Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

January 12, 2024

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: **Tower Share Application-Dish - NJJER02036B**
Crown Site ID#826927
845 Ethan Allen Highway, Ridgefield, CT 06877
Latitude: 41° 18′ 46.92″ / Longitude: -73° 28′ 20.73″

Dear Ms. Bachman:

Dish proposes to add three (3) new antennas, one (1) new antenna mount and ancillary antenna equipment at the 82' mount level of the 110' monopole tower located at 845 Ethan Allen Highway. Dish will also add one (1) 5'x7' Steel platform on the ground inside the existing compound to support their equipment cabinet. The property is owned by 845 LLC and tower are owned by Crown Castle. This modification/proposal includes hardware that is both 4G (LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:
(3) Comscope – FFW-65B-R2 - Antennas
(3) FUJITSU – TA08025-B605
(3) FUJITSU – TA08025-B604
(1) OVP
(1) Hybrid Cable
(1) Commscope MC-PK8-DSH Antenna Platform Mount

Ground:

Install New:
(1) PPC Cabinet
(1.) Equipment Cabinet
(1) 5'x7' Steel Platform
(1.) GPS Unit
Ice Bridge

The facility was originally approved by the Town of Ridgefield Planning & Zoning office on July 11, 2000. Petition NO. 1552 was approved on March 3, 2023.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Rudy Marconi, Town of Ridgefield, First Selectperson, Aarti Paranjape, Town of Ridgefield, ZEO and 845 LLC, property owner Crown Castle is the tower.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

Connecticut General Statute 16-50aa indicates the Council must approve the share use of telecommunication facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting the Dish proposed loading. The structural analysis is included in the package.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in Ridgefield. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish to obtain a building permit for the proposed installation.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish equipment at the 130-foot level of the existing 145-foot tower would have an insignificant visual impact on the area around the tower. Dish ground equipment would be installed within the existing facility compound. Dish shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced of the radio frequency emissions would not increase to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish has authorization to collocate their antennas on the cell tower.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish proposed loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of residents and individuals traveling through Ridgefield.

For the foregoing reasons, Dish respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Permitting Specialist
1800 W. Park Drive
Westborough, MA 01581
(781) 970-0053
Jeff.Barbadora@crowncastle.com

Attachments
cc:

Rudy Marconi – First Selectperson
Town of Ridgefield
400 Main Street
Ridgefield, CT 06877
(203) 431-2774

Aarti Paranjape - ZEO
Town of Ridgefield
400 Main Street
Ridgefield, CT 06877
203-431-2768

845 LLC
Property Owner
107 Lords Highway
Weston, CT 06883

ZONING BOARD OF APPEALS
66 Prospect Street
Ridgefield, CT 06877
Tel: 203 431-2786
E-mail: mt.zba@ridgefieldct.org

July 11, 2000

Mr. D. W. Brown
Omnipoint Communications Inc.
100 Filley Street
Bloomfield, CT06002

Dear Mr. Brown,

Appeal No. 00-033 – Petition of Omnipoint Communications, Inc.
Property Located at 845 Ethan Allen Highway
Owner of Property – Sierra Co./Amin B. Iebe

In open session of the Board of Appeals on Zoning of Ridgefield, held on July 10, 2000, the following action was voted on your petition:

VOTED: To Grant, with Conditions, a variance of Section 311.0B3, minimum setback for telecommunications towers and antennae, to allow a telecommunications antenna closer than permitted to the lot lines; for property situated in the B2 zone and located at 845 Ethan Allen Highway.

VOTE: To Grant: 5 To Deny: 0

CONDITIONS:

This action is subject to the following conditions which are an integral and essential part of the decision. Without these conditions, the variance would not have been granted.

1. The location of the antenna shall be as shown on plans presented to the board during the hearing. It shall be constructed with a height no greater than 100 ft. with the appearance and use as a flagpole, also as shown on plans presented to the board.

2. There shall be no illumination of the flagpole.

RECEIVED
JUL 27 2000
Planning & Zoning Commission
Inland Wetlands Board

The board voted this action for the following reasons:

1. Telecommunications towers are under the jurisdiction of the Federal Communications Commission and the Federal Communications Act of 1996 prohibits a community from banning these structures. The substantial evidence presented in this petition is that the flagpole-like antenna will have no impact on the surrounding properties.

2. The flagpole/antenna will meet the setback requirements on three sides, and on the fourth side is the Norwalk River. This is an unusual hardship that justifies the grant of the variance requested, as outlined in Section 8-6 of the Connecticut General Statutes. No purpose is served in requiring a shorter antenna that would meet the setback on that side.

3. The Route 7 corridor area is currently lacking in cell phone coverage, and because of the unique nature of the requirements for coverage, this is the only property available for the antenna. This exacerbates the hardship.

4. With the above conditions, the proposal will not be contrary to the public health, safety, welfare, convenience or property values of the neighborhood. With the appearance of a flagpole, it is in harmony with the general scheme of development in the area.

Marjorie Tippet
Administrator

Charles E. Creamer
Chairman

CERTIFIED MAIL

EFFECTIVE: Date filed with Town Clerk

cc: Richard Baldelli
P&Z Commission

Date Recorded by Town Clerk

July 27, 2001 at 10 a.m.
Barbara Sutliffe
Town Clerk

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

10 Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax (860) 827-2950

MAY 17 2001

May 15, 2001

Paul T. Tusch
Cacace, Tusch, & Santagata
777 Summer Street
P.O. Box 15859
Stamford, CT 06901-0859

RE: **EM-SPRINT-118-010427** - Sprint Spectrum LP notice of intent to modify an existing telecommunications facility located at 845 Ethan Allen Highway, Ridgefield, Connecticut.

Dear Attorney Tusch:

At a public meeting held on May 10, 2001, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated April 26, 2001. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/laf

c: Honorable Rudolph P. Marconi, First Selectman, Town of Ridgefield
Oswald Inglese, Town Planner, Town of Ridgefield
Stephen J. Humes, Esq., LeBoeuf, Lamb, Greene & MacRae

COMMUNITY DEVELOPMENT & ENVIRONMENTAL PROTECTION
TOWN HALL ANNEX - 66 PROSPECT STREET
RIDGEFIELD, CONNECTICUT 06877
(203) 431-2766
FAX (203) 431-2737

ZONING PERMIT

PLANNING & ZONING COMMISSION

PROPERTY OWNER: SEIMA CO. SPRINT SPECTRUM DBA SPRINT PCS

OWNER'S ADDRESS: 845 ETHAN ALLEN HWY
RIDGEFIELD, CT 06877

PROPERTY ADDRESS: 845 ETHAN ALLEN HWY

ZONE: B-2 MAP: TC#2509 LOT: X

LOT SIZE: 1.817AC LOT FRONTAGE:@75FT.

PROJECT DESCRIPTION:

ADD SPRINT PCS ANTENNA CABINETS TO EXIST CELL (FLAGPOLE)

PERMIT VOID IF CONSTRUCTION AUTHORIZED IS NOT COMPLETED WITHIN ONE (1) YEAR OF ISSUANCE.

THIS PERMIT IF ISSUED, IS BASED UPON THE PLOT PLAN SUBMITTED. FALSIFICATION, BY MISREPRESENTATION OR OMISSION, OR FAILURE TO COMPLY WITH THE CONDITIONS OF APPROVAL OF THIS PERMIT SHALL CONSTITUTE A VIOLATION OF THE RIDGEFIELD ZONING REGULATIONS.

CONDITIONS OF APPROVAL:

- SURVEYOR TO CERTIFY TOTAL AREA OF ALL UNMANNED EQUIPMENT DOES NOT EXCEED 750SQFT. OF GROSS FLOOR AREA AND IS 12FT. OR LESS IN HEIGHT

PERMIT NO. 201160 FEE 80.00 (plus $10 for state surcharge)

DATE ISSUED 06/14/01

ZONING ENFORCEMENT OFFICER

CONSTRUCTION MAY NOT PROCEED UNTIL A BUILDING PERMIT HAS BEEN OBTAINED.

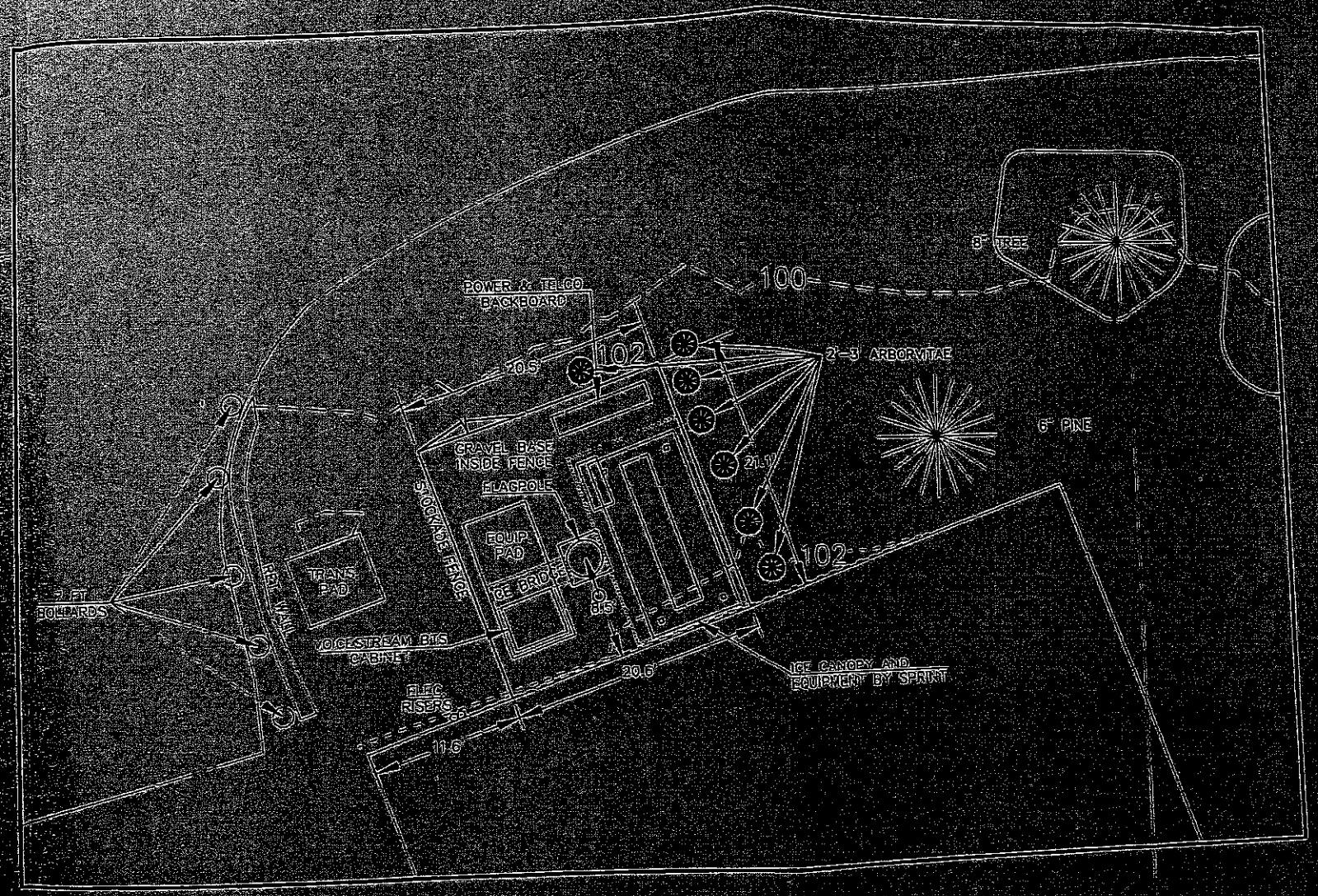
THE YELLOW PLACARD PROVIDED MUST BE PROMINENTLY POSTED ON THE PREMISES.

assigns to ensure compliance with Sec. 3110.D(a) and (b), pertaining to removal of the structure and restoration of the site upon abandonment of its use as a telecommunications facility; said bond shall remain in place until such time as the abandoned facility has been removed and the site restored, may be claimed by default, or may be released in part or in full by the Planning and Zoning Commission; the bond amount may be reviewed and adjusted by the Planning Director at two-year intervals, to accommodate increase or decrease in cost estimates.

* Note: Amount to be fixed by Planning Director upon receipt of a reliable cost estimate.

Reasons: In granting the above Special Permit, the Planning and Zoning Commission wishes to state upon its records that, in the Commission's judgment, the subject project will not exert a detrimental effect on the development of the district nor on the value of the nearby properties. In addition, the records of the Commission will show that the application complies either "de facto" or by variance with all applicable requirements according to Sections 312.0 and 311.0 of the Zoning Regulations. The Commission acknowledges the variance granted by the Zoning Board of Appeals effective 7/27/00.

Draft: 11/16/00
Revised: 12/5/00
Adopted: 12/5/00
Effective: 12/15/00



THIS INSERT SHOWS GREATER DETAIL OF THE CELL TOWER.
SCALE: 1"=10'

Complete
As-built w/ 2001

NOTES:

1. THIS MAP WAS PREPARED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY / BOUNDARY OR LIMITED PROPERTY / BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SAID SURVEYS MAY DISCLOSE.

2. WETLANDS WERE FIELD LOCATED AND MEET B STANDARDS OF ACCURACY. THE CELL TOWER STRUCTURE AND ITS APPURTENANCES WERE FIELD LOCATED TO A-2 STANDARDS OF ACCURACY.

3. PROPERTY PRESENTLY UNDER THE OWNERSHIP OF THE SIEMA COMPANY.

4. NORTH IS BASED ON THE MAP REFERENCED HEREON.

5. PROPERTY MAY BE SUBJECT TO UTILITY EASEMENTS AND GRANTS AS PER VOL. 209 PG. 147 OF THE RIDGEFIELD LAND RECORDS.

6. AREA OF ENCLOSURE = 450± SQUARE FEET

7. THE PURPOSE OF THIS MAP IS TO DEPICT THE "AS-BUILT" CONDITION OF THE FLAGPOLE AND ITS APPURTENANCES AND FOR THAT PURPOSE ONLY.

MAP REFERENCE:

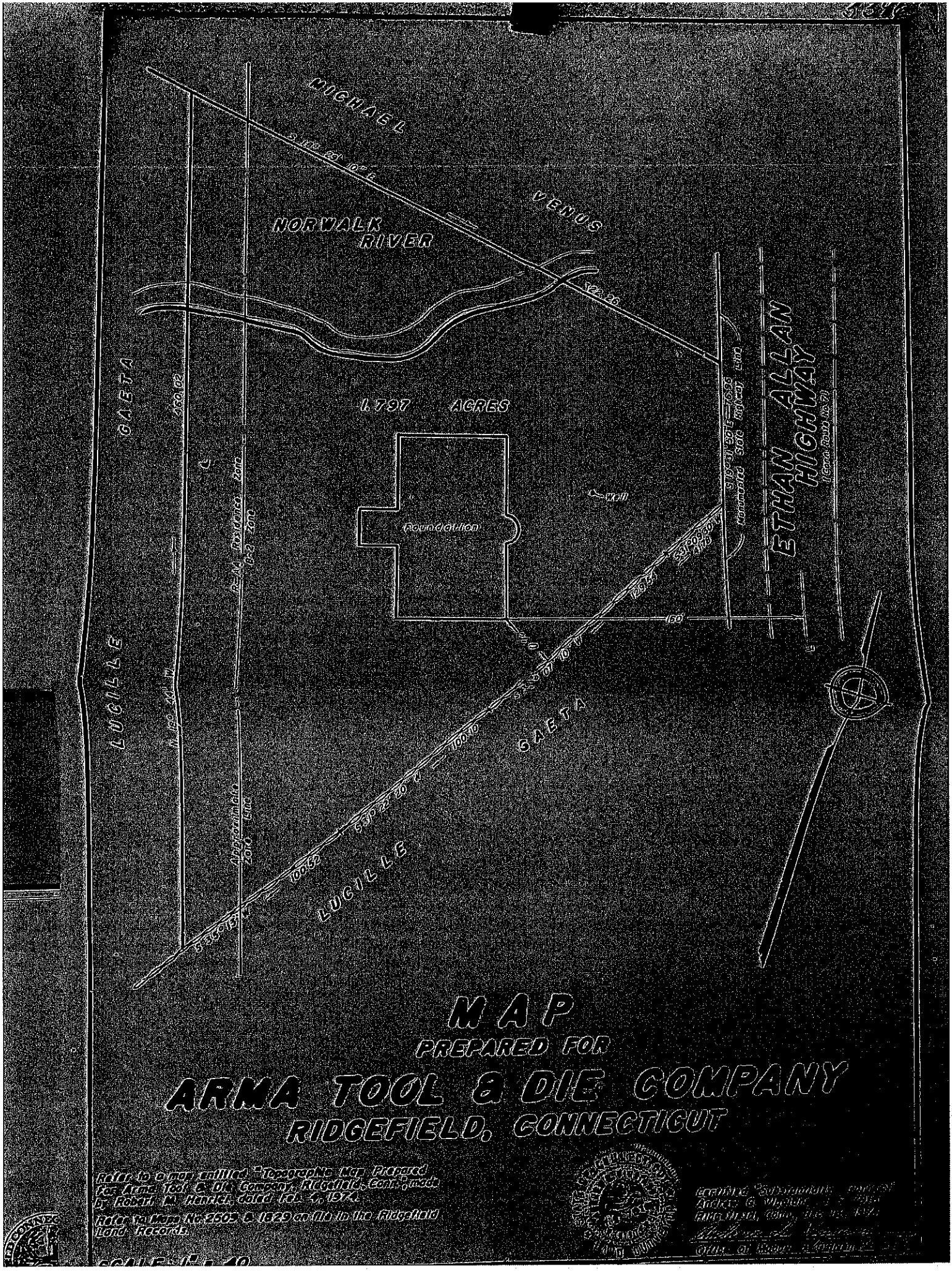
1. MAP PREPARED FOR ARMA TOOL & DIE COMPANY, RIDGEFIELD, CONNECTICUT 1"=40', DEC. 15, 1974 BY OFFICE OF MOODY & O'BRIEN MAP #3696

860 291 8755
design professionals, inc.
Civil Engineers • Planners • Surveyors • GIS

DESIGN:	DRAWN: DMG	CHECKED: RPM
JOB NO: 1227-4	DATE: OCT 30 2007	

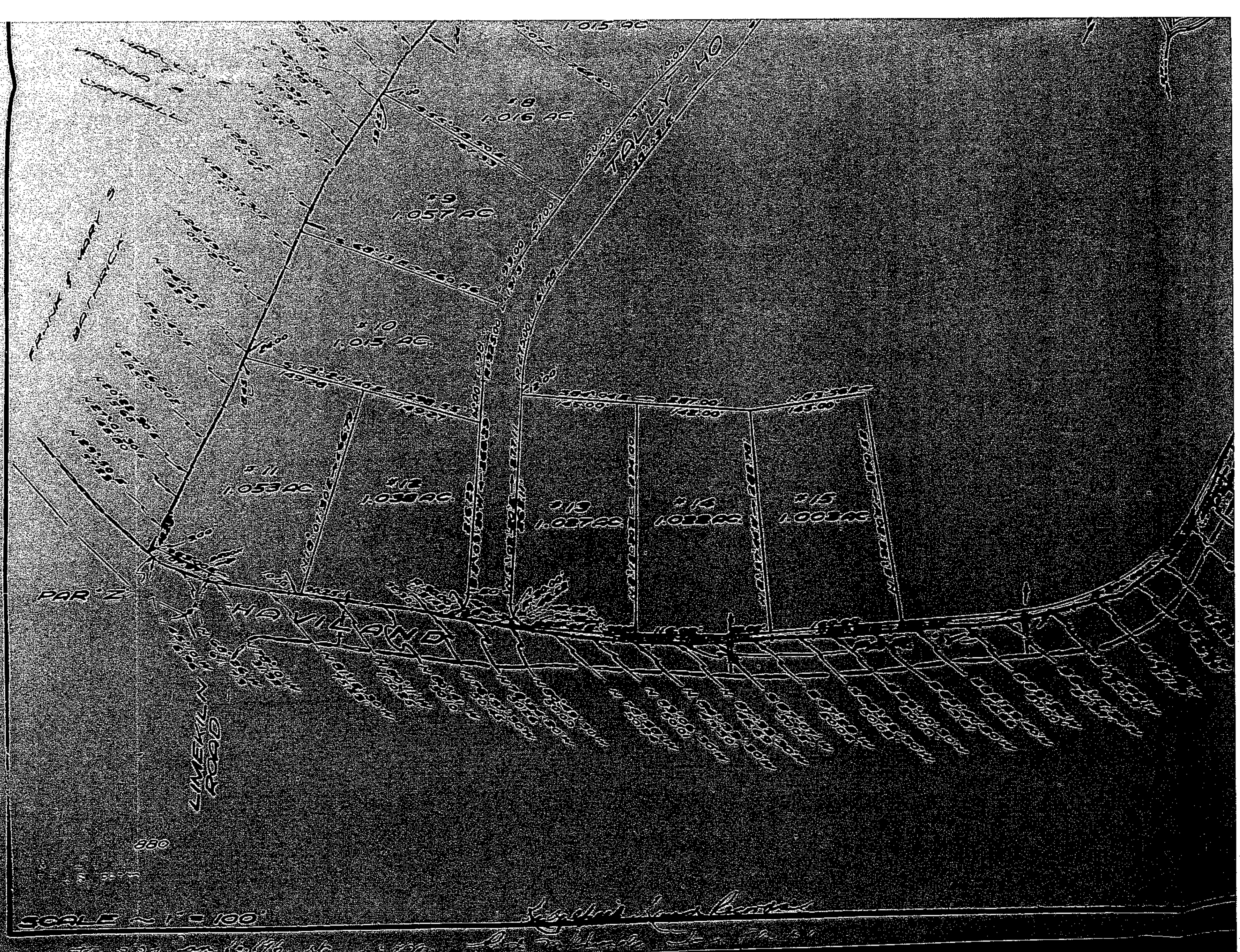
GENERAL LOCATION SURVEY
PREPARED FOR
VOICESTREAM WIRELESS
SITE CT11012F
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CONNECTICUT

SHEET 1 OF 1

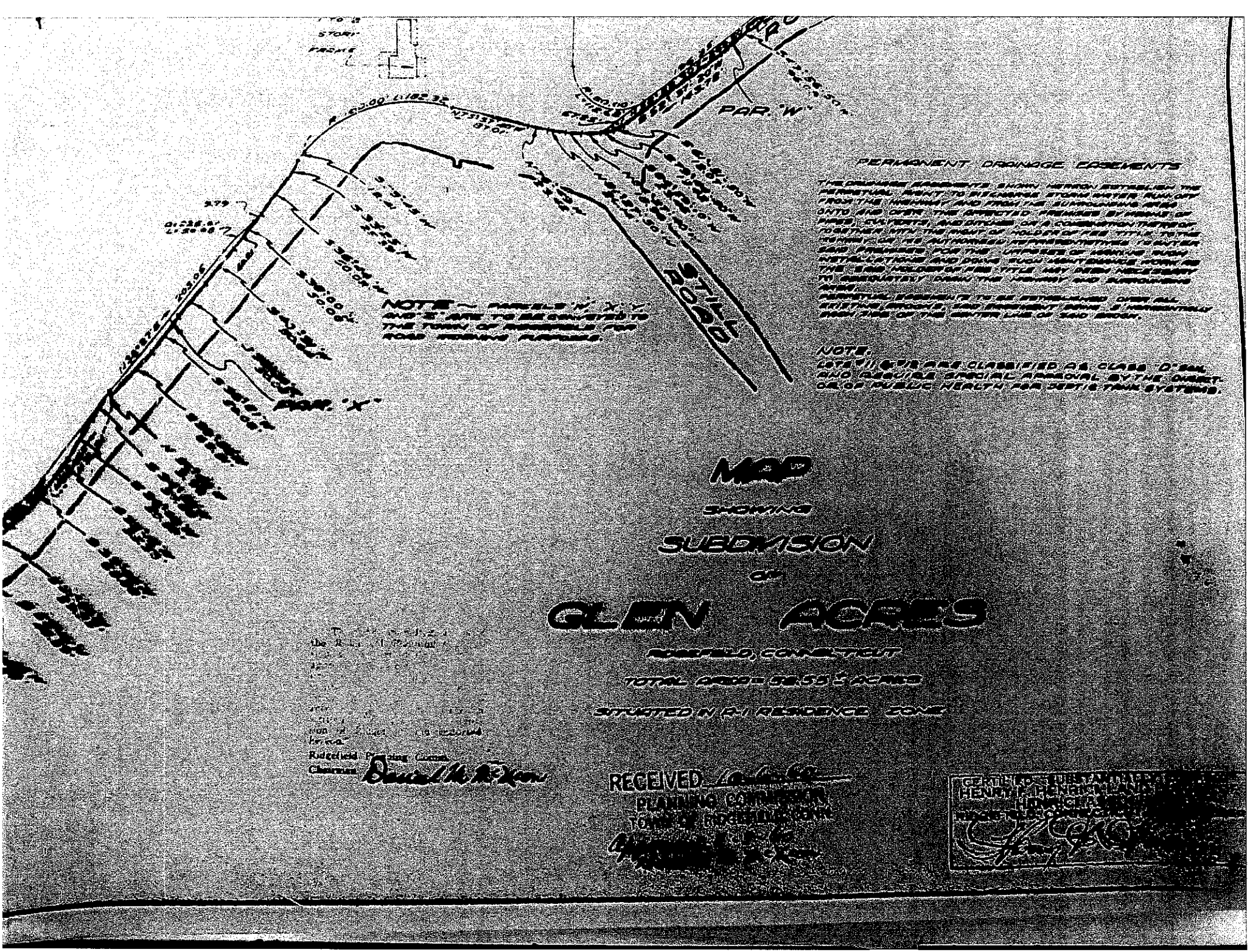


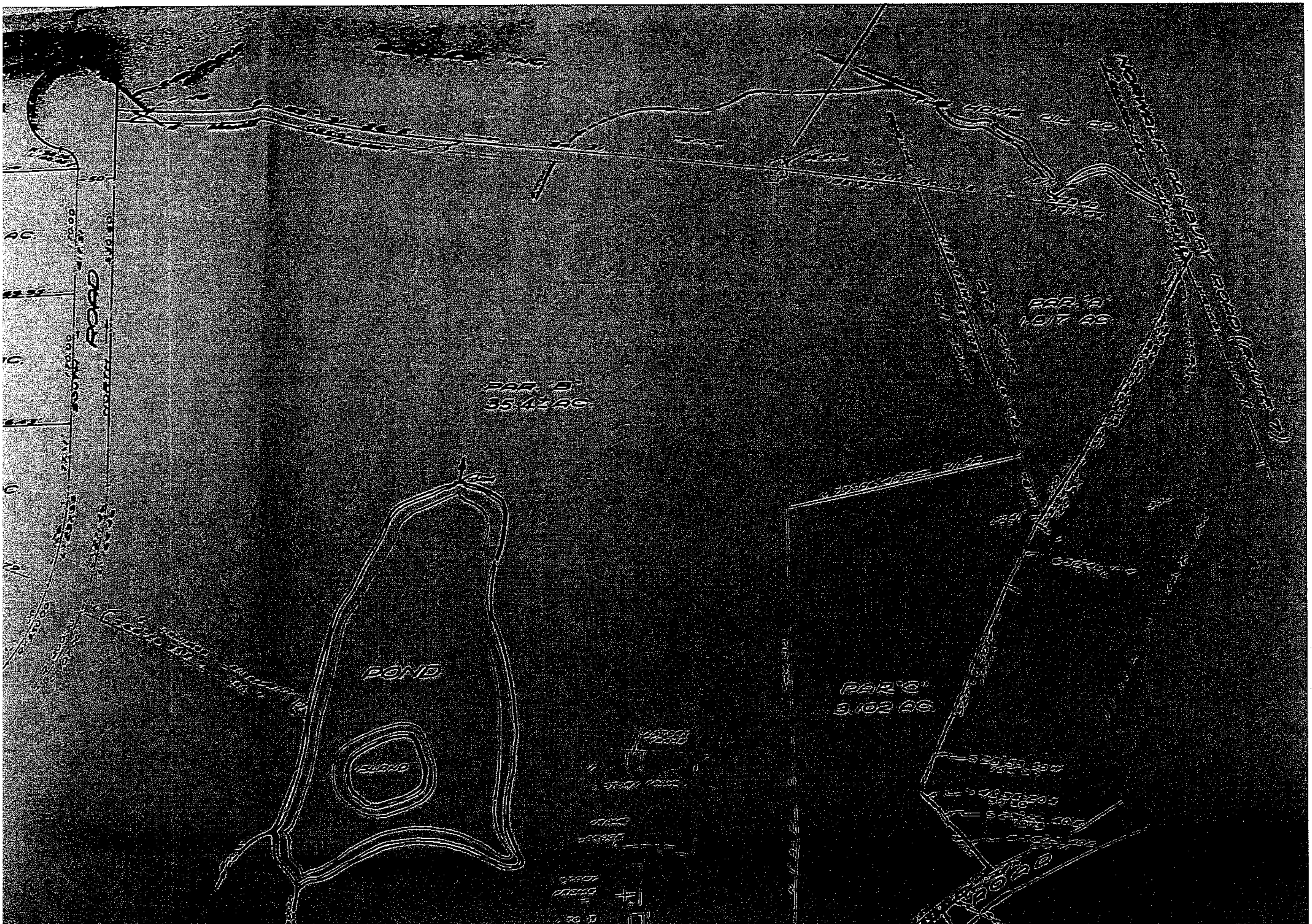
Refer to a map entitled "Topographic Map Prepared For Arma Tool & Die Company, Ridgefield, Conn." made by Robert M. Hamick, dated Feb. 4, 1974.

Refer to Maps No. 2605 & 1829 on file in the Ridgefield Land Records.

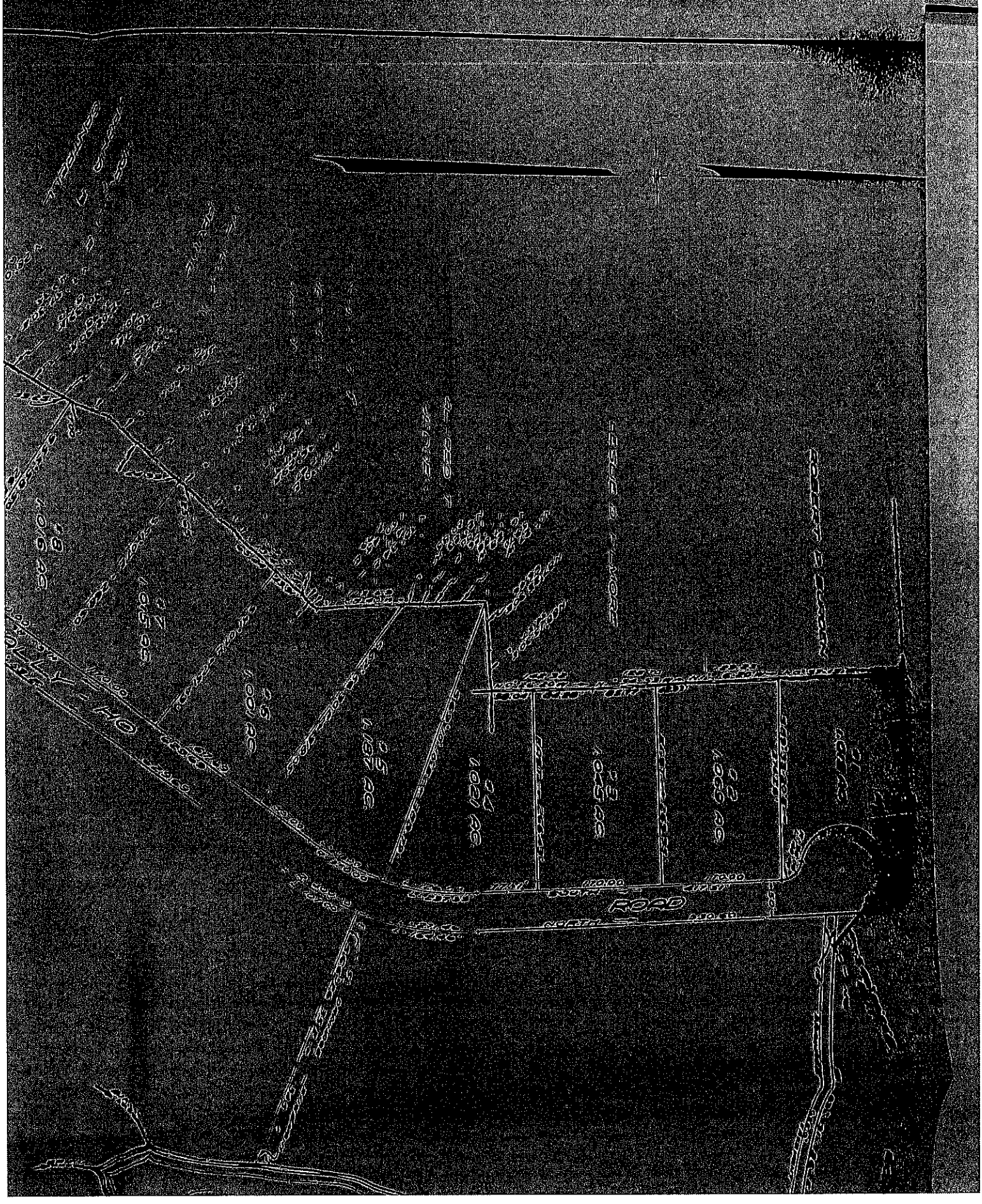


#8
1.016 AC.
#9
1.057 AC.
#10
1.015 AC.
#11
1.053 AC.
#12
1.038 AC.
#13
1.027 AC.
#14
1.033 AC.
#15
1.003 AC.
1.015 AC.
TALLY - HO
HAVILAND
LIMEKILN ROAD
PAR "Z"
FRANK & MARY S. BOTHRICK
CANTRELL
880
SCALE ~ 1" = 100'


PAR. "W"
PAR. "X"
NOTE — PARCELS "W" & "X" ARE TO BE CONVEYED TO THE TOWN OF RIDGEFIELD FOR ROAD WIDENING PURPOSES.
PERMANENT DRAINAGE EASEMENTS
NOTE:
MAP
SHOWING
SUBDIVISION
OF
GLEN ACRES
RIDGEFIELD, CONNECTICUT
TOTAL AREA = 58.53 ± ACRES
SITUATED IN R-1 RESIDENCE ZONE
Ridgefield Planning Comm.
Chairman
RECEIVED
PLANNING COMMISSION
TOWN OF RIDGEFIELD, CONN.
CERTIFIED SUBSTANTIALLY CORRECT
HENRY F. HONEYCHURCH
HONEYCHURCH


ROAD
PAR. "B"
35.42 AC.
POND
ROAD
PAR. "W"

66 Prospect Street · Ridgefield, Connecticut 06877
Phone: (203) 431-2786 · Fax: (203) 431-2737
www.ridgefieldct.org



Parcel #: G10-0015

845 ETHAN ALLEN HWY

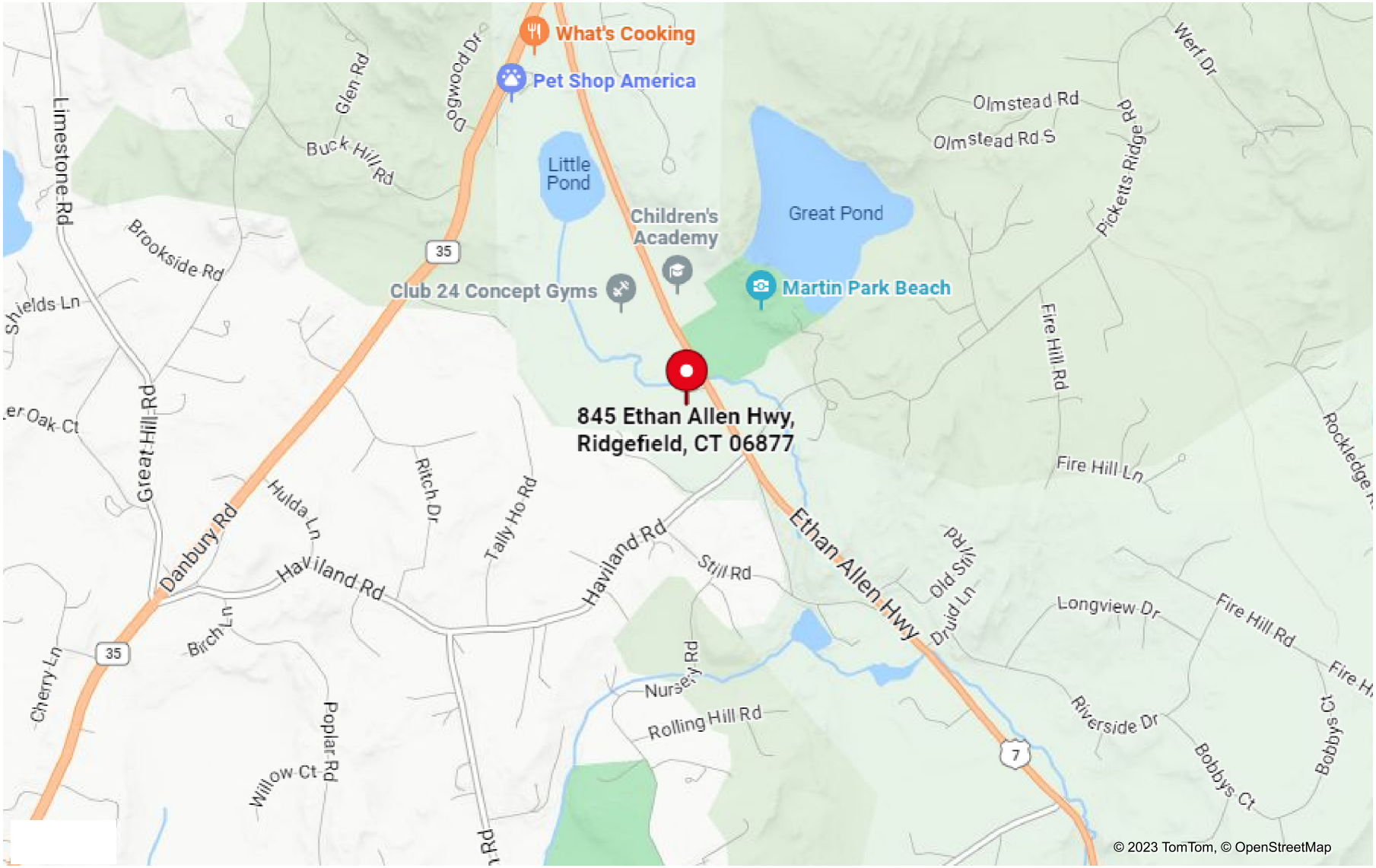
Documents & Links | Assessment

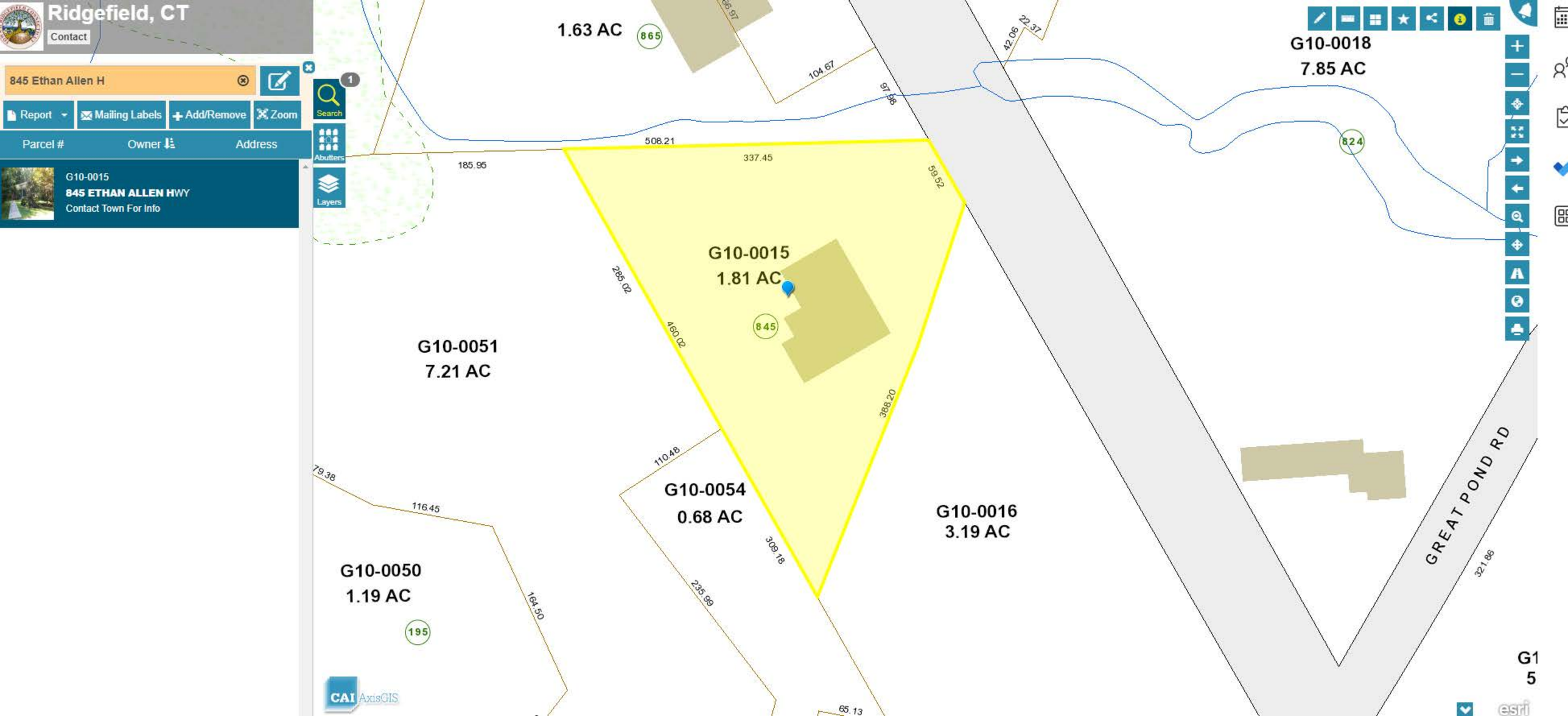
ID	8758
PropertyAddress	845 ETHAN ALLEN HWY
PropertyStreet	ETHAN ALLEN HWY
MapSheet	N/A
OwnerName	Contact Town For Info
CoOwnerName	N/A
OwnerAddress	N/A
OwnerAddress2	N/A
OwnerCity	N/A
OwnerState	N/A
OwnerZip	N/A
ParcelNumber	G10-0015
GisFullNumber	G10-0015
CamaFullNumber	G10-0015
PID	G100015
Unique ID	G100015
MBL	G10-0015
Map	N/A
Block	N/A
Lot	N/A
Street Name	ETHAN ALLEN HWY

bing maps

845 Ethan Allen Hwy, Ridgefield, CT 06877

Location: 41.312885, -73.472369


What's Cooking
Pet Shop America
Little Pond
Children's Academy
Great Pond
Club 24 Concept Gyms
Martin Park Beach
845 Ethan Allen Hwy,
Ridgefield, CT 06877
Limestone Rd
Glen Rd
Buck Hill Rd
Brookside Rd
Olmstead Rd
Olmstead Rd S
Werf Dr
Pickets Ridge Rd
Fire Hill Rd
Fire Hill Ln
Great Hill Rd
Danbury Rd
Hulda Ln
Ritch Dr
Tally Ho Rd
Haviland Rd
Still Rd
Ethan Allen Hwy
Old Still Rd
Druid Ln
Longview Dr
Cherry Ln
Birch Ln
Nursery Rd
Rolling Hill Rd
Riverside Dr
Bobbys Ct
Willow Ct
Poplar Rd
35
7
© 2023 TomTom, © OpenStreetMap


Ridgefield, CT
Contact
845 Ethan Allen H
Report
Mailing Labels
Add/Remove
Zoom
Parcel #
Owner
Address
G10-0015
845 ETHAN ALLEN HWY
Contact Town For Info
Search
Abutters
Layers
1.63 AC
865
G10-0018
7.85 AC
824
G10-0015
1.81 AC
845
G10-0051
7.21 AC
G10-0054
0.68 AC
G10-0016
3.19 AC
G10-0050
1.19 AC
195
GREAT POND RD
508.21
337.45
185.95
59.52
285.02
460.02
388.20
110.48
79.38
116.45
164.50
309.18
235.99
321.86
104.67
97.98
42.06
22.37
65.13
CAI AxisGIS
esri

From: TrackingUpdates@fedex.com
To: Barbadora, Jeff
Subject: FedEx Shipment 774756052169: Your package has been delivered
Date: Thursday, January 11, 2024 9:57:06 AM

FedEx

Hi. Your package was delivered Thu, 01/11/2024 at 9:46am.

Delivered to 400 MAIN ST, RIDGEFIELD, CT 06877
Received by J.JESSICA

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	774756052169
FROM	Crown Castle 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Ridgefield Rudy Marconi, First Selectperson 400 Main Street RIDGEFIELD, CT, US, 06877
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Wed 1/10/2024 08:32 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	RIDGEFIELD, CT, US, 06877
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Standard Overnight

virtual doorbell chime that lets you know your package was delivered.

DOWNLOAD THE MOBILE APP

FOLLOW FEDEX

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:54 AM CST 01/11/2024.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

From: TrackingUpdates@fedex.com
To: Barbadora, Jeff
Subject: FedEx Shipment 774756104446: Your package has been delivered
Date: Thursday, January 11, 2024 9:54:51 AM

FedEx

Hi. Your package was delivered Thu, 01/11/2024 at 9:46am.

Delivered to 400 MAIN ST, RIDGEFIELD, CT 06877
Received by J.JESSICA

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	774756104446
FROM	Crown Castle 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Town of Ridgefield Aarti Paranjape, ZEO 400 Main Street RIDGEFIELD, CT, US, 06877
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Wed 1/10/2024 08:04 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	RIDGEFIELD, CT, US, 06877
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Standard Overnight

virtual doorbell chime that lets you know your package was delivered.

DOWNLOAD THE MOBILE APP

FOLLOW FEDEX

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:54 AM CST 01/11/2024.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

From: TrackingUpdates@fedex.com
To: Barbadora, Jeff
Subject: FedEx Shipment 774756189927: Your package has been delivered
Date: Thursday, January 11, 2024 3:47:21 PM

FedEx

Hi. Your package was delivered Thu, 01/11/2024 at 3:41pm.

Delivered to 107 LORDS HWY, WESTON, CT 06883

OBTAIN PROOF OF DELIVERY

Delivery picture not showing? View in browser.

How was your delivery ?

TRACKING NUMBER	774756189927
FROM	Crown Castle 1800 W. Park Drive WESTBOROUGH, MA, US, 01581
TO	Property Owner 845 LLC 107 Lords Highway WESTON, CT, US, 06883
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Wed 1/10/2024 08:04 PM
DELIVERED TO	Residence
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	WESTON, CT, US, 06883

SPECIAL HANDLING	Residential Delivery
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Standard Overnight

Notifications, from start to finish

Get push notifications when you pair FedEx Delivery Manager® with the FedEx® Mobile app. You can activate alerts in the app to track your package. Then listen for the virtual doorbell chime that lets you know your package was delivered.

DOWNLOAD THE MOBILE APP

FOLLOW FEDEX

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 2:47 PM CST 01/11/2024.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

Date: **July 25, 2023**

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate** **Site Number:**	 NJJER02036B
Crown Castle Designation:	**BU Number:** **Site Name:** **JDE Job Number:** **Work Order Number:** **Order Number:**	826927 Redding/Rt7 736791 2246166 640223 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	2246166
Site Data:	**845 Ethan Allen highway, Ridgefield, Fairfield County, CT** **Latitude *41° 18' 46.924"*, Longitude *-73° 28' 20.732"*** **110 Foot - Monopole Tower**	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC9.7: Proposed Equipment Configuration for New Tower **Sufficient Capacity – 61.7%**

This analysis has been performed in accordance with the 2022 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 115 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Steven Hu

Respectfully submitted by:

Digitally signed by Maham Barimani
Date: 2023.07.26 15:03:38 -04'00'

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 110 ft Monopole tower designed by TAPP.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	115 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
82.0	82.0	3	commscope	FFVV-65B-R2 w/ Mount Pipe	1	1-3/8
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48_V2		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
106.0	107.0	1	raycap	RCMDC-6627-PF-48	1	1-5/8
	106.0	3	epa equipment	EPA 175 (Sectorized)		
		6	jma wireless	MX06FRO860-03 w/ Mount Pipe		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RF4439D-25A		
		3	samsung telecommunications	RF4440D-13A		
		3	samsung telecommunications	XXDWMM-12.5-65-8T-CBRS w/ Mount Pipe		
		1	tower mounts	Commscope MC-K6MHDX-9-96 (3)		
94.0	94.0	3	epa equipment	EPA 175 (Sectorized)	18	1-5/8
70.0	70.0	3	epa equipment	EPA 175 (Sectorized)	18	1-5/8

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	10376072	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	10940324	CCISITES
4-TOWER MANUFACTURER DRAWINGS	10940323	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	110 - 63	Pole	TP32.71x24x0.1875	1	-16.18	1158.39	59.2	Pass
L2	63 - 48	Pole	TP35.11x31.5011x0.25	2	-18.78	1654.00	61.7	Pass
L3	48 - 0	Pole	TP43.5x33.6846x0.4375	3	-33.82	3673.07	53.9	Pass
							Summary	
						Pole (L2)	61.7	Pass
						Rating =	61.7	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC9.7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	55.8	Pass
1	Base Plate	0	45.6	Pass
1	Base Foundation (Structure)	0	46.7	Pass
1	Base Foundation (Soil Interaction)	0	46.5	Pass

Structure Rating (max from all components) =	61.7%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

4.1) Recommendations

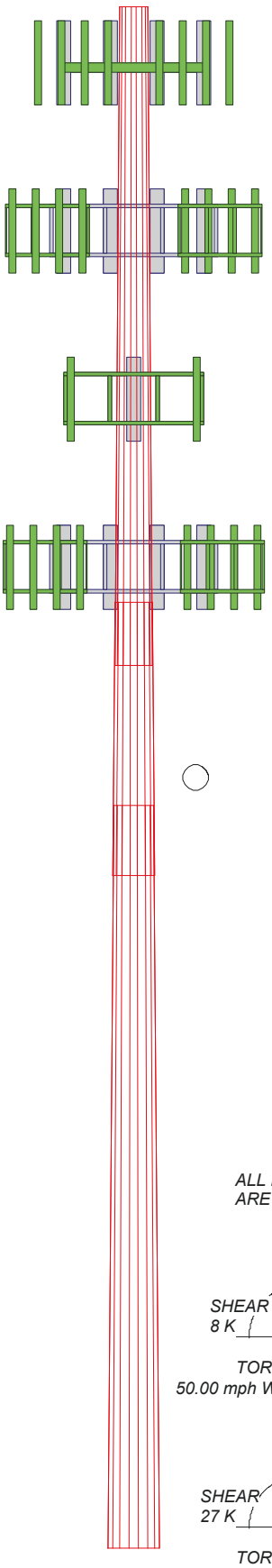
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3
Length (ft)	47.00	19.50	53.00
Number of Sides	18	18	18
Thickness (in)	0.1875	0.2500	0.4375
Socket Length (ft)	4.50	5.00	
Top Dia (in)	24.0000	31.5011	33.6846
Bot Dia (in)	32.7100	35.1100	43.5000
Grade	A572-65		
Weight (K)	2.7	1.7	9.6

14.0



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 115.00 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50.00 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.00 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 61.7%

ALL REACTIONS ARE FACTORED

AXIAL 49 K

SHEAR 8 K *MOMENT 599 kip-ft*

TORQUE 0 kip-ft
50.00 mph WIND - 1.0000 in ICE

AXIAL 34 K

SHEAR 27 K *MOMENT 2163 kip-ft*

TORQUE 0 kip-ft
REACTIONS - 115.00 mph WIND

CROWN CASTLE
The Pathway to Possible

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX:

Job: **BU 826927**			
Project:			
Client: Crown Castle	Drawn by: SHu	App'd:	
Code: TIA-222-H	Date: 07/25/23	Scale: NTS	
Path: C:\Users\shu\Documents\WFH\826927\WO 2246166 - SA\Prod\826927.eri		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

- Tower is located in Fairfield County, Connecticut.
- Tower base elevation above sea level: 490.00 ft.
- Basic wind speed of 115.00 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50.00 mph is used in combination with ice.
- Temperature drop of 50.00 °F.
- Deflections calculated using a wind speed of 60.00 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Forces in Supporting Bracing Members
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs	√	Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	110.00-63.00	47.00	4.50	18	24.0000	32.7100	0.1875	0.7500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	63.00-48.00	19.50	5.00	18	31.5011	35.1100	0.2500	1.0000	A572-65 (65 ksi)
L3	48.00-0.00	53.00		18	33.6846	43.5000	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.3413	14.1714	1015.2211	8.4534	12.1920	83.2694	2031.7780	7.0871	3.8940	20.768
	33.1857	19.3550	2586.4102	11.5455	16.6167	155.6514	5176.2238	9.6793	5.4270	28.944
L2	32.7941	24.7977	3059.6997	11.0941	16.0025	191.2009	6123.4255	12.4012	5.1042	20.417
	35.6131	27.6614	4246.8462	12.3753	17.8359	238.1069	8499.2804	13.8333	5.7394	22.957
L3	35.0770	46.1678	6447.4056	11.8027	17.1118	376.7814	12903.2949	23.0883	5.1585	11.791
	44.1036	59.7977	14009.4197	15.2872	22.0980	633.9678	28037.2735	29.9045	6.8860	15.739

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 110.00-63.00				1	1	1			
L2 63.00-48.00				1	1	1			
L3 48.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
Safety Line 3/8	C	No	No	CaAa (Out Of Face)	110.00 - 0.00	1	No Ice	0.04	0.22
							1/2" Ice	0.14	0.75
							1" Ice	0.24	1.28
5/8 rod/step	C	No	No	CaAa (Out Of Face)	110.00 - 0.00	1	No Ice	0.02	0.27
							1/2" Ice	0.12	0.70
							1" Ice	0.22	1.74
***									
HB158-21U6S12-XXXM-01(1-5/8)	C	No	No	Inside Pole	106.00 - 0.00	1	No Ice	0.00	1.90
							1/2" Ice	0.00	1.90
							1" Ice	0.00	1.90
CU12PSM9P8XXX (1-3/8)	C	No	No	Inside Pole	82.00 - 0.00	1	No Ice	0.00	1.66
							1/2" Ice	0.00	1.66
							1" Ice	0.00	1.66
**									
LDF7-50A(1-5/8")	C	No	No	Inside Pole	94.00 - 0.00	18	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
LDF7-50A(1-5/8")	C	No	No	Inside Pole	70.00 - 0.00	18	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	110.00-63.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.703	0.70
L2	63.00-48.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.862	0.50
L3	48.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	2.760	1.61

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	110.00-63.00	A	0.935	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	20.281	0.81
L2	63.00-48.00	A	0.895	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	6.473	0.54
L3	48.00-0.00	A	0.824	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	19.948	1.72

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	110.00-63.00	-0.4504	0.2600	-1.6354	0.9442
L2	63.00-48.00	-0.4531	0.2616	-1.6888	0.9751
L3	48.00-0.00	-0.4552	0.2628	-1.6750	0.9671

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft
(2) MX06FRO860-03 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	106.00
(2) MX06FRO860-03 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	106.00
(2) MX06FRO860-03 w/ Mount Pipe	C	From Leg	4.00 0.00	0.00	106.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
MT6407-77A w/ Mount Pipe	A	From Leg	0.00 4.00 0.00	0.00	106.00
MT6407-77A w/ Mount Pipe	B	From Leg	0.00 4.00 0.00	0.00	106.00
MT6407-77A w/ Mount Pipe	C	From Leg	0.00 4.00 0.00	0.00	106.00
XXDWMM-12.5-65-8T-CBRS w/ Mount Pipe	A	From Leg	0.00 4.00 0.00	0.00	106.00
XXDWMM-12.5-65-8T-CBRS w/ Mount Pipe	B	From Leg	0.00 4.00 0.00	0.00	106.00
XXDWMM-12.5-65-8T-CBRS w/ Mount Pipe	C	From Leg	0.00 4.00 0.00	0.00	106.00
RCMDC-6627-PF-48	B	From Leg	0.00 4.00 0.00	0.00	106.00
RF4439D-25A	A	From Leg	1.00 4.00 0.00	0.00	106.00
RF4439D-25A	B	From Leg	0.00 4.00 0.00	0.00	106.00
RF4439D-25A	C	From Leg	0.00 4.00 0.00	0.00	106.00
RF4440D-13A	A	From Leg	0.00 4.00 0.00	0.00	106.00
RF4440D-13A	B	From Leg	0.00 4.00 0.00	0.00	106.00
RF4440D-13A	C	From Leg	0.00 4.00 0.00	0.00	106.00
Commscope MC-K6MHDX-9-96 (3) **	C	None	0.00	0.00	106.00
FFVV-65B-R2 w/ Mount Pipe	A	From Leg	4.00 0.00	0.00	82.00
FFVV-65B-R2 w/ Mount Pipe	B	From Leg	0.00 4.00 0.00	0.00	82.00
FFVV-65B-R2 w/ Mount Pipe	C	From Leg	0.00 4.00 0.00	0.00	82.00
TA08025-B604	A	From Leg	0.00 4.00 0.00	0.00	82.00
TA08025-B604	B	From Leg	0.00 4.00 0.00	0.00	82.00
TA08025-B604	C	From Leg	0.00 4.00 0.00	0.00	82.00
TA08025-B605	A	From Leg	0.00 4.00 0.00	0.00	82.00
TA08025-B605	B	From Leg	0.00 4.00 0.00	0.00	82.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00		
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.00	82.00
RDIDC-9181-PF-48_V2	A	From Leg	4.00 0.00 0.00	0.00	82.00
Commscope MC-PK8-DSH	C	None		0.00	82.00
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	82.00
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	82.00
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	82.00
**					
EPA 175 (Sectorized)	A	From Leg	3.00 0.00 0.00	0.00	94.00
EPA 175 (Sectorized)	B	From Leg	3.00 0.00 0.00	0.00	94.00
EPA 175 (Sectorized)	C	From Leg	3.00 0.00 0.00	0.00	94.00
**					
EPA 175 (Sectorized)	A	From Leg	3.00 0.00 0.00	0.00	70.00
EPA 175 (Sectorized)	B	From Leg	3.00 0.00 0.00	0.00	70.00
EPA 175 (Sectorized)	C	From Leg	3.00 0.00 0.00	0.00	70.00
**					
**					
**					

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice

Comb. No.	Description
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	110 - 63	Pole	Max Tension	8	0.00	0.00	0.00
			Max. Compression	26	-28.93	-0.36	-0.05
			Max. Mx	8	-16.18	-447.90	-0.55
			Max. My	2	-16.18	0.45	447.51
			Max. Vy	8	23.40	-447.90	-0.55
			Max. Vx	2	-23.41	0.45	447.51
			Max. Torque	5			-0.52
L2	63 - 48	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.03	-0.31	-0.08
			Max. Mx	8	-18.78	-793.79	-0.77
			Max. My	2	-18.78	0.67	793.54
			Max. Vy	8	24.29	-793.79	-0.77
			Max. Vx	2	-24.30	0.67	793.54
			Max. Torque	4			-0.38
L3	48 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.65	-0.10	-0.20
			Max. Mx	8	-33.82	-2161.69	-1.57
			Max. My	14	-33.82	-1.64	-2161.98
			Max. Vy	8	27.09	-2161.69	-1.57
			Max. Vx	14	27.10	-1.64	-2161.98
			Max. Torque	38			0.36

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	48.65	-0.00	-7.63
	Max. H_x	20	33.84	27.06	0.01
	Max. H_z	2	33.84	0.01	27.07
	Max. M_x	2	2161.96	0.01	27.07
	Max. M_z	8	2161.69	-27.06	-0.01
	Max. Torsion	38	0.36	3.82	6.61
	Min. Vert	7	25.38	-23.43	13.52
	Min. H_x	8	33.84	-27.06	-0.01
	Min. H_z	14	33.84	-0.01	-27.07
	Min. M_x	14	-2161.98	-0.01	-27.07
	Min. M_z	20	-2161.52	27.06	0.01
	Min. Torsion	32	-0.36	-3.82	-6.61

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	28.20	0.00	0.00	0.01	-0.06	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	33.84	-0.01	-27.07	-2161.96	1.47	0.19
0.9 Dead+1.0 Wind 0 deg - No Ice	25.38	-0.01	-27.07	-2147.17	1.48	0.19
1.2 Dead+1.0 Wind 30 deg - No Ice	33.84	13.52	-23.43	-1871.54	-1079.54	0.28
0.9 Dead+1.0 Wind 30 deg - No Ice	25.38	13.52	-23.43	-1858.73	-1072.13	0.28
1.2 Dead+1.0 Wind 60 deg - No Ice	33.84	23.43	-13.52	-1079.63	-1871.31	0.30
0.9 Dead+1.0 Wind 60 deg - No Ice	25.38	23.43	-13.52	-1072.25	-1858.49	0.30
1.2 Dead+1.0 Wind 90 deg - No Ice	33.84	27.06	0.01	1.57	-2161.69	0.24
0.9 Dead+1.0 Wind 90 deg - No Ice	25.38	27.06	0.01	1.55	-2146.88	0.24
1.2 Dead+1.0 Wind 120 deg - No Ice	33.84	23.44	13.55	1082.34	-1872.87	0.12
0.9 Dead+1.0 Wind 120 deg - No Ice	25.38	23.44	13.55	1074.93	-1860.03	0.12
1.2 Dead+1.0 Wind 150 deg - No Ice	33.84	13.54	23.45	1873.11	-1082.23	-0.04
0.9 Dead+1.0 Wind 150 deg - No Ice	25.38	13.54	23.45	1860.29	-1074.80	-0.04
1.2 Dead+1.0 Wind 180 deg - No Ice	33.84	0.01	27.07	2161.98	-1.64	-0.19
0.9 Dead+1.0 Wind 180 deg - No Ice	25.38	0.01	27.07	2147.19	-1.60	-0.19
1.2 Dead+1.0 Wind 210 deg - No Ice	33.84	-13.52	23.43	1871.56	1079.38	-0.28
0.9 Dead+1.0 Wind 210 deg - No Ice	25.38	-13.52	23.43	1858.75	1072.01	-0.28
1.2 Dead+1.0 Wind 240 deg - No Ice	33.84	-23.43	13.52	1079.65	1871.15	-0.30
0.9 Dead+1.0 Wind 240 deg - No Ice	25.38	-23.43	13.52	1072.26	1858.37	-0.30
1.2 Dead+1.0 Wind 270 deg - No Ice	33.84	-27.06	-0.01	-1.54	2161.52	-0.24
0.9 Dead+1.0 Wind 270 deg - No Ice	25.38	-27.06	-0.01	-1.53	2146.75	-0.24
1.2 Dead+1.0 Wind 300 deg - No Ice	33.84	-23.44	-13.55	-1082.32	1872.70	-0.12
0.9 Dead+1.0 Wind 300 deg	25.38	-23.44	-13.55	-1074.92	1859.90	-0.12

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice 1.2 Dead+1.0 Wind 330 deg	33.84	-13.54	-23.45	-1873.09	1082.07	0.04
- No Ice 0.9 Dead+1.0 Wind 330 deg	25.38	-13.54	-23.45	-1860.27	1074.68	0.04
- No Ice 1.2 Dead+1.0 Ice+1.0 Temp	48.65	0.00	0.00	0.20	-0.10	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	48.65	-0.00	-7.63	-598.02	0.18	-0.28
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	48.65	3.81	-6.61	-517.71	-298.93	-0.12
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	48.65	6.61	-3.81	-298.63	-517.98	0.07
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	48.65	7.63	0.00	0.52	-598.27	0.24
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	48.65	6.61	3.82	299.59	-518.29	0.34
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	48.65	3.82	6.61	518.44	-299.47	0.36
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	48.65	0.00	7.63	598.43	-0.44	0.28
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	48.65	-3.81	6.61	518.13	298.67	0.12
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	48.65	-6.61	3.81	299.05	517.72	-0.07
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	48.65	-7.63	-0.00	-0.11	598.01	-0.24
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	48.65	-6.61	-3.82	-299.18	518.03	-0.34
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	48.65	-3.82	-6.61	-518.03	299.21	-0.36
Dead+Wind 0 deg - Service	28.20	-0.00	-6.94	-552.07	0.33	0.05
Dead+Wind 30 deg - Service	28.20	3.47	-6.01	-477.91	-275.72	0.07
Dead+Wind 60 deg - Service	28.20	6.01	-3.47	-275.69	-477.91	0.08
Dead+Wind 90 deg - Service	28.20	6.94	0.00	0.41	-552.06	0.06
Dead+Wind 120 deg - Service	28.20	6.01	3.47	276.39	-478.30	0.03
Dead+Wind 150 deg - Service	28.20	3.47	6.01	478.33	-276.41	-0.01
Dead+Wind 180 deg - Service	28.20	0.00	6.94	552.09	-0.47	-0.05
Dead+Wind 210 deg - Service	28.20	-3.47	6.01	477.93	275.58	-0.07
Dead+Wind 240 deg - Service	28.20	-6.01	3.47	275.71	477.77	-0.08
Dead+Wind 270 deg - Service	28.20	-6.94	-0.00	-0.39	551.92	-0.06
Dead+Wind 300 deg - Service	28.20	-6.01	-3.47	-276.38	478.17	-0.03
Dead+Wind 330 deg - Service	28.20	-3.47	-6.01	-478.31	276.27	0.01

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-28.20	0.00	0.00	28.20	0.00	0.000%
2	-0.01	-33.84	-27.07	0.01	33.84	27.07	0.000%
3	-0.01	-25.38	-27.07	0.01	25.38	27.07	0.000%
4	13.52	-33.84	-23.43	-13.52	33.84	23.43	0.000%
5	13.52	-25.38	-23.43	-13.52	25.38	23.43	0.000%
6	23.43	-33.84	-13.52	-23.43	33.84	13.52	0.000%
7	23.43	-25.38	-13.52	-23.43	25.38	13.52	0.000%
8	27.06	-33.84	0.01	-27.06	33.84	-0.01	0.000%
9	27.06	-25.38	0.01	-27.06	25.38	-0.01	0.000%
10	23.44	-33.84	13.55	-23.44	33.84	-13.55	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
11	23.44	-25.38	13.55	-23.44	25.38	-13.55	0.000%
12	13.54	-33.84	23.45	-13.54	33.84	-23.45	0.000%
13	13.54	-25.38	23.45	-13.54	25.38	-23.45	0.000%
14	0.01	-33.84	27.07	-0.01	33.84	-27.07	0.000%
15	0.01	-25.38	27.07	-0.01	25.38	-27.07	0.000%
16	-13.52	-33.84	23.43	13.52	33.84	-23.43	0.000%
17	-13.52	-25.38	23.43	13.52	25.38	-23.43	0.000%
18	-23.43	-33.84	13.52	23.43	33.84	-13.52	0.000%
19	-23.43	-25.38	13.52	23.43	25.38	-13.52	0.000%
20	-27.06	-33.84	-0.01	27.06	33.84	0.01	0.000%
21	-27.06	-25.38	-0.01	27.06	25.38	0.01	0.000%
22	-23.44	-33.84	-13.55	23.44	33.84	13.55	0.000%
23	-23.44	-25.38	-13.55	23.44	25.38	13.55	0.000%
24	-13.54	-33.84	-23.45	13.54	33.84	23.45	0.000%
25	-13.54	-25.38	-23.45	13.54	25.38	23.45	0.000%
26	0.00	-48.65	0.00	0.00	48.65	0.00	0.000%
27	-0.00	-48.65	-7.63	0.00	48.65	7.63	0.000%
28	3.81	-48.65	-6.61	-3.81	48.65	6.61	0.000%
29	6.61	-48.65	-3.81	-6.61	48.65	3.81	0.000%
30	7.63	-48.65	0.00	-7.63	48.65	-0.00	0.000%
31	6.61	-48.65	3.82	-6.61	48.65	-3.82	0.000%
32	3.82	-48.65	6.61	-3.82	48.65	-6.61	0.000%
33	0.00	-48.65	7.63	-0.00	48.65	-7.63	0.000%
34	-3.81	-48.65	6.61	3.81	48.65	-6.61	0.000%
35	-6.61	-48.65	3.81	6.61	48.65	-3.81	0.000%
36	-7.63	-48.65	-0.00	7.63	48.65	0.00	0.000%
37	-6.61	-48.65	-3.82	6.61	48.65	3.82	0.000%
38	-3.82	-48.65	-6.61	3.82	48.65	6.61	0.000%
39	-0.00	-28.20	-6.94	0.00	28.20	6.94	0.000%
40	3.47	-28.20	-6.01	-3.47	28.20	6.01	0.000%
41	6.01	-28.20	-3.47	-6.01	28.20	3.47	0.000%
42	6.94	-28.20	0.00	-6.94	28.20	-0.00	0.000%
43	6.01	-28.20	3.47	-6.01	28.20	-3.47	0.000%
44	3.47	-28.20	6.01	-3.47	28.20	-6.01	0.000%
45	0.00	-28.20	6.94	-0.00	28.20	-6.94	0.000%
46	-3.47	-28.20	6.01	3.47	28.20	-6.01	0.000%
47	-6.01	-28.20	3.47	6.01	28.20	-3.47	0.000%
48	-6.94	-28.20	-0.00	6.94	28.20	0.00	0.000%
49	-6.01	-28.20	-3.47	6.01	28.20	3.47	0.000%
50	-3.47	-28.20	-6.01	3.47	28.20	6.01	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00015508
3	Yes	4	0.00000001	0.00007973
4	Yes	5	0.00000001	0.00016568
5	Yes	5	0.00000001	0.00007320
6	Yes	5	0.00000001	0.00016228
7	Yes	5	0.00000001	0.00007159
8	Yes	4	0.00000001	0.00014883
9	Yes	4	0.00000001	0.00007477
10	Yes	5	0.00000001	0.00016469
11	Yes	5	0.00000001	0.00007267
12	Yes	5	0.00000001	0.00016531
13	Yes	5	0.00000001	0.00007297
14	Yes	4	0.00000001	0.00016532
15	Yes	4	0.00000001	0.00008727
16	Yes	5	0.00000001	0.00016203
17	Yes	5	0.00000001	0.00007148
18	Yes	5	0.00000001	0.00016547
19	Yes	5	0.00000001	0.00007311
20	Yes	4	0.00000001	0.00014120

21	Yes	4	0.00000001	0.00006888
22	Yes	5	0.00000001	0.00016435
23	Yes	5	0.00000001	0.00007253
24	Yes	5	0.00000001	0.00016368
25	Yes	5	0.00000001	0.00007221
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00009262
28	Yes	5	0.00000001	0.00010583
29	Yes	5	0.00000001	0.00010584
30	Yes	5	0.00000001	0.00009280
31	Yes	5	0.00000001	0.00010637
32	Yes	5	0.00000001	0.00010600
33	Yes	5	0.00000001	0.00009272
34	Yes	5	0.00000001	0.00010580
35	Yes	5	0.00000001	0.00010580
36	Yes	5	0.00000001	0.00009256
37	Yes	5	0.00000001	0.00010567
38	Yes	5	0.00000001	0.00010603
39	Yes	4	0.00000001	0.00003625
40	Yes	4	0.00000001	0.00013614
41	Yes	4	0.00000001	0.00013000
42	Yes	4	0.00000001	0.00003591
43	Yes	4	0.00000001	0.00013355
44	Yes	4	0.00000001	0.00013476
45	Yes	4	0.00000001	0.00003632
46	Yes	4	0.00000001	0.00012955
47	Yes	4	0.00000001	0.00013561
48	Yes	4	0.00000001	0.00003583
49	Yes	4	0.00000001	0.00013291
50	Yes	4	0.00000001	0.00013177

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 63	13.00	43	0.95	0.00
L2	67.5 - 48	5.16	43	0.71	0.00
L3	53 - 0	3.22	43	0.55	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
106.00	(2) MX06FRO860-03 w/ Mount Pipe	43	12.20	0.93	0.00	44986
94.00	EPA 175 (Sectorized)	43	9.83	0.89	0.00	14058
82.00	FFVV-65B-R2 w/ Mount Pipe	43	7.58	0.83	0.00	8033
70.00	EPA 175 (Sectorized)	43	5.55	0.73	0.00	5623

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 63	50.91	10	3.71	0.01
L2	67.5 - 48	20.22	12	2.78	0.00
L3	53 - 0	12.61	12	2.14	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
106.00	(2) MX06FRO860-03 w/ Mount Pipe	10	47.77	3.66	0.00	11570
94.00	EPA 175 (Sectorized)	10	38.49	3.48	0.00	3614
82.00	FFVV-65B-R2 w/ Mount Pipe	10	29.70	3.23	0.00	2064
70.00	EPA 175 (Sectorized)	12	21.74	2.87	0.00	1443

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	110 - 63 (1)	TP32.71x24x0.1875	47.00	0.00	0.0	18.8587	-16.18	1103.23	0.015
L2	63 - 48 (2)	TP35.11x31.5011x0.25	19.50	0.00	0.0	26.9271	-18.78	1575.24	0.012
L3	48 - 0 (3)	TP43.5x33.6846x0.4375	53.00	0.00	0.0	59.7977	-33.82	3498.16	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	110 - 63 (1)	TP32.71x24x0.1875	448.30	745.14	0.602	0.00	745.14	0.000
L2	63 - 48 (2)	TP35.11x31.5011x0.25	794.42	1254.22	0.633	0.00	1254.22	0.000
L3	48 - 0 (3)	TP43.5x33.6846x0.4375	2163.28	3891.92	0.556	0.00	3891.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	110 - 63 (1)	TP32.71x24x0.1875	23.42	330.97	0.071	0.06	918.48	0.000
L2	63 - 48 (2)	TP35.11x31.5011x0.25	24.30	472.57	0.051	0.02	1404.40	0.000
L3	48 - 0 (3)	TP43.5x33.6846x0.4375	27.11	1049.45	0.026	0.05	3957.68	0.000

Pole Interaction Design Data

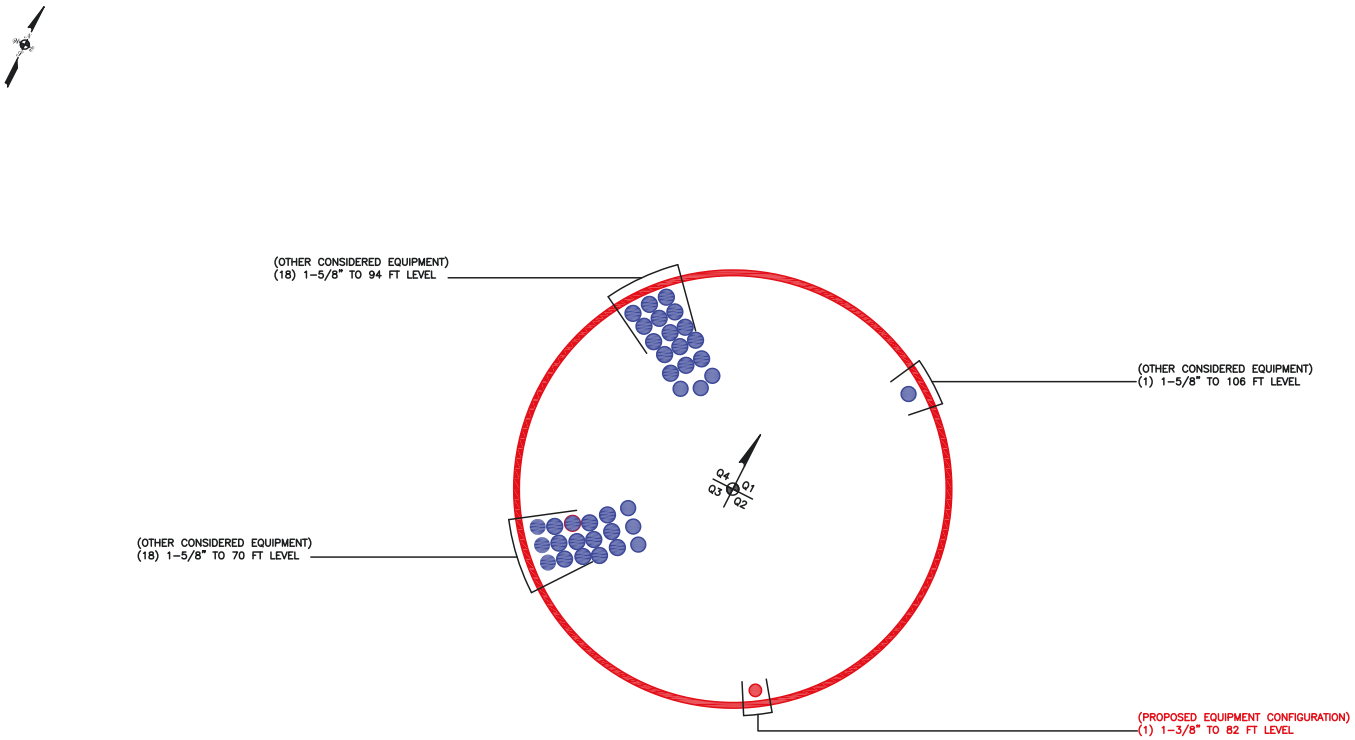
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	110 - 63 (1)	0.015	0.602	0.000	0.071	0.000	0.621	1.050	4.8.2
L2	63 - 48 (2)	0.012	0.633	0.000	0.051	0.000	0.648	1.050	4.8.2
L3	48 - 0 (3)	0.010	0.556	0.000	0.026	0.000	0.566	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	110 - 63	Pole	TP32.71x24x0.1875	1	-16.18	1158.39	59.2	Pass
L2	63 - 48	Pole	TP35.11x31.5011x0.25	2	-18.78	1654.00	61.7	Pass
L3	48 - 0	Pole	TP43.5x33.6846x0.4375	3	-33.82	3673.07	53.9	Pass
							Summary	
						Pole (L2)	61.7	Pass
						RATING =	**61.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(18) 1-5/8" TO 94 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1-5/8" TO 106 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(18) 1-5/8" TO 70 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-3/8" TO 82 FT LEVEL
Q1
Q2
Q3
Q4

APPENDIX C

ADDITIONAL CALCULATIONS

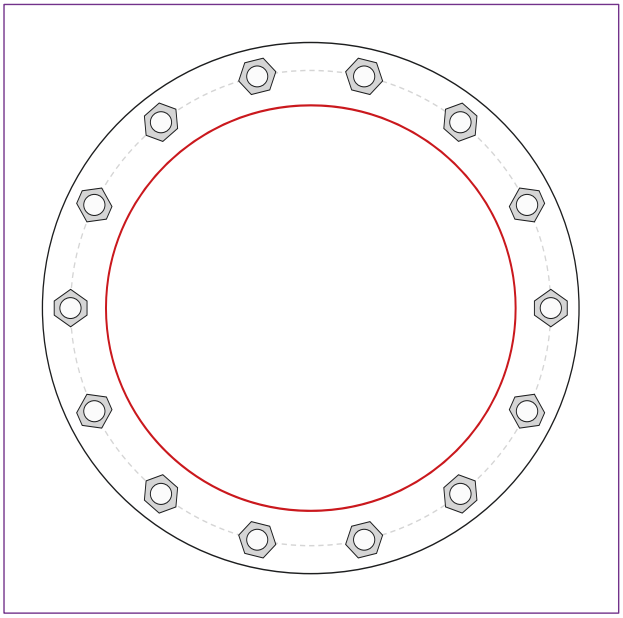
Monopole Base Plate Connection

Site Info	
BU #	826927
Site Name	Redding/Rt7
Order #	640223 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	2163.28
Axial Force (kips)	33.82
Shear Force (kips)	27.11

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(14) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 51" BC

Base Plate Data

57" OD x 2.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

43.5" x 0.4375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 142.9	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.94	ϕVn = 149.1	**55.8%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	21.55	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**45.6%**	**Pass**

Drilled Pier Foundation

BU # :	826927
Site Name:	Redding/Rt7
Order Number:	640223 Rev. 0
TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2163.28	
Axial Force (kips)	33.84	
Shear Force (kips)	27.08	

Material Properties		
Concrete Strength, f'c:	4.5	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	24.5	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 24.5' below grade		
Pier Diameter	6	ft
Rebar Quantity	32	
Rebar Size	10	
Clear Cover to Ties	3	in
Tie Size	5	
Tie Spacing	12	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	5.65	-
Soil Safety Factor	2.73	-
Max Moment (kip-ft)	2297.48	-
Rating*	*46.5%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	297.05	-
End Bearing (kips)	355.69	-
Weight of Concrete (kips)	85.95	-
Total Capacity (kips)	652.74	-
Axial (kips)	119.79	-
Rating*	*17.5%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	5.64	-
Critical Moment (kip-ft)	2297.48	-
Critical Moment Capacity	5415.80	-
Rating*	*40.4%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	18.24	-
Critical Shear (kip)	265.45	-
Critical Shear Capacity	541.60	-
Rating*	*46.7%*	-

Structural Foundation Rating*	**46.7%**
Soil Interaction Rating*	**46.5%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

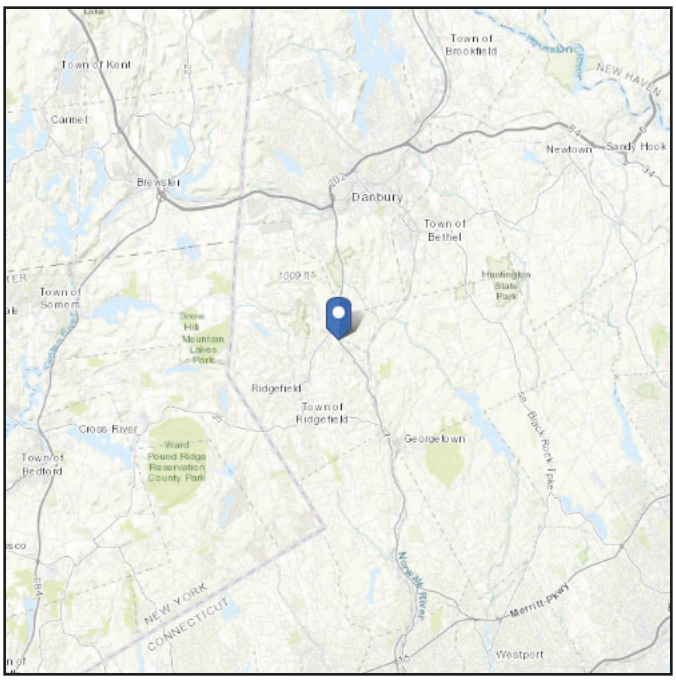
Groundwater Depth	5	# of Layers	7

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Net Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2.5	2.5	115	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2.5	5	2.5	115	150	0	34	0.534	0.534				30	Cohesionless
3	5	7	2	53	87.6	0	32	0.734	0.734				17	Cohesionless
4	7	10	3	48	87.6	0	28	0.389	0.389				7	Cohesionless
5	10	12.5	2.5	53	87.6	0	32	0.809	0.809				13	Cohesionless
6	12.5	22.5	10	68	87.6	0	36	1.213	1.213				62	Cohesionless
7	22.5	24.5	2	68	87.6	0	36	1.44	1.44			15	62	Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.313034
Risk Category:	II	**Longitude:**	-73.472426
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	490.28 ft (NAVD 88)



Wind

Results:

Wind Speed	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Tue Dec 20 2022

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

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Seismic

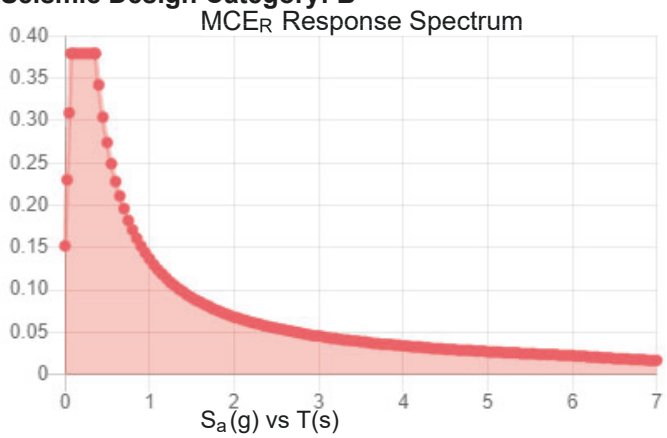
D - Default (see Section 11.4.3)

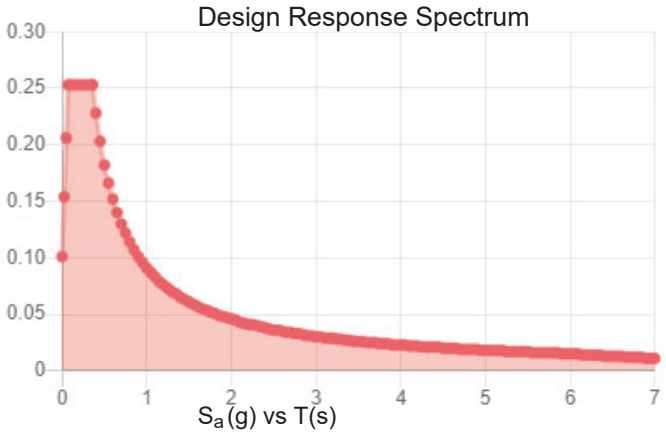
Site Soil Class:

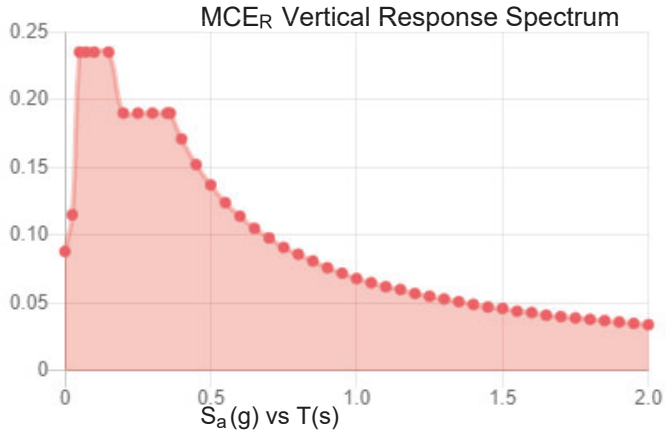
Results:

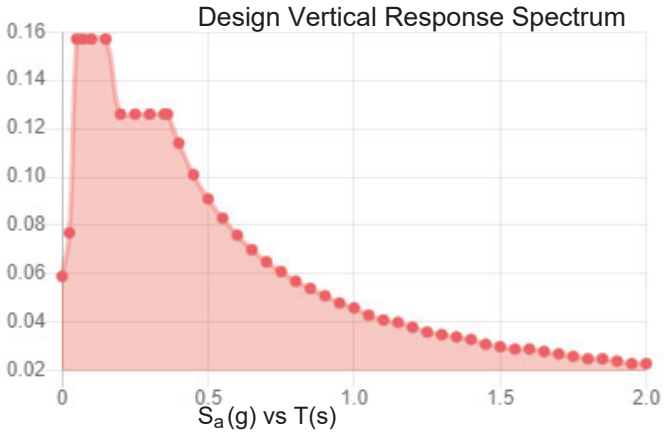
S_S :	0.237	S_{D1} :	0.091
S_1 :	0.057	T_L :	6
F_a :	1.6	PGA :	0.139
F_v :	2.4	PGA_M :	0.211
S_{MS} :	0.379	F_{PGA} :	1.522
S_{M1} :	0.137	I_e :	1
S_{DS} :	0.253	C_v :	0.774

Seismic Design Category: B









Data Accessed: **Tue Dec 20 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Dec 20 2022

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

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

Date: January 10, 2024

MTS Engineering, P.L.L.C
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	**Mount Analysis - Conditional Passing Report**	
Carrier Designation:	**DISH Network Co-Locate**	
	Carrier Site Number:	NJJER02036B
	Carrier Site Name:	--
Crown Castle Designation:	**BU Number:**	826927
	Site Name:	Redding/Rt7
	JDE Job Number:	736791
	Order Number:	640223, Rev. 0
Engineering Firm Designation:	**Report Designation:**	166957.002.01.0001
Site Data:	**845 Ethan Allen highway, Ridgefield, CT, Fairfield County, 06877** **Latitude 41° 18' 46.92" Longitude -73° 28' 20.73"**	
Structure Information:	**Tower Height & Type:**	**110 ft. Monopole**
	Mount Elevation:	**82 ft.**
	Mount Type:	**8 ft. Platform Mount**

We are pleased to submit this **"Mount Analysis - Conditional Passing Report"** to determine the structural integrity of DISH Network's antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

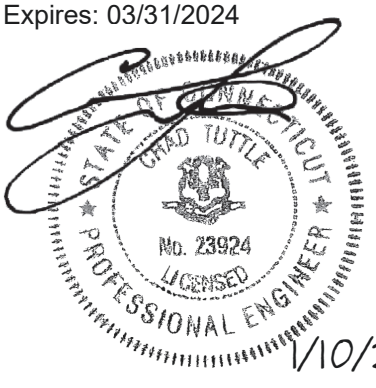
Platform Mount **Sufficient**
***Sufficient upon completion of the recommendations listed in the Section 4.1 of this report.**

This analysis utilizes an ultimate 3-second gust wind speed of 115 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Jennifer Tillson, E.I.

Respectfully submitted by: MTS Engineering, P.L.L.C
COA: BER: 2386985 Expires: 03/31/2024

Chad E. Tuttle, P.E.



1/10/24

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 - sector 8’ Platform Mount, designed by Commscope Part# MC-PK8-DSH.

2) ANALYSIS CRITERIA

Building Code:	2022 Connecticut State Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	115 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.237
Seismic S_1:	0.057
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb.
Man Live Load at Mount Pipes:	500 lb.

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft.)	Antenna Centerline (ft.)	Number of Antennas	Manufacturer	Model / Type	Mount / Modification Details
82	82	3	Commscope	FFVV-65B-R2	8 ft. Platform Mount
		3	Fujitsu	TA08025-B604	
		3	Fujitsu	TA08025-B605	
		1	Raycap	RDIDC-9181-PF-48_V2	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Proposed Loading	Date: 11/30/2022	Crown Castle
Mount Manufacturer Drawing	Commscope Part# MC-PK8-DSH	Date: 12/09/2021	Commscope

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 21.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by MTS Engineering, P.L.L.C, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle’s ENG-SOW-10208 *Mount Analysis* (Revision E).

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. MTS Engineering, P.L.L.C should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

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

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1,2	Main Horizontals	82	6	7.2	Pass
	Support Rails		22	9.6	Pass
	Support Tubes		32	44.9	Pass
	Support Channels		33	33.2	Pass
	Support Angles		11	26.0	Pass
	Mount Pipes		86	11.2	Pass
	Connection Plates		36	20.2	Pass
	Connection Angles		58	16.2	Pass
3	Mount to Tower Connection		58	16.45	Pass

Structure Rating with Recommendations (max from all components) =	44.9%

Notes:
1) Capacities listed are based on recommendations listed in Sec.4.1 being installed
2) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
3) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

4.1) Recommendations

The proposed mount has sufficient capacity to support the proposed loading configuration. In order for the results of this analysis to be considered valid, the mount listed below shall be installed.

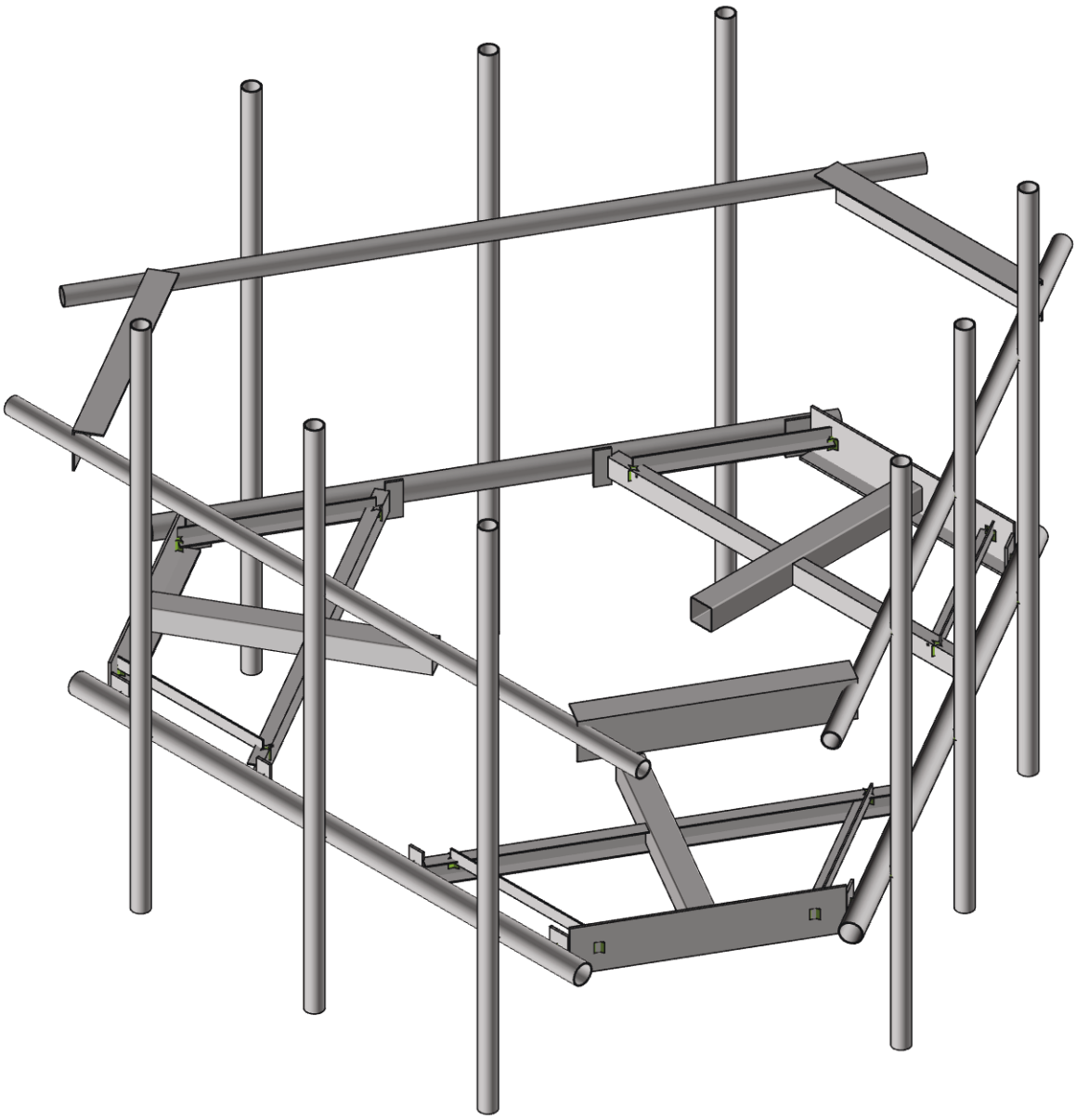
1. Commscope Part# MC-PK8-DSH.

No structural modifications are required at this time.

.

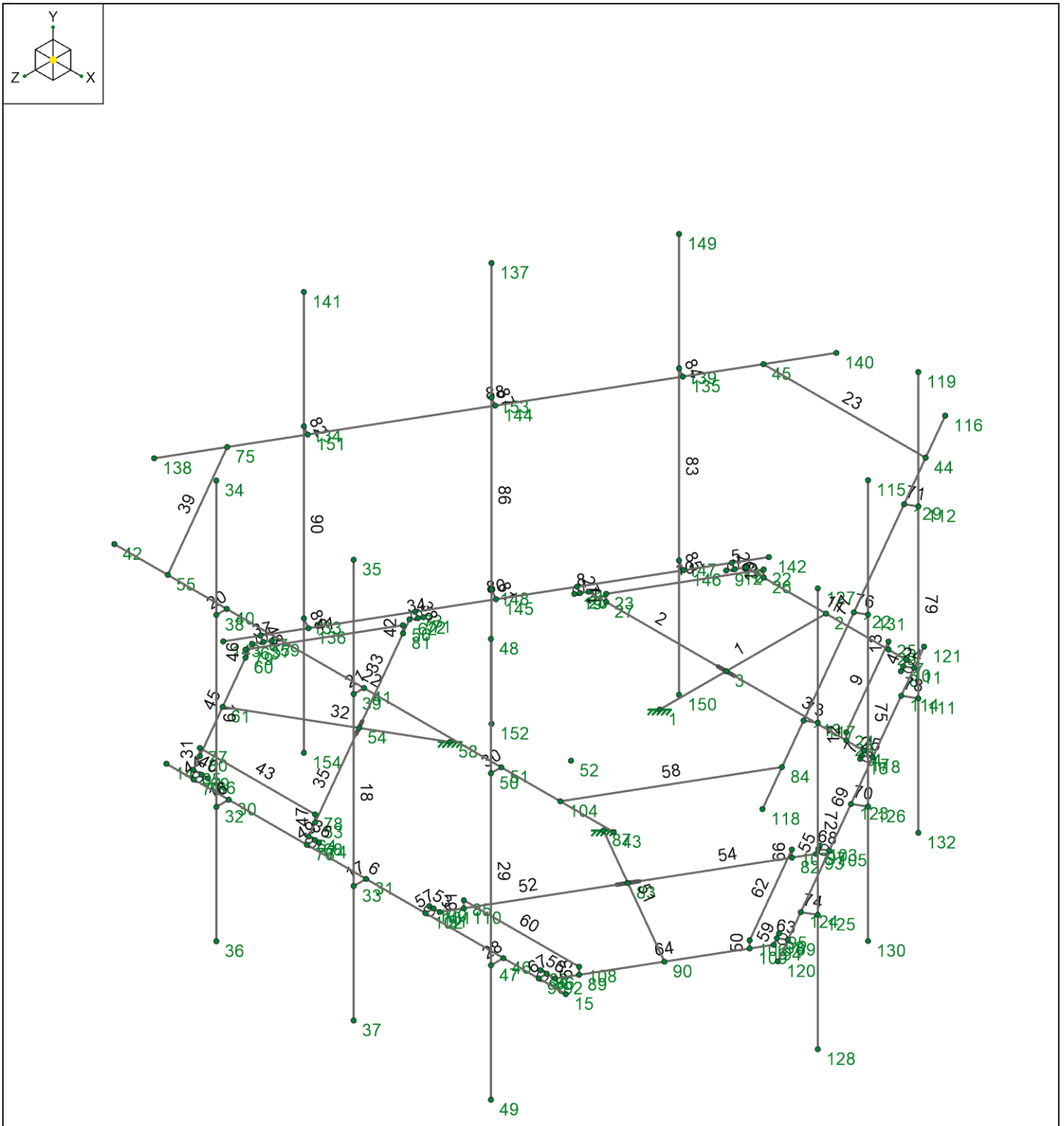
APPENDIX A

WIRE FRAME AND RENDERED MODELS



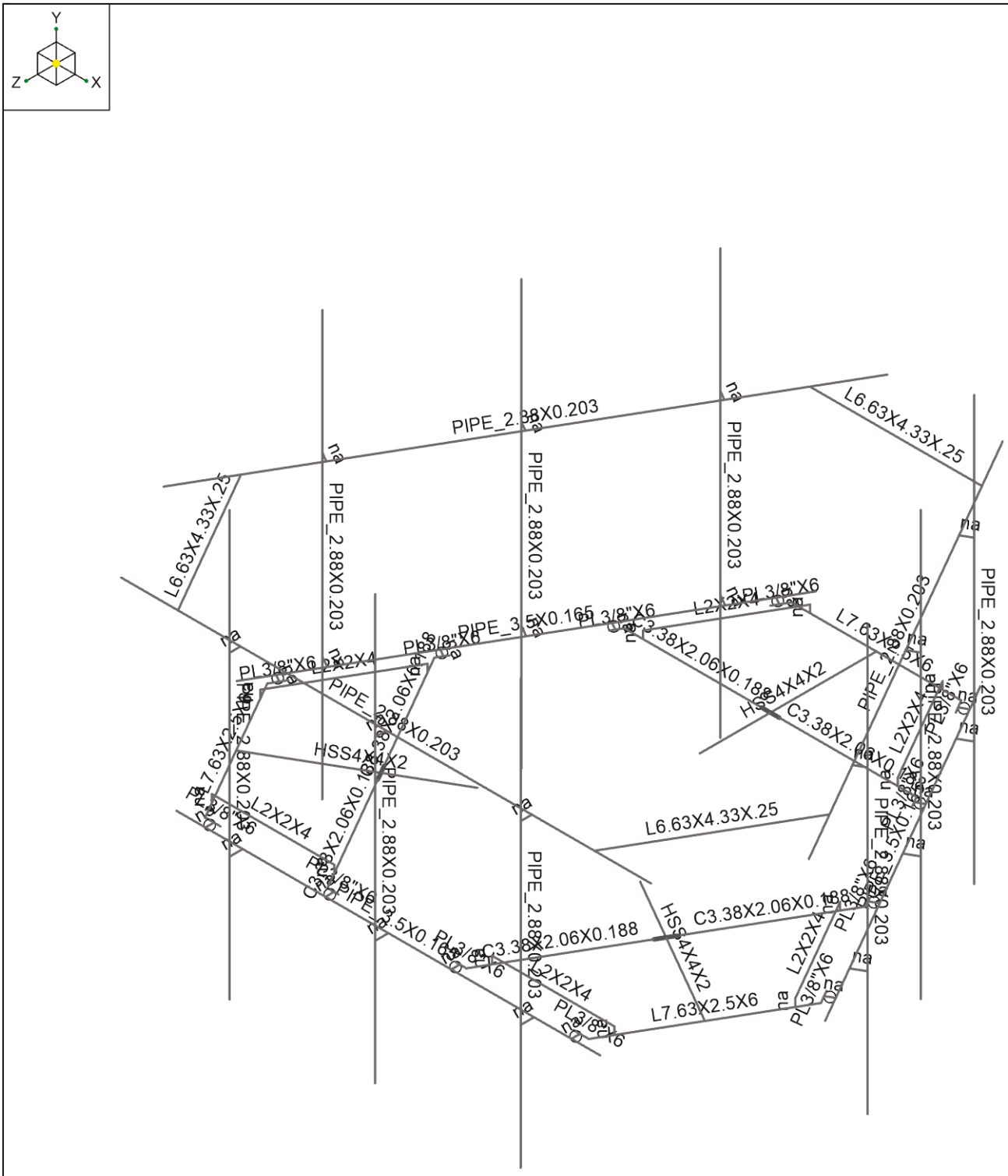
Envelope Only Solution

IRISA A NEMETSCHEK COMPANY	MTS Engineering, P.L.L.C	826927 - Redding/Rt7	SK-1
	NK		Jan 06, 2024 at 01:50 PM
	166957.002.01.0001		166957_002_01_0001_Redd…



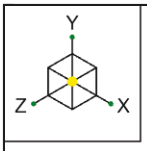
Envelope Only Solution

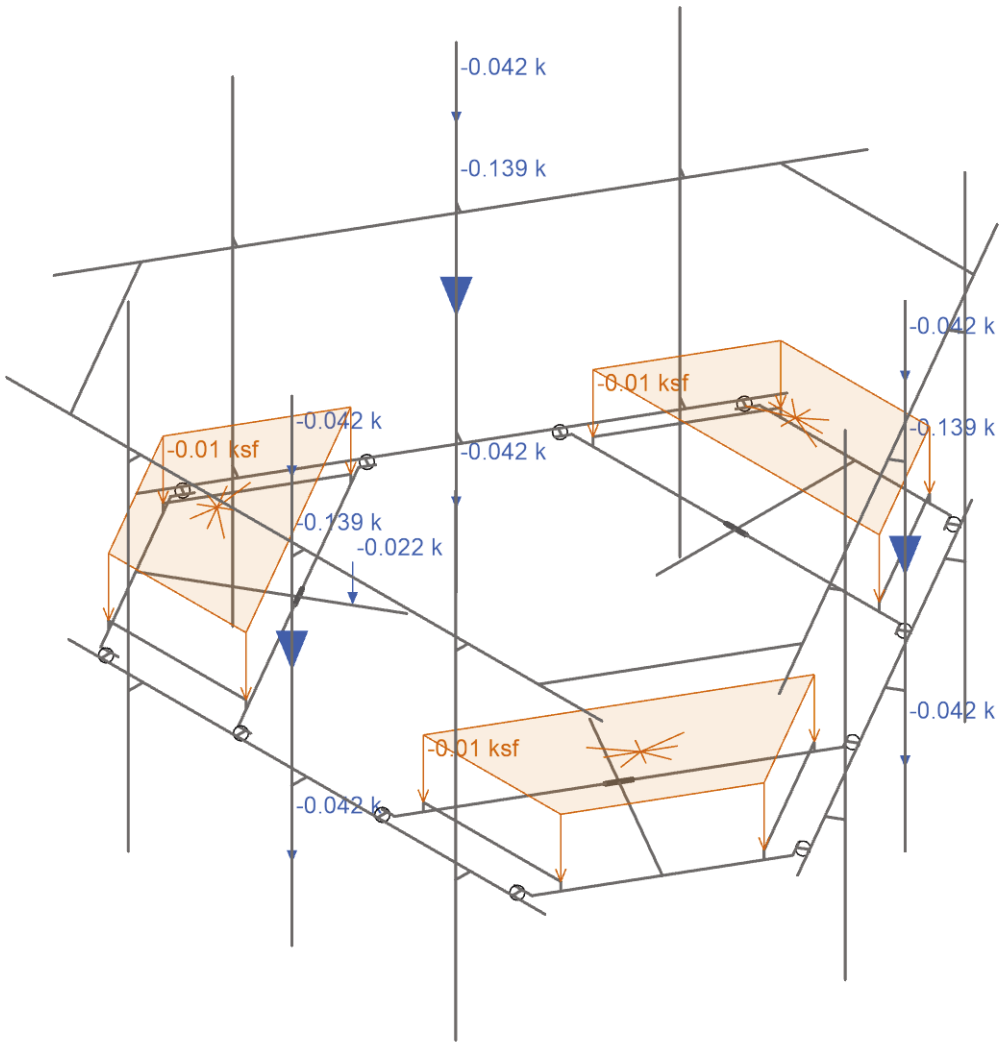
IRISA	MTS Engineering, P.L.L.C	826927 - Redding/Rt7	SK-2
	NK		Jan 06, 2024 at 01:51 PM
	166957.002.01.0001		166957_002_01_0001_Redd…



Envelope Only Solution

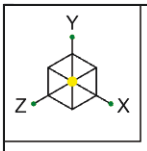
RISA A NEMETSCHEK COMPANY	MTS Engineering, P.L.L.C	826927 - Redding/Rt7	SK-3
	NK		Jan 06, 2024 at 01:51 PM
	166957.002.01.0001		166957_002_01_0001_Redd…

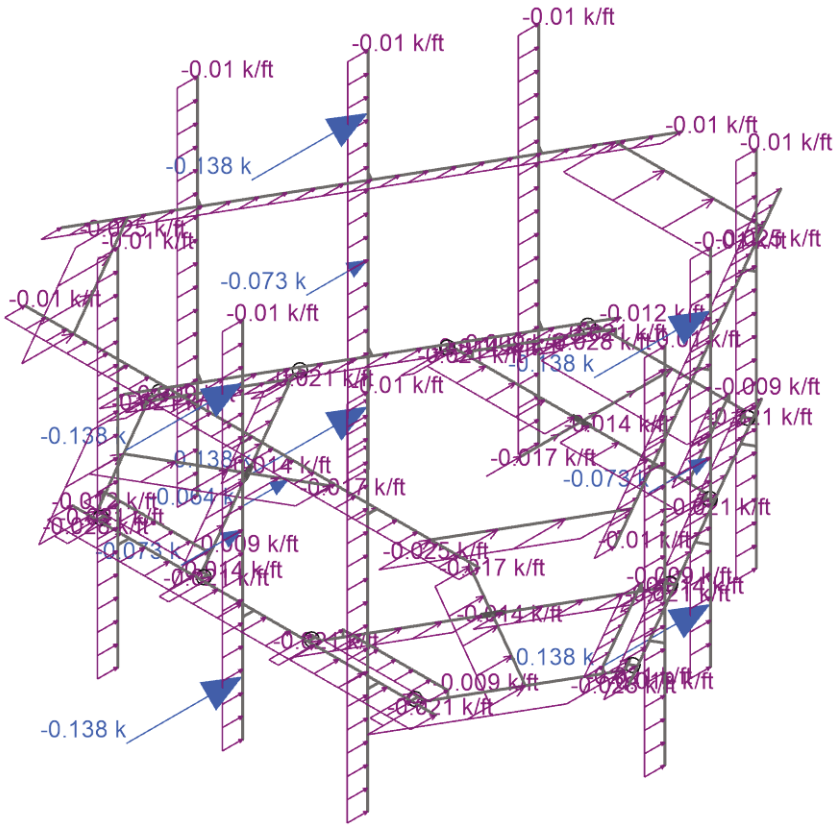




Loads: BLC 1, Dead
Envelope Only Solution

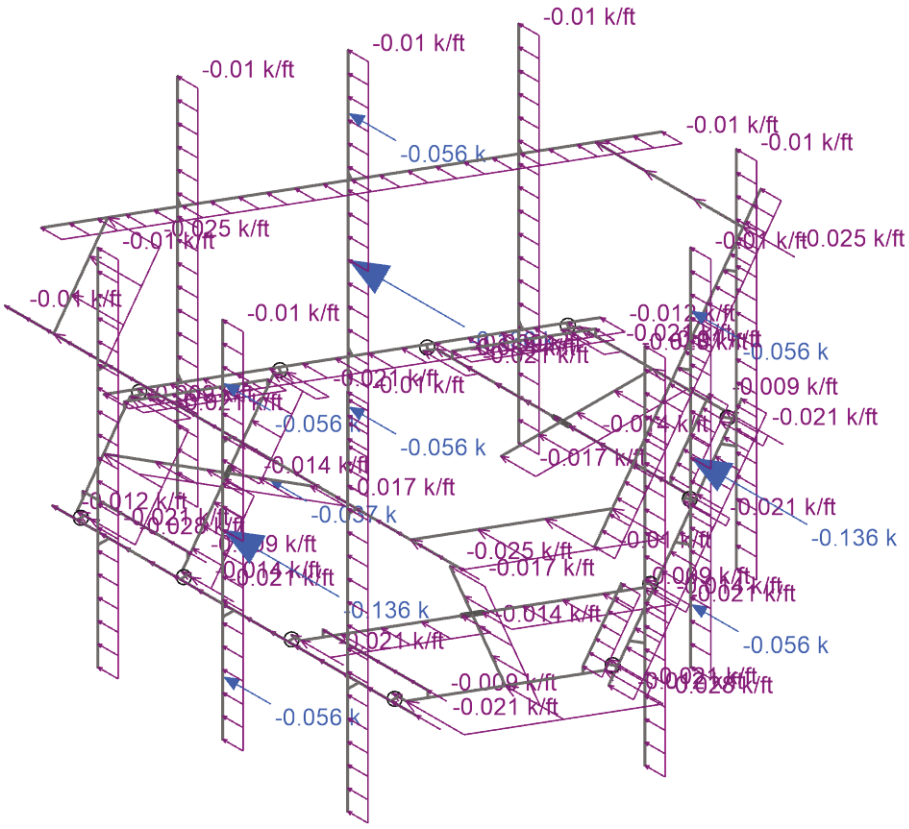
IRISA	MTS Engineering, P.L.L.C	826927 - Redding/Rt7	SK-4
	NK		Jan 06, 2024 at 01:51 PM
	166957.002.01.0001		166957_002_01_0001_Redd…





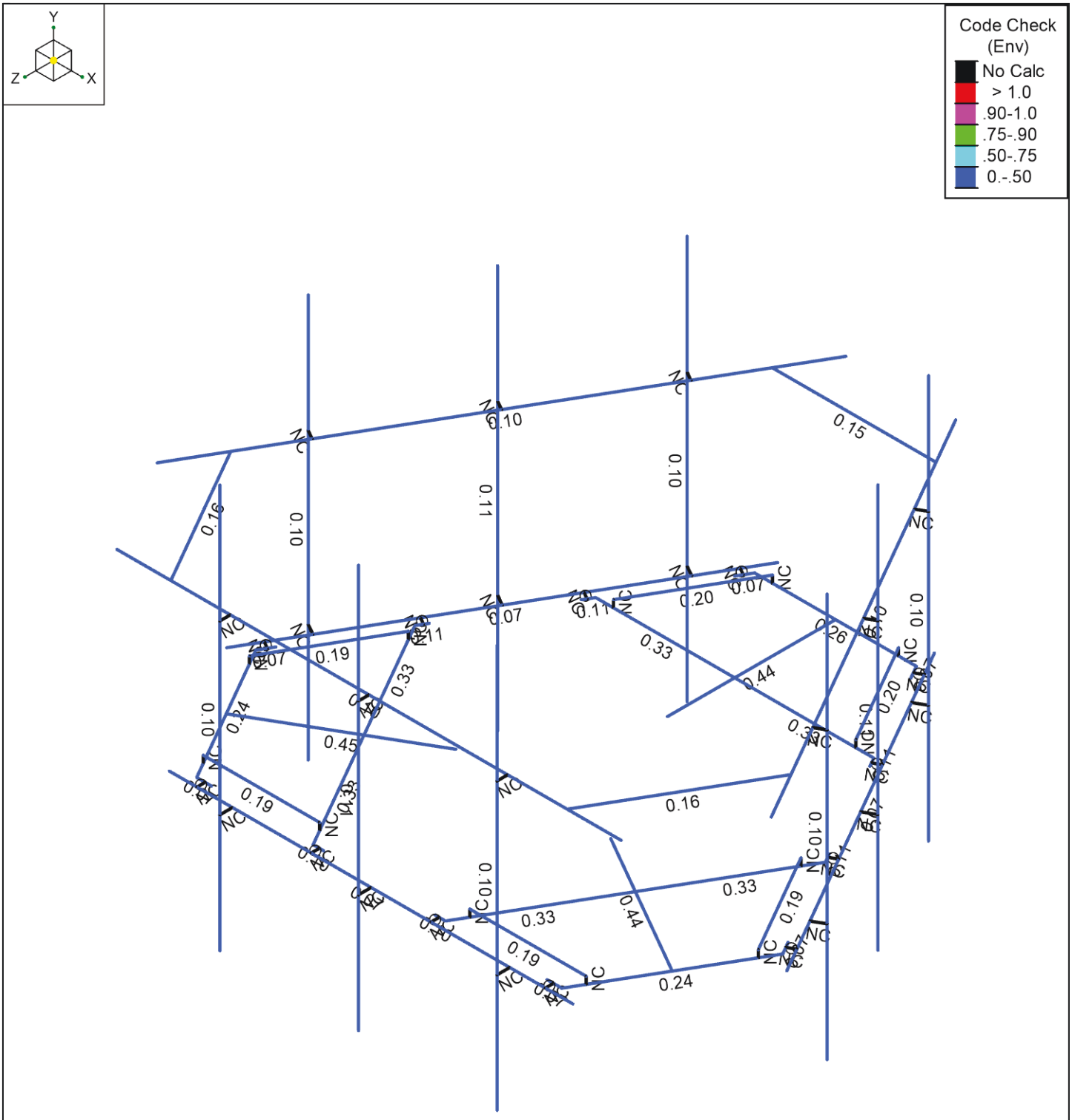
Loads: BLC 2, 0 Wind - No Ice
Envelope Only Solution

RISA	MTS Engineering, P.L.L.C	826927 - Redding/Rt7	SK-5
	NK		Jan 06, 2024 at 01:52 PM
	166957.002.01.0001		166957_002_01_0001_Redd…



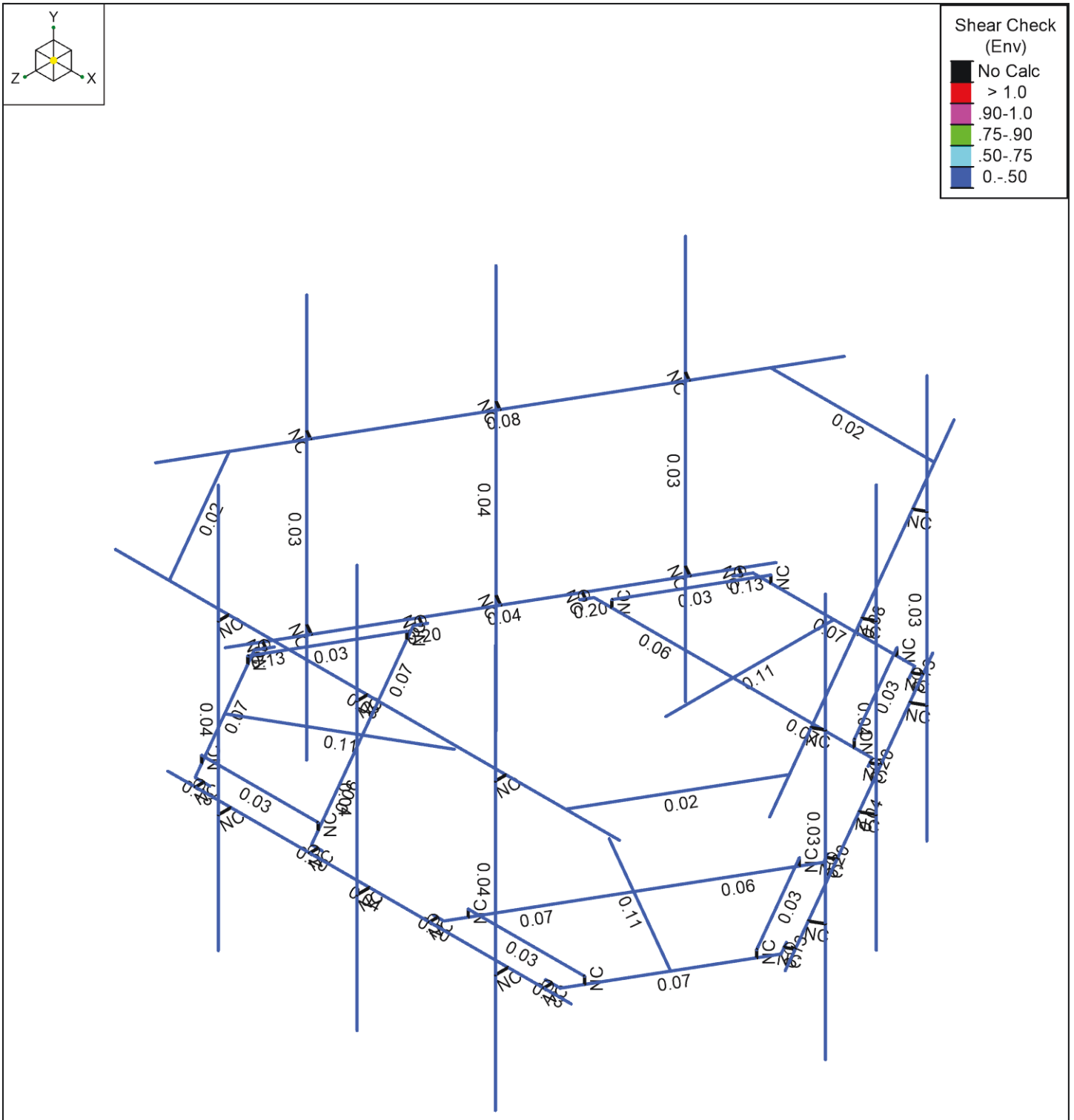
Loads: BLC 3, 90 Wind - No Ice Envelope Only Solution

IRISA	MTS Engineering, P.L.L.C	826927 - Redding/Rt7	SK-6
	NK		Jan 06, 2024 at 01:52 PM
	166957.002.01.0001		166957_002_01_0001_Redd…



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

RISA A NEMETSCHEK COMPANY	MTS Engineering, P.L.L.C	826927 - Redding/Rt7	SK-7
	NK		Jan 06, 2024 at 01:52 PM
	166957.002.01.0001		166957_002_01_0001_Redd…



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

RISA A NEMETSCHEK COMPANY	MTS Engineering, P.L.L.C	826927 - Redding/Rt7	SK-8
	NK		Jan 06, 2024 at 01:53 PM
	166957.002.01.0001		166957_002_01_0001_Redd…

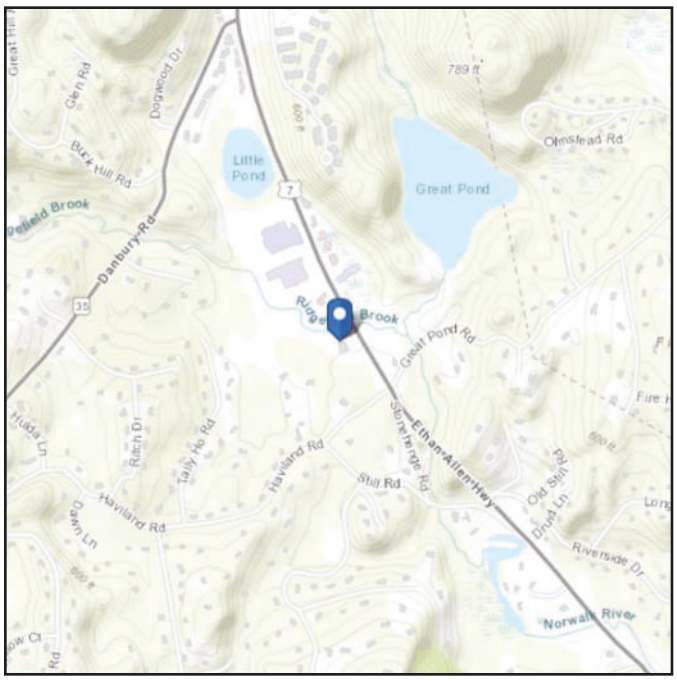
APPENDIX B

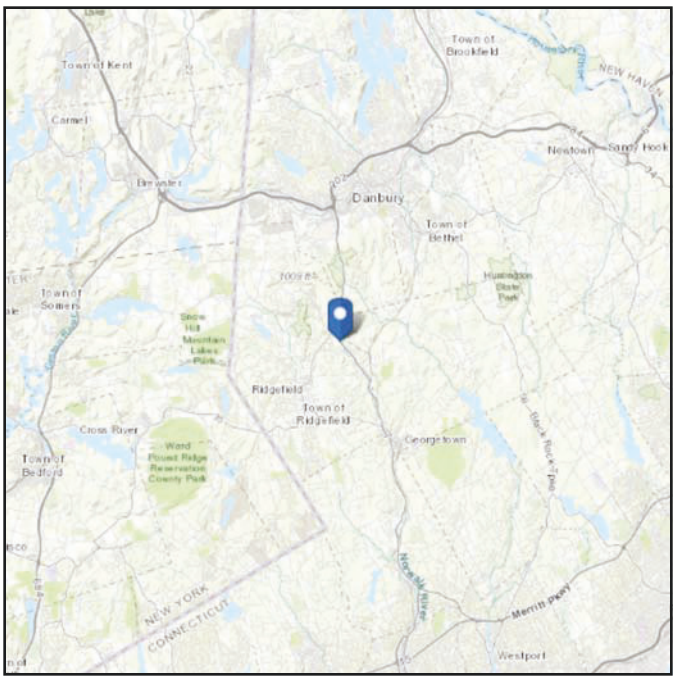
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.313017
Risk Category:	II	**Longitude:**	-73.472356
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	492.83457252923597 ft (NAVD 88)





Wind

Results:

Wind Speed	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Sat Jan 06 2024

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

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

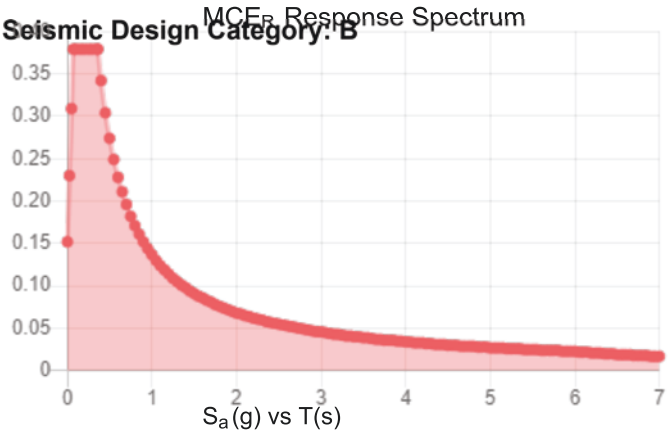
Seismic

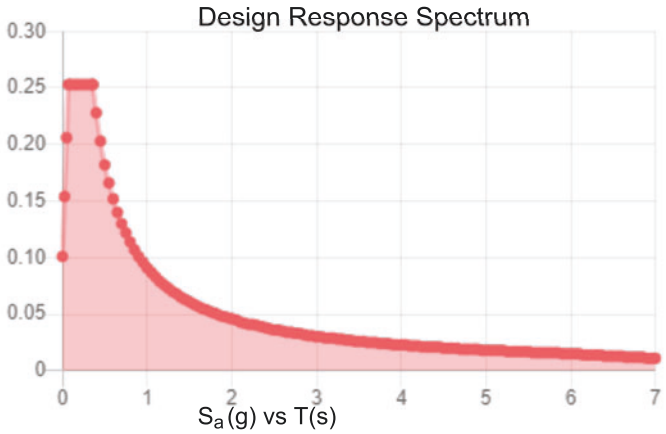
Site Soil Class: D - Default (see Section 11.4.3)

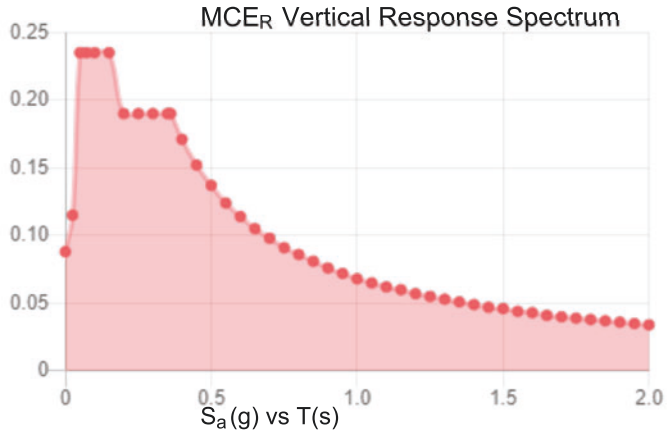
Results:

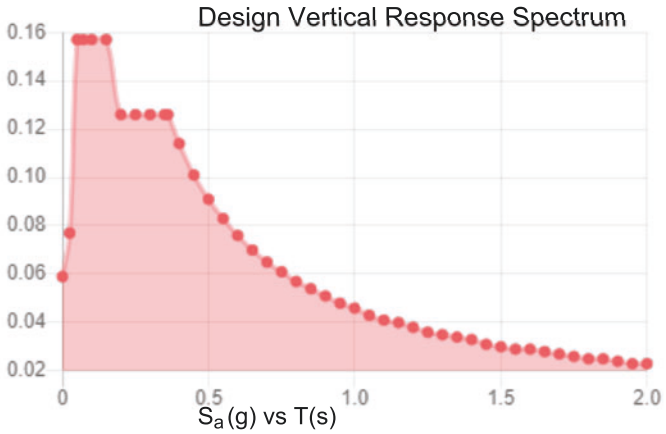
S_S :	0.237	S_{D1} :	0.091
S_1 :	0.057	T_L :	6
F_a :	1.6	PGA :	0.139
F_v :	2.4	PGA_M :	0.211
S_{MS} :	0.379	F_{PGA} :	1.522
S_{M1} :	0.137	I_e :	1
S_{DS} :	0.253	C_v :	0.774

Seismic Design Category: B









Data Accessed: Sat Jan 06 2024

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Sat Jan 06 2024

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

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

PROJECT	**166957.002.01.0001 - Redding/Rt7, C**	**KSC**
SUBJECT	**Platform Mount Analysis**	
DATE	**01-06-24**	

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	493	ft	[ASCE7 Hazard Tool]
Tower Height		:	110.00	ft	
Mount Elevation		:	82.00	ft	
Antenna Elevation		:	82.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	115	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.00	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.24		
	S_1	:	0.06		
	S_{DS}	:	0.25		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.21		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.98		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.10	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.127		[Sec. 2.7.7.1]
Amplification	A_s	:	1.981818		[Sec. 16.7]

	q_z	:	38.35	psf

PROJECT	**166957.002.01.0001 - Redding/Rt7, C KSC**
SUBJECT	**Platform Mount Analysis**
DATE	**01-06-24**

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

Manufacturer	Model	Qty	Height (in²)	Width (in²)	Depth (in²)	Weight (lbs)	C_aA_a (N) (ft²)	C_aA_a (T) (ft²)	C_aA_a (N) Ice (ft²)	C_aA_a (T) Ice (ft²)	$F_{A (N)}$ (k)	$F_{A (T)}$ (k)	$F_{A (N)}$ Ice (k)	$F_{A (T)}$ Ice (k)
COMMSCOPE	FFVV-65B-R2	0.5	72.0	19.6	7.8	84.5	3.59	1.46	4.06	1.87	0.14	0.06	0.03	0.01
COMMSCOPE	FFVV-65B-R2	0.5					3.59	1.46	4.06	1.87	0.14	0.06	0.03	0.01
FUJITSU	TA08025-B604	1	15.0	7.9	15.8	63.9	0.98	1.96	1.44	2.56	0.03	0.07	0.01	0.01
FUJITSU	TA08025-B605	1	15.0	9.1	15.8	75.0	1.13	1.96	1.61	2.56	0.04	0.07	0.01	0.01
COMMSCOPE	FFVV-65B-R2	0.5	72.0	19.6	7.8	84.5	3.59	1.46	4.06	1.87	0.14	0.06	0.03	0.01
COMMSCOPE	FFVV-65B-R2	0.5					3.59	1.46	4.06	1.87	0.14	0.06	0.03	0.01
FUJITSU	TA08025-B604	1	15.0	7.9	15.8	63.9	0.98	1.96	1.44	2.56	0.03	0.07	0.01	0.01
FUJITSU	TA08025-B605	1	15.0	9.1	15.8	75.0	1.13	1.96	1.61	2.56	0.04	0.07	0.01	0.01
COMMSCOPE	FFVV-65B-R2	0.5	72.0	19.6	7.8	84.5	3.59	1.46	4.06	1.87	0.14	0.06	0.03	0.01
COMMSCOPE	FFVV-65B-R2	0.5					3.59	1.46	4.06	1.87	0.14	0.06	0.03	0.01
FUJITSU	TA08025-B604	1	15.0	7.9	15.8	63.9	0.98	1.96	1.44	2.56	0.03	0.07	0.01	0.01
FUJITSU	TA08025-B605	1	15.0	9.1	15.8	75.0	1.13	1.96	1.61	2.56	0.04	0.07	0.01	0.01
RAYCAP	RDIDC-9181-PF-48_V2	1	16.0	14.0	8.0	21.9	1.87	1.07	2.45	1.54	0.06	0.04	0.01	0.01

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	-1.774526	
2	2	0	0	-5.107859	
3	3	0	0	-3.107859	
4	4	2.758333	0	-3.107859	
5	5	-2.758333	0	-3.107859	
6	6	-1.603633	0	-5.107859	
7	7	1.603633	0	-5.107859	
8	8	1.749466	0	-4.855269	
9	9	-1.749466	0	-4.855269	
10	10	1.686966	0	-4.963522	
11	11	1.826792	0	-5.04425	
12	12	-1.686966	0	-4.963522	
13	13	-1.826792	0	-5.04425	
14	14	-3.999998	0	4.104173	
15	15	3.999998	0	4.104173	
16	16	2.8625	0	-2.927438	
17	17	2.820833	0	-2.999607	
18	18	2.960658	0	-3.080336	
19	19	-2.8625	0	-2.927438	
20	20	-2.820833	0	-2.999607	
21	21	-2.960658	0	-3.080336	
22	22	-1.25	0.140833	-5.107859	
23	23	-2.404701	0.140833	-3.107859	
24	24	2.404701	0.140833	-3.107859	
25	25	1.25	0.140833	-5.107859	
26	26	-1.25	0	-5.107859	
27	27	-2.404701	0	-3.107859	
28	28	2.404701	0	-3.107859	
29	29	1.25	0	-5.107859	
30	30	-2.749998	0	4.104173	
31	31	0.000002	0	4.104173	
32	32	-2.749998	0	4.354173	
33	33	0.000002	0	4.354173	
34	34	-2.749998	5.666663	4.354173	
35	35	0.000002	5.666663	4.354173	
36	36	-2.749998	-2.333337	4.354173	
37	37	0.000002	-2.333337	4.354173	
38	38	-2.749998	3.33333	4.354173	
39	39	0.000002	3.33333	4.354173	
40	40	-2.749998	3.33333	4.14584	
41	41	0.000002	3.33333	4.14584	
42	42	-5	3.33333	4.14584	
43	43	5	3.33333	4.14584	
44	44	1.625	3.33333	-5.477098	
45	45	-1.625	3.33333	-5.477098	
46	46	2.749998	0	4.104173	
47	47	2.749998	0	4.354173	
48	48	2.749998	5.666663	4.354173	
49	49	2.749998	-2.333337	4.354173	
50	50	2.749998	3.33333	4.354173	
51	51	2.749998	3.33333	4.14584	
52	52	0	0	0	
53	53	-1.489135	0	3.636461	
54	54	-2.691485	0	1.55393	
55	55	-3.930806	3.33333	4.14584	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-3.893836	0.140833	-0.528602	
57	57	-5.142019	0	1.020805	
58	58	-1.536785	0	0.887263	
59	59	-5.079519	0	0.912552	
60	60	-5.048536	0	1.471398	
61	61	-4.423536	0	2.55393	
62	62	-4.070652	0	-0.834857	
63	63	-5.225352	0	1.165143	
64	64	-1.312319	0	3.942716	
65	65	-3.62172	0	3.942716	
66	66	-3.330053	0	3.942716	
67	67	-5.281845	0	0.940077	
68	68	-1.18732	0	3.942716	
69	69	-3.455053	0	3.942716	
70	70	-3.455053	0	4.104173	
71	71	-3.966485	0	-1.015279	
72	72	-4.008152	0	-0.943109	
73	73	-4.147978	0	-1.023838	
74	74	-1.103985	0	3.942716	
75	75	-5.555806	3.33333	1.331258	
76	76	-1.18732	0	4.104173	
77	77	-3.798536	0.140833	3.636461	
78	78	-1.489135	0.140833	3.636461	
79	79	-5.048536	0.140833	1.471398	
80	80	-3.798536	0	3.636461	
81	81	-3.893836	0	-0.528602	
82	82	3.893836	0	-0.528602	
83	83	2.691485	0	1.55393	
84	84	5.555806	3.33333	1.331258	
85	85	1.489135	0.140833	3.636461	
86	86	3.455053	0	3.942716	
87	87	1.536785	0	0.887263	
88	88	3.330053	0	3.942716	
89	89	3.798536	0	3.636461	
90	90	4.423536	0	2.55393	
91	91	1.312319	0	3.942716	
92	92	3.62172	0	3.942716	
93	93	4.070652	0	-0.834857	
94	94	5.225352	0	1.165143	
95	95	5.079519	0	0.912552	
96	96	3.455053	0	4.104173	
97	97	4.008152	0	-0.943109	
98	98	5.142019	0	1.020805	
99	99	5.281845	0	0.940077	
100	100	1.103985	0	3.942716	
101	101	1.18732	0	3.942716	
102	102	1.18732	0	4.104173	
103	103	3.966485	0	-1.015279	
104	104	3.930806	3.33333	4.14584	
105	105	4.147978	0	-1.023838	
106	106	5.048536	0.140833	1.471398	
107	107	3.893836	0.140833	-0.528602	
108	108	3.798536	0.140833	3.636461	
109	109	5.048536	0	1.471398	
110	110	1.489135	0	3.636461	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	2.395826	0	-4.558655	
112	112	2.395826	3.33333	-4.558655	
113	113	4.965402	3.33333	0.308648	
114	114	2.179319	0	-4.433655	
115	115	3.770824	5.666663	-2.177088	
116	116	1.090403	3.33333	-6.403047	
117	117	5.145824	3.33333	0.204482	
118	118	6.090403	3.33333	2.257207	
119	119	2.395826	5.666663	-4.558655	
120	120	5.554317	0	1.412013	
121	121	1.554319	0	-5.516187	
122	122	3.590402	3.33333	-2.072922	
123	123	3.554317	0	-2.052088	
124	124	4.929317	0	0.329482	
125	125	5.145824	0	0.204482	
126	126	3.770824	0	-2.177088	
127	127	5.145824	5.666663	0.204482	
128	128	5.145824	-2.333337	0.204482	
129	129	2.215404	3.33333	-4.454488	
130	130	3.770824	-2.333337	-2.177088	
131	131	3.770824	3.33333	-2.177088	
132	132	2.395826	-2.333337	-4.558655	
133	133	-5.145824	0	0.204482	
134	134	-5.145824	3.33333	0.204482	
135	135	-2.215404	3.33333	-4.454488	
136	136	-4.929317	0	0.329482	
137	137	-3.770826	5.666663	-2.177085	
138	138	-6.090403	3.33333	2.257207	
139	139	-2.395826	3.33333	-4.558655	
140	140	-1.090403	3.33333	-6.403047	
141	141	-5.145824	5.666663	0.204482	
142	142	-1.554319	0	-5.516187	
143	143	-5.554317	0	1.412013	
144	144	-3.590404	3.33333	-2.072918	
145	145	-3.554319	0	-2.052085	
146	146	-2.179319	0	-4.433655	
147	147	-2.395826	0	-4.558655	
148	148	-3.770826	0	-2.177085	
149	149	-2.395826	5.666663	-4.558655	
150	150	-2.395826	-2.333337	-4.558655	
151	151	-4.965402	3.33333	0.308648	
152	152	-3.770826	-2.333337	-2.177085	
153	153	-3.770826	3.33333	-2.177085	
154	154	-5.145824	-2.333337	0.204482	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	2						
3	3						
4	4						
5	5						
6	16						
7	17						
8	19						

Node Boundary Conditions (Continued)

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
9	20						
10	22						
11	25						
12	26						
13	29						
14	54						
15	58	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
16	60						
17	61						
18	62						
19	64						
20	68						
21	71						
22	72						
23	74						
24	77						
25	79						
26	80						
27	83						
28	87	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
29	89						
30	90						
31	91						
32	93						
33	97						
34	100						
35	101						
36	103						
37	106						
38	108						
39	109						

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A500 Gr.C	29000	11154	0.3	0.65	0.49	46	1.4	62	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	PIPE_3.5X0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
2	MF-H2	PIPE_2.88X0.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
3	SF-H1	HSS4X4X2	Beam	Tube	A500 Gr.B Rect	Typical	1.77	4.4	4.4	6.91
4	SF-H2	C3.38X2.06X0.188	Beam	Channel	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
5	SF-H3	L2X2X4	Beam	Single Angle	A36 Gr.36	Typical	0.944	0.346	0.346	0.021
6	SF-H4	L7.63X2.5X6	Beam	Single Angle	A36 Gr.36	Typical	3.658	1.307	22.092	0.163
7	MF-P1	PIPE_2.88X0.203	Column	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
8	MF-CP1	PL3/8"X6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
9	MF-H3	L6.63X4.33X.25	Beam	Single Angle	A36 Gr.36	Typical	2.678	4.383	12.502	0.054

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	3	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
3	3	3	4	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
4	4	7	8		MF-CP1	Beam	RECT	A36 Gr.36	Typical
5	5	6	9		MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	6	14	15		MF-H1	Beam	Pipe	A500 Gr.C	Typical
7	7	16	4		MF-CP1	Beam	RECT	A36 Gr.36	Typical
8	8	5	19		MF-CP1	Beam	RECT	A36 Gr.36	Typical
9	9	25	24		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
10	10	23	22		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
11	11	6	7		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
12	12	28	24		RIGID	None	None	RIGID	Typical
13	13	29	25		RIGID	None	None	RIGID	Typical
14	14	27	23		RIGID	None	None	RIGID	Typical
15	15	26	22		RIGID	None	None	RIGID	Typical
16	16	32	30		RIGID	None	None	RIGID	Typical
17	17	33	31		RIGID	None	None	RIGID	Typical
18	18	35	37		MF-P1	Column	Pipe	A500 Gr.C	Typical
19	19	34	36		MF-P1	Column	Pipe	A500 Gr.C	Typical
20	20	38	40		RIGID	None	None	RIGID	Typical
21	21	39	41		RIGID	None	None	RIGID	Typical
22	22	42	43		MF-H2	Beam	Pipe	A500 Gr.C	Typical
23	23	44	45	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
24	24	11	10		RIGID	None	None	RIGID	Typical
25	25	18	17		RIGID	None	None	RIGID	Typical
26	26	13	12		RIGID	None	None	RIGID	Typical
27	27	21	20		RIGID	None	None	RIGID	Typical
28	28	47	46		RIGID	None	None	RIGID	Typical
29	29	48	49		MF-P1	Column	Pipe	A500 Gr.C	Typical
30	30	50	51		RIGID	None	None	RIGID	Typical
31	31	80	77		RIGID	None	None	RIGID	Typical
32	32	58	61		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
33	33	54	62	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
34	34	71	62		MF-CP1	Beam	RECT	A36 Gr.36	Typical
35	35	64	54	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
36	36	64	74		MF-CP1	Beam	RECT	A36 Gr.36	Typical
37	37	63	59		MF-CP1	Beam	RECT	A36 Gr.36	Typical
38	38	73	72		RIGID	None	None	RIGID	Typical
39	39	75	55	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
40	40	65	66		MF-CP1	Beam	RECT	A36 Gr.36	Typical
41	41	79	56		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
42	42	81	56		RIGID	None	None	RIGID	Typical
43	43	78	77		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
44	44	70	69		RIGID	None	None	RIGID	Typical
45	45	65	63		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
46	46	60	79		RIGID	None	None	RIGID	Typical
47	47	53	78		RIGID	None	None	RIGID	Typical
48	48	67	57		RIGID	None	None	RIGID	Typical
49	49	76	68		RIGID	None	None	RIGID	Typical
50	50	109	106		RIGID	None	None	RIGID	Typical
51	51	87	90		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
52	52	83	91	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
53	53	100	91		MF-CP1	Beam	RECT	A36 Gr.36	Typical
54	54	93	83	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
55	55	93	103		MF-CP1	Beam	RECT	A36 Gr.36	Typical
56	56	92	88		MF-CP1	Beam	RECT	A36 Gr.36	Typical
57	57	102	101		RIGID	None	None	RIGID	Typical
58	58	104	84	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
59	59	94	95		MF-CP1	Beam	RECT	A36 Gr.36	Typical
60	60	108	85		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
61	61	110	85		RIGID	None	None	RIGID	Typical
62	62	107	106		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
63	63	99	98		RIGID	None	None	RIGID	Typical
64	64	94	92		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
65	65	89	108		RIGID	None	None	RIGID	Typical
66	66	82	107		RIGID	None	None	RIGID	Typical
67	67	96	86		RIGID	None	None	RIGID	Typical
68	68	105	97		RIGID	None	None	RIGID	Typical
69	69	120	121		MF-H1	Beam	Pipe	A500 Gr.C	Typical
70	70	126	123		RIGID	None	None	RIGID	Typical
71	71	112	129		RIGID	None	None	RIGID	Typical
72	72	127	128		MF-P1	Column	Pipe	A500 Gr.C	Typical
73	73	117	113		RIGID	None	None	RIGID	Typical
74	74	125	124		RIGID	None	None	RIGID	Typical
75	75	115	130		MF-P1	Column	Pipe	A500 Gr.C	Typical
76	76	131	122		RIGID	None	None	RIGID	Typical
77	77	118	116		MF-H2	Beam	Pipe	A500 Gr.C	Typical
78	78	111	114		RIGID	None	None	RIGID	Typical
79	79	119	132		MF-P1	Column	Pipe	A500 Gr.C	Typical
80	80	142	143		MF-H1	Beam	Pipe	A500 Gr.C	Typical
81	81	148	145		RIGID	None	None	RIGID	Typical
82	82	134	151		RIGID	None	None	RIGID	Typical
83	83	149	150		MF-P1	Column	Pipe	A500 Gr.C	Typical
84	84	139	135		RIGID	None	None	RIGID	Typical
85	85	147	146		RIGID	None	None	RIGID	Typical
86	86	137	152		MF-P1	Column	Pipe	A500 Gr.C	Typical
87	87	153	144		RIGID	None	None	RIGID	Typical
88	88	140	138		MF-H2	Beam	Pipe	A500 Gr.C	Typical
89	89	133	136		RIGID	None	None	RIGID	Typical
90	90	141	154		MF-P1	Column	Pipe	A500 Gr.C	Typical

Member Advanced Data

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1				Yes	N/A	None
2	2			2	Yes	N/A	None
3	3		2		Yes	N/A	None
4	4				Yes	Default	None
5	5				Yes	Default	None
6	6				Yes	N/A	None
7	7				Yes	Default	None
8	8				Yes	Default	None
9	9				Yes	N/A	None
10	10				Yes	N/A	None
11	11				Yes	N/A	None
12	12				Yes	** NA **	None
13	13				Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
14	14				Yes	** NA **	None
15	15				Yes	** NA **	None
16	16				Yes	** NA **	None
17	17				Yes	** NA **	None
18	18				Yes	** NA **	None
19	19				Yes	** NA **	None
20	20				Yes	** NA **	None
21	21				Yes	** NA **	None
22	22				Yes	N/A	None
23	23				Yes	Default	None
24	24	OOOOOX			Yes	** NA **	None
25	25	OOOOOX			Yes	** NA **	None
26	26	OOOOOX			Yes	** NA **	None
27	27	OOOOOX			Yes	** NA **	None
28	28				Yes	** NA **	None
29	29				Yes	** NA **	None
30	30				Yes	** NA **	None
31	31				Yes	** NA **	None
32	32				Yes	N/A	None
33	33		2		Yes	N/A	None
34	34				Yes	Default	None
35	35			2	Yes	N/A	None
36	36				Yes	Default	None
37	37				Yes	Default	None
38	38	OOOOOX			Yes	** NA **	None
39	39				Yes	Default	None
40	40				Yes	Default	None
41	41				Yes	N/A	None
42	42				Yes	** NA **	None
43	43				Yes	N/A	None
44	44	OOOOOX			Yes	** NA **	None
45	45				Yes	N/A	None
46	46				Yes	** NA **	None
47	47				Yes	** NA **	None
48	48	OOOOOX			Yes	** NA **	None
49	49	OOOOOX			Yes	** NA **	None
50	50				Yes	** NA **	None
51	51				Yes	N/A	None
52	52		2		Yes	N/A	None
53	53				Yes	Default	None
54	54			2	Yes	N/A	None
55	55				Yes	Default	None
56	56				Yes	Default	None
57	57	OOOOOX			Yes	** NA **	None
58	58				Yes	Default	None
59	59				Yes	Default	None
60	60				Yes	N/A	None
61	61				Yes	** NA **	None
62	62				Yes	N/A	None
63	63	OOOOOX			Yes	** NA **	None
64	64				Yes	N/A	None
65	65				Yes	** NA **	None
66	66				Yes	** NA **	None
67	67	OOOOOX			Yes	** NA **	None
68	68	OOOOOX			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
69	69				Yes	N/A	None
70	70				Yes	** NA **	None
71	71				Yes	** NA **	None
72	72				Yes	** NA **	None
73	73				Yes	** NA **	None
74	74				Yes	** NA **	None
75	75				Yes	** NA **	None
76	76				Yes	** NA **	None
77	77				Yes	N/A	None
78	78				Yes	** NA **	None
79	79				Yes	** NA **	None
80	80				Yes	N/A	None
81	81				Yes	** NA **	None
82	82				Yes	** NA **	None
83	83				Yes	** NA **	None
84	84				Yes	** NA **	None
85	85				Yes	** NA **	None
86	86				Yes	** NA **	None
87	87				Yes	** NA **	None
88	88				Yes	N/A	None
89	89				Yes	** NA **	None
90	90				Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
1	1	SF-H1	3.333	Lbyy	N/A	N/A	Lateral
2	2	SF-H2	2.758	Lbyy	N/A	N/A	Lateral
3	3	SF-H2	2.758	Lbyy	N/A	N/A	Lateral
4	4	MF-CP1	0.292	Lbyy	N/A	N/A	Lateral
5	5	MF-CP1	0.292	Lbyy	N/A	N/A	Lateral
6	6	MF-H1	8	Lbyy	N/A	N/A	Lateral
7	7	MF-CP1	0.208	Lbyy	N/A	N/A	Lateral
8	8	MF-CP1	0.208	Lbyy	N/A	N/A	Lateral
9	9	SF-H3	2.309	Lbyy	N/A	N/A	Lateral
10	10	SF-H3	2.309	Lbyy	N/A	N/A	Lateral
11	11	SF-H4	3.207	Lbyy	N/A	N/A	Lateral
12	18	MF-P1	8	Lbyy	N/A	N/A	Lateral
13	19	MF-P1	8	Lbyy	N/A	N/A	Lateral
14	22	MF-H2	10	Lbyy	N/A	N/A	Lateral
15	23	MF-H3	3.25	Lbyy	N/A	N/A	Lateral
16	29	MF-P1	8	Lbyy	N/A	N/A	Lateral
17	32	SF-H1	3.333	Lbyy	N/A	N/A	Lateral
18	33	SF-H2	2.758	Lbyy	N/A	N/A	Lateral
19	34	MF-CP1	0.208	Lbyy	N/A	N/A	Lateral
20	35	SF-H2	2.758	Lbyy	N/A	N/A	Lateral
21	36	MF-CP1	0.208	Lbyy	N/A	N/A	Lateral
22	37	MF-CP1	0.292	Lbyy	N/A	N/A	Lateral
23	39	MF-H3	3.25	Lbyy	N/A	N/A	Lateral
24	40	MF-CP1	0.292	Lbyy	N/A	N/A	Lateral
25	41	SF-H3	2.309	Lbyy	N/A	N/A	Lateral
26	43	SF-H3	2.309	Lbyy	N/A	N/A	Lateral
27	45	SF-H4	3.207	Lbyy	N/A	N/A	Lateral
28	51	SF-H1	3.333	Lbyy	N/A	N/A	Lateral
29	52	SF-H2	2.758	Lbyy	N/A	N/A	Lateral
30	53	MF-CP1	0.208	Lbyy	N/A	N/A	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Channel Conn.	a [ft]	Function
31	54	SF-H2	2.758	Lbyy	N/A	N/A	Lateral
32	55	MF-CP1	0.208	Lbyy	N/A	N/A	Lateral
33	56	MF-CP1	0.292	Lbyy	N/A	N/A	Lateral
34	58	MF-H3	3.25	Lbyy	N/A	N/A	Lateral
35	59	MF-CP1	0.292	Lbyy	N/A	N/A	Lateral
36	60	SF-H3	2.309	Lbyy	N/A	N/A	Lateral
37	62	SF-H3	2.309	Lbyy	N/A	N/A	Lateral
38	64	SF-H4	3.207	Lbyy	N/A	N/A	Lateral
39	69	MF-H1	8	Lbyy	N/A	N/A	Lateral
40	72	MF-P1	8	Lbyy	N/A	N/A	Lateral
41	75	MF-P1	8	Lbyy	N/A	N/A	Lateral
42	77	MF-H2	10	Lbyy	N/A	N/A	Lateral
43	79	MF-P1	8	Lbyy	N/A	N/A	Lateral
44	80	MF-H1	8	Lbyy	N/A	N/A	Lateral
45	83	MF-P1	8	Lbyy	N/A	N/A	Lateral
46	86	MF-P1	8	Lbyy	N/A	N/A	Lateral
47	88	MF-H2	10	Lbyy	N/A	N/A	Lateral
48	90	MF-P1	8	Lbyy	N/A	N/A	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.042	%15
2	18	Y	-0.042	%85
3	18	Y	-0.064	%50
4	18	Y	-0.075	%50
5	18	Y	0	0
6	86	Y	-0.042	%15
7	86	Y	-0.042	%85
8	86	Y	-0.064	%50
9	86	Y	-0.075	%50
10	86	Y	0	0
11	75	Y	-0.042	%15
12	75	Y	-0.042	%85
13	75	Y	-0.064	%50
14	75	Y	-0.075	%50
15	75	Y	0	0
16	32	Y	-0.022	%20
17	32	Y	0	0
18	32	Y	0	0
19	32	Y	0	0
20	32	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.138	%15
2	18	Z	-0.138	%85
3	18	Z	-0.034	%50
4	18	Z	-0.039	%50
5	18	Z	0	0
6	86	Z	-0.138	%15
7	86	Z	-0.138	%85
8	86	Z	-0.034	%50
9	86	Z	-0.039	%50

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	86	Z	0	0
11	75	Z	-0.138	%15
12	75	Z	-0.138	%85
13	75	Z	-0.034	%50
14	75	Z	-0.039	%50
15	75	Z	0	0
16	32	Z	-0.064	%20
17	32	Z	0	0
18	32	Z	0	0
19	32	Z	0	0
20	32	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.056	%15
2	18	X	-0.056	%85
3	18	X	-0.068	%50
4	18	X	-0.068	%50
5	18	X	0	0
6	86	X	-0.056	%15
7	86	X	-0.056	%85
8	86	X	-0.068	%50
9	86	X	-0.068	%50
10	86	X	0	0
11	75	X	-0.056	%15
12	75	X	-0.056	%85
13	75	X	-0.068	%50
14	75	X	-0.068	%50
15	75	X	0	0
16	32	X	-0.037	%20
17	32	X	0	0
18	32	X	0	0
19	32	X	0	0
20	32	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.029	%15
2	18	Z	-0.029	%85
3	18	Z	-0.006	%50
4	18	Z	-0.007	%50
5	18	Z	0	0
6	86	Z	-0.029	%15
7	86	Z	-0.029	%85
8	86	Z	-0.006	%50
9	86	Z	-0.007	%50
10	86	Z	0	0
11	75	Z	-0.029	%15
12	75	Z	-0.029	%85
13	75	Z	-0.006	%50
14	75	Z	-0.007	%50
15	75	Z	0	0
16	32	Z	-0.012	%20

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
17	32	Z	0	0
18	32	Z	0	0
19	32	Z	0	0
20	32	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.014	%15
2	18	X	-0.014	%85
3	18	X	-0.013	%50
4	18	X	-0.013	%50
5	18	X	0	0
6	86	X	-0.014	%15
7	86	X	-0.014	%85
8	86	X	-0.013	%50
9	86	X	-0.013	%50
10	86	X	0	0
11	75	X	-0.014	%15
12	75	X	-0.014	%85
13	75	X	-0.013	%50
14	75	X	-0.013	%50
15	75	X	0	0
16	32	X	-0.007	%20
17	32	X	0	0
18	32	X	0	0
19	32	X	0	0
20	32	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.009	%15
2	18	Z	-0.009	%85
3	18	Z	-0.002	%50
4	18	Z	-0.003	%50
5	18	Z	0	0
6	86	Z	-0.009	%15
7	86	Z	-0.009	%85
8	86	Z	-0.002	%50
9	86	Z	-0.003	%50
10	86	Z	0	0
11	75	Z	-0.009	%15
12	75	Z	-0.009	%85
13	75	Z	-0.002	%50
14	75	Z	-0.003	%50
15	75	Z	0	0
16	32	Z	-0.004	%20
17	32	Z	0	0
18	32	Z	0	0
19	32	Z	0	0
20	32	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.004	%15
2	18	X	-0.004	%85
3	18	X	-0.005	%50
4	18	X	-0.005	%50
5	18	X	0	0
6	86	X	-0.004	%15
7	86	X	-0.004	%85
8	86	X	-0.005	%50
9	86	X	-0.005	%50
10	86	X	0	0
11	75	X	-0.004	%15
12	75	X	-0.004	%85
13	75	X	-0.005	%50
14	75	X	-0.005	%50
15	75	X	0	0
16	32	X	-0.003	%20
17	32	X	0	0
18	32	X	0	0
19	32	X	0	0
20	32	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.118	%15
2	18	Y	-0.118	%85
3	18	Y	-0.031	%50
4	18	Y	-0.032	%50
5	18	Y	0	0
6	86	Y	-0.118	%15
7	86	Y	-0.118	%85
8	86	Y	-0.031	%50
9	86	Y	-0.032	%50
10	86	Y	0	0
11	75	Y	-0.118	%15
12	75	Y	-0.118	%85
13	75	Y	-0.031	%50
14	75	Y	-0.032	%50
15	75	Y	0	0
16	32	Y	-0.031	%20
17	32	Y	0	0
18	32	Y	0	0
19	32	Y	0	0
20	32	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.021	%15
2	18	Z	-0.021	%85
3	18	Z	-0.016	%50
4	18	Z	-0.019	%50
5	18	Z	0	0
6	86	Z	-0.021	%15

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
7	86	Z	-0.021	%85
8	86	Z	-0.016	%50
9	86	Z	-0.019	%50
10	86	Z	0	0
11	75	Z	-0.021	%15
12	75	Z	-0.021	%85
13	75	Z	-0.016	%50
14	75	Z	-0.019	%50
15	75	Z	0	0
16	32	Z	-0.005	%20
17	32	Z	0	0
18	32	Z	0	0
19	32	Z	0	0
20	32	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.021	%15
2	18	X	-0.021	%85
3	18	X	-0.016	%50
4	18	X	-0.019	%50
5	18	X	0	0
6	86	X	-0.021	%15
7	86	X	-0.021	%85
8	86	X	-0.016	%50
9	86	X	-0.019	%50
10	86	X	0	0
11	75	X	-0.021	%15
12	75	X	-0.021	%85
13	75	X	-0.016	%50
14	75	X	-0.019	%50
15	75	X	0	0
16	32	X	-0.005	%20
17	32	X	0	0
18	32	X	0	0
19	32	X	0	0
20	32	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	88	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	80	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	77	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	69	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	88	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	80	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	77	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	69	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.25	%95

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Y	-0.25	%95

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.017	-0.017	0	%100
2	2	Z	-0.014	-0.014	0	%100
3	3	Z	-0.014	-0.014	0	%100
4	4	Z	-0.021	-0.021	0	%100
5	5	Z	-0.021	-0.021	0	%100
6	6	Z	-0.012	-0.012	0	%100
7	7	Z	-0.021	-0.021	0	%100
8	8	Z	-0.021	-0.021	0	%100
9	9	Z	-0.009	-0.009	0	%100
10	10	Z	-0.009	-0.009	0	%100
11	11	Z	-0.028	-0.028	0	%100
12	18	Z	-0.01	-0.01	0	%100
13	19	Z	-0.01	-0.01	0	%100
14	22	Z	-0.01	-0.01	0	%100
15	23	Z	-0.025	-0.025	0	%100
16	29	Z	-0.01	-0.01	0	%100
17	32	Z	-0.017	-0.017	0	%100
18	33	Z	-0.014	-0.014	0	%100
19	34	Z	-0.021	-0.021	0	%100
20	35	Z	-0.014	-0.014	0	%100
21	36	Z	-0.021	-0.021	0	%100
22	37	Z	-0.021	-0.021	0	%100
23	39	Z	-0.025	-0.025	0	%100
24	40	Z	-0.021	-0.021	0	%100
25	41	Z	-0.009	-0.009	0	%100
26	43	Z	-0.009	-0.009	0	%100
27	45	Z	-0.028	-0.028	0	%100
28	51	Z	-0.017	-0.017	0	%100
29	52	Z	-0.014	-0.014	0	%100
30	53	Z	-0.021	-0.021	0	%100
31	54	Z	-0.014	-0.014	0	%100
32	55	Z	-0.021	-0.021	0	%100
33	56	Z	-0.021	-0.021	0	%100
34	58	Z	-0.025	-0.025	0	%100
35	59	Z	-0.021	-0.021	0	%100
36	60	Z	-0.009	-0.009	0	%100
37	62	Z	-0.009	-0.009	0	%100
38	64	Z	-0.028	-0.028	0	%100
39	69	Z	-0.012	-0.012	0	%100
40	72	Z	-0.01	-0.01	0	%100
41	75	Z	-0.01	-0.01	0	%100
42	77	Z	-0.01	-0.01	0	%100
43	79	Z	-0.01	-0.01	0	%100
44	80	Z	-0.012	-0.012	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
45	83	Z	-0.01	-0.01	0	%100
46	86	Z	-0.01	-0.01	0	%100
47	88	Z	-0.01	-0.01	0	%100
48	90	Z	-0.01	-0.01	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.017	-0.017	0	%100
2	2	X	-0.014	-0.014	0	%100
3	3	X	-0.014	-0.014	0	%100
4	4	X	-0.021	-0.021	0	%100
5	5	X	-0.021	-0.021	0	%100
6	6	X	-0.012	-0.012	0	%100
7	7	X	-0.021	-0.021	0	%100
8	8	X	-0.021	-0.021	0	%100
9	9	X	-0.009	-0.009	0	%100
10	10	X	-0.009	-0.009	0	%100
11	11	X	-0.028	-0.028	0	%100
12	18	X	-0.01	-0.01	0	%100
13	19	X	-0.01	-0.01	0	%100
14	22	X	-0.01	-0.01	0	%100
15	23	X	-0.025	-0.025	0	%100
16	29	X	-0.01	-0.01	0	%100
17	32	X	-0.017	-0.017	0	%100
18	33	X	-0.014	-0.014	0	%100
19	34	X	-0.021	-0.021	0	%100
20	35	X	-0.014	-0.014	0	%100
21	36	X	-0.021	-0.021	0	%100
22	37	X	-0.021	-0.021	0	%100
23	39	X	-0.025	-0.025	0	%100
24	40	X	-0.021	-0.021	0	%100
25	41	X	-0.009	-0.009	0	%100
26	43	X	-0.009	-0.009	0	%100
27	45	X	-0.028	-0.028	0	%100
28	51	X	-0.017	-0.017	0	%100
29	52	X	-0.014	-0.014	0	%100
30	53	X	-0.021	-0.021	0	%100
31	54	X	-0.014	-0.014	0	%100
32	55	X	-0.021	-0.021	0	%100
33	56	X	-0.021	-0.021	0	%100
34	58	X	-0.025	-0.025	0	%100
35	59	X	-0.021	-0.021	0	%100
36	60	X	-0.009	-0.009	0	%100
37	62	X	-0.009	-0.009	0	%100
38	64	X	-0.028	-0.028	0	%100
39	69	X	-0.012	-0.012	0	%100
40	72	X	-0.01	-0.01	0	%100
41	75	X	-0.01	-0.01	0	%100
42	77	X	-0.01	-0.01	0	%100
43	79	X	-0.01	-0.01	0	%100
44	80	X	-0.012	-0.012	0	%100
45	83	X	-0.01	-0.01	0	%100
46	86	X	-0.01	-0.01	0	%100
47	88	X	-0.01	-0.01	0	%100
48	90	X	-0.01	-0.01	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.005	-0.005	0	%100
2	2	Z	-0.005	-0.005	0	%100
3	3	Z	-0.005	-0.005	0	%100
4	4	Z	-0.009	-0.009	0	%100
5	5	Z	-0.009	-0.009	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.01	-0.01	0	%100
8	8	Z	-0.01	-0.01	0	%100
9	9	Z	-0.004	-0.004	0	%100
10	10	Z	-0.004	-0.004	0	%100
11	11	Z	-0.007	-0.007	0	%100
12	18	Z	-0.002	-0.002	0	%100
13	19	Z	-0.002	-0.002	0	%100
14	22	Z	-0.002	-0.002	0	%100
15	23	Z	-0.007	-0.007	0	%100
16	29	Z	-0.002	-0.002	0	%100
17	32	Z	-0.005	-0.005	0	%100
18	33	Z	-0.005	-0.005	0	%100
19	34	Z	-0.01	-0.01	0	%100
20	35	Z	-0.005	-0.005	0	%100
21	36	Z	-0.01	-0.01	0	%100
22	37	Z	-0.009	-0.009	0	%100
23	39	Z	-0.007	-0.007	0	%100
24	40	Z	-0.009	-0.009	0	%100
25	41	Z	-0.004	-0.004	0	%100
26	43	Z	-0.004	-0.004	0	%100
27	45	Z	-0.007	-0.007	0	%100
28	51	Z	-0.005	-0.005	0	%100
29	52	Z	-0.005	-0.005	0	%100
30	53	Z	-0.01	-0.01	0	%100
31	54	Z	-0.005	-0.005	0	%100
32	55	Z	-0.01	-0.01	0	%100
33	56	Z	-0.009	-0.009	0	%100
34	58	Z	-0.007	-0.007	0	%100
35	59	Z	-0.009	-0.009	0	%100
36	60	Z	-0.004	-0.004	0	%100
37	62	Z	-0.004	-0.004	0	%100
38	64	Z	-0.007	-0.007	0	%100
39	69	Z	-0.002	-0.002	0	%100
40	72	Z	-0.002	-0.002	0	%100
41	75	Z	-0.002	-0.002	0	%100
42	77	Z	-0.002	-0.002	0	%100
43	79	Z	-0.002	-0.002	0	%100
44	80	Z	-0.002	-0.002	0	%100
45	83	Z	-0.002	-0.002	0	%100
46	86	Z	-0.002	-0.002	0	%100
47	88	Z	-0.002	-0.002	0	%100
48	90	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.005	-0.005	0	%100
2	2	X	-0.005	-0.005	0	%100
3	3	X	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
4	4	X	-0.009	-0.009	0	%100
5	5	X	-0.009	-0.009	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.01	-0.01	0	%100
8	8	X	-0.01	-0.01	0	%100
9	9	X	-0.004	-0.004	0	%100
10	10	X	-0.004	-0.004	0	%100
11	11	X	-0.007	-0.007	0	%100
12	18	X	-0.002	-0.002	0	%100
13	19	X	-0.002	-0.002	0	%100
14	22	X	-0.002	-0.002	0	%100
15	23	X	-0.007	-0.007	0	%100
16	29	X	-0.002	-0.002	0	%100
17	32	X	-0.005	-0.005	0	%100
18	33	X	-0.005	-0.005	0	%100
19	34	X	-0.01	-0.01	0	%100
20	35	X	-0.005	-0.005	0	%100
21	36	X	-0.01	-0.01	0	%100
22	37	X	-0.009	-0.009	0	%100
23	39	X	-0.007	-0.007	0	%100
24	40	X	-0.009	-0.009	0	%100
25	41	X	-0.004	-0.004	0	%100
26	43	X	-0.004	-0.004	0	%100
27	45	X	-0.007	-0.007	0	%100
28	51	X	-0.005	-0.005	0	%100
29	52	X	-0.005	-0.005	0	%100
30	53	X	-0.01	-0.01	0	%100
31	54	X	-0.005	-0.005	0	%100
32	55	X	-0.01	-0.01	0	%100
33	56	X	-0.009	-0.009	0	%100
34	58	X	-0.007	-0.007	0	%100
35	59	X	-0.009	-0.009	0	%100
36	60	X	-0.004	-0.004	0	%100
37	62	X	-0.004	-0.004	0	%100
38	64	X	-0.007	-0.007	0	%100
39	69	X	-0.002	-0.002	0	%100
40	72	X	-0.002	-0.002	0	%100
41	75	X	-0.002	-0.002	0	%100
42	77	X	-0.002	-0.002	0	%100
43	79	X	-0.002	-0.002	0	%100
44	80	X	-0.002	-0.002	0	%100
45	83	X	-0.002	-0.002	0	%100
46	86	X	-0.002	-0.002	0	%100
47	88	X	-0.002	-0.002	0	%100
48	90	X	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.001	-0.001	0	%100
5	5	Z	-0.001	-0.001	0	%100
6	6	Z	-0.0004	-0.0004	0	%100
7	7	Z	-0.001	-0.001	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
8	8	Z	-0.001	-0.001	0	%100
9	9	Z	-0.0006	-0.0006	0	%100
10	10	Z	-0.0006	-0.0006	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	18	Z	-0.0003	-0.0003	0	%100
13	19	Z	-0.0003	-0.0003	0	%100
14	22	Z	-0.0003	-0.0003	0	%100
15	23	Z	-0.002	-0.002	0	%100
16	29	Z	-0.0003	-0.0003	0	%100
17	32	Z	-0.001	-0.001	0	%100
18	33	Z	-0.001	-0.001	0	%100
19	34	Z	-0.001	-0.001	0	%100
20	35	Z	-0.001	-0.001	0	%100
21	36	Z	-0.001	-0.001	0	%100
22	37	Z	-0.001	-0.001	0	%100
23	39	Z	-0.002	-0.002	0	%100
24	40	Z	-0.001	-0.001	0	%100
25	41	Z	-0.0006	-0.0006	0	%100
26	43	Z	-0.0006	-0.0006	0	%100
27	45	Z	-0.002	-0.002	0	%100
28	51	Z	-0.001	-0.001	0	%100
29	52	Z	-0.001	-0.001	0	%100
30	53	Z	-0.001	-0.001	0	%100
31	54	Z	-0.001	-0.001	0	%100
32	55	Z	-0.001	-0.001	0	%100
33	56	Z	-0.001	-0.001	0	%100
34	58	Z	-0.002	-0.002	0	%100
35	59	Z	-0.001	-0.001	0	%100
36	60	Z	-0.0006	-0.0006	0	%100
37	62	Z	-0.0006	-0.0006	0	%100
38	64	Z	-0.002	-0.002	0	%100
39	69	Z	-0.0004	-0.0004	0	%100
40	72	Z	-0.0003	-0.0003	0	%100
41	75	Z	-0.0003	-0.0003	0	%100
42	77	Z	-0.0003	-0.0003	0	%100
43	79	Z	-0.0003	-0.0003	0	%100
44	80	Z	-0.0004	-0.0004	0	%100
45	83	Z	-0.0003	-0.0003	0	%100
46	86	Z	-0.0003	-0.0003	0	%100
47	88	Z	-0.0003	-0.0003	0	%100
48	90	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.0004	-0.0004	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.001	-0.001	0	%100
9	9	X	-0.0006	-0.0006	0	%100
10	10	X	-0.0006	-0.0006	0	%100
11	11	X	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
12	18	X	-0.0003	-0.0003	0	%100
13	19	X	-0.0003	-0.0003	0	%100
14	22	X	-0.0003	-0.0003	0	%100
15	23	X	-0.002	-0.002	0	%100
16	29	X	-0.0003	-0.0003	0	%100
17	32	X	-0.001	-0.001	0	%100
18	33	X	-0.001	-0.001	0	%100
19	34	X	-0.001	-0.001	0	%100
20	35	X	-0.001	-0.001	0	%100
21	36	X	-0.001	-0.001	0	%100
22	37	X	-0.001	-0.001	0	%100
23	39	X	-0.002	-0.002	0	%100
24	40	X	-0.001	-0.001	0	%100
25	41	X	-0.0006	-0.0006	0	%100
26	43	X	-0.0006	-0.0006	0	%100
27	45	X	-0.002	-0.002	0	%100
28	51	X	-0.001	-0.001	0	%100
29	52	X	-0.001	-0.001	0	%100
30	53	X	-0.001	-0.001	0	%100
31	54	X	-0.001	-0.001	0	%100
32	55	X	-0.001	-0.001	0	%100
33	56	X	-0.001	-0.001	0	%100
34	58	X	-0.002	-0.002	0	%100
35	59	X	-0.001	-0.001	0	%100
36	60	X	-0.0006	-0.0006	0	%100
37	62	X	-0.0006	-0.0006	0	%100
38	64	X	-0.002	-0.002	0	%100
39	69	X	-0.0004	-0.0004	0	%100
40	72	X	-0.0003	-0.0003	0	%100
41	75	X	-0.0003	-0.0003	0	%100
42	77	X	-0.0003	-0.0003	0	%100
43	79	X	-0.0003	-0.0003	0	%100
44	80	X	-0.0004	-0.0004	0	%100
45	83	X	-0.0003	-0.0003	0	%100
46	86	X	-0.0003	-0.0003	0	%100
47	88	X	-0.0003	-0.0003	0	%100
48	90	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.009	-0.009	0	%100
2	2	Y	-0.007	-0.007	0	%100
3	3	Y	-0.007	-0.007	0	%100
4	4	Y	-0.01	-0.01	0	%100
5	5	Y	-0.01	-0.01	0	%100
6	6	Y	-0.006	-0.006	0	%100
7	7	Y	-0.01	-0.01	0	%100
8	8	Y	-0.01	-0.01	0	%100
9	9	Y	-0.005	-0.005	0	%100
10	10	Y	-0.005	-0.005	0	%100
11	11	Y	-0.012	-0.012	0	%100
12	18	Y	-0.005	-0.005	0	%100
13	19	Y	-0.005	-0.005	0	%100
14	22	Y	-0.005	-0.005	0	%100
15	23	Y	-0.012	-0.012	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	29	Y	-0.005	-0.005	0	%100
17	32	Y	-0.009	-0.009	0	%100
18	33	Y	-0.007	-0.007	0	%100
19	34	Y	-0.01	-0.01	0	%100
20	35	Y	-0.007	-0.007	0	%100
21	36	Y	-0.01	-0.01	0	%100
22	37	Y	-0.01	-0.01	0	%100
23	39	Y	-0.012	-0.012	0	%100
24	40	Y	-0.01	-0.01	0	%100
25	41	Y	-0.005	-0.005	0	%100
26	43	Y	-0.005	-0.005	0	%100
27	45	Y	-0.012	-0.012	0	%100
28	51	Y	-0.009	-0.009	0	%100
29	52	Y	-0.007	-0.007	0	%100
30	53	Y	-0.01	-0.01	0	%100
31	54	Y	-0.007	-0.007	0	%100
32	55	Y	-0.01	-0.01	0	%100
33	56	Y	-0.01	-0.01	0	%100
34	58	Y	-0.012	-0.012	0	%100
35	59	Y	-0.01	-0.01	0	%100
36	60	Y	-0.005	-0.005	0	%100
37	62	Y	-0.005	-0.005	0	%100
38	64	Y	-0.012	-0.012	0	%100
39	69	Y	-0.006	-0.006	0	%100
40	72	Y	-0.005	-0.005	0	%100
41	75	Y	-0.005	-0.005	0	%100
42	77	Y	-0.005	-0.005	0	%100
43	79	Y	-0.005	-0.005	0	%100
44	80	Y	-0.006	-0.006	0	%100
45	83	Y	-0.005	-0.005	0	%100
46	86	Y	-0.005	-0.005	0	%100
47	88	Y	-0.005	-0.005	0	%100
48	90	Y	-0.005	-0.005	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.001	-0.001	0	%100
3	3	Z	-0.001	-0.001	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.002	-0.002	0	%100
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.0008	-0.0008	0	%100
10	10	Z	-0.0008	-0.0008	0	%100
11	11	Z	-0.003	-0.003	0	%100
12	18	Z	-0.002	-0.002	0	%100
13	19	Z	-0.002	-0.002	0	%100
14	22	Z	-0.002	-0.002	0	%100
15	23	Z	-0.002	-0.002	0	%100
16	29	Z	-0.002	-0.002	0	%100
17	32	Z	-0.002	-0.002	0	%100
18	33	Z	-0.001	-0.001	0	%100
19	34	Z	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
20	35	Z	-0.001	-0.001	0	%100
21	36	Z	-0.002	-0.002	0	%100
22	37	Z	-0.002	-0.002	0	%100
23	39	Z	-0.002	-0.002	0	%100
24	40	Z	-0.002	-0.002	0	%100
25	41	Z	-0.0008	-0.0008	0	%100
26	43	Z	-0.0008	-0.0008	0	%100
27	45	Z	-0.003	-0.003	0	%100
28	51	Z	-0.002	-0.002	0	%100
29	52	Z	-0.001	-0.001	0	%100
30	53	Z	-0.002	-0.002	0	%100
31	54	Z	-0.001	-0.001	0	%100
32	55	Z	-0.002	-0.002	0	%100
33	56	Z	-0.002	-0.002	0	%100
34	58	Z	-0.002	-0.002	0	%100
35	59	Z	-0.002	-0.002	0	%100
36	60	Z	-0.0008	-0.0008	0	%100
37	62	Z	-0.0008	-0.0008	0	%100
38	64	Z	-0.003	-0.003	0	%100
39	69	Z	-0.002	-0.002	0	%100
40	72	Z	-0.002	-0.002	0	%100
41	75	Z	-0.002	-0.002	0	%100
42	77	Z	-0.002	-0.002	0	%100
43	79	Z	-0.002	-0.002	0	%100
44	80	Z	-0.002	-0.002	0	%100
45	83	Z	-0.002	-0.002	0	%100
46	86	Z	-0.002	-0.002	0	%100
47	88	Z	-0.002	-0.002	0	%100
48	90	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.001	-0.001	0	%100
3	3	X	-0.001	-0.001	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.002	-0.002	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.0008	-0.0008	0	%100
10	10	X	-0.0008	-0.0008	0	%100
11	11	X	-0.003	-0.003	0	%100
12	18	X	-0.002	-0.002	0	%100
13	19	X	-0.002	-0.002	0	%100
14	22	X	-0.002	-0.002	0	%100
15	23	X	-0.002	-0.002	0	%100
16	29	X	-0.002	-0.002	0	%100
17	32	X	-0.002	-0.002	0	%100
18	33	X	-0.001	-0.001	0	%100
19	34	X	-0.002	-0.002	0	%100
20	35	X	-0.001	-0.001	0	%100
21	36	X	-0.002	-0.002	0	%100
22	37	X	-0.002	-0.002	0	%100
23	39	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
24	40	X	-0.002	-0.002	0	%100
25	41	X	-0.0008	-0.0008	0	%100
26	43	X	-0.0008	-0.0008	0	%100
27	45	X	-0.003	-0.003	0	%100
28	51	X	-0.002	-0.002	0	%100
29	52	X	-0.001	-0.001	0	%100
30	53	X	-0.002	-0.002	0	%100
31	54	X	-0.001	-0.001	0	%100
32	55	X	-0.002	-0.002	0	%100
33	56	X	-0.002	-0.002	0	%100
34	58	X	-0.002	-0.002	0	%100
35	59	X	-0.002	-0.002	0	%100
36	60	X	-0.0008	-0.0008	0	%100
37	62	X	-0.0008	-0.0008	0	%100
38	64	X	-0.003	-0.003	0	%100
39	69	X	-0.002	-0.002	0	%100
40	72	X	-0.002	-0.002	0	%100
41	75	X	-0.002	-0.002	0	%100
42	77	X	-0.002	-0.002	0	%100
43	79	X	-0.002	-0.002	0	%100
44	80	X	-0.002	-0.002	0	%100
45	83	X	-0.002	-0.002	0	%100
46	86	X	-0.002	-0.002	0	%100
47	88	X	-0.002	-0.002	0	%100
48	90	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	43	Y	-0.016	-0.035	1.155	2.309
2	9	Y	-0.014	-0.016	0	2.078
3	10	Y	-0.014	-0.02	0.231	1.27
4	10	Y	-0.02	-0.026	1.27	2.309
5	60	Y	-0.035	-0.016	0	1.155
6	60	Y	-0.016	0.0006164	1.155	2.309
7	62	Y	-0.018	-0.016	0.231	2.309
8	41	Y	-0.017	-0.017	0	2.078
9	43	Y	0.0006164	-0.016	0	1.155

Member Distributed Loads (BLC 31 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	41	Y	-0.009	-0.009	0	2.078
2	43	Y	0.0003232	-0.008	0	1.155
3	43	Y	-0.008	-0.018	1.155	2.309
4	9	Y	-0.008	-0.008	0	2.078
5	10	Y	-0.007	-0.011	0.231	1.27
6	10	Y	-0.011	-0.014	1.27	2.309
7	60	Y	-0.018	-0.008	0	1.155
8	60	Y	-0.008	0.0003232	1.155	2.309
9	62	Y	-0.009	-0.008	0.231	2.309

Member Area Loads (BLC 1 : Dead)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	79	56	78	77	Y	Two Way	-0.01
2	23	22	25	24	Y	Two Way	-0.01
3	85	108	106	107	Y	Two Way	-0.01

Member Area Loads (BLC 8 : Ice)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	79	56	78	77	Y	Two Way	-0.005
2	23	22	25	24	Y	Two Way	-0.005
3	85	108	106	107	Y	Two Way	-0.005

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	30	L	Y	-0.5
2	146	L	Y	-0.5
3	124	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	145	L	Y	-0.5
2	123	L	Y	-0.5
3	31	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	46	L	Y	-0.5
2	136	L	Y	-0.5
3	114	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		20		3
2	0 Wind - No Ice	WLZ			20	48	
3	90 Wind - No Ice	WLX			20	48	
4	0 Wind - Ice	WLZ			20	48	
5	90 Wind - Ice	WLX			20	48	
6	0 Wind - Service	WLZ			20	48	
7	90 Wind - Service	WLX			20	48	
8	Ice	OL1			20	48	3
9	0 Seismic	ELZ			20	48	
10	90 Seismic	ELX			20	48	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL					
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	BLC 1 Transient Area Loads	None				9	
31	BLC 8 Transient Area Loads	None				9	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
0	1	max	1.105	5	1.681	14	1.008	2	3.289	2	1.087	11	0.256	97
1		min	-1.106	11	0.145	8	-1.132	8	-0.189	8	-1.087	5	-0.27	89
2	58	max	1	5	1.731	18	1.281	2	0.042	13	1.203	3	0.02	12
3		min	-1.107	11	0.224	12	-1.219	8	-1.791	43	-1.204	9	-2.87	66
4	87	max	1.072	5	1.669	22	1.217	2	0.051	3	1.171	7	2.848	46
5		min	-0.964	11	0.194	4	-1.155	8	-1.783	69	-1.17	13	-0.043	4
6	Totals:	max	3.177	5	4.718	56	3.506	2						
7		min	-3.177	11	2.468	2	-3.506	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
0	32	HSS4X4X2	0.449	0	7	0.109	0	y	44	70.173	73.278	8.24	8.24	2.051	H1-1b
1	51	HSS4X4X2	0.443	0	9	0.109	0	y	68	70.173	73.278	8.24	8.24	2.043	H1-1b
2	1	HSS4X4X2	0.443	0	13	0.109	0	y	39	70.173	73.278	8.24	8.24	2.039	H1-1b
3	33	C3.38X2.06X0.188	0.332	0	57	0.069	2.241	y	49	38.433	43.394	1.703	4.483	1.62	H1-1b
4	2	C3.38X2.06X0.188	0.332	2.592	60	0.06	0.351	y	65	38.433	43.394	1.703	4.483	1.62	H1-1b
5	35	C3.38X2.06X0.188	0.331	2.592	51	0.06	0.351	y	69	38.433	43.394	1.703	4.483	1.618	H1-1b
6	3	C3.38X2.06X0.188	0.331	0	52	0.068	2.241	y	45	38.433	43.394	1.703	4.483	1.619	H1-1b
7	54	C3.38X2.06X0.188	0.331	2.592	55	0.06	0.351	y	73	38.433	43.394	1.703	4.483	1.62	H1-1b
8	52	C3.38X2.06X0.188	0.331	0	61	0.068	2.241	y	41	38.433	43.394	1.703	4.483	1.618	H1-1b
9	11	L7.63X2.5X6	0.26	1.604	8	0.074	3.207	z	39	75.414	118.523	1.798	13.323	1.155	H2-1
10	64	L7.63X2.5X6	0.242	1.604	4	0.074	0	z	70	75.414	118.523	1.798	13.177	1.127	H2-1
11	45	L7.63X2.5X6	0.241	1.604	12	0.074	3.207	z	43	75.414	118.523	1.798	13.166	1.125	H2-1
12	10	L2X2X4	0.204	2.309	8	0.033	0	y	64	23.349	30.586	0.691	1.577	1.5	H2-1
13	9	L2X2X4	0.202	0	8	0.033	2.309	y	48	23.349	30.586	0.691	1.577	1.5	H2-1
14	60	L2X2X4	0.192	0	3	0.033	2.309	y	44	23.349	30.586	0.691	1.577	1.5	H2-1
15	43	L2X2X4	0.191	2.309	13	0.033	0	y	68	23.349	30.586	0.691	1.577	1.5	H2-1
16	62	L2X2X4	0.19	2.309	4	0.033	0	y	73	23.349	30.586	0.691	1.577	1.5	H2-1
17	41	L2X2X4	0.189	0	12	0.033	2.309	y	39	23.349	30.586	0.691	1.577	1.5	H2-1
18	58	L6.63X4.33X.25	0.162	3.25	2	0.022	3.25	y	13	51.794	86.751	2.311	6.976	1.5	H2-1
19	39	L6.63X4.33X.25	0.162	0	2	0.022	3.25	y	9	51.794	86.751	2.311	6.976	1.5	H2-1
20	23	L6.63X4.33X.25	0.148	0	10	0.019	0	y	11	51.794	86.751	2.311	6.976	1.5	H2-1
21	86	PIPE_2.88X0.203	0.112	5.667	7	0.041	5.667		7	35.519	70.68	5.029	5.029	1	H1-1b
22	75	PIPE_2.88X0.203	0.112	5.667	9	0.041	5.667		3	35.519	70.68	5.029	5.029	1	H1-1b
23	34	PL3/8"X6	0.111	0.208	7	0.2	0.208	y	53	70.882	72.9	0.57	9.113	2.979	H1-1b
24	55	PL3/8"X6	0.11	0	9	0.199	0	y	59	70.882	72.9	0.57	9.113	2.977	H1-1b
25	8	PL3/8"X6	0.109	0	13	0.2	0	y	51	70.882	72.9	0.57	9.113	2.964	H1-1b
26	7	PL3/8"X6	0.108	0.208	3	0.2	0.208	y	61	70.882	72.9	0.57	9.113	2.96	H1-1b
27	18	PIPE_2.88X0.203	0.106	5.667	5	0.039	5.667		5	35.519	70.68	5.029	5.029	1	H1-1b
28	72	PIPE_2.88X0.203	0.105	2.333	2	0.033	5.667		13	35.519	70.68	5.029	5.029	1	H1-1b
29	90	PIPE_2.88X0.203	0.105	2.333	2	0.034	5.667		3	35.519	70.68	5.029	5.029	1	H1-1b
30	53	PL3/8"X6	0.102	0.208	11	0.201	0.208	y	57	70.882	72.9	0.57	9.113	2.973	H1-1b
31	36	PL3/8"X6	0.102	0	5	0.202	0	y	55	70.882	72.9	0.57	9.113	2.975	H1-1b
32	29	PIPE_2.88X0.203	0.097	2.333	6	0.036	5.667		8	35.519	70.68	5.029	5.029	1	H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
33	19	PIPE 2.88X0.203	0.097	2.333	10	0.036	5.667		8	35.519	70.68	5.029	5.029	1	H1-1b
34	22	PIPE 2.88X0.203	0.096	2.188	9	0.083	8.854		13	24.131	70.68	5.029	5.029	1	H1-1b
35	79	PIPE 2.88X0.203	0.096	2.333	10	0.032	5.667		12	35.519	70.68	5.029	5.029	1	H1-1b
36	88	PIPE 2.88X0.203	0.096	7.813	3	0.08	8.854		9	24.131	70.68	5.029	5.029	1	H1-1b
37	77	PIPE 2.88X0.203	0.096	2.188	13	0.08	1.146		7	24.131	70.68	5.029	5.029	1	H1-1b
38	83	PIPE 2.88X0.203	0.095	2.333	6	0.032	5.667		4	35.519	70.68	5.029	5.029	1	H1-1b
39	4	PL3/8"X6	0.075	0	13	0.135	0	y	62	68.997	72.9	0.57	9.113	2.039	H1-1b
40	5	PL3/8"X6	0.075	0	3	0.133	0	y	38	68.997	72.9	0.57	9.113	2.055	H1-1b
41	40	PL3/8"X6	0.073	0	7	0.132	0	y	42	68.997	72.9	0.57	9.113	2.009	H1-1b
42	56	PL3/8"X6	0.073	0	9	0.132	0	y	70	68.997	72.9	0.57	9.113	2.011	H1-1b
43	6	PIPE 3.5X0.165	0.072	4	52	0.04	2.833		5	45.872	71.57	6.336	6.336	1	H1-1b
44	80	PIPE 3.5X0.165	0.072	4	56	0.045	5.167		7	45.872	71.57	6.336	6.336	1	H1-1b
45	69	PIPE 3.5X0.165	0.072	4	52	0.045	2.833		9	45.872	71.57	6.336	6.336	1	H1-1b
46	37	PL3/8"X6	0.069	0	5	0.134	0	y	66	68.997	72.9	0.57	9.113	1.999	H1-1b
47	59	PL3/8"X6	0.069	0	11	0.134	0	y	46	68.997	72.9	0.57	9.113	2.001	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**166957.002.01.0001 - Redding/Rt7, C**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**01/10/24**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	1.281	k
Vertical Shear	:	1.731	k
Horizontal Shear	:	1.107	k
Torsion	:	2.87	k.ft
Moment from Horizontal Forces	:	1.204	k.ft
Moment from Vertical Forces	:	1.791	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	7	in
Bolt spacing, Vertical	:	7	in
Bolt edge distance, plate height	:	1	in
Bolt edge distance, plate width	:	1	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	2.05	k
Force from Horz. Moment	:	1.89	k
Force from Vert. Moment	:	2.82	k
Shear Load / Bolt	:	0.51	k
Tension Load / Bolt	:	0.32	k
Resultant from Moments / Bolt	:	1.70	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**9.74%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	54.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	12.43	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**6.71%**		**OKAY**
Unity Check, Combined	:	**16.45%**		**OKAY**
Available Bearing Strength, ΦR_n	:	18.35	k/bolt	
Unity Check, Bolt Bearing	:	**2.80%**		**OKAY**

APPENDIX E

SUPPLEMENTAL DRAWINGS

NOTES:

1.0 GENERAL
- 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
- 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM

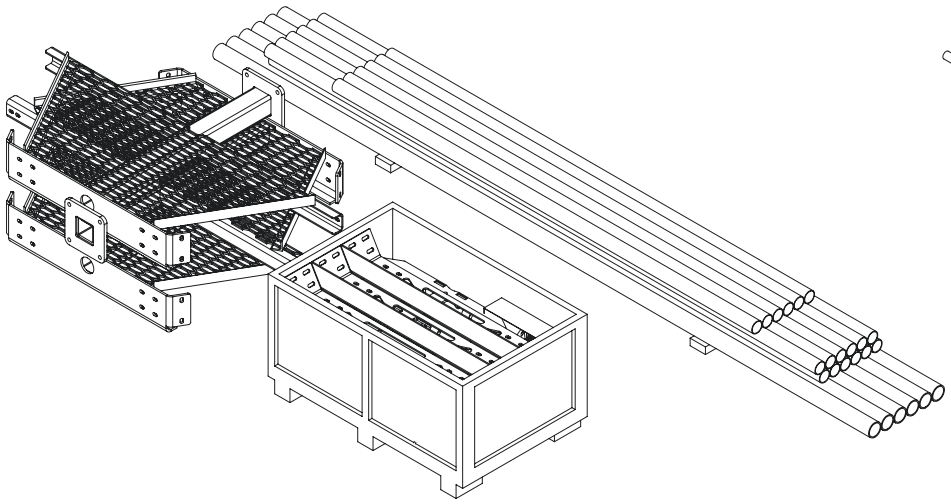
2.0 DESIGN NOTES
- 2.1 TIGHTEN ALL BOLTS SECURING FLAT PLATES BY THE TURN-OF-NUT METHOD. TIGHTEN ALL U-BOLTS USING TURN-OF-NUT METHOD WITH ATTENTION TO LEAVE EQUAL DISTANCE AND EQUAL FORCE ON EACH LEG OF THE U-BOLT.

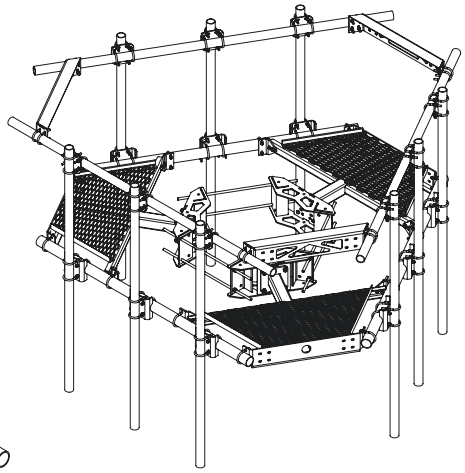
3.0 MANUFACTURING/SPECIAL REQUIREMENTS

4.0 TEST

5.0 PACKAGING
- 5.1 PACKAGING SHALL MEET COMMSCOPE REQUIREMENTS PER DOCUMENT IS-PL-3005.
- 5.2 PRINTED DOCUMENT TO BE PLACED INSIDE POLYBAG AND THEN IN SHIPPING CONTAINER.
- 5.3 EXTRA HARDWARE MAYBE SUPPLIED, BAGGED AND SHIPPED.

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A	10272PC	INITIAL RELEASE	HDAI	03/08/2021
B	14762	SHEET 1: UPDATED NOTE 2.1 & ADDED NOTE 5.1 TO 5.2 SHEET2: REPOSITION ANTENNA PIPES; CHANGED HAND RAIL DISTANCE FORM PLATFORM: 42" WAS 40" IN ZONE B3; DIM Ø12 WAS Ø15 IN ZONE D3; UPDATED ITEM 4: GB-0522A WAS GB-0520A	JL1183	09/10/2021
c	40139639CMO	ADDED WEIGHT AND MASS INFORMATION	LL1090	12/07/2021





PATENT PENDING

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES
1 PLACE .X ± .25
2 PLACE .XX ± 0.12
3 PLACE .XXX ± 0.06
ANGLES ± 2°

SAP MATERIAL MASTER: MC-PK8-DSH

FINISH: GALV A123

MATERIAL: SEE SEPARATE BILLS OF MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y 14.5M-1994

	NAME	DATE
CE	MRC	02/17/20
RW	LL1090	12/07/2021
AD	VCORTEZ1	12/09/2021
RE	VCORTEZ1	12/09/2021

ECN 40139639CMO

TITLE: **LOW PROFILE PLATFORM FACE**

SCALE: 1:32

DOCUMENT NO.: MC-PK8-DSH

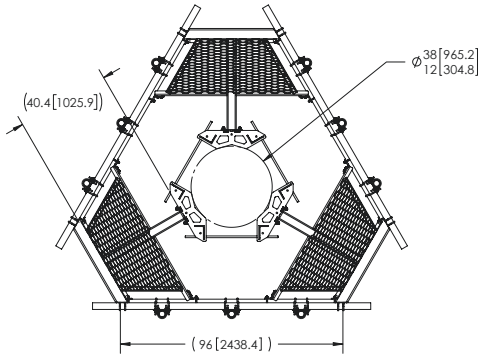
DENSITY		lbs/in³
MASS	1801.56	lbs
VOLUME	6362.00	in³
SURFACE AREA	55884.77	in²
HEIGHT	96"	
LENGTH	46"	
WIDTH	29'	

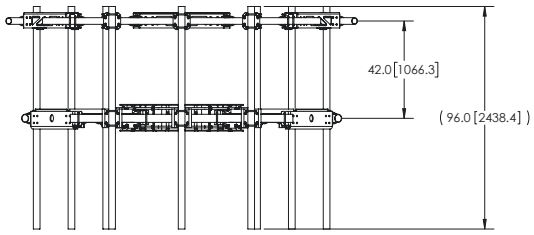
SIZE: C

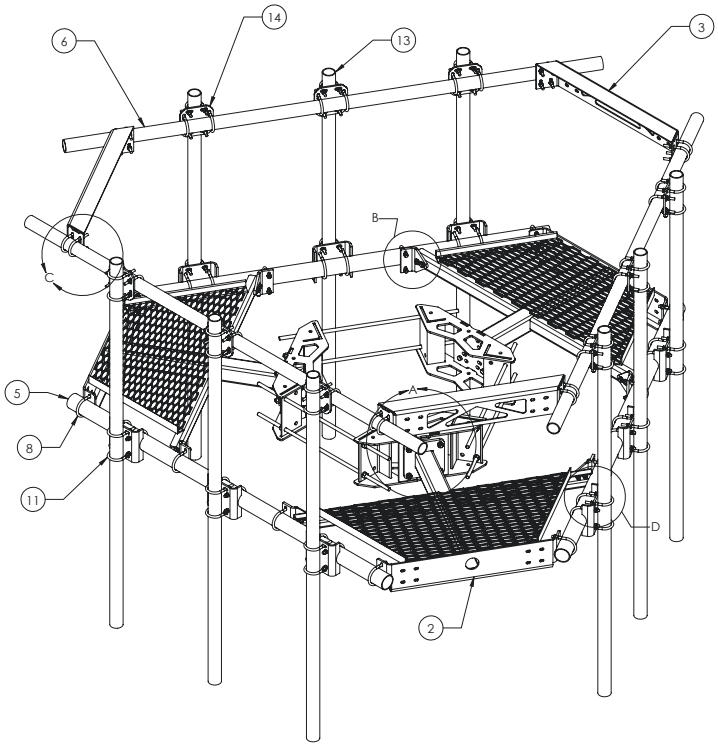
Auth Group: INSL

	MODEL			DRAWING			SHEET
	VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	
	03	RE	B	02	RE	C	1 OF 3

NOTES:







BOM IS FOR REFERENCE ONLY, PART NUMBER SUBSTITUTIONS MAY BE MADE

ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	GB-0522A	5/8" X 2-1/4" GALV BOLT KIT (A325)	12
5	MT54796	3.50" OD X 96" GALV PIPE	3
6	MT546120	2.875" O.D. X 120" PIPE	3
7	GWF-04	1/2" GALV FLAT WASHER	12
8	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12
9	MTC300618	MOUNTING PLATE FOR MT-196	6
10	GB-04205	1/2" X 2" GALV BOLT KIT	12
11	MT-219M-H	3.5" OD X 2-7/8" OD CLAMP BRACKET ASSY	9
12	GUB-4352	1/2" X 3" X 5-1/4" GALV U-BOLT	12
13	MT54696	Ø2.875" O.D. X 96 PIPE	9
14	XP-2525	CROSSOVER PLATE KIT, 2-7/8 OD X 2-7/8 OD	9

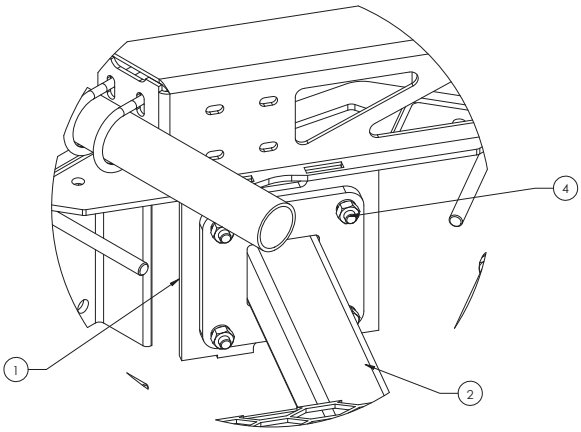
COMMSCOPE, INC. OF NORTH CAROLINA

TITLE: LOW PROFILE PLATFORM FACE

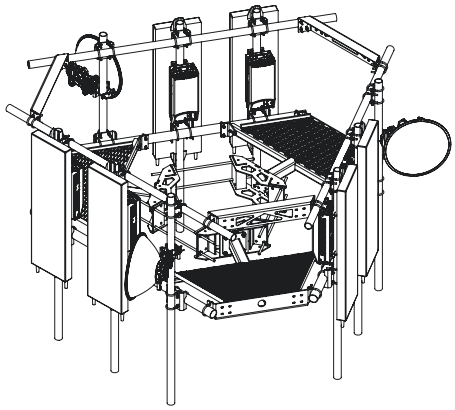
SIZE	SCALE	DOCUMENT NO.
C	1:32	MC-PK8-DSH

DRAWING			SHEET
VERSION	STATUS	REVISION	
02	RE	C	

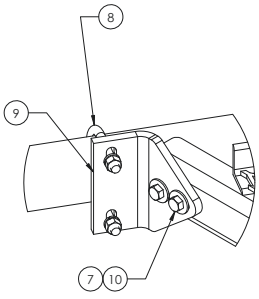
NOTES:



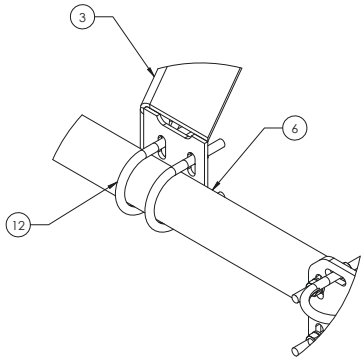
DETAIL A
SCALE 1 : 4



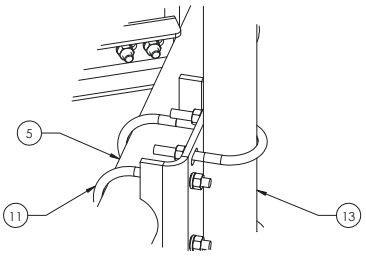
WITH ANTENNAS



DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 4

COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE: LOW PROFILE PLATFORM FACE			
SIZE: C	SCALE: 1:24	DOCUMENT NO.: MC-PK8-DSH	
		DRAWING: VERSION 02 / STATUS RE / REVISION C	SHEET: 3 OF 3

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Dish Existing Facility

Site ID: NJJER02036B

845 Ethan Allen Highway
Ridgefield, Connecticut 06877

December 29, 2023

EBI Project Number: 6223004351

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**4.87%**

December 29, 2023

Dish
Attn: Matthew Hague
1200 MacArthur Boulevard, Suite 200
Mahwah, New Jersey 7430

Emissions Analysis for Site: NJJER02036B

EBI Consulting was directed to analyze the proposed Dish facility located at **845 Ethan Allen Highway** in **Ridgefield, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless antenna facility located at 845 Ethan Allen Highway in Ridgefield, Connecticut using the equipment information listed below. Modeling of the antennas and associated equipment was completed using RoofMaster™ software, which is a widely-used predictive modeling program that has been developed to predict RF power density values for rooftop and tower telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. Using the computational methods set forth in Federal Communications (FCC) Office of Engineering & Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65), RoofMaster™ calculates predicted power density in a scalable grid based on the contributions of all RF sources characterized in the study scenario. At each grid location, the cumulative power density is expressed as a percentage of the FCC limits. Manufacturer antenna pattern data is utilized in these calculations. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

Since Dish is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, telecommunications equipment was modeled using the following assumptions:

1) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

2) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 1 LTE channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the COMMSCOPE FVV-65B-R3 02DT for the 600 MHz, 1900 MHz, 2100 MHz channels in Sector A, the COMMSCOPE FVV-65B-R3 02DT for the 600 MHz, 1900 MHz, 2100 MHz channels in Sector B, the COMMSCOPE FVV-65B-R3 02DT for the 600 MHz, 1900 MHz, 2100 MHz channels in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 82 feet above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database or documents available on the Connecticut Siting Council website (https://portal.ct.gov/CSC). Values in the database are provided by the individual carriers themselves.

9) All calculations were done in Far Field mode with respect to uncontrolled / general population threshold limits.

Dish Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	COMMSCOPE FVV-65B-R3 02DT	Make / Model:	COMMSCOPE FVV-65B-R3 02DT	Make / Model:	COMMSCOPE FVV-65B-R3 02DT
Frequency Bands:	600 MHz, 1900 MHz, 2100 MHz	Frequency Bands:	600 MHz, 1900 MHz, 2100 MHz	Frequency Bands:	600 MHz, 1900 MHz, 2100 MHz
Gain:	11.48 dBd, 15.17 dBd, 16.12 dBd	Gain:	11.48 dBd, 15.17 dBd, 16.12 dBd	Gain:	11.48 dBd, 15.17 dBd, 16.12 dBd
Height (AGL):	82 feet	Height (AGL):	82 feet	Height (AGL):	82 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	560.00 Watts	Total TX Power (W):	560.00 Watts	Total TX Power (W):	560.00 Watts
ERP (W):	13,533.03	ERP (W):	13,533.03	ERP (W):	13,533.03
Antenna A1 MPE %:	**1.64%**	Antenna B1 MPE %:	**0.92%**	Antenna C1 MPE %:	**0.92%**

Site Composite MPE %	
Carrier	**MPE %**
Dish (Combined Sectors):	1.64%
Verizon	3.95%
Site Total MPE % :	4.87%

Dish MPE % Per Sector	
Dish Sector A Total:	1.64%
Dish Sector B Total:	0.92%
Dish Sector C Total:	0.92%
Dish Total MPE % :	1.64%

Dish Maximum MPE Power Values (Sector A)

Dish Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish 600 MHz LTE	2	3008	82.0	18.71977389	600 MHz LTE	400	1.64
Dish 1900 MHz LTE PCS	2	4689	82.0	29.18833617	1900 MHz LTE PCS	1000	1.64
Dish 2100 MHz LTE AWS	2	5836	82.0	36.32531086	2100 MHz LTE AWS	1000	1.64
						Dish Total:	**1.64**

• NOTE: Total Dish MPE values reflect all Dish antennas as reported by RoofMaster™ combined modeling.
• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Sector	Power Density Value (%)
Sector A:	1.64%
Sector B:	0.92%
Sector C:	0.92%
Dish Maximum MPE % (Sector A):	1.64%
Dish Combined Sectors MPE %:	0.92%
Site Total:	4.87%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **4.87%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions or documents available on the Connecticut Siting Council website. The estimated Dish MPE value for this site is 1.64% of the allowable FCC established general population limit modeled at the nearest walking surface level.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

DISH Wireless L.L.C. SITE ID:

NJJER02036B

DISH Wireless L.L.C. SITE ADDRESS:

845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

CONNECTICUT CODE OF COMPLIANCE

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

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SHEET INDEX

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (2) PROPOSED ANTENNA FLUSH MOUNTS
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE
- INSTALL (1) PROPOSED CABLE CLAMP

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

SITE PHOTO

NOTE
ATTACHMENT MONOPOLE NOT SHOWN, NOT BUILT.

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

SITE INFORMATION

PROPERTY OWNER:	845 LLC
ADDRESS:	107 LORDS HIGHWAY WESTON, CT 06883
TOWER TYPE:	CONCEALMENT MONOPOLE
TOWER CO SITE ID:	826927
TOWER APP NUMBER:	640223
COUNTY:	FAIRFIELD
LATITUDE (NAD 83):	41° 18' 46.92" N 41.3130373
LONGITUDE (NAD 83):	73° 28' 20.73" W -73.4746137
ZONING JURISDICTION:	TBD
ZONING DISTRICT:	RIDGEFIELD
PARCEL NUMBER:	G10-0015
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

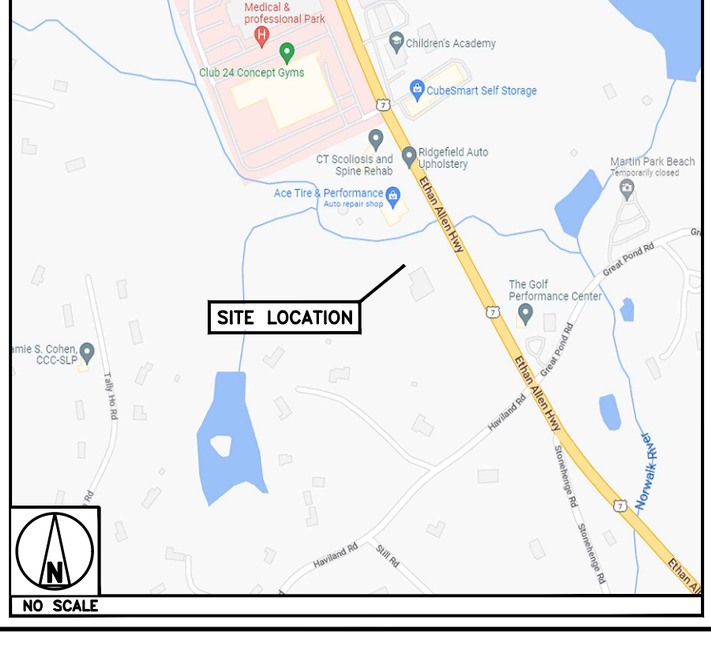
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486 - 9377
SITE DESIGNER:	KMB DESIGN GROUP, LLC 1800 ROUTE 34, SUITE 209 WALL, NJ 07719 (732) 280-5623
SITE ACQUISITION:	VICTRO NUNEZ victor.nunez@crowncastle.com
CONSTRUCTION MANAGER:	ARNALDO ARROYO Arnaldo.Arroyo@dish.com
RF ENGINEER:	SRIRAM GOTTUMUKKALA SriRam.Gottumukkala@dish.com

DIRECTIONS

DIRECTIONS FROM LAGUARDIA AIRPORT:

GET ON GRAND CENTRAL PKWY, HEAD WEST TOWARD 94TH ST, USE THE LEFT 2 LANES TO TURN LEFT ONTO 94TH ST, USE THE RIGHT LANE TO TAKE THE GRAND CENTRAL PKWY EAST RAMP TO EASTERN LONG IS FOLLOW I-678 N, HUTCHINSON RIVER PKWY N AND I-95 N TO US-7 N IN NORWALK, MERGE WITH GRAND CENTRAL PKWY, TAKE EXIT 9E FOR WHITESTONE EXPWY/NY-25A E/NORTHERN BLVD TOWARD I-678/AIRPORT LGA, KEEP LEFT, FOLLOW SIGNS FOR I-678/VAN WYCK EXPY/WHITESTONE BRG/KENNEDY ARPT, CONTINUE ONTO WHITESTONE EXPY, MERGE WITH I-678 N/WHITESTONE EXPY, KEEP RIGHT TO STAY ON I-678 N, CONTINUE ONTO HUTCHINSON RIVER PKWY N, TAKE EXIT 4A TO MERGE WITH I-95 N TOWARD NEW HAVEN, TAKE EXIT 15 FOR US-7 TOWARD NORWALK/DANBURY, CONTINUE ONTO US-7, ARRIVE AT 845 ETHAN ALLEN HWY, ARRIVE AT 845 ETHAN ALLEN HIGHWAY, RIDGEFIELD, CT 06877.

VICINITY MAP



dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.A10

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE

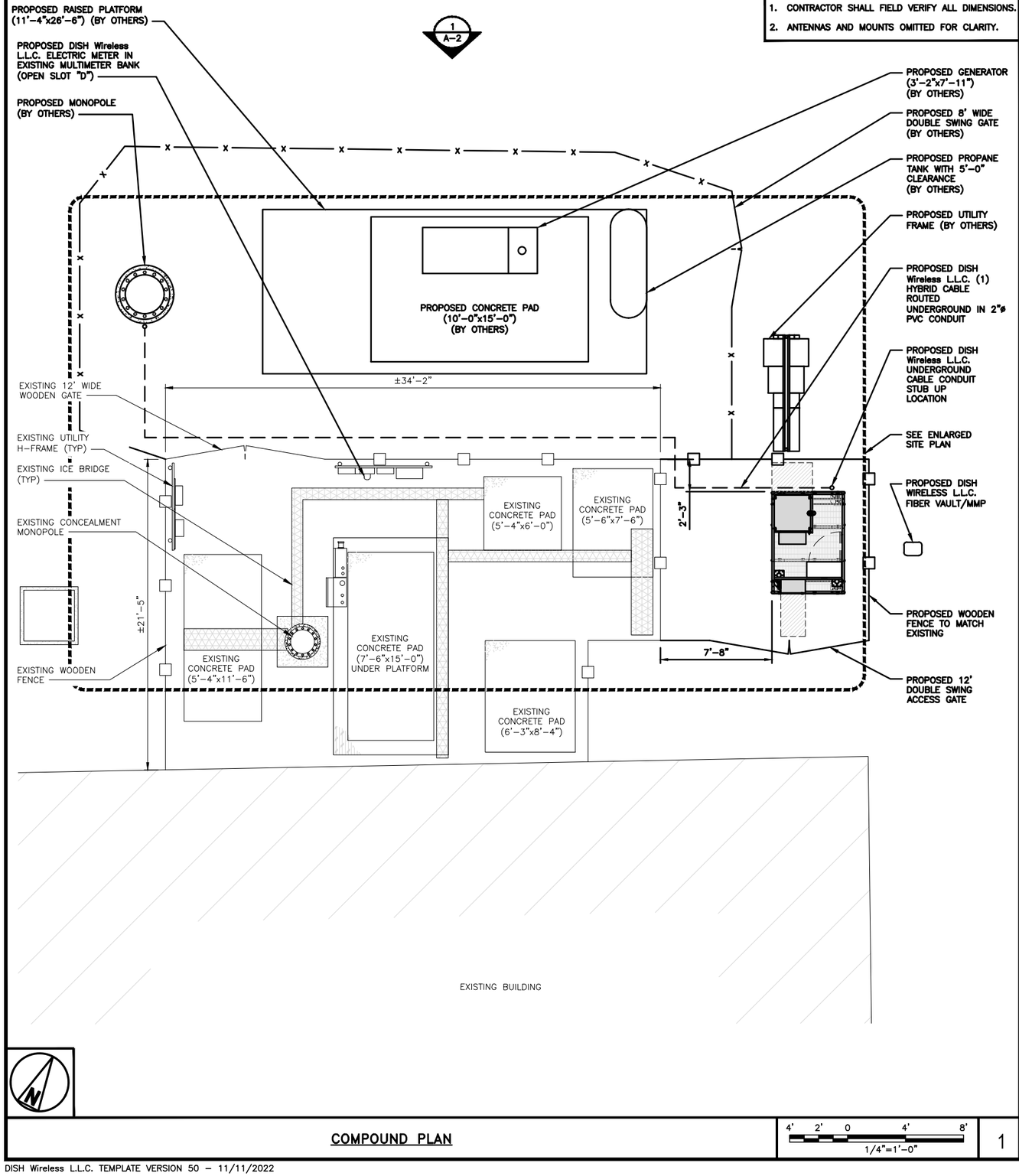
TITLE SHEET

SHEET NUMBER

T-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



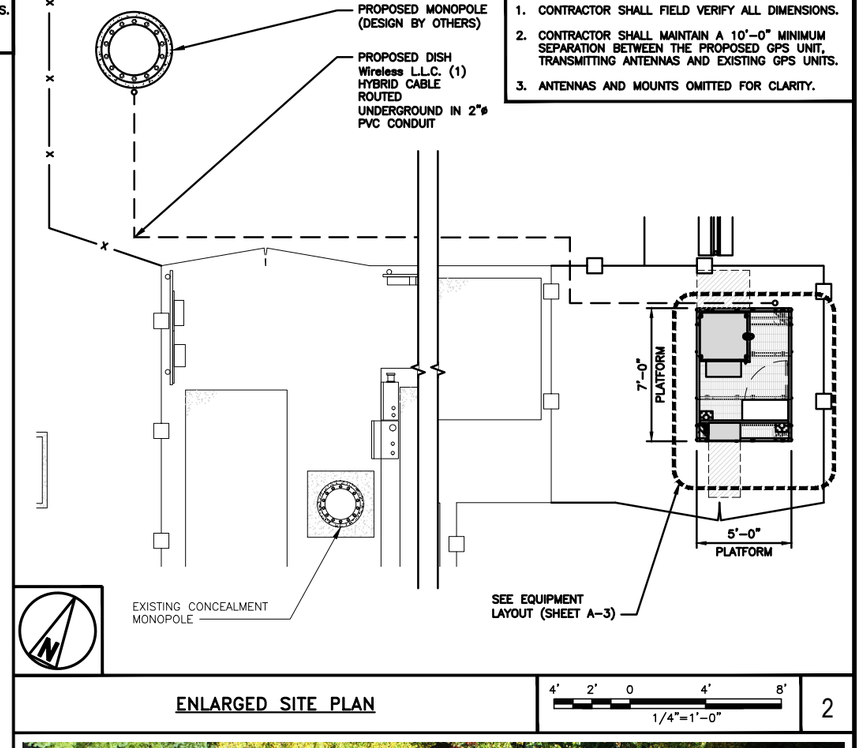
COMPOUND PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

1

NOTES

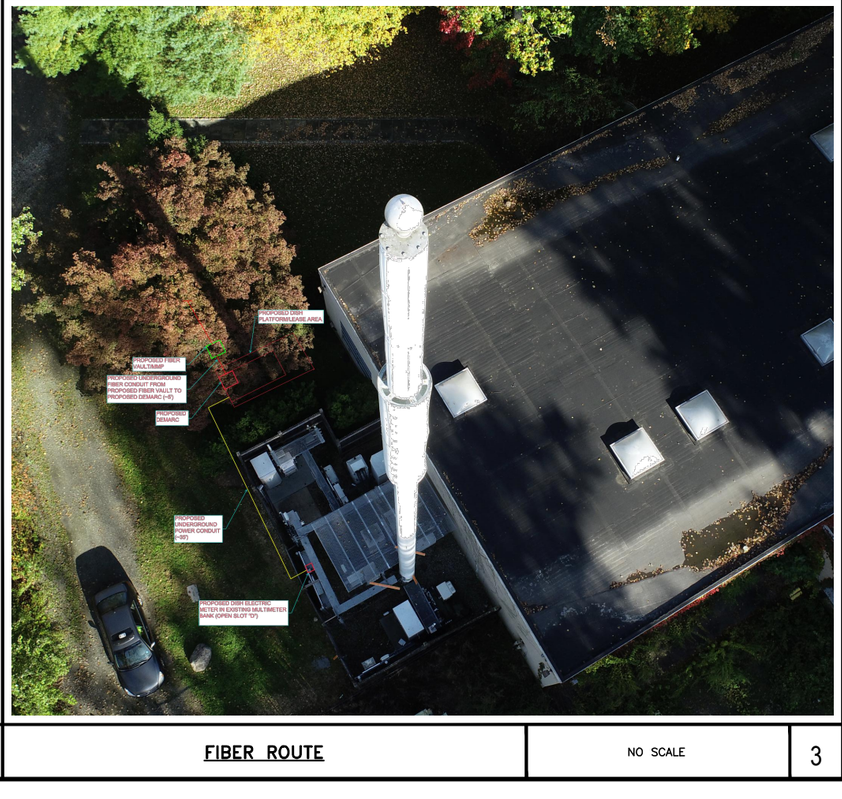
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

2



FIBER ROUTE

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE

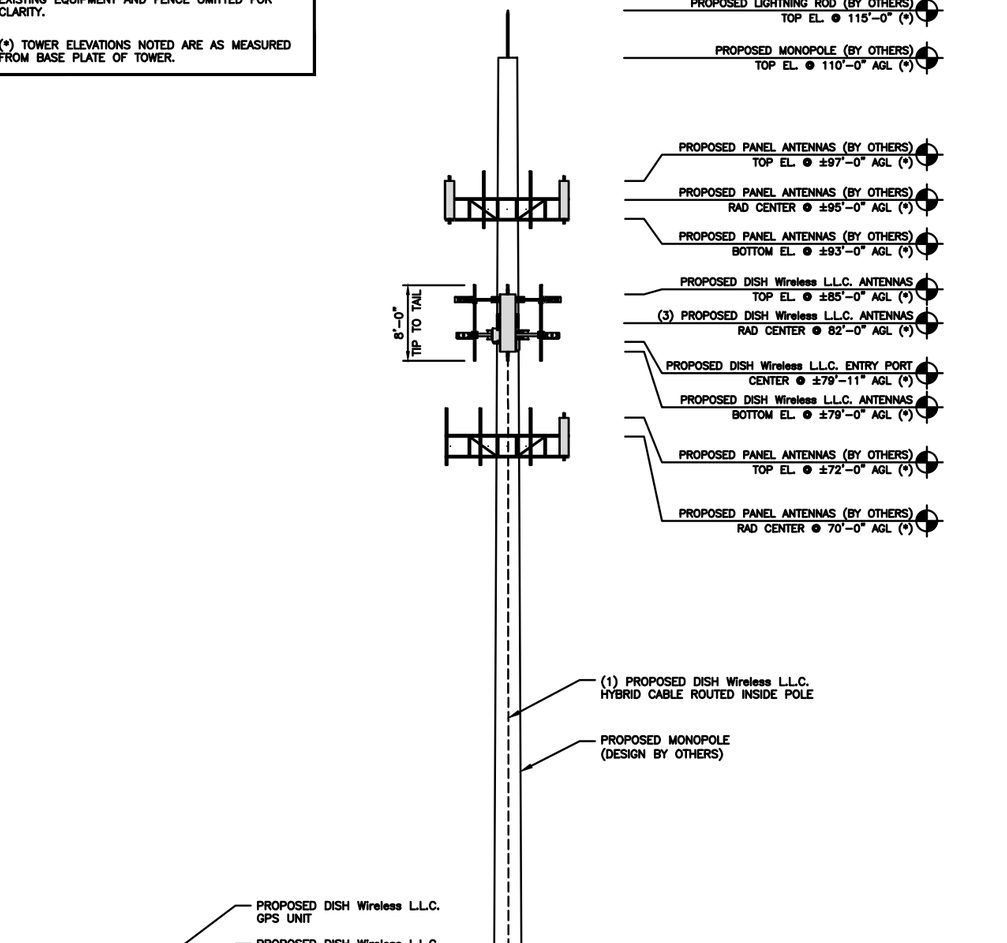
COMPOUND AND ENLARGED SITE PLANS

SHEET NUMBER

A-1

NOTES

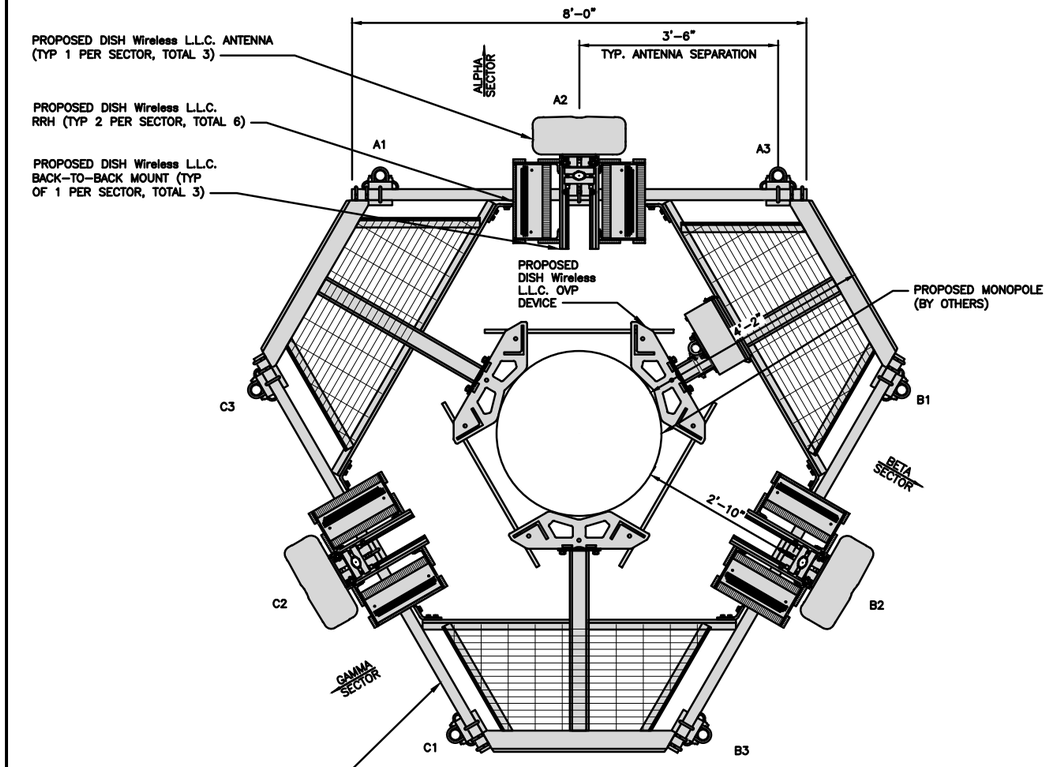
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. (*) TOWER ELEVATIONS NOTED ARE AS MEASURED FROM BASE PLATE OF TOWER.



PROPOSED NORTH ELEVATION

8' 4' 0 8' 16'
1/8"=1'-0"

1



ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (150' LONG)	FUJITSU – TA08025-B605	5G	A2	Raycap RDIDC-9181-PF-48_V2
A2	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	0°	82'-0"		FUJITSU – TA08025-B604	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	B2	SHARED W/ALPHA
B2	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	120°	82'-0"		FUJITSU – TA08025-B604	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	C2	SHARED W/ALPHA
C2	PROPOSED	COMMSCOPE – FFVV-65B-R2	5G	240°	82'-0"		FUJITSU – TA08025-B604	5G	C2	
C3	--	--	--	--	--		--	--	--	

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.
3. (*) RAD CENTER SHOWN IS FROM BASE OF TOWER.

ANTENNA SCHEDULE

NO SCALE

3

DISH Wireless L.L.C. TEMPLATE VERSION 50 – 11/11/2022

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

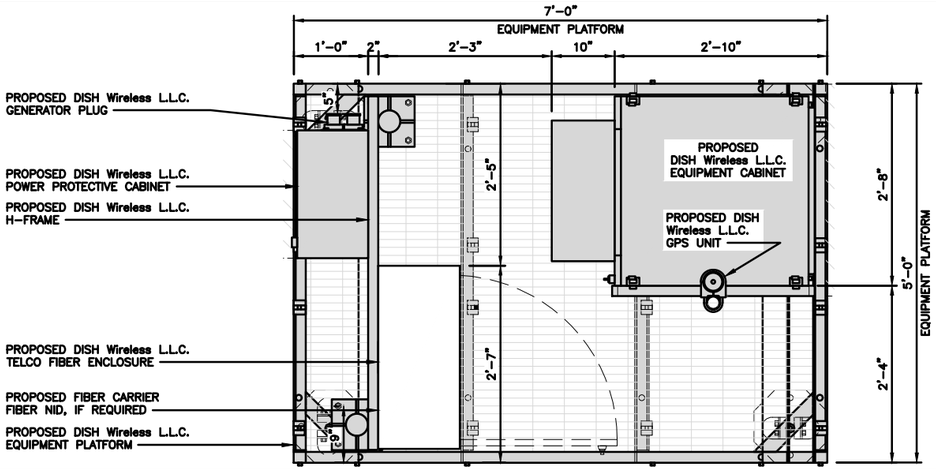
REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



PLATFORM EQUIPMENT PLAN

12" 9" 6" 3" 0 1' 2'
1"=1'-0"

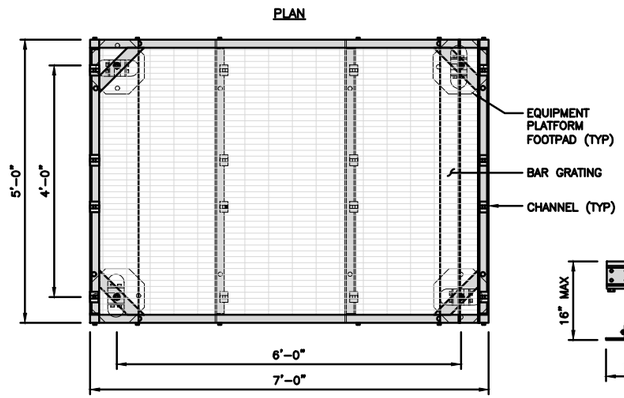
1

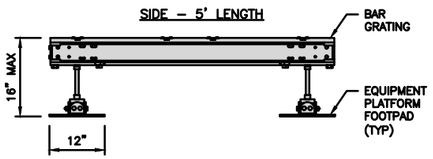
NOTES

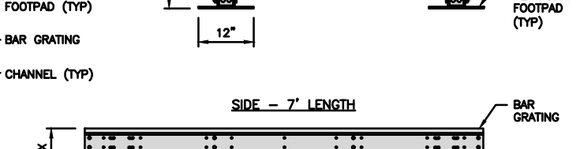
1. INSTALL POSTS BASES TO GRATING JUST INSIDE PLATFORM FRAME. NO DRILLING REQUIRED.
2. GPS MAY BE MOVED TO ICE BRIDGE OR H-FRAME.
3. ALL CONDUIT TO BE ROUTED THROUGH PLATFORM GRATING USING LIQUIDTIGHT, EMT, RIGID OR PVC COUPLERS. CONDUIT QUANTITY AND SIZES ARE PER ONE-LINE DIAGRAM ON E-3 SHEET OF CDS. (DC PLANT DEPENDENT.)
4. CONTRACTOR MAY FIELD INSTALL CONDUIT HOLES IN BOTTOM OF PPC CABINET TO MATCH CONDUIT SIZES. (SEAL TO PPC MANUFACTURER SPECIFICATIONS).
5. H-FRAME POSTS ARE STAGGERED TO ALLOW FIBER NID BOXES TO BE INSTALLED CLOSE TO PERIMETER FRAME OF PLATFORM.
6. CONDUITS FROM PPC/FIBER DEMARK CABINETS TO EQUIPMENT CABINET (BBU) SHALL BE INSTALLED INSIDE PERIMETER OF PLATFORM AND UNDER GRATING.

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"

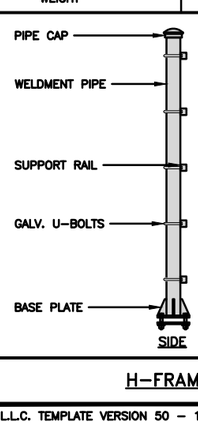




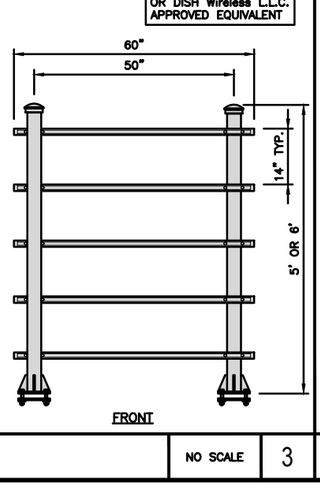


PLATFORM DETAIL | NO SCALE | 2

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs



NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT

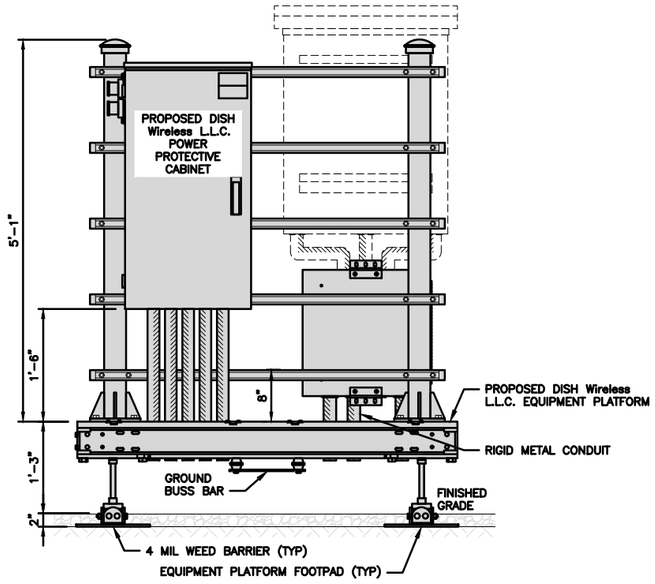


H-FRAME DETAIL | NO SCALE | 3

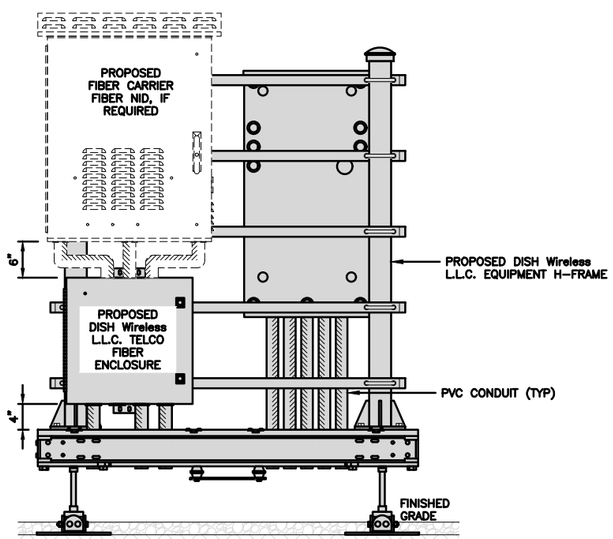
NOT USED | NO SCALE | 4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION | 12" 9" 6" 3" 0 1' 2' 1"=1'-0" | 5

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

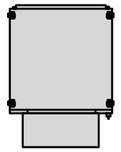
A&E PROJECT NUMBER
336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

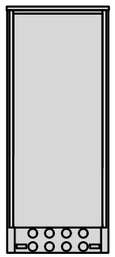
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

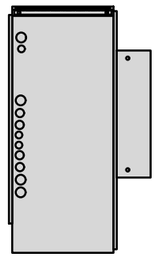
ENERSYS HEX 2000005996	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HEATER	800W
TOTAL WEIGHT (EMPTY)	376 lbs



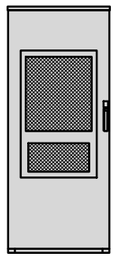
PLAN



BACK



SIDE

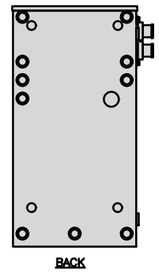


FRONT

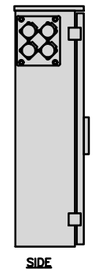
CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

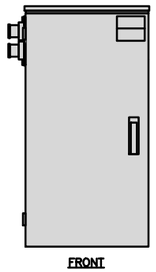
TOP



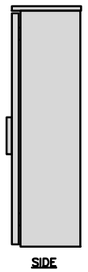
BACK



SIDE



FRONT



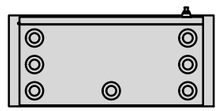
SIDE

POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

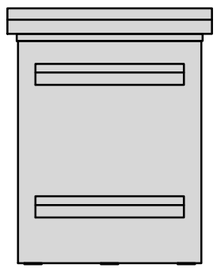
NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

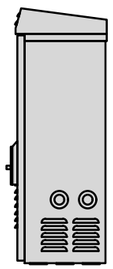
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs



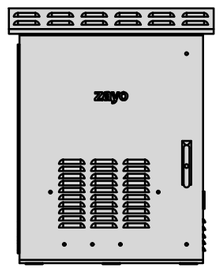
BOTTOM



BACK



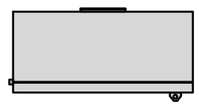
SIDE



FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



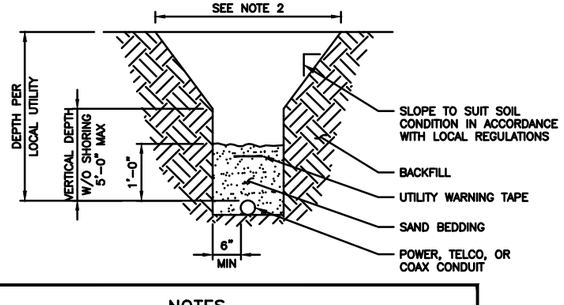
FRONT

SIDE

BACK

FRONT

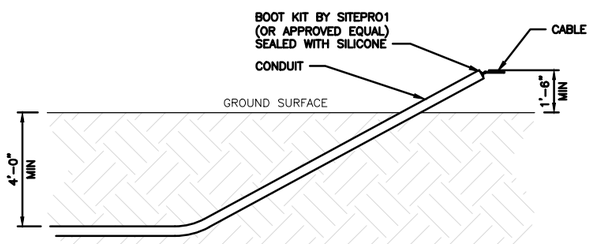
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6



NOTES

1. DETAIL SHOWN IS FOR ONE CONDUIT. MULTIPLE CONDUITS CAN BE PLACED IN THE SAME TRENCH AS LONG AS A MINIMUM SEPARATION PER THE LOCAL UTILITY COMPANIES IS MAINTAINED. IN ALL CASES THE MINIMUM CENTER TO CENTER SPACING BETWEEN CONDUITS IS 1'-0" (NOT REQUIRED FOR COAX).
2. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.

UNDERGROUND CONDUIT DETAIL | NO SCALE | 7



NOTE

CONTRACTOR TO PROVIDE PROPER BENDING RADIUS FOR CONDUITS AS REQUIRED BY COAXIAL CABLE MANUFACTURED

CONDUIT STUB-UP DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.A10

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

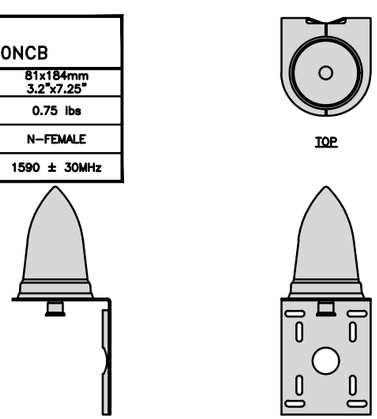
SHEET TITLE

EQUIPMENT DETAILS

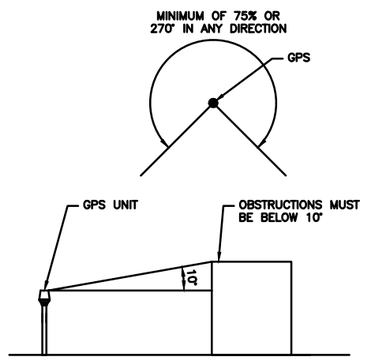
SHEET NUMBER

A-4

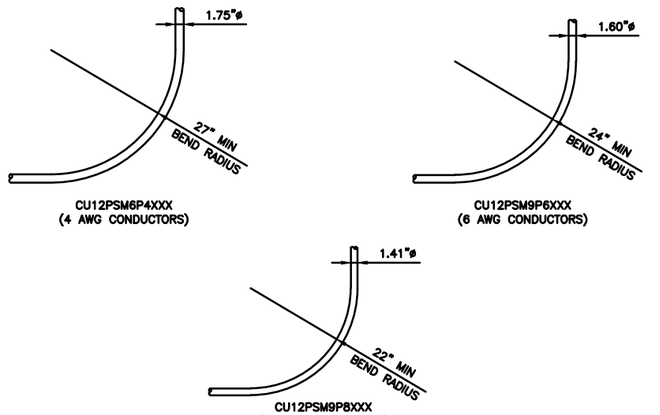
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	0.75 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

DISH Wireless L.L.C. TEMPLATE VERSION 50 – 11/11/2022

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

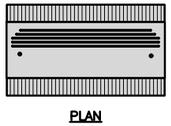
A&E PROJECT NUMBER
336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
EQUIPMENT DETAILS

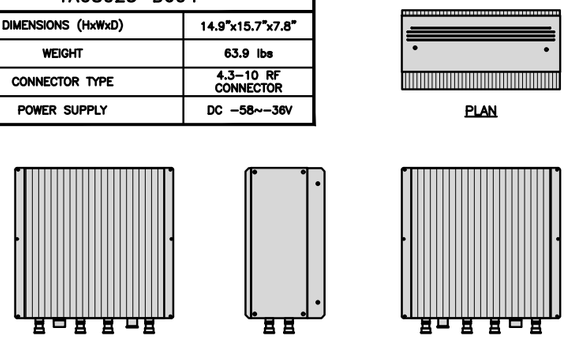
SHEET NUMBER
A-5

FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 1

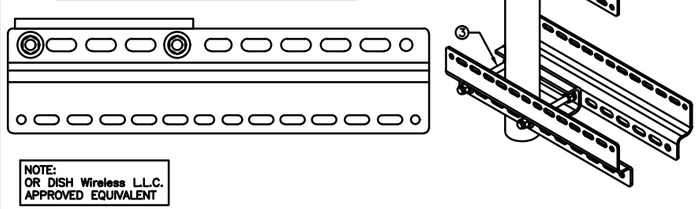
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

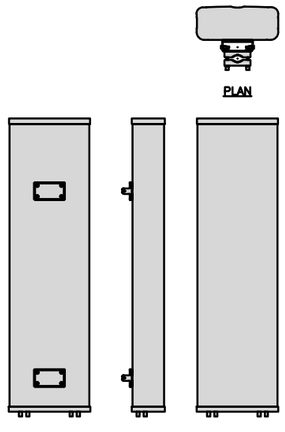
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

COMMSCOPE FFVV-65B-R2	
DIMENSIONS (HxWxD)(MM/IN)	1828x498x197 72"x19.6"x7.8"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	70.8 lbs
WEIGHT WITH BRACKETS	98.1 lbs



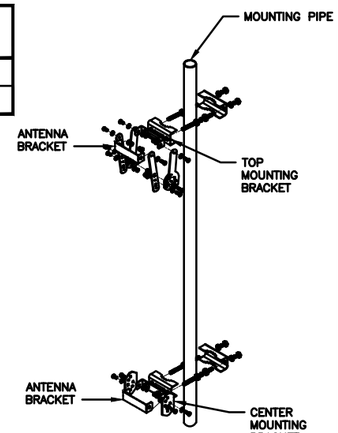
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

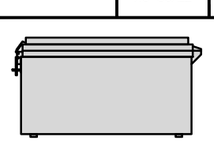
ANTENNA BRACKET NOT PART OF KIT



NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

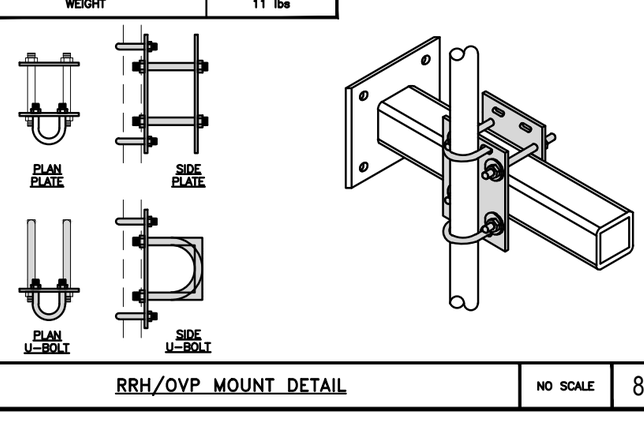
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

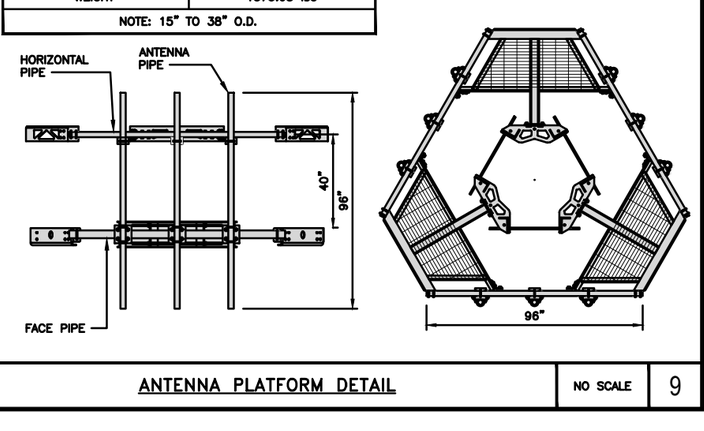
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL | NO SCALE | 8

COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	

NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



ANTENNA PLATFORM DETAIL | NO SCALE | 9

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

GENERAL NOTES

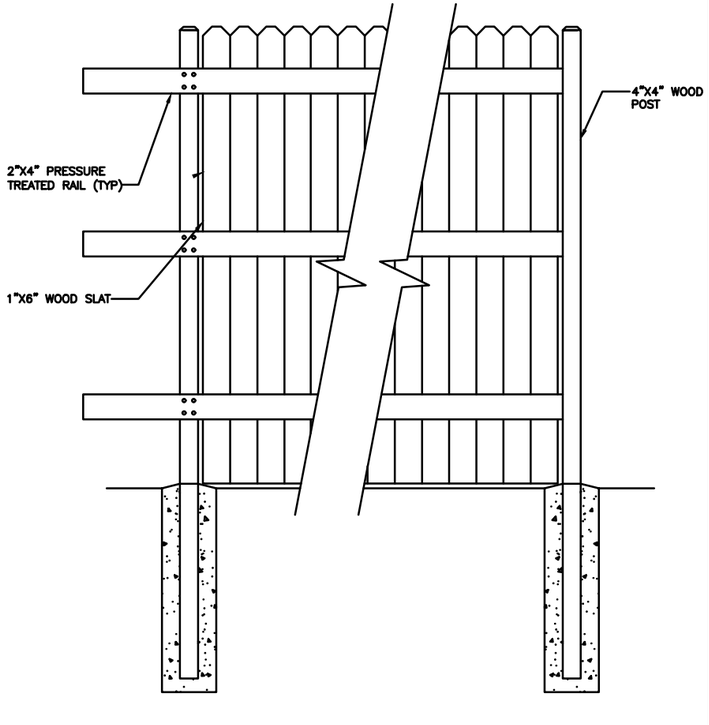
NO SCALE | 1

FENCING NOTES:

1. ALL WIRE, HARDWARE, FASTENERS, AND OTHER STEEL MATERIAL SHALL BE HOT-DIPPED GALVANIZED AND CONFORM TO ALL ASTM REGULATIONS FOR GALVANIZING
2. THE CONTRACTOR SHALL MATCH THE FENCING HEIGHT, STYLE, BANDING,
3. BARBED WIRES IF REQ'D EXISTING FENCE WHERE EVER THE PROJECT REQUIRES THE EXTENSION OR MODIFICATION OF AN EXISTING FENCED AREA.
4. FENCE GATE POST HINGES SHALL BE A MINIMUM OF 180 DEGREES WITH A HINGE ADAPTER LATCHES, STOPS AND KEEPERS SHALL BE PROVIDED FOR ALL GATES THE GUIDE LATCH ASSEMBLY SHALL BE TAMPER PROOF ALL STOPS AND DOUBLE GATES SHALL HAVE A FULL HEIGHT PLUNGER BAR WITH A METAL DOME CAP.
5. WOOD SLATS SHALL BE CEDAR HEARTWOOD AND SHALL HAVE DIMENSIONS OF 1" X 6" WOOD POSTS, BACKERS, AND BRACES SHALL BE PRESSURE TREATED SOUTHERN YELLOW PINE (OR APPROVED EQUAL).
6. WOOD POSTS SHALL BE THE FOLLOWING DIMENSIONS LINE = 4" X 4" CORNER = 4" X 4" | GATE = 6" X 6".
7. ALL LINE POSTS SHALL BE SPACED AT MAXIMUM INTERVALS OF 6'-0".
8. GATE FRAMES SHALL HAVE A FULL HEIGHT VERTICAL BRACE AND A FULL WIDTH HORIZONTAL BRACE.
9. PROVIDE ALL OTHER HARDWARE NECESSARY TO ATTACH, TENSION, CLIP, BAND, HINGE, FASTEN AND FINISH THE FENCING PROPERLY.
10. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB WITHIN 1/8" IN 8'-0"
11. CONTRACTOR SHALL ENSURE TO TREAT ANY UNTREATED WOOD PORTIONS OF THE FENCE WITH EXTERIOR WOOD SEALER. CONTRACTOR SHALL APPLY SEALANT PER THE RECOMMENDATIONS OF THE EALANT MANUFACTURER.

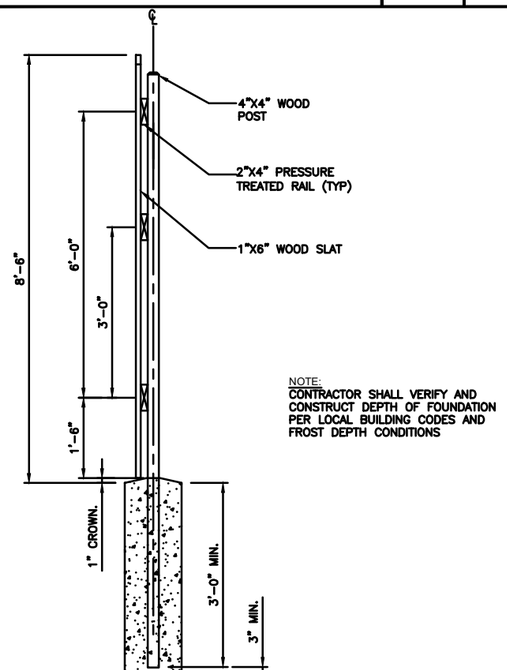
WOODEN FENCE DETAIL

NO SCALE | 2



NOT USED

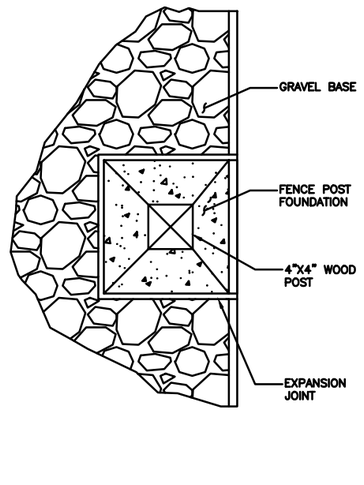
NO SCALE | 3



NOTE:
CONTRACTOR SHALL VERIFY AND CONSTRUCT DEPTH OF FOUNDATION PER LOCAL BUILDING CODES AND FROST DEPTH CONDITIONS

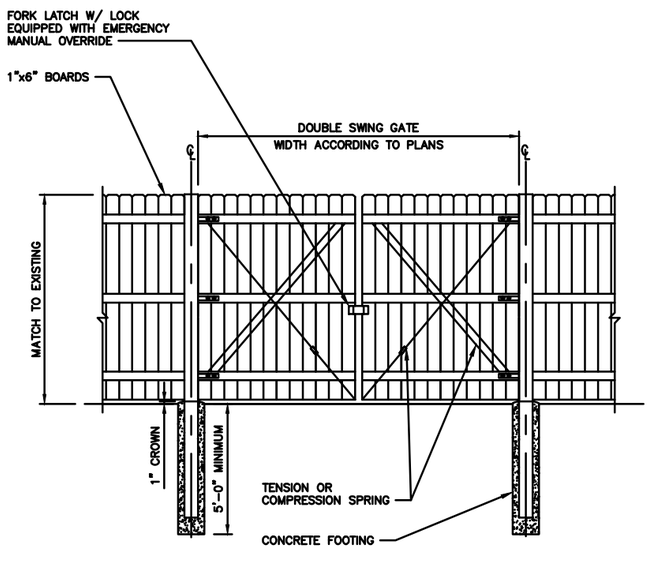
TYPICAL FENCE SECTION

NO SCALE | 4



FENCE POST PLAN VIEW

NO SCALE | 5



WOODEN FENCE GATE DETAIL

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.A10

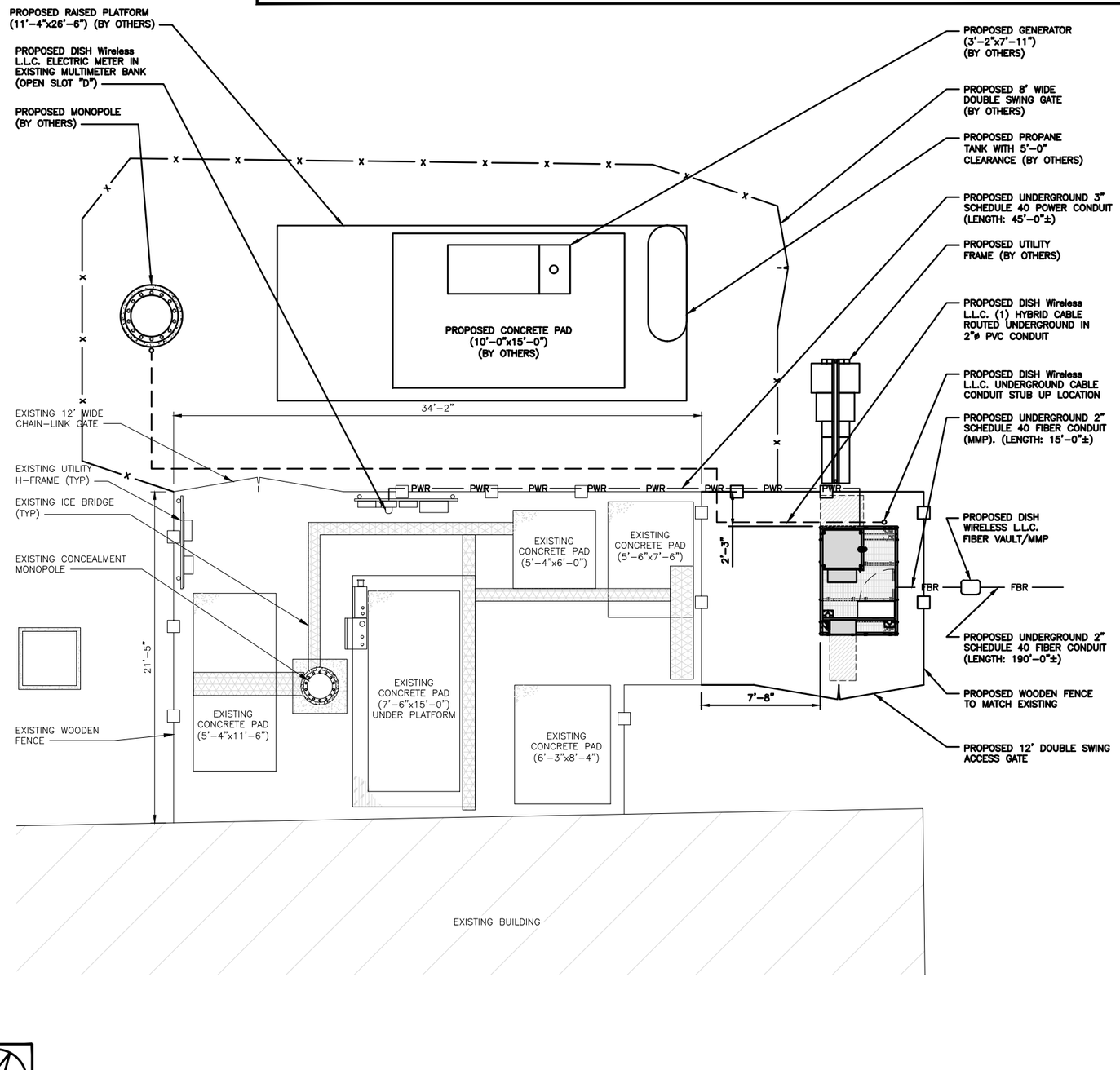
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
WOOD FENCE DETAILS

SHEET NUMBER
A-7

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

1

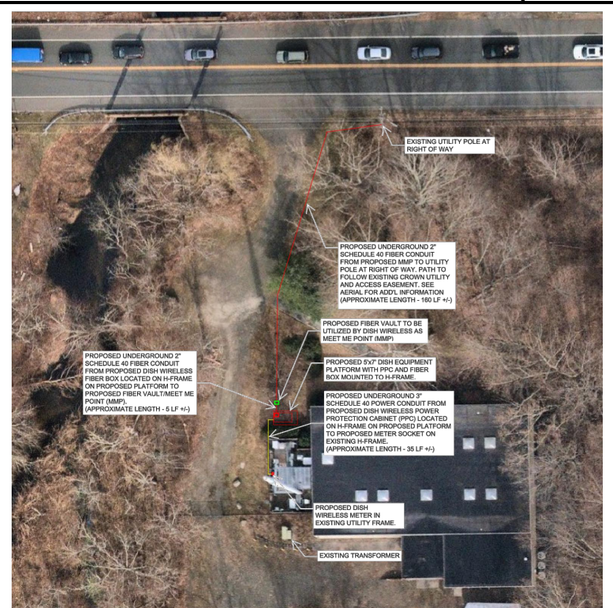
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE

2



FIBER ROUTE

NO SCALE

3

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE

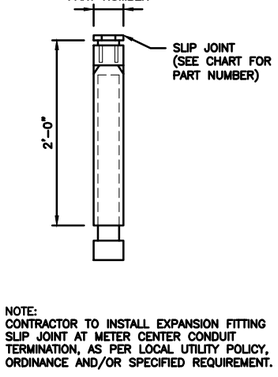
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

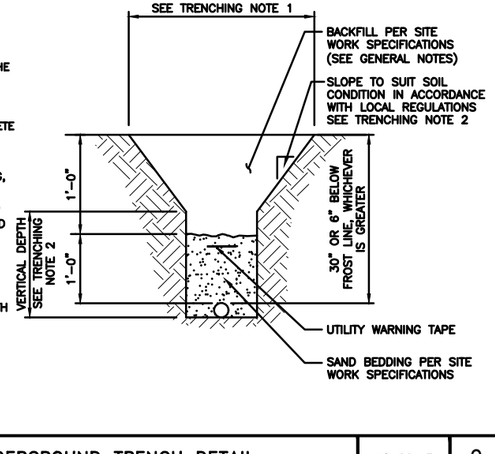


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

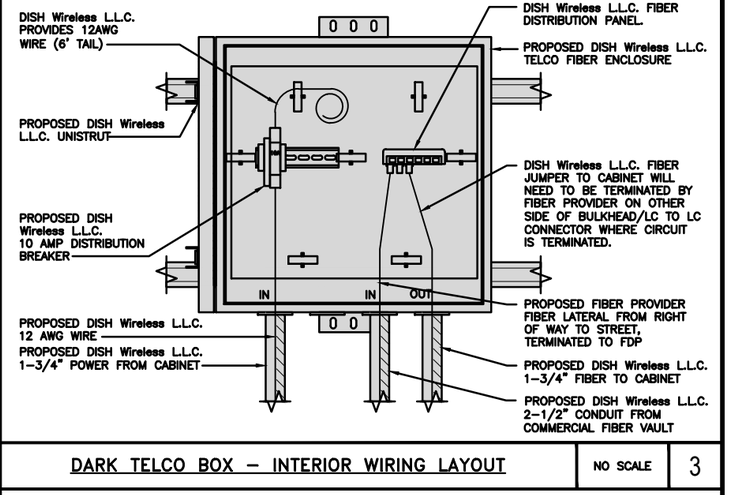
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

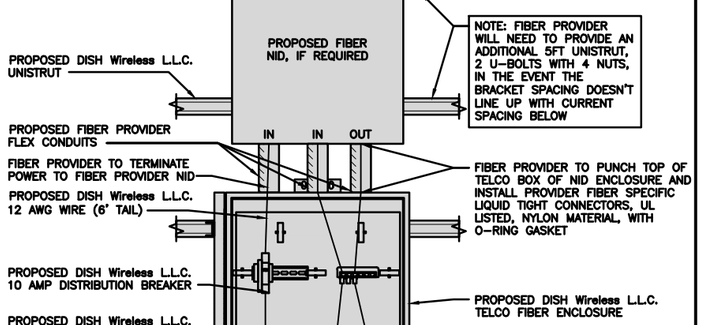
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

DISH Wireless L.L.C. TEMPLATE VERSION 50 – 11/11/2022

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

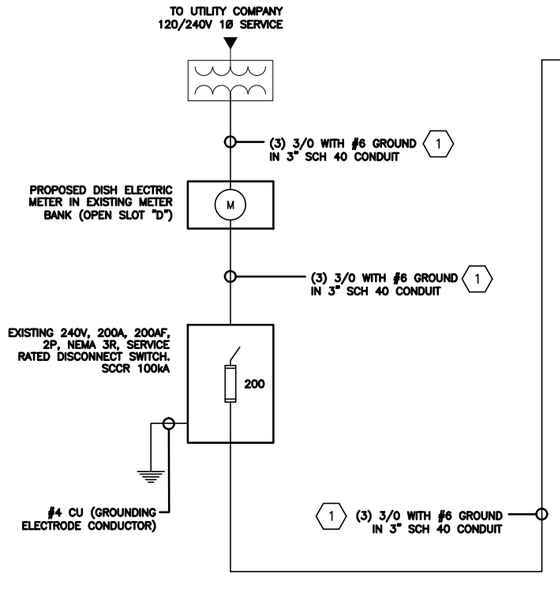
REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

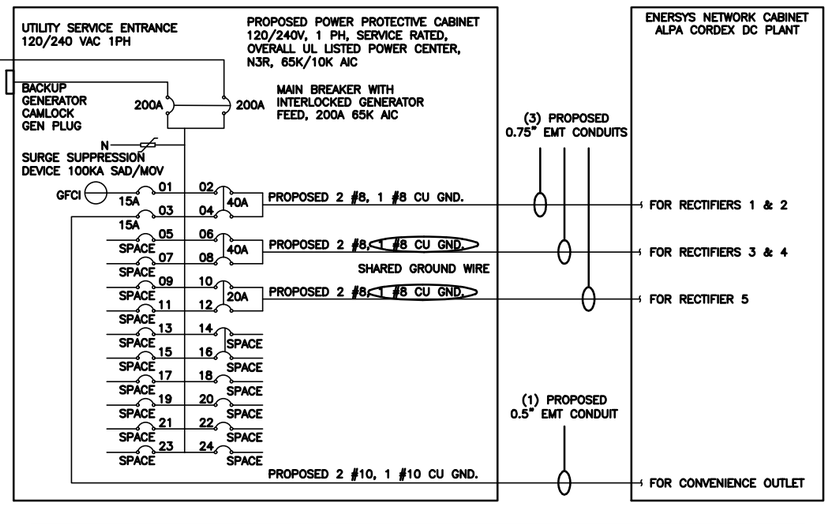
A&E PROJECT NUMBER
336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2





NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED: (OR EQUIVALENT MANUFACTURER)
(2) 40A, 2P BREAKER – SQUARE D P/N:QO240
(1) 20A, 2P BREAKER – SQUARE D P/N:QO220
(2) 215A, 1P BREAKER – SQUARE D P/N:QO115

SERVICE/FEEDER CONDUCTOR LENGTH TABLE
(BASED ON INDUSTRY STANDARD 3% VOLTAGE DROP AND 5% NEC ALLOWABLE LIMIT)

DESIGN LOADS	CONDUCTOR SIZES					
	250 kcmil AL	300 kcmil AL	3/0 CU	4/0 CU	250 kcmil CU	300 kcmil CU
DISH Wireless L.L.C. MAXIMUM CONTINUOUS LOAD (160A) (NEC ARTICLE 220 & 230 3% VOLTAGE DROP)	130'	155'	145'	180'	215'	255'
DISH Wireless L.L.C. MAXIMUM CONTINUOUS LOAD (160A) (NEC ARTICLE 220 & 230 5% VOLTAGE DROP)	220'	260'	240'	300'	360'	425'

NOTES:
1. 250 MCM/KCMIL AL + #2 AL GRD MAY BE USED AS A REPLACEMENT FOR 3/0 CU + #6 CU GRD SERVICE CONDUCTOR FROM THE DISH Wireless L.L.C. FIRST MEANS OF DISCONNECT/UTILITY COMPANY MEET-ME POINT. REFER TO VALUES ABOVE TO LIMIT VOLTAGE DROP TO 3%.
2. ALUMINUM/COPPER CONDUCTORS MUST BE RATED 75°C.
3. ALUMINUM TO COPPER BUSS CONNECTIONS MUST MEET AND CONFORM TO ANSI AND BE UL LISTED. USE ANTI CORROSION CONDUCTIVE LUBRICANT ON CONNECTIONS
4. PPC MAIN DISCONNECT CIRCUIT BREAKERS ACCEPT #4 – 300KCMIL AL OR CU CONDUCTORS.
5. VOLTAGE DROP FOR SINGLE METER ENCLOSURE FED FROM TRANSFORMER WITH MULTIPLE CUSTOMERS IS CALCULATED FROM THE TRANSFORMER TO PPC. (SERVICE AND FEEDER CONDUCTOR LENGTH)
6. VOLTAGE DROP FOR MULTI-METER ENCLOSURE IS CALCULATED FROM THE METER TO PPC. (FEEDER CONDUCTOR LENGTH)
7. VOLTAGE DROP CALCULATIONS ARE BASED ON A POWER FACTOR OF 1, A LINE TO GROUND VOLTAGE PER CONDUCTOR OF 120V, NO CORRECTION FACTOR FOR AMBIENT TEMPERATURE OR ADJUSTMENT FACTOR FOR MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A SINGLE CONDUCT OR RACEWAY. A POWER FACTOR LESS THAN 1 OR VOLTAGE LESS THAN 120 WILL RESULT IN SHORTER DISTANCES THAN SHOWN IN TABLE.

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT – 0.122 SQ. IN AREA
0.75" CONDUIT – 0.213 SQ. IN AREA
2.0" CONDUIT – 1.316 SQ. IN AREA
3.0" CONDUIT – 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 – 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 – 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.

#8 – 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
#8 – 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
TOTAL = 0.1234 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 – 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 – 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

1 PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, AL.

250kcmil AL – 0.3970 SQ. IN X 3 = 1.191 SQ. IN
#4 AL – 0.0824 SQ. IN X 1 = 0.0824 SQ.IN <GROUND
TOTAL = 1.2734 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC ONE-LINE DIAGRAM | NO SCALE | 1

PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET		180	15A	3	B	4			3840	RECTIFIERS 1 & 2
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
-SPACE-				7	B	8			3840	RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
-SPACE-				11	B	12			1920	RECTIFIER 5
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9500	9500	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			9680		9680		VOLTAGE AMPS			
			81		81		AMPS			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

DISH Wireless L.L.C. TEMPLATE VERSION 50 – 11/11/2022

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.A10

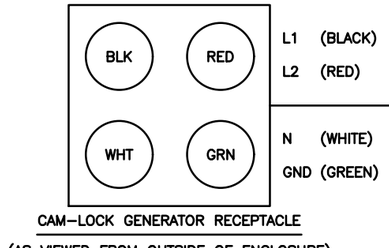
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
ELECTRICAL ONE-LINE & PANEL SCHEDULE

SHEET NUMBER
E-3

NOTES:

1. HAZARD OF ELECTRICAL SHOCK OR BURN. TURN OFF POWER SUPPLYING THIS EQUIPMENT BEFORE WORKING INSIDE.
2. 100 OR 200 AMP, 240 VOLTS, SINGLE PHASE ALTERNATING CURRENT CIRCUIT ONLY
3. GENERATOR SHORT CIRCUIT RATING: 10,000 / 20,000 AMPS RMS SYMMETRICAL, AMPERES AT 240 VOLTS
4. UTILITY SHORT CIRCUIT RATING: 65,000 AMPS RMS SYMMETRICAL, AMPERES AT 240 VOLTS
5. SUITABLE FOR USE AS SERVICE EQUIPMENT
6. SUITABLE FOR USE IN ACCORDANCE WITH ARTICLE 702 OF THE NATIONAL ELECTRIC CODE ANSI/NFPA 70
7. BONDED NEUTRAL WHEN INSTALLED AS SHOWN IN WIRING DIAGRAM
8. RAIN PROOF TYPE 3R
9. USE CU–AL WIRE 60–75 °C
10. EQUIPPED WITH SLIDE BAR MECHANICAL INTERLOCK
11. INTERLOCK PROHIBITS BOTH POWER SOURCES FROM BEING IN THE ON POSITION SIMULTANEOUSLY
12. EQUIPPED WITH SQUARE D BREAKERS OR ALTERNATIVE MANUFACTURER EQUIVALENT
13. WHEN REPLACE LOAD CENTER BREAKERS, USE ONLY SQUARE D (QO TYPE) OF THE SAME RATING OR EQUIVALENT
14. WHEN RESETTING BREAKERS TURN TO OFF POSITION, THEN TO ON POSITION
15. WARNING: MAKE CONTINUITY CHECK WITH OHM METER TO VERIFY CORRECT PHASING AND GROUNDING CONNECTIONS BEFORE POWER UP
16. VERIFY PIN OUT CONFIGURATION OF GENERATOR PRIOR TO USE.
17. RISK OF ELECTRIC SHOCK, BOTH ENDS OF DISCONNECTING MEANS MAY BE ENERGIZED. TEST BEFORE SERVICING
18. THIS SWITCH BOARD MAY CONTAIN A TAP ON THE SERVICE SIDE OF THE MAIN POWER DISCONNECT FOR REMOTE MONITORING OF UTILITY/STANDBY POWER
19. THE NORMAL AC POWER MONITORING CIRCUIT MUST UTILIZE A DISCONNECTING MEANS WITH A SHORT CIRCUIT RATING GREATER THAN THE AVAILABLE INTERRUPTING CURRENT
20. A RED PUSH–TO–TRIP BUTTON PROVIDES A MEANS TO MECHANICALLY TRIP THE CIRCUIT BREAKER. THIS ACTION EXERCISES THE TRIPPING PORTION OF THE MECHANISM AND ALLOWS MAINTENANCE CHECK ON THE BREAKER



CAM–LOCK GENERATOR RECEPTACLE

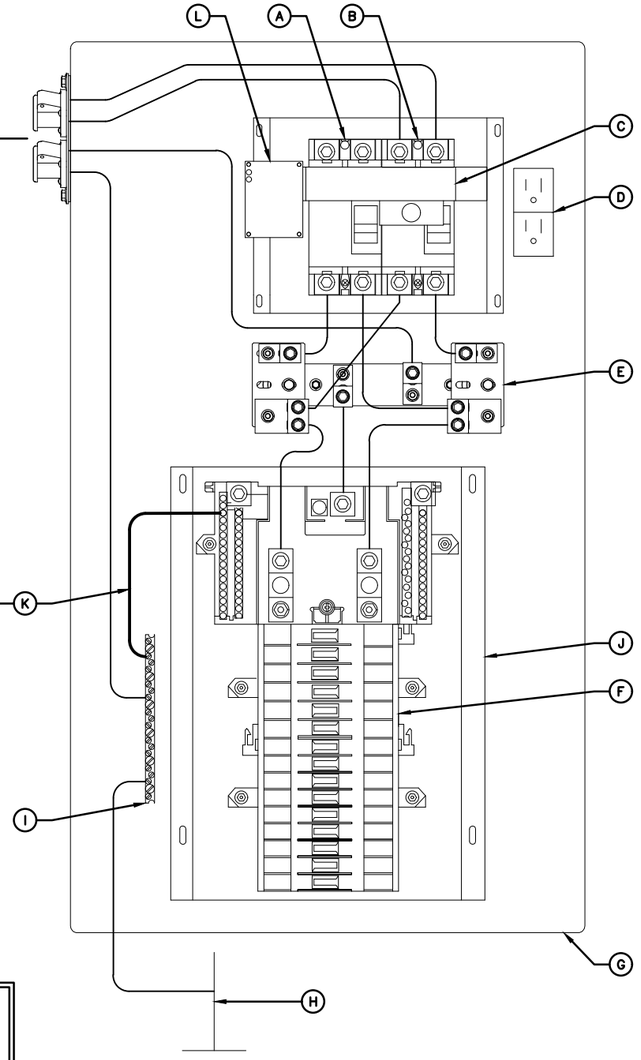
(AS VIEWED FROM OUTSIDE OF ENCLOSURE)
USE LINE UP PIN AS REFERENCE

REFER TO RECEPTACLE FOR MODEL NUMBER

DANGER:

HAZARD OF ELECTRICAL SHOCK OR BURN. TURN OFF POWER SUPPLYING THIS EQUIPMENT BEFORE WORKING INSIDE.

RAYCAP CUSTOMER SERVICE
(800) 890–2569



SUITABLE FOR USE AS SERVICE EQUIPMENT

ELECTRICAL RATING 120/240 VOLTS SINGLE PHASE 60 Hz	
NORMAL AC POWER 100A☐ 200A☐	GENERATOR POWER 100A☐ 200A☐

CAUTION:

- THE OPERATING HANDLE ASSUMES A CENTER POSITION WHEN THE CIRCUIT BREAKER IS TRIPPED
- THE BREAKER CAN BE RESET BY OPERATING THE HANDLE TO THE EXTREME OFF POSITION AND THEN TO ON
- SLIDE BAR MECHANICAL INTERLOCK TRANSFERS NORMAL AC POWER TO GENERATOR POWER. THE SLIDE BAR MECHANICAL INTERLOCK PROHIBITS BOTH POWER SOURCES FROM BEING IN THE ON POSITION SIMULTANEOUSLY
- TO TRANSFER FROM ON POWER SOURCE TO THE OTHER POWER SOURCE, SWITCH ON BREAKER TO THE OFF POSITION, MOVE THE SLIDE BAR TO THE OTHER SIDE AND THE SWITCH THE OTHER BREAKER TO THE ON POSITION

THIS SWITCHBOARD UTILITY MAN BREAKER IS SUITABLE FOR USE ON CIRCUIT CAPABLE OF DELIVERING NOT MORE THAN 65,000 RMS SYMMETRICAL AMPS, 240 VOLTS MAXIMUM.

200A UTILITY FEED

LOAD SIZE CIRCUIT BREAKERS				LINE SIDE MAIN CIRCUIT BREAKER					
MFR.	TYPE	POLES	AMP RATING	MFR.	TYPE	AMP RATING	SYMMET. AMP RMS	VOLTS AC	PHASES
SQ–D	QO	1 2	15–100A	SQ–D	QGL	200A	65,000A	240V	2

THIS SWITCHBOARD GENERATOR POWER CIRCUIT IS SUITABLE FOR USE ON A CIRCUIT CAPABLE OF DELIVERING NOT MORE THAN 10,000 RMS SYMMETRICAL AMPS, 240 VOLTS MAXIMUM.

200A GENERATOR FEED

LOAD SIZE CIRCUIT BREAKERS				LINE SIDE MAIN CIRCUIT BREAKER					
MFR.	TYPE	POLES	AMP RATING	MFR.	TYPE	AMP RATING	SYMMET. AMP RMS	VOLTS AC	PHASES
SQ–D	QO	1 2	15–100A	SQ–D	QGL	200A	65,000A	240V	2

MAXIMUM CONTINUOUS LOADS NOT TO EXCEED 80% OF THE OVER–CURRENT PROTECTIVE DEVICE (CIRCUIT BREAKER AND FUSES) RATINGS EMPLOYED IN OTHER THAN MOTOR CIRCUITS, EXCEPT FOR THOSE CIRCUITS EMPLOYING CIRCUIT BREAKERS MARKED AS SUITABLE FOR CONTINUOUS OPERATION AT 100% OF THEIR RATINGS. CONDUCTORS ARE NOT TO ENTER OR LEAVE THE ENCLOSURE DIRECTLY OPPOSITE THE WIRING TERMINAL

NEUTRAL–TO–GROUND NOTES:

- WHEN THE PPC IS USED AS THE SERVICE ENTRANCE DEVICE, THE NEUTRAL TO GROUND BOND NEEDS TO BE ESTABLISHED IN THE PPC.
- WHEN THE SERVICE ENTRY DEVICE IS A MULTI–METER CENTER OR A PRE–PPC DISCONNECT IS USED AND HAS "NEUTRAL TO GROUND" ACCOMMODATIONS, THE NEUTRAL TO GROUND WIRE IN THE PPC IS NOT REQUIRED.
- THE GREEN #6 WIRE IS PROVIDED WITH THE PPC CABINET AS A SEPARATE UNINSTALLED PART TO BE INSTALLED BY CONTRACTOR IF NEEDED.

NEUTRAL–TO–GROUND CONDING JUMPER

INSTALLTION INSTRUCTIONS:

- IF REQUIRED, THE N–G BONDING KIT SHOULD BE INSTALLED BY QUALIFIED PERSONNEL
- ENSURE THE MAIN BREAKERS ARE OFF
- USE THE GREEN #6 WIRE PROVIDED WITH THE PPC
- INSTALL THE JUMPER AS SHOWN IN THE WIRING DIAGRAM
- TIGHTEN TERMINALS TO TORQUE VALUE SHOWN IN TORQUE TABLE
- PLACE THE PROVIDED "SERVICE" LABEL IN THE SPACE BELOW THE WORDS "AC POWER" LOCATED ABODE THE MAIN CIRCUIT BREAKER IN THE UPPER PORTION OF THE DEAD FRONT

LEGEND:

A. UTILITY DISCONNECT (SERVICE RATED)
B. GENERATOR DISCONNECT
C. MAIN DISCONNECT CIRCUIT BREAKERS W/ MECHANICAL INTERLOCK
D. GFCI RECEPTACLE 15A
E. SPD STRIKESORB KELVIN CONNECTION (TYP OF 2)
F. BREAKER PANEL – 24 POSITION (CONTRACTOR TO ADD APPROPRIATE BREAKER PER ONE–LINE DIAGRAM PANEL SCHEDULE)
G. POWER PROTECTION CABINET (PPC) (FULLY ASSEMBLED FROM MANUFACTURER)
H. CONTRACTOR TO ATTACH TO UNDERGROUND GROUNDING HALO OR INSTALL GROUND ROD WHEN REQUIRED BY CODE
I. GROUND BAR
J. SQUARE D Q SERIES LOAD CENTER
K. NETURAL–TO–GROUND (N–G) BONDING JUMPER (CONTRACTOR INSTALLED IF REQUIRED)
L. OPTIONAL SPD STATUS INDICATORS

RAYCAP POWER PROTECTION CABINET – RDIAC–2465–P–240–MTS (NEUTRAL–TO–GROUND)

NO SCALE | 1

DISH Wireless L.L.C. TEMPLATE VERSION 50 – 11/11/2022

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

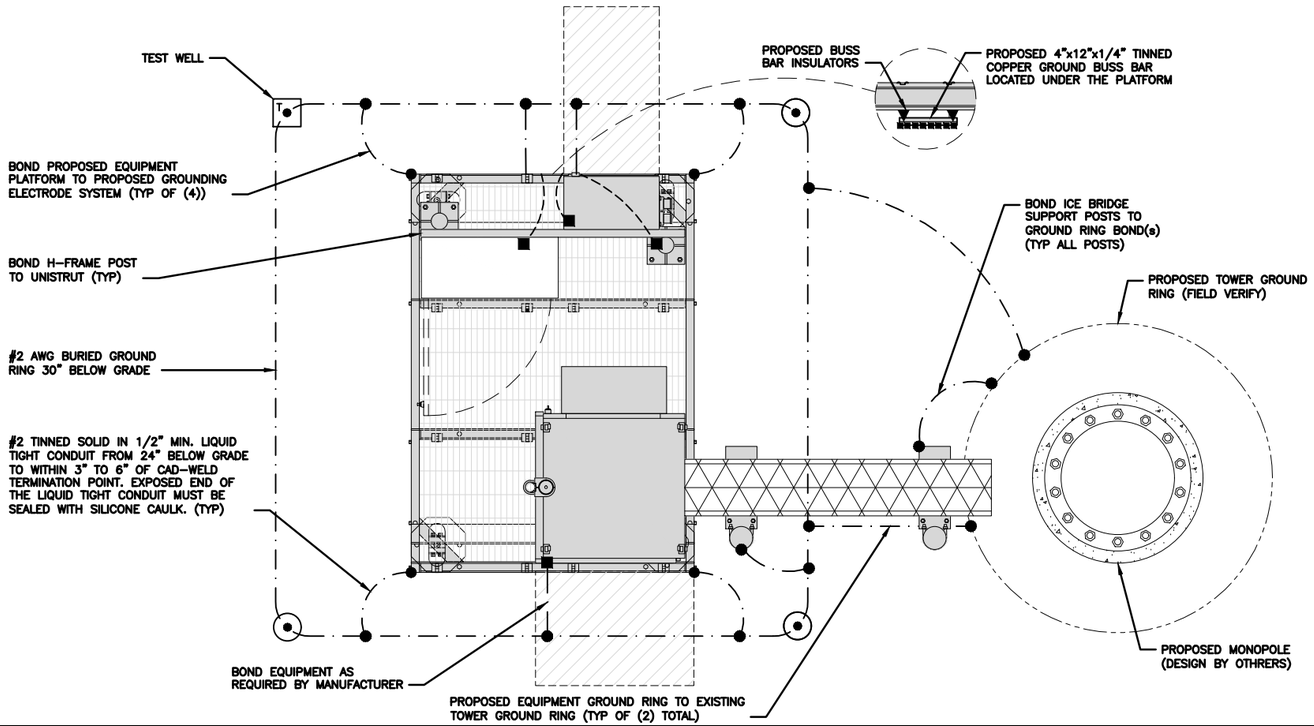
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE

PPC NEUTRAL–TO–GROUND SCHEMATIC

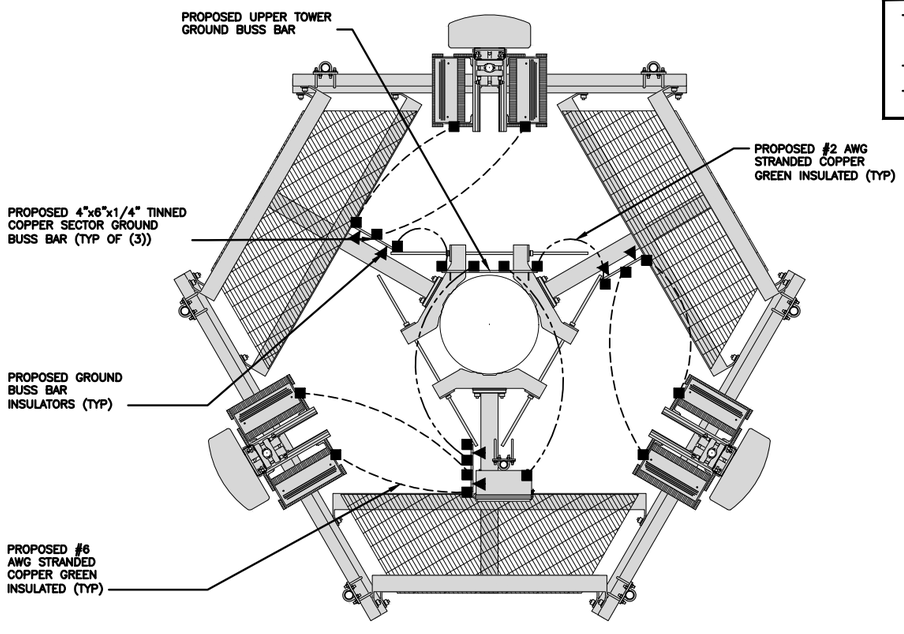
SHEET NUMBER

E-4



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

- ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY
- SECTOR BUSSBARS SHALL BE INSTALLED WITH INSULATORS
- UPPER TOWER BUSSBAR SHALL BE INSTALLED WITH OUT INSULATORS

EXOTHERMIC CONNECTION
MECHANICAL CONNECTION
GROUND BUS BAR
GROUND ROD
TEST GROUND ROD WITH INSPECTION SLEEVE
#6 AWG STRANDED & INSULATED
#2 AWG SOLID COPPER TINNED
#2 AWG STRANDED & INSULATED
BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.AI0

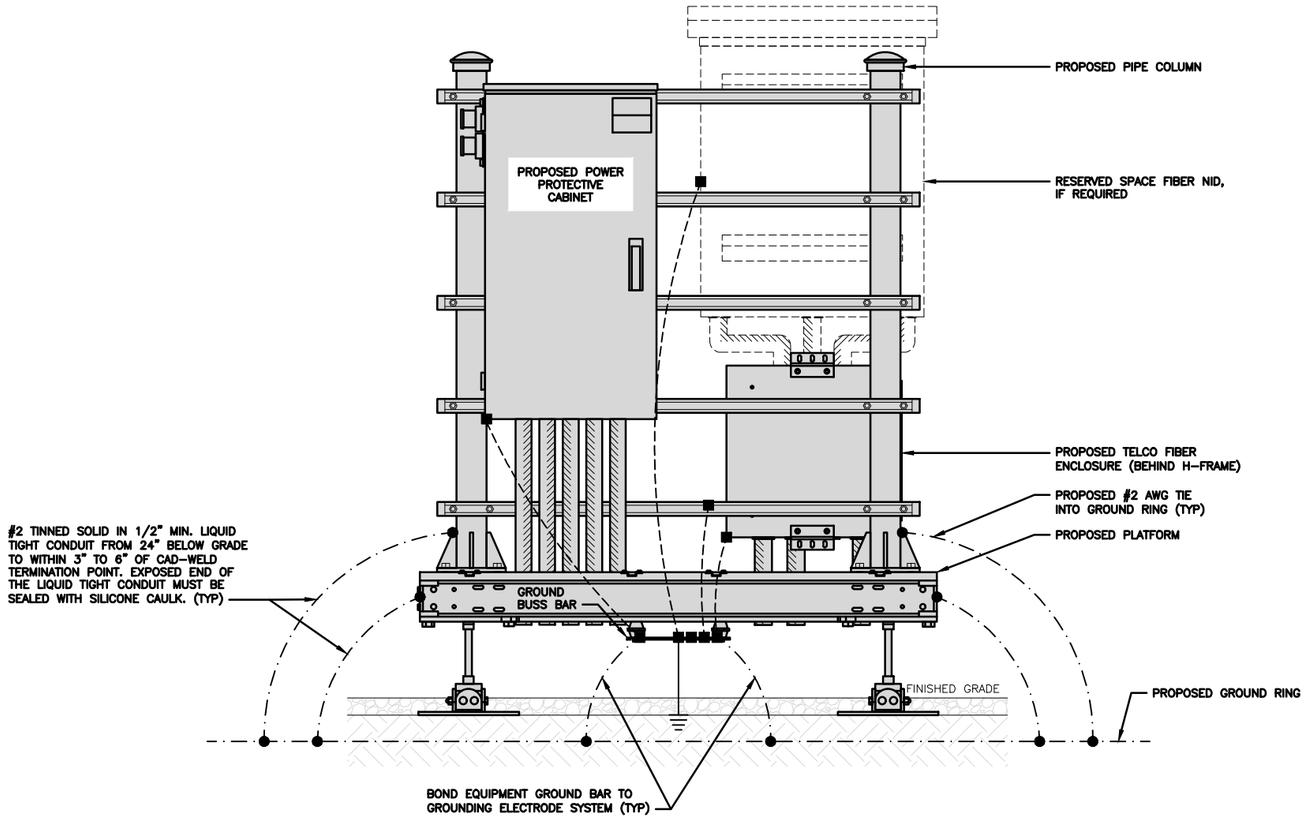
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
GROUNDING PLANS AND NOTES

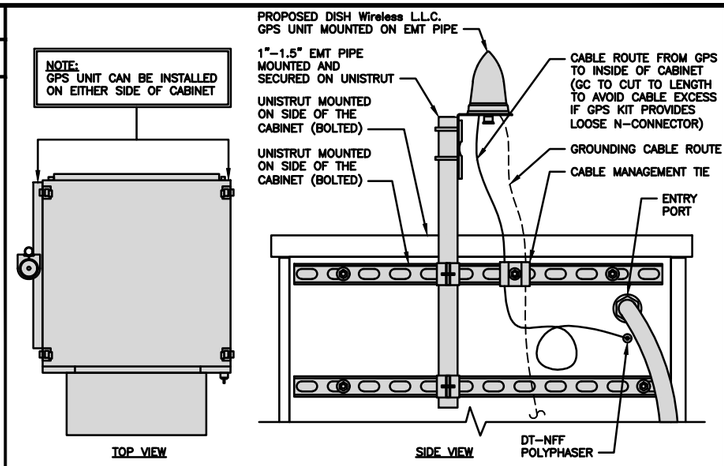
SHEET NUMBER
G-1

NOTES

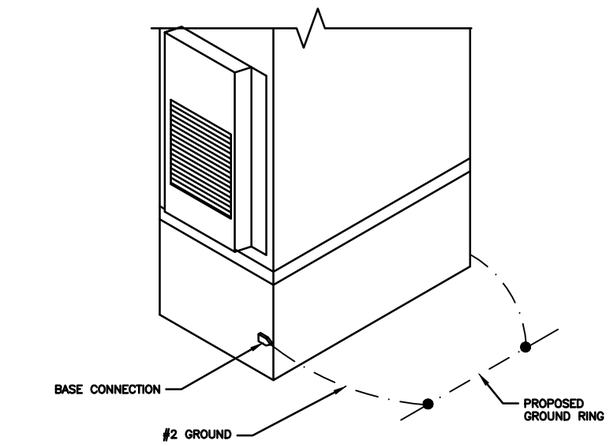
EQUIPMENT CABINET OMITTED FOR CLARITY



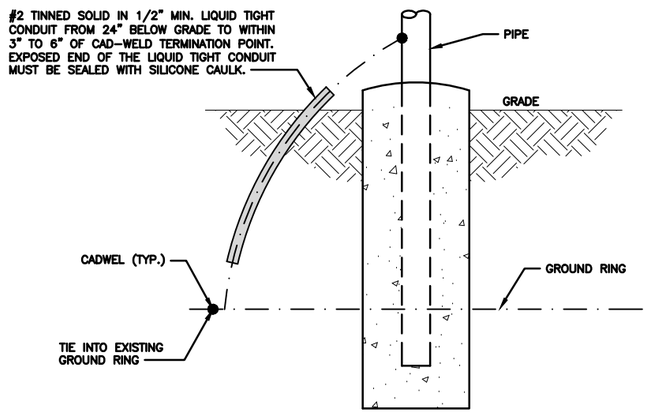
H-FRAME GROUNDING DETAIL | NO SCALE | 1



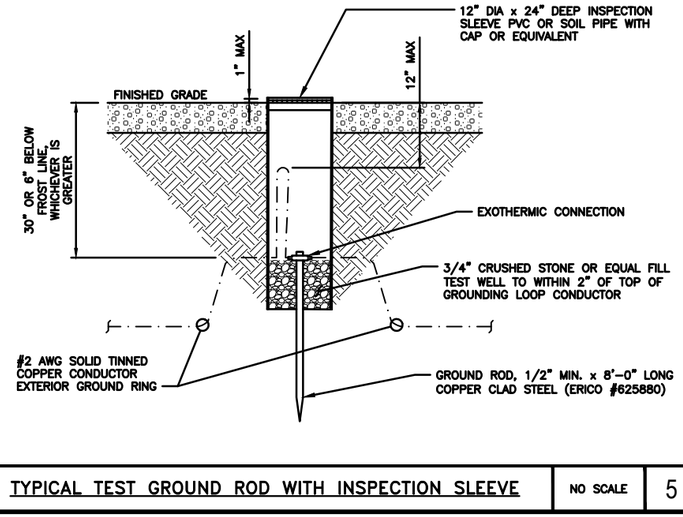
TYPICAL PCTEL GPS UNIT GROUNDING | NO SCALE | 2



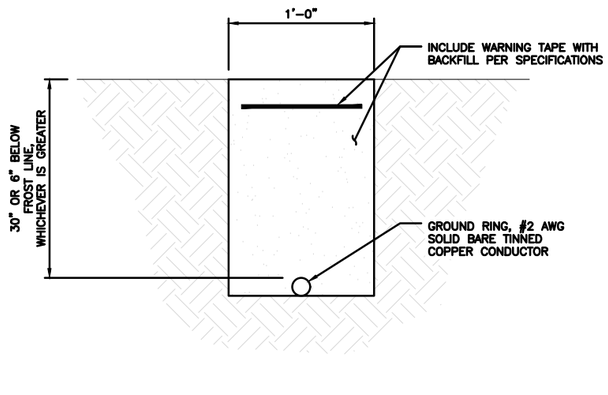
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.A10

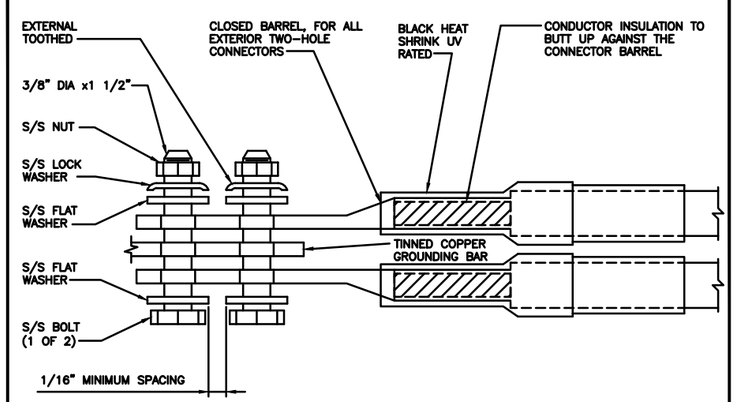
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
GROUNDING DETAILS

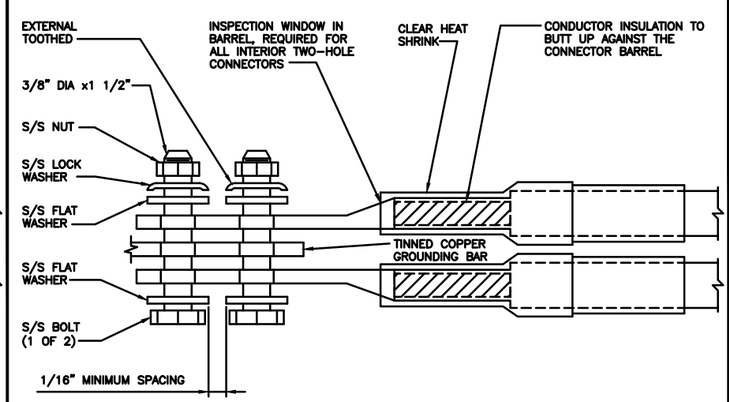
SHEET NUMBER
G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR, ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

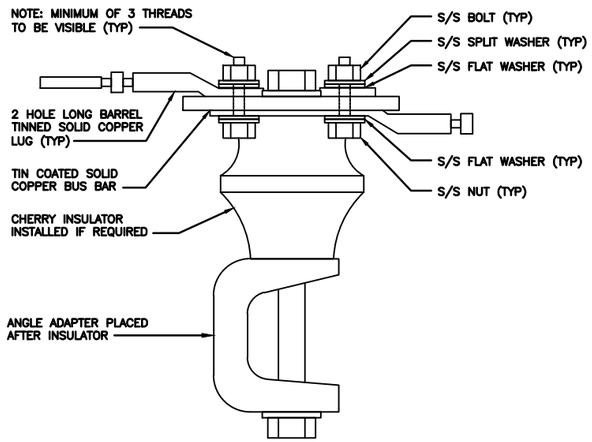
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
GROUNDING DETAILS

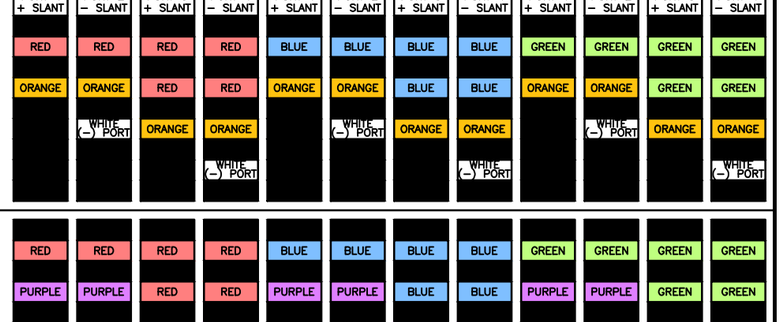
SHEET NUMBER
G-3

HYBRID/DISCREET CABLES

3/4" TAPE WIDTHS WITH 3/4" SPACING

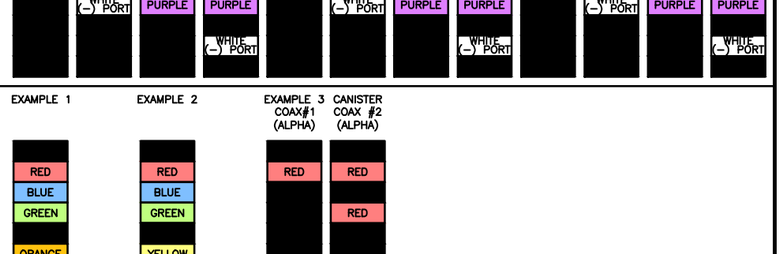
LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BAND)



MID-BAND RRH
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



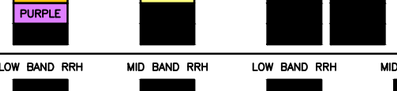
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS.

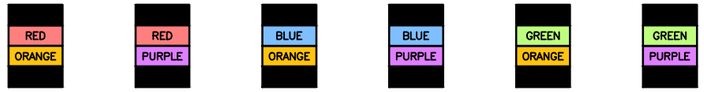
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



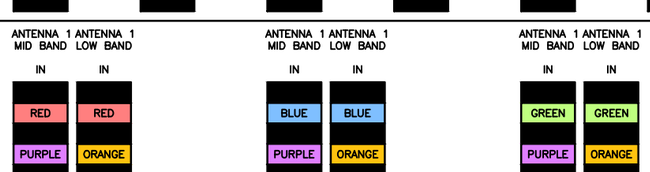
POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

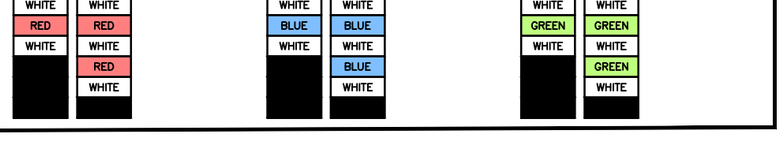
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.



LOW BANDS (N71+N26) OPTIONAL – (N29): ORANGE

AWS (N66+N70+H-BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER	NO SCALE	2
NOT USED	NO SCALE	3
RF CABLE COLOR CODES	NO SCALE	1
NOT USED	NO SCALE	4

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.A10

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

LEGEND

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

ABBREVIATIONS

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	**"INFORMATIONAL SIGN"** TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	**"NOTICE BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	**"CAUTION BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	**"WARNING BEYOND THIS POINT"** RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C EQUIPMENT.
  A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C EQUIPMENT CABINET.
  B) IF THE INFORMATION SIGH IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

CAUTION

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

WARNING

Transmitting Antenna(s)

Radio frequency fields beyond this point *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

RF SIGNAGE

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER
336.4383.A10

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.A10

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 4/14/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
RC	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	03/14/2023	ISSUED FOR PERMIT FILING
1	04/14/2023	REVISED PER CLIENT COMMENTS

A&E PROJECT NUMBER

336.4383.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER02036B
845 ETHAN ALLEN HIGHWAY
RIDGEFIELD, CT 06877

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5