

177th BOARD YEAR

LEGISLATIVE ITEMS RECEIVED FOR COMMITTEE REFERRAL

File No.	Rec/Ref:	To:	Title
177-O-098	02/07/23	EX PW FI	ORD: Modify The 2023-2027 Capital Plan And 2023 Capital Budget To Increase Expenditures For Capital Project #202109-Airport Parking Lot Rehabilitation And Expansion
177-O-099	02/07/23 02/07/23	EX	ORD: Amend Waukesha County Code To Prohibit Use Of E-Cigarettes Anywhere Tobacco Smoking Is Prohibited
177-A-032	02/06/23	EX	APPT: Lance Matthews Appointment Of County Representative To The Eagle Spring Lake Management District Board
177-O-100	02/08/23 02/08/23	HS	ORD: Establish And Approve The Department Of Health And Human Services 2023 Fees For Community Mental Health, Developmental Disabilities, And Substance Use Disorder Services
177-O-101	02/03/23 02/03/23	FI	ORD: Authorize The Issuance Of Not To Exceed \$12,500,000 General Obligation Promissory Notes For Capital Projects
177-O-102	02/07/23 02/07/23	FI	ORD: Modify The 2023 Budget By Transferring Carryover Funds From 2022 Unexpended Appropriations To 2023 Budgeted Appropriations
177-O-103	03/06/23 03/06/23	LU	ORD: Amend The Waukesha County Shoreland And Floodland Protection Ordinance District Zoning Map Of The Town Of Ottawa By Rezoning Certain Lands Located In Part Of The SE ¼ Of Section 17, T6N, R17E, Town Of Ottawa, Waukesha County, Wisconsin, From The A-5 Mini Farm District To The P-I Public And Institutional District RZ111
177-O-104	03/06/23 03/06/23	LU	ORD: Authorize Participation In Wisconsin Outdoor Motorized Recreational Trails Aid For Waukesha County Snowmobile Trails
177-O-105	03/08/23 03/08/23	LU FI	ORD: Modify The 2023 Community Development Fund To Accept Additional Home Program Income, And Carryover Budget Authority From 2022 To 2023
177-O-106	03/08/23 03/08/23	LU FI	ORD: Modify The 2023 Community Development Fund Budget To Accept Actual Home Investment Partnership (HOME) Program Funds, And Actual Community Development Block Grant (CDBG) Program Funds
177-O-107	03/08/23 03/08/23	PW FI	ORD: Modify The 2022 Department Of Public Works Airport Operations Fund Budget For Increased Contracted Snow Removal Expenses And Increased Fuel, Lease, And Recovery Revenue
177-A-033	02/13/23	EX	APPT: Mary Berg Reappointment Of Waukesha County Resident To The Waukesha County Health & Human Services Board
177-A-034	02/13/23	EX	APPT: Christine Howard Reappointment Of Waukesha County Board Supervisor To The Waukesha County Health & Human Services Board
177-A-035	02/13/23	EX	APPT: Don Richmond Appointment Of Citizen Member To The Aging & Disability Resource Center Board For Waukesha County
177-A-036	02/22/23	EX	APPT: Abbie Liedtke Appointment Of Waukesha County Representative To The GFL Emerald Park Landfill Standing Committee And The WM Metro Waste Facilities Monitoring Committee
177-O-108	03/06/23 03/06/23	JU	ORD: Second Amendment To Menomonee Park Cell Tower Lease With United States Cellular Operating Company LLC
177-O-109	03/08/23 03/08/23	JU FI	ORD: First Amendment To Lease With CCATT LLC At UW-Milwaukee Waukesha Campus

177th BOARD YEAR

LEGISLATIVE ITEMS RECEIVED FOR COMMITTEE REFERRAL

File No.	Rec/Ref:	To:	Title
177-O-110	03/06/23 03/06/23	CB	ORD: Approve Settlement Agreements With Certain Opioid Pharmacies And Pharmaceutical Companies And Approve Wisconsin State-Local Allocation MOU

1 AMEND THE WAUKESHA COUNTY SHORELAND AND FLOODLAND PROTECTION
2 ORDINANCE DISTRICT ZONING MAP OF THE TOWN OF OTTAWA BY REZONING
3 CERTAIN LANDS LOCATED IN PART OF THE SE ¼ OF SECTION 17, T6N, R17E, TOWN
4 OF OTTAWA, WAUKESHA COUNTY, WISCONSIN, FROM THE A-5 MINI FARM
5 DISTRICT TO THE P-I PUBLIC AND INSTITUTIONAL DISTRICT
6 RZ111
7

8 WHEREAS, after proper notice was given, a public hearing was held and the subject matter of
9 this Ordinance was approved by the Town on February 6, 2023; and
10

11 WHEREAS, the matter was referred to and considered by the Waukesha County Park and
12 Planning Commission, which recommended approval and reported that recommendation to the
13 Land Use, Parks and Environment Committee and the Waukesha County Board of Supervisors,
14 as required by Section 59.692, Wis. Stats.
15

16 THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF WAUKESHA ORDAINS
17 that the Waukesha County Shoreland and Floodland Protection Ordinance District Zoning Map
18 for the Town of Ottawa, Waukesha County, Wisconsin, adopted by the Waukesha County Board
19 of Supervisors on June 23, 1970, is hereby amended to rezone from the A-5 Mini Farm District
20 to the P-I Public and Institutional District, certain lands located in part of the SE ¼ of Section 17,
21 T6N, R17E, Town of Ottawa, and more specifically described in the “Staff Report and
22 Recommendation” and map on file in the office of the Waukesha County Department of Parks
23 and Land Use and made a part of this Ordinance by reference RZ111, is hereby approved.
24

25 BE IT FURTHER ORDAINED that the Waukesha County Clerk shall file a certified copy of
26 this Ordinance with the Town of Ottawa Clerk.
27

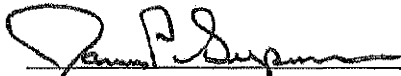
28 BE IT FURTHER ORDAINED that this Ordinance shall be in full force and effect upon passage,
29 approval and publication.

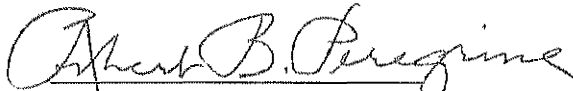
COMMISSION ACTION


The Waukesha County Park and Planning Commission after giving consideration to the subject matter of the Ordinance to amend the Waukesha County Shoreland and Floodland Protection Ordinance hereby recommends approval of **RZ111 (School Section Lake Management District)** in accordance with the attached "Staff Report and Recommendation".

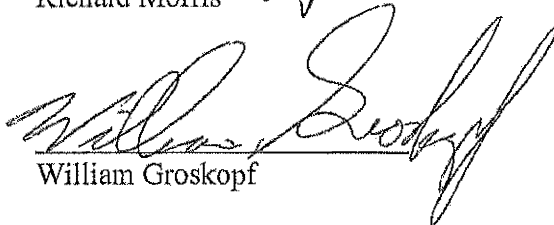
PARK AND PLANNING COMMISSION

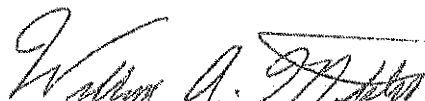
February 23, 2023


James Siepmann, Chairperson


Robert Peregrine


Richard Morris


William Groskopf


William Mitchell

WAUKESHA COUNTY DEPARTMENT OF PARKS AND LAND USE
STAFF REPORT AND RECOMMENDATION
ZONING MAP AMENDMENT

DATE: February 23, 2023

FILE NO.: RZ111

OWNER/APPLICANT: School Section Lake Management District
c/o Paul Mainz, President
P.O. Box 310
Dousman, WI 53118-0310

TAX KEY NO.: OTWT 1652.994.002

LOCATION:

Parcel 8, Certified Survey Map 710, Volume 4, Page 291, part of the SE ¼ of Section 17, T6N, R17E, and also a 1/6th interest in the 60 foot strip located east of and adjacent to Parcel 8, Town of Ottawa. More specifically, the approximately six acre parcel is located at the end of Dolmar Park Road adjacent to the northwest portion of the cul-de-sac, containing approximately six acres.

EXISTING USE(S):

Existing weed harvesting program and recreational.

REQUESTED USE(S):

To continue the existing uses on the property and construct a 12' x 16' shed to store tools and equipment related to the School Section Lake Management District (SSLMD) activities. Accessory buildings are a permitted accessory use in the P-I District as long as they are used in conjunction with the permitted use of the property.

EXISTING ZONING DISTRICT CLASSIFICATION(S):

A-5 Mini Farm District, and EC Environmental and C-1 Conservancy Overlay Districts.

PROPOSED ZONING DISTRICT CLASSIFICATION(S):

P-I Public and Institutional District (the EC Environmental and C-1 Conservancy Overlay Districts will not be amended).

CONFORMANCE WITH THE WAUKESHA COUNTY COMPREHENSIVE DEVELOPMENT PLAN (WCCDP) AND THE TOWN OF OTTAWA COMPREHENSIVE DEVELOPMENT PLAN (CDP):

The Town and County CDPs designate the parcel as Government and Institutional, Other Open Lands to be Preserved, and Primary Environmental Corridor. Both plans were recently amended to accommodate the proposed zoning change – the County's plan in 2021 and the Town's plan in 2019. Therefore, the proposed rezone will comply with both plans.

PUBLIC HEARING DATE: February 6, 2023

PUBLIC COMMENT:

One adjacent resident asked if the property will be open to the public. He is concerned about trespassers. The response was that the District is a private organization, and only members of the District are currently allowed to use the property and that will continue even if the property is rezoned. If there are trespassers, the District is willing to install some 'no trespassing' signs if it is thought that it will help.

TOWN PLAN COMMISSION ACTION:

On February 6, 2023, the Town of Ottawa Plan Commission unanimously recommended approval of the zoning amendment request subject to the Town Planner's report and recommendation.

STAFF ANALYSIS:

The SSLMD, a nonprofit, privately owned organization serving the needs of the District, is created by state statute and is a special purpose unit of government focused on lake management and the provision of services to property located within its established boundaries. Current uses on the property include, but are not limited to, lake weed composting and related storage, and recreational uses. The approximately six acre property is located at the end of Dolmar Park Road and contains PEC, wetland, floodplain, an unnamed ditch, a small pond, and hydric soils.

The District wishes to continue the existing lake district uses of the property. The SSLMD also wants to construct a 12' x 16' shed to store tools and equipment related to the District's activities. Improvements to the property will require the necessary permits, including a Site Plan/Plan of Operation review, Environmental Health Division review, and Zoning and Building Permits.

The current zoning of A-5 permits primarily agricultural and rural residential uses and is the reason for the proposed zoning amendment to the P-I District so that the existing uses are in conformance with the zoning district and the Town and County CDPs.

STAFF RECOMMENDATION:

Based on the above analysis, the Planning and Zoning Division staff recommends **approval** of the request. The proposed amendment rezones the property to the P-I District which is consistent with the current and planned uses of the property. The amendment will better serve both the current uses and future plans the SSLMD has for the property, conforms with both the Town and County CDPs, and complies with the purpose and intent of the Waukesha County Shoreland and Floodland Protection Ordinance.

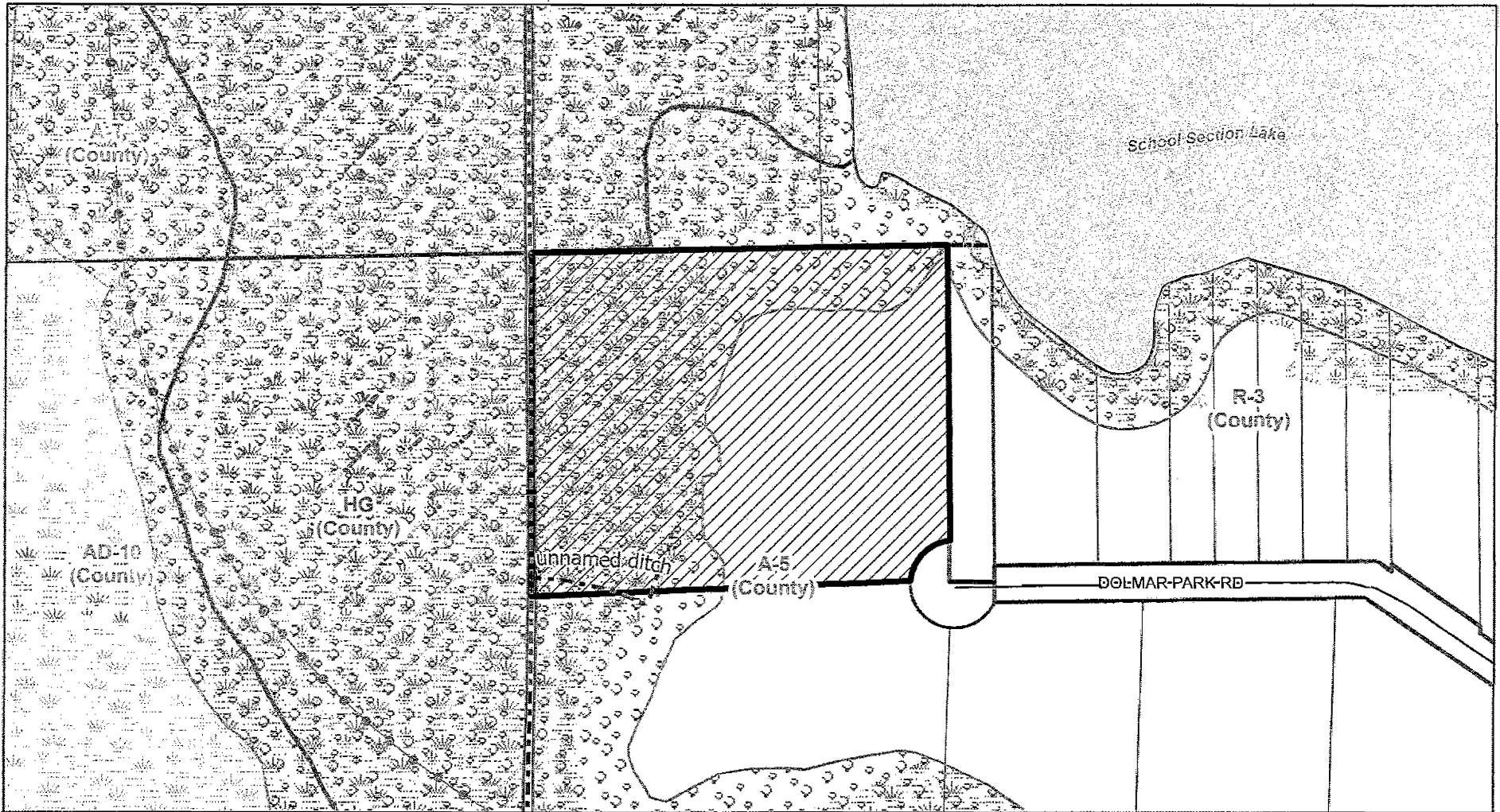
Respectfully submitted,

Sandra L Scherer

Sandy Scherer
Senior Planner

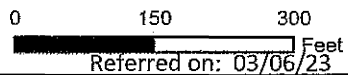
Attachment: Map




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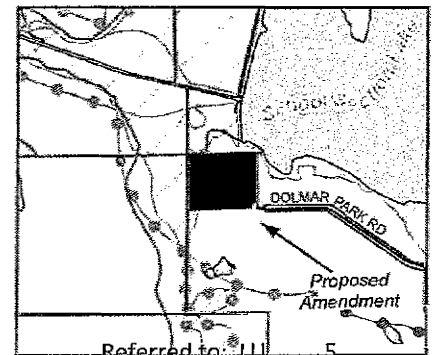
ZONING AMENDMENT

PART OF THE SE 1/4, SECTION 17,
TOWN OF OTTAWA



-  COUNTY ZONING CHANGE FROM A-5 MINI FARM DISTRICT TO P-I PUBLIC AND INSTITUTIONAL DISTRICT
-  EC Environmental Corridor Overlay
-  C-1 Conservancy Overlay

FILE.....RZ111
 DATE OF PLAN COMMISSION.....2/23/23
 AREA OF CHANGE.....5.9 ACRES
 TAX KEY NUMBER.....OTWT 1652.994.002



Referred to: LU 5

File Number: 177-O-103

Prepared by the Waukesha County Department of Parks and Land Use

1 AUTHORIZE PARTICIPATION IN WISCONSIN OUTDOOR MOTORIZED
2 RECREATIONAL TRAILS AID FOR WAUKESHA COUNTY SNOWMOBILE TRAILS
3

4 WHEREAS, the Waukesha County Department of Parks and Land Use, in cooperation with the
5 Waukesha County Snowmobile Association, Inc., utilizes the State of Wisconsin Department of
6 Natural Resources – Outdoor Motorized Recreational Trails Aid for acquisition, insurance,
7 development and maintenance of public snowmobile trails; and
8

9 WHEREAS, Waukesha County Snowmobile Association, Inc. acquires, insures, and maintains
10 snowmobile trails for public outdoor snowmobile trail use; and
11

12 WHEREAS, a Waukesha County Board ordinance indicating a desire to participate in the
13 program is required annually to apply for and receive Outdoor Motorized Recreational Trails Aid
14 for public snowmobile trails under sec. 23.09(26), Wis. Stats.; and
15

16 WHEREAS, Waukesha County has been a successful annual participant in the Outdoor
17 Motorized Recreational Trails Aid grant program since 2000; and
18

19 WHEREAS, the State of Wisconsin requires Waukesha County to coordinate, apply for and
20 disburse snowmobile funds; and to execute a separate agreement with Waukesha County
21 Snowmobile Association, Inc. which includes all required grant documentation for funding to be
22 provided to Waukesha County; and
23

24 WHEREAS, the grant funds to be received and disbursed have been incorporated in the 2023
25 Waukesha County Department of Parks and Land Use budget.
26

27 THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF WAUKESHA ORDAINS
28 that Waukesha County desires to receive Outdoor Motorized Recreational Trails Aid pursuant to
29 sec. 23.09(26), Wis. Stats. for program year 2023-2024.
30

31 BE IT FURTHER ORDAINED that the Director of the Department of Parks and Land Use or his
32 designee is authorized to act on behalf of Waukesha County to submit an application to the State
33 of Wisconsin Department of Natural Resources for any financial aid that may be available
34 pursuant to sec. 23.09(26), Wis. Stats.
35

36 BE IT FURTHER ORDAINED that the Director of the Department of Parks and Land Use or his
37 designee is authorized to execute an agreement on behalf of Waukesha County with the
38 Waukesha County Snowmobile Association, Inc., in a form to be approved by Corporation
39 Counsel, for the maintenance of Waukesha County public snowmobile trails and distribution of
40 related program funds.
41

42 BE IT FURTHER ORDAINED that the Director of the Department of Parks and Land Use or his
43 designee is authorized to take all necessary actions and execute any necessary additional
44 documents in order to effectuate the purposes of the agreement and to undertake, direct and
45 complete approved projects with Outdoor Motorized Recreational Trails Aid received.



Waukesha County

Department of Parks and Land Use

Agreement Between Waukesha County Snowmobile Association, Inc. and Waukesha County for Maintenance of Waukesha County Public Snowmobile Trails and Distribution of Funds Under the Wisconsin Department of Natural Resources Snowmobile Aids Program

This Agreement is made by and between Waukesha County Snowmobile Association, Inc. herein called "Contractor", and Waukesha County, herein called "County", a Wisconsin municipal corporation, for the maintenance of public snowmobile trails located within Waukesha County pursuant to §23.09(26) and §350.12(4), Wis. Stats.

A. TERM OF AGREEMENT:

- 1) This Agreement is in effect from November 1, 2023 through March 30, 2024, renewable annually at the option of County.

B. SCOPE OF WORK:

Parties agree that the scope of work under this Agreement shall be limited to public snowmobile trails within the legal boundaries of Waukesha County. Contractor must obtain the County's written approval for any work performed outside the County's borders to be made part of this Agreement.

The Contractor shall perform the following services on an annual basis:

- 1) Verify with private landowners and the County that there are valid land use agreements on file with the County securing public access and use of land for snowmobiling by the public.
- 2) Prepare the trails for public use by grading, brushing, leveling, and performing other preparatory work necessary to provide safe riding conditions.
- 3) Install deck protection over surface of all multi-use trail bridges, to protect bridge decking and to provide for safe riding conditions. Inspect planking regularly, and close trail at bridge crossing immediately upon discovery of damaged or missing planking. Re-open bridge crossing only after repairs to planking are complete. All planking to be removed by April 1st each year.
- 4) Install and maintain snowmobile highway, trail, and guide signs conforming to NR 50.09 requirements. Coordinate signage with County and State departments.

Park System

515 W Moreland Blvd., AC 230 • Waukesha, Wisconsin 53188-3878
Phone: (262) 548-7790 • Fax: (262) 896-8071 • www.waukeshacountyparks.com

- 5) Provide equipment and labor necessary to maintain and groom the trails in a safe riding condition.
- 6) Groom and maintain snowmobile trails to the minimum standards required under NR 50.09 and any other State or County rule or regulation.
- 7) Periodically inspect trails to ensure safe riding conditions. Notify Waukesha County Department of Parks and Land Use, Parks System Division of trail conditions as requested and provide current trail maps as requested.
- 8) Keep Snow Conditions Recorded Hotline up to date with trail condition/status. Indicate conditions as "Closed, Poor, Fair, Good, or Excellent", status as "Closed, Partially Open (indicate which trails), or Open", the amount of snow base in inches, and if the trails have been groomed. Inform County whenever conditions change so Department of Tourism website and County website can be updated.
- 9) Install and maintain approved trail open/closed signage that includes snow depth requirements at all major access points where snowmobile trail follows a multi-use trail corridor (i.e. Ice Age Trail, Bugline). Multi-use trail signs shall not be removed or covered without permission of agency placing the sign.

A. DISTRIBUTION OF FUNDS UNDER THE SNOWMOBILE AIDS PROGRAM

The County shall distribute funds available under the Snowmobile Aids Program as follows:

- 1) The County shall reimburse the Contractor for actual maintenance performed by multiplying the State of Wisconsin Department of Natural Resources approved Snowmobile Trail Maintenance rate per mile then in effect times the number of certified miles of Waukesha County public snowmobile trails maintained by Contractor, up to the maximum grant funding provided by the State of Wisconsin Department of Natural Resources. County agrees to distribute supplementary snowmobile trail maintenance payments provided by the State to Contractor subject to availability and eligibility.
- 2) Contractor agrees that above outlined services shall be provided for the amount stated in the preceding paragraph. Contractor understands that supplementary snowmobile trail maintenance payments are subject to availability and conditions and that as such, may not be available for distribution to Contractor. Contractor agrees that trails shall be maintained in a safe riding condition until the end of the snowmobiling season even if funds are exhausted prior to the end of the season.
- 3) Contractor shall submit to County requests for distribution of funds on Snowmobile Automated Recording System (SNARS) provided by the Department of Natural Resources. Requests must be submitted to the County by the 25th day of each month. Distribution of funds by County is contingent upon approval of work by County and/or the Department of Natural Resources and the availability of State Snowmobile Aids Program funds.

B. ADDITIONAL PROVISIONS

- 1) Contractor agrees that it is working in the capacity of an independent contractor with respect to the services provided. Nothing in this Agreement shall be considered to create the relationship of employer and employee between the parties.

- 2) Contractor agrees that it will, at all times during the term of this Agreement, keep in force and effect insurance policies required by this Agreement as noted below. Insurance certificates must be issued by a company or companies authorized to do business in the State of Wisconsin and that are satisfactory to the County. Such insurance shall be primary. Prior to commencing any on-site activity, the Contractor shall furnish the County with a Certificate of Insurance issued and upon request, certified copies of the required insurance policies. The Certificate shall reference this Agreement and provide for thirty (30) days' advance notice of cancellation or non-renewal during the term of this Agreement.

Failure to submit or maintain the insurance requirements may void this Agreement at the County's discretion. Minimum requirements are as follows:

Commercial General Liability: Policy shall be written to provide coverage for, but not limited to, the following: (1) Premises and Operations, (2) Products and completed operations, (3) Personal injury, (4) Blanket contractual coverage, (5) Broad form property damage and (6) Independent Corporation's coverage.

Limits of liability not less than: \$1,000,000 General aggregate; \$1,000,000 Products/Completed operations aggregate; \$1,000,000 Personal Injury; \$1,000,000 Each Occurrence. Waukesha County, its boards, commissions, agencies, officers, employees and representatives shall be named as additional insureds and be so stated on the Certificate(s) of Insurance.

- 3) Contractor agrees to protect, indemnify, defend and hold harmless Waukesha County, its boards, commissions, officers, agents, employees and representatives from and against any and all liability, including claims, causes of actions, damages, demands, costs, expenses, losses and damage to any property or bodily injury to any person including death, as a result of any act or omission of the Contractor, its officers, members, employees, agents, representatives, directors in connection with the terms of this Agreement. In case any action or proceeding is brought against Waukesha County by reason of any such claim or cause of action, the Contractor upon notice from Waukesha County shall defend Waukesha County and be responsible for payment of attorney fees and costs.
- 4) All changes that are mutually agreed upon by and between the County and the Contractor shall be in writing and designated as written amendments to this Agreement. Parties understand that County does not control the availability of funds and that funds may not be available for each year of the Agreement.
- 5) Nothing in this Agreement shall bind County to fund the snowmobile maintenance program should State funds no longer be available. County shall notify the Contractor on an annual basis as soon as funding amounts for the following snowmobiling season become available.
- 6) Termination of Agreement for Cause. If, through any cause, the Contractor fails to fulfill in a timely and proper manner its obligations under this Agreement, or if the Contractor violates the covenants, agreements or stipulations of this Agreement, the County shall

have the right to terminate this Agreement by giving written notice to the Contractor of such termination delivered pursuant to Section 8. The written notice shall be provided to the Contractor at least thirty days before the effective date of such termination. County may permit the Contractor a reasonable amount of time to cure a breach of the terms of this Agreement if the breach is amenable to a cure and County shall not unreasonably withhold such permission.

- 7) Any lawsuits related to or arising out of disputes under this Agreement shall be commenced and tried in the Circuit Court of Waukesha County, Wisconsin and the County and Contractor shall submit to the jurisdiction of the Circuit Court for such lawsuits. This Agreement and any disputes arising under it shall be governed by the laws of the State of Wisconsin.
- 8) Any and all notices shall be in writing and deemed served upon depositing same with the United States Postal Service as "Certified Mail, Return Receipt Requested", addressed to the Contractor at:

Harold Butschke
Waukesha County Snowmobile Association
730 East Harvard Street
Oconomowoc WI 53066
Cell 262-468-8437

and to the County at:

Rebecca Mattano
Waukesha County Department of Parks & Land Use
515 W. Moreland Blvd. AC 230
Waukesha, WI 53188
262-548-7807

All other correspondence shall be addressed as above but may be sent by "Regular Mail" and deemed delivered upon receipt by the addressee.

In Witness Whereof, the parties hereto have executed this Agreement on the dates recited below:

Signatures Follow

WAUKESHA COUNTY

By: _____ Date _____
Rebecca Mattano, Park System Manager

WAUKESHA COUNTY SNOWMOBILE ASSOCIATION, INC.

By: _____ Date: _____
(Signature)

By: _____ Title: _____
(Print name)

The above signatory on behalf of the Waukesha County Snowmobile Association, Inc. does hereby state that he is authorized to execute agreements and contracts on behalf of the Waukesha County Snowmobile Association, Inc. and to so bind the Waukesha County Snowmobile Association, Inc. to its terms.

Initials

1 MODIFY THE 2023 COMMUNITY DEVELOPMENT FUND TO ACCEPT ADDITIONAL
2 HOME PROGRAM INCOME, AND CARRYOVER BUDGET AUTHORITY
3 FROM 2022 TO 2023
4

5 WHEREAS, the U.S. Department of Housing and Urban Development (HUD) has qualified
6 Waukesha County as an entitlement Urban County and, along with participating counties and
7 municipalities, is eligible to receive federal funding to provide benefits primarily to low and
8 moderate income households as well as to meet specific community needs through the
9 Community Development Block Grant (CDBG) and HOME Investment Partnership (HOME)
10 programs; and

11
12 WHEREAS, Waukesha County, as the grantee, has been authorized by the Waukesha County
13 Board of Supervisors to participate and accept funding; and

14
15 WHEREAS, unencumbered and unexpended CDBG grant funds of \$201,223 and HOME grant
16 funds of \$3,454,547 are requested for carryover from 2022 to 2023; and

17
18 WHEREAS, excess HOME Program Income of \$637,905 was received in 2022; and

19
20 WHEREAS, HUD requires Program Income to be used first, and can be given out as entitlement
21 grants to satisfy this requirement, and these funds are requested for appropriation in order to
22 reconcile to HUD financial records; and

23
24 WHEREAS, Enrolled Ordinances 175-9 and 175-47 accepted and appropriated \$2,196,332 for
25 the CDBG-Coronavirus (CV) program grant; and

26
27 WHEREAS, while the CDBG-CV program was scheduled to be completed at the end of
28 September 2022, HUD extended the CDBG-CV program to conclude in December 2025; and

29
30 WHEREAS, \$225,593 of remaining CDBG-CV grant funds were not expended or encumbered
31 and are being requested to be carried over to 2023; and

32
33 WHEREAS, Enrolled Ordinances 176-73 appropriated \$2,500,000 for the US Treasury
34 Department Emergency Rental Assistance (ERA #2) program grant; and

35
36 WHEREAS, \$900,492 of remaining ERA#2 grant funds were not expended or encumbered and
37 are being requested to be carried over to 2023; and

38
39 WHEREAS, Enrolled Ordinances 176-26 accepted the HOME-American Rescue Plan Act
40 (ARPA) program grant and \$1,250,000 of these funds were appropriated in the 2022 Adopted
41 Budget to create affordable housing and services to assist individuals at risk of experiencing
42 homelessness; and

43
44 WHEREAS, \$1,204,170 of remaining HOME-ARPA grant funds were not expended or
45 encumbered and are being requested to be carried over to 2023; and
46

47 WHEREAS, subgrantees, participating counties and municipalities will enter into subgrantee
48 agreements with Waukesha County to use HUD funds mainly designated to benefit low and
49 moderate income (at-risk) persons and specific needs of participating jurisdictions.
50

51 THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF WAUKESHA ORDAINS
52 that that the Community Development program administration is authorized to accept the
53 additional 2022 HUD funding for the HOME program income of \$637,905.
54

55 BE IT FURTHER ORDAINED that the 2023 Community Development Fund budget be
56 modified by appropriating operating expenditures of \$201,223 for the CDBG program,
57 appropriating operating expenditures of \$4,092,452 for the HOME program, appropriating
58 operating expenditures of \$225,593 for the CDBG-CV grant program, appropriating operating
59 expenditures of \$900,492 for the Emergency Rental Assistance grant program (ERA #2),
60 appropriating operating expenditures of \$1,204,170 for the HOME-ARPA grant program, and
61 increasing general government revenue by \$6,623,930 to fund these expenditures.
62

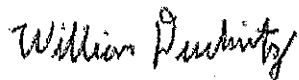
63 BE IT FURTHER ORDAINED that the Community Development program be authorized to
64 execute agreements or appropriate amendments to existing subgrantee agreements which are
65 deemed reasonable and appropriate by the County Executive and the Community Development
66 Block Grant Board and the HOME Consortium Board.

FISCAL NOTE
 MODIFY THE 2023 COMMUNITY DEVELOPMENT FUND TO ACCEPT ADDITIONAL
 HOME PROGRAM INCOME, AND CARRYOVER BUDGET AUTHORITY
 FROM 2022 TO 2023

This ordinance authorizes the Community Development Fund budget to accept additional funding for the HOME program and modifies the budget accordingly. The ordinance also authorizes the carryover of expenditure authority for the CDBG, HOME, Coronavirus (CV), HOME-ARPA, and Emergency Rental Assistance (ERA#2) grants from 2022 to 2023 (see table below).

Ordinance Detail	
Category	Amount
Excess HOME Program Income	637,905
Carryover for CDBG Program	201,223
Carryover for HOME Program	3,454,547
Carryover for CDBG-Coronavirus (CV)	225,593
Carryover of Emergency Rental Assistance #2 Grant	900,492
Carryover of HOME-ARPA	1,204,170
Total	6,623,930

This ordinance results in no direct tax levy impact.



William Duckwitz
 Budget Manager
 3/5/2023
 AK
 JE# 2023-00002248

1 MODIFY THE 2023 COMMUNITY DEVELOPMENT FUND BUDGET TO ACCEPT
2 ACTUAL HOME INVESTMENT PARTNERSHIP (HOME)
3 PROGRAM FUNDS, AND ACTUAL COMMUNITY DEVELOPMENT
4 BLOCK GRANT (CDBG) PROGRAM FUNDS
5

6 WHEREAS, the U.S. Department of Housing and Urban Development (HUD) has qualified
7 Waukesha County as an entitlement Urban County and, along with participating counties and
8 municipalities, is eligible to receive federal funding to provide benefits primarily to low and
9 moderate income households as well as to meet specific community needs through the
10 Community Development Block Grant (CDBG) and HOME Investment Partnership (HOME)
11 programs; and
12

13 WHEREAS, Waukesha County, as the grantee, has been authorized by the Waukesha County
14 Board of Supervisors to participate and accept funding; and
15

16 WHEREAS, the Parks and Land Use Department 2023 Budget includes HUD funding estimated
17 at \$1,461,566 for the CDBG program and \$1,634,455 for the HOME program for total HUD
18 funding of \$3,096,021; and
19

20 WHEREAS, the final 2023 HUD grant awarded for the CDBG program is \$37,549 lower for
21 CDBG at \$1,424,017, and is \$2,038 lower for the HOME Program at \$1,632,417; and
22

23 WHEREAS, subgrantees, participating counties and municipalities will enter into subgrantee
24 agreements with Waukesha County to use HUD funds mainly designated to benefit low and
25 moderate income (at-risk) persons and specific needs of participating jurisdictions.
26

27 THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF WAUKESHA ORDAINS
28 that the 2023 Community Development Fund budget be modified by reducing operating
29 expenditures of \$37,549 in the CDBG program, reducing operating expenditures of \$2,038 in the
30 HOME program, and reducing general government revenue \$37,549 in the CDBG program, and
31 reducing general government revenue \$2,038 in the HOME program.
32

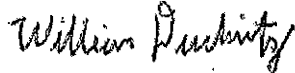
33 BE IT FURTHER ORDAINED that the Community Development program be authorized to
34 execute agreements or appropriate amendments to existing subgrantee agreements which are
35 deemed reasonable and appropriate by the County Executive and the Community Development
36 Block Grant Board and the HOME Consortium Board.

FISCAL NOTE
MODIFY THE 2023 COMMUNITY DEVELOPMENT FUND BUDGET TO ACCEPT
ACTUAL HOME INVESTMENT PARTNERSHIP (HOME)
PROGRAM FUNDS, AND ACTUAL COMMUNITY DEVELOPMENT
BLOCK GRANT (CDBG) PROGRAM FUNDS

In order to keep the County budget and record keeping consistent with Federal U.S. Department of Housing and Urban Development (HUD) reporting requirements, this ordinance modifies the 2023 Community Development Block Grant (CDBG) and Community Development HOME Investment Partnership Program (HOME) operating expenditures appropriations to match the HUD-approved CDBG and HOME programs grant amounts. The 2023 HUD awarded amounts for the County's CDBG program is at \$1,424,017, which is \$37,549 less than the 2023 adopted budget appropriation of \$1,461,566. In addition, the 2023 HUD awarded amounts for the County's HOME program is \$1,632,417, which is \$2,038 less than the 2023 adopted budget appropriation of \$1,634,455. The adopted budget is not based on the final HUD grant notification due to timing delays in receiving the federal budget approbation grant award notification.

This ordinance also authorizes the subgrantee agreements necessary to cover allocations to be made by the County Executive, Community Development Block Grant Board, and the HOME Consortium Board for changes in funding.

This ordinance results in no direct tax levy impact.



William Duckwitz
Budget Manager
3/5/2023
AK
JE# 2023-00002246

1 MODIFY THE 2022 DEPARTMENT OF PUBLIC WORKS AIRPORT OPERATIONS FUND
2 BUDGET FOR INCREASED CONTRACTED SNOW REMOVAL EXPENSES AND
3 INCREASED FUEL, LEASE, AND RECOVERY REVENUE
4

5 WHEREAS, the Airport Operations Fund budget of the Department of Public Works is set up as
6 an enterprise fund to account for the expenses and revenues associated with providing services
7 and operating the Waukesha County Airport; and
8

9 WHEREAS, the Airport Fund is not supported by tax levy; and
10

11 WHEREAS, the Airport uses an external contractor for snow removal services for Airport
12 roadways, parking lots, taxiways and runways; and
13

14 WHEREAS, the higher-than-average number of contractor deployments and material costs for
15 de-icing treatments has resulted in the expense lines for these services being overbudget in 2022;
16 and
17

18 WHEREAS, enrolled ordinance 177-50 approved on September 27, 2022 modified the Airport
19 Operations Fund to account for already over budget expenses and estimates of remaining costs
20 for upcoming winter weather in 2022; and
21

22 WHEREAS, weather conditions and subsequent deployment costs for November and December
23 have exceeded averages; and
24

25 WHEREAS, the Airport Operations Fund receives fuel flowage revenue of \$0.10 per gallon of
26 fuel sold by Fixed Based Operators; and
27

28 WHEREAS, gallons of fuel sold and corresponding fuel flowage revenues were higher than
29 budgeted in 2022; and
30

31 WHEREAS, the Airport leases space to the fixed base operators, aeronautical service providers,
32 and aircraft owners; and
33

34 WHEREAS, lease revenue was estimated conservatively in the 2022 adopted budget, resulting in
35 those revenues being over budget.
36

37 WHEREAS, the Airport receives revenue for reimbursements from fixed base operators for
38 utility costs, reimbursements from the snow removal contractor for damage to airport equipment
39 and property, sale of airport security access badges, and advertising; and
40

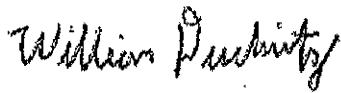
41 WHEREAS, recovery revenue was higher than budgeted in 2022.
42

43 THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF WAUKESHA ORDAINS
44 that the 2022 Department of Public Works, Airport Operations Fund budget be modified to
45 increase operating expenses for contracted snow removal costs by \$80,000 and to increase
46 charges for services revenue by \$70,000 and recovery revenues by \$10,000.

FISCAL NOTE

MODIFY THE 2022 DEPARTMENT OF PUBLIC WORKS, AIRPORT OPERATIONS FUND
BUDGET FOR INCREASED CONTRACTED SNOW REMOVAL EXPENSES AND
INCREASED FUEL, LEASE, AND RECOVERY REVENUE

This ordinance modifies the 2022 Airport Fund budget to increase expenses \$80,000 for above budget snow removal costs, and funds the increased expenses with higher fuel, lease, and recovery revenue. Department management is working the Department of Administration on solutions, which include re-negotiating vendor payments and evaluating whether to bring some or all of snow removal in-house.



William Duckwitz
Budget Manager
3/6/2023
JE# - 2022-00011917



WAUKESHA COUNTY
OFFICE OF THE COUNTY EXECUTIVE

MEMO:

DATE: February 13, 2023
TO: Chairman Paul Decker
FROM: Paul Farrow
RE: Reappointment to the Health & Human Services Board

I am pleased to submit to the County Board for your consideration the reappointment of Mary Berg to serve as a member on the Waukesha County Health & Human Services Board. If reappointed, Ms. Berg's term will expire in April 2026.

PF:ha

cc: Shannon Gustavson



WAUKESHA COUNTY
OFFICE OF THE COUNTY EXECUTIVE

MEMO:

DATE: February 13, 2023
TO: Chairman Paul Decker
FROM: Paul Farrow
RE: Reappointment to the Health & Human Services Board

I am pleased to submit to the County Board for your consideration the reappointment of Christine Howard to serve as a member on the Waukesha County Health & Human Services Board. If reappointed, Ms. Howard's term will expire in April 2026.

PF:ha

cc: Shannon Gustavson



WAUKESHA COUNTY
OFFICE OF THE COUNTY EXECUTIVE

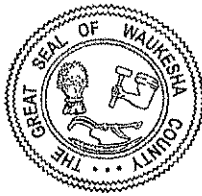
MEMO:

DATE: February 13, 2023
TO: Chairman Paul Decker
FROM: Paul Farrow
RE: Appointment of Citizen Member to the Aging & Disability Resource Center Board

This letter is submitted to recommend Mr. Don Richmond be appointed to the Aging & Disability Resource Center Board for Waukesha County. Mr. Richmond is a current driver for the Seniors on the Go Taxi Service that is located in Mukwonago, WI. This term would expire March of 2026.

PF:ha

cc: Mary Smith



WAUKESHA COUNTY
OFFICE OF THE COUNTY EXECUTIVE

MEMO:

DATE: February 22, 2023
TO: Chairman Paul Decker
FROM: Paul Farrow
RE: Appointment of Abbie Liedtke to the GFL Emerald Park Landfill Standing Committee and the WM Metro Waste Facilities Monitoring Committee

This letter is submitted to recommend Abbie Liedtke to the GFL Emerald Park Landfill Standing Committee and the WM Metro Waste Facilities Monitoring Committee. She is recommended as the replacement for Analiese Smith as the Waukesha County representative on these two committees. The Committees were created through the adopted Siting Agreements for the Emerald Park and Metro Landfills in Franklin and Muskego. Abbie has worked for Waukesha County since 2015 and currently serves as the Recycling and Solid Waste Supervisor in the Department of Parks & Land Use - Land Resources Division following Analiese's promotion to the Workforce Development Board Director in January.

PF:ha

cc: Alan Barrows

1 SECOND AMENDMENT TO MENOMONEE PARK CELL TOWER LEASE WITH
2 UNITED STATES CELLULAR OPERATING COMPANY LLC
3

4 WHEREAS, Waukesha County leased to United States Cellular Operating Company LLC ("U.S.
5 Cellular") certain Premises, therein described, that are a portion of the Property located at W204
6 N 7987 Lannon Road in the Village of Menomonee Falls, Wisconsin commonly known as
7 Menomonee Park for the installation and operation of a communications service system facility,
8 including related antenna equipment and fixtures; and
9

10 WHEREAS, U.S. Cellular desires to replace, modify or relocate various equipment, antennas
11 and/or feedlines on the Tower in order to update aged equipment; and
12

13 WHEREAS, the County is willing to permit the upgrades, and otherwise amend the Lease
14 with U.S. Cellular without requiring an increase in rent; and
15

16 WHEREAS, it is therefore necessary and desirable for the parties to execute an amendment
17 to the Lease to formalize their agreement.

18
19 THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF WAUKESHA ORDAINS
20 that the Second Amendment to Lease Agreement between the County and United States
21 Cellular Operating Company LLC for use of the Tower and surrounding lands is hereby
22 approved.
23

24 BE IT FURTHER ORDAINED that the Director of Emergency Preparedness or his designee
25 is authorized to execute the Second Amendment to Lease Agreement and any other
26 documents necessary to effectuate the intent thereof.

SECOND AMENDMENT TO LEASE

THIS SECOND AMENDMENT TO LEASE ("**Second Amendment**"), made the ____ day of ____, 2023 is entered into between Waukesha County, Wisconsin, a quasi-municipal corporation, having a mailing address of 515 W. Moreland Blvd., Waukesha, Wisconsin 53188 ("**County**") and United States Cellular Operating Company LLC, a Delaware limited liability company, as successor in interest to United States Cellular Operating Company, having an address at Real Estate Lease Administration, 8410 West Bryn Mawr Avenue, Chicago, IL 60631, ("**Lessee**").

WHEREAS, County and Lessee's predecessor in interest entered into a Lease dated March 9, 2000, as amended by that certain First Amendment to Lease dated October 22, 2019 (the Lease as amended hereafter, the "**Agreement**"), whereby County leased to Lessee certain Premises, therein described, that are a portion of the Property located at W204 N 7987 Lannon Road in the Village of Menomonee Falls, Wisconsin for the installation and operation of a communications service system facility, including related antenna equipment and fixtures ("**Communication Facility**"); and

WHEREAS, among other things, the Agreement requires that modifications and improvements to the Communication Facility desired by Lessee that would result in additional equipment, change space requirements or change configuration, placement or number of antennas or feedlines are subject to the County's prior approval, and may result in demand for increased rent or other modification of Agreement terms; and

WHEREAS, Lessee desires to modify or relocate various equipment, antennas and/or feedlines on the Communication Facility, which the County is willing to approve so long as the Agreement is otherwise amended as required hereby, and;

WHEREAS, County and Lessee, in their mutual interest, wish to amend the Agreement as set forth below accordingly.

NOW THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, County and Lessee agree to amend the Agreement as follows:

1. **Additional Equipment Modification.** County consents to the installation and operation of the additional equipment detailed in Lessee's October 31, 2022 construction plans, a copy of which is attached hereto as Exhibit 1.
2. **Other Terms and Conditions Remain.** In the event of any inconsistencies between the Agreement and this Second Amendment, the terms of this Second Amendment shall control. Except as expressly set forth in this Second Amendment, the Agreement otherwise is unmodified and remains in full force and effect. Each reference in the Agreement to itself shall be deemed also to refer to this Second Amendment.

3. **Capitalized Terms.** All capitalized terms used but not defined herein shall have the same meanings as defined in the Agreement.

IN WITNESS WHEREOF, the parties have caused their properly authorized representatives to execute and seal this Second Amendment on the dates set forth below.

"COUNTY"

Waukesha County, Wisconsin,
a quasi-municipal corporation

By: _____
Name: _____
Title: _____
Date: _____

"LESSEE"

United States Cellular Operating Company LLC

By: _____
Name: _____
Title: _____
Date: _____

LESSEE ACKNOWLEDGEMENT

STATE OF _____)
) ss:
COUNTY OF _____)

On the ____ day of _____ in the year ____ before me, the undersigned, a notary public in and for said state, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the _____ of United States Cellular Operating Company LLC described herein and that the instrument was signed on behalf of the limited liability company, under the authority of the limited liability company and that he./she acknowledged this instrument to be the free act and deed of the limited liability company.

Notary Public: _____
My Commission Expires: _____

COUNTY ACKNOWLEDGEMENT

STATE OF WISCONSIN)
) ss:
COUNTY OF WAUKESHA)

On this ____ day of _____, 2023 before me, the undersigned, personally appeared Gary Bell, personally known to me or proved to me on the basis of satisfactory evidence to be the Director of Emergency Management for Waukesha County described herein and that the instrument was signed on behalf of Waukesha County, he being authorized to do so, for the purposes therein contained.

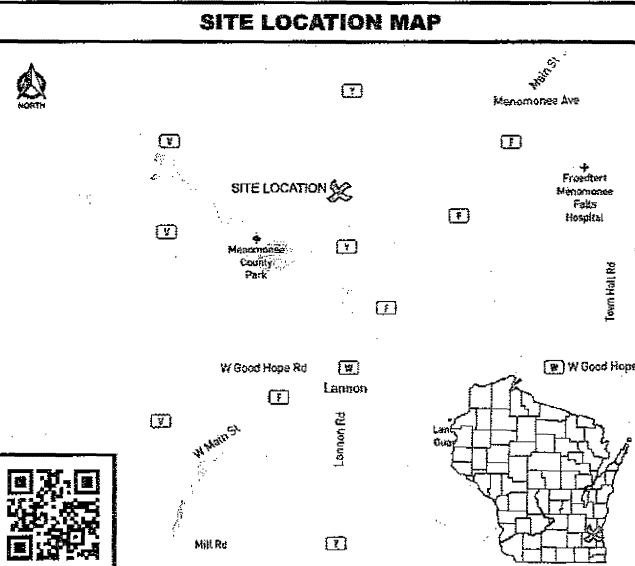
Notary Public: _____
My Commission Expires: _____

SCOPE OF WORK			
TOWER SCOPE			
MODERNIZATION SCOPE (REMAIN/RELOCATE)			
ANTENNA(S)/EQUIP	QTY.	EQUIPMENT	ACTION
	4	CDMA ANTENNA(S) @ 74.0'	TO BE RELOCATED
	2	CDMA ANTENNA(S) @ 124.5'	TO BE RELOCATED
TRANSMISSION CABLE(S)	0	1.58" CDMA COAX	TO REMAIN
COAX JUMPERS:	-	EXISTING CDMA COAX JUMPERS	REPLACE AS NECESSARY
GROUND BAR(S)	-	ANTENNA GROUND BAR*	G.C. TO VERIFY
	-	NO TOWER GROUND BAR*	G.C. TO VERIFY
	-	LOWER TOWER GROUND BAR*	TO REMAIN
MODERNIZATION SCOPE (TO BE INSTALLED)			
ANTENNA(S)/EQUIP	2	LTE ANTENNA(S) @ 74.0'	TO BE INSTALLED
	1	LTE ANTENNA(S) @ 124.5'	TO BE INSTALLED
	2	RAYCAP SPOBS	TO BE INSTALLED
	2	REMOTE RADIOS	TO BE INSTALLED
TRANSMISSION CABLE(S)	2	1/4" EUPEN HYBRID CABLE(S)	TO BE INSTALLED
	3	RET JUMPER(S)	TO BE INSTALLED
COAX JUMPERS:	-	NEW LTE COAX JUMPERS	TO BE INSTALLED
SEE 1502 FOR QUANTITY AND LENGTHS			
GROUND BAR(S)	2	EQUIPMENT GROUND BARS	TO BE INSTALLED
POST-INTEGRATION SCOPE (DECOM)			
ANTENNA(S)/EQUIP	2	LTE ANTENNA(S) @ 75.0'	TO BE REMOVED
	1	LTE ANTENNA(S) @ 126.0'	TO BE REMOVED
	3	BASE-T UNITS(S)	TO BE REMOVED
TRANSMISSION CABLE(S)	6	1.58" LTE COAX	TO BE REMOVED
COAX JUMPERS:	-	EXISTING LTE COAX JUMPERS	TO BE REMOVED
COMPOUND SCOPE			
GPS ANTENNA(S)	1	CDMA/GPS ANTENNA(S)	TO REMAIN
	1	LTE GPS ANTENNA	TO BE INSTALLED
CABLE ROUTE:	-	ICE BRIDGE HANDERS	ADEQUATE - TO REMAIN
	-	SHELTER COAX PORT	ADEQUATE - TO REMAIN
GROUND BAR(S)	-	SHELTER EXTERIOR GROUND BAR*	ADEQUATE - TO REMAIN
SHELTER INTERIOR SCOPE			
MODERNIZATION SCOPE (REMAIN/RELOCATE)			
GROUND BAR(S)	-	GROUND BAR AT COAX PORT*	TO REMAIN
MODERNIZATION SCOPE (TO BE INSTALLED)			
EQUIPMENT:	1	RAYCAP PDUS	BY OTHERS
ALK RACK:	-	BASE BAND UNIT (BBU)	BY OTHERS
	2	RAYCAP FIBER TRAYS(S)	TO BE INSTALLED
POST-INTEGRATION SCOPE (DECOM)			
EQUIPMENT:	6	LTE DUBLERS	TO BE REMOVED
	6	RADIO UNITS	TO BE REMOVED
EQUIPMENT RACK:	2	LTE EQUIPMENT RACK(S)	TO BE REMOVED
SPECIAL REQUIREMENTS			
NEW SECTOR FRAMES TO REPLACE EXISTING ADJUTS. SEE T-301 FOR DETAILS.			
EX. U.S. CELLULAR LTE ANTENNAS & COAX TO BE REMOVED POST INTEGRATION			
*ERRING UP TO U.S. CELLULAR STANDARDS AS NECESSARY			



LANNON (784320)
MEMONEE FALLS, WISCONSIN
MODERNIZATION DRAWINGS
PLUMBING DIAGRAM: MVP-TWR ERC B12/B5-DS+SS
DESIGN: MVP - TOWER
190' GUYED TOWER

CONSULTANT: 824 WATER STREET PRAIRIE DU SAC, WI 53576 608.844.1540 VOICE 608.844.1540 FAX www.edgeconsult.com
CLIENT: U.S. CELLULAR 8410 W. BRYN MAWR AVE., SUITE 700 CHICAGO, IL 60631
TITLE SHEET LANNON (784320) MEMONEE FALLS, WISCONSIN
SUBMITTAL: REV. DATE DESCRIPTION: 100 06/05/22 REV. A 1001 10/31/22 REV. B
CHECKED BY: MRM PLOT DATE: 10/31/2022 PROJECT NUMBER: 30472 SHEET TYPE: FINAL SHEET NUMBER: G-001



DIRECTORY

CLIENT:
 U.S. CELLULAR
 8410 W. BRYN MAWR AVE., SUITE 700
 CHICAGO, IL 60631
 CONTACT: MICHELE ROTH

ENGINEERING COMPANY:
 EDGE CONSULTING ENGINEERS, INC.
 824 WATER STREET
 PRAIRIE DU SAC, WI 53576
 PROJECT MANAGER: MICHAEL MUEHRER

SITE ACQUISITION:
 SITE ACQUISITION SOLUTIONS
 19730 BELLBROOK BLVD.
 GRETTNA, NE 68028
 CONTACT: JENNI KELLIS

SHEET INDEX

NO.:	SHEET TITLE
G-001	TITLE SHEET
C-101	SITE PLAN
C-102	ENLARGED SITE PLAN
C-501	SITE DETAILS
A-101	SHELTER INTERIOR PLAN
A-501	BLOCK DIAGRAM
T-601	ANTENNA SPECIFICATIONS
T-602	EQUIPMENT SPECIFICATIONS
T-603	MOUNTING SPECIFICATIONS
T-201	SITE ELEVATION
T-301	ANTENNA CONFIGURATION
T-302	ANTENNA CONFIGURATION
T-303	EQUIPMENT CONFIGURATION
T-304	EQUIPMENT CONFIGURATION
T-501	INSTALLATION DETAILS
T-502	CABLE DETAILS
T-503	CABLE BANDING DETAILS
V-501	CABLE ROUTING
P-501	PLUMBING DIAGRAM
P-502	PLUMBING DIAGRAM
E-501	GROUNDING DETAILS
R-901	SITE PHOTOS

PROJECT INFO

SITE LOCATION:
 W204 N7567 LANNON RD
 MEMONEE FALLS, WI
 MILWAUKEE COUNTY
 SITE #: 784320

POC #: N/A
 MAX. APPLURT (PER FCC): N/A
 STRUCTURE HEIGHT (PER FCC): N/A

TOWER OWNER:
 U.S. CELLULAR
 8410 W. BRYN MAWR AVE., SUITE 700
 CHICAGO, IL 60631

SITE COORDINATES:
 LAT: 43.16196702°
 LONG: -88.15361064°

STRUCTURAL

INVENTORY REPORT:
 EDGE CONSULTING ENGINEERS, INC.
 REPORT #: 30472 DATED: 06/05/2022

TOWER ANALYSIS:
 EDGE CONSULTING ENGINEERS, INC.
 REPORT #: 30472 DATED: 10/01/2022
 CONCLUSION: STRUCTURALLY ADEQUATE

MOUNT ANALYSIS (REPLACEMENT):
 EDGE CONSULTING ENGINEERS, INC.
 REPORT #: 30472 DATED: 06/27/2022
 CONCLUSION: STRUCTURALLY ADEQUATE

CONTRACTOR TO REVIEW STRUCTURAL REPORT IN ITS ENTIRETY. ANY DISCREPANCIES OR DISAGREEMENTS BETWEEN THE REPORT AND THESE PLANS SHOULD BE RESOLVED PRIOR TO CONSTRUCTION.

ONE CALL
 8 SYSTEMS INTERNATIONAL

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN, CALL DIGGERS HOTLINE

TOLL FREE: 1-800-242-8511
 FAX A LOCATE: 1-800-242-6811

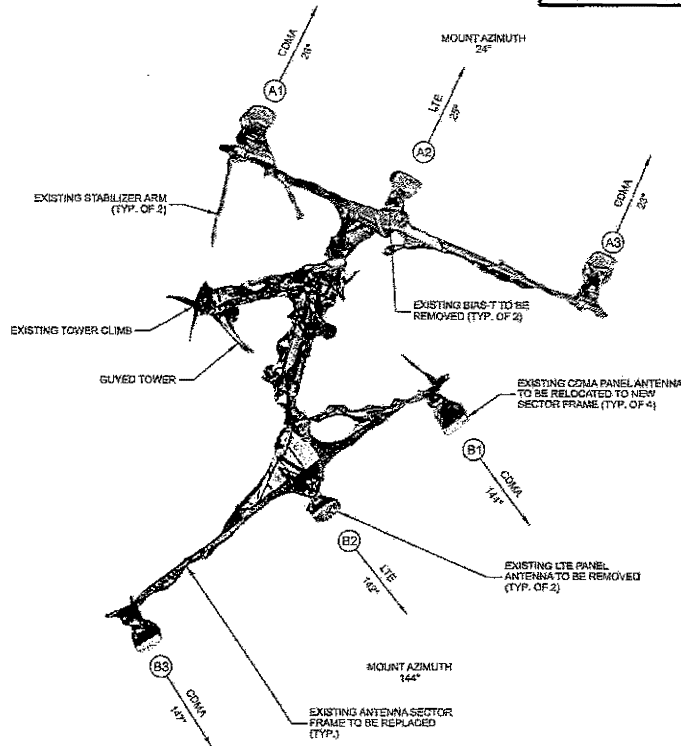
WI STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

DESIGNER SEAL:

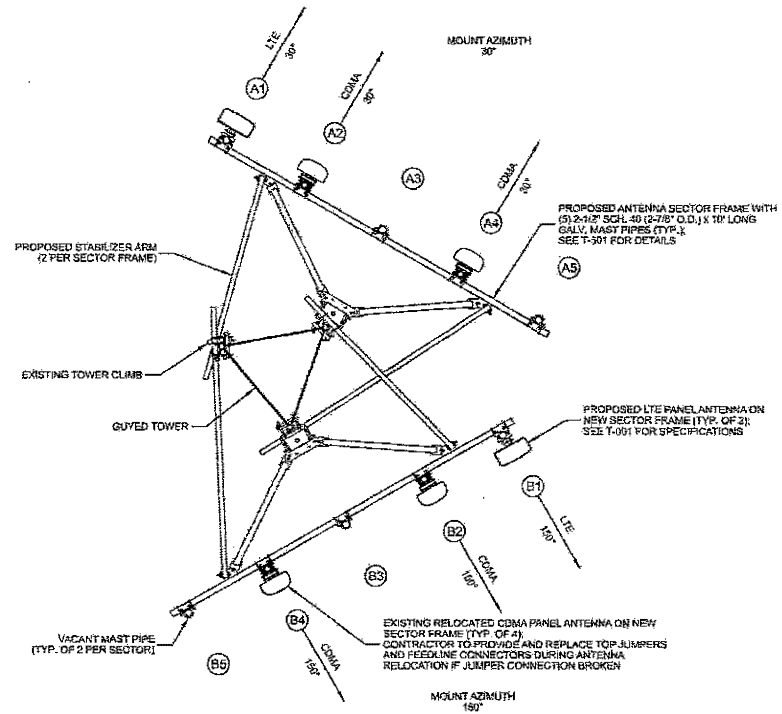
I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN.

SIGNATURE: *Michael R. Muehrer*

DATE: 10-31-2022



NOTE:
ANTENNA AZIMUTHS WERE OBTAINED ON-SITE WITH THE USE OF UNMANNED AIRCRAFT SYSTEMS (UAS) 'DRONE', AND ROUNDED TO THE NEAREST DEGREE.



Edge
Consulting Engineers, Inc.
101 OAK STREET
FRANKLIN, WI 53128
608.444.1400
www.edgeinc.com

uscellular
11800 W. BROADWAY
SUITE 700
CHICAGO, IL 60601

ANTENNA CONFIGURATION
LANNON (78-9320)
MEMONEE FALLS, WISCONSIN

Position	Technology	Antenna			Dip-T			Cable			
		Model or Size	Qty.	NSD Center	Azimuth	Mech. DT	Model	Qty.	Type	Qty.	
ALPHA	A1	CDMA	Antel WPA-80063-8CF-EDIN-X	1	76.4'	28°	4"	-	-	1-5/8" Coax	1
	A2	LTE	KMW AM-X-CW-18-65-40T-RET	1	75.8'	25°	0"	Ericsson KRC-115 032/2	1	1-5/8" Coax	2
	A3	CDMA	Antel WPA-80063-8CF-EDIN-X	1	76'	23°	3"	-	-	1-5/8" Coax	1
BETA	B1	CDMA	Antel WPA-80063-8CF-EDIN-X	1	75.4'	144°	2"	-	-	1-5/8" Coax	1
	B2	LTE	KMW AM-X-CW-18-65-40T-RET	1	75.8'	142°	0"	Ericsson KRC-115 032/2	1	1-5/8" Coax	2
	B3	CDMA	Antel WPA-80063-8CF-EDIN-X	1	76'	147°	3"	-	-	1-5/8" Coax	1
Total:				6						7	8

NOTE:
1. ALL ANTENNA AZIMUTHS TO BE FROM TRUE NORTH.

A EXISTING ANTENNA LAYOUT
SCALE: 11" x 17" - 1/8" = 1'-0"
22" x 34" - 1/2" = 1'-0"

Antenna Position	Technology	Antenna Model	Antenna Quantity	RAD. Cent.	Azimuth	L.B. Elect. Tilt	M.B. Elect. Tilt	Mech. Tilt	Shlge. Protector Qty.	B12/B5 Radio	Radio Qty.	Cable Type	Cable Qty.	
ALPHA	A1	LTE	Dengro QUA6-1LXTHX-BW65	1	74.0'	30°	5°	-	0°	1	RRU4448	1	1-1/4" Hybrid	1
	A2	CDMA	Antel WPA-80063-8CF-EDIN-X	1	74.0'	30°	-	-	3°	-	-	-	1-5/8" Coax	1
	A3	-	-	-	-	-	-	-	-	-	-	-	-	-
BETA	A4	CDMA	Antel WPA-80063-8CF-EDIN-X	1	74.0'	30°	-	-	3°	-	-	-	1-5/8" Coax	1
	A5	-	-	-	-	-	-	-	-	-	-	-	-	-
	B1	LTE	Dengro QUA6-1LXTHX-BW65	1	74.0'	150°	3°	-	0°	Shared	Shared	-	Shared	-
	B2	CDMA	Antel WPA-80063-8CF-EDIN-X	1	74.0'	150°	-	-	3°	-	-	-	1-5/8" Coax	1
	B3	-	-	-	-	-	-	-	-	-	-	-	-	-
	B4	CDMA	Antel WPA-80063-8CF-EDIN-X	1	74.0'	150°	-	-	3°	-	-	-	1-5/8" Coax	1
B5	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total:														

Black Text = Existing Red Text = Proposed MWP-TWR ERC 12/B3-03

NOTES:
1. ALL ANTENNA AZIMUTHS TO BE FROM TRUE NORTH. CONTRACTOR MAY NEED ADDITIONAL 0'-0" LONG MAST PIPES FOR TEMPORARY RELOCATION OF LTE ANTENNAS.
2. ANTENNA SEPARATION AS FOLLOWS (CENTER OF ANTENNA TO CENTER OF ANTENNA):
LTE TO LTE: 2'-0" MIN. LTE TO CDMA: 4'-0" MIN. CDMA TO CDMA: 4'-0" MIN.

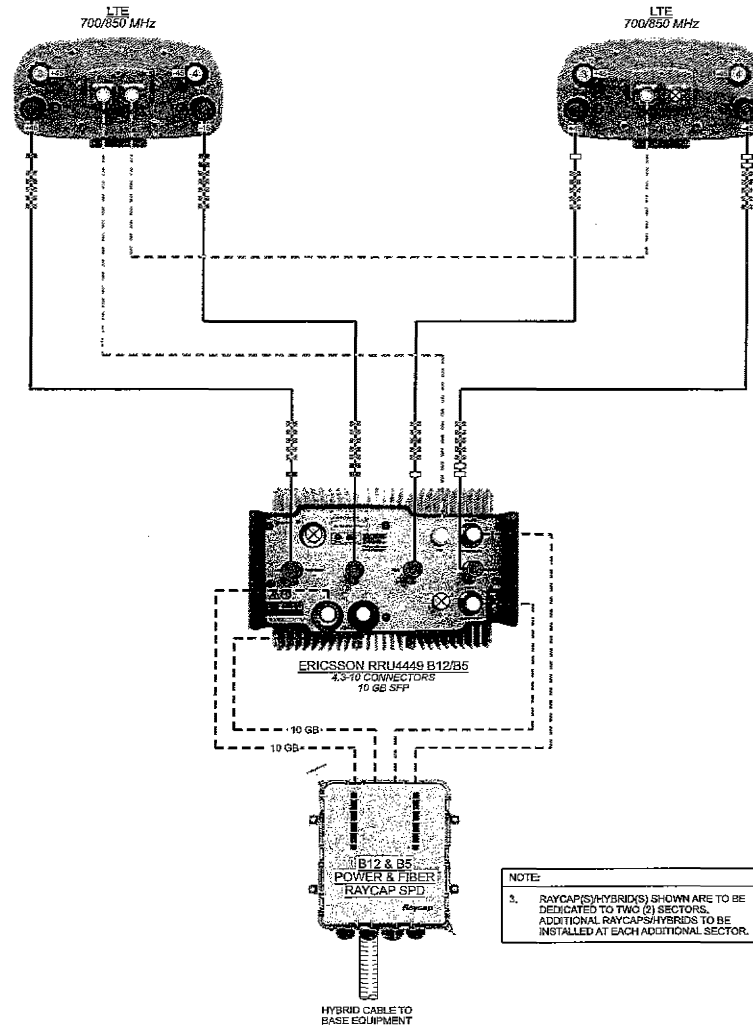
B PROPOSED ANTENNA LAYOUT
SCALE: 11" x 17" - 1/8" = 1'-0"
22" x 34" - 1/2" = 1'-0"

DATE	BY	DESCRIPTION
10/31/2022	REV. A	
	REV. B	

CHECKED BY	MRM
PLOT DATE	10/31/2022
PROJECT NUMBER	30472
SET TYPE	FINAL
SHEET NUMBER	T-301



**E// B12 / B5 2T2R
DUAL SECTOR CONFIGURATION**



CABLE LEGEND

	EUPEN HYBRID CABLE
	1/2" COAX JUMPER
	FIBER JUMPER
	POWER JUMPER
	RET JUMPER
	MID BAND PORT
	LOW BAND PORT
	WEATHERPROOF CAP

DATE CREATED: 05/20/2022

NOTE:
3. RAYCAP(S)/HYBRIDS SHOWN ARE TO BE DEDICATED TO TWO (2) SECTORS. ADDITIONAL RAYCAPS/HYBRIDS TO BE INSTALLED AT EACH ADDITIONAL SECTOR.

**PLUMBING DIAGRAM: MVP-TWR ERC B12/B5
DESIGN: MVP - TOWER**

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CONSULTANT:
Edge
Consulting Engineers, Inc.
624 WATER STREET
PRAIRIE DU SAC, WI 53576
608.664.1165 VOICE
608.644.1649 FAX
www.edgeconsult.com

CLIENT:
uscellular
U.S. CELLULAR
8410 W. BROW AVE., SUITE 700
CHICAGO, IL 60631

**PLUMBING DIAGRAM
LANNON (784320)
MENOMONEE FALLS, WISCONSIN**

SUBMITTAL:	
INT.	DATE
TAS	06/09/22
REV.	A
MEN	05/11/22
REV.	9

CHECKED BY:	MRM
PLD DATE:	10/31/2022
PROJECT NUMBER:	30472

NOTES:	
1.	ALL JUMPERS BETWEEN RADIO UNITS & ANTENNAS MUST BE THE SAME LENGTH. CONTRACTOR TO INSTALL WEATHERPROOF CAP ON ALL UN-USED PORTS.
SET TYPE:	FINAL
SHEET NUMBER:	P-501

© EDGE CONSULTING ENGINEERS, INC.

June 27, 2022

Michele Roth
U.S. Cellular
8410 W. Bryn Mawr Ave., Suite 700
Chicago, IL 60631

**SUBJECT: SABRE 12' V-BOOM REPLACEMENT LETTER
MODERNIZATION INSTALLATION
LANNON [784320]
MENOMONEE FALLS, WISCONSIN
EDGE PROJECT #30472**

Ms. Roth:

Edge Consulting Engineers, Inc. has created this mount loading letter for the Sabre 12' EHD V-Boom (C10-857-777C-5278) mounting kit to accommodate U.S. Cellular's proposed modernization installation. Utilization of this letter is intended for use by the Client and Edge Consulting Engineers, Inc. only. Any use or exploitation of this load letter by outside parties or 3rd party firms is explicitly prohibited.

Rather than completing a site-specific mount analysis, a more generalized mount analysis was conducted with conservative loading and analysis criteria. The scope of this deliverable is to compare the site-specific loading and design criteria with this more generalized analysis. This analysis considers a singular site specific loading condition which is consistent with the current TIA-222 standard and is further described in the Antenna Wind Load Calculations attachment. The aforementioned analysis was produced using a finite element analysis program, RAM Elements. See below for specific equipment model numbers, quantities, design criteria, and analysis qualifications used in the generalized mount analysis. These are listed for comparison purposes of this letter. Furthermore, refer to the attached assembly drawings for details regarding the mount.

PANEL INFORMATION

#	C/L from TOC	Appurtenance	Status
1	124'-6"	Dengyo QUA8-1LX1HX-BW65	Proposed
2	124'-6"	Antel WPA-80063-8CF-EDIN-X	Existing
2	74'-0"	Dengyo QUA8-1LX1HX-BW65	Proposed
4	74'-0"	Antel WPA-80063-8CF-EDIN-X	Existing

*This loading table represents total antenna/equipment quantities located on the mounts.

GENERALIZED MOUNT ANALYSIS CRITERIA

Exposure Category	B	C	D
Design Wind Speed [mph]	132	122	118
Mounting Height (ft from T.O.C.)	500' *		
Structure Class	II		
Topographic Category	1 (Flat/Rolling)		
Wind Direction Probability Factor, Kd	0.95		
Gust Effect Factor, Gh	1.00		
Ice Thickness [in.], Ice Wind Speed [mph]	2", 40 mph		
	1.5", 50 mph		
	1", 60 mph		

*If R5-UP offsets are utilized, the maximum mounting height is reduced to 300' or the frame must only support centered panels with no RRU or SPD equipment.

LOAD LETTER QUALIFICATIONS

- Mount C/L is defined as the average elevation between the top and bottom face members. Antennas and other appurtenances should be centered on the mount centerline whenever possible, but some cantilever is allowed when needed to avoid physical obstructions. No greater than 2'-0" cantilever from mount centerline is allowed for antennas or equipment.
- A single 250 lbs. climber load was considered simultaneously with a light ice and wind condition.
- The antennas should be equally spaced horizontally on the face of the mount within +/- 3" tolerance at a singular location. The RRU support pipe location should be mounted halfway between the V-standoff vertical rods.
- (2) Site Pro R5-UP offsets per sector are permitted to be utilized in order to achieve conflicting azimuths with the frame's orientation. Alternative offset kits can be approved by the EOR. Refer to the Generalized Mount Analysis Criteria table footnote for considerations when utilizing R5-UP offsets.
- For the purpose of this letter, it's assumed the proposed mounting kit will be installed within the manufacturer's parameters. The mount should be installed as shown in the attached assembly drawings. Deviations from the shown assembly recommendations should be approved by the manufacturer.

Our review of the site determined the proposed loading and site-specific design criteria are less than or equivalent to the generalized mount analysis. Therefore, it was concluded that the proposed mounts **are considered structurally adequate** to support the proposed loading condition. If the proposed loading is larger/heavier than what was considered, the design criteria are altered from that analyzed, or the letter qualifications are not adhered to then this letter shall be deemed to be void and further analysis will be required. Refer to attached support calculations for proposed equipment and calculated forces.

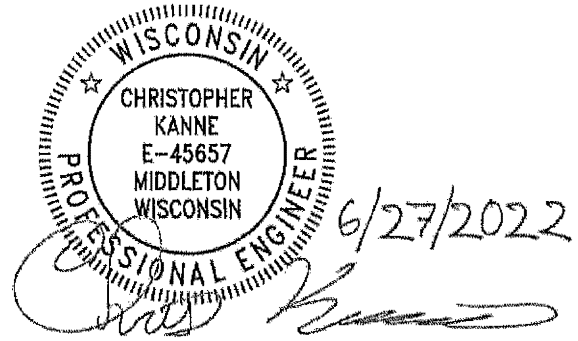
Refer to the Lannon Construction drawings created by Edge Consulting Engineers for all applicable plan work, notes, and details. See output excel and RAM printouts for appurtenance configuration & locations used in the analysis.

Please feel free to contact us if you have any questions or concerns.

Sincerely,
Edge Consulting Engineers, Inc.



David M. Sanders, E.I.T.
Project Engineer
(3) Attachments

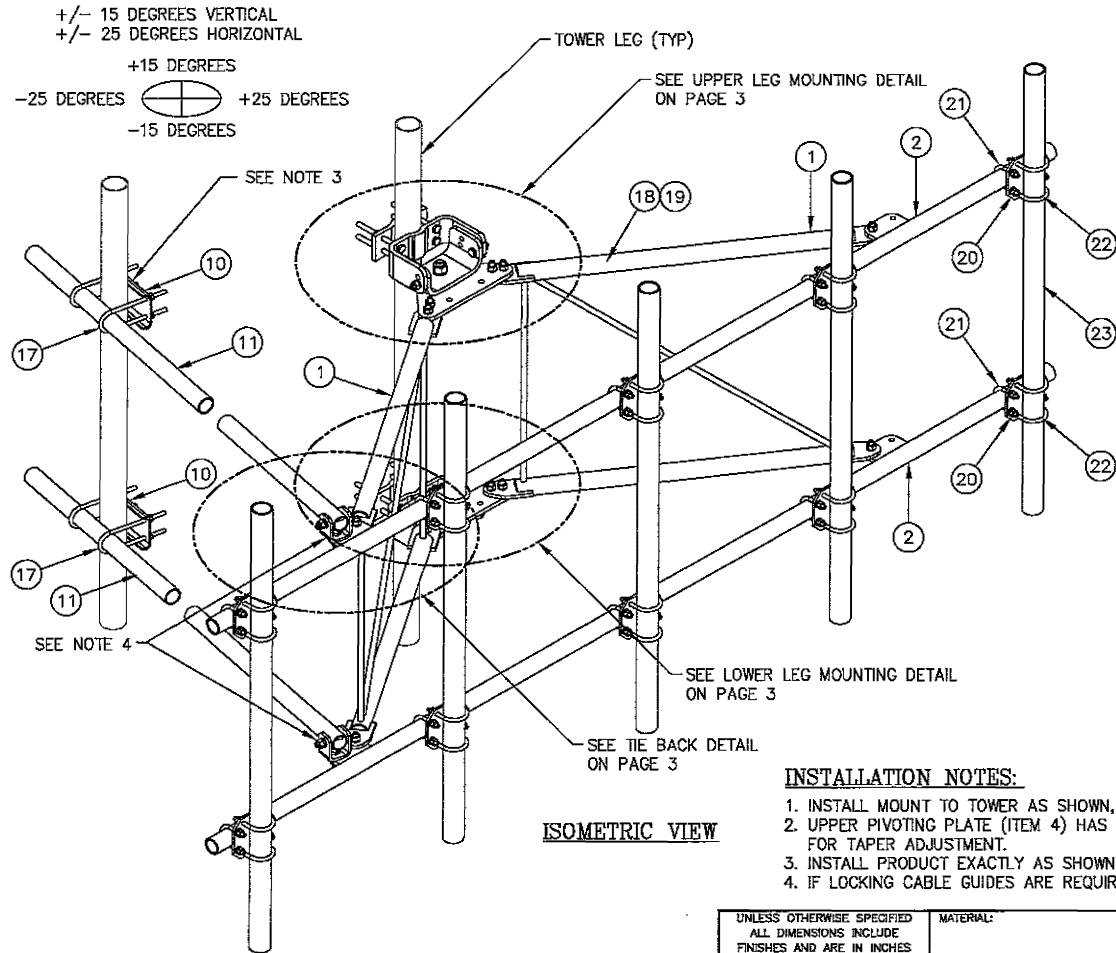


Chris C. Kanne, P.E.
Professional Engineer

LIMITATIONS AND RESTRICTIONS

- 1) This report was prepared in accordance with generally accepted structural engineering practices common to the tower industry and makes no other warranties, either expressed or implied, as to the professional advice provided under the terms of the agreement between Engineer and Client. This report has not been prepared for uses or parties other than those specifically named, or for uses or applications other than those enumerated herein. The report may contain insufficient or inaccurate information for other purposes, applications, and/or other uses.
- 2) This report is intended for the use of the client, and cannot be utilized or relied upon by other parties without the written consent of Edge Consulting Engineers.
- 3) The model, conclusions, and recommendations contained within this report are based upon the supplied and attained information as described within the report and supplemented with historical information available to Edge Consulting Engineers. If it is known, or becomes known, that any item(s) are in conflict with what is described within this document, this report should be considered void and Edge Consulting Engineers should be contacted immediately.
- 4) Edge Consulting Engineers disclaims all liability for any information, conclusion, or recommendation that is not expressly stated or represented within this report.
- 5) Edge Consulting Engineers shall not be liable for any incidental, consequential, indirect, special or punitive damages arising out of any claim associated with the use of this report.
- 6) The scope of work performed for this analysis is limited to the items in which we were furnished complete and accurate information.
- 7) This generalized mount analysis was performed based upon the antenna, feed line and other appurtenance loading and placement as described within this report. Any alterations to the described loading or placement will require re-analysis of the mount, and the findings contained in this report are not valid.
- 8) It is the responsibility of the client and the tower owner to thoroughly review the proposed loading, and bring any discrepancy to the attention of Edge Consulting Engineers.
- 9) The loading conditions utilized for this analysis are based on information provided by the client, and readily available manufacturer/vendor information (antenna and mount projected areas, weight and shape factors). However, if the described loading criteria and design assumptions within this report are not accurate, are altered, or changed in any form, this analysis shall be considered void and an additional analysis must be performed.
- 10) This analysis was performed under the assumption that all appurtenances are mounted as analyzed and that all mount elements are in like new condition, free from rust and other deterioration. It is also assumed the mount was properly installed per the manufacturer's recommendations, and that the mount was originally designed and fabricated in accordance with all applicable codes and standards. Edge Consulting Engineers cannot account for, nor be held responsible, if mount elements are deteriorated, damaged, and/or missing.
- 11) This analysis provided by Edge Consulting Engineers, Inc. addresses the structural adequacy or deficiencies of the primary structural members of the mount identified above. The evaluation of each bolt, plate connection detail, ring mount, weld, etc. is outside the scope of this analysis.
- 12) The mount mentioned above was analyzed according to the minimum design wind loads recommended by the Telecommunications Industry Association standard (ANSI/TIA-222-H). If the owner or state/local authorities require a higher design wind or ice load, Edge Consulting Engineers, Inc. should be made aware of such a requirement.
- 13) Supplementary rime ice and in-cloud ice loadings (including thickness, density, escalation with height and corresponding wind speed) are to be included in the procurement specification when appropriate for a given site location.
- 14) If during the antenna installation the contractor identifies condition issues or concerns with the adequacy of the mount, this information should be relayed to the engineer prior to proceed with the installation.

TIEBACK ANGLE RANGE DETAIL



NOTES:

1. QUANTITIES SHOWN IN LISTS OF MATERIAL ARE FOR ONE (1) V-BOOM ONLY.
2. THIS V-BOOM WILL MOUNT TO THE FOLLOWING: 1 1/2" Ø TO 5 9/16" Ø ROUND LEG.
3. TIEBACKS MUST BE CONNECTED TO A RIGID MEMBER THAT PROVIDES ADEQUATE SUPPORT WITHIN THE LIMITS NOTED ABOVE IN THE TIEBACK ANGLE RANGE DETAIL UNLESS APPROVED BY THE ENGINEER OF RECORD.
4. THE TIEBACK IS SHOWN IN THIS POSITION AS A DEFAULT. THIS TIEBACK CAN BE CONNECTED AT ANY (2) OF THE (4) POSITIONS ON THE TABS ON THE FACE PIPE.

C10857777C-5278 12' EHD V-BOOM ASSEMBLY W/TIEBACKS				
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	2	CW01222	WELDMENT, STANDOFF ARM	126
2.	2	CW01223	WELDMENT, FACE PIPE	147
3.	2	CS03109	PLATE, ROTATING	34
4.	1	CS03110	PLATE, PIVOTING (UPPER)	16
5.	1	CS03111	PLATE, LEG CLAMP (UPPER)	17
6.	1	CS03112	PLATE, PIVOTING (LOWER)	14
7.	1	CS03113	PLATE, LEG CLAMP (LOWER)	17
8.	2	CS03114	PLATE, LEG CLAMP (BACK)	14
9.	2	CS00098	PLATE, TIE BACK SWIVEL	5
10.	2	CS03285	PLATE, TIE BACK CLAMP	9
11.	2	CS03333	PIPE, TIE BACK	76
12.	2	C40026073	BOLT ASSEMBLY, 1 Ø X 3 A325	4
13.	8	C40140004	BOLT ASSEMBLY, 5/8 Ø X 8 A307	13
14.	2	C40026033	BOLT ASSEMBLY, 5/8 Ø X 4 1/2 A325	2
15.	12	C40026025	BOLT ASSEMBLY, 5/8 Ø X 2 1/2 A325	6
16.	6	C40026024	BOLT ASSEMBLY, 5/8 Ø X 2 1/4 A325	3
17.	4	C40034183	U-BOLT ASSEMBLY, 1/2 Ø X 2 9/16 C-C	6
18.	1	Z30992017	MOUNT CLASSIFICATION TAG C10857007C	1
19.	2	C40062103	STAINLESS STEEL SELF-LOCKING CABLE TIE	1
20.	10	CS03116	CROSSOVER PLATE (2 3/8-2 7/8)	43
21.	20	C40034139	U-BOLT ASSEMBLY, 1/2 Ø X 2 15/16 C-C	16
22.	20	C40034140	U-BOLT ASSEMBLY, 1/2 Ø X 3 7/16 C-C	18
23.	5	C10901329	PIPE, MOUNTING 2 7/8 Ø X .203 X 10'-0	301
TOTAL WEIGHT				889

PACKAGING NOTE

CK00386 INCLUDES ITEMS 1, 3, 4, 5, 6, 7, 12 & 15 (8 QTY)
 CK00392 INCLUDES ITEMS 2, 8, 9, 10, 11, 13, 14, 15 (4 QTY), 16, 17, 18 & 19

INSTALLATION NOTES:

1. INSTALL MOUNT TO TOWER AS SHOWN, SO THAT WELDED STANDOFF DIAGONAL IS SLOPING DOWNWARD FROM TOWER END TO FACE PIPE END.
2. UPPER PIVOTING PLATE (ITEM 4) HAS THREE HOLES ON EACH SIDE AND UPPER LEG CLAMP PLATE (ITEM 5) HAS TWO HOLES ON EACH SIDE FOR TAPER ADJUSTMENT.
3. INSTALL PRODUCT EXACTLY AS SHOWN IN DRAWING, WITH ALL BOLTS FACING UPWARDS.
4. IF LOCKING CABLE GUIDES ARE REQUIRED THEY MUST BE PURCHASED SEPARATELY (SEE PAGE 4).

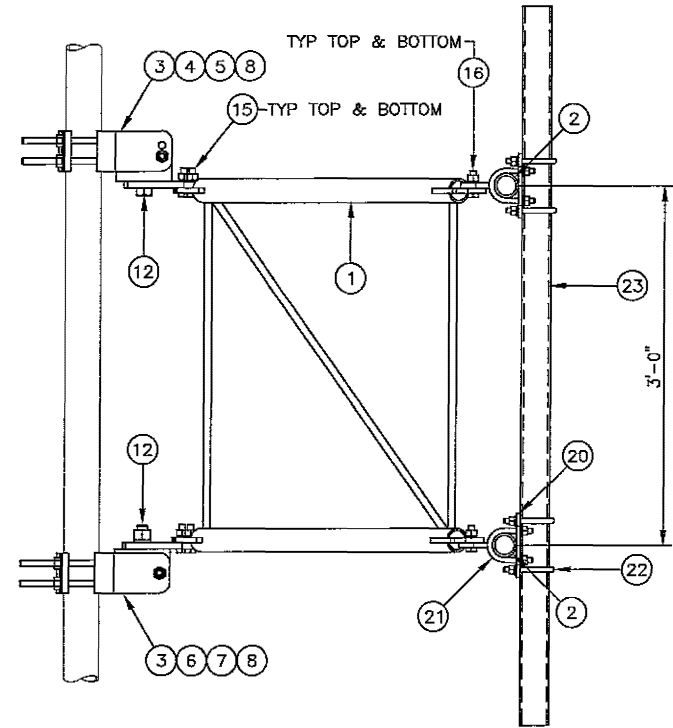
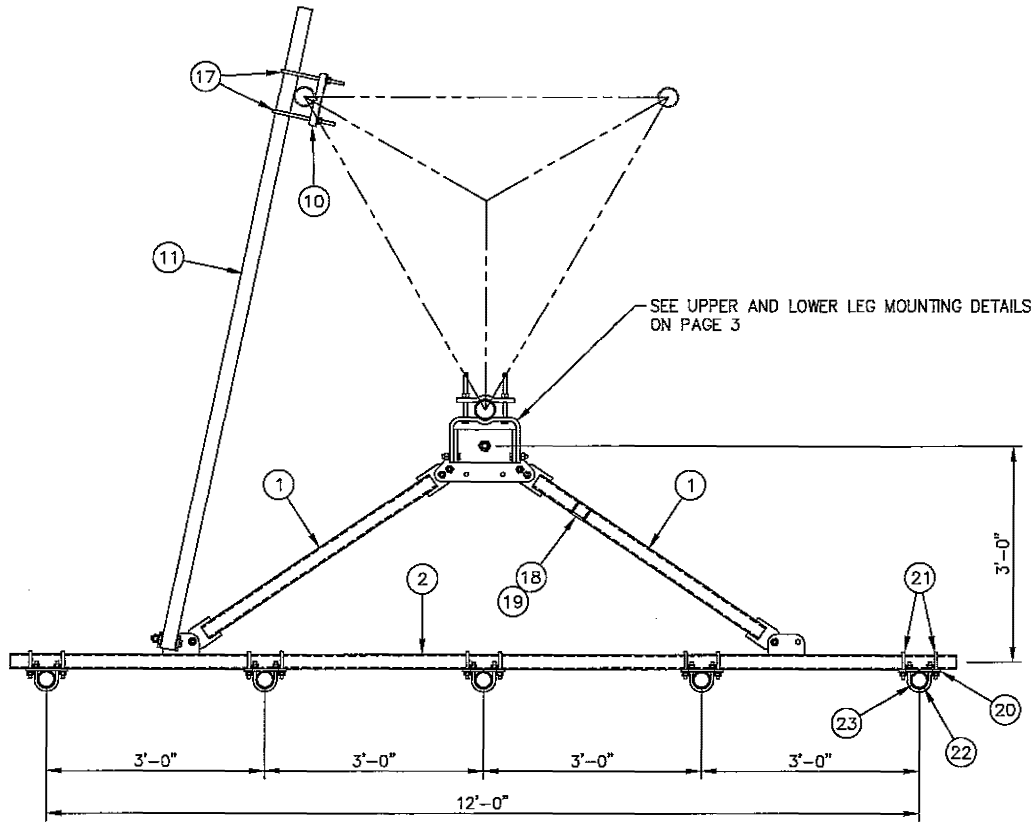
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES			MATERIAL:
TOLERANCES: FRACTIONS ± 1/16"			TOLERANCES DO NOT APPLY TO RAW MATERIAL
ANGLES ± 1/2 DEG.			
DECIMALS ± .010"			
REV	DATE	DRW/CHK	DESCRIPTION

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 INNOVATION DELIVERED

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12' EHD V-BOOM ASSEMBLY W/TIEBACKS (3' STANDOFF)			
(5) 2 7/8 Ø X 10' ANTENNA MOUNTING PIPES			
DATE	10/06/21	SIZE	B
DRAWN BY	KLE	DRAWING NO.	C10857777C-5278
CHECKED BY	EK	REV	0
		SCALE	None
		PAGE	1 OF 4



SIDE VIEW

MOUNTING OPTIONS
SHOWING MOUNTING PIPE PLACEMENTS

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES		MATERIAL:
TOLERANCES: FRACTIONS $\pm 1/16"$ ANGLES $\pm 1/2$ DEG. DECIMALS $\pm .010"$		TOLERANCES DO NOT APPLY TO RAW MATERIAL
REV	DATE	DESCRIPTION

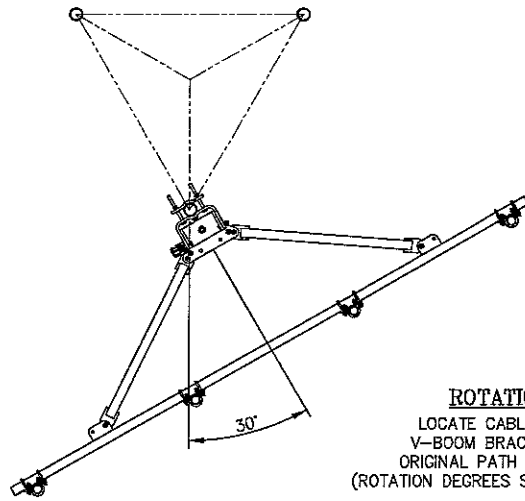
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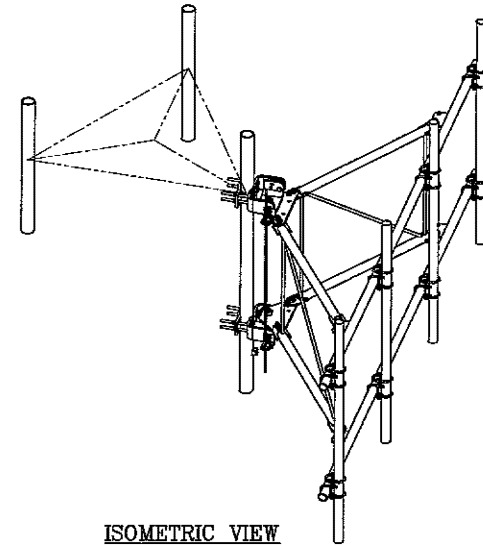
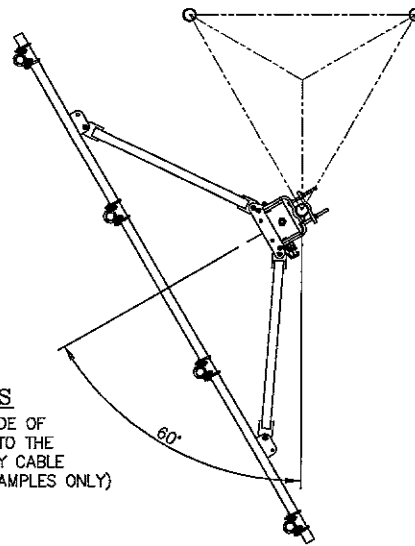
12' EHD V-BOOM ASSEMBLY W/TIEBACKS (3' STANDOFF)			
(5) 2 7/8 ϕ X 10' ANTENNA MOUNTING PIPES			
DATE	10/05/21	SIZE	B
DRAWN BY	KLE	DRAWING NO.	C10857777C-5278
CHECKED BY	EK	SCALE	None
			REV
			0
			PAGE
			1 OF 4

OPTIONAL LOCKING CABLE GUIDE

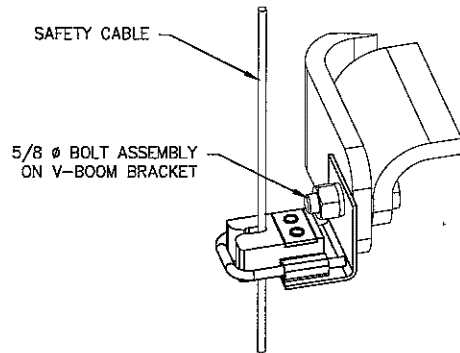
IF REQUIRED PLEASE ORDER PART NUMBER C30017022. THIS KIT WILL COME WITH (2) LOCKING CABLE GUIDES FOR TOP & BOTTOM V-BOOM BRACKETS.



ROTATION OPTIONS
 LOCATE CABLE GUIDE ON SIDE OF V-BOOM BRACKET CLOSEST TO THE ORIGINAL PATH OF THE SAFETY CABLE (ROTATION DEGREES SHOWN ARE EXAMPLES ONLY)



ISOMETRIC VIEW



CABLE GUIDE DETAIL

NOTE

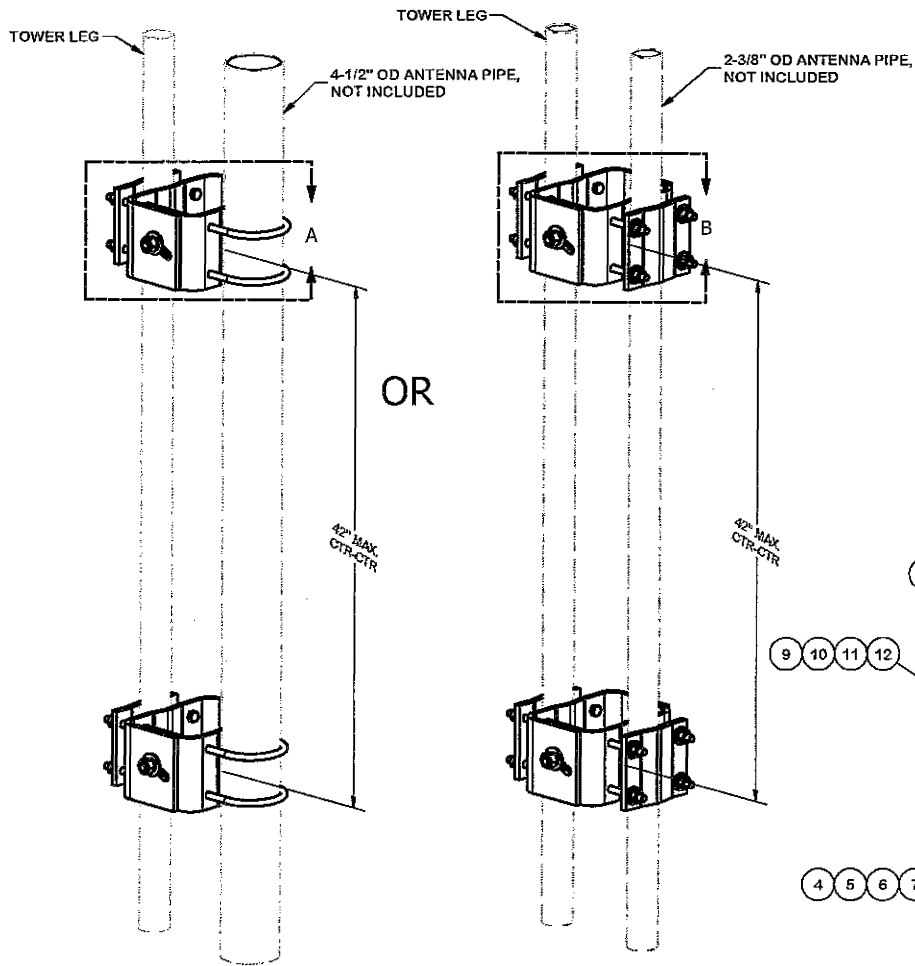
OTHER ADDITIONAL CABLE GUIDE SUPPORTS MAY BE REQUIRED ABOVE AND BELOW V-BOOM SO THAT CABLE ALIGNMENT IS WITHIN REQUIRED LIMITS.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES			MATERIAL:		
TOLERANCES: FRACTIONS ± 1/16"			TOLERANCES DO NOT APPLY TO RAW MATERIAL.		
ANGLES ± 1/2 DEG.					
DECIMALS ± .010"					
REV	DATE	DRW/CHK	DESCRIPTION		

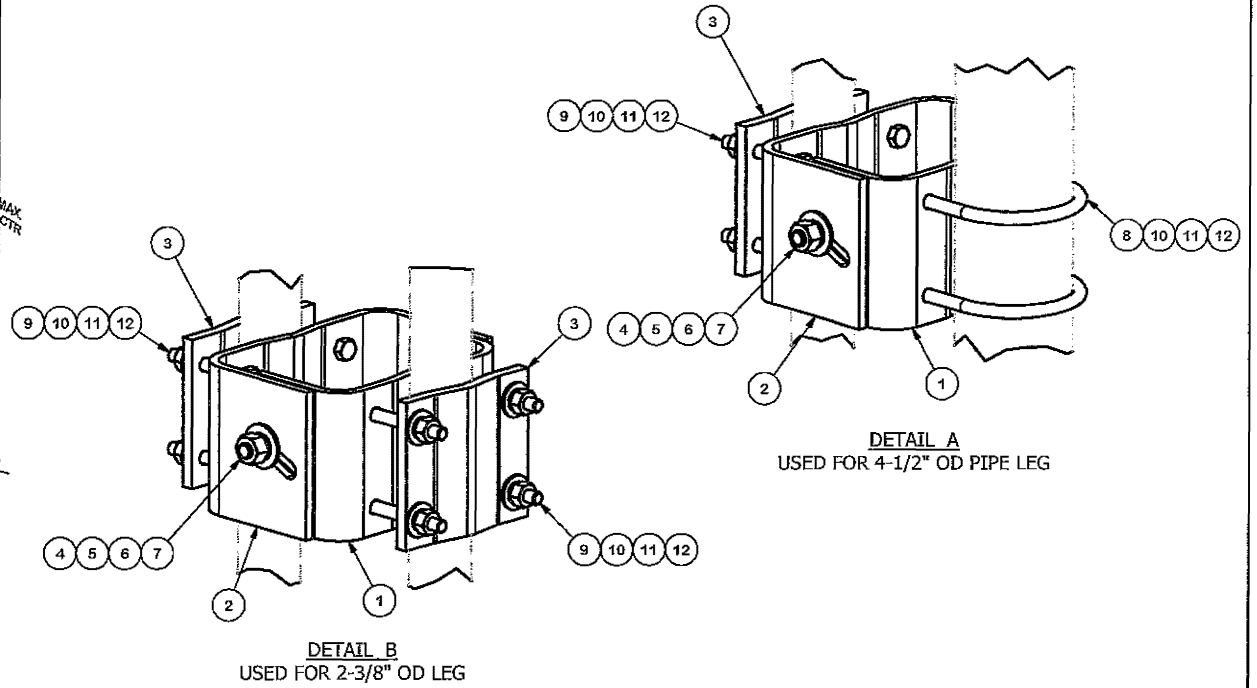
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12' EHD V-BOOM ASSEMBLY W/TIEBACKS (3' STANDOFF)					
(5) 2 7/8 Ø X 10' ANTENNA MOUNTING PIPES					
DATE	10/06/21	SIZE	B	DRAWING NO.	REV
DRAWN BY	KLE			C10857777C-5278	0
CHECKED BY	EK	SCALE	None	PAGE	4 OF 4



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-164463	UNIVERSAL PIPE MOUNTING PLATE (INNER)	16 11/32 in	10.52	21.03
2	2	X-156561	UNIVERSAL PIPE MOUNTING PLATE (OUTER)	20 9/32 in	13.16	26.31
3	4	X-159999	BACKING PLATE	6 9/16 in	5.73	22.92
4	4	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.08
5	8	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	0.56
6	4	G58LW	5/8" HDG LOCKWASHER	5/32 in	0.03	0.10
7	4	G58NUT	5/8" HDG HEAVY 2H HEX NUT	5/8 in	0.13	0.52
8	4	X-UB1458	1/2" X 4-5/8" X 7" X 3" GALV U-BOLT		0.97	3.89
9	16	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	4.32
9	16	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	6.55
10	16	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.55
11	16	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.22
12	16	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.15
					TOTAL WT. #	90.12



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 ($\pm 0.080"$)

DESCRIPTION
R5 UNIVERSAL PIPE MOUNT KIT
 FOR 1-1/2" to 4-1/2" OD PIPE LEGS

SITE PRO
 A Valmont COMPANY
 Engineering Support Team:
 1-888-753-7446
 Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED THE AMOUNT OF 5/8" FLATWASHER FROM 4 TO 8	MS		12/18/2015

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES 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.

CPD NO.	DRAWN BY	ENG. APPROVAL
4718	RH18 3/30/2010	
CLASS	SUB	DRAWING USAGE
81	01	CUSTOMER
CHECKED BY	DATE	
BMC	4/21/2010	

PART NO.	DWG. NO.
R5-UP	R5-UP

PAGE 1 OF 1

Antenna Wind Load Calculations

Project Name: Mount Replacement Letter - Sabre V-Boom



Completed By: JTC
Checked By: CCK

Base Wind Pressure Calculation:

Referenced Standard: TIA-EIA Rev. H
Referenced Topographic Standard: TIA

Elevation of Antennas (z) = 500 ft
Exposure Category = D
Importance Category = II
Topographic Category = I - Flat/Rolling
Crest Height (H) = 0 ft
K_z = 1.90
Terrain Constant, K_t = 1.10
K_a = 0.00
K_z = 0.00
K_z = 1.00
K_d = 0.95
Vult = 118 mph
Vnom = 91.40 mph
z = N/A
Ground Elevation, z = 0 ft
Ground Elevation Factor, K_g = 1.00
Roof/Wind Speedup, K_s = N/A

$$q_z = 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2 \cdot I \text{ (if applies)} \cdot K_{at} \text{ (if applies)} \cdot K_s \text{ (if applies)}$$

$$F = q_z \cdot G \cdot C_p \cdot A$$

q_z = 54.20 psf
G = 1

Ice Calculation:

V_{ice} = 40 mph
t_{ice} = 1.00

$$q_{ice} = 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V_{ice}^2 \cdot I_{ice} \cdot K_{at} \text{ (if applies)} \cdot K_s \text{ (if applies)}$$

q_{ice} = 7.38 psf

Ice Thickness Factor, L_F = 1.00
t_{ice} = 1.00
t_{ice} = 2.00 in

$$f_z = \left(\frac{z}{33}\right)^{0.1}$$

f_z = 1.31

$$t_d = L_F \cdot t_{ice} \cdot f_z \cdot K_{zt}^{0.35}$$

t_d = 2.62 in

Wind Force/Weight Calculation (No Ice):

#	Appurtenance	Type	Normal Orientation	Position	K _d	q _z psf	Weight lbs	Bracket lbs	Height (H) in	Width (W) in	Depth (D) in	Front AR	Side AR	Front (C _p)	Side (C _p)	EPA _{norm} ft ²	EPA _{ice} ft ²	Total Weight lbs
0	Generic 8' LTE Panel	Antenna	Front	1	0.95	64.20	134.20	10.00	99.40	31.50	8.50	3.1	11.3	1.22	1.64	26.83	8.79	144.20
0	Generic CDMA	Antenna	Front	2	0.95	64.20	89.00	10.00	99.00	15.00	9.00	6.0	12.0	1.35	1.57	14.48	8.96	90.00
3	Generic RRU	RRU	Worst	3	0.95	64.20	165.00	N/A	20.00	15.00	16.00	1.1	1.3	1.20	1.20	3.00	2.67	160.00
3	Generic RRU	RRU	Worst	4	0.95	64.20	75.00	N/A	18.00	13.20	11.30	1.4	1.9	1.20	1.20	1.98	1.70	75.00
3	Generic Grouped RRU	RRU	Worst	6	0.95	64.20	143.00	N/A	19.70	17.00	14.40	1.2	1.4	1.20	1.20	2.79	2.36	143.00
4	Raycap RUBDC-6267-PF-48	SPD	Worst	6	0.95	64.20	20.00	N/A	20.80	18.90	5.80	1.1	3.0	1.20	1.25	3.24	1.03	20.00

Antenna Designation	1	2	3	4	5	6
Normal Force on Antenna	1492.4	895.4	173.9	114.4	87.2	187.5
Tangential Force on Antenna	507.8	482.8	173.3	114.4	161.2	187.5
Total Weight	144.20	90.00	160.00	75.00	143.00	20.00

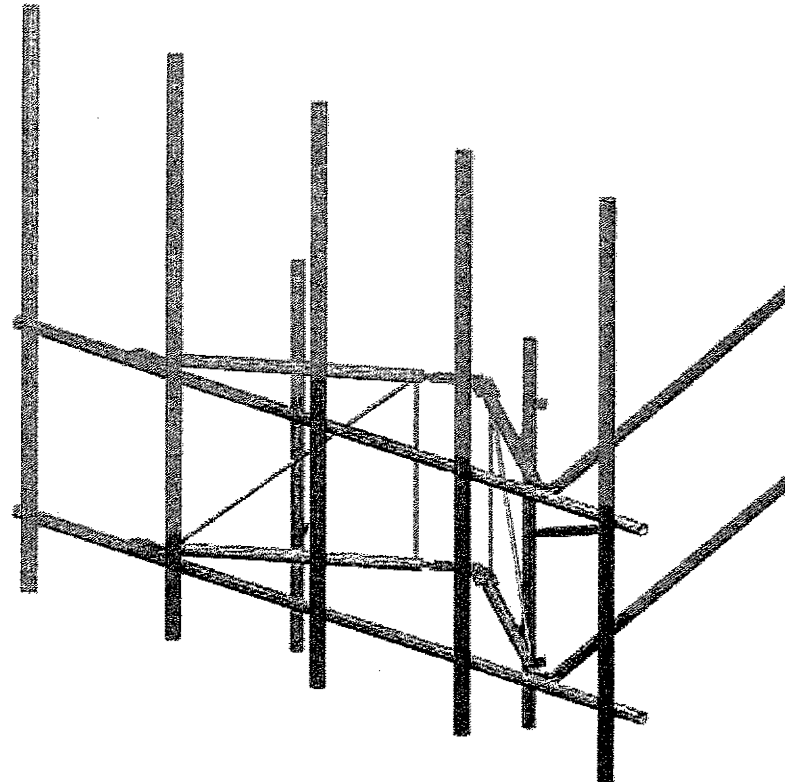
Wind Force/Weight Calculation (with Ice):

$$A_i = \pi \cdot t_d \cdot (D_c + t_d)$$

#	Appurtenance	Type	Normal Orientation	Position	K _d	q _z psf	Area _{ice} (A _i) ft ²	Weight _{ice} lbs	Height (H) in	Width (W) in	Depth (D) in	Front AR	Side AR	Front (C _p)	Side (C _p)	EPA _{norm} ft ²	EPA _{ice} ft ²	Total Weight lbs
0	Generic 8' LTE Panel	Antenna	Front	1	0.95	7.38	2.02	697.53	191.85	39.75	13.75	2.8	7.4	1.21	1.41	31.44	13.72	144.20
0	Generic CDMA	Antenna	Front	2	0.95	7.38	1.17	695.00	191.25	21.25	19.25	4.9	7.6	1.30	1.42	19.43	13.24	90.00
3	Generic RRU	RRU	Worst	3	0.95	7.38	1.53	160.20	26.26	22.55	21.25	1.1	1.2	1.20	1.20	4.80	4.47	160.00
3	Generic RRU	RRU	Worst	4	0.95	7.38	1.15	124.26	23.26	18.48	16.55	1.3	1.4	1.20	1.20	3.57	3.21	75.00
3	Generic Grouped RRU	RRU	Worst	6	0.95	7.38	1.43	169.03	24.95	22.25	19.95	1.1	1.3	1.20	1.20	4.63	4.09	143.00
4	Raycap RUBDC-6267-PF-48	SPD	Worst	6	0.95	7.38	1.28	154.69	25.95	24.15	11.05	1.1	2.3	1.20	1.20	5.20	2.38	20.00

Antenna Designation	1	2	3	4	5	6
Normal Force on Antenna	208.7	129.0	32.5	23.7	30.7	34.5
Tangential Force on Antenna	91.1	87.9	32.6	23.7	30.7	34.5
Total Weight Ice	697.53	555.00	180.20	124.26	169.03	154.69

* Counts noted above are total units considered for all sectors.
** Ericsson plumbing diagrams with (4) radius MAX per sector & Nokia Plumbing diagrams with (3) units MAX per sector are covered in the loading noted above.
*** 2" STD pipes are to be utilized for LTE panels, and all other panel/equipment supports pipes are permitted to be 2" STD. New mast pipes should be 12" longer than the antenna they are intended to support.





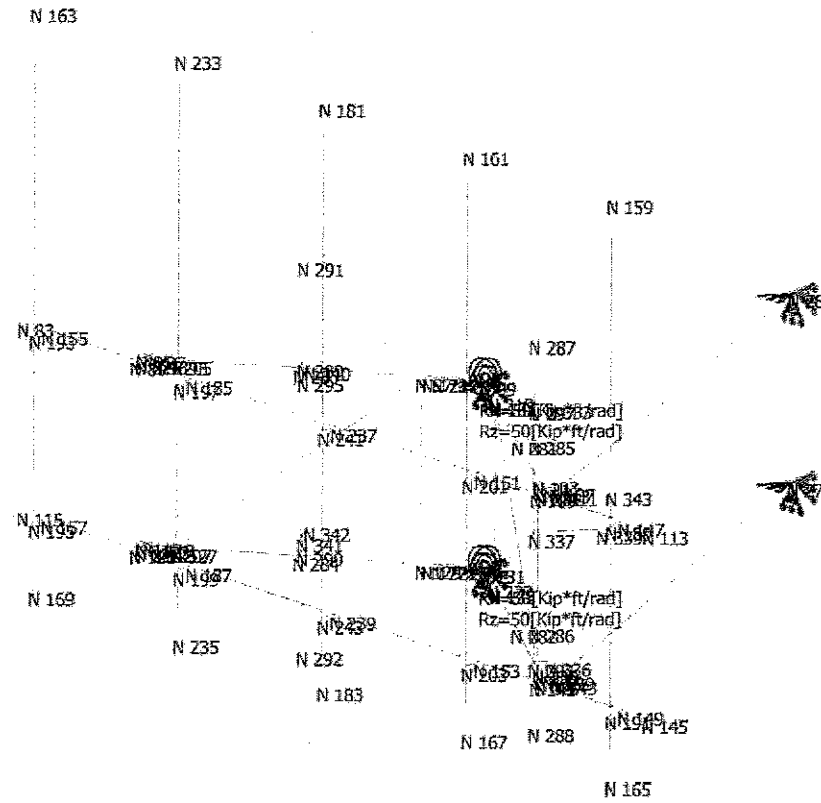
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Current Date: 1/14/2021 4:09 PM

Units system: English

File name: M:\Structural\Antenna Mounts\Mount Research\2020\2020-12-07

Load condition: WLz=Wind in the Z Direction



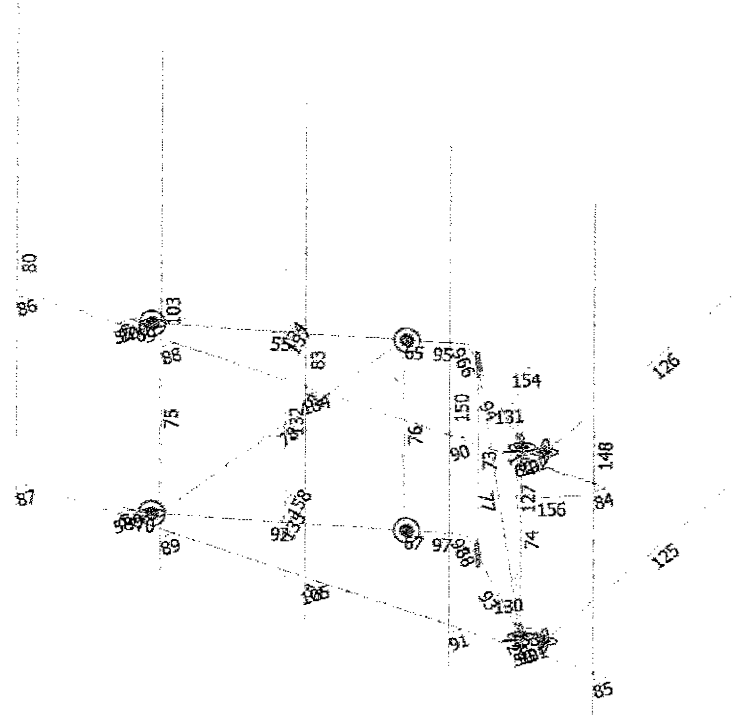


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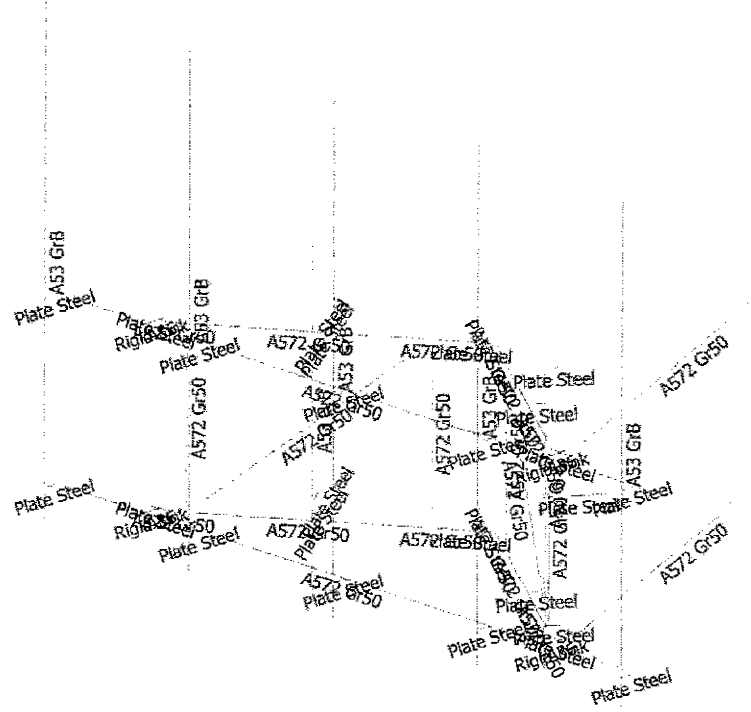


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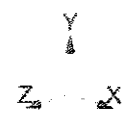
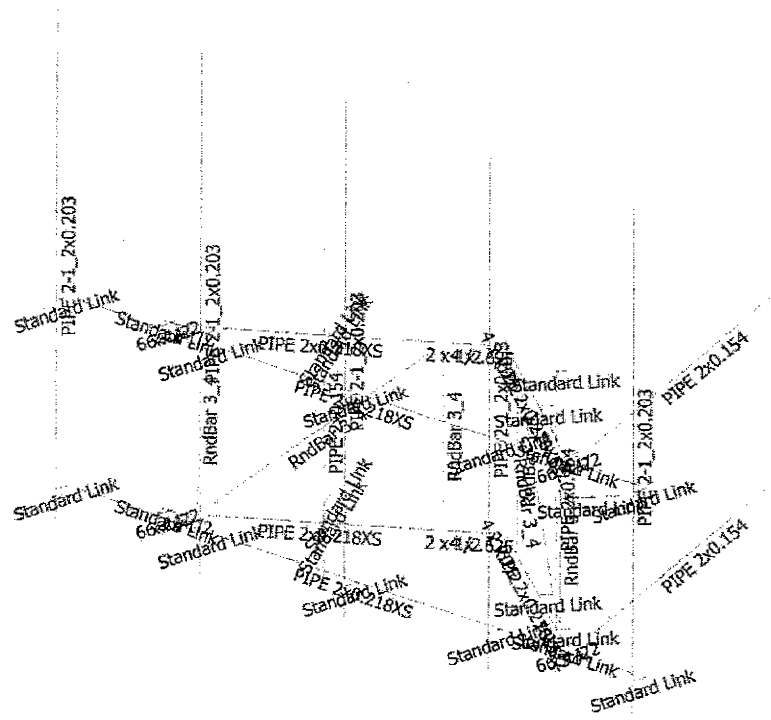


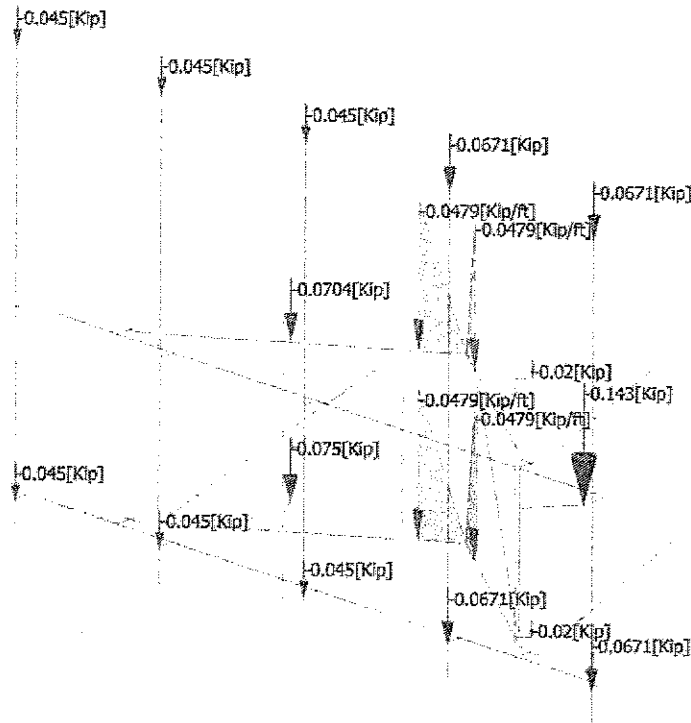
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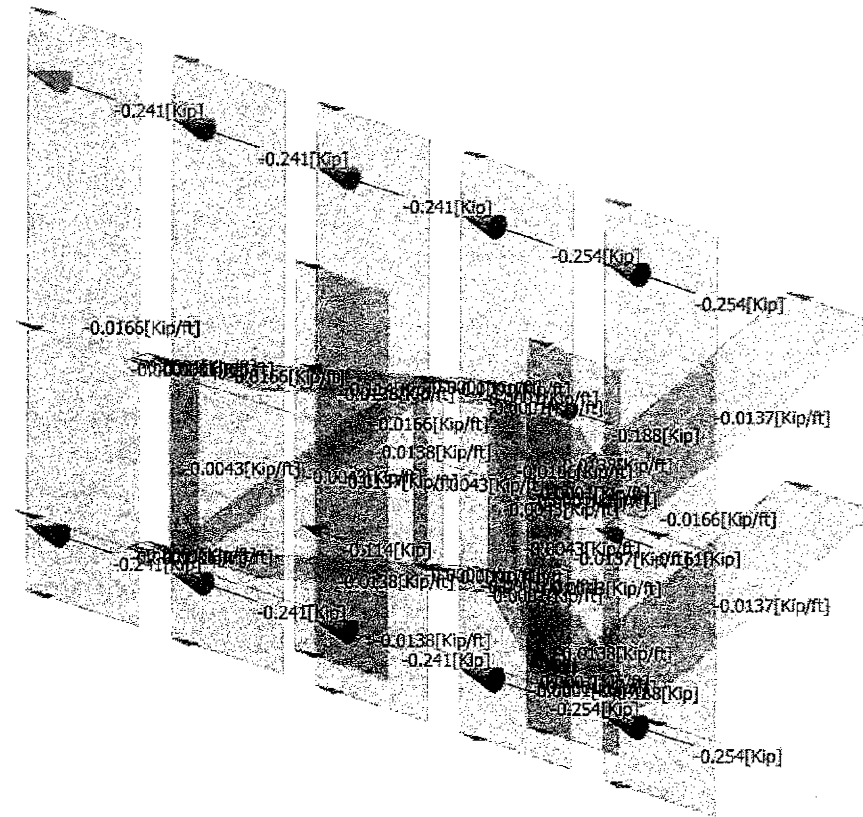
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Units system: English

File name: M:\Structural\Antenna Mounts\Mount Research\2020\2020-12-07









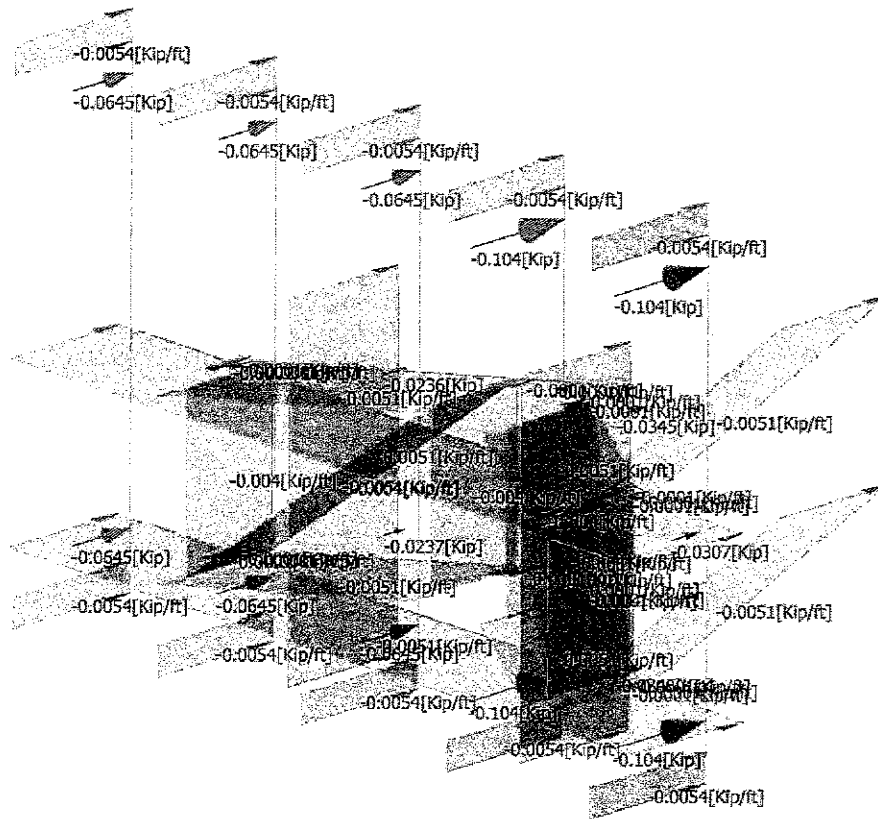
Consulting Engineers, Inc. Edge Consulting Engineers, Inc.

Current Date: 1/14/2021 4:12 PM

Units system: English

File name: M:\Structural\Antenna Mounts\Mount Research\2020\2020-12-07

Load condition: WLzi=Ice Wind in the Z Direction





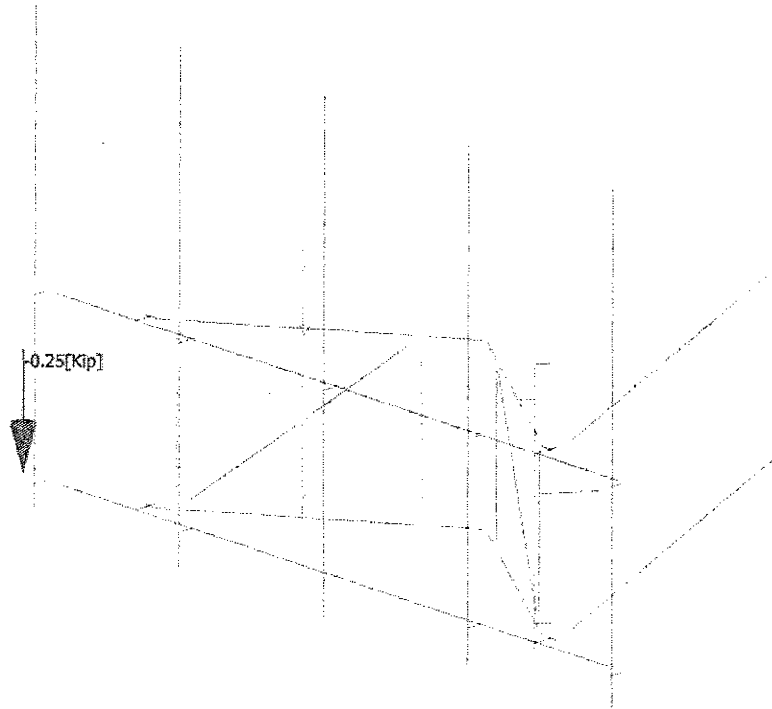
Consulting Engineers, Inc. **Edge Consulting Engineers, Inc.**

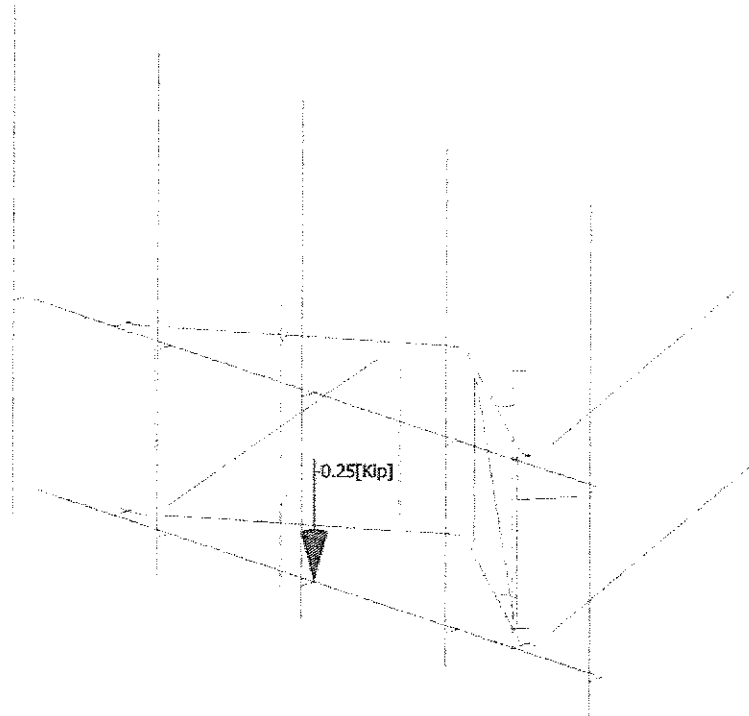
Current Date: 1/14/2021 4:12 PM

Units system: English

File name: M:\Structural\Antenna Mounts\Mount Research\2020\2020-12-07

Load condition: LL1=Live Load 1







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Units system: English

File name: M:\Structural\Antenna Mounts\Mount Research\2020\2020-12-07

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

D1=1.4DL
L2=1.2DL+1.6LL1
L3=1.2DL+1.6LL2
L4=1.2DL+0.2Ice+Temp+1.6LL1
L5=1.2DL+0.2Ice+Temp+1.6LL2
D6=1.2DL+Wlx
D7=1.2DL+0.866Wlx+0.5WLz
D8=1.2DL+0.707Wlx+0.707WLz
D9=1.2DL+0.5Wlx+0.866WLz
D10=1.2DL+WLz
D11=1.2DL-0.5Wlx+0.866WLz
D12=1.2DL-0.707Wlx+0.707WLz
D13=1.2DL-0.866Wlx+0.5WLz
D14=1.2DL-Wlx
D15=1.2DL-0.866Wlx-0.5WLz
D16=1.2DL-0.707Wlx-0.707WLz
D17=1.2DL-0.5Wlx-0.866WLz
D18=1.2DL-WLz
D19=1.2DL+0.5Wlx-0.866WLz
D20=1.2DL+0.707Wlx-0.707WLz
D21=1.2DL+0.866Wlx-0.5WLz
I22=1.2DL+Ice+Wlx+Temp
I23=1.2DL+Ice+0.866Wlx+0.5WLz+Temp
I24=1.2DL+Ice+0.707Wlx+0.707WLz+Temp
I25=1.2DL+Ice+0.5Wlx+0.866WLz+Temp
I26=1.2DL+Ice+Wlx+Temp
I27=1.2DL+Ice-0.5Wlx+0.866WLz+Temp
I28=1.2DL+Ice-0.707Wlx+0.707WLz+Temp
I29=1.2DL+Ice-0.866Wlx+0.5WLz+Temp
I30=1.2DL+Ice-Wlx+Temp
I31=1.2DL+Ice-0.866Wlx-0.5WLz+Temp
I32=1.2DL+Ice-0.707Wlx-0.707WLz+Temp
I33=1.2DL+Ice-0.5Wlx-0.866WLz+Temp
I34=1.2DL+Ice-Wlx+Temp
I35=1.2DL+Ice+0.5Wlx-0.866WLz+Temp
I36=1.2DL+Ice+0.707Wlx-0.707WLz+Temp
I37=1.2DL+Ice+0.866Wlx-0.5WLz+Temp
L38=1.2DL+0.5Ice+Wlx+Temp+LL1
L39=1.2DL+0.5Ice+0.866Wlx+0.5WLz+Temp+LL1
L40=1.2DL+0.5Ice+0.707Wlx+0.707WLz+Temp+LL1
L41=1.2DL+0.5Ice+0.5Wlx+0.866WLz+Temp+LL1
L42=1.2DL+0.5Ice+Wlx+Temp+LL1
L43=1.2DL+0.5Ice-0.5Wlx+0.866WLz+Temp+LL1
L44=1.2DL+0.5Ice-0.707Wlx+0.707WLz+Temp+LL1
L45=1.2DL+0.5Ice-0.866Wlx+0.5WLz+Temp+LL1
L46=1.2DL+0.5Ice-Wlx+Temp+LL1
L47=1.2DL+0.5Ice-0.866Wlx-0.5WLz+Temp+LL1
L48=1.2DL+0.5Ice-0.707Wlx-0.707WLz+Temp+LL1
L49=1.2DL+0.5Ice-0.5Wlx-0.866WLz+Temp+LL1
L50=1.2DL+0.5Ice-Wlx+Temp+LL1

L51=1.2DL+0.5Ice+0.5WLxi-0.866WLzi+Temp+LL1
 L52=1.2DL+0.5Ice+0.707WLxi-0.707WLzi+Temp+LL1
 L53=1.2DL+0.5Ice+0.866WLxi-0.5WLzi+Temp+LL1
 L54=1.2DL+0.5Ice+WLxi+Temp+LL2
 L55=1.2DL+0.5Ice+0.866WLxi+0.5WLzi+Temp+LL2
 L56=1.2DL+0.5Ice+0.707WLxi+0.707WLzi+Temp+LL2
 L57=1.2DL+0.5Ice+0.5WLxi+0.866WLzi+Temp+LL2
 L58=1.2DL+0.5Ice+WLzi+Temp+LL2
 L59=1.2DL+0.5Ice-0.5WLxi+0.866WLzi+Temp+LL2
 L60=1.2DL+0.5Ice-0.707WLxi+0.707WLzi+Temp+LL2
 L61=1.2DL+0.5Ice-0.866WLxi+0.5WLzi+Temp+LL2
 L62=1.2DL+0.5Ice-WLxi+Temp+LL2
 L63=1.2DL+0.5Ice-0.866WLxi-0.5WLzi+Temp+LL2
 L64=1.2DL+0.5Ice-0.707WLxi-0.707WLzi+Temp+LL2
 L65=1.2DL+0.5Ice-0.5WLxi-0.866WLzi+Temp+LL2
 L66=1.2DL+0.5Ice-WLzi+Temp+LL2
 L67=1.2DL+0.5Ice+0.5WLxi-0.866WLzi+Temp+LL2
 L68=1.2DL+0.5Ice+0.707WLxi-0.707WLzi+Temp+LL2
 L69=1.2DL+0.5Ice+0.866WLxi-0.5WLzi+Temp+LL2
 D70=0.9DL+WLx
 D71=0.9DL+0.866WLx+0.5WLz
 D72=0.9DL+0.707WLx+0.707WLz
 D73=0.9DL+0.5WLx+0.866WLz
 D74=0.9DL+WLz
 D75=0.9DL-0.5WLx+0.866WLz
 D76=0.9DL-0.707WLx+0.707WLz
 D77=0.9DL-0.866WLx+0.5WLz
 D78=0.9DL-WLx
 D79=0.9DL-0.866WLx-0.5WLz
 D80=0.9DL-0.707WLx-0.707WLz
 D81=0.9DL-0.5WLx-0.866WLz
 D82=0.9DL-WLz
 D83=0.9DL+0.5WLx-0.866WLz
 D84=0.9DL+0.707WLx-0.707WLz
 D85=0.9DL+0.866WLx-0.5WLz
 I86=0.9DL+Ice+WLxi+Temp
 I87=0.9DL+Ice+0.866WLxi+0.5WLzi+Temp
 I88=0.9DL+Ice+0.707WLxi+0.707WLzi+Temp
 I89=0.9DL+Ice+0.5WLxi+0.866WLzi+Temp
 I90=0.9DL+Ice+WLzi+Temp
 I91=0.9DL+Ice-0.5WLxi+0.866WLzi+Temp
 I92=0.9DL+Ice-0.707WLxi+0.707WLzi+Temp
 I93=0.9DL+Ice-0.866WLxi+0.5WLzi+Temp
 I94=0.9DL+Ice-WLxi+Temp
 I95=0.9DL+Ice-0.866WLxi-0.5WLzi+Temp
 I96=0.9DL+Ice-0.707WLxi-0.707WLzi+Temp
 I97=0.9DL+Ice-0.5WLxi-0.866WLzi+Temp
 I98=0.9DL+Ice-WLzi+Temp
 I99=0.9DL+Ice+0.5WLxi-0.866WLzi+Temp
 I100=0.9DL+Ice+0.707WLxi-0.707WLzi+Temp
 I101=0.9DL+Ice+0.866WLxi-0.5WLzi+Temp

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference		
Arm Tab	2 x 1/2	65	I27 at 0.00%	0.67	OK			
		66	I32 at 0.00%	0.92	OK			
		67	I36 at 0.00%	0.62	OK			
		68	I26 at 0.00%	0.86	OK			
		69	I26 at 100.00%	0.59	OK			
		70	I35 at 100.00%	0.65	OK			
		71	I27 at 100.00%	0.82	OK			
		72	I34 at 100.00%	0.89	OK			
		CDMA Pipe	PIPE 2-1_2x0.203	80	D19 at 56.25%	0.56	OK	
				83	D11 at 54.17%	0.56	OK	

		103	D11 at 54.17%	0.56	OK
<u>Connect Offset</u>	6 x 1/2	57	I26 at 0.00%	0.00	OK
		58	I35 at 0.00%	0.00	OK
		59	I34 at 0.00%	0.00	OK
		60	D10 at 0.00%	0.00	OK
<u>Doubled RRU11s</u>	Standard Link	156	I33 at 0.00%	0.00	OK
<u>Equipment Pipe</u>	PIPE 2x0.154	127	D19 at 26.04%	0.16	OK
		132	I33 at 73.75%	0.17	OK
<u>Face Connector</u>	6 x 1/2	99	I35 at 0.00%	0.23	OK
		100	D10 at 0.00%	0.22	OK
		101	I33 at 0.00%	0.30	OK
		102	D10 at 0.00%	0.36	OK
<u>Face Horizontal</u>	PIPE 2x0.218XS	54	D10 at 82.03%	0.94	OK
		56	I34 at 81.25%	0.36	OK
<u>Leg Mount Plate</u>	4 x .625	95	D74 at 100.00%	0.02	OK
		96	D71 at 100.00%	0.03	OK
		97	I23 at 0.00%	0.02	OK
		98	I22 at 100.00%	0.03	OK
<u>LTE Pipe</u>	PIPE 2-1_2x0.203	148	D11 at 54.69%	0.88	OK
		150	D11 at 54.17%	0.87	OK
<u>Raycap</u>	Standard Link	153	I23 at 0.00%	0.00	OK
		154	I23 at 0.00%	0.00	OK
<u>Rigid Link</u>		61	D10 at 50.00%	0.00	OK
		62	D7 at 46.88%	0.00	OK
		63	I35 at 46.88%	0.00	OK
		64	I35 at 50.00%	0.00	OK
		84	D10 at 100.00%	0.00	OK
		85	D18 at 100.00%	0.00	OK
		86	D19 at 0.00%	0.00	OK
		87	D18 at 100.00%	0.00	OK
		88	D10 at 100.00%	0.00	OK
		89	D18 at 100.00%	0.00	OK
		90	D10 at 100.00%	0.00	OK
		91	D18 at 100.00%	0.00	OK
		104	D10 at 0.00%	0.00	OK
		105	D10 at 100.00%	0.00	OK
		130	D17 at 0.00%	0.00	OK
		131	D16 at 0.00%	0.00	OK
		134	I30 at 0.00%	0.00	OK
		135	I35 at 0.00%	0.00	OK
<u>RRU 4449</u>		157	I36 at 0.00%	0.00	OK
<u>RRU 8843</u>		158	I36 at 0.00%	0.00	OK
<u>Stabilizer Arm</u>	PIPE 2x0.154	125	I22 at 50.00%	0.11	OK
		126	D13 at 50.00%	0.49	OK
<u>V-Frame Diagonal</u>	RndBar 3_4	77	I26 at 100.00%	0.50	OK
		78	I26 at 100.00%	0.40	OK
<u>V-Frame Horizontal</u>	PIPE 2x0.218XS	55	I35 at 98.44%	0.17	OK
		92	I22 at 51.56%	0.18	OK
		93	I25 at 96.88%	0.25	OK
		94	I32 at 98.44%	0.25	OK
<u>V-Frame Vertical</u>	RndBar 3_4	73	I25 at 100.00%	0.61	OK
		74	I26 at 100.00%	0.44	OK

75	I25 at 100.00%	0.35	OK
76	I27 at 100.00%	0.47	OK



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Steel Code Check

Report: Comprehensive

Members: Hot-rolled

Design code: AISC 360-2016 LRFD

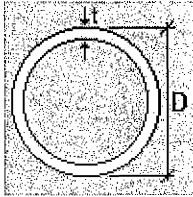
Member : 54 (Face Horizontal)
Design status : OK

DESIGN WARNINGS

Section information

Section name: PIPE 2x0.218XS (US)

Dimensions



D = 0.198 [ft] Diameter
t = 0.017 [ft] Thickness

Properties

Section properties	Unit	Major axis	Minor axis
Gross area of the section. (Ag)	[ft2]	0.010	
Moment of Inertia (local axes) (I)	[ft4]	3.99E-05	3.99E-05
Moment of Inertia (principal axes) (I')	[ft4]	3.99E-05	3.99E-05
Bending constant for moments (principal axis) (J')	[ft]	0.000	0.000
Radius of gyration (local axes) (r)	[ft]	0.064	0.064
Radius of gyration (principal axes) (r')	[ft]	0.064	0.064
Saint-Venant torsion constant. (J)	[ft4]	7.96E-05	
Section warping constant. (Cw)	[ft6]	0.000	
Distance from centroid to shear center (principal axis) (xo,yo)	[ft]	0.000	0.000
Top elastic section modulus of the section (local axis) (Ssup)	[ft3]	4.03E-04	4.03E-04
Bottom elastic section modulus of the section (local axis) (Sinf)	[ft3]	4.03E-04	4.03E-04
Top elastic section modulus of the section (principal axis) (S'sup)	[ft3]	4.03E-04	4.03E-04
Bottom elastic section modulus of the section (principal axis) (S'inf)	[ft3]	4.03E-04	4.03E-04
Plastic section modulus (local axis) (Z)	[ft3]	5.58E-04	5.58E-04
Plastic section modulus (principal axis) (Z')	[ft3]	5.58E-04	5.58E-04
Polar radius of gyration. (ro)	[ft]	0.090	
Area for shear (Aw)	[ft2]	0.006	0.006
Torsional constant. (C)	[ft3]	8.71E-04	

Material : A572 Gr50

Properties	Unit	Value
Yield stress (Fy):	[Kip/in ²]	50.00
Tensile strength (Fu):	[Kip/in ²]	65.00
Elasticity Modulus (E):	[Kip/in ²]	29000.00
Shear modulus for steel (G):	[Kip/in ²]	11507.94

DESIGN CRITERIA

Description	Unit	Value
Length for tension slenderness ratio (L)	[ft]	8.32

Distance between member lateral bracing points

Length (Lb) [ft]	
Top	Bottom
2.34	2.34
8.32	8.32
2.34	2.34

Laterally unbraced length

Major axis(L33)	Length [ft]		Torsional axis(Lt)	Major axis(K33)	Effective length factor	
	Minor axis(L22)				Minor axis(K22)	Torsional axis(Kt)
2.34	2.34	13.00	1.0	1.0	1.0	1.0
8.32	8.32		1.0	1.0		
2.34	2.34		1.0	1.0		

Additional assumptions

Continuous lateral torsional restraint	No
Tension field action	No
Continuous flexural torsional restraint	No
Effective length factor value type	None
Major axis frame type	Sway
Minor axis frame type	Sway

DESIGN CHECKS

AXIAL TENSION DESIGN

Axial tension

Ratio	:	0.07		
Capacity	:	62.55 [Kip]	Reference	: Cl.D2
Demand	:	4.63 [Kip]	Ctrl Eq.	: D73 at 73.44%

Intermediate results	Unit	Value	Reference
Factored axial tension capacity(ϕP_n)	[Kip]	62.55	Cl.D2

AXIAL COMPRESSION DESIGN

Compression in the major axis 33

Ratio	:	0.26		
Capacity	:	18.74 [Kip]	Reference	: Cl.E3
Demand	:	4.80 [Kip]	Ctrl Eq.	: D17 at 73.44%

Intermediate results	Unit	Value	Reference
<u>Section classification</u>			
Unstiffened element classification	--	Non slender	
Unstiffened element slenderness (λ)	--	11.64	
Unstiffened element limiting slenderness (λ_r)	--	63.80	Table.4.1a.Case9
Stiffened element classification	--	Non slender	
Stiffened element slenderness (λ)	--	11.64	
Stiffened element limiting slenderness (λ_r)	--	63.80	Table.4.1a.Case9
Factored flexural buckling strength (ϕP_{n33})	[Kip]	18.74	Cl.E3
Effective area of the cross section based on the effective width (A _e)	[in ²]	1.39	
Critical stress for flexural buckling (F _{cr33})	[Kip/in ²]	14.98	Eq.E3-3
Nominal flexural buckling strength (P _{n33})	[Kip]	20.83	Eq.E3-1

Compression in the minor axis 22

Ratio	:	0.26		
Capacity	:	18.74 [Kip]	Reference	: Cl.E3
Demand	:	4.80 [Kip]	Ctrl Eq.	: D17 at 73.44%

Intermediate results	Unit	Value	Reference
<u>Section classification</u>			
Unstiffened element classification	--	Non slender	
Unstiffened element slenderness (λ)	--	11.64	
Unstiffened element limiting slenderness (λ_r)	--	63.80	Table.4.1a.Case9
Stiffened element classification	--	Non slender	
Stiffened element slenderness (λ)	--	11.64	
Stiffened element limiting slenderness (λ_r)	--	63.80	Table.4.1a.Case9
Factored flexural buckling strength (ϕP_{n22})	[Kip]	18.74	Cl.E3
Unbraced length (L ₂₂)	[ft]	8.32	Cl.E2
Effective slenderness ((KL/r) ₂₂)	--	129.44	Cl.E2
Elastic critical buckling stress (F _{e22})	[Kip/in ²]	17.08	Eq.E3-4
Effective area of the cross section based on the effective width (A _e)	[in ²]	1.39	
Nominal flexural buckling strength (P _{n22})	[Kip]	20.83	Eq.E3-1

FLEXURAL DESIGN

Bending about major axis, M33

Ratio	:	0.27		
Capacity	:	3.62 [Kip*ft]	Reference	: Cl.F8.1
Demand	:	-0.98 [Kip*ft]	Ctrl Eq.	: I26 at 81.25%

Intermediate results	Unit	Value	Reference
<u>Section classification</u>			
Unstiffened element classification	--	Compact	
Unstiffened element slenderness (λ)	--	11.64	
Limiting slenderness for noncompact unstiffened element (λ_r)	--	179.80	
Limiting slenderness for compact unstiffened element (λ_p)	--	40.60	
Stiffened element classification	--	Compact	

Stiffened element slenderness (λ)	--	11.64	
Limiting slenderness for noncompact stiffened element (λ_r)	--	179.80	
Limiting slenderness for compact stiffened element (λ_p)	--	40.60	
<u>Factored yielding strength</u> (ϕM_n)	[Kip*ft]	3.62	Cl.F8.1
Yielding (Mn)	[Kip*ft]	4.02	Eq.F8-1

Bending about minor axis, M22

Ratio	:	0.84	
Capacity	:	3.62 [Kip*ft]	Reference : Cl.F8.1
Demand	:	-3.02 [Kip*ft]	Ctrl Eq. : D18 at 82.03%

Intermediate results

Section classification

	Unit	Value	Reference
Unstiffened element classification	--	Compact	
Unstiffened element slenderness (λ)	--	11.64	
Limiting slenderness for noncompact unstiffened element (λ_r)	--	179.80	
Limiting slenderness for compact unstiffened element (λ_p)	--	40.60	
Stiffened element classification	--	Compact	
Stiffened element slenderness (λ)	--	11.64	
Limiting slenderness for noncompact stiffened element (λ_r)	--	179.80	
Limiting slenderness for compact stiffened element (λ_p)	--	40.60	
<u>Factored yielding strength about a geometric axis</u> (ϕM_n)	[Kip*ft]	3.62	Cl.F8.1
Yielding (Mn)	[Kip*ft]	4.02	Eq.F8-1

DESIGN FOR SHEAR

Shear in major axis 33

Ratio	:	0.12	
Capacity	:	18.76 [Kip]	Reference : Cl.G1
Demand	:	2.30 [Kip]	Ctrl Eq. : D18 at 81.25%

Intermediate results

	Unit	Value	Reference
<u>Factored shear capacity</u> (ϕV_n)	[Kip]	18.76	Cl.G1
Critical shear stress for round HSS (F_{cr})	[Kip/in ²]	30.00	Eq.G5-2
Nominal shear strength (V_n)	[Kip]	20.85	Eq.G5-1

Shear in minor axis 22

Ratio	:	0.05	
Capacity	:	18.76 [Kip]	Reference : Cl.G1
Demand	:	0.97 [Kip]	Ctrl Eq. : I27 at 81.25%

Intermediate results

	Unit	Value	Reference
<u>Factored shear capacity</u> (ϕV_n)	[Kip]	18.76	Cl.G1
Critical shear stress for round HSS (F_{cr})	[Kip/in ²]	30.00	Eq.G5-2

TORSION DESIGN

Torsion

Ratio : 0.07
 Capacity : 3.39 [Kip*ft]
 Demand : -0.25 [Kip*ft]

Reference : Cl.H3.1
 Ctrl Eq. : D10 at 18.75%

Intermediate results	Unit	Value	Reference
Factored torsion capacity (ϕT_n)	[Kip*ft]	3.39	Cl.H3.1
Critical torsional buckling stress (F_{cr})	[Kip/in ²]	30.00	Cl.H3.1(a)
Nominal torsion capacity (T_n)	[Kip*ft]	3.76	Eq.H3-1

COMBINED ACTIONS DESIGN 

Combined flexure and axial

Ratio : 0.94
 Ctrl Eq. : D10 at 82.03% Reference : Eq.H1-1b

Intermediate results	Unit	Value	Reference
Interaction of flexure and axial force	--	0.94	Eq.H1-1b
Available flexural strength about weak axis (M_{c22})	[Kip*ft]	3.62	Cl.H1.1
Available axial strength (P_c)	[Kip]	62.55	Cl.H1.1



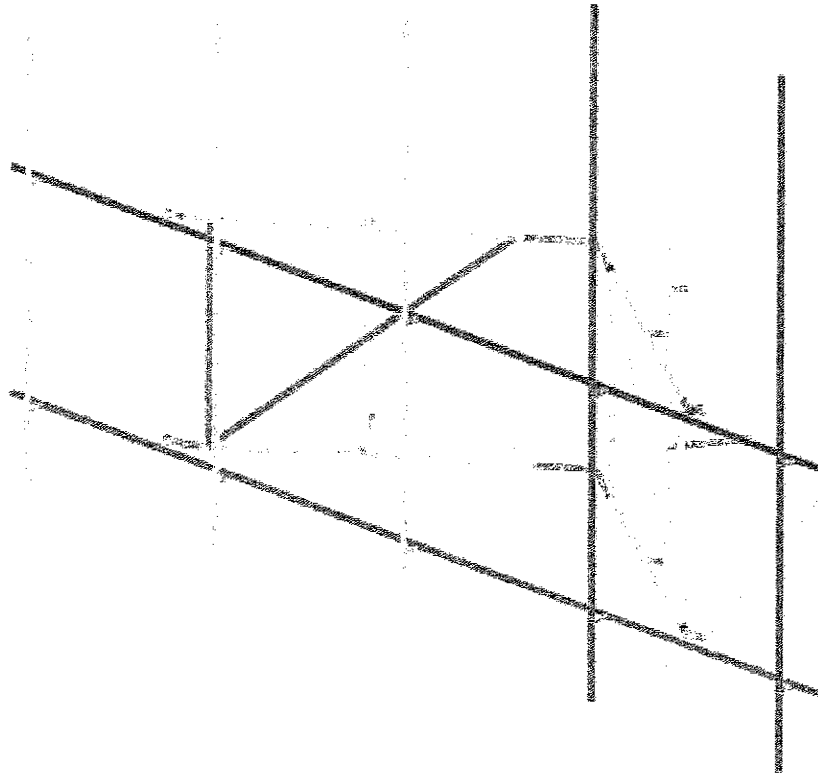
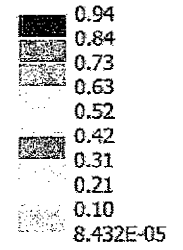
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File name: M:\Structural\Antenna Mounts\Mount Research\2020\2020-12-07

Stress ratio
AISC/AISI/BS/AS/CSA/NDS





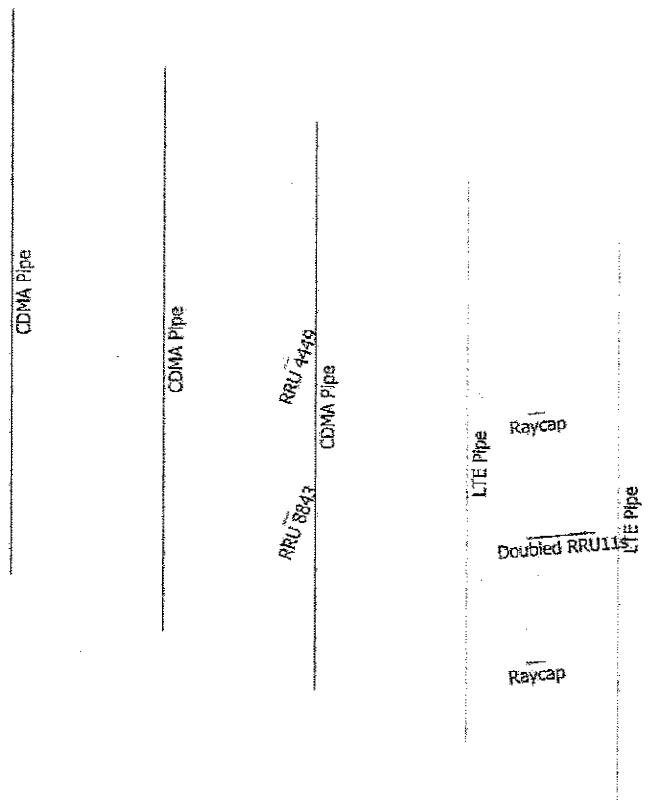
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Current Date: 1/14/2021 4:18 PM

Units system: English

File name: M:\Structural\Antenna Mounts\Mount Research\2020\2020-12-07

Equipment layout used for this general analysis. Note this may not represent the actual loading configuration for this site.



PREPARED FOR:



**STRUCTURAL ANALYSIS
REPORT**

**190 FT GUYED TOWER
MODERNIZATION INSTALLATION
LANNON (784320)
MENOMONEE FALLS, WISCONSIN**

**EDGE PROJECT NUMBER:
30472**

OCTOBER 31, 2022



Edge

Consulting Engineers, Inc.

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Prairie du Sac, Wisconsin 53578
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STRUCTURAL ANALYSIS REPORT

Project Information:

LANNON
Menomonee Falls, WI
43.16245, -88.16459

Client/Tower Owner:

U.S. Cellular
8410 W. Bryn Mawr Ave., Suite 700
Chicago, IL 60631
Contact: Michele Roth

Client Project Number:

784320

Consultant:

Edge Consulting Engineers
624 Water Street
Prairie du Sac, WI 53578
Contact: Michael R. Muehrer, P.E.
Phone: (608) 644-1449

Edge Project Number:

30472

Date:

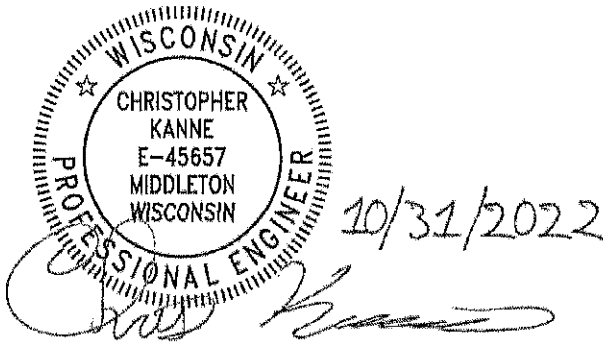
October 31, 2022



Tyler A. Clausen, E.I.T.
Project Engineer

10/31/22

Date



Chris C. Kanne, P.E.
Professional Engineer

10/31/22

Date

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FIGURES

Figure 1: Feedline Placement Diagram

APPENDICES

Appendix A: Structural Calculations

SECTION 1

EXECUTIVE SUMMARY

Site Name: LANNON
Site Location: Menomonee Falls, Wisconsin
Tower Type: 190 ft. Guyed Tower

A structural analysis for the above-described tower pursuant to the ANSI/TIA-222-G standard (TIA-222) was completed. One loading scenario was considered in the analysis. This is further described in Section 3.2, with reference to the feedline placement diagram (Figure 1).

The analysis was completed per the TIA-222 standard and is considered a rigorous analysis.

The results of our analysis indicate that the existing tower **is structurally adequate** to support the described loading. Refer to Section 3.5 for additional information regarding assumptions for this analysis.

Please refer to the report which follows this summary for further information. Feel free to contact us if you have any questions or concerns.

SECTION 2

INTRODUCTION

2.1 PURPOSE OF REPORT

Edge Consulting Engineers (Edge) performed a structural analysis for the existing tower to determine whether the tower is structurally adequate to support the loading condition referenced in Section 3.2, pursuant to the TIA-222 standard. This assessment was completed using background information provided by the client and/or obtained in the field (where noted) and in conformance with current applicable codes, client directed protocols, and the judgment of the structural engineer.

2.2 SCOPE OF SERVICES

The scope of services for this project included a structural analysis and modeling of the tower structure and foundation systems in accordance with client supplied information. This type of analysis, under the TIA-222 standard, is considered to be a "rigorous" analysis of the tower.

This report summarizes the structural analysis results.

SECTION 3 ANALYSIS

3.1 BACKGROUND INFORMATION

The subject tower is an existing Rohn 190 foot tall, Model No. 80 guyed tower which was originally designed in October of 1989. It is our understanding that the tower geometry has been altered from the original design. We were provided the following information at the project outset:

1. Tower & foundation drawings: Rohn Eng. File: 25029JC dated 10/3/1989
2. Structural analysis: Ramaker Eng. File: 19103 dated 8/2/2011
3. Tower modification drawings: Ehresmann Eng. File: 40451 dated 12/22/1999*
4. Tower inventory confirmation per Edge inventory report dated 5/3/2022
5. Proposed antenna and feedline loading configuration
6. Geotechnical report: Edge Eng. File: 30472 dated 10/3/2022

*During the completed site visit, it was observed that galvanized bracing was installed on the tower. While on site, no measurements were obtained on the installed members. From this observation, it was assumed that the modification properly engineered and installed.

3.2 LOADING CONDITION

The listed heights for appurtenances are representative of the centerline. For omni and dipole antennas the listed heights represent the base of the antenna.

The following loading condition was considered during this analysis:

Ant. Height	#	Manufacturer & Model #	Mounting Type	Technology / Notes	Feedline (#) Size	Owner	Status
188'	3	10' Bogner	Bogner Mount	Bogner	(3) 1-1/4" (1) 1/2"	County	Existing
165'	2	Vacant Sector Frames				U.S. Cellular	Existing (Remove Frames)
144'	1	20' Dipole	6' Standoff	Dipole	(1) 1/2"	County	Existing
135'	1	RFS 4' Dish	Pipe Mount	Dish	(1) EW90	County	Existing
126'	1	KMW AM-X-CW-18-65-00T-RET	12' Sector Frame	LTE	(2) 1-5/8" (Remove)	U.S. Cellular	Existing (Remove Panel)
124.5'	1	Dengyo QUA8-1LX1HX-BW65	12' HD V-Frame	Panel		U.S. Cellular	Proposed
124.5'	2	Amphenol WPA-80063/8CF E-DIN	12' HD V-Frame	CDMA	(2) 1-5/8"	U.S. Cellular	Existing
124'	1	Ericsson KRC 115 032/2 RIU	12' Sector Frame	RIU		U.S. Cellular	Existing (Remove RIU)
116'	1	Ericsson RRU-4449	Lattice Mount	RRU		U.S. Cellular	Proposed
116'	1	Raycap RUSDC-6267-PF-48	Lattice Mount	SPD	(1) Hybrid	U.S. Cellular	Proposed
76'	2	KMW AM-X-CW-18-65-00T-RET	12' Sector Frame	LTE	(4) 1-5/8" (Remove)	U.S. Cellular	Existing (Remove Panels)
74'	2	Ericsson KRC 115 032/2 RIU	12' Sector Frame	RIU		U.S. Cellular	Existing (Remove RIUs)
74'	2	Dengyo QUA8-1LX1HX-BW65	12' HD V-Frame	Panel		U.S. Cellular	Proposed
74'	4	Amphenol WPA-80063/8CF E-DIN	12' HD V-Frame	CDMA	(4) 1-5/8"	U.S. Cellular	Existing
66'	1	Ericsson RRU-4449	Lattice Mount	RRU		U.S. Cellular	Proposed
66'	1	Raycap RUSDC-6267-PF-48	Lattice Mount	SPD	(1) Hybrid	U.S. Cellular	Proposed

If the loading condition is altered from that analyzed, this report shall be deemed obsolete and further analysis will be required.

The feedline placement associated with the loading condition which was considered in this analysis is attached as Figure 1. The loading condition is further described in the Designed Appurtenance Loading table provided in Appendix A.

3.3 ANALYSIS CRITERIA

This analysis used the following structural design criteria:

Location

Waukesha County, WI

Governing Code/Standard Used

TIA-EIA Rev. G

General Structural Design Criteria

Importance/Risk Category

II

Wind Speed

115 mph (Ultimate/Strength Level)

Exposure Category

C

Topographic Category

1 - Flat/Rolling

Ice Thickness

0.75"

Wind Speed w/ Ice

40 mph

These criteria were selected based on the location and use of the subject tower. The client and/or tower owner **must** review these criteria for applicability and notify Edge if a different tower structure class, topographic category, or exposure criteria are warranted.

3.4 ANALYSIS METHOD

Structural analysis computations and modeling of the tower structure were performed using TNX Tower Version 8.0 software. TNX Tower is a general-purpose modeling, analysis, and design program created specifically for communications towers using the TIA-222-H or any previous TIA/EIA Standards back to RS-222 (1959). Steel design is checked using the referenced AISC Specifications. This program automatically generates nodes and elements for a subsequent finite element analysis (FEA) for standard tower types including self-support towers, guyed towers and monopoles. It allows entry of dishes, feedlines, discrete loads (loads from appurtenances) and user defined loads anywhere on the tower. TNX Tower uses wind effects from multiple directions and ice loads to develop pressure coefficients, wind pressures, ice loads and resulting forces on the tower per TIA-222 requirements.

The tower foundation system was also reviewed for the resulting applied forces due to the described loading condition. Items reviewed include checking the global overturning and shear of the foundation system. In addition, the anchor bolts and guy anchors (where applicable) were also reviewed for structural adequacy.

3.5 ASSUMPTIONS

For the purpose of this analysis, it has been assumed that the tower and foundation have been properly installed and maintained per the manufacturer's specifications and recommendations. Further limitations and restrictions have been provided in Section 5.

Because complete information was not readily available in the information provided, Edge made the following assumptions:

1. The following member sizes are met or exceeded:
 - a. 1-1/8" Solid Round for guy anchor rod
2. The following material grades are met or exceeded:
 - a. A572-50 for the guy anchor shafts
3. Due to limitations in the software program, it is not possible to configure the tower with the geometry as fabricated and installed. The program is not capable of having two different diagonal bracing shapes for the same section. This model most closely represents the structure as it was constructed and it provides accurate results.
4. Edge distances from the center of the bolt hole to the edge of the member are at least current code minimum.

If it is determined that any of these additional assumptions are not accurate, this analysis is void and an additional analysis should be performed.

SECTION 4 RESULTS

4.1 TOWER STRUCTURE

The analysis results of the existing tower structure when considering the described loading condition indicate the tower structure **is structurally adequate**. Refer to Section 3.5 for additional information regarding assumptions for this analysis.

Capacity - Results		
Tower Structure Elements	Capacity Ratio (%)	Comment
Legs 90'-110'	79.5%	Adequate
Diagonals 90'-110'	73.8%	Adequate
Horizontals 0.1'-4.5'	29.2%	Adequate
Girts 0.1'-4.5'	36.4%	Adequate
Guys 69'	81.3%	Adequate
Top Guy Pull-Off 69'	7.5%	Adequate
Torque Arm Top 120'	40.7%	Adequate
Bolts 90'-110' (Diagonal Member Bearing)	70.2%	Adequate

Diagrams of the tower's maximum deflection, tilt, and twist are provided in Appendix A.

4.2 TOWER FOUNDATIONS

The results of the analysis indicate that the tower base foundation **is adequate**. From this analysis it was determined that the foundation meets strength requirements per the current ACI specification.

The existing guy anchors were evaluated for both sliding and uplift as per the given soil properties from the geotechnical report. The reactions in the guy anchors from the described loading condition are less than the allowable. Therefore, the anchors **are considered structurally adequate**.

Refer to Appendix A for support calculations and to Section 3.5 for additional information regarding assumptions for this analysis.

4.3 RECOMMENDATIONS

The client and tower owner shall closely review this report including assumptions made, analysis criteria selected and loading conditions modeled. Any questions or discrepancies with these items shall be clarified with the engineer.

Edge recommends that qualified personnel assess the physical condition of the tower, in accordance with the guidelines and frequency provided in the TIA-222 standard.

SECTION 5

LIMITATIONS AND RESTRICTIONS

1. This report was prepared in accordance with generally accepted structural engineering practices common to the tower industry and makes no other warranties, either expressed or implied, as to the professional advice provided under the terms of the agreement between Engineer and Client. This report has not been prepared for uses or parties other than those specifically named, or for uses or applications other than those enumerated herein. The report may contain insufficient or inaccurate information for other purposes, applications, and/or other uses.
2. This report is intended for the use of the client, and cannot be utilized or relied upon by other parties without the written consent of Edge Consulting Engineers.
3. Edge Consulting Engineers is not responsible for any, and all, tower modifications completed prior to, or hereafter, which Edge Consulting Engineers was not, or will not, be directly involved.
4. The model, conclusions, and recommendations contained within this report are based upon the supplied and attained information as described within the report and supplemented with historical information available to Edge Consulting Engineers. If it is known, or becomes known, that any item(s) are in conflict with what is described within this document, this report should be considered void and Edge Consulting Engineers should be contacted immediately.
5. Edge Consulting Engineers disclaims all liability for any information, conclusion, or recommendation that is not expressly stated or represented within this report.
6. Edge Consulting Engineers shall not be liable for any incidental, consequential, indirect, special or punitive damages arising out of any claim associated with the use of this report.
7. The scope of work performed for this analysis is limited to the items in which we were furnished complete and accurate information.
8. Accessories and appurtenances such as antenna mounts, feed line ladders, climbing ladders, lighting mounts, etc. were not analyzed as part of this work, and Edge Consulting Engineers makes no claim as to their adequacy of their design or their installation.
9. This analysis was performed under the assumption that all tower elements are in like new condition, free from rust and other deterioration. Additionally, this analysis assumes that all installed modification designs were thoroughly reviewed and approved by the respective engineer of record and they are able to carry their intended design capacity. It is also assumed the tower was properly installed per construction documents, and that the tower and all associated appurtenances were originally designed and fabricated in accordance with all applicable codes and standards. Edge Consulting Engineers cannot account for, nor be held responsible, if tower elements are deteriorated, damaged, and/or missing.
10. This tower analysis was performed based upon the antenna, feed line and other appurtenance loading and placement as described within this report. Any alterations to the described loading or placement will require re-analysis of the tower, and the findings contained in this report are not valid.
11. The loading conditions utilized for this analysis is based on information provided by the client, and readily available manufacturer/vendor information (antenna and mount projected areas, weight and shape factors). However, if the described loading criteria and design assumptions within this report are not accurate, are altered, or changed in any form, this analysis shall be considered void and an additional analysis must be performed.
12. It is the responsibility of the client and the tower owner to thoroughly review the existing and proposed loading, and bring any discrepancy to the attention of Edge Consulting Engineers.
13. Modification designs are to be based upon a rigorous or comprehensive analysis per the referenced TIA-222 standard. As such designs assume any suggested modifications are installed as recommended and are not intended to address temporary conditions on the tower as modifications are being performed. It is strongly recommended that the Installer of any tower modification thoroughly assess installation procedures and how temporary conditions present while modifications are being performed influence tower members. Installer is responsible for sequence of operation and any required temporary bracing or strengthening of tower during modification operations.
14. Site-specific loading or local building code requirements may be more stringent than the minimum loading requirements specified in the Standard. These and other unique loads or loading combination requirements are to be specified by the owner (in the procurement specifications).
15. Supplementary rime ice and in-cloud ice loadings (including thickness, density, escalation with height and corresponding wind speed) are to be included in the procurement specification when appropriate for a given site location.
16. The service loads and deformation limits specified in the Standard are the minimum requirements for communication structures. When more stringent requirements are required for a specific application, the serviceability limit state basic wind speed and, if required, the serviceability limit state design ice thickness; the deformation limitations (twist, sway and horizontal displacement) and the location/elevation where the deformation limitations apply are to be included in the procurement specification.

Figure 1

Feedline Placement Diagram

Feed Line Plan

50'

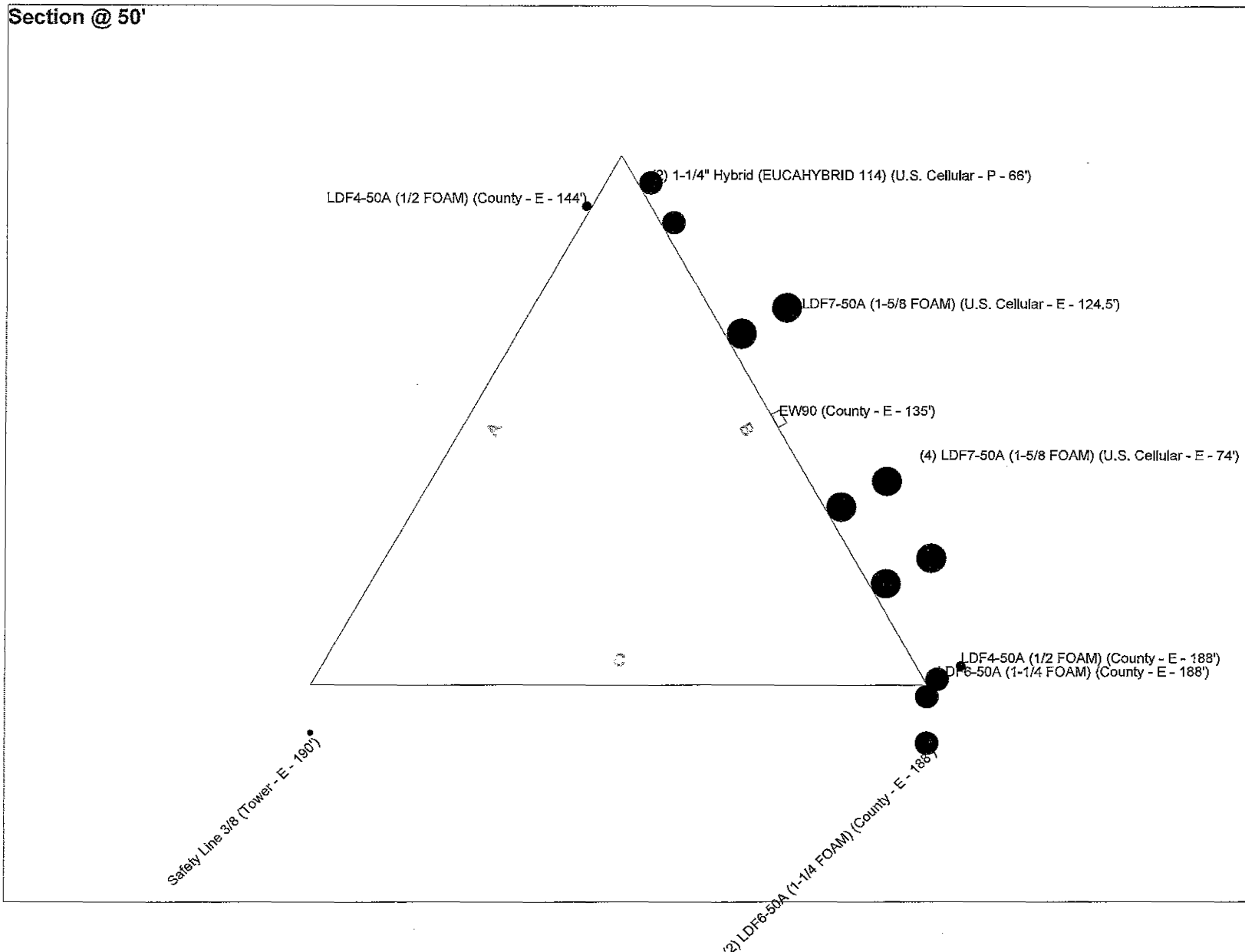
Round


Flat

App In Face

App Out Face

Section @ 50'



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	Project: 30472 Client: U.S. Cellular Code: TIA-222-G Path:	Drawn by: tclausen Date: 10/26/22	App'd: Scale: NTS Dwg No. E-7	

Referred on: 03/06/23

File Number: 177-O-108

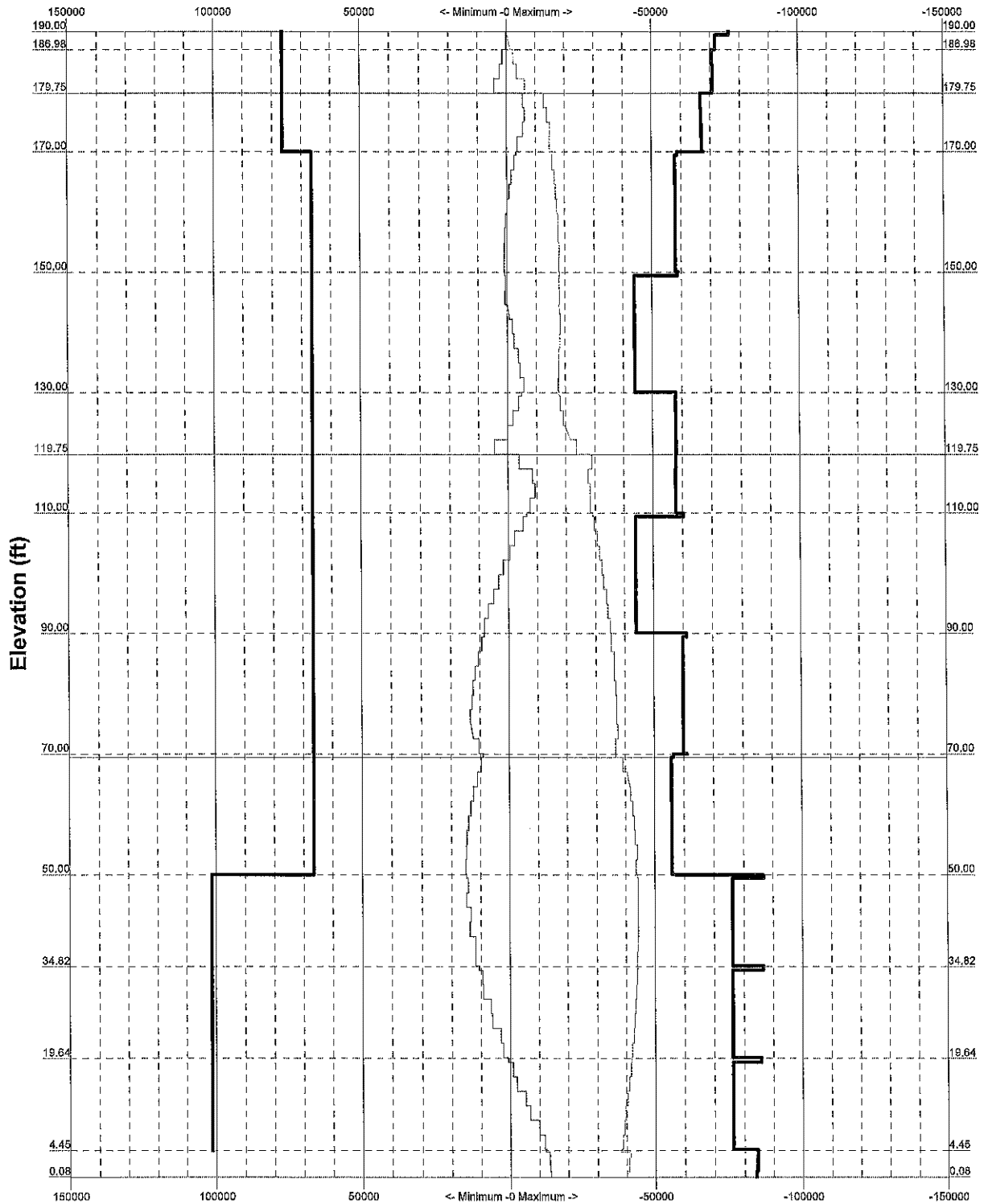
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Appendix A

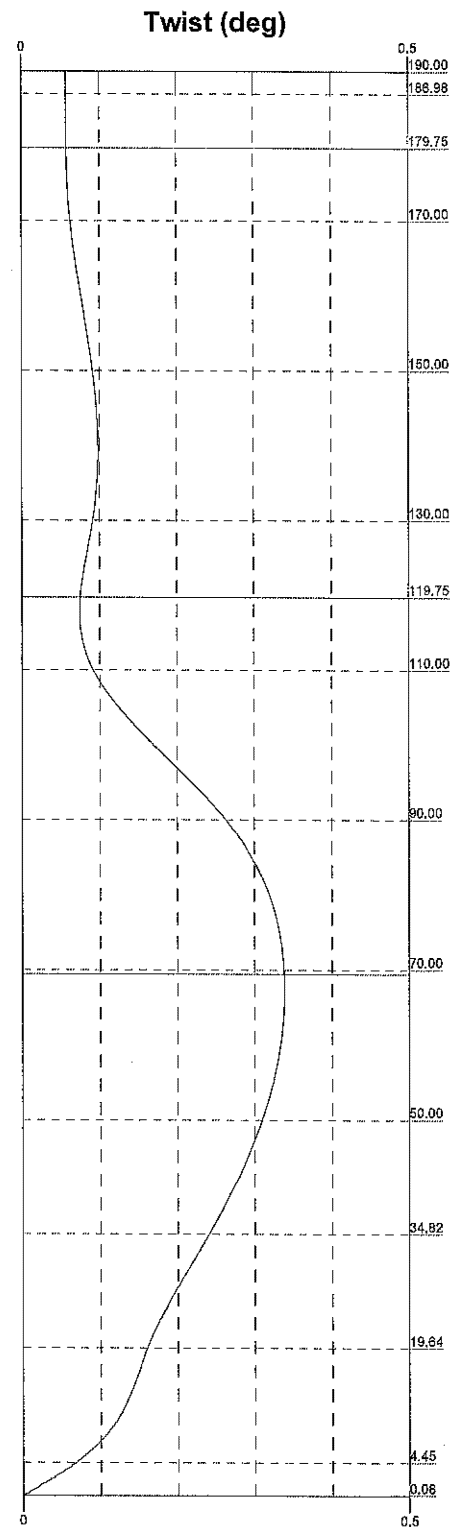
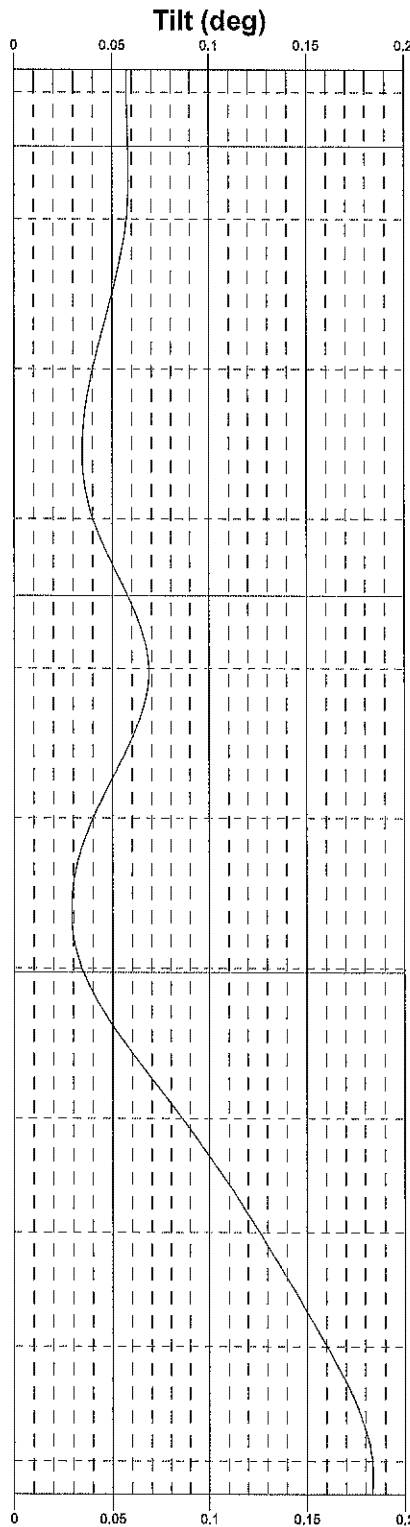
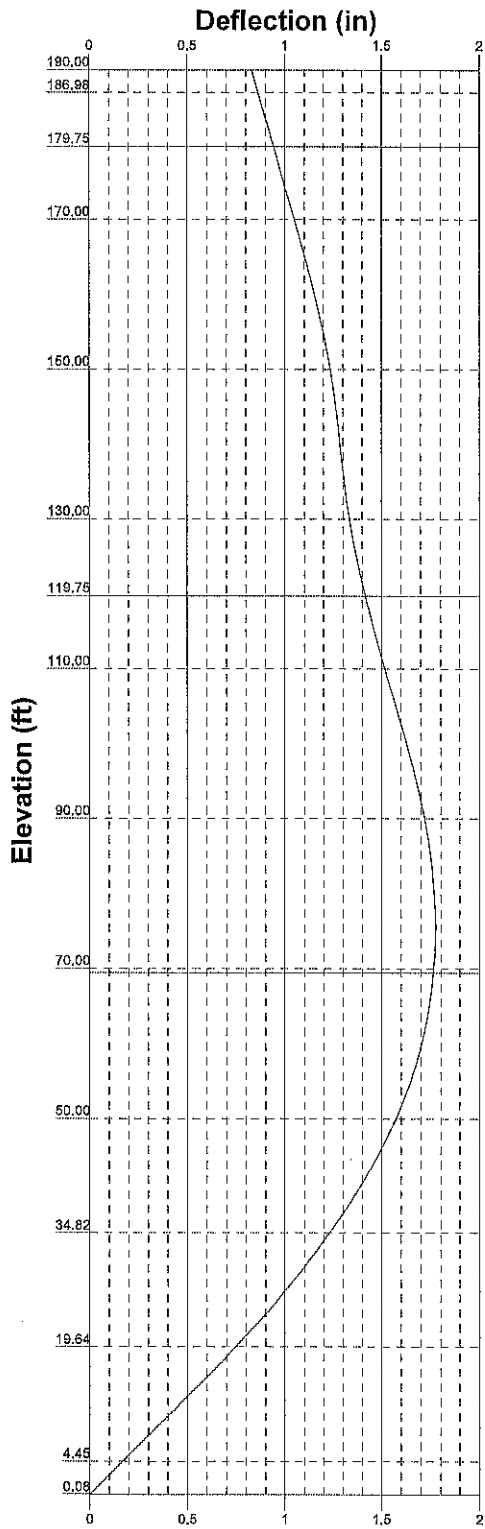
Structural Calculations

TIA-222-G - 115 mph/40 mph 0.7500 in Ice Exposure C

Leg Capacity ——— Leg Compression (lb)



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	<p>Project: 30472</p>		
	<p>Client: U.S. Cellular</p>	<p>Drawn by: tclausen</p>	<p>App'd:</p>
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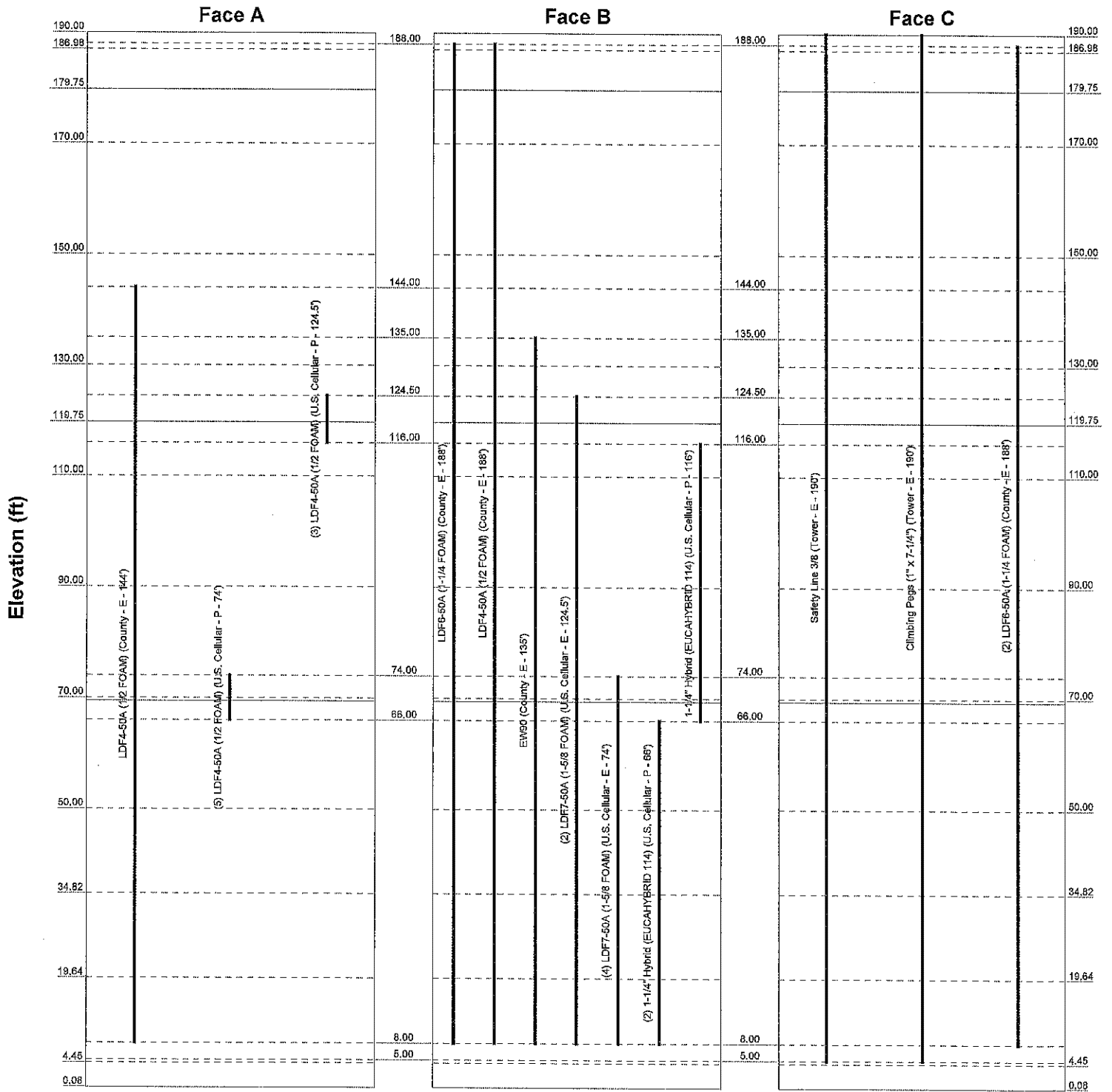


<p>Edge Consulting Engineers, Inc.</p>	Edge Consulting Engineers, Inc.		Job: Lannon (784320)	
	624 Water St		Project: 30472	
	Prairie Du Sac, WI 53578		Client: U.S. Cellular	Drawn by: tclausen
	Phone: (608) 644-1449		Code: TIA-222-G	Date: 10/31/22
	FAX: (608) 644-1549		Path:	App'd: Scale: NTS Dwg No. E-5

Feed Line Distribution Chart

31/32" - 190'

Round Flat App In Face App Out Face Truss Leg



Edge Consulting Engineers, Inc.	Edge Consulting Engineers, Inc.		624 Water St Prairie Du Sac, WI 53578 Phone: (608) 644-1449 FAX: (608) 644-1549	
	Job: Lannon (784320)			
	Project: 30472			
	Client: U.S. Cellular	Drawn by: tclausen	App'd:	
Code: TIA-222-G	Date: 10/31/22	Scale: NTS		
Path:			Dwg No. E-7	

Referred on: 03/06/23

File Number: 177-O-108

Referred to: JU 79

Foundation Analysis



Project Name - LANNON (784320)
Menomonee Falls, Wisconsin
Edge #30472

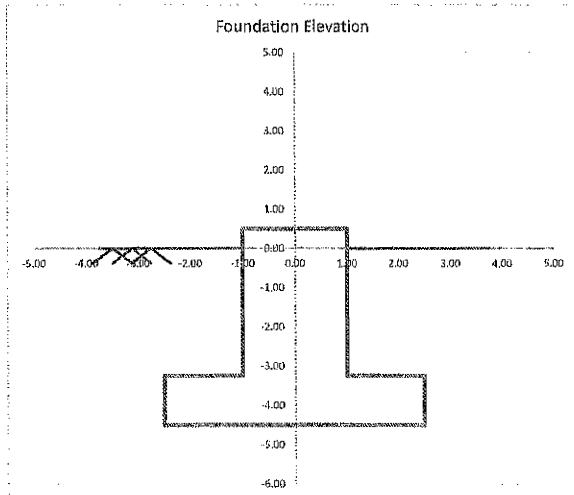
Completed By: TAC
 Checked By: CCK

General Information:

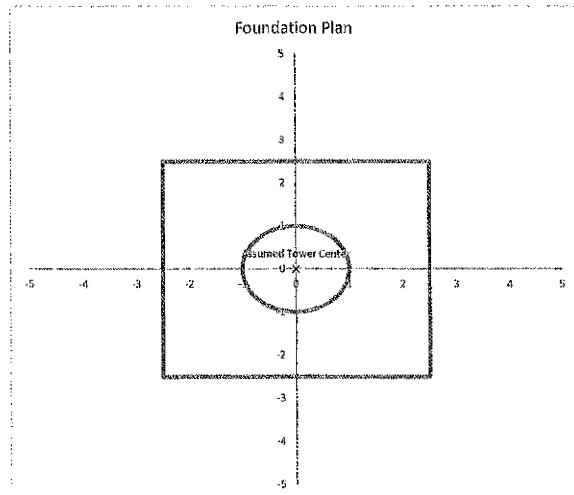
Design Code: ACI 318-14
 Footing Type: Spread Footing
 Column Type: Pedestal

Geometry:

Existing Foundation	
Foundation Depth =	4.50 ft
Slab Length (Z) =	5.00 ft
Slab Width (X) =	5.00 ft
Slab Thickness =	15.00 in
Pier Height =	3.75 ft
Pier Shape =	Circle
Pier Diameter =	2.00 ft



Note: Vertical Axis is Y Axis and Horizontal Axis is Z Axis



Note: "Vertical" Axis is X Axis and "Horizontal" Axis is Z Axis

Materials:

Existing Foundation	
Concrete Strength (f_c) =	3000 psi
Concrete Unit Weight (w_c) =	150 pcf
Concrete Elasticity Modulus (E_c) =	3320.6 ksi
Steel Elasticity Modulus (E_s) =	29000 ksi
Pad, Steel Yield Stress (f_y) =	60 ksi
Pier Vert. Bars, Steel Yield Stress (f_y) =	60 ksi
Pier Ties, Steel Yield Stress (f_y) =	60 ksi

--> Normal Weight

Soil Parameters:

Unit Weight of Soil (γ_{soil}) =	115 pcf
Submerged soil unit weight ($\gamma_{sub,soil}$) =	80 pcf
Coefficient of Friction Against Sliding =	0.25 Assumed
Depth to Water Table =	99 ft

Foundation Analysis

Project Name - LANNON (784320)
Menomonee Falls, Wisconsin
Edge #30472



Completed By: TAC
 Checked By: CCK

Reinforcement Details:

Existing Footing Reinforcement

Clear Cover: 3 in
 Bottom Reinf.Parallel to X Axis: #5 @ 10.68"
 Bottom Reinf.Parallel to Z Axis: #5 @ 10.68"

Existing Pedestal Reinforcement

Clear Cover: 3 in
 Vertical Reinforcement: (8) #6 Bars
 Provided Area: 3.52 in²
 Transverse Reinforcement: (4) #3 Ties
 Legs Parallel to X Axis: 2
 Legs Parallel to Z Axis: 2

Loading Conditions to be Included In Design:

Service Load Combinations:

- S1..... 1.0 D + 1.0 G
- S2..... 1.0 D + 1.0 G + 0.7 I
- S3..... 1.0 D + 1.0 G + 0.6 Wo_x
- S4..... 1.0 D + 1.0 G + 0.6 Wo_z
- S5..... 1.0 D + 1.0 G + 0.7 I + 0.7 Wl_x
- S6..... 1.0 D + 1.0 G + 0.7 I + 0.7 Wl_z
- S7..... 0.6 D + 0.6 G + 0.6 Wo_x
- S8..... 0.6 D + 0.6 G + 0.6 Wo_z
- S9..... 0.6 D + 0.6 G + 0.7 I + 0.7 Wl_x
- S10..... 0.6 D + 0.6 G + 0.7 I + 0.7 Wl_z

Design Load Combinations:

- D1..... 1.2 D + 1.0 G + 1.0 Wo_x
- D2..... 1.2 D + 1.0 G + 1.0 Wo_z
- D3..... 1.2 D + 1.0 G + 1.0 I + 1.0 Wl_x
- D4..... 1.2 D + 1.0 G + 1.0 I + 1.0 Wl_z
- D5..... 1.2 D + 1.0 G

Applied Loads:

Condition	Axial (kip)	Mxx (kip*ft)	Mzz (kip*ft)	Vx (kip)	Vz (kip)
Dead Load (DL)	14.57	0	0	0	0
Ice Load (IL)	66.57	0	0	0	0
Guy Load (G)	26.2	0	0	0	0
Wind w/out Ice (X-Dir.)	13.56	0	0	2.13	0
Wind w/out Ice (Z-Dir.)	13.56	0	0	0	2.13
Wind with Ice (X-Dir.)	1.56	0	0	0.29	0
Wind with Ice (Z-Dir.)	1.56	0	0	0	0.29

Foundation Analysis

Project Name - LANNON (784320)
Menomonee Falls, Wisconsin
Edge #30472



Completed By: TAC
 Checked By: CCK

Results:

Soil Bearing:

Eccentricity in Z Direction = 0.0112 ft
 Kern for Z Direction = 0.83 ft

Maximum Net Bearing Pressure = 3,654 psf
 ASD Allowable, Net Bearing Capacity = 5,000 psf

DCR = 73.08%

Foundation Sliding Check:

In Z Direction

Controlling Load Combination: S8
 Force Resisting Sliding = 10.34 kip
 Sliding Force = 1.28 kip

Factor of Safety = 8.09 > 1.50

In X Direction

Controlling Load Combination: S7
 Force Resisting Sliding = 10.34 kip
 Sliding Force = 1.28 kip

Factor of Safety = 8.09 > 1.50

Foundation Overturning Check:

About X-X Axis

Controlling Load Combination: S8
 Restoring Moment = 103.43 kip-ft
 Overturning Moment = 6.39 kip-ft

Factor of Safety = 16.19 > 1.50

About Z-Z Axis

Controlling Load Combination: S7
 Restoring Moment = 103.43 kip-ft
 Overturning Moment = 6.39 kip-ft

Factor of Safety = 16.19 > 1.50

Footing Flexure Checks:

Reduction Factor: 0.90

Direction	Controlling Load Combination	Location	Flexural Demand (M_u , kip)	Flexural Capacity (ϕM_n , kip)	DCR $M_u / \phi M_n$	Check
Bending About X Axis	D3	Pier Face	25.63	89.54	28.6%	OK
Bending About Z Axis	D3	Pier Face	25.63	89.54	28.6%	OK

Shear Checks (One-Way Shear):

Reduction Factor: 0.75
 Shear Area: 664 in²

Direction	Controlling Load Combination	Location	Shear Demand (V_u , kip)	Shear Capacity (ϕV_c , kip)	DCR $V_u / \phi V_c$	Check
Bending About X Axis	D3	Critical Section	13.19	54.53	24.2%	OK
Bending About Z Axis	D3	Critical Section	13.19	54.53	24.2%	OK

Punching Shear Checks (Two-Way Shear):

Reduction Factor: 0.75

Controlling Load Combination	Location	Perimeter at Critical Section (p_c , in)	Punching Shear Area (A_{cs} , in ²)	Shear Demand (V_u , kip)	Shear Capacity (ϕV_c , kip)	DCR $V_u / \phi V_c$	Check
D3	Existing Pier	111.13	1,264	81.80	207.72	39.4%	OK

Guy Anchor Calculations

Project Name - LANNON (784320)
 Menomonee Falls, Wisconsin
 Edge #30472



Completed By: TAC
 Checked By: GCK

Guy Anchor Reactions (150 ft. Radius):

Uplift (U) = 23.44 kip
 Shear (V) = 26.39 kip

*Per TNX Tower Output

Soil Properties:

Soil Unit Weight (γ_{soil}) = 115 lb/ft³
 Effective Soil Unit Weight (γ'_{soil}) = 60 lb/ft³
 Depth to Water Table (d_{water}) = 99 ft
 Soil Friction Angle (ϕ_{soil}) = 15 °
 Ultimate Passive Earth Pressure (σ_p) = 676 psf/ft of soil depth
 Ultimate Skin Friction (σ_s) = 0.0 psf
 Horizontal Plane Friction Coefficient (μ_h) = 0.00
 Vertical Plane Friction Coefficient (μ_v) = 0.00
 phi factor (ϕ) = 0.75

Guy Anchor Geometry:

Depth to Bottom of Guy Anchor (h) = 10.00 ft
 Guy Anchor Depth (d) = 2.00 ft
 Guy Anchor Width (b) = 3.00 ft
 Guy Anchor Length (L) = 8.00 ft
 Guy Anchor Toe Height (t) = 0.00 ft

Calculated Geometry

Soil Wedge Height Above Anchor (l_{min}) = 8.00 ft
 Soil Wedge Height From Bottom (l_{max}) = 10.00 ft
 Wet Soil Wedge Height Above Anchor ($l_{w,u}$) = 0.00 ft
 Wet Soil Wedge Height From Bottom ($l_{w,w}$) = 0.00 ft

$W = \tan(\phi_{soil}) \cdot l$

Soil Wedge Width Above Anchor (W_{min}) = 2.14 ft
 Soil Wedge Width From Bottom (W_{max}) = 2.68 ft
 Wet Soil Wedge Width Above Anchor (W_w) = 0.00 ft
 Wet Soil Wedge Width From Bottom ($W_{w,w}$) = 0.00 ft

Guy Anchor Forces:

$$W_{concrete} = d \cdot b \cdot L \cdot (\gamma_c = 150pcf)$$

Effective Weight of Concrete Block ($W_{concrete}$) = 5.4 kips
 Effective Weight of Soil in Block (W_{block}) = 4.1 kips

*If below water table, reduced by the weight of water
 *Weight of Anchor Block if it was soil for later calc.

$$W_i = \frac{1}{3} \cdot l_i \cdot \left(b \cdot L + \sqrt{b \cdot L \cdot (b + 2W_i)} \cdot (L + 2W_i) + (b + 2W_i) \cdot (L + 2W_i) \right) \cdot \frac{\gamma_i}{1000}$$

Dry Weight of Soil Above Anchor (W_{min}) = 39.8 kips
 Dry Weight of Soil From Bottom (W_{max}) = 59.1 kips
 Buoyed Weight of Soil Above Anchor (W_u) = 0.0 kips
 Buoyed Weight of Soil From Bottom ($W_{w,w}$) = 0.0 kips

$$W_{top} = W_{min} - W_w \quad W_{add} = W_{max} - W_{w,w} - W_{top} - W_{block}$$

Net Weight of Soil Above Anchor (W_{top}) = 39.8 kips
 Max Weight Increase to Bottom (W_{add}) = 15.2 kips

*Can't be less than zero

$$V_{toe} = 0.6 \cdot \frac{4}{3} \cdot \sqrt{f'_c} \cdot 2 \cdot (b + L) \cdot (t - 2ln)$$

Concrete Toe Capacity (V_{toe}) = 0.0 kips

*Can't be less than zero

$$W_{soil} = W_{top} + \min(W_{add}, V_{toe})$$

Effective Weight of Soil on Anchor (W_{soil}) = 39.8 kips

$$W_{dtr} = (b \cdot L) \cdot ((l_{min} - l_w) \cdot \gamma_{soil} + l_w \cdot \gamma'_{soil})$$

Weight Directly on Block (W_{db}) = 16.6 kips

$$N_{comp} = W_{concrete} + W_{dtr} - U$$

Net Compression Force (N_{comp}) = 0.0 kips

*Can't be less than zero

$$F_{sf} = d \cdot (2 \cdot b + L) \cdot \sigma_s$$

Skin Friction on Block (F_{sf}) = 0.0 kips

$$R_{soil} = \frac{1}{2} (\sigma_{p,top} + \sigma_{p,bottom}) \cdot d \cdot L$$

Passive Soil Pressure at Top of Block ($\sigma_{p,top}$) = 5409 psf
 Passive Soil Pressure at Bottom of Block ($\sigma_{p,bottom}$) = 6761 psf
 Soil Resistance (R_{soil}) = 73.0 kips

Guy Anchor Uplift Case:

$$\phi U = \phi (\mu_v \cdot \max(V - \mu_h \cdot N_{comp}, 0) + W_{concrete} + \max(W_{soil}, W_{dtr} + F_{sf}))$$

Uplift Resistance (ϕU) = 33.9 kips

Unity = 0.69

OK

Guy Anchor Slippage Case:

$$\phi V = \phi (R_{soil} + \mu_h \cdot N_{comp})$$

Shear Resistance (ϕV) = 54.8 kips

Unity = 0.46

OK

Guy Wire Tensions

Project Name - LANNON (784320)
Menomonee Falls, Wisconsin
Edge #30472



Completed By: TAC

Checked By: CCK

Guy Wire Tensions

The given tension values are for the C anchor*. The tensions should be maintained as close as possible for these guys, while the remaining guys are used to plumb the tower. Check tension in all guy wires and adjust as appropriate.

*For tower orientation refer to Figure 1: Feedline Placement Diagram.

Guy Elevation (ft)	Anchor Location	Approx. Radius (ft)	Approx. Elev Change (ft)	Guy Size	Tension at Temperature of Tensioning, lbs.						
					0°F	20°F	40°F	60°F	80°F	100°F	120°F
179.8	C	150	189	9/16 EHS	4072	3880	3689	3500	3313	3128	2947
119.8	C	150	129	7/16 EHS	2591	2419	2248	2080	1914	1753	1596
69.4	C	150	78	3/8 EHS	2027	1863	1701	1540	1382	1229	1081

1 FIRST AMENDMENT TO LEASE WITH CCATT LLC AT
2 UW-MILWAUKEE WAUKESHA CAMPUS
3
4

5 WHEREAS, the County and CCATT LLC'S predecessor in interest TeleCorp Realty, LLC
6 ("Original Lessee") entered into a Lease Agreement dated on or about November 18, 2002
7 ("Lease"), a memorandum of which was recorded on January 13, 2003 as Instrument #2909174
8 in the official public records of Waukesha County, Wisconsin, whereby Original Lessee leased a
9 portion of the County's Property located at 1500 North University Drive, Waukesha, WI,
10 together with access and utility easements, for the construction, operation and maintenance of
11 flagpole cell tower and related equipment; and
12

13 WHEREAS, the County and CCATT LLC ("Lessee") as successor in interest to Original Lessee
14 desire to amend the Lease on the terms and conditions contained herein; and
15

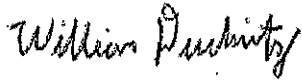
16 WHEREAS, effective as of November 18, 2022, the term of the Lease shall be for two (2)
17 additional terms of one (1) year each (each a "Renewal Term"), which shall be automatically
18 renewed so long as Lessee is not then in default under the Lease unless Lessee provides written
19 notice to County of Lessee's intent not to renew within at least thirty (30) days before the
20 expiration of the first Renewal Term. If all Renewal Terms are renewed the final expiration date
21 of the Lease shall be November 17, 2024.

22 THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF WAUKESHA ORDAINS
23 that the First Amendment to Lease between the County and CCATT LLC for use of the flagpole
24 cell tower and surrounding lands at the UW-Milwaukee Waukesha campus is hereby approved.

25 BE IT FURTHER ORDAINED that the Director of Emergency Preparedness or his designee
26 is authorized to execute the First Amendment to Lease and any other documents necessary
27 to effectuate the intent thereof.

FISCAL NOTE
FIRST AMENDMENT TO LEASE WITH CCATT LLC AT
UW-MILWAUKEE WAUKESHA CAMPUS

This ordinance authorizes the extension of an existing agreement with CCATT LLC to lease county land for two years, from November 18, 2022, through November 17, 2024. Under the extension, CCATT LLC will pay the county \$46,580 in rental charges from November 18, 2022 through November 17, 2023, and \$48,443 (4% increase) from November 18, 2023 through November 17, 2024. These additional funds will be accounted for in the Emergency Preparedness – Radio Services Fund, along with other cell tower lease revenues, for future Radio Services projects and expenses.



William Duckwitz
Budget manager
3/6/2023

FIRST AMENDMENT TO LEASE

THIS FIRST AMENDMENT TO LEASE (the "First Amendment") is made effective as of October 31, 2022 ("Effective Date"), by and between Waukesha County, Wisconsin, a quasi-municipal corporation, having an address at 515 W. Moreland Blvd., Waukesha, Wisconsin 53188 (hereinafter referred to as "County") and CCATT LLC, a Delaware limited liability company, as successor to TeleCorp Realty, LLC, having an address at Attn: Legal Real Estate Department, 2000 Corporate Drive, Canonsburg, PA 15317 (hereinafter referred to as "Lessee").

RECITALS

WHEREAS, the County and Lessee entered into Lease Agreement dated on or about November 18, 2002 ("Lease"), a memorandum of which was recorded on January 13, 2003 as Instrument #2909174 in the official public records of Waukesha County, Wisconsin, whereby Lessee leased the Site on the County's Property located at 1500 North University Drive, Waukesha, WI, together with access and utility easements, for the construction, operation and maintenance of Communications Facilities; and

WHEREAS, the term of the Lease is twenty (20) years (initial term of five (5) years plus three (3) additional five (5) year extensions commencing on the Commencement Date; and

WHEREAS, County and Lessee desire to amend the Lease on the terms and conditions contained herein.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are acknowledged, the County and Lessee agree as follows:

1. Recitals; Defined Terms. The parties acknowledge the accuracy of the foregoing recitals. Any capitalized terms not defined herein shall have the meanings ascribed to them in the Lease.
2. Acknowledgement. The parties acknowledge that as of the Effective Date, the Lease is and was in full effect, and the parties as of the execution of this First Amendment acknowledge and reaffirm that the Lease and its terms remain in full force, each party being bound to its obligations thereunder.
3. Term. Effective as of November 18, 2022, the term of the Lease shall be for two (2) additional terms of one (1) year each (each a "Renewal Term"), which shall be automatically renewed so long as Lessee is not then in default under the Lease unless Lessee provides written notice to County of Lessee's intent not to renew within at least thirty (30) days before the expiration of the first Renewal Term. If all Renewal Terms are renewed the final expiration date of the Lease shall be November 17, 2024.
4. Rent. Notwithstanding anything to the contrary in Section 3 of the Lease, effective as of November 18, 2022, the annual rent payable to the County shall increase by four percent (4%) of the current annual rent. At the commencement of the second Renewal Term, the annual rent payable to the County shall increase by four percent (4%) of the then current annual rent.

5. Counterparts. This First Amendment may be executed in separate and multiple counterparts, each of which shall be deemed an original but all of which taken together shall be deemed to constitute one and the same instrument.

6. Notices. The notice addresses as stated in Section 20 of the Lease are amended as follows:

If to County:

Waukesha County, Wisconsin
515 W. Moreland Blvd.
Waukesha, Wisconsin 53188

If to Lessee:

CCATT LLC
Attn: Legal Real Estate Department
2000 Corporate Drive
Canonsburg, Pennsylvania 15317

7. Remainder of Lease Unaffected. In all other respects, the remainder of the Lease shall remain in full force and effect. Any portion of the Lease that is inconsistent with this First Amendment is hereby amended to be consistent.

[Signature pages follow]

The County and Lessee have caused this First Amendment to be duly executed on the day and year first written above.

COUNTY:
WAUKESHA COUNTY, WISCONSIN
a quasi-municipal corporation

By: _____

Print Name: _____

Title: _____

[Lessee Execution Page Follows]

This First Amendment is executed by Lessee as of the date first written above.

LESSEE:
CCATT LLC,
a Delaware limited liability company

By: _____

Print Name: _____

Title: _____

CONSENT OF UNIVERSITY

UW-Milwaukee Waukesha County hereby consents to the above First Amendment to Lease.

UW-MILWAUKEE WAUKESHA COUNTY

By: _____

Print Name: _____

Title: _____

1 APPROVE SETTLEMENT AGREEMENTS WITH CERTAIN OPIOID PHARMACIES AND
2 PHARMACEUTICAL COMPANIES AND APPROVE WISCONSIN STATE-LOCAL
3 ALLOCATION MOU
4

5 WHEREAS, in February 2018 the Waukesha County Board adopted Enrolled Resolution 172-
6 004 authorizing the Waukesha County Corporation Counsel to, at his discretion, select outside
7 counsel and commence a lawsuit on behalf of the County, against any pharmaceutical company,
8 wholesale distributor, manufacturer and/or other entity or individual that engaged in practices
9 that contributed to the opioid epidemic within Waukesha County; and

10
11 WHEREAS, national and local counsel was retained and a lawsuit was filed on behalf of the
12 County against certain manufactures, distributors, and retailers of opioid pharmaceuticals (the
13 “Opioid Defendants”) in an effort to hold the Opioid Defendants financially responsible for the
14 County’s expenditure of money and resources to combat the opioid epidemic; and

15
16 WHEREAS, similar lawsuits were filed by seventy other counties in Wisconsin as well as
17 thousands of various other units of government across the state and country and were
18 coordinated in multidistrict litigation in the Northern District of Ohio captioned *In re: Opioid*
19 *Litigation*, MDL 2804 (the “Litigation”); and

20
21 WHEREAS, settlement discussions with Walgreens, Walmart, CVS, Teva and Allergan (the
22 “Settling Defendants”) have resulted in tentative agreements as to settlement terms (“Settlement
23 Agreements”) pending agreement from the County and other plaintiffs involved in the Litigation;
24 and

25
26 WHEREAS, copies of the Settlement Agreements with the Settling Defendants representing the
27 terms of the tentative settlement agreements with the Settling Defendants are publicly available
28 at <https://nationalopioidsettlement.com> and have been discussed with the Board in closed
29 session; and

30
31 WHEREAS, the Settlement Agreements provide, among other things, for the payment of certain
32 sums to Participating Subdivisions (as defined in the Settlement Agreements) upon the
33 occurrence of certain events detailed in the Settlement Agreements; and

34
35 WHEREAS, in order to become a Participating Subdivision and participate in the benefits of the
36 Settlement Agreements it is necessary that the County (a) approves the Settlement Agreements
37 and (b) approves the memorandum of understanding allocating proceeds from the Settlement
38 Agreements among the various Wisconsin Participating Subdivisions and the State of Wisconsin
39 (the “Wisconsin State-Local Allocation MOU”); and that the Legislature’s Joint Committee on
40 Finance approves the terms of the Settlement Agreements and the Wisconsin State-Local
41 Allocation MOU; and

42
43 WHEREAS, a current draft of the Wisconsin State-Local Allocation MOU is on file in the
44 Corporation Counsel’s office pending approval by the County Board and has been shared with
45 the Board in closed session.
46

47 THE COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF WAUKESHA ORDAINS
48 that the Settlement Agreements with Walgreens, Walmart, CVS, Teva and Allergan
49 (collectively, the "Settlement Agreements") are in all respects hereby approved.
50

51 BE IT FURTHER ORDAINED that Corporation Counsel or his designee is hereby authorized to
52 take all actions necessary to participate in the Settlement Agreements and to finalize and
53 implement the Wisconsin State-Local Allocation MOU with respect to the allocation of
54 settlement proceeds among the Wisconsin litigating local government entities and the State of
55 Wisconsin in substantially the same form as on file with the Corporation Counsel and shared
56 with the Board, including the further negotiation and execution of an escrow agreement for
57 receipt and disbursement of the proceeds of the Settlement Agreements or any other documents
58 necessary to implement the Settlement Agreements.
59

60 BE IT FURTHER ORDAINED that all proceeds from the Settlement Agreements shall be
61 deposited in the account previously established for the proceeds from prior settlements in the
62 Litigation and administered and disbursed in a manner consistent with Wis. Stat. § 165.12(4), the
63 Settlement Agreements and this Ordinance.