

CROWN CASTLE BU NO.:  
878782

SITE NAME:  
PORTLAND WARREN AVE



CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS  
118 FLANDERS ROAD, 3RD FLOOR  
WESTBOROUGH, MA 01581

SITE NAME:  
**PORTLAND\_12\_ME**

LOCATION CODE:  
**136569**

SITE ADDRESS:  
**188 WARREN AVENUE  
PORTLAND, ME 04103**



Know what's below.  
Call before you dig.



DATE OF APPROVAL  
PLANNER  
PROJECT NO.

Subject to Conditions of Approval  
and Standard Conditions

**SITE INFORMATION**

DATE OF APPROVAL: 7-25-16  
PLANNER: Barbara Barhydt  
PROJECT NO.: #2016-167

LOCATION CODE: PORTLAND\_12\_ME  
136569

SITE ADDRESS: 188 WARREN AVENUE  
PORTLAND, ME 04103

COUNTY: CUMBERLAND COUNTY

LATITUDE: 43° 41' 15.05" N (NAD83)

LONGITUDE: 70° 18' 15.20" W (NAD83)

GROUND LEVEL: 93' A.M.S.L. (NAVD83)

TOWER OWNER: CROWN CASTLE INTERNATIONAL  
500 CUMMINGS PARK DRIVE #3600  
WOBURN, MA 01801

STRUCTURE TYPE: MONOPOLE

STRUCTURE HEIGHT: 184'-0"± A.G.L.

RAD CENTER: 110'-0"± A.G.L.

**GENERAL NOTES AND APPLICABLE CODES**

- THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION.
    - HANDICAPPED ACCESS IS NOT REQUIRED.
    - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
    - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
  - CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
  - DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.
    - MUBC (MAINE UNIFORM BUILDING CODE) CONSISTS OF:
      - 2009 INTERNATIONAL RESIDENTIAL CODE (IRC)
      - 2009 INTERNATIONAL BUILDING CODE (IBC)
      - 2009 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
      - 62.1 - 2007 (VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY)
      - 62.2 - 2007 (VENTILATION AND ACCEPTABLE INDOOR AIR QUALITY IN LOW-RISE RESIDENTIAL BUILDINGS)
      - E-1465-2006, STANDARD PRACTICE FOR RADON CONTROL OPTIONS FOR THE DESIGN AND CONSTRUCTION OF NEW LOW-RISE RESIDENTIAL BUILDINGS
    - ELECTRICAL CODE: NATIONAL ELECTRIC CODE 2014
- SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS.
- AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
  - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION.
  - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)
    - TIA 222-G, STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES AND ANTENNAS WITH ADDENDUM.
    - TIA 607, GENERIC TELECOMMUNICATIONS BONDING AND GROUNDING (EARTHING) FOR CUSTOMER PREMISES.
  - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
    - IEEE 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUNDING SYSTEM.
    - IEEE 1100 (2005) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT.
    - IEEE C62.41.1, RECOMMENDED PRACTICES ON CHARACTERIZATION OF SURGES IN LOW VOLTAGE (1000V OR LESS) AC POWER CIRCUITS.
  - TELCORDIA, GR-1275, GENERAL INSTALLATION REQUIREMENTS.
  - TELCORDIA, GR-1503, COAXIAL CONNECTORS.
  - ANSI T1.311, TELECOMMUNICATIONS - DC POWER SYSTEMS - TELECOMMUNICATIONS ENVIRONMENT PROTECTION.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

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**APPROVALS**

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

LEASING/SITE ACQUISITION: \_\_\_\_\_ DATE: \_\_\_\_\_

LANDLORD: \_\_\_\_\_ DATE: \_\_\_\_\_

VERIZON WIRELESS CM: \_\_\_\_\_ DATE: \_\_\_\_\_

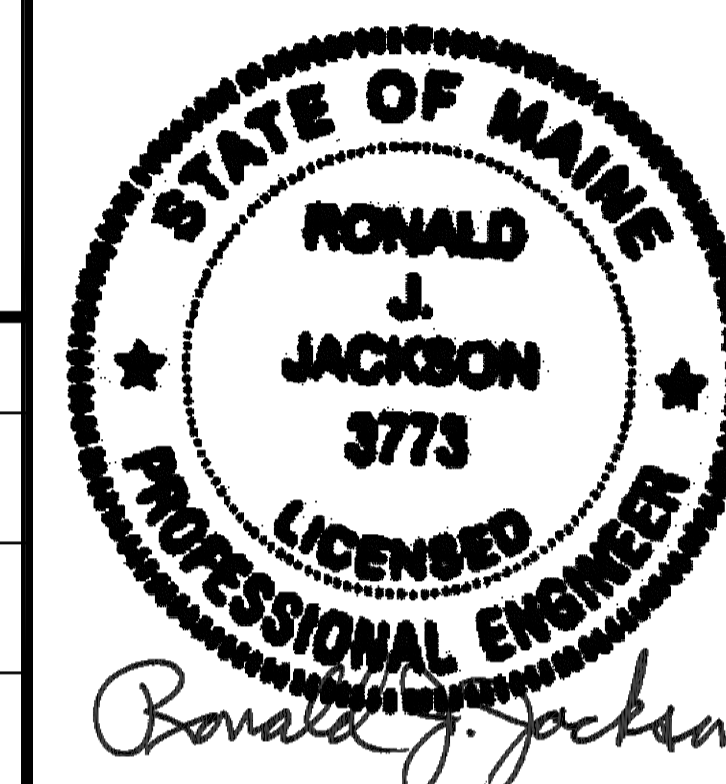
VERIZON WIRELESS RF: \_\_\_\_\_ DATE: \_\_\_\_\_

PREPARED BY:  
**NEXIUS**  
TRANSFORM YOUR BUSINESS...THROUGH WIRELESS

A&E OFFICE:  
7A LYBERTY WAY  
WESTFORD, MA 01886  
1 (972) 755-1882

APPLICANT:  
**verizon**

CELLCO PARTNERSHIP d/b/a  
VERIZON WIRELESS  
118 FLANDERS ROAD, 3RD FLOOR  
WESTBOROUGH, MA 01581



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DRAWING SCALES ARE INTENDED FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

| SUBMITTALS |          |                |    |
|------------|----------|----------------|----|
| REV        | DATE     | DESCRIPTION    | BY |
| A          | 01/20/16 | FOR REVIEW     | JM |
| B          | 06/23/16 | REVISED PER SA | JM |

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**188 WARREN AVENUE  
PORTLAND, ME 04103  
CUMBERLAND COUNTY**

SHEET TITLE:  
**TITLE SHEET**

NEXIUS PROJ. NO.: **VZ11509**

CHECKED BY: **KB**

CHECKED BY DATE: **01/12/16**

SHEET NUMBER:  
**T-1**

**VICINITY MAP**



**GENERAL CONSTRUCTION NOTES:**

- THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL DRAWINGS HAVE BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION." THE CONTRACTOR SHALL CONTACT NEXIUS, INC. TO ENSURE THAT THEY HAVE THE LATEST SET OF CONSTRUCTION DRAWINGS PRIOR TO COMMENCING ANY WORK WHATSOEVER.
- ADA COMPLIANCE: THE FACILITY IS A NORMALLY UNOCCUPIED MOBILE RADIO FACILITY.
- THESE PLANS ARE INTENDED TO BE USED TO DIRECT THE PROPOSED LAYOUT. DRAWINGS SHOULD NOT BE SCALED UNLESS OTHERWISE NOTED. PLANS, ELEVATIONS AND DETAILS ARE INTENDED TO SHOW THE END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AND NOTIFY THE PROJECT MANAGER OF ANY DISCREPANCIES BEFORE STARTING ANY WORK.
- THESE PLANS ARE DESIGNED TO REFLECT OBSERVED FIELD CONDITIONS. CERTAIN CONDITIONS ARE ASSUMED TO COMPLY WITH GENERAL STANDARD CONSTRUCTION DESIGN METHODS AND PRINCIPLES, AND THE CONTRACTOR SHALL NOTE THAT NOT ALL AREAS OF STRUCTURAL ATTACHMENT HAVE BEEN OPENED OR SPECIFICALLY VERIFIED. THE CONTRACTOR IS THEREFORE REQUESTED TO NOTIFY THE ENGINEER IMMEDIATELY SHOULD ENCOUNTERED FIELD CONDITIONS VARY FROM THOSE DEPICTED ON THE DRAWINGS. NEXIUS, INC. WILL ISSUE FIELD CHANGE DIRECTION IF REQUIRED.
- ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE NOTED BY THE ENGINEER OF RECORD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK PERFORMED AND MATERIALS INSTALLED TO BE IN STRICT CONFORMANCE, AS A MINIMUM STANDARD, WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES HAVING JURISDICTION. ELECTRICAL SYSTEMS SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE, AND ALL OTHER LOCAL AND STATE JURISDICTIONAL CODES, ORDINANCES, AND WITH LOCAL UTILITY COMPANY SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
- THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS, STUMPS, STONES, RUBBISH OR DEBRIS IN ACCORDANCE WITH ALL LOCAL AND ENVIRONMENTAL LAWS. NO MATERIALS OR EQUIPMENT SHALL BE PLACED ANYWHERE ON OR IN THE STRUCTURE WITHOUT MAKING ADEQUATE PROVISIONS TO PROTECT EXISTING PROPERTY. UPON COMPLETION, REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DURING CONSTRUCTION. REPAIR ALL EXISTING WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AND HAVE CONTROL OVER CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES.

**SITE WORK GENERAL NOTES:**

- THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT LIMITED TO:
  - FALL PROTECTION
  - CONFINED SPACE
  - ELECTRICAL SAFETY
  - TRENCHING & EXCAVATION
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWING.
- THE 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.

**SPECIFICATIONS FOR NON SHRINK GENERAL PURPOSE GROUT:**

- ALL NON-SHRINK GENERAL-PURPOSE GROUT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE NON-SHRINK GENERAL-PURPOSE GROUT SHALL BE MECHANICALLY MIXED FOR A MINIMUM OF TEN MINUTES.
- MIX NO MORE GROUT THEN CAN BE PLACED IN 10 TO 15 MINUTES.
- SURFACES TO RECEIVE THE GROUT SHALL BE FREE OF ANY TYPE OF FOREIGN MATERIAL AND BOND INHIBITING MATERIALS. BE SURE REPAIR AREA IS NOT LESS THAN 1/8" IN DEPTH.
- THE SUBSTRATE SHALL BE SATURATED SURFACE DRY WITH NO STANDING WATER. MORTAR MUST BE SCRUBBED INTO SUBSTRATE FILLING ALL PORES AND VOIDS.
- TYPICAL PROPERTIES OF THE GROUT SHALL BE AS FOLLOWS:
  - COMPRESSIVE STRENGTH (ASTM C-109 MODIFIED)
    - 1 DAY: 3500 PSI MIN
    - 7 DAY: 6000 PSI MIN
    - 28 DAY: 7000 PSI MIN
  - FLEXURAL STRENGTH (ASTM C-293) @ 28 DAYS: 2000 PSI
- ALL STEEL BEARING PLATES AND MAIN SUPPORT STEEL SHALL BE INSTALLED ONCE THE GROUT HAS BEEN LEVELED AND HAS BEEN CURED FOR A MINIMUM OF 24 HOURS. THE FULL DESIGN EQUIPMENT LOAD SHALL BE INSTALLED AFTER THE GROUT HAS CURED FOR 48 HOURS.
- SHOULD THE CONTRACTOR WISH TO PROPOSE AN ALTERNATIVE GROUT AND METHOD OF WORKING OUTSIDE THESE PARAMETERS, THIS MUST BE PRESENTED TO THE ENGINEER IN WRITING WITH A FULL METHOD STATEMENT, MATERIAL DATA SHEET AND INSTALLATION INSTRUCTIONS FOR HIS/HER APPROVAL.
- FAILURE TO COMPLY WITH THIS SPECIFICATION COULD SERIOUSLY AFFECT THE STABILITY OF THE INSTALLATION.

**CONSTRUCTION SPECIFICATIONS:**

**DIVISION 1 – GENERAL REQUIREMENTS SECTION 01010 SUMMARY OF WORK:**

- THE CONTRACTOR SHALL REVIEW AND BECOME FAMILIAR WITH SPECIFICATIONS CONTAINED IN THE BID PACKAGE PREPARED BY NEXIUS, INC. AND THE CLIENT. THE CONTRACTOR SHALL CONTACT NEXIUS, INC. TO ENSURE THAT THEY HAVE THE LATEST SET OF CONSTRUCTION DRAWINGS PRIOR TO COMMENCING ANY WORK WHATSOEVER.
- IN THE EVENT OF A CONFLICT BETWEEN THE BID PACKAGE SPECIFICATIONS AND THESE NOTES, THE PROVISIONS OF THE CLIENTS' SPECIFICATIONS SHALL TAKE PRECEDENCE.
- THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED WORK AND FULLY ACQUAINT THEMSELVES WITH THE CONDITIONS AS THEY EXIST IN ORDER THAT ANY RESTRICTIONS PERTAINING TO THE WORK ARE UNDERSTOOD. ALL AREAS AND DIMENSIONS ARE INDICATED ON THE DRAWINGS AS ACCURATELY AS POSSIBLE, BUT ALL CONDITIONS SHALL BE VERIFIED BY EACH CONTRACTOR AND/OR SUBCONTRACTOR AT THE SITE. THE FAILURE OF THE CONTRACTOR TO EXAMINE OR RECEIVE ANY FORM, INSTRUMENT OR DOCUMENT, OR TO VISIT THE SITE SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION WITH RESPECT TO THEIR QUOTED PRICE. THE SUBMISSION OF A QUOTATION SHALL ACKNOWLEDGE THAT THE CONTRACTOR AND THEIR SUBCONTRACTORS HAVE FULLY EXAMINED THE SITE AND KNOW THE EXISTING CONDITIONS AND HAVE MADE PROVISIONS FOR OPERATING UNDER THE CONDITIONS AS THEY EXIST AT THE SITE AND HAVE INCLUDED ALL NECESSARY ITEMS.
- THE GENERAL CONTRACTOR'S RESPONSIBILITIES SHALL INCLUDE, BUT NOT BE LIMITED TO, CONSTRUCTION OF THE EQUIPMENT FOUNDATION, INCLUDING ELECTRICAL SERVICE, TELEPHONE CONDUITS, GROUNDING SYSTEM AND COORDINATION WITH LOCAL UTILITY COMPANIES.
- THE ANTENNA INSTALLERS RESPONSIBILITIES SHALL INCLUDE, BUT NOT BE LIMITED TO, CABLE TRAY INSTALLATION, ROUTING OF CABLES FROM RADIO EQUIPMENT TO ANTENNAS, ASSOCIATED HARDWARE FOR SECURING ANTENNA CABLES, ANTENNA MOUNTS, DETERMINING SUPPLIER OF ANTENNAS, GROUNDING OF ANTENNAS TO GROUNDING SYSTEM, INSTALLING ANTENNAS AND VERIFYING WITH RADIO FREQUENCY ENGINEERS, THE ALIGNMENT, LOCATION, AND PROPER ORIENTATION OF ANTENNAS.
- THE CONTRACTORS SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH THE BUILDING LANDLORD IN ORDER TO AVOID CONFLICTS WITH CURRENT USE OF THE SITE.
- THE OWNER MAY HAVE WORK PERFORMED UNDER SEPARATE CONTRACTS, CONCURRENTLY, WITH THE WORK OF THIS CONTRACT.
- THE GENERAL CONTRACTOR SHALL PERMIT ACCESS TO THE PROJECT TO THESE CONTRACTORS TO PERFORM THEIR WORK.
- THE CONTRACTOR SHALL CONFORM TO ALL APPLICABLE LOCAL, COUNTY, STATE, AND FEDERAL CODES, LAWS AND REQUIREMENTS, INCLUDING OSHA.
- THE CONTRACTOR SHALL APPLY AND PAY FOR THE CONSTRUCTION PERMIT, CERTIFICATE OF OCCUPANCY AND ALL OTHER REQUIRED PERMITS OR LICENSES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL INSPECTIONS.
- CARE SHALL BE EXERCISED IN PROTECTING THE BUILDING OCCUPANTS DURING THE DEMOLITION AND CONSTRUCTION PERIODS OF THIS PROJECT. EVERY EFFORT SHALL BE MADE TO MAINTAIN A CLEAN OPERATION. DEBRIS SHALL NOT ACCUMULATE. ALL DEBRIS WILL BE DEPOSITED IN A SUITABLE CONTAINER ON A DAILY BASIS AND SHALL BE EMPTIED ON A REGULAR SCHEDULE. THE LOCATION OF THE CONTAINER SHALL BE COORDINATED WITH THE BUILDING MANAGER.
- SAFETY PROCEDURES: ATTENTION IS DIRECTED TO FEDERAL, STATE, AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH STANDARDS. THE CONSTRUCTION COMPANY AWARDED THIS PROJECT SHALL ENSURE ALL WORKING SURROUNDINGS AND CONDITIONS ARE SANITARY, AND ARE NOT HAZARDOUS OR DANGEROUS TO THE HEALTH OR SAFETY OF THE WORK CREWS OR BUILDING OCCUPANTS. PRECAUTION SHALL BE EXERCISED AT ALL TIMES FOR THE PROTECTION OF PERSONS AND PROPERTY. IT IS MANDATORY THAT THE SAFETY PROVISIONS OF APPLICABLE LOCAL LAWS, OSHA REGULATIONS AND BUILDING AND CONSTRUCTION CODES, BE OBSERVED FOR ALL CONTRACTORS AND ANTENNA RIGGERS.

**SECTION 01613 – DELIVERY, STORAGE AND HANDLING:**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROCEDURES AND SCHEDULING ASSOCIATED WITH HOISTING, STAGING, AND ERECTING OF MATERIALS AND EQUIPMENT TO AND/OR UPON THE SITE.
- ALL ELEMENTS OF THE EXISTING SITE, I.E. STRUCTURES, SITE PLANTINGS, ETC. SHALL BE PROTECTED AS NECESSARY FROM SAID ACTIONS. THIS WORK MUST BE DONE IN A SAFE, SECURE NONDESTRUCTIVE MANNER FOR PROTECTING PERSONNEL AND PROPERTY.

**DIVISION 4 – MASONRY**

**SECTION 04520 – MASONRY RESTORATION – TUCK POINTING:**

- GENERAL: THIS SECTION SPECIFIES REQUIREMENTS FOR THE CLEANING, RESTORATION OF MORTAR JOINTS, REPLACEMENT OF MASONRY, AND MASONRY REPAIR.
- ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THESE SPECIFICATIONS IN ADDITION TO:
  - ASTM INTERNATIONAL:
    - ASTM C91 STANDARD SPECIFICATION FOR MASONRY CEMENT.
    - ASTM C144 STANDARD SPECIFICATION FOR AGGREGATE FOR MASONRY MORTAR.
    - ASTM C150 STANDARD SPECIFICATION FOR PORTLAND CEMENT.
    - ASTM C207 STANDARD SPECIFICATION FOR HYDRATED LIME FOR MASONRY PURPOSES.
    - ASTM C270 STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY.
    - ASTM C476 STANDARD SPECIFICATION FOR GROUT FOR MASONRY.
    - ASTM C780 STANDARD TEST METHOD FOR PRE-CONSTRUCTION AND CONSTRUCTION EVALUATION OF MORTARS FOR PLAIN AND REINFORCED UNIT MASONRY.
    - ASTM C979 STANDARD SPECIFICATION FOR PIGMENTS FOR INTEGRALLY COLORED CONCRETE.
    - ASTM C1329 STANDARD SPECIFICATION FOR MORTAR CEMENT.
    - ASTM C1384 STANDARD SPECIFICATION FOR ADMIXTURES FOR MASONRY MORTARS.
    - ASTM E514 STANDARD TEST METHOD FOR WATER PENETRATION AND

**LEAKAGE THROUGH MASONRY.**

- INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL (IMIAC): RECOMMENDED PRACTICES AND GUIDE SPECIFICATION FOR COLD WEATHER MASONRY CONSTRUCTION.
- NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA):
  - NCMA TEK BULLETIN #8-2A REMOVAL OF STAINS FROM CONCRETE MASONRY.
  - NCMA TEK BULLETIN #8-3A CONTROL AND REMOVAL OF EFFLORESCENCE.
- MATERIAL DELIVERY, STORAGE AND HANDLING SHALL COMPLY WITH DIVISION 1:
  - DELIVERY: DELIVER MATERIALS IN MANUFACTURER'S ORIGINAL, UNOPENED, UNDAMAGED CONTAINERS WITH IDENTIFICATION LABELS INTACT.
  - STORAGE AND PROTECTION:
    - STORE MATERIALS PROTECTED FROM EXPOSURE TO HARMFUL ENVIRONMENTAL CONDITIONS AND AT TEMPERATURE AND HUMIDITY CONDITIONS RECOMMENDED BY THE MANUFACTURER.
    - STORE MATERIALS IN A DRY LOCATION, COVERED WITH A TARP OR OTHER SUITABLE COVERING.
- THE CONTRACTOR SHALL INSTALL A MERCURY THERMOMETER AT THE SITE TO MONITOR EXTERNAL TEMPERATURES. THE THERMOMETER LOCATION SHOULD BE CONTINUALLY AND UNDER NO CIRCUMSTANCES SHOULD THE POSITIONING OF A MERCURY THERMOMETER BE AS SUCH TO ALLOW SUNLIGHT TO EVER STRIKE IT.
- THE CONTRACTOR SHALL NOT PERFORM WORK WHEN THE AIR TEMPERATURE REACHES 40° F ON A FALLING THERMOMETER, EXCEPT WHEN THE CONTRACTOR CONFORM WITH THE IMIAC "RECOMMENDED PRACTICES AND GUIDE SPECIFICATION FOR COLD WEATHER MASONRY CONSTRUCTION" AS APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROTECT ALL MASONRY WORK AREAS FROM DIRECT SUNLIGHT WHEN THE AIR TEMPERATURE REACHES 99° F ON A RISING THERMOMETER WITH LESS THAN 50% RELATIVE HUMIDITY.
- USE MORTAR WITHIN TWO HOURS AFTER MIXING AT TEMPERATURES ABOVE 50° F AND FOR 2-1/2 HOURS AT TEMPERATURES UNDER 50° F.
- RE-TEMPER MORTAR TO MAINTAIN WORKABILITY.
- THOROUGHLY MIX MORTAR INGREDIENTS IN QUANTITIES NEEDED FOR IMMEDIATE USE IN ACCORDANCE WITH ASTM C270 AND C780 TO PROVIDE UNIFORMITY OF MIX.
- DO NOT USE ANTIFREEZE COMPOUNDS TO LOWER THE FREEZING POINT OF MORTAR UNLESS EXPRESSLY APPROVED BY THE ENGINEER IN WRITING.
- IF WATER IS LOST BY EVAPORATION, RE-TEMPER ONLY WITHIN TWO HOURS OF MIXING.
- PREPARATION:
  - ESTABLISH LINES, LEVELS, AND COURSING. PROTECT FROM DISTURBANCE.
  - WET CLAY MASONRY UNITS AND ALL ADJACENT EXISTING MASONRY PRIOR TO LAYING IF THE TEMPERATURE IS ABOVE 70° F TO REDUCE EXCESSIVE ABSORPTION OF MORTAR MOISTURE BY THE UNIT. DO NOT WET CONCRETE MASONRY UNITS.
- COURSING:
  - PLACE MASONRY TO LINES AND LEVELS INDICATED OR TO BLEND INTO THE EXISTING LINES AND LEVELS OF ADJACENT MASONRY.
  - MAINTAIN MASONRY JOINTS TO UNIFORM WIDTH OF 3/8". MAKE VERTICAL AND HORIZONTAL JOINTS EQUAL, OF UNIFORM THICKNESS, TIGHTLY TUCKED.
  - LAY CONCRETE MASONRY UNITS IN RUNNING BOND. COURSE ONE BLOCK UNIT AND ONE MORTAR JOINT TO EQUAL 8". FORM CONCAVE MORTAR JOINTS ON EXPOSED WORK AND FLUSH JOINTS ON WORK TO RECEIVE SUBSEQUENT WALL COATING.
  - LAY CLAY BRICK AND CONCRETE BRICK IN A BOND PATTERN IN ACCORDANCE WITH THE DRAWINGS. IF THE DRAWINGS DO NOT STIPULATE A PARTICULAR BONDING PATTERN THE BOND PATTERN SHALL MATCH AND BE KEYS INTO THE EXISTING. ALL MORTAR JOINTS SHALL BE CONCAVE AND SHALL NOT PROTRUDE PAST THE EDGES OF MASONRY UNITS. BONDING PATTERN IS GENERIC. BRICK WORK SHOWN SHALL CONFORM TO EXISTING PATTERN AND SHALL HAVE FULL PENETRATION BONDING COURSES AT 24" MAX HORIZONTALLY AND VERTICALLY. THESE CAN EITHER BE THROUGH MASONRY BONDING OR REINFORCEMENT.
- TOLERANCES:
  - VARIATION FROM UNIT TO ADJACENT UNIT: 1/32" MAXIMUM UNLESS EXISTING CONDITIONS DO NOT PERMIT.
  - VARIATION FROM PLANE OF WALL: 1/4" IN 10' AND 1/2" IN 20' OR MORE, UNLESS EXISTING CONDITIONS DO NOT PERMIT.
  - VARIATION FROM LEVEL COURSING: 1/8" IN 3'; 1/4" IN 10'; 1/2" MAXIMUM UNLESS EXISTING CONDITIONS DO NOT PERMIT.
  - VARIATION OF JOINT THICKNESS: 1/8" IN 3'.
  - MAXIMUM VARIATION FROM CROSS SECTIONAL THICKNESS OF WALLS: PLUS OR MINUS 1/4".
- DO NOT PERMIT MORTAR TO DROP OR ACCUMULATE INTO CAVITY AIR SPACE OR TO PLUG WEEP HOLES.
- CLEANING:
  - REMOVE EXCESS MORTAR AND SMEARS.
  - REPLACE DEFECTIVE MORTAR. MATCH ADJACENT WORK.
  - CLEAN SOILED SURFACES WITH A NON-ACIDIC SOLUTION WHICH WILL NOT HARM MASONRY OR ADJACENT MATERIALS. CONSULT MASONRY MANUFACTURER FOR ACCEPTABLE CLEANERS. LEAVE SURFACES THOROUGHLY CLEAN AND FREE OF ALL MORTAR AND OTHER SOILING.
  - USE NON-METALLIC TOOLS IN CLEANING OPERATIONS.
  - DURING WORK PROGRESS AND AT THE COMPLETION OF WORK, CLEAN WALL, SILL, LEDGE AND OTHER SURFACES WITH STIFF NYLON BRISTLE BRUSHES AND WATER TO LEAVE ALL SURFACES CLEAN AND FREE OF MORTAR DAUBS. DO NOT USE METAL SCRAPERS OR BRUSHES.
- AREA OF MASONRY:
  - DURING THE CONTRACTORS "BID-WALK" THE CONTRACTOR SHALL REVIEW ALL EXISTING MASONRY LOCATIONS WHICH ARE TO ACCOMMODATE ATTACHMENTS. THE CONTRACTOR SHALL EVALUATE THESE AREAS GIVING FULL CONSIDERATION TO HIS PROPOSED METHOD OF WORKING PROCEDURES TO EVALUATE WHETHER THE AREA IS SATISFACTORY,

**REQUIRES REPOINTING OR REQUIRES RE-BUILDING.**

- REGARDLESS OF SECTION (A) ABOVE THE CONTRACTOR SHALL INCLUDE WITHIN HIS TENDERED BID PRICE TO REPOINT ALL MASONRY WITHIN 2'-6" FROM ANY PROPOSED BOLT ATTACHMENT INTO THE MASONRY AND FOR THE COMPLETE REBUILD OF MASONRY TO THE FULL DEPTH OF EXISTING CONSTRUCTION WITHIN 2'-6" OF ANY BEAM POCKET OR MASONRY ENCASED ATTACHMENT.
- ALL REBUILT MASONRY SHALL CONFORM WITH THE EXISTING MASONRY WITH REGARD TO COLOR, TEXTURE, AND BOND PATTERN.
- THE CONTRACTOR SHALL APPLY ULTRA-CLEAR PRO-SEAL WEATHER MASTER IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS.
  - PRO-SEAL WEATHER MASTER SHALL BE APPLIED TO ALL SURFACES AFFECTED BY THE PROPOSED INSTALLATION WITHIN A RADIUS OF 2'-6" FROM ANY ATTACHMENT POINT. FOR ALL EPOXY ANCHORS ATTACHMENTS THE CONTRACTOR SHALL LOCATE THE ANCHORS, SET THE ANCHORS AND APPLY THE COATING PRIOR TO SETTING ANY ATTACHMENT STEEL AGAINST THE BRICKWORK SURFACE.
  - PRO-SEAL WEATHER MASTER SHALL BE APPLIED TO ALL RE-BUILD SECTIONS OF BRICKWORK AND TO ALL FACES.
  - PRO-SEAL WEATHER MASTER SHALL BE APPLIED TO THE TOP OF ALL BRICKWORK SURFACES PRIOR TO THE INSTALLATION OF ANY COPING THE CONTRACTOR SHALL PROVIDE PHOTOGRAPHIC EVIDENCE THAT PRO-SEAL WEATHER MASTER HAS BEEN APPLIED AT ALL REQUIRED LOCATIONS.
- MASONRY UNITS SHALL CONFORM TO ASTM C62 AND SHALL HAVE A COMPRESSIVE STRENGTH NO LESS THAN 4500 PSI. MORTAR SHALL BE TYPE N, UNLESS OTHERWISE SPECIFICALLY NOTED ON WITHIN THE DRAWINGS, AND SHALL HAVE A COMPRESSIVE STRENGTH NO LESS THAN 1800 PSI.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING AS TO THE EXTENT OF ANY LOOSE OR RECESSED MORTAR ENCOUNTERED DURING THE WORK WITHIN 2'-6" FROM THE ATTACHMENT POINT TO ENABLE THE ENGINEER TO INSPECT THE AREAS AND ADVISE REPAIR.
- ALL AREAS OF BRICK REPAIR SHALL BE PHOTOGRAPHED BEFORE, DURING AND UPON COMPLETION OF CONSTRUCTION. THE CONTRACTOR SHALL LABEL AND DATE EACH PHOTOGRAPH AND SUBMIT TO THE OWNER AND ENGINEER AS PER THE SCHEDULE BELOW:
  - BID WALK PHOTOGRAPHS OF ALL EQUIPMENT MASONRY ATTACHMENT LOCATIONS.
  - AREAS OF BRICKWORK SHOWING THE DEPTH OF REMOVED MORTAR PRIOR TO REPOINTING.
  - FINISHED AREAS OF REPOINTING.
  - AREAS OF BRICKWORK PRIOR TO REMOVAL.
  - AREAS OF BRICK FOLLOWING REMOVAL, CLEANING AND PREPARATION PRIOR TO RE-BUILDING. PHOTOGRAPHS SHOULD CLEARLY INDICATE THE EXISTING BONDING PATTERN AND DISPLAY HOW THE NEW MASONRY WILL "KEY" AND BOND INTO THE EXISTING TO MAINTAIN STRUCTURAL INTEGRITY.
- AS A MINIMUM AND UNLESS SPECIFIED OTHERWISE, ALL BRICKWORK PENETRATIONS SHALL BE FACED WITH 4" MINIMUM THICKNESS OF MATCHING BRICKWORK, TIED TO EXISTING. AT LEAST ONE METAL TIE "Z" SHOULD BE USED FOR EACH 3 SQ. FT. OF WALL SURFACE. TIES IN ALTERNATE COURSES SHOULD BE STAGGERED. THE DISTANCE BETWEEN ADJACENT TIES SHOULD NOT EXCEED 24" VERTICALLY, NOT 24" HORIZONTALLY. TIES SHALL NOT BE LESS THAN 3/16" DIAMETER.
- WATER SHALL BE CLEAN AND POTABLE.
- DEFECTIVE JOINTS. "DEFECTIVE JOINTS" SHALL MEAN JOINTS WHICH HAVE ERODED 1/8" OR MORE, OR HAVE LOOSE, POWDERED OR BROKEN MORTAR. JOINTS WITH HAIRLINE CRACKS (1/64") THAT ARE OTHERWISE SOUND SHALL NOT BE CONSIDERED DEFECTIVE.
- JOINT PREPARATION. DEFECTIVE MORTAR JOINTS SHALL BE RAKED USING A TUCK POINT RAKE WITH A WORKING TIP NO GREATER THAN 5/16" TO EXPOSE UNWEATHER MORTAR. THE MINIMUM DEPTH FOR REPOINTING SHALL BE 1/4". REVEALS WITH SQUARE BACKS. FURROWED OR SHALLOW JOINTS ARE PROHIBITED. BRUSH, VACUUM, AIR JET OR WATER STREAM JOINTS TO REMOVE ALL LOOSE DEBRIS.
- DAMPEN SURFACES PRIOR TO TUCK POINTING. APPLY POINTING MORTAR BY MEANS OF A TROWEL NARROWER THAN THE MORTAR JOINTS TO BE FILLED. SPREAD MORTAR INTO JOINT IN LAYERS, FIRMLY PRESSING TO FORM A COMPLETELY FILLED FULLY PACKED JOINT WITHOUT VOIDS. JOINT TOOLING – WHEN MORTAR IS THUMBPRINT HARD, TOOL TO MATCH ORIGINAL APPEARANCE OF ADJACENT JOINTS. BRUSH EXCESS MORTAR FROM EDGE OF JOINT.

| ABBREVIATIONS |                        |
|---------------|------------------------|
| A.F.F.        | ABOVE FINISHED FLOOR   |
| A.G.L.        | ABOVE GROUND LEVEL     |
| A.M.S.L.      | ABOVE MEAN SEA LEVEL   |
| E.Q.          | EQUAL                  |
| GALV.         | GALVANIZED             |
| MAX.          | MAXIMUM                |
| MIN.          | MINIMUM                |
| N.T.S.        | NOT TO SCALE           |
| O.C.          | ON CENTER              |
| SCH.          | SCHEDULE               |
| TYP.          | TYPICAL                |
| U/G           | UNDERGROUND            |
| U/P           | UTILITY POLE           |
| U.N.O.        | UNLESS NOTED OTHERWISE |
| V.I.F.        | VERIFY IN FIELD        |

**PREPARED BY:**

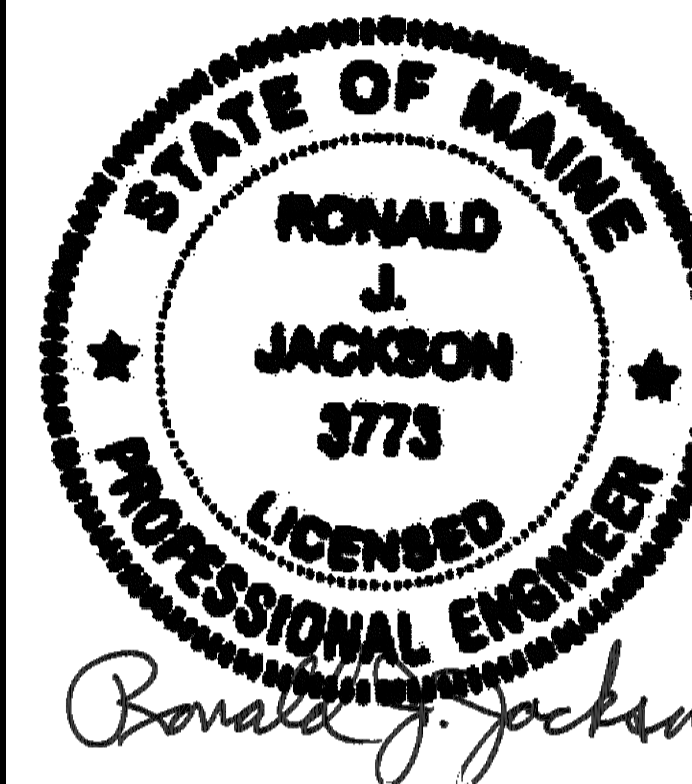


A&E OFFICE:  
7A LYBERTY WAY  
WESTFORD, MA 01886  
1 (972) 755-1882

**APPLICANT:**



CELLCO PARTNERSHIP d/b/a  
VERIZON WIRELESS  
118 FLANDERS ROAD, 3RD FLOOR  
WESTBOROUGH, MA 01581



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| SUBMITTALS |          |                |    |
|------------|----------|----------------|----|
| REV        | DATE     | DESCRIPTION    | BY |
| A          | 01/20/16 | FOR REVIEW     | JM |
| B          | 06/23/16 | REVISED PER SA | JM |
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**SITE INFO:**

SITE NAME:  
**PORTLAND\_12\_ME**

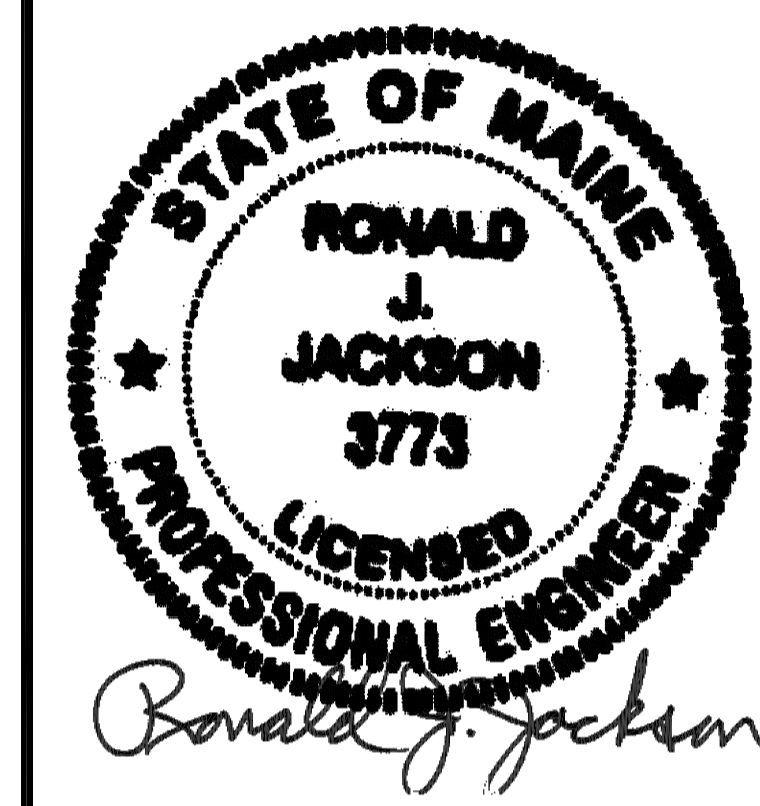
LOCATION CODE:  
**136569**

SITE ADDRESS:  
**188 WARREN AVENUE  
PORTLAND, ME 04103  
CUMBERLAND COUNTY**

**SHEET TITLE:**

**GENERAL NOTES**

|                                    |               |
|------------------------------------|---------------|
| NEXIUS PROJ. NO:<br><b>VZ11509</b> | SHEET NUMBER: |
| CHECKED BY:<br>KB                  | <b>GN-1</b>   |
| CHECKED BY DATE:<br>01/12/16       |               |



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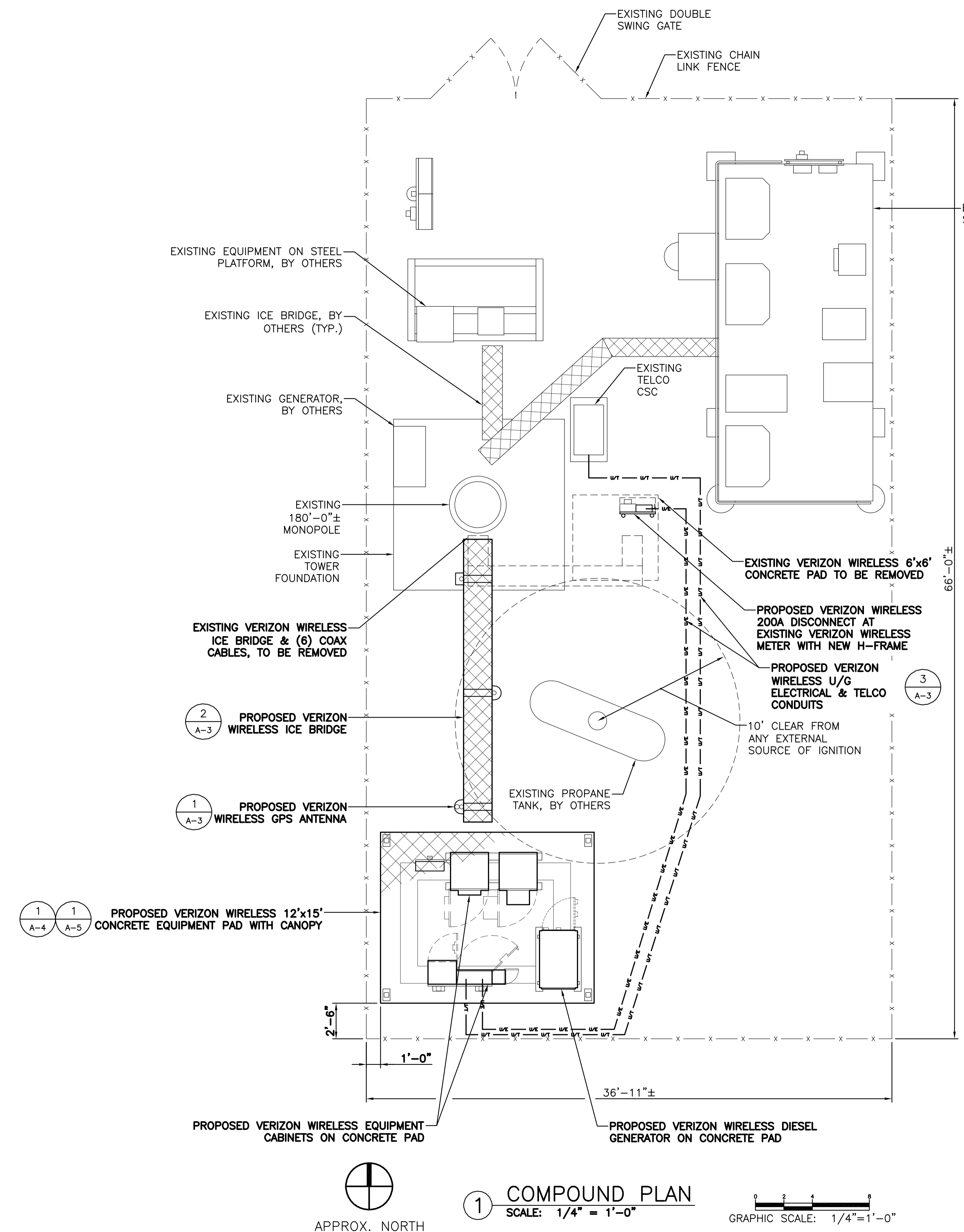
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| REV        | DATE     | DESCRIPTION    | BY |
| A          | 01/20/16 | FOR REVIEW     | JM |
| B          | 06/23/16 | REVISED PER SA | JM |
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|            |          |                |    |
|            |          |                |    |

SITE INFO:  
 SITE NAME:  
**PORTLAND\_12\_ME**  
 LOCATION CODE:  
**136569**  
 SITE ADDRESS:  
**188 WARREN AVENUE  
 PORTLAND, ME 04103  
 CUMBERLAND COUNTY**

SHEET TITLE:  
**COMPOUND PLAN**

|                                    |  |
|------------------------------------|--|
| NEXIUS PROJ. NO:<br><b>VZ11509</b> | SHEET NUMBER:<br><b>A-1</b>  |
| CHECKED BY:<br>KB                  | CITY OF PORTLAND<br>APPROVED SITE PLAN<br>Subject to Conditions of Approval<br>and Standard Conditions<br>DATE OF APPROVAL: 7-25-16<br>PLANNER: Barbara Barhydt<br>PROJECT NO: #2016-167 |
| CHECKED BY DATE:<br>01/12/16       |  |

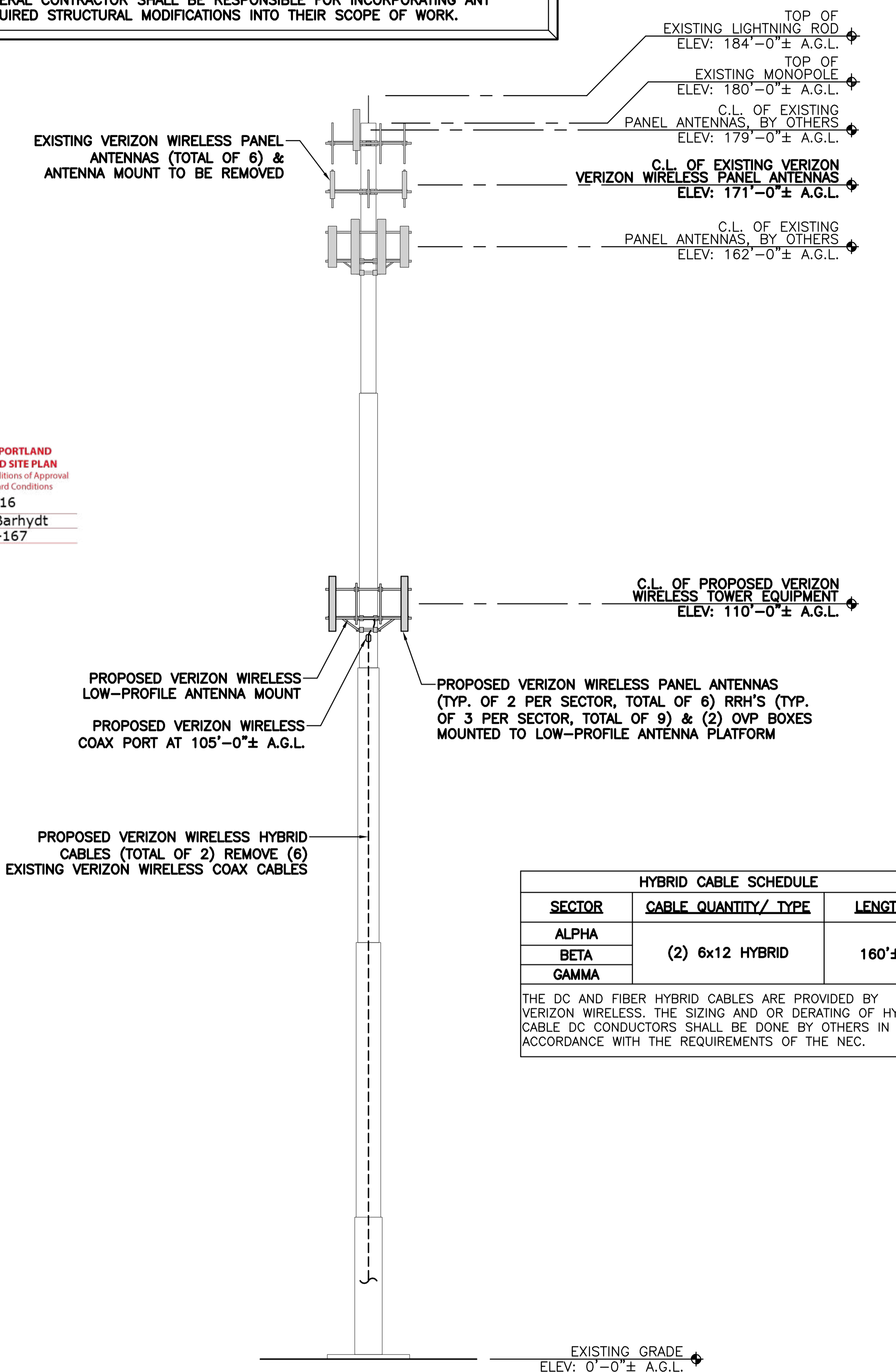
CITY OF PORTLAND  
 APPROVED SITE PLAN  
 Subject to Conditions of Approval  
 and Standard Conditions  
 DATE OF APPROVAL:  
 7-25-16  
 PLANNER:  
 Barbara Barhydt  
 PROJECT NO:  
 #2016-167



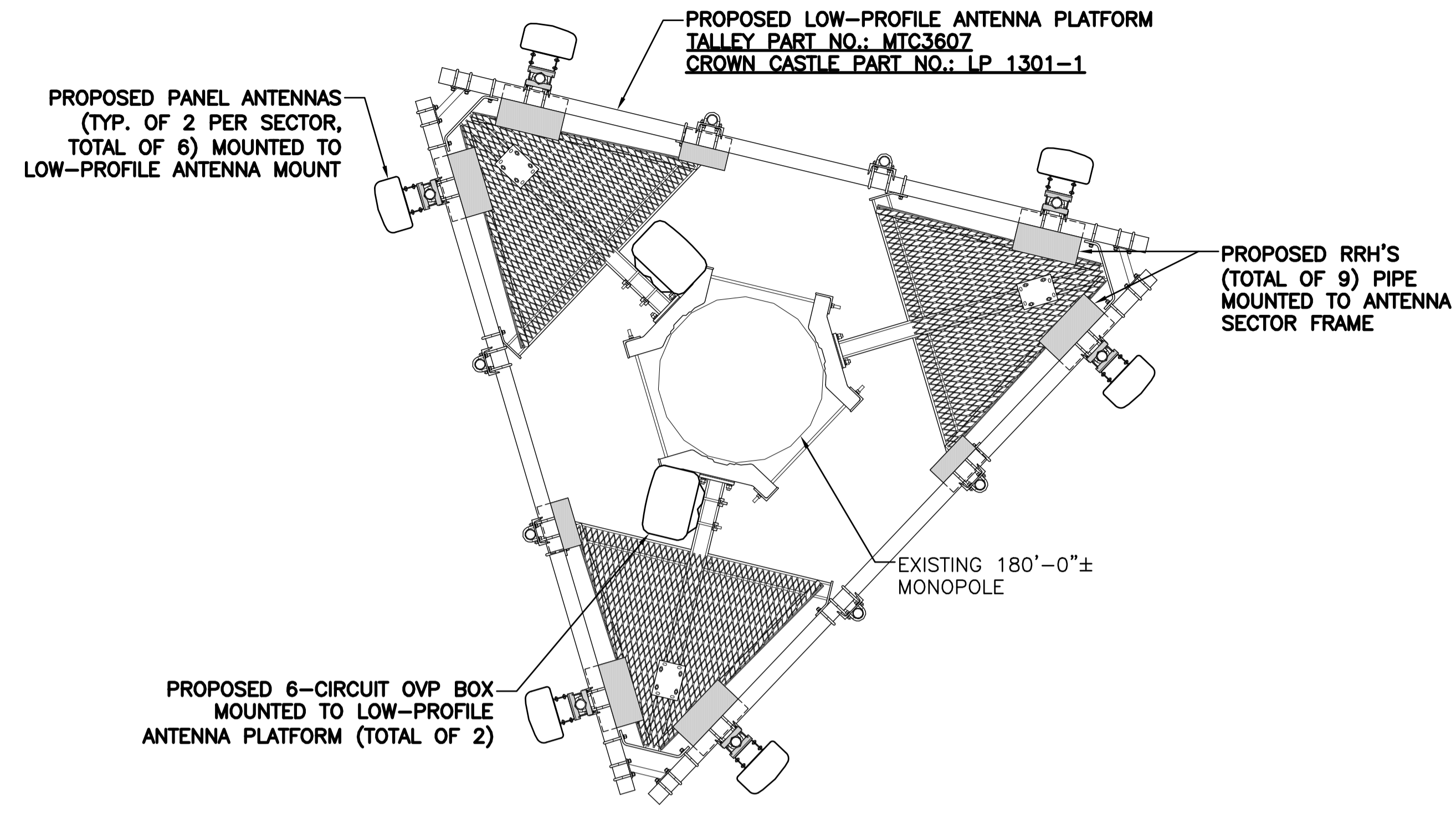
1 **COMPOUND PLAN**  
 SCALE: 1/4" = 1'-0"  
 GRAPHIC SCALE: 1/4" = 1'-0"

**NOTE:**  
PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE AND/OR TOWER STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

CITY OF PORTLAND  
APPROVED SITE PLAN  
Subject to Conditions of Approval  
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7-25-16  
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PLANNER: Barbara Barhydt  
PROJECT NO: #2016-167



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



2 ANTENNA PLAN  
SCALE: 1/2" = 1'-0"  
APPROX. NORTH

GRAPHIC SCALE: 1/2"=1'-0"

**NOTE:**  
1. REFER TO LATEST RFDS FOR FINAL ANTENNA CONFIGURATION.  
2. ALL PROPOSED EQUIPMENT TO BE INSTALLED IN ACCORDANCE TO THE MANUFACTURER'S SPECIFICATIONS.

**STRUCTURAL STEEL NOTES:**

- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFIRM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION" FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 "STRUCTURAL STEEL", UNLESS OTHERWISE NOTED.
- STEEL TUBING SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING". GRAD B, OR ASTM A53 "PIPE STEEL, BLACK AND HOT DIPPED, ZINC-COATED WELDED AND SEAMLESS", TYPE E OR S, GRADE B. PIPE SIZE INDICATED ARE NOMINAL. ACTUAL ARE OUTSIDE DIAMETER IF LARGER.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE MI., OR EQUAL STRUT MEMBERS SHALL BE 1 5/8" X 1 5/8" X 12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
- FIELD CONNECTIONS SHALL BE BOLTED UNLESS OTHERWISE INDICATED. ALL BOLTS FOR STRUCTURAL CONNECTIONS SHALL BE HIGH STRENGTH BOLTS AND CONFORM TO THE LATEST EDITION OF ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS, AND PLAIN HARDENED WASHERS". BOLTS SHALL BE 3/4 INCH DIA. UNLESS OTHERWISE NOTED.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATIONS FF-S-325, GROUP II, TYPE 4, CLASS 1, HILTI KWIK BOLT II, OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE (4) INCHES.
- SLEEVE ANCHORS SHALL CONFORM TO FEDERAL SPECIFICATIONS FF-S-325, GROUP II, TYPE 3, CLASS 3, AS MANUFACTURED BY HILTI FASTENING SYSTEMS OR APPROVED EQUAL. INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE (3) INCHES.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2" DIAMETER STAINLESS STEEL ANCHORS ROD WITH NUTS & WASHERS, AN INTERNAL THREADED INSERT, A SCREEN TUBE, AND AN EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE HTE HILTI HIT HY-20 SYSTEM OR ENGINEER APPROVED EQUAL WITH 6" MIN. EMBEDMENT.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
- SUBMIT SHOP DETAIL DRAWINGS OF ALL STRUCTURAL AND MISCELLANEOUS STEEL TO THE ENGINEER FOR APPROVAL, AND INCORPORATE ALL COMMENTS PRIOR TO FABRICATION.
- CONNECTIONS DESIGN BY FABRICATOR WILL BE SUBJECT TO REVIEW AND APPROVAL BY ENGINEER.
- INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO TAKING CORRECTIVE ACTION, ANY SUCH ACTION SHALL REQUIRE PRIOR ENGINEER APPROVAL.
- ALL WORK SHALL BE INSPECTED BY THE ENGINEER DURING AND AT THE COMPLETION OF CONSTRUCTION.

**WELDING:**

- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE, AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES"

**GALVANIZING:**

- ALL STEEL MATERIALS EXPOSED TO WEATHER SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS". UNLESS OTHERWISE NOTED. ALL BOLTS, ANCHORS, AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- DAMAGE GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZED IN ACCORDANCE WITH ASTM A780, UNLESS OTHERWISE NOTED.

**ANTENNA MOUNTING NOTES:**

- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFIRM TO ANSI/TIA/EIA-222-G "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES". NOTE: SEE CODE FOR COUNTY SPECIFIC DESIGN WIND SPEEDS.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- DAMAGE GALVANIZE SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH DOUBLE NUTS AND SHALL BE INSTALLED SNUG TIGHT.
- DESIGN RESPONSIBILITY OF ANTENNA MOUNTING BRACKETS, SUPPORTS AND ALL COMPONENTS THEREOF AND ATTACHMENT THERETO SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER. MFR SHALL PROVIDE THE OWNER DRAWINGS DETAILING ALL COMPONENTS OF THE ASSEMBLY, INCLUDING CONNECTIONS, DESIGN LOADS, AND ALL OTHER PERTINENT DATA. MFR SHALL ALSO PROVIDE THE OWNER WITH A STATEMENT OF COMPLIANCE INDICATING THAT THE ANTENNA SUPPORTS HAVE BEEN DESIGNED IN ACCORDANCE WITH TIA/EIA-222-G STANDARDS. ALL SUBMISSIONS SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE THE WORK IS BEING PERFORMED.

**STANDARD ANTENNA COLOR CODE NOTES:**

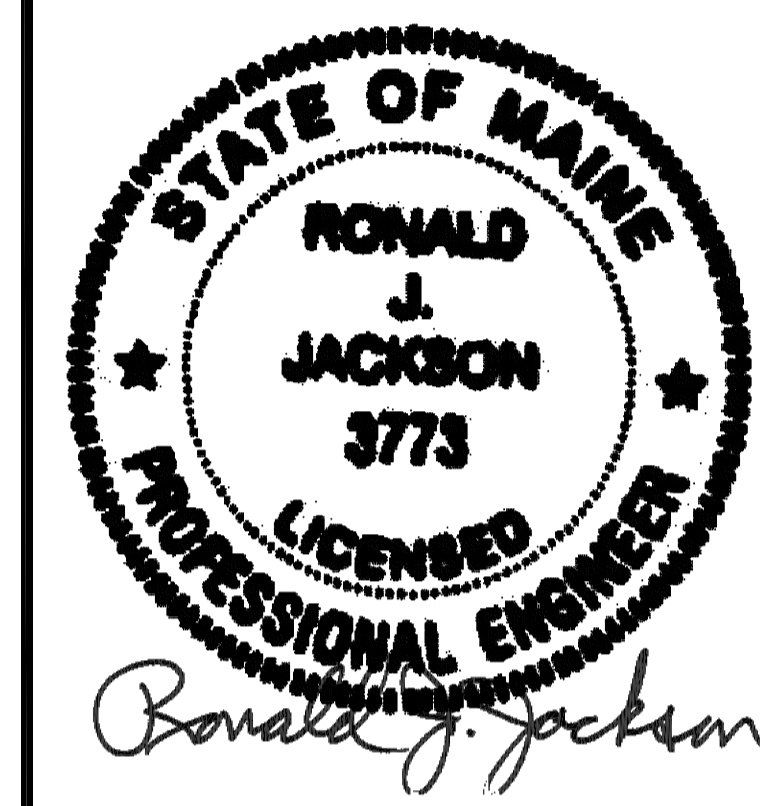
- VERIZON WILL COLOR CODE AND TAG THE COAX AT BOTH THE TOP OF THE TOWER AND INSIDE THE CELL SITE BUILDING AT THE CABLE ENTRY PART. THE MARKING SYSTEM WILL COMPRISE OF COLOR TAPE WITH A MINIMUM WIDTH OF 3/4 INCHES, 7 MIL VINYL PLASTIC TAPE, SCOTCH 35 OR EQUIVALENT.
- THE TAGGING WILL BE DONE WITH METAL "DOG" TAGS. A TAG WILL BE PLACED ON THE COAX AT THE ANTENNA AND ON THE COAX IN THE CELL SITE BUILDING. THE TAG WILL IDENTIFY THE ANTENNA NUMBER AND FUNCTION; TX, RX ETC.
- THE ENTRY PORT ASSIGNMENT SHOULD BE FOLLOWED WHERE POSSIBLE. THIS STANDARD ASSUMES THAT THE ENTRY PORT CONSISTS OF THREE ROWS OF FOUR PORTS. WITH THE FIRST ROW BEING NUMBERED FROM 1-6 FROM LEFT TO RIGHT. THE SECOND ROW IS NUMBERED 7-12 (LEFT TO RIGHT) AND THE THIRD ROW IS 13-18 (LEFT TO RIGHT).
- A SITE SPECIFIC COAX COLOR SHEET TO BE PROVIDED BY CELLULAR EQUIPMENT ENGINEER.

| HYBRID CABLE SCHEDULE |                      |        |
|-----------------------|----------------------|--------|
| SECTOR                | CABLE QUANTITY/ TYPE | LENGTH |
| ALPHA                 | (2) 6x12 HYBRID      | 160'±  |
| BETA                  |                      |        |
| GAMMA                 |                      |        |

THE DC AND FIBER HYBRID CABLES ARE PROVIDED BY VERIZON WIRELESS. THE SIZING AND OR DERATING OF HYBRID CABLE DC CONDUCTORS SHALL BE DONE BY OTHERS IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC.

PREPARED BY:  
**NEXIUS**  
TRANSFORM YOUR BUSINESS...THROUGH WIRELESS  
A&E OFFICE:  
7A LYBERTY WAY  
WESTFORD, MA 01886  
1 (972) 755-1882

APPLICANT:  
**verizon**  
CELLCO PARTNERSHIP d/b/a  
VERIZON WIRELESS  
118 FLANDERS ROAD, 3RD FLOOR  
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SUBMITTALS

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|-----|----------|----------------|----|
| A   | 01/20/16 | FOR REVIEW     | JM |
| B   | 06/23/16 | REVISED PER SA | JM |

SITE INFO:  
SITE NAME:  
**PORTLAND\_12\_ME**  
LOCATION CODE:  
**136569**  
SITE ADDRESS:  
**188 WARREN AVENUE  
PORTLAND, ME 04103  
CUMBERLAND COUNTY**

SHEET TITLE:  
**ELEVATION, ANTENNA  
PLAN & NOTES**

NEXIUS PROJ. NO: **VZ11509** SHEET NUMBER:  
**A-2**

CHECKED BY: **KB**

CHECKED BY DATE: **01/12/16**

CITY OF PORTLAND  
APPROVED SITE PLAN  
Subject to Conditions of Approval  
and Standard Conditions  
7-25-16  
DATE OF APPROVAL  
PLANNER: Barbara Barhydt  
PROJECT NO: #2016-167

PREPARED BY:

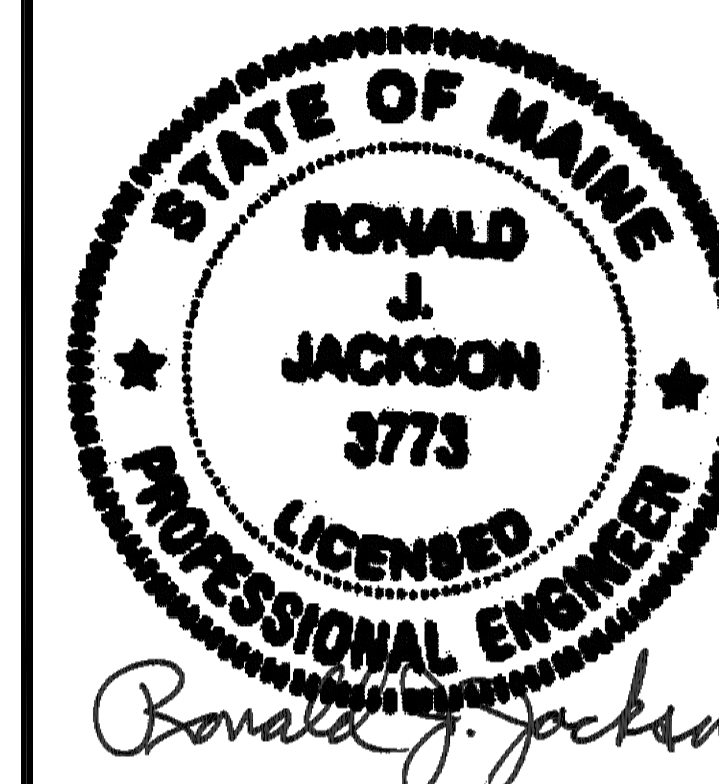
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APPLICANT:

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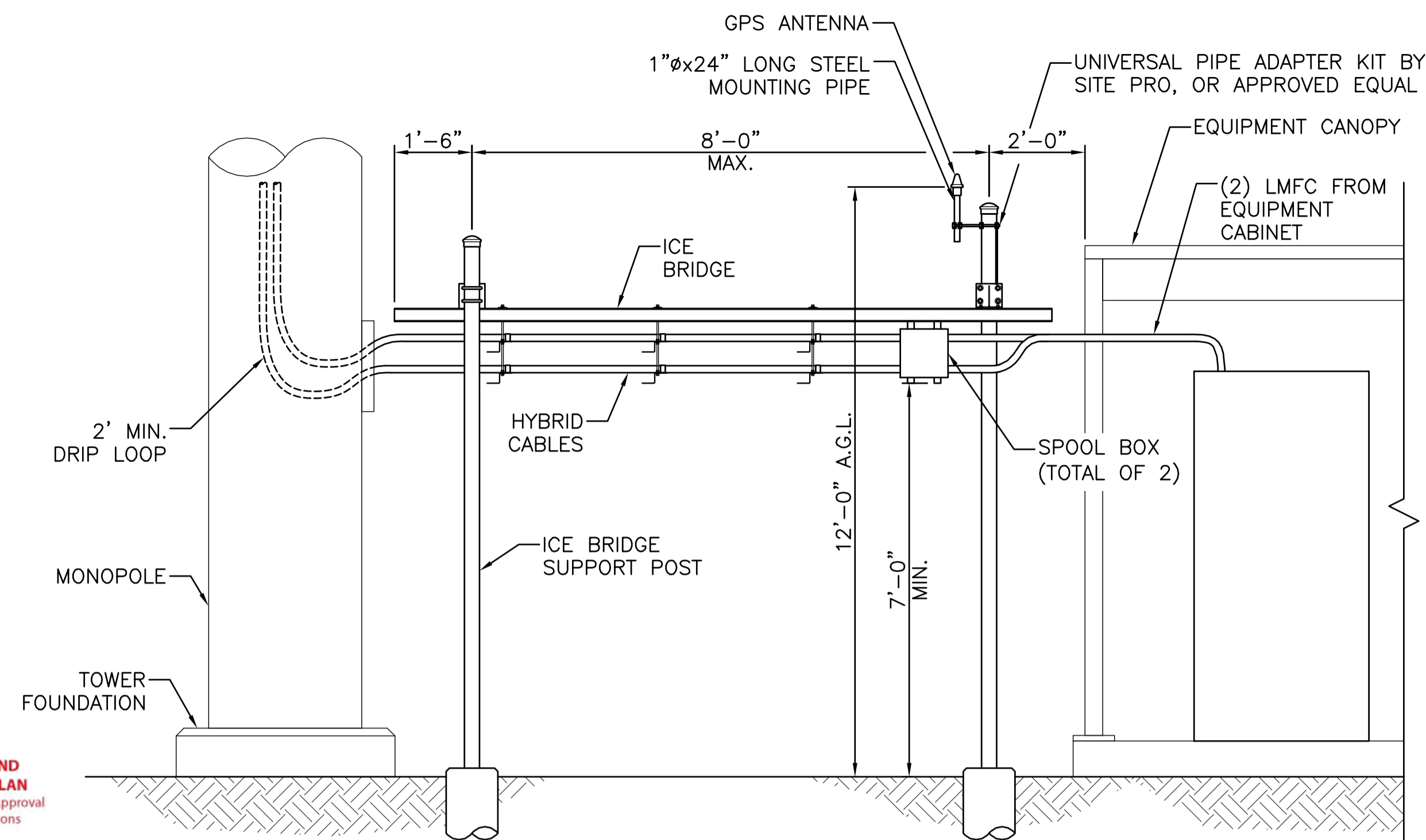
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SITE NAME:  
**PORTLAND\_12\_ME**  
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**136569**  
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 CUMBERLAND COUNTY**

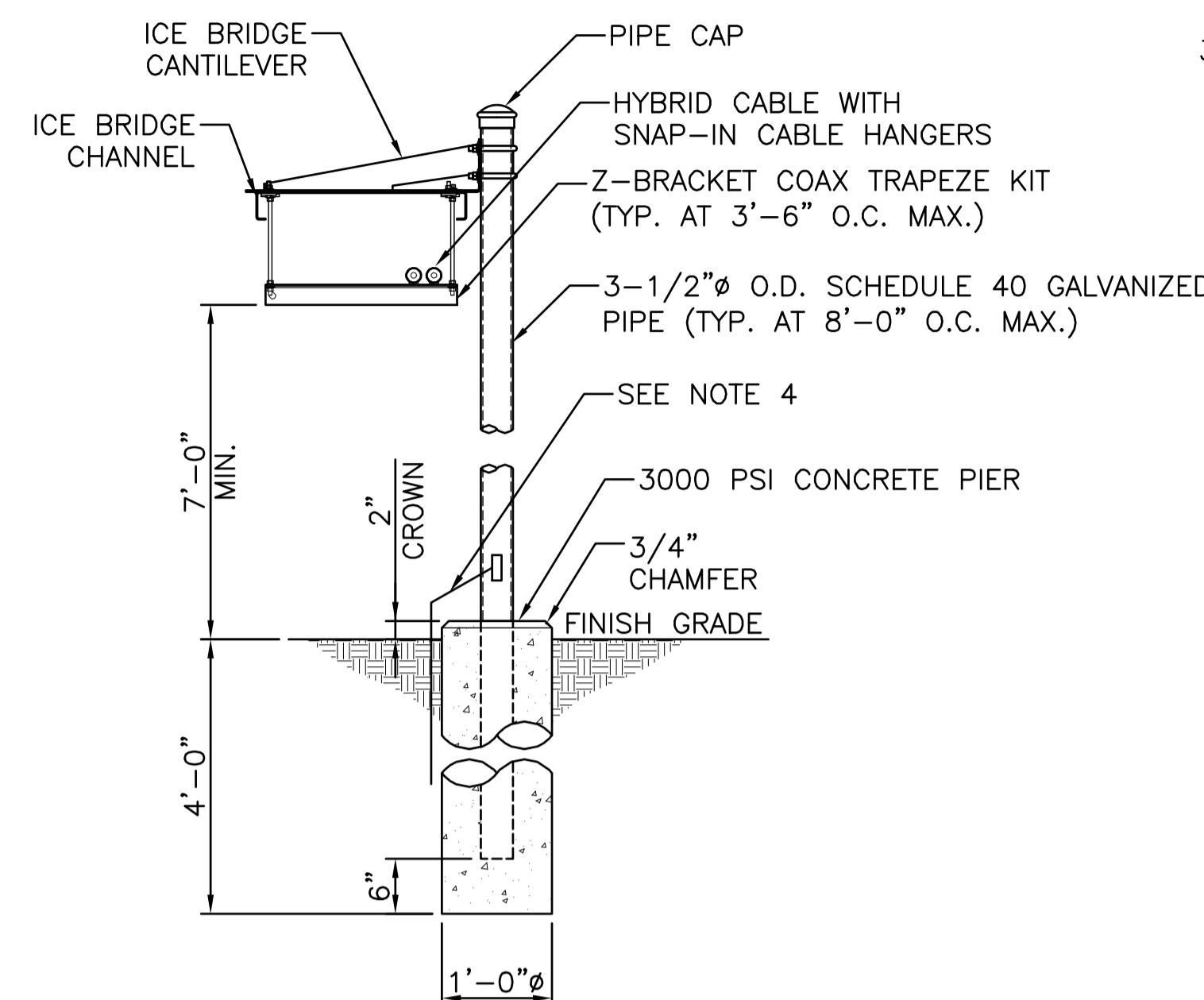
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**CONSTRUCTION  
 DETAILS**

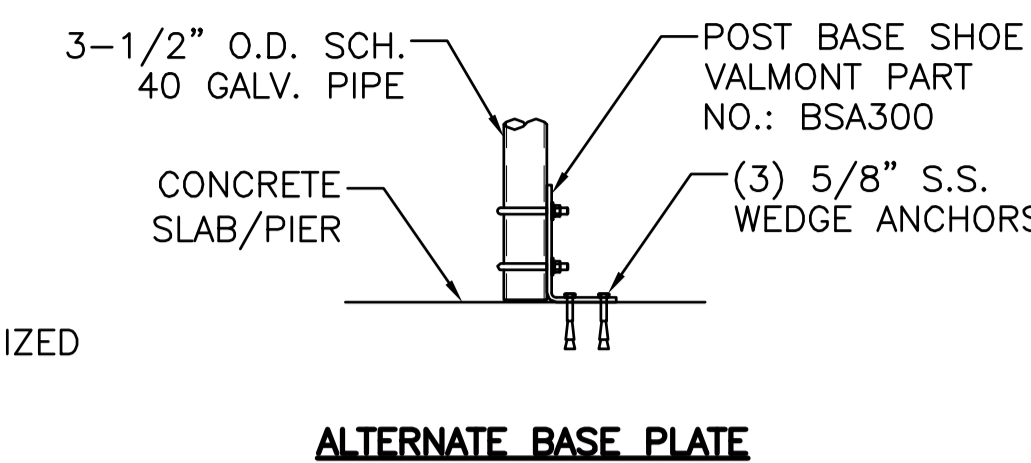
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| CHECKED BY:<br>KB                  |                             |
| CHECKED BY DATE:<br>01/12/16       |                             |



① ICE BRIDGE DETAIL  
 SCALE: N.T.S.

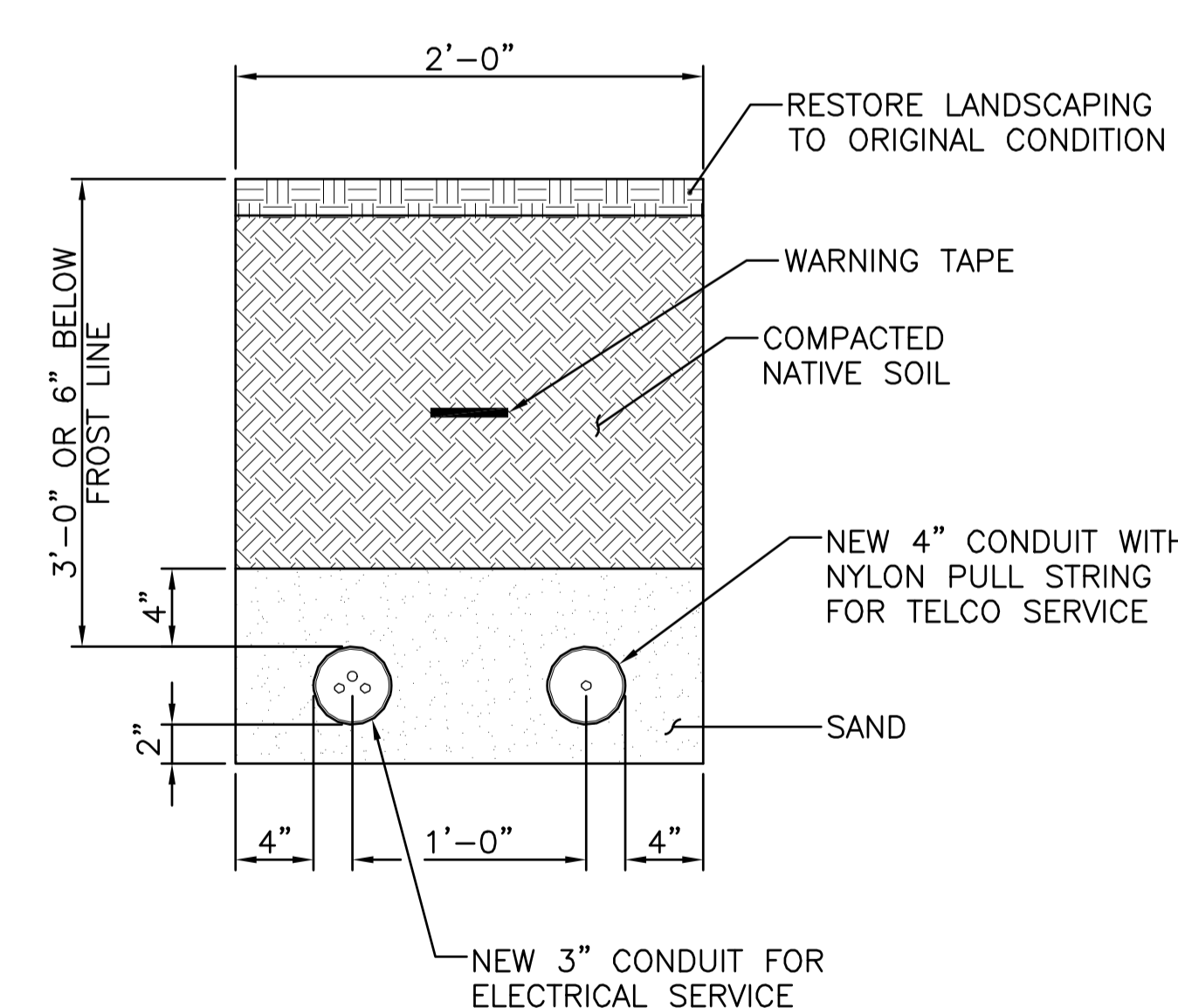


② ICE BRIDGE SUPPORT POST DETAIL  
 SCALE: N.T.S.



**NOTE:**  
 1. ALL PARTS SHOWN ARE FROM SITE PRO, OR APPROVED EQUAL.  
 2. ALL STRUCTURAL STEEL & BOLTS ARE TO BE HOT DIPPED/RIGID GALVANIZED OR STAINLESS STEEL.  
 3. ALL BOLTS TO BE FURNISHED W/ WASHERS & NUTS.  
 4. #2 AWG SOLID TINNED COPPER WIRE IN 5/16" FLEXIBLE STEEL CONDUIT, CRIMPED EVERY 6" TO 8" WITH CORROSION INHIBITOR. SILICONE SEAL AT OPENING.

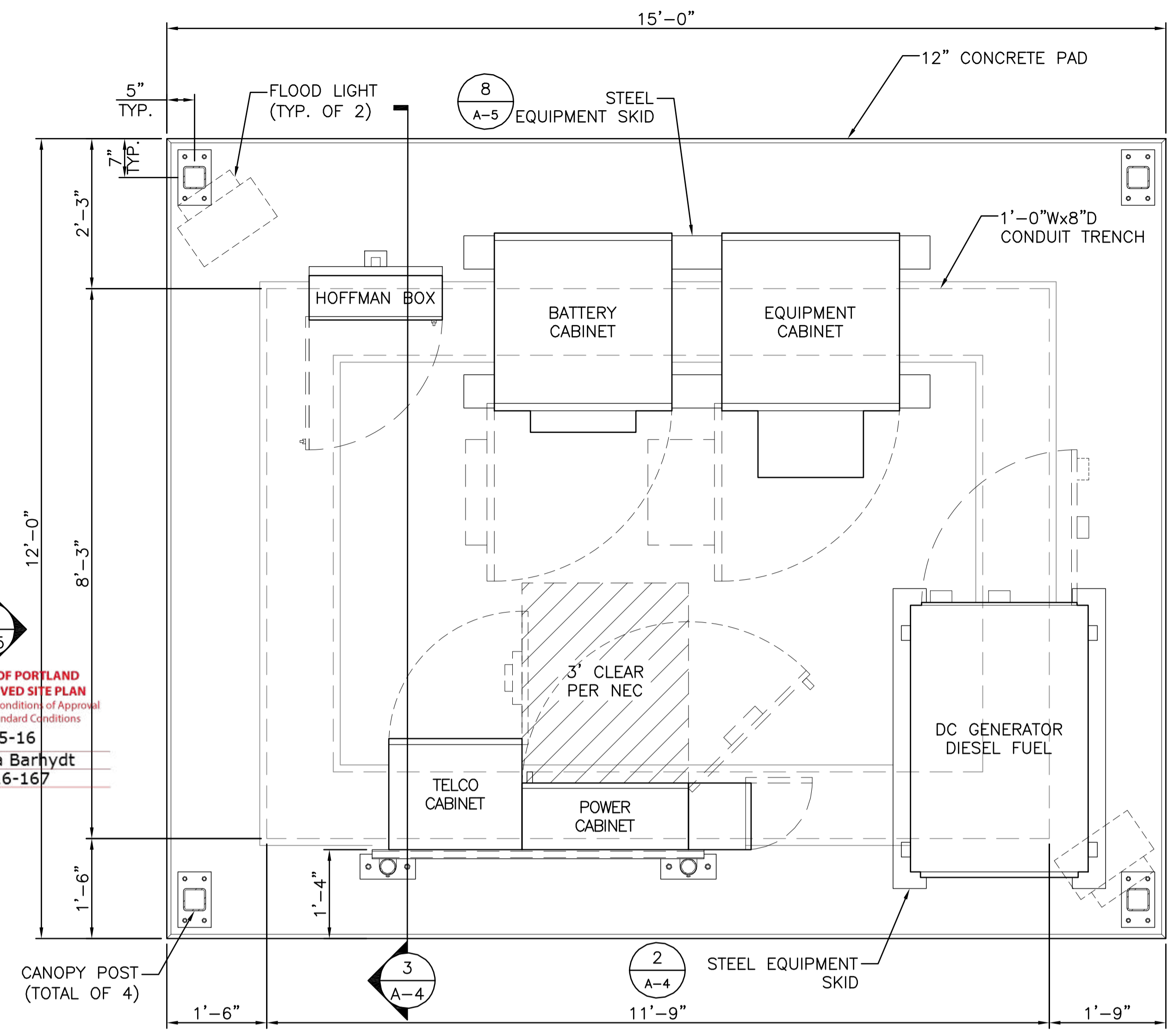
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 7-25-16  
 DATE OF APPROVAL  
 PLANNER: Barbara Barhydt  
 PROJECT NO: #2016-167



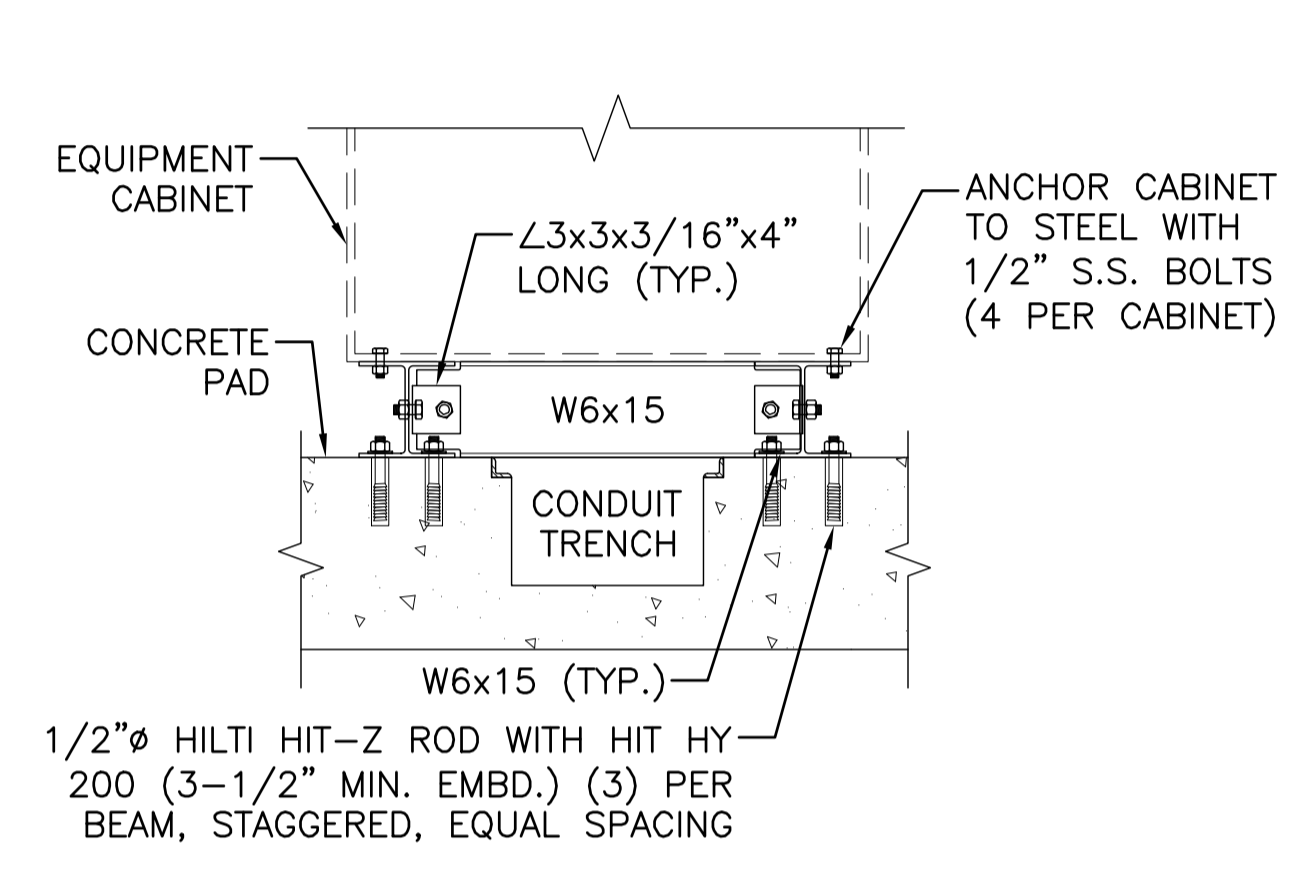
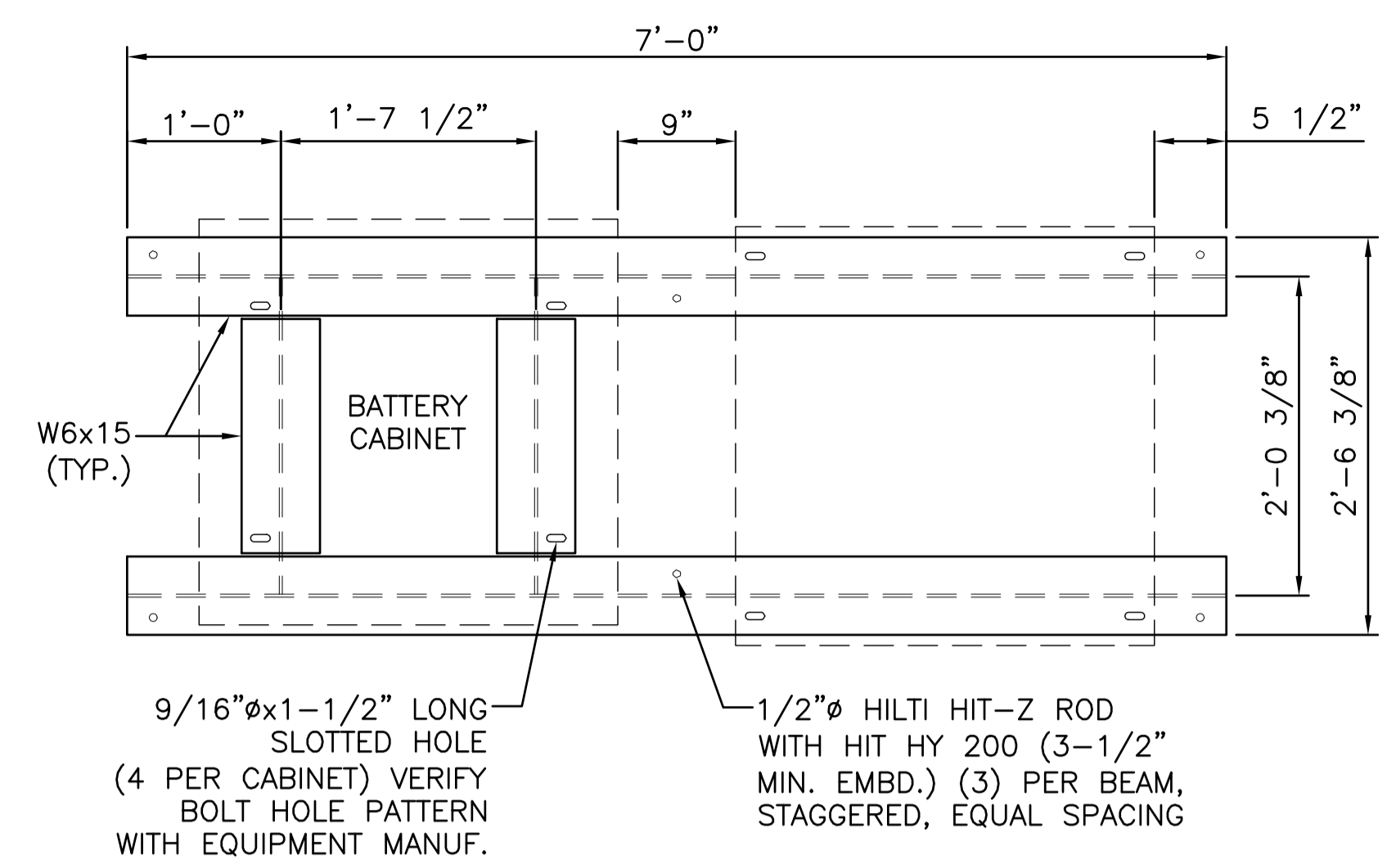
③ UTILITY TRENCH DETAIL  
 SCALE: N.T.S.

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PROJECT NO.  
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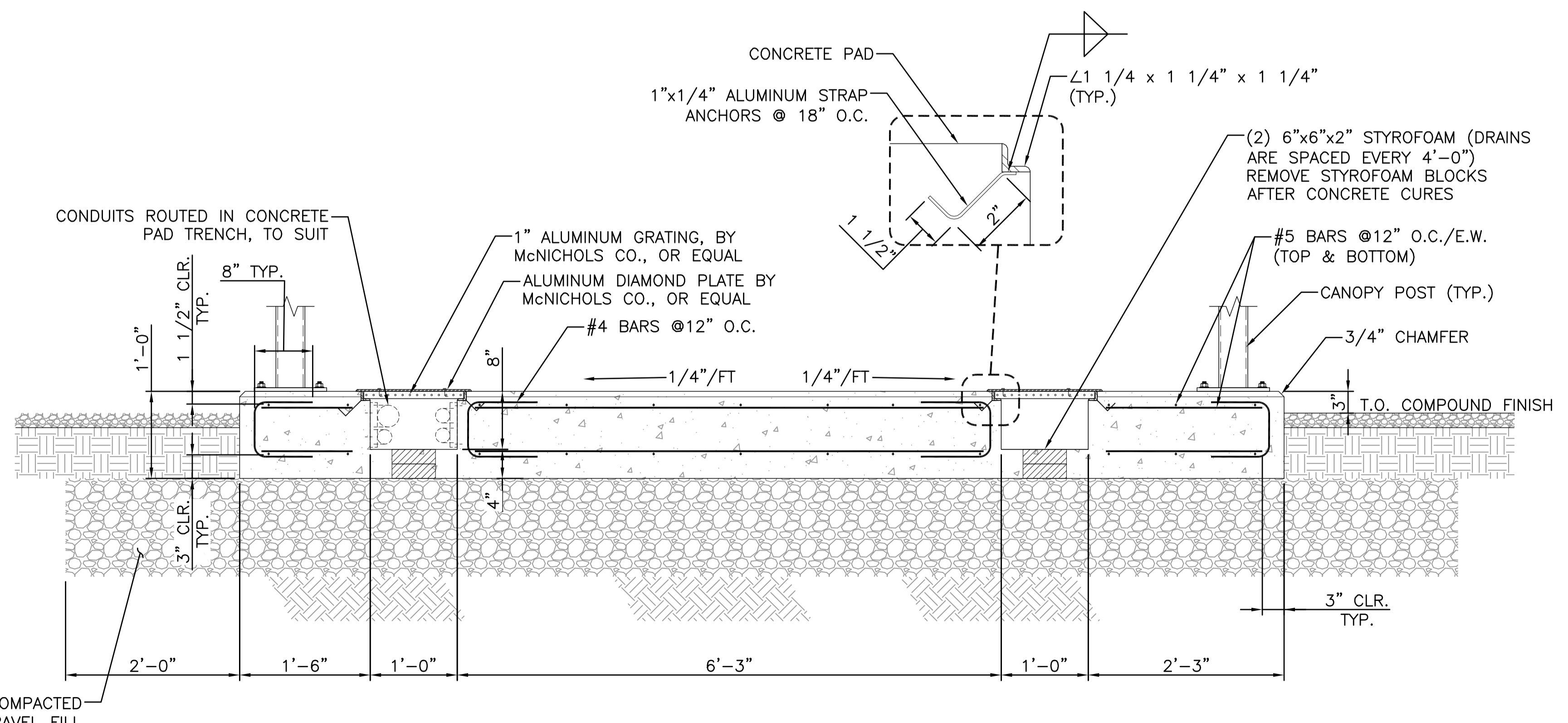
**1 EQUIPMENT PLAN**  
SCALE: 3/4" = 1'-0"  
APPROX. NORTH



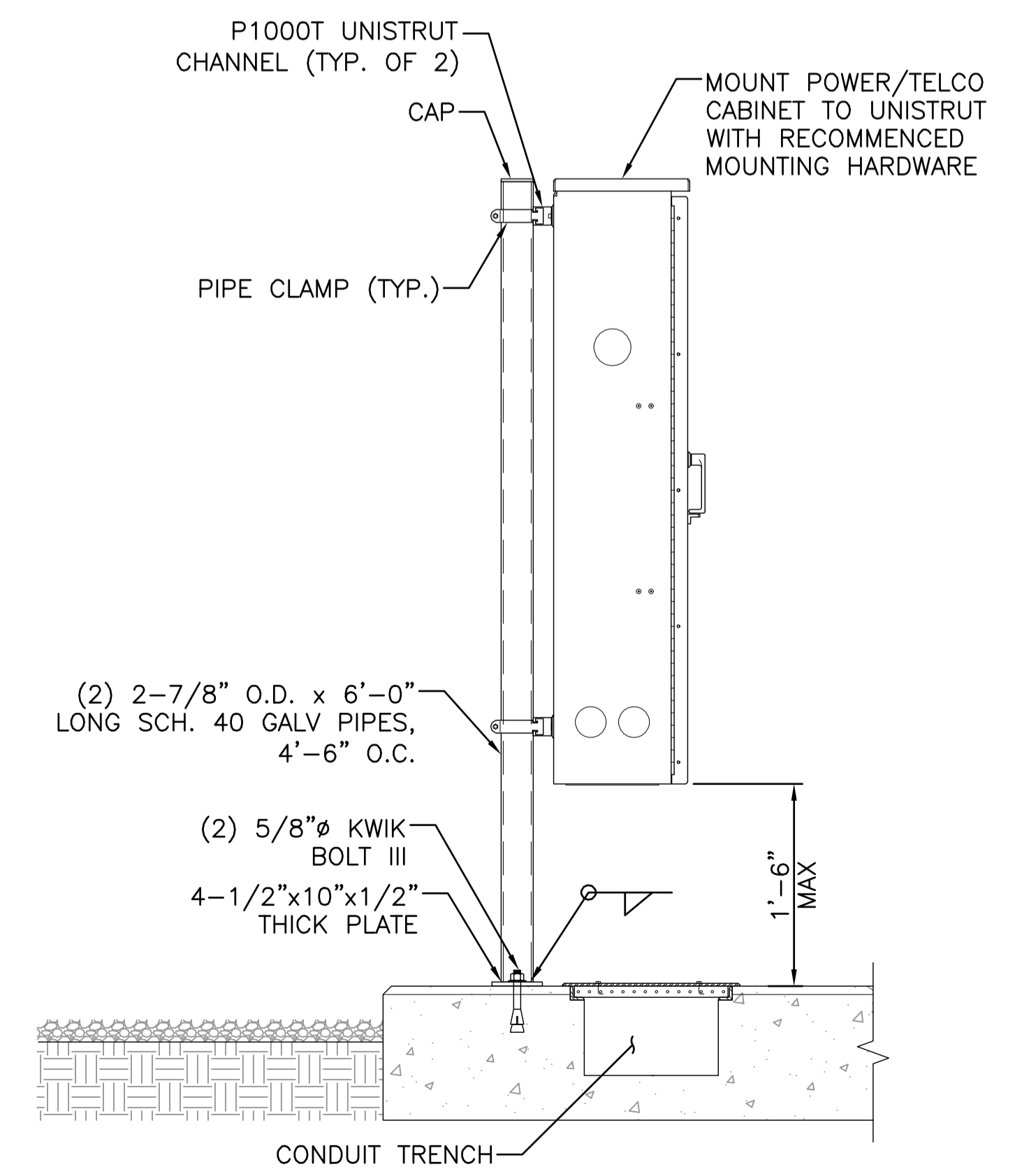
**2 EQUIPMENT SKID DETAIL**  
SCALE: N.T.S.

- FOUNDATION NOTES & CONCRETE SPECIFICATIONS**
- FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
  - UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
  - CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=4000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%)
  - REINFORCING BAR TO BE ASTM A615 GRADE 60.
  - WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.
  - ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
  - ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 AND APPLICABLE STATE BUILDING CODE.

**NOTE:**  
-ALL STRUCTURAL STEEL IS TO BE GALVANIZED.  
-ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.



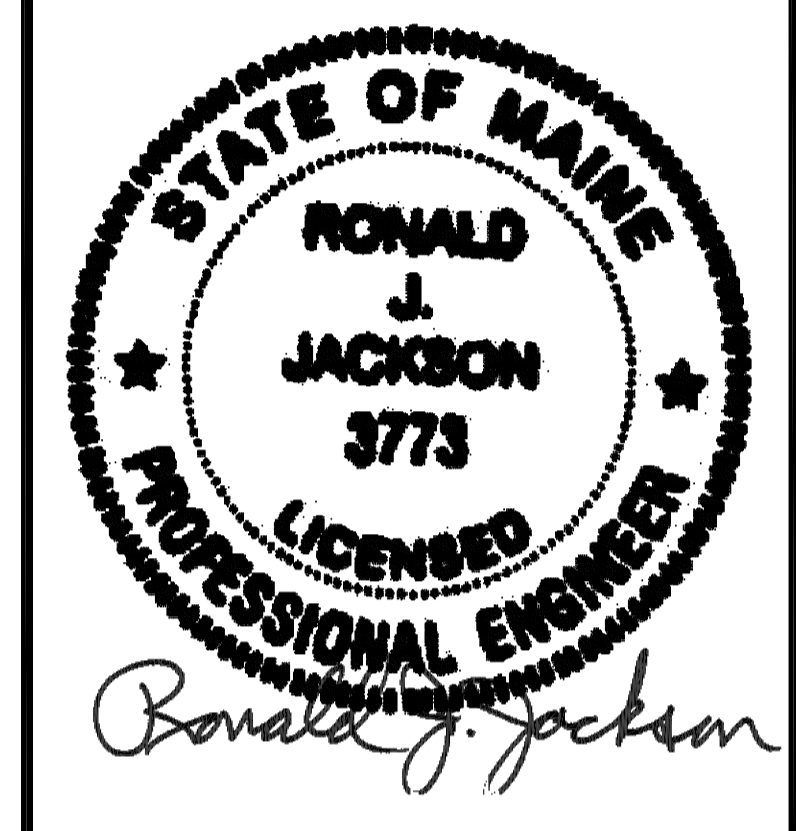
**3 CONCRETE PAD SECTION**  
SCALE: N.T.S.



**4 POWER/TELCO H-FRAME DETAIL**  
SCALE: N.T.S.

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| B   | 06/23/16 | REVISED PER SA | JM |

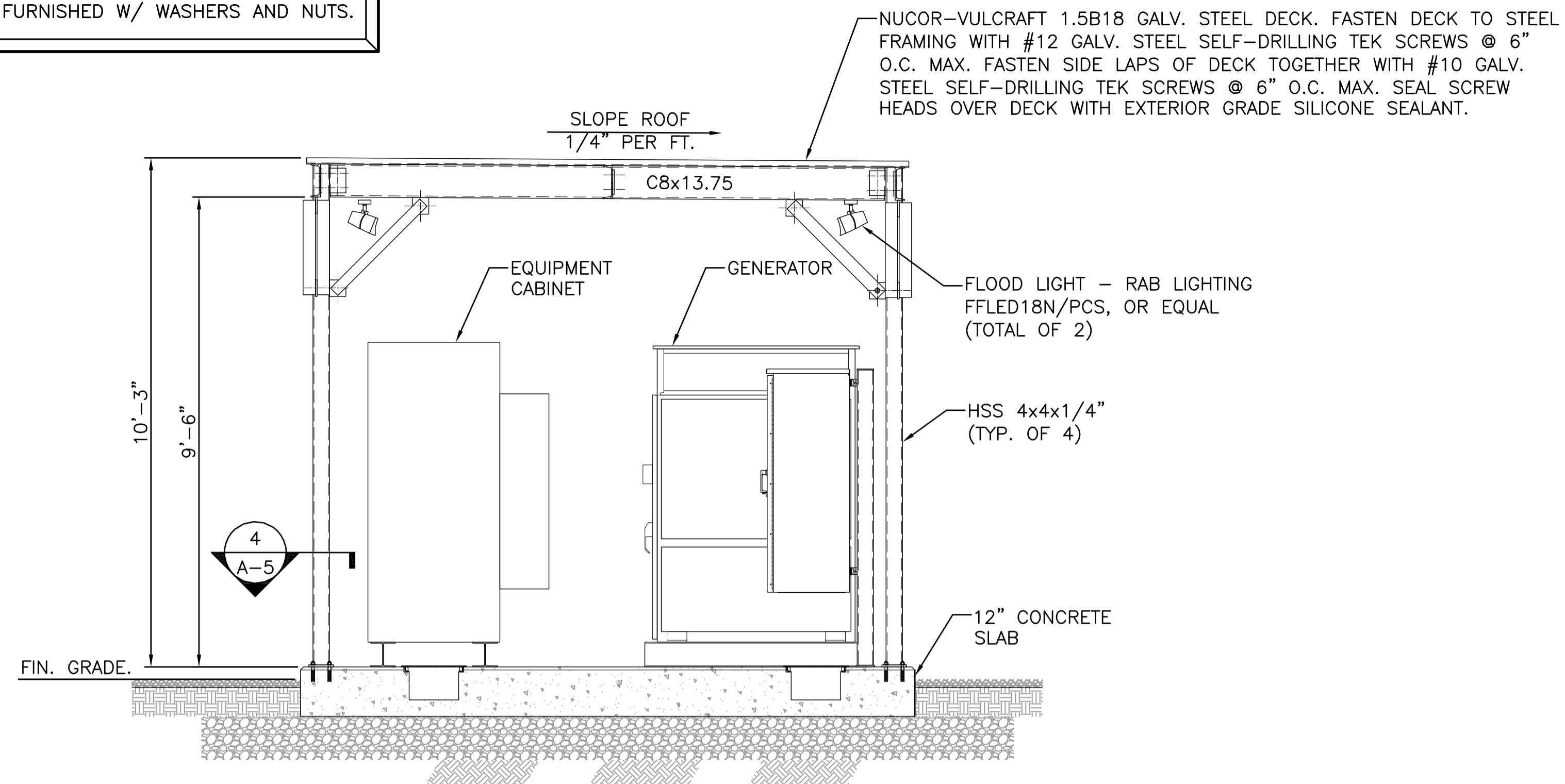
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SITE NAME:  
**PORTLAND\_12\_ME**  
LOCATION CODE:  
**136569**  
SITE ADDRESS:  
**188 WARREN AVENUE  
PORTLAND, ME 04103  
CUMBERLAND COUNTY**

SHEET TITLE:  
**EQUIPMENT PAD DETAILS**

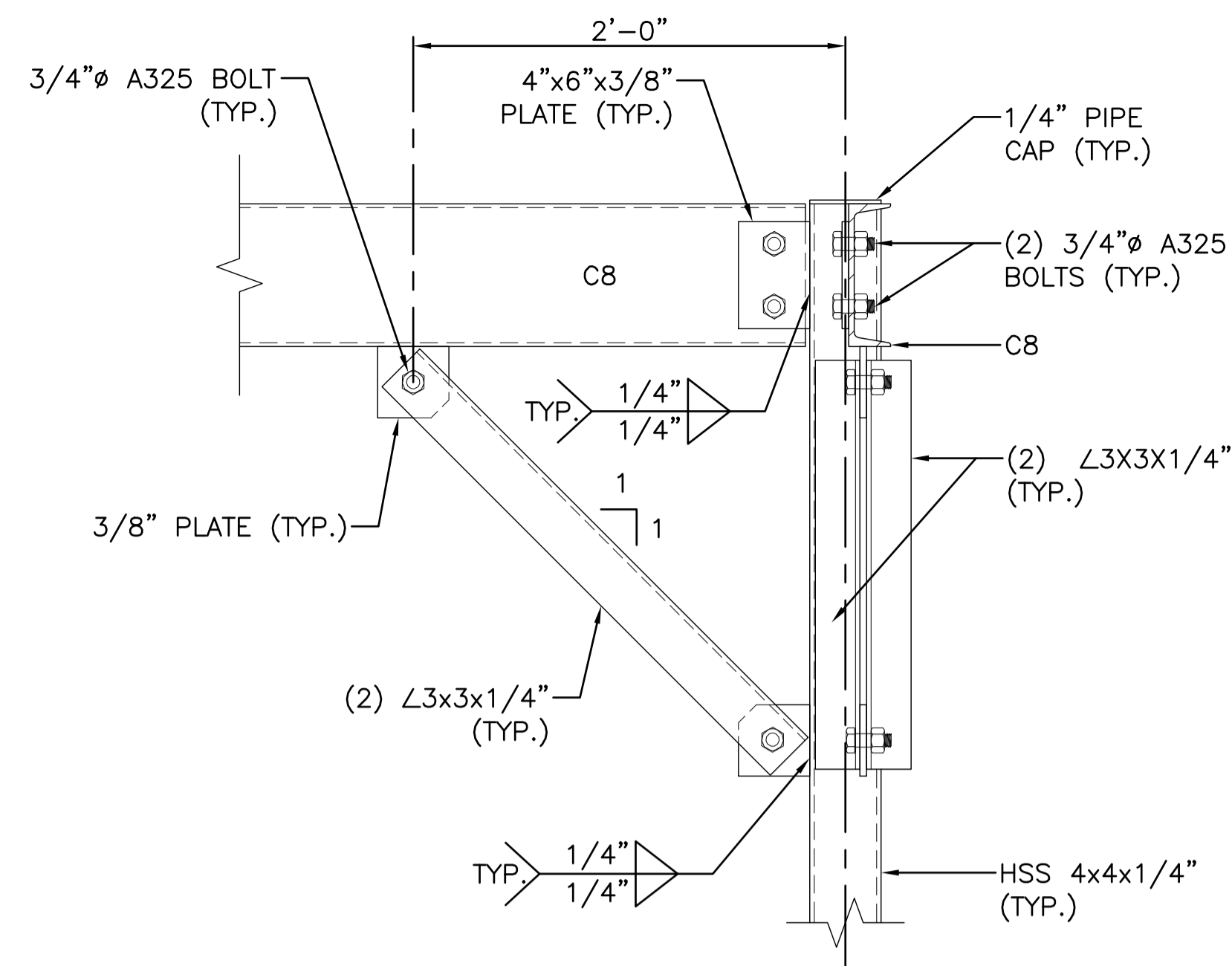
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| CHECKED BY:<br>KB                  |                             |
| CHECKED BY DATE:<br>01/12/16       |                             |

CITY OF PORTLAND  
APPROVED SITE PLAN  
Subject to Conditions of Approval  
and Standard Conditions  
DATE OF APPROVAL  
7-25-16  
PLANNER  
Barbara Barhydt  
PROJECT NO.  
#2016-167

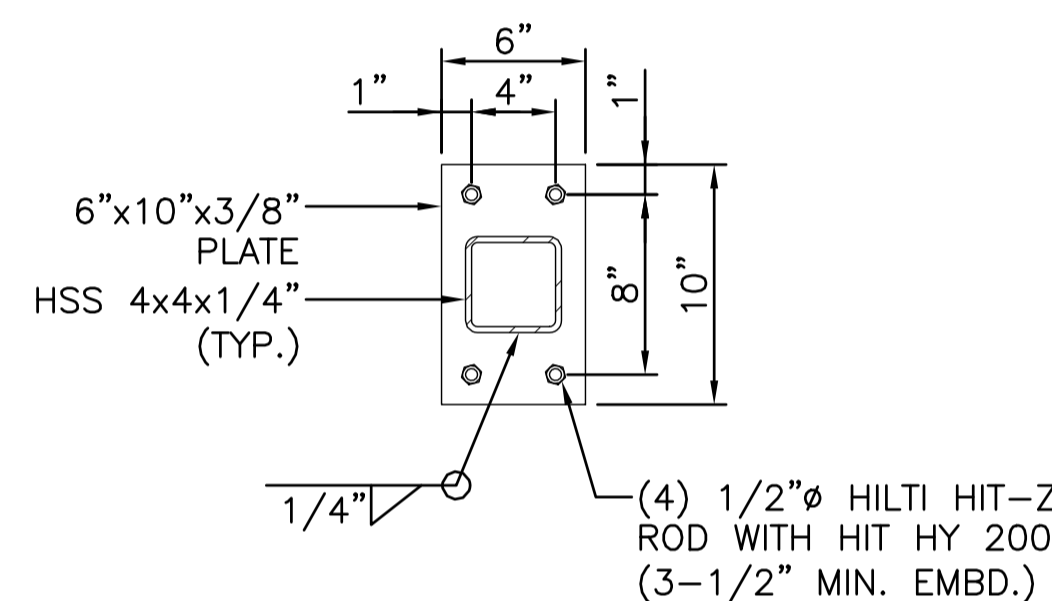
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 -ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.



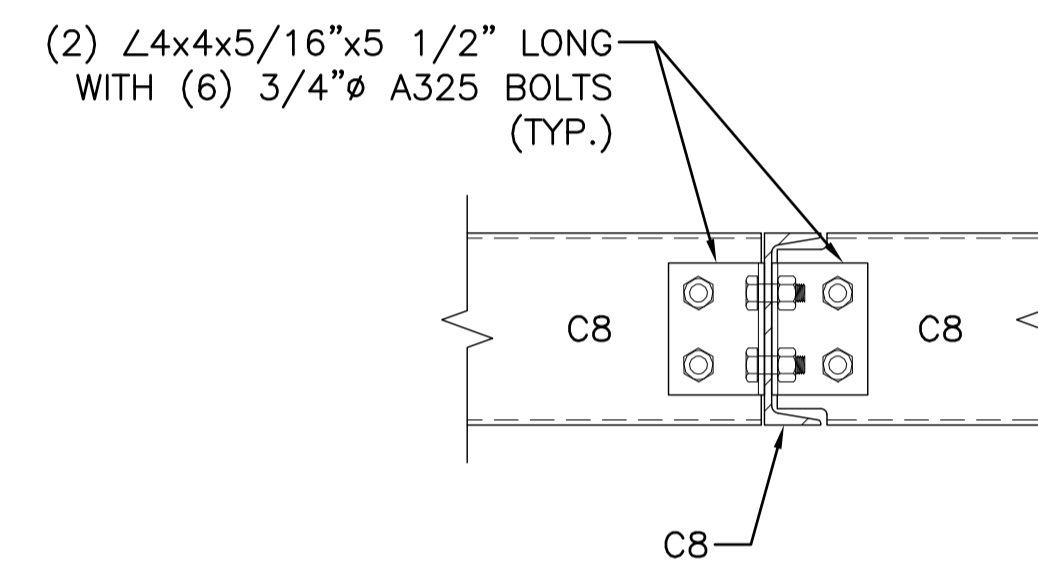
**1 EQUIPMENT ELEVATION**  
 SCALE: N.T.S.



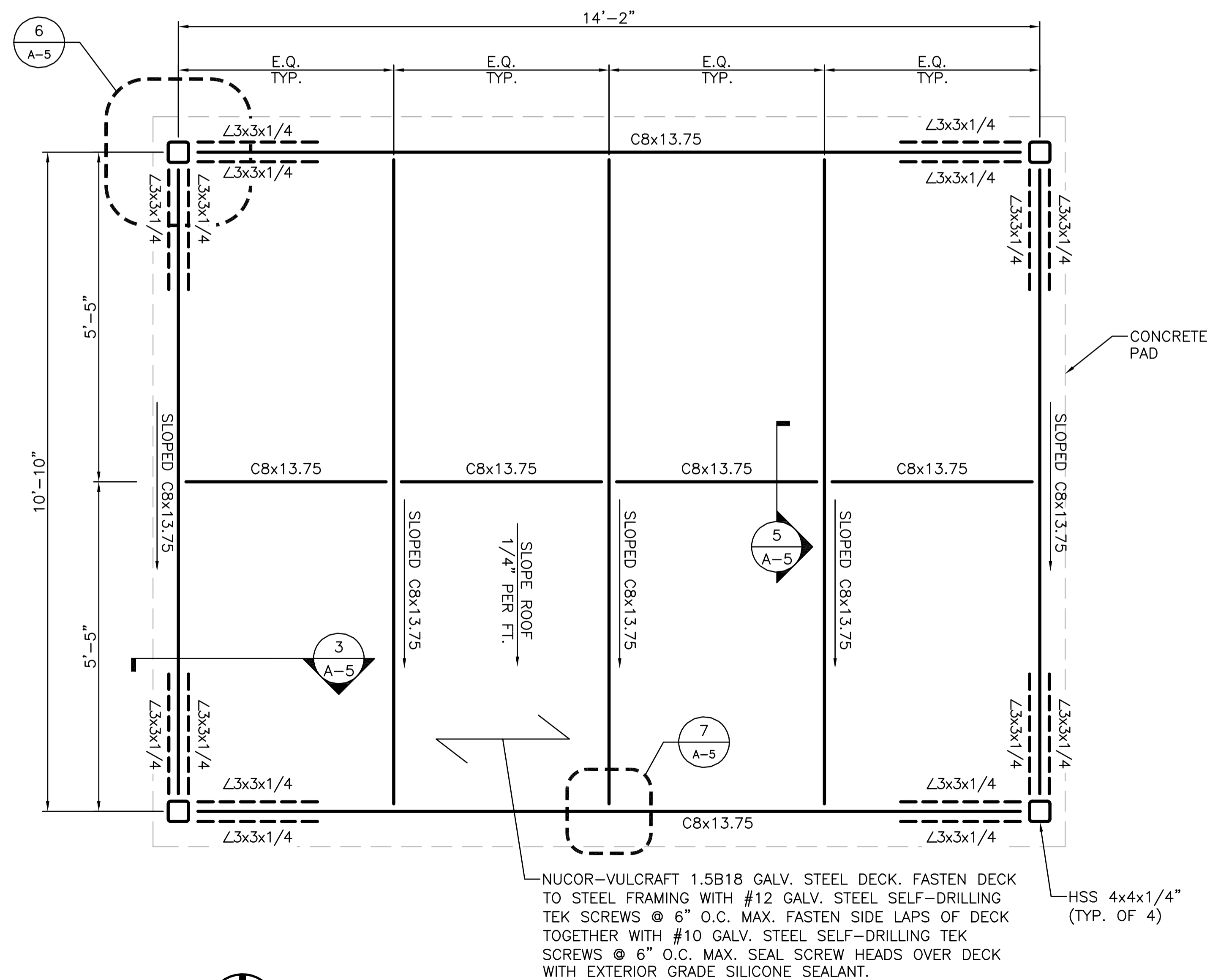
**3 CANOPY SECTION**  
 SCALE: N.T.S.



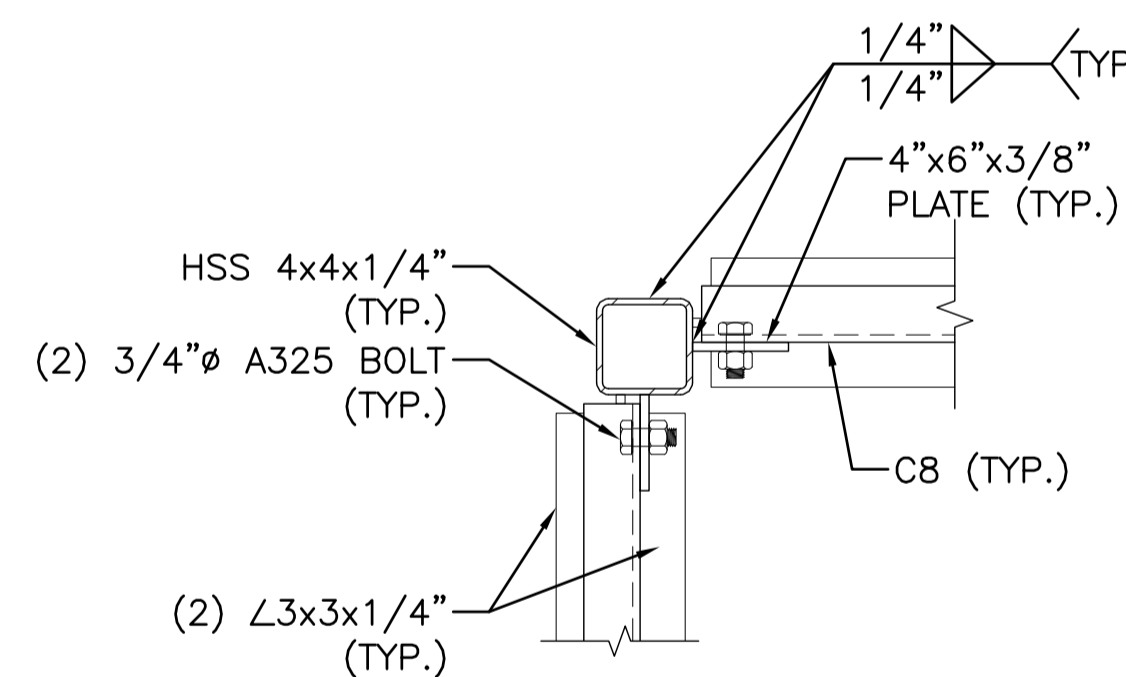
**4 CANOPY POST DETAIL**  
 SCALE: N.T.S.



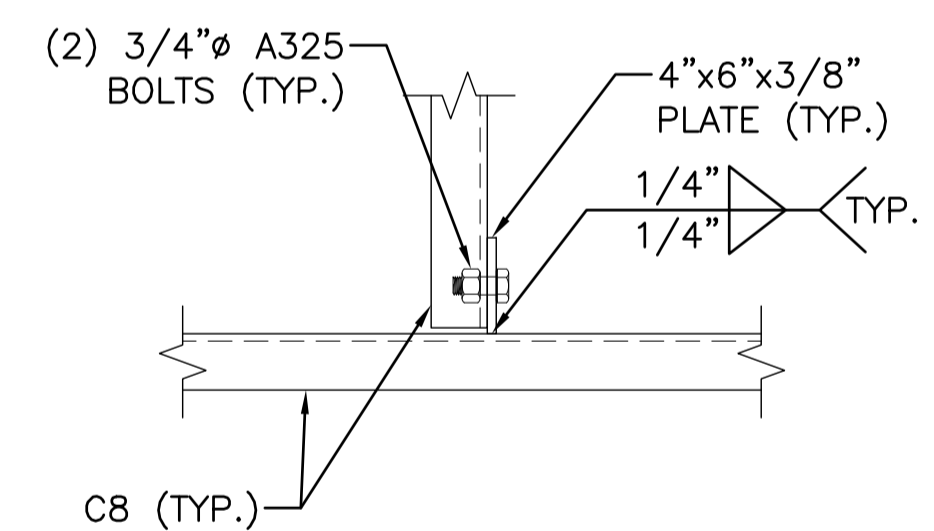
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 SCALE: N.T.S.



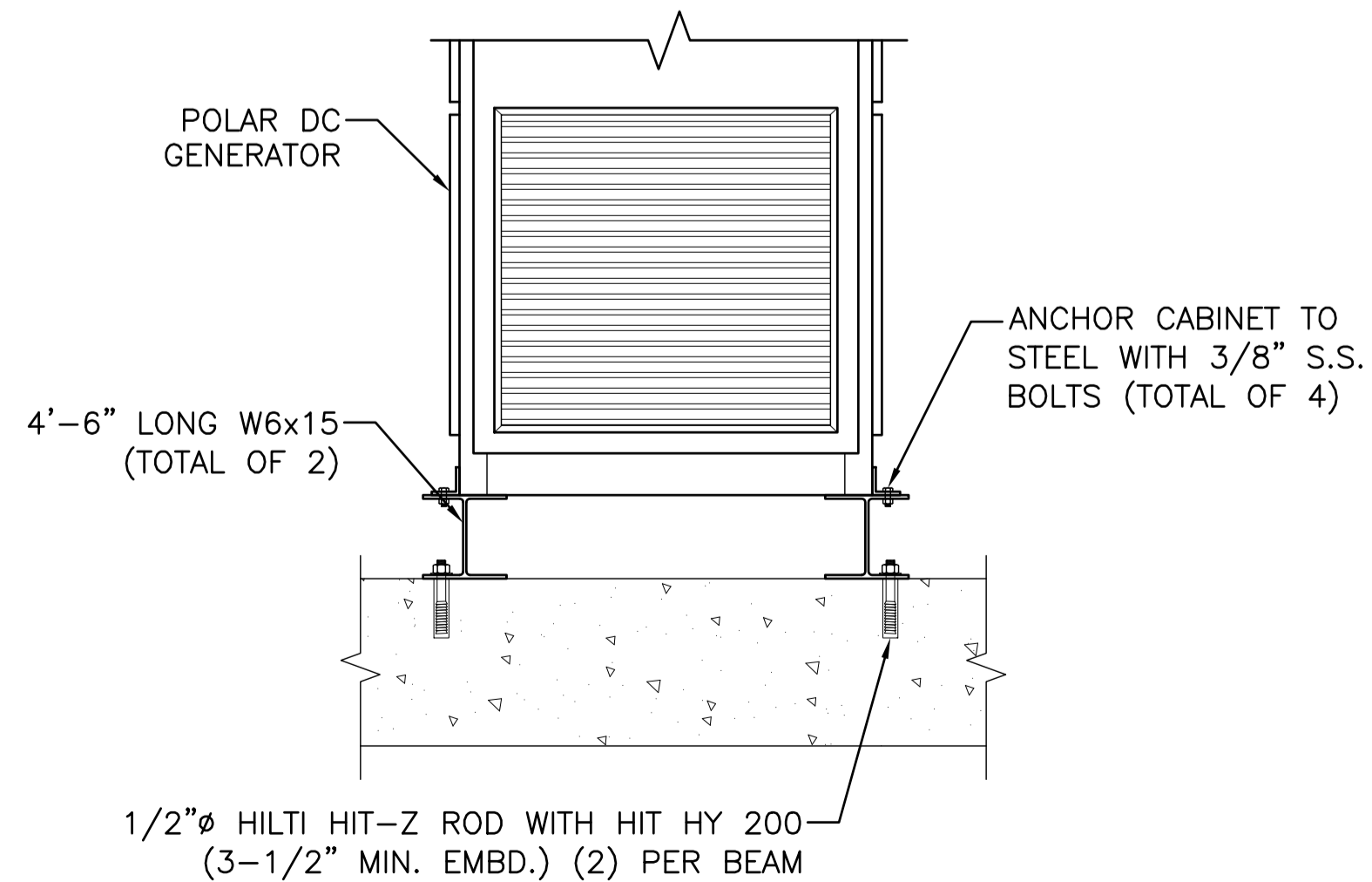
**2 CANOPY FRAMING PLAN**  
 SCALE: 3/4" = 1'-0"



**6 CANOPY SECTION**  
 SCALE: N.T.S.



**7 CANOPY SECTION**  
 SCALE: N.T.S.



**8 GENERATOR SKID DETAIL**  
 SCALE: N.T.S.

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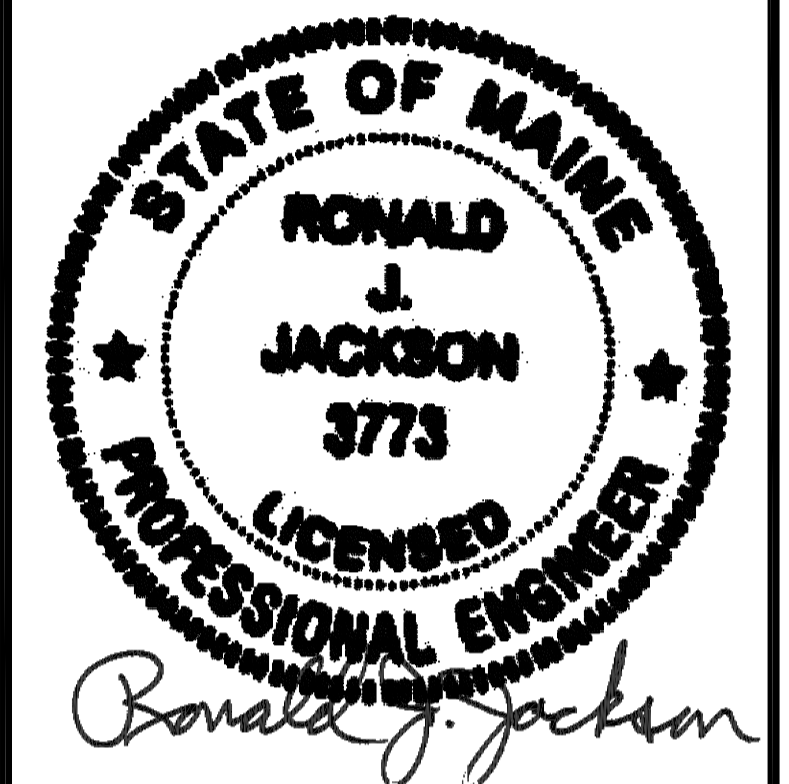
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SHEET TITLE:

**EQUIPMENT CANOPY  
 DETAILS**

NEXIUS PROJ. NO:  
**VZ11509**

SHEET NUMBER:

CHECKED BY:  
 KB

**A-5**

CHECKED BY DATE:  
 01/12/16

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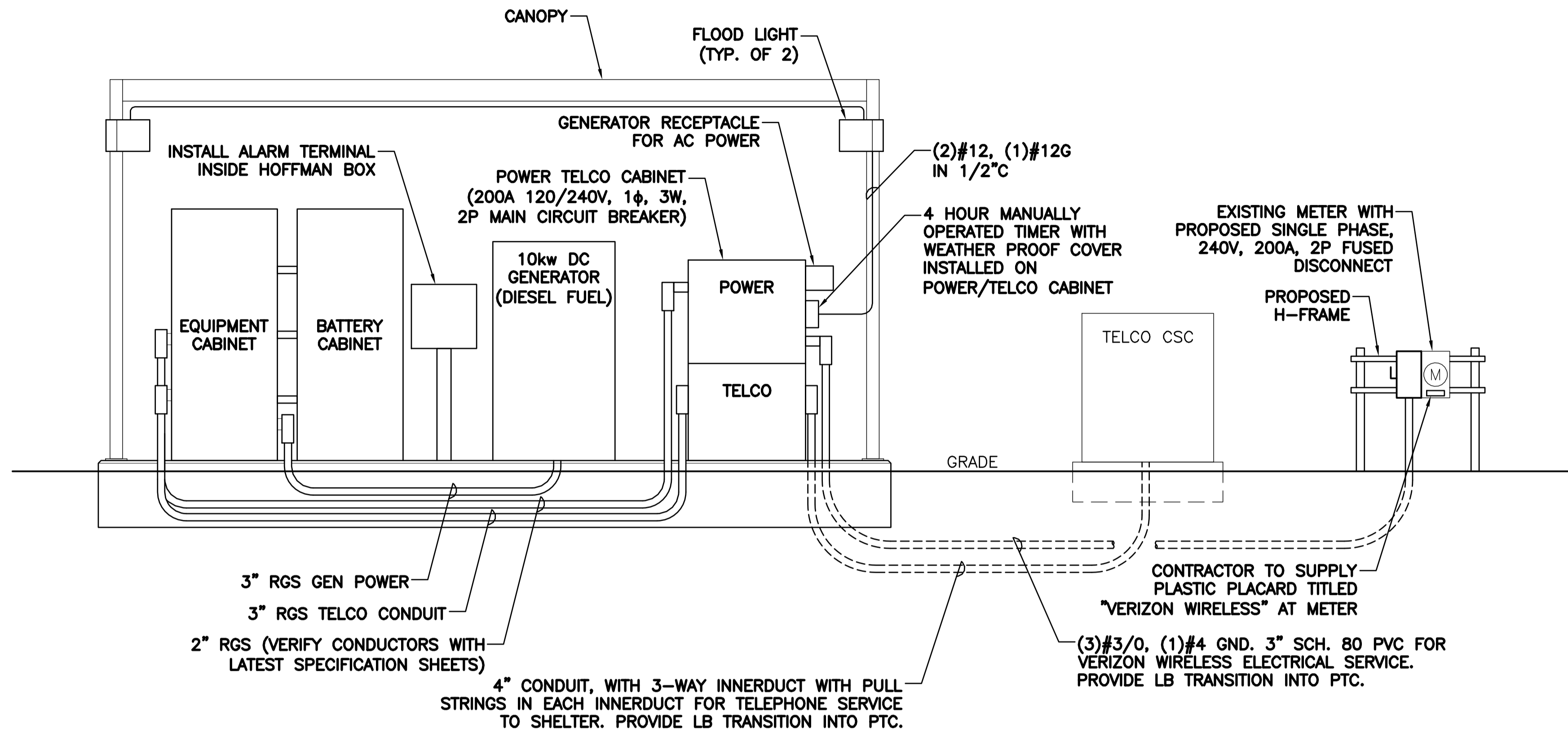
**VERIZON WIRELESS GENERAL ELECTRICAL NOTES:**

- SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT. CONTRACTOR IS RESPONSIBLE FOR ALL FIELD VERIFICATION.
- THESE PLANS ARE DIAGRAMMATIC ONLY AND NOT TO BE SCALED.
- UTILITY SERVICES SHOWN ARE PROPOSED, THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, PULL BOXES, ROUTING AND ASSOCIATED REQUIREMENTS WITH LOCAL UTILITY COMPANIES.
- VISIT THE SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED. REPORT ADVERSE CONDITIONS IN WRITING. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS INCLUDING PREPARATORY WORK DONE BY OTHERS.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL CONDUIT INSTALLED SHALL BE SURFACE MOUNTED UNLESS OTHERWISE NOTED. ALL METALLIC CONDUITS SHALL BE PROVIDED WITH BONDING BUSHINGS. THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDING USING COMPRESSION-TYPE CONDUIT FITTINGS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTORS. CRIMP-TYPE AND SET SCREW-TYPE CONDUIT FITTINGS ARE NOT ALLOWED.
- CONTRACTOR SHALL CARRY OUT THE WORK IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY, LOCAL CODES, AND BY O.S.H.A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDING AS REQUIRED BY ALL APPLICABLE CODES AND SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE.
- ELECTRICAL CONTRACTOR SHALL GIVE NOTICES, FILE PLANS, OBTAIN ELECTRICAL PERMITS AND LICENSES, PAY REQUIRED FEES AND BACK CHARGES AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION.
- THE CONTRACTOR IS TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOK-UP COSTS SHALL BE PAID BY THE CONTRACTOR.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH LOCAL UTILITY COMPANY AND FIELD CONSTRUCTION MANAGER. THE CONTRACTOR IS TO PROVIDE ALL NECESSARY SUPPORTS FOR CONDUIT RUNS ALONG WALL AND CEILING IN ACCORDANCE WITH SPECIFICATIONS. CONDUITS INDICATED SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS.
- LOCATION OF TENDONS AND RE-BARS ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X-RAY, OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING STEEL TENDONS.

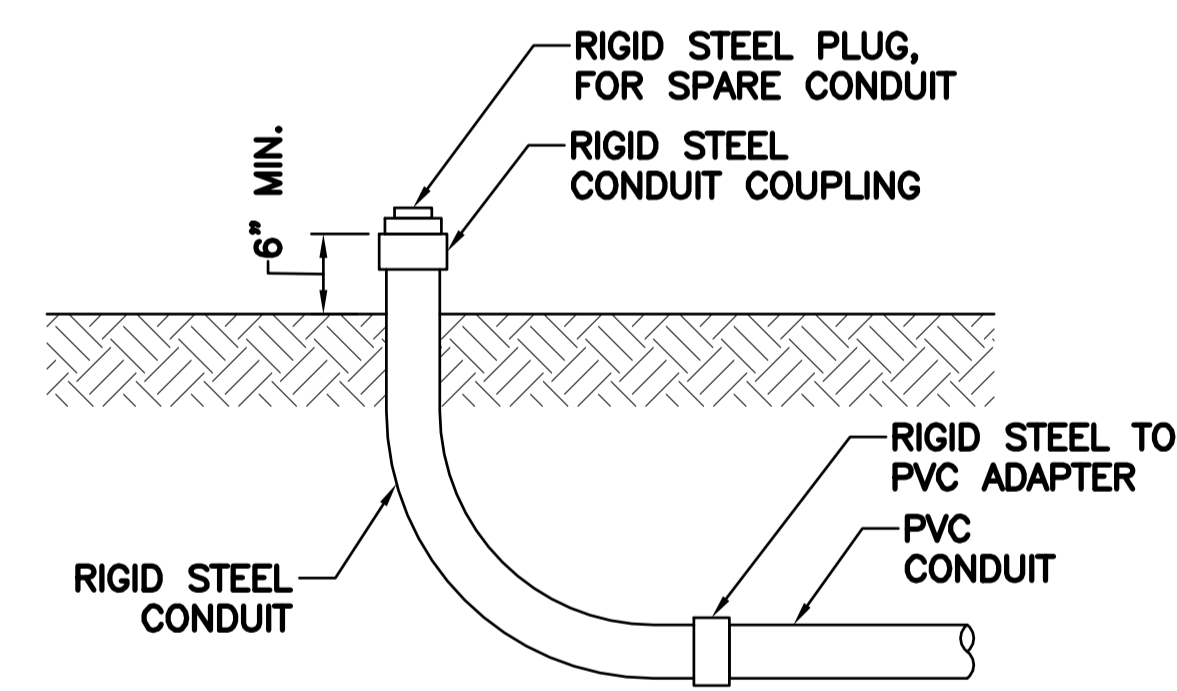
- UPON DRILLING HOLES INTO CONCRETE, WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC. IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND REBARS WILL NOT BE DRILLED INTO, CUT, OR DAMAGED UNDER ANY CIRCUMSTANCES.
- PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH APPLICABLE LOCAL BUILDING CODES. USING U.L. RATED MATERIALS
- PROVIDE "FIRE FLANGE" RATED PENETRATIONS FOR PIPES AND CONDUITS THROUGH RATED WALL CONSTRUCTION. CAULK AS REQUIRED WITH 3M BRAND FIRE BARRIER CAULK OR APPROVED EQUAL.
- ALL WALL PENETRATIONS FOR TELCO, POWER, AND GROUNDING SHALL REQUIRE RIGID STEEL SLEEVES. ALL EXTERIOR WALL PENETRATIONS SHALL BE SILICONE SEALED.
- PATCH, REPAIR, AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
- ALL EXISTING UNDERGROUND LINES ON SITE SHALL BE LOCATED PRIOR TO CONSTRUCTION.
- ALL EMPTY CONDUITS SHALL HAVE A PULL WIRE OR ROPE INSTALLATION.
- ALL CIRCUIT BREAKERS, FUSES, AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED AND A MINIMUM OF 10,000 AIC.
- MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA AND CBM APPROVED FOR INTENDED SERVICE. INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODES.
- ALL WIRING SHALL BE TYPE THWN RATED 75°C, 600V, WET OR DRY LOCATIONS. MINIMUM BRANCH CIRCUIT WIRING SHALL BE #12 AWG SOLID COPPER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL TELEPHONE COMPANY AS MAY BE REQUIRED FOR THE INSTALLATION OF TELEPHONE SERVICE TO THE PROPOSED SITE
- CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETED AND UNDAMAGED CONDITION.
- PROVIDE THE OWNER WITH ONE SET OF COMPLETE ELECTRICAL "AS BUILT" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS AND CIRCUITS, WITHIN 10 WORKING DAYS OF PROJECT COMPLETION.
- ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. FOR SPECIFIED AND UNSPECIFIED ORIGINAL MATERIALS AND EQUIPMENT SHALL BE TURNED OVER TO PROJECT MANAGER AT JOB COMPLETION.
- \* COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF NO LESS THAN ONE YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK MATERIAL, OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION AT THE EXPENSE OF THE CONTRACTOR.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY SHORT CIRCUIT, AND FALL-OF-POTENTIAL GROUNDING TEST WITH WRITTEN REPORT SUBMITTED TO THE PROJECT MANAGER FOR REVIEW AND APPROVAL.
- CONTRACTOR SHALL CONTACT \*DIG SAFE\* (1-888-DIG-SAFE) PRIOR TO COMMENCEMENT OF WORK.

\* INDICATES BY NOTICE OF COMPLETION: SIGNED OFF BY CONSTRUCTION ENGINEER AND INCLUDES DATES ON ALL WARRANTY FORMS.

CONDUIT EXPANSION JOINTS SHALL BE INSTALLED ON ANY AND ALL CONDUITS ENTERING OR EXITING FROM UNDERGROUND.



1 POWER RISER DIAGRAM  
SCALE: N.T.S.



2 CONDUIT STUB-UP DETAIL  
SCALE: N.T.S.

**ABBREVIATIONS**

|        |   |
|--------|---|
| A      | AMPERE  |
| A.I.C. | AVAILABLE INTERRUPTING CURRENT                    |
| A.T.S. | AUTOMATIC TRANSFER SWITCH                         |
| C      | CONDUIT   |
| RGS.   | RIGID GALVANIZED STEEL                            |
| GND.   | GROUND  |
| KWH    | KILOWATT HOUR                                     |
| φ      | PHASE   |
| P      | POLE  |
| PVC    | POLYVINYL CHLORIDE                                |
| SCA    | AVAILABLE SHORT CIRCUIT CURRENT                   |
| TBCW   | TINNED BARE COPPER WIRE                           |
| THHN   | THERMOPLASTIC HIGH HEAT RESISTANT NYLON-COATED    |
| THWN   | THERMOPLASTIC HEAT & WATER RESISTANT NYLON-COATED |
| TYP.   | TYPICAL   |
| U.O.N. | UNLESS OTHERWISE NOTED                            |
| W      | WIRE  |

**NOTE:**

- ALL POWER ROUTING SHALL BE COORDINATED WITH THE VERIZON WIRELESS CONSTRUCTION MANAGER AND THE SITE OWNER OR REPRESENTATIVE. ANY DISRUPTION OF ELECTRICAL SERVICE MUST BE APPROVED AND COORDINATED WITH THE SITE REPRESENTATIVE AND THE VERIZON WIRELESS CONSTRUCTION MANAGER.

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WESTBOROUGH, MA 01581

STATE OF MAINE  
RONALD J. JACKSON  
3773  
LICENSED PROFESSIONAL ENGINEER

*Ronald J. Jackson*

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**PORTLAND\_12\_ME**

LOCATION CODE:  
**136569**

SITE ADDRESS:  
**188 WARREN AVENUE  
PORTLAND, ME 04103  
CUMBERLAND COUNTY**

SHEET TITLE:  
**ELECTRICAL NOTES & POWER RISER DIAGRAM**

NEXIUS PROJ. NO: **VZ11509** SHEET NUMBER:  
**E-1**

CHECKED BY: **MS**

CHECKED BY DATE: **01/12/16**

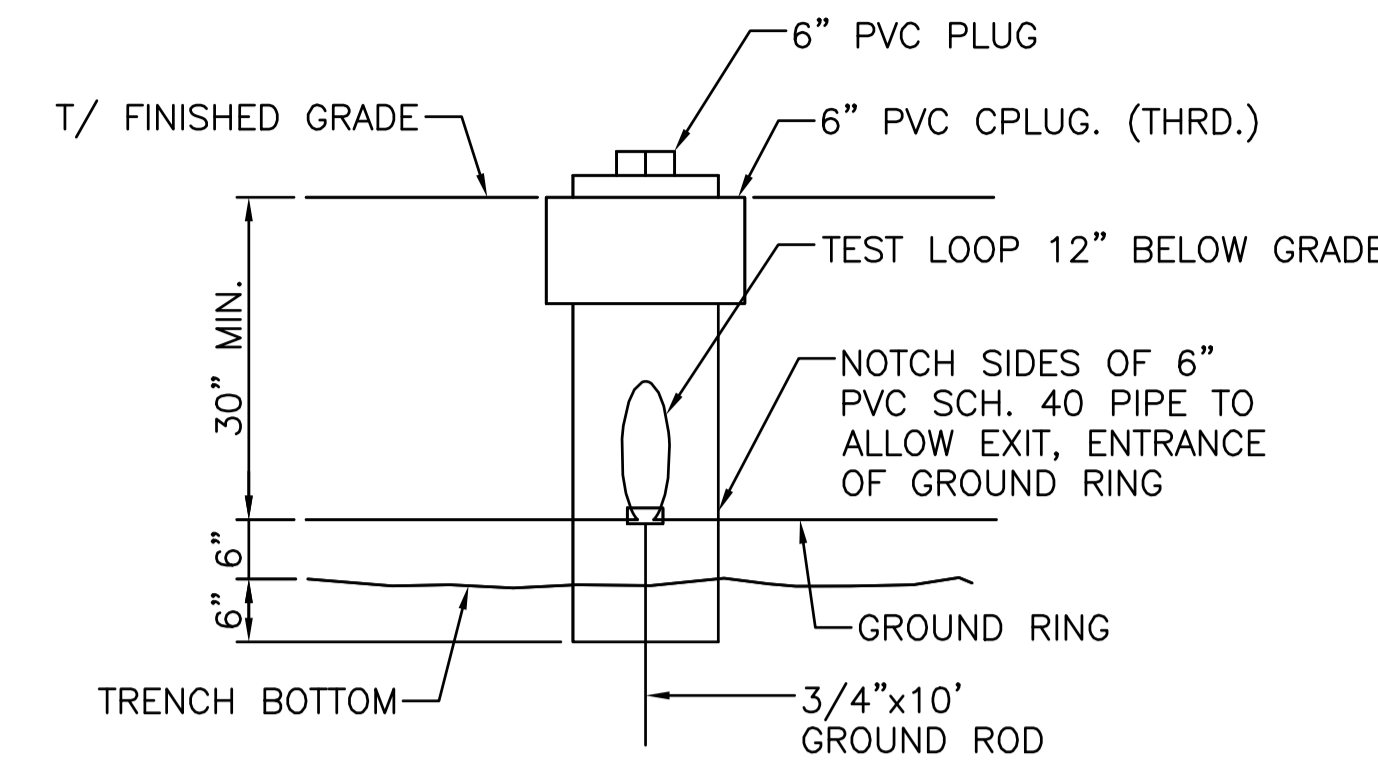
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PLANNER: Barbara Barhydt

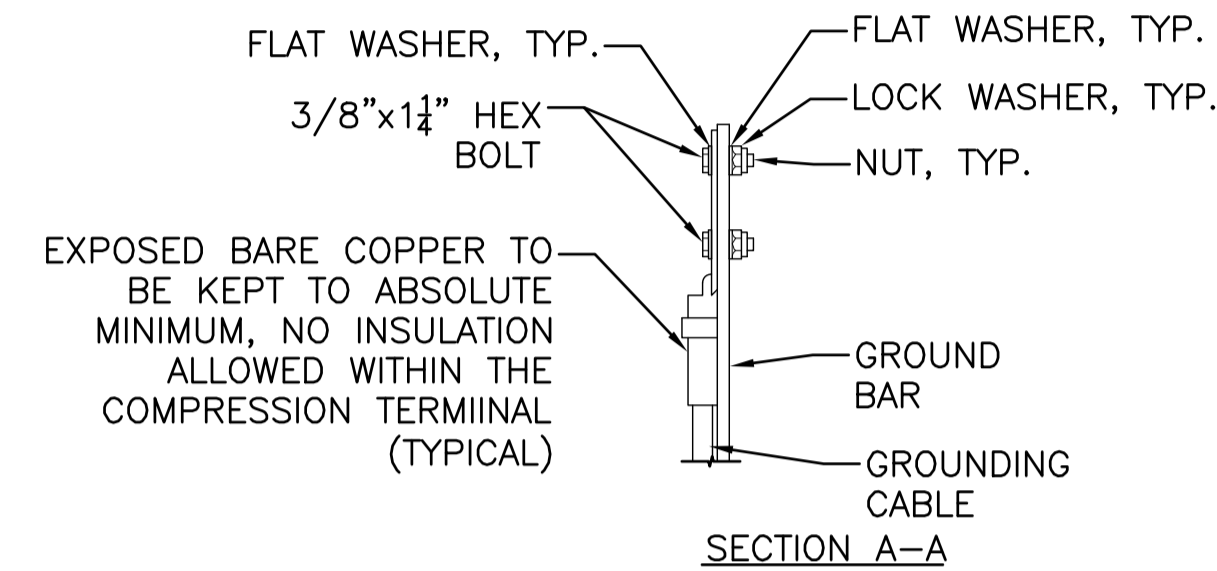
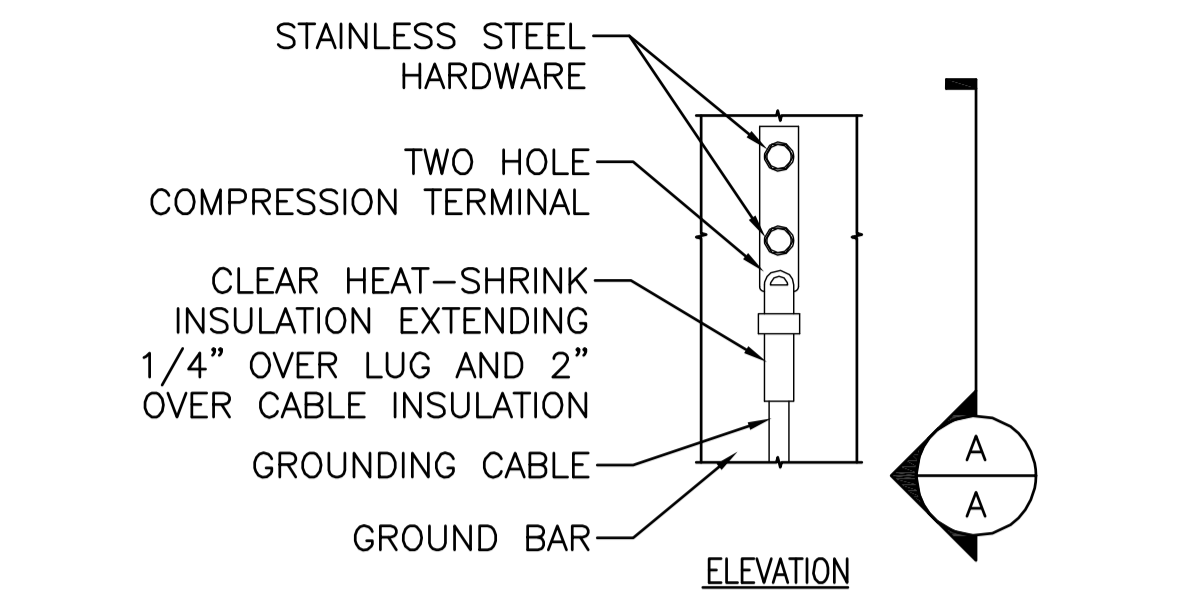


GROUNDING NOTES

- ALL ELECTRICAL AND GROUNDING AT THE SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE, (NEC) NFPA 70, (NATIONAL FIRE PROTECTION ASSOCIATION).
- ALL GROUND WIRE SHALL BE INSULATED GREEN COPPER #2 AWG UNLESS OTHERWISE NOTED.
- ALL GROUND WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
- ELECTRICAL CONTRACTOR SHALL COORDINATE CONNECTIONS TO EXISTING GROUND ELECTRODE WITH SITE CONSTRUCTION MANAGER.
- EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MIGB) WITH #2 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS SHALL EACH HAVE (2) CONNECTIONS, UNLESS NOTED OTHERWISE.
- PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE (TYPICAL FOR FOUR MOUNTING PIPES PER SECTOR).
- ANTENNA GROUND KITS SHALL BE FURNISHED BY VERIZON WIRELESS AND INSTALLED BY ELECTRICAL CONTRACTOR.
- THE GROUND SYSTEM SHALL BE TESTED AND SHALL HAVE A RESISTANCE OF 5 OHMS OR LESS.



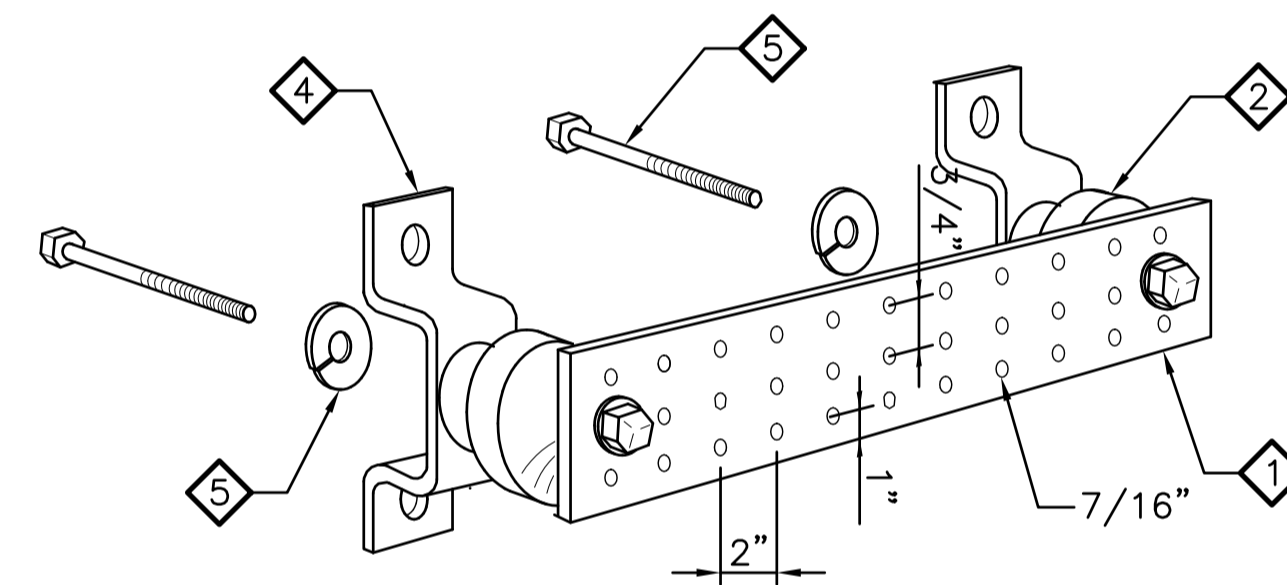
1 GROUND TEST WELL DETAIL  
N/A



NOTE:

- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
- OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
- CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

3 GROUND BAR CONNECTIONS DETAIL  
N/A



LEGEND

|   |  |
|---|--|
| 1 | HOT-DIPPED GALV. STEEL GROUND BAR, 1/4"x4"x24", HOLE CENTER TO MATCH NEMA DOUBLE LUG CONFIGURATION |
| 2 | INSULATORS   |
| 3 | 3/8" LOCK WASHERS  |
| 4 | WALL MOUNTING BRACKET  |
| 5 | 3/8"-11x1" H.H.C.S. BOLTS  |

2 STANDARD GROUND BAR DETAIL  
N/A

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- ALL RECEPTACLES AND EQUIPMENT CIRCUITS SHALL BE GROUNDED USING FULL-SIZE EQUIPMENT GROUNDING CONDUCTOR RUN WITH THE CURRENT CONDUCTORS
- ALL #6 STRANDED COPPER WITH GREEN INSULATION TO BE ATTACHED WITH CRIMPED DOUBLE LUG BOLTED ATTACHED WITH CAD PLATED BOLTS AND STAR WASHERS (TYPICAL). NO OX-GREASE
- IF THE AC PANEL IN THE POWER CABINET IS WIRED AS SERVICE ENTRANCE THE AC SERVICE GROUND CONDUCTOR SHALL BE CONNECTED TO THE GROUND ELECTRODE SYSTEM. WHEN THE AC PANEL IN THE POWER CABINET IS CONSIDERED A SUB-PANEL, THE GROUND WIRE SHALL BE INSTALLED IN THE AC POWER CONDUIT, THE INSTALLATION SHALL BE PER LOCAL AND NATIONAL ELECTRIC CODE (NFPA-70)
- EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL. OTHERWISE, THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES, LONG BARREL LUGS OR DOUBLE CRIMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH ANTI-OXIDANT (COPPER SHIELD) BEFORE MAKING THE CRIMP CONNECTIONS. THE MANUFACTURER'S TORQUING RECOMMENDATIONS ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS ARE TO BE FOLLOWED.
- THE ANTENNA CABLES SHALL BE GROUNDED AT THE TOP AND BOTTOM OF THE VERTICAL RUN FOR LIGHTNING PROTECTION. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWERMOST POINT OF A VERTICAL RUN JUST BEFORE IT BEGINS TO BEND TOWARD THE HORIZONTAL PLANE. WIRE RUNS TO GROUND SHALL BE KEPT AS STRAIGHT AND SHORT AS POSSIBLE. THE ANTENNA CABLE SHIELD SHALL BE GROUNDED JUST BEFORE ENTERING THE MINICELL. ANY ANTENNA CABLES OVER 200 FEET IN LENGTH SHALL ALSO BE EQUIPPED WITH ADDITIONAL GROUNDING AT MID-POINT.
- THE MASTER GROUND BUS (MGB) SHALL BE MADE OF BARE 1/4"x4" COPPER (FOR OUTDOOR APPLICATIONS. IT SHALL BE TINNED COPPER) AND LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS. THE HARDWARE SECURING THE MGB SHALL ELECTRICALLY INSULATE THE MGB FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
- GROUND CONNECTIONS: CLEAN SURFACES THOROUGHLY BEFORE APPLYING GROUND LUGS OR CLAMPS. IF SURFACE IS COATED, THE COATING MUST BE REMOVED DOWN TO THE BARE METAL. AFTER THE COATING HAS BEEN REMOVED, APPLY A NON-CORROSIVE APPROVED COMPOUND TO THE CLEANED SURFACE AND INSTALL LUGS OR CLAMPS. WHERE GALVANIZING IS REMOVED FROM METAL, IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVAMOX", OR EQUAL.

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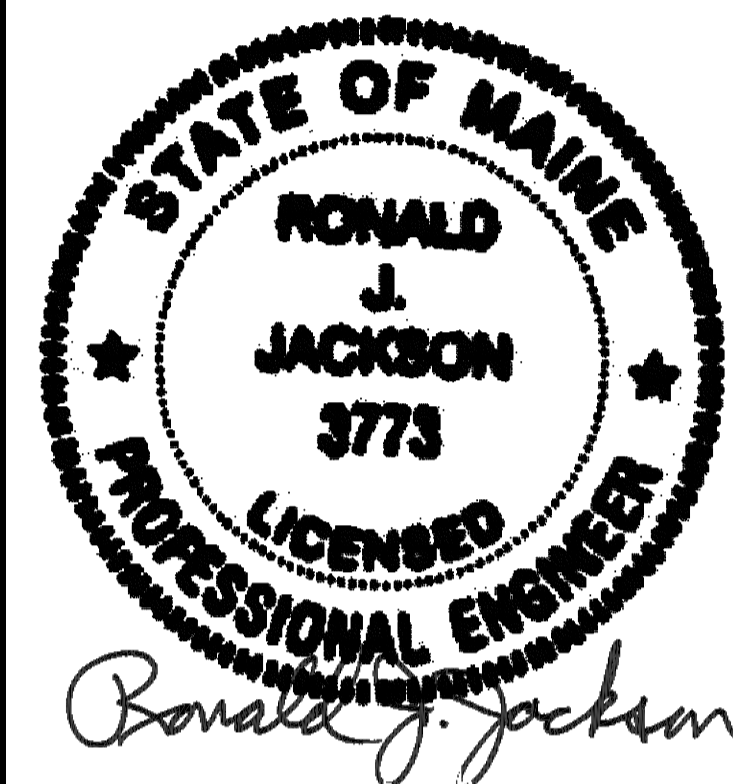
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SUBMITTALS

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|-----|----------|----------------|----|
| A   | 01/20/16 | FOR REVIEW     | JM |
| B   | 06/23/16 | REVISED PER SA | JM |
|     |          |                |    |
|     |          |                |    |
|     |          |                |    |
|     |          |                |    |
|     |          |                |    |
|     |          |                |    |

SITE INFO:

SITE NAME:  
**PORTLAND\_12\_ME**

LOCATION CODE:  
**136569**

SITE ADDRESS:  
**188 WARREN AVENUE  
PORTLAND, ME 04103  
CUMBERLAND COUNTY**

SHEET TITLE:

**GROUNDING DETAILS  
& NOTES**

NEXIUS PROJ. NO:  
**VZ11509**

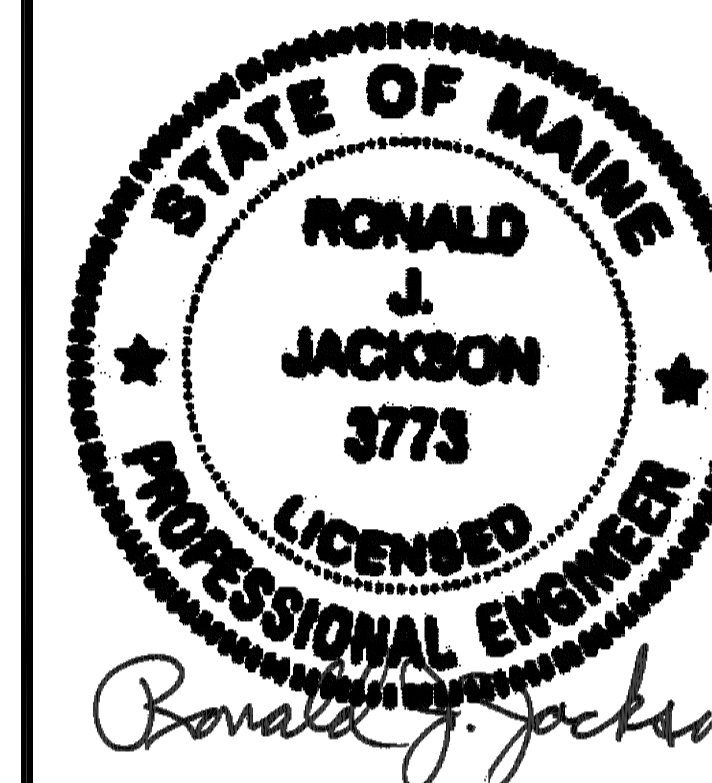
SHEET NUMBER:

CHECKED BY:  
MS

**E-2**

CHECKED BY DATE:  
01/12/16

CITY OF PORTLAND APPROVED SITE PLAN  
Subject to Conditions of Approval and Standard Conditions  
7-25-16  
DATE of APPROVAL  
PLANNER: Barbara Barhydt  
PROJECT NO: #2016-167



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DRAWING SCALES ARE INTENDED FOR 24"x36" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

SUBMITTALS

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**GROUNDING PLAN,  
DETAILS & NOTES**

NEXIUS PROJ. NO:  
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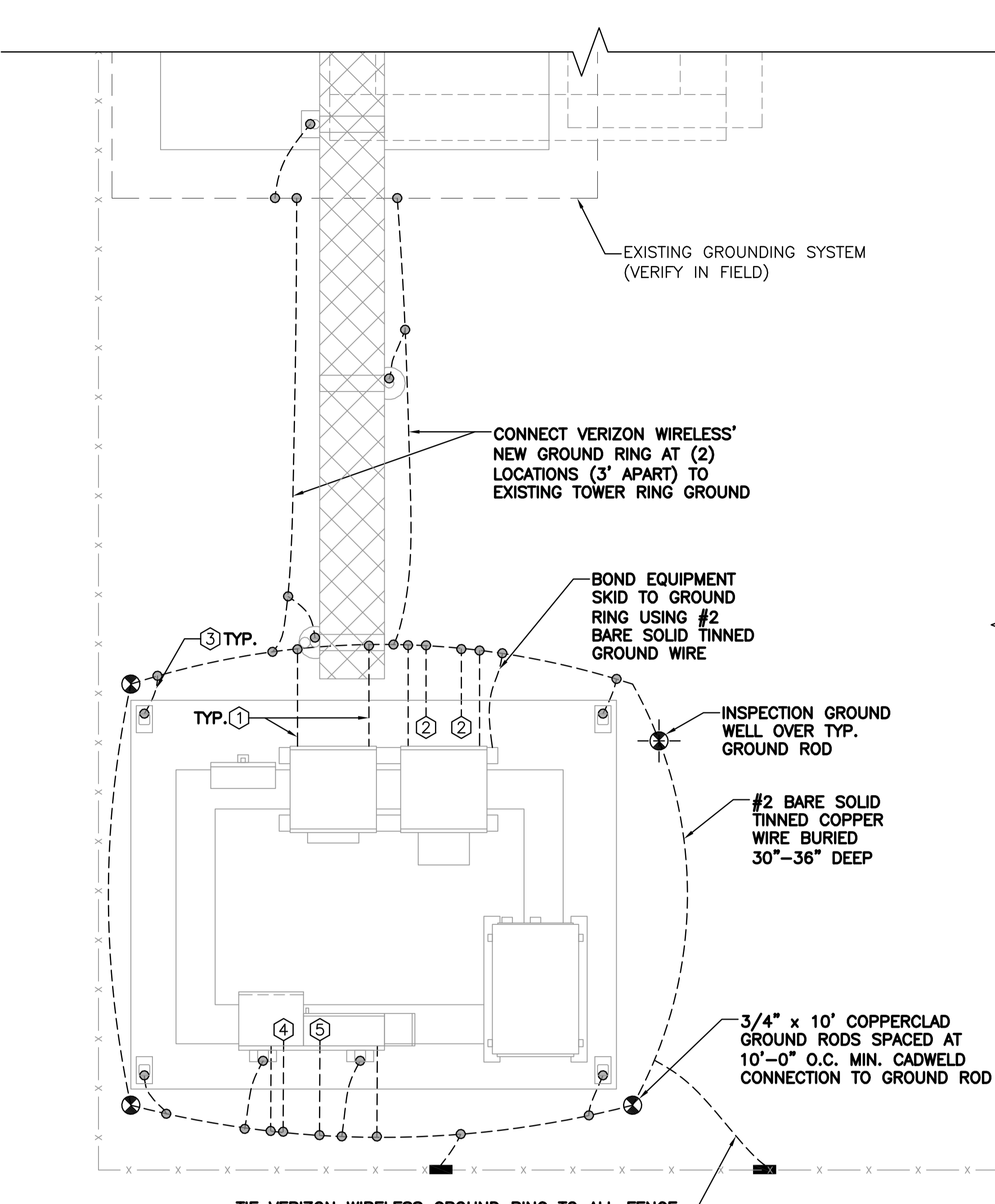
SHEET NUMBER:

CHECKED BY:  
MS

**E-3**

CHECKED BY DATE:  
01/12/16

CITY OF PORTLAND  
APPROVED SITE PLAN  
Subject to Conditions of Approval  
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DATE OF APPROVAL  
7-25-16  
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PROJECT NO. #2016-167



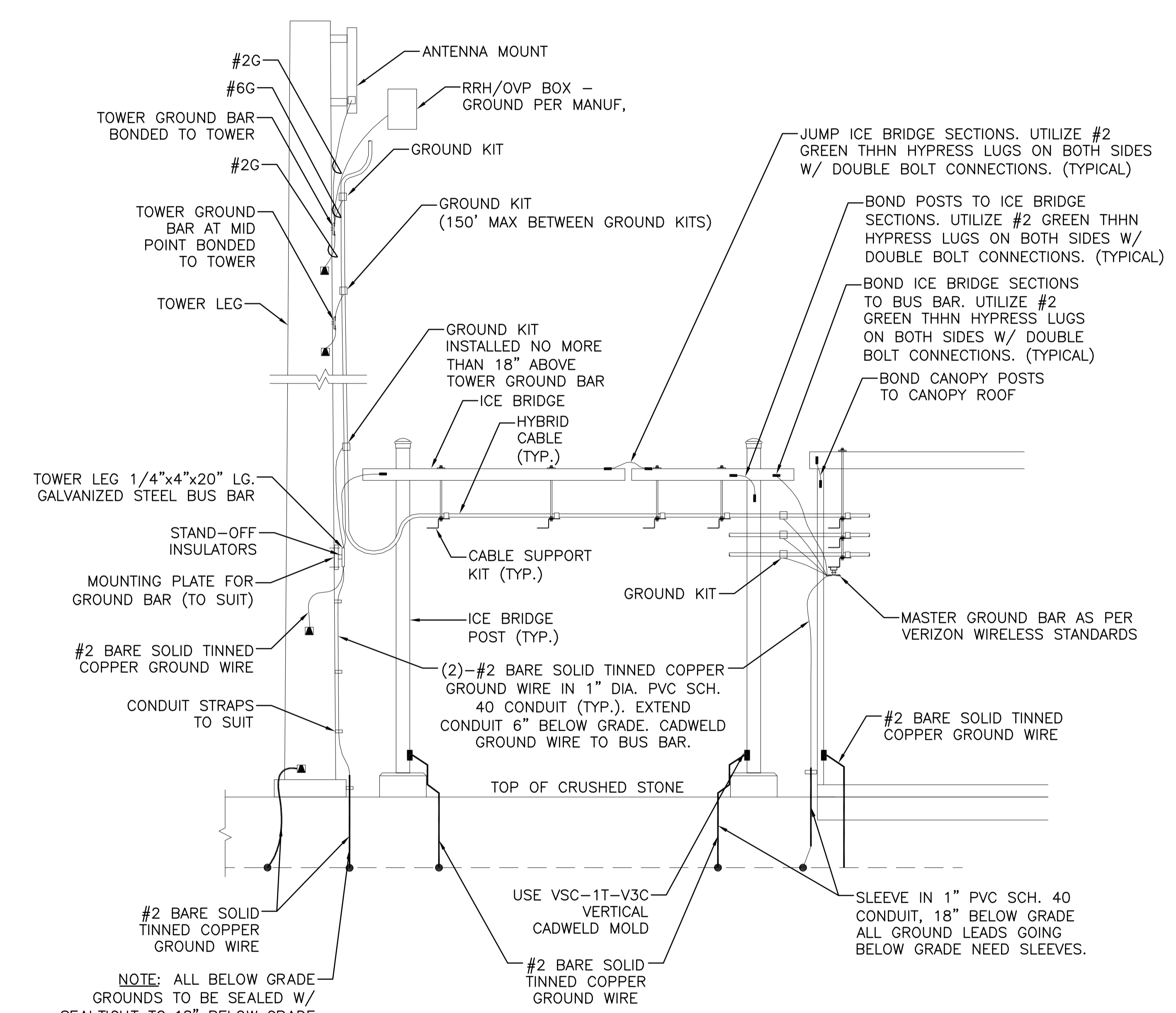
**1 GROUNDING PLAN**  
SCALE: N.T.S.

**GROUNDING CONNECTIONS**

- ① EQUIPMENT CABINET GROUND WIRE, #2 BARE SOLID TINNED COPPER GROUND WIRE, (2) PER CABINET. FASTENED TO CONCRETE PAD.
- ② MASTER BUS BAR, (2) #2 BARE SOLID TINNED COPPER GROUND WIRE.
- ③ ICE BRIDGE POST & CANOPY POST GROUND, #2 BARE SOLID TINNED COPPER GROUND WIRE.
- ④ INTERIOR TELCO CABINET EGB, #2 BARE SOLID TINNED COPPER GROUND WIRE
- ⑤ MAIN DISCONNECT SWITCH GROUND #2 BARE TINNED COPPER GROUND WIRE.

- LEGEND**
- ⊗ 3/4" X 10' COPPERCLAD GROUND ROD SPACED AT 10' O.C. MIN. CADWELD CONNECTION TO GROUND ROD
  - VERTICAL CADWELD MOLD
  - CADWELD CONNECTION
  - ⊕ INSPECTION WELL SEE DETAIL DWG
  - ▲ CADWELD CONNECTION TO TOWER

- NOTES**
1. ALL ENDS OF CONDUIT SHALL BE SEALED WITH A FOAM SEALANT AFTER WIRES AND CABLES ARE INSTALLED.
  2. ALL EQUIPMENT GROUND LEADS, CORNER GROUNDS, EXTERIOR GROUND BAR, TO BE #2 TINNED SOLID TO GROUND RING.
  3. IF EXISTING GROUND RING IS ACCIDENTALLY BROKEN DURING CONSTRUCTION IT SHALL BE RECONNECTED VIA CADWELD.



NOTE: ALL BELOW GRADE GROUNDS TO BE SEALED W/ SEALTIGHT TO 18" BELOW GRADE (TYPICAL). FILL OPENINGS W/ CLEAR SILICONE CAULKING.

- NOTES:**
1. CONTRACTOR SHALL ADD ADDITIONAL GROUND RODS & CONDUCTORS OR APPROVED GROUND ENHANCING MATERIAL TO ACHIEVE LESS THAN 5 OHMS RESISTANCE TO GROUND.
  2. MAXIMUM VERTICAL/HORIZONTAL DISTANCE BETWEEN CABLE GROUNDING KITS SHALL NOT EXCEED 150 FEET. INSTALL ADDITIONAL KITS AS REQUIRED BY FIELD CONDITIONS.
  3. GROUND ALL EQUIPMENT AT ANTENNAS AS REQUIRED BY MANUFACTURER.

**2 GROUNDING RISER DIAGRAM**  
SCALE: N.T.S.