



SITE PHOTO



LOCATION MAP

LEASE AREA

BEING A TELECOMMUNICATIONS LEASE PARCEL LYING WITHIN A PORTION OF THE NORTHEAST 1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE PUBLIC SERVICE COMPANY OF COLORADO EASEMENT, ALSO BEING THE SOUTHWEST CORNER OF BLOCK 1, TALLIN'S REACH SUBDIVISION PLING NO. 13. THENCE ALONG THE EAST LINE OF SAID EASEMENT, N00°00'40"E, 271.64 FEET; THENCE N89°59'11"W, 64.10 FEET TO THE POINT OF BEGINNING; THENCE S90°00'00"W, 9.95 FEET TO A POINT HERENAFTER REFERRED TO AS POINT "A"; THENCE CONTINUING S90°00'00"W, 10.05 FEET; THENCE N00°00'00"W, 6.00 FEET TO A POINT HERENAFTER REFERRED TO AS POINT "B"; THENCE CONTINUING N00°00'00"W, 6.00 FEET; THENCE N90°00'00"E, 20.00 FEET; THENCE S00°00'00"E, 12.00 FEET TO THE POINT OF BEGINNING.

CONTAINING 240 SQ. FT. OR 0.005 ACRES MORE OR LESS.

UTILITY EASEMENT

BEING A STRIP OF LAND 5.00 FEET IN WIDTH LYING WITHIN A PORTION OF THE NORTHEAST 1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO, LYING 2.50 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT POINT "A" AS DESCRIBED ABOVE; THENCE S32°56'09"W, 31.24 FEET TO THE END OF SAID STRIP OF LAND.

ACCESS/UTILITY EASEMENT

BEING A STRIP OF LAND 20.00 FEET IN WIDTH LYING WITHIN A PORTION OF THE NORTHEAST 1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO, LYING 10.00 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

BEGINNING AT POINT "B" AS DESCRIBED ABOVE; THENCE S90°00'00"W, 15.06 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHEASTERLY HAVING A RADIUS OF 25.00 FEET; THENCE SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 90°09'39", AN ARC LENGTH OF 39.34 FEET; THENCE S00°09'39"E, 211.90 FEET TO THE BEGINNING OF A TANGENT CURVE CONCAVE NORTHWESTERLY HAVING A RADIUS OF 30.00 FEET; THENCE SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 87°19'33", AN ARC LENGTH OF 45.72 FEET; THENCE S87°09'54"W, 58.06 FEET TO THE RIGHT-OF-WAY OF EAST JAMISON DRIVE AND THE END OF SAID STRIP OF LAND.

EXCEPT ANY PORTION LYING WITHIN THE RIGHT-OF-WAY OF EAST JAMISON DRIVE.

SIDELINES OF SAID STRIPS OF LAND ARE TO BE LENGTHENED AND/OR SHORTENED TO PREVENT GAPS AND/OR OVERLAPS.

LEGAL DESCRIPTION

PROJECT INFORMATION:

**PROPOSED TELECOMMUNICATIONS FACILITY
CO-LOCATE ON EXISTING XCEL TOWER**

SITE NAME:
JAMISON
STRUCTURE #:
96
LINE #:
5113/5163
SITE NUMBER:
DN90XCD10

SITE ADDRESS (e911 TBD):

**E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)
N 39.577383
W -104.707166**

SCOPE OF WORK:

- INSTALL (6) PANEL ANTENNAS
- INSTALL (9) RRU
- INSTALL (3) ANTENNA MOUNTS
- INSTALL (5) CABINETS: ECAB, BCAB, CABLING, FIBER AND PPC
- INSTALL 10'-0"x10'-0" CONCRETE PAD
- INSTALL 20'-0"x12'-0" FENCED COMPOUND
- INSTALL (4) HYBRID CABLES

PROJECT SUMMARY

FROM SPRINT OFFICE:

1. GET ON I-25 SOUTH (0.7 MI)
2. MERGE ONTO E-470N TO S GARTRELL RD (10.5 MI)
3. TAKE EXIT 9, TURN RIGHT ON S GARTRELL RD (0.5 MI)
4. TURN LEFT ON S AURORA PKWY CONTINUE FOR (1.1 MI)
5. TURN RIGHT ON E JAMISON DR (0.7 MI)
6. REFERENCE LOCATION MAP FOR TOWER LOCATION

DRIVING DIRECTIONS

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

1. INTERNATIONAL BUILDING CODE, (2015 EDITION)
2. LOCAL BUILDING CODE
3. CITY/COUNTY ORDINANCES
4. NATIONAL ELECTRIC CODE, (2015 EDITION)
5. ANSI/TIA/EIA-222-G

CODE COMPLIANCE



**BEFORE YOU DIG...
CALL 811
IT'S THE LAW!**

**Know what's below.
Call before you dig.**

CIVIL ENGINEER:

NAME: TOWER ENGINEERING PROFESSIONALS
ADDRESS: 500 E. 84TH AVE, SUITE C10
CITY, STATE, ZIP: THORNTON, CO 80229
CONTACT: NICHOLAS M. CONSTANTINE, P.E.
PHONE: (303) 566-9914

UTILITIES:

POWER COMPANY: XCEL ENERGY
CONTACT: GENERAL INQUIRIES
PHONE: (303) 571-7511
POLE/METER #: -

SITE APPLICANT:

NAME: SPRINT
CONTACT: DAWN SMITH
ADDRESS: 333 INVERNESS DR S
CITY, STATE, ZIP: ENGLEWOOD, CO 80112
PHONE: (303) 883-3400

SITE ACQUISITION:

NAME: KAPPA CONSULTING
CONTACT: MARK PAIZ
PHONE: (858) 243-2900

CONSTRUCTION MANAGER:

NAME: MASTEC NETWORK SOLUTIONS
CONTACT: RYAN PRUETTE
PHONE: (720) 585-4994

RF ENGINEER:

NAME: SPRINT
CONTACT: NEERAJ BERI
ADDRESS: 333 INVERNESS DR S
CITY, STATE, ZIP: ENGLEWOOD, CO 80112
PHONE: (440) 222-8729

TOWER OWNER:

NAME: XCEL ENERGY
ADDRESS: 1123 WEST 3RD AVE, 1ST FLOOR
CITY, STATE, ZIP: DENVER, CO 80223
CONTACT: LISA MILLER
PHONE: (303) 571-3549

SURVEYOR:

NAME: ALTURA LAND CONSULTANTS
ADDRESS: 6551 S. REVERE PKWY, SUITE 165
CITY, STATE, ZIP: CENTENNIAL, CO 80111
CONTACT: JESSE LUGO, PLS
PHONE: (720) 488-1303

PROJECT TEAM

PLANS PREPARED FOR:

Please remove AutoCad SHX text items in the comment section. Please flatten to reduce select-ability of the items.



SPRINT
333 INVERNESS DR. SOUTH
ENGLEWOOD, CO 80112
CUSTOMER SERVICE
(408) 560-1040



| APPROVER | SIGNATURE | DATE |
|-------------------|-----------|------|
| SITE ACQ. MANAGER | | |
| CONSTRUCTION MNG | | |
| A&E MANAGER | | |
| PLANNING CONS. | | |
| RF MANAGER | | |
| RF ENGINEER | | |
| PROPERTY OWNER | | |

SIGNATURE BLOCK

AREA OF CONSTRUCTION: 240 SF
ZONING: A-1
PARCEL ID: 2071-00-0-00-039
JURISDICTION: ARAPAHOE COUNTY
SPECIAL ACCESS ISSUES: -
STRUCTURE HEIGHT: 129'±
ANTENNA CL: 59'-6"±
LEGAL DESCRIPTION OF PROPERTY:

THE WEST 210 FEET OF THE NW1/4 SE1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO.
THE WEST 210 FEET OF SW1/4 NE1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO.
THE WEST 210 FEET OF THE SW1/4 SE1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO.
THE WEST 210 FEET OF NW1/4 NE1/4 OF SECTION 31, TOWNSHIP 5 SOUTH, RANGE 65 WEST OF THE 6TH P.M., COUNTY OF ARAPAHOE, STATE OF COLORADO.

SITE INFORMATION

| SHEET | DESCRIPTION | REV |
|-------|----------------------|-----|
| T1 | TITLE SHEET | 1 |
| N1 | GENERAL NOTES | 1 |
| Z1 | SITE PLAN | 1 |
| Z2 | COMPOUND PLAN | 1 |
| Z3 | TOWER ELEVATION | 1 |
| Z4 | ANTENNA LAYOUT | 1 |
| Z5 | ANTENNA SCHEDULE | 1 |
| Z6 | COAX LAYOUT | 1 |
| Z7 | ANTENNA MOUNT | 1 |
| Z8 | EQUIPMENT DETAILS | 1 |
| Z9 | ANTENNA DETAILS | 1 |
| Z10 | HYBRID CABLE DETAILS | 1 |

INDEX OF SHEETS

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS
500 E 84TH AVE, SUITE C10
THORNTON, CO 80229
OFFICE: (303) 566-9914
www.tepgroup.net

| REV | DATE | ISSUED FOR: |
|-----|----------|-------------|
| 1 | 07-06-18 | PRELIMINARY |
| 0 | 06-28-18 | PRELIMINARY |

DRAWN BY: BRC **CHECKED BY:** ARB

CIVIL SEAL:



July 6, 2018

| | |
|------------------------------------|------------------------------|
| SHEET NUMBER: T-1 | REVISION: 1 |
|------------------------------------|------------------------------|

TEP #134004.202187

GENERAL NOTES:

1. ALL REFERENCES TO OWNER IN THESE DOCUMENTS SHALL BE CONSIDERED SPRINT OR ITS DESIGNATED REPRESENTATIVE.
2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF COLORADO.
3. STRUCTURE IS DESIGNED IN ACCORDANCE WITH ANSI/TIA/EIA-222-G, 2005, FOR A 90 MPH 3-SECOND GUST WIND LOAD. THIS CONFORMS TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, 2015 EDITION.
4. WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2015 EDITION.
5. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
6. ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERCEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
7. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND IT'S COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
8. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. CONTRACTOR SHALL NOT SCALE CONTRACT DRAWINGS IN LIEU OF FIELD VERIFICATIONS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE PROCEDURES.
9. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
11. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.
12. BILL OF MATERIALS AND PART NUMBERS LISTED ON CONSTRUCTION DRAWINGS ARE INTENDED TO AID CONTRACTOR. CONTRACTOR SHALL VERIFY PARTS AND QUANTITIES WITH MANUFACTURER PRIOR TO BIDDING AND/OR ORDERING MATERIALS.
13. ALL PERMITS THAT MUST BE OBTAINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
14. 24 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER.
15. THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. AFTER REWORKING, IF THE MATERIAL REMAINS UNSUITABLE, THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL. ALL SUBGRADES SHALL BE PROOFROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFTER MATERIAL SHALL BE REWORKED OR REPLACED.
16. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL PIPES, DITCHES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURE IN OPERABLE CONDITION.
17. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.
18. THE OWNER SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHILE WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE RESPONSIBLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.

Does this site require an address? If yes, add the following standard note:
ALL BUILDING ADDRESS NUMBERS SHALL COMPLY WITH THE AURORA CITY CODE ORDINANCE, CHAPTER 126 - ARTICLE VII - NUMBERING OF BUILDINGS.

STRUCTURAL STEEL NOTES:

1. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS AND MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
2. UNLESS OTHERWISE NOTED, ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - A. STRUCTURAL STEEL, ASTM DESIGNATION A36 OR A992 GR50.
 - B. ALL BOLTS, ASTM A325 TYPE I GALVANIZED HIGH STRENGTH BOLTS.
 - C. ALL NUTS, ASTM A563 CARBON AND ALLOY STEEL NUTS.
 - D. ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS.
3. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATIONS AND MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
4. HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER.
5. HOT-DIP GALVANIZE ALL ITEMS UNLESS OTHERWISE NOTED, AFTER FABRICATION WHERE PRACTICABLE. GALVANIZING: ASTM A123, ASTM A153/A153M OR ASTM A653/A653M, G90, AS APPLICABLE.
6. REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A780 OR BY APPLICATION OF STICK OR THICK PASTE MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING. CLEAN AREAS TO BE REPAIRED AND REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE MATERIAL IS APPLIED, WITH A TORCH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS IN STICK OR PASTED; SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL.
7. A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.
8. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS FROM THE SHEAR PLANE.
9. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
10. ALL ASSEMBLY BOLTS ARE TO BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED IN SECTION 8.1 OF THE AISC, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", DATED JUNE 30, 2004.
11. FLAT WASHERS ARE TO BE INSTALLED WITH BOLTS OVER SLOTTED HOLES.
12. DO NOT OVER TORQUE ASSEMBLY BOLTS. GALVANIZING ON BOLTS, NUTS, AND STEEL PARTS ;MAY ACT AS A LUBRICANT, THUS OVER TIGHTENING MAY OCCUR AND MAY CAUSE BOLTS TO CRACK AND SNAP OFF.
13. PAL NUTS ARE TO BE INSTALLED AFTER NUTS ARE TIGHT AND WITH EDGE LIP OUT. PAL NUTS ARE NOT REQUIRED WHEN SELF-LOCKING NUTS ARE PROVIDED.
14. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
15. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1-2010 STRUCTURAL WELDING CODE - STEEL.

NOXIOUS WEED PLAN:

THE FOLLOWING ACTIONS WILL BE TAKEN BY THE APPLICANT TO COMPLY WITH THE COLORADO NOXIOUS WEED ACT 935-5.5-101-119 C.R.S.

- ALL HEAVY EQUIPMENT USED DURING CONSTRUCTION WILL BE WASHED BEFORE DEPARTURE FROM THE EQUIPMENT STORAGE FACILITY TO ENSURE THAT WEED SEED FROM DIFFERENT REGIONS ARE NOT TRANSPORTED ONTO THE HOST PROPERTY.
- APPROXIMATELY 6,400 SQUARE FEET OF GROUND WILL BE DISTURBED FOR THE CONSTRUCTION OF THIS PROJECT. WITHIN THE MERCURY FENCED COMPOUND, GEOTEXTILE FABRIC WILL BE LAID UNDER A 4" LAYER OF GRAVEL TO PREVENT WEED GROWTH WITHIN THE COMPOUND. IF WEEDS GROW INSIDE THE COMPOUND, MERCURY WILL NOTIFY THE CONSTRUCTION MANAGER TO GET A CONTRACTOR OUT TO THE AREA TO ASSESS AND CORRECT THE SITUATION. WEEDS OUTSIDE OF THE COMPOUND WILL BE WORKED OUT BETWEEN THE LANDOWNER AND MERCURY.
- IF CONSTRUCTION OF THE SITE RESULTS IN THE PROPOGATION OF NOXIOUS WEEDS, THE APPLICANT WILL TREAT NOXIOUS WEEDS USING METHODS APPROVED BY THE COUNTY WEED COORDINATOR.

DUST SUPPRESSION PLAN DURING CONSTRUCTION:

APPROXIMATELY 1,240 SQUARE FEET OF LAND WILL BE DISTURBED IN ADDITION TO THE ACCESS ROAD LOCATION. GRADING WILL BE MINIMAL AND TOTAL CONSTRUCTION TIME SHOULD BE 3-4 WEEKS. DUE TO THE SHORT CONSTRUCTION TIME AND MINIMAL CONSTRUCTION TRAFFIC, DUST SUPPRESSION IS GENERALLY NOT NEEDED FOR CONSTRUCTION OF TELECOMMUNICATION FACILITIES AND SHOULD NOT BE A FACTOR. IF REQUIRED, SHORT TERM DUST CONTROL WILL BE PROVIDED BY UTILIZING A WATER TRUCK AND WETTING THE AFFECTED SOILS WITH NON-POTABLE WATER.

PLANS PREPARED FOR:

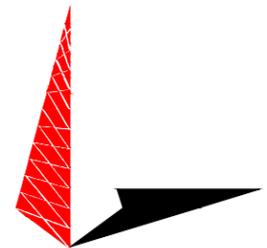


333 INVERNESS DRIVE SOUTH
 ENGLEWOOD, CO 80112
 OFFICE: (408) 560-1040

PROJECT INFORMATION:

JAMISON
SITE #: DN90XCD10
 E JAMISON DR
 AURORA, CO 80016
 (ARAPAHOE COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS
 500 E. 84TH AVE SUITE C10
 THORNTON, CO 80229
 OFFICE: (303) 566-9914
 www.tepgroup.net

SEAL:



July 6, 2018

| | | |
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| 1 | 07-06-18 | PRELIMINARY |
| 0 | 06-28-18 | PRELIMINARY |
| REV | DATE | ISSUED FOR: |

DRAWN BY: AJL | CHECKED BY: ARB

SHEET TITLE:

GENERAL NOTES

| | |
|-----------------------------|---------------------------------------------|
| SHEET NUMBER: N-1 | REVISION: 1 TEP #134000.202187 |
|-----------------------------|---------------------------------------------|

LEGEND

- EXIST. PROPERTY LINE
- - - ADJ. PROPERTY LINE
- PROPERTY CORNER
- ⊕ EXIST. UTILITY POLE
- Ⓜ TELCO PEDESTAL
- - -R/W- - - RIGHT-OF-WAY
- - -OHW- - - OVERHEAD WIRE
- - -UGW- - - UNDERGROUND WIRE
- - -UGG- - - UNDERGROUND GAS
- - -UGF- - - UNDERGROUND FIBER
- - -UGT- - - UNDERGROUND TELCO
- - -WP- - - WATER PIPE
- ▨ EDGE OF PAVEMENT
- X — 6'-TALL WOOD FENCE
- LEASE AREA/EASEMENT CORNER
- Ⓜ TRANSFORMER
- ⊙ LIGHT POLE
- ⊕_{FW} FIRE HYDRANT
- Ⓞ Ⓢ Ⓜ Ⓣ Ⓦ MAN HOLE (FIBER, SANITARY, STORM, TELCO, WATER)
- ⊕_{CV} GAS VALVE
- ⊕_{GM} GAS METER
- ⊕_{WV} WATER VALVE
- ⊕_{WM} WATER METER

1-A COORDINATES

LATITUDE: N 39° 34' 38.58" (NAD '83)
 LONGITUDE: W 104° 42' 25.80" (NAD '83)
 GROUND ELEVATION: 6021' (NAVD '88)

Because of the area of disturbance and improvements, a drainage letter is required for this development. Please contact the Engineer on Duty at 303-739-7335 to create a civil folder for the drainage letter. Review fee will apply

Dirt access roads are not permitted. Access roads need to be constructed of all weather surface material

Please show grading for the access road. Erosion control measures need to be shown

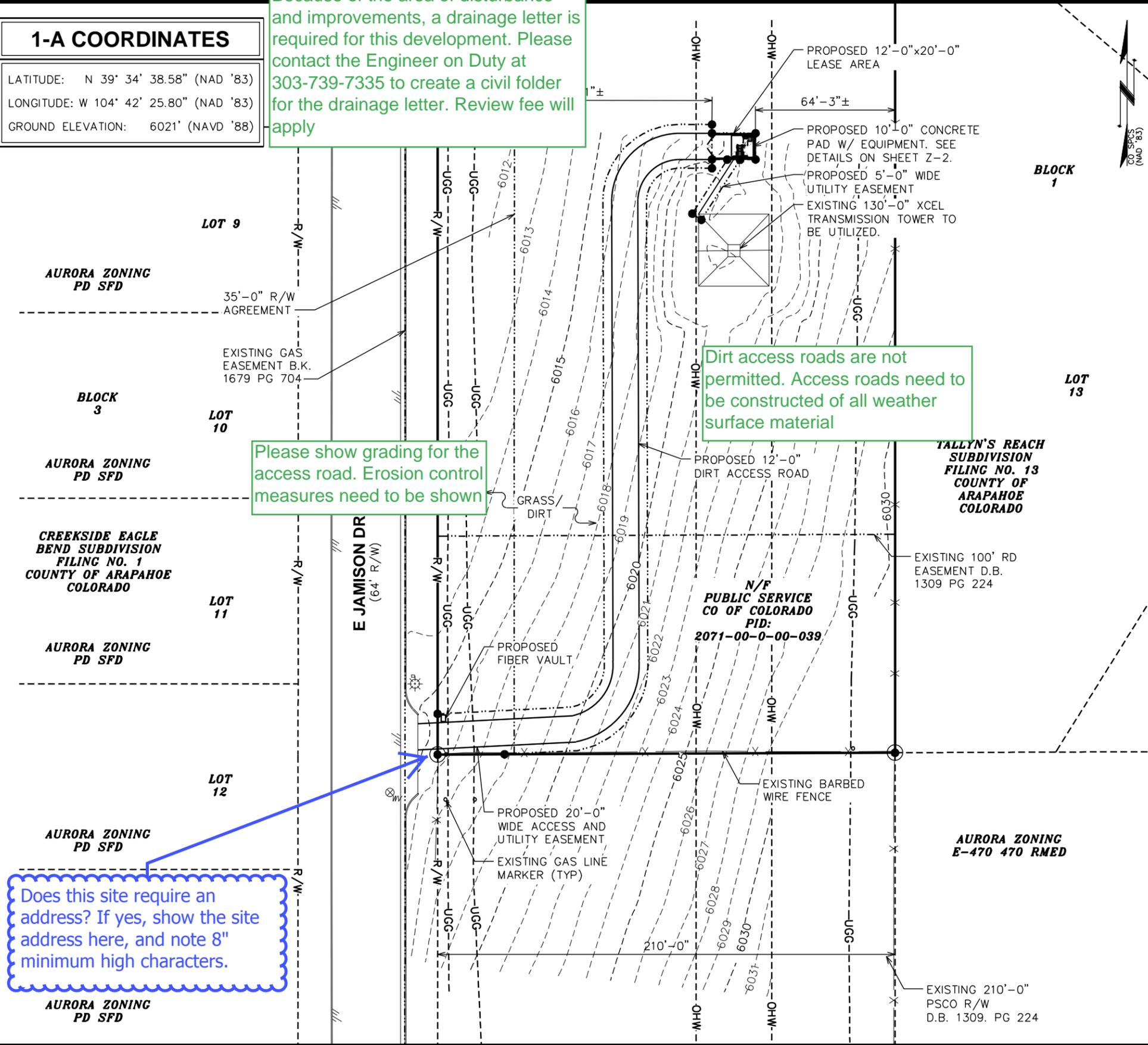
Does this site require an address? If yes, show the site address here, and note 8" minimum high characters.

NOTES:

1. THE BASIS OF THE MERIDIANS AND COORDINATES FOR THIS PLAT IS THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD83).
2. VERTICAL INFORMATION SHOWN, BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. ALL DISTANCES ARE GROUND UNLESS OTHERWISE NOTED.
4. THE TOWER IS LOCATED IN AN AREA DESIGNATED AS ZONE X, AREAS OUTSIDE OF 0.2% ANNUAL FLOOD CHANCE (FEMA MAP # 08005C_2091).

SITE PLAN

SCALE: 1" = 50'



PLANS PREPARED FOR:

333 INVERNESS DRIVE SOUTH
 ENGLEWOOD, CO 80112
 OFFICE: (408) 560-1040

PROJECT INFORMATION:

JAMISON
SITE #: DN90XCD10
 E JAMISON DR
 AURORA, CO 80016
 (ARAPAHOE COUNTY)

PLANS PREPARED BY:

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 500 E. 84TH AVE SUITE C10
 THORNTON, CO 80229
 OFFICE: (303) 566-9914
 www.tepgroup.net

SEAL:

July 6, 2018

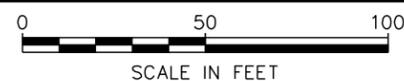
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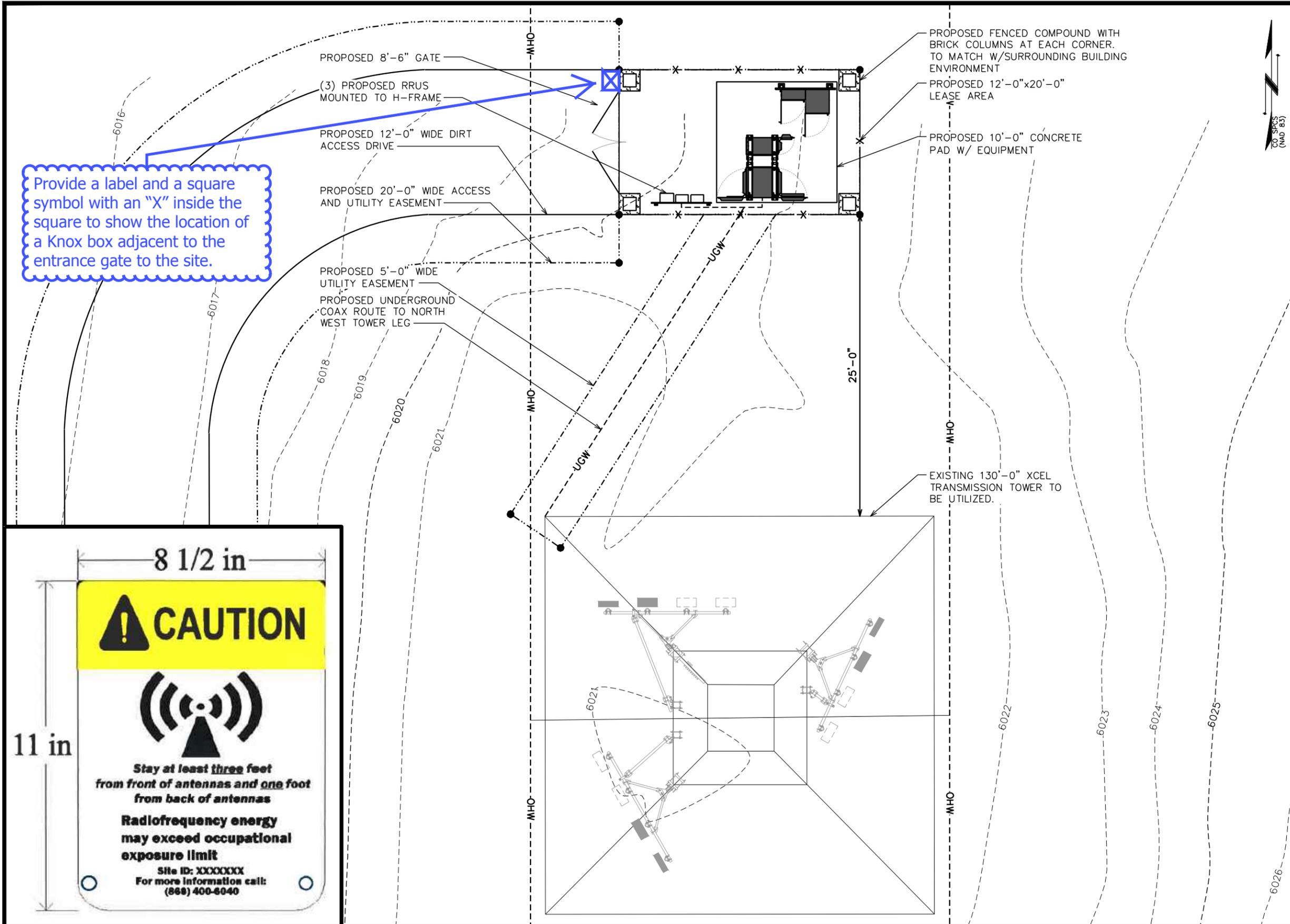
DRAWN BY: BRC | CHECKED BY: ARB

SHEET TITLE:

SITE PLAN

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| SHEET NUMBER: | REVISION: |
| Z-1 | 1 |
| TEP #134000.202187 | |





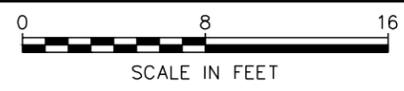
Provide a label and a square symbol with an "X" inside the square to show the location of a Knox box adjacent to the entrance gate to the site.



RF SAFETY SIGNAGE

COMPOUND DETAIL

SCALE: 1/8" = 1'-0"



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333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

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E JAMISON DR
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500 E. 84TH AVE SUITE C10
THORNTON, CO 80229
OFFICE: (303) 566-9914
www.tepgroup.net

SEAL:

July 6, 2018

| REV | DATE | ISSUED FOR: |
|-----|----------|-------------|
| 1 | 07-06-18 | PRELIMINARY |
| 0 | 06-28-18 | PRELIMINARY |

DRAWN BY: BRC | CHECKED BY: ARB

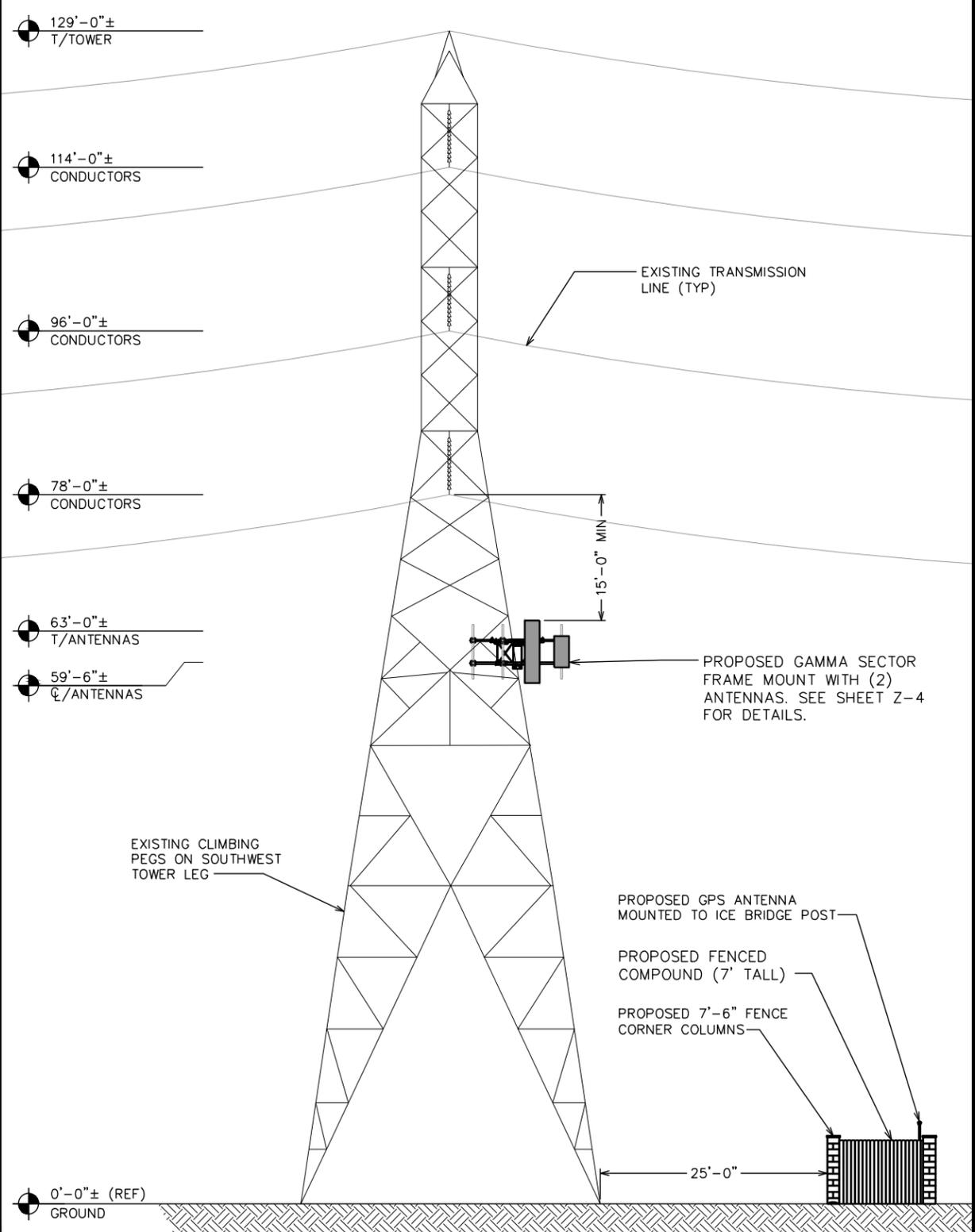
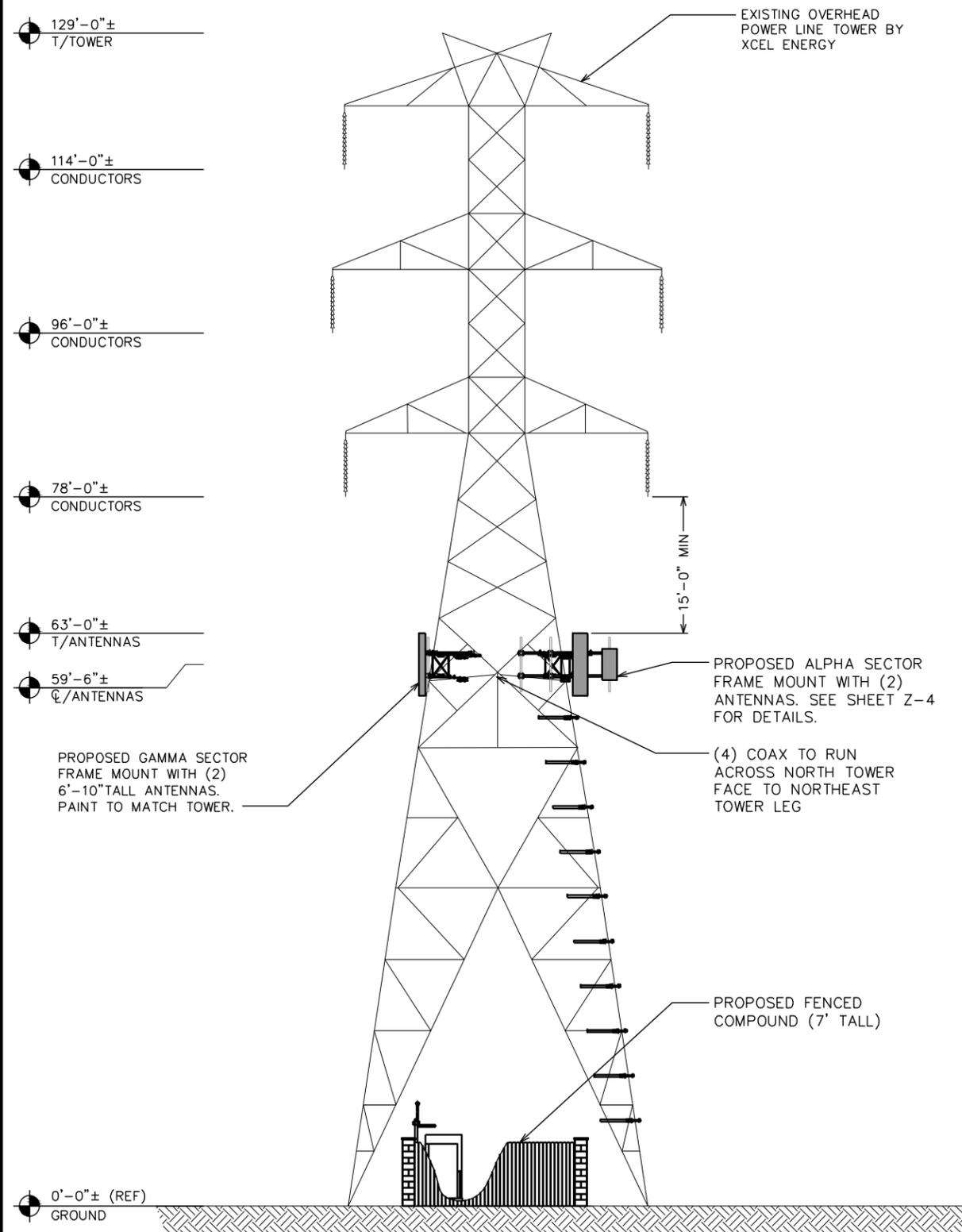
SHEET TITLE:

COMPOUND PLAN

SHEET NUMBER: **Z-2**

REVISION: **1**

TEP #134000.202187



NORTH TOWER ELEVATION (LOOKING SOUTH) 0 16 32
 SCALE: 1/16" = 1'-0"
 SCALE IN FEET

EAST TOWER ELEVATION (LOOKING WEST) 0 16 32
 SCALE: 1/16" = 1'-0"
 SCALE IN FEET

PLANS PREPARED FOR:

333 INVERNESS DRIVE SOUTH
 ENGLEWOOD, CO 80112
 OFFICE: (408) 560-1040

PROJECT INFORMATION:

JAMISON
SITE #: DN90XCD10
 E JAMISON DR
 AURORA, CO 80016
 (ARAPAHOE COUNTY)

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
 500 E. 84TH AVE SUITE C10
 THORNTON, CO 80229
 OFFICE: (303) 566-9914
 www.tepgroup.net

SEAL:

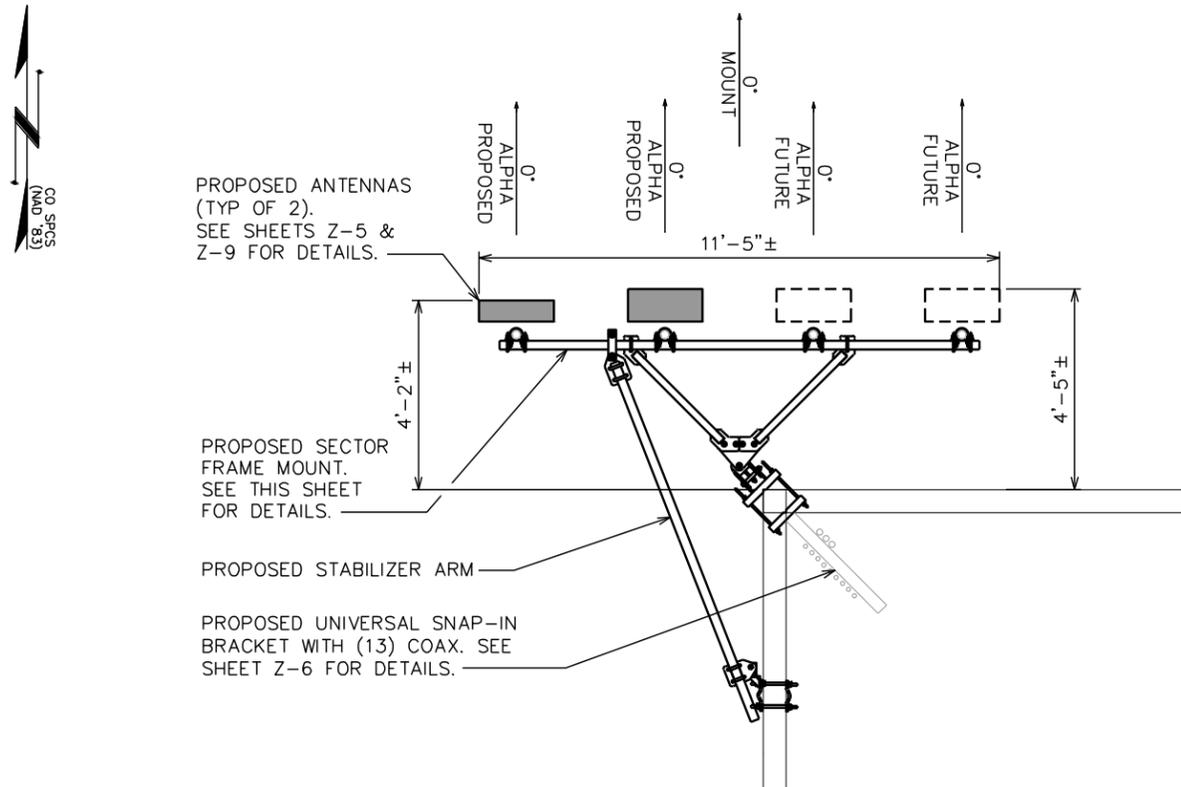
July 6, 2018

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| 1 | 07-06-18 | PRELIMINARY |
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DRAWN BY: BRC | CHECKED BY: NMC

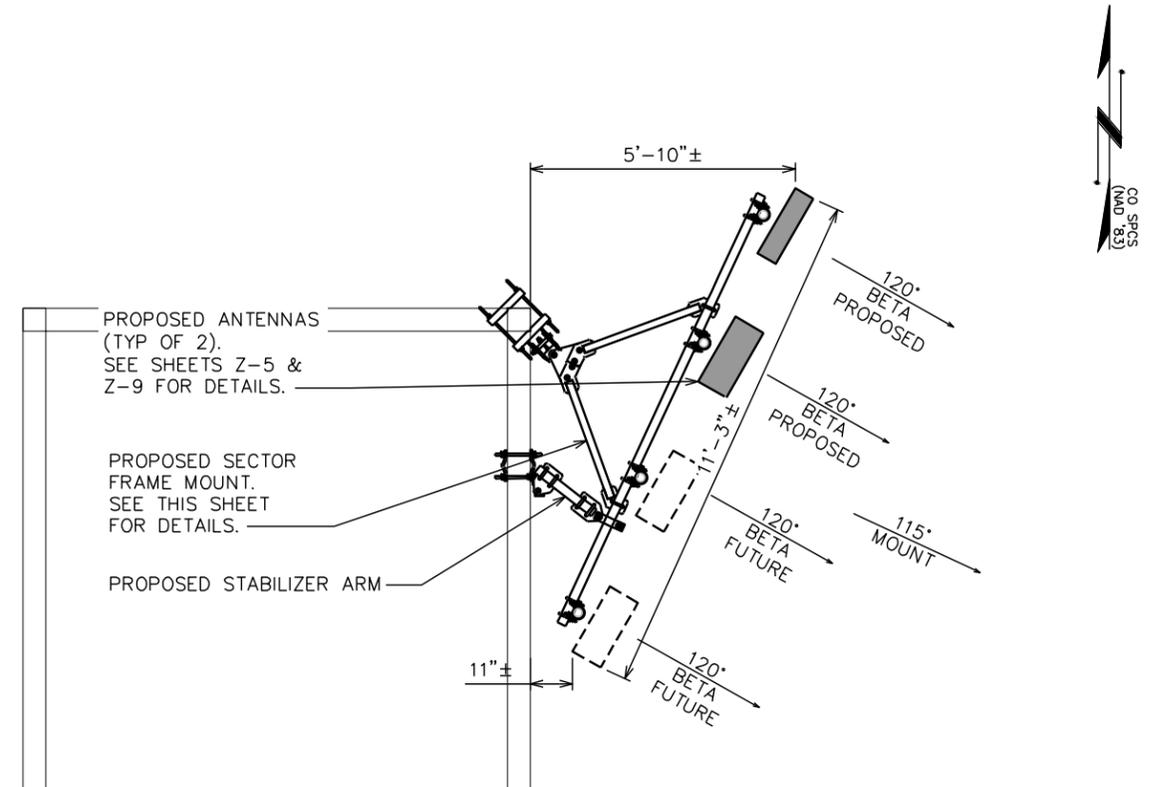
SHEET TITLE:
TOWER ELEVATION

| | |
|-----------------------------|-----------------------|
| SHEET NUMBER: Z-3 | REVISION: 1 |
| TEP #134000.202187 | |



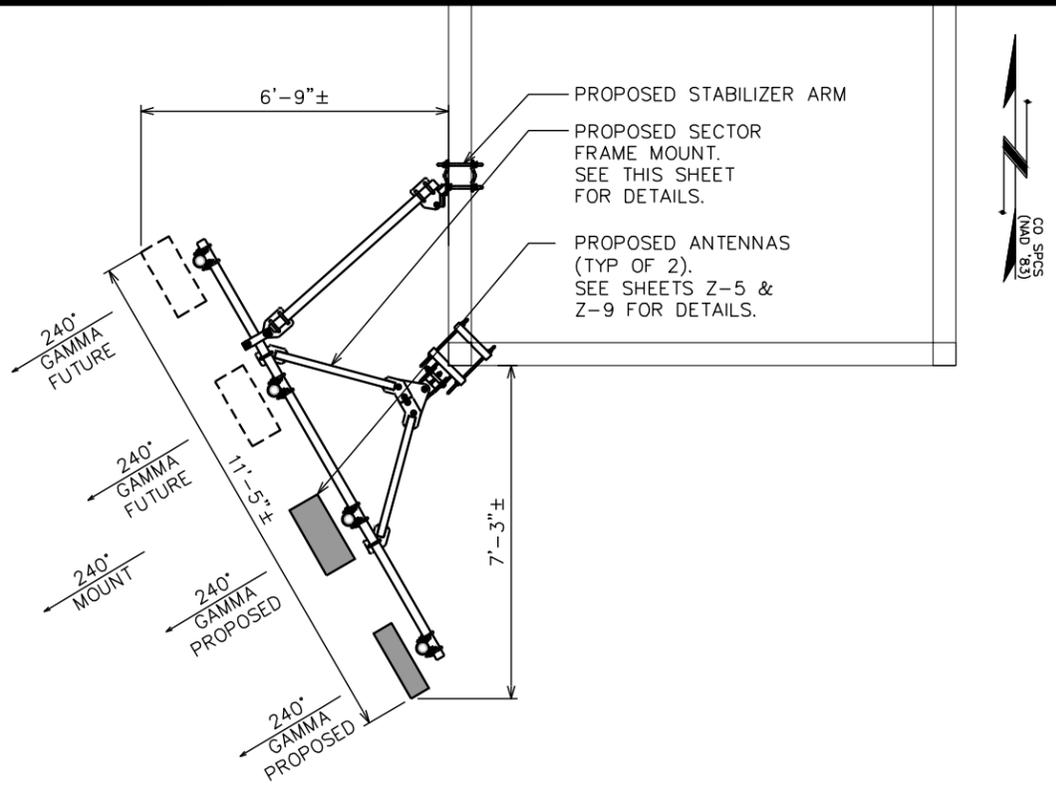
NORTHWEST LEG ANTENNA LAYOUT

SCALE: 1/4" = 1'-0"



NORTHEAST LEG ANTENNA LAYOUT

SCALE: 1/4" = 1'-0"



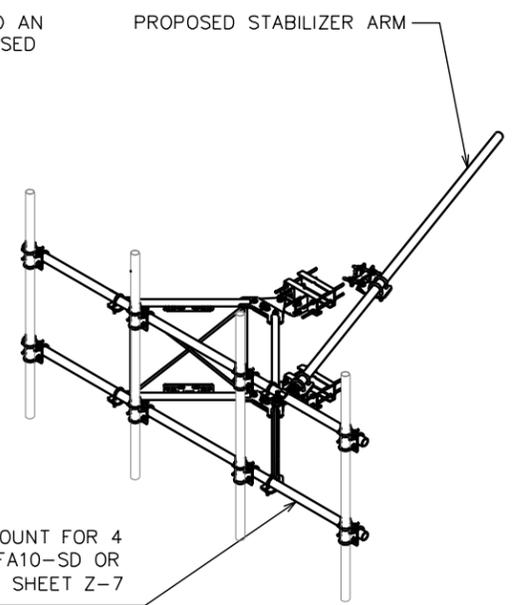
SOUTHWEST LEG ANTENNA LAYOUT

SCALE: 1/4" = 1'-0"



NOTES:

- TOWER LEG SIZE TO BE CONFIRMED BEFORE ORDERING MOUNTS.
- TEP HAS NOT PERFORMED AN ANALYSIS ON THE PROPOSED MOUNT.



PROPOSED SECTOR FRAME MOUNT FOR 4 ANTENNAS (SITEPRO P/N: VFA10-SD OR APPROVED EQUIVALENT). SEE SHEET Z-7 FOR DETAILS.

PROPOSED ANTENNA MOUNT

SCALE: N.T.S.

PLANS PREPARED FOR:

333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

PROJECT INFORMATION:

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DRAWN BY: BRC | CHECKED BY: ARB

SHEET TITLE:
PROPOSED ANTENNA LAYOUTS

| | |
|-----------------------------|---------------------------------------------|
| SHEET NUMBER: Z-4 | REVISION: 1 TEP #134000.202187 |
|-----------------------------|---------------------------------------------|

PLANS PREPARED FOR:

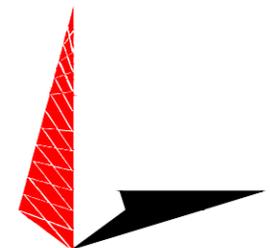


333 INVERNESS DRIVE SOUTH
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PROJECT INFORMATION:

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| REV | DATE | ISSUED FOR: |

DRAWN BY: BRC | CHECKED BY: ARB

SHEET TITLE:

PROPOSED ANTENNA SCHEDULE

| | |
|-----------------------------|----------------------------------------------|
| SHEET NUMBER: Z-5 | REVISION: 1 TEP #:134000.202187 |
|-----------------------------|----------------------------------------------|

FINAL ANTENNA/FEEDLINE SCHEDULE

| SECTOR | POS. | MANUFACTURER (MODEL #) | MOUNTING HEIGHT | AZIMUTH (TN) | ELEC. TILT | CABLE SIZE | HYBRID CABLE LENGTH | JUMPER CABLE LENGTH | OVP/RRH/TMA/DIPLEXER [MODEL #] *LOCATED IN COMPOUND |
|--------|------|-------------------------|-----------------|--------------|------------|---------------------------|---------------------|---------------------|----------------------------------------------------------|
| ALPHA | 1 | SAMSUNG M-MIMO AAU | ☉ @ 59'-6"± | 0° | - | (3) 1 1/6" SAMSUNG TYPE 3 | 100'± | 100'± | (1) SAMSUNG RRH [RRH-P4] (1) SAMSUNG RRH [800MHZ RRH] |
| ALPHA | 2 | RFS APXVBLL20X_43-C-120 | ☉ @ 59'-6"± | 0° | - | | | | |
| ALPHA | 3 | - | - | - | - | | | | |
| ALPHA | 4 | - | - | - | - | | | | |
| BETA | 5 | SAMSUNG M-MIMO AAU | ☉ @ 59'-6"± | 120° | - | | 115'± | 115'± | (1) SAMSUNG RRH [RRH-P4] (1) SAMSUNG RRH [800MHZ RRH] |
| BETA | 6 | RFS APXVBLL20X_43-C-120 | ☉ @ 59'-6"± | 120° | - | | | | |
| BETA | 7 | - | - | - | - | | | | |
| BETA | 8 | - | - | - | - | | | | |
| GAMMA | 9 | SAMSUNG M-MIMO AAU | ☉ @ 59'-6"± | 240° | - | | 115'± | 115'± | (1) SAMSUNG RRH [RRH-P4] (1) SAMSUNG RRH [800MHZ RRH] |
| GAMMA | 10 | RFS APXVBLL20X_43-C-120 | ☉ @ 59'-6"± | 240° | - | | | | |
| GAMMA | 11 | - | - | - | - | | | | |
| GAMMA | 12 | - | - | - | - | | | | |

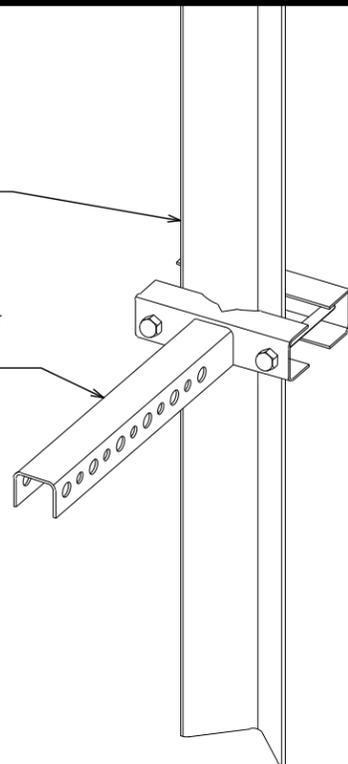
NOTE:

1. PROPOSED ANTENNAS TO BE PAINTED TO MATCH EXISTING TOWER

ANTENNA SCHEDULE

ANGLE-LEG OR PIPE LEG

UNIVERSAL SNAP-IN BRACKET
(VALMONT P/N: B2250) OR
APPROVED EQUIVALENT

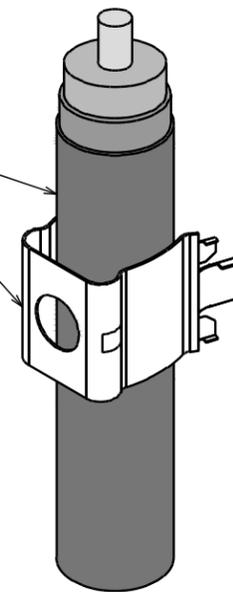


UNIVERSAL SNAP-IN BRACKET

SCALE: N.T.S.

PROPOSED
HYBRID CABLE

PROPOSED STACKABLE
SNAP-IN HANGERS
(SITE PRO P/N 78SS-A
OR APPROVED EQUIVALENT).

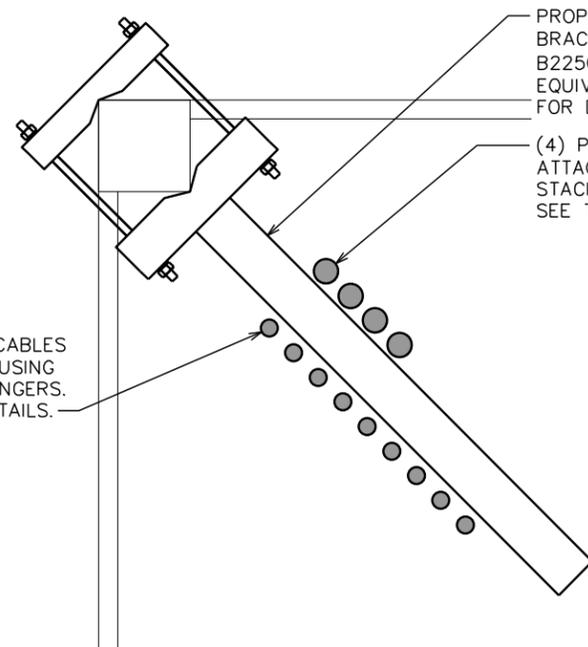


STACKABLE SNAP-IN HANGER DETAIL

SCALE: N.T.S.



(9) PROPOSED JUMPER CABLES
ATTACHED TO BRACKET USING
STACKABLE SNAP-IN HANGERS.
SEE THIS SHEET FOR DETAILS.

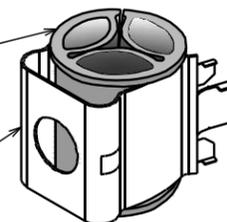


PROPOSED UNIVERSAL SNAP-IN
BRACKET (VALMONT P/N:
B2250) OR APPROVED
EQUIVALENT. SEE THIS SHEET
FOR DETAILS.

(4) PROPOSED HYBRID CABLES
ATTACHED TO BRACKET USING
STACKABLE SNAP-IN HANGERS.
SEE THIS SHEET FOR DETAILS.

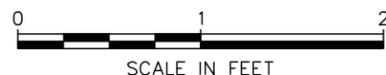
PROPOSED BARREL CUSHIONS
(SITE PRO P/N: BCU158X
OR APPROVED EQUIVALENT)

PROPOSED STACKABLE
SNAP-IN HANGERS
(SITE PRO P/N: 158SS-A
OR APPROVED EQUIVALENT)



COAX LAYOUT

SCALE: 1" = 1'-0"



BARREL CUSHION DETAIL

SCALE: N.T.S.

PLANS PREPARED FOR:



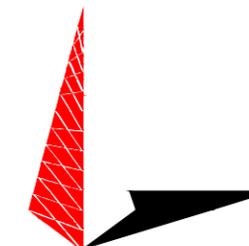
333 INVERNESS DRIVE SOUTH
ENGLEWOOD, CO 80112
OFFICE: (408) 560-1040

PROJECT INFORMATION:

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E JAMISON DR
AURORA, CO 80016
(ARAPAHOE COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS
500 E. 84TH AVE SUITE C10
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DRAWN BY: BRC | CHECKED BY: ARB

SHEET TITLE:

**PROPOSED COAX
LAYOUT**

SHEET NUMBER:

Z-6

REVISION:

1

TEP #134000.202187

PLANS PREPARED FOR:



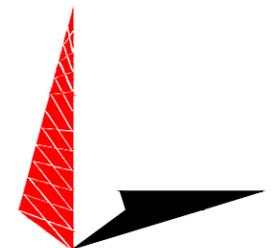
333 INVERNESS DRIVE SOUTH
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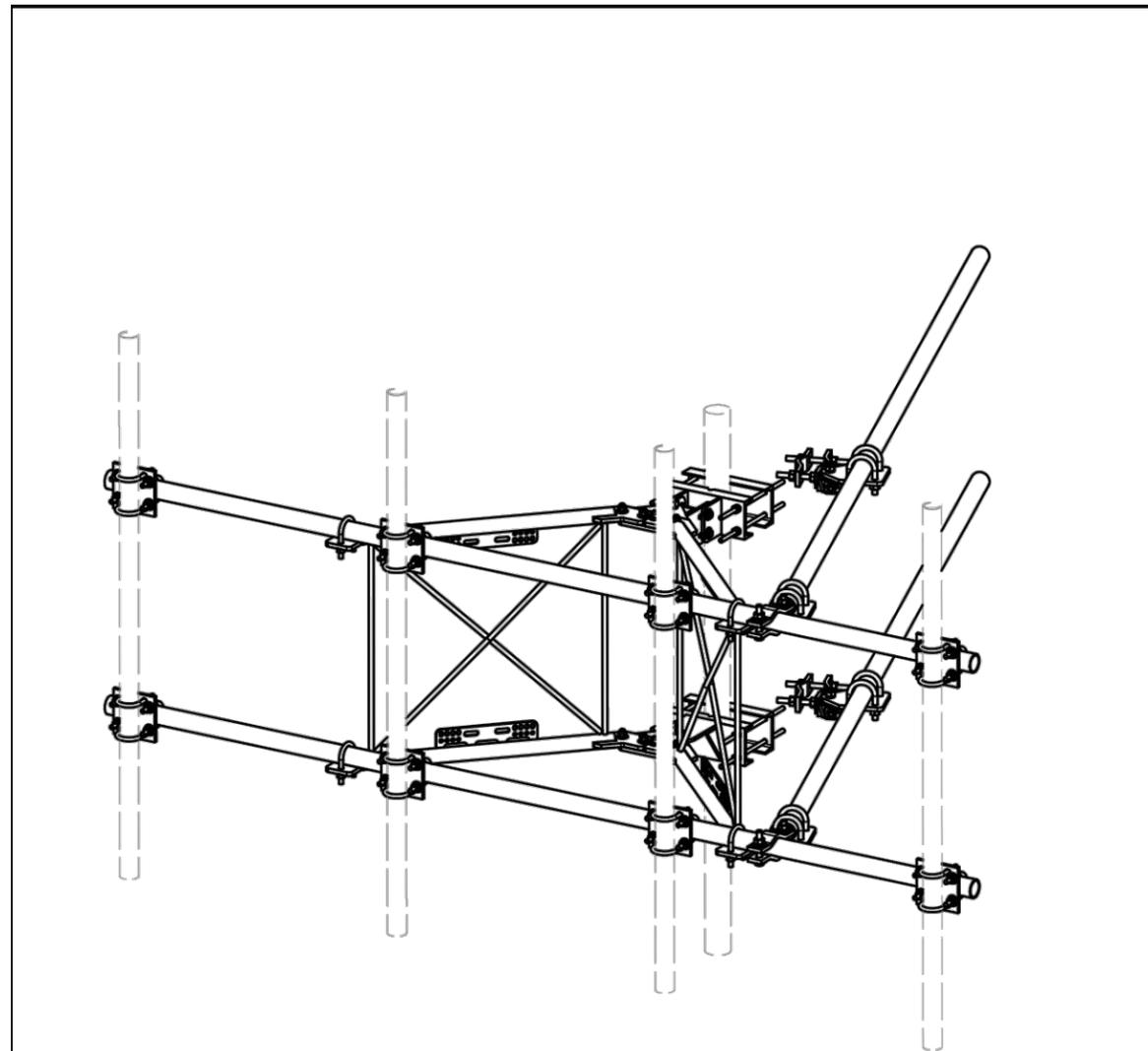
PROPOSED ANTENNA MOUNT

SHEET NUMBER: REVISION:

Z-7

1

TEP #134000.202187



| PARTS LIST | | | | | | |
|------------|-----|-----------|------------------------------------------------|------------|-------------|---------|
| ITEM | QTY | PART NO. | PART DESCRIPTION | LENGTH | UNIT WT. | NET WT. |
| 1 | 2 | X-VFASD | SUPPORT ARM FOR STANDARD DUTY V-FRAME ASSEMBLY | | 45.34 | 90.69 |
| 2 | 1 | X-SDCAMDS | DIAGONAL SLOT WELDMENT FOR BCAM | | 13.57 | 13.57 |
| 3 | 1 | X-MHTP | MULTI-HOLE TAPER PLATE WELDMENT | | 13.17 | 13.17 |
| 4 | 2 | X-233792 | PIVOT PLATE | 11 1/16 in | 9.09 | 18.18 |
| 5 | 2 | X-LCBB | LEG CONNECTION BACKING BRACKET | 12 in | 7.56 | 15.11 |
| 6 | 1 | X-SDCAMSS | STRAIGHT SLOT WELDMENT FOR BCAM | | 8.48 | 8.48 |
| 7 | 4 | X-SPTB | SLIDING PIPE TIE BACK PLATE | 5 1/2 in | 5.87 | 23.49 |
| 8 | 1 | X-SDCAMSP | POSITIONING PLATE WELDMENT FOR BCAM | | 1.43 | 1.43 |
| 9 | 4 | X-TBCA | TIE BACK CLIP ANGLE | | 2.01 | 8.02 |
| 10 | 8 | SCX1 | CROSSOVER PLATE 2-3/8" X 2-3/8" | 6 in | 3.71 | 29.67 |
| 11 | 4 | MCP | CLAMP HALF 1/2" THICK, 11-5/8" LONG | 12 1/16 in | 3.59 | 14.37 |
| 12 | 8 | DCP | 1/2" THICK, 5-3/4" CENTER TO CENTER CLAMP HALF | 8 1/8 in | 2.36 | 18.90 |
| 13 | 4 | P2126 | 2-3/8" X 126" (2" SCH. 40) GALVANIZED PIPE | 126 in | 40.75 | 163.01 |
| 14 | 2 | A34214 | 3/4"-10 X 2-1/4" A325 BOLT | 2 1/4 in | 0.47 | 0.95 |
| 15 | 2 | G34LW | 3/4" HDG LOCKWASHER | | 0.04 | 0.09 |
| 16 | 2 | G34NUT | 3/4" HDG HEAVY 2H HEX NUT | | 0.21 | 0.42 |
| 17 | 8 | G58R-12 | 5/8" x 12" THREADED ROD (HDG.) | | 1.05 | 8.36 |
| 18 | 4 | G58R-8 | 5/8" x 8" THREADED ROD (HDG.) | | 0.70 | 2.79 |
| 19 | 8 | X-UB5258 | 5/8" X 2-5/8" X 4-1/2" X 2" U-BOLT (HDG.) | | 1.00 | 8.00 |
| 20 | 8 | G5804 | 5/8" x 4" HDG HEX BOLT GR5 | | 0.44 | 3.55 |
| 21 | 4 | G5802 | 5/8" x 2" HDG HEX BOLT GR5 | | 0.27 | 1.08 |
| 22 | 20 | G58FW | 5/8" HDG USS FLATWASHER | 1/8 in | 0.07 | 1.41 |
| 23 | 32 | G58LW | 5/8" HDG LOCKWASHER | | 0.03 | 0.83 |
| 24 | 36 | G58NUT | 5/8" HDG HEAVY 2H HEX NUT | | 0.13 | 4.68 |
| 25 | 8 | G12R-15 | 1/2" x 15" GALV. THREADED ROD | | 0.84 | 6.69 |
| 26 | 36 | X-UB1212 | 1/2" X 2-1/2" X 4-1/2" X 2" GALV. U-BOLT | | 0.66 | 23.63 |
| 27 | 2 | G12065 | 1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD | 6 1/2 in | 0.41 | 0.82 |
| 28 | 1 | G12045 | 1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD | 4 1/2 in | 0.30 | 0.30 |
| 29 | 8 | G1202 | 1/2" x 2" HDG HEX BOLT GR5 | 2 in | 0.18 | 1.41 |
| 30 | 85 | G12FW | 1/2" HDG USS FLATWASHER | 3/32 in | 0.03 | 2.90 |
| 31 | 98 | G12LW | 1/2" HDG LOCKWASHER | 1/8 in | 0.01 | 1.36 |
| 32 | 99 | G12NUT | 1/2" HDG HEAVY 2H HEX NUT | | 0.07 | 7.09 |
| | | | | | TOTAL WT. # | 498.39 |

TOLERANCE NOTES

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

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
10'-6" STANDARD DUTY V-FRAME ASSEMBLY W/ 2 STIFF ARMS

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

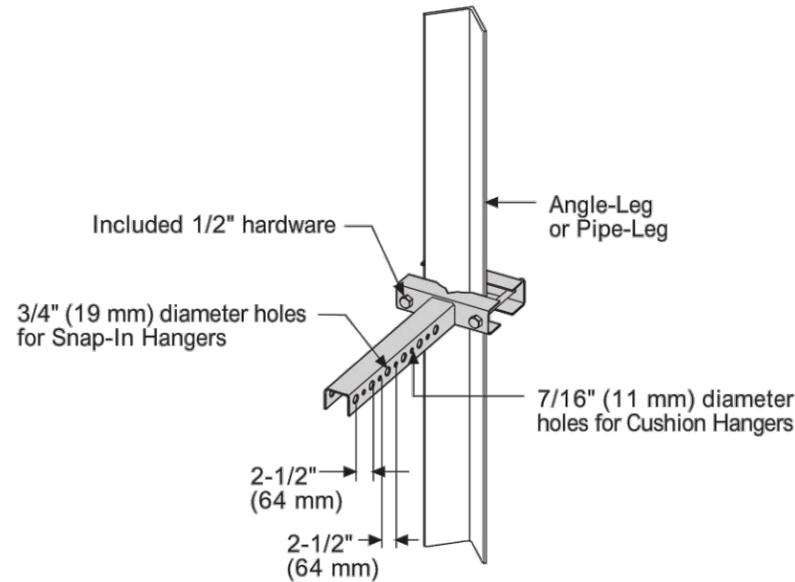
| | | | | |
|---------|---------------|----------------|----------|----------------|
| CPD NO. | DRAWN BY | ENG. APPROVAL | PART NO. | PAGE 1 OF 5 |
| 81 02 | CEK 11/2/2016 | BMC 11/18/2016 | VFA10-SD | |
| CLASS | SUB | DRAWING USAGE | DWG. NO. | |
| | | CUSTOMER | VFA10-SD | |

SITEPRO VFA10-SD



Universal Snap-In Brackets for Angle- or Pipe-Leg

The Universal Snap-In Bracket supports up to 16 Snap-In Hangers for support of coax transmission lines on angle-leg or pipe-leg structures. Also provided are 7/16" (11 mm) diameter holes to support Cushion or Butterfly Hangers. Galvanized.



| 12 Runs | 16 Runs | Angle Leg Size in (mm) | Pipe Leg Size in (mm) |
|------------|------------|-------------------------------------------------|---------------------------------------|
| B2249 | B2252 | 2-1/2 (64) x 2-1/2 (64) to 4 (102) x 4 (102) | 1-1/2 (38) OD to 5-9/16 (141) OD |
| B2250 | B2253 | 5 (127) x 5 (127) to 6 (152) x 6 (152) | 6 (152) OD to 8-5/8 (219) OD |
| B2251 | B2254 | 8 (203) x 8 (203) | 10-3/4 (273) OD to 12-3/4 (324) OD |

PLANS PREPARED FOR:



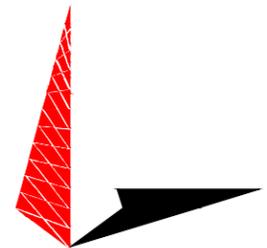
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DRAWN BY: BRC | CHECKED BY: ARB

SHEET TITLE:

EQUIPMENT DETAILS

SHEET NUMBER:

Z-8

REVISION:

1

TEP #134000.202187

SNAP IN BRACKET - VALMONT B2250

ANTENNA MAKE AND MODEL

ANTENNA MAKE: SAMSUNG TELECOMMUNICATIONS
 ANTENNA MODEL: M-MIMO AAU
 DIMENSIONS, HxWxD: 41.34"x19.70"x5.50"
 WEIGHT: 143.3 lbs



SAMSUNG ELECTRONICS AMERICA, INC.
 5901 College Boulevard, Suite 300
 Overland Park, KS 66213

Date : 11/3/2017

M-MIMO Cut Sheet

Cut sheet details for Samsung 64T64R Massive MIMO AAU (MAU) enclosed.

| Radio module | SSLR 7.1.0 (1Q.'18) |
|--------------------------------------------------|----------------------------------------------|
| Temperature support | Option A: -40 C to 55 C (without solar load) |
| # of Tx/Rx | 64T64R |
| Frequency band-MHz | 2496-2690 |
| IBW (MHz) | 60 |
| Split mode support | Yes |
| Aggregate Tx power- Watts | 160 |
| Weight- Kgs (AAU) | < 65Kg (55 degree C) |
| Weight- Kgs (BBU) | < 15Kg |
| Dimension- CM (AAU) (H X W X D mm) | 1050 x 500 x 140 (55 C) |
| Dimension- CM (BBU) | 43.3x 38.5 x 8.8 |
| Volume - L (AAU) | 73.5L |
| Power consumption (W) | 1572 (max) |
| # of antenna elements | 128 |
| # of antenna elements- columns | 8 |
| Horizontal antenna element spacing | 0.489λ |
| # of antenna elements- row | 8x2 polarization |
| Vertical antenna element spacing | 0.7λ |
| # of antenna sub-array | 2x2 polarization |
| Antenna element gain- dBi | 7 |
| PDCCH Broadcast beam HBW | 35-95 (every 5 degree) |
| PDCCH Broadcast beam gain-dBi | 15+/-1dBi |
| Down link SU-MIMO | 2x2, 4x4 |
| Uplink SU-MIMO | 2x2 |
| Downlink MU-MIMO- # of layers (# of UE x layers) | 16 |
| Uplink MU-MIMO- # of layers (# of UE x layers) | 2 |
| Maximum DL modulation scheme | 256 QAM |
| Maximum UL modulation scheme | 64 QAM |
| Transmission modes supported | TM7, TM9 |
| SRS periods | 24RBs per 10ms |
| DMRS design | TM7 Port 5, TM9 Port 7,8,9,and 10 |
| CSI-RS | 8 Port CSI-RS |
| Uplink detection scheme | MMSE |
| CA support | 3CA |

CONFIDENTIAL AND PROPRIETARY INFORMATION

Page 1

ANTENNA MAKE AND MODEL

ANTENNA MAKE: RFS
 ANTENNA MODEL: APXVBLL20X_43-C-120
 DIMENSIONS, HxWxD: 82.6"x19.6"x8.5"
 WEIGHT: 85.3 lbs

PRODUCT DATASHEET
 APXVBLL20X_43-C-120

FEATURES / BENEFITS

This antenna provides an 8-port multi-band flexible platform for advanced use in both low and high bands

- 4 ports / 2 systems in low band
- 4 ports / 2 systems in high band
- Integrated RET platform
- Slim radome design
- MIMO 4x4 for LTE 700 & 2600

Technical Features

LOW BAND LEFT ARRAY (694-960 MHz) [R1]

| Frequency Band | MHz | 694-790 | 790-894 | 880-960 |
|---------------------------------------|------|-------------------------------------------------------------|--------------|--------------|
| Gain | dBi | 14.8 | 15.8 | 15.8 |
| Horizontal Beamwidth @3dB | Deg | 71.5 +/- 9.6 | 64.2 +/- 4.7 | 60.1 +/- 3.7 |
| Vertical Beamwidth @3dB | Deg | 11.3 +/- 1.2 | 9.9 +/- 0.5 | 9.2 +/- 0.4 |
| Front-to-Back, at +/-30°, Total Power | dB | 19.1 | 22.5 | 25.5 |
| First Upper Side Lobe Suppression | dB | 20.3 | 19.9 | 20.8 |
| Electrical Downtilt Range | Deg | 2 to 12 | | |
| 3rd Order PIM 2 x 43dBm | dBc | -153 | | |
| VSWR | - | 1.5 | | |
| Return Loss | dB | 14 | | |
| Cross Polar Isolation | dB | 25 | | |
| Inter Band Isolation | dB | R1//R2 Typical 26 R1//Y1 Typical 25 R1//Y2 Typical 35 | | |
| Maximum Effective Power per Port | Watt | 300 | | |

LOW BAND RIGHT ARRAY (694-960 MHz) [R2]

| Frequency Band | MHz | 694-790 | 790-894 | 880-960 |
|---------------------------------------|------|-------------------------------------------------------------|--------------|--------------|
| Gain | dBi | 14.9 | 15.8 | 15.8 |
| Horizontal Beamwidth @3dB | Deg | 71.2 +/- 9.5 | 64.2 +/- 5.4 | 60.5 +/- 4.6 |
| Vertical Beamwidth @3dB | Deg | 11.3 +/- 1.1 | 9.9 +/- 0.5 | 9.2 +/- 0.4 |
| Front-to-Back, at +/-30°, Total Power | dB | 18.2 | 21.3 | 25.4 |
| First Upper Side Lobe Suppression | dB | 19 | 19.1 | 19.6 |
| Electrical Downtilt Range | Deg | 2 to 12 | | |
| 3rd Order PIM 2 x 43dBm | dBc | -153 | | |
| VSWR | - | 1.5 | | |
| Return Loss | dB | 14 | | |
| Cross Polar Isolation | dB | 25 | | |
| Inter Band Isolation | dB | R2//R1 Typical 26 R2//Y1 Typical 35 R2//Y2 Typical 25 | | |
| Maximum Effective Power per Port | Watt | 300 | | |

APXVBLL20X_43-C-120

REV: H

REV DATE: 10.06.2017

www.rfsworld.com

All information contained in the present datasheet is subject to confirmation at time of ordering

Page 1 of 4

PLANS PREPARED FOR:



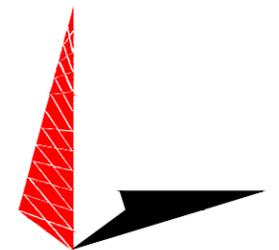
333 INVERNESS DRIVE SOUTH
 ENGLEWOOD, CO 80112
 OFFICE: (408) 560-1040

PROJECT INFORMATION:

JAMISON
SITE #: DN90XCD10

E JAMISON DR
 AURORA, CO 80016
 (ARAPAHOE COUNTY)

PLANS PREPARED BY:



TOWER ENGINEERING PROFESSIONALS
 500 E. 84TH AVE SUITE C10
 THORNTON, CO 80229
 OFFICE: (303) 566-9914
 www.tepgroup.net

SEAL:



July 6, 2018

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| 1 | 07-06-18 | PRELIMINARY |
| 0 | 06-28-18 | PRELIMINARY |
| REV | DATE | ISSUED FOR: |

DRAWN BY: BRC | CHECKED BY: ARB

SHEET TITLE:

ANTENNA DETAILS

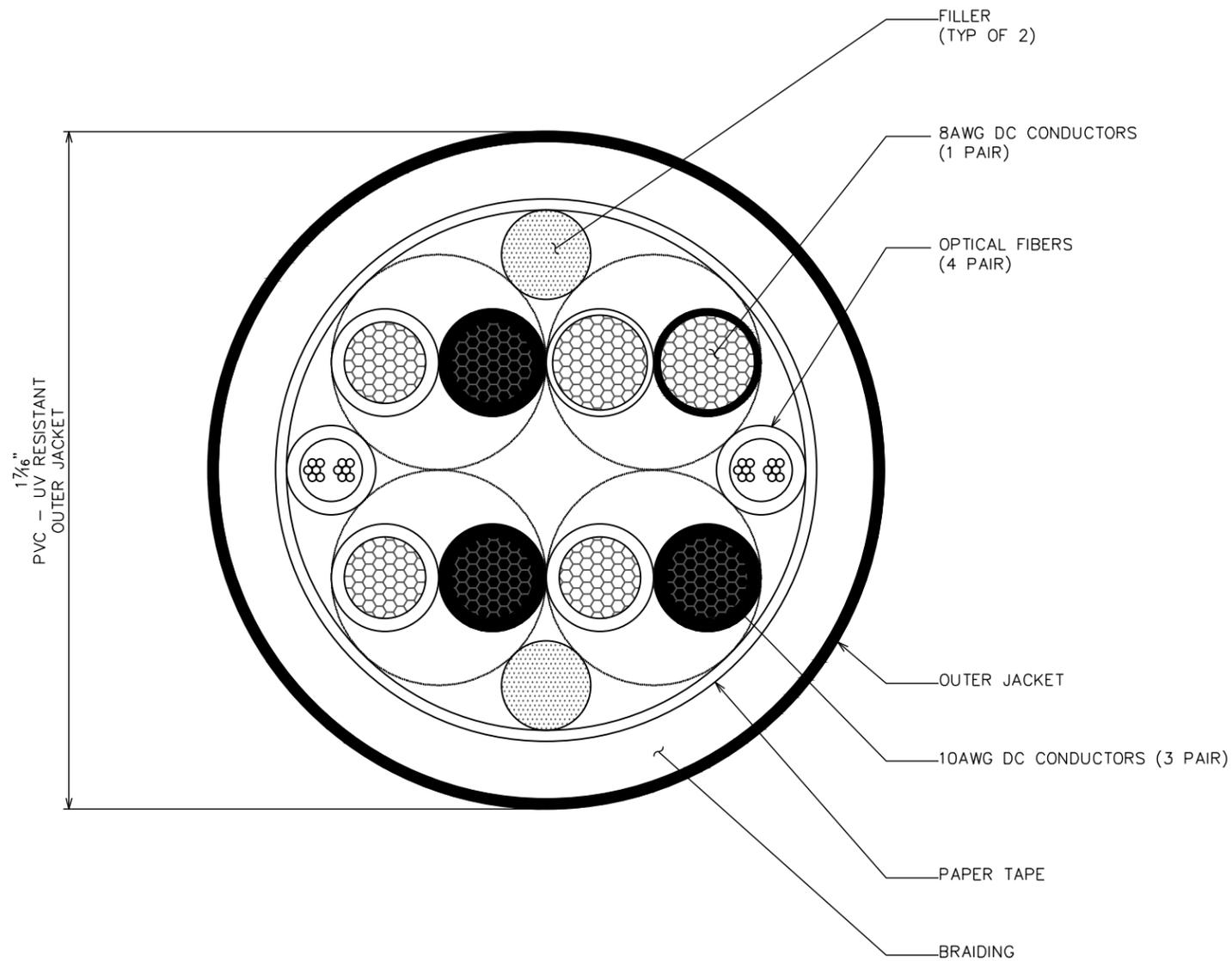
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| SHEET NUMBER: | REVISION: |
| Z-9 | 1 |
| TEP #134000.202187 | |

MASSIVE MIMO ANTENNA

SCALE: N.T.S.

RFS ANTENNA

SCALE: N.T.S.



PLANS PREPARED FOR:



Sprint

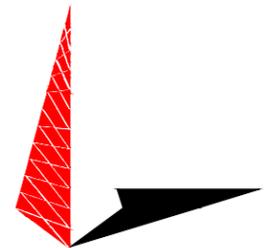
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COAX DETAILS

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| SHEET NUMBER: Z-10 | REVISION: 1 |
| TEP #134000.202187 | |

HYBRID CABLE