

K:\CHS_Telecom\Workflow\Verizon\WINKY\ANN_ARBOR_5G\33036-PIONEER_HIGH_SCHOOL\CAD\CD ON: 6/19/2019 2:24 PM BY: KATELYNDRAPEAU

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
GENERAL CONTRACTOR
CONTRACTOR: (CONSTRUCTION)
OWNER – VERIZON WIRELESS
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND VERIZON WIRELESS PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE APPROPRIATE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR’S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2–A OT 2–A:10–B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.

24. THE AREAS OF THE OWNER’S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE–APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS–BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. STRUCTURE IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY VERIZON WIRELESS TECHNICIANS.
33. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
34. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
35. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
36. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
37. ALL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER’S INSTRUCTIONS AND RECOMMENDATIONS.

ANTENNA MOUNTING:

38. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA–222 OR APPLICABLE LOCAL CODES.
39. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT–DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
40. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC–COATING (HOT–DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
41. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
42. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER’S RECOMMENDATIONS.
43. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER’S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
44. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB, ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/-0.5% AS DEFINED BY THE RFDS.

TORQUE REQUIREMENTS:

45. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH TO THE MANUFACTURES SPECIFIED TORQUE.
46. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.

A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.

B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.

COAXIAL CABLE NOTES:

47. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
48. CONTRACTOR SHALL VERIFY THE DOWN–TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
49. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.
50. ALL JUMPERS TO THE ANTENNAS SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'–0".
51. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
52. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'–0" OC.
53. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER’S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
54. CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF–AMALGAMATING TAPE.

GENERAL CABLE & EQUIPMENT NOTES:

55. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
56. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER MANUFACTURER’S RECOMMENDATIONS.
57. CONTRACTOR SHALL REFERENCE THE STRUCTURAL ANALYSIS / DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION / ROUTING.
58. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE–HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
59. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:

A. TEMPERATURE SHALL BE ABOVE 50° F, OR PAINTING TO BE PERFORMED IN A MANNER CONSISTENT WITH THE PAINT MANUFACTURER’S INSTRUCTIONS FOR COLD WEATHER PAINTING.

B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.

C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.

D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.
60. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'–0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
61. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER MANUFACTURER’S SPECIFICATION & RECOMMENDATIONS.

ROW CONSTRUCTION NOTES STANDALONE:

62. NO BOLT THREADS TO PROTRUDE MORE THAN 1–1/2" [.038M].
63. 90 SHORT SWEEPS UNDER ANTENNA ARM. ALL CABLES MUST ONLY TRANSITION ON THE INSIDE OR BOTTOM OF ARMS (NO CABLE ON TOP OF ARMS).
64. USE 90 CONNECTOR AT CABLE CONNECTION TO ANTENNAS.
65. PLACE GPS ON ARM WITH SOUTHERN SKY EXPOSURE AT MINIMUM 6’ [1.83] FROM TRANSMIT ANTENNA, WHICH IS 24’ [.61M] AWAY FROM CENTER OF POLE.
66. USE 1/2" [.013M] CABLE ON ANTENNAS UNLESS OTHERWISE SPECIFIED.
67. FILL VOID AROUND CABLES AT CONDUIT OPENING WITH FOAM SEALANT TO PREVENT WATER INTRUSION.
68. THE MINIMUM SIZE OF ALL ANTENNA POLE WILL BE ANSI CLASS 3, UNLESS NOTED OTHERWISE.

MAINTENANCE OF TRAFFIC:

69. DURING THE CONSTRUCTION PERIOD, STREETS AND / OR STREET TRAFFIC LANES MAY BE CLOSED TEMPORARILY, WITH THE WRITTEN PERMISSION OBTAINED BY CONTRACTOR FROM THE GOVERNING AUTHORITY.
70. ANY STREET CLOSURE OR PORTION THEREOF MUST COMPLY WITH THE STATE AUTHORITIES DEPARTMENT OF TRANSPORTATION STANDARDS IN ADDITION TO THE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS.
71. ALL REQUIRED CONSTRUCTION TRAFFIC MAINTENANCE AND CONTROLS SHALL BE IN ACCORDANCE WITH THE STATE AUTHORITIES DEPARTMENT OF TRANSPORTATION STANDARDS IN ADDITION TO THE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS AND SHALL BE DESIGNED, PLANNED, PROVIDED, ERECTED AND MAINTAINED BY THE CONTRACTOR PER THE APPLICABLE STANDARDS.
72. THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ALL ABUTTING PROPERTIES AND INTERSECTING STREETS AT ALL TIMES DURING THE CONSTRUCTION OF THE IMPROVEMENTS ANTICIPATED. DRIVEWAYS MUST BE MAINTAINED AND ALL TRENCHES SHALL BE BACKFILLED AT THE END OF EACH WORK DAY.
73. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, SATISFACTORY BARRIERS, LIGHTING, FLAGMEN, ETC. TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS TRAVERSING THE CONSTRUCTION AREA.
74. THE CONTRACTOR SHALL SUBMIT A FORMAL TRAFFIC CONTROL PLAN THAT MEETS ALL REQUIREMENTS OF THE CURRENT ADOPTED STANDARDS OF THE STATE AUTHORITIES DEPARTMENT OF TRANSPORTATION STANDARDS IN ADDITION TO THE MANUAL OF UNIFORM CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS. THIS SUBMITTAL AND DESIGN IS NOT UNDER THE CONTROL OF KIMLEY–HORN.



PLANS PREPARED BY:



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KH PROJECT NUMBER:

KHCHI-55

ENGINEER SEAL:



06/19/19

PROJECT INFORMATION:

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33036-PIONEER_HIGH_ SCHOOL_5G - C

203 E WASHINGTON STREET
ANN ARBOR, MI 48104
WASHTENAW COUNTY

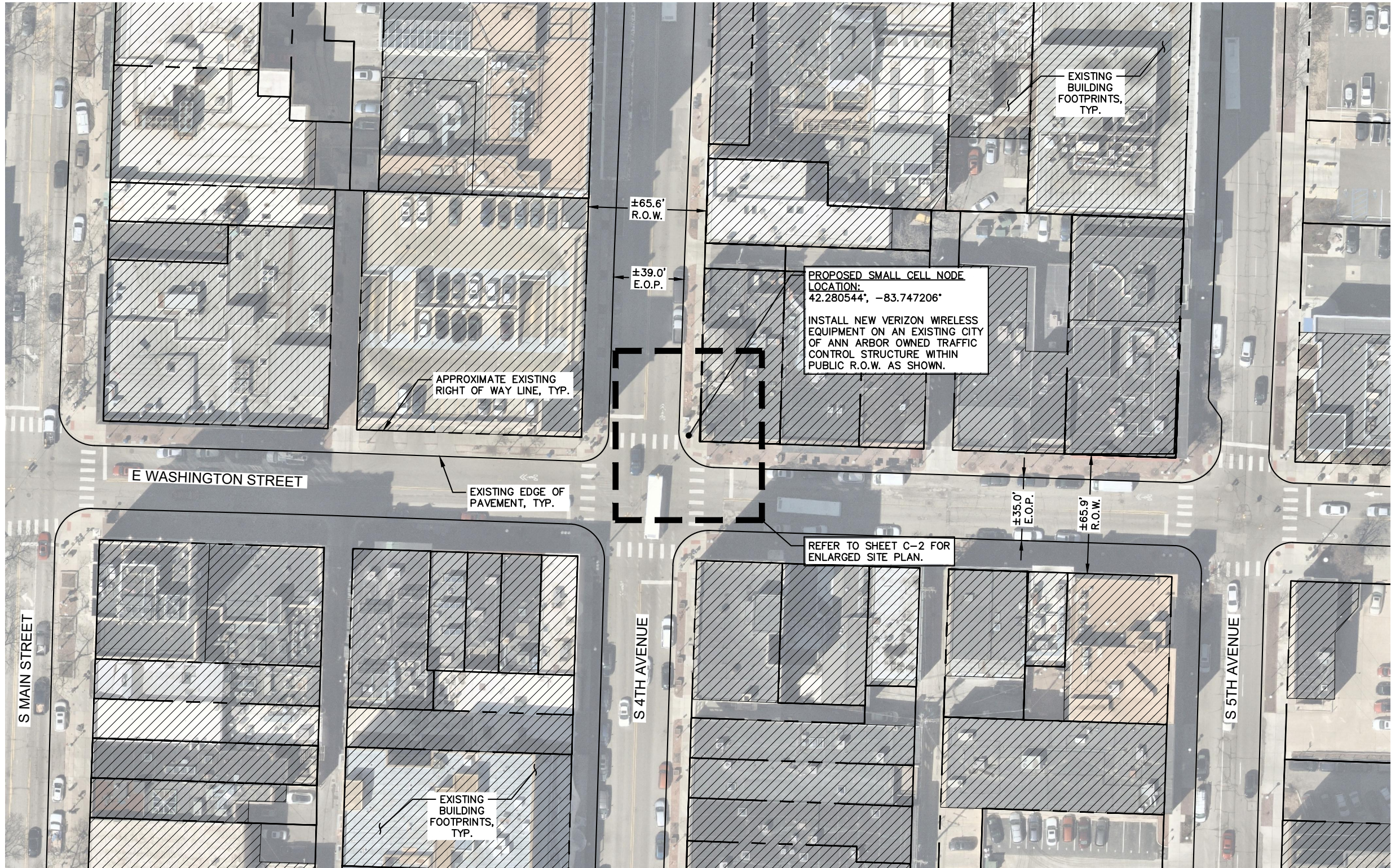
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GENERAL NOTES

SHEET NUMBER:

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NOTES:

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. INFORMATION SHOWN WAS OBTAINED FROM AERIAL IMAGERY AND COUNTY/CITY GIS (IF AVAILABLE), AND IS PROVIDED HERE FOR ILLUSTRATIVE PURPOSES ONLY. THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS, UTILITY LOCATIONS, AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

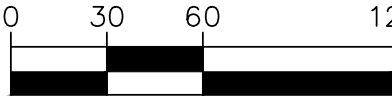


OVERALL SITE PLAN

SCALE: 1" = 60'
SCALE BASED ON 11"X17" ONLY



GRAPHIC SCALE IN FEET



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**OVERALL
SITE PLAN**

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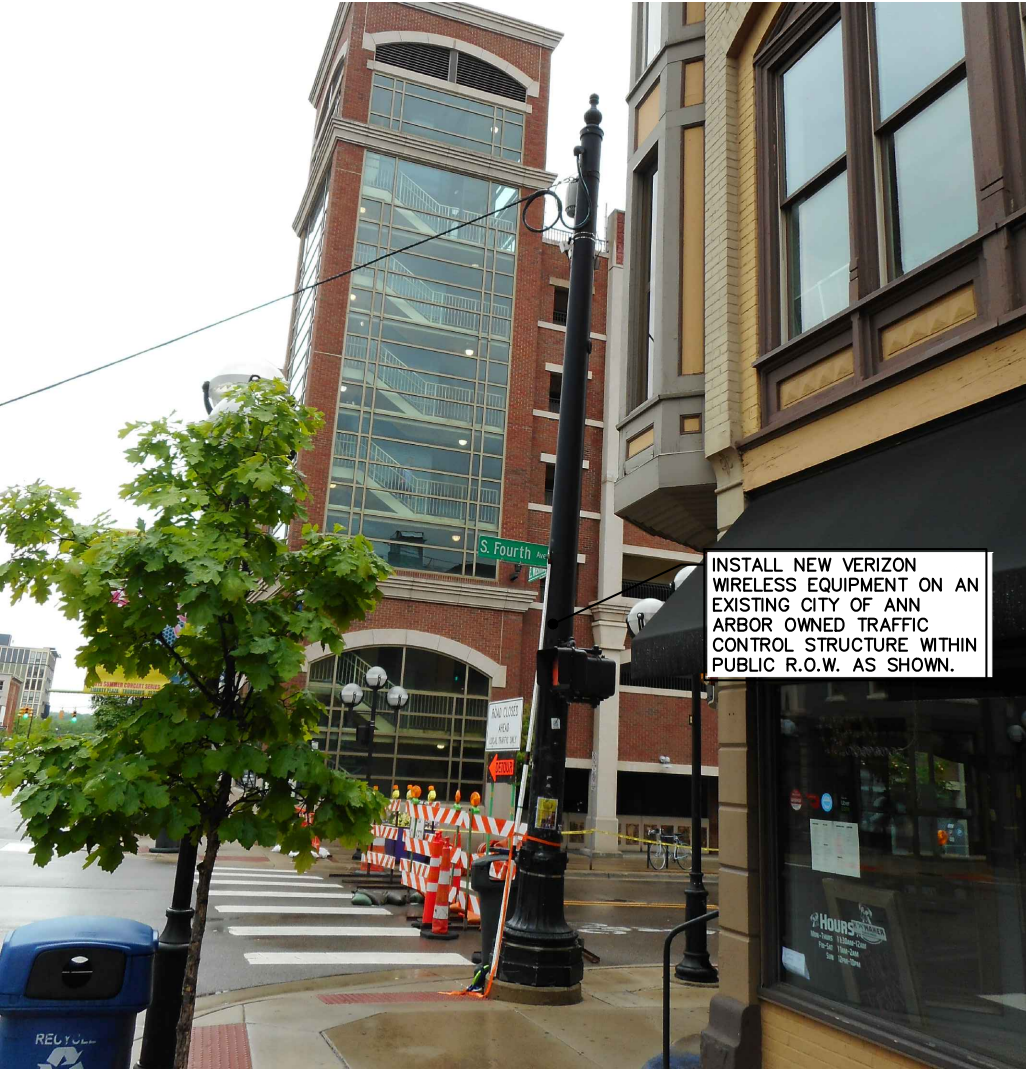
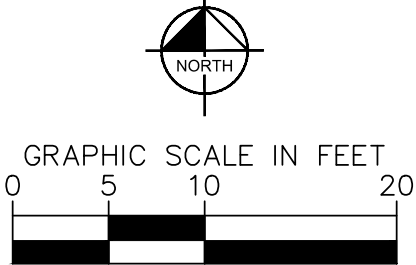
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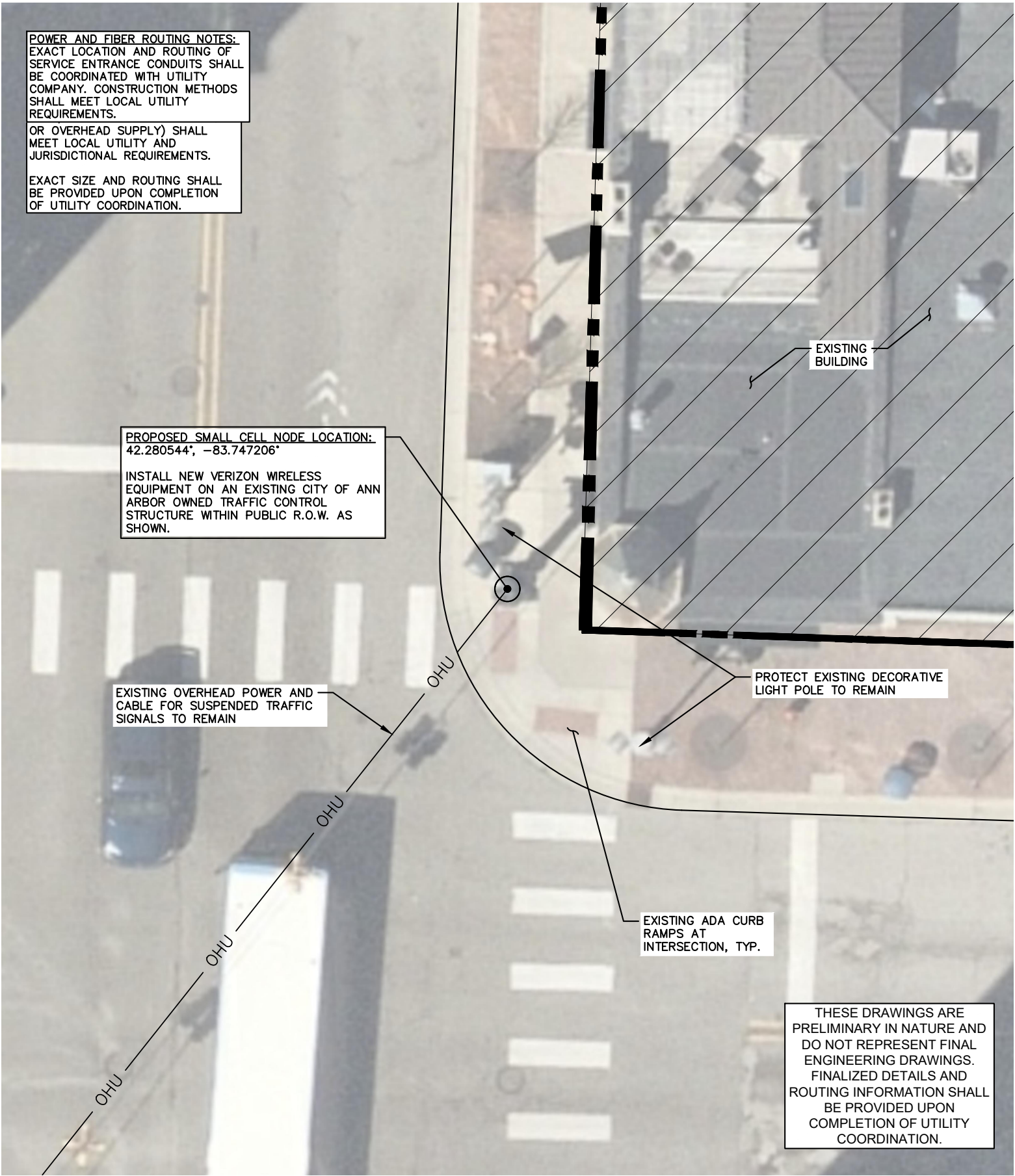
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LEGEND:

APPROXIMATE R.O.W. LINE	— — — — —
ELECTRIC (UNDERGROUND)	— E —
ELECTRIC (OVERHEAD)	— OHU —
FIBER	— F —
GAS LINE	— GAS —
STORM SEWER	— SD —
SANITARY SEWER	— S —



1
C-2 **PROPOSED NODE LOCATION**
SCALE: N.T.S.
SCALE BASED ON 11"X17" ONLY



2
C-2 **ENLARGED SITE PLAN**
SCALE: 1" = 10'
SCALE BASED ON 11"X17" ONLY



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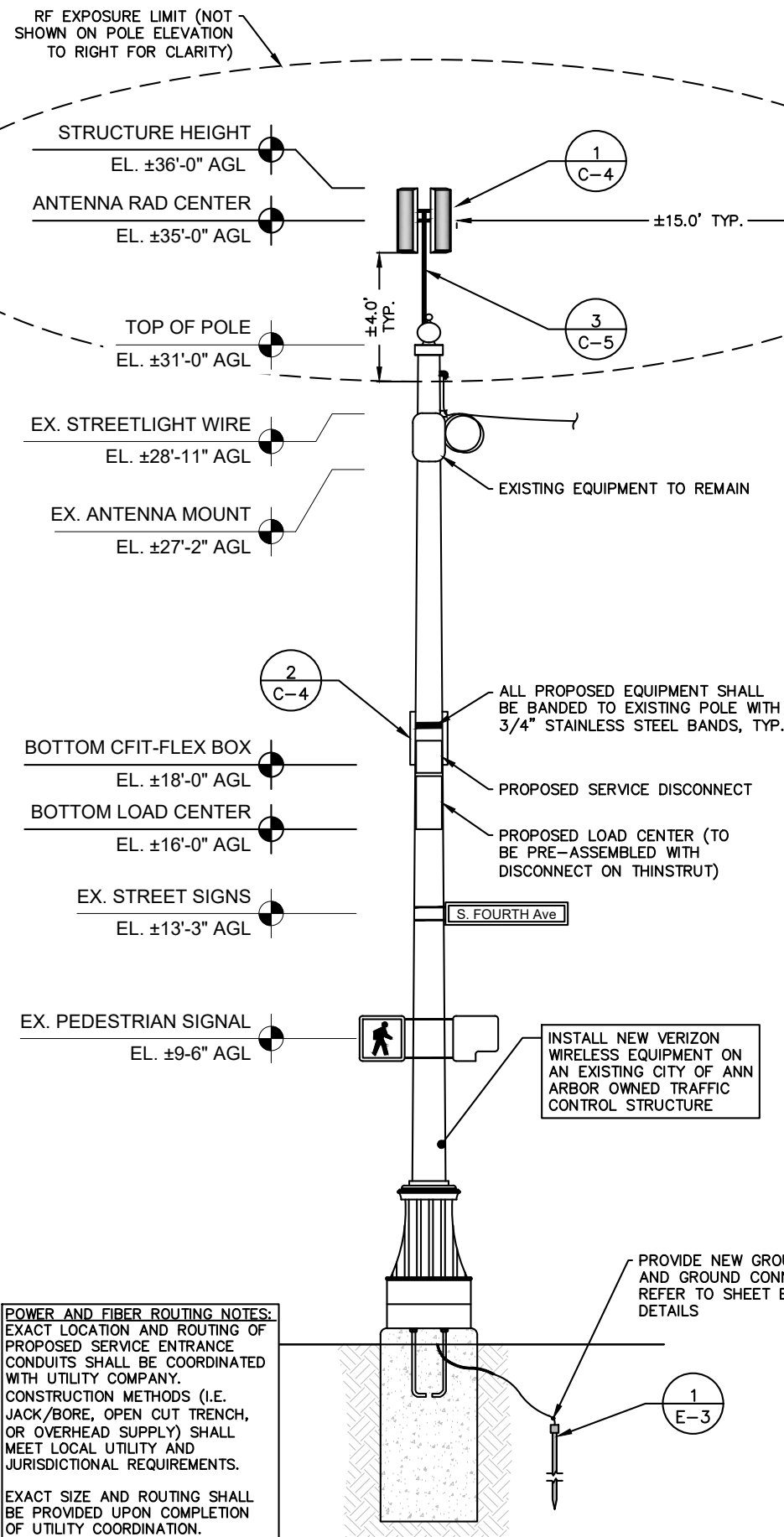
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**ENLARGED
SITE PLAN**

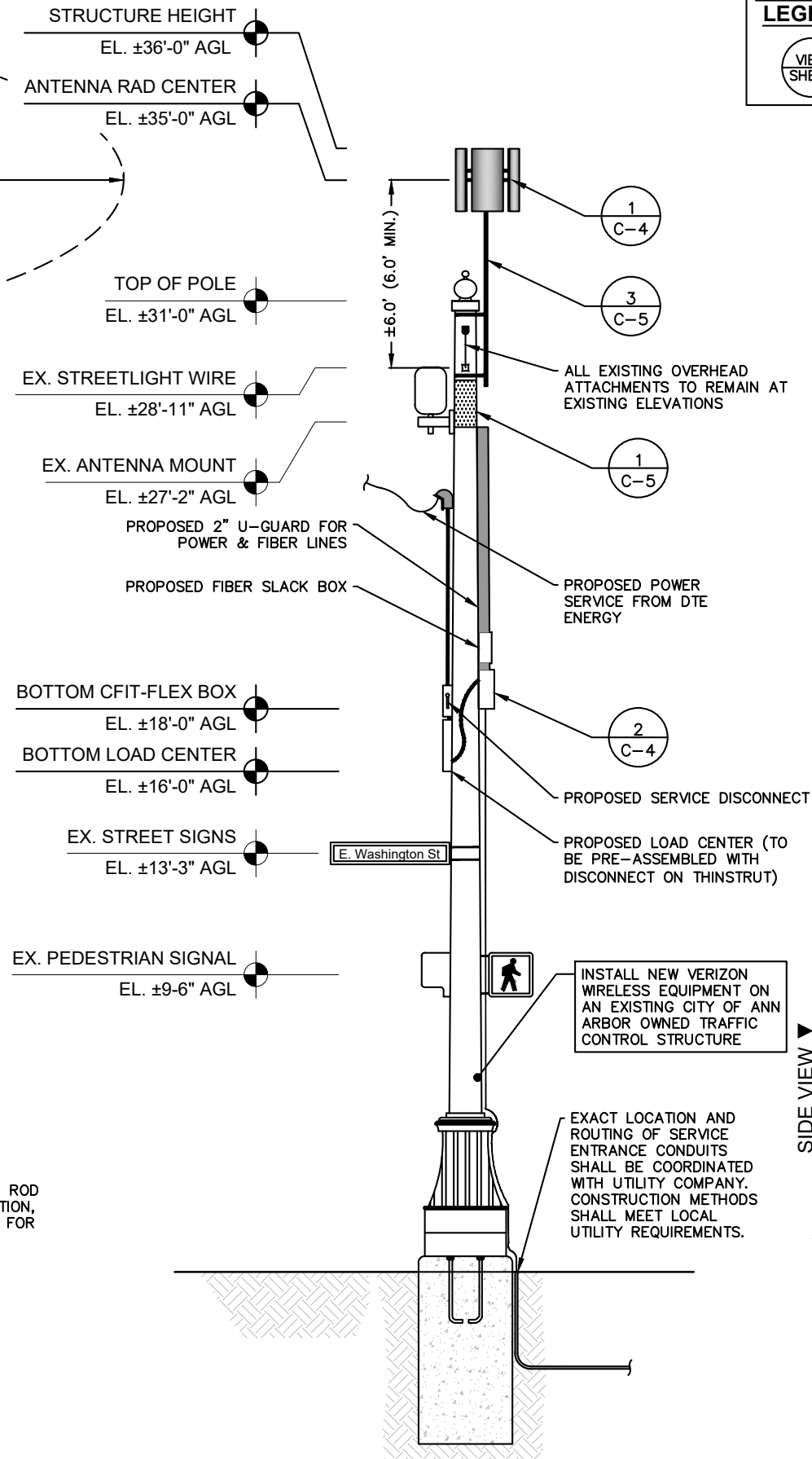
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1 C-3 POLE ELEVATION (SIDE VIEW)
SCALE: N.T.S.



2 C-3 POLE ELEVATION (FRONT/REAR VIEW)
SCALE: N.T.S.

KEY NOTE
LEGEND:

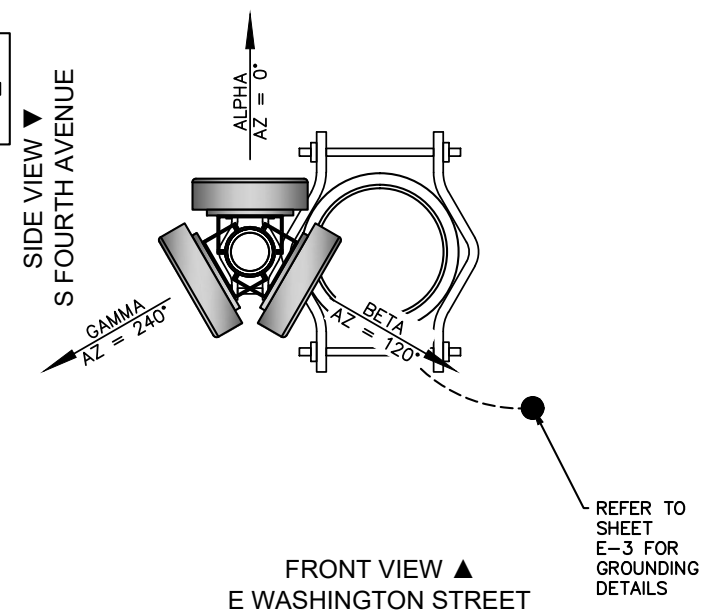
VIEW SHEET

KEY NOTES:

- 1 C-4 5G ANTENNA INTEGRATED RADIOS - ERICSSON AIR 5121
- 2 C-4 COMPACT UNIVERSAL ENCLOSURE - CHARLES CFIT-FLEX BOX
- 1 C-5 TWO (2) 12" X 18" RF WARNING SIGNS POSTED MIN. 5' BELOW BOTTOM OF ANTENNAS
- 3 C-5 ANTENNA MOUNT / EXTENSION
- 1 E-3 GROUND ROD MIN. 3'-0" FROM POLE

POLE ELEVATION NOTES:

- ALL EQUIPMENT MAY BE ADJUSTED IN THE FIELD TO ACCOMMODATE FIELD CONDITIONS, LOCAL CODES, REGULATIONS, AND PROVISIONS OF THE CONTRACT.
- POLE DESIGN, SPECIFICATIONS, AND ANALYSIS PERFORMED BY OTHERS.
- ANTENNA ORIENTATION SHOWN FOR REFERENCE ONLY. SEE VERIZON WIRELESS RFDS FOR FINALIZED AZIMUTH AND MECHANICAL DOWNTILT INFORMATION.



3 C-3 ANTENNA ORIENTATION
SCALE: N.T.S.

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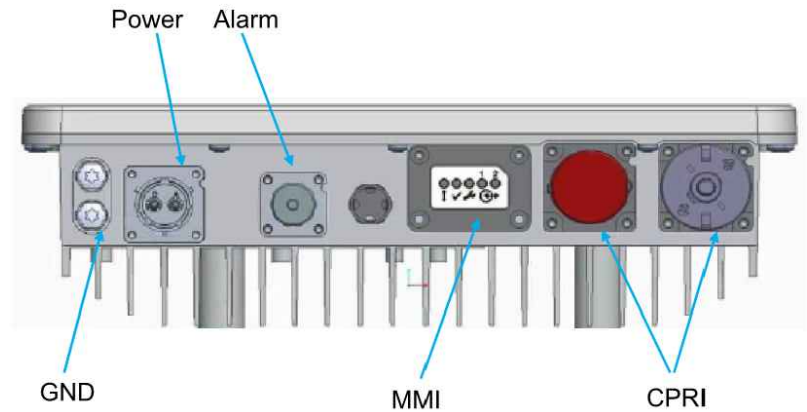
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POLE ELEVATIONS

SHEET NUMBER:

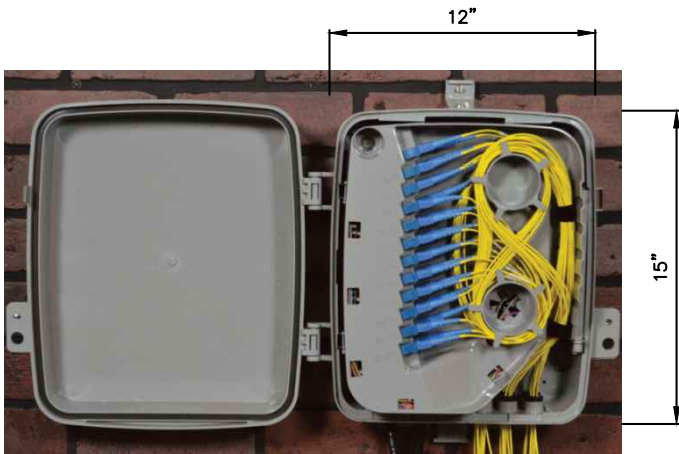
C-3

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SUMMARY OF CONNECTIONS			
DESIGNATION	QUANTITY	DESCRIPTION	CONNECTOR
DATA 1-2	2	CPRI 8	BULKHEAD, CIRCULAR CONNECTOR, SFP+
MMI	1	LED'S ON THE MAIN BOARD ARE DIRECTED TO THE OUTSIDE OF THE UNIT THROUGH LIGHT GUIDES AND CAN BE COVERED.	-
IP VENT PLUG	1	DEVICE FOR PRESSURE EQUALIZATION BETWEEN INSIDE AND OUTSIDE UNIT	-
EXTERNAL ALARM	1	EXTERNAL ALARM PORT	CIRCULAR 14 CONTACTS FEMALE PANEL CONNECTOR
POWER	1	110/250V AC	EXTERNAL CONTACTS CIRCULAR FEMALE
GND	1	DUAL LUG GROUNDING	-

1 5G ANTENNA INTEGRATED RADIO - ERICSSON AIR5121
SCALE: N.T.S.

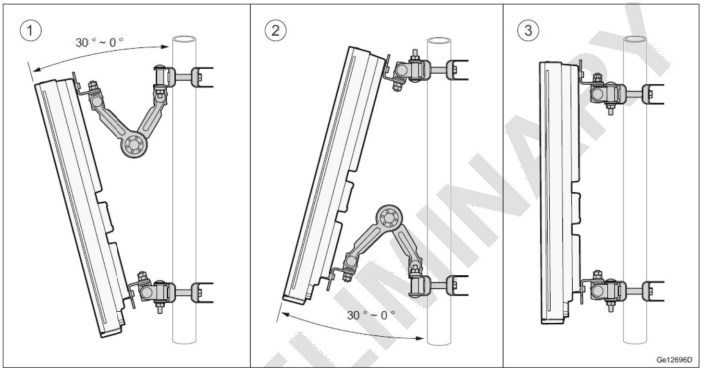


PRODUCT SPECIFICATIONS	
DIMENSIONS	15" H X 12" W X 5.5" D
WEIGHT	4 LBS (EMPTY ENCLOSURE)
MATERIAL	RUGGED UL94-5VA GRAY POLYCARBONATE
SUPPORTED FIBER CONNECTOR TYPES	SC, LC, MPO
SECURITY FEATURES	216-HEX 1/4 TURN LOCK PADLOCK HASP
MOUNTING	WALL OR POLE MOUNT
COMPLIANCE	DESIGNED TO MEET OR EXCEED GR-950, GR-2898, NEMA 4, AND IP66

2 COMPACT UNIVERSAL ENCLOSURE - CHARLES CFIT-FLEX BOX
SCALE: N.T.S.

AIR5121 MOUNTING BRACKET

AIR Antenna Weight ~ 28.7 lbs.
Brackets/Cable Weight – 47.1 lbs.
Cable – 0.4 lbs./FT



Installation Kit	Description
1	Wall and Pole clamp with down tilt
2	Wall and Pole clamp with up tilt
3	Wall and Pole clamp no tilt

Ericsson Internal | 2017-12-05 | Page 10

3 MOUNTING BRACKET - FOR ERICSSON AIR5121
SCALE: N.T.S.

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PLANS PREPARED BY:

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REV: DATE: DESCRIPTION: BY:

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DRAWN BY: CHECKED BY:

REL KLD

KH PROJECT NUMBER:

KHCHI-55

ENGINEER SEAL:

FOR
REFERENCE
ONLY

PROJECT INFORMATION:

SITE NAME:
33036-PIONEER_HIGH_
SCHOOL_5G - C

203 E WASHINGTON STREET
ANN ARBOR, MI 48104
WASHTENAW COUNTY

SHEET TITLE:

EQUIPMENT
DETAILS

SHEET NUMBER:

C-4



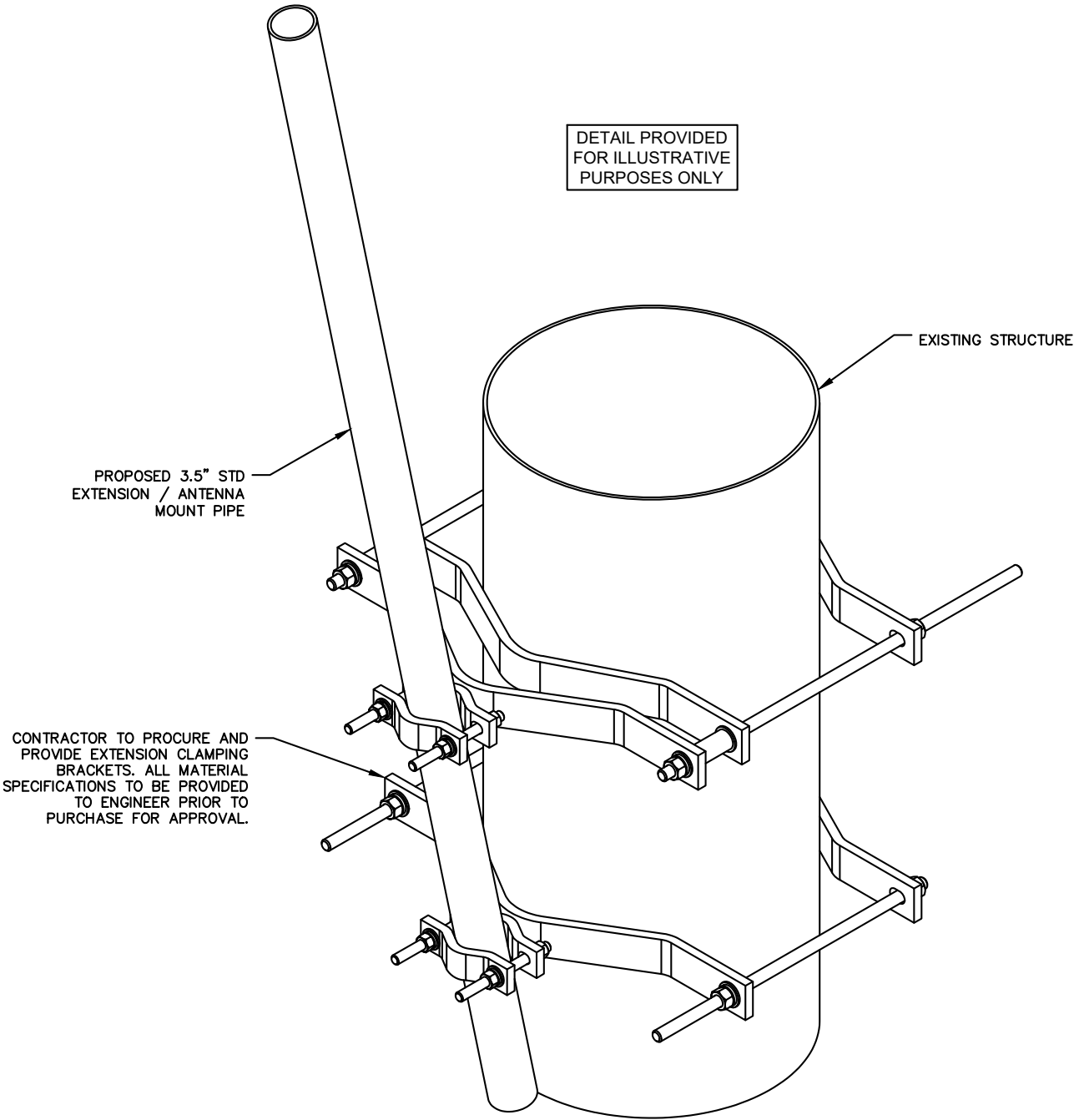
1
C-5

EXAMPLE RF WARNING SIGNS
SCALE: N.T.S.



2
C-5

DECAL TO BE INSTALLED ON BREAKER PANEL
SCALE: N.T.S.



3
C-5

ANTENNA MOUNT / EXTENSION
SCALE: N.T.S.

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203 E WASHINGTON STREET
ANN ARBOR, MI 48104
WASHTENAW COUNTY

SHEET TITLE:

EQUIPMENT
DETAILS

SHEET NUMBER:

C-5

K:\CHS_Telecom\Workflow\Verizon\MINKY\ANN_ARBOR_5G\33036-PIONEER_HIGH_SCHOOL\CAD\CD ON: 6/19/2019 2:24 PM BY: KATELYN DRAPEAU

CODES, STANDARDS, AND SPECIFICATIONS

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL MATERIALS AND LABOR RELATED DIRECTLY OR INDIRECTLY TO ALL ELECTRICAL WORK DOCUMENTED IN THESE DRAWINGS SHALL BE PROVIDED AND PERFORMED IN CONFORMANCE WITH ALL CURRENT GOVERNING CODES, STANDARDS, AND PROFESSIONAL STANDARD OF CARE TO INCLUDE THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), UNDERWRITERS LABORATORY (UL), NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA), AMERICAN STANDARDS ASSOCIATION (ASA), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), AND THE NATIONAL ELECTRICAL CODE (NEC).
2. MATERIALS SHALL BE NEW AND SHALL CONFORM TO ALL APPLICABLE CURRENT GOVERNING STANDARDS ESTABLISHED FOR EACH ITEM BY ASTM, UL, NEMA, ASA, AND NFPA.
3. ALL ELECTRICAL WORK SHALL COMPLY WITH ALL APPLICABLE STATE, COUNTY, AND MUNICIPAL CODES AND ORDINANCES, AS WELL AS ALL CURRENT GOVERNING STANDARDS AND PRACTICES AS REQUIRED BY NEC, NEMA, ANSI, NFPA, UBC, UL, IEEE, AND THE LOCAL UTILITY COMPANY.
4. ALL ELECTRICAL GROUNDING SHALL COMPLY WITH THE CURRENT EDITION OF THE NEC.
5. CONTRACTOR SHALL MAINTAIN UL LISTED FIRE RATINGS OF ANY WALL PENETRATIONS.
6. CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT AS REQUIRED BY NEC.

GENERAL

7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND ASSOCIATED FEES RELATED TO THE PROJECT AND SHALL DELIVER A COPY OF ALL PERMITS TO THE VERIZON REPRESENTATIVE.
8. CONTRACTOR SHALL SCHEDULE AND SHOULD ATTEND ALL INSPECTIONS REQUIRED BY THE JURISDICTION HAVING AUTHORITY.
9. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, ACCESSORIES, ETC., FOR A COMPLETE WORKING ELECTRICAL INSTALLATION.
10. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A NEAT MANNER, AND SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
11. CONTRACTOR SHALL PROTECT ADJACENT EQUIPMENT AND FINISHES FROM DAMAGE AND SHALL REPAIR TO ORIGINAL CONDITION ANY ITEMS DAMAGED AS A RESULT OF THE WORK
12. IF CONDUIT RUNS HAVE MORE THAN THREE (3) CONSECUTIVE 90 DEGREE TURNS, THEN CONTRACTOR SHALL INSTALL PULL BOXES AS REQUIRED BY NEC.
13. WHEN INSTALLING A NEW GROUND ROD, MAINTAIN 6' MINIMUM DISTANCE FROM EXISTING GROUND RODS.

MATERIALS

14. ALL EQUIPMENT AND MATERIALS SHOWN SHALL BE CONSIDERED NEW UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
15. FINAL CONNECTIONS OF EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS, AND INSTRUCTIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT SUPPLIED BY VERIZON.
16. CONTRACTOR SHALL SEAL ALL CONDUITS ENTERING AN ENCLOSURE WITH CONDUIT SEALANT THAT IS COMPATIBLE WITH THE INSULATION OF THE CONDUCTORS IN THE CONDUIT.
17. CONDUIT RUNS SHALL HAVE A CONTINUOUS DOWNWARD SLOPE AWAY FROM ALL EQUIPMENT TO PREVENT WATER INFILTRATION.
18. CONTRACTOR SHALL FIELD DETERMINE ACTUAL CONDUIT ROUTING AND SHALL OBTAIN APPROVAL FROM VERIZON AND AHJ OF THE PROPOSED ROUTING PRIOR TO CONDUIT INSTALLATION.
19. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION AND ALL TERMINATIONS SHALL BE RATED FOR AT LEAST 75 DEGREES CELSIUS. INSULATION TO BE RATED SUNLIGHT RESISTANT WHERE EXPOSED.
20. ALL NEUTRAL CONDUCTORS SHALL HAVE WHITE INSULATION. ALL GROUND CONDUCTORS SHALL HAVE GREEN INSULATION. COLOR TAPE IDENTIFICATION OF THESE CONDUCTORS IS NOT PERMITTED.

PRE-CONSTRUCTION COORDINATION

21. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND NOTE EXISTING CONDITIONS THAT MIGHT AFFECT THEIR WORK. ALL SUCH CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO BID.
22. CONTRACTOR SHALL PROVIDE A UTILITY LOCATOR AND SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
23. CONTRACTOR SHALL VERIFY, PRIOR TO ROUGH-IN, THAT SITE CONDITIONS ALLOW FOR THE PLACEMENT OF THE ELECTRICAL EQUIPMENT AS SHOWN ON THE PLANS.
24. ALL OUTAGES SHALL BE CONDUCTED AT A TIME AGREED UPON IN WRITING WITH THE BUILDING OWNER. POWER OUTAGE DURATION SHALL BE PRE-APPROVED IN WRITING BY THE BUILDING OWNER.
25. CONTRACTOR SHALL PERFORM AN ARC FLASH ANALYSIS AT THE LOAD CENTER ON THE VERIZON TELECOMMUNICATIONS CABINET AND PROVIDE ARC FLASH LABEL PER NEC.
26. WHEN A NEW ELECTRICAL SERVICE IS REQUIRED, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRICAL UTILITY REGARDING THE EXACT LOCATION OF THE TRANSFORMER, ALL METERING REQUIREMENTS, AND CONDUIT ROUTING BETWEEN TRANSFORMER AND METER.
27. ALL CIRCUIT BREAKERS AND EQUIPMENT SHALL HAVE A MINIMUM AIC RATING OF 10,000 AMPS. IF THE RATING OF THE UTILITY TRANSFORMER PROVIDING THE ELECTRICAL SERVICE IS GREATER THAN 75 kVA, THE CONTRACTOR SHALL PERFORM A SHORT CIRCUIT CURRENT ANALYSIS TO DETERMINE THE REQUIRED AIC RATING FOR THE CIRCUIT BREAKERS AND THE EQUIPMENT. PRIOR TO PURCHASING EQUIPMENT, THE CONTRACTOR SHALL CONTACT THE ELECTRIC UTILITY AND OBTAIN IN WRITING THE MAXIMUM AVAILABLE FAULT CURRENT (AFC) AT THE UTILITY SERVICE POINT. PROVIDE MAX. AFC SIGNAGE AS REQUIRED PER NEC 110.24. THE CONTRACTOR SHALL ENSURE ALL ELECTRICAL EQUIPMENT, CIRCUIT BREAKERS, DISCONNECTS, FUSES, AND PANELBOARDS HAVE A FAULT CURRENT INTERRUPTING RATING GREATER THAN THE AVAILABLE FAULT CURRENT.



PLANS PREPARED BY:



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WWW.KIMLEY-HORN.COM

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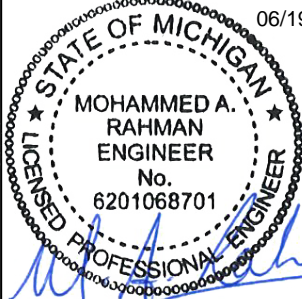
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REL KLD

KH PROJECT NUMBER:

KHCHI-55

ENGINEER SEAL:



PROJECT INFORMATION:

SITE NAME:
33036-PIONEER_HIGH_
SCHOOL_5G - C

203 E WASHINGTON STREET
ANN ARBOR, MI 48104
WASHTENAW COUNTY

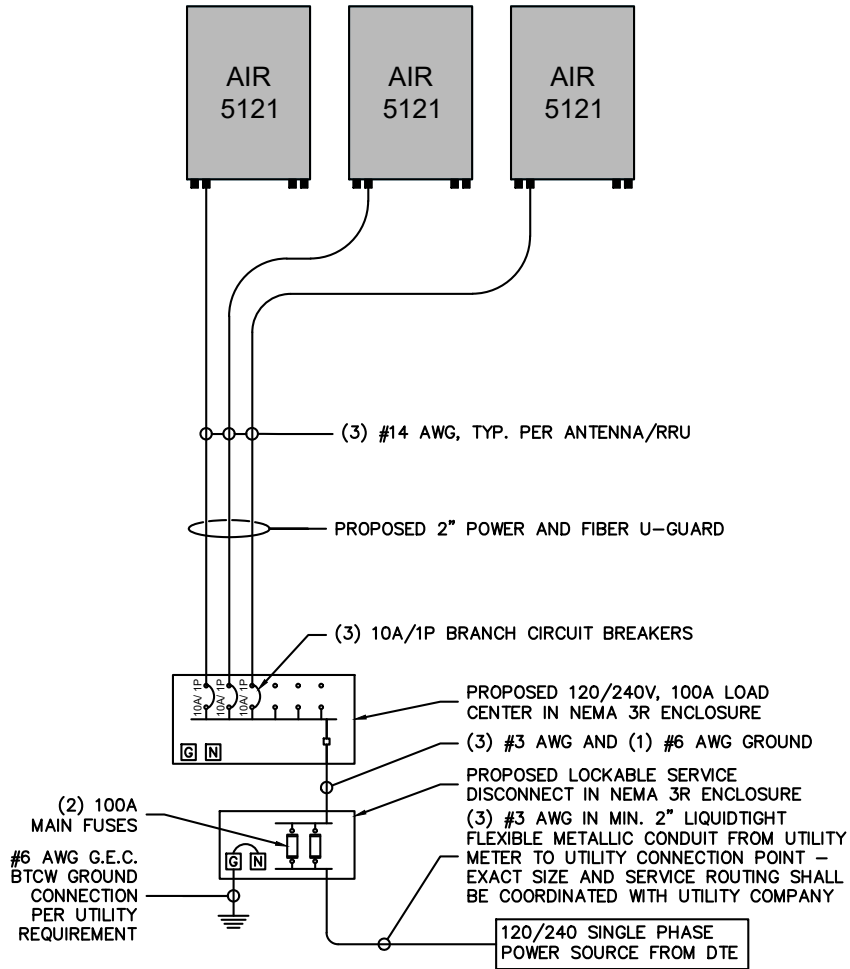
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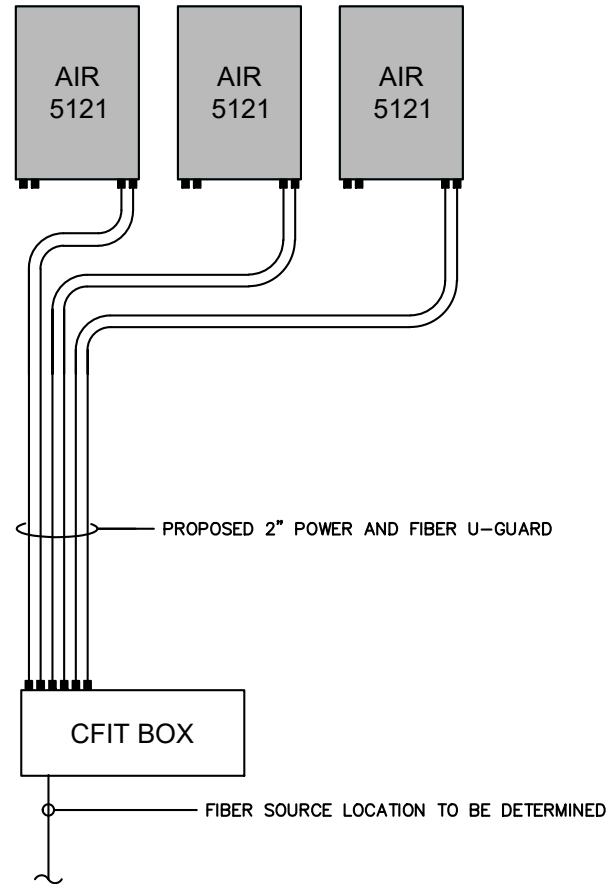
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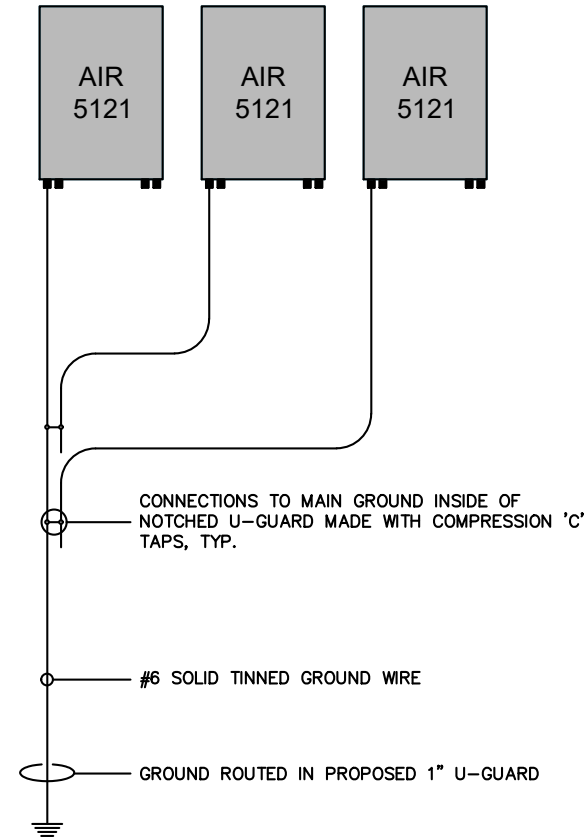
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1 POWER ROUTING DETAIL
SCALE: N.T.S.



2 FIBER ROUTING DETAIL
SCALE: N.T.S.



3 GROUND ROUTING DETAIL
SCALE: N.T.S.

VOLTAGE		120/240V		AIC RATING (MINIMUM)		10,000 AMPS	
MAIN BREAKER		100 AMP		BUSS RATING		100 AMPS	
MOUNT		SURFACE		NEUTRAL BAR		YES	
ENCLOSURE TYPE		NEMA 3R		GROUND BAR		YES	
PANEL STATUS		PROPOSED		N TO GROUND BOND		YES	
PHASE, WIRES		SINGLE, 3		INTERNAL TVSS/SPD		TBD	
CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA
1	AIR 5121	10	1	ON	300	1.00	300
2	AIR 5121	10	1	ON	300	1.00	300
3	AIR 5121	10	1	ON	300	1.00	300
4	---	---	---	N/A	0	1.00	0
5	---	---	---	N/A	0	1.00	0
6	---	---	---	N/A	0	1.00	0
							900

OVERALL LOAD SUMMARY	
TOTAL SERVICE LOAD kVA	0.90
AMPS	7.50

4 PANEL SCHEDULE
SCALE: N.T.S.

THESE DRAWINGS ARE PRELIMINARY IN NATURE AND DO NOT REPRESENT FINAL ENGINEERING DRAWINGS. FINALIZED DETAILS AND ROUTING INFORMATION SHALL BE PROVIDED UPON COMPLETION OF UTILITY COORDINATION.

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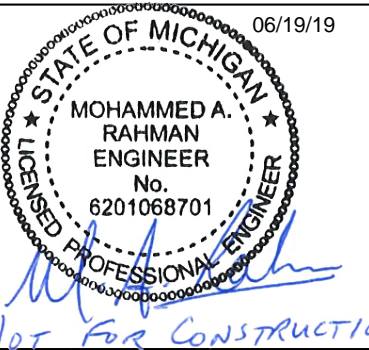
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REL KLD

KH PROJECT NUMBER:

KHCHI-55

ENGINEER SEAL:



PROJECT INFORMATION:

SITE NAME:
33036-PIONEER_HIGH_ SCHOOL_5G - C

203 E WASHINGTON STREET
ANN ARBOR, MI 48104
WASHTENAW COUNTY

SHEET TITLE:

PANEL SCHEDULE
& ROUTING DETAILS

SHEET NUMBER:

E-2

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REL	KLD
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KH PROJECT NUMBER: _____

KHCHI-55

ENGINEER SEAL: _____

06/19/19

A circular professional engineer seal is stamped in the bottom right corner. The text "PROFESSIONAL ENGINEER" is visible around the perimeter of the seal. A blue ink signature is written across the seal.

AT FOR CONSTRUCTION

PROJECT INFORMATION: _____

CITY NAME _____

SITE NAME: _____

33036-PIONEER_HIGH_
SCHOOL 5G - C

—

203 E WASHINGTON STREET

ANN ARBOR, MI 48104

WASHTENAW COUNTY

SHEET 335: _____

SHEET TITLE: _____

ELECTRICAL &

ELECTRICAL &

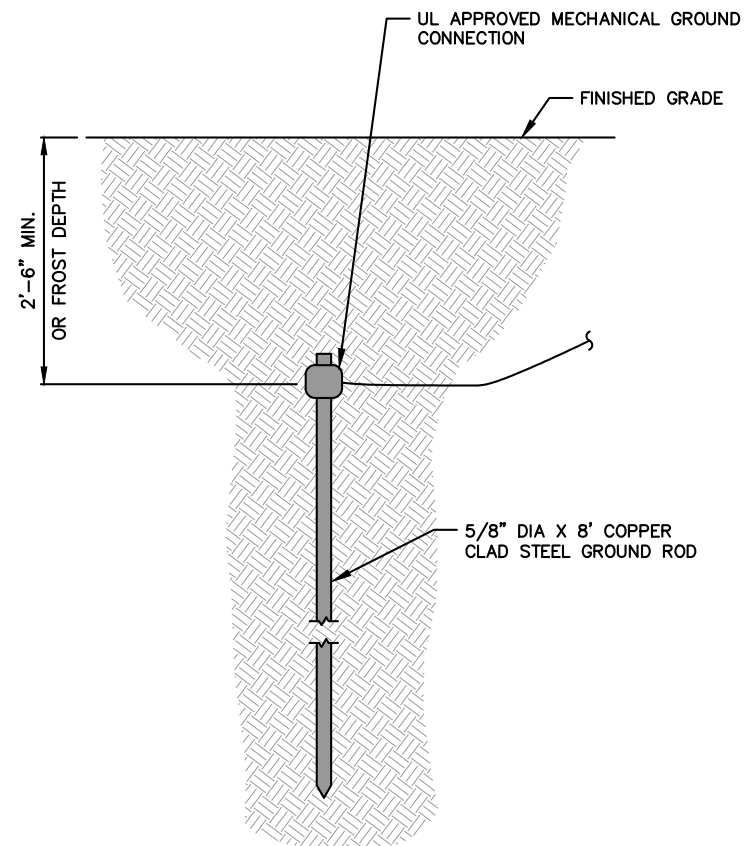
GROUNDING DETAILS

GROUNDING DETAILS

SHEET NUMBER: _____

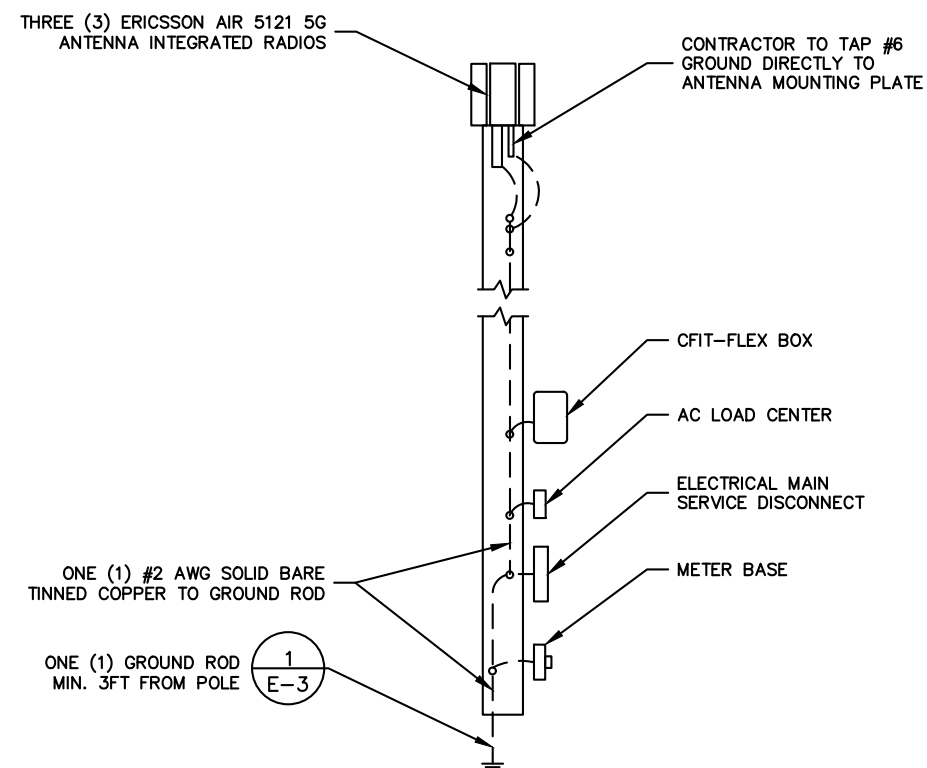
E-3

L-3



1
E-3

GROUND ROD
SCALE: N.T.S.



2
E-3

GROUNDING DIAGRAM
SCALE: N.T.S.

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