STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

September 12, 2019

Anne Marie Zsamba
Real Estate Specialist
Crown Castle
3 Corporate Drive, Suite 101
Clifton Park, NY 12065

RE: **EM-T-MOBILE-030-190829** - T-Mobile notice of intent to modify an existing telecommunications facility located at 14 Thompson Hill Road, Columbia, Connecticut.

Dear Ms. Zsamba:

The Connecticut Siting Council (Council) is in receipt of your correspondence of September 11, 2019 submitted in response to the Council's September 9, 2019 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/MP/lm

Zsamba, Anne Marie

From: Zsamba, Anne Marie
Sent: Wednesday, September 11, 2019 8:52 AM
To: 'Mathews, Lisa A'
Cc: CSC-DL Siting Council
Subject: RE: Council Incomplete Letter for EM-T-MOBILE-030-190829 (14 Thompson Hill Road, Columbia)
Attachments: 876391_479837_Mount_T-Mobile_161ft.pdf; FCDS 876391.pdf

Good morning,

My most sincere apologies for the deficiencies noted in the Council's correspondence dated September 9, 2019.

Attached hereto please find a digitally signed MA as well as the correct set of drawings for this application. Hardcopies of the attached documents will arrive via Fedex delivery tomorrow, September 12. Please confirm this renders the exempt modification application complete.

Thank you.

Best,
Anne Marie

ANNE MARIE ZSAMBA
Real Estate Specialist
T: (201) 236-9224
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101,
Clifton Park, NY 12065
CrownCastle.com

From: Mathews, Lisa A <Lisa.A.Mathews@ct.gov>
Sent: Tuesday, September 10, 2019 3:39 PM
To: Zsamba, Anne Marie <AnneMarie.Zsamba@crowncastle.com>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: Council Incomplete Letter for EM-T-MOBILE-030-190829 (14 Thompson Hill Road, Columbia)

Please see the attached correspondence.

Lisa A. Mathews
Office Assistant
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
Lisa.A.Mathews@ct.gov

SCOPE OF WORK

ITEMS TO BE INSTALLED ON & REMOVED FROM EXISTING TOWER:

- REMOVE (3) ANTENNAS.
- REMOVE (3) RRUS.
- INSTALL PROPOSED MOUNT MODIFICATIONS.
- INSTALL (3) NEW ANTENNA PIPES.
- INSTALL T-MOBILE ANTENNA (APXVAARR24_43-U-NA20) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE RADIO (4449 B71+B12) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE ANTENNA (AIR32 KRD901146-1_B66A_B2A) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- INSTALL T-MOBILE COAX JUMPER CABLES (TYP. OF 4 PER SECTOR, TOTAL OF 12).
- INSTALL T-MOBILE FIBER JUMPER CABLES (TYP. OF 5 PER SECTOR, TOTAL OF 15.).
- INSTALL T-MOBILE 6x12 HCS HYBRID CABLE (TOTAL OF 3).
- UPGRADE BREAKER TO 125A.

ITEMS TO BE INSTALLED ON & REMOVED FROM EXISTING EQUIPMENT PAD:

- REMOVE (1) XMU.
- REMOVE (1) DUS41.
- INSTALL (2) ERICSSON BASEBAND 6630 UNITS

ITEMS TO REMAIN:

- (3) ANTENNAS, (3) TMAS, (6) RU22, (1) DUW30, (1) DUG20, (6) COAX CABLES, (1) HYBRID CABLE.

SITE ADDRESS:	14 THOMPSON HILL ROAD COLUMBIA, CT 06237
LATITUDE (NAD 83):	N 41° 43' 3.44"
LONGITUDE (NAD 83):	W 72° 17' 59.09"
COUNTY:	TOLLAND
JURISDICTION:	-
LANDLORD:	CROWN CASTLE INTERNATIONAL 500 W. CUMMINGS PARK, STE 3600 WOBURN, MA 01801
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	180'
RAD CENTER:	160'
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

L600 PROJECT
SITE NUMBER: CT11503A

SITE NAME: SPRINT COLUMBIA RT 6

CROWN SITE NAME: COLUMBIA / DEOJAY

BU#: 876391

T-MOBILE RAN TEMPLATE: 67D92DB OUTDOOR

NOTE:

ALL CONSTRUCTION ACTIVITIES ARE TO BE COMPLETED DIRECTLY THROUGH CROWN. CONTRACTOR MUST HAVE CONSTRUCTION PO AND NTP FROM CROWN DIRECT IN ORDER TO BEGIN. PRE-APPROVAL TO ENTER THE PROPERTY MUST BE OBTAINED. FOR ACCESS AUTHORIZATION, PLEASE CONTACT CROWN.

DRAWING INDEX

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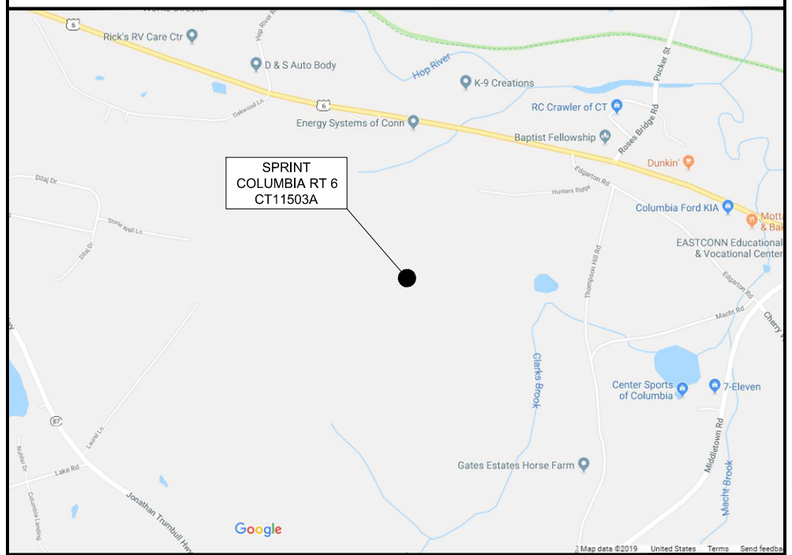
CROWN CASTLE SITE ID #: 876391
CROWN CASTLE SITE NAME: COLUMBIA / DEOJAY

ENGINEERING

2018 CONNECTICUT STATE BUILDING CODE
2018 AMENDMENT WITH 2015 INTERNATIONAL BUILDING CODE
2009 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES
2015 INTERNATIONAL MECHANICAL CODE
2015 INTERNATIONAL ENERGY CONSERVATION CODE
2017 NATIONAL ELECTRICAL CODE (NFPA 70 2017)
ANSI/TIA-222-G

VICINITY MAP



384 TO ROUTE 6, TAKE RIGHT ON 66 WEST. GO TO TOP OF HILL AND TAKE HARD RIGHT ON MACHT ROAD. BEAR LEFT ON THOMPSON HILL ROAD, #14 ON LEFT. PULL INTO THE DRIVEWAY FOR #14 WITH CROWN YELLOW "CELL TOWER" SIGN ON MAILBOX AND PROCEED TO THE LEFT OF THE HOUSE. ACCESS ROAD CONTINUES UNTIL LOWER ACCESS GATE WITH CROWN BUSINESS SIGN ON IT. DO NOT DRIVE ON LANDLORDS PROPERTY - 4X4 VEHICLES ONLY. NO WINTER ACCESS, DO NOT PLOW. NOT SAFE TO ACCESS. - HOURS OF ACCESS: 8AM TO DARK. FOR ANY WORK AFTER DARK PLEASE CALL THE LANDOWNER TO ADVISE JOSHUA LANATI 860-716-5943 -ATTENTION VENDORS/CONTRACTORS: BE SURE TO HAVE COMPANY IDENTIFICATION WHEN ON SITE. CLEAN UP ALL TRASH & DEBRIS WHEN LEAVING THE SITE. **DO NOT OPEN ANY GATES THAT DO NOT HAVE CROWN SIGNAGE ON IT** *FOLLOW WRITTEN DIRECTIONS AND NOT GPS CORDS SOLELY* CHILDREN ON PROPERTY/DO NOT SPEED

GENERAL NOTES

1. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
2. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
3. HANDICAP REQUIREMENTS ARE NOT REQUIRED.
4. THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
5. ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RADIOS AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
6. NO COMMERCIAL SIGNAGE IS PROPOSED.

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
31055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	AJM
CHECKED BY:	CAT

SUBMITTALS

1	08/21/19	ISSUED FOR CONSTRUCTION
0	07/17/19	ISSUED FOR PERMITTING

SPRINT COLUMBIA RT 6
CT11503A
COLUMBIA / DEOJAY
876391
14 THOMPSON HILL ROAD
COLUMBIA, CT 06237

TITLE SHEET

T-1

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: T-MOBILE
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 20,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW " CT11503A".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

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

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

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103 MONARCH DRIVE
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CROWN CASTLE
3 CORPORATE PARK DRIVE
SUITE 101
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JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	AJM
CHECKED BY:	CAT

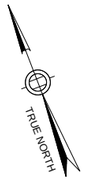
SUBMITTALS

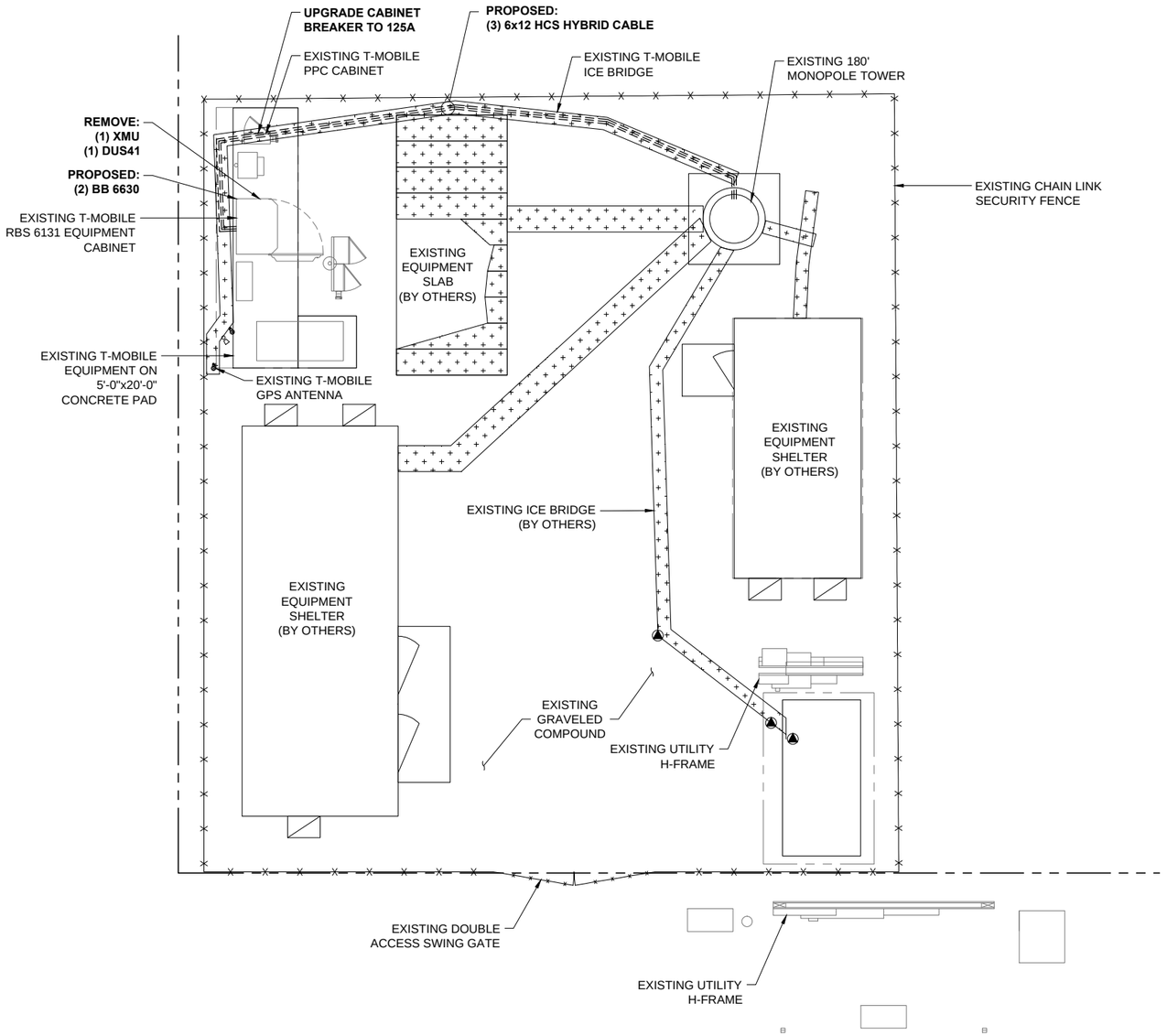
1	08/21/19	ISSUED FOR CONSTRUCTION
0	07/17/19	ISSUED FOR PERMITTING

SPRINT COLUMBIA RT 6
CT11503A
COLUMBIA / DEOJAY
876391
14 THOMPSON HILL ROAD
COLUMBIA, CT 06237

GENERAL NOTES

GN-1





NOTES:

1. PLAN BASED ON AUTOCAD DRAWINGS ISSUED BY CROWN CASTLE ON 02/25/2019. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND LOCATION/ORIENTATION OF EXISTING EQUIPMENT.

1 SITE PLAN

SCALE: 3/16" = 1'-0"

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
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BOSTON, MA 02116

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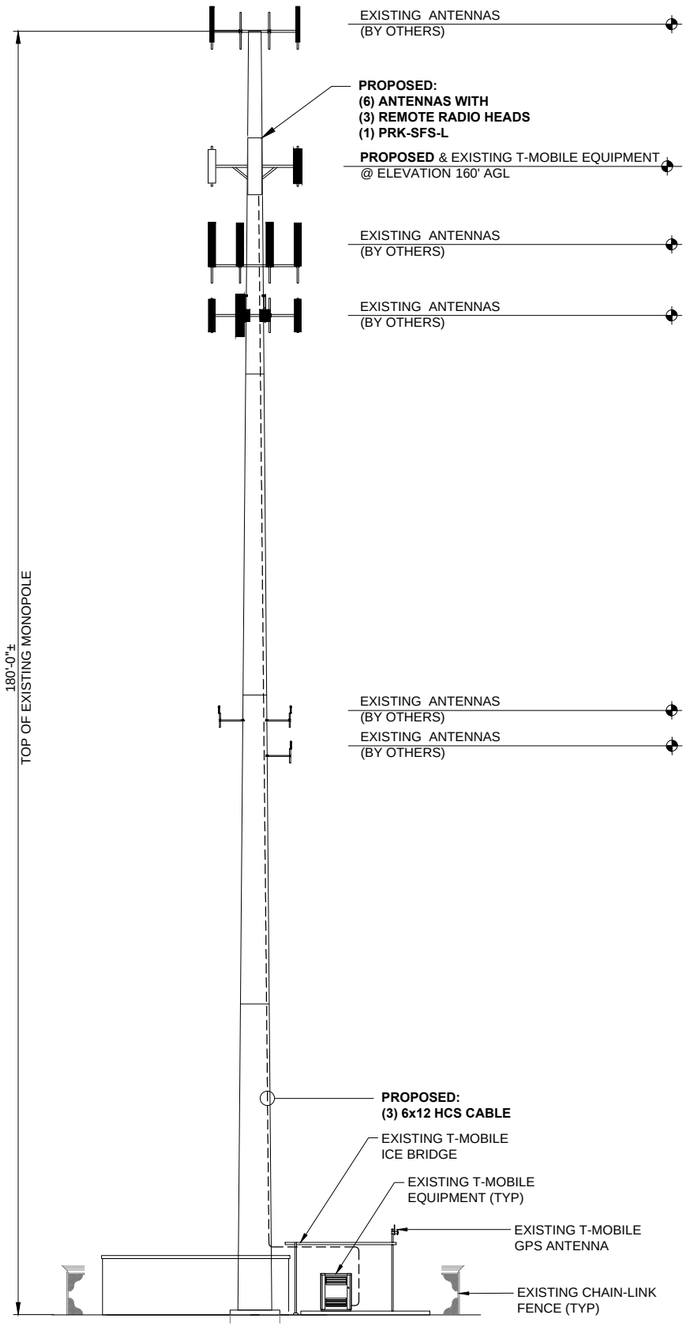
COLUMBIA, CT 06237

SITE PLAN

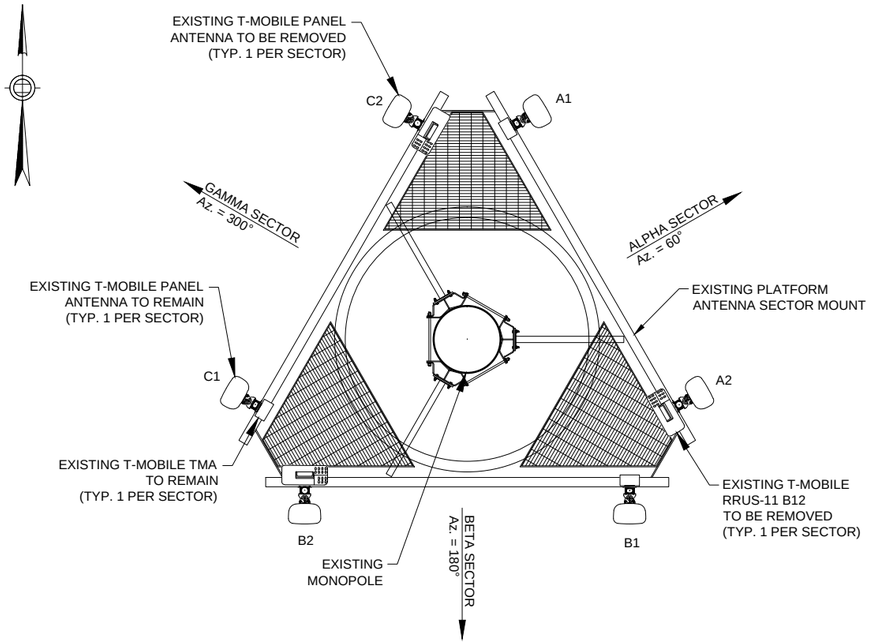
C-1

NOTES:

1. CONTRACTOR SHALL REFER TO THE STRUCTURAL ANALYSIS REPORT; SITE NUMBER: CT11503A; SITE NAME: SPRINT COLUMBIA RT 6; CROWN BU NUMBER: 876391; CROWN SITE NAME: COLUMBIA / DEOJAY; CROWN ORDER NUMBER: 479837; ISSUED BY AW SOLUTIONS INCORPORATED. DATED ON 06/26/19. PER THIS ANALYSIS NO MODIFICATIONS ARE REQUIRED. THE CONTRACTOR SHALL VERIFY ALL EXISTING MEMBERS AND HARDWARE ARE INSTALLED PROPERLY AS DESCRIBED IN THIS REPORT.

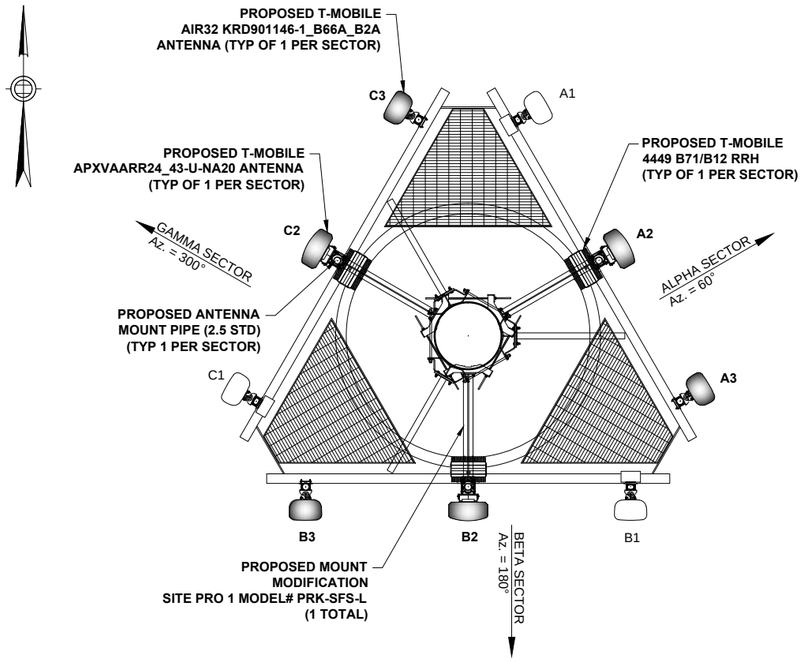


1 TOWER ELEVATION — SCALE: 3/32" = 1'-0"



ELEVATION 160'

2 EXISTING ANTENNA LAYOUT — SCALE: N.T.S.



ELEVATION 160'

3 PROPOSED ANTENNA LAYOUT — SCALE: N.T.S.

NOTES:

1. CONTRACTOR SHALL REFER TO THE MOUNT MODIFICATION REPORT; SITE NUMBER: CT11503A; SITE NAME: SPRINT COLUMBIA RT 6; CROWN BU NUMBER: 876391; CROWN SITE NAME: COLUMBIA / DEOJAY; CROWN ORDER NUMBER: 479837; ISSUED BY PAUL J. FORD, DATED ON 06/19/19. THE MOUNT MODIFICATIONS MUST BE PERFORMED PRIOR TO THE INSTALLATION OF THE EQUIPMENT SHOWN ON THE DRAWINGS. CONTRACTOR SHALL REFER TO SHEETS 37 THROUGH 38 FOR DETAILS. THE CONTRACTOR SHALL VERIFY ALL EXISTING MEMBERS AND HARDWARE ARE INSTALLED PROPERLY AS DESCRIBED IN THIS REPORT.
   - INSTALL SITEPRO1 PRK-SFS-L PLATFORM REINFORCEMENT KIT OR EOR APPROVED EQUIVALENT AS INDICATED IN "APPENDIX D – SUPPLEMENTAL MODIFICATION INFORMATION" AND IN CONFORMANCE WITH THE ATTACHED MANUFACTURER DRAWINGS.
   - INSTALL RFS/CELWAVE APXVAARR24_43-U-NA20 ANTENNAS ON 8-FT LONG, P2.5 STD (2.88" O.D. X 0.189)
2. MOUNT PIPES. SEE APPENDIX D DETAILS.
3. CONTRACTOR TO VERIFY FINAL RF CONFIGURATION AND NOTIFY CARRIER AND ENGINEER W/ ANY DISCREPANCIES PRIOR TO THE INSTALLATION.
4. CONTRACTOR SHALL NOT EXCEED MOUNTING MORE THAN (2) RRHS PER ANTENNA MOUNTING PIPE - RELOCATE TO AN ADJACENT ANTENNA MOUNTING PIPE AS NEEDED.

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STATE OF CONNECTICUT
DANIEL J. CORNING
31055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	AJM
CHECKED BY:	CAT

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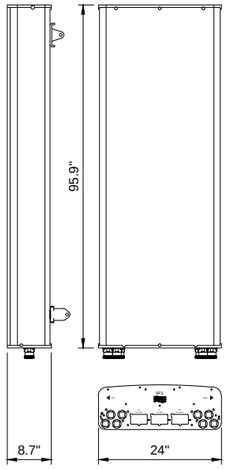
PROPOSED TOWER ELEVATION & ANTENNA LAYOUT PLAN

S-1

MANUFACTURER: RFS
MODEL NO.: APXVAARR24_43-U-NA20

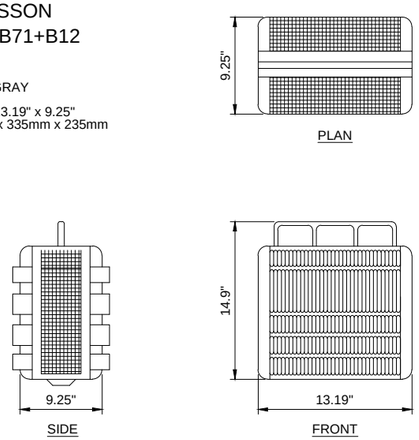
COLOR: LIGHT GRAY
DIMENSIONS (LxWxD): 95.9" x 24" x 8.7"
2436mm x 609mm x 222mm
WEIGHT (lbs): 58
CONNECTOR: 8 x 4.3-10 FEMALE AT BOTTOM +
6 AISG CONNECTORS (3 MALE/3 FEMALE)
SURVIVAL/RATED WIND VELOCITY (KM/H): 241 (150)



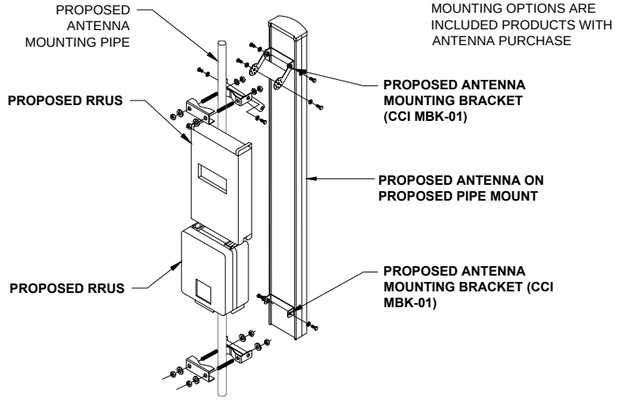
1 ANTENNA SPECIFICATIONS
SCALE: N.T.S.

MANUFACTURER: ERICSSON
MODEL NO.: 4449 B71+B12

COLOR: LIGHT GRAY
DIMENSIONS (LxWxD): 14.9" x 13.19" x 9.25"
378mm x 335mm x 235mm
WEIGHT (lbs): 74



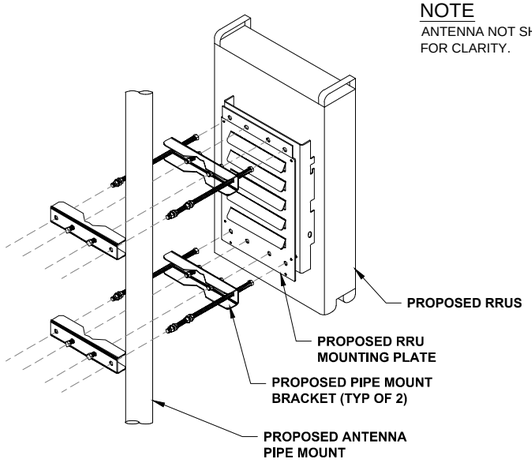
2 RRUS SPECIFICATIONS
SCALE: N.T.S.



NOTE
MOUNTING OPTIONS ARE INCLUDED PRODUCTS WITH ANTENNA PURCHASE

3 TITLE
SCALE: N.T.S.

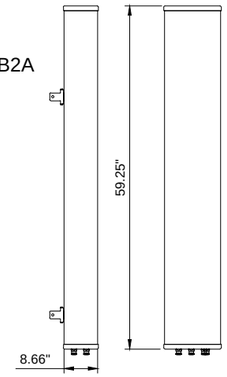
NOTE
ANTENNA NOT SHOWN FOR CLARITY.



4 TITLE
SCALE: N.T.S.

MANUFACTURER: ERICSSON
MODEL NO.: AIR32 KRD901146-1_B66A_B2A

COLOR: LIGHT GRAY
DIMENSIONS (LxWxD): 59.25" x 12.87" x 8.66"
1505mm x 327mm x 220mm
WEIGHT (lbs): 153
69.4kg
CONNECTOR: 7/16 IEC-169-4 INSERT TYPE
CABLE CONNECTOR: 7/16 INSERT-TYPE ON BOTH ENDS
MAX. WIND LOAD: @ 42m/s 900 N



5 ANTENNA SPECIFICATIONS
SCALE: N.T.S.

6 DETAIL NOT USED
SCALE: N.T.S.

7 DETAIL NOT USED
SCALE: N.T.S.

8 DETAIL NOT USED
SCALE: N.T.S.

9 DETAIL NOT USED
SCALE: N.T.S.

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BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: AJM
CHECKED BY: CAT

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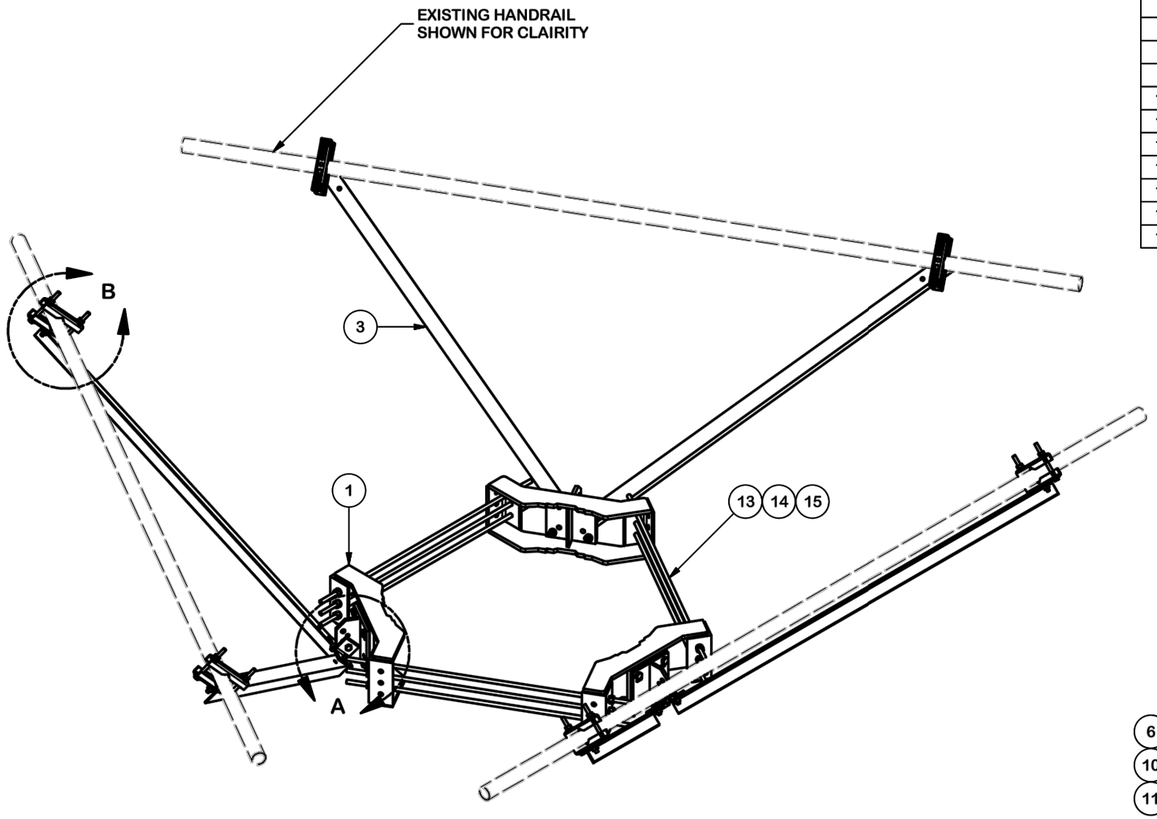
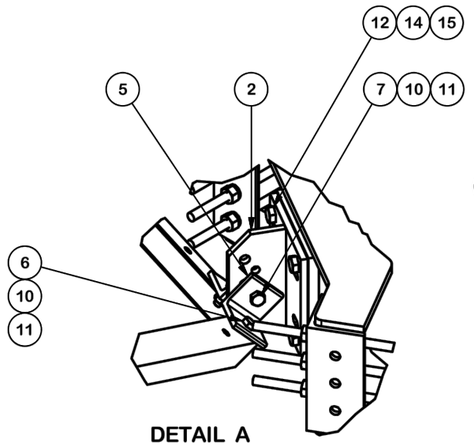
COLUMBIA, CT 06237

EQUIPMENT DETAILS

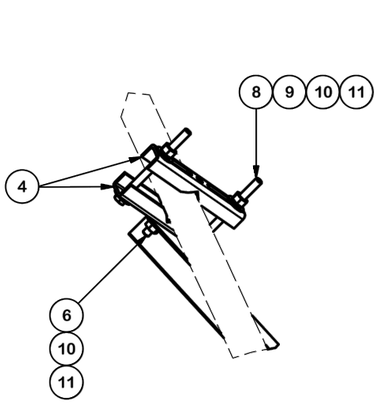
S-2



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	118.24
4	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
5	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
					TOTAL WT. #	642.04



DETAIL A



DETAIL B

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION
HANDRAIL REINFORCEMENT KIT (LONG)

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS-L

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 9/8/2017	PRK-SFS-L

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

PAGE 1 OF 3

1 DETAIL

SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
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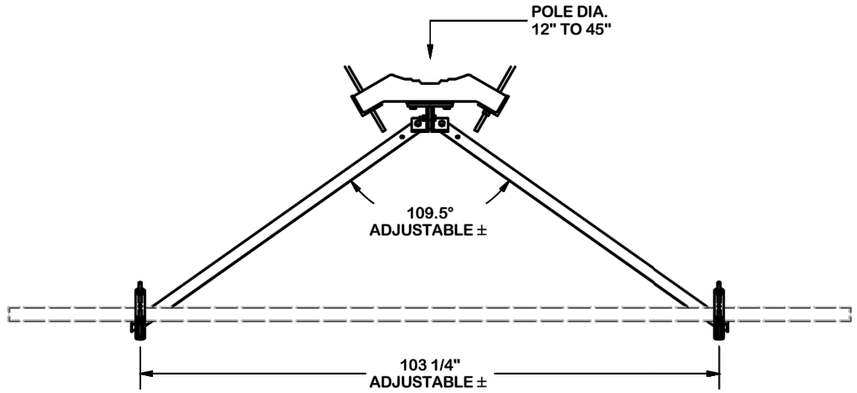
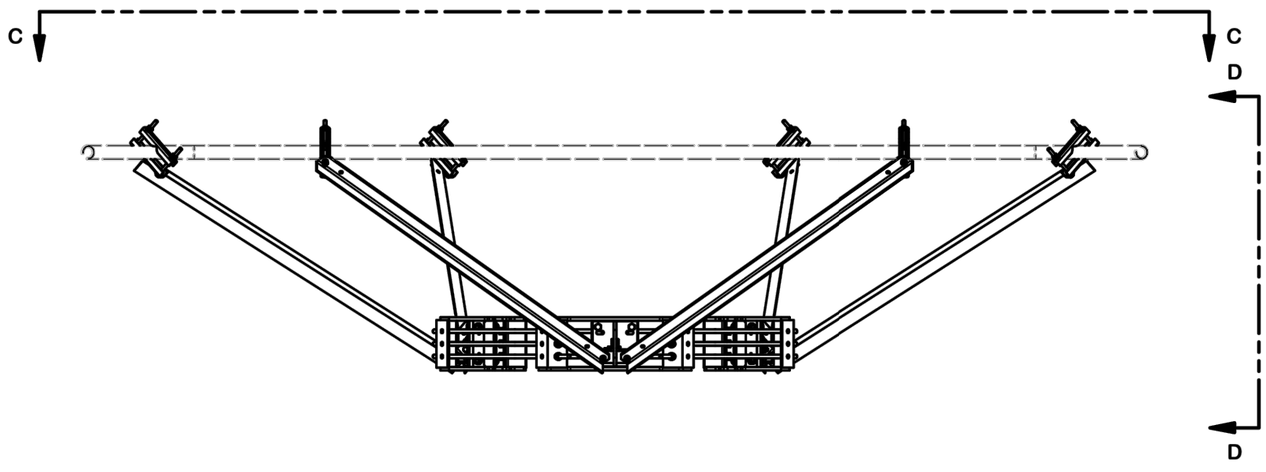
MOUNT DETAILS

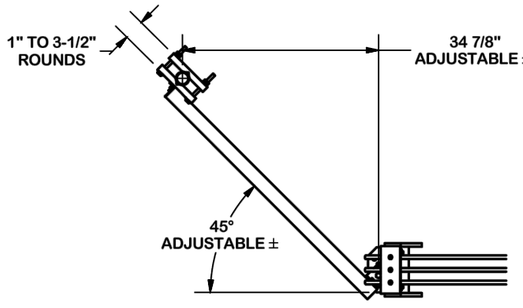
S-3



PARTIAL VIEW C-C

VERTICAL POSITION





PARTIAL VIEW D-D

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION
HANDRAIL REINFORCEMENT KIT (LONG)

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS-L	2 OF 3

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 9/8/2017	PRK-SFS-L

1 DETAIL — SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34855
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO: ERCC0004
DRAWN BY: AJM
CHECKED BY: CAT

SUBMITTALS

1	08/21/19	ISSUED FOR CONSTRUCTION
0	07/17/19	ISSUED FOR PERMITTING

SPRINT COLUMBIA RT 6
CT11503A
COLUMBIA / DEOJAY
876391
14 THOMPSON HILL ROAD
COLUMBIA, CT 06237

MOUNT DETAILS

S-4

67D92DB OUTDOOR - TOWER TOP EQUIPMENT SCHEDULE (RE: CT11503A_P_RFDS_L600)														
ANTENNA NUMBER (FROM L TO R)	ANTENNA MODEL	ANTENNA AZIMUTH	MECH. TILT	ELEC. TILT	ANTENNA CENTERLINE FROM GROUND	TMA/RRUS MODEL	TMA/RRUS QUANTITY	COAX/HYBRID CABLE			JUMPERS		
								SIZE/TYPE	QUANTITY	LENGTH	TYPE	QTY	LENGTH
A1	AIR21 KRC118023-1_B2A_B4P	60°	0°	2°	160'	TWIN STYLE 3CX-PCS/AWS3+600/700BP TMA	1	1-5/8" COAX 9x18 HCS	2 1	240' 240'	**FIBER**	**2**	**10'**
A2	**APXVAARR24_43-U-NA20**	**60°**	**0°**	**2°**	**160'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**240'**	**COAX** **FIBER**	**4** **1**	**10'** **10'**
A3	**AIR32 KRD901146-1_B66A_B2A**	**60°**	**0°**	**2°**	**160'**	-	-	-	-	-	**FIBER**	**2**	**10'**
B1	AIR21 KRC118023-1_B2A_B4P	180°	0°	2°	160'	TWIN STYLE 3CX-PCS/AWS3+600/700BP TMA	1	1-5/8" COAX	2	240'	**FIBER**	**2**	**10'**
B2	**APXVAARR24_43-U-NA20**	**180°**	**0°**	**2°**	**160'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**240'**	**COAX** **FIBER**	**4** **1**	**10'** **10'**
B3	**AIR32 KRD901146-1_B66A_B2A**	**180°**	**0°**	**2°**	**160'**	-	-	-	-	-	**FIBER**	**2**	**10'**
C1	AIR21 KRC118023-1_B2A_B4P	300°	0°	2°	160'	TWIN STYLE 3CX-PCS/AWS3+600/700BP TMA	1	1-5/8" COAX	2	240'	**FIBER**	**2**	**10'**
C2	**APXVAARR24_43-U-NA20**	**300°**	**0°**	**2°**	**160'**	**RADIO 4449 B71+B12**	**1**	**6x12 HCS**	**1**	**240'**	**COAX** **FIBER**	**4** **1**	**10'** **10'**
C3	**AIR32 KRD901146-1_B66A_B2A**	**300°**	**0°**	**2°**	**160'**	-	-	-	-	-	**FIBER**	**2**	**10'**

NOTES:

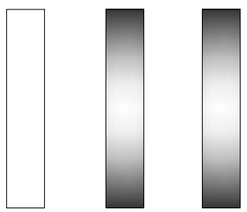
1. EQUIPMENT LISTED IN **BOLD**, DELINEATES THAT THE EQUIPMENT IS PROPOSED

1 EQUIPMENT INFORMATION CHART

SCALE: NONE

KEY
EXISTING
PROPOSED

KEY
ANTENNA POSITION AS VIEW FROM BEHIND



EQUIPMENT NOTES:

1. THE HYBRID CABLE LENGTH SHOW IS ONLY AN ESTIMATE AND SHOULD NOT BE USED FOR ORDERING MATERIALS. CONFIRM THE REQUIRED HYBRID CABLE LENGTH WITH T-MOBILE PRIOR TO ORDERING OR INSTALLATION.
2. THE CONTRACTOR SHALL TEST THE OPTICAL FIBER AFTER INSTALLATION IN ACCORDANCE WITH T-MOBILE STANDARDS AND SUPPLY THE RESULTS TO T-MOBILE.
3. THE CONTRACTOR SHALL CONFIRM THE TOWER TOP EQUIPMENT LIST ABOVE WITH THE FINAL T-MOBILE RFDS PRIOR TO INSTALLATION.
4. ALL EXISTING AND PROPOSED ANTENNA CABLES SHALL BE COLOR CODED PER T-MOBILE STANDARDS.
5. REFER TO EQUIPMENT INSTALLATION STANDARDS FOR ADDITIONAL INFORMATION.
6. REFER TO EQUIPMENT MANUFACTURER'S SPECIFICATION SHEETS FOR ADDITIONAL INFORMATION NOT LISTED ABOVE.

2 ANTENNA KEY

SCALE: NONE

67D92DB OUTDOOR - TOWER LOADING SUMMARY				
EQUIPMENT TYPE	EXISTING QUANTITY	QUANTITY REMOVED	QUANTITY ADDED	TOTAL QUANTITY
PANEL ANTENNA	6	3	6	9
COAX CABLE	6	0	0	6
HYBRID CABLE	1	0	3	4
FIBER JUMPER	0	0	15	15
COAX JUMPER	6	6	12	12
TMA	3	0	0	3
RADIO	3	3	3	3

3 ANTENNA & CABLE SCHEDULE

SCALE: NONE

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

PROJECT NO: ERCC0004

DRAWN BY: AJM

CHECKED BY: CAT

SUBMITTALS

1	08/21/19	ISSUED FOR CONSTRUCTION
0	07/17/19	ISSUED FOR PERMITTING

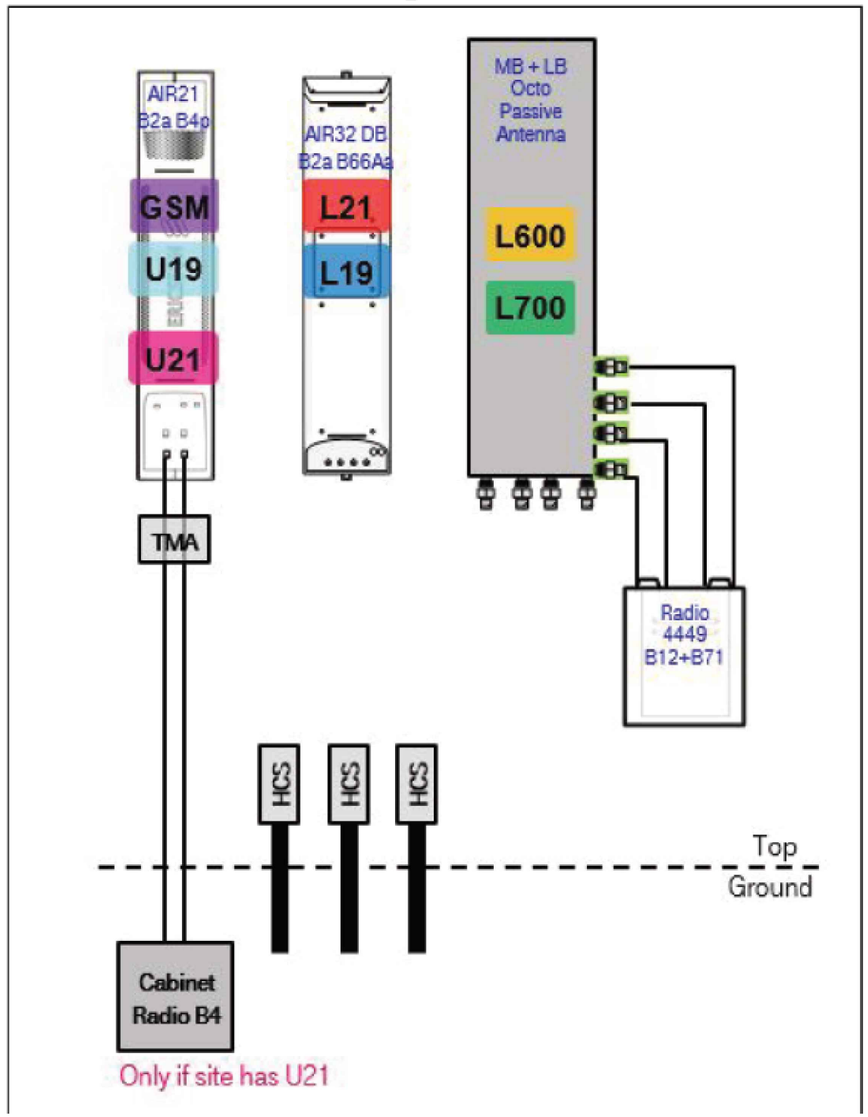
SPRINT COLUMBIA RT 6
CT11503A
COLUMBIA / DEOJAY
876391
14 THOMPSON HILL ROAD
COLUMBIA, CT 06237

ANTENNA INFORMATION CHART

RF-1

SITE CONFIGURATION: 67D92DB OUTDOOR

67D92DB_2xAIR+1OP.JPG



1 RF EQUIPMENT SCHEMATIC

SCALE: NONE

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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3 CORPORATE PARK DRIVE
SUITE 101
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BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	AJM
CHECKED BY:	CAT

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RF EQUIPMENT SCHEMATIC

RF-2

ONE LINE DIAGRAM NOTES:

1. ELECTRICAL SERVICE SHALL BE 200A, 240/120V, 1Ø, 3W

2. FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT, REFER TO VENDOR PRINTS PROVIDED BY EQUIPMENT MANUFACTURER.

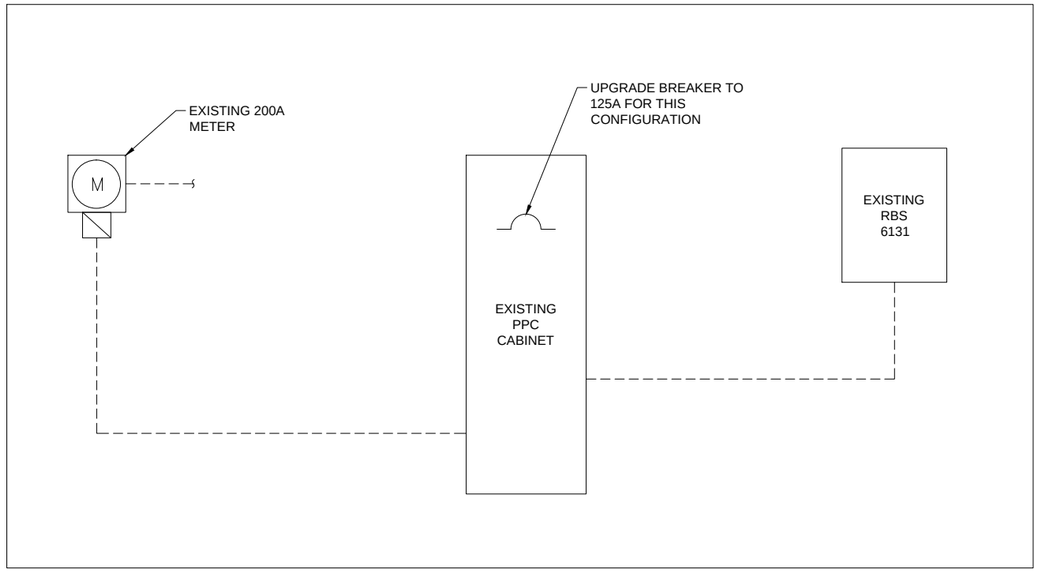
NOTES:

1. CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND ENSURE ALL ELECTRICAL EQUIPMENT IS SUITABLE FOR AVAILABLE FAULT CURRENT.

2. CONTRACTOR SHALL COORDINATE UTILITY SERVICES WITH LOCAL UTILITY COMPANIES. VERIFY ALL REQUIREMENTS WITH UTILITY COMPANY STANDARDS.

3. ONE-LINE DIAGRAM IS SCHEMATIC ONLY AND NOT INDICATIVE OF ACTUAL EQUIPMENT LAYOUT.

4. CONTRACTOR SHALL LABEL METER SOCKET WITH SERVICE OWNER NAMEPLATE W/ 1/2" MINIMUM LETTERS.



1 ONE LINE DIAGRAM

SCALE: NONE

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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

JACOBS
JACOBS ENGINEERING GROUP, INC.
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	AJM
CHECKED BY:	CAT

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876391
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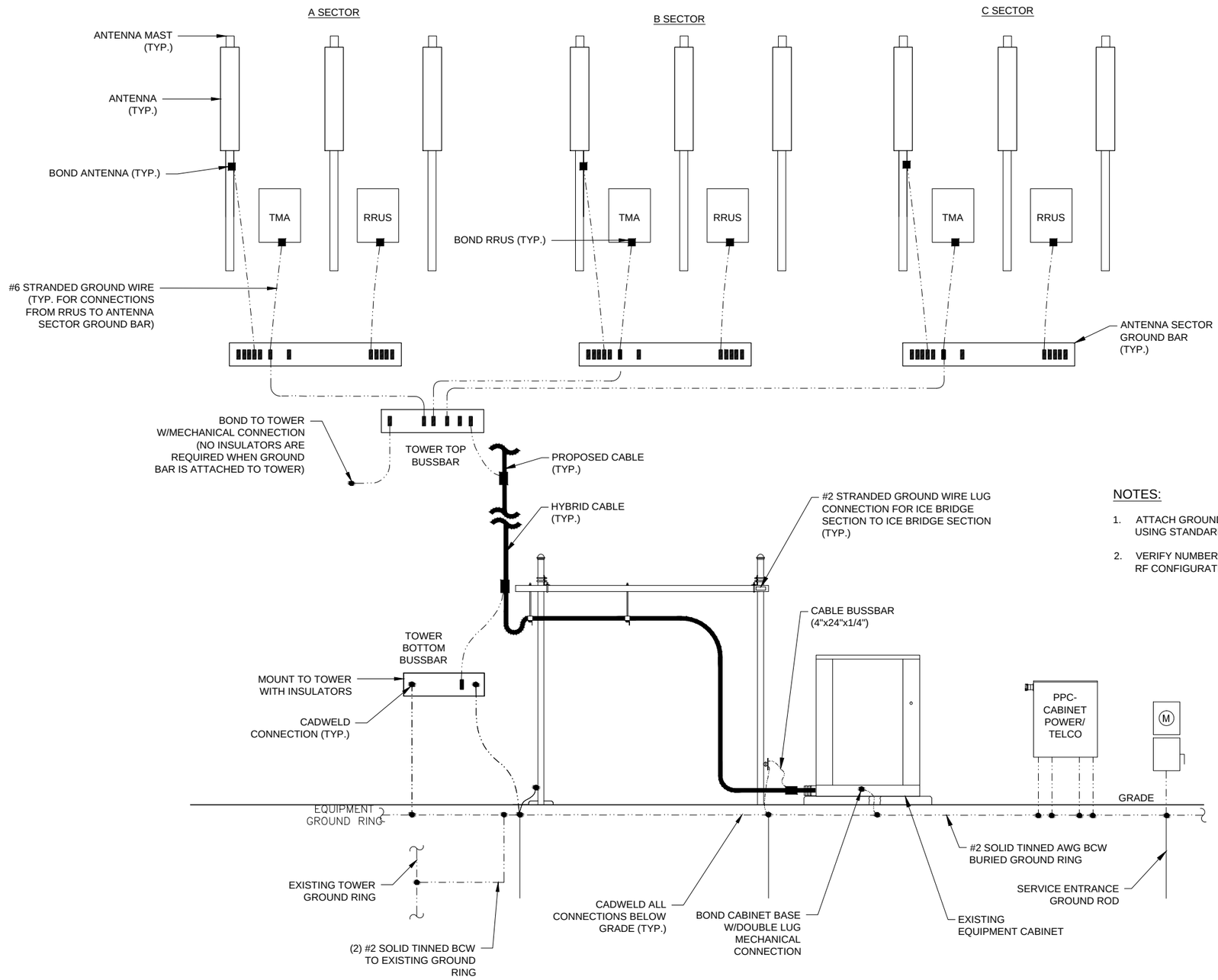
COLUMBIA, CT 06237

ONE LINE
DIAGRAM

E-1



NOTES:

1. ATTACH GROUND BAR DIRECTLY TO THE TOWER USING STANDARD ADAPTER.
2. VERIFY NUMBER OF CABLES/TMAS PER T-MOBILE RF CONFIGURATION.

GROUNDING NOTES:

1. BELOW GROUND ALL GROUNDING CONDUCTORS TO BE #2 AWG SOLID TINNED BARE COPPER WIRE (BCW) U.O.N.
2. ABOVE GROUND ALL GROUNDING CONDUCTORS TO BE #2 AWG STRANDED INSULATED COPPER WIRE U.O.N.
3. PROVIDE BONDING AND GROUNDING CONDUCTORS WITH GREEN TYPE THWN INSULATION, U.O.N.
4. LEAVE 4' EXCESS GROUND WIRE COILED UP ABOVE GRADE. SEAL/WEATHERPROOF CONDUIT.

1 GROUNDING RISER DIAGRAM

SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
103 MONARCH DRIVE
LIVERPOOL, NY 13088

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3 CORPORATE PARK DRIVE
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BOSTON, MA 02116

STATE OF CONNECTICUT
DANIEL J. CORNING
34055
LICENSED PROFESSIONAL ENGINEER

PROJECT NO:	ERCC0004
DRAWN BY:	AJM
CHECKED BY:	CAT

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COLUMBIA / DEOJAY
876391
14 THOMPSON HILL ROAD
COLUMBIA, CT 06237

GROUNDING RISER DIAGRAM

G-1

PAUL J. FORD & COMPANY

Date: June 19, 2019

Kevin Morrow
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

Paul J Ford and Company
250 E. Broad Street, Suite 600
Columbus, OH 43215
614.221.6679

Subject:	**Mount Modification Report**	
Carrier Designation:	***T-Mobile* Equipment Change-out**	
	Carrier Site Number:	CT11503A
	Carrier Site Name:	Sprint Columbia Rt 6
Crown Castle Designation:	**Crown Castle BU Number:**	876391
	Crown Castle Site Name:	Columbia / Deojay
	Crown Castle JDE Job Number:	559338
	Crown Castle Purchase Order Number:	1395161
	Crown Castle Order Number:	479837 Rev. 1
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	A37519-1593.003.7191
Site Data:	**14 Thompson Hill Rd, Columbia, Tolland County, CT** **Latitude 41.717622°, Longitude -72.299747°**	
Structure Information:	**Tower Height & Type:**	**180 Foot Monopole**
	Mount Elevation:	**161 Foot**
	Mount Type:	**(1) 12.5 Foot Platform**

Dear Kevin Morrow,

Paul J Ford and Company is pleased to submit this "Mount Modification Report" to determine the structural integrity of the T-Mobile antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point is not part of this document.

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

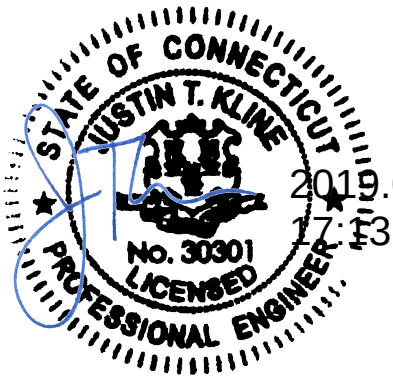
12.5' Platform	**54.9%**	**SUFFICIENT***

***The mount has sufficient capacity once the modifications, as described in Section 4.1 Recommendations of this report, are completed.**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount Modifcation prepared by: Sean Connaughton

Respectfully submitted by:



2019.06.19
17:13:47-04'00'

Steven Pozz, E.I.
Structural Designer
spozz@pauljford.com

TABLE OF CONTENTS

1) INTRODUCTION

The existing mount under consideration is (1) 12.5' Platform mount mapped by RKS on 04/01/2019.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	130 mph
Exposure Category:	C
Topographic Factor at Base:	1.000
Topographic Factor at Mount:	1.000
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
161	162	3	Ericsson	KRY 112 144/2	(1) 12.5' Platform
	161	3	Ericsson	AIR 32 B2A B66AA	
		3	Ericsson	ERICSSON AIR 21 B2A B4P	
		3	RFS/Celwave	APXVAARR24_43-U-NA20	
		3	Ericsson	RADIO 4449 B12/B71	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Mount Mapping	876391 Dated: 04/22/2019	8352757	CCISites
Order	ID: 479837 Rev. 1 Dated: 04/15/2019	-	CCISites

3.1) Analysis Method

RISA-3D (version 17.0.2), 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.

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

3.2) Assumptions

1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
5) *Steel grades are as follows, unless noted otherwise:*
   - *a) Channel, Solid Round, Angle, Plate, Unistrut* — *ASTM A36 (GR 36)*
   - *b) Pipe* — *ASTM A53 (GR 35)*
   - *c) HSS (Rectangular)* — *ASTM 500 (GR B-46)*
   - *d) HSS (Round)* — *ASTM 500 (GR B-42)*
   - *e) Threaded Rods* — *ASTM F1554 (GR 36)*
   - *f) Connection Bolts* — *ASTM A325*
   - *g) U-Bolts* — *SAE J429 (GR 2)*
6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
7) *Existing mount pipes will be replaced with 8-ft tall x P2.5 STD (2.88" O.D. x 0.189") pipes to accommodate the proposed antennas where required*

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J Ford and Company should be notified to determine the effect on the structural integrity of the mount.

4) ANALYSIS RESULTS

Table 3- Mount Component Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Face Horizontals	161	29.3	Pass
1	Bracing Members		31.1	Pass
1	Grating Support Members		26.0	Pass
1	Standoff Members		18.9	Pass
1	Ring Plate		Sufficient	
1	Corner Plates		46.0	Pass
1	Mount Pipes		54.9	Pass
1	Mount to Tower Connection		21.7	Pass

Mount Rating (max from all components) =	**54.9%**

Notes:
1) See additional documentation in "Appendix C – Software Analysis Output" for calculations supporting the % capacity consumed.

4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the structural modifications listed below must be completed.

- Install SitePro1 PRK-SFS-L Platform Reinforcement Kit or EOR approved equivalent as indicated in "Appendix D – Supplemental Modification Information" and in conformance with the attached manufacturer drawings.
- Install RFS/Celwave APXVAARR24_43-U-NA20 antennas on 8-ft long, P2.5 STD (2.88" O.D. x 0.189) mount pipes. See Appendix D details.

Connection from the mount to the tower and local stresses on the tower are sufficient.

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING MOUNTS BY PAUL J. FORD AND COMPANY

1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.

2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.

3) The mount has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.

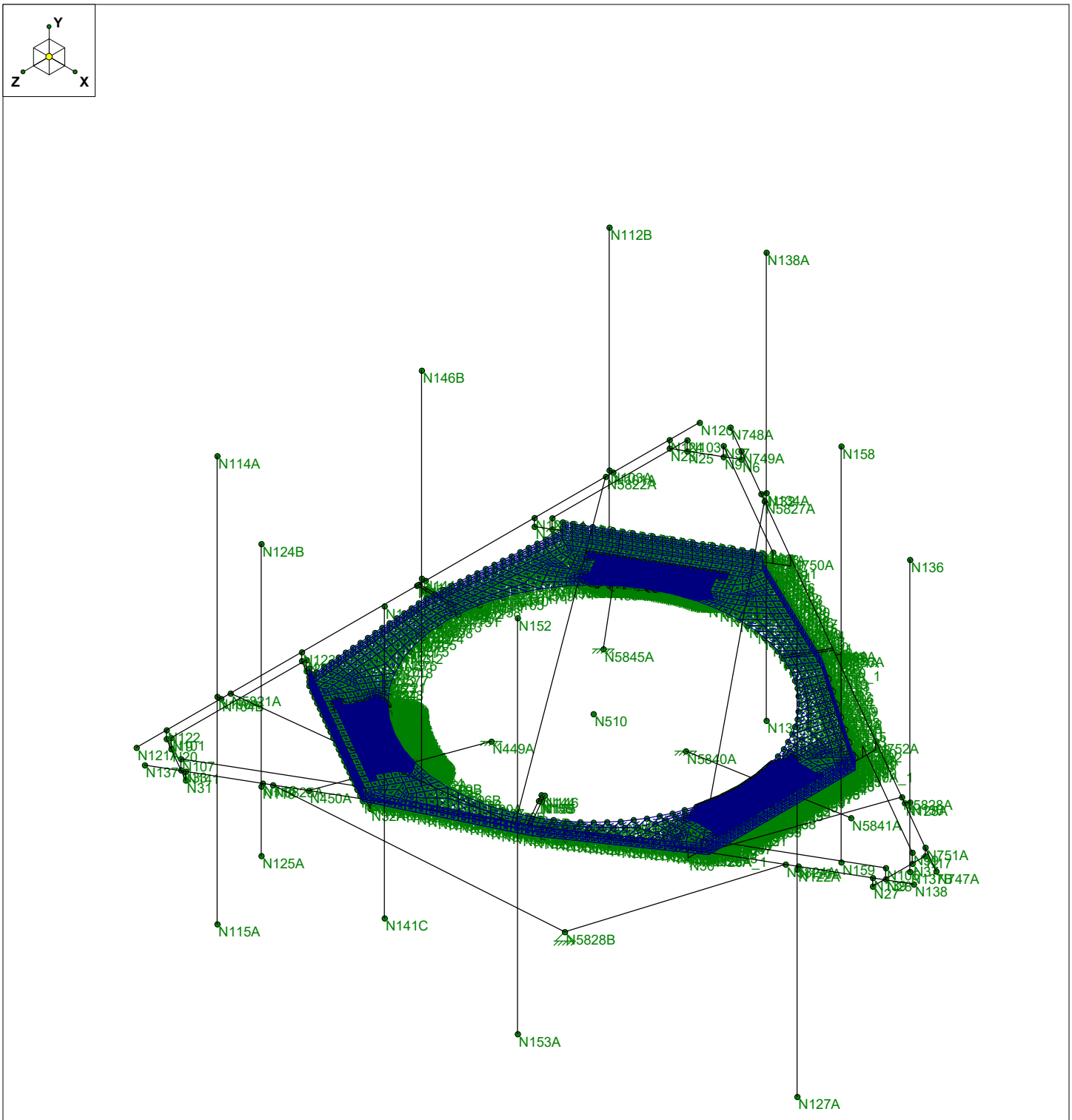
4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.

5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

****

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 1
SPC		June 18, 2019 at 10:55 AM
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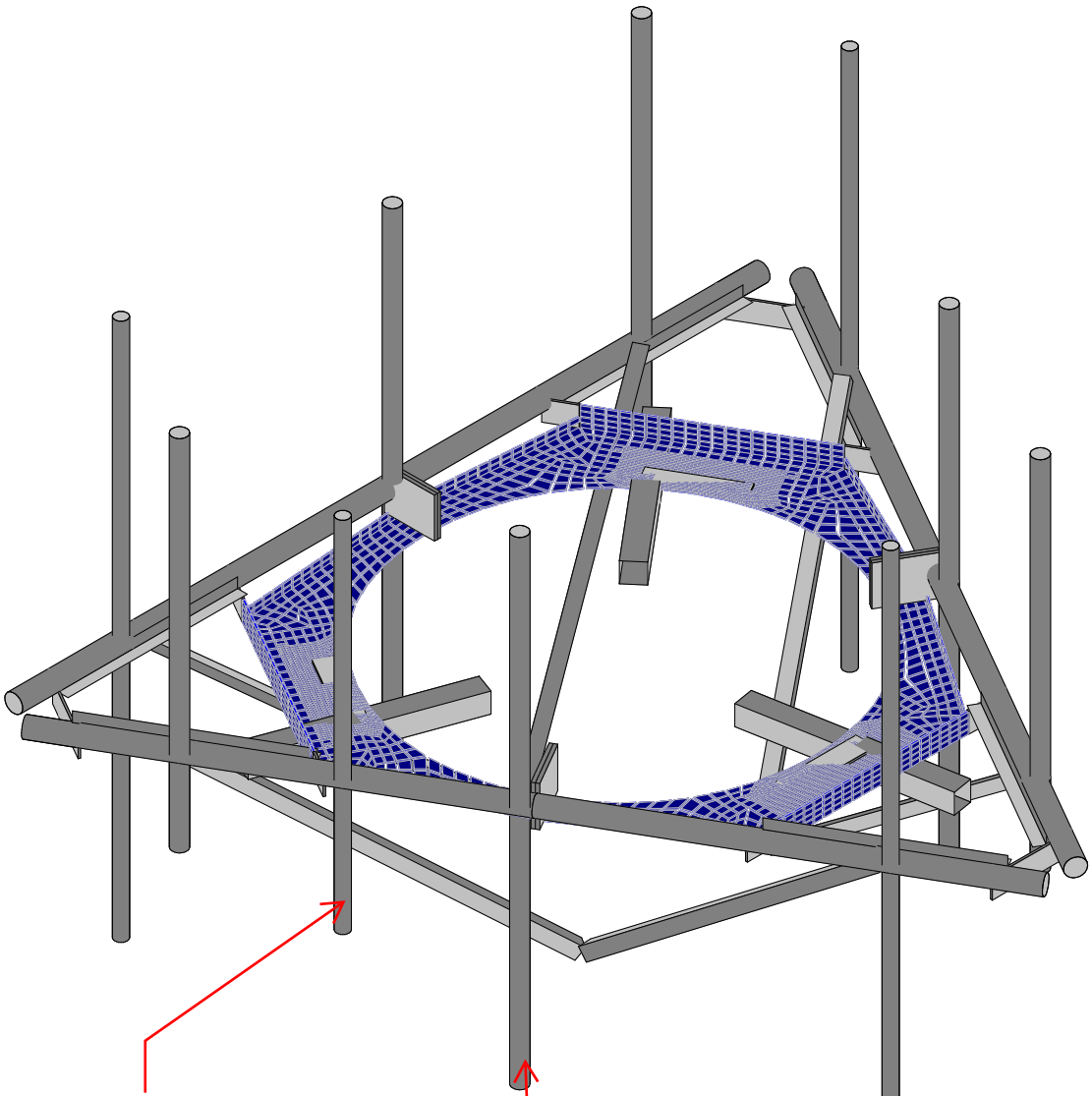


Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 2
SPC		June 18, 2019 at 11:10 AM
37519-1593.003.7191		37519-1593.003.7191_WindLoad.r...

APPENDIX B

SOFTWARE INPUT CALCULATION

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Project # 37519-1593.003.7191
By SPC

Analysis 30 degrees

Date: 06/18/19

v1.2, Effective 4/18/19

Mount Loading per TIA-222-H

Structure Information

Mount Type =	3 Sectors	
Mount Elev, z =	161	ft
Ground Elev, z_s =	560.51	ft
Wind Speed =	130	mph
Ice Wind Speed =	50	mph
Ice Thickness =	1.5	in
Exposure Cat =	C	
Structure Class =	II	
Topographic Cat =	1	
Crest Height =	0	ft

Velocity Pressure Coefficients

z_g =	900	ft	
a =	9.50		
K_{zmin} =	0.85		
K_z =	1.40		Calculated Value
Ke =	0.98		Ground Elevation Factor
K_z =	1.40		Velocity Press Coef (Section 2.6.5.2)
K_{zt} =	1.00		Topographic Factor (Section 2.6.6.4)
Gh =	1.00		Gust Effect Factor (Section 2.6.7)
K_d =	0.95		Wind Dir Probability Factor (Table 2-2)
K_a =	0.90		Shielding factor (Section 16.6)
q_z=	50.71	psf	Velocity Pressure (Section 2.6.9.6)

Ice Loading

Ii =	1.00		Ice Importance Factor (Table 2-3)
Iwi =	1.00		Wind Ice Importance Factor (Table 2-3)
q_z=	8.51	psf	Ice Velocity Pressure (Section 2.6.9.6)
K_{iz} =	1.17		Ice Escalation Factor (Section 2.6.8)
T_{iz} =	1.76	in	Factored Ice Thickness (Section 2.6.8)
h =	1.00	in	Bar Grating Height
W_i =	12.87	psf	Grating Ice Weight

Wind Pressures

Pressure =	50.714	psf
Ice Pressure =	8.506	psf

Antenna Attachment Labels & Elevations (inches with Respect to Bottom of Member)

Face	Label	Top Elev (in)	Bot Elev (in)	Length, in	Face	Label	Top Elev (in)	Bot Elev (in)	Length, in	Face	Label	Top Elev (in)	Bot Elev (in)	Length, in	Face	Label	Top Elev (in)	Bot Elev (in)
A	A1	75.0	30	108.0	B	B1	75.0	30	108.0	C	C1	75.0	30	108.0	D			
A	A2	90.0	6	96.0	B	B2	90.0	6	96.0	C	C2	90.0	6	96.0	D			
A	A3	54.0	6	72.0	B	B3	54.0	6	72.0	C	C3	54.0	6	72.0	D			
A (2)	A1	74.0	74	108.0	B (2)	B1	74.0	74	108.0	C (2)	C1	74.0	74	108.0	D			
A (2)	A3	36	36	72.0	B (2)	B3	36	36	72.0	C (2)	C3	36	36	72.0	D			
A					B					C					D			
A					B					C					D			
A					B					C					D			
A					B					C					D			
A					B					C					D			

Antennas

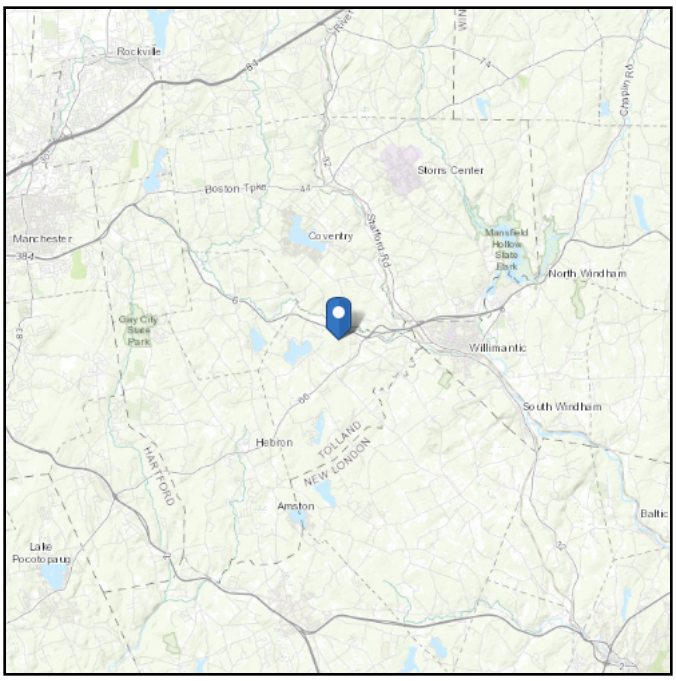
Item	Manufacturer	Antenna	Height (in)	Width (in)	Depth (in)	Flat or Round	Weight (lbs)	Antenna Attachment Locations					
								Label	Label	Label	Label	Label	Label
1	ERICSSON	AIR 32 B2A B66AA	59.25	12.87	8.66	Flat	143	A3	B3	C3			
2	ERICSSON	ERICSSON AIR 21 B2A B4P	56	12.1	7.87	Flat	91.5	A1	B1	C1			
3	RFS CELWAVE	APXVAARR24_43-U-NA20	95.9	24	8.7	Flat	128	A2	B2	C2			
4	ERICSSON	KRY 112 144/2	8.65	6.65	3.19	Flat	9.7	A1(2)	B1(2)	C1(2)			
5	ERICSSON	RADIO 4449 B12/B71	15	13.2	9.3	Flat	74	A3(2)	B3(2)	C3(2)			
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 560.51 ft (NAVD 88)
Latitude: 41.717622
Longitude: -72.299747



Wind

Results:

Wind Speed:	127 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	104 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Tue Apr 30 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

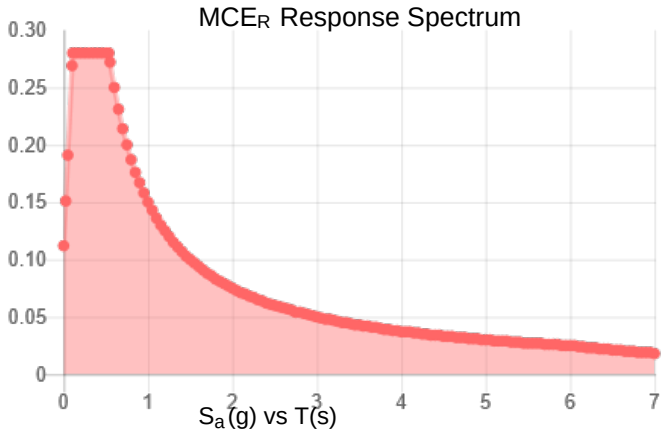
Seismic

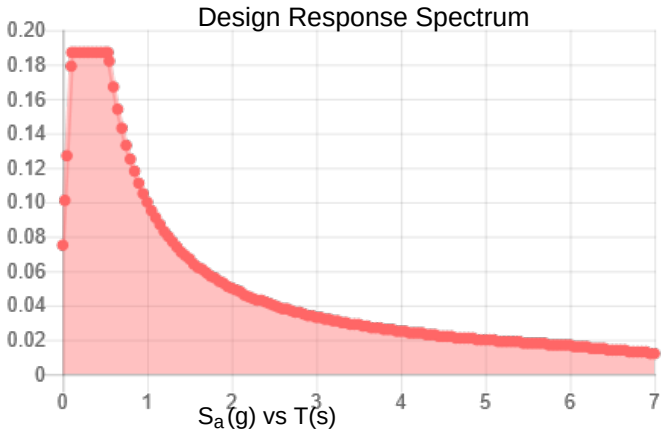
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.175	S_{DS} :	0.187
S_1 :	0.062	S_{D1} :	0.1
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.088
S_{MS} :	0.28	PGA_M :	0.14
S_{M1} :	0.15	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Apr 30 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

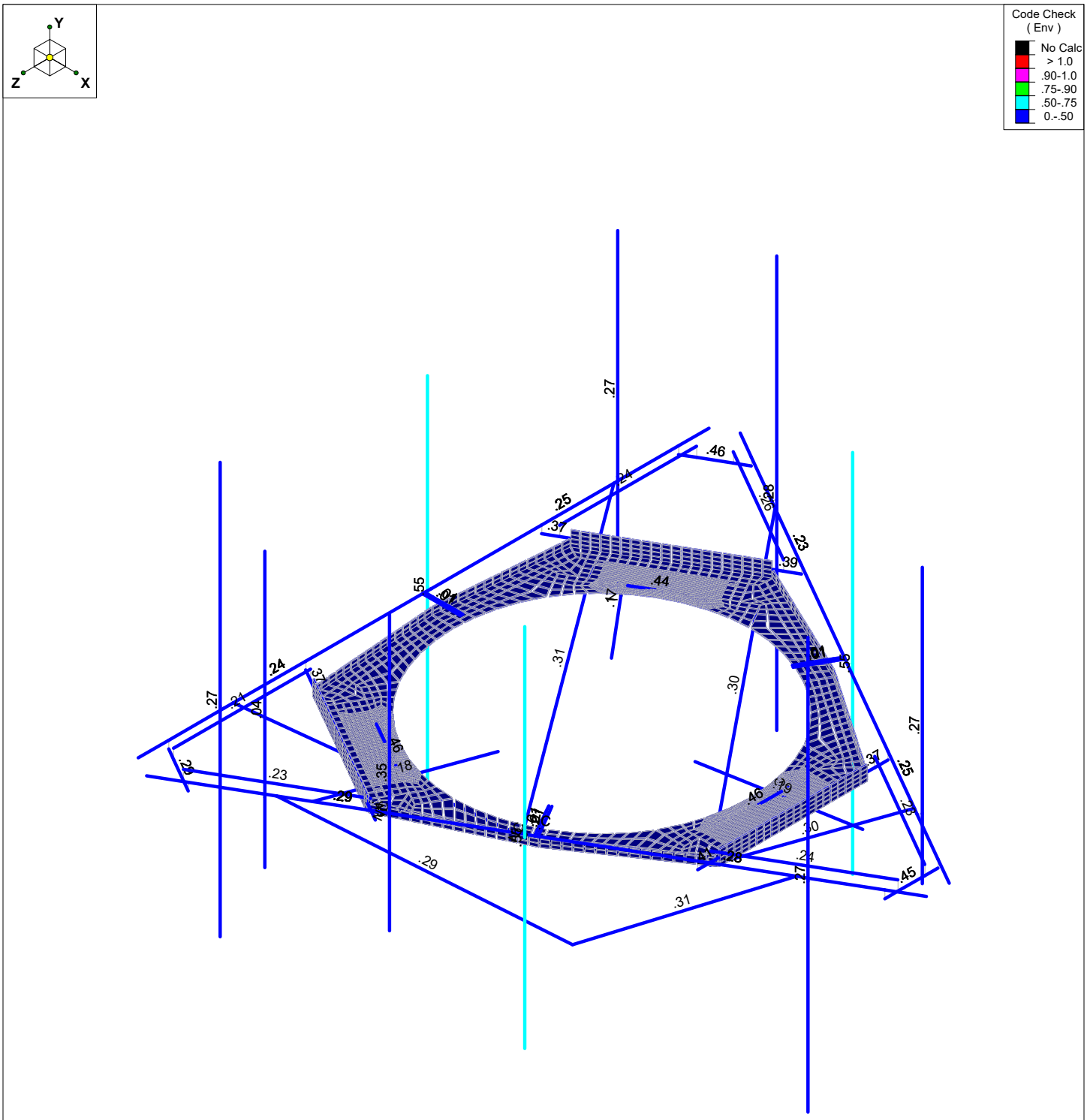
Ice Thickness:	0.75 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Apr 30 2019

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

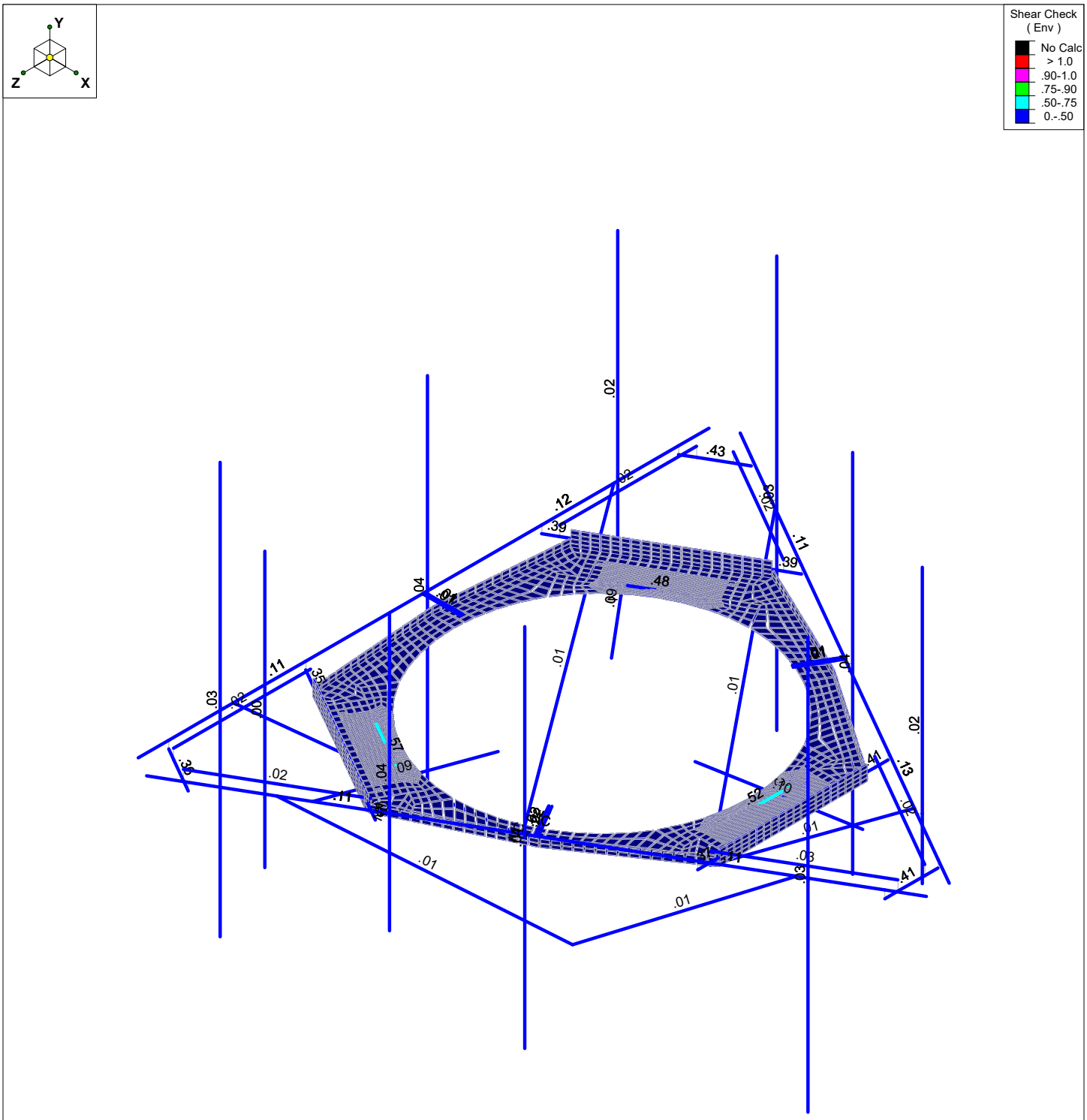
APPENDIX C

SOFTWARE ANALYSIS OUTPUT



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 3
SPC		June 18, 2019 at 11:18 AM
37519-1593.003.7191		37519-1593.003.7191_WindLoad.r...



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 4
SPC		June 18, 2019 at 11:19 AM
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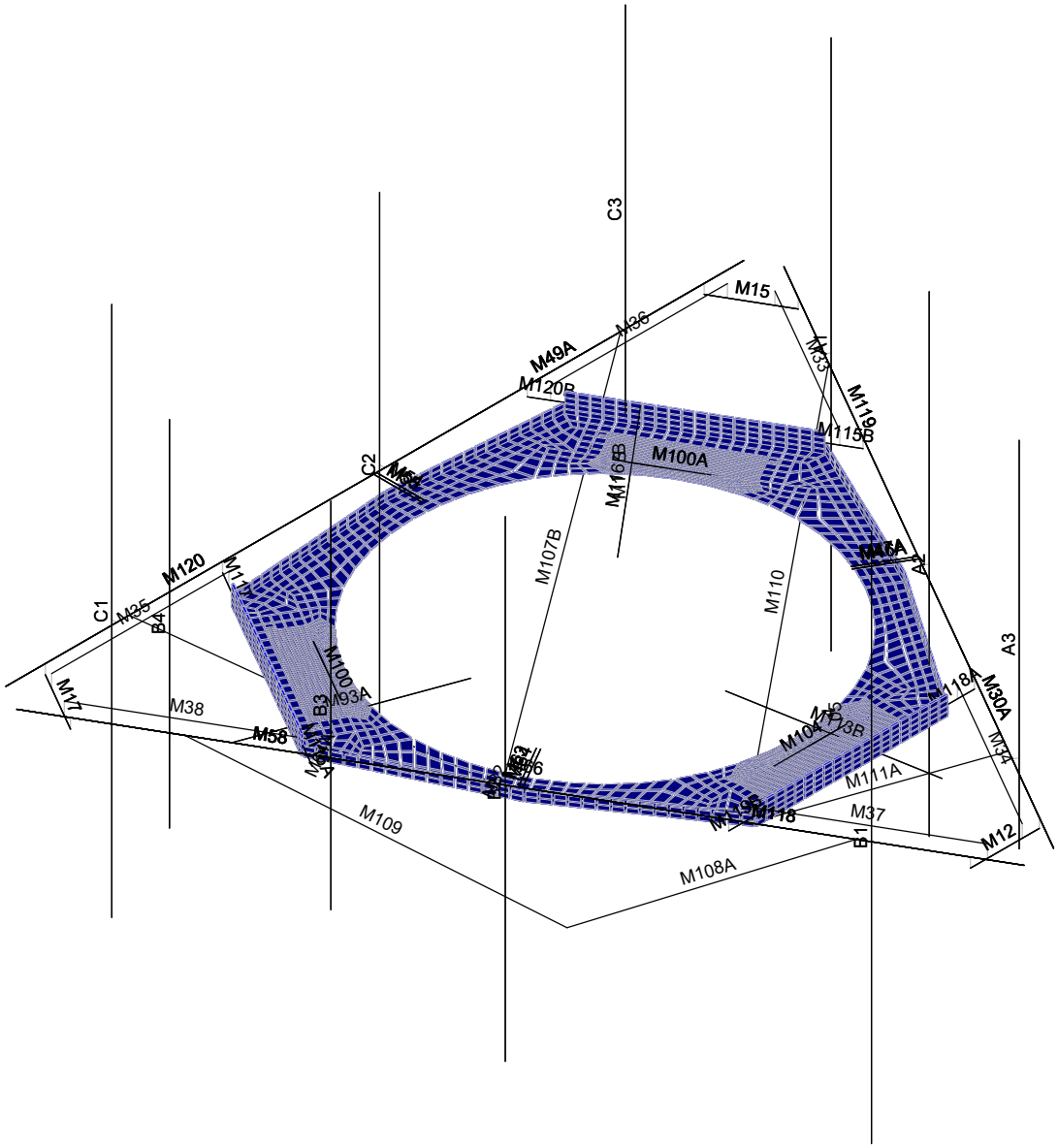

Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 5
SPC		June 18, 2019 at 11:20 AM
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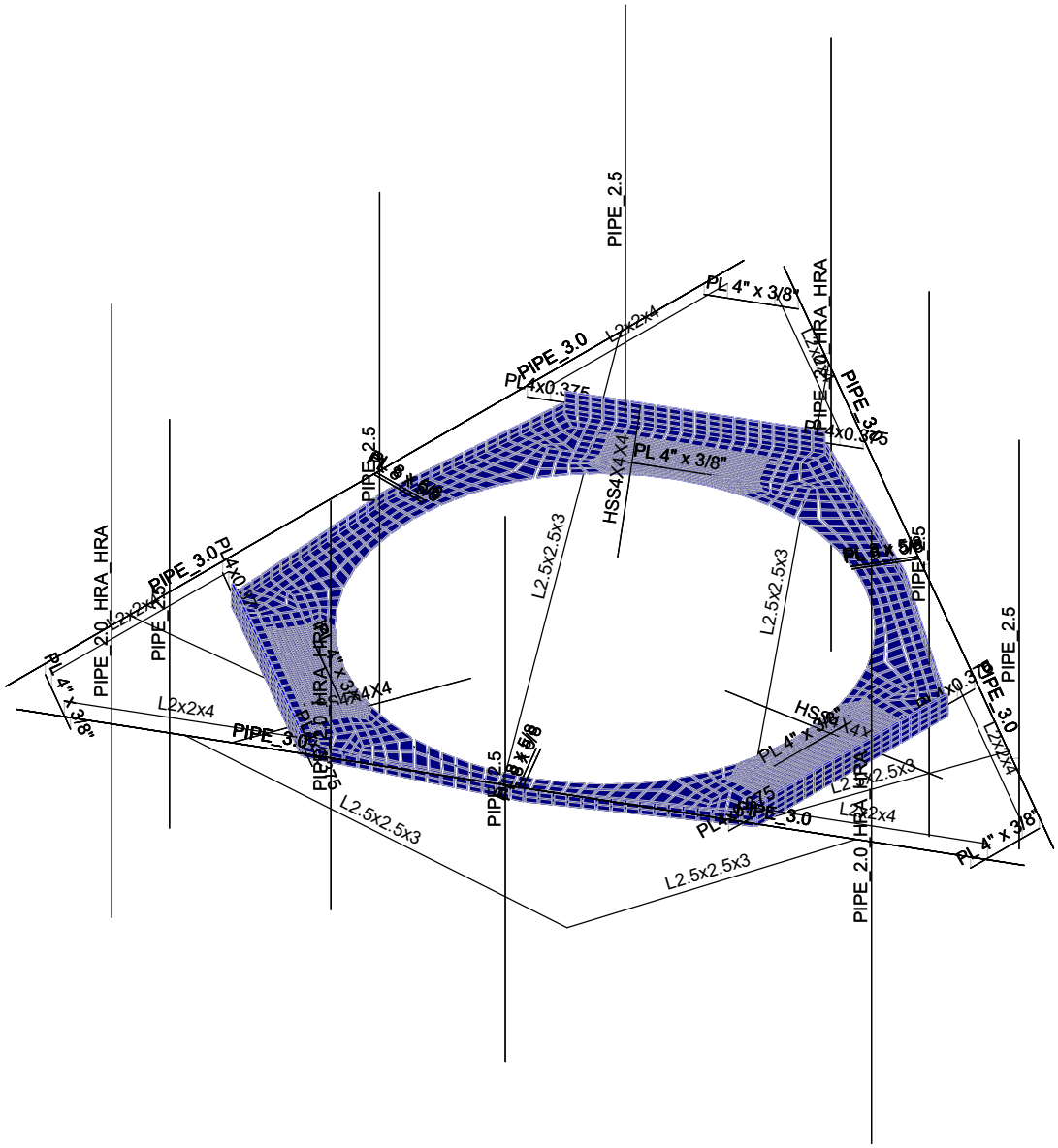

Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 6
SPC		June 18, 2019 at 11:21 AM
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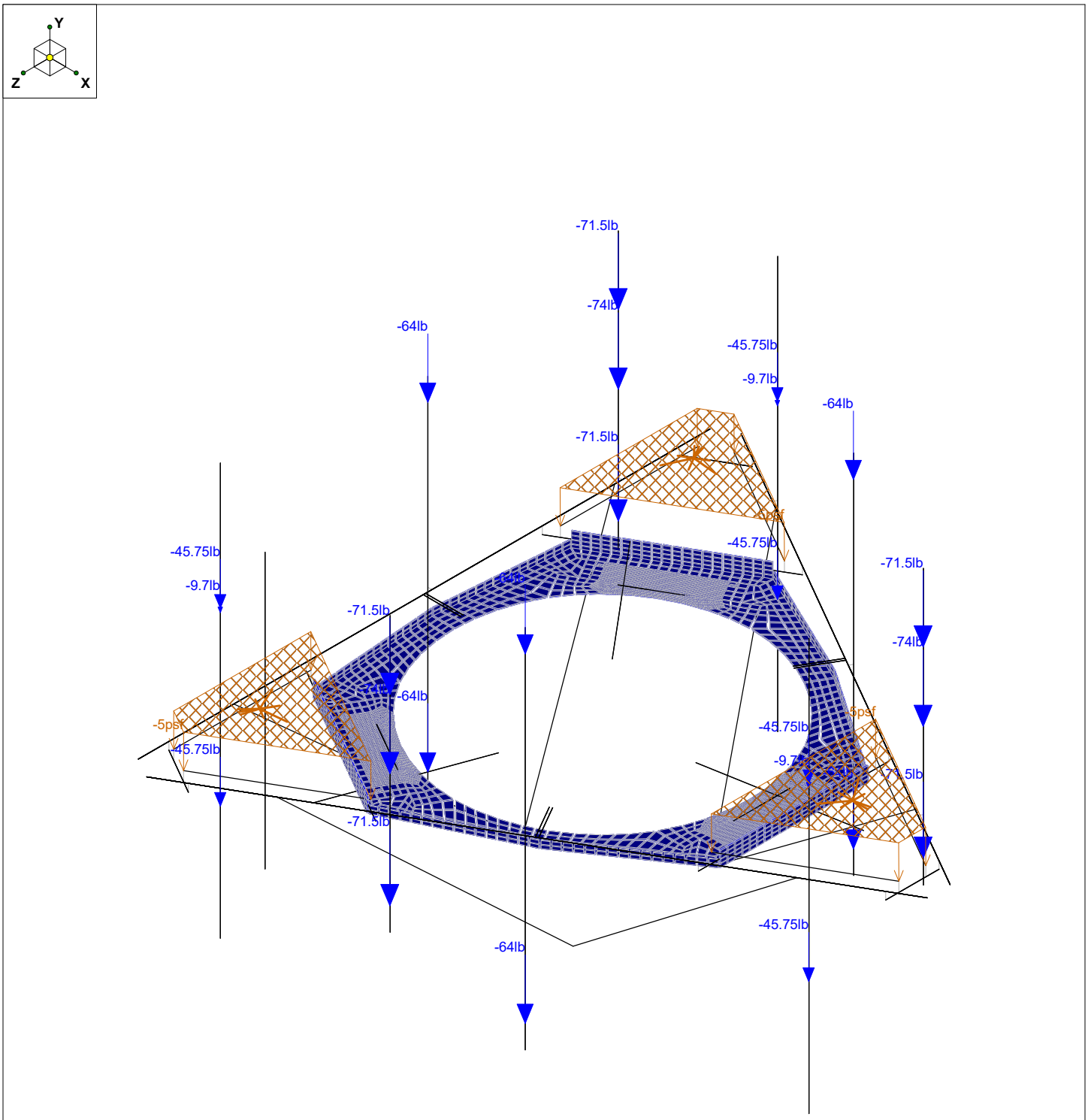

Loads: BLC 1, Dead
Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 7
SPC		June 18, 2019 at 11:22 AM
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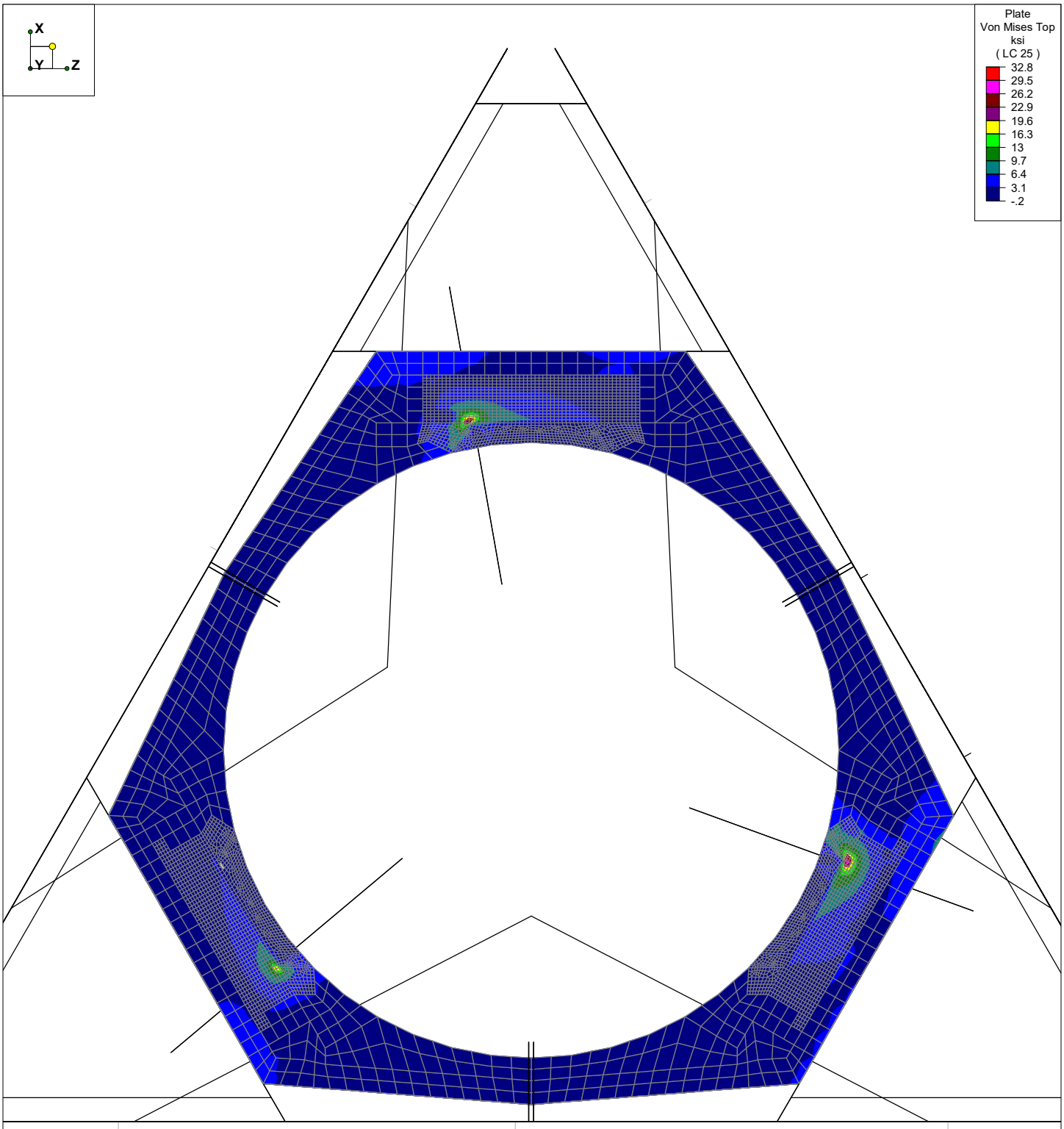


Results for LC 25, 1.2 D + 1.0 Di + 1.0 Wi @ 300

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 8
SPC		June 18, 2019 at 11:24 AM
37519-1593.003.7191		37519-1593.003.7191_WindLoad.r...

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E..Density[k/ft...		Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B 42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B 46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M12	N17	N27			PL 4" x 3/8"	None	None	A36 Gr.36	Typical
2	M15	N6	N23			PL 4" x 3/8"	None	None	A36 Gr.36	Typical
3	M17	N31	N19			PL 4" x 3/8"	None	None	A36 Gr.36	Typical
4	M30A	N747A	N488A			PIPE_3.0	None	None	A53 Gr.B	Typical
5	M28B	N17	N751A			RIGID	None	None	RIGID	Typical
6	M29A	N32	N752A			RIGID	None	None	RIGID	Typical
7	M30B	N11	N750A			RIGID	None	None	RIGID	Typical
8	M31A	N6	N749A			RIGID	None	None	RIGID	Typical
9	M33	N98	N97		270	L2x2x4	None	None	A36 Gr.36	Typical
10	M34	N99	N100		270	L2x2x4	None	None	A36 Gr.36	Typical
11	M35	N102	N101		270	L2x2x4	None	None	A36 Gr.36	Typical
12	M36	N103	N104		270	L2x2x4	None	None	A36 Gr.36	Typical
13	M37	N106	N105		270	L2x2x4	None	None	A36 Gr.36	Typical
14	M38	N107	N108		270	L2x2x4	None	None	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
15	M39	N37	N99			RIGID	None	None	RIGID	Typical
16	M40	N38	N100			RIGID	None	None	RIGID	Typical
17	M41	N28	N105			RIGID	None	None	RIGID	Typical
18	M42	N29	N106			RIGID	None	None	RIGID	Typical
19	M43	N34	N108			RIGID	None	None	RIGID	Typical
20	M44	N33	N107			RIGID	None	None	RIGID	Typical
21	M45	N20	N101			RIGID	None	None	RIGID	Typical
22	M46	N21	N102			RIGID	None	None	RIGID	Typical
23	M47	N26	N104			RIGID	None	None	RIGID	Typical
24	M48	N25	N103			RIGID	None	None	RIGID	Typical
25	M49	N9	N97			RIGID	None	None	RIGID	Typical
26	M50	N10	N98			RIGID	None	None	RIGID	Typical
27	M46A	N109	N110			PL 8 x 5/8	None	None	A36 Gr.36	Typical
28	M47A	N111	N112			PL 8 x 5/8	None	None	A36 Gr.36	Typical
29	M49A	N120	N489A			PIPE_3.0	None	None	A53 Gr.B	Typical
30	M50A	N23	N124			RIGID	None	None	RIGID	Typical
31	M51	N24	N125			RIGID	None	None	RIGID	Typical
32	M52	N22	N123			RIGID	None	None	RIGID	Typical
33	M53	N19	N122			RIGID	None	None	RIGID	Typical
34	M54	N126	N127			PL 8 x 5/8	None	None	A36 Gr.36	Typical
35	M55	N128	N129			PL 8 x 5/8	None	None	A36 Gr.36	Typical
36	M58	N137	N487A			PIPE_3.0	None	None	A53 Gr.B	Typical
37	M59	N31	N141			RIGID	None	None	RIGID	Typical
38	M60	N32A	N142			RIGID	None	None	RIGID	Typical
39	M61	N30	N140			RIGID	None	None	RIGID	Typical
40	M62	N27	N139			RIGID	None	None	RIGID	Typical
41	M63	N143	N144			PL 8 x 5/8	None	None	A36 Gr.36	Typical
42	M64	N145	N146			PL 8 x 5/8	None	None	A36 Gr.36	Typical
43	M58A	N138B	N137A			RIGID	None	None	RIGID	Typical
44	M59A	N141A	N140A			RIGID	None	None	RIGID	Typical
45	M62A	N146A	N145A			RIGID	None	None	RIGID	Typical
46	M63A	N148	N147			RIGID	None	None	RIGID	Typical
47	M66	N154	N153			RIGID	None	None	RIGID	Typical
48	M67A	N156	N155			RIGID	None	None	RIGID	Typical
49	M118	N487A	N138			PIPE_3.0	None	None	A53 Gr.B	Typical
50	M119	N488A	N748A			PIPE_3.0	None	None	A53 Gr.B	Typical
51	M120	N489A	N121A			PIPE_3.0	None	None	A53 Gr.B	Typical
52	M58B	N103A	N101A			RIGID	None	None	RIGID	Typical
53	M60A	N106A	N104B			RIGID	None	None	RIGID	Typical
54	M64A	N114	N112A			RIGID	None	None	RIGID	Typical
55	C3	N113A	N112B			PIPE_2.5	None	None	A53 Gr.B	Typical
56	C1	N115A	N114A			PIPE_2.0_HR...	None	None	A53 Gr.B	Typical
57	M66A	N118	N116			RIGID	None	None	RIGID	Typical
58	M68	N122A	N120A			RIGID	None	None	RIGID	Typical
59	B4	N125A	N124B			PIPE_2.5	None	None	A53 Gr.B	Typical
60	B1	N127A	N126A			PIPE_2.0_HR...	None	None	A53 Gr.B	Typical
61	M72	N130	N128A			RIGID	None	None	RIGID	Typical
62	M74	N134A	N132			RIGID	None	None	RIGID	Typical
63	A3	N137B	N136			PIPE_2.5	None	None	A53 Gr.B	Typical
64	A1	N139A	N138A			PIPE_2.0_HR...	None	None	A53 Gr.B	Typical
65	B3	N141C	N140B			PIPE_2.0_HR...	None	None	A53 Gr.B	Typical
66	M79	N144A	N142A			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
67	C2	N147A	N146B			PIPE 2.5	None	None	A53 Gr.B	Typical
68	M82	N150	N148A			RIGID	None	None	RIGID	Typical
69	B2	N153A	N152			PIPE 2.5	None	None	A53 Gr.B	Typical
70	M85	N156A	N154A			RIGID	None	None	RIGID	Typical
71	A2	N159	N158			PIPE 2.5	None	None	A53 Gr.B	Typical
72	M93A	N449A	N450A			HSS4X4X4	None	None	A500 Gr.B...	Typical
73	M113B	N5840A	N5841A			HSS4X4X4	None	None	A500 Gr.B...	Typical
74	M116B	N5845A	N5846A			HSS4X4X4	None	None	A500 Gr.B...	Typical
75	M106	N5821A	N5820A		90	L2.5x2.5x3	None	None	A36 Gr.36	Typical
76	M107B	N5822A	N5820A		180	L2.5x2.5x3	None	None	A36 Gr.36	Typical
77	M108A	N5824A	N5828B		90	L2.5x2.5x3	None	None	A36 Gr.36	Typical
78	M109	N5825A	N5828B		180	L2.5x2.5x3	None	None	A36 Gr.36	Typical
79	M110	N5827A	N5826A		90	L2.5x2.5x3	None	None	A36 Gr.36	Typical
80	M111A	N5828A	N5826A		180	L2.5x2.5x3	None	None	A36 Gr.36	Typical
81	M32	N756B	N39			RIGID	None	None	RIGID	Typical
82	M100A	N470	N469		90	PL 4" x 3/8"	None	None	A36 Gr.36	Typical
83	M102	N450	N447			RIGID	None	None	RIGID	Typical
84	M103	N203	N464A			RIGID	None	None	RIGID	Typical
85	M105	N327	N468B			RIGID	None	None	RIGID	Typical
86	M107	N450	N472B			RIGID	None	None	RIGID	Typical
87	M108	N447	N471B			RIGID	None	None	RIGID	Typical
88	M111	N446A	N5837A			RIGID	None	None	RIGID	Typical
89	M112	N5838A	N5837A			RIGID	None	None	RIGID	Typical
90	M114	N5839A	N5842A			RIGID	None	None	RIGID	Typical
91	M115A	N5843A	N5842A			RIGID	None	None	RIGID	Typical
92	M117B	N5844A	N5847A			RIGID	None	None	RIGID	Typical
93	M118C	N5848A	N5847A			RIGID	None	None	RIGID	Typical
94	M100	N448A	N447A		90	PL 4" x 3/8"	None	None	A36 Gr.36	Typical
95	M101	N203	N200			RIGID	None	None	RIGID	Typical
96	M103A	N200	N463A			RIGID	None	None	RIGID	Typical
97	M104	N459A	N458A		90	PL 4" x 3/8"	None	None	A36 Gr.36	Typical
98	M105A	N327	N324			RIGID	None	None	RIGID	Typical
99	M107A	N324	N467B			RIGID	None	None	RIGID	Typical
100	M115B	N485	N11			PL4x0.375	None	None	A36 Gr.36	Typical
101	M116A	N227A	N32A			PL4x0.375	None	None	A36 Gr.36	Typical
102	M117	N253	N22			PL4x0.375	None	None	A36 Gr.36	Typical
103	M118A	N350	N32			PL4x0.375	None	None	A36 Gr.36	Typical
104	M119B	N362	N30			PL4x0.375	None	None	A36 Gr.36	Typical
105	M120B	N473	N24			PL4x0.375	None	None	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M12						Yes	** NA **			None
2	M15						Yes	** NA **			None
3	M17						Yes	** NA **			None
4	M30A						Yes	** NA **			None
5	M28B						Yes	** NA **			None
6	M29A						Yes	** NA **			None
7	M30B						Yes	** NA **			None
8	M31A						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
9	M33						Yes	** NA **			None
10	M34						Yes	** NA **			None
11	M35						Yes	** NA **			None
12	M36						Yes	** NA **			None
13	M37						Yes	** NA **			None
14	M38						Yes	** NA **			None
15	M39						Yes	** NA **			None
16	M40						Yes	** NA **			None
17	M41						Yes	** NA **			None
18	M42						Yes	** NA **			None
19	M43						Yes	** NA **			None
20	M44						Yes	** NA **			None
21	M45						Yes	** NA **			None
22	M46						Yes	** NA **			None
23	M47						Yes	** NA **			None
24	M48						Yes	** NA **			None
25	M49						Yes	** NA **			None
26	M50						Yes	** NA **			None
27	M46A						Yes	** NA **			None
28	M47A						Yes	** NA **			None
29	M49A						Yes	** NA **			None
30	M50A						Yes	** NA **			None
31	M51						Yes	** NA **			None
32	M52						Yes	** NA **			None
33	M53						Yes	** NA **			None
34	M54						Yes	** NA **			None
35	M55						Yes	** NA **			None
36	M58						Yes	** NA **			None
37	M59						Yes	** NA **			None
38	M60						Yes	** NA **			None
39	M61						Yes	** NA **			None
40	M62						Yes	** NA **			None
41	M63						Yes	** NA **			None
42	M64						Yes	** NA **			None
43	M58A						Yes	** NA **			None
44	M59A						Yes	** NA **			None
45	M62A						Yes	** NA **			None
46	M63A						Yes	** NA **			None
47	M66						Yes	** NA **			None
48	M67A						Yes	** NA **			None
49	M118						Yes	** NA **			None
50	M119						Yes	** NA **			None
51	M120						Yes	** NA **			None
52	M58B						Yes	** NA **			None
53	M60A						Yes	** NA **			None
54	M64A						Yes	** NA **			None
55	C3						Yes	** NA **			None
56	C1						Yes	** NA **			None
57	M66A						Yes	** NA **			None
58	M68						Yes	** NA **			None
59	B4						Yes	** NA **			None
60	B1						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
61	M72						Yes	** NA **			None
62	M74						Yes	** NA **			None
63	A3						Yes	** NA **			None
64	A1						Yes	** NA **			None
65	B3						Yes	** NA **			None
66	M79						Yes	** NA **			None
67	C2						Yes	** NA **			None
68	M82						Yes	** NA **			None
69	B2						Yes	** NA **			None
70	M85						Yes	** NA **			None
71	A2						Yes	** NA **			None
72	M93A						Yes	** NA **			None
73	M113B						Yes	** NA **			None
74	M116B						Yes	** NA **			None
75	M106	BenPIN					Yes	** NA **			None
76	M107B	BenPIN					Yes	** NA **			None
77	M108A	BenPIN					Yes	** NA **			None
78	M109	BenPIN					Yes	** NA **			None
79	M110	BenPIN					Yes	** NA **			None
80	M111A	BenPIN					Yes	** NA **			None
81	M32						Yes	** NA **			None
82	M100A						Yes	** NA **			None
83	M102						Yes	** NA **			None
84	M103						Yes	** NA **			None
85	M105						Yes	** NA **			None
86	M107						Yes	** NA **			None
87	M108						Yes	** NA **			None
88	M111						Yes	** NA **			None
89	M112						Yes	** NA **			None
90	M114						Yes	** NA **			None
91	M115A						Yes	** NA **			None
92	M117B						Yes	** NA **			None
93	M118C						Yes	** NA **			None
94	M100						Yes	** NA **			None
95	M101						Yes	** NA **			None
96	M103A						Yes	** NA **			None
97	M104						Yes	** NA **			None
98	M105A						Yes	** NA **			None
99	M107A						Yes	** NA **			None
100	M115B						Yes	** NA **			None
101	M116A						Yes	** NA **			None
102	M117						Yes	** NA **			None
103	M118A						Yes	** NA **			None
104	M119B						Yes	** NA **			None
105	M120B						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M12	PL 4" x 3/8"	14									Lateral
2	M15	PL 4" x 3/8"	14									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
3	M17	PL 4" x 3/8"	14									Lateral
4	M30A	PIPE_3.0	75									Lateral
5	M33	L2x2x4	36									Lateral
6	M34	L2x2x4	36									Lateral
7	M35	L2x2x4	36									Lateral
8	M36	L2x2x4	36									Lateral
9	M37	L2x2x4	36									Lateral
10	M38	L2x2x4	36									Lateral
11	M46A	PL 8 x 5/8	10									Lateral
12	M47A	PL 8 x 5/8	10									Lateral
13	M49A	PIPE_3.0	75									Lateral
14	M54	PL 8 x 5/8	10									Lateral
15	M55	PL 8 x 5/8	10									Lateral
16	M58	PIPE_3.0	75									Lateral
17	M63	PL 8 x 5/8	10									Lateral
18	M64	PL 8 x 5/8	10									Lateral
19	M118	PIPE_3.0	75									Lateral
20	M119	PIPE_3.0	75									Lateral
21	M120	PIPE_3.0	75									Lateral
22	C3	PIPE_2.5	72									Lateral
23	C1	PIPE_2.0_...	108									Lateral
24	B4	PIPE_2.5	72									Lateral
25	B1	PIPE_2.0_...	108									Lateral
26	A3	PIPE_2.5	72									Lateral
27	A1	PIPE_2.0_...	108									Lateral
28	B3	PIPE_2.0_...	72									Lateral
29	C2	PIPE_2.5	96									Lateral
30	B2	PIPE_2.5	96									Lateral
31	A2	PIPE_2.5	96									Lateral
32	M93A	HSS4X4X4	38									Lateral
33	M113B	HSS4X4X4	38									Lateral
34	M116B	HSS4X4X4	38									Lateral
35	M106	L2.5x2.5x3	70.458									Lateral
36	M107B	L2.5x2.5x3	70.458									Lateral
37	M108A	L2.5x2.5x3	70.458									Lateral
38	M109	L2.5x2.5x3	70.458									Lateral
39	M110	L2.5x2.5x3	70.458									Lateral
40	M111A	L2.5x2.5x3	70.458									Lateral
41	M100A	PL 4" x 3/8"	16									Lateral
42	M100	PL 4" x 3/8"	16									Lateral
43	M104	PL 4" x 3/8"	16									Lateral
44	M115B	PL4x0.375	5.5									Lateral
45	M116A	PL4x0.375	5.5									Lateral
46	M117	PL4x0.375	5.5									Lateral
47	M118A	PL4x0.375	5.5									Lateral
48	M119B	PL4x0.375	5.5									Lateral
49	M120B	PL4x0.375	5.5									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	None		-1.1			30		3	
2	Live	None								
3	Wind 0	None					60	80		
4	Wind 30	None					60	80		
5	Wind 60	None					60	80		
6	Wind 90	None					60	80		
7	Wind 120	None					60	80		
8	Wind 150	None					60	80		
9	Ice Load	None					30	40	3	
10	Ice 0	None					60	80		
11	Ice 30	None					60	80		
12	Ice 60	None					60	80		
13	Ice 90	None					60	80		
14	Ice 120	None					60	80		
15	Ice 150	None					60	80		
16	Lm	None				1				
17	Lv	None				1				
18	BLC 1 Transient Area...	None						30		
19	BLC 9 Transient Area...	None						30		

Load Combinations

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4 D	Y...	Y		1	1.4																				
2	1.2 D + 1.6 L	Y...	Y		1	1.2	2	1.6																		
3	1.2 D + 1.0 Wo @ 0	Y...	Y		1	1.2	3	1																		
4	1.2 D + 1.0 Wo @ 30	Y...	Y		1	1.2	4	1																		
5	1.2 D + 1.0 Wo @ 60	Y...	Y		1	1.2	5	1																		
6	1.2 D + 1.0 Wo @ 90	Y...	Y		1	1.2	6	1																		
7	1.2 D + 1.0 Wo @ 120	Y...	Y		1	1.2	7	1																		
8	1.2 D + 1.0 Wo @ 150	Y...	Y		1	1.2	8	1																		
9	1.2 D + 1.0 Wo @ 180	Y...	Y		1	1.2	3	-1																		
10	1.2 D + 1.0 Wo @ 210	Y...	Y		1	1.2	4	-1																		
11	1.2 D + 1.0 Wo @ 240	Y...	Y		1	1.2	5	-1																		
12	1.2 D + 1.0 Wo @ 270	Y...	Y		1	1.2	6	-1																		
13	1.2 D + 1.0 Wo @ 300	Y...	Y		1	1.2	7	-1																		
14	1.2 D + 1.0 Wo @ 330	Y...	Y		1	1.2	8	-1																		
15	1.2 D + 1.0 Di + 1.0 Wi @ 0	Y...	Y		1	1.2	9	1	10	1																
16	1.2 D + 1.0 Di + 1.0 Wi @ 30	Y...	Y		1	1.2	9	1	11	1																
17	1.2 D + 1.0 Di + 1.0 Wi @ 60	Y...	Y		1	1.2	9	1	12	1																
18	1.2 D + 1.0 Di + 1.0 Wi @ 90	Y...	Y		1	1.2	9	1	13	1																
19	1.2 D + 1.0 Di + 1.0 Wi @ 120	Y...	Y		1	1.2	9	1	14	1																
20	1.2 D + 1.0 Di + 1.0 Wi @ 150	Y...	Y		1	1.2	9	1	15	1																
21	1.2 D + 1.0 Di + 1.0 Wi @ 180	Y...	Y		1	1.2	9	1	10	-1																
22	1.2 D + 1.0 Di + 1.0 Wi @ 210	Y...	Y		1	1.2	9	1	11	-1																
23	1.2 D + 1.0 Di + 1.0 Wi @ 240	Y...	Y		1	1.2	9	1	12	-1																
24	1.2 D + 1.0 Di + 1.0 Wi @ 270	Y...	Y		1	1.2	9	1	13	-1																
25	1.2 D + 1.0 Di + 1.0 Wi @ 300	Y...	Y		1	1.2	9	1	14	-1																
26	1.2 D + 1.0 Di + 1.0 Wi @ 330	Y...	Y		1	1.2	9	1	15	-1																
27	1.2 D + 1.5 Lm + 1.0 Wm @ 0	Y...	Y		1	1.2	3	.053	16	1.5																

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
28	1.2 D + 1.5 Lm + 1.0 Wm @ 30	Y...	Y		1	1.2	4	.053	16	1.5															
29	1.2 D + 1.5 Lm + 1.0 Wm @ 60	Y...	Y		1	1.2	5	.053	16	1.5															
30	1.2 D + 1.5 Lm + 1.0 Wm @ 90	Y...	Y		1	1.2	6	.053	16	1.5															
31	1.2 D + 1.5 Lm + 1.0 Wm @ 120	Y...	Y		1	1.2	7	.053	16	1.5															
32	1.2 D + 1.5 Lm + 1.0 Wm @ 150	Y...	Y		1	1.2	8	.053	16	1.5															
33	1.2 D + 1.5 Lm + 1.0 Wm @ 180	Y...	Y		1	1.2	3	-.0...	16	1.5															
34	1.2 D + 1.5 Lm + 1.0 Wm @ 210	Y...	Y		1	1.2	4	-.0...	16	1.5															
35	1.2 D + 1.5 Lm + 1.0 Wm @ 240	Y...	Y		1	1.2	5	-.0...	16	1.5															
36	1.2 D + 1.5 Lm + 1.0 Wm @ 270	Y...	Y		1	1.2	6	-.0...	16	1.5															
37	1.2 D + 1.5 Lm + 1.0 Wm @ 300	Y...	Y		1	1.2	7	-.0...	16	1.5															
38	1.2 D + 1.5 Lm + 1.0 Wm @ 330	Y...	Y		1	1.2	8	-.0...	16	1.5															
39	1.2 D + 1.5 Lv	Y...	Y		1	1.2	17	1.5																	
40	1.2 D + 1.0 Di + 1.0 Wi @ 0_APP	Y...	Y		1	1.2	9	1	10	1															

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N449A	max	2156.627	12	671.579	40	3345.761	4	-.357	4	29.472	13	1.94	6
2		min	-2522.5...	6	166.916	9	-2377.0...	10	-11.826	22	-28.554	7	-6.579	12
3	N5840A	max	3802.645	12	623.725	23	2378.319	3	4.817	3	31.586	9	16.916	39
4		min	-3072.5...	6	79.124	5	-2607.9...	9	-4.618	9	-29.554	3	.791	12
5	N5845A	max	2034.301	12	582.814	20	2638.055	14	9.696	26	29.551	5	1.419	5
6		min	-2582.2...	6	85.008	13	-3108.5...	8	.012	8	-27.198	11	-6.388	24
7	N5820A	max	58.831	6	2326.768	24	331.456	5	0	40	0	40	0	40
8		min	-1321.8...	25	-297.95	6	-728.957	11	0	1	0	1	0	1
9	N5826A	max	969.966	3	2441.865	16	274.618	11	0	40	0	40	0	40
10		min	-378.284	9	-398.981	10	-1238.4...	17	0	1	0	1	0	1
11	N5828B	max	955.01	9	2613.142	20	1292.285	19	0	40	0	40	0	40
12		min	-372.935	3	-202.535	14	-96.959	13	0	1	0	1	0	1
13	Totals:	max	7670.132	12	8237.45	40	7415.258	3						
14		min	-7670.1...	6	3413.977	9	-7415.2...	9						

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

	Member	Shape	Code Ch...	Loc[in]	LC	Shear Ch...	Loc...	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y...	phi*Mn z-z [...	Cb	Eqn
1	A2	PIPE_2.5	.549	48	11	.038	48		11	30038.461	50715	43.155	43.155	1.386	H1-1b
2	C2	PIPE_2.5	.549	48	7	.038	48		7	30038.461	50715	43.155	43.155	1.386	H1-1b
3	B2	PIPE_2.5	.549	48	3	.038	48		3	30038.461	50715	43.155	43.155	1.316	H1-1b
4	M15	PL 4" x 3...	.460	10.5	11	.429	3.5	y	5	20148.333	48600	4.556	48.6	1.832	H1-1b
5	M104	PL 4" x 3...	.458	.333	3	.517	.333	y	23	15512.055	48600	4.556	48.6	2.871	H1-1b
6	M100	PL 4" x 3...	.456	.333	7	.566	.333	y	40	15512.055	48600	4.556	48.6	2.857	H1-1b
7	M12	PL 4" x 3...	.450	3.5	3	.409	3.5	y	3	20148.333	48600	4.556	48.6	1.657	H1-1b
8	M100A	PL 4" x 3...	.443	.333	11	.475	.333	y	19	15512.055	48600	4.556	48.6	2.873	H1-1b
9	M119B	PL4x0.375	.414	5.5	4	.372	0	y	3	42424.657	48600	4.556	48.6	1.289	H1-1b
10	M116A	PL4x0.375	.395	5.5	12	.452	0	y	26	42424.657	48600	4.556	48.6	1.361	H1-1b
11	M115B	PL4x0.375	.387	5.5	12	.392	0	y	11	42424.657	48600	4.556	48.6	1.281	H1-1b
12	M120B	PL4x0.375	.374	5.5	14	.389	0	y	7	42424.657	48600	4.556	48.6	1.331	H1-1b
13	M118A	PL4x0.375	.373	5.5	6	.410	0	y	11	42424.657	48600	4.556	48.6	1.305	H1-1b
14	M117	PL4x0.375	.371	5.5	8	.350	0	y	7	42424.657	48600	4.556	48.6	1.323	H1-1b
15	B3	PIPE_2....	.350	26.25	3	.037	26....		3	20866.733	32130	22.459	22.459	1.686	H1-1b
16	M107B	L2.5x2.5x3	.311	33.761	11	.015	70....	z	11	9525.78	29192.4	10.471	18.488	1.134	H2-1

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

	Member	Shape	Code Ch...	Loc[in]	LC	Shear Ch...	Loc...	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y...	phi*Mn z-z [...	Cb	Eqn
17	M108A	L2.5x2.5x3	.309	33.761	9	.013	70....	y	3	9525.814	29192.4	10.471	18.487	1.134	H2-1
18	M111A	L2.5x2.5x3	.305	33.761	3	.014	70....	z	3	9525.794	29192.4	10.471	18.488	1.134	H2-1
19	M110	L2.5x2.5x3	.297	33.761	5	.013	70....	y	11	9525.779	29192.4	10.471	18.485	1.134	H2-1
20	M58	PIPE_3.0	.293	72.656	16	.115	43....		9	52901.431	65205	68.985	68.985	2.111	H1-1b
21	M109	L2.5x2.5x3	.287	33.761	7	.012	70....	z	7	9525.765	29192.4	10.471	18.489	1.134	H2-1
22	M17	PL 4" x 3...	.287	3.5	7	.357	10.5	y	13	20148.333	48600	4.556	48.6	2.288	H1-1b
23	M118	PIPE_3.0	.276	0	40	.111	31....		7	52901.431	65205	68.985	68.985	2.779	H1-1b
24	A1	PIPE_2....	.275	52.875	5	.027	52....		5	12143.947	32130	22.459	22.459	1.873	H1-1b
25	B1	PIPE_2....	.275	52.875	9	.027	52....		9	12143.947	32130	22.459	22.459	1.368	H1-1b
26	C1	PIPE_2....	.275	52.875	5	.027	52....		5	12143.947	32130	22.459	22.459	1.872	H1-1b
27	A3	PIPE_2.5	.271	16.5	11	.025	16.5		11	37773.818	50715	43.155	43.155	1.791	H1-1b
28	C3	PIPE_2.5	.271	16.5	7	.025	16.5		7	37773.818	50715	43.155	43.155	1.79	H1-1b
29	M106	L2.5x2.5x3	.262	33.761	13	.012	70....	y	7	9525.787	29192.4	10.471	18.485	1.134	H2-1
30	M33	L2x2x4	.260	0	11	.023	0	y	14	19394.312	30585.6	8.291	18.836	1.272	H2-1
31	M49A	PIPE_3.0	.251	72.656	20	.123	8.5...		13	52901.431	65205	68.985	68.985	2.522	H1-1b
32	M30A	PIPE_3.0	.247	72.656	23	.133	8.5...		5	52901.431	65205	68.985	68.985	2.579	H1-1b
33	M37	L2x2x4	.243	0	3	.025	0	y	6	19394.312	30585.6	8.291	18.886	1.296	H2-1
34	M120	PIPE_3.0	.239	0	19	.112	31....		11	52901.431	65205	68.985	68.985	2.617	H1-1b
35	M36	L2x2x4	.236	36	14	.019	0	z	40	19394.312	30585.6	8.291	18.922	1.591	H2-1
36	M119	PIPE_3.0	.234	0	23	.108	31....		3	52901.431	65205	68.985	68.985	2.747	H1-1b
37	M34	L2x2x4	.234	36	6	.018	36	y	5	19394.312	30585.6	8.291	18.922	1.538	H2-1
38	M38	L2x2x4	.225	36	10	.024	0	z	23	19394.312	30585.6	8.291	18.922	1.626	H2-1
39	M35	L2x2x4	.208	0	7	.022	0	y	10	19394.312	30585.6	8.291	18.922	1.345	H2-1
40	M113B	HSS4X4...	.189	0	9	.100	0	z	9	133783.978	139518	194.166	194.166	3.052	H1-1b
41	M93A	HSS4X4...	.180	0	13	.093	0	z	13	133783.978	139518	194.166	194.166	2.981	H1-1b
42	M116B	HSS4X4...	.173	0	5	.093	0	z	5	133783.978	139518	194.166	194.166	2.955	H1-1b
43	B4	PIPE_2.5	.044	16.5	3	.004	16.5		3	37773.818	50715	43.155	43.155	1.391	H1-1b
44	M54	PL 8 x 5/8	.014	0	12	.015	2.0...	y	19	137809.489	162000	25.313	324	4.759	H1-1b
45	M55	PL 8 x 5/8	.014	0	5	.013	0	y	19	137809.489	162000	25.313	324	4.756	H1-1b
46	M64	PL 8 x 5/8	.013	0	12	.015	0	y	40	137809.489	162000	25.313	324	4.716	H1-1b
47	M63	PL 8 x 5/8	.013	0	7	.018	2.0...	y	38	137809.489	162000	25.313	324	4.73	H1-1b
48	M47A	PL 8 x 5/8	.012	0	9	.013	0	y	23	137809.489	162000	25.313	324	4.709	H1-1b
49	M46A	PL 8 x 5/8	.012	0	3	.015	2.0...	y	23	137809.489	162000	25.313	324	4.774	H1-1b

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Project # A37519-1593.003.7191
By SPC
Date: 06/18/19
v0.1, Effective 07/10/18

MOUNT TO TOWER CONNECTION CHECKS

REACTIONS - LC9 N5840A

Px=	2.60792	Kip
Py=	0.26812	Kip
(Axial)Pz=	0.19607	Kip
Mx=	5.576	Kip-in
My=	31.586	Kip-in
(Torque)Mz=	4.618	Kip-in

Number of Bolts	=	4	
Plate Size	b=	10	in
	d=	10	in
Edge distance for Bolts	=	1.5	in
Bolt group centroid y-coordinate, Yc		5	in
Bolt group centroid x-coordinate, Xc		5	in
Load eccentricity in x-direction, ex		0	in
Load eccentricity in y-direction, ey		0	in
Total Moment including load eccentricity ΣMx=		5.576	Kips-in
Total Moment including load eccentricity ΣMy=		31.586	Kips-in
Total Moment including load eccentricity ΣMz=		4.618	Kips-in

WELD CHECKS

Standoff Member Type		Square	
Width	=	4	in
Depth (only for square members)	=	4	in
Assumed Weld Size	=	0.3750	
Total Forces in X direction	=	0.434	kips
Total Forces in Y direction	=	0.142	kips
Total Forces in Z direction	=	1.75	kips
Resultant	=	1.81	kips
Φ*Fw (Kip/in)/16" weld	=	1.392	
Capacity used		21.70%	

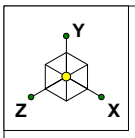
BOLT CHECKS

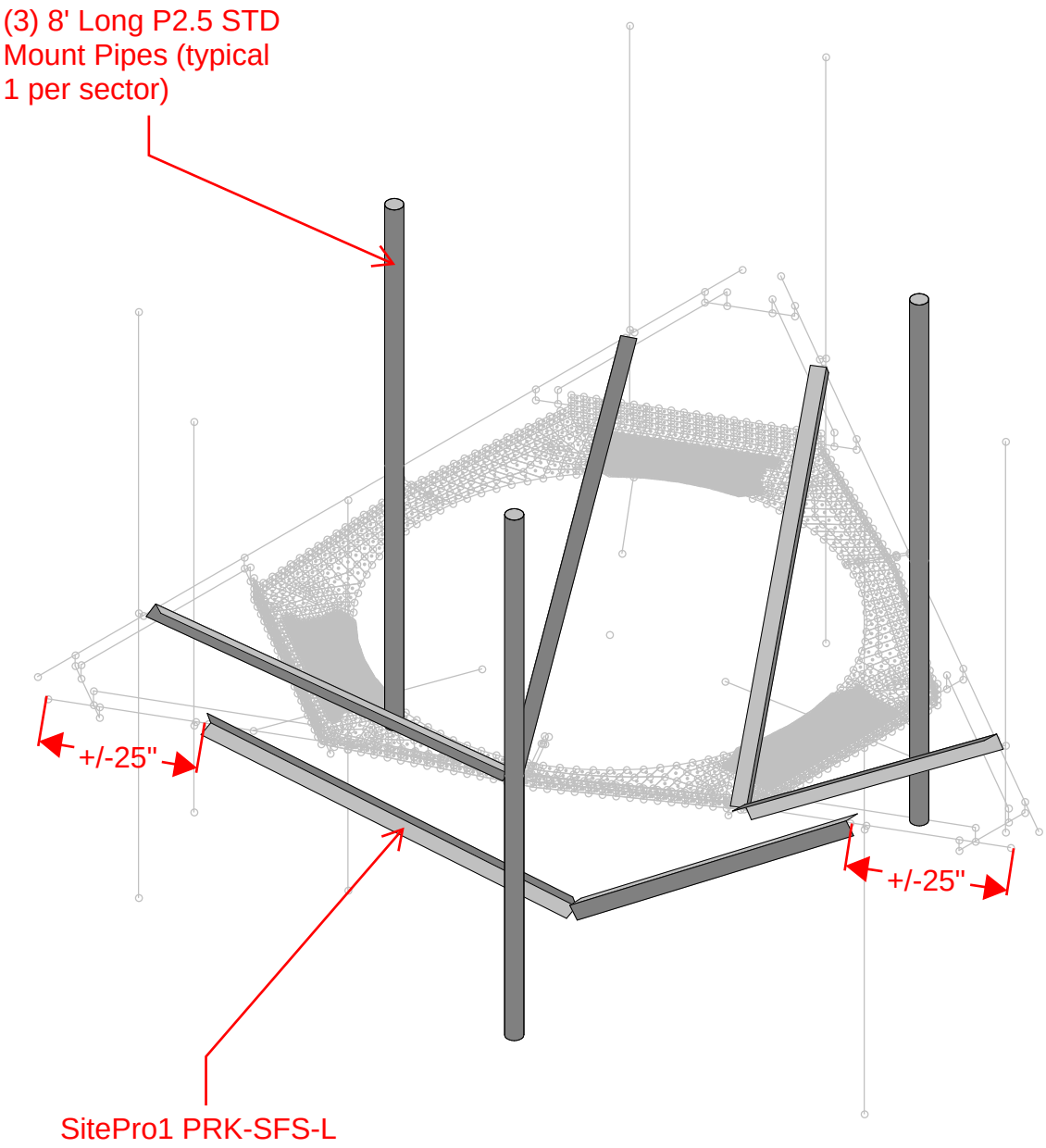
Tension Reaction	2.70	kip
Shear Reaction	0.85	kip
Bolt Type	A325N	
Bolt Diameter	0.625	in
Tensile Strength	20.7	kips
Shear Strength	12.4	kips
Reduced Tensile Strength	-	kips
Tensile Capacity Used	13.1%	
Shear Capacity Used	6.8%	

Note: Tension reduction not required if tension or shear capacity < 30%

APPENDIX D

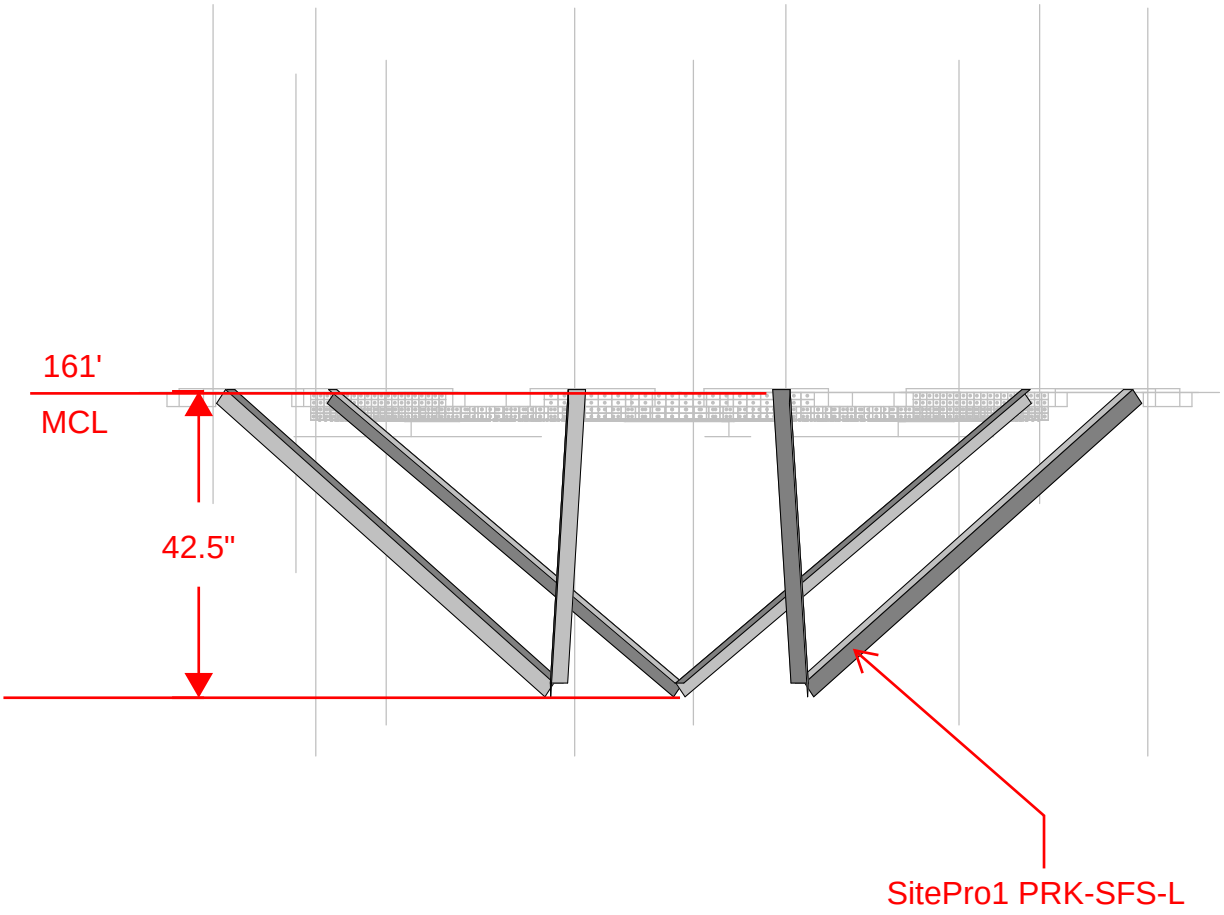
SUPPLEMENTAL MODIFICATION INFORMATION





Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 9
SPC		June 19, 2019 at 9:25 AM
37519-1593.003.7191		37519-1593.003.7191_WindLoad.r...



Envelope Only Solution

Paul J. Ford & Company	BU 876391 / Columbia/Deojay	SK - 10
SPC		June 18, 2019 at 11:36 AM
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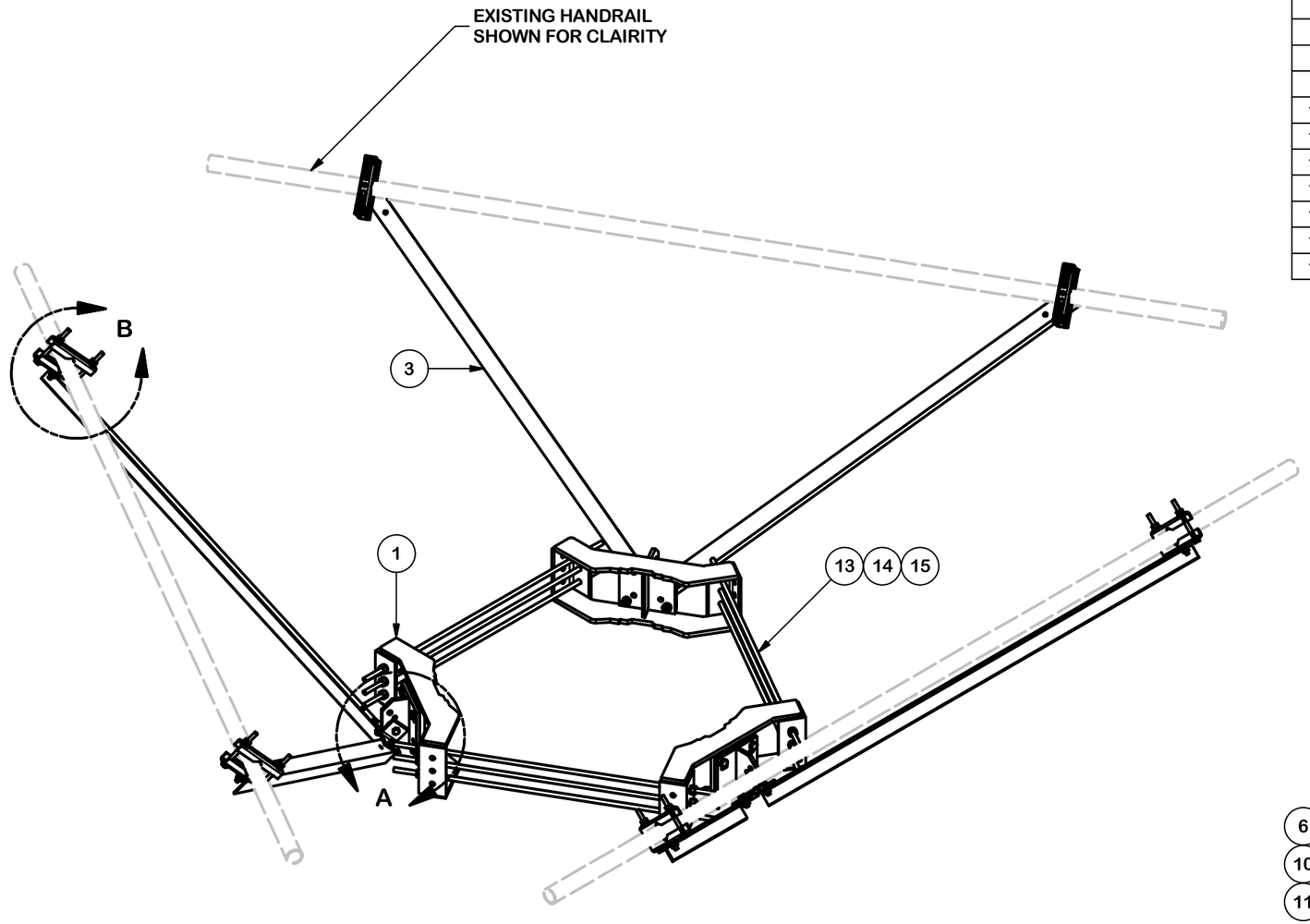
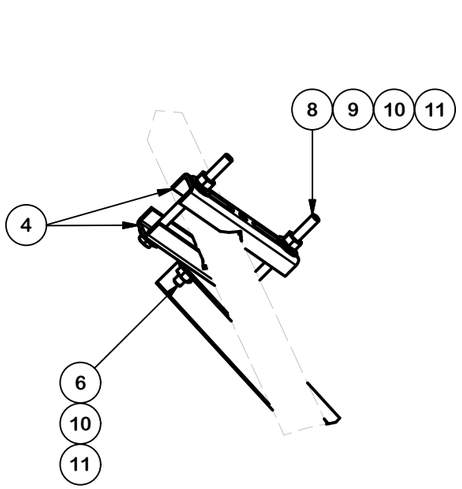
APPENDIX E

MANUFACTURER DRAWINGS (FOR REFERENCE ONLY)



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	118.24
4	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
5	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
					TOTAL WT. #	642.04

DETAIL A



DETAIL B

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017
REVISION HISTORY				

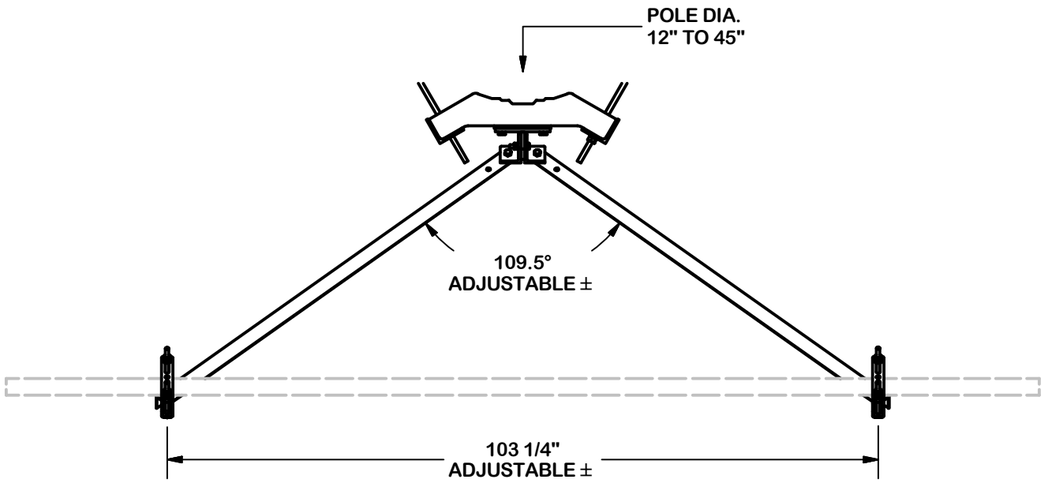
TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION
HANDRAIL REINFORCEMENT KIT (LONG)

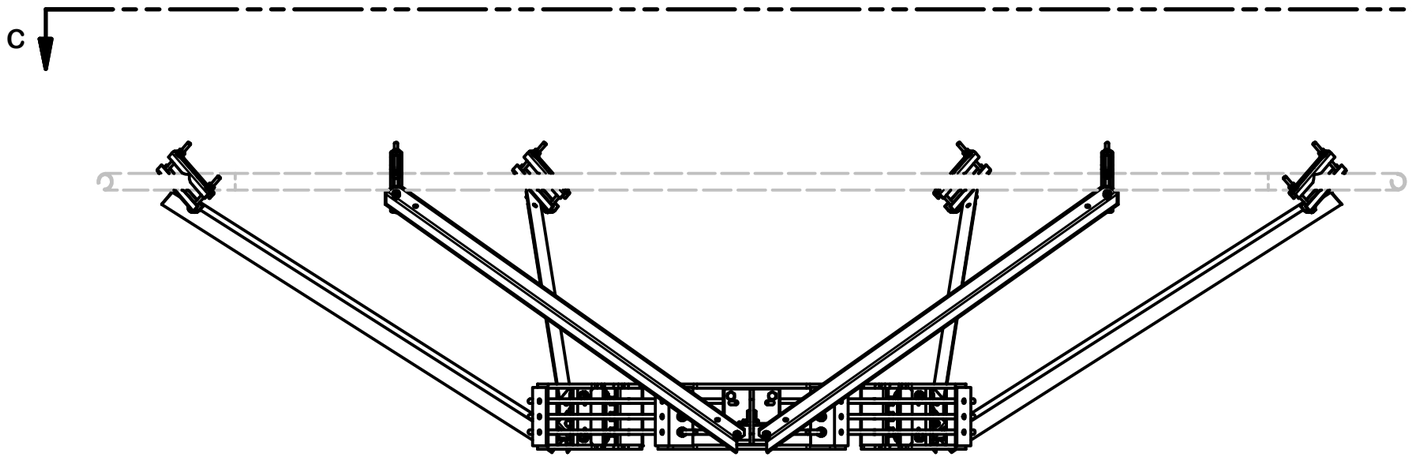
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS-L
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81 / 02	SHOP	BMC 9/8/2017	PRK-SFS-L

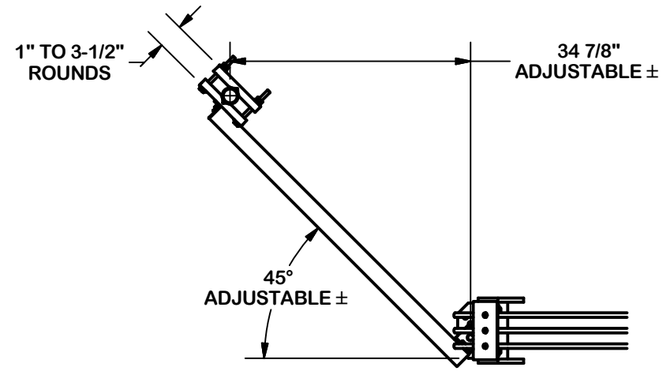
SITE PRO 1
A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX



PARTIAL VIEW C-C

VERTICAL POSITION





PARTIAL VIEW D-D

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

DESCRIPTION: HANDRAIL REINFORCEMENT KIT (LONG)

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

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS-L

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	02	SHOP	BMC 9/8/2017	PRK-SFS-L