

1 Cityplace Dr, Suite 490

Creve Coeur, MO 63141

Phone: (314) 513-0147

www.crowncastle.com

Melanie A. Bachman Executive Director Connecticut Siting Council 10 Franklin Square New Britain, CT 06051 JUL - 8 2022

Connecticut Siting Council

June 30th, 2022

RE:

**Notice of Exempt Modification for Verizon Wireless** 

Crown Site ID# 876382; Verizon Wireless Site ID# 468011

1684 Chamberlain Highway, Berlin, CT 06037

Latitude: 41 35" 23.07"/ Longitude: -72° 48' 19.20"



#### Dear Ms. Bachman:

Verizon Wireless currently maintains (12) antennas at the 95-foot mounts on the existing 133-foot Monopole Tower located at **1684 Chamberlain Highway, Berlin.** The tower is owned by Crown Castle and the property is owned by Ronald & Arlene Laviana. Verizon now intends to replace (9) antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

#### **Planned Modifications:**

#### Tower:

#### **REMOVE AND REPLACE**

- (6) Amphenol BXA-171063-12F-EDIN-2 antennas (**REMOVE**) (3) Commscope NHHSS-65B-R2BT4 antennas (**REPLACE**) (3) Commscope NHH-65B-R2B (**REPLACE**)
- (3) Andrew LNX-651405-ATM antennas (**REMOVE**) (3) Samsung MT6407-77A antennas (**REPLACE**)
- (3) Nokia UHBA B13 RRH (REMOVE) (3) Samsung RF44400-13A RRH (REPLACE)
- (3) Nokia UHD B4 RRH (REMOVE) (6) Samsung RF44390-25A RRH (REPLACE)
- (1) Raycap 6-OVP (REMOVE) (2) Raycap RVZDC-6627-PF-48 12-OVP (REPLACE)
- (1) Hybrid Cable 1-5/8" (REMOVE) (1) Hybrid Cables 1-5/8" (REPLACE)

#### INSTALL

- (3) Side-by-side Antenna mounts
- (3) Samsung CBRS RT4401-48A RRH

#### REMAINING

(3) Antel BXA-70063-4CF antennas

#### Ground:

N/A

The facility was approved by the Berlin Planning and Zoning Commission on March 23, 2000, via grant of Special Permit. Notice of Decision dated April 11, 2000 is the only record able to be located despite diligent effort, therefore conditions of approval are unknown.

The Foundation for a Wireless World.

CrownCastle.com



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Creve Coeur, MO 63141

Phone: (314) 513-0147

www.crowncastle.com

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to Mark Kaczynski, Mayor, Maureen Giusti, Town Planner, and Ronald & Arlene Laviana, Property Owners.

- 1. The proposed modifications will not result in an increase in the height of the existing tower.
- 2. The proposed modifications will not require the extension of the site boundary.
- 3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
- 4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
- 5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
- 6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Verizon Wireless respectfully submits that the proposed modifications to the above-

reference telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b)(2).

Sincerely,

Katie Adams
Crown Castle, Agent for Verizon Wireless
<a href="mailto:kadams@nbellc.com">kadams@nbellc.com</a>
(781) 392-7547



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Creve Coeur, MO 63141

Phone: (314) 513-0147

www.crowncastle.com

cc:

Mark Kaczynski, Mayor Town of Berlin 240 Kensington Road Berlin, CT 0603 7 860.828.7000 (Via Fedex)

Maureen Giusti, Town Planner Town of Berlin 240 Kensington Road Berlin, CT 0603 7 860.828.7008 (Via Fedex)

Ronald & Arlene Laviana, Property Owner 1684 Chamberlain Highway Kensington, CT 0603 7 (Via Fedex)

Crown Castle, Tower Owner

#### **Katie Adams**

From:

TrackingUpdates@fedex.com

Sent:

Wednesday, July 6, 2022 10:45 AM

To:

Katie Adams

Subject:

FedEx Shipment 777287338580: Your package has been delivered



# Hi. Your package was delivered Wed, 07/06/2022 at 10:41am.



Delivered to 240 KENSINGTON RD, ber, CT 06037 Received by K.KARA

#### **OBTAIN PROOF OF DELIVERY**

TRACKING NUMBER

777287338580

FROM

NB+C

100 Apollo Drive

Suite 303

CHELMSFORD, MA, US, 01824

TO

Town of Berlin

Mark Kaczynski

240 Kensington Road ber, CT, US, 06037

REFERENCE

100788 - CSC

SHIPPER REFERENCE

100788 - CSC

SHIP DATE

Tue 7/05/2022 06:28 PM

**DELIVERED TO** 

Receptionist/Front Desk

PACKAGING TYPE

FedEx Pak

ORIGIN

CHELMSFORD, MA, US, 01824

**DESTINATION** 

ber, CT, US, 06037

SPECIAL HANDLING

Deliver Weekday

NUMBER OF PIECES

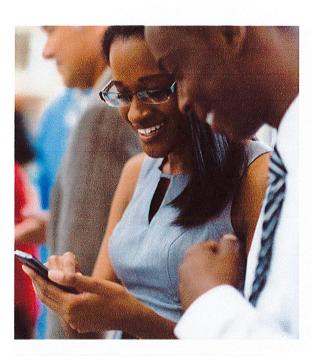
1

**TOTAL SHIPMENT WEIGHT** 

1.00 LB

SERVICE TYPE

FedEx Priority Overnight



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#### **Katie Adams**

From: TrackingUpdates@fedex.com
Sent: Wednesday, July 6, 2022 10:45 AM

To: Katie Adams

**Subject:** FedEx Shipment 777287364073: Your package has been delivered



# Hi. Your package was delivered Wed, 07/06/2022 at 10:41am.



Delivered to 240 KENSINGTON RD, berlin, CT 06037 Received by K.KARA

#### **OBTAIN PROOF OF DELIVERY**

**TRACKING NUMBER** <u>777287364073</u>

FROM NB+C

100 Apollo Drive

Suite 303

CHELMSFORD, MA, US, 01824

TO Town of Berlin

Maureen Giusti

240 Kensington Road berlin, CT, US, 06037

REFERENCE

100788 - CSC

SHIPPER REFERENCE

100788 - CSC

SHIP DATE

Tue 7/05/2022 06:28 PM

**DELIVERED TO** 

Receptionist/Front Desk

PACKAGING TYPE

FedEx Pak

ORIGIN

CHELMSFORD, MA, US, 01824

**DESTINATION** 

berlin, CT, US, 06037

SPECIAL HANDLING

Deliver Weekday

NUMBER OF PIECES

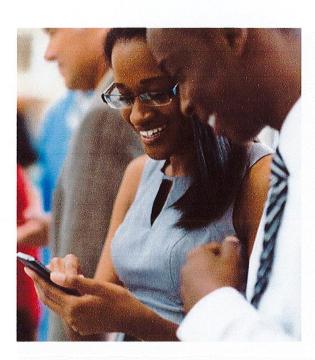
1

TOTAL SHIPMENT WEIGHT

1.00 LB

SERVICE TYPE

FedEx Priority Overnight



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#### **Katie Adams**

From: TrackingUpdates@fedex.com
Sent: Wednesday, July 6, 2022 12:08 PM

To: Katie Adams

**Subject:** FedEx Shipment 777287384903: Your package has been delivered



# Hi. Your package was delivered Wed, 07/06/2022 at 12:07pm.



Delivered to 1684 CHAMBERLAIN HWY, Berlin, CT 06037

#### **OBTAIN PROOF OF DELIVERY**

**TRACKING NUMBER** 777287384903

FROM NB+C

100 Apollo Drive

Suite 303

CHELMSFORD, MA, US, 01824

TO Ronald & Arlene Laviana

1684 Chamberlain Highway

Berlin, CT, US, 06037

REFERENCE 100788 - CSC

SHIPPER REFERENCE 100788 - CSC

**SHIP DATE** Tue 7/05/2022 06:28 PM

**DELIVERED TO** Residence

PACKAGING TYPE FedEx Pak

ORIGIN CHELMSFORD, MA, US, 01824

**DESTINATION** Berlin, CT, US, 06037

SPECIAL HANDLING Deliver Weekday

Residential Delivery

NUMBER OF PIECES

TOTAL SHIPMENT WEIGHT 1.00 LB

SERVICE TYPE FedEx Priority Overnight



## Get the FedEx® Mobile app

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- Download now.



## Exhibit A

**Original Facility Approval** 

#### Town of Berlin

Department of Development Services

April 11, 2000

#### NOTICE OF DECISION

#### BERLIN PLANNING AND ZONING COMMISSION

Application:

Special Permit - #00-02-SP

Applicant:

SPRINT Spectrum L.P. dba SPRINT PCS

Location:

Lot 17, Block 15, Chamberlain Highway

At its Regular Meeting of March 23, 2000, the Berlin Planning and Zoning voted five to two to grant the Special Permit Application of SPRINT Spectrum L.P., d/b/a SPRINT PCS for a telecommunications tower and related equipment at Lot 17, Block 15, Chamberlain Highway.

Brian J. Miller, AICP

Director of Development Services

Lawrence J. & Nellie C. Laviana

Owner of Record

Certified Mail (Return Receipt Requested): 7099 3400 0001 5361 6271

2.73

Visit Our Web Site: http://www.edc.ci.berlin.ct.us

Town of Berlin, Connecticut • Planning and Zoning Commission 240 Kensington Road • Berlin, CT 06037 • (860) 828-7060 • Fax (860) 828-7180

RECEIVED IT lay 3 20 00 AT 12 HR 58 MIN p.m.

AND RECORDED IN BERLIN LAND RECORDS

VOL 433 PAGE 335

ESS TOWN TERK

Book: 433 Page: 333 File Number: 1210 Seq: 1

061210

## Exhibit B

**Property Card** 



Map Block Lot

19-4-15-17

Building # 1

PID

3445

Account

1036200

#### Property Information

Property Location	1684 CHAMBERLAIN HWY				
Owner	LAVIANA RONALD L & ARLENE G				
Co-Owner					
Mailing Address	1684 CHA	MBERLA	AIN HMA		
	KENSING	TON	CT	06037	
Land Use	1070 SFR w/Apt				
Land Class	R				
Zoning Code	MR-1				
Census Tract	4002				
	1				

District	0
Acreage	65.05
Utilities	Gas,Well,Septic
Book / Page	0456/0137

#### Photo



# Sketch BAS BSM 777 28 UAI FUS BAS BSM 20 27 27 20 20 20 20 20 7 5 26

#### Primary Construction Details

Year Built	1800
Building Desc.	SFR w/Apt
Building Style	Colonial
Stories	2
Occupancy	1.00
Exterior Walls	Vinyl Siding
Exterior Walls 2	
Roof Style	Gable
Roof Cover	Asph/F Gls/Cmp
Interior Walls	Drywall
Interior Walls 2	
Interior Floors 1	Carpet
Interior Floors 2	

	Amazer
Heating Fuel	Gas/Oil
Heating Type	Hot Water
АС Туре	None
Bedrooms	6 Bedrooms
Full Bathrooms	3
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	12
Bath Style	Average
Kitchen Style	Average
Fin BSMT Area	
Fin BSMT Quality	
Fin BSMT Area 2	
Fin BSMT Qual 2	

BSMT Garages	0
Fireplaces	2
Whirlpool Tub	0
Building Use	Residential
Building Condition	А
	Commercial Details tial Not Applicable)
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
,	I NA
Wall Height	NA

Report Created On

6/30/2022



Map Block Lot 19-4-15-17

Building # 1

PID

3445

Account

1036200

Valuation Sum:	mary (Assessed value	ue = 70% of Appraised Value)	Sub Areas		
Item	Appraised	Assessed	Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Buildings	210800	147600	First Floor	1989	1989
Extras	7500	5300	Concrete Patio	140	0
Improvements			Porch, Open, Finished	100	0
Outbuildings	276700	193700	Basement	1989	0
Land	1481400	122176	Attic, Unfinished	1877	0
Total	1976400	468776	Upper Story, Finished	1877	1877
Outbuilding as	nd Extra Feature	S	Deck, Wood	301	0
Туре	Desc	ription			
Barn 1 Story	638 S.	F.			
Barn 1 Sty w/Bsm	2100 \$	S.F.			
Garage - Avg	504 S.	F.			
Shed Wd Res	420 S.	F.			
Cell Tower	150 L.	F.			
Generator	22 UN	ITS			
			Total Area	8273	3866
Sales History					
Owner of Record			Book/ Page Sale I	Date Sale Prio	ce
LAVIANA RONALD	L & ARLENE G		0456/0137 2001	-09-19 0	
LAVIANA,LAWRENCE,, 0088/0223 1944-04-23 0					

## Exhibit C

**Construction Drawings** 

## verizon

**VERIZON SITE NUMBER: 468011** 

BERLIN 3 CT **VERIZON SITE NAME:** 

**VERIZON FUZE ID:** 

16092564

**TOWER HEIGHT:** 

**MONOPOLE** 133'-0"

BUSINESS UNIT #: 876382 1684 CHAMBERLAIN HWY

SITE ADDRESS:

HARTFORD

BERLIN, CT 6037

JURISDICTION:

**COUNTY:** 

CONNECTICUT

SITING COUNCIL

#### VERIZON MODIFICATION;4G\_850,4G\_PCS,5G\_850,5G\_LSUB6-PREP

#### SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:

BERLIN / LAVIANA ORCHARD BERLIN, CT 603

1684 CHAMBERLAIN HWY

SITE ADDRESS:

HARTFORD COUNTY: MAP/PARCEL #: 19-4-15-17 AREA OF CONSTRUCTION: **EXISTING** 41° 35' 23.07' LATITUDE LONGITUDE -72° 48' 19.20"

LAT/LONG TYPE: NAD83 GROUND ELEVATION: 364 FT CURRENT ZONING:

SITE TYPE:

CONNECTICUT SITING COUNCIL JURISDICTION:

OCCUPANCY CLASSIFICATION: U

TYPE OF CONSTRUCTION:

A.D.A. COMPLIANCE:

FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

LAVIANA RONALD L & ARLENE G 1684 CHAMBERLAIN HWY

KENSINGTON, CT 06037

TOWER OWNER

PROPERTY 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 (800) 922-4455

TELCO PROVIDER

AT&T

#### **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-5.1	EQUIPMENT DETAILS
C-5.2	EQUIPMENT DETAILS
C-6	PLUMBING DIAGRAM
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
APPENDIX	MOUNT MODIFICATION DRAWINGS

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

#### **APPROVALS**

SIGNATURE

#### PROJECT TEAM

A&E FIRM

TOWER ENGINEERING PROFESSIONALS

326 TRYON ROAD RALEIGH, NC 27603

(919) 661-6351 JOSEPH T. CRESS - PROJECT MANAGER SCOTT C. BRANTLEY - CIVIL ENGINEER

CROWN CASTLE USA INC. DISTRICT

6325 ARDREY KELL ROAD, SUITE 600 CHARLOTTE, NC 28277

SARA REA LOADHOLDT - A&E SPECIALIST

#### CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT SMART TOOL VENDOR

PROIECT NUMBER

468011

VzW LOCATION CODE (PSLC)

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

#### MOUNT MODIFICATION REQUIRED

VzW APPROVED SMART KIT VENDORS

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

#### LOCATION MAP



DRIVING DIRECTIONS FROM VERIZON LOCAL OFFICE (3140 BERLIN TURNPIKE, NEWINGTON, CT 06111) HEAD EAST, TURN RIGHT TOWARD DEMING ST. TURN RIGHT ONTO DEMING ST. USE THE LEFT 2 LANES TO TURN LEFT AT THE IST CROSS STREET ONTO US-5 S/BERLIN TURNPIKE. TURN RIGHT ONTO ORCHARD RD. SLIGHT RIGHT TO STAY ON ORCHARD RD.

#### 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 PERMI WORK NOT CONFORMING TO THESE CODES:

CODE TYPE MECHANICAL

2015 IMC FLECTRICAL 2017 NEC

#### REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: BY OTHERS DATED:

MOUNT ANALYSIS: MASER CONSULTING DATED: 04/27/2022

RFDS REVISION: 0

DATED: 03/25/2022

ORDER ID: 617710

CALL CONNECTICUT ONE CALL (800) 922-4455 CBYD.COM

#### PROJECT DESCRIPTION

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

#### TOWER SCOPE OF WORK

- REMOVE (9) ANTENNAS • REMOVE (6) RRHs
- REMOVE (1) 6-OVP
- REMOVE (1) HYBRID CABLE
- INSTALL PLATFORM MOUNT MODIFICATIONS • INSTALL (9) ANTENNAS
- INSTALL (9) RRHs
- INSTALL (2) 12-OVP
- INSTALL (1) HYBRID CABLE

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







TEP IOB #: 25646.702028

VERIZON SITE NUMBER: 468011

BU #: 876382 BERLIN / LAVIANA **ORCHARD** 

1684 CHAMBERLAIN HWY BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

	ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA	
0	05/27/22	KCA	CONSTRUCTION	RST	
				-	
				-	
				+	



IT IS A VIOLATION OF LAW FOR ANY PERSON

#### CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

MAINTENANCE AND CONTRACTOR NOTICE TICKET.

- NOTICE TO PROCEED. NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE LISA 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.
- "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 CONSIDERED UDURING ALL STACES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MODIFICE 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 WITS BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB
- 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 PEOLIBEMENTS
- 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).
- 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."
- 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.
- PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
  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.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

  THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
  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.
- 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.
- 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.

  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.
- 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.
- TO 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 OR FROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION
- 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.
- 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:**

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY: CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION VERIZON
- OWER OWNER: CROWN CASTLE USA INC. 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
- 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.
  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.
  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 SECCIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER
  CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
- ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY ASSIST IN THE PARICATION AND/OR POLICEMENT OF CONSTRUCTION ELEMENTS BOTH IT 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
- 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. 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. 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 LOCAL JURISDICTIONAL CODES, ORDINANCES AND PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK ALL WORK CARRIED QUI SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

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

  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 FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION OF APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

  THE CONTRACTOR SHALL PROTECT EXISTING MAPROVEMENTS. PAVEMENTS. CURBS. LANDSCAPING AND STRUCTURES ANY THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS. PAVEMENTS. CURBS. LANDSCAPING AND STRUCTURES. ANY SHAPE OF THE PROVEMENTS.

- DRAWINGS.
  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 GROWN 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 ECCATION.

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

#### CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

  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
- 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.

  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.....
- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....
  CONCRETE EXPOSED TO EARTH OR WEATHER; #6 BARS AND LARGER ..... ..1-1/2"
- SLAB AND WALLS. REAMS AND COLLIMNS
- 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:

- 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.
- 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
- THE CONTRACTOR SHALL FERFORM IEEE FALL—UF—PUIENIAL 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.

  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.
- 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 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
- 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
- EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER FOR OUTDOOR BTS.

  CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED. ALLMINIUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

  USE OF 90' BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45' BENDS CAN BE ADEQUATELY SUPPORTED. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

- EXCITERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

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

  COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

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

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

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

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

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

  18. BOND ALL METALLIC OBJECTS WITHIN 6 If 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 CONDUITIONS, 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 BY OR OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSTITIONING GROUND STANDARD DETAIL AS WELL).

  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/O 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:**

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE
- FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
  CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED
  AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
  ALL CIRCUITS SHALL BE SERREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

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

  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.

  EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE
  LABBIED WITH COURT—COOPED INSULITATION OR FLECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV
- 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.

  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).

- CIRCUIT ID'S).

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

  ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

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

  SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH
  TYPE THHW, THWN, THWN-Z, 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.
- OTHERWISE SPECIFIED.

  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.

  3. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND THE CONTROL OF THE POWER AND THE
- BETTS (OR FOLIAL) 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 FO EXPOSED INDOOR LOCATIONS.
- 16 FLECTRICAL METALLIC TURING (FMT) OR METALL-CLAD CARLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS. ELECTION. METALLIC TUBING (EMT) OR METAL—CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS. 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. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS
- WIREMOID SPECMATE WIREWAY).

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

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

  SLOTTED WIRING DUCT SHALL BE FASTERD SECURELY IN PLACE WITH APPROVED NON-PERFORTED 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 BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON BOXES SHALL BE BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED ON EPOXY—COATED SHEET
- 24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXOCED U. 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.

  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.
- NEMA I (ON BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WE OR BETTER) FOR EXTERIOR COCATIONS.

  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.

COND	UCTOR COL	OR CODE	
SYSTEM	CONDUCTOR	COLOR	
	A PHASE	BLACK	
120/240V, 1Ø	B PHASE	RED	
120/2400, 19	NEUTRAL	WHITE	
	GROUND	GREEN	
	A PHASE	BLACK	
	B PHASE	RED	
120/208V, 3Ø	C PHASE	BLUE	
	NEUTRAL	WHITE	
	GROUND	GREEN	
	A PHASE	BROWN	
	B PHASE	ORANGE OR PURPLE	
277/480V, 3Ø	C PHASE	YELLOW	
	NEUTRAL	GREY	
	GROUND	GREEN	
DC_VOLTAGE	POS (+)	RED**	
UC VULTAGE	NEG (-)	BLACK**	

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

EXISTING FACILITY INTERFACE FRAME

GENERATOR GLOBAL POSITIONING SYSTEM

GLOBAL SYSTEM FOR MOBILE LONG TERM EVOLUTION MASTER GROUND BAR

NEW NATIONAL ELECTRIC CODE

RECTIFIER
RADIO BASE STATION
REMOTE ELECTRIC TILT
RADIO FREQUENCY DATA SHEET
REMOTE RADIO HEAD
REMOTE RADIO UNIT
SHAPT INTERPATED DEVICE

UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM

SMART INTEGRATED DEVICE TOWER MOUNTED AMPLIFIER

ABBREVIATIONS:

GEN GPS GSM LTE MGB MW (N) NEC

(P)

UMTS W.P.

ANTENNA

PROPOSED POWER PLANT

RECTIFIER

#### APWA UNIFORM COLOR CODE:

WHITE PROPOSED EXCAVATION TEMPORARY SURVEY MARKINGS FLECTRIC POWER LINES, CABLES, CONDUIT. AND LIGHTING CABLES

YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS COMMUNICATION, ALARM OR SIGNAL LINES. ORANGE COMMUNICATION, ALARM OR SIGNAL CABLES, OR CONDUIT AND TRAFFIC LOOPS

BLUE POTABLE WATER RECLAIMED WATER, IRRIGATION, AND GREEN SEWERS AND DRAIN LINES

### 20 ALEXANDER DRIVE, 2ND FLOOR WALLINGFORD, CT 06492





TEP IOB #: 25646.702028

VERIZON SITE NUMBER: 468011

BU #: 876382 BERLIN / LAVIANA **ORCHARD** 

1684 CHAMBERLAIN HWY BERLIN, CT 6037

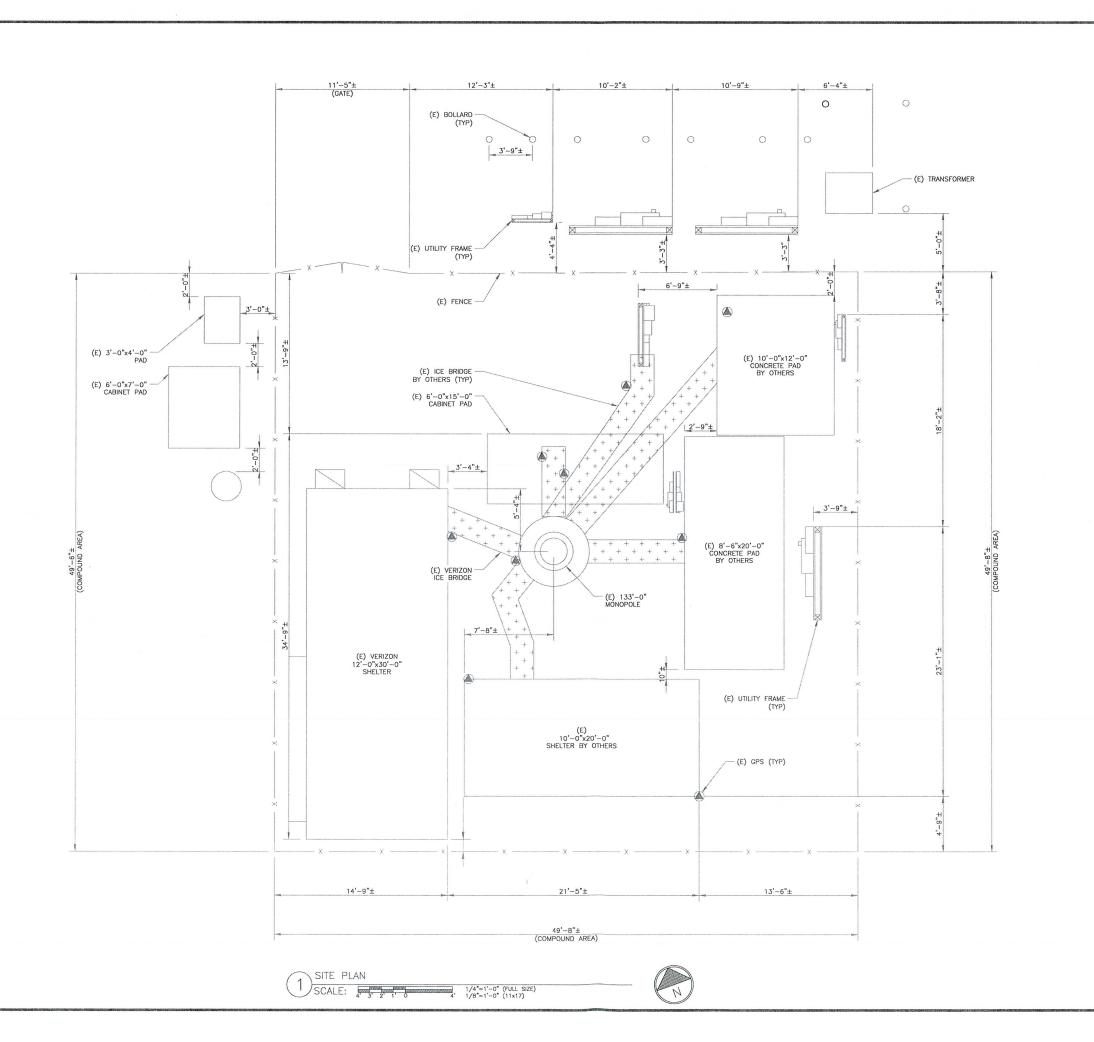
EXISTING 133'-0" MONOPOLE.

REV	DATE	DRWN	DESCRIPTION	DES./Q
0	05/27/22	KCA	CONSTRUCTION	RST



UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:









TOWER ENGINEERING PROFESSIONALS

326 TRYON RD RALEIGH, NC 27603 (919) 661-6351

TEP JOB #: 25646.702028

VERIZON SITE NUMBER: 468011

BU #: 876382 BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HWY BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

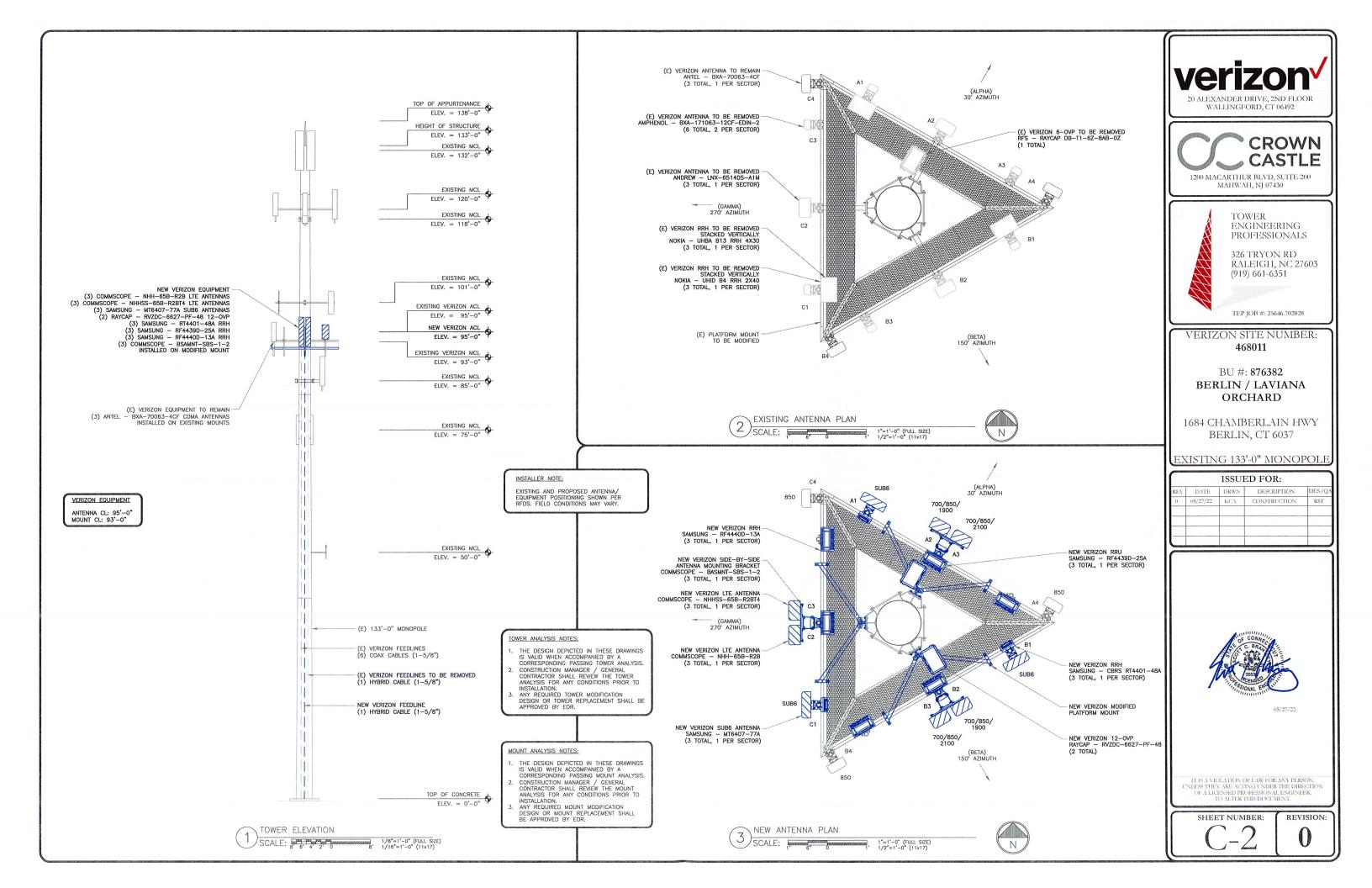
REV	DATE	DRWN	DESCRIPTION	DES./Q
0	05/27/22	KCA	CONSTRUCTION	RST



05/27/22

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

SHEET NUMBER:

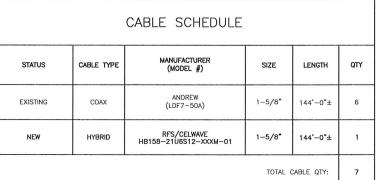


#### ANTENNA/RRH SCHEDULE ANTENNA MANUFACTURER ANTENNA CENTERLINE ELECTRICAL DOWNTILTS TOWER EQUIPMENT MANUFACTURER SECTOR STATUS MECHANICAL DOWNTILTS ANTENNA MODEL AZIMUTH TOWER EQUIPMENT QTY/MODEL A1 NEW SAMSUNG MT6407-77A 95'-0" 30 SAMSUNG (1) CBRS RT4401-48A RRH A2 NFW COMMSCOPE NHH-65B-R2B 95'-0" 30 SAMSUNG (1) RF4439D-25A RRH A3 NEW COMMSCOPE NHHSS-65B-R2BT4 95'-0" 30° SAMSUNG (1) RF4440D-13A RRH A4 EXISTING ANTEL BXA-70063-4CF 95'-0" 30 RAYCAP (1) RVZDC-6627-PF-48 12-OVP B1 MT6407-77A (1) CBRS RT4401-48A RRH NEW SAMSUNG 95'-0" 150 SAMSUNG B2 NEW COMMSCOPE NHH-65B-R2B 95'-0" 150° SAMSUNG (1) RF4439D-25A RRH В3 COMMSCOPE NHHSS-65B-R2BT4 95'-0" 150 SAMSUNG (1) RF4440D-13A RRH EXISTING ANTEL BXA-70063-4CF 95'-0" 150° (1) RVZDC-6627-PF-48 12-OVP RAYCAP C1 SAMSUNG MT6407-77A 95'-0" 270° SAMSUNG (1) CBRS RT4401-48A RRH C2 NEW COMMSCOPE NHH-65B-R2B 270 (1) RF4439D-25A RRH 95'-0" SAMSUNG C3 NEW COMMSCOPE NHHSS-65B-R2BT4 95'-0" 270° SAMSUNG (1) RF4440D-13A RRH C4 EXISTING ANTEL BXA-70063-4CF 270

#### NOTE - NEW ANTENNA/EQUIPMENT SHOWN IN BOLD

\* - CONTRACTOR TO REFERENCE MOST RECENT RFDS FOR MECHANICAL AND ELECTRICAL DOWNTILTS

CABLE SCHEDULE MANUFACTURER (MODEL #) QTY STATUS CABLE TYPE LENGTH SIZE EXISTING 1-5/8" 144'-0"± (LDF7-50A) RFS/CELWAVE HB158-21U6S12-XXXM-01 1-5/8" 144'-0"± TOTAL CABLE QTY:









TOWER ENGINEERING PROFESSIONALS

326 TRYON RD RALEIGH, NC 27603 (919) 661-6351

TEP JOB #: 25646.702028

VERIZON SITE NUMBER: 468011

BU #: 876382 BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HWY BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

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DATE	DRWN	DESCRIPTION	DES./Q/	
05/27/22	KCA	CONSTRUCTION	RST	
			_	
		DATE DRWN		

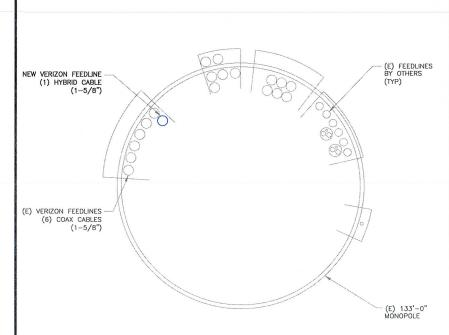


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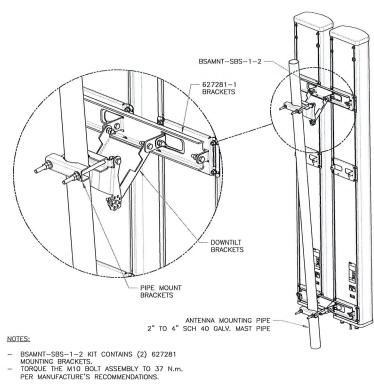
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REVISION:

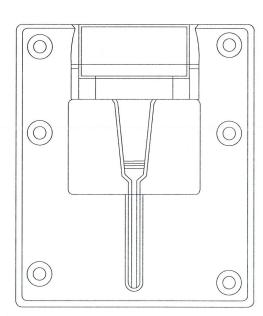
VERIZON TOWER EQUIPMENT SCHEDULE (1) SCALE: NOT TO SCALE



BASE LEVEL DETAIL SCALE: NOT TO SCALE

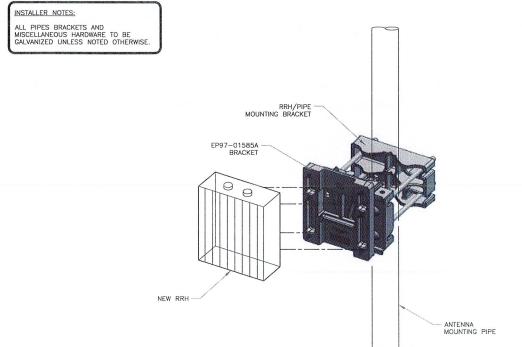


COMMSCOPE - BSAMNT-SBS-1-2 (1) SCALE: NOT TO SCALE



SAMSUNG - EP97-01585A BRACKET DETAIL SAMSUNG - L. S. SCALE: NOT TO SCALE

NOT USED
SCALE: NOT TO SCALE



ANTENNA & RRH MOUNTING DETAIL SCALE: NOT TO SCALE







TOWER ENGINEERING **PROFESSIONALS** 

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TEP JOB #: 25646.702028

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1684 CHAMBERLAIN HWY BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

	ISSUED FOR:						
REV.	DATE	DRWN	DESCRIPTION	DES./QA			
0	05/27/22	KCA	CONSTRUCTION	RST			
				-			
				-			
				-			



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SHEET NUMBER:



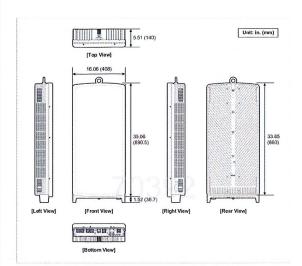
COMMSCOPE - NHH-45B-R2B ANTENNA WEIGHT: 43.70 LBS SIZE (HxWxD): 72.00x11.90x7.10 IN.

COMMSCOPE - NHH-45B-R2B (1) SCALE: NOT TO SCALE



COMMSCOPE - NHHSS-65C-R2BT4 ANTENNA WEIGHT: 50.93 LBS SIZE (HxWxD): 71.97x11.85x7.13 IN.

COMMSCOPE - NHHSS-65C-R2BT4 SCALE: NOT TO SCALE

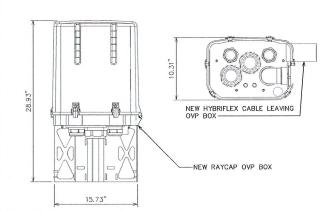


SAMSUNG TELECOMMUNICATIONS - MT6407-77A ANTENNA WEIGHT: 81.57 LBS SIZE (HxWxD): 35.06x16.06x5.51 IN.

SAMSUNG - MT6407-77A SCALE: NOT TO SCALE

#### **FRONT**

TOP



RAYCAP - RVZDC-6627-PF-48 WEIGHT: 32.00 LBS SIZE (HxWxD): 28.93x15.73x10.31 IN.

RAYCAP RVZDC-6627-PF-48 SCALE: NOT TO SCALE

## 20 ALEXANDER DRIVE, 2ND FLOOR

**CROWN** 

WALLINGFORD, CT 06492

1200 MACARTHUR BLVD, SUITE 200 MAHW'AH, NJ 07430



TOWER ENGINEERING PROFESSIONALS

**CASTLE** 

326 TRYON RD RALEIGH, NC 27603 (919) 661-6351

TEP JOB #: 25646.702028

VERIZON SITE NUMBER: 468011

BU #: 876382 BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HWY BERLIN, CT 6037

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0	05/27/22	KCA	CONSTRUCTION	RST



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SHEET NUMBER:

REVISION:

Unit: in. (mm)





[Right View]





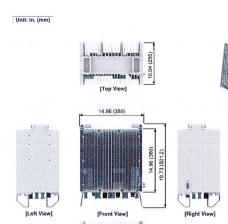


[Front View]

[Left View]

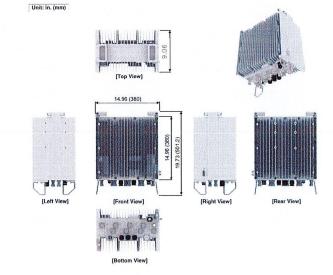
SAMSUNG — CBRS RT4401-48A RRH WEIGHT: 18.64 LBS SIZE (HxWxD): 1391x8.55x4.15 IN.

SAMSUNG - CBRS RT4401-48A RRH
SCALE: NOT TO SCALE



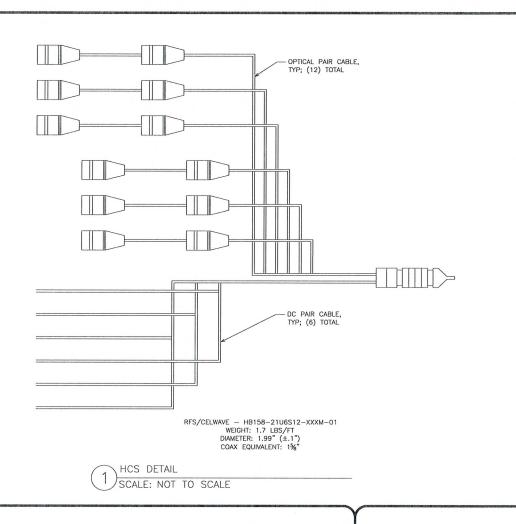
SAMSUNG - RF4439D-25A RRH WEIGHT (WITHOUT MOUNTING HARDWAPE): 74.70 LBS SIZE (HxWxD): 14.96x14.96x10.04 IN

SAMSUNG - RF4439D-25A (6) SCALE: NOT TO SCALE



SAMSUNG - RF4440D-13A RRH WEIGHT (WITHOUT MOUNTING HARDWARE): 72.50 LBS SIZE (HxWxD): 14.96x14.96x9.06 IN

SAMSUNG - RF4440D-13A SCALE: NOT TO SCALE



Technology	(Equipment-Sector-OPTI #)
DUPL	EX FIBER RUN
5GmmW LO	5GmmW-A-0
SIMP	LEX FIBER RUN
CBRS LO	CBRS-A-0
CBRS L1	CBRS-A-1
LAA LO	LAA-A-0
High Band Dual Band LO	HB-A-0
High Band Dual Band L1	HB-A-1
Low Band Dual Band LO	LB-A-0
FDMIMO AWS LO	FDM-AWS-A-0
FDMIMO AWS L1	FDM-AWS-A-1
FDMIMO PCS LO	FDM-PCS-A-0
FDMIMO PCS L1	FDM-PCS-A-1

FIBER NAMING CONVENTION CHART SCALE: NOT TO SCALE

NOT USED SCALE: NOT TO SCALE







TOWER ENGINEERING PROFESSIONALS

326 TRYON RD RALEIGH, NC 27603 (919) 661-6351

TEP JOB #: 25646.702028

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1684 CHAMBERLAIN HWY BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

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	1501	CONSTRUCTION	RST



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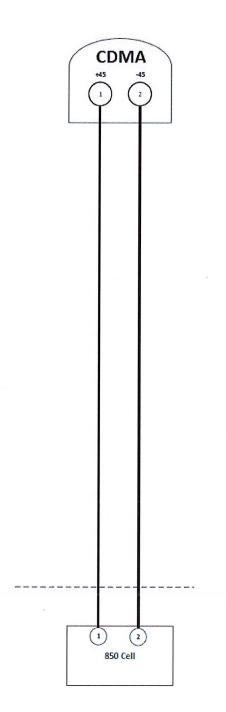
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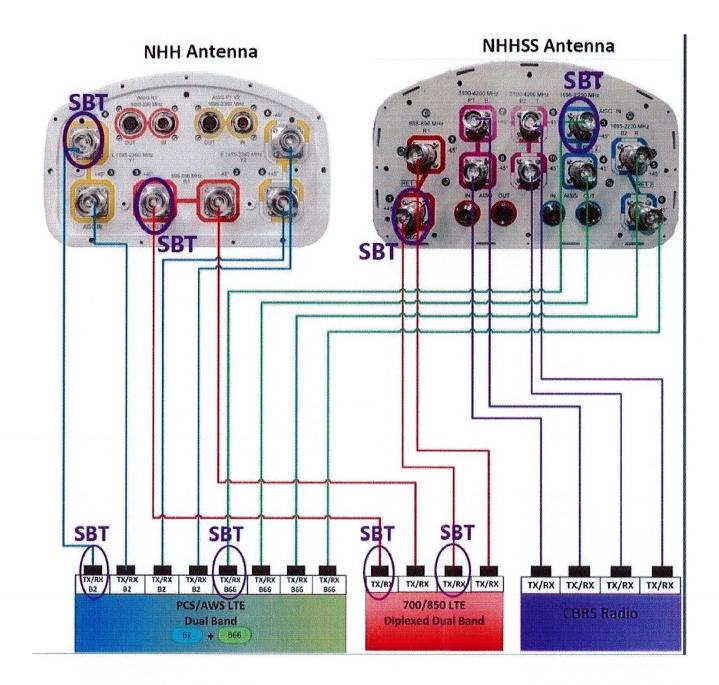
REVISION:

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SCALE: NOT TO SCALE

NOT USED
SCALE: NOT TO SCALE

NOT USED
SCALE: NOT TO SCALE















TEP JOB #: 25646.702028

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1684 CHAMBERLAIN HWY BERLIN, CT 6037

EXISTING 133'-0" MONOPOLE

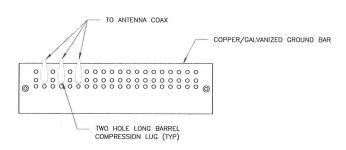
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05/27/2

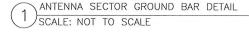
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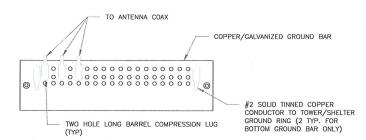
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#### NOTES:

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

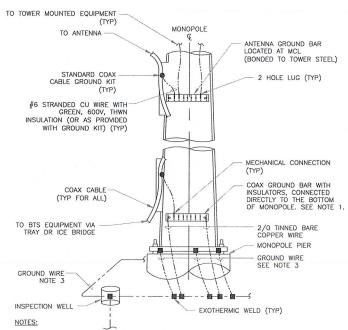




#### NOTES:

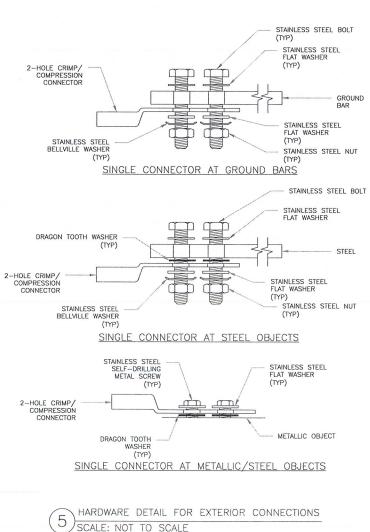
- 1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS
- 2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
- 3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

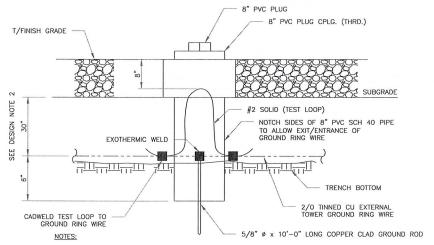
TOWER/SHELTER GROUND BAR DETAIL 2) SCALE: NOT TO SCALE



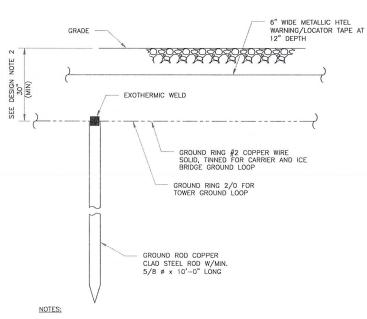
- NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
- ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS.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







- 1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE
- 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)
- INSPECTION WELL DETAIL SCALE: NOT TO SCALE



- 1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE
- 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)

GROUND ROD DETAIL SCALE: NOT TO SCALE







TOWER ENGINEERING PROFESSIONALS

326 TRYON RD RALEIGH, NC 27603 (919) 661-6351

TEP JOB #: 25646.702028

VERIZON SITE NUMBER: 468011

BU #: 876382 BERLIN / LAVIANA ORCHARD

1684 CHAMBERLAIN HWY BERLIN, CT 6037

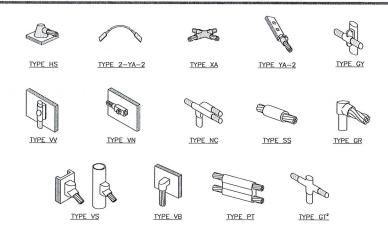
EXISTING 133'-0" MONOPOLE

REV	DATE	DRWN	DESCRIPTION	DES./QA
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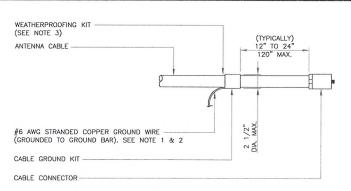
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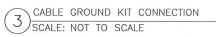
- ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
   MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

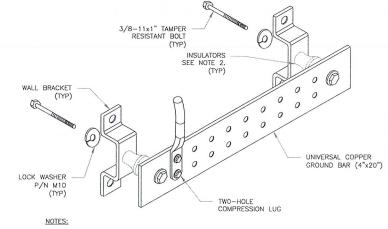
CADWELD GROUNDING CONNECTIONS 1) SCALE: NOT TO SCALE



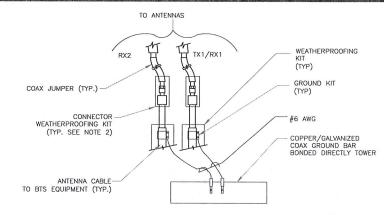
#### NOTES:

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



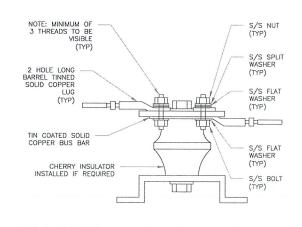


- 1. DOWN LEAD (HOME RUN) CONDUCTORS ARE  $\underline{\text{NOT}}$  TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED
- 2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.
- GROUND BAR DETAIL (6) SCALE: NOT TO SCALE



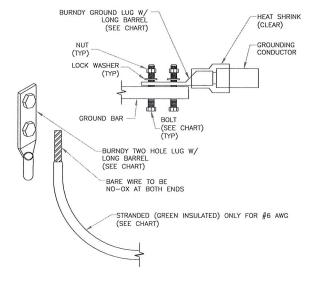
#### NOTES:

- 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.
- GROUND CABLE CONNECTION (4) SCALE: NOT TO SCALE



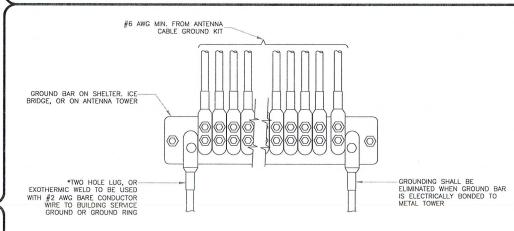
LUG DETAIL SCALE: NOT TO SCALE

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

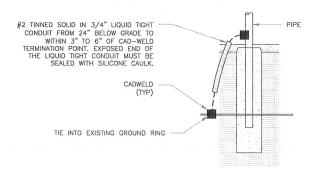


#### NOTES:

- 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.
- MECHANICAL LUG CONNECTION SCALE: NOT TO SCALE



GROUNDWIRE INSTALLATION (5) SCALE: NOT TO SCALE



TRANSITIONING GROUND DETAIL (8) SCALE: NOT TO SCALE







VERIZON SITE NUMBER: 468011

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05/27/22

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SHEET NUMBER:

## Exhibit D

**Structural Analysis Report** 



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

Subject:

Site Data:

Structural Analysis Report

Carrier Designation:

Date: June 01, 2022

Verizon Wireless Co-Locate

Site Number:

468011

Site Name:

BERLIN 3 CT

Crown Castle Designation:

BU Number:

876382

Site Name:

Berlin / Laviana Orchard

JDE Job Number: Work Order Number: 717372 2115001

Order Number:

617710 Rev. 0

Engineering Firm Designation:

Morrison Hershfield Project Number: CN11-646 / 2200039

1684 Chamberlain Highway, Berlin, Hartford County, CT 6037

Latitude 41° 35′ 23.07″, Longitude -72° 48′ 19.2″

133 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:

LC7: Proposed Equipment Configuration

Sufficient Capacity - 99.7%

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2018 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

No. 28133

No. 28133

CENSES

No. 28133

CENSES

Date: 2022.06 gitally signed by G. Date: 2022.06.02 11:07:19-07'00'

#### **TABLE OF CONTENTS**

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#### 2) ANALYSIS CRITERIA

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Table 2 - Other Considered Equipment

#### 3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

- 3.1) Analysis Method
- 3.2) Assumptions

#### 4) ANALYSIS RESULTS

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Table 5 - Tower Component Stresses vs. Capacity - LC7

4.1) Recommendations

#### 5) APPENDIX A

tnxTower Output

#### 6) APPENDIX B

Base Level Drawing

#### 7) APPENDIX C

Additional Calculations

#### 1) INTRODUCTION

This tower is a 133 ft Summit monopole tower designed by Paul J Ford and Company. A tower mapping was performed by Tower Engineering Professionals, Inc., in August of 2018.

The tower has been modified multiple times in the past to accommodate additional loading. All the modifications have been considered in this analysis per their respective post modification inspection reports.

#### 2) ANALYSIS CRITERIA

TIA-222 Revision:

TIA-222-H

Risk Category:

П

Wind Speed:

118 mph

Exposure Category:

С

Topographic Factor:

1

Ice Thickness:

1 in

Wind Speed with Ice: Service Wind Speed:

50 mph 60 mph

Table 1 - Proposed Equipment Configuration

I able I - F	Toposed Ed	Juibment C	onfiguration			
Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		2	antel	BXA-171063-12CF-EDIN-X w/ Mount Pipe		
		1	antel	BXA-171063-8BF-2 w/ Mount Pipe	]	
	3	commscope	NHH-65B-R2B			
		3 samsung telecommunicati	commscope	NHHSS-65B-R2BT4		
			samsung telecommunications	MT6407-77A w/ Mount Pipe		
	94.0	6	rfs/celwave	FD9R6004/2C-3L		
93.0		3	samsung telecommunications	CBRS RT4401-48A	7	1-5/8
The state of the s	3	samsung telecommunications	RF4439D-25A			
		3	samsung telecommunications	RF4440D-13A		
		2	raycap	RVZDC-6627-PF-48		
	93.0	3	commscope	Side-By-Side Mounting Kit [#BASMNT-SBS-1-2]		
		1	-	Platform Mount [LP 1201-1]		

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)	
		3	cci antennas	TPA65R-BU8D_CCIV2 w/ Mount Pipe			
		3	ericsson	RRUS 4415 B25	6	1-1/4	
1000	400.0	3	ericsson	RRUS 4449 B5/B12	4	3/4	
132.0	132.0	3	kaelus	DBC0111F2V62-1	2	3/8	
		1	raycap	DC6-48-60-18-8C-EV	2	2C	
		1	raycap	DC6-48-60-18-8F			
		1		Side Arm Mount [SO 901-3]			
120.0		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe			
	121.0	3	rfs/celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	3	1-5/8	
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		. 0,0	
		3	ericsson	Radio 4480_TMOV2			
	120.0	1	Site Pro 1	12' Platform mount [#RMQP-496-HK]			
MET SERVICE () and could be the service service () and desired the could be considered to the service service of the service s	111.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	and the second of the second o	TREE SERVICES TO SERVICE SERVICES	
		111.0	3	fujitsu	TA08025-B604		
111.0			111.0	3	fujitsu	TA08025-B605	1
		1	raycap	RDIDC-9181-PF-48			
		1	tower mounts	Commscope MC-PK8-DSH			
	Commence of the property of the commence of th	3	rfs/celwave	APX16DWV-16DWVS-C w/ Mount Pipe		6.86. 8.0. SEAS	
101.0	101.0	3	andrew	ETT19VS12UB	6	1-5/8	
		3	ericsson	KRY 112 144/1	A TOTAL OF LAND		
		1	The state of the s	T-Arm Mount [TA 602-3]	100		
75.0	75.0	3	rfs/celwave	APXV18-206517S-C w/ Mount Pipe	6	1-5/8	
50.0	51.0	1	lucent	KS24019-L112A		410	
50.0	50.0	1	THE REPORT OF A STREET OF THE PROPERTY OF T	Side Arm Mount [SO 901-1]	1	1/2	

#### 3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1629353	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1629413	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1629384	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	8173364	CCISITES
4-POST-MODIFICATION INSPECTION	8482047	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2611098	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2339268	CCISITES
4-POST-MODIFICATION INSPECTION	5287888	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 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	133 - 128	Pole	TP14x14x0.375	Pole	4.0	Pass
L2	128 - 123.5	Pole	TP14x14x0.375	Pole	8.6	Pass
L3	123.5 - 123	Pole	TP22x22x0.375	Pole	3.8	Pass
L4	123 - 118	Pole	TP22.75x22x0.1875	Pole	10.8	Pass
L5	118 - 113	Pole	TP23.5x22.75x0.1875	Pole	17.6	Pass
L.6	113 - 108	Pole	TP24.251x23.5x0.1875	Pole	26.7	Pass
L7	108 - 103	Pole	TP25.001x24.251x0.1875	Pole	36.1	Pass
L8	103 - 98	Pole	TP25.751x25.001x0.1875	Pole	45.9	Pass
L9	98 - 93	Pole	TP26.501x25.751x0.1875	Pole	55.4	Pass
L10	93 - 88	Pole	TP27.251x26.501x0.1875	Pole	70.0	Pass
L11	88 - 85.75	Pole	TP28.114x27.251x0.1875	Pole	75.7	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L12	85.75 - 80.75	Pole	TP27.964x27.214x0.25	Pole	57.4	Pass
L13	80.75 - 75.75	Pole	TP28.714x27.964x0.25	Pole	64.6	Pass
L14	75.75 - 70.75	Pole	TP29.465x28.714x0.25	Pole	71.4	Pass
L15	70.75 - 65.75	Pole	TP30.215x29.465x0.25	Pole	77.8	Pass
L16	65.75 - 60.75	Pole	TP30.965x30.215x0.25	Pole	83.8	Pass
L17	60.75 - 57.75	Pole	TP31.415x30.965x0.25	Pole	87.2	Pass
L18	57.75 - 57.5	Pole + Reinf.	TP31.453x31.415x0.4625	Reinf. 2 Tension Rupture	75.7	Pass
L19	57.5 - 52.5	Pole + Reinf.	TP32.203x31.453x0.4563	Reinf. 2 Tension Rupture	80.6	Pass
L20	52.5 - 47.5	Pole + Reinf.	TP32.953x32.203x0.45	Reinf. 2 Tension Rupture	85.3	Pass
L21	47.5 - 45	Pole + Reinf.	TP33.966x32.953x0.45	Reinf. 2 Tension Rupture	87.5	Pass
L22	45 - 40	Pole + Reinf.	TP33.578x32.828x0.4813	Reinf. 2 Tension Rupture	87.8	Pass
L23	40 - 35	Pole + Reinf.	TP34.329x33.578x0.4688	Reinf. 2 Tension Rupture	91.6	Pass
L24	35 - 30	Pole + Reinf.	TP35.079x34.329x0.4688	Reinf. 2 Tension Rupture	95.1	Pass
L25	30 - 29.75	Pole	TP35.116x35.079x0.2813	Pole	99.7	Pass
L26	29.75 - 29.5	Pole + Reinf.	TP35.154x35.116x0.5188	Reinf. 1 Tension Rupture	81.0	Pass
L27	29.5 - 24.5	Pole + Reinf.	TP35.904x35.154x0.5126	Reinf. 1 Tension Rupture	83.9	Pass
L28	24.5 - 19.5	Pole + Reinf.	TP36.654x35.904x0.5063	Reinf. 1 Tension Rupture	86.7	Pass
L29	19.5 - 14.5	Pole + Reinf.	TP37.404x36.654x0.5063	Reinf. 1 Tension Rupture	89.3	Pass
L30	14.5 - 9.5	Pole + Reinf.	TP38.155x37.404x0.4938	Reinf. 1 Tension Rupture 91.7		Pass
L31	9.5 - 4.5	Pole + Reinf.	TP38.905x38.155x0.4938	Reinf. 1 Tension Rupture	94.0	Pass
L32	4.5 - 0	Pole + Reinf.	TP39.58x38.905x0.4876	Reinf. 1 Tension Rupture	95.9	Pass
- 1979 / 87 km - 1994 ( <b>4800</b> 4.740 (4800	The contract of the product of the contract of		to a second service and a second service and a second second service s	Company of the Compan	Summary	e recibero como en el reservoya
	The state of the s	y mande france of Annie of Green and June and Francescope is a contract of the	and the first transferred state of the section of t	Pole	99.7	Pass
	er er e ammende van reinge i die deep van geveer gebe	#Providence and control of the contr	THE	Reinforcement	95.9	Pass
		The second section of the second seco	SANAN - Carl (SAN) Sanan committed annual rang and a larger an annual sananan a ringg san	Overall	99.7	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	123	40.3	Pass
1	Anchor Rods		77.9	Pass
1	Base Plate		52.5	Pass
1	Base Foundation (Structure)	0	76.0	Pass
1	Base Foundation (Soil Interaction)	U	46.9	Pass

Structure Rating (max from all components) =	99.7%*
	]

Notes:

#### 4.1) Recommendations

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

See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

<sup>2) \*</sup>Rating per TIA-222-H, Section 15.5.

## Exhibit E

**Mount Analysis** 





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

#### Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10145263 Maser Consulting Connecticut Project #: 22777019A

April 27, 2022

Site Information

Site ID:

468011-VZW / BERLIN 3 CT

Site Name:

BERLIN 3 CT Verizon Wireless

Carrier Name:

1684 Chamberlain Hwy

Address:

Berlin, Connecticut 06037

Hartford County

Latitude:

41.589917°

Longitude:

-72.805333°

Structure Information

Tower Type:

138-Ft Monopole

Mount Type:

13.67-Ft Platform

FUZE ID # 16092564

#### **Analysis Results**

Platform: 63.5% 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: Prasanna Dhakal



#### **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: 674828, dated March 25, 2022
Mount Mapping Report	Onsight Services, Site ID: 468011, dated April 10, 2022
Previous Mount Analysis	Maser Consulting Connecticut, Project #: 22777019A, dated April 15, 2022
Mount Modification Drawings	Maser Consulting Connecticut, Project #: 22777019A, dated April 27, 2022

#### **Analysis Criteria:**

Wind Parameters:	Basic Wind Speed	(Ultimate 3-sec.	Gust), Vult:	118 mph
------------------	------------------	------------------	--------------	---------

Ice Wind Speed (3-sec. Gust): 50 mph Design Ice Thickness: 1.00 in Risk Category: 11 Exposure Category: С Topographic Category: 1 Topographic Feature Considered: N/A Topographic Method: N/A Ground Elevation Factor, Ke: 0.987

Seismic Parameters: Ss: 0.200 g S<sub>1</sub>:

0.055 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
	3 3	Samsung	MT6407-77A		
		Commscope	NHH-65B-R2B		
		3	Commscope	NHHSS-65B-R2BT4	
94.00	95.00	3	Samsung	RF4439d-25A	Added
54.00	33.00	Samsung	RF4440d-13A		
		3	Samsung	CBRS RRH - RT4401-48A	
		2	Raycap	RVZDC-6627-PF-48	
		3	Antel	BXA-70063-4CF	Retained

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 Connecticut 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 Connecticut 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 Connecticut 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
 HSS (Rectangular)
 Pipe
 Threaded Rod
 Bolts
 ASTM A36 (Gr. 36)
 ASTM 500 (Gr. B-46)
 ASTM A53 (Gr. B-35)
 F1554 (Gr. 36)
 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 Connecticut.

### **Analysis Results:**

Component	Utilization %	Pass/Fail
Face Horizontal	63.5%	Pass
Crossmember	18.4%	Pass
Grating Support	10.5%	Pass
Standoff Horizontal	18.2%	Pass
Mount Pipe	29.9%	Pass
Mod Mount Pipe	25.5%	Pass
Mod Support Rail	27.8%	Pass
Mod V-Bracing Kit	10.5%	Pass
Mount Connection	18.0%	Pass

	J. J. S. S. D. S. D. S. S. HAMPYOY, AND JUST SPECIAL PROPERTY DE
Structure Rating – (Controlling Utilization of all Components)	63.5%
ou do tale ( controlling contaction of an components)	99.970
	<u> 1805 - P. C. C.</u>

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

lce	Mount Pipe	s Excluded	Mount Pipes Included		
Thickness (In)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	
0	34.0	34.0	47.5	47.5	
0.5	42.5	42.5	61.4	61.4	
1	50.7	50.7	75.0	75.0	

### 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

April 27, 2022 Site ID: 468011-VZW / BERLIN 3 CT Page | 5

# 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

# Exhibit F

**Power Density/RF Emissions Report** 

Site Name: Berlin 3 CT Cumulative Power Density

	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
1	751	4	710	2840	95	0.0113	0.5007	2.26%
	869	2	402	804	95	0.0032	0.5793	0.55%
	869	4	629	2716	95	0.0108	0.5793	1.87%
	1980	4	1422	5688	92	0.0227	1.0000	2.27%
	2125	4	1496	5984	95	0.0238	1.0000	2.38%
	3730	4	6531	26124	92	0.1041	1.0000	10.41%
		7						

Total Percentage of Maximum Permissible Exposure

\*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992
\*\*Calculation includes a -10 dB Off Beam Antenna Pattern Adjustment pursuant to Attachments B and C of the Siting Council's November 10, 2015 Memorandum for Exempt Modification filings

MHz = Megahertz

mW/cm^2 = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.

# Exhibit G

# **Mount Modification Drawings**



MOUNT MODIFICATION DRAWINGS EXISTING 13.67' PLATFORM

TOWER OWNER: CROWN CASTLE TOWER OWNER SITE NUMBER: 876382

CARRIER SITE NAME: BERLIN 3 CT **CARRIER SITE NUMBER: 468011** FUZE ID: 16092564

> 1684 CHAMBERLAIN HWY BERLIN, CT 06037 HARTFORD COUNTY

LATITUDE: 41.589917° N LONGITUDE: 72.805333° W

### DESIGN CRITERIA

### WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), V = 118 MPH EXPOSURE CATEGORY C

TOPOGRAPHIC CATEGORY I MEAN BASE ELEVATION (AMSL) = 355.76'

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, Sc = .200 LONG TERM MCER GROUND MOTION,  $S_i = .055$ 

# PROJECT INFORMATION

### APPLICANT/LESSEE

COMPANY:

VERIZON WIRELESS

### CLIENT REPRESENTATIVE

COMPANY: VERIZON WIRELESS

### PROJECT MANAGER

COLLIERS ENGINEERING & DESIGN

CONTACT: PETER ALBANO PHONE: 856.797.0412

PETER.ALBANO@COLLIERSENGINEERING.COM E-MAIL:

PMI LOCATION: SMART TOOL PROJECT #: VZW LOCATION CODE (PSLC):

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX

SHEET DESCRIPTION ST-I TITLE SHEET SBOM-I BILL OF MATERIALS

SGN-I GENERAL NOTES SCF-I CLIMBING FACILITY DETAIL

SS-I MODIFICATION DETAILS SS-2 MOUNT PHOTOS

SPECIFICATION SHEETS

### CONTRACTOR PMI REQUIREMENTS

HTTPS://PMI.VZWSMART.COM 10145263

Colliers | Engineering & Design

Doing Business as MASER





SCALE :	AS SHO	WN	22777019A		
0	04/27/22	ISSUED FOR CONSTRUCTIO	N	PD	DX
REV	DATE	DESCRIPTION	V	DRAWN BY	CHECKEI BY



SITE NAME:

BERLIN 3 CT 468011

1684 CHAMBERLAIN HWY BERLIN, CT 06037 HARTFORD COUNTY

TITLE SHEET

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

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# BILL OF MATERIALS

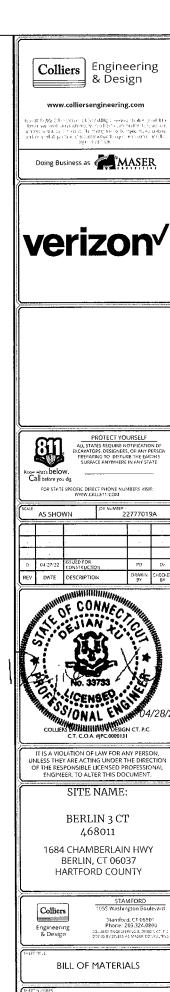
			SEC	ction 1 - vzwsmart kits		
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS
3		VZWSMART-P40-278X072	72" LONG, PIPE 2 1/2 STD (2.875"OD X 0.203" THK)		35	104
3	•	VZWSMART-PLK6	V-BRACING KIT FOR MONOPOLE	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	109	327
6		VZWSMART-MSK7	ANGLE TO ANGLE CROSSOVER KIT		7	42
12		VZWSMART-MSKI	CROSSOVER PLATE		14	168
ı	VZWSMART	VZWSMART-PLK7	MONOPOLE COLLAR MOUNT ASSEMBLY		150	150
			SECTIC	DN 2 - OTHER REQUIRED PARTS		
QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LB:
3	-	-	156" LONG, P2 STD	GALVANIZED	48	143
-	-	-	1/2" DIA. U-BOLT	GALVANIZED	-	

10	~	r	c	

- I. 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.

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

	NEWAVE
CONTACT	NEWAVE SALES TEAM
PHONE	(971) 239-4762
EMAIL	sales@newavetc.com
WEBSITE	WWW.NEWAYETC.COM
	BETTER METAL, LLC
CONTACT	DAVID STANSBERRY
PHONE	(615) 535-0990 (O), (615) 631-2520 (M)
EMAIL	DLS@BETTERMETAL.COM
WEBSITE	WWW.BETTERMETAL.COM



SBOM-1

### PROJECT NOTES

- I. SEE MODIFICATION NOTES
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
- THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- 6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO YERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS
- 8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION
- 9. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
- NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
- THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).

### **GENERAL NOTES**

- 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.
- 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.
- 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.
- 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.
- 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

- 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
- 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.
- 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.
- 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. CONTRACTOR SHALL PROTECT CUT ENDS OF ALL FIELD-CUT STEEL WITH TWO (2) COATS OF COLD GALVANIZATION (ZINGA OR ZINC COTE).
- 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.
- 10. 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.
- FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE, MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.

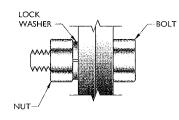
- 12. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
- 13. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED
- 14. 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.

### WELDING NOTES

- ALL WELDING SHALL BE DONE IN ACCORDANCE WITH AWS DI.0 (LATEST EDITION). THIS SHALL INCLUDE A CERTIFIED WELD INSPECTION (CWI) FOR ACCEPTANCE OR REJECTION OF ALL WELDING OPERATIONS, PRE, DURING, AND POST INSTALLATION, USING THE ACCEPTANCE CRITERIA OF AWS DI.1.
- CONTRACTOR IS RESPONSIBLE FOR COMMISSIONING A THIRD PARTY CERTIFIED WELD INSPECTOR (CWI) THROUGHOUT THE ENTIRETY OF THE PROJECT. A PASSING CWI REPORT SHALL BE PROVIDED TO THE ENGINEER UPON COMPLETION OF THE PROJECT.
- 3. THE CERTIFIED WELD INSPECTOR SHALL INDICATE, IN A WRITTEN CWI
  REPORT, THAT ALL WELDING OPERATIONS PRE, DURING, AND POST
  INSTALLATION WERE CONDUCTED IN ACCORDANCE WITH AWS DI.I WITH
  PHOTOGRAPHS AND DOCUMENTATION SUPPORTING THE ACCEPTANCE OR
  REJECTION OF ALL WELDING. ALL CWI WELD INSPECTION
  DOCUMENTATION AND PHOTOS SHALL BE SUBMITTED DURING THE PMI.
- 4. IN CASES WHERE A WELD IS SPECIFIED BETWEEN TWO MEMBERS IN WHICH THERE IS A GAP IN BETWEEN, THE WELD IS TO BE BUILT-UP SUCH THAT THE SIZE OF WELD ON THE MEMBER IS EQUAL TO THAT SHOWN IN THE DRAWNIGS
- OXY FUEL GAS WELDING OR BRAZING IS STRICTLY PROHIBITED.
   SPECIFICALLY, NO TORCH CUTTING IS PERMITTED ON SITE. ALL HOLES SHALL BE CUT WITH A GRINDER.
- CONTRACTOR SHALL EXERCISE CAUTION WHEN WELDING A GALVANIZED SURFACE.
- CONTRACTOR SHALL HAVE A FIRE PROTECTION PLAN IN PLACE THAT CONFORMS WITH ALL OSHA, ANSI/ASSP A10.48, ANSI Z49.1. AND LOCAL JURISDICTIONAL REQUIREMENTS.

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 I	1 1/4	2 1/4			
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8			
I	1 1/16	I 1/16 x I 5/16	1 3/4	3			

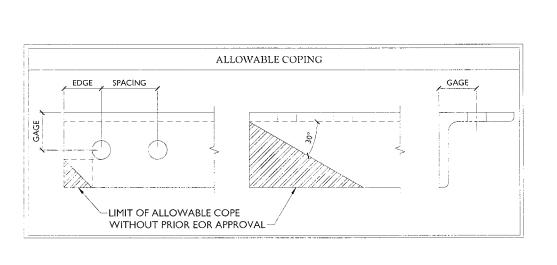
WORKABLE GAGES (IN.)			
LEG	GAGE		
4	2 1/2		
3 1/2	2		
3	1 3/4		
2 1/2	l 3/8		
2	l 1/8		



### TYP. BOLT ASSEMBLY

### NOT

- I. 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.
- THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
- SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
- MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.





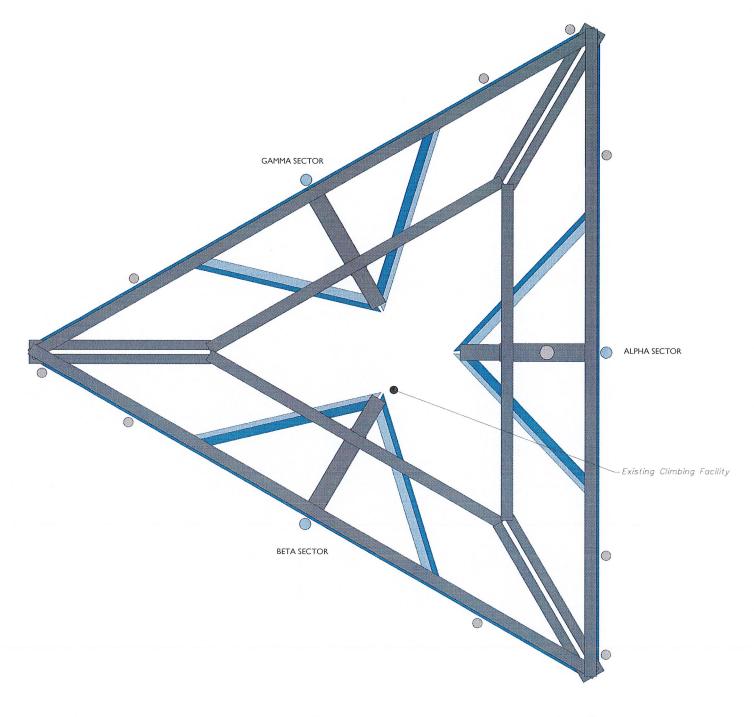
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

GENERAL NOTES

SGN-I

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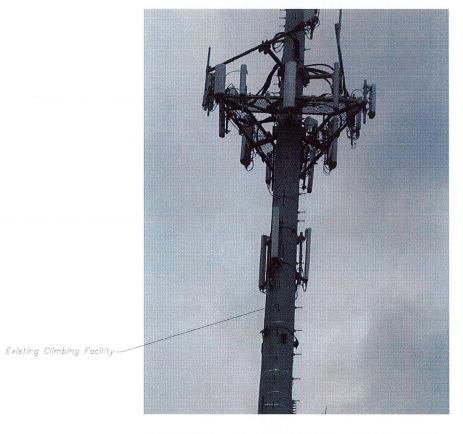




### STRUCTURAL NOTES:

I. PER THE MOUNT MAPPING COMPLETED BY ONSIGHT SERVICES ON 4/10/2022, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (94'-0") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.

 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.



CLIMBING FACILITY PHOTO



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PREFARANCE TO DISTURE THE EARTH'S
SURFACE ANYWHERE IN ANY STATE
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FOR STATE SPECIFIC DIRECT PHONE NUMBER



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:

BERLIN 3 CT 468011

1684 CHAMBERLAIN HWY BERLIN, CT 06037 HARTFORD COUNTY

Engineeri & Design STAMFORD 55 Washington Boulevard

Stamford, CT 06901 Phone: 203.324.0800 COLLIERS ENGINEERING & DESIGN C DOING BUSINESS AS MASER CONSU

CLIMBING FACILITY DETAIL

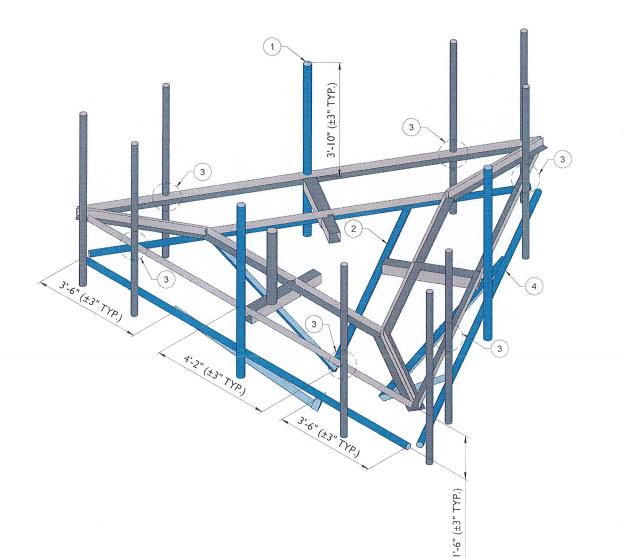
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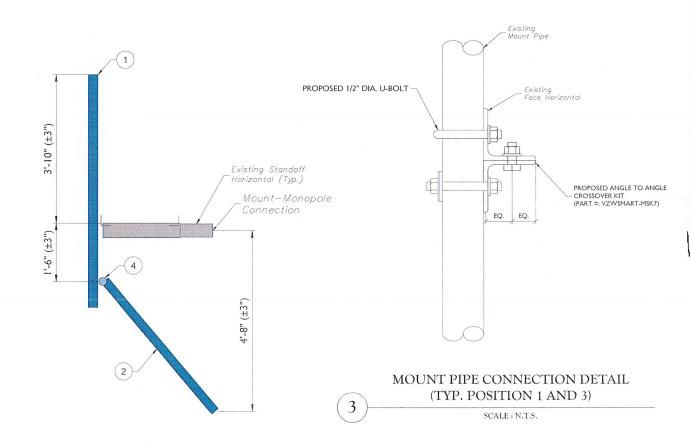
SCF-I

LEGEND:		
	PROPOSED	
	RELOCATED	
	existing	

	MOUNT MODIFICATION SCHEDULE						
NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES			
I		3	PROPOSED 72" LONG, P2 I/2 STD (PART #: VZWSMART-P40-278X072)	CONTRACTOR SHALL REMOVE AND REPLACE EXISTING MOUNT PIPE AT POSITION 2 (AS SEEN FROM BEHIND THE MOUNT) IN ALL SECTORS. CONNECT NEW MOUNT PIPE TO EXISTING WELDED PLATE ON FACE HORIZONTAL WITH (2) 1/2" DIA. U-BOLTS.			
2	94'-0"	3	PROPOSED V-BRACING KIT FOR MONOPOLE (PART #; VZWSMART-PLK6)	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-I . CONNECT OTHER END OF V-BRACING KIT TO MONOPOLE COLLAR MOUNT ASSEMBLY (PART #: VZWSMART-PLK7).			
3	94-0	6	PROPOSED ANGLE TO ANGLE CROSSOVER KIT (PART #: VZWSMART-MSK7)	CONTRACTOR SHALL REMOVE AND REPLACE EXISTING FACE HORIZONTAL TO MOUNT PIPE CONNECTION ASSEMBLY AT POSITION I AND 3 (AS SEEN FROM BEHIND THE MOUNT) IN ALL SECTORS. INSTALL PROPOSED ANGLE TO ANGLE CROSSOVER KIT (PART #: VZWSMART-MSK7) AS SHOWN IN DETAIL 37SS-I. CONTRACTOR SHALL DRILL HOLES ON FACE HORIZONTAL AS REQUIRED.			
4		3	156" LONG, P2 STD SUPPORT RAIL	CONNECT NEW SUPPORT RAIL TO ALL EXISTING AND PROPOSED VERTICAL MOUNT PIPES WITH CROSSOVER PLATES (PART #: VZWSMART-MSKI).			
NOTES							

MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.
THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINGA OR ZINC KOTE).





MODIFICATION DETAILS

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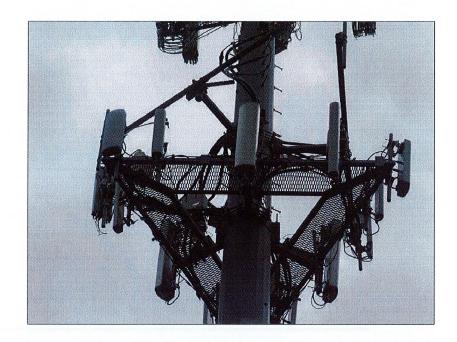
SS-I

PROPOSED ISOMETRIC VIEW

SCALE: N.T.S.

PROPOSED SIDE ELEVATION VIEW (TYP. ALL SECTORS)

SCALE: N.T.S.



MOUNT PHOTO 1



MOUNT PHOTO 3



MOUNT PHOTO 2



MOUNT PHOTO 4



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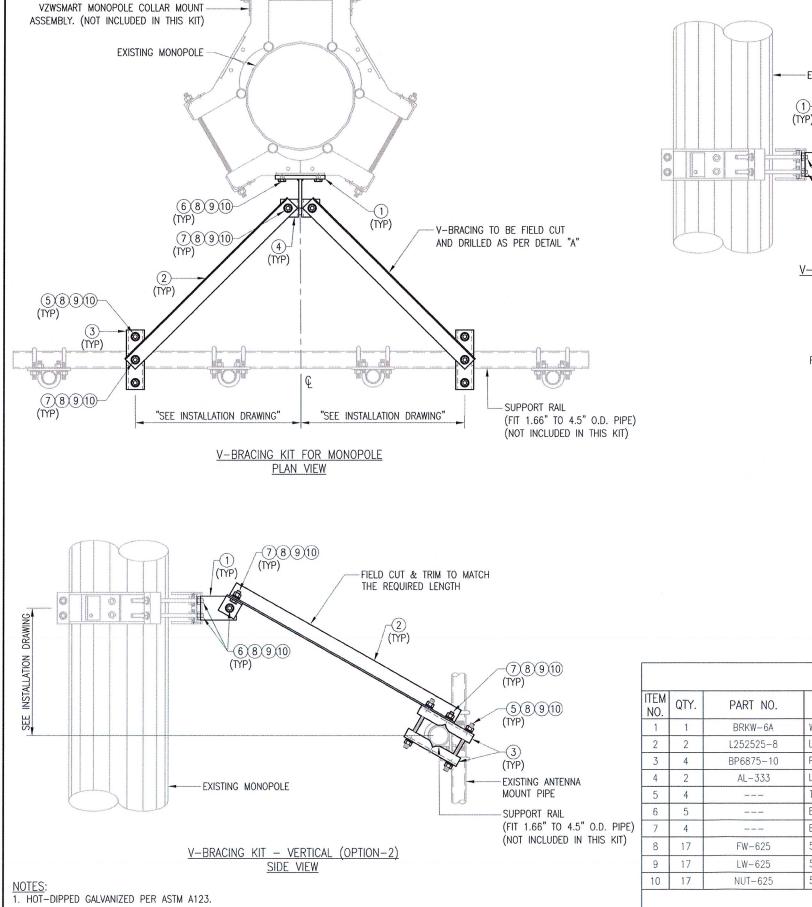
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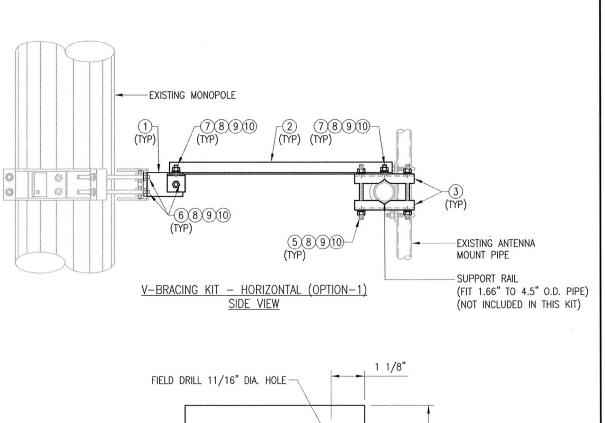
Collier Engineeri 1055 Washington Boulevar Stamford, CT 06901 Phone: 203.324.0800

MOUNT PHOTOS

BER:

SS-2





2 1/2"

3/8"

-COPE IF REQUIRED.

### VZWSMART-PLK6 (V-BRACING KIT FOR MONOPOLE) SHEET # WT DESCRIPTION PLK6-F1 16 WELDMENT BRACKET 2 1/2" X 2 1/2" X 1/4" X 8'-0" A36 PLK6-F2 67 PL 3/8" X 6 7/8" X 10" A36 BENT PLATE PLK6-F2 20 L 3" X 3" X 1/4" X 3" A36 PLK6-F2 THREADED ROD 5/8" DIA. X 10" F1554-36 HDG ----BOLT 5/8" X 2 1/4" A325 \_\_\_\_ BOLT 5/8" X 1 3/4" A325 5/8" HDG USS FLAT WASHER 2 5/8" HDG LOCK WASHER 5/8" HDG HEX NUT 2 GALVANIZED WT 109

PLAN VIEW

FRONT VIEW

DETAIL "A"

# VzW SMART Tool<sup>©</sup> Vendor

# verizon

DRAWN BY: FL	CHECKED BY: KL/BT
REV. DESCRIPTION  FIRST ISSUE	BY DATE FL 04/13/21
<u> </u>	
<u> </u>	
SHEET TITLE:	
VZWSMA	RT-PLK6
V-BRACIN	G KIT FOR
MONO	)POLE

SHEET NUMBER:	REV #:
VZWSMART-PLK6	0

# HORIZONIAL ANGLE OPTION 1 OPTION 1 OPTION 2 OPTION 2

### ANGLE TO ANGLE CROSSOVER KIT

	VZWSMART-MSK7 (ANGLE TO ANGLE CROSSOVER KIT)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT	
1	1	L3325-0.7	L 3" X 3" X 1/4" X 0'-8" A36	MSK7-F2	3.33	
2	1	VCP	PL 1/2" X 2" X 8 5/8" A36 BENT PLATE	MSK7-F1	2.4	
3	2		BOLT 5/8" DIA. X 6" FULL THREAD SAE GR 5	100 AND 1000		
4	4	NUT-625	5/8" HDG HEX NUT		0	
5	6	FW-625	5/8" HDG USS FLAT WASHER	Mar. 1827, 1949	0	
6	4	LW-625	5/8" HDG LOCK WASHER		0	
7	2		BOLT 5/8" X 2" A325	AND MOST SIGN	0	
				GALVANIZED WT	7	

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FIT UP TO 4.50" O.D. PIPE (NOT INCLUDED IN THIS KIT)

-3(4)(5)(6)

(TYP)

FIELD DRILL 11/16" DIA. HOLE IN EXISTING ANGLE AS SHOWN (TYP)

DRAWN	BY: <b>SK</b>	CHECKED B	: BT/KW
REV.	DESCRIPTION RST ISSUE	SK	DATE 05/08/20
SHEET	TITLE: VZWSMA ANGLE		

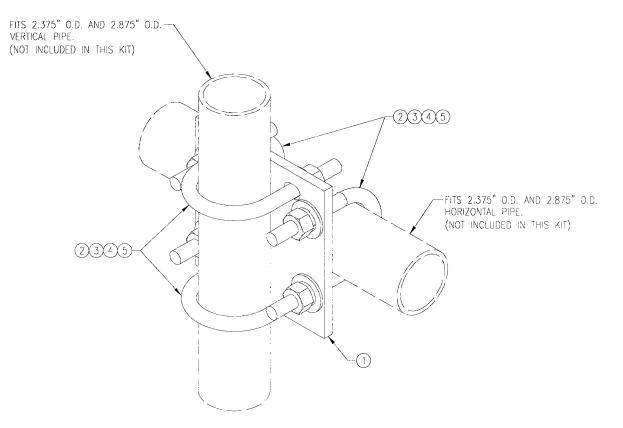
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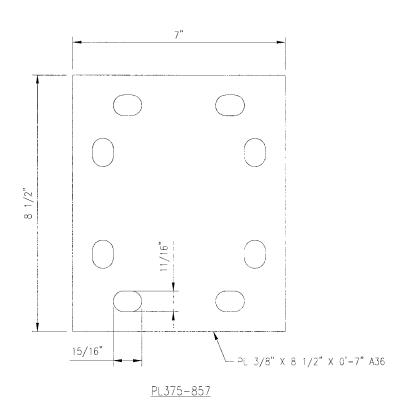
VZWSMART-MSK7

CROSSOVER KIT

1. HOT-DIPPED GALVANIZED PER ASTM A123.

2. USE PROVIDED ADDITIONAL FLAT WASHERS FOR CONNECTING TO 3/16" THICK HORIZONTAL ANGLE





VZWSMARTHMSK1 (CROSSOVER PLATE)						
ITEM! NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	TW	
1	1	PL375-857	PL 3/8" X 8 1/2" X 0'-7" A36	MSK1-F1	6	
2	4	MS02-625-300-500	RU-BOLT 5/8" X 3" :.W. X 5" !.L. A36 (OR EQUIV.)	RBC-1	5	
3	8	FW-625	5/8" HDG USS FLAT WASHER		1	
7	8	LW-625	5/8" HDG LOCK WASHER		Ð	
5	8	Nu1-625	5/8" HOG HEX NUT		1	
				GALVANIZED WT	14	

VzW SMART Tool<sup>©</sup> Vendor

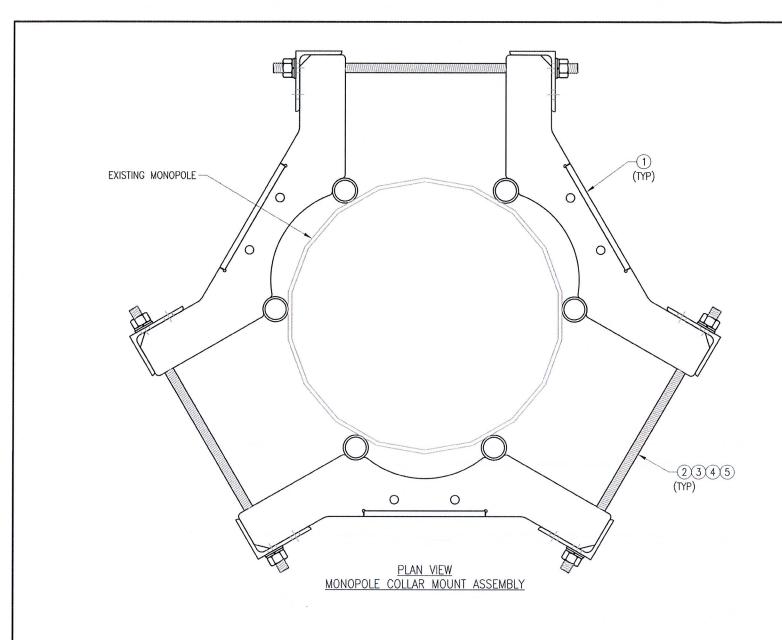
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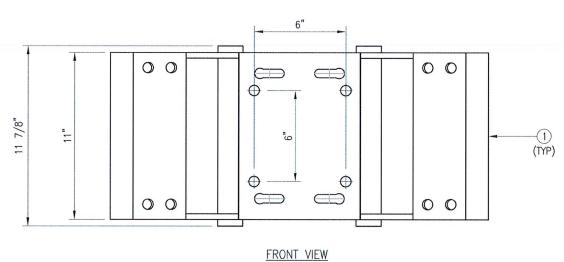
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	C-	<del></del>	PTION BY

VZWSMART – MSK1 CROSSOVER PLATE

SHEET NUMBER: REV #:
VZWSVART-MSKI ()

MOTES: 1. HOTHDRPPED GALVANIZED PER ASTM 4123.





NOTES:			
1. FIT 12" TO	45" DIA MONOPOLE.		
2. HOT-DIPPED	GALVANIZED PER ASTA	1 A123.	

VZWSMART-PLK7 (MONOPOLE COLLAR MOUNT ASSEMBLY)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	- 1	SHEET #	WT
1	3	CM-1245	COLLAR MOUNT ASSEMBLY		PLK7-F1	147
2	6	AM 100 AM	THREADED ROD 5/8" X 4'-0" A193-B7			
3	12	FW-625	5/8" HDG USS FLAT WASHER			1
4	12	LW-625	5/8" HDG LOCK WASHER			0
5	12	NUT-625	5/8" HDG HEX NUT		886 180 EM	1
				GALV	ANIZED WT	150

VzW SMART Tool<sup>©</sup> Vendor

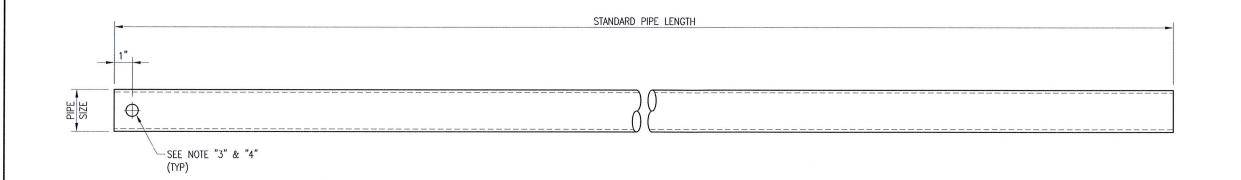
verizon<sup>v</sup>

DRAWN	BY: BT	CHECKED BY: HMA/K		
REV.	DESCRIPTION	BY	DATE	
<b>△</b> FIR	ST ISSUE	ВТ	05/11/20	
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CHEET	TITI C.			

SHEET TITLE:

VZWSMART-PLK7 MONOPOLE COLLAR MOUNT ASSEMBLY

SHEET NUMBER:	REV #:
VZWSMART-PLK7	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.

$\mathbf{V}_{\mathbf{Z}}\mathbf{W}$
SMART Tool
Vendor

# verizon<sup>v</sup>

DRAWN BY: BT	CHECKED B	Y: HMA/KW
REV. DESCRIPTION  FIRST ISSUE	BT	DATE 08/04/21
SHEET TITLE:  VZWS  STANDA	SMART RD PIF	PΕ
SHEET NUMBER:		REV #:

VZWSMART-PIPE