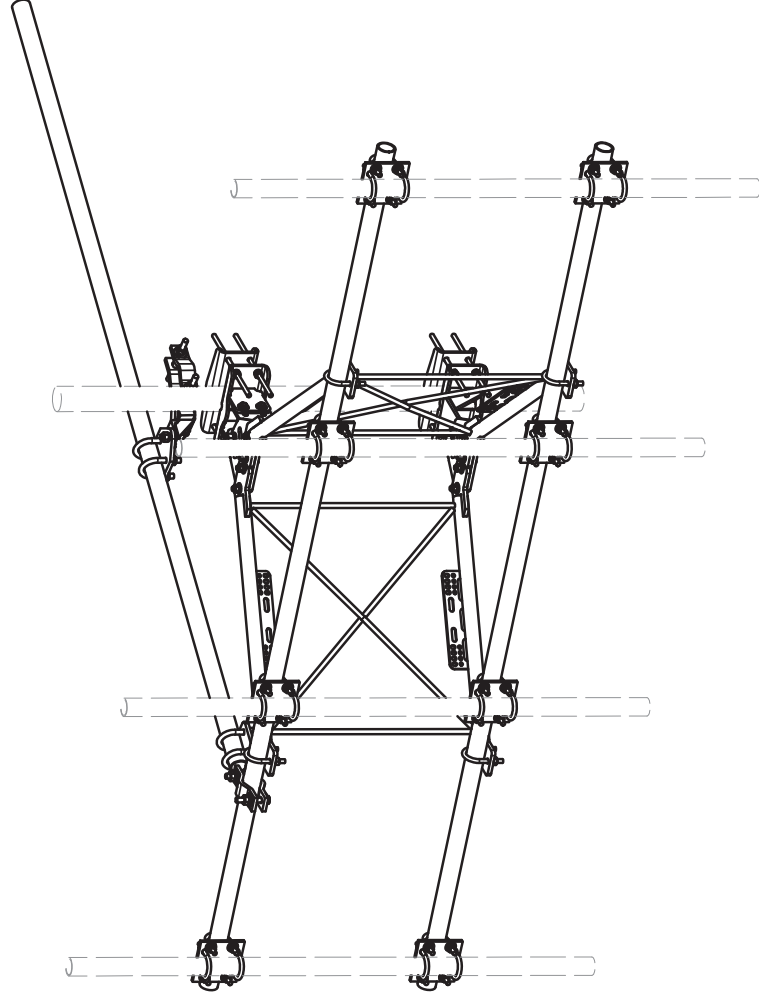
ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE Hazard Tool.

APPENDIX C

(Supplemental Drawings)

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-VFASD	SUPPORT ARM FOR STANDARD DUTY V-FRAME ASSEMBLY		45.34	90.69
2	1	X-SDTFLB	DIAGONAL SLOT WELDMENT FOR BCAM SD		15.08	15.08
3	1	X-SDMHTP	MULTI-HOLE TAPER PLATE WELDMENT		16.63	16.63
4	2	X-SDPP	PIVOT PLATE	11 1/16 in	9.09	18.18
5	2	X-LCBP2	BENT BACKING PLATE	12 in	8.86	17.73
6	1	X-SDCAMSS	STRAIGHT SLOT WELDMENT FOR BCAM		8.48	8.48
7	2	X-SPTB	SLIDING PIPE TIE BACK PLATE	5 1/2 in	5.87	11.74
8	1	X-SDCAMSP	POSITIONING PLATE WELDMENT FOR BCAM		1.43	1.43
9	2	X-TBCA	TIE BACK CLIP ANGLE		2.01	4.01
10	8	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	29.67
11	2	MCP	CLAMP HALF 1/2" THICK, 11-5/8" LONG	12 1/16 in	3.59	7.19
12	4	DOP	1/2" THICK, 5-3/4" CNTER TO CENTER CLAMP HALF	8 1/8 in	2.36	9.45
13	3	P2126	2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE	126 in	40.76	122.26
14	4	A34214	3/4"-10 X 2-1/4" A325 BOLT	2 1/4 in	0.47	1.89
15	4	G34FW	3/4" HDG USS FLATWASHER		0.06	0.24
16	4	G34LW	3/4" HDG LOCKWASHER		0.04	0.17
17	4	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	0.85
18	2	G58R-12	5/8" x 12" THREADED ROD (HDG.)		1.05	2.09
19	2	G58R-8	5/8" x 8" THREADED ROD (HDG.)		0.70	1.39
20	4	X-UB5258	5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.)		1.00	4.00
21	4	G5804	5/8" x 4" HDG HEX BOLT GR5		0.44	1.78
22	2	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	0.54
23	10	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	0.70
24	16	G58LW	5/8" HDG LOCKWASHER		0.03	0.42
25	18	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	2.34
26	8	G12R-15	1/2" x 15" THREADED ROD (HDG.)		0.84	6.69
27	36	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT		0.66	23.86
28	2	G12065	1/2" X 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	0.82
29	1	G12045	1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD	4 1/2 in	0.30	0.30
30	8	G1202	1/2" x 2" HDG HEX BOLT GR5	2 in	0.18	1.41
31	85	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	2.90
32	98	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.36
33	99	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	7.09
					TOTAL WT. #	413.36



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 1 STIFF ARMS

CPD NO.	DRAWN BY	ENG. APPROVAL
81	CEK	6/21/2017
SUB	DRAWING USAGE	CHECKED BY
02	CUSTOMER	BMC
		7/13/2017



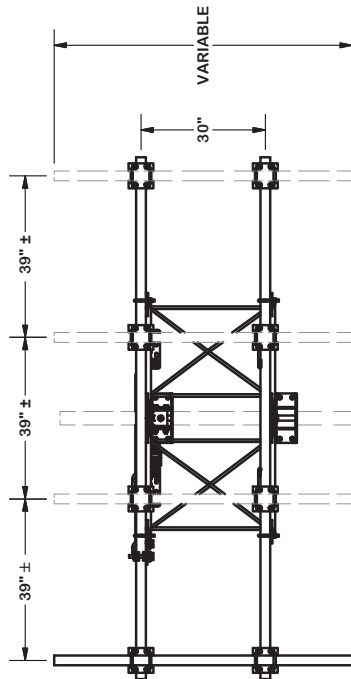
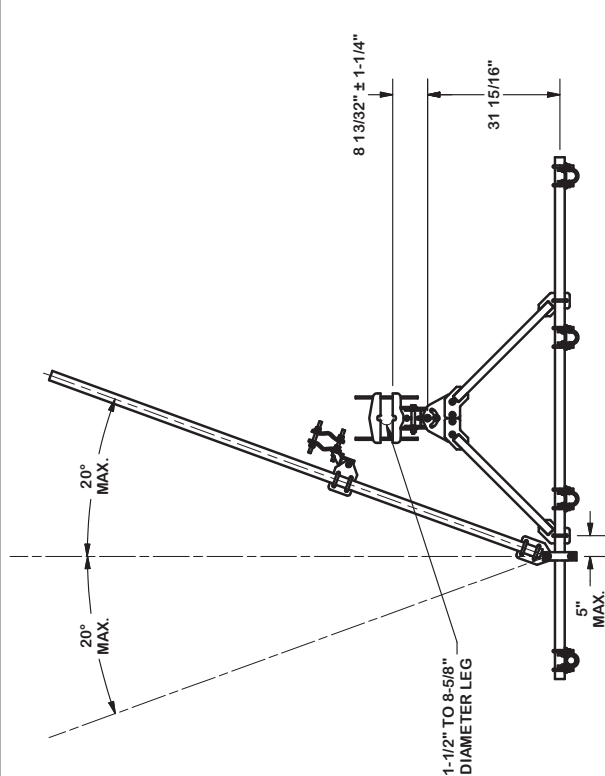
Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Houston, TX
 Dallas, TX

Engineering
 Support Team:
 1-888-753-7446

PART NO.	VFA10-SD-S
DWG. NO.	VFA10-SD-S

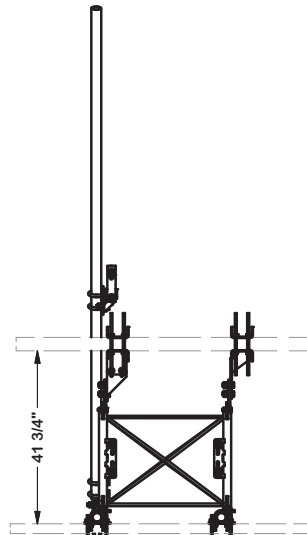
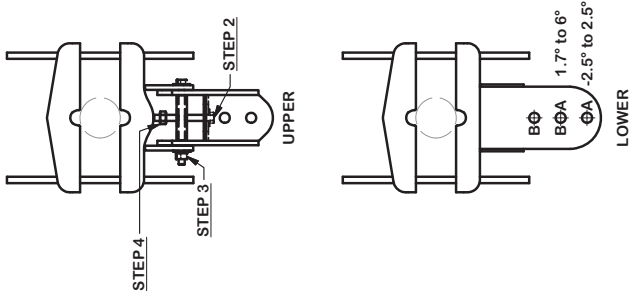
Exhibit C-1 to AGR26-823-A1

Exhibit A to Ordinance No. 739



ANGLE CALIBRATING PROCEDURE:

1. MEASURE TOWER TAPER AND PICK LOWER BRACKET HOLE:
 - HOLE A = -2.5° TO 2.5°
 - HOLE B = 1.7° TO 6°
2. USE CALIBRATING BOLT TO ADJUST FRAME TO DESIRED TAPER
3. TORQUE LOCKING BOLTS TO 50 ft.-lbs.
4. ADVANCE LOCKING NUT TO POSITIONING PLATE, THEN TIGHTEN.



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES (± 0.030)
 DRILLED AND GAS CUT HOLES (± 0.030) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.010) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING (± 0.030)
 ALL OTHER ASSEMBLY (± 0.060)

PROPRIETARY NOTE: INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND IS TO BE KEPT AS A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

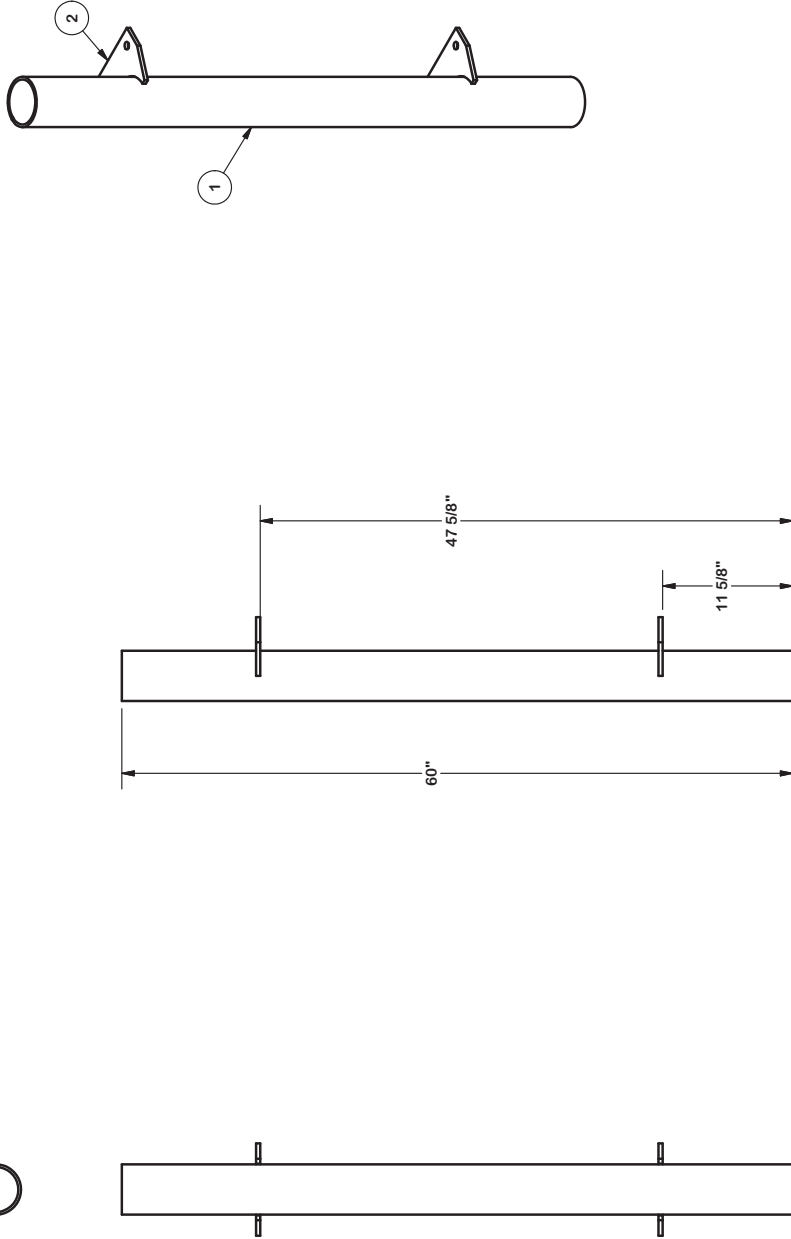
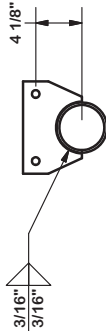
DESCRIPTION
 10'-6" STANDARD DUTY
 V-FRAME ASSEMBLY
 W/ 1 STIFF ARMS

CPD NO.	DRAWN BY	ENG. APPROVAL
81	CEK	6/21/2017
CLASS	SUB	CHECKED BY
81	02	BMC

Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN St. Louis, MO Dallas, TX	Engineering Support Team: 1-888-753-7446	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN St. Louis, MO Dallas, TX
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PART NO.	VFA10-SD-S
DWG. NO.	VFA10-SD-S

PARTS LIST					
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.
1	1	351690	4" SCH. 40 PIPE (4.5" O.D. x 0.237" WALL)(Fy = 35 Ksi Min.)	60 in	54.08
2	2	X-99618	PIPE MOUNT WELDMENT BRACKET	5 1/4 in	3.20
TOTAL WT. #					60.48



FINISH:
HOT DIP GALVANIZED.

TOLERANCE NOTES				PAGE	
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$) DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES BENDS ARE $\pm 1/2$ DEGREE ALL OTHER MACHINING ($\pm 0.030"$) ALL OTHER ASSEMBLY ($\pm 0.060"$) PROPRIETARY NOTE: ALL DIMENSIONS AND TOLERANCES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.				1 OF 1	
DESCRIPTION				PART NO.	
PIPE MOUNT WELDMENT				X-B965	
CPD NO. DRAWN BY ENG. APPROVAL CEK 9/19/2011				DWG. NO.	
CLASS SUB DRAWING USAGE SHOP				X-B965	
CHECKED BY BMC 9/20/2011					



Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Houston, TX
Dallas, TX

Engineering
Support Team:
1-888-753-7446

Exhibit C-1 to AGR26-823-A1

Exhibit A to Ordinance No. 739

November 14, 2024

Ryan Cullen
Jacobs Telecommunications, Inc.
2 Ash St # 3000
Conshohocken PA 19428
(484) 322-2254



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject: Water Tower- Structural Analysis Report

Carrier Designation: **Site Number:** 15066552
Site Name: Los Alamos NML02662A
IWM Job Number: WSANM0043740

Engineering Firm Designation: **B+T Group Project Number:** 173282.001.01.0002

Site Data: 280 North Mesa Road, Los Alamos, NM, 87544, Los Alamos County
Latitude 35.89663°, Longitude -106.29505°
165.2' Water Tank

Dear Ryan Cullen,

B+T Group is pleased to submit this “**Water Tower- Structural Analysis Report**” to determine the structural integrity of the above-mentioned water tower supported telecommunications site.

The purpose of the analysis is to determine the acceptability of the water tower to sufficiently support the telecommunications equipment presented in this report. Based on our analysis we have determined the suitability for the structure, under the following load case, to be:

Existing + Proposed Equipment

Note: See Table 1 for the proposed and existing equipment information

Sufficient Capacity

This analysis has been performed in accordance with the 2021 New Mexico Commercial Building Code (2021 International Building Code) based upon an ultimate 3-second gust wind speed of 110 mph. Applicable standard references and design criteria are listed in Section 2 - Analysis Criteria.

All equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and MasTec Network Solutions. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Andrew Fisher

Respectfully submitted by: B&T Engineering, Inc.

Chad E. Tuttle, P.E.

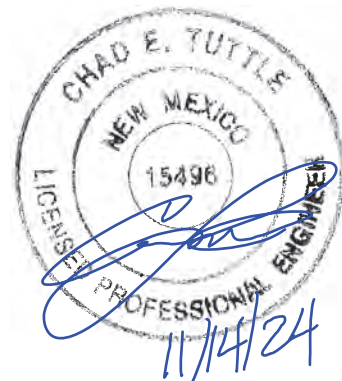


Exhibit C-1 to AGR26-823-A1

Exhibit A to Ordinance No. 739

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APPENDIX A

1) INTRODUCTION

The appurtenance mount consists of (3) SitePro1 Part# VFA10-SD-S-NLB sector mounts w/ (1) SitePro1 - SP1 RCM911 & (6) X-B965 pipes at 75 ft., attached to water tank at 280 N. Mesa Rd. Los Alamos, NM, 87544, Los Alamos County. The proposed antenna loading information was obtained from Jacobs Telecommunications, Inc. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this structure in accordance with the 2018 International Building Code, ANSI/AWWA D100-11 and the ASCE 7 Design Standard. The TIA-222-H applies to telecommunications towers. Although telecommunications equipment is present, this structure is primarily a water tower and is more appropriately assessed with the ASCE 7 Standard.

Table 1 – Proposed and Existing Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Manufacturer	Model / Type	Note
Proposed	75	1	3	Ericsson	KRE 101 2586/1K	1
		2	3	Ericsson	AIR6472 B77G B77M	
		3	3	Kathrein	80010992	
		--	3	Ericsson	4490 B5/B12A	2
			3	Ericsson	4494 B14/B29	
			3	Ericsson	4890 B25/B66A	
			2	Raycap	DC9-48-60-24-8C-EV	
Existing	75	-	1	Raycap	DC9-48-60-24-8C-EV	3

Note:

- (1) Proposed Antennas to be installed on proposed mounting pipes attached to the proposed mount.
- (2) Proposed Equipment to be installed on the Equipment Mounting Pipes attached to the proposed mount.
- (3) Existing Equipment to be relocated on the Equipment Mounting Pipes attached to the proposed mount.

Table 2 – Documents Provided

Documents	Remarks	Reference	Source
10.14.2022. 15066552.NML02662A.WSANM004374 0.3903A1E50K.DE130.240928 – DE130	Existing Loading Proposed Loading	Date: 10/14/2024	Jacobs Telecommunications, Inc.
Redlined CDs by B+T Group		Date: 10/30/2024	On File

3) ANALYSIS PROCEDURE

3.1) Analysis Method

This water tower is a substantial structure designed and fabricated to support thousands of gallons of water in addition to its own self weight. The new antennas will be mounted on proposed 10' Sector Frame mounts at 75' of the tower. Seismically, the weight of the telecommunication equipment is negligible compared to the overall capacity of the water tower. For wind loads, the area exposed due to the wind is 36.4 sq. ft for the telecommunication equipment. The increase in the overturning moment due to telecommunication equipment is approximately 8.05%. As the overturning moment due to additional equipment on water tower is less than 10%, the structure is sufficient to support the proposed loading configuration.

3.2) Assumptions

- 1) The structure was built in accordance with the designer's specifications.
- 2) The structure has been maintained and is free of damage.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 the referenced drawings.
- 4) Mount areas and weights are assumed based on photographs, drawings or mapping data provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the structure.

4) ANALYSIS RESULTS

4.1) Recommendations

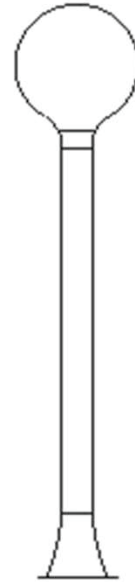
As per the comparative analysis in this report, the water tower has sufficient capacity to carry the proposed loading configuration.

APPENDIX A

PROJECT	173282.001.01.0003 - LOS ALAMOS 15JV		
SUBJECT	Pedisphere Water Tank Analysis		
DATE	11/13/24	PAGE	1 OF 3

Tank Properties

h_{top} =	163.60	ft	water tank top elevation	
h_{tank} =	38.43	ft	tank height	$r2_tank$ = 19.215
d_{tank} =	38.50	ft	tank diameter	r_tank = 19.25
t_{tank} =	0.75	in	average tank thickness	
h_{shaft} =	125.17	ft	top of shaft elevation	
d_{shaft} =	10.00	ft	shaft diameter	
t_{shaft} =	0.75	in	average shaft thickness	
h_{bell} =	20.00	ft	top of bell elevation	
d_{bell} =	26.48	ft	bell diameter @ base	
t_{bell} =	0.75	in	average bell thickness	
r_{water} =	62.40	pcf	density of water	
r_{steel} =	487.00	pcf	density of steel	
n =	16.00		number of anchors	
ϕ Bolt =	2.25	in	anchor bolt diameter	



Wind Load

V =	110.00	mph	basic wind speed
I =	1.15		importance factor
G =	1.00		gust factor
Exp =	B		exposure category

h_{top} =	164		Per ASCE 7 Table 6-3
K_z =	1.14		ANSI/AWWA D100-11 Eq.3-2
q_z =	40.52	psf	$C_{f\ flat}$ = 1.00
$P_{w\ flat}$ =	40.52	psf	Per ANSI/AWWA D100-11 Table 2
$P_{w\ cylindrical}$ =	24.31	psf	$C_{f\ cylindrical}$ = 0.60
$P_{w\ double\ curved}$ =	20.26	psf	$C_{f\ double\ curved}$ = 0.50

F_{tank} =	47.11	k	M_{tank} =	6802.51	k	W_{tank} =	148.82	k
F_{shaft} =	80.33	k	M_{shaft} =	5830.46	k	W_{shaft} =	119.69	k
F_{bell} =	8.87	k	M_{bell} =	88.69	k	W_{bell} =	34.88	k
F_{total} =	136.31	k	M_{total} =	12721.66	k	W_{water} =	1488.90	k
						W_{total} =	1792.29	k

Seismic Load

S_s =	0.538	g	mapped earthquake spectral response acceleration (0.2s)
S_1 =	0.174	g	mapped earthquake spectral response acceleration (1.0s)
I_E =	1.00		seismic importance factor - table 24
R_i =	3.00		response modification factor - table 28
F_a =	1.37		short period site coefficient - table 26
F_v =	2.25		long period site coefficient - table 27
T_i =	1.00	s	natural period of the structure
T_L =	6.00	s	region dependent transition - figure 19
S_{DS} =	0.49	g	design earthquake spectral response acceleration (0.2s)
S_{D1} =	0.26	g	design earthquake spectral response acceleration (1.0s)
T_s =	0.53		
S_{ai} =	0.26	g	design spectral response acceleration for impulsive components
A_i =	0.06	g	design acceleration
E_{total} =	111.48	k	

Wind Controls

Antenna Load

r_{ice} =	0.3	in	radial ice thickness
ρ_{ice} =	57.2	pcf	density of ice

Exhibit C-1 to AGR26-823-A1

PROJECT	173282.001.01.0003 - LOS ALAMOS 15AF		
SUBJECT	Pedisphere Water Tank Analysis		
DATE	11/14/24	PAGE	2 OF 3

[illegible]

$$F_{\text{ant_total}} = \boxed{12.32} \text{ k}$$

$$W_{\text{ant_total}} = \boxed{2.45} \text{ k}$$

$$M_{\text{ant total}} = \boxed{750.33} \text{ k.ft}$$

%weight	=	0.14%
---------	---	--------------

weight increase on tower due to telecommunication equipment

%overturning	=	8.05%
--------------	---	--------------

overturning moment increase on tower due to telecommunication equipment

$$\%_{\text{seismic}} = 0.14\%$$

seismic force increase on tower due to telecommunication equipment

The increase in overturning moment due to the telecommunication equipment is less than 10%.
Therefore, the water tower is sufficient to support the proposed loading configuration

Anchor Bolt

# of Bolts	=	16.00	
Bolt Dia.	=	2.25	in
f_{bolt}	=	18.75	ksi
A_{root}	=	3.17	in
BC	=	26.48	ft

Per ANSI/AWWA D100-11 Table 5

min. root area per AISC, 13th Ed. Table 7-18

Bolt Circle (Assume D_{bell})

$$T_{allow} = \boxed{475.50} \text{ k}$$

$$T_{\text{actual}} = 70.79 \text{ K}$$

$$\%_{\text{tension}} = 14.89\%$$

Per ANSI/AWWA D100-11 Eq. 3-41

Pass

$$V_{\text{bolt}} = 0.83704 < 1$$

Pass