



Weis Towers

109 S. 1st St, PO Box 711
Roslyn, WA 98941
(509) 852-2626
www.weistowers.com

February 4, 2026

Mr. Alexander Feyen
Planning Director
Bonner County
1500 Hwy 2
Suite 208
Sandpoint, ID 83864

VIA Electronic Mail
alexander.feyen@bonnercountyid.gov

RE: CUP0011-24 – Northgate Cell Tower

Dear Mr. Feyen:

In advance of the proposed February 12, 2026 Zoning Commission (Commission) public hearing, please accept this additional information submitted on behalf of the Applicant, WEIS Towers LLC, in support of CUP0011-24 to construct a 190' cell tower on Northgate Road in Bonner County as depicted on the approved site plan in the record.

As a follow up to the Commission's November 20, 2025 hearing, enclosed herein for the record are the following:

- Aeronautical Study from the Federal Aviation Administration (FAA) for the proposed 190' tower concluding the tower poses no flight hazards and does not require lighting
- Letter and Tower Loading Design from Rohn Tower, dated February 2, 2026, and stamped by a professional engineer attesting that the tower design is constructed to have a fall zone of zero feet (0').
- Acknowledgement and Consent form from the adjacent property owner to the east acknowledging and consenting that their property is within the 1:1 setback for the tower.
- Updated Site Plan-no change in location, just clearer distance markers, with fall zone
- Fall Zone Survey

This information along with the existing record support the conclusion that the proposal is not in conflict with the comprehensive plan and will neither create a hazard nor be dangerous to persons on or adjacent to the property. The Conditions of Approval presented at the November 20, 2025 Commission hearing also make the proposal compliant with applicable standards in Bonner County Revised Code (BCRC) Title 12.

The County Staff Report indicated that the proposal appears to be in conflict with only two components of the Comprehensive Plan, namely the Land Use and Community Design components, because the tower's eastern fall zone will not meet the 1:1 setback standard as required by BCRC 12-488.B, and that the Applicant is seeking a variance from that standard through this CUP request.

At the Commission's November 20, 2025 hearing, the Commission discussed the setback issue and how it would be possible to permit the applicant to have less than the 1:1 setback standard as required by BCRC 12-488.B.

LEGAL AUTHORITY

As you indicated at the November 20, 2025 hearing, the Commission has the legal authority under the terms of Idaho's Local Land Use Planning Act, namely IRC 67-6512(f) and IRC 67-6516, and Bonner County Revised Code, namely BCRC 2.3, each which explicitly allow the Commission to approve CUP0011-24 with a variance to the setback requirement and allow that deviation to the CUP as proposed, and with conditions of approval, and as reflected on the approved site plan.

Condition of Approval A-13 states:

The proposed communication tower and its support facilities shall meet the setbacks shown on the approved site plan.

The site plan shows the following setbacks measured from the base of the tower:

North Property Line = 251.1'
South Property Line = 374.5'
East Property Line = 115.6'
West Property Line = 192.8'

Only the setback from the East property line does not meet the 1:1 setback requirement in BCRC 12-488.B.

IRC 67-6512(f) pertains to special use permits, conditions and procedures and states:

In addition to other processes permitted by this chapter, exceptions or waivers of standards, other than use, inclusive of the subject matter addressed by section 67-6516, Idaho Code, in a zoning ordinance may be permitted through issuance of a special use permit or by administrative process specified by ordinance, subject to such conditions as may be imposed pursuant to a local ordinance drafted to implement subsection (d) of this section (emphasis added).

This is exactly what the Applicant requests and the Commission is fully authorized by the terms of IRC 67-6512(f) to grant the requested variance to the setback standard.

The reference to IRC 67-6516 pertains to variances and states in relevant part:

Each governing board shall provide, as part of the zoning ordinance, for the processing of applications for variance permits. A variance is a modification of the bulk and placement requirements of the ordinance as to lot size, lot coverage, width, depth, front yard, side yard, rear yard, setbacks, parking space, height of buildings, or other ordinance provision affecting the size or

shape of a structure or the placement of the structure upon lots, or the size of lots. A variance shall not be considered a right or special privilege but may be granted to an applicant only upon a showing of undue hardship because of characteristics of the site and that the variance is not in conflict with the public interest (emphasis added).

IRC 67-6516 explicitly mandates the County to have a zoning ordinance that allows for the processing of applications for variance permits despite the fact that there is an ordinance that establishes a standard to be met.

And indeed, BCRC, Title 12, Subchapter 2.3, Variances, establishes a process for applying for and obtaining a variance from the County. BCRC 12-231 explicitly states that:

The purpose of this subchapter is to provide a mechanism by which the county may grant relief from the strict application of the provisions of this title where proposals conform to the standards set forth in this subchapter.

So, while BCRC 12.488.B establishes a setback standard, IRC and BCRC 12-231 each and together allow the County to grant a variance to the setback standard by issuing the CUP with the Conditions of Approval, including compliance with the approved site plan.

The Applicant is not seeking an administrative variance, but it is worth noting that BCRC 12-238 allows the Director to grant an administrative variance (without a public hearing) of up to thirty percent (30%) of the required setback. In this case, the Applicant would qualify for an administrative variance if the 190' tower had a 133' setback. In this case the setback is approximately 115', or a mere 17" shy of otherwise qualifying for an administrative variance.

COMPREHENSIVE PLAN

Staff indicated that because of the setback issue on the eastern property line, the proposal is in conflict with two components of the County's Comprehensive Plan, namely the Land Use and Community Design components.

Land Use Policy #2 indicates that, "Commercial and industrial uses may be conditionally permitted in areas not identified for such uses in the Comprehensive Plan if a critical review of the proposed use determines that with appropriate conditions the use will not adversely impact the surrounding area (emphasis added).

The Applicant concurs with the Conditions of Approval presented at the November 20, 2025 hearing.

The Community Design Policies explicitly allow unique and flexible design standards compatible with older or otherwise unique neighborhoods and allow for particularized design standards to address waterfront and mountaintop developments which may differ from standard design objectives.

While not exactly on point, since there is no waterfront or mountaintop development, it does provide for flexible and particularized design standards.

To address this, the tower has been designed and certified by an engineer to have a zero-foot fall radius and would instead collapse upon itself and not encroach upon or adversely impact the adjacent properties and surrounding area. See enclosed letter from Rohn Tower.

While staff noted that BCRC may not specifically address whether or not engineering solutions are acceptable in lieu of meeting required setbacks, BCRC 12-234 requires the Commission to review particular facts and circumstances of each variance proposal.

In this unique instance, and consistent with BCRC12-234(C), the engineered design of the tower is a mitigating circumstance such that the granting of the variance is not in conflict with the public interest in that it will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity of the subject parcel or lot. The zero-fall design is a safety feature that will *enhance* public health, safety and welfare.

The stated purpose of the setbacks is to create rural rather than urban setback standards aimed at preserving the rural, natural character of the community. While the tower does not meet the 1:1 setback from the eastern property line, it is still well over 100 feet away from the nearest property line and any structures on the adjacent or subject property.

Approval of CUP0011-24 as conditioned by the Conditions of Approval including a variance to the setback requirement will preserve the rural, natural character of the community.

In addition, and consistent with BCRC 12-234(A)-(B), conditions apply to the property that make it suitable for a cell tower which do not apply generally to other properties in the vicinity due to its location, topography, and a willing landowner that allow connection to the Applicant's proposed network in the area; and the applicant intends to lease the property "as-is" and is not creating any special conditions or circumstances.

In sum, the Commission has the legal authority to approve CUP0011-24 with a variance to the setback requirement and allow that deviation to the CUP as proposed with the Conditions of Approval presented at the November 20, 2025 Commission hearing. A review of the particular facts and circumstances of the proposal support the conclusion that the proposal is not in conflict with the comprehensive plan and will neither create a hazard nor be dangerous to persons on or adjacent to the property. The Conditions of Approval presented at the November 20, 2025 Commission hearing also make the proposal compliant with applicable standards in BCRC Title 12.

Please include this letter and all enclosures as part of the record for CUP0011-24. Thank you for your assistance with this proposal.

Respectfully,



Anne Watanabe

Counsel for the Applicant

Enclosures



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-ANM-6442-OE
Prior Study No.
2024-ANM-3596-OE

Issued Date: 11/04/2024

Nathan R. Weis
WEIS Towers LLC
109 South 1st Street
PO Box 711
Roslyn, WA 98941

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

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

Structure: Antenna Tower Northgate- HT Rev
Location: Priest River, ID
Latitude: 48-17-42.26N NAD 83
Longitude: 116-57-44.92W
Heights: 2550 feet site elevation (SE)
190 feet above ground level (AGL)
2740 feet above mean sea level (AMSL)

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

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

This determination expires on 05/04/2026 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO

SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

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

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

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

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact our office at (847) 294-7572, or william.e.wills@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-ANM-6442-OE.

Signature Control No: 636166062-637914292

(DNE)

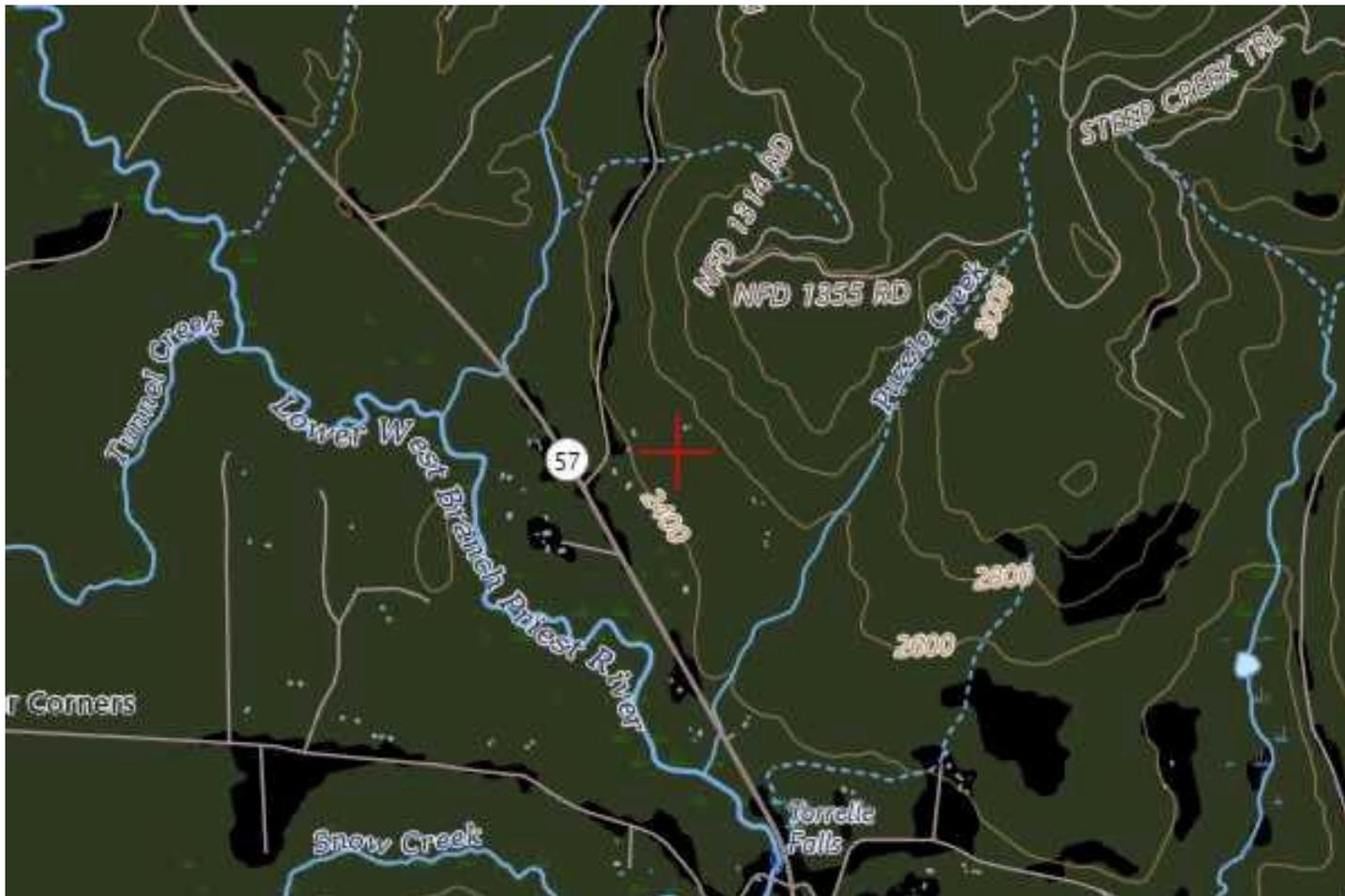
William Wills
Specialist

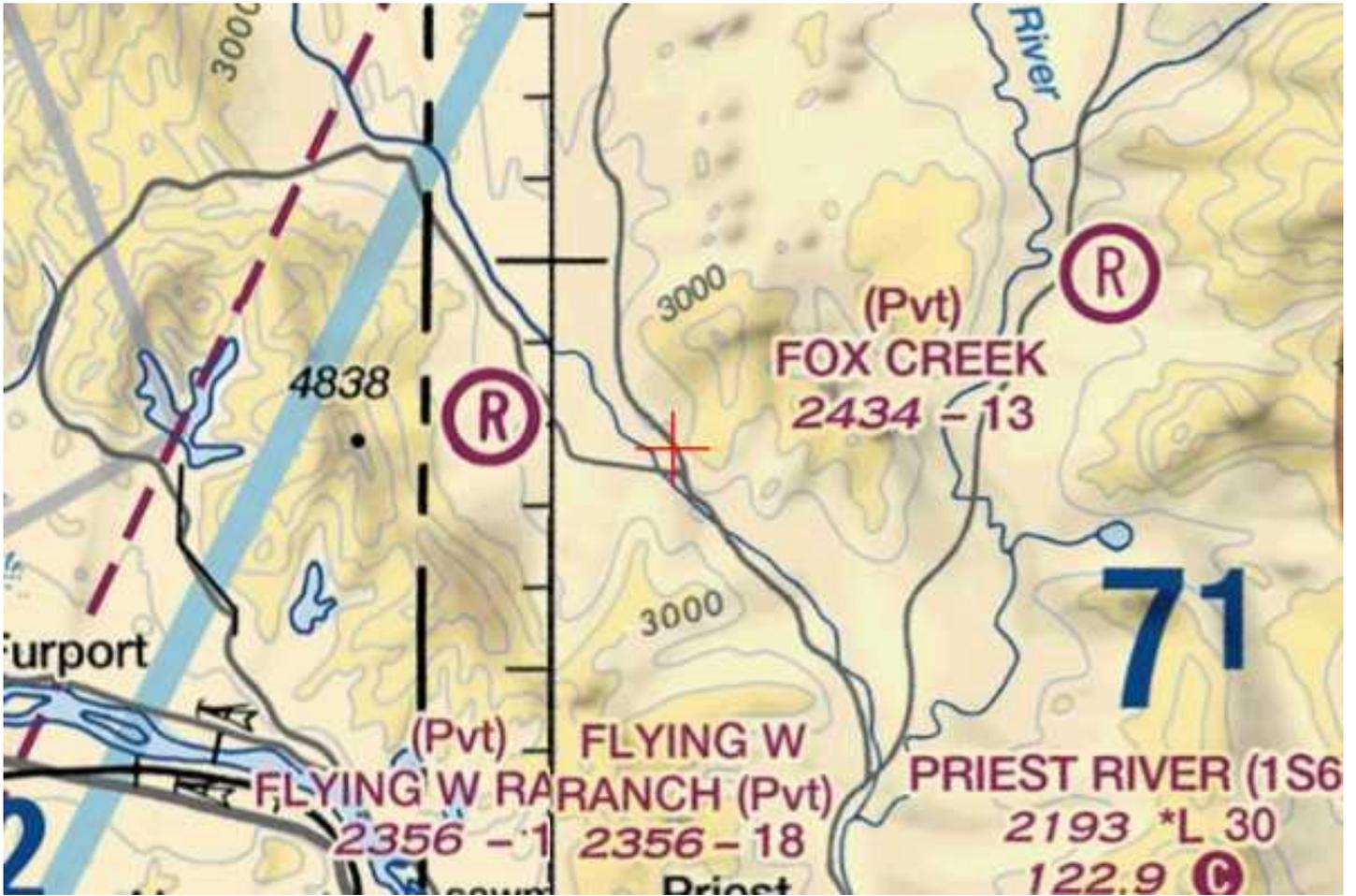
Attachment(s)
Frequency Data
Map(s)

cc: FCC

Frequency Data for ASN 2024-ANM-6442-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
614	698	MHz	2000	W







1 Fairholm Avenue
Peoria, IL 61603 USA
Phone: (309)-566-3000
Fax: (309)-566-3079

DATE: FEBRUARY 02, 2026

PURCHASER: WEIS TOWERS LLC

PROJECT: 190FT RTL SELF SUPPORT TOWER
ID7129- NORTHGATE, ID

FILE NUMBER: 251407

I CERTIFY THAT THE ATTACHED DRAWINGS WERE PREPARED UNDER MY SUPERVISION IN ACCORDANCE WITH THE DESIGN AND LOADING CRITERIA SPECIFIED BY THE PURCHASER AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IDAHO.

Allen Schneider 20993
02/02/2026

A circular professional engineer seal for the State of Idaho. The outer ring contains the text "PROFESSIONAL ENGINEER" at the top and "ALLEN BURTON SCHNEIDER" at the bottom. The inner ring contains "LICENSED" at the top and "STATE OF IDAHO" at the bottom. The center of the seal contains the handwritten signature "Allen Schneider" and the license number "20993".

Products for a Growing World of Technology®



1 Fairholm Avenue
Peoria, IL 61603 USA
Phone: (309)-566-3000
Fax: (309)-566-3079

February 02, 2026

Weis Towers LLC
109 South 1st Street
PO Box 688
Roslyn, WA 98941

Reference: 190 FT RTL Tower
ID7129 - Northgate, ID
251407

To Whom It May Concern,

The referenced Tower is designed to meet the specified loading requirements in accordance with ANSI/TIA-222-H for a 103 mph 7-16 Ultimate Wind Speed with no ice and a 40 mph 3-second gust wind speed with 0.5 inches radial ice, Risk Category II, Exposure Category C, and Topographic Category 1.

It is our understanding that the design of the referenced Tower requires consideration of a contained fall radius in the event that a catastrophic wind speed would result in collapse. Although the Tower will not be designed to fail, stronger sections where required by analysis are provided in the lower sections of the Tower. This will result in an increased safety factor in the lower sections of the Tower. This design will enable the Tower to fail through a combination of bending and buckling in the upper portion of the Tower under a catastrophic wind loading. Failure in this manner would result in the upper portion of the Tower folding over the lower portion, resulting in a fall radius no greater than 0 feet.

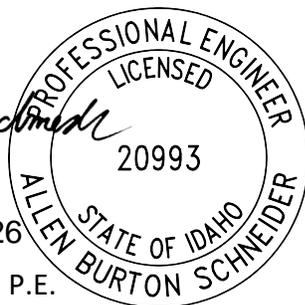
Please contact us at your convenience should you have further questions concerning the safety of Tower structures or other aspects of Tower design.

Sincerely,

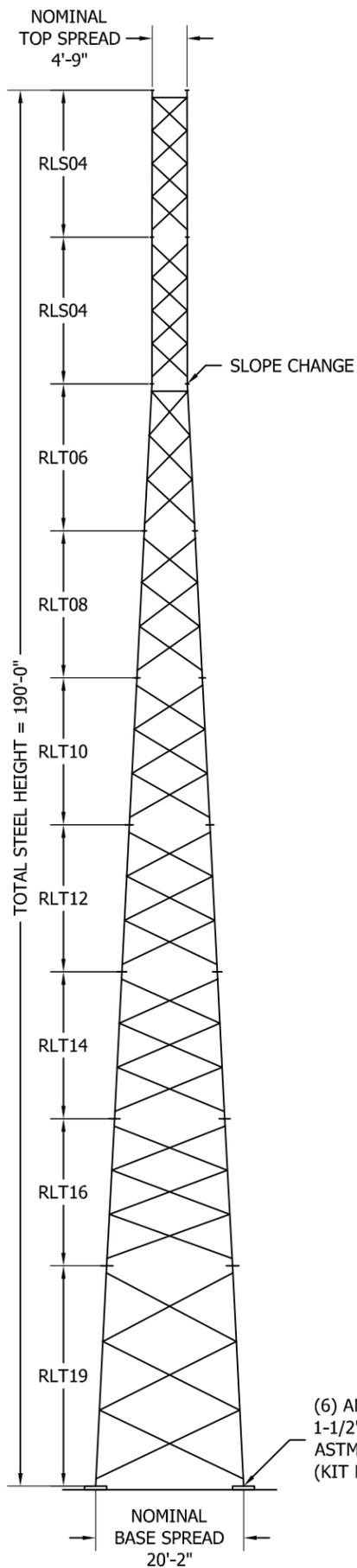
Allen Schneider

02/02/2026

Allen Schneider, P.E.
Senior Design Engineer



Products for a Growing World of Technology®

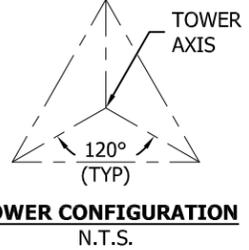


(6) ANCHOR BOLTS (18 TOTAL)
 1-1/2" DIA. X 74" LONG
 ASTM F1554 Gr. 105
 (KIT P/N: 18K2016RTFST)

GENERAL NOTES

- ROHN PRODUCTS, LLC TOWER DESIGNS CONFORM TO ANSI/TIA-222-H UNLESS OTHERWISE SPECIFIED UNDER TOWER DESIGN LOADING.
- THE DESIGN LOADING CRITERIA INDICATED HAS BEEN PROVIDED TO ROHN. THE DESIGN LOADING CRITERIA HAS BEEN ASSUMED TO BE BASED ON SITE-SPECIFIC DATA IN ACCORDANCE WITH ANSI/TIA-222-H AND MUST BE VERIFIED BY OTHERS PRIOR TO INSTALLATION.
- ANTENNAS AND LINES LISTED IN TOWER DESIGN LOADING TABLE ARE PROVIDED BY OTHERS UNLESS OTHERWISE SPECIFIED.
- STEP BOLTS WITH SAFETY CLIMB SYSTEM ARE PROVIDED AS A CLIMBING FACILITY FOR THE INSTALLATION OF THE STRUCTURE.
- TOWER MEMBER DESIGN DOES NOT INCLUDE STRESSES DUE TO ERECTION SINCE ERECTION EQUIPMENT AND CONDITIONS ARE UNKNOWN. DESIGN ASSUMES COMPETENT AND QUALIFIED PERSONNEL WILL ERECT THE TOWER.
- WORK SHALL BE IN ACCORDANCE WITH ANSI/TIA-222-H, "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
- THE MINIMUM YIELD STRENGTH OF STRUCTURAL STEEL MEMBERS SHALL BE 50 KSI.
- FIELD CONNECTIONS SHALL BE BOLTED. NO FIELD WELDS SHALL BE ALLOWED.
- STRUCTURAL BOLTS SHALL CONFORM TO GRADE A325 PER ASTM F3125, EXCEPT WHERE NOTED.
- A NUT LOCKING DEVICE IS PROVIDED FOR ALL TOWER BOLTS.
- STRUCTURAL STEEL AND CONNECTION BOLTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION, IN ACCORDANCE WITH ANSI/TIA-222-H.
- ALL HIGH STRENGTH BOLTS, UNLESS OTHERWISE NOTED FOR DOUBLE ANGLE MEMBERS, ARE TO BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED IN THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". NO OTHER MINIMUM BOLT TENSION OR TORQUE VALUES ARE REQUIRED.
- PURCHASER SHALL VERIFY THE INSTALLATION IS IN CONFORMANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS FOR OBSTRUCTION MARKING AND LIGHTING.
- TOLERANCE ON TOWER STEEL HEIGHT IS EQUAL TO PLUS 1% OR MINUS 1/2%.
- DESIGN ASSUMES THAT, AS A MINIMUM, MAINTENANCE AND INSPECTION WILL BE PERFORMED OVER THE LIFE OF THE STRUCTURE IN ACCORDANCE WITH ANSI/TIA-222-H.
- DESIGN ASSUMES LEVEL GRADE AT TOWER SITE.
- DESIGN ASSUMES ALL ANTENNAS ARE MOUNTED SYMMETRICALLY TO MINIMIZE TORQUE, IF APPLICABLE.
- FOUNDATIONS SHALL BE DESIGNED TO SUPPORT THE REACTIONS SHOWN FOR THE CONDITIONS EXISTING AT THE SITE.
- TOWER DESIGN INCLUDES CONSIDERATION OF A CONTAINED FALL RADIUS EQUAL TO 0 FT BY PROVIDING STRONGER SECTIONS WHERE REQUIRED IN THE LOWER PORTION OF THE TOWER.

MAXIMUM FACTORED REACTIONS		
COMPRESSION PER LEG	=	321.6 KIPS
TENSION PER LEG	=	279.5 KIPS
SHEAR PER LEG	=	26.8 KIPS
TOTAL SHEAR	=	43.8 KIPS
TOTAL O.T.M	=	5,305.7 FT-KIPS



TOWER DESIGN LOADING

DESIGN WIND LOAD PER ANSI/TIA-222-H USING THE FOLLOWING DESIGN CRITERIA:
 RISK CATEGORY: II
 BASIC WIND SPEED (NO ICE): 103 MPH PER ASCE 7-16
 BASIC WIND SPEED (W/ICE): 40 MPH PER ASCE 7-16
 DESIGN ICE THICKNESS: 0.50 INCHES PER ASCE 7-16
 GROUND ELEVATION, Zs: 2,550 FT
 EXPOSURE CATEGORY: C
 TOPOGRAPHIC METHOD: 1, CATEGORY: 1
 SEISMIC DESIGN PARAMETERS, Ss: 0.323, Si: 0.111, Tl: 16, SITE CLASS: D

THIS STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE FOLLOWING LOADS:

ELEVATION (FT)	ANTENNA LOADING	LINE SIZE (NOM)
TOP	LIGHTNING ROD	-
TOP	25,000 SQ-IN [174 SQFT] MAX EPA	(12) 1-5/8"
180	20,000 SQ-IN [139 SQFT] MAX EPA	(12) 1-5/8"
170	20,000 SQ-IN [139 SQFT] MAX EPA	(12) 1-5/8"
160	20,000 SQ-IN [139 SQFT] MAX EPA	(12) 1-5/8"
150	(1) 4FT STD. DISH [AZ. 0 DEG][6 GHz]	(1) 1-5/8"
140	(1) 4FT STD. DISH [AZ. 0 DEG][6 GHz]	(1) 1-5/8"
130	(1) 4FT STD. DISH [AZ. 0 DEG][6 GHz]	(1) 1-5/8"
120	(1) 4FT STD. DISH [AZ. 0 DEG][6 GHz]	(1) 1-5/8"

SECTION MAIN MEMBER SCHEDULE

SECTION	LEGS	DIAGONALS	HORIZONTALS
RLS04	PIPE 2.875x0.203	L1 3/4x1 3/4x1/8 (4)	L1 3/4x1 3/4x3/16 (1)
RLS04	PIPE 3.500x0.300	L2x2x3/16 (4)	N/A
RLT06	PIPE 4.500x0.337	L1 3/4x1 3/4x3/16 (3)	L1 3/4x1 3/4x3/16 (1)
RLT08	PIPE 5.563x0.375	L1 3/4x1 3/4x3/16 (3)	N/A
RLT10	PIPE 5.563x0.375	L2x2x3/16 (3)	N/A
RLT12	PIPE 6.625x0.340	L2 1/2x2 1/2x3/16 (3)	N/A
RLT14	PIPE 6.625x0.340	L2 1/2x2 1/2x3/16 (3)	N/A
RLT16	PIPE 6.625x0.432	L2 1/2x2 1/2x3/16 (3)	N/A
RLT19	PIPE 8.625x0.375	L3x3x3/16 (3)	N/A

NOTE:
 SECTION NUMBERS ARE FOR REFERENCE ONLY.
 FOR NOMINAL FACE WIDTH DIMENSIONS, REFER TO THE STRESS ANALYSIS.
 THE NUMBERS SHOWN IN PARENTHESES INDICATE THE NUMBER OF BAYS FROM TOP TO BOTTOM.

FILE NO. 251407

REVISIONS				
REV.	DESCRIPTION	DWN	CHK	APP

ROHN
 PRODUCTS LLC
 PO BOX 5999
 PEORIA, IL 61601-5999
 TOLL FREE 800-727-ROHN

THIS DRAWING IS THE PROPERTY OF ROHN. IT IS NOT TO BE REPRODUCED, COPIED OR TRACED IN WHOLE OR IN PART WITHOUT OUR WRITTEN CONSENT.

WEIS TOWERS LLC
 DESIGN PROFILE
 190 FT RTL TOWER
 ID7129-NORTHGATE, ID

DWN: AS	CHK'D: SY	DATE: 01/31/2026
ENGR: AS	SHEET #: 1 OF 1	
PRJ. ENGR: AS	PRJ. MANG'R:	
DRAWING NO: 251407-01-D1		REV: 0



TSTower - v 6.1.5.0 Tower Analysis Program
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Licensed to: ROHN Products LLC
Peoria, IL

File: \\rohfs3\jobs\2026\251407\ENGINEERING\251407.out
Contract: 251407
Project: 190 FT RTL TOWER
Date and Time: 1/31/2026 4:14:33 PM

Revision: 0
Site: ID7129-NORTHGATE- ID
Engineer: AS

Section A: PROJECT DATA

ENGINEERING
CHECKED BY: SY
02/02/2026

Project Title: 190 FT RTL TOWER
Customer Name: WEIS TOWERS LLC
Site: ID7129-NORTHGATE- ID
Contract No.: 251407
Revision: 0
Engineer: AS
Date: Jan 31 2026
Time: 04:10:27 PM

Design Standard: ANSI/TIA-222-H-2017

GENERAL DESIGN CONDITIONS

Start wind direction: 0.00 (Deg)
End wind direction: 330.00 (Deg)
Increment wind direction: 30.00 (Deg)
Elevation above ground: 0.00 (ft)
Mean elevation of base of structure above sea level Zs: 2550.00 (ft)
Rooftop wind speed-up factor Ks: 1.00
Gust Response Factor Gh: 0.85
Risk category: II
Exposure category: C
Topographic category: 1
Material Density: 490.1 (lbs/ft^3)
Young's Modulus: 29000.0 (ksi)
Poisson Ratio: 0.30
Weight Multiplier: 1.25
Minimum Bracing Resistance as per 4.4.1

WIND ONLY CONDITIONS:
Basic Wind Speed (No Ice): 103.00 (mph)
Directionality Factor Kd: 0.85
Importance Factor I: 1.00
Wind Load Factor: 1.00
Dead Load Factor: 1.20
Dead Load Factor for Uplift: 0.90

WIND AND ICE CONDITIONS:
Basic Wind Speed (With Ice): 40.00 (mph)
Directionality Factor Kd: 0.85
Wind Load Importance Factor Iw: 1.00
Ice Thickness Importance Factor Ii: 1.00
Ice Thickness: 0.50 (in)
Ice Density: 56.19 (lbs/ft^3)
Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Load Factor: 1.00

WIND ONLY SERVICEABILITY CONDITIONS:
Serviceability Wind Speed: 60.00 (mph)
Directionality Factor Kd: 0.85
Importance Factor I: 1.00
Wind Load Factor: 1.00
Dead Load Factor: 1.00

EARTHQUAKE CONDITIONS:
Site class definition: D
Spectral response acceleration Ss: 0.323
Spectral response acceleration Sl: 0.111
Long-period transition period TL: 16.000



TSTower - v 6.1.5.0 Tower Analysis Program
(c) 1997-2025 TowerSoft www.TSTower.com



Licensed to: ROHN Products LLC
Peoria, IL

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Contract: 251407

Project: 190 FT RTL TOWER

Date and Time: 1/31/2026 4:14:33 PM

Revision: 0

Site: ID7129-NORTHGATE- ID

Engineer: AS

Accelaration-based site coefficient Fa: 1.542
Velocity-based site coefficient Fv: 2.378
Design spectral response acceleration Sds: 0.332
Design spectral response acceleration Sd1: 0.176
Seismic analysis method: 1
Fundamental frequency of structure f1: 0.719
Total seismic shear Vs (Kips) : 1.91

Analysis performed using: TowerSoft Finite Element Analysis Program

File: \\rohns3\jobs\2026\251407\ENGINEERING\251407.out

Contract: 251407

Project: 190 FT RTL TOWER

Date and Time: 1/31/2026 4:14:33 PM

Revision: 0

Site: ID7129-NORTHGATE- ID

Engineer: AS

Section B: STRUCTURE GEOMETRY

TOWER GEOMETRY

Cross-Section	Height (ft)	Tot Height (ft)	# of Section	Bot Width (in)	Top Width (in)
Triangular	190.00	190.00	9	241.97	56.99

SECTION GEOMETRY

Sec #	Sec. Name	Elevation		Widths		Legs (lbs)	Brcg. (lbs)	Masses			Brcg. Clear. (in)	
		Bottom (ft)	Top (ft)	Bottom (in)	Top (in)			Sec.Brc (lbs)	Int.Brc (lbs)	Sect. (lbs)		Database (lbs)
9	RLS04*	170.00	190.00	58	57	434	334	0	0	768	0	0.787
8	RLS04	150.00	170.00	58	58	771	505	0	0	1275	0	0.787
7	RLT06	130.00	150.00	83	58	1131	462	0	0	1593	0	0.787
6	RLT08	110.00	130.00	107	83	1565	493	0	0	2058	0	0.787
5	RLT10	90.00	110.00	132	107	1565	654	0	0	2219	0	0.787
4	RLT12	70.00	90.00	156	132	1717	948	0	0	2665	0	0.787
3	RLT14*	50.00	70.00	180	156	1717	1070	0	0	2788	0	0.787
2	RLT16	30.00	50.00	206	180	2154	1201	0	0	3355	0	0.787
1	RLT19	0.00	30.00	242	206	3726	1768	0	0	5493	0	0.787
Total Mass:						14780	7434	0	0	22214	0	

PANEL GEOMETRY

Sec#	Pnl#	Type	SecBrcg	Mid. Horiz Continuous	Horiz	Height (ft)	Bottom Width (in)	Top Width (in)	Plan Bracing	Hip Bracing	Gusset Plate Area (ft^2)	Gusset Plate Weight (lbs)
9	4	X	(None)	Yes	5.0	57.1	57.0	(None)	(None)	(None)	0.000	0.00
9	3	X	(None)	None	5.0	57.3	57.1	(None)	(None)	(None)	0.000	0.00
9	2	X	(None)	None	5.0	57.4	57.3	(None)	(None)	(None)	0.000	0.00
9	1	X	(None)	None	5.0	57.5	57.4	(None)	(None)	(None)	0.000	0.00
8	4	X	(None)	None	5.0	57.7	57.5	(None)	(None)	(None)	0.000	0.00
8	3	X	(None)	None	5.0	58.0	57.7	(None)	(None)	(None)	0.000	0.00
8	2	X	(None)	None	5.0	58.2	58.0	(None)	(None)	(None)	0.000	0.00
8	1	X	(None)	None	5.0	58.4	58.2	(None)	(None)	(None)	0.000	0.00
7	3	X	(None)	Yes	6.7	66.7	58.4	(None)	(None)	(None)	0.300	0.30
7	2	X	(None)	None	6.7	75.0	66.7	(None)	(None)	(None)	0.300	0.30
7	1	X	(None)	None	6.7	83.3	75.0	(None)	(None)	(None)	0.300	0.30
6	3	X	(None)	None	6.7	91.3	83.3	(None)	(None)	(None)	0.300	0.30
6	2	X	(None)	None	6.7	99.3	91.3	(None)	(None)	(None)	0.300	0.30
6	1	X	(None)	None	6.7	107.3	99.3	(None)	(None)	(None)	0.300	0.30
5	3	X	(None)	None	6.7	115.6	107.3	(None)	(None)	(None)	0.300	0.30
5	2	X	(None)	None	6.7	123.9	115.6	(None)	(None)	(None)	0.300	0.30
5	1	X	(None)	None	6.7	132.2	123.9	(None)	(None)	(None)	0.300	0.30
4	3	X	(None)	None	6.7	140.2	132.2	(None)	(None)	(None)	0.300	0.30
4	2	X	(None)	None	6.7	148.2	140.2	(None)	(None)	(None)	0.300	0.30
4	1	X	(None)	None	6.7	156.2	148.2	(None)	(None)	(None)	0.300	0.30
3	3	X	(None)	None	6.7	164.2	156.2	(None)	(None)	(None)	0.300	0.30
3	2	X	(None)	None	6.7	172.2	164.2	(None)	(None)	(None)	0.300	0.30
3	1	X	(None)	None	6.7	180.2	172.2	(None)	(None)	(None)	0.300	0.30
2	3	X	(None)	None	6.7	188.8	180.2	(None)	(None)	(None)	0.300	0.30
2	2	X	(None)	None	6.7	197.4	188.8	(None)	(None)	(None)	0.300	0.30
2	1	X	(None)	None	6.7	206.0	197.4	(None)	(None)	(None)	0.300	0.30
1	3	X	(None)	None	10.0	218.0	206.0	(None)	(None)	(None)	0.300	0.30
1	2	X	(None)	None	10.0	230.0	218.0	(None)	(None)	(None)	0.300	0.30
1	1	X	(None)	None	10.0	242.0	230.0	(None)	(None)	(None)	0.300	0.30

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MEMBER PROPERTIES

Sec/ Member Pnl Spacing	Type	Description	Steel Grade	Conn. Type	Bolt #-Size	Bolt Grade	End Dist.	Edge Dist.	Gusset Thick.	Gusset Grade	Bolt Space	Dble Mem.
9/4	Leg	PIPE 2.875x0.203	A500	gr.CSTension	4-0.750	A325X						
9/4	Diag	L1 3/4x1 3/4x1/8	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
9/4	Horiz	L1 3/4x1 3/4x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
9/3	Leg	PIPE 2.875x0.203	A500	gr.CSTension	4-0.750	A325X						
9/3	Diag	L1 3/4x1 3/4x1/8	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
9/2	Leg	PIPE 2.875x0.203	A500	gr.CSTension	4-0.750	A325X						
9/2	Diag	L1 3/4x1 3/4x1/8	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
9/1	Leg	PIPE 2.875x0.203	A500	gr.CSTension	4-0.750	A325X						
9/1	Diag	L1 3/4x1 3/4x1/8	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
8/4	Leg	PIPE 3.500x0.300	A500	gr.CSTension	5-0.875	A325X						
8/4	Diag	L2x2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.000	0.250	A572	gr.50	2.000
8/3	Leg	PIPE 3.500x0.300	A500	gr.CSTension	5-0.875	A325X						
8/3	Diag	L2x2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.000	0.250	A572	gr.50	2.000
8/2	Leg	PIPE 3.500x0.300	A500	gr.CSTension	5-0.875	A325X						
8/2	Diag	L2x2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.000	0.250	A572	gr.50	2.000
8/1	Leg	PIPE 3.500x0.300	A500	gr.CSTension	5-0.875	A325X						
8/1	Diag	L2x2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.000	0.250	A572	gr.50	2.000
7/3	Leg	PIPE 4.500x0.337	A500	gr.CSTension	5-1.000	A325X						
7/3	Diag	L1 3/4x1 3/4x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
7/3	Horiz	L1 3/4x1 3/4x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
7/2	Leg	PIPE 4.500x0.337	A500	gr.CSTension	5-1.000	A325X						
7/2	Diag	L1 3/4x1 3/4x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
7/1	Leg	PIPE 4.500x0.337	A500	gr.CSTension	5-1.000	A325X						
7/1	Diag	L1 3/4x1 3/4x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
6/3	Leg	PIPE 5.563x0.375	A500	gr.CSTension	5-1.000	A325X						
6/3	Diag	L1 3/4x1 3/4x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
6/2	Leg	PIPE 5.563x0.375	A500	gr.CSTension	5-1.000	A325X						
6/2	Diag	L1 3/4x1 3/4x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
6/1	Leg	PIPE 5.563x0.375	A500	gr.CSTension	5-1.000	A325X						
6/1	Diag	L1 3/4x1 3/4x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	0.875	0.250	A572	gr.50	2.000
5/3	Leg	PIPE 5.563x0.375	A500	gr.CSTension	6-1.000	A325X						
5/3	Diag	L2x2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.000	0.250	A572	gr.50	2.000

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5/2	Leg	PIPE 5.563x0.375	A500	gr.CSTension	6-1.000	A325X							
5/2	Diag	L2x2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.000	0.250	A572	gr.50	2.000	
5/1	Leg	PIPE 5.563x0.375	A500	gr.CSTension	6-1.000	A325X							
5/1	Diag	L2x2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.000	0.250	A572	gr.50	2.000	
4/3	Leg	PIPE 6.625x0.340	A500	gr.CSTension	6-1.000	A325X							
4/3	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.250	0.250	A572	gr.50	2.000	
4/2	Leg	PIPE 6.625x0.340	A500	gr.CSTension	6-1.000	A325X							
4/2	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.250	0.250	A572	gr.50	2.000	
4/1	Leg	PIPE 6.625x0.340	A500	gr.CSTension	6-1.000	A325X							
4/1	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.250	0.250	A572	gr.50	2.000	
3/3	Leg	PIPE 6.625x0.340	A500	gr.CSTension	6-1.000	A325X							
3/3	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.250	0.250	A572	gr.50	2.000	
3/2	Leg	PIPE 6.625x0.340	A500	gr.CSTension	6-1.000	A325X							
3/2	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.250	0.250	A572	gr.50	2.000	
3/1	Leg	PIPE 6.625x0.340	A500	gr.CSTension	6-1.000	A325X							
3/1	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	1-0.625	A325X	1.500	1.250	0.250	A572	gr.50	2.000	
2/3	Leg	PIPE 6.625x0.432	A500	gr.CSTension	6-1.500	A325X							
2/3	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	2-0.625	A325X	1.125	1.250	0.375	A572	gr.50	2.000	
2/2	Leg	PIPE 6.625x0.432	A500	gr.CSTension	6-1.500	A325X							
2/2	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	2-0.625	A325X	1.125	1.250	0.375	A572	gr.50	2.000	
2/1	Leg	PIPE 6.625x0.432	A500	gr.CSTension	6-1.500	A325X							
2/1	Diag	L2 1/2x2 1/2x3/16	A529	gr.50Bolted	2-0.625	A325X	1.125	1.250	0.375	A572	gr.50	2.000	
1/3	Leg	PIPE 8.625x0.375	A500	gr.CSTension	6-1.500	A325X							
1/3	Diag	L3x3x3/16	A529	gr.50Bolted	2-0.625	A325X	1.125	1.500	0.375	A572	gr.50	2.000	
1/2	Leg	PIPE 8.625x0.375	A500	gr.CSTension	6-1.500	A325X							
1/2	Diag	L3x3x3/16	A529	gr.50Bolted	2-0.625	A325X	1.125	1.500	0.375	A572	gr.50	2.000	
1/1	Leg	PIPE 8.625x0.375	A500	gr.CSTension	6-1.500	A325X							
1/1	Diag	L3x3x3/16	A529	gr.50Bolted	2-0.625	A325X	1.125	1.500	0.375	A572	gr.50	2.000	



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Section C: ANTENNA DATA

Structure Azimuth from North: 0

ANTENNAS

Ant No.	Elev. (ft)	Antenna (#) Type	Ant. Azim.	Mount. Radius (ft)	Mount Type	Mount Azim.	Tx Line (#)Type	Mounting Pipe Size (in)	Pipe Length (ft)	Full Shielded	Ka
1	150.00	(1) SD4ft TIA w/o radome	0	3.00		0					
		Vert. Offset 0.00 (ft)									
2	140.00	(1) SD4ft TIA w/o radome	0	3.75		0					
		Vert. Offset 0.00 (ft)									
3	130.00	(1) SD4ft TIA w/o radome	0	4.25		0					
		Vert. Offset 0.00 (ft)									
4	120.00	(1) SD4ft TIA w/o radome	0	4.75		0					
		Vert. Offset 0.00 (ft)									

ANTENNA AND MOUNT WIND AREAS AND WEIGHTS

Ant No.	Antenna/Mount	Frontal Bare Area (ft)^2	Lateral Bare Area (ft)^2	Frontal Iced Area (ft)^2	Lateral Iced Area (ft)^2	Weight Bare (lbs)	Weight Iced (lbs)	Frequency GHz	Allowable Signal Loss dB	Gh	Mount Ka
1	SD4ft TIA w/o radome	19.49	0.53	19.49	0.53	110.00	205.12	6.00	10	0.85	
2	SD4ft TIA w/o radome	19.49	0.53	19.49	0.53	110.00	204.59	6.00	10	0.85	
3	SD4ft TIA w/o radome	19.49	0.53	19.49	0.53	110.00	204.02	6.00	10	0.85	
4	SD4ft TIA w/o radome	19.49	0.53	19.49	0.53	110.00	203.41	6.00	10	0.85	

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Section D: TRANSMISSION LINE DATA

Transmission Lines Position

No.	Bot El (ft)	Top El (ft)	Desc.	Radius (ft)	Az.	Orient.	No.	No. of Rows	Vert.	Antenna	User Ka
1	0.00	190.00	3/8 CABLE	13.00	0.00	0.00	1	1	Yes		
2	0.00	190.00	TX Ladder	6.72	60.00	30.00	1	1	No		
3	150.00	190.00	LDF7P-50A	1.62	60.00	30.00	12	2	No		
4	0.00	180.00	TX Ladder	6.72	180.00	150.00	1	1	No		
5	130.00	180.00	LDF7P-50A	2.31	180.00	150.00	12	2	No		
6	0.00	170.00	TX Ladder	6.72	300.00	270.00	1	1	No		
7	160.00	170.00	LDF7P-50A	1.61	300.00	270.00	12	2	No		
8	0.00	160.00	LDF7P-50A	6.72	300.00	270.00	24	2	No		
9	140.00	150.00	LDF7P-50A	1.97	60.00	30.00	13	2	No		
10	0.00	140.00	LDF7P-50A	6.72	60.00	30.00	14	2	No		
11	120.00	130.00	LDF7P-50A	2.65	180.00	150.00	13	2	No		
12	0.00	120.00	LDF7P-50A	6.72	180.00	150.00	14	2	No		

Transmission Lines Details

No.	Desc.	Width (in)	Depth (in)	Unit Mass (lb/ft)	Line Spacing (in)	Row Spacing (in)
1	3/8 CABLE	0.38	0.38	1.00	2.750	2.750
2	TX Ladder	4.70	1.50	4.00	2.750	2.750
3	LDF7P-50A	2.01	2.01	0.92	2.250	2.750
4	TX Ladder	4.70	1.50	4.00	2.750	2.750
5	LDF7P-50A	2.01	2.01	0.92	2.250	2.750
6	TX Ladder	4.70	1.50	4.00	2.750	2.750
7	LDF7P-50A	2.01	2.01	0.92	2.250	2.750
8	LDF7P-50A	2.01	2.01	0.92	2.250	2.750
9	LDF7P-50A	2.01	2.01	0.92	2.250	2.750
10	LDF7P-50A	2.01	2.01	0.92	2.250	2.750
11	LDF7P-50A	2.01	2.01	0.92	2.250	2.750
12	LDF7P-50A	2.01	2.01	0.92	2.250	2.750



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Section F: POINT LOAD DATA

Structure Azimuth from North:0.00

POINT LOADS

No.	Description	Elev. (ft)	Radius (ft)	Azim. (Deg)	Orient. (Deg)	Vertical Offset (ft)	Tx Line	Comments
1	LIGHTNING ROD	190.00	1.00	0.0	0.0	0.00		
2	25,000 SQ-IN MAX EPA	190.00	1.00	0.0	0.0	0.00		
3	20,000 SQ-IN MAX EPA	180.00	1.00	0.0	0.0	0.00		
4	20,000 SQ-IN MAX EPA	170.00	1.00	0.0	0.0	0.00		
5	20,000 SQ-IN MAX EPA	160.00	1.00	0.0	0.0	0.00		

POINT LOADS WIND AREAS AND WEIGHTS

No.	Description	Frontal Bare Area (ft^2)	Lateral Bare Area (ft^2)	Frontal Iced Area (ft^2)	Lateral Iced Area (ft^2)	Weight Bare (Kips)	Weight Iced (Kips)	Gh
1	LIGHTNING ROD	1.00	1.00	2.00	2.00	0.10	0.20	0.85
2	25,000 SQ-IN MAX EPA	174.00	174.00	348.00	348.00	3.00	9.00	0.85
3	20,000 SQ-IN MAX EPA	139.00	139.00	278.00	278.00	3.00	9.00	0.85
4	20,000 SQ-IN MAX EPA	139.00	139.00	278.00	278.00	3.00	9.00	0.85
5	20,000 SQ-IN MAX EPA	139.00	139.00	278.00	278.00	3.00	9.00	0.85



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Section H: STRUCTURE DISPLACEMENT DATA

Load Combination Wind Only - Serviceability

Wind Direction Maximum displacements

Node	Elev. (ft)	N-S Disp (in)	W-E Disp (in)	Vert.Disp (in)	N-S Rot (Deg)	W-E Rot (Deg)	Twist (Deg)
90	190.0	11.5	-11.1	-0.1	0.68	0.63	0.26
87	185.0	10.8	-10.4	-0.1	0.66	0.62	0.25
84	180.0	10.1	-9.8	-0.1	0.68	0.64	0.25
81	175.0	9.4	-9.1	-0.1	0.63	-0.59	0.21
78	170.0	8.8	-8.5	-0.1	0.64	-0.60	-0.22
75	165.0	8.1	-7.8	-0.1	0.58	-0.55	0.18
72	160.0	7.5	-7.3	-0.1	0.58	-0.56	-0.19
69	155.0	6.9	-6.7	-0.1	0.52	-0.50	0.15
66	150.0	6.3	-6.2	-0.1	0.49	-0.47	-0.15
63	143.3	5.7	-5.5	-0.1	0.43	-0.42	0.11
60	136.7	5.1	-4.9	-0.1	0.40	-0.39	-0.10
57	130.0	4.5	-4.4	-0.1	0.36	-0.35	0.07
54	123.3	4.0	-3.9	-0.1	0.35	-0.33	-0.07
51	116.7	3.5	-3.4	-0.1	0.31	-0.30	0.05
48	110.0	3.1	-3.0	-0.1	0.29	-0.28	-0.05
45	103.3	2.7	-2.6	-0.1	0.26	-0.25	0.04
42	96.7	2.3	-2.2	-0.1	0.24	-0.23	-0.03
39	90.0	2.0	-1.9	-0.1	0.22	-0.21	0.03
36	83.3	1.7	-1.6	-0.1	0.19	-0.19	-0.02
33	76.7	1.4	-1.4	0.0	0.18	-0.17	0.02
30	70.0	1.1	-1.1	0.0	0.15	-0.15	0.02
27	63.3	0.9	-0.9	0.0	0.14	-0.14	0.02
24	56.7	0.7	-0.7	0.0	0.11	-0.11	0.01
21	50.0	0.6	-0.6	0.0	0.11	-0.10	0.01
18	43.3	0.4	-0.4	0.0	0.08	-0.08	0.01
15	36.7	0.3	-0.3	0.0	0.08	-0.08	0.01
12	30.0	0.2	-0.2	0.0	0.05	-0.05	0.01
9	20.0	0.1	-0.1	0.0	0.04	-0.04	0.00
6	10.0	0.0	0.0	0.0	0.02	0.01	-0.01
3	0.0	0.0	0.0	0.0	0.00	0.00	0.00



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 Engineer: AS

Section J: ANTENNA DISPLACEMENT DATA

Load Combination Wind Only - Serviceability

Wind Direction Maximum displacements

Ant.	Elev. (ft)	N-S Disp (in)	W-E Disp (in)	Vert.Disp (in)	N-S Rot (Deg)	W-E Rot (Deg)	Twist Tot (Deg)	Allow. (Deg)
1	150.00	6.3	-6.2	-0.1	0.49	-0.47	-0.15	2.21
2	140.00	5.4	-5.2	-0.1	0.42	-0.40	0.10	2.21
3	130.00	4.5	-4.4	-0.1	0.36	-0.35	0.07	2.21
4	120.00	3.7	-3.6	-0.1	0.33	-0.32	0.06	2.21

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Section L: STRENGTH ASSESSMENT SORTED DATA

Load Combination		Max Envelope									
Wind Direction		Maximum									
Sec	Pnl	Elev.	MType	Desc.	Len	kl/r	Gov.	Gov.	Max	Max	Asses.
		(ft)			(ft)		comp.	tens.	Compr.	Tens.	Ratio
							cap.	cap.	(Kips)	(Kips)	
							(Kips)	(Kips)			
9	4	185.00	Leg	PIPE 2.875x0.203	5.00	63.4	57.1	76.5	7.0	3.3	0.12
9	3	180.00	Leg	PIPE 2.875x0.203	5.00	63.4	57.1	76.5	9.9	7.0	0.17
9	2	175.00	Leg	PIPE 2.875x0.203	5.00	63.4	57.1	76.5	22.2	16.5	0.39
9	1	170.00	Leg	PIPE 2.875x0.203	5.00	63.4	57.1	76.5	32.6	26.8	0.57
8	4	165.00	Leg	PIPE 3.500x0.300	5.00	52.6	111.0	135.9	48.8	40.2	0.44
8	3	160.00	Leg	PIPE 3.500x0.300	5.00	52.6	111.0	135.9	66.1	57.2	0.60
8	2	155.00	Leg	PIPE 3.500x0.300	5.00	52.6	111.0	135.9	86.4	74.4	0.78
8	1	150.00	Leg	PIPE 3.500x0.300	5.00	52.6	111.0	135.9	110.5	98.1	1.00
7	3	143.33	Leg	PIPE 4.500x0.337	6.68	54.2	160.1	198.4	127.3	114.4	0.79
7	2	136.67	Leg	PIPE 4.500x0.337	6.68	54.2	160.1	198.4	142.0	127.8	0.89
7	1	130.00	Leg	PIPE 4.500x0.337	6.68	54.2	160.1	198.4	152.6	137.8	0.95
6	3	123.33	Leg	PIPE 5.563x0.375	6.68	43.6	239.4	275.0	164.7	148.6	0.69
6	2	116.67	Leg	PIPE 5.563x0.375	6.68	43.6	239.4	275.0	174.4	157.4	0.73
6	1	110.00	Leg	PIPE 5.563x0.375	6.68	43.6	239.4	275.0	185.3	166.8	0.77
5	3	103.33	Leg	PIPE 5.563x0.375	6.68	43.6	239.3	275.0	193.8	174.4	0.81
5	2	96.67	Leg	PIPE 5.563x0.375	6.68	43.6	239.3	275.0	203.0	182.4	0.85
5	1	90.00	Leg	PIPE 5.563x0.375	6.68	43.6	239.3	275.0	210.6	189.7	0.88
4	3	83.33	Leg	PIPE 6.625x0.340	6.68	36.0	274.8	302.1	219.6	197.5	0.80
4	2	76.67	Leg	PIPE 6.625x0.340	6.68	36.0	274.8	302.1	227.8	204.5	0.83
4	1	70.00	Leg	PIPE 6.625x0.340	6.68	36.0	274.8	302.1	237.0	212.1	0.86
3	3	63.33	Leg	PIPE 6.625x0.340	6.68	36.0	274.8	302.1	245.0	218.7	0.89
3	2	56.67	Leg	PIPE 6.625x0.340	6.68	36.0	274.8	302.1	253.8	225.8	0.92
3	1	50.00	Leg	PIPE 6.625x0.340	6.68	36.0	274.8	302.1	261.6	232.1	0.95
2	3	43.33	Leg	PIPE 6.625x0.432	6.68	36.4	343.5	378.5	269.7	238.5	0.79
2	2	36.67	Leg	PIPE 6.625x0.432	6.68	36.4	343.5	378.5	276.9	244.2	0.81
2	1	30.00	Leg	PIPE 6.625x0.432	6.68	36.4	343.5	378.5	284.2	250.0	0.83
1	3	20.00	Leg	PIPE 8.625x0.375	10.02	41.2	386.4	437.4	293.7	257.5	0.76
1	2	10.00	Leg	PIPE 8.625x0.375	10.02	41.2	386.4	437.4	304.9	266.5	0.79
1	1	0.00	Leg	PIPE 8.625x0.375	10.02	41.2	386.4	437.4	316.6	275.6	0.82
9	4	185.00	Diag	L1 3/4x1 3/4x1/8	6.90	106.7	10.5	7.1	3.4	3.5	0.49
9	3	180.00	Diag	L1 3/4x1 3/4x1/8	6.91	106.8	10.5	7.1	3.7	3.7	0.52
9	2	175.00	Diag	L1 3/4x1 3/4x1/8	6.92	106.9	10.5	7.1	5.3	5.4	0.76
9	1	170.00	Diag	L1 3/4x1 3/4x1/8	6.92	107.0	10.5	7.1	5.6	5.6	0.78
8	4	165.00	Diag	L2x2x3/16	6.93	98.2	17.2	11.8	7.7	7.7	0.65
8	3	160.00	Diag	L2x2x3/16	6.95	98.4	17.2	11.8	7.8	7.8	0.66
8	2	155.00	Diag	L2x2x3/16	6.96	98.5	17.2	11.8	10.6	10.5	0.89
8	1	150.00	Diag	L2x2x3/16	6.97	98.7	17.2	11.8	10.6	10.7	0.91
7	3	143.33	Diag	L1 3/4x1 3/4x3/16	8.47	135.7	9.6	10.7	7.7	7.2	0.80
7	2	136.67	Diag	L1 3/4x1 3/4x3/16	8.91	144.4	8.5	10.7	6.3	6.7	0.74
7	1	130.00	Diag	L1 3/4x1 3/4x3/16	9.38	153.5	7.5	10.7	6.3	5.9	0.84
6	3	123.33	Diag	L1 3/4x1 3/4x3/16	9.87	160.2	6.9	10.7	5.7	6.2	0.82
6	2	116.67	Diag	L1 3/4x1 3/4x3/16	10.37	169.6	6.2	10.7	6.1	5.6	0.98
6	1	110.00	Diag	L1 3/4x1 3/4x3/16	10.89	179.2	5.5	10.7	5.3	5.7	0.96
5	3	103.33	Diag	L2x2x3/16	11.44	164.9	7.5	11.8	5.5	5.0	0.74
5	2	96.67	Diag	L2x2x3/16	12.00	173.9	6.7	11.8	4.8	5.2	0.72
5	1	90.00	Diag	L2x2x3/16	12.59	183.1	6.1	11.8	5.3	4.8	0.87
4	3	83.33	Diag	L2 1/2x2 1/2x3/16	13.17	151.2	11.3	14.1	5.0	5.4	0.44
4	2	76.67	Diag	L2 1/2x2 1/2x3/16	13.75	158.5	10.3	14.1	5.5	5.1	0.54
4	1	70.00	Diag	L2 1/2x2 1/2x3/16	14.33	165.8	9.4	14.1	5.1	5.4	0.54
3	3	63.33	Diag	L2 1/2x2 1/2x3/16	14.93	173.2	8.6	14.1	5.5	5.1	0.65
3	2	56.67	Diag	L2 1/2x2 1/2x3/16	15.53	180.7	7.9	14.1	5.2	5.5	0.66
3	1	50.00	Diag	L2 1/2x2 1/2x3/16	16.13	188.2	7.3	14.1	5.6	5.3	0.77
2	3	43.33	Diag	L2 1/2x2 1/2x3/16	16.76	177.2	8.2	18.8	4.9	4.9	0.59
2	2	36.67	Diag	L2 1/2x2 1/2x3/16	17.42	183.4	7.7	18.8	5.1	4.9	0.66



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2	1	30.00	Diag	L2 1/2x2 1/2x3/16	18.08	189.7	7.2	18.8	5.1	5.1	0.71
1	3	20.00	Diag	L3x3x3/16	20.30	178.6	9.8	21.1	6.2	6.2	0.63
1	2	10.00	Diag	L3x3x3/16	21.18	185.5	9.1	21.1	6.4	6.2	0.70
1	1	0.00	Diag	L3x3x3/16	22.06	192.5	8.4	21.1	6.3	6.3	0.75
9	4	185.00	Horiz	L1 3/4x1 3/4x3/16	4.75	145.7	8.4	10.7	2.0	2.0	0.24
7	3	143.33	Horiz	L1 3/4x1 3/4x3/16	4.87	145.1	8.4	10.7	2.4	2.2	0.29

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Section M: SECTION PROPERTIES DATA

Sec	Pan	Memb. Type	Steel Grade	Conn. Type	Bolts Bolts	Bolt Size (in)	Bolt Grade	End Dist. (in)	Gusset Thick. (in)	kl/r	Comp Cap. (Kips)	Tens Cap. (Kips)	Bolt Cap. (Kips)	Bear. Cap. (Kips)	Block Shear (Kips)
9	4	Leg	A500 gr.CS	Tension	4	0.750	A325X	1.800	N/A	63.4	57.1	76.5	121.7T	N/A	N/A
9	4	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	106.7	10.5	11.9	17.2S	9.8	7.1
9	4	Horiz	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	145.7	8.4	17.4	17.2S	14.7	10.7
9	3	Leg	A500 gr.CS	Tension	4	0.750	A325X	1.800	N/A	63.4	57.1	76.5	121.7T	N/A	N/A
9	3	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	106.8	10.5	11.9	17.2S	9.8	7.1
9	2	Leg	A500 gr.CS	Tension	4	0.750	A325X	1.800	N/A	63.4	57.1	76.5	121.7T	N/A	N/A
9	2	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	106.9	10.5	11.9	17.2S	9.8	7.1
9	1	Leg	A500 gr.CS	Tension	4	0.750	A325X	1.800	N/A	63.4	57.1	76.5	121.7T	N/A	N/A
9	1	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	107.0	10.5	11.9	17.2S	9.8	7.1
8	4	Leg	A500 gr.CS	Tension	5	0.875	A325X	2.100	N/A	52.6	111.0	135.9	209.9T	N/A	N/A
8	4	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	98.2	20.5	20.7	17.2S	14.7	11.8
8	3	Leg	A500 gr.CS	Tension	5	0.875	A325X	2.100	N/A	52.6	111.0	135.9	209.9T	N/A	N/A
8	3	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	98.4	20.5	20.7	17.2S	14.7	11.8
8	2	Leg	A500 gr.CS	Tension	5	0.875	A325X	2.100	N/A	52.6	111.0	135.9	209.9T	N/A	N/A
8	2	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	98.5	20.4	20.7	17.2S	14.7	11.8
8	1	Leg	A500 gr.CS	Tension	5	0.875	A325X	2.100	N/A	52.6	111.0	135.9	209.9T	N/A	N/A
8	1	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	98.7	20.4	20.7	17.2S	14.7	11.8
7	3	Leg	A500 gr.CS	Tension	5	1.000	A325X	2.400	N/A	54.2	160.1	198.4	275.3T	N/A	N/A
7	3	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	135.7	9.6	17.4	17.2S	14.7	10.7
7	3	Horiz	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	145.1	8.4	17.4	17.2S	14.7	10.7
7	2	Leg	A500 gr.CS	Tension	5	1.000	A325X	2.400	N/A	54.2	160.1	198.4	275.3T	N/A	N/A
7	2	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	144.4	8.5	17.4	17.2S	14.7	10.7
7	1	Leg	A500 gr.CS	Tension	5	1.000	A325X	2.400	N/A	54.2	160.1	198.4	275.3T	N/A	N/A
7	1	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	153.5	7.5	17.4	17.2S	14.7	10.7
6	3	Leg	A500 gr.CS	Tension	5	1.000	A325X	2.400	N/A	43.6	239.4	275.0	275.3T	N/A	N/A
6	3	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	160.2	6.9	17.4	17.2S	14.7	10.7
6	2	Leg	A500 gr.CS	Tension	5	1.000	A325X	2.400	N/A	43.6	239.4	275.0	275.3T	N/A	N/A
6	2	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	169.6	6.2	17.4	17.2S	14.7	10.7
6	1	Leg	A500 gr.CS	Tension	5	1.000	A325X	2.400	N/A	43.6	239.4	275.0	275.3T	N/A	N/A
6	1	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	179.2	5.5	17.4	17.2S	14.7	10.7
5	3	Leg	A500 gr.CS	Tension	6	1.000	A325X	2.400	N/A	43.6	239.3	275.0	330.3T	N/A	N/A
5	3	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	164.9	7.5	20.7	17.2S	14.7	11.8
5	2	Leg	A500 gr.CS	Tension	6	1.000	A325X	2.400	N/A	43.6	239.3	275.0	330.3T	N/A	N/A
5	2	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	173.9	6.7	20.7	17.2S	14.7	11.8
5	1	Leg	A500 gr.CS	Tension	6	1.000	A325X	2.400	N/A	43.6	239.3	275.0	330.3T	N/A	N/A
5	1	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	183.1	6.1	20.7	17.2S	14.7	11.8
4	3	Leg	A500 gr.CS	Tension	6	1.000	A325X	2.400	N/A	36.0	274.8	302.1	330.3T	N/A	N/A
4	3	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	151.2	11.3	27.7	17.2S	14.7	14.1
4	2	Leg	A500 gr.CS	Tension	6	1.000	A325X	2.400	N/A	36.0	274.8	302.1	330.3T	N/A	N/A
4	2	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	158.5	10.3	27.7	17.2S	14.7	14.1
4	1	Leg	A500 gr.CS	Tension	6	1.000	A325X	2.400	N/A	36.0	274.8	302.1	330.3T	N/A	N/A
4	1	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	165.8	9.4	27.7	17.2S	14.7	14.1
3	3	Leg	A500 gr.CS	Tension	6	1.000	A325X	1.500	N/A	36.0	274.8	302.1	330.3T	N/A	N/A
3	3	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	173.2	8.6	27.7	17.2S	14.7	14.1
3	2	Leg	A500 gr.CS	Tension	6	1.000	A325X	1.500	N/A	36.0	274.8	302.1	330.3T	N/A	N/A
3	2	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	180.7	7.9	27.7	17.2S	14.7	14.1
3	1	Leg	A500 gr.CS	Tension	6	1.000	A325X	1.500	N/A	36.0	274.8	302.1	330.3T	N/A	N/A
3	1	Diag	A529 gr.50	Bolted	1	0.625	A325X	1.500	0.250	188.2	7.3	27.7	17.2S	14.7	14.1
2	3	Leg	A500 gr.CS	Tension	6	1.500	A325X	3.600	N/A	36.4	343.5	378.5	765.3T	N/A	N/A
2	3	Diag	A529 gr.50	Bolted	2	0.625	A325X	1.125	0.375	177.2	8.2	27.7	34.5S	25.7	18.8
2	2	Leg	A500 gr.CS	Tension	6	1.500	A325X	3.600	N/A	36.4	343.5	378.5	765.3T	N/A	N/A

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2	2	Diag	A529	gr.50	Bolted	2	0.625	A325X	1.125	0.375	183.4	7.7	27.7	34.5S	25.7	18.8
2	1	Leg	A500	gr.CS	Tension	6	1.500	A325X	3.600	N/A	36.4	343.5	378.5	765.3T	N/A	N/A
2	1	Diag	A529	gr.50	Bolted	2	0.625	A325X	1.125	0.375	189.7	7.2	27.7	34.5S	25.7	18.8
1	3	Leg	A500	gr.CS	Tension	6	1.500	A325X	3.600	N/A	41.2	386.4	437.4	765.3T	N/A	N/A
1	3	Diag	A529	gr.50	Bolted	2	0.625	A325X	1.125	0.375	178.6	9.8	34.6	34.5S	25.7	21.1
1	2	Leg	A500	gr.CS	Tension	6	1.500	A325X	3.600	N/A	41.2	386.4	437.4	765.3T	N/A	N/A
1	2	Diag	A529	gr.50	Bolted	2	0.625	A325X	1.125	0.375	185.5	9.1	34.6	34.5S	25.7	21.1
1	1	Leg	A500	gr.CS	Tension	6	1.500	A325X	3.600	N/A	41.2	386.4	437.4	765.3T	N/A	N/A
1	1	Diag	A529	gr.50	Bolted	2	0.625	A325X	1.125	0.375	192.5	8.4	34.6	34.5S	25.7	21.1



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File: \\rohnfs3\jobs\2026\251407\ENGINEERING\251407.out

Contract: 251407

Project: 190 FT RTL TOWER

Date and Time: 1/31/2026 4:14:33 PM

Revision: 0

Site: ID7129-NORTHGATE- ID

Engineer: AS

Section N: LEG REACTION DATA

Load Combination	Max Envelope				
Wind Direction	Maximum				
	Force-Y Download (Kips)	Force-Y Uplift (Kips)	Shear-X (Kips)	Shear-Z (Kips)	Max Shear (Kips)
	321.62	279.47			26.78



TSTower - v 6.1.5.0 Tower Analysis Program
 (c) 1997-2025 TowerSoft www.TSTower.com



Licensed to: ROHN Products LLC
 Peoria, IL

File: \\rohnfs3\jobs\2026\251407\ENGINEERING\251407.out

Contract: 251407

Project: 190 FT RTL TOWER

Date and Time: 1/31/2026 4:14:33 PM

Revision: 0

Site: ID7129-NORTHGATE- ID

Engineer: AS

Section O: TOWER FOUNDATION DATA

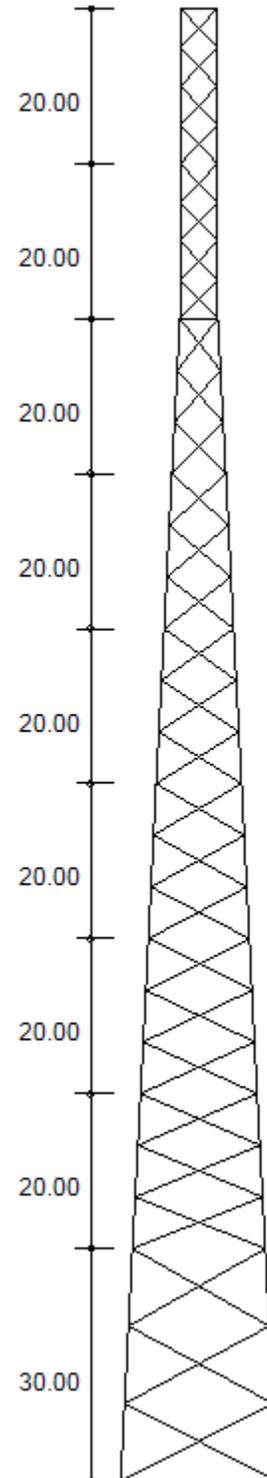
Load Combination			Max Envelope				
Wind Direction			Maximum				
Axial Load (Kips)	Shear Load-X (Kips)	Shear Load-Z (Kips)	Total Shear (Kips)	Moment-X (Kipsft)	Moment-Y (Kipsft)	Moment-Z (Kipsft)	Total Moment (Kipsft)
40.85	23.22	-37.09	43.76	-4490.01	12.39	-2826.69	5305.69
40.85	23.22	-37.09	43.76	-4490.01	12.39	-2826.69	5305.69

File: \\rohnfs3\jobs\2026\251407\ENGINEERING\251407.out
Contract: 251407
Project: 190 FT RTL TOWER
Date and Time: 1/31/2026 4:14:33 PM

Revision: 0
Site: ID7129-NORTHGATE- ID
Engineer: AS

DESIGN SPECIFICATION

Sct.	Length (ft)	Top W. (in)	Bot Width (in)
1	30.00	205.97	241.97
2	20.00	180.24	205.97
3	20.00	156.24	180.24
4	20.00	132.24	156.24
5	20.00	107.32	132.24
6	20.00	83.32	107.32
7	20.00	58.40	83.32
8	20.00	57.53	58.40
9	20.00	56.99	57.53



MAXIMUM BASE REACTIONS

Download (Kips)	321.6
Uplift (Kips)	279.5
Shear (Kips)	26.8

Customer: WEIS TOWERS LLC
 Project: 190 FT RTL TOWER
 Site: ID7129-NORTHGATE, ID
 Engr. File: 251407
 Build Code: ANSI/TIA-222-H-2016



Mat Foundation

ver.3.0.9

Design Parameters

Description	Load Case					Service
	1	2	3	4	5	
Total Moment, ft-kips	5,303.22	5,305.69	1,294.48	398.28	394.00	1,819.05
Total Shear, kips	43.75	43.76	9.38	2.59	2.59	15.23
Total Tower Wt, kips	54.45	40.85	101.28	54.42	40.81	45.35
Max. Uplift, kips	275.07	279.47	38.99	4.22	8.63	86.05
Shear, kips	24.21	24.46	3.85	.60	.85	7.86
Max Download, kips	321.62	317.22	107.89	40.95	36.17	119.23
Shear	26.78	26.54	7.58	2.61	2.36	9.85
Soil L.F.	1.20	0.90	1.20	1.20	0.90	1.00
Concrete L.F.	1.20	0.90	1.20	1.20	0.90	1.00

Foundation	
Ht. AGL, ft	0.50
Depth, ft.	5.75
Tower	
Face Width, ft	20.16
Offset, in	36.00
Soil	
Blow Count	N/A
Inplace Unit Wt, pcf	110.00
Submerged Unit Wt, pcf	60.00
Friction Angle, ϕ , deg.	30.00
Cohesion, ksf	N/A
Uplift Angle, deg.	30.00
Water Depth, ft	None
Ult Bearing Capacity, ksf	10.50

Mat	
Thickness, ft	1.75
Width, ft	26.00
EA, in	13.00
Batter, in/ft	0.00

Pier	
Height, ft	4.50
Diameter, ft	3.50
No. Piers	3
Shape	Round

Anchor Bolts	
Diameter, in	1.5000
No.	6
Length, in	74.00
Bolt Circle, in	20.00
Projection, in	9.00

Pocket	
Diameter, in	N/A
Thickness, ft	N/A

Concrete	
28 Day Strength, ksi	4.50
Dry Unit Wt, pcf	150.00
Wet Unit Wt, pcf	88.00

Rebar Fy	
Vertical, ksi	60.00
Circular, ksi	60.00
Horizontal, ksi	60.00

Results

ϕM_N – Parallel Axis 5,927.36 ft-kips
 ϕM_N – Diagonal Axis 6,523.20 ft-kips
 Moment – Interaction Ratio 0.965
 ϕV_N – Lateral Load 124.52 kips
 Lateral Load – Interaction Ratio 0.351

Final Mat Dimension : 26.00 x 26.00 x 1.75 ft. thick w/ (3) 3.50 ft. Dia. Piers

Final Pocket Dimension : Pockets not required

Total Volume of Concrete : 48.6 yd³

Designed By: AS
 Date: 31 January, 2026 @ 04:27 PM

ENGINEERING
 CHECKED BY: SY
 02/02/2026

Customer: WEIS TOWERS LLC
 Project: 190 FT RTL TOWER
 Site: ID7129-NORTHGATE, ID
 Engr. File: 251407
 Build Code: ANSI/TIA-222-H-2016



Mat Foundation

ver.3.0.9

OTM Capacity

Controlling Load Case: 2 [Wind w/Min. Dead Load]
 Foundation Width = 26.00 ft
 $M_U = 5,722.1$ ft-kips

	ϕM_N , ft-kips	x, ft	N	σ_{ur}
Parallel	5,927.4	2.600	0.100	9.77
Diagonal	6,523.2	8.222	0.224	9.77

$\phi M_N = 5,927.36$ ft-kips IRatio = 0.965
 $\phi V_N = 124.52$ kips IRatio = 0.351

Mat Design

$\gamma_c = 122.17$ pcf

Exterior Slab	x, ft	N	σ_R , ksf	P_s , kips	P_{su} , kips	Moment, ft-kips/ft		Shear, kips/ft	
						DownLoad Side	Uplift Side	Download Side	Uplift Side
Parallel	3.363	0.129	5.65	20.74	0.00	17.11	4.82	13.11	2.95
Diagonal	10.600	0.288	4.40	20.74	0.00	72.24	23.89	19.97	6.62

Interior Slab	Moment, ft-kips/ft			Shear, kips/ft		
	DownLoad Side	Uplift Side	Download Side	Uplift Side	Soil Pressure Termination	
	15.13	63.94	2.80	7.72	5.32	

Punching Shear	Download			Uplift			Description
	Interior	Edge	Corner	Interior	Edge	Corner	
b_o , ft	17.74	14.71	11.54	15.08	13.38	10.87	2-Way Shear
V_{su} , psi	106.07	135.47	181.22	106.22	126.37	164.84	
ϕV_c , psi	228.08	228.08	228.08	228.08	228.08	228.08	
IR	0.47	0.59	0.79	0.47	0.55	0.72	
M_{ut} , ft-kips	72.3			66.0			Moment transfer to slab
B_e , ft	7.3			6.9			
M_u , ft-kips/ft	9.9			9.5			
Edge Distances: a = 4.36 ft. b = 2.92 ft. c = 4.18 ft.							

Summary	Max. Value	Utilization
Slab Moment, ft-kips/ft	72.24	0.972
Slab Shear, kips/ft	19.97	0.912
Punching Shear, psi	181.22	0.795
Soil Bearing Required, σ_{UR} , ksf	7.54	0.718

Mat Reinforcement	
Min. Steel Area (Strength)	.855 in ² /ft.
Min. Steel Area (Temperature)	.227 in ² /ft.
Steel Strain Actual	0.014
Minimum Steel Strain Required	0.005

52 - #6 Horizontal bars equally spaced @6.00 in., each way, top and bottom, total of 208, $A_s = 0.884$ in²/ft

Designed By: AS
 Date: 31 January, 2026 @ 04:27 PM

Customer: WEIS TOWERS LLC
Project: 190 FT RTL TOWER
Site: ID7129-NORTHGATE, ID
Engr. File: 251407
Build Code: ANSI/TIA-222-H-2016



Mat Foundation

ver.3.0.9

Pier Design

Controlling Load Case: 2 [Wind w/Min. Dead Load]

C = 317.22 kips	Vc = 26.54 kips	Mc = 119.43 ft-kips
T = 279.47 kips	Vt = 24.46 kips	Mt = 110.07 ft-kips
Fy = 60.00 ksi	Fyt = 60.00 ksi	L.F. = 1.00
H = 42.00 in.	Ds = 33.00 in.	F'c = 4.50 ksi
U = 1.00	Irs = Round	

*** NOTE: Pier cross section is Round ***

SUMMARY OF ANALYSIS

Minimum area of steel required	= 8.908 in ²	(Rhomin = 0.0064)
Area of steel provided.	= 9.621 in ²	(Rhoactual = 0.0069)
Maximum steel area limit	= 110.836 in ²	(Rhomax = 0.0800)

(16) #7 Vertical Bars equally spaced w/ #4 Circular Ties @ 6" on center.

CIRCULAR TIE DATA

$V_u < 0.85 * V_c / 2$, shear reinforcement is not required

Use maximum tie spacing specified in ACI 318,
Section 7.10.5 for compression reinforcement.

DEVELOPMENT LENGTH MODIFIERS FOR BAR DEVELOPMENT

Modifier for tension development = 1.000

Modifier for compression development = 0.164

REQUIRED Ld = MODIFIER * BASIC Ld * ACI 318 MODIFIERS, (12 in. min.)

Designed By: AS
Date: 31 January, 2026 @ 04:27 PM

Adjacent Property Owner Tower Setback

Acknowledgement and Consent Form

Cell Site: ID7129-329 Northgate Road, Priest River, ID

I/We, Michael W Yancy & Cheryl Roberts, as the property Owner(s) of the property located immediately adjacent to and adjoining 329 Northgate Road, Priest River, ID acknowledge and declare that I/We, own Parcel No. of RP57N05W160002A (the "Adjacent Property"), and have a local mailing address of PO Box 963, Priest River, ID 83856. I/We do hereby sign this Adjacent Property Owner Setback Acknowledgement and Consent Form ("Consent Form") to acknowledge and consent to the possibility that the communications tower and infrastructure proposed to be constructed by WEIS Towers LLC, 109 S First Street, Box 711, Roslyn, WA 98941, its successors and assigns (the "Permittee") on the Permittee's parcel that adjoins the Adjacent Property to the west may not currently meet County set-back regulations. I/We understand that the proposed communication antenna tower may not meet the 1:1 setback requirement ("Setback Requirement") between property lines as may be required by the Bonner County, Idaho Code(s).

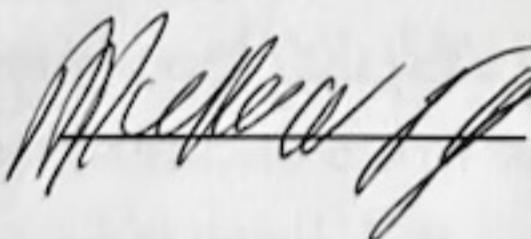
The County Code Setback Requirement is intended to create a safe fall radius for the tower so as to prevent the tower from possibly falling onto an Adjacent Property.

With this Knowledge, I/We 'Adjacent Property Owner(s) hereby consent in favor of the Permittee constructing the proposed tower and understand and acknowledge that it may not meet the Bonner County, Idaho Setback Requirements, and do further certify herein that the tower is unlikely to cause any hazardous conditions on or to the Adjacent Property, or any structures or fixtures located on the Adjacent Property including structures that may be located or partially located on the property owned by the Permittee.

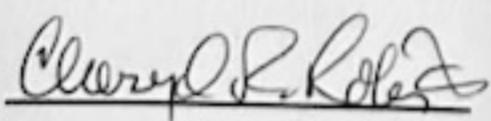
In the unlikely event the tower does fall upon the Adjacent Property or Adjacent Property structures, the Permittee, its successors and assigns shall at their sole cost, be liable for the prompt removal of Permittee's personal property from the Adjacent Property, and shall restore and repair the Adjacent Property and its structures as may be effected as near to the original condition of such structures and property as practical.

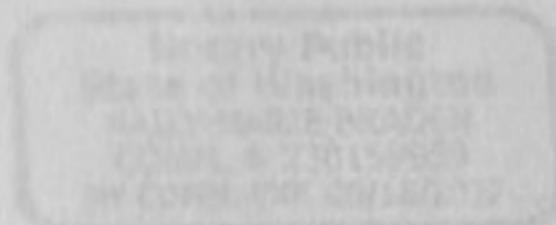
Upon the Permittee's successful completion of the County required permitting procedures and successful gaining of the requisite Bonner County Permit(s) and upon the start of construction of the Wireless Facility the Permittee will grant the Adjacent Property Owner(s) a payment amount of Five Hundred Dollars (\$500).

Print Name(s): Michael W Yancy (owner)

Signature:  Date: 9-20-24

Cheryl Roberts (owner)

Signature:  Date: 9-20-24



STATE OF WASHINGTON)

) ss.

COUNTY OF PEND OREILLE)

I certify that I know or have satisfactory evidence that is the MICHAEL W YANCY is the person who appeared before me, and said person acknowledged that he signed this instrument and acknowledged it to be his free and voluntary act for the uses and purposes mentioned in the instrument.

Dated: 9.20.24

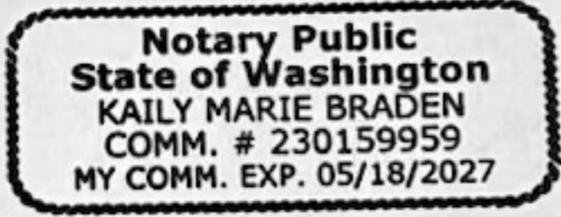
Kaily Marie Braden

Printed Name: Kaily Marie Braden

NOTARY PUBLIC in and for the State of Washington

residing Newport, WA

My Term Expires: 5.18.27



STATE OF WASHINGTON)

) ss.

COUNTY OF PEND OREILLE)

I certify that I know or have satisfactory evidence that is the CHERYL ROBERTS is the person who appeared before me, and said person acknowledged that she signed this instrument and acknowledged it to be her free and voluntary act for the uses and purposes mentioned in the instrument.

Dated: 9.20.24

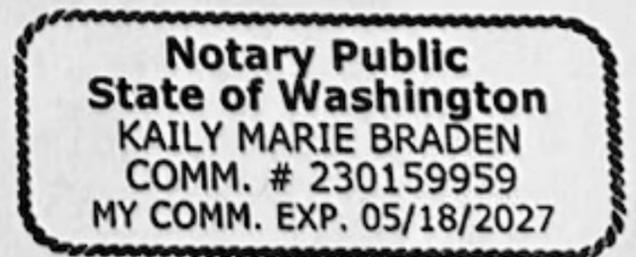
Kaily Marie Braden

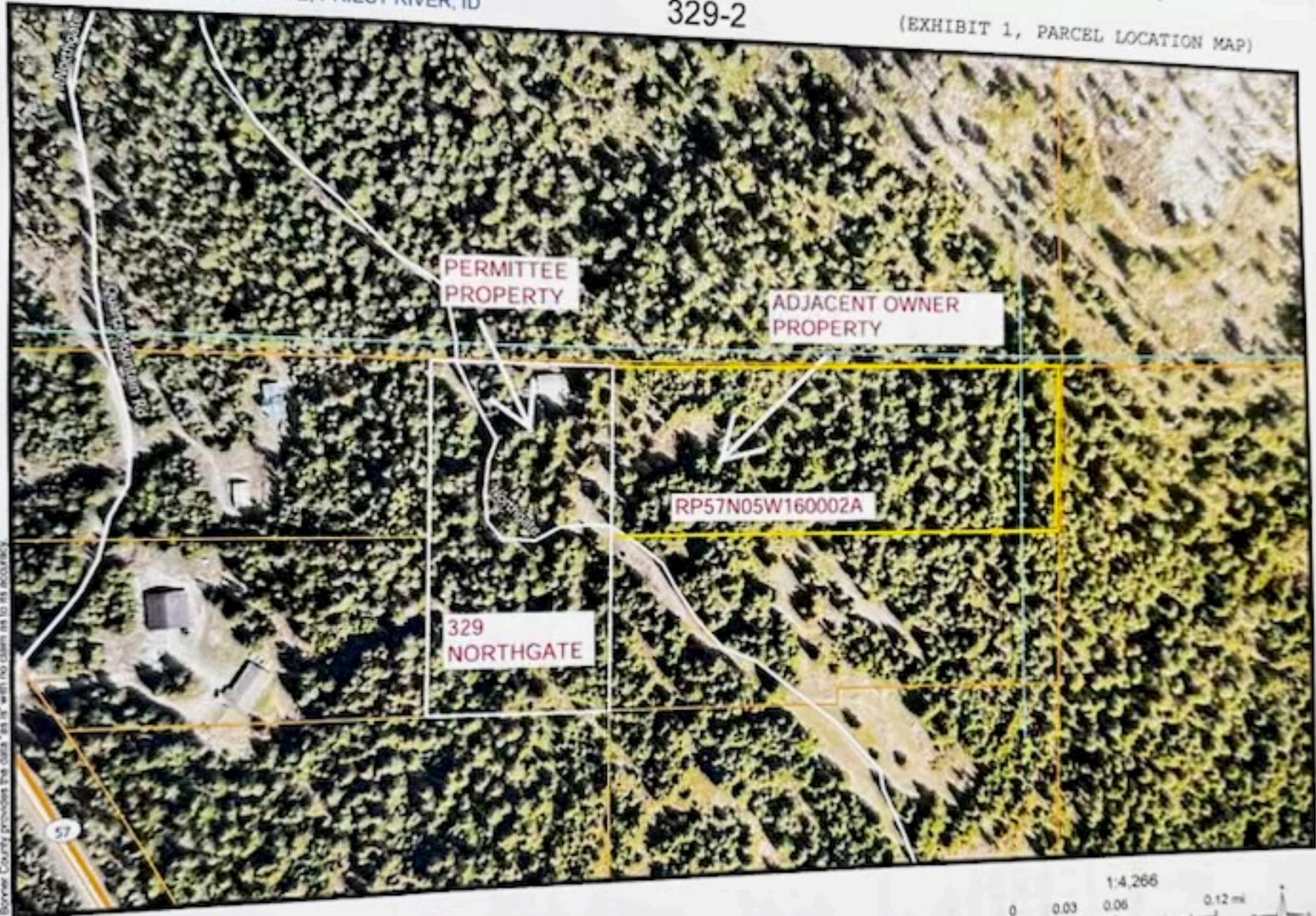
Printed Name: Kaily Marie Braden

NOTARY PUBLIC in and for the State of Washington

residing Newport, WA

My Term Expires: 5.18.27





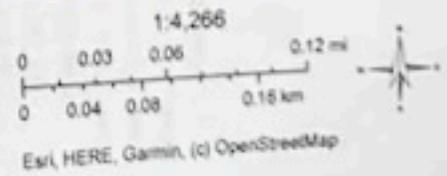
Bonner County provides the data "as is" with no claim as to its accuracy.

6/10/2024

Road Centerlines

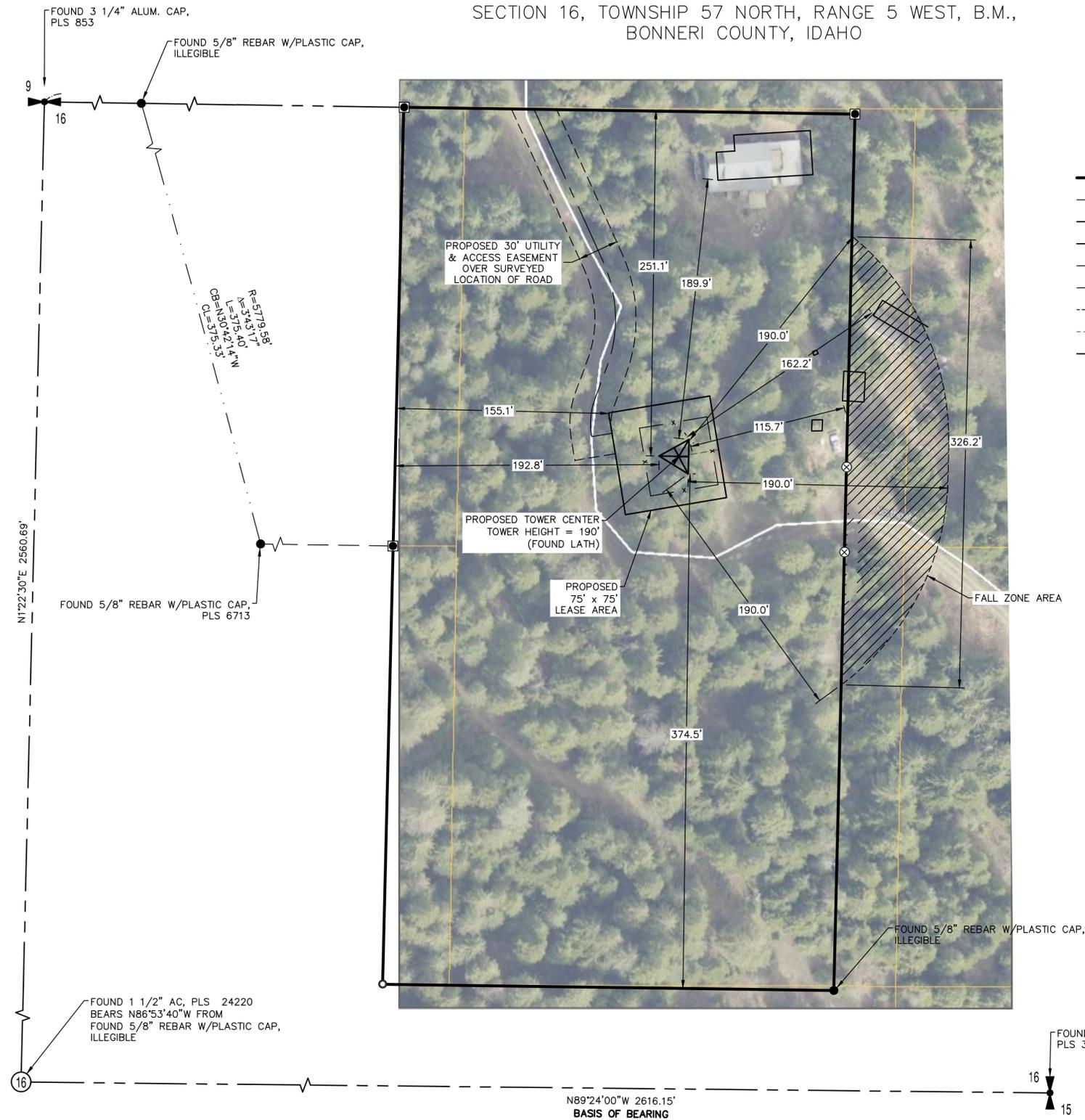
-  Primary
-  Secondary

 Parcels



NORTHGATE TOWER SITE EXHIBIT

A PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER,
SECTION 16, TOWNSHIP 57 NORTH, RANGE 5 WEST, B.M.,
BONNERI COUNTY, IDAHO

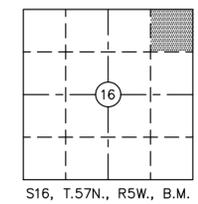
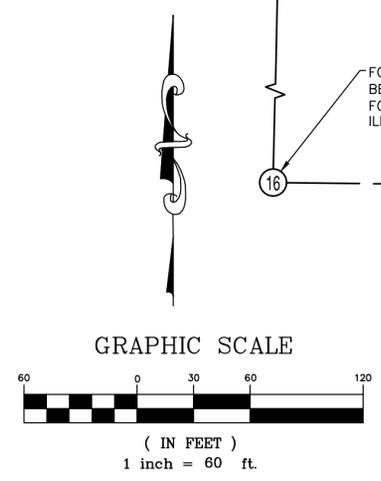


- LEGEND**
- FOUND MONUMENT AS NOTED
 - ⊗ SET LATH ON APPROXIMATE PROPERTY LINE
 - FOUND 5/8" REBAR W/PLASTIC CAP, PLS 6107
 - SUBJECT PARCEL BOUNDARY
 - - - EXISTING PROPERTY LINE
 - LEASE AREA LINE
 - - - SECTIONAL LINE
 - · - · - RIGHT-OF-WAY LINE
 - · - · - PROPOSED EASEMENT CENTER LINE
 - - - PROPOSED EASEMENT LINE
 - - - TIE LINE
 - OHP — OVERHEAD POWER LINE
 - ⊕ POWER POLE
 - ⊗ POWER TRANSFORMER
 - ⊕ COMMUNICATION RISER
 - ⊕ COMMUNICATION MARKER
 - ⊕ UNDERGROUND POWER MARKER
 - EM ELECTRIC METER

NOTE: THE BACKGROUND IMAGE IS PER BONNER COUNTY GIS, AND IS APPROXIMATE IN NATURE. THE IMAGE HAS BEEN LOCATED BY THE SURVEYED LOCATION OF THE ACCESS ROAD.

PRELIMINARY

24-285 EXHIBIT-RMS.dwg 18x27 (ROS PG1)



storhäug

civil engineering planning
landscape architecture surveying

510 east third avenue | spokane, wa | 99202
p 509.242.1000

DATE 01/30/2026	SCALE 1" = 60'
FIELD BOOK 24-285	DRAWN DKM/JRB
PROJECT NUMBER 24-285	DRAWING NO. 1 OF 2

NORTHGATE TOWER SITE EXHIBIT

A PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER,
SECTION 16, TOWNSHIP 57 NORTH, RANGE 5 WEST, B.M.,
BONNERI COUNTY, IDAHO



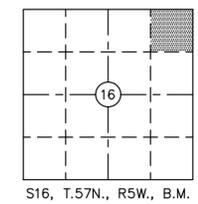
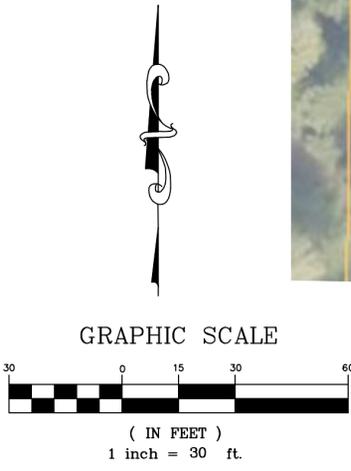
LEGEND

⊗	SET LATH ON APPROXIMATE PROPERTY LINE
—	SUBJECT PARCEL BOUNDARY
- - - - -	EXISTING PROPERTY LINE
—	LEASE AREA LINE
- - - - -	PROPOSED EASEMENT CENTER LINE
- - - - -	PROPOSED EASEMENT LINE
- - - - -	TIE LINE
⊠	POWER TRANSFORMER
⊞	COMMUNICATION RISER
⊞	UNDERGROUND POWER MARKER
⊞	ELECTRIC METER

*****NOTE: THE BACKGROUND IMAGE IS PER BONNER COUNTY GIS, AND IS APPROXIMATE IN NATURE. THE IMAGE HAS BEEN LOCATED BY THE SURVEYED LOCATION OF THE ACCESS ROAD.*****

PRELIMINARY

24-285 EXHIBIT-RMS.dwg 18x27 (R05 PG2)



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landscape architecture surveying

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p 509.242.1000

DATE 01/30/2026	SCALE 1" = 30'
FIELD BOOK 24-285	DRAWN DKM/JRB
PROJECT NUMBER 24-285	DRAWING NO. 2 OF 2

RECORD OF SURVEY

A PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER,
SECTION 16, TOWNSHIP 57 NORTH, RANGE 5 WEST, B.M.,
BONNER COUNTY, IDAHO

RECORDERS CERTIFICATE

THIS SURVEY WAS FILED FOR RECORD IN THE OFFICE OF THE
RECORDER OF BONNER COUNTY, IDAHO AT THE REQUEST OF STORHAUG
ENGINEERING THIS _____ DAY OF _____, 20____
AT _____ M AND DULY RECORDED IN BOOK _____ OF
SURVEYS, PAGES _____

INSTRUMENT _____, FEE _____

DEPUTY CLERK ON BEHALF OF
MICHAEL ROSEDALE, COUNTY CLERK

BASIS OF BEARING:

A BEARING OF N89°08'28"W WAS ASSUMED ALONG THE NORTH LINE OF
THE NORTHEAST QUARTER, AS SHOWN HEREON.

SURVEYOR'S NOTES:

- 1) THIS DRAWING DOES NOT ATTEMPT TO SHOW ALL EASEMENTS OF RECORD, PRESCRIPTIVE EASEMENTS, OR PHYSICAL FEATURES OF THE PROPERTY.
- 2) ACCESS APPEARS TO BE CONVEYED BY DEEDS RECORDED UNDER INSTRUMENTS 145829, 145830, 175096, AND 1036611.

NOTES:

- 1) LEASE AREA, 5,625 S.F.
- 2) CENTER OF PROPOSED TOWER
- 3) SHED IS 26.1' WEST OF PROPERTY LINE
- 4) BUILDING IS 4.1' WEST OF PROPERTY LINE
- 5) OUTHOUSE IS 26.7' WEST OF PROPERTY LINE
- 6) MANUFACTURED HOUSE IS 17.1' EAST OF PROPERTY LINE

SURVEY REFERENCES:

- RECORD OF SURVEY, INSTRUMENT BOOK: 111557
RECORD OF SURVEY, INSTRUMENT BOOK: 482493
RECORD OF SURVEY, INSTRUMENT BOOK: 482500
RECORD OF SURVEY, INSTRUMENT BOOK: 525466
RECORD OF SURVEY, INSTRUMENT BOOK: 573001
RECORD OF SURVEY, INSTRUMENT BOOK: 877853
RECORD OF SURVEY, INSTRUMENT BOOK: 996723

PURPOSE OF SURVEY:

THE PURPOSE OF THIS SURVEY IS TO MONUMENT THE BOUNDARY OF THE PARCEL AND OF THE LEASE AREA, AS SHOWN HEREON.

SURVEYOR'S NARRATIVE:

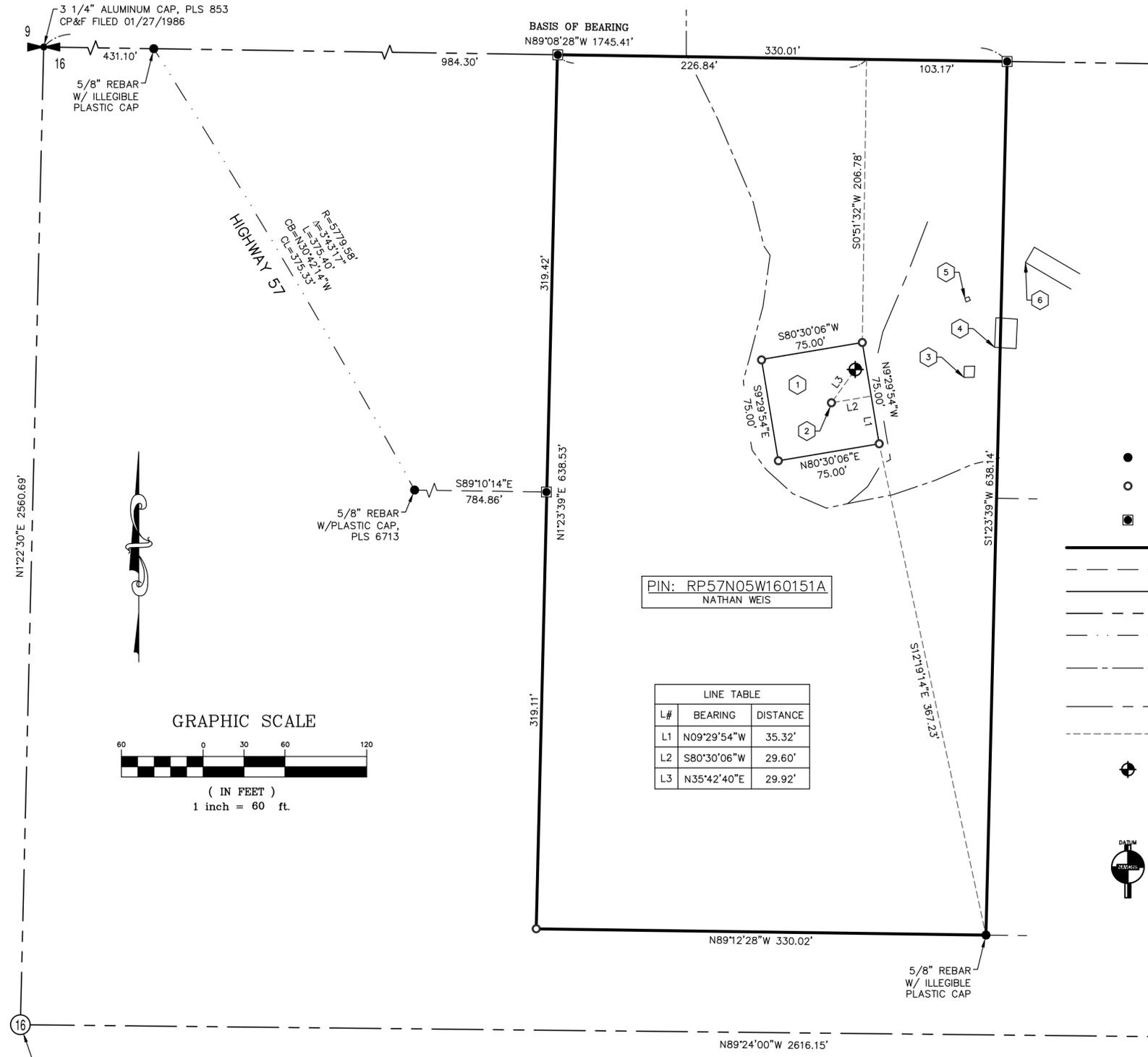
THIS SURVEY IS A RETRACEMENT OF THE LAND DESCRIBED IN THE TITLE REPORT BY CHICAGO TITLE INSURANCE COMPANY, COMMITMENT NUMBER VEN-115500-REQ, DATED JUNE 12, 2024 AND A RETRACEMENT OF THE RECORD OF SURVEY, INSTRUMENT 482493.

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT AT THE REQUEST OF WEIS TOWERS, LLC.

TROY A. CARLSON
PLS 15434

PRELIMINARY



LEGEND

- FOUND MONUMENT AS NOTED
- SET 1/2" REBAR W/ PLASTIC CAP, PLS 15434
- ◐ FOUND 5/8" REBAR W/ PLASTIC CAP, PLS 6107
- SUBJECT PARCEL BOUNDARY
- - - EXISTING PROPERTY LINE
- LEASE AREA LINE
- - - SECTIONAL LINE
- · - · - RIGHT-OF-WAY LINE
- - - AS-BUILT CENTERLINE OF NORTHGATE ACCESS ROAD SEE SURVEYOR NOTE 2
- - - AS-BUILT CENTERLINE OF DRIVEWAY SEE SURVEYOR NOTE 2
- - - TIE LINE

SITE TBM

3" ALUMINUM CAP, PLS 15434
ELEVATION: 2252.18

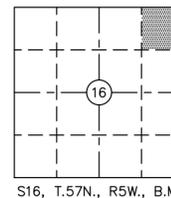
ELEVATION DATUM

NAVD88 ESTABLISHED FROM GPS OBSERVATION ON LOCAL CONTROL POINTS USING THE WASHINGTON STATE REFERENCE NETWORK.

24-285 ROS.dwg 18x27 ROS.PGI

1 1/2" ALUMINUM CAP, PLS 24220
(THIS IS A WASHINGTON PLS NUMBER,
THIS SURVEYOR'S IDAHO PLS NUMBER IS 6019)
CP&F FILED 11/16/2022, INSTRUMENT 1014229

(5/8" REBAR W/ ILLEGIBLE PLASTIC CAP
BEARS S86°53'40"E 1.50' FROM ALUMINUM CAP)



storhäug
civil engineering planning
landscape architecture surveying

510 east third avenue | spokane, wa | 99202
p 509.242.1000

DATE 01/22/2025	SCALE 1" = 60'
FIELD BOOK 24-285	DRAWN JRB
PROJECT NUMBER 24-285	DRAWING NO. 1 OF 2

RECORD OF SURVEY

A PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER,
SECTION 16, TOWNSHIP 57 NORTH, RANGE 5 WEST, B.M.,
BONNER COUNTY, IDAHO

RECORDERS CERTIFICATE

THIS SURVEY WAS FILED FOR RECORD IN THE OFFICE OF THE
RECORDER OF BONNER COUNTY, IDAHO AT THE REQUEST OF STORHAUG
ENGINEERING THIS _____ DAY OF _____, 20____
AT _____ M AND DULY RECORDED IN BOOK _____ OF
SURVEYS, PAGES _____.

INSTRUMENT _____, FEE _____

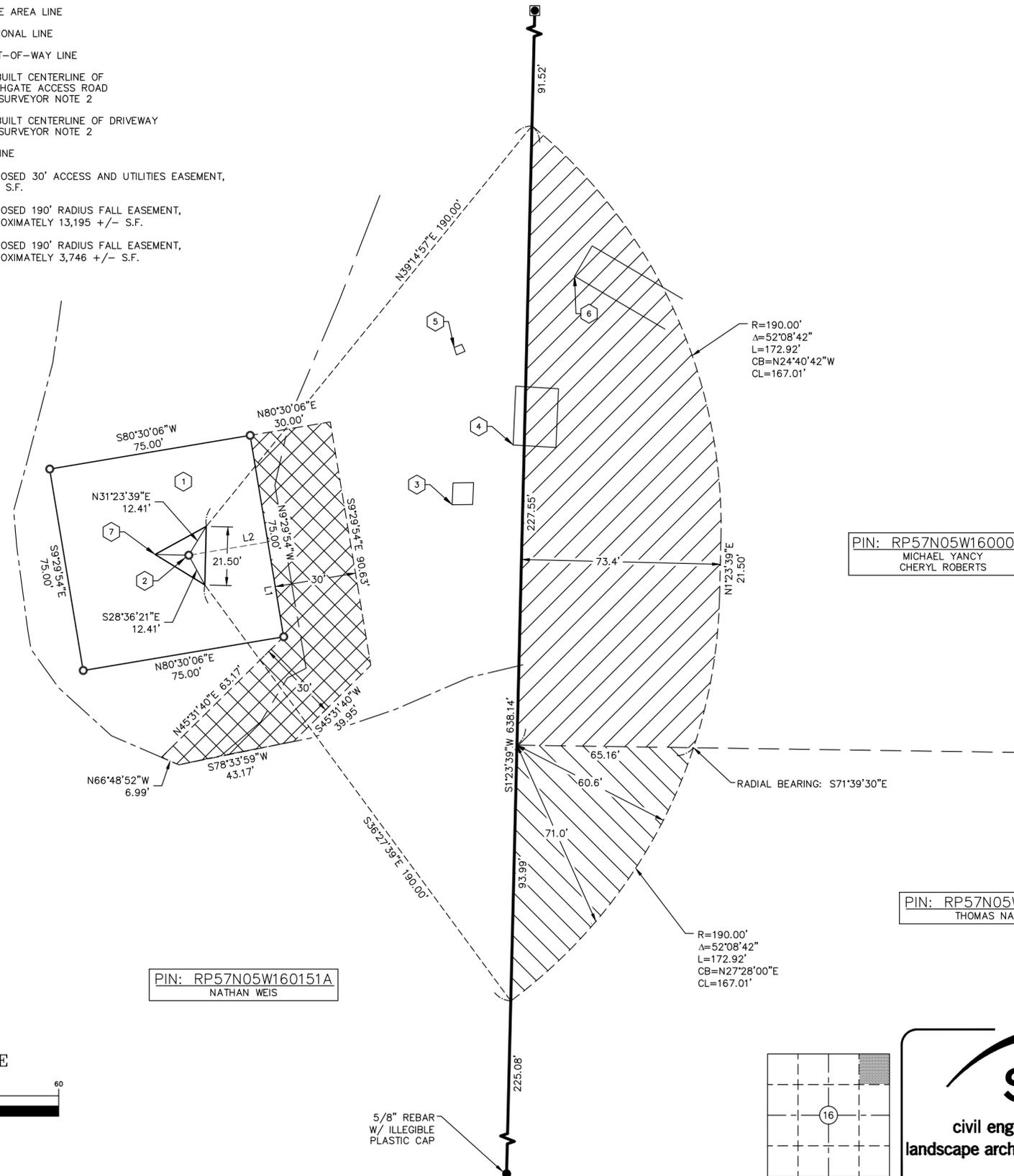
DEPUTY CLERK ON BEHALF OF
MICHAEL ROSEDALE, COUNTY CLERK

LEGEND

- FOUND MONUMENT AS NOTED
- SET 1/2" REBAR W/ PLASTIC CAP, PLS 15434
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- - - AS-BUILT CENTERLINE OF NORTHGATE ACCESS ROAD SEE SURVEYOR NOTE 2
- - - AS-BUILT CENTERLINE OF DRIVEWAY SEE SURVEYOR NOTE 2
- - - TIE LINE
- ▨ PROPOSED 30' ACCESS AND UTILITIES EASEMENT, 4,117 S.F.
- ▨ PROPOSED 190' RADIUS FALL EASEMENT, APPROXIMATELY 13,195 +/- S.F.
- ▨ PROPOSED 190' RADIUS FALL EASEMENT, APPROXIMATELY 3,746 +/- S.F.

NOTES:

- 1) LEASE AREA, 5,625 S.F.
- 2) CENTER OF PROPOSED TOWER
- 3) SHED IS 26.1' WEST OF PROPERTY LINE
- 4) BUILDING IS 4.1' WEST OF PROPERTY LINE
- 5) OUTHOUSE IS 26.7' WEST OF PROPERTY LINE
- 6) MANUFACTURED HOUSE IS 17.1' EAST OF PROPERTY LINE
- 7) 190' PROPOSED SELF SUPPORT TOWER

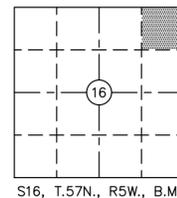
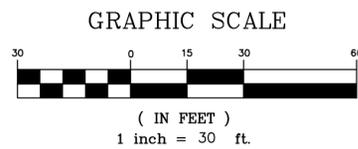


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DATE 01/22/2025	SCALE 1" = 30'
FIELD BOOK 24-285	DRAWN JRB
PROJECT NUMBER 24-285	DRAWING NO. 2 OF 2

24-285 ROS.dwg 18x27 ROS PG2