NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
203-435-3640
denise@northeastsitesolutions.com

February 22, 2022

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Exempt Modification Application
20 Great Oak Road, Oxford, CT 06478
Latitude: 41.426388
Longitude: -73.144166
Site #: 876361_Crown_VZW

Dear Ms. Bachman:

Verizon Wireless is requesting to file an exempt modification for an existing tower located at 20 Great Oak Road, Oxford, CT 06478. Verizon Wireless currently maintains twelve (12) antennas at the 140-foot level of the existing 150-foot tower. The property is owned by the Town of Oxford and the tower is owned by Crown Castle. Verizon now intends to replace nine (9) antennas. The new antennas would be installed at the 140-foot level of the tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable. Antenna mount modifications will be completed as per the attached Maser Consulting Mount Analysis dated November 11, 2022.

Verizon Planned Modifications:

Remove: None

Remove and Replace:
(6) AMPHENOL LPA-80063 Antennas (REMOVE) – (6) JMA MX06FRO660-03 Antennas (REPLACE)
(3) AMPHENOL BXA-171063-128F Antennas (REMOVE) – (3) SAMSUNG MT6407-77A Antennas (REPLACE)

Install New:
(3) SAMSUNG B5/B13 -BR04C – RFV01U-D2A RRH
(3) SAMSUNG B2/B66A -BR049 – RFV01U-D1A RRH
(1) Raycap RVZDC-6627-PF-48 OVP
(2) Hybrid Line 1-1/4"

Existing to Remain:
(3) ANTEL BXA-70063-6CF-2 Antennas
(16) Coax 1-5/8"

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The facility was originally approved by the Town of Oxford on November 18, 1999, please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to George R. Temple, First Selectman and Steven Macary, Zoning Enforcement Official for the Town of Oxford. A copy is also being sent to the tower owner and property owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

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

3. The proposed modifications 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 Communications 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.

For the foregoing reasons, Verizon Wireless respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
E-mail: denise@northeastsitesolutions.com

NORTHEAST SITE SOLUTIONS

Turnkey Wireless Development

Attachments

Cc: George R. Temple, First Selectman & Property Owner
Oxford Town Hall
486 Oxford Road
Oxford, CT 06478

Steven Macary, Zoning Enforcement Official
Oxford Town Hall
486 Oxford Road
Oxford, CT 06478

Crown Castle – Tower Owner

Exhibit A

Original Facility Approval

PLANNING & ZONING COMMISSION
TOWN OF OXFORD
486 Oxford Road
Oxford, CT 06478
(203) 888-2543

Z#: Z-99-182
Date Rec'd: 9/23/99
Date on Agenda:
65-Day Expiration:

ZONING PERMIT APPLICATION

(This permit is hereby applied for in accordance with the requirements of the Oxford Zoning Regulations)

Property Identification

Street Address: 20 Great Oak Road
Subdivision Name: ______ Date Approved: ______
Map: 21 Block: 61 Lot: 1A Zoning district: Municipal Property

Owner/Applicant

Owner Name: TOWN OF OXFORD
Owner Address: 486 Oxford Road, Oxford, Connecticut 06478
Owner Telephone: (203) XXXXXXXX 888-2543

Applicant Name: SPRINT SPECTRUM L.P.
Applicant Address: 9 Barnes Industrial Road, Wallingford, CT 06492
Applicant Telephone: (203) 294-5644
Alison - (860) 509-6583

Miscellaneous Information

Special Exception: Article 10 Section 8.4 Yes No
Site Plan Approval: Article ______ Section ______ Yes No
Estimated Cost of Construction: $200,000
Variance Granted: ______ Date Granted: ______

Signatures/Authorization

Application for Zoning Permit approval as described herein is hereby made. The Oxford Planning & Zoning Commission and its technical staff are authorized to enter the property for the purpose of evaluating this application.

Permit Void If: a) Work or activity not commenced within 1 year of the date of issuance or b) Authorized construction not completed within 2 years of the date 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 constitute a violation of the Oxford Zoning Regulations.

Paul T. Schuber — 9-2-99
Property Owner or Agent — Date

Purpose
- ___ New Home
- ___ Addition
- ___ Garage
- ___ Cottage Business
- ___ Swimming Pool IG AG
- ___ Sign
- ___ Shed
- ___ Barn
- ___ Change of Use
- ___ Excavating/Filling
- ___ Trailer
- ✓ Other wireless telecommunication tower/facility

Use
- ✓ Single-Family Residence
- ___ Multi-Family Residence
- ___ Commercial
- ___ Industrial
- ___ Residential/POD
- ___ Other ______

Required Approvals and Dates [illegible]
- ✓ Inland Wetlands 9/23/99 [illegible]
- ✓ P.D.D.H. ______
- ___ Fire Marshal ______
- ___ Z.B.A. ______
- ___ W.P.C.A. ______
- ___ Floodplain ______
- ✓ Copy of Deed 9/8/99 [illegible]
- ___ Driveway ______
- ___ Erosion Control Plan
- ✓ Plot Plan *
- ___ Other Rev 9/21/99

$180.00 Town Fee ($150 - SE [illegible]; $30 - Zoning [illegible])
$10.00 State Fee
$190.00 Total Fee [illegible]

*Draw plot plan of proposed construction and attach. Plan must show property boundaries and dimensions; location of proposed buildings on property with respect to boundaries; location of existing buildings on property; outside dimensions of all buildings proposed or now existing; location of water supply; location of sewage system. All copies must have a complete sketch. Construction and use must be exactly as described in this application. If later changes from this plan are desired prior approval of an amended application is necessary.

Denied **Approved** By: Kelly Weymer [illegible] Date: 11-18-99
Title: ZEO
per P&Z Comm. mtg of 11-18-99 [illegible]

Reason for Denial ______

ZPA-1
(Adopted 5/15/97)

White - P&Z Files / Yellow - Building Department / Pink - Applicant

Exhibit B

Property Card

20 GREAT OAK RD

Location	20 GREAT OAK RD	**Mblu**	21/ 61/ 1A/ CELL/
Acct#	O041290C	**Owner**	STC FIVE LLC
Assessment	$425,200	**Appraisal**	$607,400
PID	5982	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$607,400	$0	$607,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$425,200	$0	$425,200

Owner of Record

Owner	STC FIVE LLC
Co-Owner	C/O CROWN CASTLE
Address	4017 WASHINGTON RD PMB 331 MCMURRAY , PA 15317

Sale Price	$0
Book & Page	000/ 000
Sale Date	10/01/2010
Instrument	

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
STC FIVE LLC	$0	000/ 000		10/01/2010

Building Information

Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	$0
Building Percent Good:	
Replacement Cost Less Depreciation:	$0

Building Attributes

Field	Description
Style	Outbuildings
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Extra Kitchens	
Fireplace(s)	
Extra Opening(s)	
Gas Fireplace(s)	
Blocked FPL(s)	
Woodstove(s)	
Bsmt Garage(s)	
SF Fin Bsmt	
FBM Quality	
Dormer LF	
Int Millwork	
Ext Millwork	
Foundation	

Building Photo

(http://images.vgsi.com/photos/OxfordCTPhotos//\00\01\26/16.jpg)

Building Layout

Building Layout

(http://images.vgsi.com/photos/OxfordCTPhotos//Sketches/5982_20227.jp

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code	307
Description	Cell Tower
Zone	
Neighborhood	090
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$0
Appraised Value	$0

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CELL	Cell Site			3 SITES	$528,000	1
SHD4	Cell Shed			288 S.F.	$77,800	1
FN5	Fence 10'			240 L.F.	$1,600	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$607,400	$0	$607,400
2018	$607,400	$0	$607,400
2017	$607,400	$0	$607,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$425,200	$0	$425,200
2018	$425,200	$0	$425,200
2017	$425,200	$0	$425,200

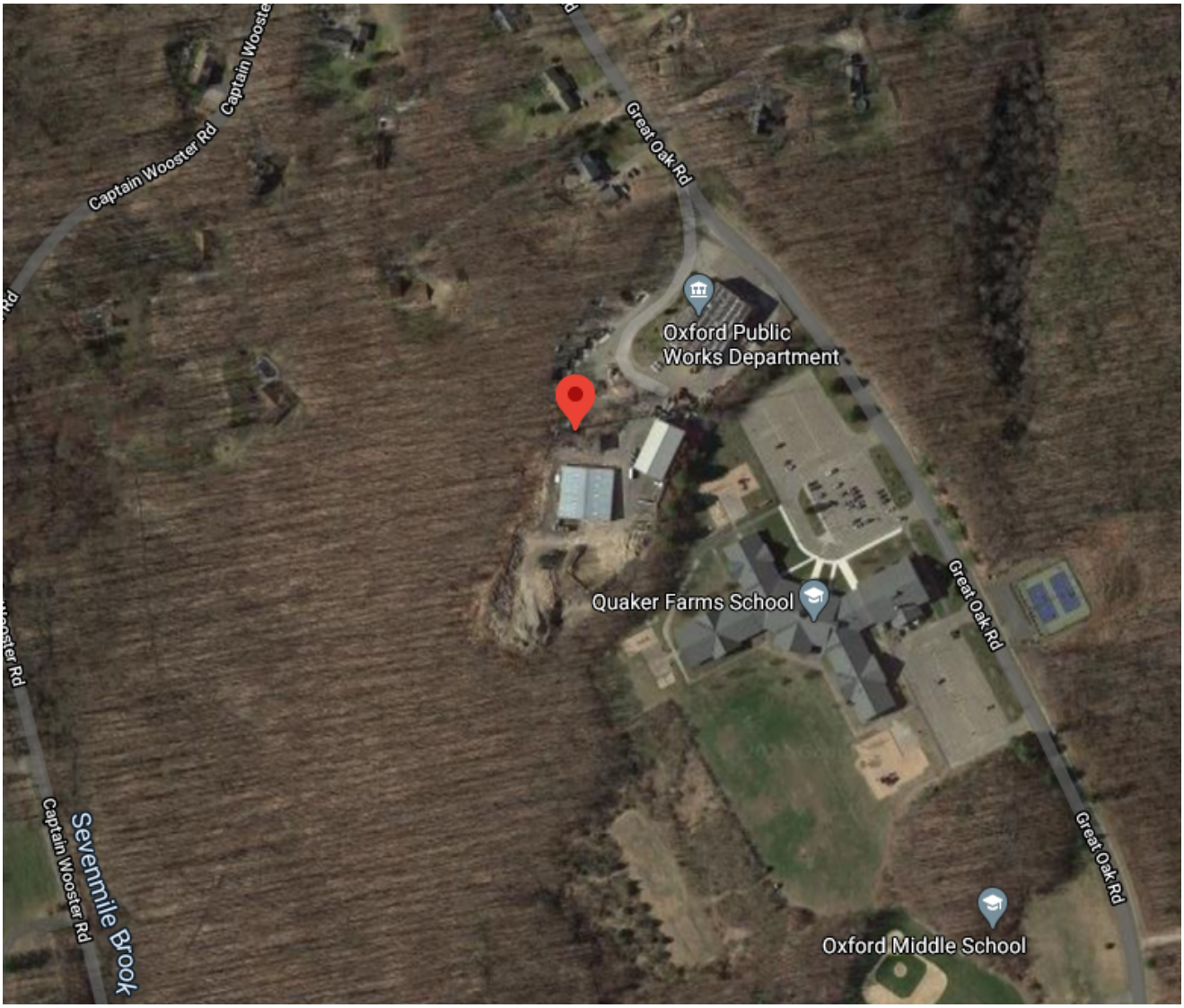

Captain Wooster Rd
Great Oak Rd
Oxford Public
Works Department
Quaker Farms School
Great Oak Rd
Great Oak Rd
Oxford Middle School
Sevenmile Brook
Captain Wooster Rd

Exhibit C

Construction Drawings

verizon

VERIZON SITE NUMBER: 467421
VERIZON SITE NAME: OXFORD W CT
SITE TYPE: MONOPOLE
TOWER HEIGHT: 150'-0"

BUSINESS UNIT #: 876361
SITE ADDRESS: 20 GREAT OAK ROAD OXFORD, CT 06478
COUNTY: NEW HAVEN
JURISDICTION: CONNECTICUT SITING COUNCIL

VERIZON 5G L-SUB6 - CARRIER ADD

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	SEYMOUR 2 / OXFORD TOWN GARAGE
SITE ADDRESS:	20 GREAT OAK ROAD OXFORD, CT 06478
COUNTY:	NEW HAVEN
MAP/PARCEL #:	21-61-38A
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.426364°
LONGITUDE:	-73.144258°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	733'
CURRENT ZONING:	RESIDENTIAL A DISTRICT
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	TOWN OF OXFORD 486 OXFORD RD OXFORD, CT 06478
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	VERIZON WIRELESS 180 WASHINGTON VALLEY ROAD BEDMINSTER, NJ 07921
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO 1 (800) 286-2000
TELCO PROVIDER:	CROWN CASTLE FIBER 1 (855) 913-4237

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 WILLIAM GATES - PROJECT MANAGER WILLIAM.GATES@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM
VERIZON CONTACT:	ANDREW LEONE ALEONE@STRUCTURECONSULTING.NET

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	SITE PLAN
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	EQUIPMENT SCHEDULES
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT DETAILS
C-6	PLUMBING DIAGRAM
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	MOUNT MODIFICATION DRAWINGS

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

APPROVALS

SIGNATURE	DATE

CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT	https://pmi.vxwsmart.com
SMART TOOL VENDOR PROJECT NUMBER	10070585
VzW LOCATION CODE (PSLC)	467421

*** PMI AND REQUIREMENTS ALSO EMBEDDED IN MOUNT ANALYSIS REPORT

MOUNT MODIFICATION REQUIRED	**Y**

VzW APPROVED SMART KIT VENDORS

REFER TO MOUNT MODIFICATION DRAWINGS PAGE FOR VzW SMART KIT APPROVED VENDORS

LOCATION MAP

NO SCALE

DRIVING DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:
GET ON BRADLEY INTERNATIONAL AIRPORT CON FROM BRADLEY INTERNATIONAL AIRPORT, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT, CONTINUE STRAIGHT KEEP RIGHT TO CONTINUE TOWARD BRADLEY INTERNATIONAL AIRPORT CON, FOLLOW I-91 S AND I-84 TO CT-188 S IN SOUTHBURY. TAKE EXIT 16 FROM I-84, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, USE THE RIGHT 2 LANES TO MERGE WITH I-91 S TOWARD HARTFORD, TAKE EXIT 32A-32B FOR I-84 W TOWARD WATERBURY, MERGE WITH I-84, TAKE EXIT 16 FOR CT-188 TOWARD SOUTHBURY, CONTINUE ON CT-188 S. DRIVE TO GREAT OAK RD IN OXFORD, TURN LEFT ONTO CT-188 S, TURN LEFT ONTO CT-188 S/CT-67 S, TURN RIGHT ONTO CT-188 S, TURN LEFT ONTO HOGS BACK RD, TURN RIGHT ONTO GREAT OAK RD, KEEP RIGHT TO STAY ON GREAT OAK RD, DESTINATION WILL BE ON THE RIGHT.

APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2022 CONNECTICUT SBC/2021 IBC WITH AMENDMENTS
MECHANICAL	2022 CONNECTICUT SBC/2021 IMC WITH AMENDMENTS
ELECTRICAL	2022 CONNECTICUT SBC/2020 NEC WITH AMENDMENTS

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BY OTHERS
DATED:	
MOUNT ANALYSIS:	MASER CONSULTING
DATED:	11/10/22
RFDS REVISION:	REV2
DATED:	6/8/22
ORDER ID:	552682
REVISION:	1

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (9) ANTENNAS
- REMOVE (2) COAX
- RELOCATE (3) ANTENNAS
- ROTATE MOUNT PLATFORM
- INSTALL (9) ANTENNAS
- INSTALL (6) RRHs
- INSTALL (1) OVP
- INSTALL (2) HYBRID CABLE
- INSTALL MOUNT MODIFICATION PER MOUNT ANALYSIS BY MASER CONSULTING DATED NOVEMBER 10, 2022

GROUND SCOPE OF WORK:
- REMOVE (3) RRHs

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
467421

BU #: **876361**
SEYMOUR 2 / OXFORD TOWN GARAGE

20 GREAT OAK ROAD
OXFORD, CT 06478

EXISTING 150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/28/22	DAS	CONSTRUCTION	MTJ
1	12/12/22	MTJ	CONSTRUCTION	CV
2	12/21/22	TDG	CONSTRUCTION	MTJ
3	12/30/22	YX	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/30/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: T-1
REVISION: 3

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. 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 CROWN CASTLE USA INC. 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 CROWN CASTLE USA INC. STANDARD CED–STD–10253, 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 QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," 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 CROWN CASTLE USA INC. 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 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 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 CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., 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 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: VERIZON
   TOWER OWNER: CROWN CASTLE USA INC.
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 CROWN CASTLE.
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 CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS 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 CROWN CASTLE USA INC.
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.

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.

GREENFIELD 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–POTENTAL 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).

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. VERYIFY 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. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
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 3R (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 CROWN CASTLE USA INC. 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 "VERIZON".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
467421

BU #: **876361**
SEYMOUR 2 / OXFORD TOWN GARAGE

20 GREAT OAK ROAD
OXFORD, CT 06478

EXISTING 150'-0" MONOPOLE

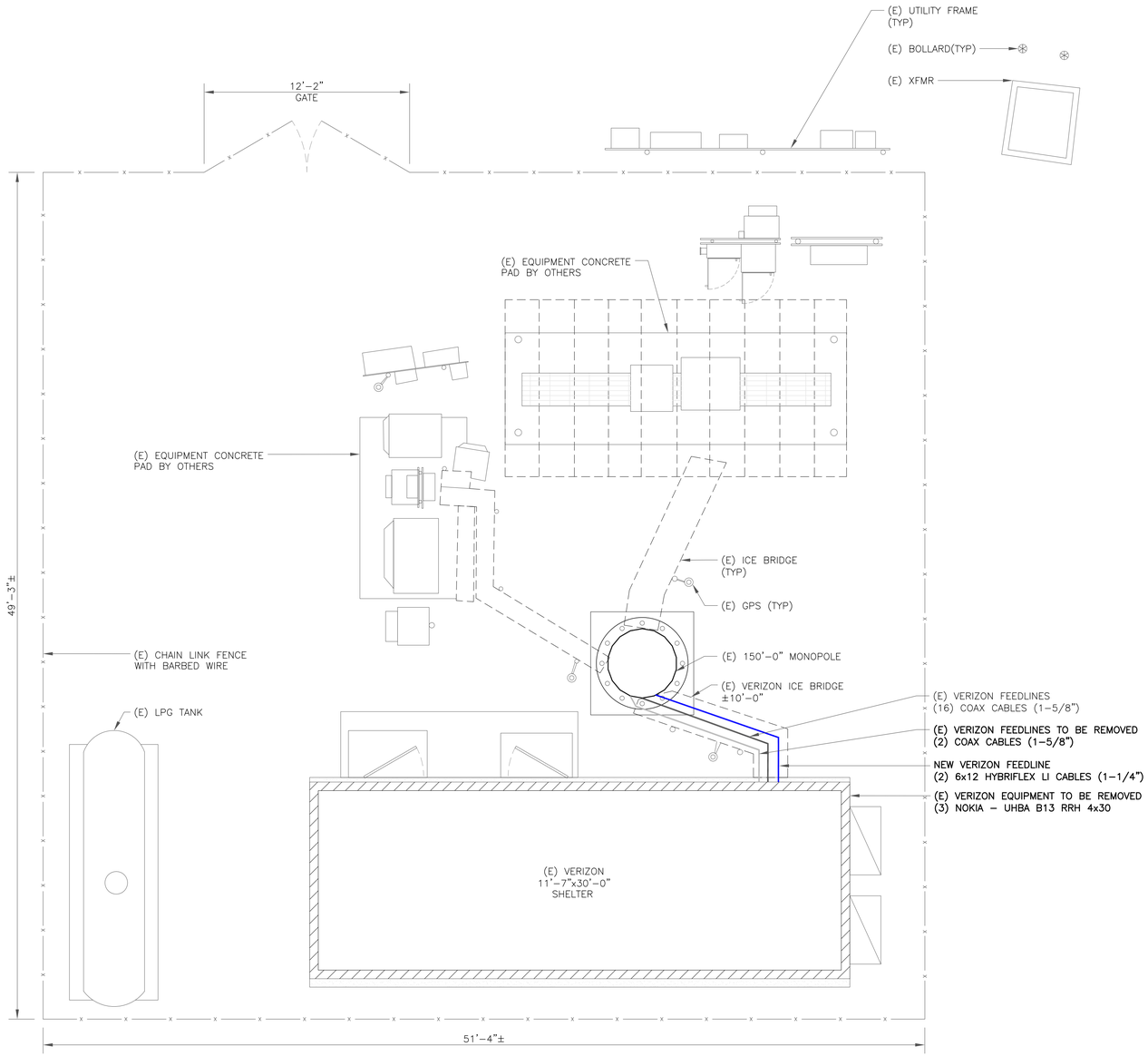
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/28/22	DAS	CONSTRUCTION	MTJ
1	12/12/22	MTJ	CONSTRUCTION	CV
2	12/21/22	TDG	CONSTRUCTION	MTJ
3	12/30/22	YX	CONSTRUCTION	MTJ

12/30/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: **T-2**
REVISION: **3**



1 SITE PLAN
SCALE: 4' 3' 2' 1' 0 4'
1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)

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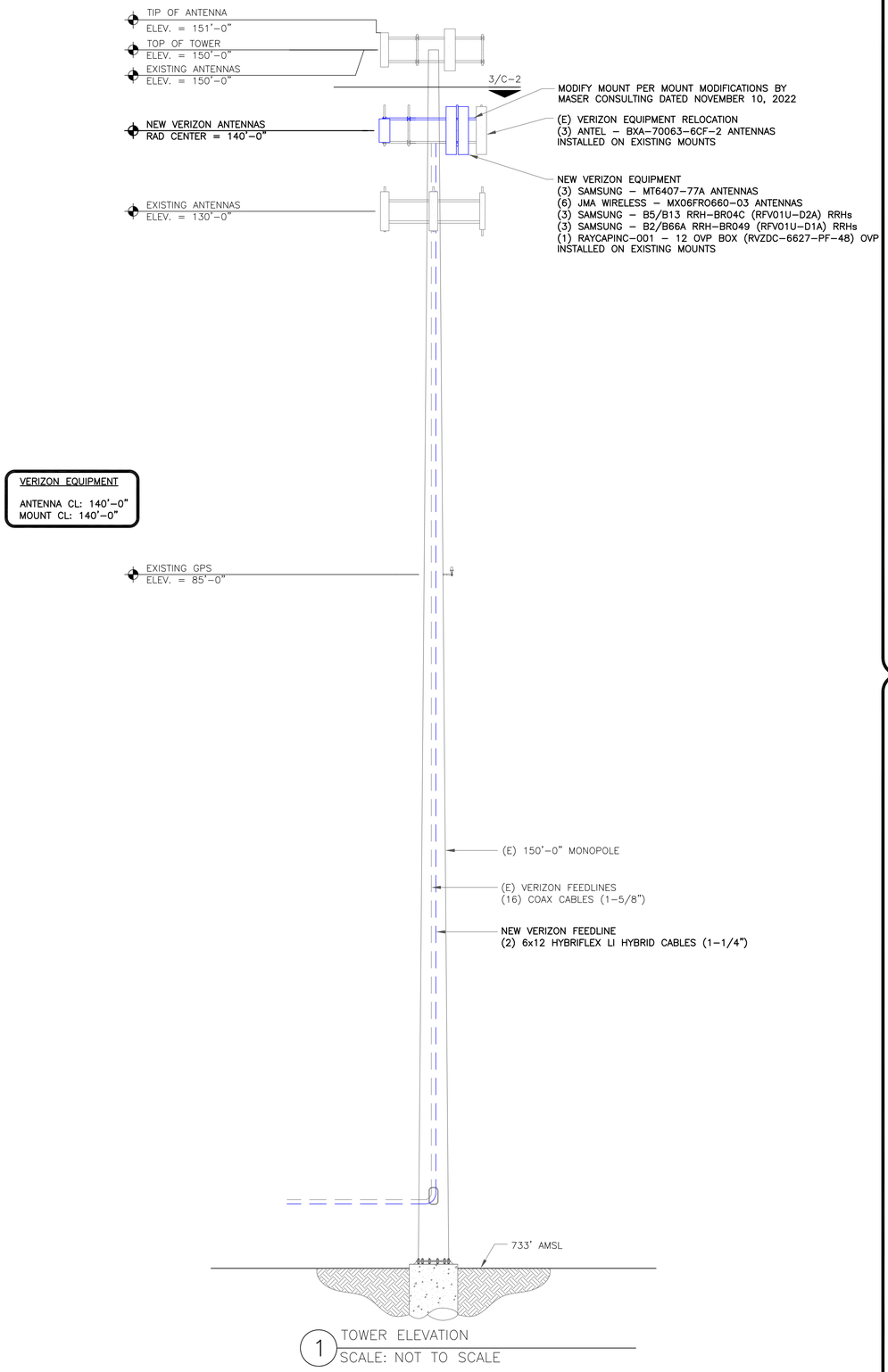
STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/30/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-1
REVISION: 3



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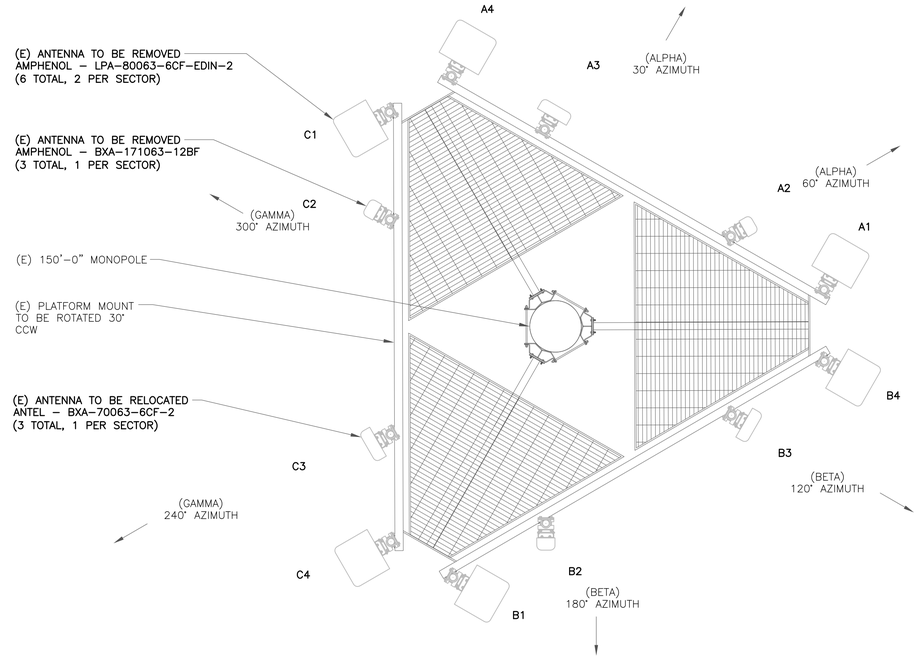
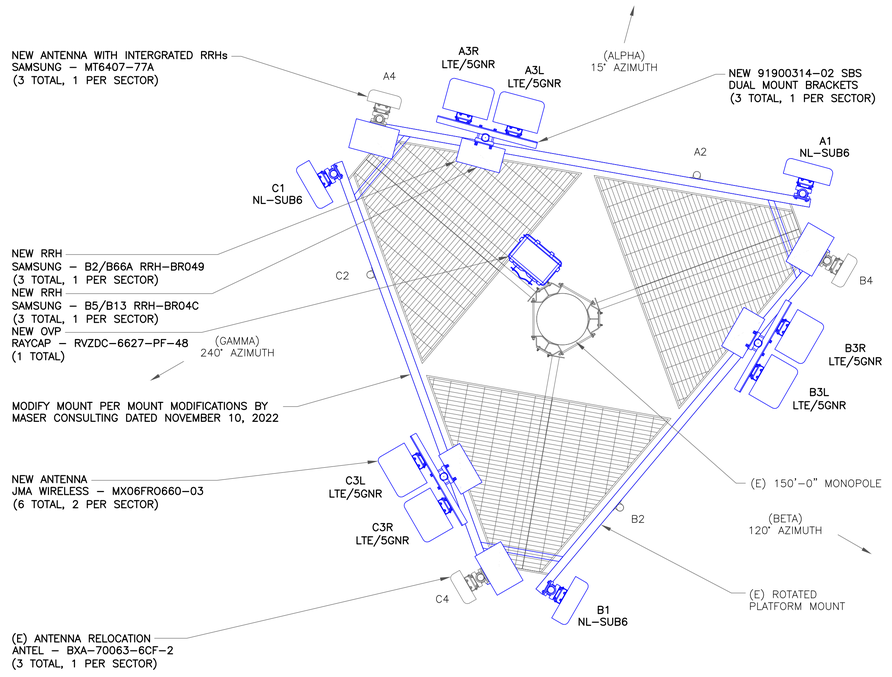


2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 NEW ANTENNA PLAN
SCALE: NOT TO SCALE

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MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-2

REVISION: 3

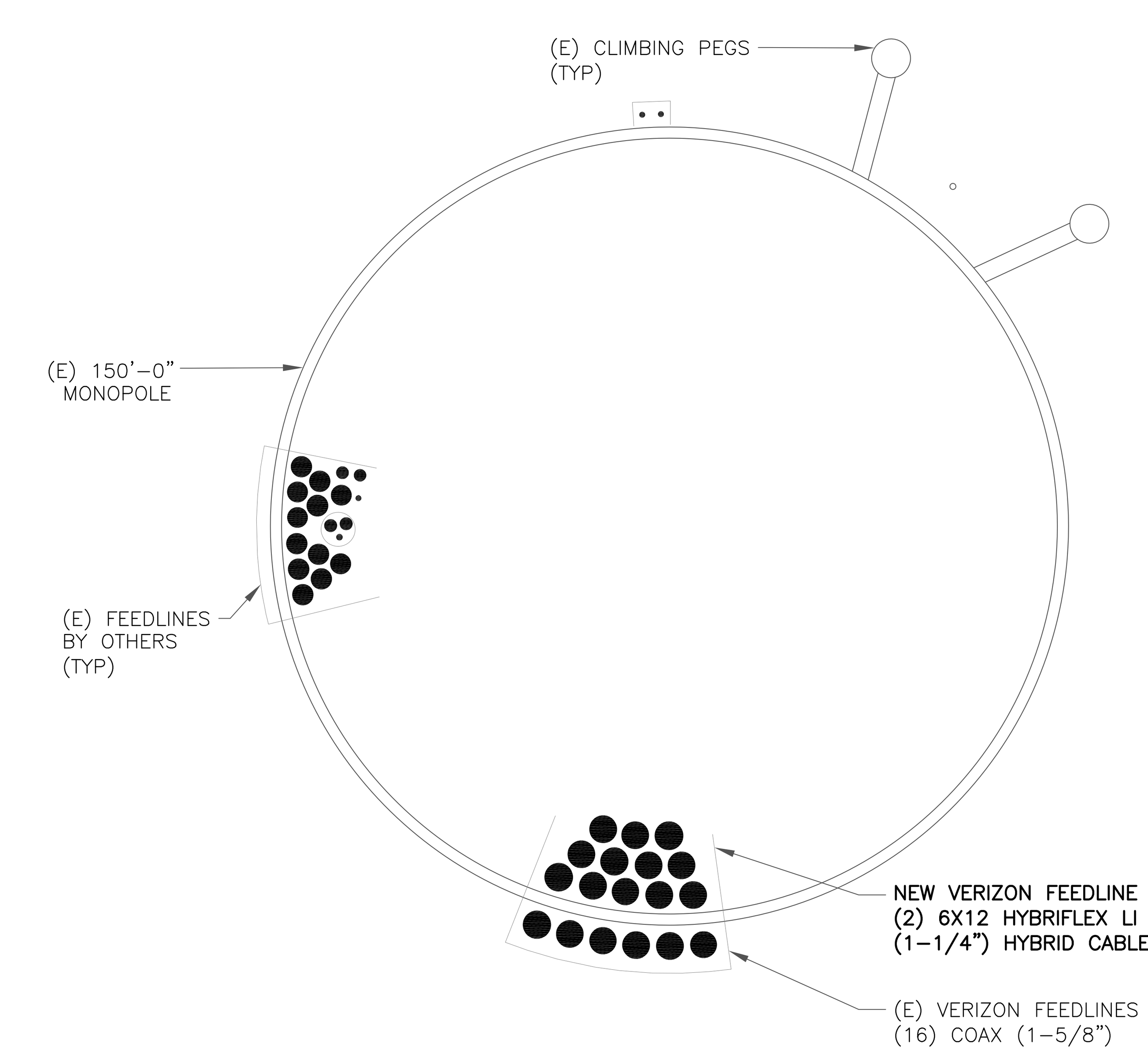
ANTENNA/RRH SCHEDULE

SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	MECHANICAL DOWNTILTS	ELECTRICAL DOWNTILTS	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	NEW	SAMSUNG	MT6407-77A	140'-0"	15°	0°	6°	–	INTERGRATED WITHIN
A2	–	–	EMPTY MOUNT PIPE	–	–	–	–	RAYCAPINC	12 OVP BOX (RVZDC-6627-PF-48)
A3L	NEW	JMA WIRELESS	MX06FRO660-03	140'-0"	15°	0°	2°/2°/2° /0°/0°/0°	SAMSUNG	(1) B5/B13 RRH-BR04C (RFV01U-D2A)
A3R	NEW	JMA WIRELESS	MX06FRO660-03	140'-0"	15°	0°	2°/2°/2° /0°/0°/0°	SAMSUNG	(1) B2/B66A RRH-BR049 (RFV01U-D1A)
A4	EXISTING	ANTEL	BXA-70063-6CF-2	140'-0"	15°	0°	2°	–	–
B1	NEW	SAMSUNG	MT6407-77A	140'-0"	120°	0°	6°	–	INTERGRATED WITHIN
B2	–	–	EMPTY MOUNT PIPE	–	–	–	–	–	–
B3L	NEW	JMA WIRELESS	MX06FRO660-03	140'-0"	120°	0°	2°/2°/2° /0°/0°/0°	SAMSUNG	(1) B5/B13 RRH-BR04C (RFV01U-D2A)
B3R	NEW	JMA WIRELESS	MX06FRO660-03	140'-0"	120°	0°	2°/2°/2° /0°/0°/0°	SAMSUNG	(1) B2/B66A RRH-BR049 (RFV01U-D1A)
B4	EXISTING	ANTEL	BXA-70063-6CF-2	140'-0"	120°	0°	2°	–	–
C1	NEW	SAMSUNG	MT6407-77A	140'-0"	240°	0°	6°	–	INTERGRATED WITHIN
C2	–	–	EMPTY MOUNT PIPE	–	–	–	–	–	–
C3L	NEW	JMA WIRELESS	MX06FRO660-03	140'-0"	240°	0°	2°/2°/2° /0°/0°/0°	SAMSUNG	(1) B5/B13 RRH-BR04C (RFV01U-D2A)
C3R	NEW	JMA WIRELESS	MX06FRO660-03	140'-0"	240°	0°	2°/2°/2° /0°/0°/0°	SAMSUNG	(1) B2/B66A RRH-BR049 (RFV01U-D1A)
C4	EXISTING	ANTEL	BXA-70063-6CF-2	140'-0"	240°	0°	2°	–	–

1 VERIZON TOWER EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

CABLE SCHEDULE

STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1-5/8"	190'-0"±	16
NEW	HYBRID	1-1/4"	190'-0"±	2
TOTAL CABLE QTY:				18



2 BASE LEVEL DETAIL
SCALE: NOT TO SCALE

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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
467421

BU #: **876361**
SEYMOUR 2 / OXFORD TOWN GARAGE

20 GREAT OAK ROAD
OXFORD, CT 06478

EXISTING 150'-0" MONOPOLE

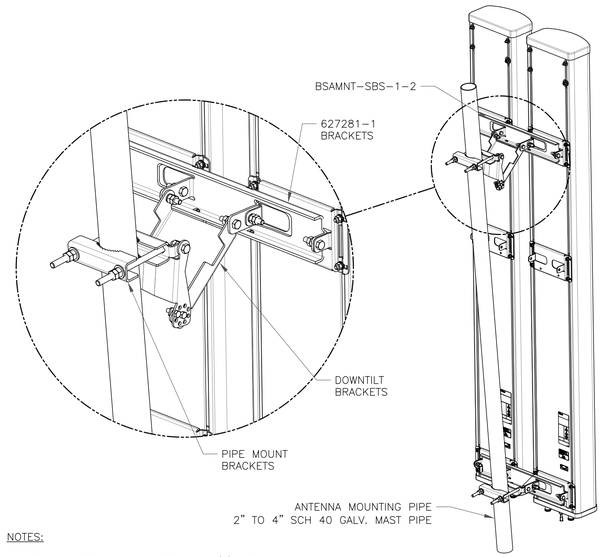
ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/28/22	DAS	CONSTRUCTION	MTJ
1	12/12/22	MTJ	CONSTRUCTION	CV
2	12/21/22	TDG	CONSTRUCTION	MTJ
3	12/30/22	YX	CONSTRUCTION	MTJ

12/30/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-3
REVISION: 3

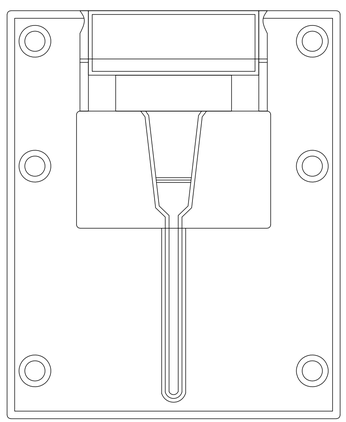


NOTES:

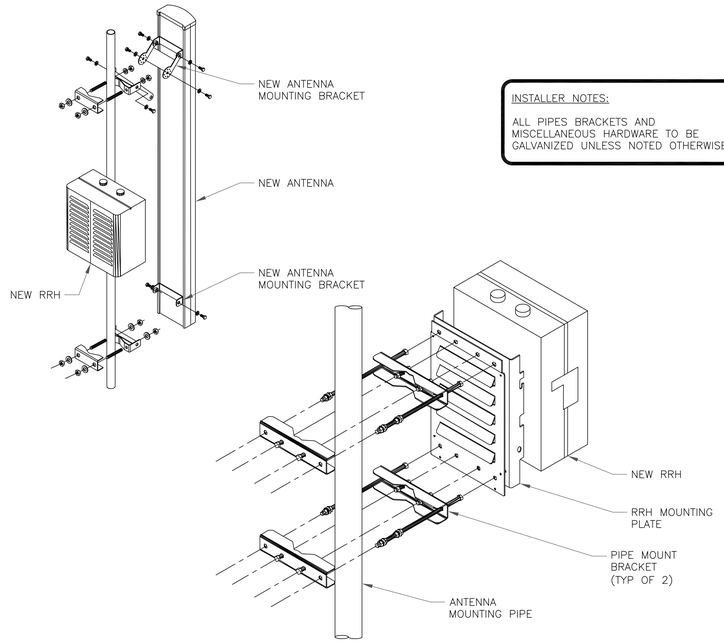
- BSAMNT-SBS-1-2 KIT CONTAINS (2) 627281 MOUNTING BRACKETS.
- TORQUE THE M10 BOLT ASSEMBLY TO 37 N.m. PER MANUFACTURE'S RECOMMENDATIONS.

1 COMMSCOPE – BSAMNT-SBS-1-2
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE



3 SAMSUNG – EP97-01585A BRACKET DETAIL
SCALE: NOT TO SCALE



INSTALLER NOTES:

ALL PIPES BRACKETS AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.

4 ANTENNA & RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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EXISTING 150'-0" MONOPOLE

ISSUED FOR:

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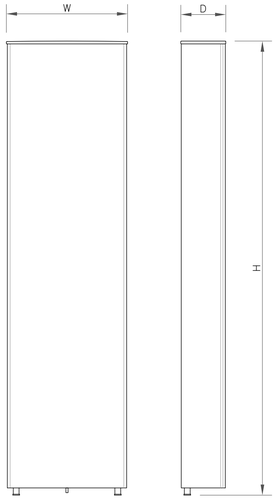
2	12/21/22	TDG	CONSTRUCTION	MTJ
3	12/30/22	YX	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
MICHAEL T. JONES
No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/30/22

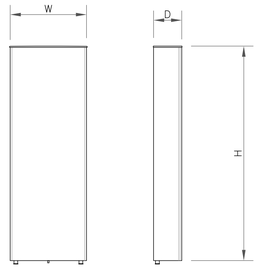
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-4
REVISION: 3



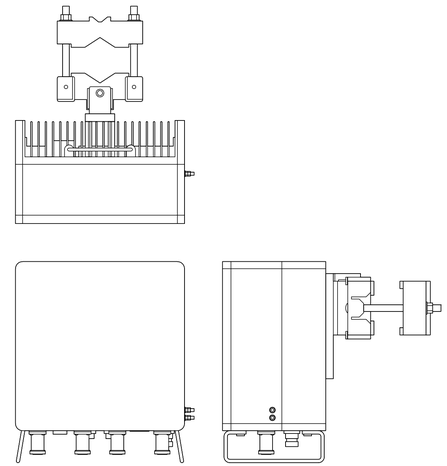
ANTENNA SPECS	
MANUFACTURER	JMA WIRELESS
MODEL #	MX06FRO660-03
WIDTH	15.40"
DEPTH	10.70"
HEIGHT	71.30"
WEIGHT	78.00 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



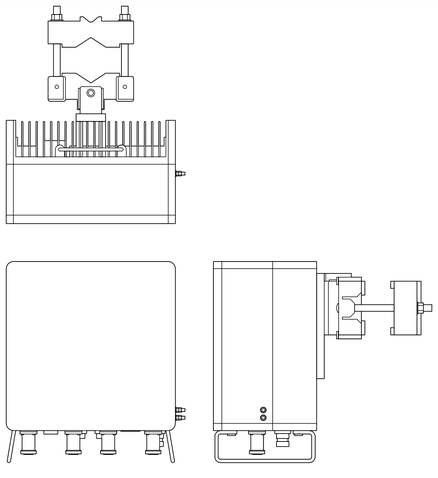
ANTENNA SPECS	
MANUFACTURER	SAMSUNG
MODEL #	MT6407-77A
WIDTH	16.06"
DEPTH	5.51"
HEIGHT	35.06"
WEIGHT	81.57 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



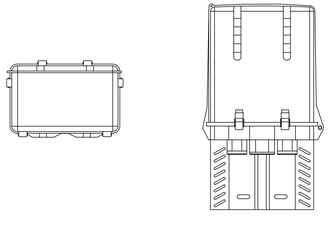
RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B5/B13 RRH-BR04C
WIDTH	15.00"
DEPTH	10.00"
HEIGHT	15.00"
WEIGHT	84.40 LBS

3 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECS	
MANUFACTURER	SAMSUNG
MODEL #	B2/B66A RRH-BR049
WIDTH	15.00"
DEPTH	8.10"
HEIGHT	15.00"
WEIGHT	70.30 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



RAYCAP – RCMDC-6627-PF-48
WEIGHT (WITHOUT MOUNTING HARDWARE): 32.0 LBS
SIZE (HxWxD): 28.9x15.7x10.3 IN.

RATED WIND VELOCITY: 150 MPH (SUSTAINED)
OPERATING TEMPERATURE: -40° C TO +80° C
NOMINAL OPERATING DC VOLTAGE: 48 VDC

5 RAYCAP – RCMDC-6627-PF-48
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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EXISTING 150'-0" MONOPOLE

ISSUED FOR:

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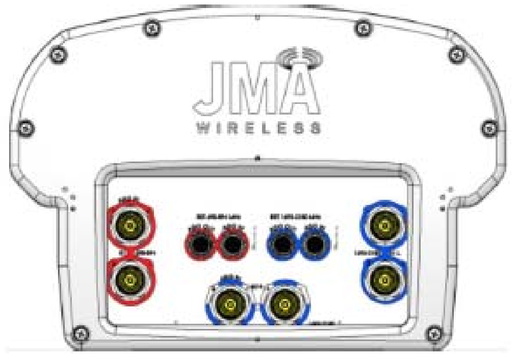
BER:2386985
Expires 3/31/23

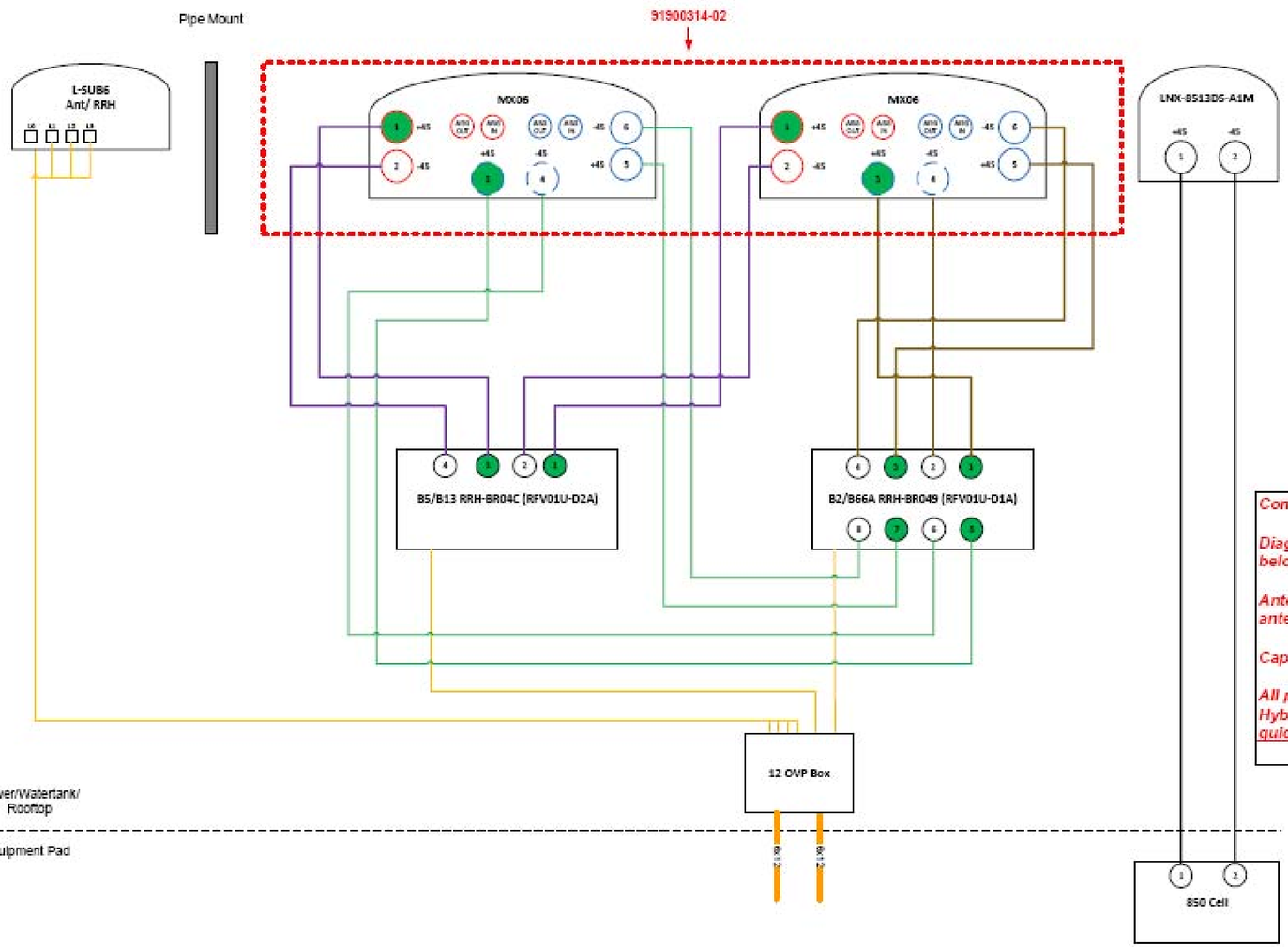
SHEET NUMBER: C-5

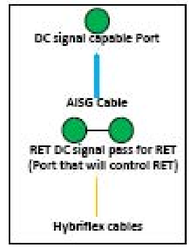
REVISION: 3



- Port 1 & 2 are for low band (698-896 MHz).
- Port 3,4,5, & 6 are for high band (1695-2360 MHz).
- Smart Bias Tee (SBT) is through port 1 & 3 for low band and port 1 for high band.
- AISG cable is only needed when drawn in the diagrams below, if it is not drawn then SBT is enough to control all RET motors.
- Not all SBT ports are needed to control RET, only green port connection to green port will control RET.

RET DC signal pass for RET
(Port that will control RET)





Comments:

Diagram shows antenna port configuration as viewed from below antennas.

Antenna positions are indicated as viewed from IN FRONT of antennas.

Cap and weatherproof unused antenna ports.

All plumbing diagram colors are irrelevant except for AISG & Hybriflex cable. (For the coax colors follow Coax Colors quide above)

1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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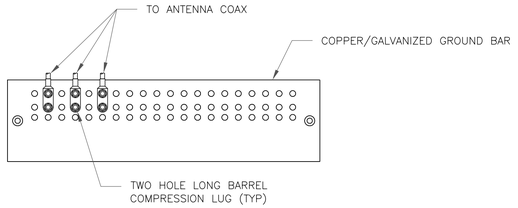
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-6

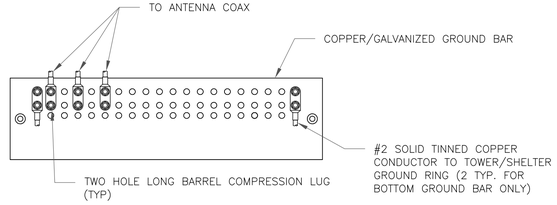
REVISION: 3



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

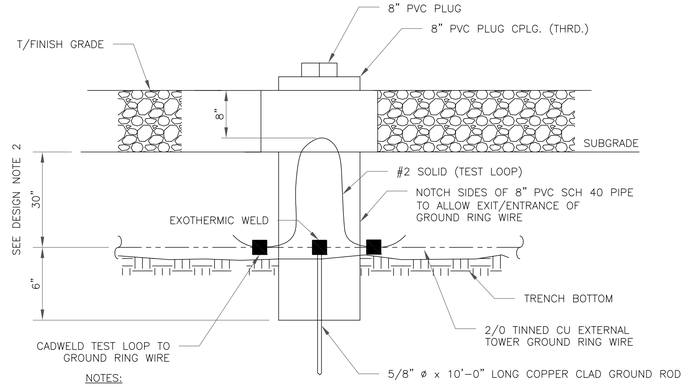
1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

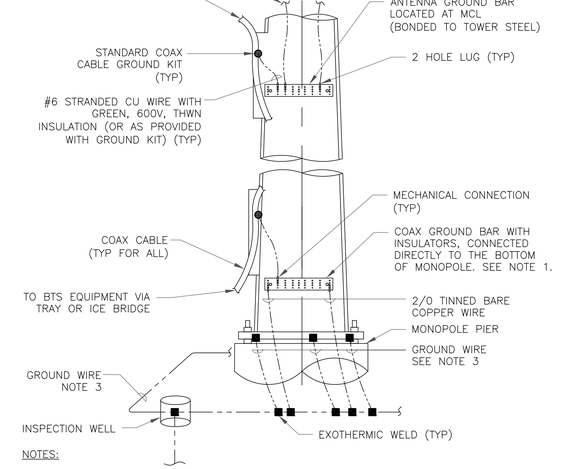
2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

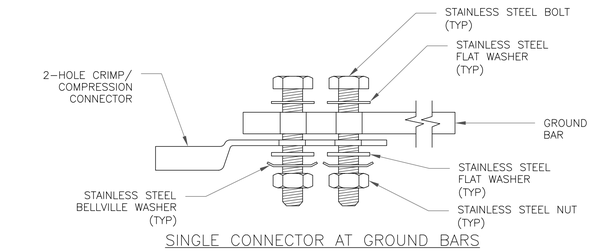
3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



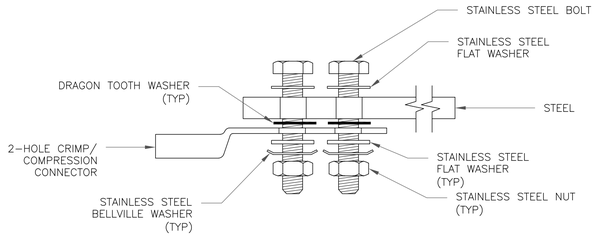
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

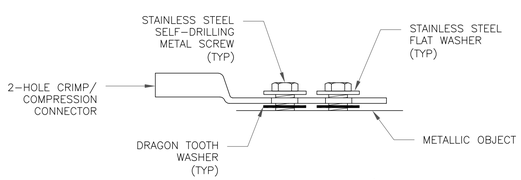
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

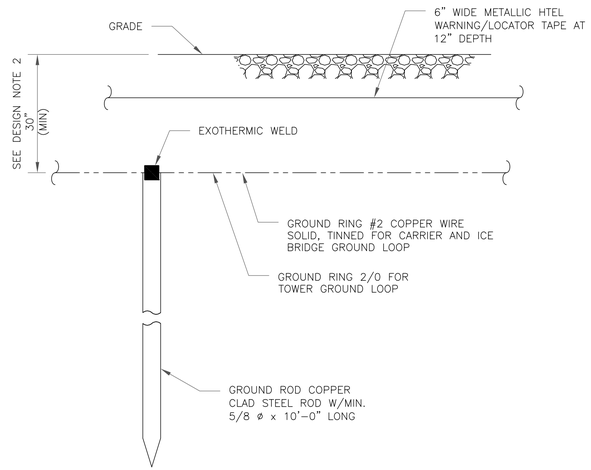


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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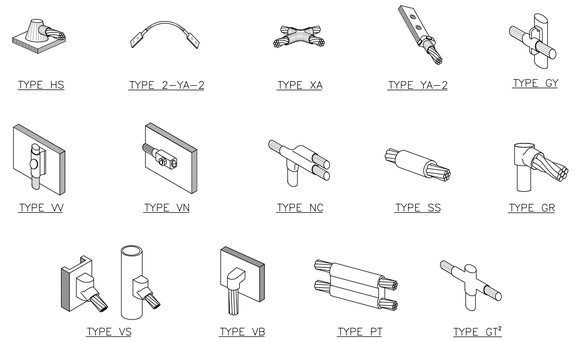
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-1
REVISION: 3

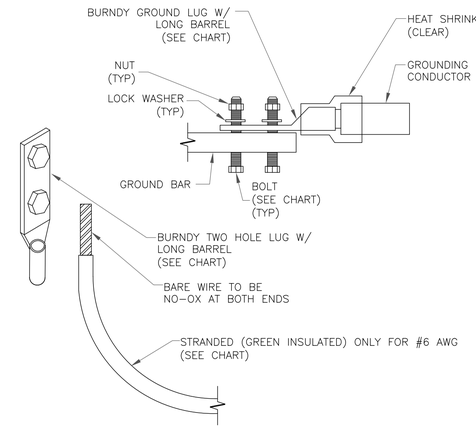


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

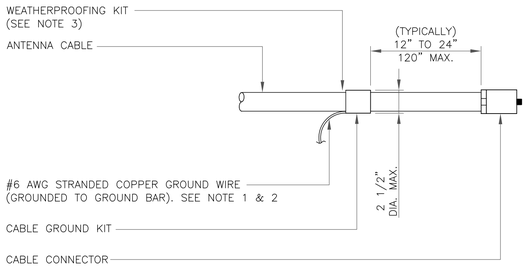
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

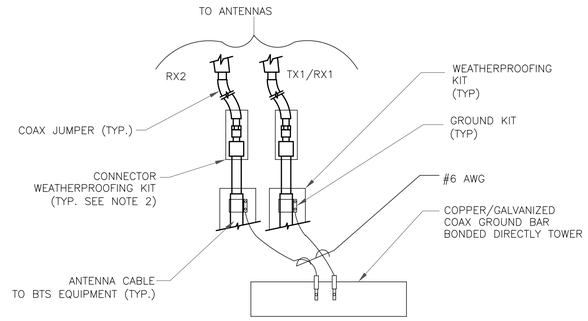
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE

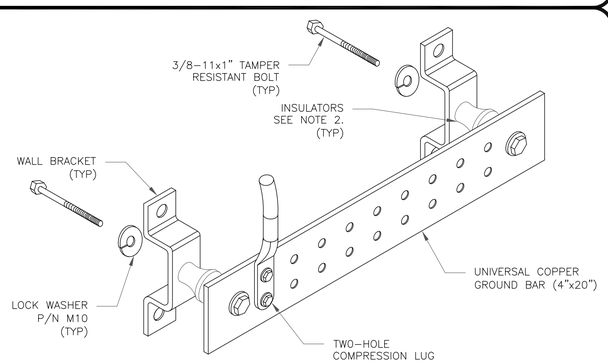


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE

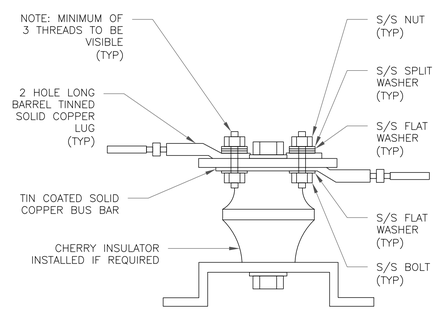
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



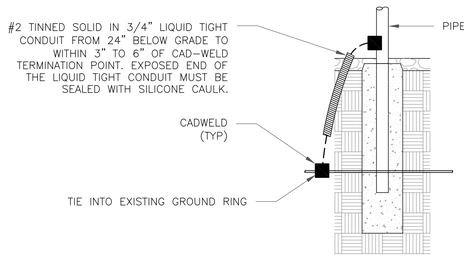
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

VERIZON SITE NUMBER:
467421

BU #: **876361**
SEYMOUR 2 / OXFORD TOWN GARAGE

20 GREAT OAK ROAD
OXFORD, CT 06478

EXISTING 150'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/28/22	DAS	CONSTRUCTION	MTJ
1	12/12/22	MTJ	CONSTRUCTION	CV
2	12/21/22	TDG	CONSTRUCTION	MTJ
3	12/30/22	YX	CONSTRUCTION	MTJ

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: G-2
REVISION: 3

MOUNT MODIFICATION DRAWINGS
EXISTING 12.50' PLATFORM

TOWER OWNER: CROWN CASTLE
TOWER OWNER SITE NUMBER: 876361

CARRIER SITE NAME: OXFORD W CT
CARRIER SITE NUMBER: 467421
FUZE ID: 16272032

20 GREAT OAK RD
OXFORD, CT 06478
NEW HAVEN COUNTY

LATITUDE: 41.426358° N
LONGITUDE: 73.144247° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), V = 117 MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC METHOD II
TOPOGRAPHY CONSIDERED NO
MEAN BASE ELEVATION (AMSL) = 734.07'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), V = 50 MPH
ICE THICKNESS = 1.00 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, S_S = .200
LONG TERM MCER GROUND MOTION, S_1 = .054

PROJECT INFORMATION

APPLICANT/LESSEE

COMPANY: VERIZON WIRELESS

CLIENT REPRESENTATIVE

COMPANY: VERIZON WIRELESS

PROJECT MANAGER

COMPANY: COLLIERS ENGINEERING & DESIGN
CONTACT: PETER ALBANO
PHONE: 856.797.0412
E-MAIL: PETER.ALBANO@COLLIERSENGINEERING.COM

CONTRACTOR PMI REQUIREMENTS

PMI LOCATION: HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #: 10180119
VZW LOCATION CODE (PSLC): 467421
ANALYSIS DATE: 11/11/2022

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX

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JOB NUMBER: 21777126A

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.	.	.	.	.
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.	.	.	.	.
1	11/11/22	ISSUED FOR CONSTRUCTION	MKS	DX

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C.T. JPC.0000131

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SITE NAME:

OXFORD W CT
467421

20 GREAT OAK RD
OXFORD, CT 06478
NEW HAVEN COUNTY

STAMFORD
1055 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SHEET TITLE: TITLE SHEET

SHEET NUMBER: ST-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

BILL OF MATERIALS

SECTION 1 - VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
1	VZWSMART	VZWSMART-PLK1	SUPPORT RAIL KIT	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	504	504
1		VZWSMART-MSK6	BACK TO BACK CROSSOVER PLATE		34	34
1		VZWSMART-P40-238X048	48" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)		15	15
3		VZWSMART-P40-278X096	96" LONG, PIPE 2.5 SCH40 (2.875"OD X 0.203" THK)		44	132

SECTION 2 - OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
-	-	-	5/8" DIA. J429 GR.2 U-BOLTS		(blank)	

SECTION 3 - REQUIRED SAFETY CLIMB PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
					TOTAL:	685

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM

METROSITE FABRICATORS, LLC	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM

SABRE INDUSTRIES, INC.	
CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

SITE PRO 1	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM

NEWAVE	
CONTACT	NEWAVE SALES TEAM
PHONE	(971) 239-4762
EMAIL	SALES@NEWAVETC.COM
WEBSITE	WWW.NEWAVETC.COM

BETTER METAL, LLC	
CONTACT	DAVID STANSBERRY
PHONE	(615) 535-0990 (O), (615) 631-2520 (M)
EMAIL	DLS@BETTERMETAL.COM
WEBSITE	WWW.BETTERMETAL.COM

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SITE NAME:

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467421

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OXFORD, CT 06478
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STAMFORD
1055 Washington Boulevard
Stamford, CT 06901

Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN, INC.
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SHEET TITLE: BILL OF MATERIALS

SHEET NUMBER: SBOM-1

GENERAL NOTES

1. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
4. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
6. 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/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
8. WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
9. ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
10. CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
11. CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
12. DO NOT SCALE DRAWINGS.
13. DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
14. ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
15. THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

1. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
   a. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
   b. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
   c. AISC CODE OF STANDARD PRACTICE
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE

3. ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
4. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
   a. SUBMIT SHOP DRAWINGS TO

      PETER.ALBANO@COLLIERSENGINEERING.COM

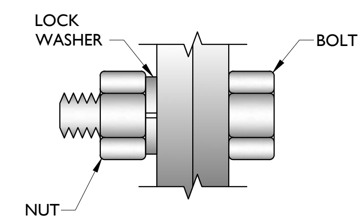
   b. PROVIDE MASER CONSULTING PROJECT # AND MASER CONSULTING PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
5. DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
7. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
8. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
9. WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
10. FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
12. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
13. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
14. ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINGA OR ZINC COTE), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
15. ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN.)

LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8

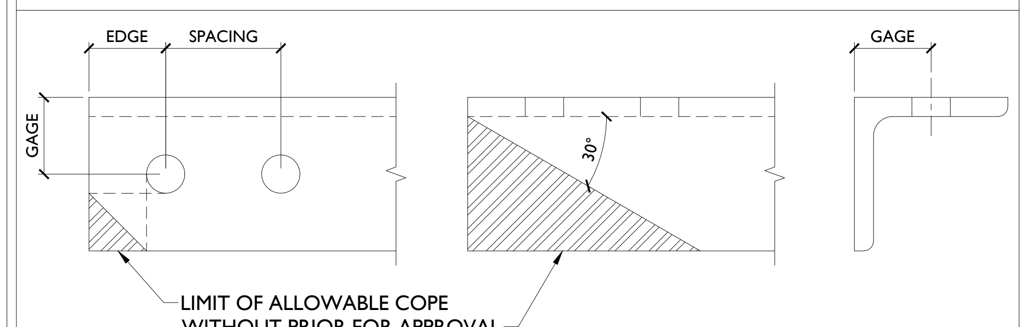


TYP. BOLT ASSEMBLY

NOTES:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.

ALLOWABLE COPING



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467421

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STAMFORD
1055 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN, INC.
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SHEET TITLE : GENERAL NOTES

SHEET NUMBER : SGN-1

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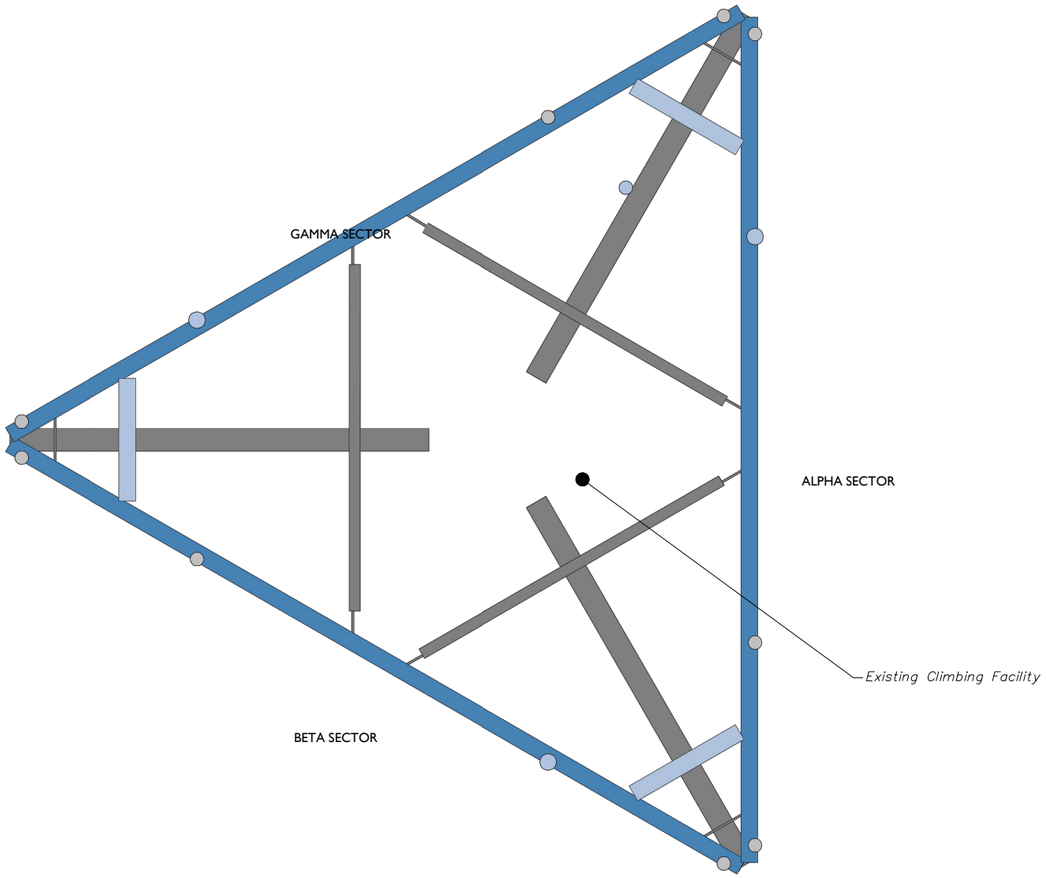

1 CLIMBING FACILITY LOCATION

SCALE : N.T.S.

CLIMBING FACILITY PHOTO

STRUCTURAL NOTES:

1. PER THE MOUNT MAPPING COMPLETED BY HUDSON DESIGN GROUP, LLC ON 3/24/2022, CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (138'-6") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.

2. INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.

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STAMFORD
1055 Washington Boulevard
Stamford, CT 06901

Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SHEET TITLE :

CLIMBING FACILITY DETAIL

SHEET NUMBER :

SCF-1

LEGEND:

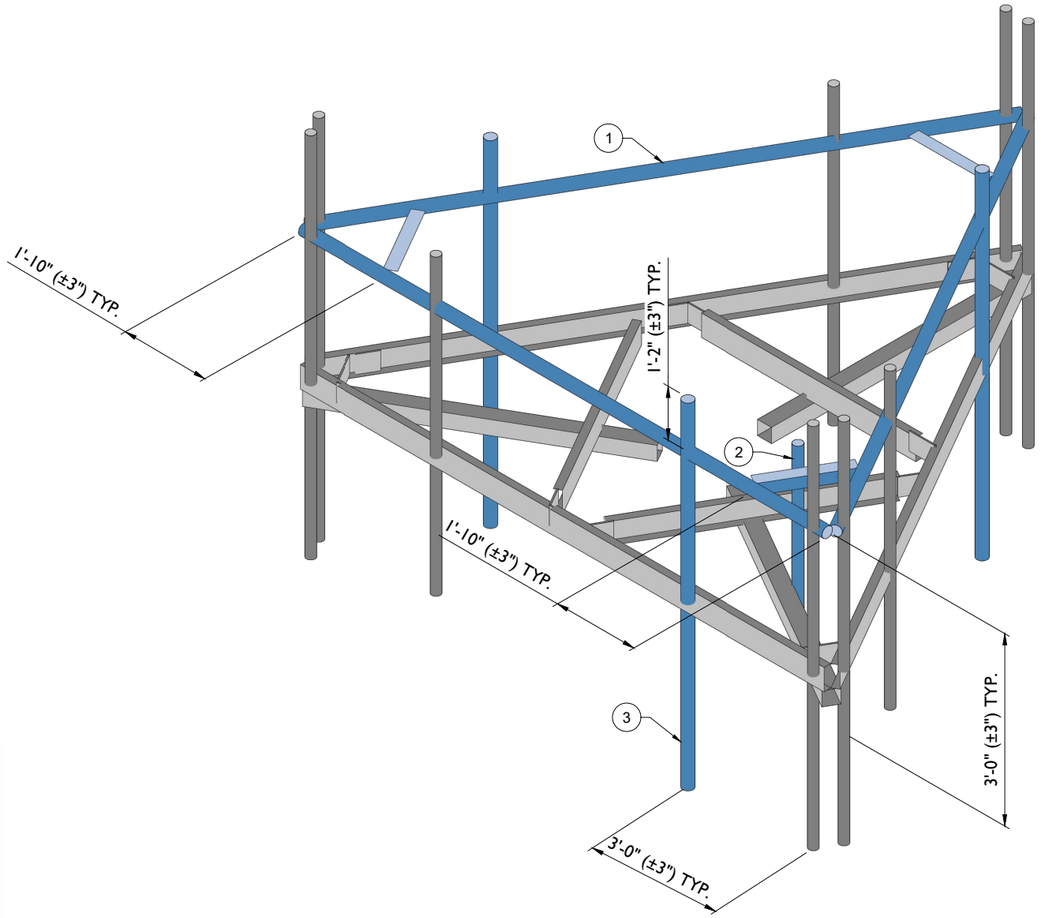
- PROPOSED
- RELOCATED
- EXISTING

MOUNT MODIFICATION SCHEDULE

NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	138'-6"	1	PROPOSED SUPPORT RAIL KIT (PART #: VZWSMART-PLK1)	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF HORIZONTAL AS SHOWN.
2		1	PROPOSED 48" LONG, PIPE 2 SCH40 (PART #: VZWSMART-P40-238X048)	CONNECT NEW OVP PIPE TO EXISTING STANDOFF HORIZONTAL WITH CROSSOVER PLATES (PART #: VZWSMART-MSK6).
3		3	PROPOSED 96" LONG, PIPE 2.5 SCH40 (PART #: VZWSMART-P40-278X096)	REMOVE EXISTING MOUNT PIPE SIN POSITION 2 AND CONNECT NEW MOUNT PIPE TO EXISTING HORIZONTAL WITH 5/8" DIA. J429 GR.2 U-BOLTS AND CONNECT TO SUPPORT RAIL WITH CROSSOVER PLATES PROVIDED IN THE SUPPORT RAIL KIT (PART #: VZWSMART-PLK1).

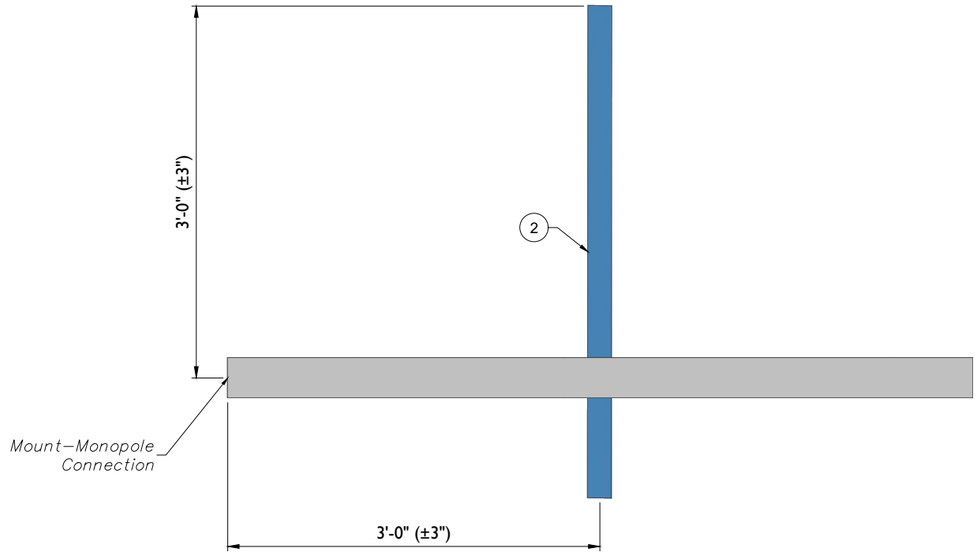
GENERAL NOTES:

A. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.



1 PROPOSED ISOMETRIC VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.



2 PROPOSED STANDOFF SIDE ELEVATION VIEW (GAMMA/ALPHA SECTOR ONLY)

SCALE : N.T.S.

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SCALE : AS SHOWN

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REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
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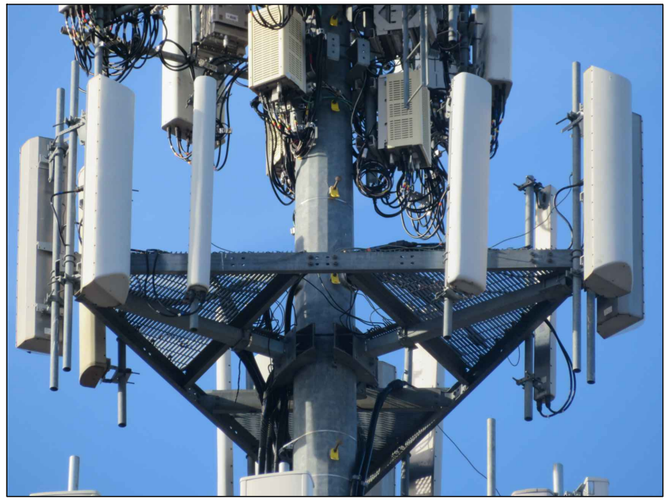
SHEET TITLE : MODIFICATION DETAILS

SHEET NUMBER : SS-1



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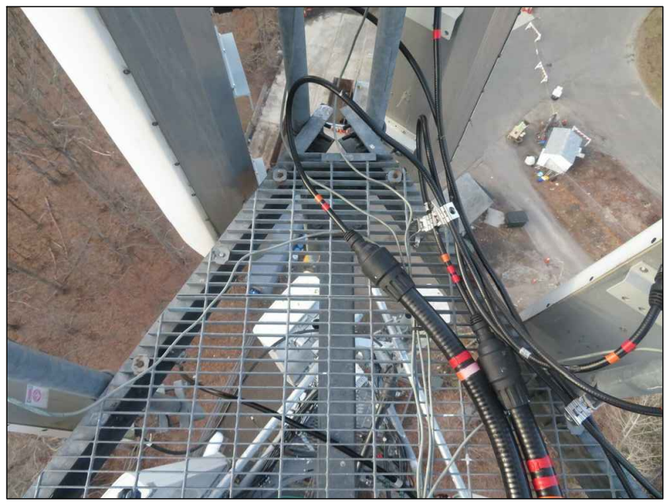
MOUNT PHOTO 2



MOUNT PHOTO 3

MOUNT PHOTO 4

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JOB NUMBER: 21777126A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	11/11/22	ISSUED FOR CONSTRUCTION	MKS	DX

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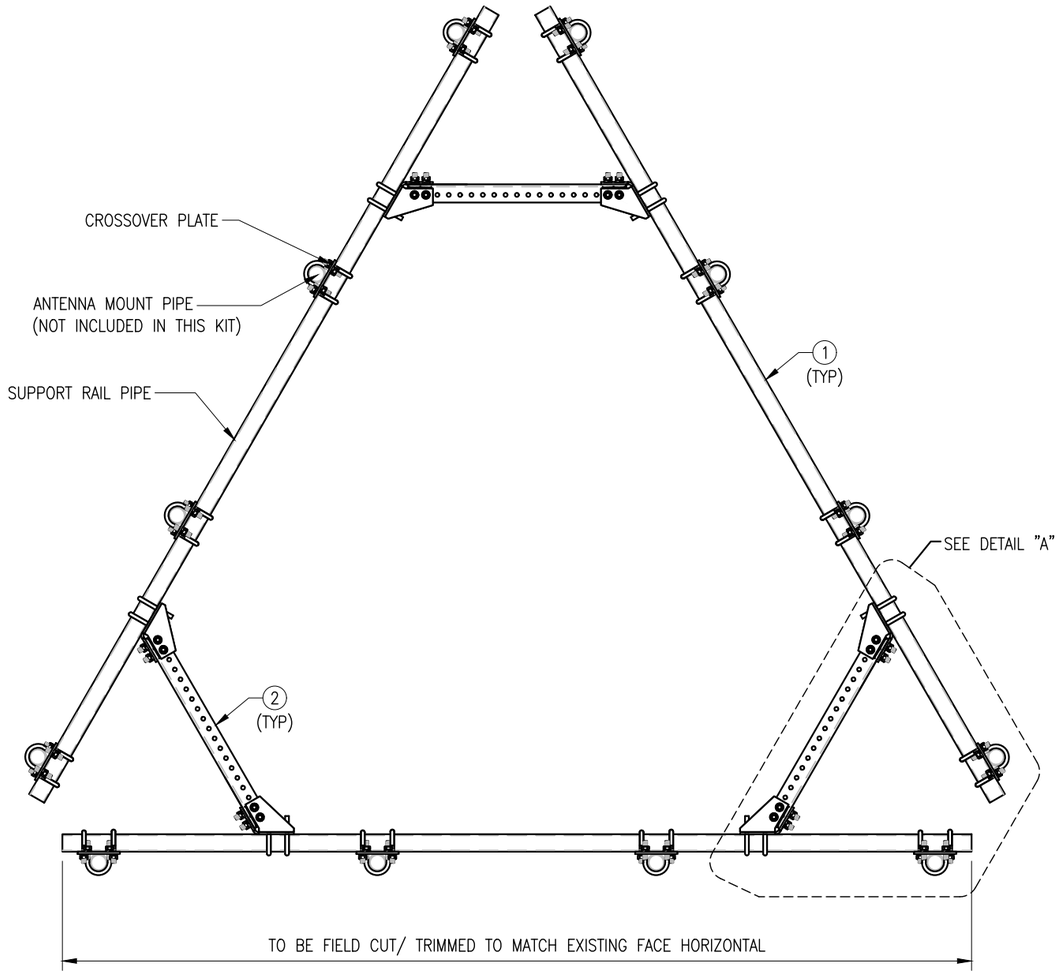
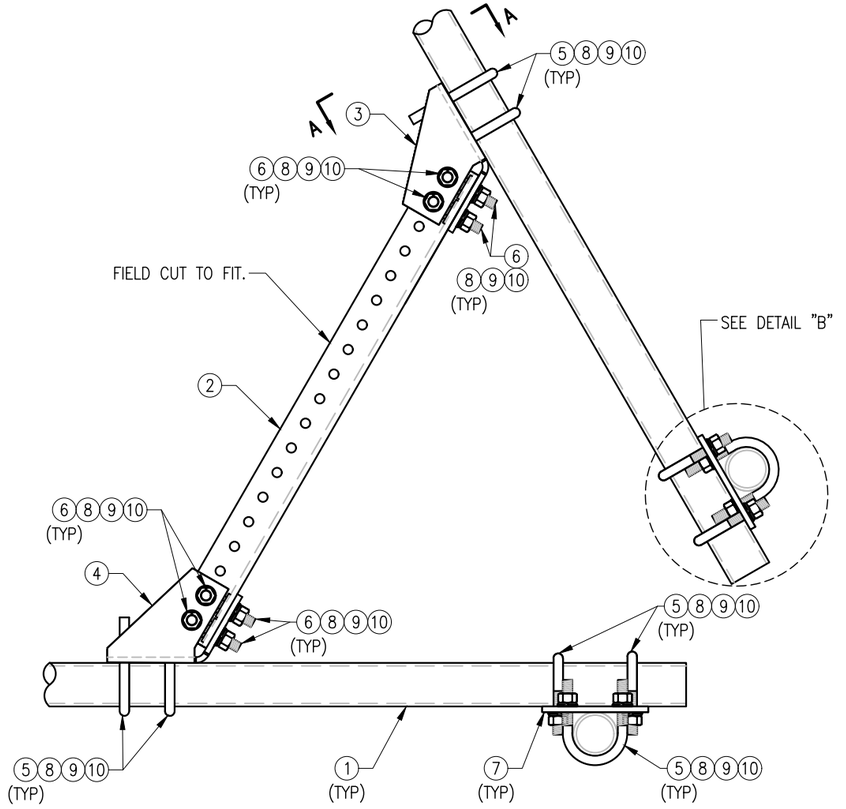
SHEET TITLE: MOUNT PHOTOS

SHEET NUMBER: SS-2



PLAN VIEW



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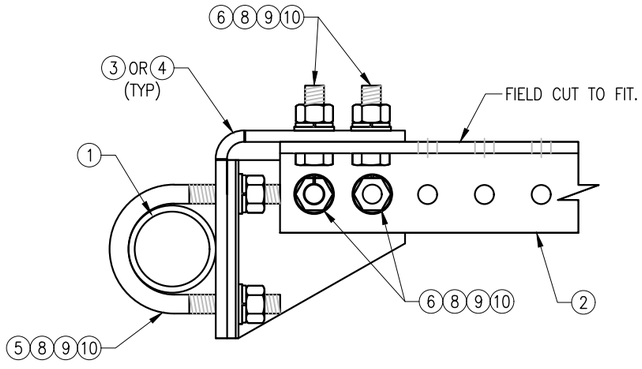

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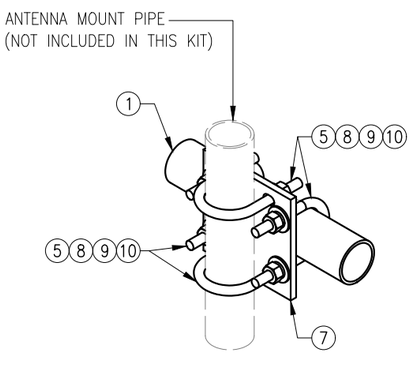

DETAIL "B"

NOTES:
1. HOT–DIPPED GALVANIZED PER ASTM A123.

VZW SMART–PLK1 (SUPPORT RAIL KIT)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	3	PST2875–12.5	2.5" PST (2.875" O.D. X 0.203" THK.) X 12'–6" A53 GR–B	PLK1–F1	292
2	3	L33375–3	L 3" X 3" X 3/8" X 3'–0" A36	PLK1–F1	66
3	3	CBP–L	CORNER BENT PLATE BRACKET	PLK1–F2	28
4	3	CBP–R	CORNER BENT PLATE BRACKET	PLK1–F2	28
5	60	MS02–625–300–500	RU–BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC–1	82
6	24	---	BOLT 5/8" X 2" A325	---	9
7	12	PL375–857	PL 3/8" X 8 1/2" X 7'–0" A36	PLK1–F3	77
8	144	FW–625	5/8" HDG USS FLAT WASHER	---	12
9	144	LW–625	5/8" HDG LOCK WASHER	---	3
10	144	NUT–625	5/8" HDG HEX NUT	---	17
				GALVANIZED WT	504

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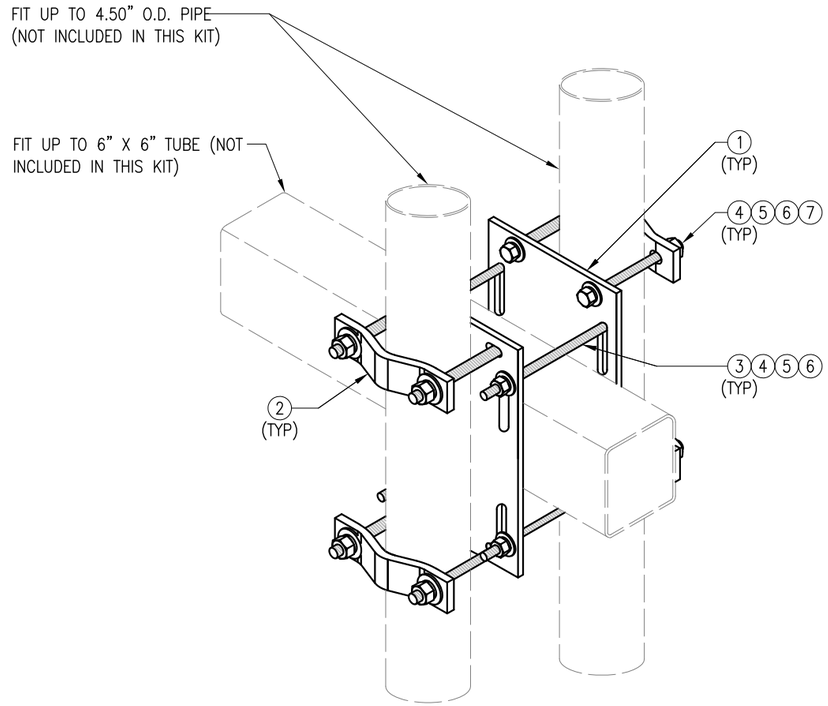
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	H.R	05/08/20

SHEET TITLE:
VZWSMART–PLK1
SUPPORT RAIL KIT

SHEET NUMBER: VZWSMART–PLK1

REV #: 0



ISOMETRIC VIEW
BACK TO BACK CROSSOVER

VZWSMART–MSK6 (VZWSMART–MSK6 – BACK TO BACK CROSSOVER)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	2	PL375–8512	PL 3/8" X 8 1/2" X 1'–0" A36	MSK6–F2	20.7
2	4	VCP	PL 1/2" X 2" X 8 5/8" A36 BENT PLATE	MSK6–F1	9.6
3	4	---	THREADED ROD 5/8" DIA. X 10" F1554–36 HDG	---	---
4	16	NUT–625	5/8" HDG HEX NUT	---	2
5	16	FW–625	5/8" HDG USS FLAT WASHER	---	1
6	16	LW–625	5/8" HDG LOCK WASHER	---	0
7	8	---	BOLT 5/8" X 6" SAE GRADE 5 ALL THREAD	---	1
				GALVANIZED WT	34

NOTES:
1. HOT–DIPPED GALVANIZED PER ASTM A123.

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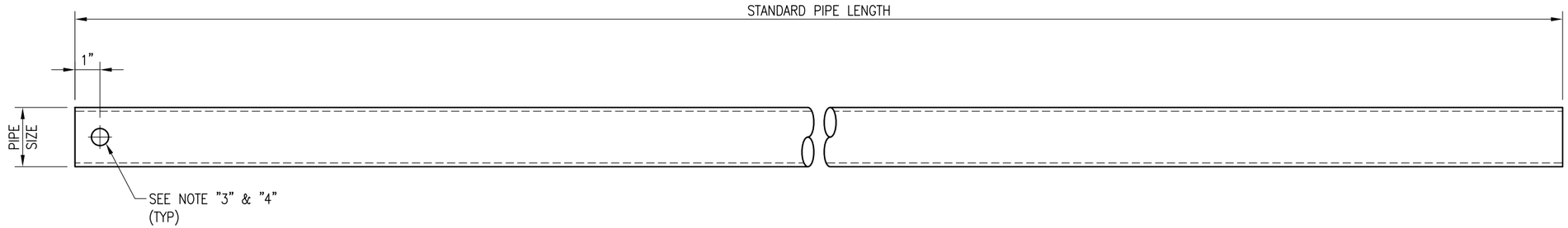
DRAWN BY: SK | CHECKED BY: BT/KW

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SK	05/08/20

SHEET TITLE:
VZWSMART–MSK6
BACK TO BACK
CROSSOVER

SHEET NUMBER: VZWSMART–MSK6

REV #: 0



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE. SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

NOTES:
1. ALL PIPE GRADE A53-B OR BETTER.
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. ALL HOLES ARE 11/16" DIA. U.N.O
4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

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DRAWN BY: BT | CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BT	08/04/21

SHEET TITLE:
VZWSMART STANDARD PIPE

SHEET NUMBER: VZWSMART-PIPE

REV #: 0

Exhibit D

Structural Analysis Report

Date: **February 01, 2023**

MORRISON HERSHFIELD

Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, GA 30346
(770) 379-8500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Site Number:	467421
	Site Name:	Oxford W CT
Crown Castle Designation:	**BU Number:**	876361
	Site Name:	Seymour 2 / Oxford Town Garage
	JDE Job Number:	740377
	Work Order Number:	2200975
	Order Number:	644547 Rev. 0
Engineering Firm Designation:	**Morrison Hershfield Project Number:** CN10-413R2 / 2300001	
Site Data:	**20 Great Oak Rd., Oxford, New Haven County, CT 06478** **Latitude *41° 25' 34.91"*, Longitude *-73° 8' 39.33"*** **150 Foot - Monopole Tower**	

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

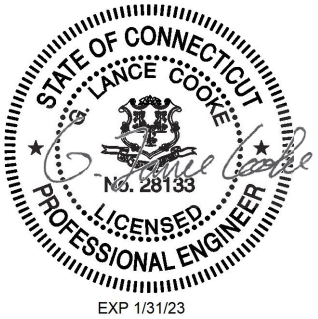
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration **Sufficient Capacity - 87.6%**

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

G. Lance Cooke, P.E. (CT License No. PEN.0028133)
Senior Engineer



Digitally signed by G. Lance Cooke
Date: 2023.02.01 20:25:22+05'30'

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by Engineered Endeavors, Inc.

The tower was modified per reinforcement drawings prepared by Paul J. Ford and Company, in October of 2012. Modification consists of installing shaft reinforcement from 0.5 ft to 120.5 ft and installing additional anchor rods. Per the post modification inspection completed by Tower Engineering Professionals, Inc., in April of 2013, these modifications were properly installed and are considered in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	117 mph
Exposure Category:	B
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)
140.0	140.0	3	antel	BXA-70063-6CF-2 w/ Mount Pipe	18	1-5/8
		6	jma wireless	MX06FRO660-03 w/ Mount Pipe		
		3	samsung telecommunications	MT6407-77A		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		1	raycap	RVZDC-6627-PF-48		
		1	-	4' Pipe Mount [#P2.0 STD]		
		3	-	8' Pipe Mount [#P2.5 STD]		
		1	-	Support Rail Kit [#VZWSMART-PLK1]		
		1	-	Platform Mount [LP 712-1]		

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)
150.0	150.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	4	1-5/8
		3	rfs/celwave	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe		
		3	rfs/celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
150.0	150.0	3	ericsson	RADIO 2212 B13	-	-
		3	ericsson	RADIO 4424 B25_TMO		
		1	site pro 1	HD Top Rail Kit [#HRK12-3HD]		
		1	-	Platform Mount [LP 604-1]		
148.0	148.0	3	alcatel lucent	1900MHz RRH (65MHz)	-	-
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER		
		5	alcatel lucent	800MHZ RRH		
		1	-	Pipe Mount [PM 601-3]		
130.0	131.0	2	andrew	SBNH-1D6565C w/ Mount Pipe	12 4 2 1	1-1/4 3/4 3/8 2C
		2	kathrein	80010965 w/ Mount Pipe		
		4	kathrein	80010966 w/ Mount Pipe		
		1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 8843 B2/B66A		
		1	raycap	DC6-48-60-18-8C-EV		
		1	raycap	DC6-48-60-18-8F		
	130.0	1	-	Platform Mount [LP 305-1_HR-1]		
117.0	117.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		
85.0	86.0	1	lucent	KS24019-L112A	2	1/2
		1	lucent	KS24019-L112D		
	85.0	1	-	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1532984	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1447042	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1446979	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3354881	CCISITES
4-POST-MODIFICATION INSPECTION	3772404	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), 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.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

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. Morrison Hershfield 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	% Capacity	Pass / Fail
L1	150 - 145	Pole	TP16.065x15x0.1875	Pole	11.4	Pass
L2	145 - 140	Pole	TP17.129x16.065x0.1875	Pole	20.5	Pass
L3	140 - 135	Pole	TP18.194x17.129x0.1875	Pole	35.2	Pass
L4	135 - 130	Pole	TP19.259x18.194x0.1875	Pole	46.9	Pass
L5	130 - 126.59	Pole	TP20.66x19.259x0.1875	Pole	58.8	Pass
L6	126.59 - 121.59	Pole	TP20.677x19.61x0.25	Pole	54.1	Pass
L7	121.59 - 117	Pole	TP21.656x20.677x0.25	Pole	60.8	Pass
L8	117 - 116.75	Pole + Reinf.	TP21.71x21.656x0.5625	Reinf. 6 Tension Rupture	42.6	Pass
L9	116.75 - 111.75	Pole + Reinf.	TP22.777x21.71x0.55	Reinf. 6 Tension Rupture	49.5	Pass
L10	111.75 - 106.75	Pole + Reinf.	TP23.844x22.777x0.5313	Reinf. 6 Tension Rupture	55.7	Pass
L11	106.75 - 101.75	Pole + Reinf.	TP24.911x23.844x0.5125	Reinf. 6 Tension Rupture	61.1	Pass
L12	101.75 - 96.75	Pole + Reinf.	TP25.978x24.911x0.5	Reinf. 6 Tension Rupture	65.9	Pass
L13	96.75 - 91.75	Pole + Reinf.	TP27.044x25.978x0.4875	Reinf. 6 Tension Rupture	70.2	Pass
L14	91.75 - 90.04	Pole + Reinf.	TP28.28x27.044x0.4875	Reinf. 6 Tension Rupture	71.5	Pass
L15	90.04 - 84.96	Pole + Reinf.	TP27.993x26.909x0.675	Reinf. 5 Tension Rupture	55.4	Pass
L16	84.96 - 79.96	Pole + Reinf.	TP29.06x27.993x0.6625	Reinf. 5 Tension Rupture	58.0	Pass
L17	79.96 - 74.96	Pole + Reinf.	TP30.126x29.06x0.6375	Reinf. 5 Tension Rupture	60.3	Pass
L18	74.96 - 69.96	Pole + Reinf.	TP31.193x30.126x0.625	Reinf. 5 Tension Rupture	62.4	Pass
L19	69.96 - 64.96	Pole + Reinf.	TP32.26x31.193x0.6125	Reinf. 5 Tension Rupture	64.3	Pass
L20	64.96 - 60.5	Pole + Reinf.	TP33.211x32.26x0.6	Reinf. 5 Tension Rupture	65.8	Pass
L21	60.5 - 60.25	Pole + Reinf.	TP33.264x33.211x0.6	Reinf. 4 Tension Rupture	65.9	Pass
L22	60.25 - 55.25	Pole + Reinf.	TP34.331x33.264x0.5875	Reinf. 4 Tension Rupture	67.4	Pass
L23	55.25 - 50.25	Pole + Reinf.	TP35.398x34.331x0.5875	Reinf. 4 Tension Rupture	68.8	Pass
L24	50.25 - 47.58	Pole + Reinf.	TP37.07x35.398x0.575	Reinf. 4 Tension Rupture	69.5	Pass
L25	47.58 - 41.41	Pole + Reinf.	TP36.659x35.342x0.6375	Reinf. 4 Tension Rupture	65.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L26	41.41 - 36.41	Pole + Reinf.	TP37.727x36.659x0.625	Reinf. 4 Tension Rupture	66.5	Pass
L27	36.41 - 31.41	Pole + Reinf.	TP38.794x37.727x0.625	Reinf. 4 Tension Rupture	67.2	Pass
L28	31.41 - 30.5	Pole + Reinf.	TP38.989x38.794x0.6125	Reinf. 4 Tension Rupture	67.3	Pass
L29	30.5 - 30.25	Pole + Reinf.	TP39.042x38.989x0.6125	Reinf. 3 Tension Rupture	67.3	Pass
L30	30.25 - 25.25	Pole + Reinf.	TP40.109x39.042x0.6125	Reinf. 3 Tension Rupture	67.9	Pass
L31	25.25 - 20.25	Pole + Reinf.	TP41.177x40.109x0.6	Reinf. 3 Tension Rupture	68.5	Pass
L32	20.25 - 18	Pole + Reinf.	TP41.657x41.177x0.6	Reinf. 3 Tension Rupture	68.7	Pass
L33	18 - 17.75	Pole + Reinf.	TP41.711x41.657x0.5563	Reinf. 1 Tension Rupture	70.6	Pass
L34	17.75 - 12.75	Pole + Reinf.	TP42.778x41.711x0.55	Reinf. 1 Tension Rupture	71.0	Pass
L35	12.75 - 7.75	Pole + Reinf.	TP43.845x42.778x0.55	Reinf. 1 Tension Rupture	71.3	Pass
L36	7.75 - 3.92	Pole + Reinf.	TP44.664x43.845x0.5375	Reinf. 1 Tension Rupture	71.5	Pass
L37	3.92 - 3.67	Pole + Reinf.	TP44.717x44.664x0.525	Reinf. 7 Tension Yield	70.4	Pass
L38	3.67 - 0	Pole + Reinf.	TP45.5x44.717x0.5125	Reinf. 7 Tension Yield	70.5	Pass
					Summary	
				Pole	60.8	Pass
				Reinforcement	71.5	Pass
				Overall	71.5	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	63.5	Pass
1	Base Plate		87.6	Pass
1	Base Foundation (Structure)	0	85.2	Pass
1	Base Foundation (Soil Interaction)		75.5	Pass

Structure Rating (max from all components) =	87.6%*

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) *Rating per TIA-222-H, Section 15.5.

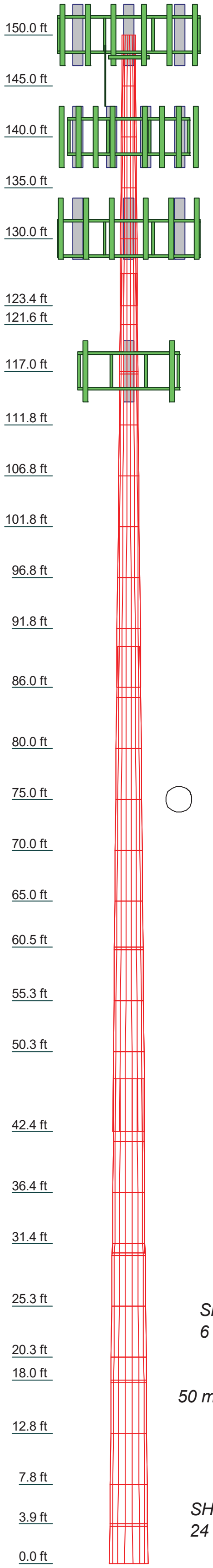
4.1) Recommendations

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	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.1875		15.0000	16.0647		0.2
2	5.00	18	0.1875		16.0647	17.1294		0.2
3	5.00	18	0.1875		17.1294	18.1941		0.2
4	5.00	18	0.1875		18.1941	19.2588		0.2
5	5.00 / 6.58	18	0.1875	3.17	19.2588	20.0600		0.3
6	[illegible]	18	[illegible]		[illegible]	[illegible]		0.3
7	4.59	18	[illegible]		[illegible]	[illegible]		0.3
8	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
9	5.00	18	[illegible]		[illegible]	22.7767		0.6
10	5.00	18	0.5313		22.7767	23.8436		0.6
11	5.00	18	0.5125		23.8436	24.9106		0.6
12	5.00	18	0.5000		24.9106	25.9775		0.6
13	5.00	18	0.4875		25.9775	27.0445		0.6
14	[illegible]	18	0.4875	4.08	27.0445	28.2800		0.8
15	[illegible]	18	[illegible]		[illegible]	[illegible]		0.9
16	5.00	18	[illegible]		[illegible]	29.0597		0.9
17	5.00	18	0.6375		29.0597	30.1263	A572-65	0.9
18	5.00	18	0.6250		30.1263	31.1929		0.9
19	5.00	18	0.6125		31.1929	32.2595		1.0
20	4.46	18	[illegible]		[illegible]	[illegible]		0.9
21	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
22	5.00	18	[illegible]		[illegible]	34.3309		1.0
23	5.00	18	0.5875		34.3309	35.3975		1.0
24	[illegible]	18	0.5750	5.17	35.3975	37.0700		1.6
25	[illegible]	18	[illegible]		[illegible]	[illegible]		1.4
26	5.00	18	[illegible]		36.6594	[illegible]		1.2
27	5.00	18	[illegible]		37.7268	[illegible]		1.2
28	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
29	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
30	5.00	18	[illegible]		[illegible]	40.1094		1.2
31	5.00	18	0.6000		40.1094	41.1768		1.2
32	[illegible]	18	[illegible]		[illegible]	[illegible]		0.6
33	[illegible]	18	[illegible]		[illegible]	[illegible]		0.0
34	5.00	18	[illegible]		[illegible]	42.7780		1.3
35	5.00	18	0.5500		42.7780	43.8454		1.3
36	5.83	18	[illegible]		[illegible]	[illegible]		1.0
37	[illegible]	18	[illegible]		[illegible]	[illegible]		1.1
38	3.67	18	[illegible]		[illegible]	[illegible]		0.9
								26.2



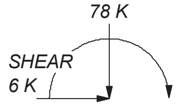
MATERIAL STRENGTH

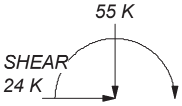
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 117 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. CCIPOLE RATING: 71.5%

ALL REACTIONS ARE FACTORED





Morrison Hershfield Consulting Engineers 1455 Lincoln Parkway, Suite 500 Atlanta, GA 30346 Phone: (770) 379-8500 FAX: (770) 379-8501	Job: **CN10-413R2 / 2300001**		
	Project: **876361 / Seymour 2 / Oxford Town Garage**		
	Client: Crown Castle USA	Drawn by: RA	App'd:
	Code: TIA-222-H	Date: 02/01/23	Scale: NTS
	Path:		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 New Haven County, Connecticut.
Tower base elevation above sea level: 734.00 ft.
Basic wind speed of 117 mph.
Risk Category II.
Exposure Category B.
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 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 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

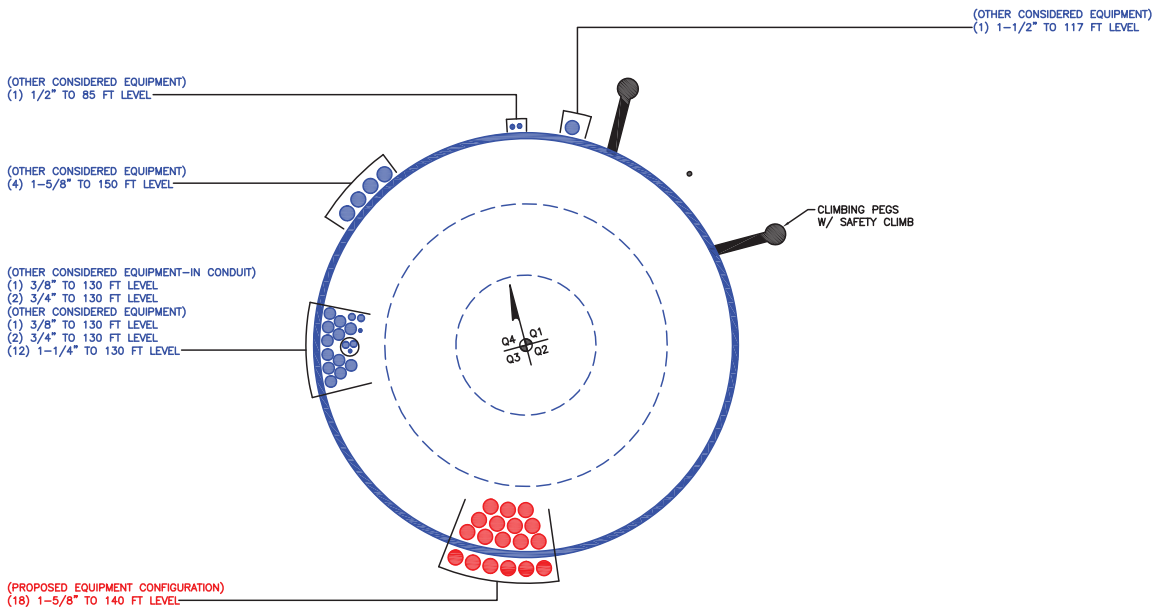
	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear 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	150.00-145.00	5.00	0.00	18	15.0000	16.0647	0.1875	0.7500	A572-65 (65 ksi)
L2	145.00-140.00	5.00	0.00	18	16.0647	17.1294	0.1875	0.7500	A572-65 (65 ksi)

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876361 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876361

Work Order: 2200975

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	150	26.58	3.17	18	15	20.66	0.1875	Auto	A572-65
2	126.59	40.63	4.08	18	19.61	28.28	0.25	Auto	A572-65
3	90.04	47.63	5.17	18	26.91	37.07	0.3125	Auto	A572-65
4	47.58	47.58	0	18	35.34	45.5	0.375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	3.916	30.5	channel	MP3-06 (1.1875in)	2						x												x
2	3.916	18	channel	MP3-06 (1.1875in)	1											x							
3	18	30.5	channel	MP3-06 (1.1875in)	1												x						
4	30.5	60.5	channel	MP3-06 (1.1875in)	3						x						x						x
5	60.5	89	channel	MP3-06 (1.1875in)	3						x						x						x
6	89	117	channel	MP3-05 (1.1875in)	3	x						x						x					
7	0	3.916	plate	TS 1.25" X2.8125"	6	x				x		x			x		x					x	
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6.89	2.61	8.47	0.93	PC 8.8 - M20 (100)	41	PC 8.8 - M20 (100)	41.000	24.000	7.670	1.1875	A572-65
2	6.89	2.61	8.47	0.93	PC 8.8 - M20 (100)	41	PC 8.8 - M20 (100)	41.000	24.000	7.670	1.1875	A572-65
3	6.89	2.61	8.47	0.93	PC 8.8 - M20 (100)	41	PC 8.8 - M20 (100)	41.000	24.000	7.670	1.1875	A572-65
4	6.89	2.61	8.47	0.93	PC 8.8 - M20 (100)	41	PC 8.8 - M20 (100)	41.000	24.000	7.670	1.1875	A572-65
5	6.89	2.61	8.47	0.93	PC 8.8 - M20 (100)	41	PC 8.8 - M20 (100)	41.000	24.000	7.670	1.1875	A572-65
6	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
7	1.25	2.8125	3.51563	1.40625	Welded	n/a	Welded	n/a	0.000	3.516	0.0000	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
TS 1.25" X2.8125"	Top	-	-	-	-	70	None	-	-	-	-	-	-	-
	Bottom	-	-	-	-	80	CJP Groove	6	0.625	45	0.5	51	0.375	-

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	150 - 145	5		18	15.000	16.065	0.1875	A572-65	1.000
2	145 - 140	5		18	16.065	17.129	0.1875	A572-65	1.000
3	140 - 135	5		18	17.129	18.194	0.1875	A572-65	1.000
4	135 - 130	5		18	18.194	19.259	0.1875	A572-65	1.000
5	130 - 126.59	6.58	3.17	18	19.259	20.660	0.1875	A572-65	1.000
6	126.59 - 121.59	5		18	19.610	20.677	0.25	A572-65	1.000
7	121.59 - 117	4.59		18	20.677	21.656	0.25	A572-65	1.000
8	117 - 116.75	0.25		18	21.656	21.710	0.5625	A572-65	0.900
9	116.75 - 111.75	5		18	21.710	22.777	0.55	A572-65	0.898
10	111.75 - 106.75	5		18	22.777	23.844	0.53125	A572-65	0.907
11	106.75 - 101.75	5		18	23.844	24.911	0.5125	A572-65	0.920
12	101.75 - 96.75	5		18	24.911	25.978	0.5	A572-65	0.924
13	96.75 - 91.75	5		18	25.978	27.044	0.4875	A572-65	0.930
14	91.75 - 90.04	5.79	4.08	18	27.044	28.280	0.4875	A572-65	0.924
15	90.04 - 84.96	5.08		18	26.909	27.993	0.675	A572-65	0.903
16	84.96 - 79.96	5		18	27.993	29.060	0.6625	A572-65	0.903
17	79.96 - 74.96	5		18	29.060	30.126	0.6375	A572-65	0.921
18	74.96 - 69.96	5		18	30.126	31.193	0.625	A572-65	0.924
19	69.96 - 64.96	5		18	31.193	32.260	0.6125	A572-65	0.928
20	64.96 - 60.5	4.46		18	32.260	33.211	0.6	A572-65	0.935
21	60.5 - 60.25	0.25		18	33.211	33.264	0.6	A572-65	0.934
22	60.25 - 55.25	5		18	33.264	34.331	0.5875	A572-65	0.940
23	55.25 - 50.25	5		18	34.331	35.398	0.5875	A572-65	0.928
24	50.25 - 47.58	7.84	5.17	18	35.398	37.070	0.575	A572-65	0.941
25	47.58 - 41.41	6.17		18	35.342	36.659	0.6375	A572-65	0.941
26	41.41 - 36.41	5		18	36.659	37.727	0.625	A572-65	0.949
27	36.41 - 31.41	5		18	37.727	38.794	0.625	A572-65	0.940
28	31.41 - 30.5	0.91		18	38.794	38.989	0.6125	A572-65	0.957
29	30.5 - 30.25	0.25		18	38.989	39.042	0.6125	A572-65	0.956
30	30.25 - 25.25	5		18	39.042	40.109	0.6125	A572-65	0.947
31	25.25 - 20.25	5		18	40.109	41.177	0.6	A572-65	0.957
32	20.25 - 18	2.25		18	41.177	41.657	0.6	A572-65	0.953
33	18 - 17.75	0.25		18	41.657	41.711	0.55625	A572-65	1.027
34	17.75 - 12.75	5		18	41.711	42.778	0.55	A572-65	1.029
35	12.75 - 7.75	5		18	42.778	43.845	0.55	A572-65	1.021
36	7.75 - 3.916	3.834		18	43.845	44.664	0.5375	A572-65	1.038
37	3.916 - 3.666	0.25		18	44.664	44.717	0.525	A572-65	1.003
38	3.666 - 0	3.666		18	44.717	45.500	0.5125	A572-65	1.022

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	150 - 145	4.48	25.35	5.56
2	145 - 140	4.74	53.68	5.78
3	140 - 135	8.51	103.53	10.13
4	135 - 130	8.96	154.74	10.35
5	130 - 126.59	12.76	205.68	14.24
6	126.59 - 121.59	13.52	277.52	14.49
7	121.59 - 117	14.16	344.40	14.67
8	117 - 116.75	17.21	348.73	17.30
9	116.75 - 111.75	18.19	436.49	17.81
10	111.75 - 106.75	19.22	526.29	18.12
11	106.75 - 101.75	20.27	617.62	18.42
12	101.75 - 96.75	21.35	710.45	18.72
13	96.75 - 91.75	22.46	804.70	19.00
14	91.75 - 90.04	22.83	837.33	19.18
15	90.04 - 84.96	24.93	936.38	19.84
16	84.96 - 79.96	26.33	1036.40	20.17
17	79.96 - 74.96	27.77	1138.04	20.49
18	74.96 - 69.96	29.22	1241.24	20.80
19	69.96 - 64.96	30.71	1345.94	21.09
20	64.96 - 60.5	32.05	1440.56	21.35
21	60.5 - 60.25	32.13	1445.89	21.36
22	60.25 - 55.25	33.66	1553.35	21.63
23	55.25 - 50.25	35.21	1662.13	21.89
24	50.25 - 47.58	36.05	1720.74	22.03
25	47.58 - 41.41	39.42	1857.97	22.45
26	41.41 - 36.41	41.17	1970.74	22.67
27	36.41 - 31.41	42.95	2084.60	22.88
28	31.41 - 30.5	43.27	2105.43	22.92
29	30.5 - 30.25	43.37	2111.16	22.93
30	30.25 - 25.25	45.17	2226.26	23.12
31	25.25 - 20.25	47.01	2342.31	23.31
32	20.25 - 18	47.84	2394.87	23.42
33	18 - 17.75	47.94	2400.72	23.43
34	17.75 - 12.75	49.82	2518.33	23.63
35	12.75 - 7.75	51.72	2636.84	23.79
36	7.75 - 3.916	53.20	2728.27	23.92
37	3.916 - 3.666	53.30	2734.25	23.91
38	3.666 - 0	54.66	2822.12	24.04

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP16.065x15x0.1875	Pole	11.4%	Pass
145 - 140	Pole	TP17.129x16.065x0.1875	Pole	20.5%	Pass
140 - 135	Pole	TP18.194x17.129x0.1875	Pole	35.2%	Pass
135 - 130	Pole	TP19.259x18.194x0.1875	Pole	46.9%	Pass
130 - 126.59	Pole	TP20.66x19.259x0.1875	Pole	58.8%	Pass
126.59 - 121.59	Pole	TP20.677x19.61x0.25	Pole	54.1%	Pass
121.59 - 117	Pole	TP21.656x20.677x0.25	Pole	60.8%	Pass
117 - 116.75	Pole + Reinf.	TP21.71x21.656x0.5625	Reinf. 6 Tension Rupture	42.6%	Pass
116.75 - 111.75	Pole + Reinf.	TP22.777x21.71x0.55	Reinf. 6 Tension Rupture	49.5%	Pass
111.75 - 106.75	Pole + Reinf.	TP23.844x22.777x0.5313	Reinf. 6 Tension Rupture	55.7%	Pass
106.75 - 101.75	Pole + Reinf.	TP24.911x23.844x0.5125	Reinf. 6 Tension Rupture	61.1%	Pass
101.75 - 96.75	Pole + Reinf.	TP25.978x24.911x0.5	Reinf. 6 Tension Rupture	65.9%	Pass
96.75 - 91.75	Pole + Reinf.	TP27.044x25.978x0.4875	Reinf. 6 Tension Rupture	70.2%	Pass
91.75 - 90.04	Pole + Reinf.	TP28.28x27.044x0.4875	Reinf. 6 Tension Rupture	71.5%	Pass
90.04 - 84.96	Pole + Reinf.	TP27.993x26.909x0.675	Reinf. 5 Tension Rupture	55.4%	Pass
84.96 - 79.96	Pole + Reinf.	TP29.06x27.993x0.6625	Reinf. 5 Tension Rupture	58.0%	Pass
79.96 - 74.96	Pole + Reinf.	TP30.126x29.06x0.6375	Reinf. 5 Tension Rupture	60.3%	Pass
74.96 - 69.96	Pole + Reinf.	TP31.193x30.126x0.625	Reinf. 5 Tension Rupture	62.4%	Pass
69.96 - 64.96	Pole + Reinf.	TP32.26x31.193x0.6125	Reinf. 5 Tension Rupture	64.3%	Pass
64.96 - 60.5	Pole + Reinf.	TP33.211x32.26x0.6	Reinf. 5 Tension Rupture	65.8%	Pass
60.5 - 60.25	Pole + Reinf.	TP33.264x33.211x0.6	Reinf. 4 Tension Rupture	65.9%	Pass
60.25 - 55.25	Pole + Reinf.	TP34.331x33.264x0.5875	Reinf. 4 Tension Rupture	67.4%	Pass
55.25 - 50.25	Pole + Reinf.	TP35.398x34.331x0.5875	Reinf. 4 Tension Rupture	68.8%	Pass
50.25 - 47.58	Pole + Reinf.	TP37.07x35.398x0.575	Reinf. 4 Tension Rupture	69.5%	Pass
47.58 - 41.41	Pole + Reinf.	TP36.659x35.342x0.6375	Reinf. 4 Tension Rupture	65.7%	Pass
41.41 - 36.41	Pole + Reinf.	TP37.727x36.659x0.625	Reinf. 4 Tension Rupture	66.5%	Pass
36.41 - 31.41	Pole + Reinf.	TP38.794x37.727x0.625	Reinf. 4 Tension Rupture	67.2%	Pass
31.41 - 30.5	Pole + Reinf.	TP38.989x38.794x0.6125	Reinf. 4 Tension Rupture	67.3%	Pass
30.5 - 30.25	Pole + Reinf.	TP39.042x38.989x0.6125	Reinf. 3 Tension Rupture	67.3%	Pass
30.25 - 25.25	Pole + Reinf.	TP40.109x39.042x0.6125	Reinf. 3 Tension Rupture	67.9%	Pass
25.25 - 20.25	Pole + Reinf.	TP41.177x40.109x0.6	Reinf. 3 Tension Rupture	68.5%	Pass
20.25 - 18	Pole + Reinf.	TP41.657x41.177x0.6	Reinf. 3 Tension Rupture	68.7%	Pass
18 - 17.75	Pole + Reinf.	TP41.711x41.657x0.5563	Reinf. 1 Tension Rupture	70.6%	Pass
17.75 - 12.75	Pole + Reinf.	TP42.778x41.711x0.55	Reinf. 1 Tension Rupture	71.0%	Pass
12.75 - 7.75	Pole + Reinf.	TP43.845x42.778x0.55	Reinf. 1 Tension Rupture	71.3%	Pass
7.75 - 3.92	Pole + Reinf.	TP44.664x43.845x0.5375	Reinf. 1 Tension Rupture	71.5%	Pass
3.92 - 3.67	Pole + Reinf.	TP44.717x44.664x0.525	Reinf. 7 Tension Yield	70.4%	Pass
3.67 - 0	Pole + Reinf.	TP45.5x44.717x0.5125	Reinf. 7 Tension Yield	70.5%	Pass
				Summary	
			Pole	60.8%	Pass
			Reinforcement	71.5%	Pass
			Overall	71.5%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity* (100% Max. Allowable)							
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7
150 - 145	301	n/a	301	9.45	n/a	9.45	11.4%							
145 - 140	365	n/a	365	10.08	n/a	10.08	20.5%							
140 - 135	439	n/a	439	10.72	n/a	10.72	35.2%							
135 - 130	521	n/a	521	11.35	n/a	11.35	46.9%							
130 - 126.59	583	n/a	583	11.78	n/a	11.78	58.8%							
126.59 - 121.59	854	n/a	854	16.21	n/a	16.21	54.1%							
121.59 - 117	983	n/a	983	16.99	n/a	16.99	60.8%							
117 - 116.75	990	1160	2150	17.03	16.95	33.98	28.0%						42.6%	
116.75 - 111.75	1146	1268	2413	17.87	16.95	34.82	32.6%						49.5%	
111.75 - 106.75	1316	1380	2696	18.72	16.95	35.67	36.8%						55.7%	
106.75 - 101.75	1503	1498	3001	19.57	16.95	36.52	40.8%						61.1%	
101.75 - 96.75	1707	1620	3326	20.41	16.95	37.36	44.6%						65.9%	
96.75 - 91.75	1928	1747	3675	21.26	16.95	38.21	48.0%						70.2%	
91.75 - 90.04	2008	1791	3799	21.55	16.95	38.50	49.2%						71.5%	
90.04 - 84.96	2657	2856	5513	27.45	25.41	52.86	37.4%					55.4%		
84.96 - 79.96	2976	3062	6038	28.51	25.41	53.92	39.2%					58.0%		
79.96 - 74.96	3320	3275	6595	29.57	25.41	54.98	40.9%					60.3%		
74.96 - 69.96	3689	3496	7185	30.63	25.41	56.04	42.8%					62.4%		
69.96 - 64.96	4084	3723	7808	31.69	25.41	57.10	44.5%					64.3%		
64.96 - 60.5	4460	3932	8393	32.63	25.41	58.04	46.0%					65.8%		
60.5 - 60.25	4482	3944	8426	32.68	25.41	58.09	46.1%				65.9%			
60.25 - 55.25	4932	4186	9117	33.74	25.41	59.15	47.6%				67.4%			
55.25 - 50.25	5410	4435	9845	34.80	25.41	60.21	49.1%				68.8%			
50.25 - 47.58	5678	4570	10248	35.36	25.41	60.77	49.8%				69.5%			
47.58 - 41.41	7181	4738	11919	43.19	25.41	68.60	45.1%				65.7%			
41.41 - 36.41	7834	5003	12837	44.46	25.41	69.87	46.1%				66.5%			
36.41 - 31.41	8525	5275	13800	45.73	25.41	71.14	47.0%				67.2%			
31.41 - 30.5	8655	5326	13980	45.96	25.41	71.37	47.1%				67.3%			
30.5 - 30.25	8690	5339	14030	46.02	25.41	71.43	47.2%	67.3%		67.3%				
30.25 - 25.25	9430	5620	15051	47.29	25.41	72.70	48.0%	67.9%		67.9%				
25.25 - 20.25	10211	5909	16119	48.56	25.41	73.97	48.8%	68.5%		68.5%				
20.25 - 18	10576	6041	16616	49.13	25.41	74.54	49.1%	68.7%		68.7%				
18 - 17.75	10647	4930	15577	49.20	25.41	74.61	55.0%	70.6%	67.7%					
17.75 - 12.75	11492	5175	16666	50.47	25.41	75.88	55.7%	71.0%	68.1%					
12.75 - 7.75	12380	5425	17805	51.74	25.41	77.15	56.4%	71.3%	68.4%					
7.75 - 3.92	13092	5620	18713	52.71	25.41	78.12	56.8%	71.5%	68.6%					
3.92 - 3.67	13123	4899	18022	52.78	21.09	73.87	58.5%							70.4%
3.67 - 0	13830	5062	18891	53.71	21.09	74.80	58.9%							70.5%

Note: Section capacity checked using 5 degree increments.

**Rating per TIA-222-H Section 15.5.*

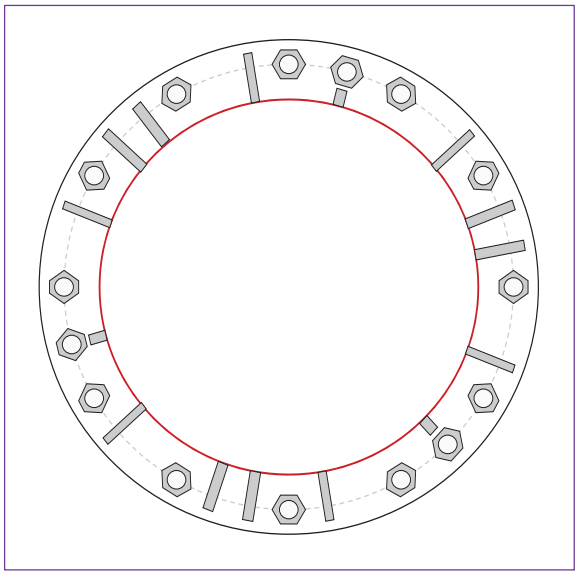
Monopole Base Plate Connection

Site Info	
BU #	876361
Site Name	our 2 / Oxford Town G
Order #	644547 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	2822.12
Axial Force (kips)	54.66
Shear Force (kips)	24.04

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 54" BC
GROUP 2: (3) 2-1/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 54" BC

Base Plate Data

60" OD x 1.75" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

Group 1: (6) 18"H x 6"W x 1"T, Notch: 0.75"
plate: Fy= 65 ksi ; weld: Fy= 80 ksi
horiz. weld: 0.375" groove, 45° dbl bevel, 0.5" fillet
vert. weld: 0.375" fillet

Group 2: (6) 51"H x 6"W x 1.25"T, Notch: 0.75"
plate: Fy= 65 ksi ; weld: Fy= 80 ksi
horiz. weld: 0.5" groove, 45° dbl bevel, 0.625" fillet
vert. weld: 0.375" fillet

Group 3: (3) 30"H x 2"W x 1.25"T, Notch: 0.75"
plate: Fy= 65 ksi ; weld: Fy= 80 ksi
horiz. weld: 0.5" groove, 45° dbl bevel, 0.625" fillet
vert. weld: 0.375" fillet

Pole Data

45.5" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_t = 162.56	ϕPn_t = 243.75	**Stress Rating**
Vu = 2	ϕVn = 149.1	**63.5%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 167.12	ϕPn_t = 304.69	**Stress Rating**
Vu = 0	ϕVn = 186.38	**52.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	49.65	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**87.6%**	**Pass**

Stiffener Summary

Horizontal Weld:	**71.4%**	**Pass**
Vertical Weld:	**31.7%**	**Pass**
Plate Flexure+Shear:	**6.9%**	**Pass**
Plate Tension+Shear:	**31.6%**	**Pass**
Plate Compression:	**33.2%**	**Pass**

Pole Summary

Punching Shear:	**9.8%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	Yes	No	
2	No	No	No	Yes	No	

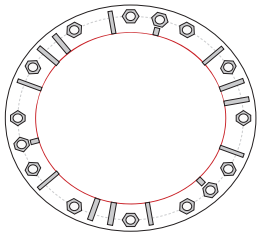
Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{se} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	2.25	A615-75	54	0.55	2.25	N-Included		No
2	1	30	2.25	A615-75	54	0.55	2.25	N-Included		No
3	1	60	2.25	A615-75	54	0.55	2.25	N-Included		No
4	1	90	2.25	A615-75	54	0.55	2.25	N-Included		No
5	1	120	2.25	A615-75	54	0.55	2.25	N-Included		No
6	1	150	2.25	A615-75	54	0.55	2.25	N-Included		No
7	1	180	2.25	A615-75	54	0.55	2.25	N-Included		No
8	1	210	2.25	A615-75	54	0.55	2.25	N-Included		No
9	1	240	2.25	A615-75	54	0.55	2.25	N-Included		No
10	1	270	2.25	A615-75	54	0.55	2.25	N-Included		No
11	1	300	2.25	A615-75	54	0.55	2.25	N-Included		No
12	1	330	2.25	A615-75	54	0.55	2.25	N-Included		No
13	2	75	2.25	A193 Gr. B7	54	0.55	2.25	N-Included		No
14	2	195	2.25	A193 Gr. B7	54	0.55	2.25	N-Included		No
15	2	315	2.25	A193 Gr. B7	54	0.55	2.25	N-Included		No

Custom Stiffener Connection

Stiffener	Stiffener Group ID	Location (deg.)	Width (in)	Height (in)	Thickness (in)	H. Notch (in)	V. Notch (in)	Grade (ksi)	Weld Type	Groove Depth (in)	Groove Angle (deg.)	H. Fillet Weld Size (in)	V. Fillet Weld Size (in)	Weld Strength (ksi)
1	1	40	6	18	1	0.75	0.75	65	Both	0.375	45	0.5	0.375	80
2	1	100	6	18	1	0.75	0.75	65	Both	0.375	45	0.5	0.375	80
3	1	160	6	18	1	0.75	0.75	65	Both	0.375	45	0.5	0.375	80
4	1	220	6	18	1	0.75	0.75	65	Both	0.375	45	0.5	0.375	80
5	1	280	6	18	1	0.75	0.75	65	Both	0.375	45	0.5	0.375	80
6	1	340	6	18	1	0.75	0.75	65	Both	0.375	45	0.5	0.375	80
7	2	10	6	51	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80
8	2	20	6	51	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80
9	2	130	6	51	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80
10	2	140	6	51	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80
11	2	250	6	51	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80
12	2	260	6	51	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80
13	3	75	2	30	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80
14	3	195	2	30	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80
15	3	315	2	30	1.25	0.75	0.75	65	Both	0.5	45	0.625	0.375	80

Plot Graphic



Pier and Pad Foundation

BU # :	876361
Site Name:	Seymour 2 / Oxford
App. Number:	644547 Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☑
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions

Compression, P_{comp}:	54.66	kips
Base Shear, Vu_comp:	24.04	kips
Moment, M_u:	2822.12	ft-kips
Tower Height, **H**:	150	ft
BP Dist. Above Fdn, bp_{dist}:	4.5	in

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	6	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	30	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	6	ft
Pad Width, W_1:	21.5	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	20	
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	33	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	12.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	60	
Base Friction, μ:		
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	177.61	24.04	**12.9%**	**Pass**
Bearing Pressure (ksf)	9.00	3.18	**35.3%**	**Pass**
*Overturning (kip*ft)*	3974.75	2999.42	**75.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	3262.22	2918.28	**85.2%**	**Pass**
Pier Compression (kip)	17184.96	80.58	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	3555.96	1374.08	**36.8%**	**Pass**
Pad Shear - 1-way (kips)	667.70	235.53	**33.6%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3964.87	1750.97	**42.1%**	**Pass**

**Rating per TIA-222-H Section 15.5*

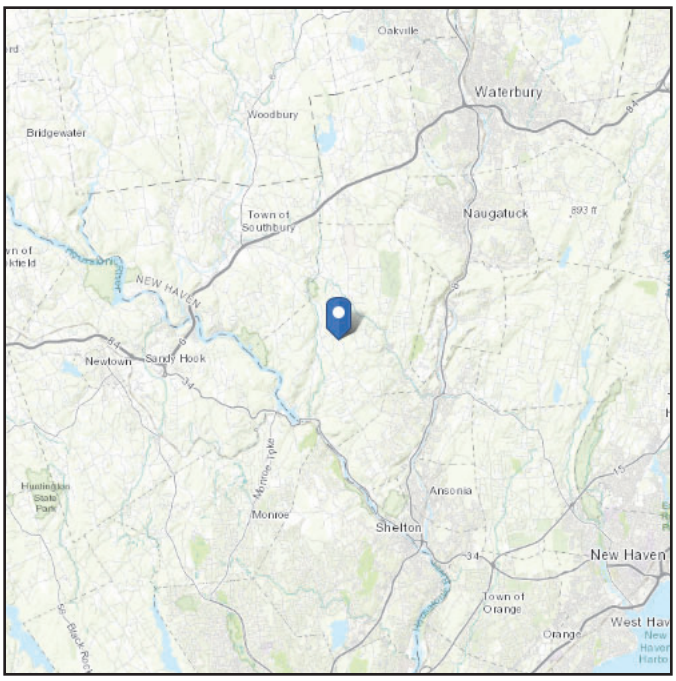
Structural Rating*:	**85.2%**
Soil Rating*:	**75.5%**

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Latitude: 41.426364
Longitude: -73.144258
Elevation: 734.07 ft (NAVD 88)



Wind

Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 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: Wed Feb 01 2023

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

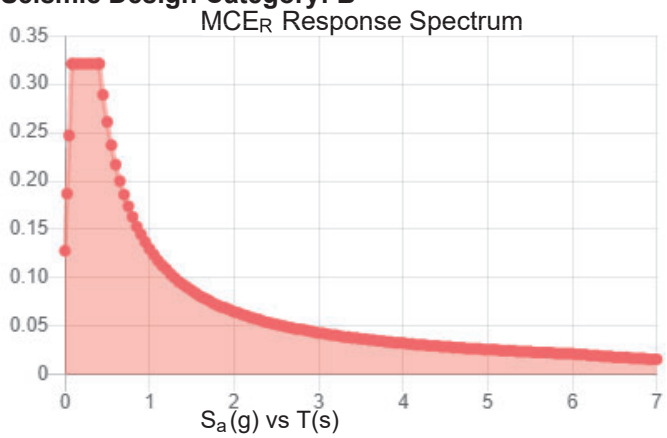
D - Default (see Section 11.4.3)

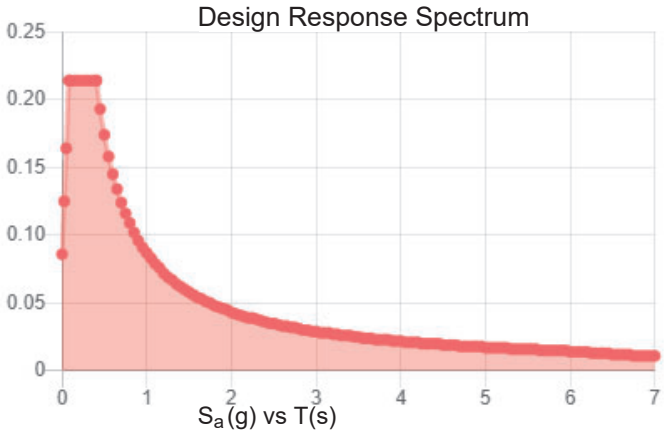
Site Soil Class:

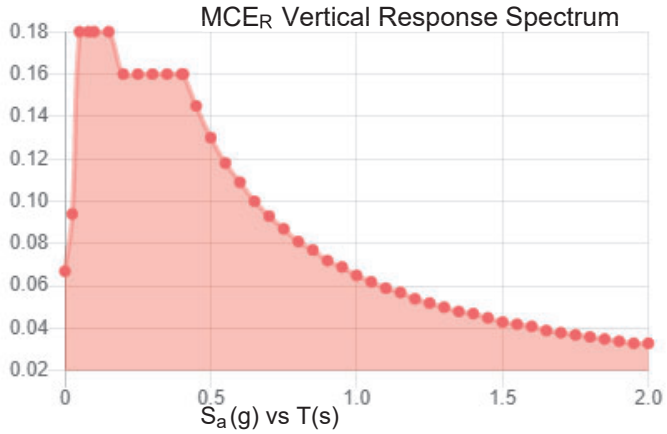
Results:

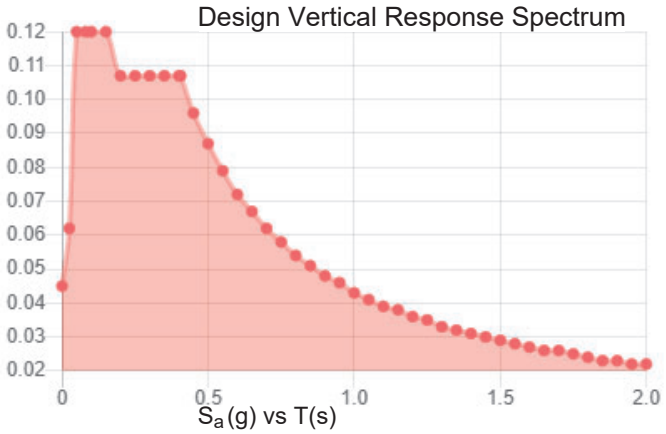
S_S :	0.2	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.112
F_v :	2.4	PGA_M :	0.177
S_{MS} :	0.321	F_{PGA} :	1.576
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.214	C_v :	0.701

Seismic Design Category: B









Data Accessed: **Wed Feb 01 2023**

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:	Wed Feb 01 2023

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.

Exhibit E

Mount Analysis

Maser Consulting
1055 Washington Boulevard
Stamford, CT 06901
203.324.0800
peter.albano@collierseng.com

Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount ReAnalysis-VZW

SMART Tool Project #: 10180119
Maser Consulting Connecticut Project #: 21777126A (Rev. 1)

November 11, 2022

Site Information	*Site ID:*	*467421-VZW / OXFORD W CT*
	Site Name:	*OXFORD W CT*
	Carrier Name:	*Verizon Wireless*
	Address:	*20 Great Oak Rd* *Oxford, Connecticut 06478* *New Haven County*
	Latitude:	*41.426358°*
	Longitude:	*-73.144247°*
Structure Information	*Tower Type:*	*170-Ft Monopole*
	Mount Type:	*12.50-Ft Platform*

FUZE ID # 16272032

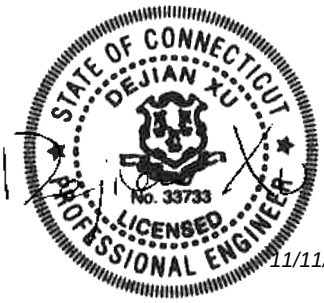
Analysis Results

Platform: **54.2% Pass w/ Modifications***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

******Contractor PMI Requirements*:**
Included at the end of this MA report
Available & Submitted via portal at https://pmi.vzwsmart.com
For additional questions and support, please reach out to:
pmisupport@colliersengineering.com

Report Prepared By: Madison Shell



11/11/2022

Executive Summary:

The objective of this report is to summarize the analysis results of the antenna support mount including the proposed modifications at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

Sources of Information:

Document Type	Remarks
Radio Frequency Data Sheet (RFDS)	*Verizon RFDS, Site ID: 324653, dated June 8, 2022*
Mount Mapping Report	*Hudson Design Group, LLC., Site ID:467421, dated March 24, 2022*
Previous Mount Analysis Report	*Maser Consulting, Project #: 21777126A (Rev. 1), dated November 10, 2022*
Mount Modification Drawings	*Maser Consulting, Project #: 21777126A (Rev. 1), dated November 11, 2022*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H	
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	117 mph
	Ice Wind Speed (3-sec. Gust):	50 mph
	Design Ice Thickness:	1.00 in
	Risk Category:	II
	Exposure Category:	B
	Topographic Category:	1
	Topographic Feature Considered:	N/A
	Topographic Method:	N/A
	Ground Elevation Factor, K_e:	0.974
Seismic Parameters:	S_S:	0.200 g
	S_1:	0.054 g
Maintenance Parameters:	Wind Speed (3-sec. Gust):	30 mph
	Maintenance Live Load, Lv:	250 lbs.
	Maintenance Live Load, Lm:	500 lbs.
Analysis Software:	RISA-3D (V17)	

Final Loading Configuration:

The following equipment has been considered for the analysis of the mount:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
138.50	140.00	3	Amphenol Antel	BXA-70063-6CF-2	Retained
		1	Raycap	RVZDC-6627-PF-48	Added
		6	JMA Wireless	MX06FRO660-03	
		3	Samsung	MT6407-77A	
		3	Samsung	B2/B66A RRH-BR049	
		3	Samsung	B5/B13 RRH-BR04C	

It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Model Number	Ports	AKA
DB-B1-6C-12AB-0Z	6	OVP-6
RVZDC-6627-PF-48	12	OVP-12

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Maser Consulting and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Maser Consulting to verify deviation will not adversely impact the analysis.

2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

   Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

   The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Maser Consulting is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
   - Channel, Solid Round, Angle, Plate — ASTM A36 (Gr. 36)
   - HSS (Rectangular) — ASTM 500 (Gr. B-46)
   - Pipe — ASTM A53 (Gr. B-35)
   - Threaded Rod — F1554 (Gr. 36)
   - Bolts — ASTM A325

8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Maser Consulting.

Analysis Results:

Component	Utilization %	Pass/Fail
Standoff Horizontal	43.4 %	Pass
Corner Plates	54.2 %	Pass
Cross Bracing	25.6 %	Pass
Face Horizontal	48.5 %	Pass
Mount Pipe	22.7 %	Pass
Face Plates	19.5 %	Pass
Support Rail	11.7 %	Pass
Support Rail Bracing	23.9 %	Pass
Mount Connection	36.2 %	Pass

Structure Rating – *(Controlling Utilization of all Components)*	**54.2%**

Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

Ice Thickness (In)	Mount Pipes Excluded		Mount Pipes Included	
	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	38.2	38.1	56.1	56.1
0.5	44.6	44.5	70.1	70.0
1	50.7	50.6	83.8	83.7

Notes:
- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 3 sectors.
- Ka factors included in (EPA)a calculations

Requirements:

The existing mount will be **SUFFICIENT** for the final loading configuration (attachment 2) after the modifications detailed in attachment 3 are successfully completed.

ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other, if required. Separate review fees will apply.

Attachments:

1. **Contractor Required PMI Report Deliverables**
2. Antenna Placement Diagrams
3. Mount Modification Drawings
4. Mount Photos
5. Mount Mapping Report (for reference only)
6. Analysis Calculations

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Mount Modification

Electronic pdf version of this can be downloaded at https://pmi.vzwsmart.com
For additional questions and support, please reach out to pmisupport@colliersengineering.com

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PSLC #: 467421 SMART Project #: 10180119 Fuze Project ID: 16272032

Purpose – to upload the proper documentation to the SMART Tool in order to allow the SMART Tool engineering vendor to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

Base Requirements:

- If installation of the modification will cause damage to the structure, the climbing facility, or safety climb if present or any installed system, SMART Tool vendor to be notified prior to install. Any special photos outside of the standard requirements will be indicated on the drawings.
- Provide "as built drawings" showing contractor's name, preparer's signature, and date. Any deviations from the drawings (proposed modification) shall be shown. NOTE: If loading is different than what is conveyed in the post-modification passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo shall be time and date stamped.
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope. If there is conflict, contact the SMART Tool engineer for recommendations.
- The PMI can be accessed at the following portal: **https://pmi.vzwsmart.com**

Photo Requirements:

- *Photos taken at ground level*
  - Photo of Gate Signs showing the tower owner, site name, and number.
  - Overall tower structure after installation of the modifications.
  - Photos of the mount after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed

- *Photos taken at Mount Elevation*
  - Photos showing the safety climb wire rope above and below the mount prior to modification.
  - Photos showing the climbing facility and safety climb if present.

- Photos showing each individual sector after installation of modifications. Each entire sector must be in one photo to show the interconnection of members.
    - These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this form.
- Photos that show the model number of each antenna and piece of equipment installed per sector.
- Photos of each installed modification per the modification drawings; pictures shall also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
- Photos showing the distances (relative distance between collars) of the installed modifications from the appropriate reference locations shown in the modification drawings.
- Photos showing the installed modifications onto the tower (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevation needs to be changed according to the modification drawings, an elevation measurement shall be provided before the elevation change.

Material Certification:

- Materials utilized must be as per specification on the drawings or the equivalent as validated by the SMART Tool vendor.
    - If the materials are as specified on the drawings
        - The contractor shall provide the packing list, or the materials certifications for the materials utilized to perform the mount modification
        - Commscope, Metrosite, Perfect Vision, Sabre, and Site Pro have all agreed to support Verizon vendors with the necessary material certifications
    - If seeking permission to use an equivalent
        - It is required that the SMART Tool engineering vendor approval of such is included in the contractor submission package. There may be an additional charge for approval if the equivalent submission doesn't meet specifications as prescribed in the drawings.

☐ All hardware has been properly installed, and the existing hardware was inspected.

☐ The material utilized was as specified on the SMART Tool engineering vendor Mount Modification Drawings and included in the material certification folder is a packing list or invoice for these materials.

OR

☐ The material utilized was approved by a SMART Tool engineering vendor as an "equivalent" and this approval is included as part of the contractor submission.

Antenna & Equipment Placement and Geometry Confirmation:

☐ The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.

OR

☐ The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.

Comments:

Was the mount modification completed in conjunction with the equipment change / installation?

☐ Yes ☐ No

Special Instructions / Validation as required from the MA or Mod Drawings:

Issue:

Response:

Special Instruction Confirmation:

☐ The contractor has read and acknowledges the above special instructions.

Comments:

Contractor certifies that the climbing facility / safety climb was not damaged prior to starting work:

☐ Yes ☐ No

Contractor certifies no new damage created during the current installation:

☐ Yes ☐ No

Contractor to certify the condition of the safety climb and verify no damage when leaving the site:

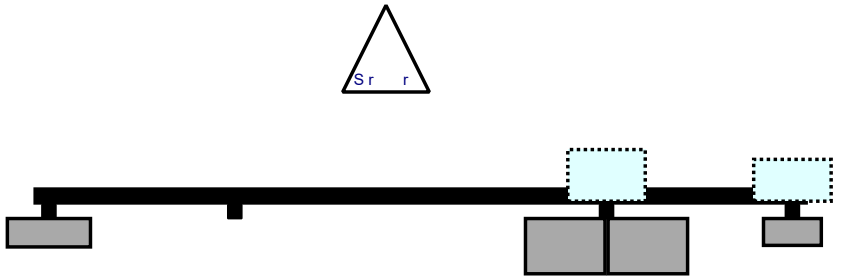
☐ Safety Climb in Good Condition ☐ Safety Climb Damaged

Comments:

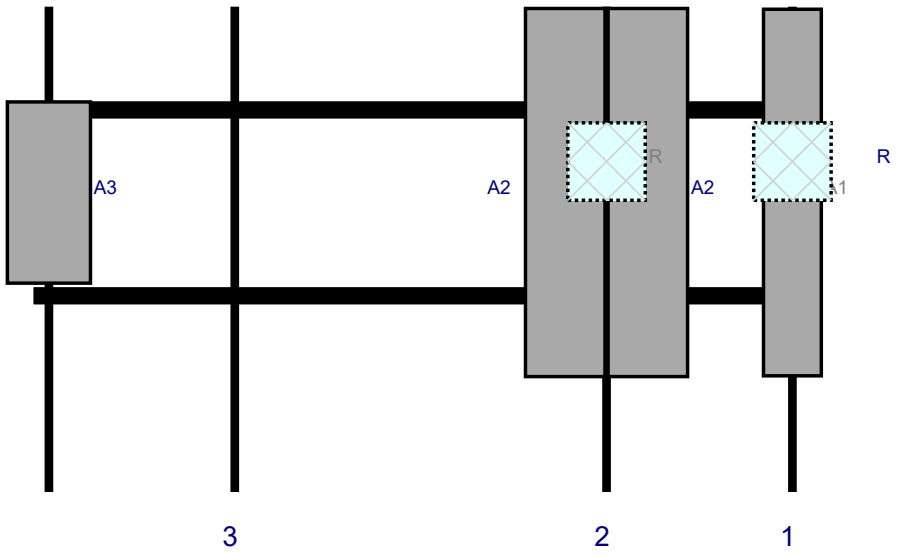
Certifying Individual:

Company:	
Employee Name:	
Contact Phone:	
Email:	
Date:	

Plan View

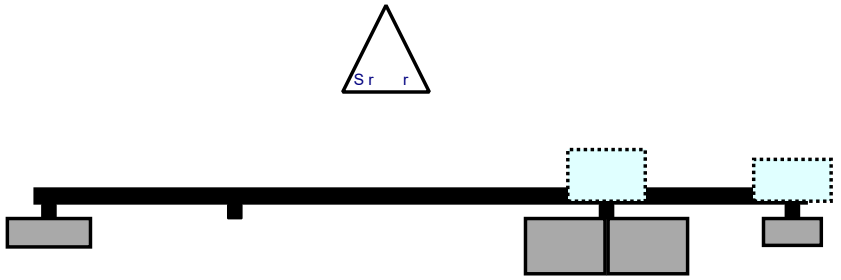


Front View - L Sr r

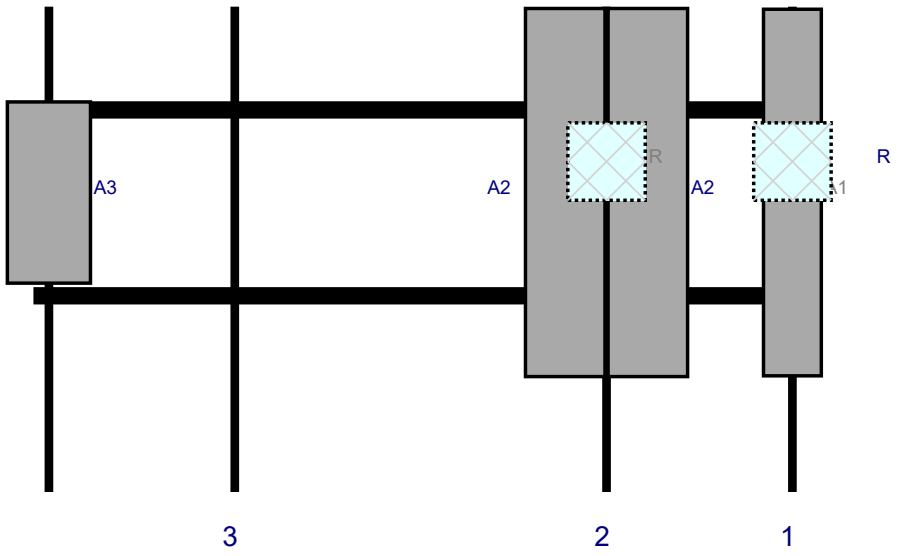


R M d	d r L.	D P	P P	A r T.	.A O	A S d
A1 B A 3 ED 2	1 11.2	1	1	r	3	R d 3 2 2 21
R B B13 RR BR	1 1	1	1	B d	3	Add d
A2 M RO 2	1.3 1 .	111	2	r	3	Add d
A2 M RO 2	1.3 1 .	111	2	r	3	Add d
R B2 B A RR BR	1 1	111	2	B d	3	Add d
A3 MT A	3 .1 1 .1	3		r	3	Add d
M A R D 2 P	2 . 1 .	M r				Add d

Plan View

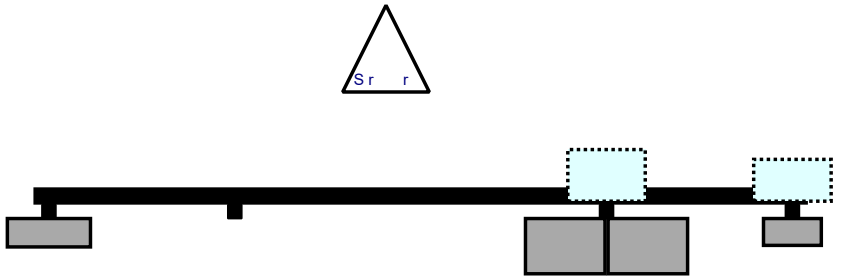


Front View - L Sr r

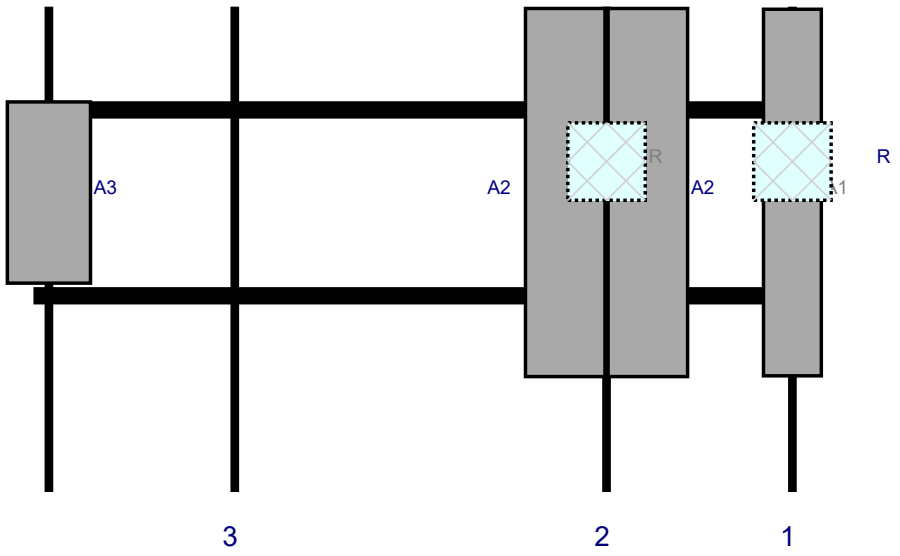


R	M d		d	D	P	P	A	. A	A		
				r L.		P	P	r T.	O	S	d
A1	B A 3 ED 2	1	11.2	1	1		r	3		R d	3 2 2 21
R	B B13 RR BR	1	1	1	1		B	d 3		Add d	
A2	M RO 2	1.3	1 .	111	2		r	3		Add d	
A2	M RO 2	1.3	1 .	111	2		r	3		Add d	
R	B2 B A RR BR	1	1	111	2		B	d 3		Add d	
A3	MT A	3 .1	1 .1	3			r	3		Add d	

Plan View



Front View - L Sr r



R	M d		d	D	P	P	A	. A	A		
				r L.		P	P	r T.	O	S	d
A1	B A 3 ED 2	1	11.2	1	1		r	3		R d	3 2 2 21
R	B B13 RR BR	1	1	1	1		B d	3		Add d	
A2	M RO 2	1.3	1 .	111	2		r	3		Add d	
A2	M RO 2	1.3	1 .	111	2		r	3		Add d	
R	B2 B A RR BR	1	1	111	2		B d	3		Add d	
A3	MT A	3 .1	1 .1	3			r	3		Add d	

MOUNT MODIFICATION DRAWINGS
EXISTING 12.50' PLATFORM

TOWER OWNER: CROWN CASTLE
TOWER OWNER SITE NUMBER: 876361

CARRIER SITE NAME: OXFORD W CT
CARRIER SITE NUMBER: 467421
FUZE ID: 16272032

20 GREAT OAK RD
OXFORD, CT 06478
NEW HAVEN COUNTY

LATITUDE: 41.426358° N
LONGITUDE: 73.144247° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), V = 117 MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC METHOD II
TOPOGRAPHY CONSIDERED NO
MEAN BASE ELEVATION (AMSL) = 734.07'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), V = 50 MPH
ICE THICKNESS = 1.00 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, S_S = .200
LONG TERM MCER GROUND MOTION, S_1 = .054

PROJECT INFORMATION

APPLICANT/LESSEE

COMPANY: VERIZON WIRELESS

CLIENT REPRESENTATIVE

COMPANY: VERIZON WIRELESS

PROJECT MANAGER

COMPANY: COLLIERS ENGINEERING & DESIGN
CONTACT: PETER ALBANO
PHONE: 856.797.0412
E-MAIL: PETER.ALBANO@COLLIERSENGINEERING.COM

CONTRACTOR PMI REQUIREMENTS

PMI LOCATION: HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #: 10180119
VZW LOCATION CODE (PSLC): 467421
ANALYSIS DATE: 11/11/2022

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX

SHEET	DESCRIPTION
ST-1	TITLE SHEET
SBOM-1	BILL OF MATERIALS
SGN-1	GENERAL NOTES
SCF-1	CLIMBING FACILITY DETAIL
SS-1	MODIFICATION DETAILS
SS-2	MOUNT PHOTOS
	SPECIFICATION SHEETS

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SCALE : AS SHOWN
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REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
1	11/11/22	ISSUED FOR CONSTRUCTION	MKS	DX

COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. JPC.0000131

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

OXFORD W CT
467421

20 GREAT OAK RD
OXFORD, CT 06478
NEW HAVEN COUNTY

Colliers Engineering & Design
STAMFORD
1055 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SHEET TITLE : TITLE SHEET

SHEET NUMBER : ST-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

BILL OF MATERIALS

SECTION 1 - VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
1	VZWSMART	VZWSMART-PLK1	SUPPORT RAIL KIT	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	504	504
1		VZWSMART-MSK6	BACK TO BACK CROSSOVER PLATE		34	34
1		VZWSMART-P40-238X048	48" LONG, PIPE 2 SCH40 (2.375"OD X 0.154" THK)		15	15
3		VZWSMART-P40-278X096	96" LONG, PIPE 2.5 SCH40 (2.875"OD X 0.203" THK)		44	132

SECTION 2 - OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
-	-	-	5/8" DIA. J429 GR.2 U-BOLTS		(blank)	

SECTION 3 - REQUIRED SAFETY CLIMB PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
					TOTAL:	685

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM

METROSITE FABRICATORS, LLC	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM

SABRE INDUSTRIES, INC.	
CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

SITE PRO 1	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM

NEWAVE	
CONTACT	NEWAVE SALES TEAM
PHONE	(971) 239-4762
EMAIL	SALES@NEWAVETC.COM
WEBSITE	WWW.NEWAVETC.COM

BETTER METAL, LLC	
CONTACT	DAVID STANSBERRY
PHONE	(615) 535-0990 (O), (615) 631-2520 (M)
EMAIL	DLS@BETTERMETAL.COM
WEBSITE	WWW.BETTERMETAL.COM

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SCALE: AS SHOWN

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REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	11/11/22	ISSUED FOR CONSTRUCTION	MKS	DX

COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. JPC.0000131

SITE NAME:

OXFORD W CT
467421

20 GREAT OAK RD
OXFORD, CT 06478
NEW HAVEN COUNTY

Colliers Engineering & Design

STAMFORD
1055 Washington Boulevard
Stamford, CT 06901

Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SHEET TITLE: BILL OF MATERIALS

SHEET NUMBER: SBOM-1

GENERAL NOTES

1. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
4. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
6. 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/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
8. WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
9. ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
10. CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
11. CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
12. DO NOT SCALE DRAWINGS.
13. DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
14. ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
15. THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

1. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
   a. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
   b. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
   c. AISC CODE OF STANDARD PRACTICE
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE

3. ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
4. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
   a. SUBMIT SHOP DRAWINGS TO

      PETER.ALBANO@COLLIERSENGINEERING.COM

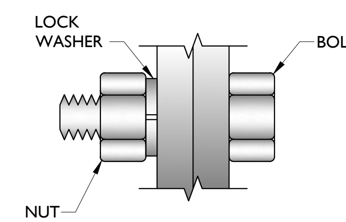
   b. PROVIDE MASER CONSULTING PROJECT # AND MASER CONSULTING PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
5. DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
7. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
8. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
9. WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
10. FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
12. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
13. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
14. ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINGA OR ZINC COTE), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
15. ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN.)

LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8

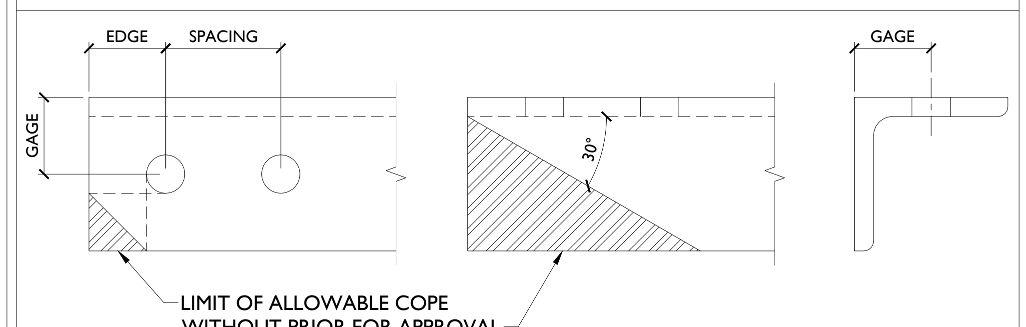


TYP. BOLT ASSEMBLY

NOTES:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.

ALLOWABLE COPING



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SCALE : AS SHOWN

JOB NUMBER : 21777126A

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1	11/11/22	ISSUED FOR CONSTRUCTION	MKS	DX
REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY

COLLIERS ENGINEERING & DESIGN CT, P.C.
C.T. JPC.0000131

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

OXFORD W CT
467421

20 GREAT OAK RD
OXFORD, CT 06478
NEW HAVEN COUNTY

Colliers Engineering & Design
STAMFORD
1055 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.0800
COLLIERS ENGINEERING & DESIGN, INC.
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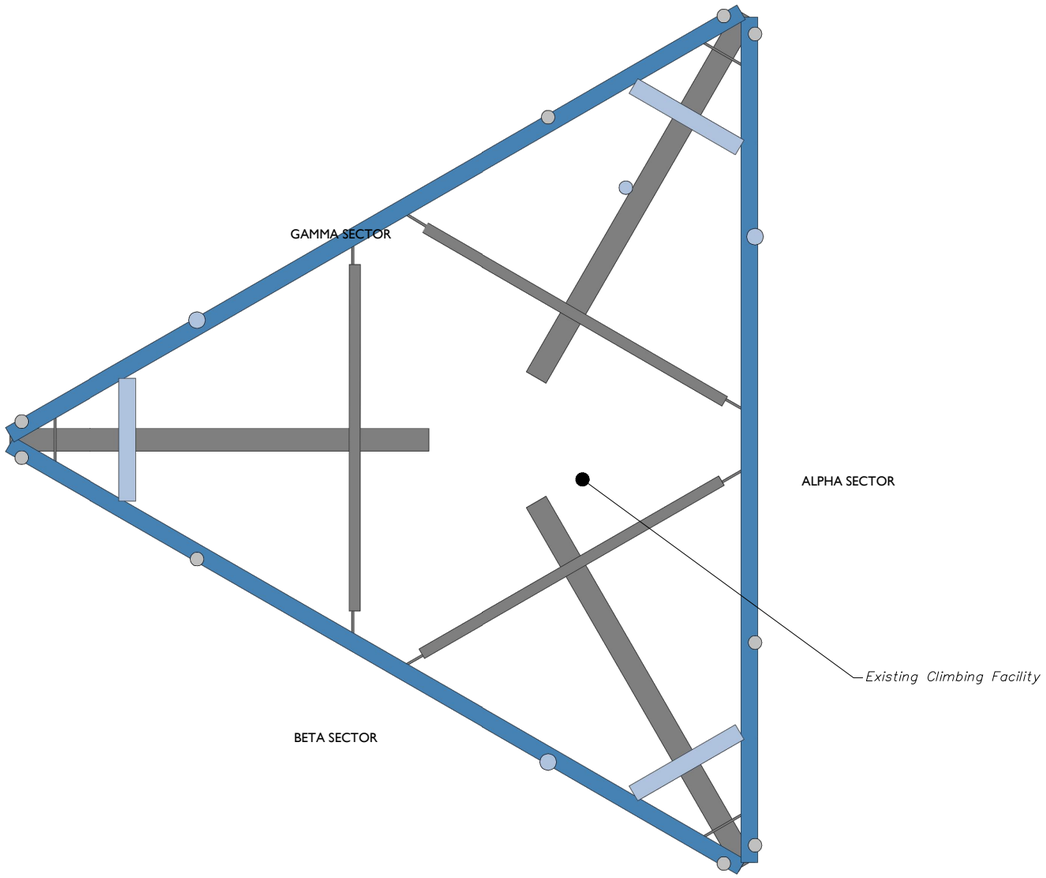
SHEET TITLE : GENERAL NOTES

SHEET NUMBER : SGN-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



1 CLIMBING FACILITY LOCATION

SCALE : N.T.S.

CLIMBING FACILITY PHOTO

STRUCTURAL NOTES:

1. PER THE MOUNT MAPPING COMPLETED BY HUDSON DESIGN GROUP, LLC ON 3/24/2022, CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (138'-6") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.

2. INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.

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Stamford, CT 06901

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SHEET TITLE :

CLIMBING FACILITY DETAIL

SHEET NUMBER :

SCF-1

LEGEND:

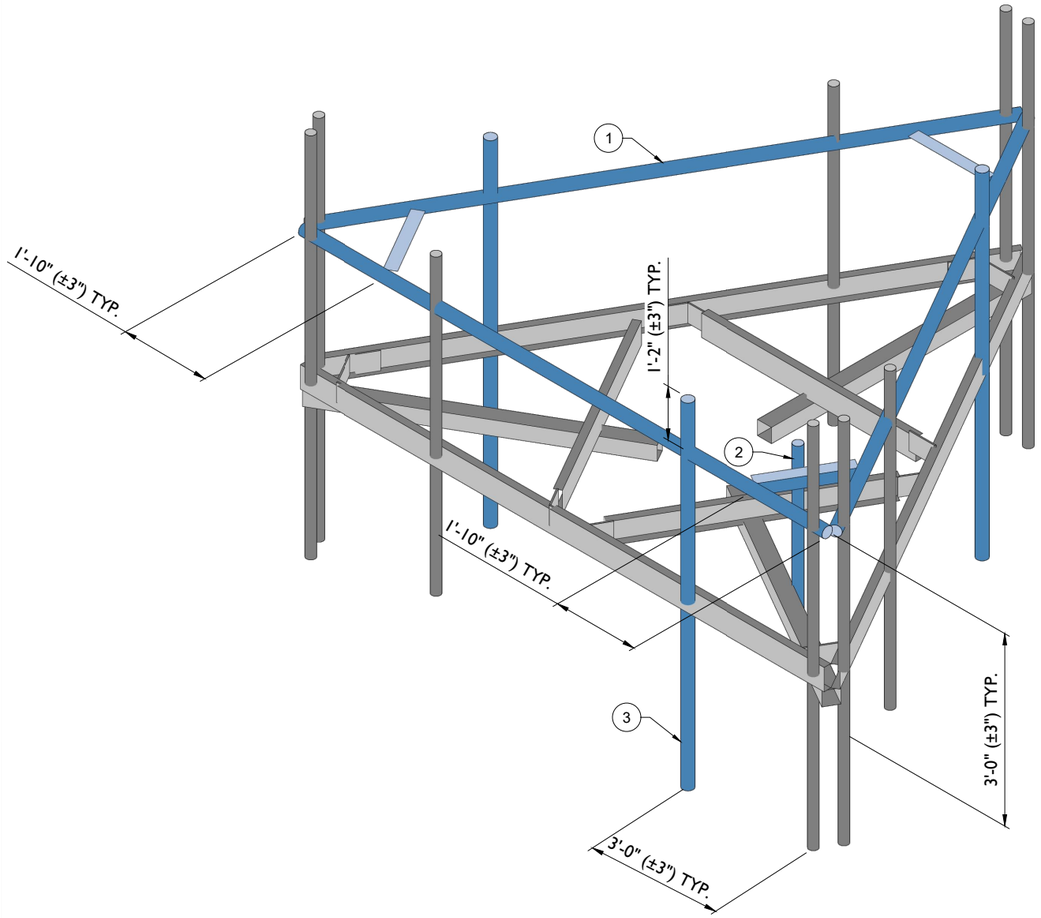
- PROPOSED
- RELOCATED
- EXISTING

MOUNT MODIFICATION SCHEDULE

NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	138'-6"	1	PROPOSED SUPPORT RAIL KIT (PART #: VZWSMART-PLK1)	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF HORIZONTAL AS SHOWN.
2		1	PROPOSED 48" LONG, PIPE 2 SCH40 (PART #: VZWSMART-P40-238X048)	CONNECT NEW OVP PIPE TO EXISTING STANDOFF HORIZONTAL WITH CROSSOVER PLATES (PART #: VZWSMART-MSK6).
3		3	PROPOSED 96" LONG, PIPE 2.5 SCH40 (PART #: VZWSMART-P40-278X096)	REMOVE EXISTING MOUNT PIPE SIN POSITION 2 AND CONNECT NEW MOUNT PIPE TO EXISTING HORIZONTAL WITH 5/8" DIA. J429 GR.2 U-BOLTS AND CONNECT TO SUPPORT RAIL WITH CROSSOVER PLATES PROVIDED IN THE SUPPORT RAIL KIT (PART #: VZWSMART-PLK1).

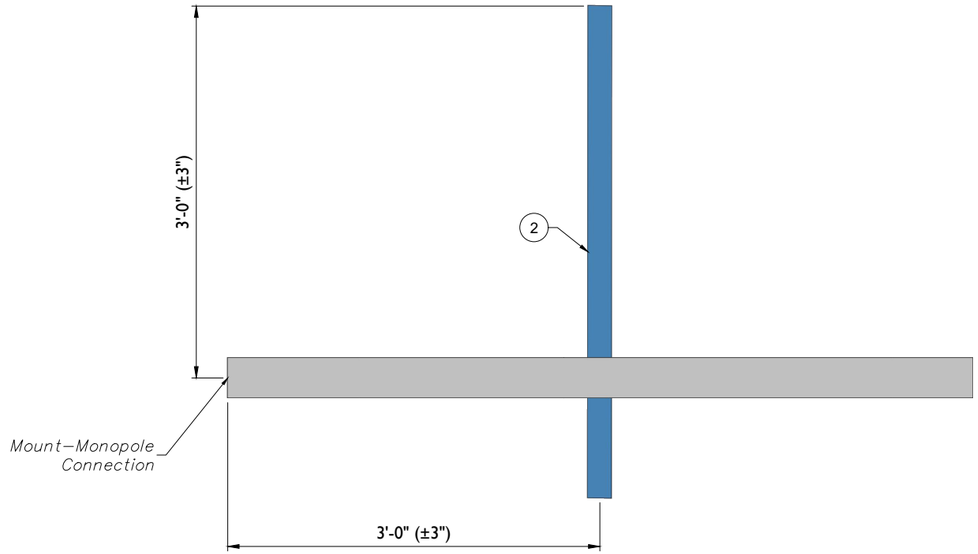
GENERAL NOTES:

A. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.



1 PROPOSED ISOMETRIC VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.



2 PROPOSED STANDOFF SIDE ELEVATION VIEW (GAMMA/ALPHA SECTOR ONLY)

SCALE : N.T.S.

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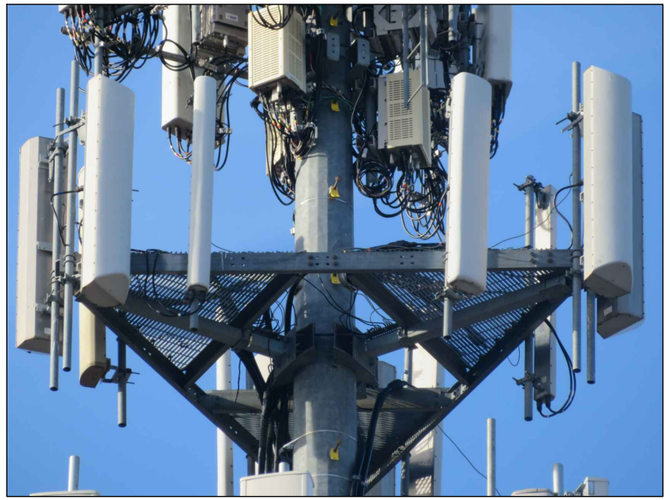
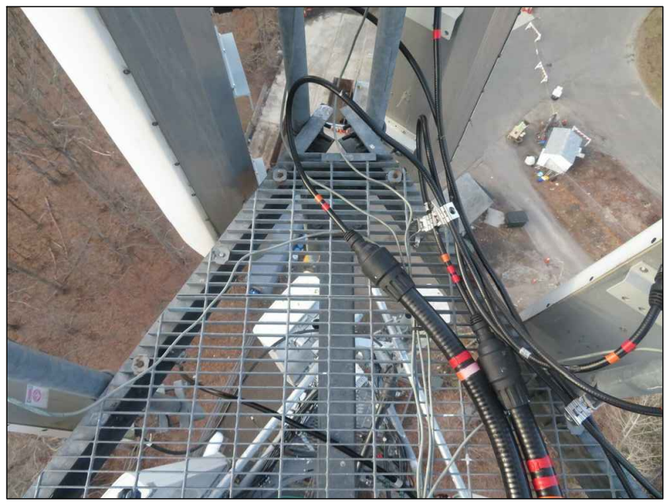
SHEET TITLE : MODIFICATION DETAILS

SHEET NUMBER : SS-1



MOUNT PHOTO 1

MOUNT PHOTO 2



MOUNT PHOTO 3

MOUNT PHOTO 4

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SCALE: AS SHOWN

JOB NUMBER: 21777126A

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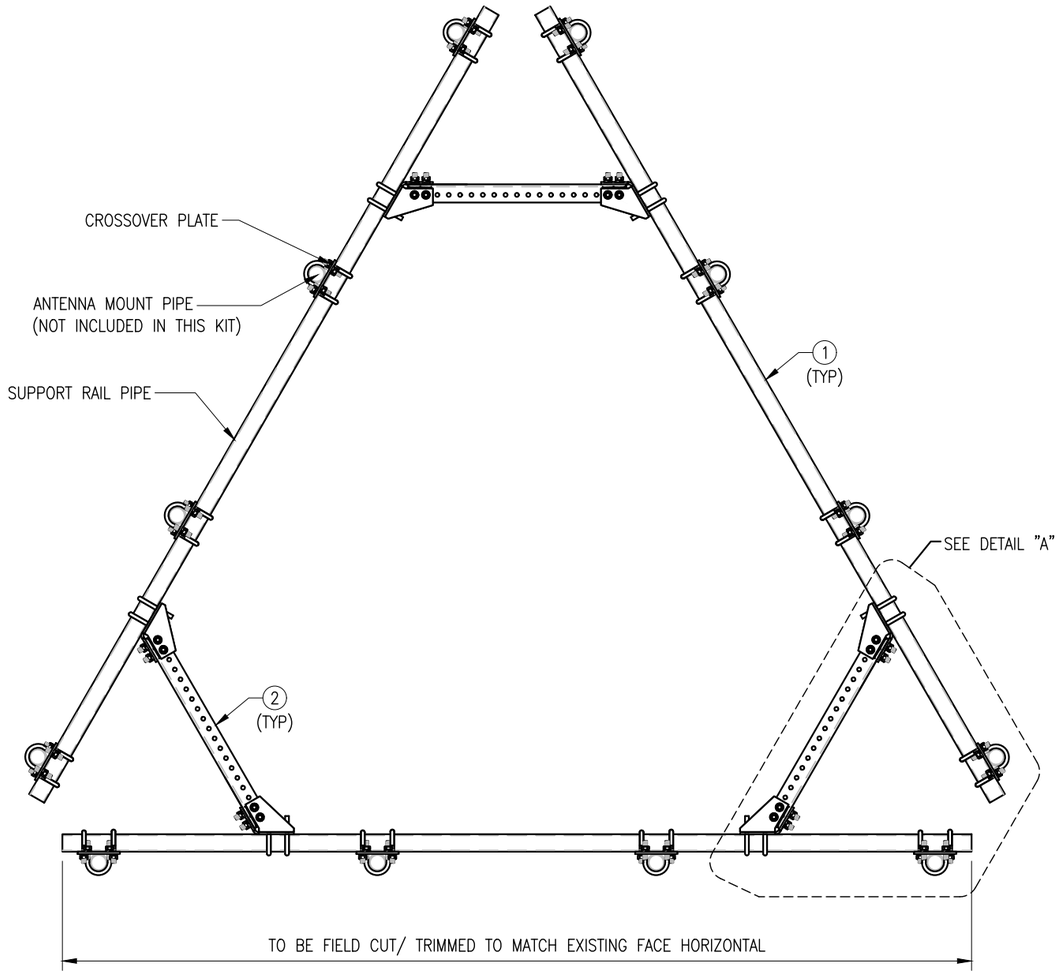
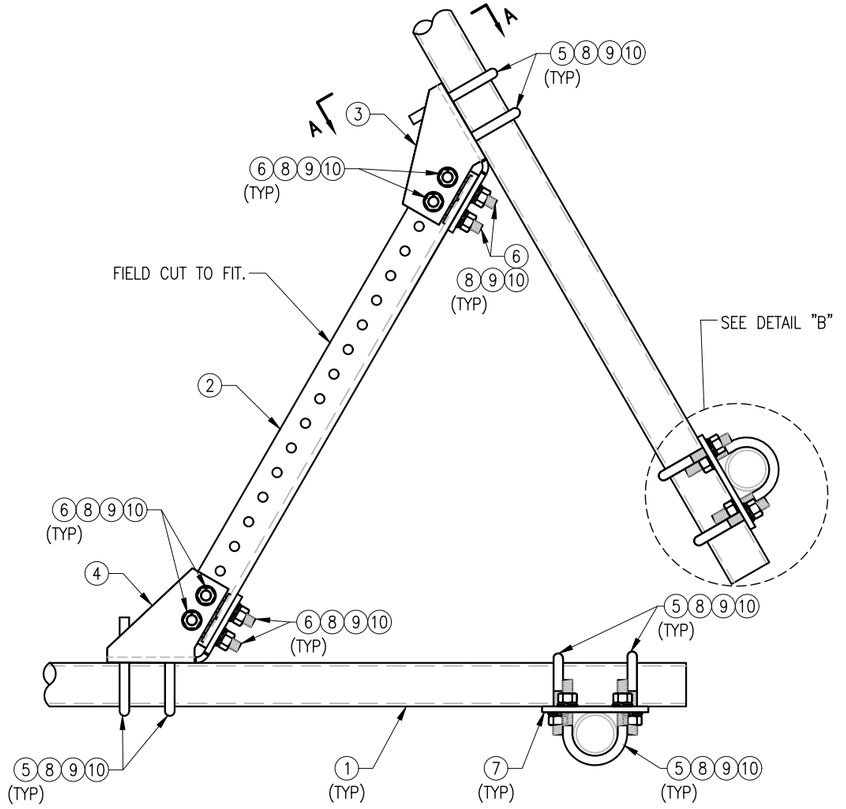
SHEET TITLE: MOUNT PHOTOS

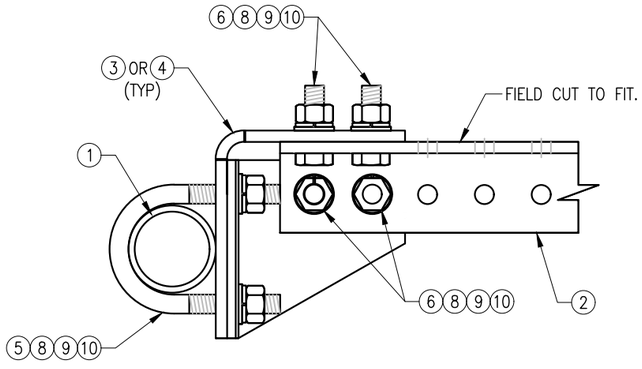
SHEET NUMBER: SS-2



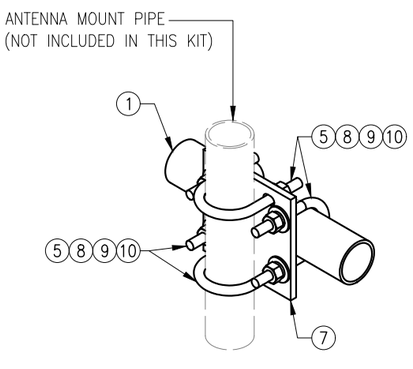
PLAN VIEW



DETAIL "A"



SECTION "A–A"



DETAIL "B"

NOTES:
1. HOT–DIPPED GALVANIZED PER ASTM A123.

VZW SMART–PLK1 (SUPPORT RAIL KIT)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	3	PST2875–12.5	2.5" PST (2.875" O.D. X 0.203" THK.) X 12'–6" A53 GR–B	PLK1–F1	292
2	3	L33375–3	L 3" X 3" X 3/8" X 3'–0" A36	PLK1–F1	66
3	3	CBP–L	CORNER BENT PLATE BRACKET	PLK1–F2	28
4	3	CBP–R	CORNER BENT PLATE BRACKET	PLK1–F2	28
5	60	MS02–625–300–500	RU–BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC–1	82
6	24	---	BOLT 5/8" X 2" A325	---	9
7	12	PL375–857	PL 3/8" X 8 1/2" X 7'–0" A36	PLK1–F3	77
8	144	FW–625	5/8" HDG USS FLAT WASHER	---	12
9	144	LW–625	5/8" HDG LOCK WASHER	---	3
10	144	NUT–625	5/8" HDG HEX NUT	---	17
				GALVANIZED WT	504

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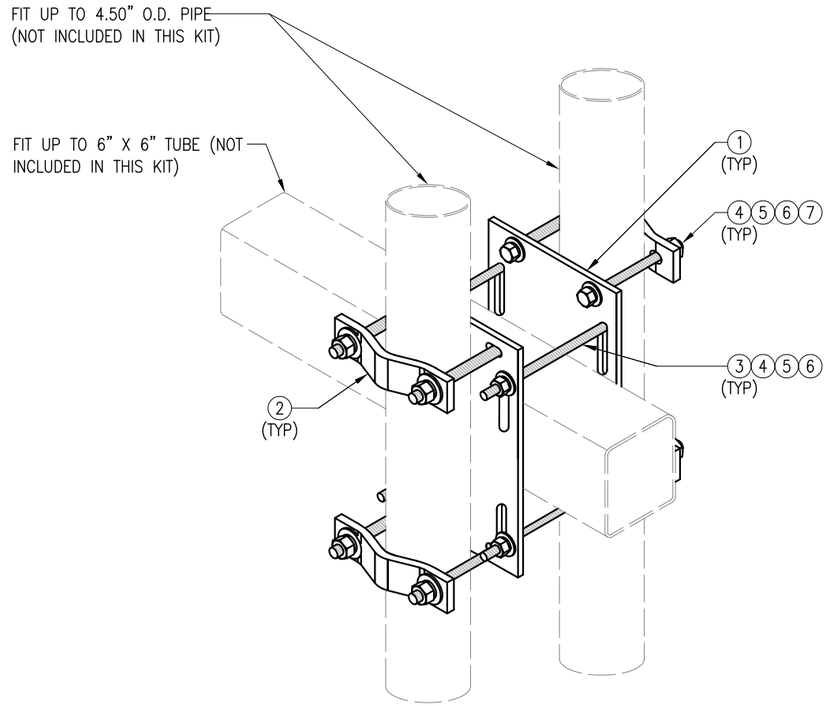
DRAWN BY: H.R | CHECKED BY: HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	H.R	05/08/20

SHEET TITLE:
VZWSMART–PLK1
SUPPORT RAIL KIT

SHEET NUMBER: VZWSMART–PLK1

REV #: 0



ISOMETRIC VIEW
BACK TO BACK CROSSOVER

VZWSMART–MSK6 (VZWSMART–MSK6 – BACK TO BACK CROSSOVER)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	2	PL375–8512	PL 3/8" X 8 1/2" X 1'–0" A36	MSK6–F2	20.7
2	4	VCP	PL 1/2" X 2" X 8 5/8" A36 BENT PLATE	MSK6–F1	9.6
3	4	---	THREADED ROD 5/8" DIA. X 10" F1554–36 HDG	---	---
4	16	NUT–625	5/8" HDG HEX NUT	---	2
5	16	FW–625	5/8" HDG USS FLAT WASHER	---	1
6	16	LW–625	5/8" HDG LOCK WASHER	---	0
7	8	---	BOLT 5/8" X 6" SAE GRADE 5 ALL THREAD	---	1
				GALVANIZED WT	34

NOTES:
1. HOT–DIPPED GALVANIZED PER ASTM A123.

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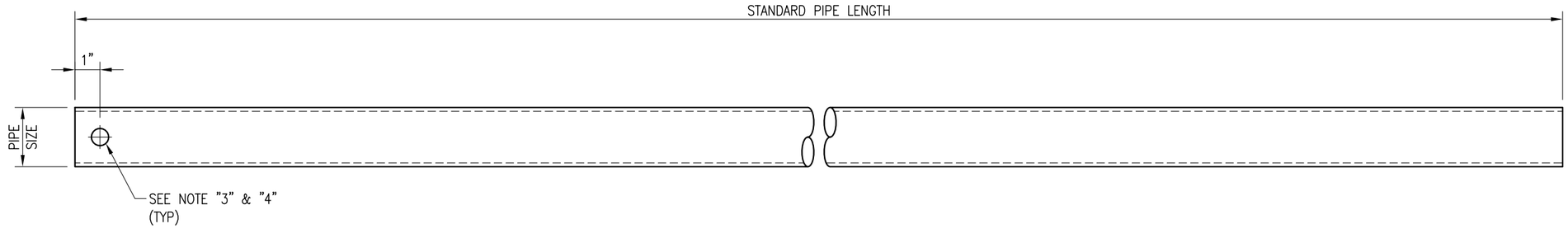
DRAWN BY: SK | CHECKED BY: BT/KW

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	SK	05/08/20

SHEET TITLE:
VZWSMART–MSK6
BACK TO BACK
CROSSOVER

SHEET NUMBER: VZWSMART–MSK6

REV #: 0



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE. SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

NOTES:
1. ALL PIPE GRADE A53-B OR BETTER.
2. HOT-DIPPED GALVANIZED PER ASTM A123.
3. ALL HOLES ARE 11/16" DIA. U.N.O
4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

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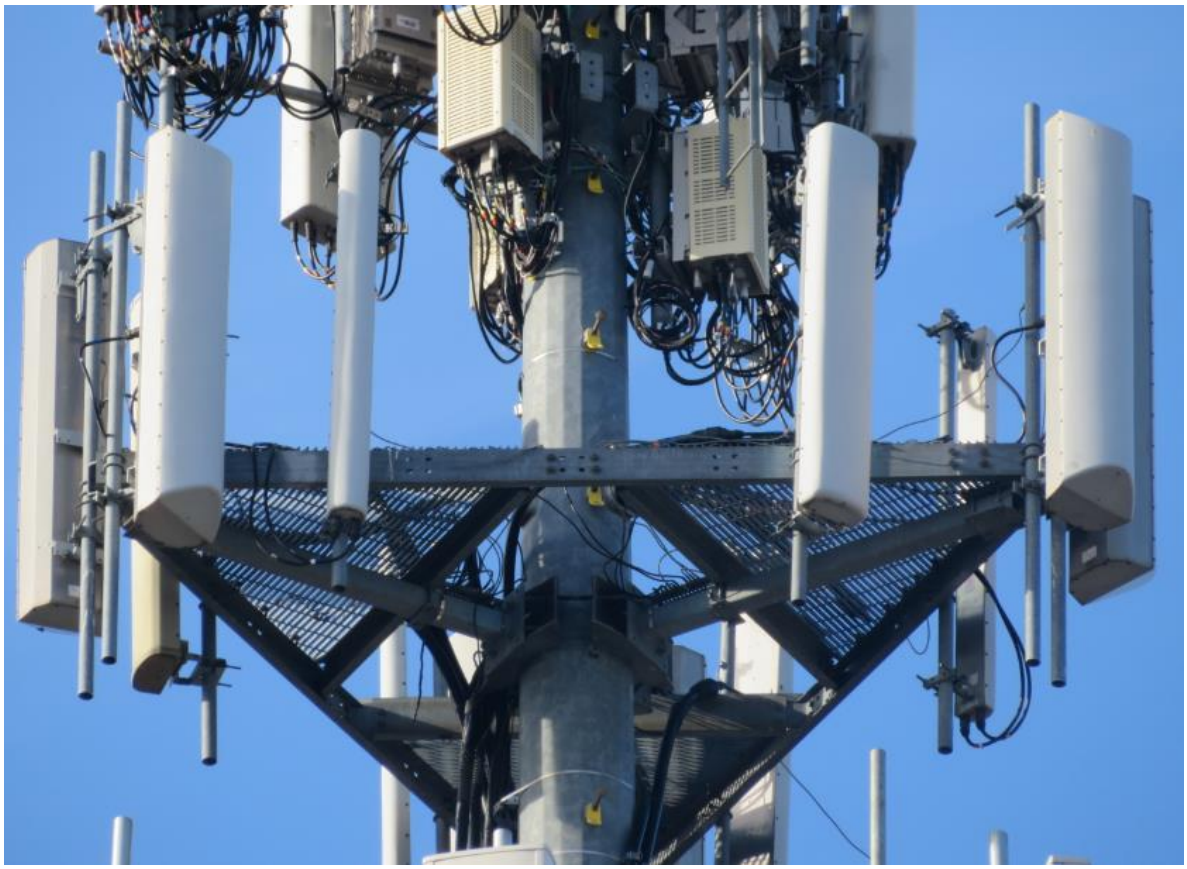
DRAWN BY: BT | CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BT	08/04/21

SHEET TITLE:
VZWSMART STANDARD PIPE

SHEET NUMBER: VZWSMART-PIPE

REV #: 0

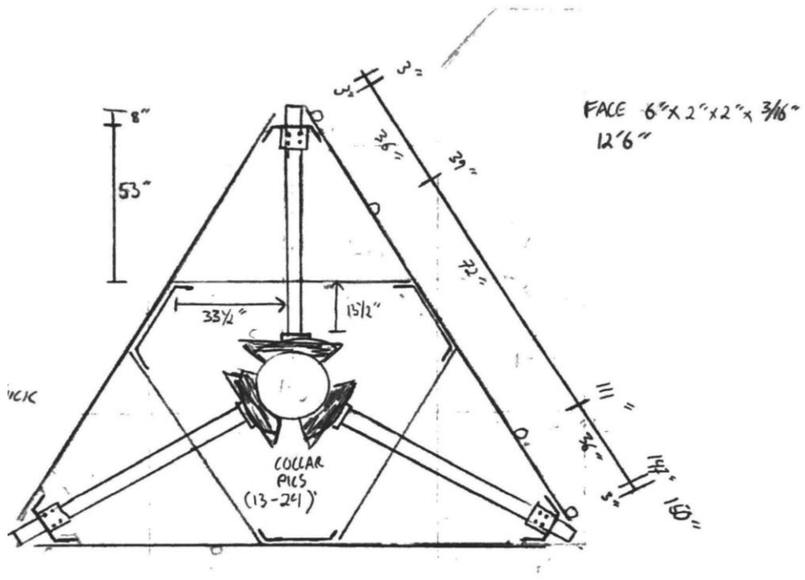


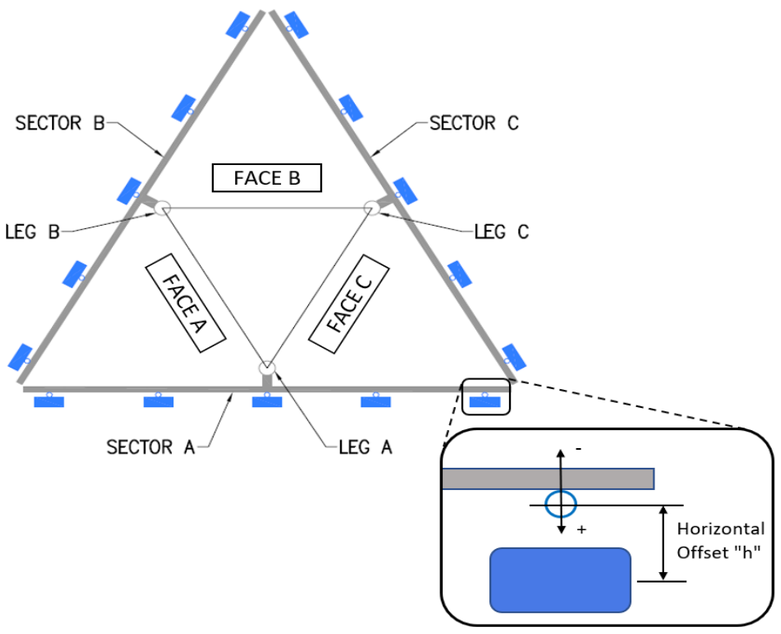
V3.0 Updated on 8-31-2020

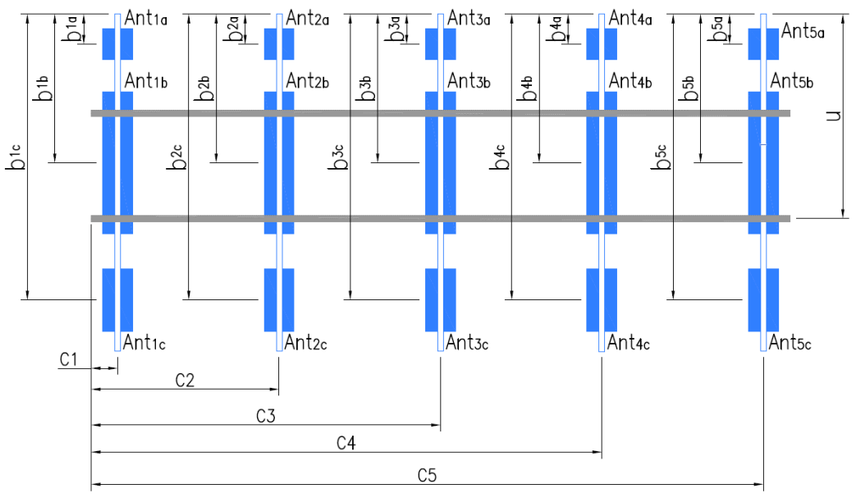
Antenna Mount Mapping Form (PATENT PENDING)

FCC #
1209789

Tower Owner:	CROWN CASTLE	**Mapping Date:**	3/24/2021
Site Name:	OXFORD WEST CT	**Tower Type:**	Monopole
Site Number or ID:	467421	**Tower Height (Ft.):**	
Mapping Contractor:	HUDSON DESIGN GROUP, LLC.	**Mount Elevation (Ft.):**	140







Antenna Layout (Looking Out From Tower)

Mount Pipe Configuration and Geometries [Unit = Inches]

Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."
A1	2" STD. PIPE X 105" LONG	62.00	3.00	C1	2" STD. PIPE X 105" LONG	62.00	3.00
A2	2" E.H. PIPE X 84" LONG	50.00	39.00	C2	2" E.H. PIPE X 84" LONG	50.00	39.00
A3	2" E.H. PIPE X 84" LONG	50.00	111.00	C3	2" E.H. PIPE X 84" LONG	50.00	111.00
A4	2" STD. PIPE X 105" LONG	62.00	147.00	C4	2" STD. PIPE X 105" LONG	62.00	147.00
A5				C5			
A6				C6			
B1	2" STD. PIPE X 105" LONG	62.00	3.00	D1			
B2	2" E.H. PIPE X 84" LONG	50.00	39.00	D2			
B3	2" E.H. PIPE X 84" LONG	50.00	111.00	D3			
B4	2" STD. PIPE X 105" LONG	62.00	147.00	D4			
B5				D5			
B6				D6			

Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :	
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :	5.5
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :	4.2

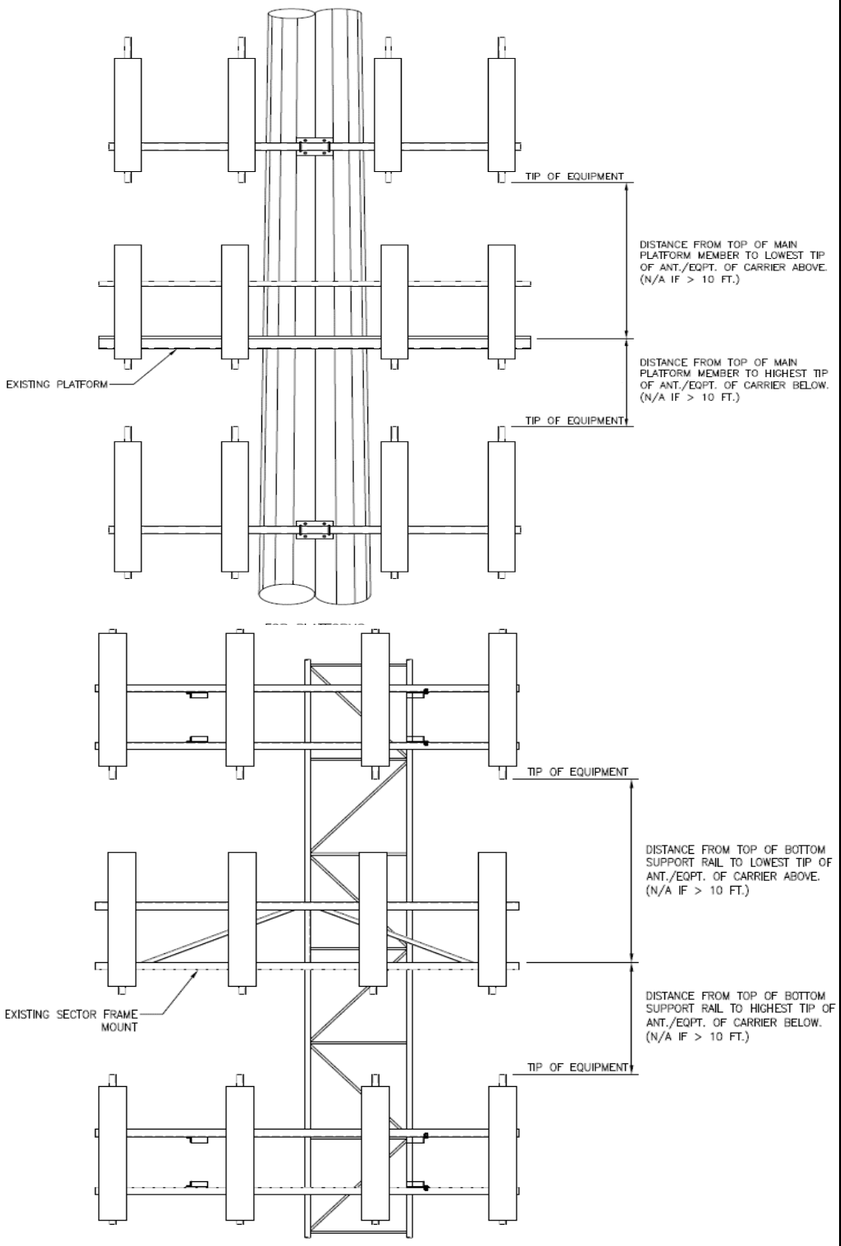
Please enter additional infomation or comments below.

Tower Face Width at Mount Elev. (ft.):		Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):	16.5

	Enter antenna model. If not labeled, enter "Unknown".						Mounting Locations [Units are inches and degrees]			Photos of antennas
Ants. Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b}...." (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)	Antenna Azimuth (Degrees)	Photo Numbers
Sector A										
Ant_{1a}										
Ant_{1b}	LPA-80063-6CF-EDIN-	15.00	14.00	71.00		141.25	47.00	14.50	50.00	82, 77
Ant_{1c}										
Ant_{2a}										
Ant_{2b}	BXA-70063-6CF-EDIN-	11.00	5.00	72.00		141.167	36.00	10.00	50.00	83, 75
Ant_{2c}										
Ant_{3a}										
Ant_{3b}	UNKNOWN	6.00	4.00	72.00		141.083	37.00	7.50	50.00	84
Ant_{3c}										
Ant_{4a}										
Ant_{4b}	LPA-80063-6CF-EDIN-	15.00	14.00	71.00		141.25	47.00	14.50	50.00	84, 77
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Mount Azimuth (Degree) for Each Sector				Tower Leg Azimuth (Degree) for Each Sector	
Sector A:	70.00	Deg	Leg A:		Deg
Sector B:	190.00	Deg	Leg B:		Deg
Sector C:	310.00	Deg	Leg C:		Deg
Sector D:		Deg	Leg D:		Deg

Climbing Facility Information			
Location:	101.00	Deg	
Climbing Facility	Corrosion Type:		Good condition.
	Access:		Climbing path was unobstructed.
	Condition:		Good condition.



Sector B										
Ant_{1a}										
Ant_{1b}	LPA-80063-6CF-EDIN-	15.00	14.00	71.00		141.25	47.00	14.50	140.00	85, 77
Ant_{1c}										
Ant_{2a}										
Ant_{2b}	BXA-70063-6CF-EDIN-	11.00	5.00	72.00		141.167	36.00	10.00	140.00	85, 75
Ant_{2c}										
Ant_{3a}										
Ant_{3b}	UNKNOWN	6.00	4.00	72.00		141.083	37.00	7.50	175.00	85
Ant_{3c}										
Ant_{4a}										
Ant_{4b}	LPA-80063-6CF-EDIN-	15.00	14.00	71.00		141.25	47.00	14.50	140.00	77, 86
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector C										
Ant_{1a}										
Ant_{1b}	LPA-80063-6CF-EDIN-	15.00	14.00	71.00		141.25	47.00	14.50	0.00	86, 77
Ant_{1c}										
Ant_{2a}										
Ant_{2b}	BXA-70063-6CF-EDIN-	11.00	5.00	72.00		141.167	36.00	10.00	255.00	86, 75
Ant_{2c}										
Ant_{3a}										
Ant_{3b}	UNKNOWN	6.00	4.00	72.00		141.083	37.00	7.50	255.00	147
Ant_{3c}										
Ant_{4a}										
Ant_{4b}	LPA-80063-6CF-EDIN-	15.00	14.00	71.00		141.25	47.00	14.50	255.00	144, 77
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector D										
Ant_{1a}										
Ant_{1b}										
Ant_{1c}										
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}										
Ant_{3b}										
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #

1	(18) 1-5/8" COAX	
2	WALL THICKNESS .191, .187, .195	38
3		
4		
5		
6		
7		
8		

Mapping Notes
1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.)
2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness.
3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab.
4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type.
5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required.
6. Please measure and report the size and length of all existing antenna mounting pipes.
7. Please measure and report the antenna information for all sectors.
8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

Standard Conditions
1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.

Antenna Mount Mapping Form (PATENT PENDING)

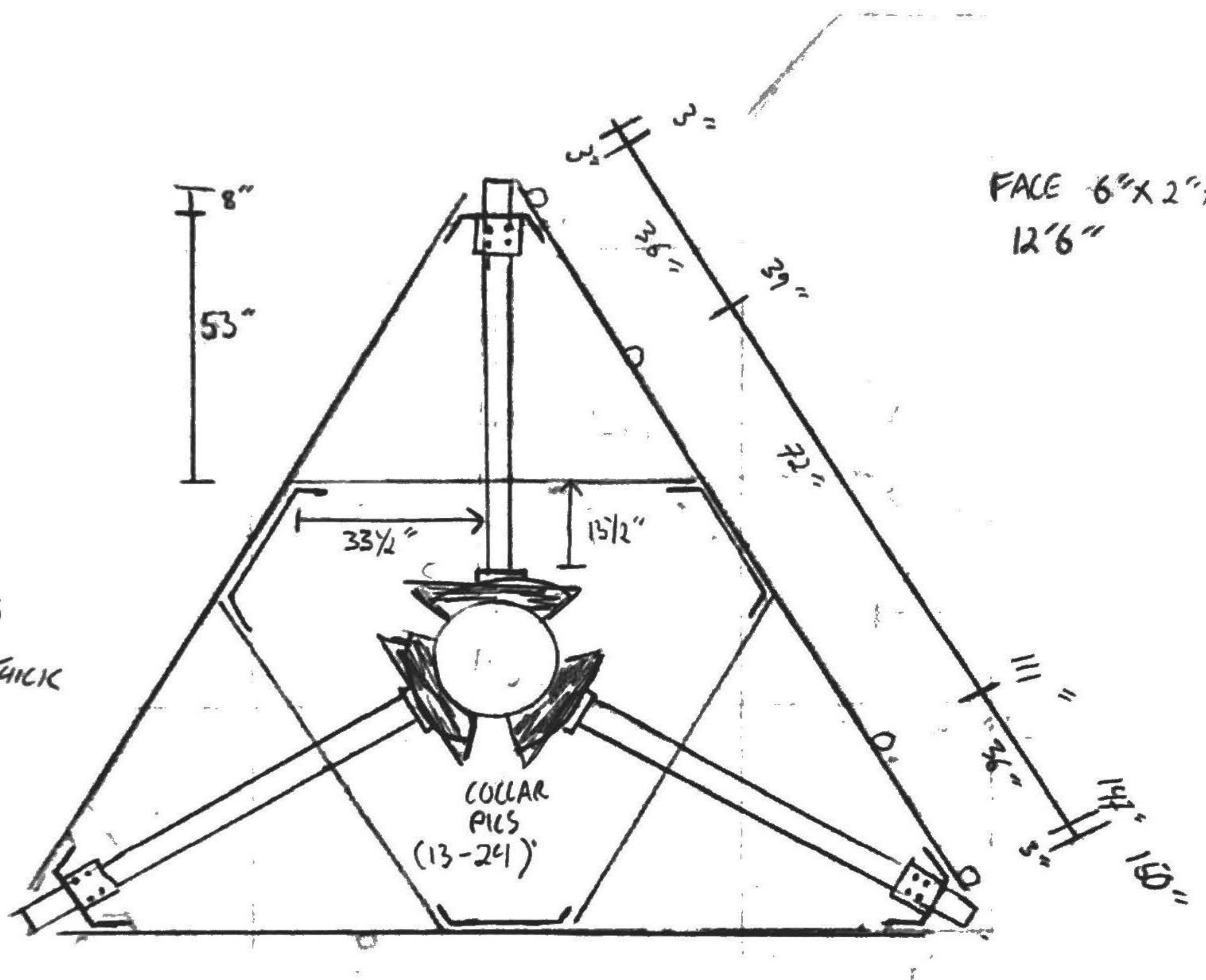
FCC #	1209789		
Tower Owner:	CROWN CASTLE	**Mapping Date:**	3/24/2021
Site Name:	OXFORD WEST CT	**Tower Type:**	Monopole
Site Number or ID:	467421	**Tower Height (Ft.):**	
Mapping Contractor:	HUDSON DESIGN GROUP, LLC.	**Mount Elevation (Ft.):**	140

Please Insert Sketches of the Antenna Mount

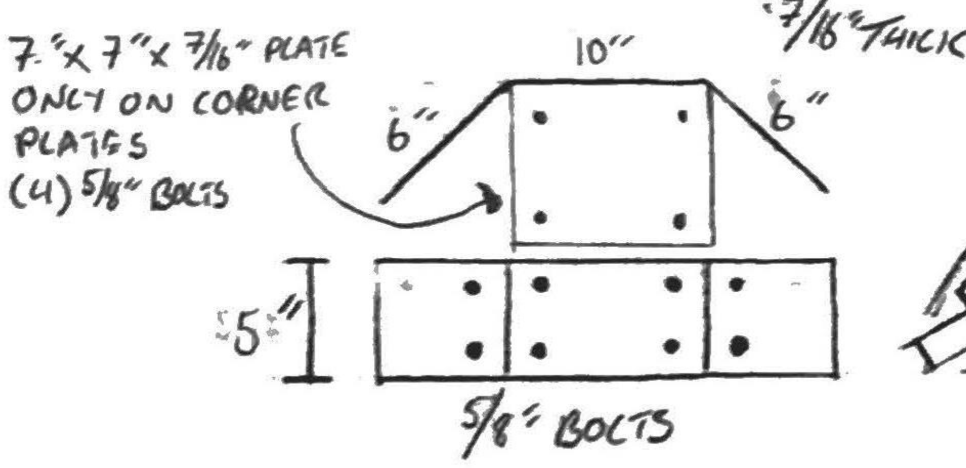
DATE:
Project Name:
Project No.: OXFORD WEST CT
Design By: Chk'd By: Page 2 of 2

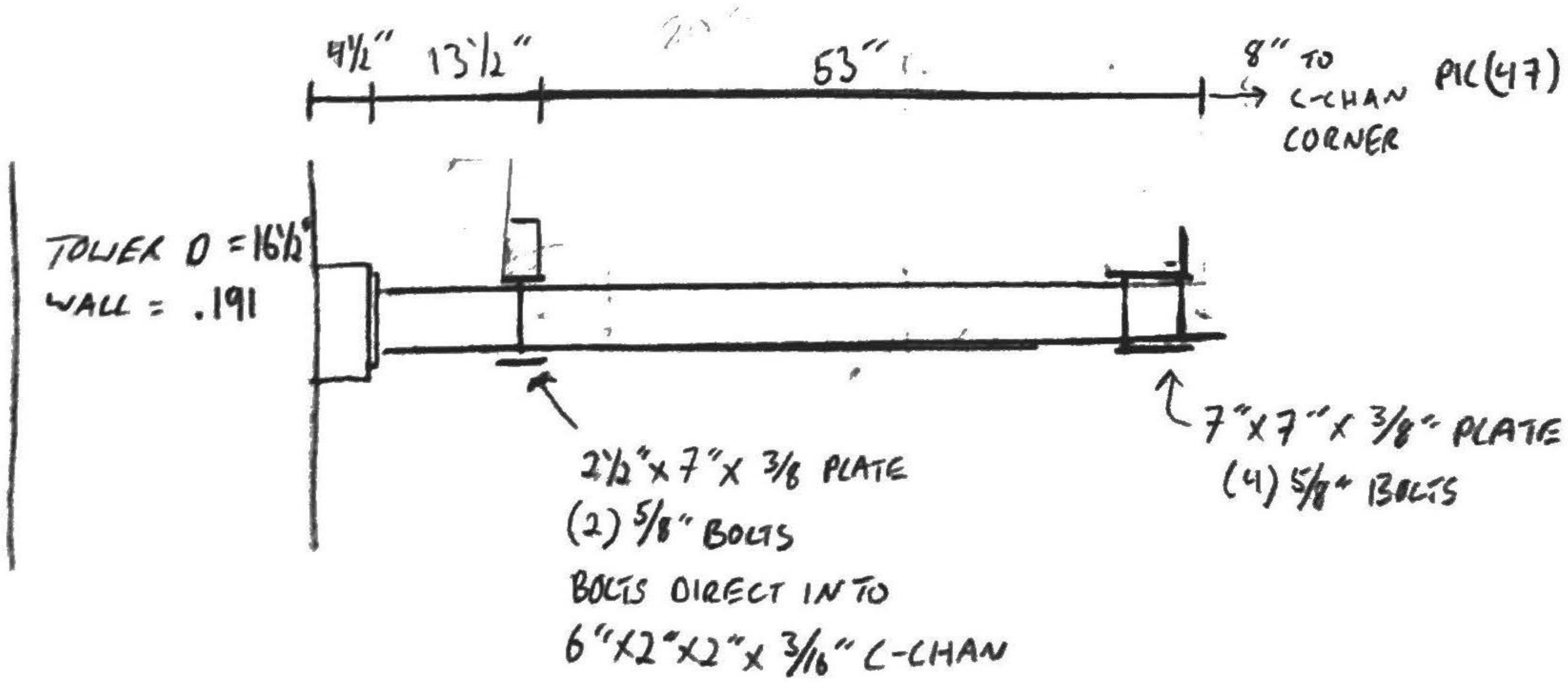
HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

FACE PIPE CL = 140'
COLLAR = 9" x 7/16"
RODS = (2) 3/4"
PLATE = 11½" x 11½" x 5/8"
BOLTS = (4) 5/8"
HSS = 4" x 4" x .220
T-F = 36"
T-A = 80"



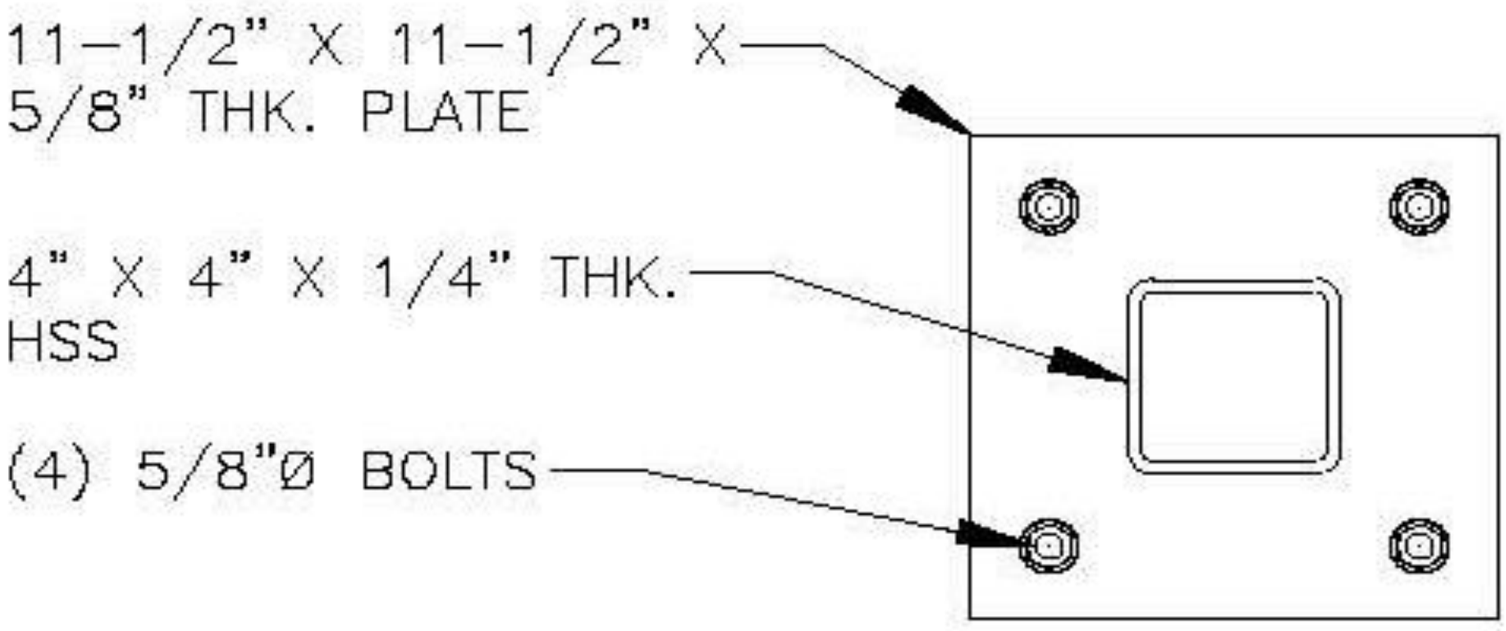
FACE + CORNER PLATES
7/16" THICK





157132

Please Insert Sketches of the Antenna Mount, cont'd

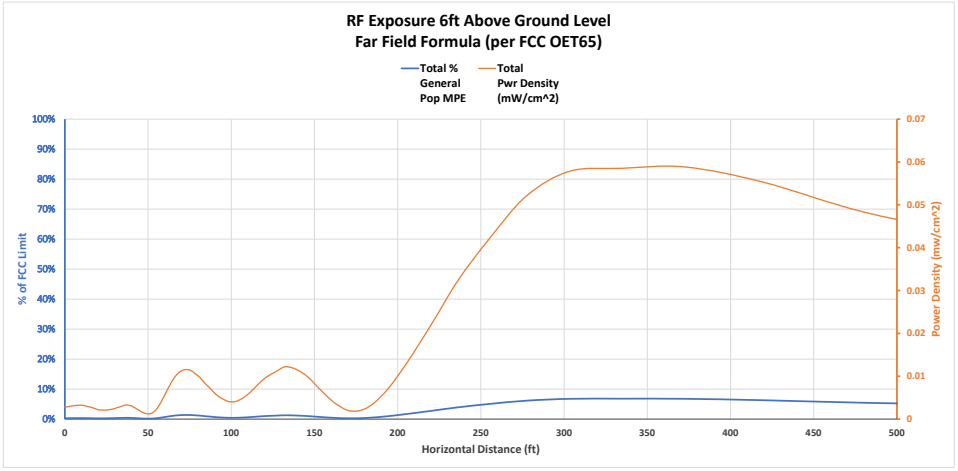


STANDOFF MOUNT CONNECTION DETAIL

Exhibit F

Power Density/RF Emissions Report

Location	Oxford W CT				
Date	2/17/2023				
Band	C-Band	AWS	PCS	850-LTE	700
Operating Frequency (MHz)	3,700	2,145	1,970	880	746
General Population MPE (mW/cm^2)	1	1	1	0.586666667	0.497333333
ERP Per Transmitter (Watts)	13,335	1,640	1,476	623	623
Number of Transmitters	2	4	4	4	4
Antenna Centerline (feet)	140	140	140	140	140
Total ERP (Watts)	26,670	6,559	5,903	2,494	2,494
Total ERP (dBm)	74	68	68	64	64
Maximum % of General Population Limit	6.8%				



Angle Below Horizon	Power Density (mW/cm^2)					Percent of General Population MPE									Distance	Total Pwr Density (mW/cm^2)	Total % General Pop MPE
	C-Band	AWS	PCS	850-LTE	700 MHz	39GHz	28GHz	C-Band	CBRS	AWS	PCS	Cellular	CDMA	700 MHz			
90	0.002640324	8.10015E-07	0.000115535	2.08207E-05	2.87406E-05	0.00%	0.00%	0.26%	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	0	0.00280623	0.28%
89	0.002640168	4.34978E-07	0.000132644	1.85554E-05	3.37653E-05	0.00%	0.00%	0.26%	0.00%	0.00%	0.01%	0.00%	0.00%	0.01%	1.029848831	0.002825568	0.29%
88	0.002701187	1.37528E-07	0.000155815	1.73138E-05	3.87608E-05	0.00%	0.00%	0.27%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	2.0603254	0.002913214	0.30%
87	0.002737954	3.96517E-07	0.000183013	1.73087E-05	4.44902E-05	0.00%	0.00%	0.27%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	3.092058978	0.002983162	0.30%
86	0.002800566	7.72826E-07	0.000200586	1.85389E-05	5.10604E-05	0.00%	0.00%	0.28%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	4.125681905	0.003071524	0.31%
85	0.002799067	7.5483E-07	0.000219821	2.03166E-05	5.59567E-05	0.00%	0.00%	0.28%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	5.161831148	0.003095916	0.32%
84	0.002862386	5.09993E-07	0.000235388	2.12602E-05	6.1315E-05	0.00%	0.00%	0.29%	0.00%	0.00%	0.02%	0.00%	0.00%	0.01%	6.201149881	0.003180859	0.33%
83	0.002860157	5.98723E-07	0.000252026	2.22448E-05	6.71782E-05	0.00%	0.00%	0.29%	0.00%	0.00%	0.03%	0.00%	0.00%	0.01%	7.244289093	0.003202204	0.33%
82	0.002857574	1.68591E-06	0.000276092	2.27424E-05	7.35929E-05	0.00%	0.00%	0.29%	0.00%	0.00%	0.03%	0.00%	0.00%	0.01%	8.291909247	0.003231687	0.33%
81	0.002854633	4.23045E-06	0.000295533	2.2719E-05	8.24877E-05	0.00%	0.00%	0.29%	0.00%	0.00%	0.03%	0.00%	0.00%	0.02%	9.344681979	0.003259603	0.34%
80	0.002786425	8.62747E-06	0.000302067	2.26927E-05	9.24456E-05	0.00%	0.00%	0.28%	0.00%	0.00%	0.03%	0.00%	0.00%	0.02%	10.40329186	0.003212258	0.33%
79	0.002719492	1.64181E-05	0.000308705	2.31914E-05	0.000106005	0.00%	0.00%	0.27%	0.00%	0.00%	0.03%	0.00%	0.00%	0.02%	11.46843824	0.003173811	0.33%
78	0.002593403	2.91545E-05	0.000308266	2.42498E-05	0.000124368	0.00%	0.00%	0.26%	0.00%	0.00%	0.03%	0.00%	0.00%	0.03%	12.54083714	0.003079441	0.32%
77	0.002416533	4.83091E-05	0.000307786	2.59437E-05	0.000145892	0.00%	0.00%	0.24%	0.00%	0.00%	0.03%	0.00%	0.00%	0.03%	13.62122328	0.002944464	0.31%
76	0.002303853	7.46948E-05	0.000293434	2.71202E-05	0.000167222	0.00%	0.00%	0.23%	0.00%	0.00%	0.01%	0.03%	0.00%	0.03%	14.71035217	0.002866324	0.31%
75	0.002146121	0.000115476	0.000267122	2.90063E-05	0.000191643	0.00%	0.00%	0.21%	0.00%	0.01%	0.03%	0.00%	0.00%	0.04%	15.80900235	0.002749367	0.30%
74	0.001953391	0.000174432	0.000232191	3.17415E-05	0.000214599	0.00%	0.00%	0.20%	0.00%	0.02%	0.02%	0.01%	0.00%	0.04%	16.91797776	0.002606354	0.28%
73	0.001737233	0.000257451	0.000188327	3.808E-05	0.000240268	0.00%	0.00%	0.17%	0.00%	0.03%	0.02%	0.01%	0.00%	0.05%	18.03811021	0.002461359	0.27%
72	0.001475226	0.000354564	0.000139288	5.00838E-05	0.000262843	0.00%	0.00%	0.15%	0.00%	0.04%	0.01%	0.01%	0.00%	0.05%	19.17026208	0.002282005	0.26%
71	0.001238192	0.000455642	9.83657E-05	7.05711E-05	0.000287493	0.00%	0.00%	0.12%	0.00%	0.05%	0.01%	0.01%	0.00%	0.06%	20.31532918	0.002150264	0.25%
70	0.001051101	0.000572111	7.27278E-05	0.000101738	0.000321724	0.00%	0.00%	0.11%	0.00%	0.06%	0.01%	0.02%	0.00%	0.06%	21.47424382	0.002119402	0.25%
69	0.000871817	0.000670287	6.61425E-05	0.000140044	0.000351774	0.00%	0.00%	0.09%	0.00%	0.07%	0.01%	0.02%	0.00%	0.07%	22.64797807	0.002100064	0.26%
68	0.000722981	0.000749829	7.23073E-05	0.00018835	0.000375807	0.00%	0.00%	0.07%	0.00%	0.07%	0.01%	0.03%	0.00%	0.08%	23.83754732	0.002109275	0.26%
67	0.000623371	0.00074745	7.72328E-05	0.000253271	0.000410757	0.00%	0.00%	0.06%	0.00%	0.07%	0.01%	0.04%	0.00%	0.08%	25.04401416	0.002112081	0.27%
66	0.000635741	0.000711404	7.52205E-05	0.000325176	0.000438651	0.00%	0.00%	0.06%	0.00%	0.07%	0.01%	0.06%	0.00%	0.09%	26.26849243	0.002186193	0.29%
65	0.000710764	0.000617392	6.0923E-05	0.00040791	0.000457682	0.00%	0.00%	0.07%	0.00%	0.06%	0.01%	0.07%	0.00%	0.09%	27.51215183	0.002254671	0.30%
64	0.000812975	0.000511579	3.82942E-05	0.000511583	0.000466569	0.00%	0.00%	0.08%	0.00%	0.05%	0.00%	0.09%	0.00%	0.09%	28.77622273	0.002341	0.32%
63	0.001017025	0.00036912	1.82552E-05	0.00061259	0.000464697	0.00%	0.00%	0.10%	0.00%	0.04%	0.00%	0.10%	0.00%	0.09%	30.06200152	0.002481687	0.34%
62	0.001245902	0.000221472	1.04602E-05	0.000733369	0.000452192	0.00%	0.00%	0.12%	0.00%	0.02%	0.00%	0.13%	0.00%	0.09%	31.37085647	0.002663395	0.36%
61	0.001424063	0.000103125	2.12611E-05	0.000838239	0.000420115	0.00%	0.00%	0.14%	0.00%	0.01%	0.00%	0.14%	0.00%	0.08%	32.70423404	0.002806803	0.38%
60	0.001593904	2.96004E-05	4.42097E-05	0.000914747	0.000390212	0.00%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.00%	0.08%	34.06366588	0.002972673	0.40%
59	0.001820862	2.1336E-06	6.35818E-05	0.00097525	0.000346032	0.00%	0.00%	0.18%	0.00%	0.00%	0.01%	0.17%	0.00%	0.07%	35.45077652	0.003207859	0.42%
58	0.001896565	2.6718E-06	6.77678E-05	0.001015796	0.000299783	0.00%	0.00%	0.19%	0.00%	0.00%	0.01%	0.17%	0.00%	0.06%	36.86729176	0.003282583	0.43%
57	0.0018816	1.13335E-05	5.73565E-05	0.001010103	0.000253726	0.00%	0.00%	0.19%	0.00%	0.00%	0.01%	0.17%	0.00%	0.05%	38.315048	0.00321412	0.42%
56	0.00187046	1.4852E-05	4.52902E-05	0.00095893	0.000214678	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%	0.16%	0.00%	0.04%	39.79600249	0.003104211	0.40%
55	0.001695211	1.0692E-05	4.39824E-05	0.000869085	0.000181578	0.00%	0.00%	0.17%	0.00%	0.00%	0.00%	0.15%	0.00%	0.04%	41.31224475	0.002800548	0.36%
54	0.001476877	6.11196E-06	6.31539E-05	0.000734823	0.000160762	0.00%	0.00%	0.15%	0.00%	0.00%	0.01%	0.13%	0.00%	0.03%	42.86600915	0.002441728	0.31%
53	0.001219836	8.57309E-06	0.000108983	0.000579616	0.000159639	0.00%	0.00%	0.12%	0.00%	0.00%	0.01%	0.10%	0.00%	0.03%	44.45968896	0.002076647	0.26%
52	0.000910092	1.73748E-05	0.000183713	0.000407309	0.000177797	0.00%	0.00%	0.09%	0.00%	0.00%	0.02%	0.07%	0.00%	0.04%	46.09585196	0.001696286	0.22%
51	0.000624719	2.49184E-05	0.000288895	0.000249186	0.00022726	0.00%	0.00%	0.06%	0.00%	0.00%	0.03%	0.04%	0.00%	0.05%	47.77725796	0.001414979	0.18%
50	0.000373327	2.20255E-05	0.000423784	0.000112961	0.000304038	0.00%	0.00%	0.04%	0.00%	0.00%	0.04%	0.02%	0.00%	0.06%	49.50687824	0.001236135	0.16%
49	0.000233499	1.28565E-05	0.000607213	2.56522E-05	0.000397305	0.00%	0.00%	0.02%	0.00%	0.00%	0.06%	0.00%	0.00%	0.08%	51.28791753	0.001276526	0.17%
48	0.000215904	2.91807E-05	0.000849798	2.42716E-06	0.000518918	0.00%	0.00%	0.02%	0.00%	0.00%	0.08%	0.00%	0.00%	0.10%	53.12383861	0.001616228	0.21%
47	0.00033113	0.000129073	0.001161594	5.38068E-05	0.000632175	0.00%	0.00%	0.03%	0.00%	0.01%	0.12%	0.01%	0.00%	0.13%	55.01839008	0.002307779	0.30%
46	0.000589502	0.000368401	0.001550748	0.000180436	0.000752184	0.00%	0.00%	0.06%	0.00%	0.04%	0.16%	0.03%	0.00%	0.15%	56.97563771	0.003441271	0.43%
45	0.000967616	0.00076127	0.001930894	0.000381541	0.000834721	0.00%	0.00%	0.10%	0.00%	0.08%	0.19%	0.07%	0.00%	0.17%	59	0.004876042	0.60%
44	0.001471066	0.001277815	0.002141351	0.000655346	0.00090463	0.00%	0.00%	0.15%	0.00%	0.13%	0.21%	0.11%	0.00%	0.18%	61.09628851	0.006450208	0.78%
43	0.002100163	0.001910244	0.002164256	0.000957396	0.000935603	0.00%	0.00%	0.21%	0.00%	0.19%	0.22%	0.16%	0.00%	0.19%	63.26975389	0.008067663	0.97%
42	0.002854586	0.002543191	0.001903701	0.001304313	0.000923383	0.00%	0.00%	0.29%	0.00%	0.25%	0.19%	0.22%	0.00%	0.19%	65.52613837	0.009529175	1.14%
41	0.003626421	0.003085418	0.001424078	0.001619261	0.000869595	0.00%	0.00%	0.36%	0.00%	0.31%	0.14%	0.28%	0.00%	0.17%	67.87173603	0.010624773	1.26%
40	0.00440587	0.003333247	0.000865142	0.001918096	0.000799595	0.00%	0.00%	0.44%	0.00%	0.33%	0.09%	0.33%	0.00%	0.16%	70.31346196	0.01132195	1.35%
39	0.005154358	0.003206346	0.000380391	0.002118425	0.000685509	0.00%	0.00%	0.52%	0.00%	0.32%	0.04%	0.36%	0.00%	0.14%	72.85893224	0.011545029	1.37%
38	0.005739513	0.002746065	8.76861E-05	0.002284092	0.000560678	0.00%	0.00%	0.57%	0.00%	0.27%	0.01%	0.39%	0.00%	0.11%	75.5165563	0.011418035	1.36%
37	0.005903348	0.001999559	8.03811E-07	0.002243557	0.00041777	0.00%	0.00%	0.59%	0.00%	0.20%	0.00%	0.38%	0.00%	0.08%	78.29564448	0.010565038	1.26%
36	0.006106699	0.001182068	3.44241E-05	0.00210206	0.000277105	0.00%	0.00%	0.61%	0.00%	0.12%	0.00%	0.36%	0.00%	0.06%	81.20653331	0.009702356	1.15%
35	0.005674889	0.000567274	7.55115E-05	0.001835676	0.000152685	0.00%	0.00%	0.57%	0.00%	0.06%	0.01%	0.31%	0.00%	0.03%	84.2607324	0.008306035	0.98%
34	0.005266291	0.000259622	6.58507E-05	0.001493976	5.81224E-05	0.00%	0.00%	0.53%	0.00%	0.03%	0.01%	0.25%	0.00%	0.01%	87.47109714	0.007143861	0.83%
33	0.004369164	0.000231331	3.70215E-05	0.001082024	8.39918E-06	0.00%	0.00%	0.44%	0.00%	0.02%	0.00%	0.18%	0.00%	0.00%	90.85203287	0.005727939	0.65%
32	0.003711775	0.000318726	7.04105E-05	0.000697301	9.62543E-06	0.00%	0.00%	0.37%	0.00%	0.03%	0.01%	0.12%	0.00%	0.00%	94.41973721	0.004807838	0.53%
31	0.003104509	0.0003482	0.000227012	0.000390689	5.77872E-05	0.00%	0.00%	0.31%	0.00%	0.03%	0.02%	0.07%	0.00%	0.01%	98.19248946	0.004128197	0.45%
30	0.00301692	0.000262663	0.00047165	0.000177583	0.00014106	0.00%	0.00%	0.30%	0.00%	0.03%	0.05%	0.03%	0.00%	0.03%	102.1909976	0.004069876	0.43%
29	0.003574525	0.000164458	0.000741778	7.87149E-05	0.000232304	0.00%	0.00%	0.36%	0.00%	0.02%	0.07%	0.01%	0.00%	0.05%	106.4388176	0.00479178	0.51%
28	0.004654492	0.000148494	0.000924545	7.79311E-05	0.000317476	0.00%	0.00%	0.47%	0.00%	0.01%	0.09%	0.01%	0.00%	0.06%	110.9628615	0.006122937	0.65%
27	0.006200574	0.000207142	0.001072723	0.000136858	0.000368358	0.00%	0.00%	0.62%	0.00%	0.02%	0.11%	0.02%	0.00%	0.07%	115.7940198	0.007985655	0.85%
26	0.007687633	0.000294869	0.001212965	0.000213615	0.00037122	0.00%	0.00%	0.77%	0.00%	0.03%	0.12%	0.04%	0.00%	0.07%	120.9679267	0.009780301	1.03%
25	0.008567177	0.000448408	0.001399244	0.000264044	0.000324845	0.00%	0.00%	0.86%	0.00%	0.04%	0.14%	0.05%	0.00%	0.07%	126.5259083	0.011003718	1.15%
24	0.009385043	0.000780319	0.001536356	0.000264408	0.000252508	0.00%	0.00%	0.94%	0.00%	0.08%	0.15%	0.05%	0.00%	0.05%	132.5161697	0.012218634	1.27%
23	0.008345285	0.001292043	0.001568544	0.000209546	0.000170326	0.00%	0.00%	0.83%	0.00%	0.13%	0.16%	0.04%	0.00%	0.03%	138.9952896	0.011585744	1.19%
22	0.006571834	0.001692475	0.001326607	0.000125466	0.000114426	0.00%	0.00%	0.66%	0.00%	0.17%	0.13%	0.02%	0.00%	0.02%	146.0301244	0.009830808	1.00%
21	0.003917282	0.001713249	0.000972838	5.544E-05	0.000129964	0.00%	0.00%	0.39%	0.00%	0.17%	0.10%	0.01%	0.00%	0.03%	153.7002548	0.006788773	0.70%
20	0.001600009	0.001193874	0.000662488	7.19385E-05	0.000261193	0.00%	0.00%	0.16%	0.00%	0.12%	0.07%	0.01%	0.00%	0.05%	162.1011677	0.003789502	0.41%
19	0.00013863	0.000498531	0.00049194	0.000244171	0.000546632	0.00%	0.00%	0.01%	0.00%	0.05%	0.05%	0.04%	0.00%	0.11%	171.3484418	0.001919903	0.26%
18	0.000452799	0.000146468	0.000407344	0.000639359	0.000990249	0.00%	0.00%	0.05%	0.00%	0.01%	0.04%	0.11%	0.00%	0.20%	181.5833287	0.002636219	0.41%
17	0.00309705	0.000257504	0.000285104	0.001261208	0.001624751	0.00%	0.00%	0.31%	0.00%	0.03%	0.03%	0.21%	0.00%	0.33%	192.9803045	0.006525618	0.91%
16	0.008120939	0.000504013	0.000127839	0.002101091	0.002412375	0.00%	0.00%	0.81%	0.00%	0.05%	0.01%	0.36%	0.00%	0.49%	205.7574522	0.013266257	1.72%

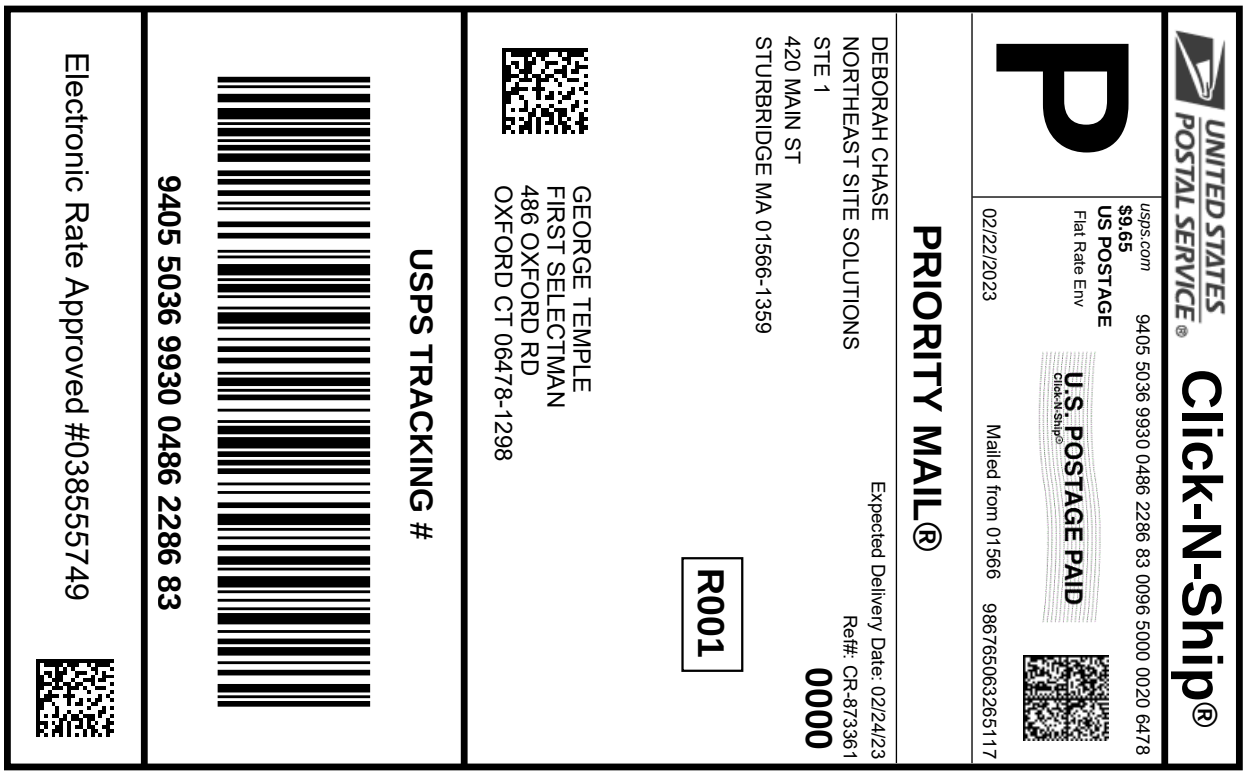
15	0.015185767	0.000468029	9.42958E-05	0.003092255	0.003237989	0.00%	0.00%	1.52%	0.00%	0.05%	0.01%	0.53%	0.00%	0.65%	220.1909976	0.022078336	2.75%
14	0.023983536	0.000192198	0.000293744	0.004109148	0.004015613	0.00%	0.00%	2.40%	0.00%	0.02%	0.03%	0.70%	0.00%	0.81%	236.6360751	0.032594239	3.95%
13	0.031871476	4.48991E-06	0.000597665	0.005037798	0.00481106	0.00%	0.00%	3.19%	0.00%	0.00%	0.06%	0.86%	0.00%	0.97%	255.5570766	0.04232249	5.07%
12	0.040376636	7.49835E-05	0.000690535	0.00568812	0.005308462	0.00%	0.00%	4.04%	0.00%	0.01%	0.07%	0.97%	0.00%	1.07%	277.5731765	0.052138737	6.15%
11	0.045828547	0.000195421	0.000421883	0.005901667	0.005507756	0.00%	0.00%	4.58%	0.00%	0.02%	0.04%	1.01%	0.00%	1.11%	303.5286869	0.057855274	6.76%
10	0.047011176	0.000194553	8.18949E-05	0.005875431	0.005358457	0.00%	0.00%	4.70%	0.00%	0.02%	0.01%	1.00%	0.00%	1.08%	334.6056274	0.058521511	6.81%
9	0.047944688	0.000344807	0.000230036	0.005340465	0.004984012	0.00%	0.00%	4.79%	0.00%	0.03%	0.02%	0.91%	0.00%	1.00%	372.5113394	0.058844009	6.76%
8	0.044018129	0.001160025	0.001171351	0.004618173	0.00430993	0.00%	0.00%	4.40%	0.00%	0.12%	0.12%	0.79%	0.00%	0.87%	419.8068136	0.055277608	6.29%
7	0.035968774	0.002610727	0.00257621	0.00360383	0.003521796	0.00%	0.00%	3.60%	0.00%	0.26%	0.26%	0.61%	0.00%	0.71%	480.5164393	0.048281337	5.44%
6	0.028796203	0.003891984	0.003667675	0.002631321	0.002692612	0.00%	0.00%	2.88%	0.00%	0.39%	0.37%	0.45%	0.00%	0.54%	561.3475028	0.041679795	4.63%
5	0.020056218	0.004150351	0.003822123	0.001770466	0.001853906	0.00%	0.00%	2.01%	0.00%	0.42%	0.38%	0.30%	0.00%	0.37%	674.3730859	0.031653064	3.48%
4	0.012406007	0.003231974	0.002908625	0.001022046	0.001146755	0.00%	0.00%	1.24%	0.00%	0.32%	0.29%	0.17%	0.00%	0.23%	843.7393091	0.020715407	2.26%
3	0.006528969	0.00175259	0.001613988	0.000505456	0.000593859	0.00%	0.00%	0.65%	0.00%	0.18%	0.16%	0.09%	0.00%	0.12%	1125.787065	0.010994862	1.20%
2	0.002480888	0.000608756	0.000587033	0.000188125	0.000236835	0.00%	0.00%	0.25%	0.00%	0.06%	0.06%	0.03%	0.00%	0.05%	1689.538944	0.004101636	0.45%
1	0.000506202	9.20788E-05	9.73597E-05	3.75113E-05	5.178E-05	0.00%	0.00%	0.05%	0.00%	0.01%	0.01%	0.01%	0.00%	0.01%	3380.107736	0.000784932	0.09%

degree below horizon	AT1K02 (39GHz)	AT1K01 (28GHz)	MT6407-77A (3,730MHz)	XXDWMM-12.5-65 (3,550MHz)	AWS (2,155MHz) MX06FRO660-03	PCS (1,962MHz) MX06FRO660-03	850-LTE (880MHz) MX06FRO660-03	850-CDMA (869MHz) LPA-80060-6CF-EDIN-4	700-LTE (746MHz) MX06FRO660-03
0	0.08	0.08	3.28	1.8	7	5.8	4.4	1.8	2.6
1	0.39	0.39	2.19	1.3	3.5	2.8	3.2	1	1.8
2	0.3	0.3	1.29	0.8	1.3	1	2.2	0.5	1.2
3	0	0	0.58	0.5	0.2	0.1	1.4	0.2	0.7
4	0.31	0.31	0.25	0.2	0	0	0.8	0	0.3
5	0.42	0.42	0.05	0.1	0.8	0.7	0.3	0	0.1
6	0.13	0.13	0	0	2.6	2.4	0.1	0.2	0
7	0.44	0.44	0.3	0	5.6	5.2	0	0.5	0.1
8	0.36	0.36	0.5	0.1	10.2	9.7	0	1	0.3
9	0.09	0.09	1.06	0.2	16.4	17.7	0.3	1.8	0.6
10	0.4	0.4	1.96	0.3	19.7	23	0.7	2.7	1.1
11	0.52	0.52	2.79	0.7	20.4	16.6	1.4	3.8	1.7
12	0.26	0.26	3.98	1	25.2	15.1	2.2	5.1	2.5
13	0.57	0.57	5.58	1.5	38	16.3	3.3	6.6	3.5
14	0.51	0.51	7.33	2	22.2	19.9	4.7	8.3	4.8
15	0.26	0.26	9.78	2.6	18.8	25.3	6.4	10.2	6.2
16	0.58	0.58	12.92	3.3	18.9	24.4	8.5	12.2	7.9
17	1.07	1.07	17.49	4.2	22.2	21.3	11.1	14	10
18	0.55	0.55	26.19	5.3	25	20.1	14.4	15.4	12.5
19	0.58	0.58	31.65	6.7	20	19.6	18.9	16.1	15.4
20	1.08	1.08	21.32	8.2	16.5	18.6	24.5	16.4	18.9
21	0.59	0.59	17.7	9.9	15.2	17.2	25.9	16.6	22.2
22	0.65	0.65	15.7	11.8	15.5	16.1	22.6	17	23
23	1.22	1.22	14.89	14.5	16.9	15.6	20.6	17.6	21.5
24	0.99	0.99	14.59	18.2	19.3	15.9	19.8	18.5	20
25	0.8	0.8	15.18	23.8	21.9	16.5	20	19.8	19.1
26	1.11	1.11	15.83	33.9	23.9	17.3	21.1	21.3	18.7
27	1.12	1.12	16.93	27.7	25.6	18	23.2	23	18.9
28	0.95	0.95	18.33	21.5	27.2	18.8	25.8	24.7	19.7
29	1.25	1.25	19.62	18	26.9	19.9	25.9	25.8	21.2
30	2.03	2.03	20.49	15.7	25	22	22.5	25.7	23.5
31	3.32	3.32	20.49	14.1	23.9	25.3	19.2	25.2	27.5
32	5.21	5.21	19.83	13	24.4	30.5	16.8	24.7	35.4
33	7.88	7.88	19.23	12.3	25.9	33.4	15	24.2	36.1
34	11.74	11.74	18.52	12.1	25.5	31	13.7	23.9	27.8
35	16.19	16.19	18.29	11.9	22.2	30.5	12.9	24.2	23.7
36	14.94	14.94	18.06	11.7	19.1	34	12.4	24.8	21.2
37	15.07	15.07	18.29	11.7	16.9	50.4	12.2	25.5	19.5
38	16.33	16.33	18.49	11.8	15.6	30.1	12.2	26.7	18.3
39	15.38	15.38	19.03	12	15	23.8	12.6	28.4	17.5
40	15.03	15.03	19.78	12.5	14.9	20.3	13.1	30.1	16.9
41	15.75	15.75	20.69	13.1	15.3	18.2	13.9	31.9	16.6
42	17.49	17.49	21.79	13.7	16.2	17	14.9	34.4	16.4
43	20.55	20.55	23.18	14.2	17.5	16.5	16.3	35.4	16.4
44	21.87	21.87	24.78	14.5	19.3	16.6	18	35.6	16.6
45	20.56	20.56	26.65	15.1	21.6	17.1	20.4	34.2	17
46	20.35	20.35	28.85	15.9	24.8	18.1	23.7	33.5	17.5
47	21.02	21.02	31.4	16.8	29.4	19.4	29	33	18.3
48	21.62	21.62	33.3	17.8	35.9	20.8	42.5	32.1	19.2
49	20.49	20.49	33	18.7	39.5	22.3	32.3	32.3	20.4
50	20.28	20.28	31	19.7	37.2	23.9	25.9	32.5	21.6
51	20.83	20.83	28.8	20.7	36.7	25.6	22.5	32.7	22.9
52	22.1	22.1	27.2	21.6	38.3	27.6	20.4	33.4	24
53	22.84	22.84	25.96	22.4	41.4	29.9	18.9	33.7	24.5
54	23.96	23.96	25.16	22.9	42.9	32.3	17.9	34.6	24.5
55	25.61	25.61	24.59	23.3	40.5	33.9	17.2	35.6	24
56	24.75	24.75	24.19	23.4	39.1	33.8	16.8	36.7	23.3
57	24.54	24.54	24.19	23.3	40.3	32.8	16.6	37.9	22.6
58	24.84	24.84	24.18	22.7	46.6	32.1	16.6	38.6	21.9
59	25.6	25.6	24.38	21.9	47.6	32.4	16.8	40	21.3
60	25.03	25.03	24.98	21.2	36.2	34	17.1	40	20.8
61	24.18	24.18	25.49	20.7	30.8	37.2	17.5	40	20.5
62	23.83	23.83	26.09	20.5	27.5	40.3	18.1	40	20.2
63	23.88	23.88	26.99	20.3	25.3	37.9	18.9	40	20.1
64	24.25	24.25	27.98	20.3	23.9	34.7	19.7	40	20.1
65	24.7	24.7	28.58	20.5	23.1	32.7	20.7	40	20.2
66	24.47	24.47	29.08	20.9	22.5	31.8	21.7	40	20.4
67	24.47	24.47	29.18	21.3	22.3	31.7	22.8	40	20.7
68	24.68	24.68	28.55	21.7	22.3	32	24.1	39.2	21.1
69	25.07	25.07	27.75	21.8	22.8	32.4	25.4	37.8	21.4
70	25.64	25.64	26.95	21.6	23.5	32	26.8	37.5	21.8
71	26.36	26.36	26.25	21.2	24.5	30.7	28.4	36.6	22.3
72	27.24	27.24	25.5	21	25.6	29.2	29.9	35.7	22.7
73	28.26	28.26	24.8	21	27	27.9	31.1	35.5	23.1

74	28.68	28.68	24.3	21.2	28.7	27	31.9	34.2	23.6
75	28.98	28.98	23.9	21.6	30.5	26.4	32.3	33.8	24.1
76	29.37	29.37	23.6	22.1	32.4	26	32.6	33.3	24.7
77	29.83	29.83	23.4	22.8	34.3	25.8	32.8	32.8	25.3
78	30.36	30.36	23.1	23.5	36.5	25.8	33.1	32.3	26
79	30.94	30.94	22.9	24.5	39	25.8	33.3	32.3	26.7
80	30.89	30.89	22.8	25.6	41.8	25.9	33.4	32	27.3
81	30.44	30.44	22.7	26.8	44.9	26	33.4	32.2	27.8
82	30.13	30.13	22.7	28.2	48.9	26.3	33.4	32	28.3
83	29.93	29.93	22.7	29.7	53.4	26.7	33.5	32.2	28.7
84	29.81	29.81	22.7	31.1	54.1	27	33.7	32.2	29.1
85	29.76	29.76	22.8	31.9	52.4	27.3	33.9	32.3	29.5
86	29.78	29.78	22.8	32.5	52.3	27.7	34.3	33	29.9
87	29.85	29.85	22.9	32.9	55.2	28.1	34.6	33.4	30.5
88	29.97	29.97	22.96	33.3	59.8	28.8	34.6	34.1	31.1
89	30.13	30.13	23.06	33.6	54.8	29.5	34.3	35	31.7
90	30.33	30.33	23.06	34.4	52.1	30.1	33.8	36	32.4

Exhibit G

Recipient Mailings



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0486 2286 83

Trans. #:	583175098
Print Date:	02/22/2023
Ship Date:	02/22/2023
Expected Delivery Date:	02/24/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

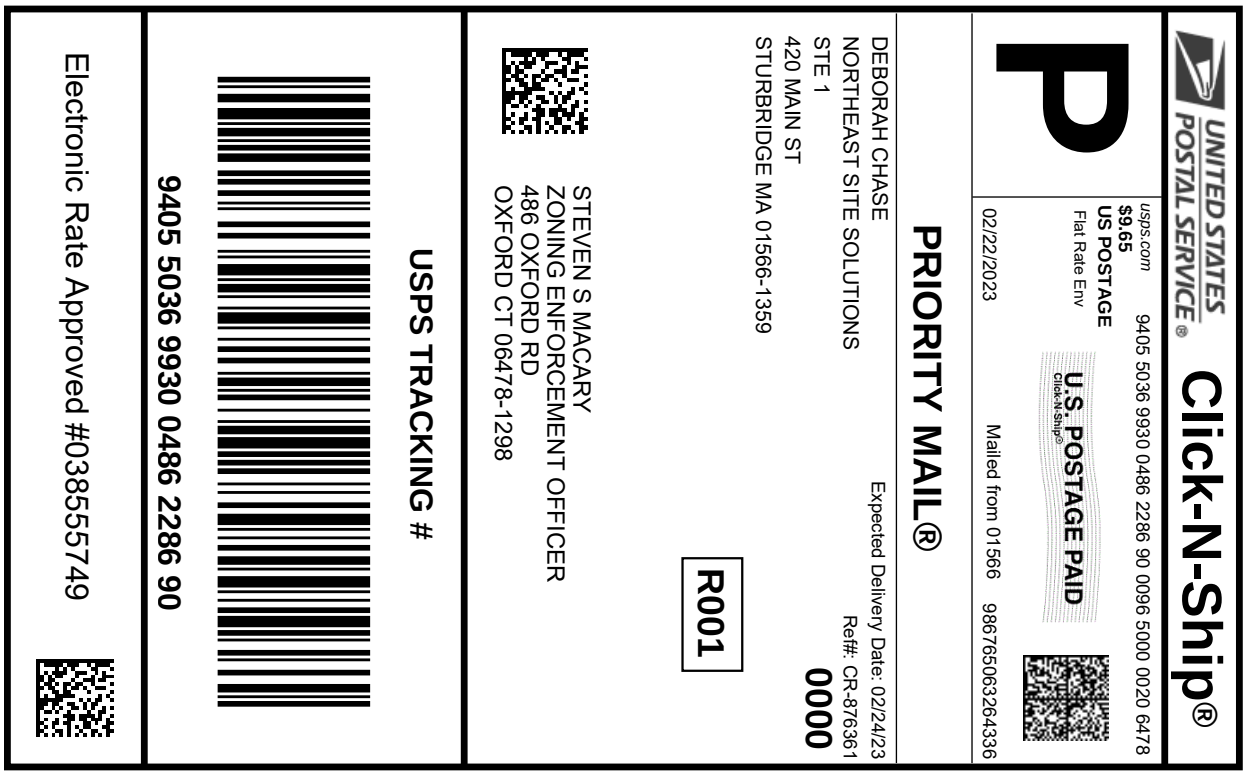
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: CR-873361

To: GEORGE TEMPLE
FIRST SELECTMAN
486 OXFORD RD
OXFORD CT 06478-1298

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0486 2286 90

Trans. #:	583175098
Print Date:	02/22/2023
Ship Date:	02/22/2023
Expected Delivery Date:	02/24/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

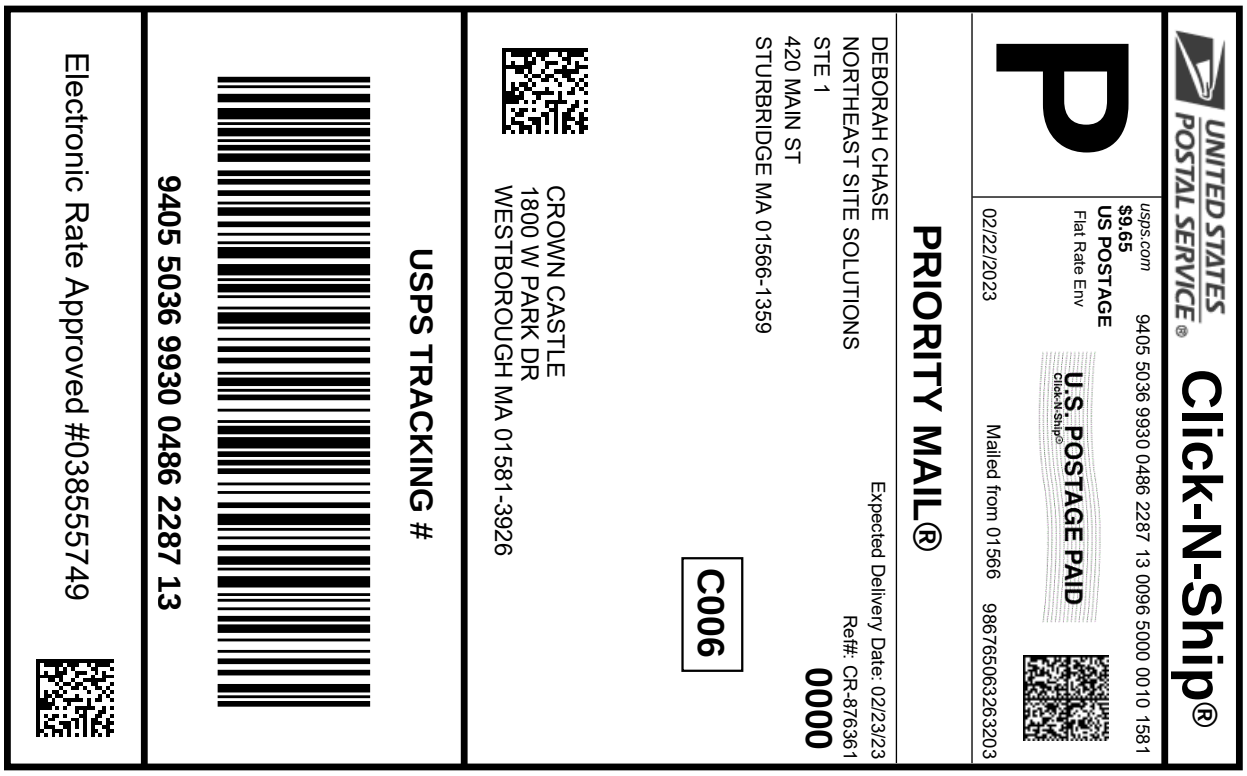
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: CR-876361

To: STEVEN S MACARY
ZONING ENFORCEMENT OFFICER
486 OXFORD RD
OXFORD CT 06478-1298

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0486 2287 13

Trans. #:	583175098
Print Date:	02/22/2023
Ship Date:	02/22/2023
Expected Delivery Date:	02/23/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: CR-876361

To: CROWN CASTLE
1800 W PARK DR
WESTBOROUGH MA 01581-3926

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

870641 - VERIZON

UNITED STATES POSTAL SERVICE.

LINCOLN MALL
560 LINCOLN ST STE 8
WORCESTER, MA 01605-1925
(800)275-8777

02/23/2023 03:43 PM

Product	Qty	Unit Price	Price
Prepaid Mail	1		$0.00

Oxford, CT 06478
Weight: 0 lb 15.70 oz
Acceptance Date:
Thu 02/23/2023
Tracking #:
9405 5036 9930 0486 2286 83

Prepaid Mail	1		$0.00

Westborough, MA 01581
Weight: 0 lb 2.00 oz
Acceptance Date:
Thu 02/23/2023
Tracking #:
9405 5036 9930 0486 2287 13

Prepaid Mail	1		$0.00

Oxford, CT 06478
Weight: 0 lb 15.60 oz
Acceptance Date:
Thu 02/23/2023
Tracking #:
9405 5036 9930 0486 2286 90

Grand Total: $0.00
