MOTOROLA SOLUTIONS

SITE NAME: AMESBURY - POW WOW HILL II
TROOP: TROOP A/H
SITE ADDRESS: 89 POWOW STREET AMESBURY, MA 01913
SITE TYPE: SELF SUPPORT TOWER
PROJECT: CoMIRS MODERNIZATION

APPLICABLE BUILDING CODES AND STANDARDS

ALL CONSTRUCTION ACTIVITIES AND MODIFICATIONS DONE IN ACCORDANCE WITH THE 2017 REVISION OF MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATION SITES.

MA STATE BUILDING CODE, 10TH ED, BASE VOLUME ADOPTS WITH AMENDMENTS INTERNATIONAL BUILDING CODE 2021 (IBC 2021)

527 CMR 12.00 - MA ELECTRICAL CODE ADOPTS WITH AMENDMENTS NFPA 70, 2023 NATIONAL ELECTRIC CODE (2023 NEC)

MECHANICAL CODE 2015 OF MASSACHUSETTS ADOPTS WITH AMENDMENTS INTERNATIONAL MECHANICAL CODE 2015 (IMC 2015)

2020 MASSACHUSETTS ENERGY CODE ADOPTS WITH AMENDMENTS INTERNATIONAL ENERGY CONSERVATION CODE 2018 (IECC 2018)

ANSI/TIA-222-H STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS

ANSI/TIA-607-D GENERIC TELECOMMUNICATIONS BONDING AND GROUNDING (EARTHING) FOR CUSTOMER PREMISES

ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI: AMERICAN CONCRETE INSTITUTE)

AISC STEEL CONSTRUCTION MANUAL, 15TH ED (AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION)

AWWA D100-11 WELDED CARBON STEEL TANKS FOR WATER STORAGE

NFPA 58 - LIQUEFIED PETROLEUM GAS CODE (2024)

NFPA 37 - STANDARD FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES (2021)

NFPA 110 - STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS (2022)

NFPA 780 - STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS (2023)

527 CMR 1.00 - MA COMPREHENSIVE FIRE SAFETY CODE ADOPTS WITH AMENDMENTS NFPA 1-2015

IEEE C2-2023 NATIONAL ELECTRICAL SAFETY CODE

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.

PROJECT CONTACTS

TITLE	NAME	COMPANY	CONTACT NUMBER
PD	LOUIS YOUNG	MOTOROLA SOLUTIONS	(480) 586-4168
PM	DIANE DAMINO	MOTOROLA SOLUTIONS	(203) 615-3695
CM	KRIS PRICE	MOTOROLA SOLUTIONS	(804) 508-2433
A&E	NICK TRIASSI	AIROSMITH ENGINEERING	(585) 490-4271

Know what's below. Call before you dig.

SITE INFORMATION

PROPERTY OWNER:	INDUSTRIAL TOWER AND WIRELESS LLC 40 LONE STREET MARSHFIELD, MA 02050	
MUNICIPALITY:	AMESBURY	
COUNTY:	ESSEX	
LAND USE CODE:	4300	
PARCEL ID:	25-19-A	
ELEVATION:	313' AMSL	
LATITUDE:	42° 51' 56.5" N	42.865686°
LONGITUDE:	70° 56' 12.6" W	-70.936831°

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

SHEET NO:	DRAWING INDEX
T01	TITLE SHEET
GN01	GENERAL NOTES
GN02	GENERAL NOTES
A01	OVERALL SITE PLAN
A02	ENLARGED SITE PLAN
A03	ENLARGED PROPOSED COMPOUND PLAN
A04	ELEVATION VIEWS
A04.1	PROPOSED APPURTENANCE SCHEDULE
A05	CABLE ENTRY SCHEDULES & DETAILS
A06	PROPOSED ANTENNA ORIENTATION PLAN
A07	PROPOSED MW ORIENTATION PLAN
A08	ANTENNA DETAILS
A09	MW DISH DETAILS
A10	ANTENNA PLUMBING DIAGRAMS
A11	APPURTENANCE DETAILS
A12	DETAILS
A13	DETAILS
A14	WATER SENSOR DETAILS
A15	CAMERA DETAILS
A15.1	CAMERA MOUNTING DETAILS (THROUGH-BOLT)
A15.2	CAMERA MOUNTING DETAILS (ADHESIVE)
A16	GPS DETAILS
A17	EQUIPMENT SHELTER FOUNDATION DETAILS
A18	FOUNDATION DETAILS
A19	ICE BRIDGE DETAILS
A20	GENERATOR SPECIFICATIONS
A21	PROPANE DETAILS
A22	FENCE DETAILS
A23	CIVIL DETAILS

SHEET NO:	DRAWING INDEX
E01	UTILITY PLAN
E02	ELECTRIC ONE LINE DIAGRAM
E03	PP1 WIRING DIAGRAM
G01	GROUNDING PLAN AND NOTES
G02	GROUNDING DETAILS
G03	GROUNDING DETAILS
G04	GROUNDING DETAILS
G05	GROUNDING DETAILS
G06	GROUNDING DETAILS

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

TITLE SHEET

SHEET NUMBER: T01

REVISION: 100%

GENERAL REQUIREMENTS

1. GENERAL

1.1. SUMMARY OF WORK

A. THE WORK MAY CONSIST OF, BUT NOT BE LIMITED TO, THE INSTALLATION OF PROPOSED PUBLIC SAFETY COMMUNICATION SYSTEM AS INDICATED IN THE SCOPE OF WORK DOCUMENT TITLED: "AMESBURY POWWOW HILL II (7.02.24)", DATED 07/02/2024. THE CONTRACTOR SHALL SUPPLY ALL PERMANENT MATERIALS/EQUIPMENT REQUIRED AND ALL LABOR, EQUIPMENT, TOOLS, UTILITIES, MINOR HARDWARE/MATERIALS, TRANSPORTATION AND FACILITIES NECESSARY FOR PROPER EXECUTION AND COMPLETION OF SERVICES AND INSTALL WORK, WHETHER TEMPORARY OR PERMANENT. CONTRACTOR SHALL BE OBLIGATED TO PERFORM ALL THE WORK OUTLINED IN THESE DRAWINGS IN ACCORDANCE WITH THE CONTRACT AGREEMENT, FEDERAL REGULATIONS, STATE REQUIREMENTS, LOCAL CODES, COMMERCIAL/INDUSTRY STANDARDS, MANUFACTURER'S SPECIFICATIONS, DETAILED SCOPE OF WORK AND THE DOCUMENTS IDENTIFIED BELOW. IN CASE OF A CONFLICT BETWEEN THE ABOVE LISTED DOCUMENTS REGARDING STANDARDS OF WORK, THE MORE STRINGENT CRITERIA SHALL APPLY. ANY ADDITIONAL COSTS OR DELAYS RESULTING FROM CORRECTION OF THE WORK TO COMPLY WITH THE ABOVE REQUIREMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.2. SITE VISIT

THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH THE SCOPE OF WORK REQUIRED PER THE DRAWINGS AND ALL LOCAL CONDITIONS AND LAWS AND REGULATIONS THAT MAY IN ANY MANNER AFFECT THE PRICE, PROGRESS AND PERFORMANCE OF WORK, INCLUDING ANY COSTS ASSOCIATED WITH IT. THE CONTRACTOR SHALL ALSO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND NOTIFY THE MOTOROLA REPRESENTATIVE OF ANY DISCREPANCIES OR INTERFERENCES WHICH AFFECT THE WORK OF THIS CONTRACT.

1.3. STANDARDS AND CODES

THE FOLLOWING DOCUMENTS (LATEST REVISION, IF APPLICABLE) SHALL BE CONSIDERED TO BE SPECIFICATION AND ARE INCORPORATED HEREIN BY REFERENCE. IN THE EVENT OF CONFLICT BETWEEN THE REQUIREMENTS OF THIS SPECIFICATION AND THE REQUIREMENTS OF THE REFERENCED DOCUMENTS, THE STRICTER SPECIFICATION SHALL GOVERN. WHERE PROVISIONS OF THE CODES AND STANDARDS ARE IN CONFLICT WITH THE BUILDING CODE IN FORCE FOR THIS PROJECT, THE BUILDING CODE SHALL GOVERN.

A. AMERICAN CONCRETE INSTITUTE:
* ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS."
* ACI 305 "HOT WEATHER CONCRETING."
* ACI 306 "COLD WEATHER CONCRETING."
* ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
* ACI 614 "RECOMMENDED PRACTICE FOR MEASURING, MIXING AND PLACING CONCRETE."
* ACI 311 "RECOMMENDED PRACTICE FOR CONCRETE INSPECTION."
* ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES."
* ACI 613 "RECOMMENDED PRACTICE FOR SELECTING PROPORTIONS FOR CONCRETE."

B. AMERICAN NATIONAL STANDARDS INSTITUTE:
* ANSI Z359 "REQUIREMENTS FOR PERSONAL FALL ARREST SYSTEMS, SUBSYSTEMS AND COMPONENTS."
* ANSI Z87.1 "OCCUPATIONAL AND EDUCATIONAL EYE AND FACE PROTECTION."
* ANSI Z89.1 "PROTECTIVE HEADWEAR FOR INDUSTRIAL WORKERS –REQUIREMENTS."
* ANSI/IEEE C95.1 "SAFETY LEVELS WITH RESPECT TO HUMAN EXPOSURE TO RADIO FREQUENCY ENERGY."
* ANSI/TLA/EIA STANDARD 222 "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES."

C. AMERICAN INSTITUTE OF STEEL CONSTRUCTION:
* AISC MANUAL OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION: LATEST EDITION

D. AMERICAN SOCIETY FOR TESTING AND MATERIALS:
* ASTM A615 "SPECIFICATION FOR DEFORMED AND PLAIN BILLET STEEL BARS FOR CONCRETE REINFORCEMENT."
* ASTM C94–80 "SPECIFICATION FOR READY–MIX CONCRETE."
* ASTM C39–77 "SPECIFICATION FOR TEST FOR COMPREHENSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMEN."
* ASTM C33 "SPECIFICATION FOR CONCRETE AGGREGATES."
* ASTM C150 "SPECIFICATION FOR PORTLAND CEMENT."
* ASTM C172 "SAMPLING FRESH CONCRETE."
* ASTM C143 "SLUMP OF PORTLAND CEMENT CONCRETE."
* ASTM D698–91 "TEST METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT."
* ASTM D1556–64 "DENSITY OF SOIL IN PLACE BY THE SAND–CONE METHOD."
* ASTM D1557 "TEST FOR MOISTURE–UNIT WEIGHT RELATIONS OF SOILS AND SOIL–AGGREGATE MIXTURES USING 10–LB. HAMMER AND 18–IN. DROP (PROCEDURE C)."
* ASTM D2487 "STANDARD CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES (UNIFIED SOIL CLASSIFICATION SYSTEM)."
* ASTM D2922 "DENSITY OF SOIL AND SOIL AGGREGATE IN PLACE BY NUCLEAR METHODS SHALLOW DEPTH."
* ASTM D2940 "STANDARD SPECIFICATION FOR GRADED AGGREGATE MATERIAL FOR BASES OR SUB–BASES FOR HIGHWAYS OR AIRPORTS."

E. AMERICAN WELDING SOCIETY:
* AWS D12.1 "RECOMMENDED PRACTICES FOR WELDING REINFORCING STEEL, METAL INSERTS AND CONNECTIONS IN REINFORCED CONCRETE CONSTRUCTION."

F. CONCRETE REINFORCING STEEL INSTITUTE:
* MANUAL OF STANDARD PRACTICE

G. FEDERAL AVIATION ADMINISTRATION:
* DEPARTMENT OF TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR, AC 70/7460–1G "OBSTRUCTION MARKING AND LIGHTING."
* DEPARTMENT OF TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR, 150–5345–43, FAA/DOD SPECIFICATION L–856 "HIGH INTENSITY OBSTRUCTION LIGHTING SYSTEMS."

H. FEDERAL COMMUNICATIONS COMMISSION:
* FEDERAL COMMUNICATIONS COMMISSION – RULES AND REGULATIONS PART 17 "CONSTRUCTION, MARKING AND LIGHTING OF ANTENNA STRUCTURES."

I. STRUCTURAL STEEL PAINTING COUNCIL:
* SSPC–SP–1–63 "SPECIFICATION FOR PAINTING STEEL STRUCTURES."

J. MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATIONS SITES (2017 REVISION).

K. MOTOROLA'S CIVIL WORKS BID SPECIFICATIONS

L. NATIONAL FIRE PROTECTION ASSOCIATION:
* NFPA 1 "FIRE PREVENTION CODE."
* NFPA 70 "NATIONAL ELECTRICAL CODE."
* NFPA 101 "LIFE SAFETY CODE."
* NFPA 111 "STANDARD ON STORED ELECTRICAL ENERGY, EMERGENCY AND STANDBY POWER SYSTEMS."
* NFPA 780 "STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS."

M. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:
* OSHA 1926
* OSHA DIRECTIVES CPL 2–1.29 "INTERIM INSPECTION PROCEDURES DURING COMMUNICATION TOWER CONSTRUCTION ACTIVITIES."

N. MASSACHUSETTS STATE BUILDING & ELECTRICAL CODE.

O. MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS. ORIGINAL PRINT: MARCH 1997, REPRINT MAY 2003

1.4. NOTICE TO PROCEED

WHEN THE SITE IS READY FOR INSTALLATION, MOTOROLA SHALL ISSUE A NOTICE TO PROCEED TO THE CONTRACTOR. UPON RECEIPT OF THE NOTICE TO PROCEED, THE CONTRACTOR SHALL SUBMIT TO MOTOROLA A SCHEDULE REFLECTING THE WORK PLAN. THE CONTRACTOR SHALL ADVISE THE MOTOROLA REPRESENTATIVE IMMEDIATELY OF ANY SCHEDULE CHANGES. THE CONTRACTOR SHALL ADJUST THEIR WORK, AS REQUIRED, TO COORDINATE WITH THE MOTOROLA INSTALLATION TEAM IF THE SCHEDULES OVERLAP DUE TO OTHER CONSTRUCTION ACTIVITIES OCCURRING SIMULTANEOUSLY ON THE SITE. THE CONTRACTOR MUST COORDINATE WITH OTHER CONTRACTORS ON THE SITE TO AVOID CONFLICT.

1.5. MOTOROLA REPRESENTATIVE

MOTOROLA SHALL DESIGNATE A REPRESENTATIVE. THIS PERSON IS THE ONLY CONTACT POINT AUTHORIZED TO MAKE ANY CHANGES TO THE CONTRACT PROVISIONS OR THE PLANS AND SPECIFICATIONS. ANY CHANGES MADE BY THE CONTRACTOR ARE AT THE CONTRACTOR'S RESPONSIBILITY AND RISK.

1.6. CONTRACTORS FIELD REPRESENTATIVE

THE CONTRACTOR SHALL ASSIGN A FIELD REPRESENTATIVE WHO IS FAMILIAR WITH THESE SPECIFICATIONS AND WILL REPRESENT THE CONTRACTOR AND HAVE THE AUTHORITY TO ACT FOR THE CONTRACTOR AND SUPERVISE ALL CONSTRUCTION ACTIVITIES. THE FIELD REPRESENTATIVE SHALL BE AVAILABLE WHEN CONSTRUCTION ACTIVITIES BEGIN. THE FIELD REPRESENTATIVE SHALL BE THE PRIMARY POINT OF CONTACT FOR MOTOROLA DURING THE CONSTRUCTION PHASE OF THE WORK.

1.7. PROJECT MEETINGS

THE CONTRACTOR SHALL CONDUCT THE INITIAL (PRE–CONSTRUCTION) MEETING (INCLUDING ALL SUB–CONTRACTORS) WITH THE MOTOROLA REPRESENTATIVE WITHIN TWO WEEKS AFTER AWARD OF THE CONTRACT. SUBSEQUENTLY, THE CONTRACTOR SHALL PROVIDE PROGRESS SCHEDULE UPDATES TO MOTOROLA ON A DAILY BASIS.

1.8. MATERIALS

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS AS REQUIRED FOR COMPLETE SYSTEMS INCLUDING: ALL PARTS OBVIOUSLY OR REASONABLY INCIDENTAL TO A COMPLETE INSTALLATION, WHETHER SPECIFICALLY INDICATED OR NOT. ALL SYSTEMS SHALL BE COMPLETELY ASSEMBLED, TESTED, ADJUSTED AND DEMONSTRATED TO BE READY FOR OPERATION PRIOR TO MOTOROLA'S ACCEPTANCE.

MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS (AS DEFINED BY INDUSTRY STANDARDS), FREE OF DEFECTS AND ALL MATERIALS SHALL BE NEW AND UNUSED IN ALL CASES, UNLESS OTHERWISE SPECIFIED. WHERE THE NAME OF A CONCERN OR MANUFACTURER IS MENTIONED ON DRAWINGS OR IN SPECIFICATIONS IN REFERENCE TO A REQUIRED SERVICE OR PRODUCT, AND NO QUALIFICATIONS OR SPECIFICATION OF SUCH IS INCLUDED, THEN THE MATERIAL SPECIFICATIONS, DETAILS OF MANUFACTURE, FINISH, ETC., SHALL BE IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICE, DIRECTION OR SPECIFICATIONS. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

1.9. VERIFICATION OF EXISTING CONDITIONS

BEFORE STARTING ANY OPERATION, THE CONTRACTOR SHALL EXAMINE EXISTING WORK, OR WORK PERFORMED BY OTHERS, TO WHICH THEIR WORK IS TO ADJOIN OR BE APPLIED, AND SHALL REPORT TO MOTOROLA PROJECT MANAGER ANY CONDITIONS THAT WILL PREVENT SATISFACTORY ACCOMPLISHMENT OF THEIR WORK. PRIOR TO COMMENCING ANY EXCAVATION OR GRADING, THE CONTRACTOR SHALL SATISFY THEMSELVES AS TO THE ACCURACY OF ALL SURVEY DATA AS INDICATED IN THE PLANS AND SPECIFICATIONS AND/OR AS PROVIDED BY MOTOROLA. SHOULD THE CONTRACTOR DISCOVER ANY INACCURACIES, ERRORS, OR OMISSIONS IN THE SURVEY DATA, THEY SHALL IMMEDIATELY NOTIFY THE MOTOROLA REPRESENTATIVE IN ORDER THAT PROPER ADJUSTMENTS CAN BE ANTICIPATED AND ORDERED. FAILURE TO NOTIFY THE MOTOROLA REPRESENTATIVE OF DEFICIENCIES, ERRORS OR FAULTS PRIOR TO COMMENCEMENT OF WORK SHALL CONSTITUTE ACCEPTANCE THEREOF AND WAIVER OF ANY CLAIMS OF UNSUITABILITY, ERRORS, OMISSIONS OR INACCURACIES.

THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PRESERVING ALL ESTABLISHED SURVEY CONTROL POINTS. IF THE CONTRACTOR OR ANY OF THEIR SUB–CONTRACTORS MOVE OR DESTROY ANY SURVEY CONTROL POINTS, THE COST INCURRED BY THE LAND OWNER OR MOTOROLA TO RE–ESTABLISH THEM WILL BE BORNE BY THE CONTRACTOR.

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT FINAL, UNTIL SIGNED AND SEALED.

PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

GN01

REVISION:

100%

1.10. PERMITS

THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. THE CONTRACTOR SHALL MEET ALL OF THE REGULATORY REQUIREMENTS OF THE JURISDICTION GOVERNING CONSTRUCTION.

1.11. SITE INSPECTION BY MOTOROLA

THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR ARRANGING WITH MOTOROLA FOR AN INSPECTION PRIOR TO COVERING UP ALL WORK THAT WILL BE COVERED IN FINISHED CONDITION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MANAGE THE SEQUENCE OF WORK AND REQUEST THE INSPECTIONS IN A TIMELY MANNER. THE CONTRACTOR SHALL NOT REQUEST AN INSPECTION UNLESS ALL OF THE RELATED WORK HAS BEEN COMPLETED. WORK SHALL NOT PROCEED TO THE NEXT STEP UNTIL THE PREVIOUS STEP HAS BEEN INSPECTED AND APPROVED BY THE LOCAL INSPECTORS AND THE MOTOROLA REPRESENTATIVE. THE PRESENCE OF THE OWNER OR MOTOROLA REPRESENTATIVE ON THE JOB SITE IN NO WAY RELIEVES THE CONTRACTOR OF THE ASSOCIATED RESPONSIBILITIES OF THE JOB. ANY WORK WHICH DOES NOT MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS WILL BE CORRECTED OR REMOVED SOLELY AT THE CONTRACTOR'S EXPENSE.

THE FOLLOWING INFORMATION IS INCLUDED AS A GENERAL GUIDE TO THE CONTRACTOR TO ASSIST IN DETERMINING THE TYPE AND FREQUENCY OF INSPECTIONS. THE LISTED INSPECTIONS REPRESENT THOSE REQUIRED FOR SMALL OR SIMPLE PROJECTS. LARGE OR COMPLEX PROJECTS MAY REQUIRE ADDITIONAL INSPECTIONS DEPENDING ON THE SEQUENCE OF WORK.

* FOUNDATIONS EXCAVATION AND REBAR: TO BE MADE AFTER TRENCHES ARE EXCAVATED AND FORMS ERECTED, REINFORCEMENT PLACED, COMPACTION TESTED, SOIL TREATED, VAPOR BARRIER PLACED, AND ESSENTIALLY READY FOR CONCRETE PLACEMENT.
* GROUNDING: TO BE MADE AFTER THE BELOW GROUND CADWELD CONNECTIONS HAVE BEEN COMPLETED, PRIOR TO COVERING UP THE TRENCHES.
* ELECTRICAL WORK WITHIN WALLS: TO BE MADE AFTER THE ROOF, FRAMING, FIREBLOCKING AND BRACING IS IN PLACE PRIOR TO THE INSTALLATION OF INSULATION OR WALL/CEILING MEMBRANES.

AS A GENERAL RULE, THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE TO MOTOROLA FOR INSPECTION OF ALL WORK PRIOR TO CONCEALMENT. THE CONTRACTOR HAS RESPONSIBILITIES RELATIVE TO ALL TYPES OF INSPECTIONS AND IS RESPONSIBLE FOR CONTACTING ALL OF THE INSPECTING ENTITIES TO DETERMINE THEIR RESPONSIBILITIES. ALL OF THESE INSPECTING ENTITIES HAVE UNIQUE AND SEPARATE RESPONSIBILITIES. ONE INSPECTION FROM AN ENTITY WILL NOT SUBSTITUTE FOR AN INSPECTION FROM ANOTHER ENTITY. CONTRACTOR IS RESPONSIBLE FOR ALL SCHEDULING & COORDINATION OF ALL INSPECTIONS REQUIRED BY CODE/PERMIT.

1.12. SAFETY

THE CONTRACTOR, THEIR EMPLOYEES, ANY SUB-CONTRACTORS, VENDORS, THEIR RESPECTIVE EMPLOYEES AND CONTRACTOR'S VISITORS SHALL COMPLY WITH ALL SAFETY STANDARDS, ACCIDENT PREVENTION REGULATIONS AND ENVIRONMENTAL REGULATIONS PROMULGATED BY FEDERAL, STATE OR LOCAL AUTHORITIES HAVING JURISDICTION AND SHALL AT ALL TIMES CONDUCT ALL OPERATIONS UNDER THE CONTRACT IN A MANNER TO AVOID THE RISK OF BODILY HARM TO ANY PERSONS AND THE RISK OF DAMAGE TO ANY PROPERTY, EQUIPMENT OR MATERIAL. SUCH PARTIES SHALL ALSO COMPLY WITH ANY SAFETY PROGRAMS AND/OR RULES PROMULGATED BY OWNER AND/OR MOTOROLA.

1.13. ELECTRO MAGNETIC EMISSIONS

THE CONTRACTOR SHALL ACKNOWLEDGE ALL OR PORTIONS OF THE WORK MAY INVOLVE POSSIBLE EXPOSURE OF CONTRACTOR, SUB-CONTRACTORS, AND THEIR RESPECTIVE EMPLOYEES, AGENTS, INVITEES, LICENSEES AND OTHER VISITORS TO THE JOBSITE AND/OR MOTOROLA PREMISES TO ELECTRO-MAGNETIC ENERGY ("EME") WHILE PERFORMING WORK UNDER THIS CONTRACT, ESPECIALLY IF WORK IS PERFORMED ON EXISTING ANTENNA TOWERS OR BUILDING TOPS WHERE ANTENNAS ARE LOCATED. THE CONTRACTOR REPRESENTS THAT CONTRACTOR, SUBCONTRACTORS, AND ALL OF THEIR RESPECTIVE EMPLOYEES, AGENTS, INVITEES, LICENSEES, AND OTHER AUTHORIZED REPRESENTATIVES WHO ARE PERFORMING SERVICES UNDER THIS AGREEMENT WILL COMPLY WITH ALL ANSI AND ANY OTHER APPLICABLE EME STANDARDS, RULES OR REGULATIONS, INCLUDING, BUT NOT LIMITED TO THOSE RULES OR REGULATIONS IMPOSED OR SUGGESTED BY MOTOROLA, IF ANY.

THE CONTRACTOR SHALL ADHERE TO ALL OSHA RULES, REGULATIONS AND ADOPTED POLICIES. ALL CONTRACTOR PERSONNEL SHALL HAVE UNDERGONE ELECTROMAGNETIC ENERGY (EME) TRAINING FOR PERSONNEL WORKING IN THE VICINITY OF ACTIVE ANTENNAS. AS SUCH IT IS RECOMMENDED THAT RF MONITORS BE USED BY THE SITE PERSONNEL TO MONITOR EXPOSURE LEVELS. IF EME LEVELS AT THE SITE EXCEED THE MAXIMUM PERMISSIBLE EXPOSURE LIMITS, THE CONTRACTOR SHALL COORDINATE WITH THE INDIVIDUALS RESPONSIBLE FOR USE OF THE TRANSMITTER TO MAKE SURE THAT THE EQUIPMENT IS DEACTIVATED BEFORE WORK CAN BE RESUMED, WITHOUT CAUSING A SERIOUS DISRUPTION OF THE SERVICE.

1.14. SITE CLEANUP

THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, VEGETATION, AND RUBBISH, AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. WHENEVER THE WORK-SITE IS LEFT UNATTENDED, THE CONTRACTOR SHALL BLOCK THE OPENING WITH WARNING TAPE TO DISCOURAGE TRESPASSING. THE PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE AT THE CONCLUSION OF SITE WORK.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LANDSCAPE GRADING AND SEEDING OF THE DISTURBED SOIL. THE CONTRACTOR SHALL USE LOCAL GRASS SEED TO STABILIZE SOIL AND SHALL COVER DISTURBED AREAS WITH HAY MULCH TO REDUCE RUNOFF OF SEDIMENT TO DOWNSTREAM AREAS. THE CONTRACTOR SHALL RESTORE THE SITE TO ITS ORIGINAL CONDITION. ALL SLOPES AND DISTURBED AREAS NOT RECEIVING AGGREGATE SURFACING ARE TO BE PREPARED AND BROADCAST SEEDED AND FERTILIZED FOR EROSION PROTECTION. SEEDING FOR AREAS DISTURBED SHALL BE ESTABLISHED SEASONALLY AS REQUIRED BY LOCAL CODES.

THE CONTRACTOR SHALL EXERCISE ALL CARE TO AVOID DAMAGE OR INTERRUPTION OF EXISTING UNDERGROUND OR OVERHEAD ELECTRIC SERVICES, UNDERGROUND GROUNDING AND FUEL LINES, EQUIPMENT AND BUILDINGS ON THE SITE, PLUS OFF SITE SERVICES, BURIED OR OVERHEAD, SURROUNDING THE EXISTING OR EXPANDED COMPOUND. ANY PROPERTY DAMAGE CAUSED BY THE CONTRACTOR OR THEIR OPERATIONS SHALL BE CORRECTED AND/OR RESTORED TO THE SATISFACTION OF THE PROPERTY OWNER(S) AND MOTOROLA AT NO ADDITIONAL COST TO THE PROPERTY OWNER OR MOTOROLA.

BURNING WILL NOT BE PERMITTED.

1.15. FACILITY STARTUP & COMMISSIONING

THE CONTRACTOR AND/OR SUB-CONTRACTORS SHALL DEMONSTRATE TO MOTOROLA THAT ALL SYSTEMS AND SUB-SYSTEMS INSTALLED UNDER THIS CONTRACT, OPERATE PROPERLY PRIOR TO THE FINAL ACCEPTANCE INSPECTION. PROVIDE THE OPERATIONS AND MAINTENANCE MANUALS AT THIS TIME. CUSTOMER TO RECEIVE PAPER & ELECTRONIC COPIES OF ALL DESIGN & AS-BUILT (RECORD) DRAWINGS.

1.16. SHOP DRAWINGS/AS-BUILT DRAWINGS

THE MODIFICATIONS TO THE DRAWINGS AFTER CONSTRUCTION START SHALL RECEIVE ENGINEERING & MOTOROLA APPROVAL PRIOR TO ANY CHANGES BEING MADE. THE ENGINEER OF RECORD SHALL MAKE THE REQUIRED CHANGE AND WILL SUBMIT CHANGES TO MOTOROLA AND ANY JURISDICTION HAVING AUTHORITY.

THE CONTRACTOR SHALL KEEP UP-TO-DATE MARKED-UP PRINTS OF THE PROJECT DRAWINGS. UPON COMPLETION OF WORK AT THE SITE, THE CONTRACTOR SHALL REVIEW THE COMPLETED AS-BUILT DRAWINGS, AND ASCERTAIN THAT ALL DATA FURNISHED ON THE DRAWINGS IS ACCURATE AND TRULY REPRESENTS THE WORK AS ACTUALLY INSTALLED. MARKINGS INDICATING CHANGES TO THE DRAWINGS SHALL BE RED OR GREEN AND CLEARLY VISIBLE. TWO (2) SETS OF "AS-BUILT" DRAWINGS SHALL BE FURNISHED TO THE MOTOROLA REPRESENTATIVE AT THE COMPLETION OF THE PROJECT. THESE DRAWINGS SHALL ALSO SHOW THE FOLLOWING:

* MODIFICATIONS TO SITE LAYOUT.
* GROUNDING SYSTEM LAYOUT.
* UNDERGROUND TELCO CABLE RUN.
* UNDERGROUND ELECTRICAL RUN.

WHERE THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING THE SITE EQUIPMENT (SHELTER, ISOLATION TRANSFORMER, GENERATOR, ETC.) THAT REQUIRES PERIODIC MAINTENANCE, THE CONTRACTOR SHALL INCLUDE ALL OPERATION AND MAINTENANCE MANUALS AND ALL AS-BUILT DRAWINGS WHICH FULLY DESCRIBE THE ACTUAL INSTALLED EQUIPMENT.

1.17. TEST PROCEDURES AND RESULTS

THE CONTRACTOR IS REQUIRED TO SUBMIT THE RESULTS OF ALL TESTS REQUIRED BY THE PROJECT SPECIFICATIONS AND DRAWINGS THAT FALL WITHIN THEIR SCOPE OF WORK TO THE ENGINEER OF RECORD W/COPIES TO MOTOROLA WITHIN FIVE (5) DAYS OF THE TEST. THE CONTRACTOR IS REQUIRED TO SUBMIT TEST PROCEDURES NINETY (90) DAYS PRIOR TO THE TESTS BEING CONDUCTED. IN GENERAL, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TEST RESULTS:

* MIX DESIGN/CONCRETE COMPRESSION TEST FOR ALL CONCRETE WORK.
* TIME DOMAIN REFLECTOMETER (TDR)/SWEEP TEST FOR ANTENNA AND TRANSMISSION LINE INSTALLATION WORK.
* FUEL LEAKAGE TEST FOR FUEL TANK AND PIPING INSTALLATION WORK.
* SLUMP, AIR CONTENT AND TEMPERATURE TEST FOR CONCRETE WORK.
* GROUNDING RESISTANCE TEST FOR GROUNDING WORK.
* STRUCTURAL STEEL FABRICATION DRAWINGS
* ANY OTHER TEST THAT MAY BE REQUIRED.

1.18. CONTRACT CLOSEOUT-IN ACCORDANCE WITH MOTOROLA'S SUBCONTRACT AGREEMENT TERMS AND CONDITIONS

THE MOTOROLA REPRESENTATIVE WILL PROVIDE A CERTIFICATE OF COMPLETION AND APPROVE FINAL PAYMENT WHEN ALL PUNCH-LIST ITEMS HAVE BEEN CORRECTED AND ALL SYSTEMS ARE ACCEPTABLE. AFTER FINAL PAYMENT, CONTRACTOR WILL SIGN A RELEASE OF LIEN.

1.19. WARRANTY

ALL WORK PERFORMED BY THE CONTRACTOR IN COMPLETING THE SCOPE IDENTIFIED ON THE DRAWINGS SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL COMPLETION OF THE PROJECT. THIS GUARANTEE SHALL COVER ALL MATERIALS, EQUIPMENT OR WORKMANSHIP WHICH IN THE OPINION OF MOTOROLA IS RENDERED DEFECTIVE OR INFERIOR OR NOT IN ACCORDANCE WITH THE TERMS OF THE CONTRACT DURING THE GUARANTEE PERIOD. IF, WITHIN THE GUARANTEE PERIOD, REPAIRS OR CHANGES ARE REQUIRED TO CORRECT THE GUARANTEE WORK, THEN UPON RECEIPT OF NOTICE, THE CONTRACTOR SHALL PROMPTLY AND WITHOUT EXPENSE TO MOTOROLA OR THE STATE, PROCEED TO:

* PLACE IN SATISFACTORY CONDITION ALL OF SUCH GUARANTEED WORK AND CORRECT ALL DEFECTS THEREIN.
* MAKE GOOD ALL DAMAGES TO THE STRUCTURE OR SITE OR EQUIPMENT OR CONTENTS THEREOF, WHICH, IN THE OPINION OF THE MOTOROLA, IS THE RESULT OF THE USE OF MATERIALS, EQUIPMENT, OR WORKMANSHIP WHICH ARE INFERIOR, DEFECTIVE, OR NOT IN ACCORDANCE WITH THE TERMS OF THE CONTRACT;
* MAKE GOOD ANY WORK, MATERIALS OR EQUIPMENT, AND ADJACENT STRUCTURES DISTURBED IN FULFILLING THE GUARANTEE.

1.20. RELATED DOCUMENTS

THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE INFORMATION AND REQUIREMENTS CONTAINED IN THE FOLLOWING DOCUMENTS RELATED TO THE PROJECT:

A. 2017 REVISION OF MOTOROLA R56, STANDARDS AND GUIDELINES FOR COMMUNICATIONS SITES BY MOTOROLA.

B. ALL OTHER PERTINENT DOCUMENTS

1.21. SPECIAL INSPECTIONS

A. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER AND APPROVED BY THE JURISDICTION, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH THE THE GOVERNING BUILDING CODE, APPLICABLE SECTION(S) AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:

1. STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELDS ONLY).

2. HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 AND/OR A490 BOLTS) TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD.

3. MECHANICAL AND EPOXIED ANCHORAGES.

4. FIBER REINFORCED POLYMER.

*THE SPECIAL INSPECTOR MUST VERIFY THAT THE FRP MATERIAL SPECIFIED ON THE APPROVED DESIGN DOCUMENTS IS BEING INSTALLED.
*THE SPECIAL INSPECTOR MUST VERIFY THAT ALL CUT EDGES AND DRILLED HOLES ARE PROPERLY SEALED USING A VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
*THE SPECIAL INSPECTOR MUST VERIFY THAT THE STRUCTURE IS BUILT IN ACCORDANCE WITH THE APPROVED DESIGN DOCUMENTS.

B. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM WORK WITHOUT THE SPECIAL INSPECTIONS.

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT FINAL, UNTIL SIGNED AND SEALED.

PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

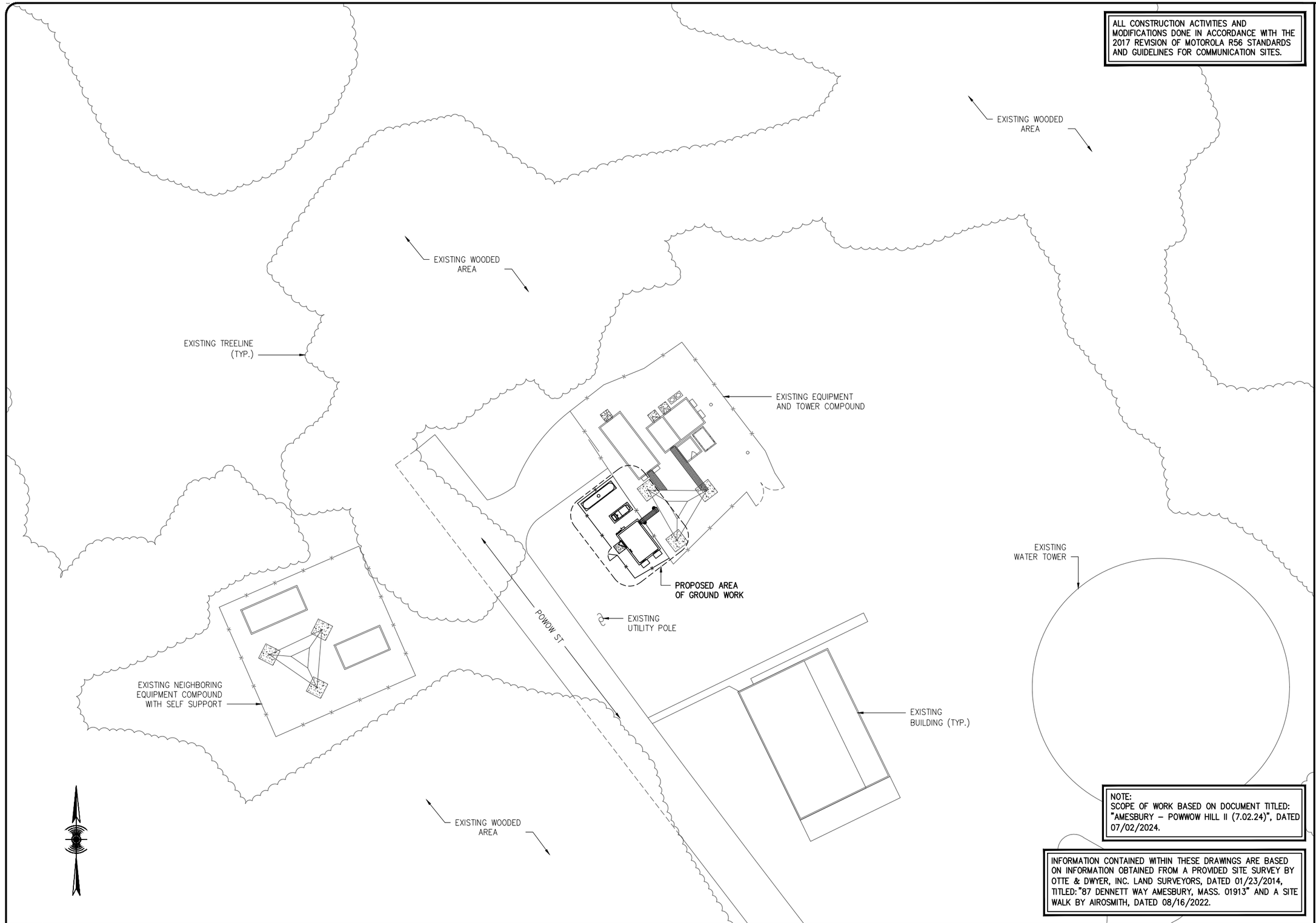
GENERAL NOTES

SHEET NUMBER:

GN02

REVISION:

100%



ALL CONSTRUCTION ACTIVITIES AND MODIFICATIONS DONE IN ACCORDANCE WITH THE 2017 REVISION OF MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATION SITES.

NOTE:
SCOPE OF WORK BASED ON DOCUMENT TITLED: "AMESBURY – POWWOW HILL II (7.02.24)", DATED 07/02/2024.

INFORMATION CONTAINED WITHIN THESE DRAWINGS ARE BASED ON INFORMATION OBTAINED FROM A PROVIDED SITE SURVEY BY OTTE & DWYER, INC. LAND SURVEYORS, DATED 01/23/2014, TITLED: "87 DENNETT WAY AMESBURY, MASS. 01913" AND A SITE WALK BY AIROSMITH, DATED 08/16/2022.

1 OVERALL SITE PLAN

SCALE: 1" = 40' (11"x17"), 1" = 20' (22"x34")

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
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PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

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ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

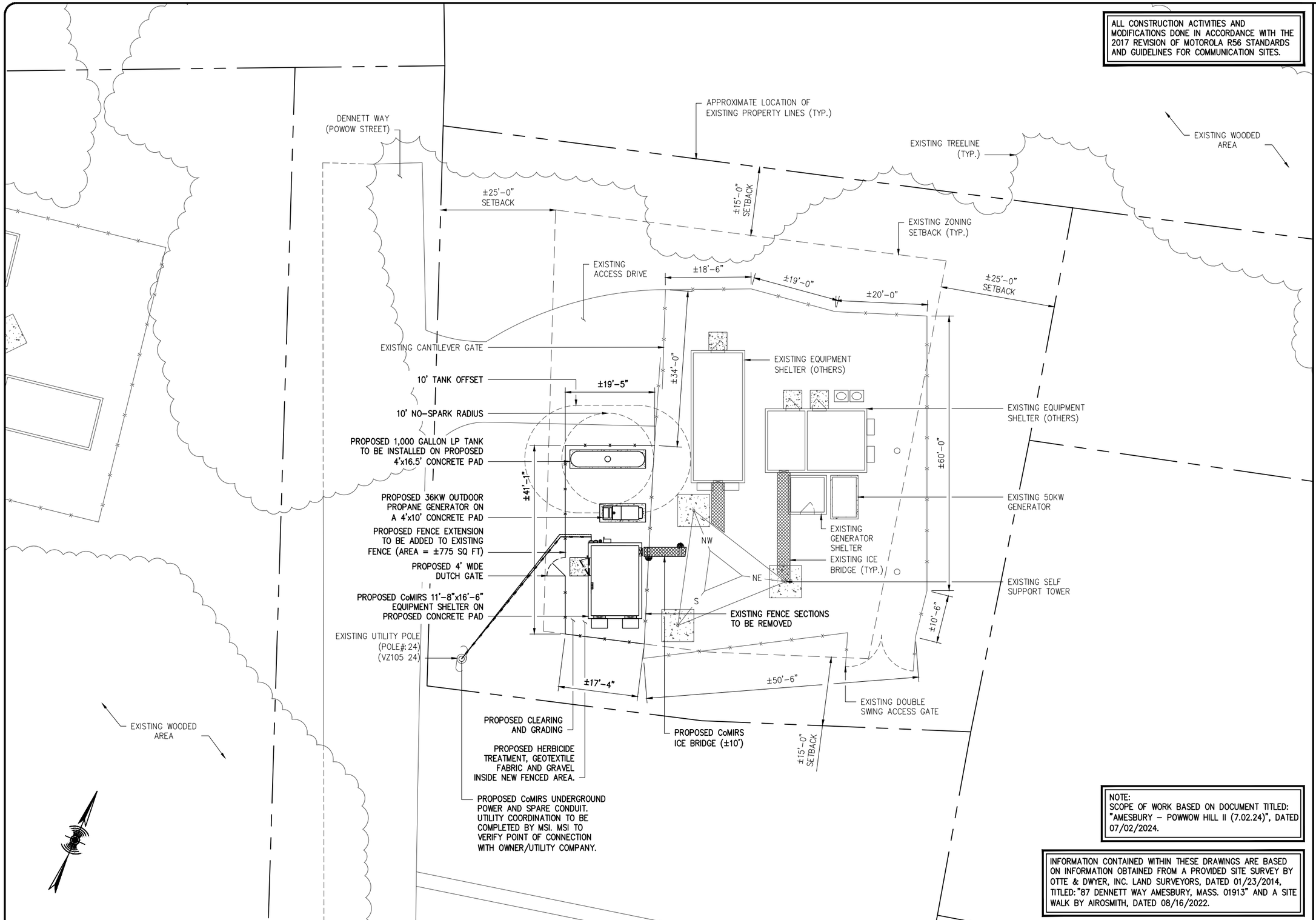
SHEET TITLE:

OVERALL SITE PLAN

SHEET NUMBER: A01

REVISION: 100%

ALL CONSTRUCTION ACTIVITIES AND MODIFICATIONS DONE IN ACCORDANCE WITH THE 2017 REVISION OF MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATION SITES.



NOTE:
SCOPE OF WORK BASED ON DOCUMENT TITLED: "AMESBURY – POWWOW HILL II (7.02.24)", DATED 07/02/2024.

INFORMATION CONTAINED WITHIN THESE DRAWINGS ARE BASED ON INFORMATION OBTAINED FROM A PROVIDED SITE SURVEY BY OTTE & DWYER, INC. LAND SURVEYORS, DATED 01/23/2014, TITLED: "87 DENNETT WAY AMESBURY, MASS. 01913" AND A SITE WALK BY AIROSMITH, DATED 08/16/2022.

1 ENLARGED SITE PLAN

SCALE: 1" = 20' (11"x17"), 1" = 10' (22"x34")

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

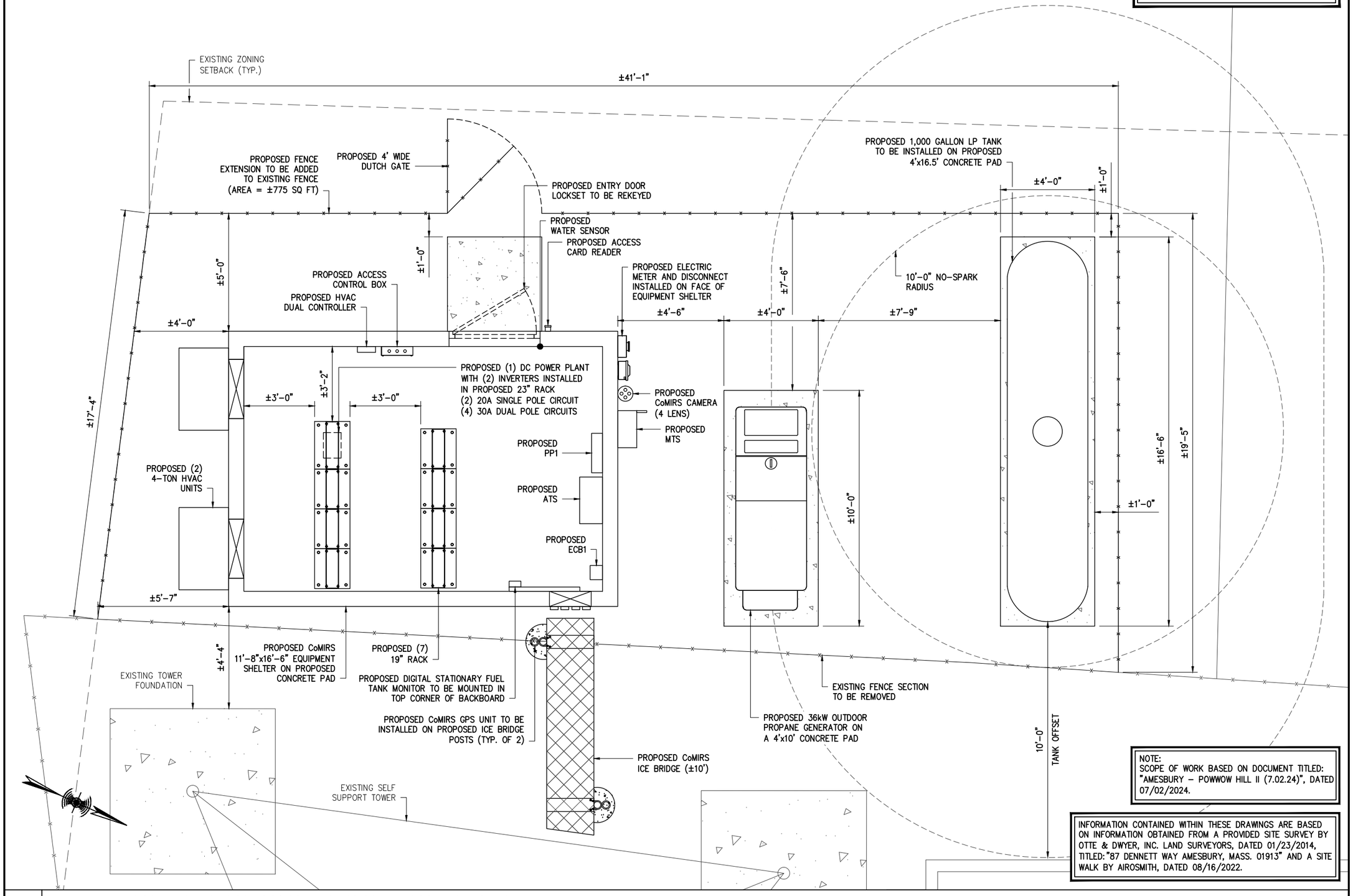
SHEET TITLE:

ENLARGED
SITE PLAN

SHEET NUMBER: A02

REVISION: 100%

ALL CONSTRUCTION ACTIVITIES AND MODIFICATIONS DONE IN ACCORDANCE WITH THE 2017 REVISION OF MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATION SITES.



NOTE:
SCOPE OF WORK BASED ON DOCUMENT TITLED: "AMESBURY – POWWOW HILL II (7.02.24)", DATED 07/02/2024.

INFORMATION CONTAINED WITHIN THESE DRAWINGS ARE BASED ON INFORMATION OBTAINED FROM A PROVIDED SITE SURVEY BY OTTE & DWYER, INC. LAND SURVEYORS, DATED 01/23/2014, TITLED: "87 DENNETT WAY AMESBURY, MASS. 01913" AND A SITE WALK BY AIROSMITH, DATED 08/16/2022.

1 ENLARGED PROPOSED COMPOUND PLAN

SCALE: 1" = 4' (11"x17"), 1" = 2' (22"x34")

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866

PROJECT ID
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COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

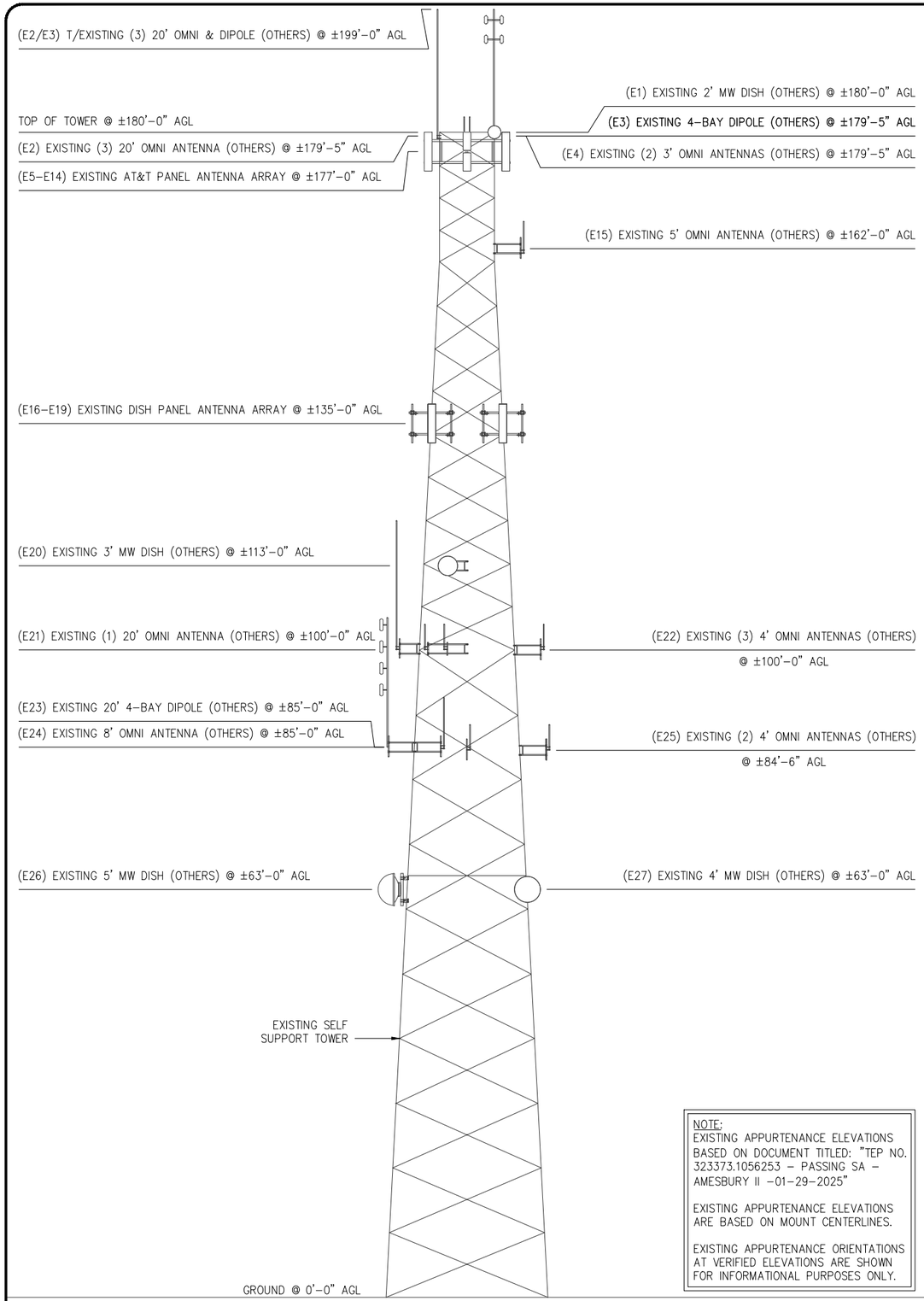
89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:
ENLARGED PROPOSED COMPOUND PLAN

SHEET NUMBER:
A03

REVISION:
100%



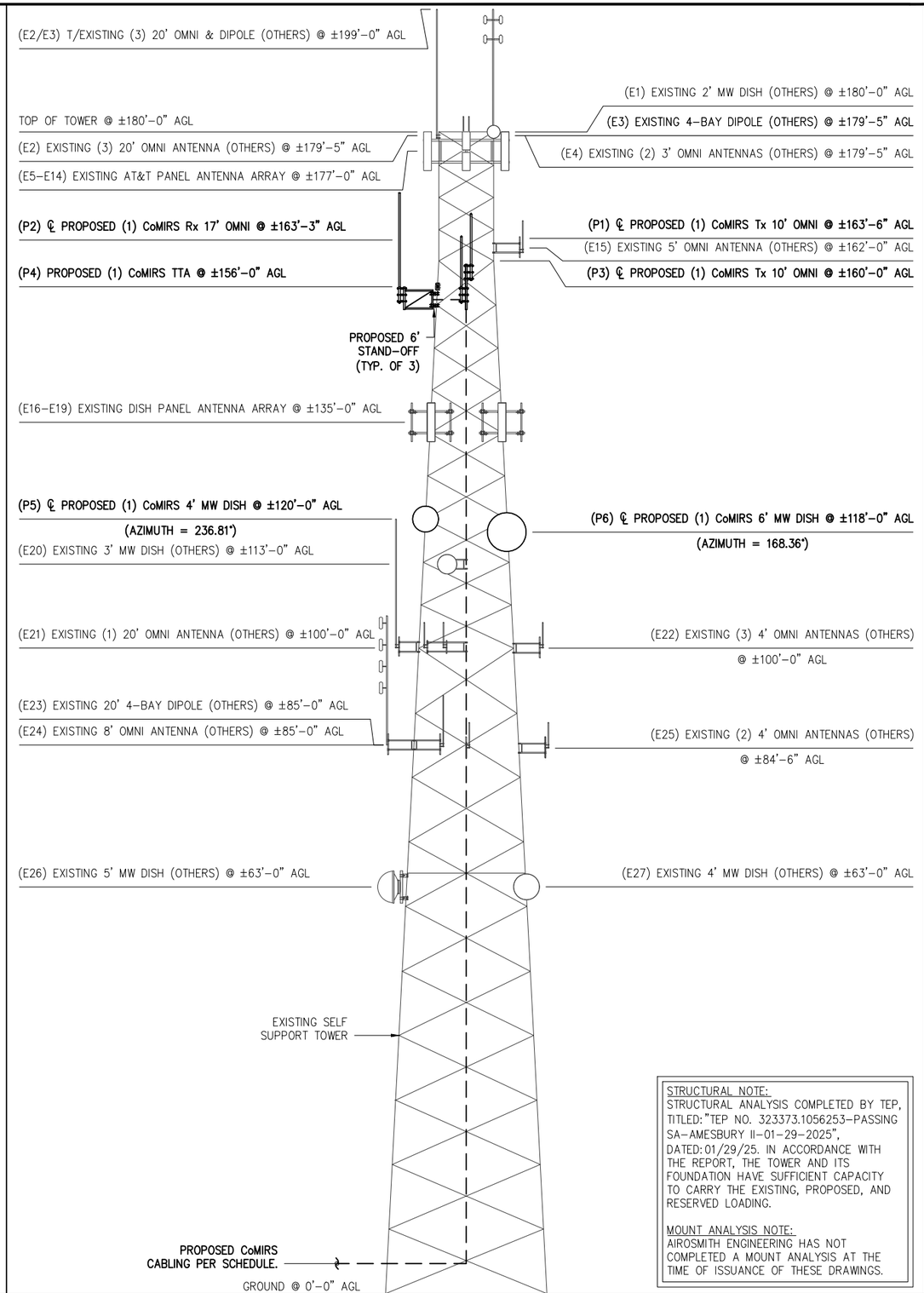
NOTE:
EXISTING APPURTENANCE ELEVATIONS BASED ON DOCUMENT TITLED: "TEP NO. 323373.1056253 – PASSING SA – AMESBURY II –01–29–2025"

EXISTING APPURTENANCE ELEVATIONS ARE BASED ON MOUNT CENTERLINES.

EXISTING APPURTENANCE ORIENTATIONS AT VERIFIED ELEVATIONS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.

1 EXISTING ELEVATION VIEW

SCALE: 1" = 20' (11"x17"), 1" = 10' (22"x34")



STRUCTURAL NOTE:
STRUCTURAL ANALYSIS COMPLETED BY TEP, TITLED: "TEP NO. 323373.1056253–PASSING SA–AMESBURY II–01–29–2025", DATED: 01/29/25. IN ACCORDANCE WITH THE REPORT, THE TOWER AND ITS FOUNDATION HAVE SUFFICIENT CAPACITY TO CARRY THE EXISTING, PROPOSED, AND RESERVED LOADING.

MOUNT ANALYSIS NOTE:
AIROSMITH ENGINEERING HAS NOT COMPLETED A MOUNT ANALYSIS AT THE TIME OF ISSUANCE OF THESE DRAWINGS.

2 PROPOSED ELEVATION VIEW

SCALE: 1" = 20' (11"x17"), 1" = 10' (22"x34")

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:
COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston
03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

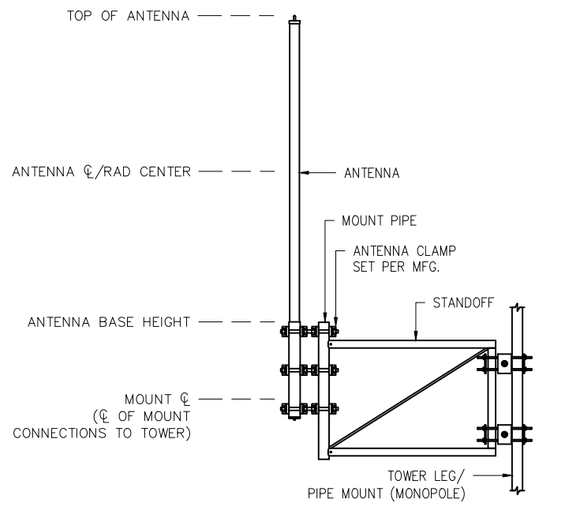
SHEET TITLE:
ELEVATION VIEWS

SHEET NUMBER:
A04

REVISION:
100%

PROPOSED APPURTENANCE SCHEDULE

ID	STATUS	MOUNT CENTERLINE (AGL)	RAD CENTER (AGL)	LEG	AZIMUTH	QTY.	TYPE	LENGTH	MANUFACTURER	MODEL #	MOUNT TYPE	FEEDLINES QTY	FEEDLINES TYPE	FEEDLINES SIZE/MODEL	FEEDLINES CABLE ENTRY PORT #
E1	EXISTING	180'-0"	180'-0"	-	-	1	MW DISH	2'-0"	-	-	(2) SIDEARMS	3	COAX	(2) 1" (1) 3/8"	-
E2	EXISTING	179'-5"	189'-5"	-	-	3	OMNI ANTENNA	20'-0"	-	-	DIRECT				-
E3				-	-	1	4-BAY DIPOLE	20'-0"	-	-					-
E4	EXISTING		180'-11"	-	-	2	OMNI ANTENNA	3'-0"	-	-					-
E5	EXISTING	177'-0"	177'-0"	-	-	3	PANEL ANTENNA	-	CCI	TPA-65R-BU8DA-K	(3) SECTOR MOUNTS	18	COAX POWER FIBER	(6) 1-5/8" (7) DC (3) FIBER (2) 3/8"	-
E6				-	-	3	PANEL ANTENNA	-	ERICSSON	AIR6419					-
E7				-	-	3	PANEL ANTENNA	-	ERICSSON	AIR6449					-
E8				-	-	3	PANEL ANTENNA	-	CCI	DMP65R-BU8DA					-
E9				-	-	3	RRU	-	ERICSSON	4478 B14					-
E10				-	-	3	RRU	-	ERICSSON	8843 B2/B66A					-
E11				-	-	3	RRU	-	ERICSSON	4449 B5/B12					-
E12				-	-	3	RRU	-	ERICSSON	RRUS-32 B30					-
E13				-	-	2	SQUID	-	RAYCAP	DC6-48-60-18					-
E14				-	-	1	SQUID	-	RAYCAP	DC9-48-60-24-8C-EV					-
E15	EXISTING	162'-0"	164'-0"	-	-	1	OMNI ANTENNA	5'-0"	-	-	STANDOFF	1	COAX	7/8"	-
P1	PROPOSED	157'-6"	163'-6"	S	-	1	Tx OMNI ANTENNA	10'-3"	RFI	CC807-09-T4	HS6-K	1	COAX	7/8"	2
P2	PROPOSED	154'-0"	163'-3"	NW	-	1	Rx OMNI ANTENNA	17'-2"	RFI	CC807-11-T1	HS6-K	1	COAX	7/8"	1
P3	PROPOSED	154'-0"	160'-0"	S	-	1	Tx OMNI ANTENNA	10'-3"	RFI	CC807-09-T4	HS6-K	1	COAX	7/8"	2
P4	PROPOSED	-	156'-0"	NW	-	1	TTA	1'-1"	FILTRONIC	SAC001-V2-P	DIRECT	1	COAX	1/2"	1
E16	EXISTING	135'-0"	135'-0"	-	-	3	PANEL ANTENNA	-	JMA	MX08FRO665-20	(3) SECTOR MOUNTS	1	HYBRID	HYBRID	-
E17				-	-	3	RRU	-	FUJITSU	TA08025-B605					-
E18				-	-	3	RRU	-	FUJITSU	TA08025-B604					-
E19				-	-	1	JUNCTION BOX	-	-	-					-
P5	PROPOSED	120'-0"	120'-0"	S	236.81°	1	MW DISH	4'-0"	COMMSCOPE	VHLP4-11W	4' PIPE MOUNT	1	ELLIPTICAL	EW90	3
P6	PROPOSED	118'-0"	118'-0"	NE	168.36°	1	MW DISH	6'-0"	COMMSCOPE	VHLP6-6W	6' PIPE MOUNT	1	ELLIPTICAL	EW63	4
E20	EXISTING	113'-0"	113'-0"	-	-	1	MW DISH	3'-0"	-	-	PIPE MOUNT	2	COAX	3/8"	-
E21	EXISTING	100'-0"	110'-0"	-	-	1	OMNI ANTENNA	20'-0"	-	-	(2) STANDOFFS	2	COAX	1"	-
E22			102'-0"	-	-	3	OMNI ANTENNA	4'-0"	-	-		2	COAX	1/2"	-
E23	EXISTING	85'-0"	95'-0"	-	-	1	4-BAY DIPOLE	20'-0"	-	-	(2) STANDOFFS	2	COAX	1"	-
E24			89'-0"	-	-	1	OMNI ANTENNA	8'-0"	-	-					-
E25	EXISTING	84'-6"	86'-6"	-	-	2	OMNI ANTENNA	4'-0"	-	-	(2) STANDOFFS	2	COAX	1/2"	-
E26	EXISTING	63'-0"	63'-0"	-	-	1	MW DISH	5'-0"	-	-	(2) PIPE MOUNTS	2	ELLIPTICAL	1"	-
E27				-	-	1	MW DISH	4'-0"	-	-					-



2 ANTENNA NAMING CONVENTION
SCALE: NOT TO SCALE

NOTE:
PROPOSED ANTENNA HEIGHTS AND MODELS BASED ON SOW TITLED: "AMESBURY – POWWOW HILL II (7.02.24)"

MICROWAVE PATH DESIGN BASED ON SOW TITLED: "AMESBURY – POWWOW HILL II (7.02.24)"

1 PROPOSED APPURTENANCE SCHEDULE
SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
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COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

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ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

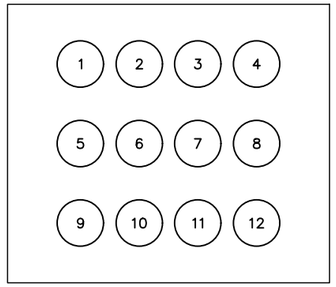
89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:
PROPOSED APPURTENANCE SCHEDULE

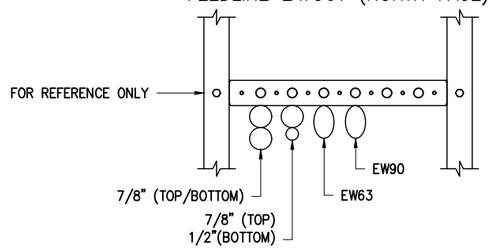
SHEET NUMBER: A04.1
REVISION: 100%

CABLE ENTRY PORT
EXTERIOR LEGEND



NOTE:
EXISTING VERTICAL CABLE LADDER IS OCCUPIED. PROPOSED FEEDLINE LOCATIONS TO BE VERIFIED IN FIELD.

CABLE LADDER
FEEDLINE LAYOUT (NORTH FACE)



FEEDLINE COLOR CODING:
PURPLE = GPS
WHITE = MW DISH
RED = LMR Tx
BLUE = LMR Rx
BLUE + RED = TMA TEST LINE
GREEN = TAC CHANNELS
GREEN (1 BAND) = 8TAC
GREEN (2 BAND) = UHF
GREEN (3 BAND) = VHF

FIRST APPURTENANCE STARTS WITH ONE TAPE BAND. ADD ADDITIONAL TAPE BAND AS QUANTITY OF APPURTENANCES INCREASE.

EXAMPLE: (3) GPS ANTENNAS
GPS #1 = ONE PURPLE TAPE BAND
GPS #2 = TWO PURPLE TAPE BAND
GPS #3 = THREE PURPLE TAPE BAND

CABLE ENTRY SCHEDULE

CABLE ENTRY PORT #	PORT STATUS	TYPE	SIZE/MODEL	COLOR CODING
1	AVAILABLE	-	-	-
2	AVAILABLE	-	-	-
3	AVAILABLE	-	-	-
4	AVAILABLE	-	-	-
5	AVAILABLE	-	-	-
6	AVAILABLE	-	-	-
7	AVAILABLE	-	-	-
8	AVAILABLE	-	-	-
9	AVAILABLE	-	-	-
10	AVAILABLE	-	-	-
11	AVAILABLE	-	-	-
12	AVAILABLE	-	-	-

NOTES:
1. ANTENNAS, CONNECTORS, JUMPERS, TRANSMISSION LINES, TO BE FURNISHED BY MOTOROLA SOLUTIONS AND INSTALLED BY CONTRACTOR.

2. STACK TRANSMISSION LINES ON TOP OF EACH OTHER FROM LARGEST TO SMALLEST CABLE. DO NOT STACK ELLIPTICAL TRANSMISSION LINES.

3. CONTRACTOR TO ATTACH CABLES TO TOWER EVERY 3 FEET MAXIMUM.

4. CONTRACTOR TO USE STRAIN RELIEF EVERY 200 FEET MAXIMUM FOR TRANSMISSION LINES AND ARE TO BE INSTALLED PRIOR TO INSTALLATION OF TRANSMISSION LINES.

5. CONTRACTOR SHALL PERFORM A SWEEP TEST ON TRANSMISSION AND TEST LINES PRIOR TO INSTALLATION. IMMEDIATELY NOTIFY MOTOROLA SOLUTIONS OF ANY LINE DEFICIENCIES.

6. ALL VERTICAL TRANSMISSION LINE RUNS FROM ANTENNAS WILL BE GROUNDED NEAR THE ANTENNA, MIDDLE, AND BOTTOM OF THE TOWER BEFORE MAKING A HORIZONTAL TRANSITION. TRANSMISSION LINE GROUND KITS WILL BE INSTALLED EVERY 75 FEET. NEW GROUND KITS TO BE INSTALLED ON EXISTING CABLES ONLY WHEN SPECIFIED IN SCOPE OF WORK.

7. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE ONE INCH (1") WIDE COLOR TAPE BANDS FOR IDENTIFICATION NEAR THE ANTENNA, BEFORE ENTERING THE SHELTER, AND INSIDE THE SHELTER.

8. PROVIDE TOWER GROUND BAR EVERY 75 FEET. REPLACE EXISTING TOWER GROUND BARS WITH PROPOSED TOWER GROUND BARS PER 2017 REVISION OF MOTOROLA R56. RE-INSTALL ANY EXISTING GROUNDING ON PROPOSED TOWER GROUND BAR.

9. WHEN AVAILABLE, ROUTE TRANSMISSION LINES UNDERNEATH TOWER MEMBERS FOR PROTECTION.

10. WEATHERPROOF TRANSMISSION LINE CONNECTIONS WITH BUTYL AND ELECTRICAL TAPE IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.

1 CABLE ENTRY SCHEDULE
SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH
AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

PROFESSIONAL STAMP:
COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston
03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

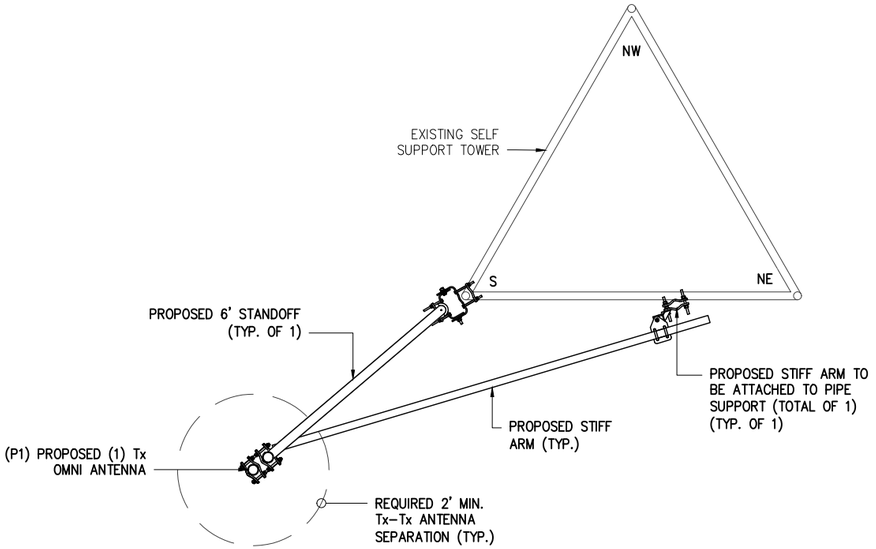
89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:
CABLE ENTRY
SCHEDULES & DETAILS

SHEET NUMBER:
A05

REVISION:
100%



1 PROPOSED ORIENTATION PLAN (@ ±157'-6" AGL)

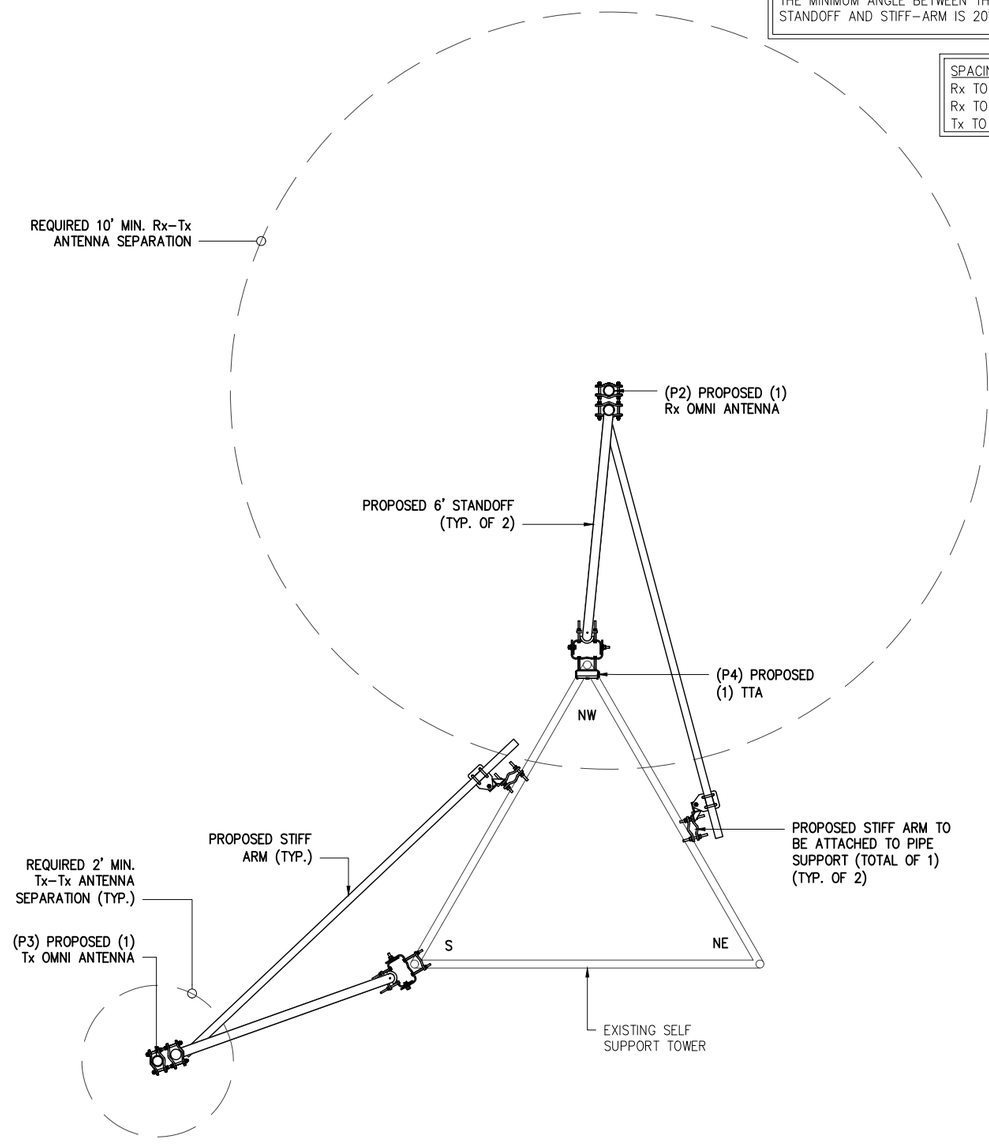
SCALE: 1" = 4' (11"x17"), 1" = 2' (22"x34")

NOTE:
ELEVATIONS OF ORIENTATION VIEWS SHOWN AT MOUNT CENTERLINES.

IF EXISTING CONDITIONS ALLOW, ORIENT PROPOSED ANTENNAS AS FAR AWAY FROM TOWER AS POSSIBLE.

THE MINIMUM ANGLE BETWEEN THE 6' STANDOFF AND STIFF-ARM IS 20°.

SPACING NOTE:
Rx TO Tx = 10'
Rx TO Rx = 4'
Tx TO Tx = 2'



2 PROPOSED ORIENTATION PLAN (@ ±154'-0" AGL)

SCALE: 1" = 4' (11"x17"), 1" = 2' (22"x34")

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

PROFESSIONAL STAMP:

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JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

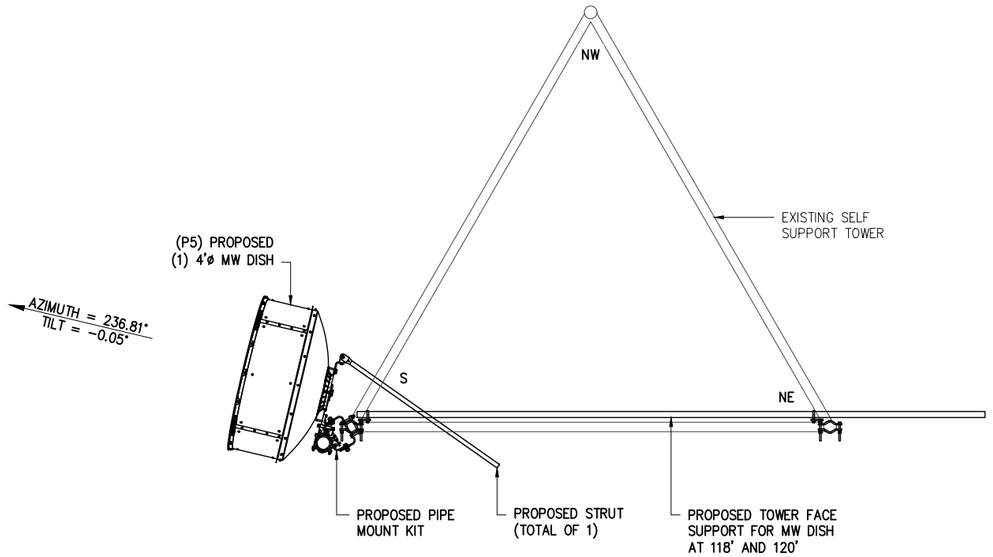
SELF SUPPORT TOWER

SHEET TITLE:

PROPOSED ANTENNA ORIENTATION PLAN

SHEET NUMBER: A06

REVISION: 100%



1 PROPOSED ORIENTATION PLAN (@ ±120'-0" AGL)

SCALE: 1" = 4' (11"x17"), 1" = 2' (22"x34")

NOTE:
ELEVATIONS OF ORIENTATION VIEWS SHOWN AT MOUNT CENTERLINES.

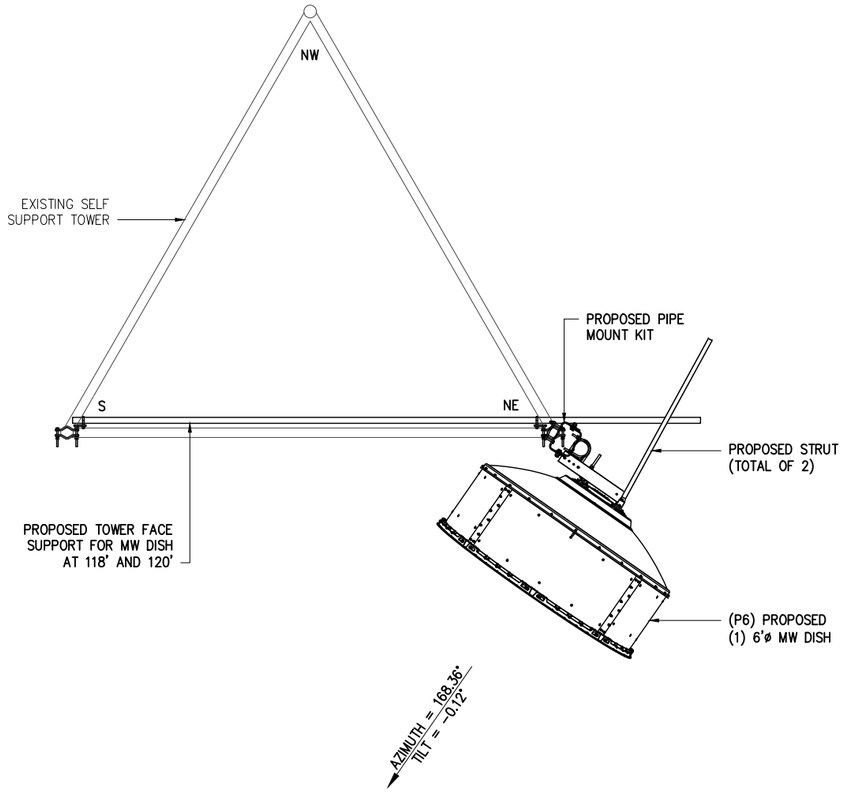
TOWER FACE WIDTH NOT AVAILABLE AT TIME OF ISSUANCE OF THESE DRAWINGS.

NOTES:
1. MW DISH SIZE 6'ø OR GREATER REQUIRES (2) TIE-BACKS.

2. MW DISH SIZE LESS THAN 6'ø REQUIRES 1 TIE-BACK; UNLESS OTHERWISE SPECIFIED.

3. ICE SHIELD NOT SHOWN FOR CLARITY.

STRUCTURAL NOTE:
AIROSMITH ENGINEERING HAS NOT COMPLETED A MOUNT ANALYSIS FOR ANY PART OF THE MICROWAVE SYSTEM AT THE TIME OF ISSUANCE OF THESE DRAWINGS.



2 PROPOSED ORIENTATION PLAN (@ ±118'-0" AGL)

SCALE: 1" = 4' (11"x17"), 1" = 2' (22"x34")

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

PROPOSED MW DISH ORIENTATION PLAN

SHEET NUMBER: A07

REVISION: 100%

NOTES:
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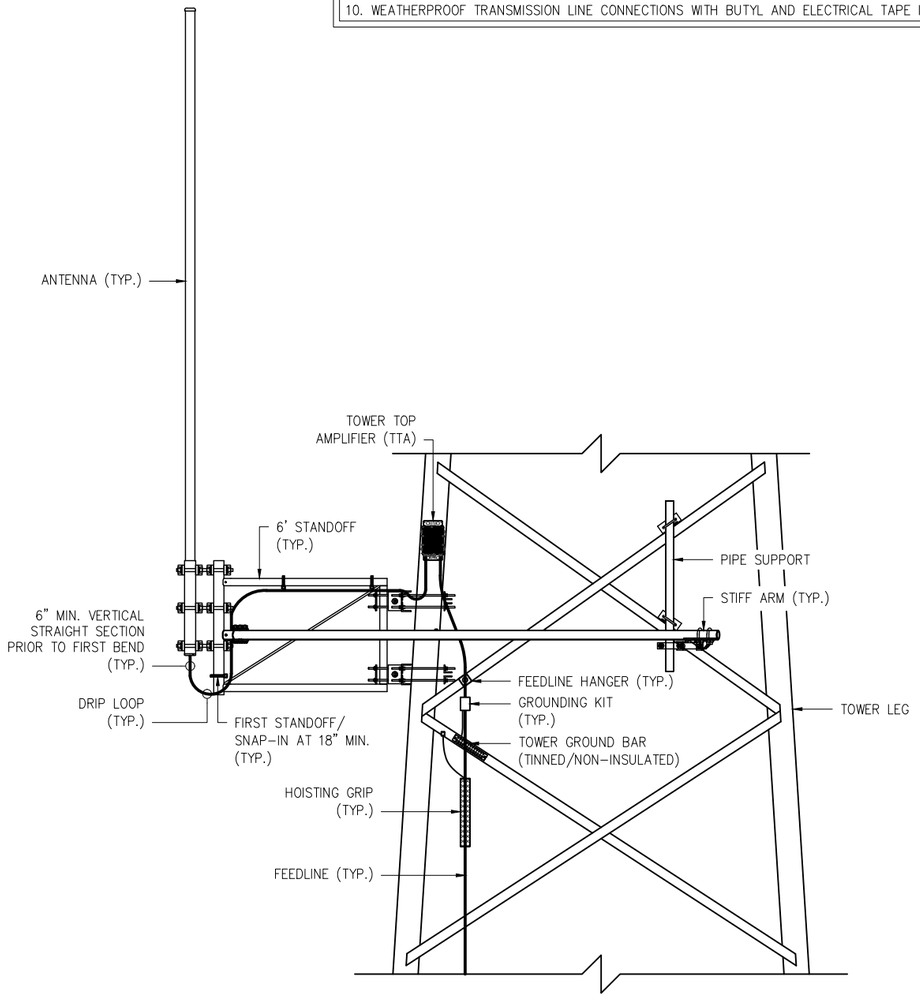
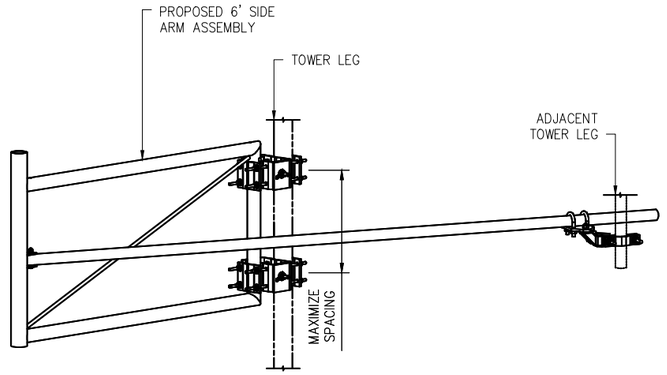


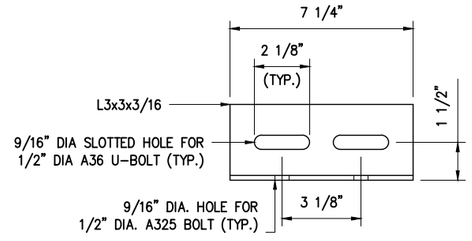
1 ANTENNA DETAILS

SCALE: NOT TO SCALE

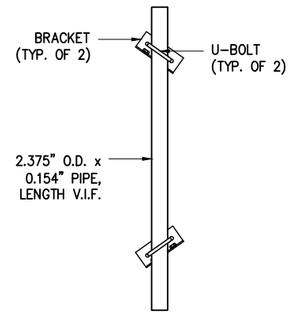


2 6' STANDOFF DETAILS

SCALE: NOT TO SCALE



BRACKET (ANGLE)



PIPE SUPPORT (ANGLE)

3 PIPE SUPPORT DETAILS

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

ANTENNA DETAILS

SHEET NUMBER: A08

REVISION: 100%

NOTES:
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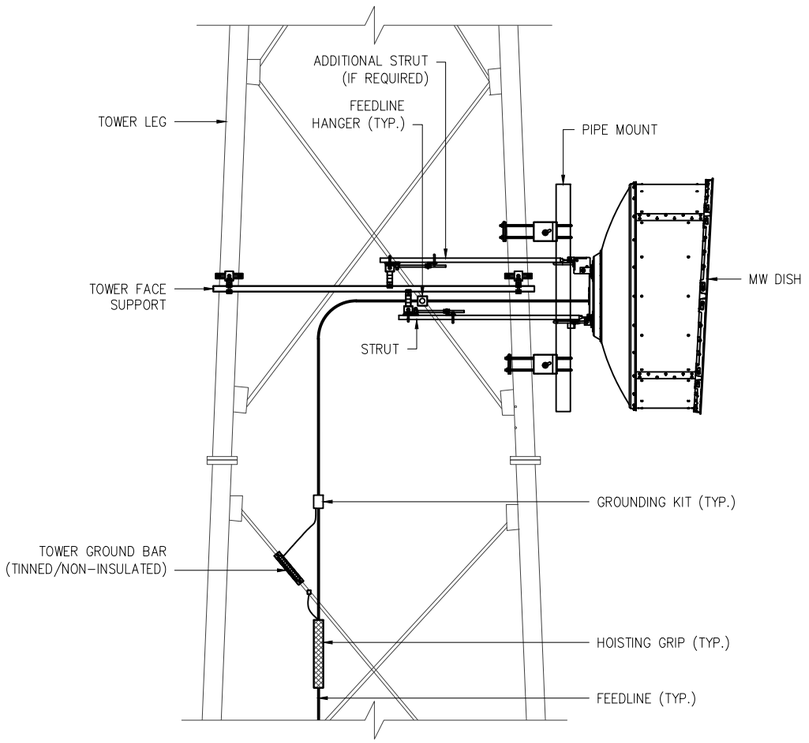
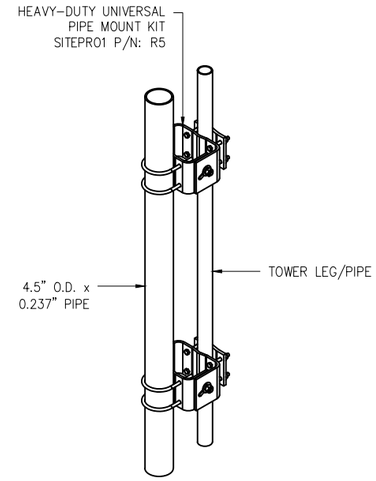


1 MW DISH DETAILS

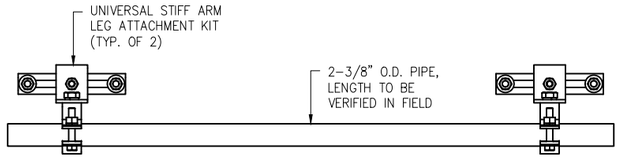
SCALE: NOT TO SCALE

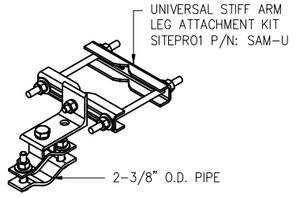


2 MW DISH PIPE MOUNT DETAIL

SCALE: NOT TO SCALE

NOTE:
TOWER FACE SUPPORT KITS ARE AVAILABLE IN MULTIPLE VARIATIONS. TYPE, WIDTHS, PIPE LENGTHS/DIAMETER, CONNECTION, AND PART NUMBERS TO BE VERIFIED IN FIELD.





ATTACHMENT TO
ROUND/ANGLE LEGS

ROUND LEG SIZE 1" TO 6"
60° ANGLE LEG SIZE 1" TO 6"
90° ANGLE LEG SIZE 1" TO 6"

3 TOWER FACE SUPPORT DETAIL

SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH
AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:
COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston 03/25/2025

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100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

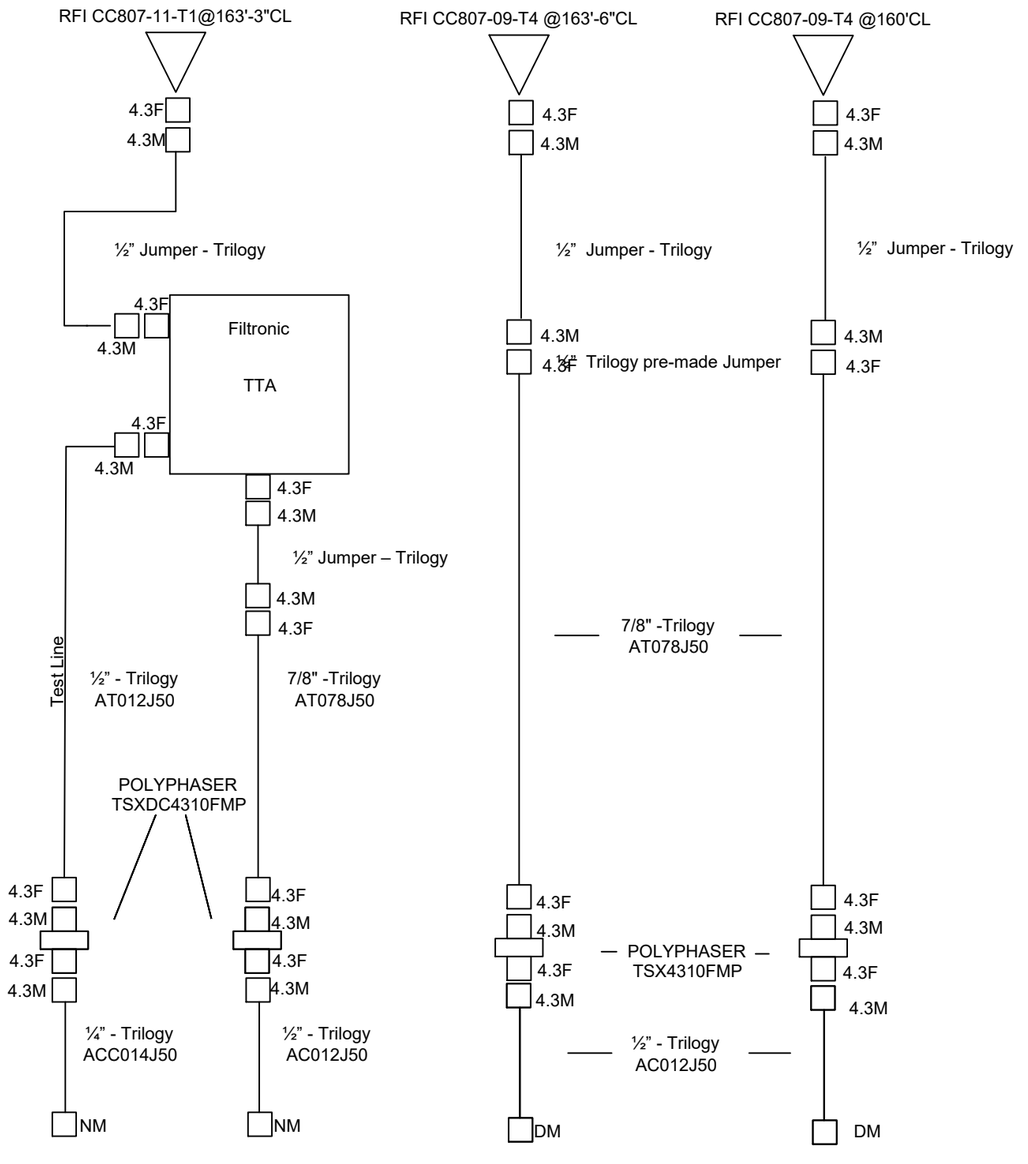
SELF SUPPORT TOWER

SHEET TITLE:
MW DISH DETAILS

SHEET NUMBER: A09

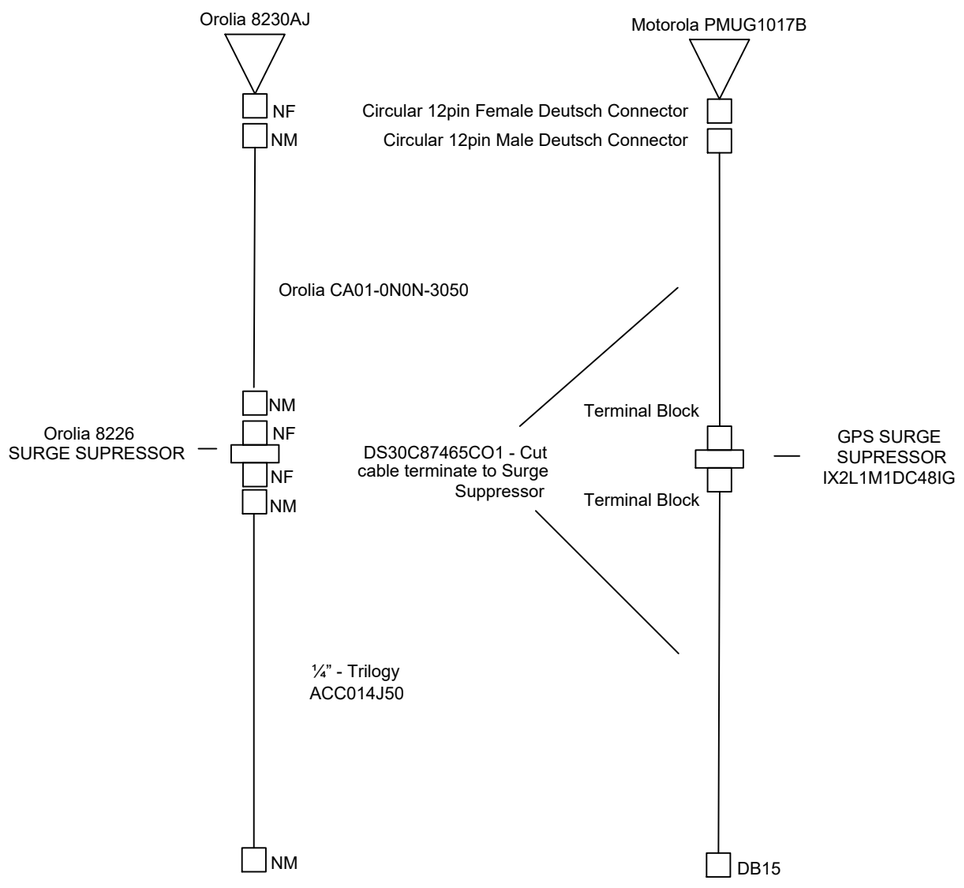
REVISION: 100%

NOTE:
USE APPROPRIATE LENGTH JUMPERS TO ALLOW FOR ROUTING AS DEPICTED ON ANTENNA DETAILS PAGE.



1 ANTENNA PLUMBING DIAGRAM

SCALE: NOT TO SCALE



2 GPS ANTENNA PLUMBING DIAGRAM

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
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AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

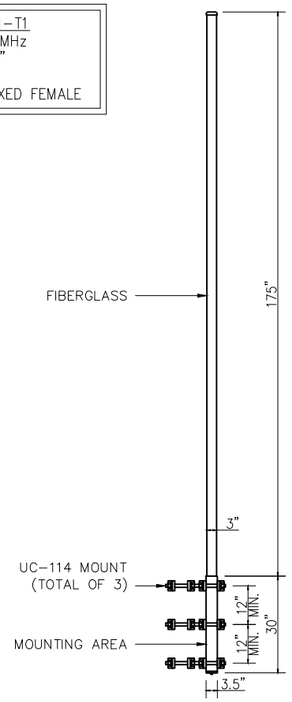
SHEET TITLE:

ANTENNA
PLUMBING DIAGRAMS

SHEET NUMBER: A10

REVISION: 100%

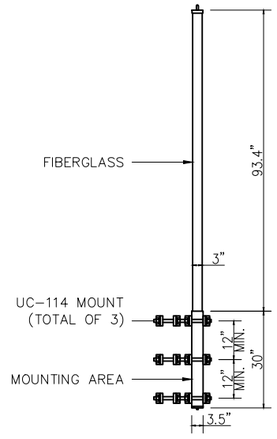
OMNI ANTENNA – CC807-11-T1
FREQUENCY: 746–870 MHz
SIZE: 3"ø x 205"
WEIGHT: 49 LBS.
TERMINATION: 4.3–10 FIXED FEMALE



1 CC807-11-T1 DETAIL

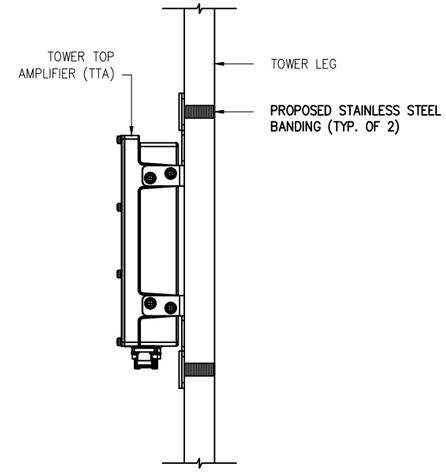
SCALE: NOT TO SCALE

OMNI ANTENNA – CC807-09-T4
FREQUENCY: 746–870 MHz
SIZE: 3"ø x 123.4"
WEIGHT: 30.9 LBS.
TERMINATION: 4.3–10 FIXED FEMALE



2 CC807-09-T4 DETAIL

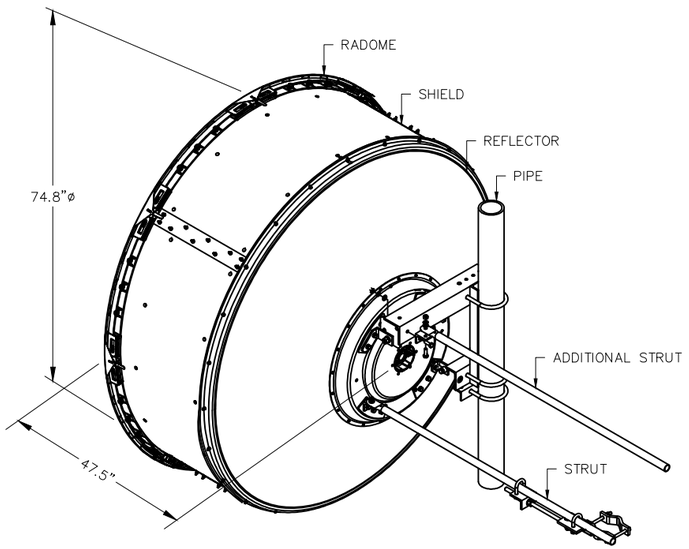
SCALE: NOT TO SCALE



3 TTA MOUNTING DETAILS

SCALE: NOT TO SCALE

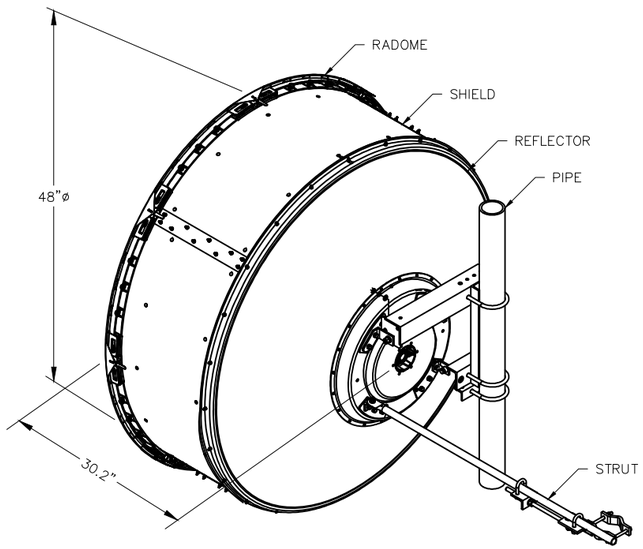
MICROWAVE DISH – VHLP6–6W
FREQUENCY: 5.925–7.125 GHz
SIZE: 74.8"øx47.5"
WEIGHT: 192 LBS.



4 VHLP6-6W DETAIL

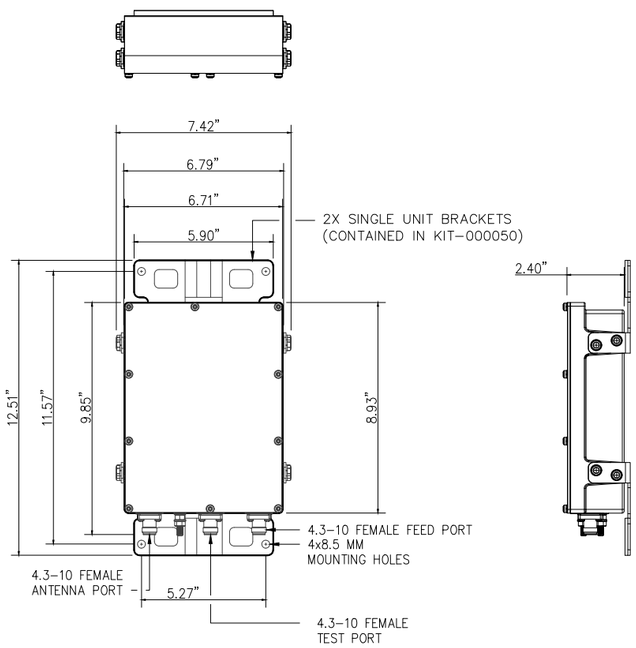
SCALE: NOT TO SCALE

MICROWAVE DISH – VHLP4–11W
FREQUENCY: 10.125–11.7 GHz
SIZE: 4.0' ø
WEIGHT: 70.55 LBS.



5 VHLP4-11W DETAIL

SCALE: NOT TO SCALE



6 SAC001-V2-P TTA DETAIL

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

APPURTENANCE DETAILS

SHEET NUMBER: A11

REVISION: 100%

xxSS-A: Stackable Snap-In Hangers

158SS-A

Features:
- Allows cable attachment without the need for hardware
- Plugs into 3/4" holes in steel up to .160" thick
- Heavy-duty design prevents pop-outs
- Stackable feature allows piggybacking of up to three cables

Construction:
- Constructed from high grade 304 stainless steel for maximum corrosion protection
- Part is tumbled and cleaned to remove burrs and oil

Design Criteria:
- Can be used outdoors or indoors

Part #	Cable Size	U of M
12SS-A	1/2"	10 pack
78SS-A	7/8"	10 pack
114SS-A	1-1/4"	10 pack
158SS-A	1-5/8"	10 pack

1 SNAP-IN DETAIL

SCALE: NOT TO SCALE

STKx-O: Tower Standoff Kits for Snap-Ins

Features:
- ¾" hole allows attachment of coax support hardware to round tower members
- For use with True-Grip Snap-In Hangers, Stackable Snap-In Hangers, and MonoBloc Stackable Snap-In Hangers
- All kits stand 1" off leg

Construction:
- Heavy-Duty 304 Stainless Steel construction
- Includes SS hose clamps

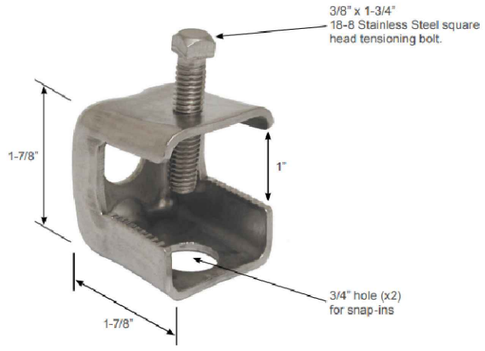
Design Criteria:
- Can be used indoors or outdoors

Part #	Leg Size	U of M
STK2-O	1-1/2" - 3"	10 pack
STK3-O	3" - 4"	10 pack
STK4-O	3" - 6"	10 pack

2 TOWER STANDOFF DETAIL

SCALE: NOT TO SCALE

ADAP-O: Angle Adapters



Features:
- Wider opening (1") than competing brands allows more versatility in mounting.
- Two 3/4" holes accept snap-in hangers.

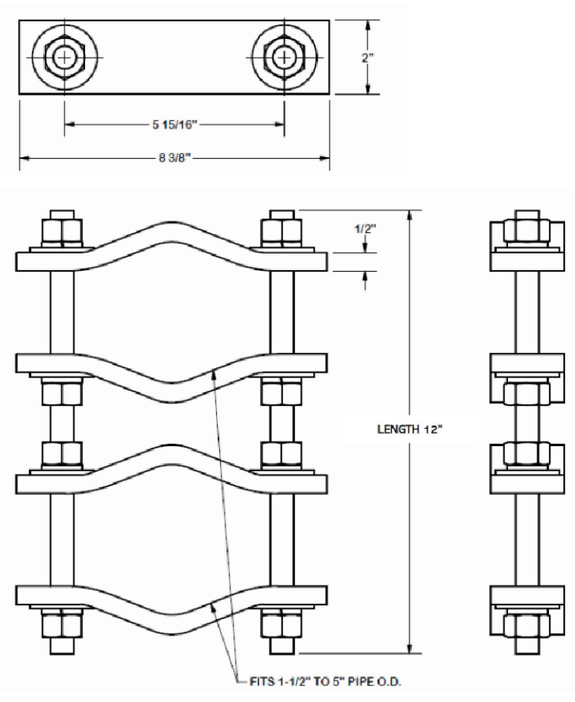
Construction:
- Constructed from high grade 304 stainless steel for maximum corrosion protection.
- Part is tumbled and cleaned to remove burrs and oil.

Design Criteria:
- Can be used outdoors or indoors.

Part #	U of M	Weight
ADAP-O	10 Pack	4.9 lb

3 ANGLE ADAPTER DETAIL

SCALE: NOT TO SCALE



4 UC-114 PIPE TO PIPE CLAMP DETAIL

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866

PROJECT ID
P-37768

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No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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0 1 2
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PROJECT INFORMATION:

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AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

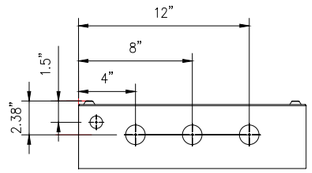
SELF SUPPORT TOWER

SHEET TITLE:

DETAILS

SHEET NUMBER: A12

REVISION: 100%



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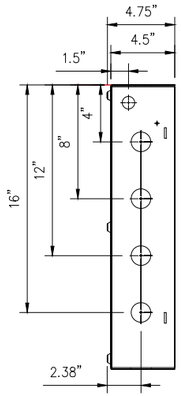

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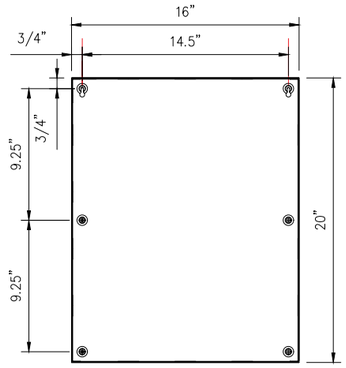
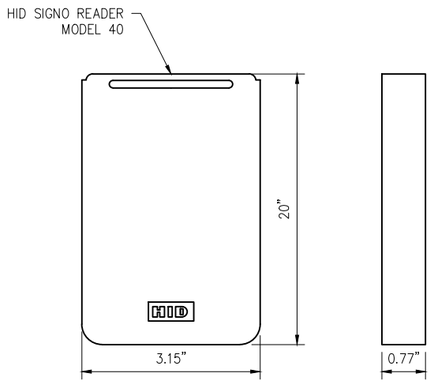


FRONT

1 ACCESS CONTROL BOX DETAIL

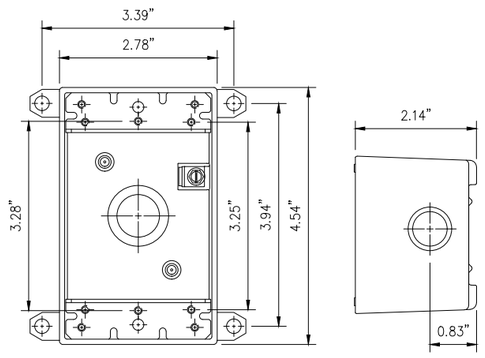
SCALE: NOT TO SCALE

NOTE:
ACCESS CARD READER TO BE MOUNTED A MINIMUM OF 48” ABOVE FINISHED FLOOR



FRONT SIDE

SINGLE GANG
WEATHER PROOF BOX



FRONT SIDE

2 ACCESS CARD READER DETAIL

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
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PROJECT ID
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JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

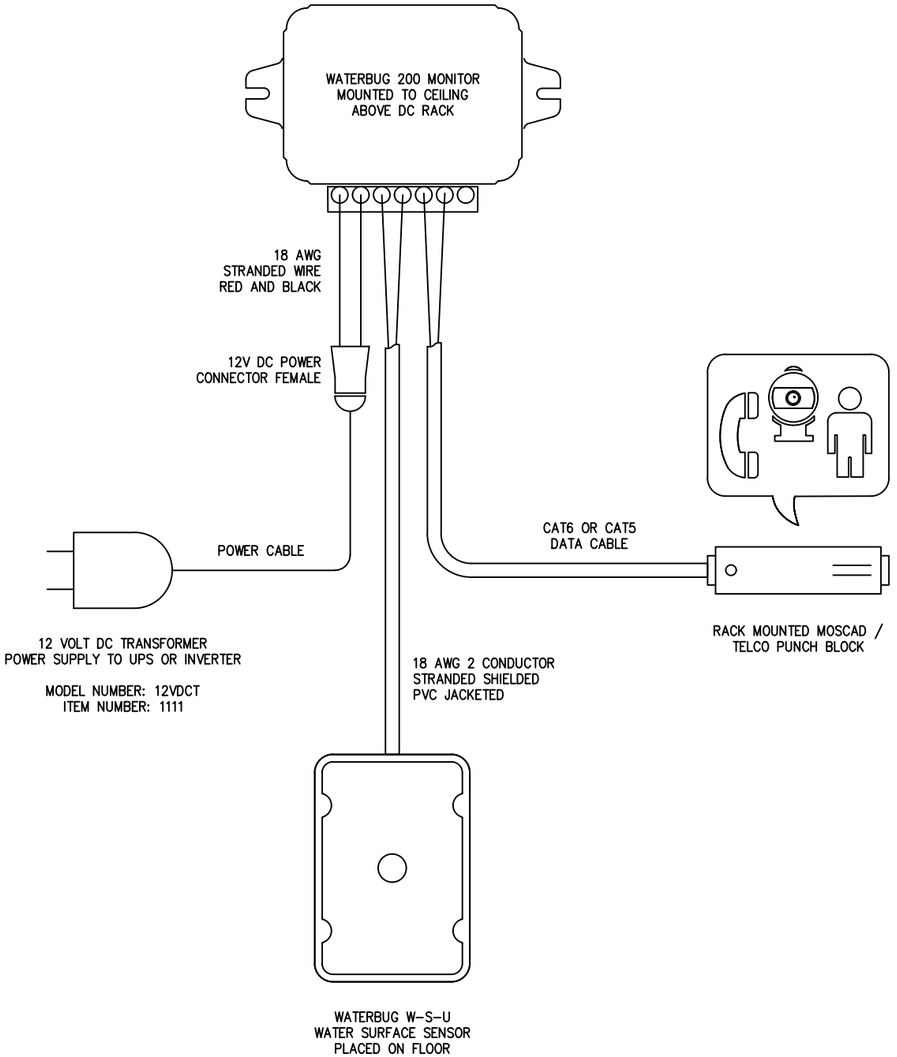
DETAILS

SHEET NUMBER:

A13

REVISION:

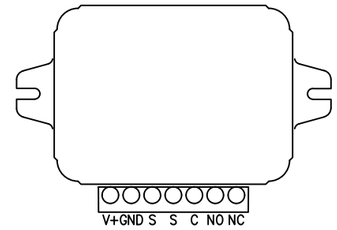
100%



1 WATERBUG WIRING DIAGRAM

SCALE: NOT TO SCALE

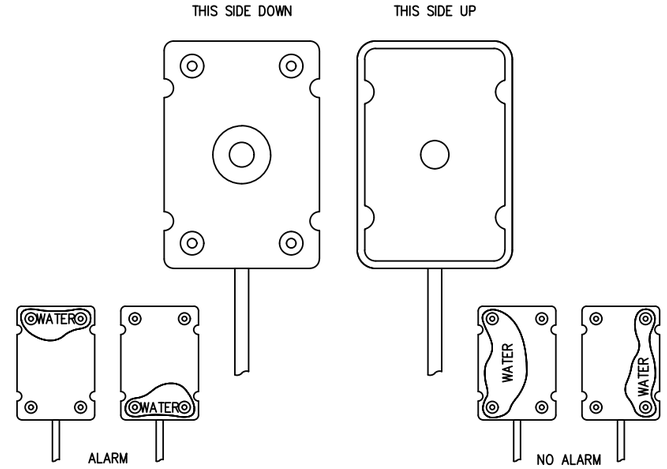
WATERBUG 200
MODEL NUMBER: WB200
ITEM NUMBER: M-001-0137
INCLUDES ONE W-S-U AND MOUNTING KIT
SIZE: 4.10"x2.36"X1.18"
WEIGHT: 0.15 LBS.
MAX SENSOR/DEVICE DISTANCE:
1-2 SENSORS = 200' EACH
3-6 SENSORS = 100' EACH



2 WATERBUG 200 MONITOR

SCALE: NOT TO SCALE

WATERBUG W-S-U
MODEL NUMBER: W-S-U
ITEM NUMBER: M-001-0106
UNSUPERVISED WATER SURFACE SENSOR
SIZE: 3.0"x2.0"X0.88"
CABLE LENGTH: 15'
WEIGHT: 0.375 LBS.
MAX SENSOR/DEVICE DISTANCE:
1-2 SENSORS = 200' EACH
3-6 SENSORS = 100' EACH



3 WATER SURFACE SENSOR

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866

PROJECT ID
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No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

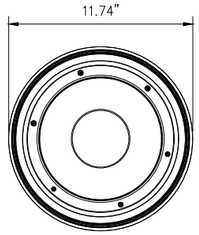
SHEET TITLE:

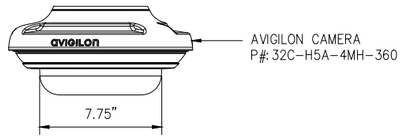
WATER SENSOR DETAILS

SHEET NUMBER: A14

REVISION: 100%

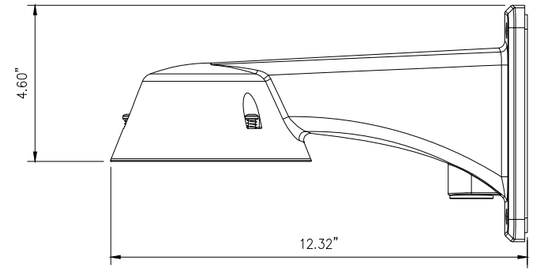
NOTE:
ASSOCIATED COMPONENTS WITH CAMERA TO BE ORDERED SEPARATELY. VERIFY WITH MOTOROLA SOLUTIONS AT TIME OF ORDERING CAMERA.

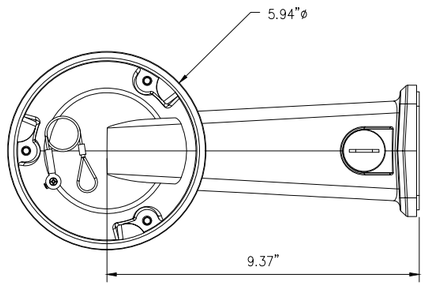


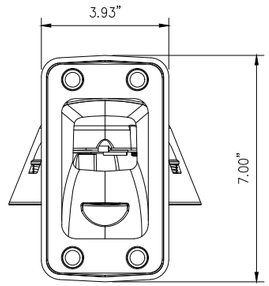


1 AVIGILON H5 MULTICAMERA DETAILS

SCALE: NOT TO SCALE

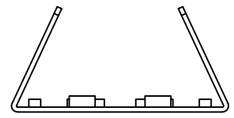


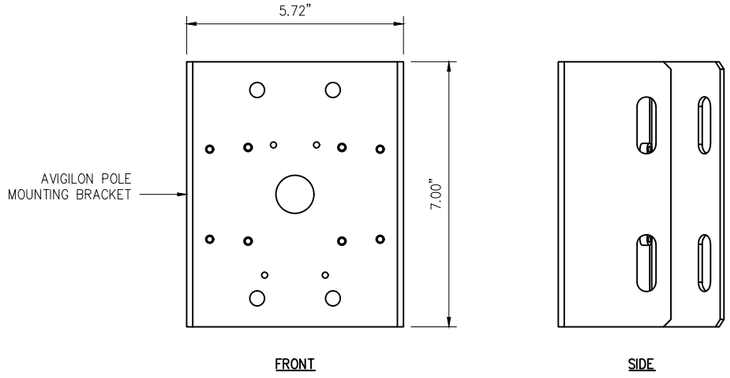




2 AVIGILON PENDANT MOUNT DETAIL

SCALE: NOT TO SCALE





3 AVIGILON POLE MOUNTING BRACKET DETAIL

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

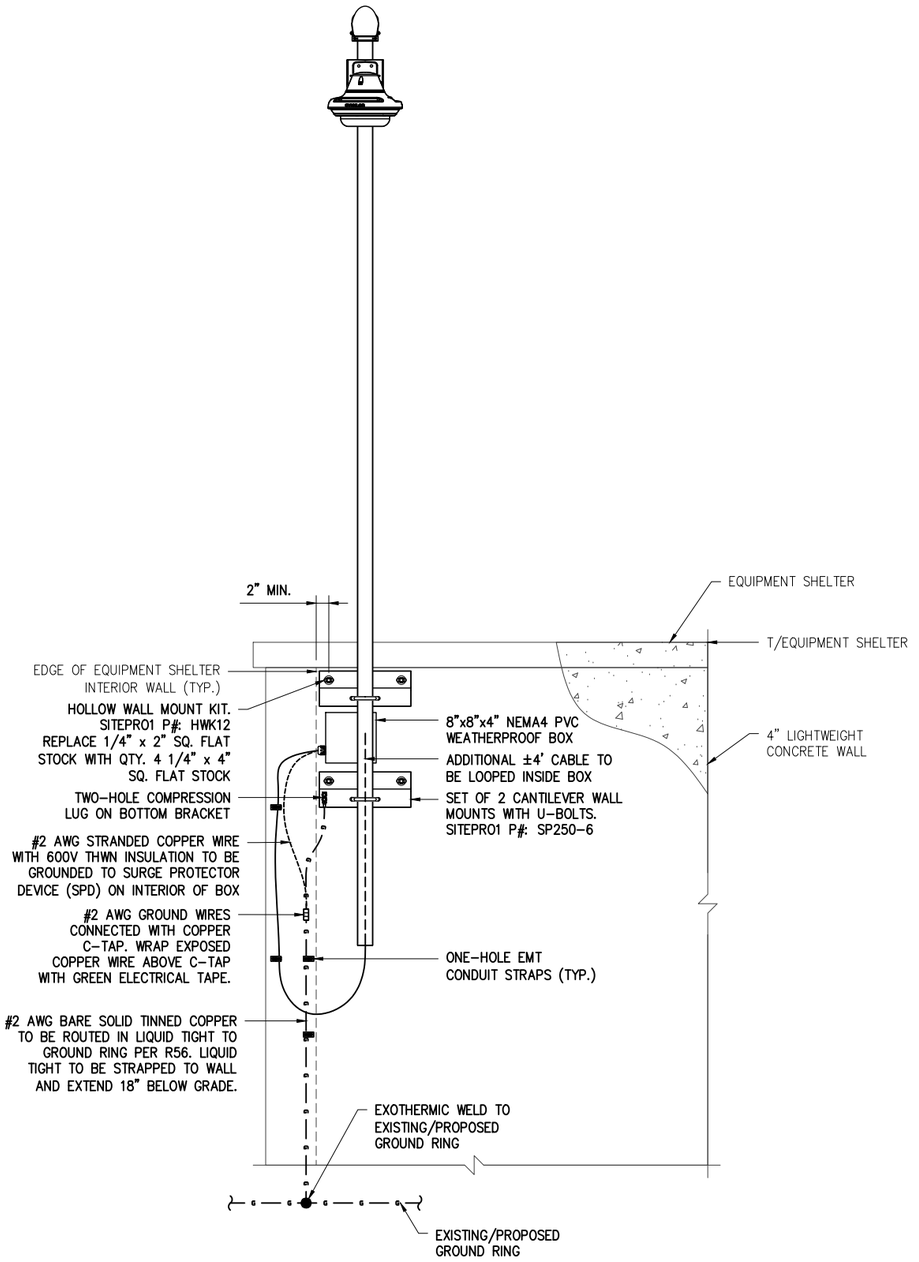
SELF SUPPORT TOWER

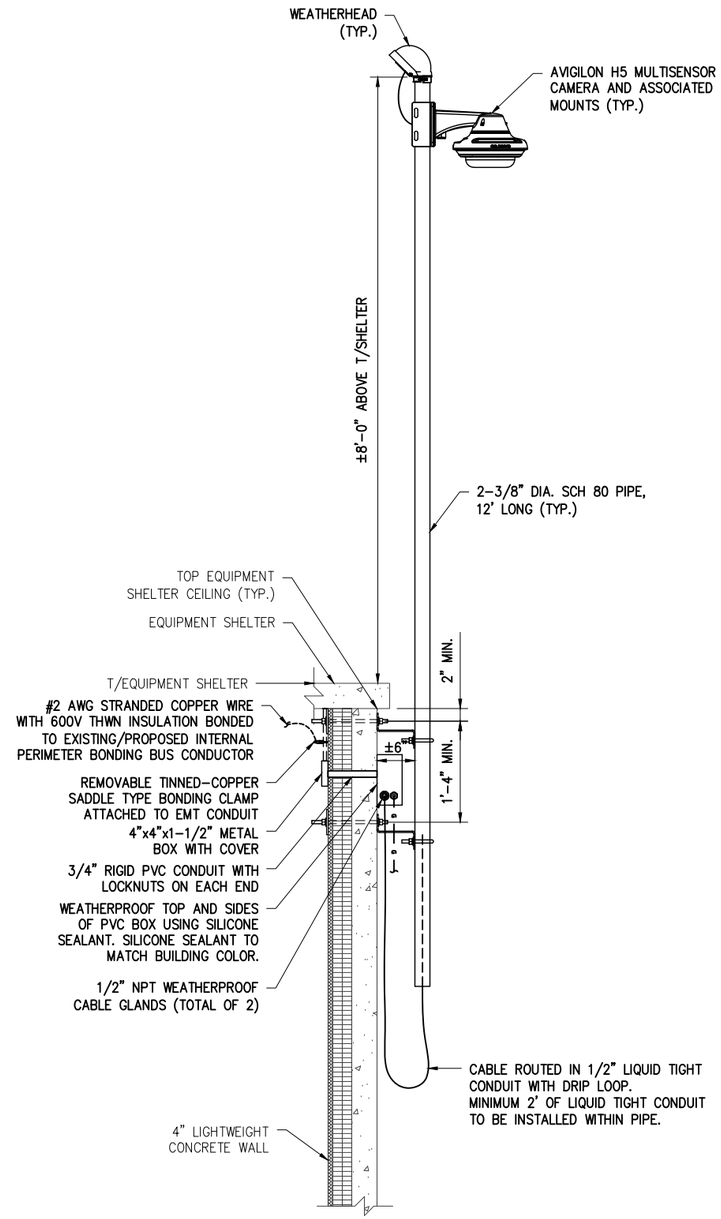
SHEET TITLE:

CAMERA DETAILS

SHEET NUMBER: A15

REVISION: 100%





NOTE:
1. WEATHERPROOF ALL EXTERIOR WALL PENETRATIONS USING SILICONE SEALANT. SILICONE SEALANT TO MATCH BUILDING COLOR.

2. VERIFY SPACE IS AVAILABLE FOR PROPOSED EQUIPMENT AND FREE OF EXISTING EQUIPMENT ON INTERIOR OF SHELTER WALL PRIOR TO ANY WALL PENETRATION

STRUCTURAL NOTE:
MOUNT ANALYSIS COMPLETED BY AIROSMITH, TITLED: "MOTOROLA_SERVICES_CAMERA_MOUNT_DESIGN_STRUCTURE_1_20231206_S&S" DATED: "12/06/23". IN ACCORDANCE WITH THE REPORT, THE MOUNT HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.

*ANALYSIS OF MULTIPLE ANCHOR TYPES COMPLETED BY AIROSMITH, TITLED "MOTOROLA_SERVICES_CAMERA_MOUNT_ANCHOR DESIGN_20231218_S&S" DATED: "12/18/23".

1 CAMERA MOUNTING DETAILS (THROUGH-BOLTS)

SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH
AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
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JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston 03/25/2025

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0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

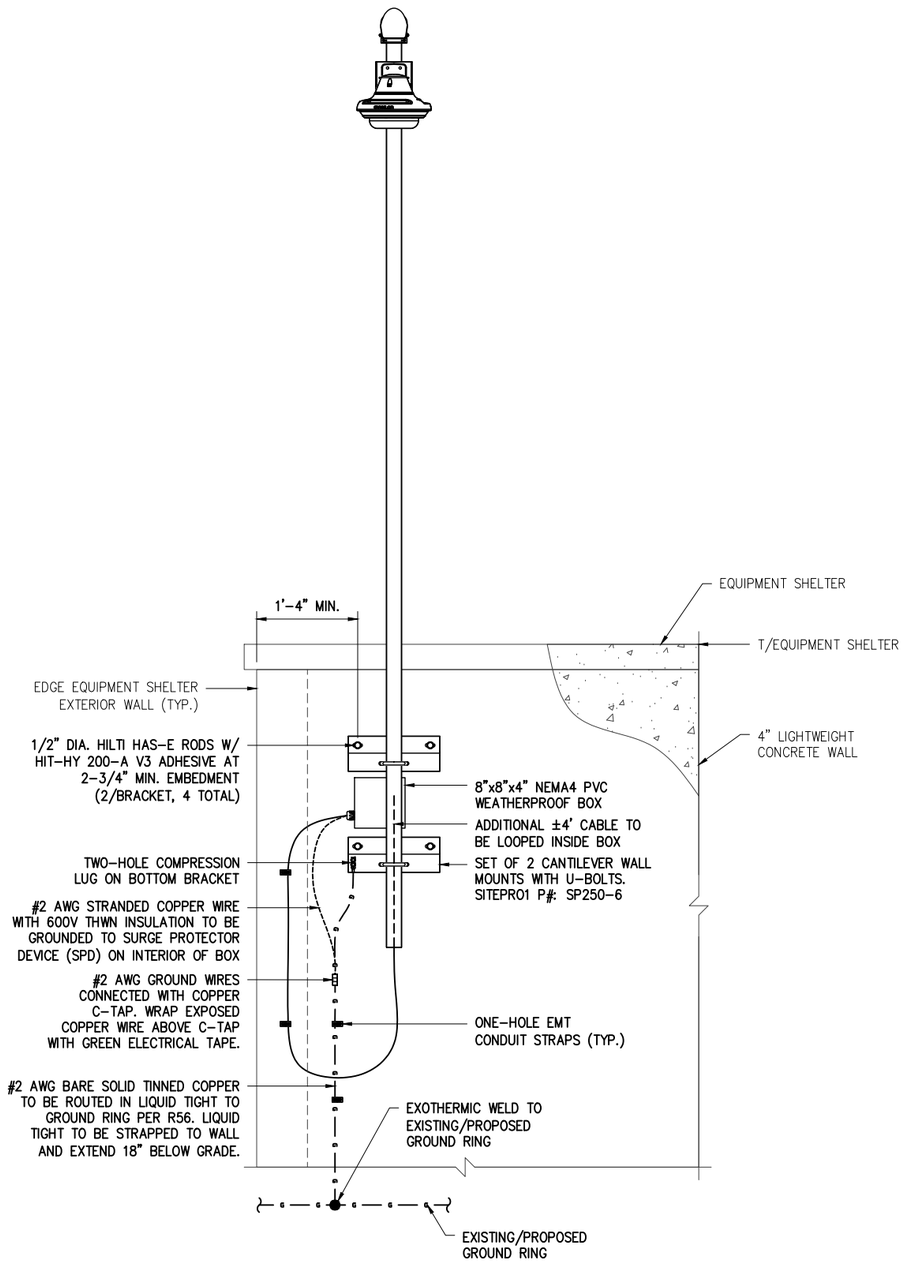
89 POWOW STREET
AMESBURY, MA 01913
ESSEX

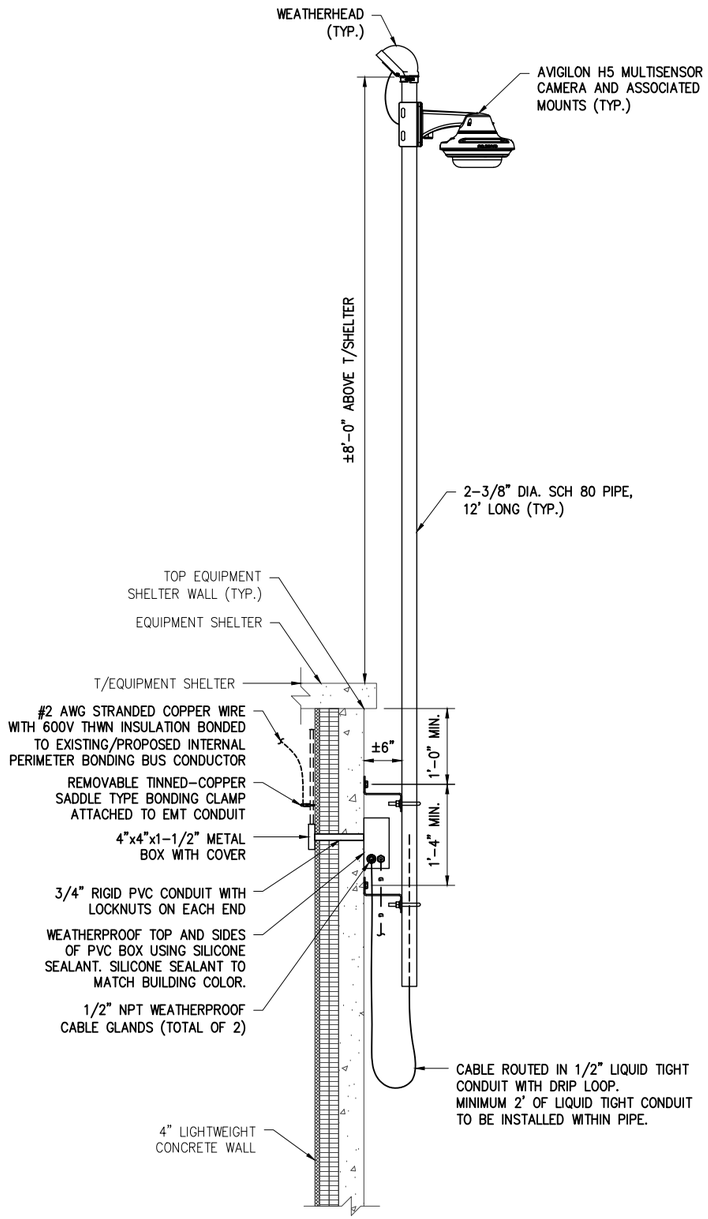
SELF SUPPORT TOWER

SHEET TITLE:
CAMERA MOUNTING DETAILS (THROUGH-BOLT)

SHEET NUMBER: A15.1

REVISION: 100%





NOTE:
1. WEATHERPROOF ALL EXTERIOR WALL PENETRATIONS USING SILICONE SEALANT. SILICONE SEALANT TO MATCH BUILDING COLOR.

2. VERIFY SPACE IS AVAILABLE FOR PROPOSED EQUIPMENT AND FREE OF EXISTING EQUIPMENT ON INTERIOR OF SHELTER WALL PRIOR TO ANY WALL PENETRATION

STRUCTURAL NOTE:
MOUNT ANALYSIS COMPLETED BY AIROSMITH, TITLED: "MOTOROLA_SERVICES_CAMERA_MOUNT_DESIGN_STRUCTURE_1_20231206_S&S" DATED: "12/06/23". IN ACCORDANCE WITH THE REPORT, THE MOUNT HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.

*ANALYSIS OF MULTIPLE ANCHOR TYPES COMPLETED BY AIROSMITH, TITLED "MOTOROLA_SERVICES_CAMERA_MOUNT_ANCHOR DESIGN_20231218_S&S" DATED: "12/18/23".

1 CAMERA MOUNTING DETAILS (ADHESIVE ANCHORS)

SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
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No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston
03/25/2025

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ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:
CAMERA MOUNTING DETAILS (ADHESIVE)

SHEET NUMBER:
A15.2

REVISION:
100%

Technical Specifications

Type: Active
Frequency: 1559 to 1606 MHz
Out-of-Band Rejection:
- < 1500 MHz: > 50 dB
- > 1650 MHz: > 50 dB

Gain: 40 dB from internal LNA
Antenna Pattern: 0 dB at zenith 15 dB or more rejection at < 30 degrees elevation
Connector: N type, female
Recommended Cable: Low Loss LMR-400 Equivalent
Maximum Cable Length: 125 meters meters (400 ft.) maximum with most Safran equipment and LMR-400 equivalent cable;
250 meters (800 ft.) maximum with Inline Amplifier - Model 8227
Power: 2.5 to 16 Volts, 19 milliamps (typical), powered by receiver

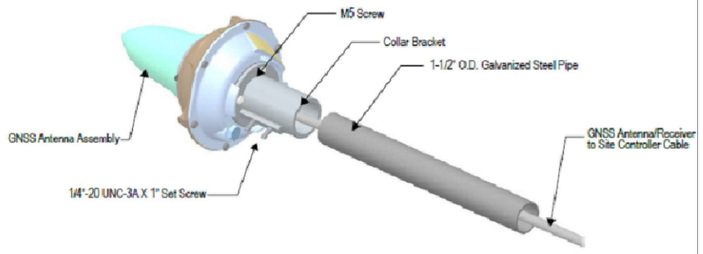
Mechanical

Size:
100 mm dia. (3.9");
101.5 mm H (4") from base to top;
127.2 mm H (5") including "N" connector
Enclosure:
Radome: High Temperature UV Resistant Polycarbonate.;
Base: Zamak White Metal
Weight: 370g (13.1oz)
Compliance: IP67 and RoHS
Temperature Range: -40º to +85º C (-40º to +185º F)
Mounting: L-bracket (included) for vent pipe/pole mounting via hose clamps (included), PVC pipe sold separately

1 GPS UNIT SPECIFICATIONS

SCALE: NOT TO SCALE

Figure 32: GNSS Antenna Assembly – Exploded View



The following part numbers are valid for the relevant elements:

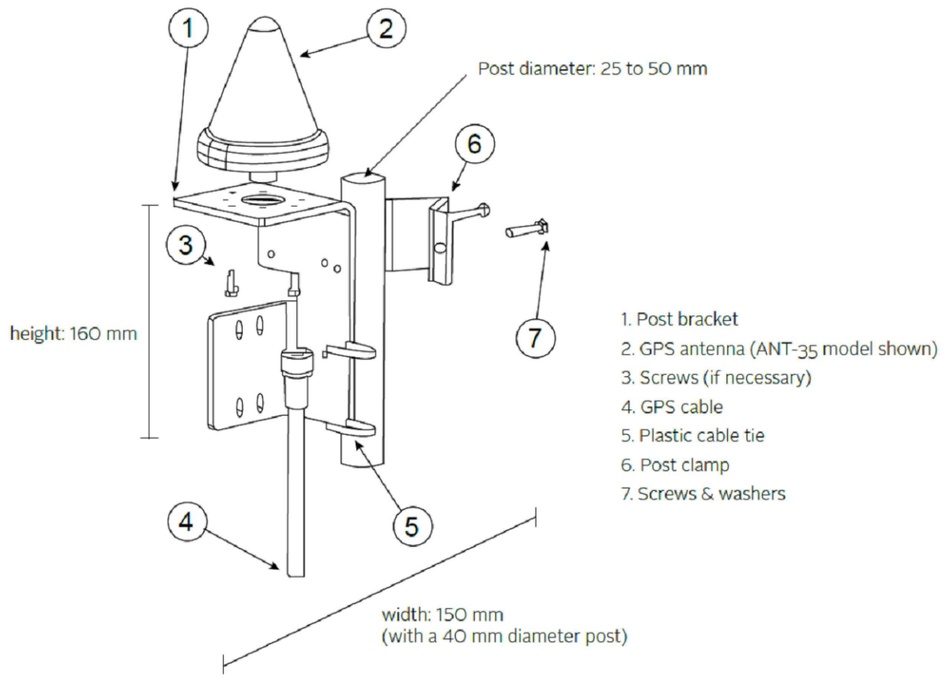
GNSS Antenna Assembly
PMUG1017B

Mounting Pole (steel pipe)
DSP04268

GNSS Antenna/Receiver to RDM/SC Cable
- DS30C87465C01 (125 ft)

2 GPS UNIT SPECIFICATIONS

SCALE: NOT TO SCALE

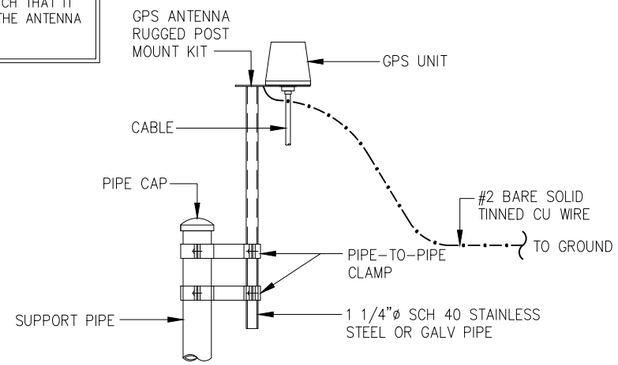


1. Post bracket
2. GPS antenna (ANT-35 model shown)
3. Screws (if necessary)
4. GPS cable
5. Plastic cable tie
6. Post clamp
7. Screws & washers

3 GPS ANTENNA RUGGED POST MOUNT KIT

SCALE: NOT TO SCALE

NOTES:
1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A GROUND PLANE BOLTED TO A STANDARD 1-1/4" DIAMETER, SCHEDULE 40 GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 18 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
3. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.



4 GPS MOUNTING DETAIL

SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH
AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:
COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston
03/25/2025

DRAWINGS ISSUED FOR:

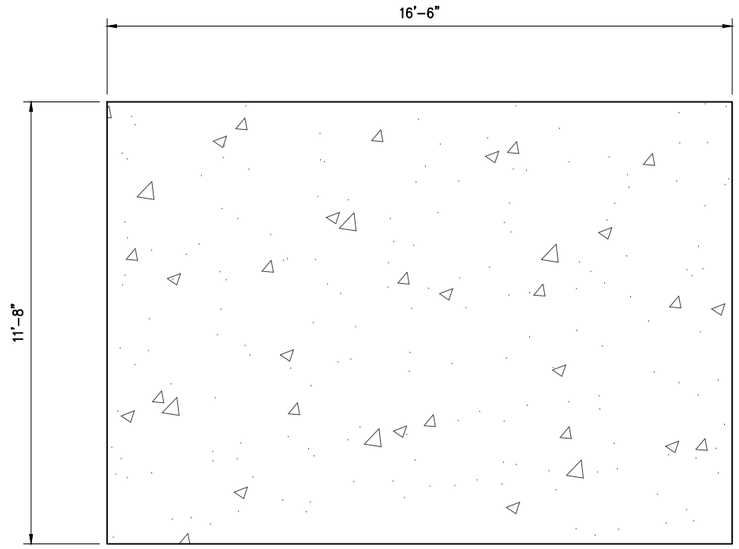
REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H
89 POWOW STREET
AMESBURY, MA 01913
ESSEX
SELF SUPPORT TOWER

SHEET TITLE:
GPS
DETAILS

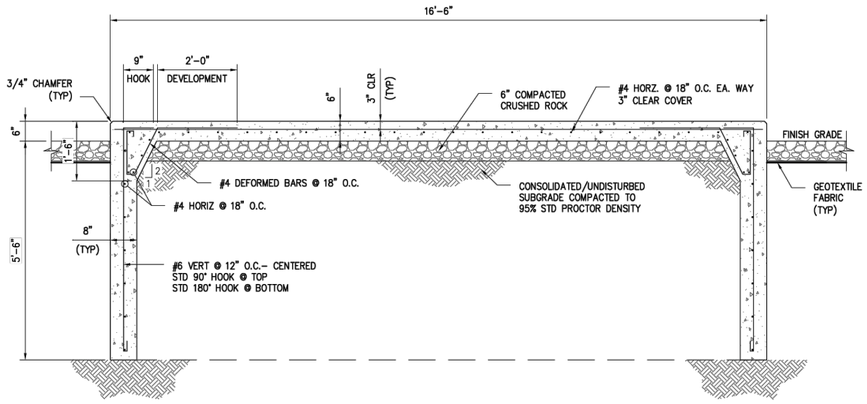
SHEET NUMBER: A16
REVISION: 100%



1 EQUIPMENT SHELTER FOUNDATION PLAN VIEW

SCALE: NOT TO SCALE

REINFORCEMENT HOOK SCHEDULE			
HOOK TYPE	BAR SIZE	MINIMUM INSIDE BEND DIAMETER	STRAIGHT EXTENSION
90°	#4	3"	6"
	#6	4.5"	9"
180°	#6	4.5"	3"

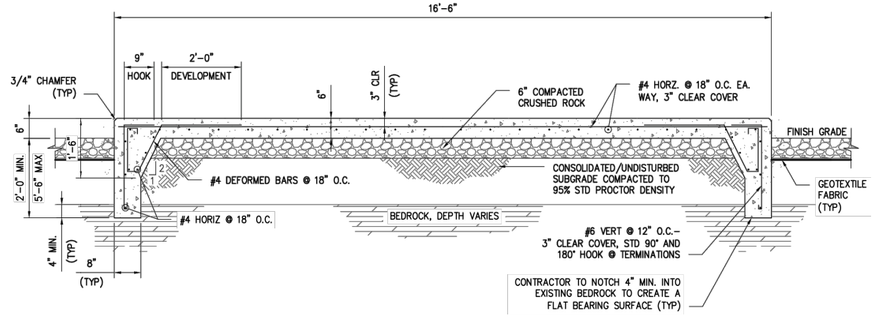


NOTE: CONCRETE SHALL BE 4,000 PSI AFTER 28 DAY TEST

2 SHELTER FOUNDATION DETAIL (NO BEDROCK)

SCALE: NOT TO SCALE

REINFORCEMENT HOOK SCHEDULE			
HOOK TYPE	BAR SIZE	MINIMUM INSIDE BEND DIAMETER	STRAIGHT EXTENSION
90°	#4	3"	6"
	#6	4.5"	9"
180°	#6	4.5"	3"



NOTES:

1. CONCRETE SHALL BE NORMAL-WEIGHT 4,000 PSI AFTER 28 DAY TEST.
2. BOTTOM OF CONCRETE TURNDOWN WALL MUST BE EMBEDDED 4" MINIMUM INTO CONTINUOUS BEDROCK AND 2'-0" MINIMUM BELOW GRADE.
3. IF BEDROCK IS NOT ENCOUNTERED AT 5'-6" BELOW GRADE, USE FOUNDATION DESIGN WITHOUT BEDROCK.

3 SHELTER FOUNDATION DETAIL (BEDROCK)

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
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PROFESSIONAL STAMP:

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JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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0 1 2

ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

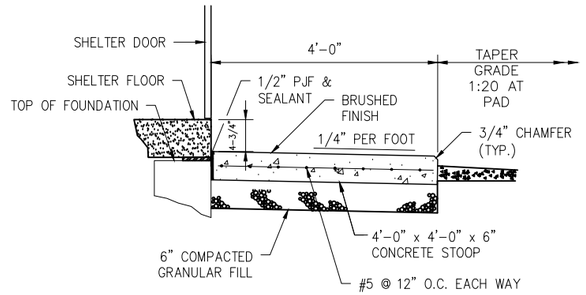
SELF SUPPORT TOWER

SHEET TITLE:

EQUIPMENT SHELTER FOUNDATION DETAILS

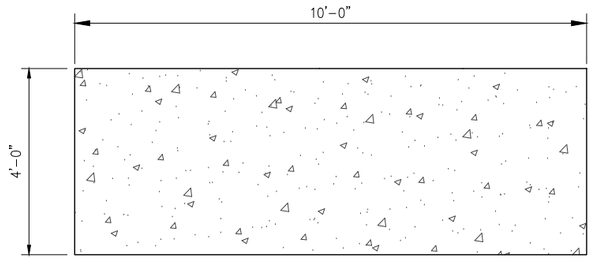
SHEET NUMBER: A17

REVISION: 100%

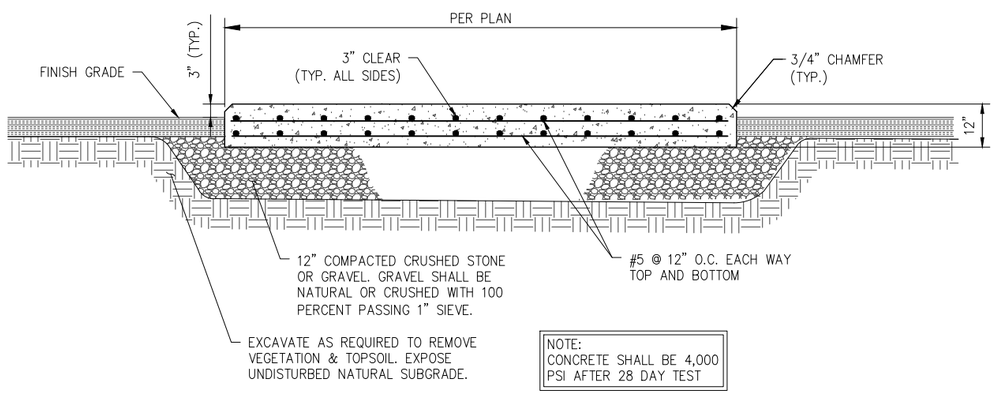


1 STOOP DETAIL

SCALE: NOT TO SCALE



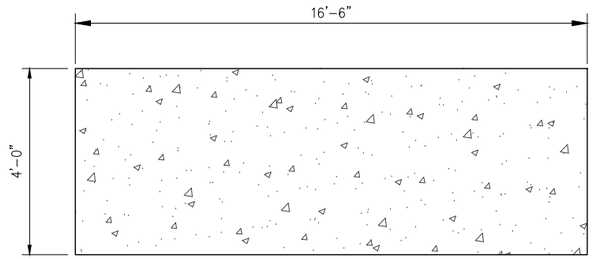
PLAN VIEW



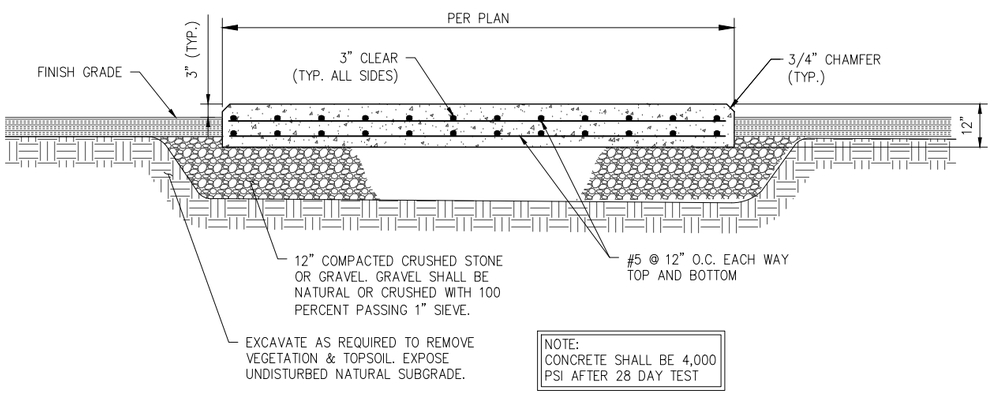
NOTE:
CONCRETE SHALL BE 4,000 PSI AFTER 28 DAY TEST

2 GENERATOR FOUNDATION DETAIL

SCALE: NOT TO SCALE



PLAN VIEW



NOTE:
CONCRETE SHALL BE 4,000 PSI AFTER 28 DAY TEST

3 PROPANE TANK FOUNDATION DETAIL

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
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JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

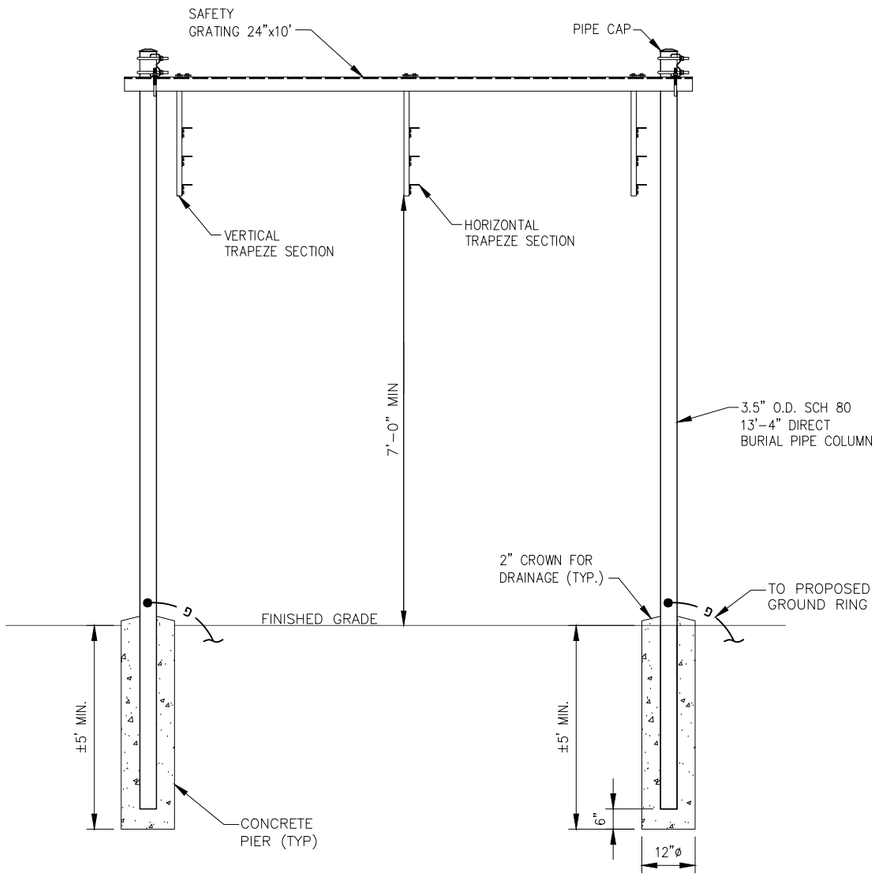
FOUNDATION DETAILS

SHEET NUMBER: A18

REVISION: 100%

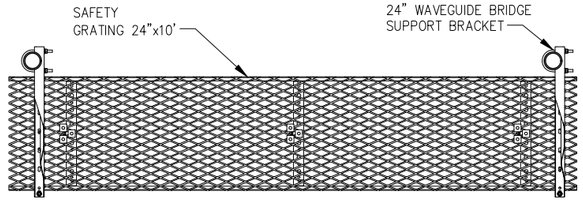
NOTES:
1. SUPPORT POSTS SHALL BE LOCATED ON ALTERNATING SIDES OF ICE BRIDGE, SPACED NO MORE THAN 6'–0".

2. ANY SPLICES OR CANTILEVERED SECTIONS OF THE ICE BRIDGE SHALL BE LOCATED WITHIN 2'–0" OF A SUPPORT POST.



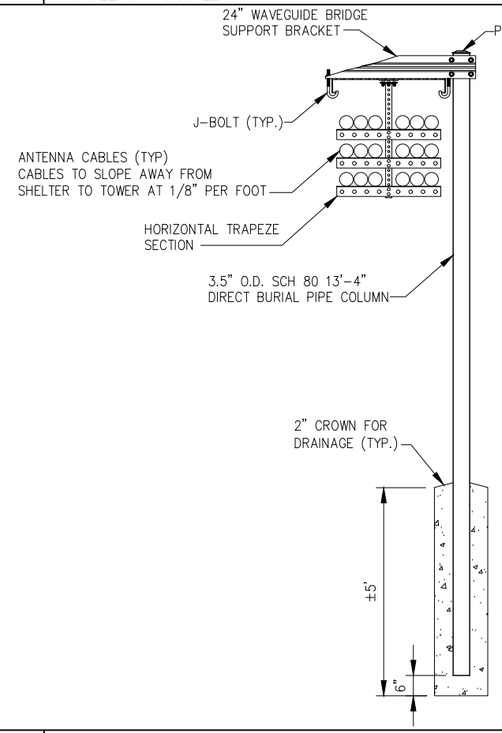
1 ICE BRIDGE SIDE VIEW DETAIL

SCALE: NOT TO SCALE



2 ICE BRIDGE PLAN VIEW DETAIL

SCALE: NOT TO SCALE



3 ICE BRIDGE SECTION DETAIL

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
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PROJECT INFORMATION:

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AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

ICE BRIDGE DETAILS

SHEET NUMBER: A19

REVISION: 100%

Generator set specifications

Governor regulation class	ISO8528 Part 1 Class G3*
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	± 0.25% @ 60 Hz
Radio frequency emissions compliance	Meets requirements of most industrial and commercial applications

* C36 N6 and C40 N6 are Class G2

Engine specifications

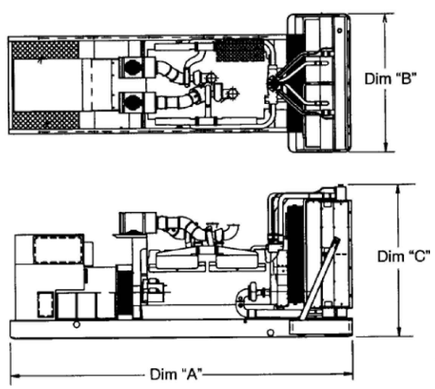
Design	Naturally aspirated or turbocharged (varies by generator set model)
Bore	86.5 mm (3.4 in.)
Stroke	100.0 mm (3.94 in.)
Displacement	2.4 L (143.5 in³)
Cylinder block	Cast iron, in-line 4 cylinder
Battery capacity	550 amps at ambient temperature of 0° F to 32° F (-18° C to 0° C)
Battery charging alternator	50 amps
Starting voltage	12 volt, negative ground
Lube oil filter type(s)	Spin-on with relief valve
Standard cooling system	50° C (122° F) ambient cooling system
Rated speed	1800 rpm

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	120° C (248° F) Standby
Exciter type	Torque match (shunt) with EBS as option
Alternator cooling	Direct drive centrifugal blower
AC waveform Total Harmonic Distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic
Telephone Influence Factor (TIF)	< 50 per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	< 3%

Available voltages

1-phanse	3-phase			
• 120/240	• 120/208	• 120/240 delta	• 277/480	• 347/600



Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Set weight* dry kg (lbs)	Set weight* wet kg (lbs)
Open set					
C20 N6	1669 (65.7)	864 (34)	1123 (44.2)	423 (933)	440 (969)
C25 N6	1669 (65.7)	864 (34)	1123 (44.2)	441 (972)	457 (1008)
C30 N6	2225 (87.6)	864 (34)	1123 (44.2)	491 (1083)	508 (1119)
C36 N6	2225 (87.6)	864 (34)	1123 (44.2)	520 (1146)	535 (1182)
C40 N6	2225 (87.6)	864 (34)	1123 (44.2)	548 (1208)	564 (1244)
Sound attenuated enclosure Level 1					
C20 N6	1829 (72)	864 (34)	1156 (45.5)	469 (1034)	485 (1070)
C25 N6	1829 (72)	864 (34)	1156 (45.5)	487 (1073)	503 (1109)
C30 N6	2388 (94)	864 (34)	1156 (45.5)	542 (1195)	558 (1231)
C36 N6	2388 (94)	864 (34)	1156 (45.5)	571 (1258)	587 (1294)
C40 N6	2388 (94)	864 (34)	1156 (45.5)	599 (1320)	615 (1356)
Sound attenuated enclosure Level 2					
C20 N6	2073 (81.6)	864 (34)	1156 (45.5)	474 (1045)	490 (1081)
C25 N6	2073 (81.6)	864 (34)	1156 (45.5)	492 (1084)	508 (1120)
C30 N6	2626 (103.4)	864 (34)	1156 (45.5)	547 (1206)	563 (1242)
C36 N6	2626 (103.4)	864 (34)	1156 (45.5)	575 (1269)	592 (1305)
C40 N6	2626 (103.4)	864 (34)	1156 (45.5)	604 (1331)	620 (1367)

*Weights based on 1-phase generator set. Weights may vary with a different configuration.

1 GENERATOR SPECIFICATIONS

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

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100%	03/25/25	KPG	FOR PERMIT	NJT

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ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

GENERATOR SPECIFICATIONS

SHEET NUMBER: A20

REVISION: 100%

GENERAL NOTES

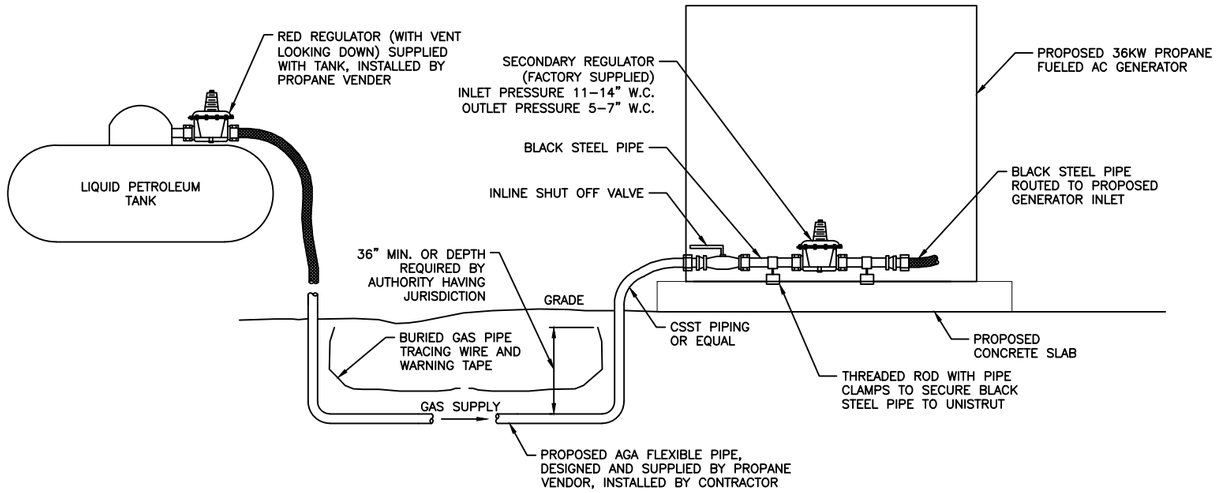
1. FILL PROPANE TANK UPON COMPLETION OF THE JOB. PROVIDE PROOF OF PURCHASE (SALES RECEIPT) IN CLOSEOUT DOCUMENTS.
2. GENERAL CONTRACTOR TO COORDINATE INSTALLATION OF AUTOMATIC SAFETY SHUTOFF VALVE POWER LEADS WITH DC/AC INVERTER INSTALLATION TO ATS. CONTACT CONSTRUCTION MANAGER.
3. GROUND PROPANE TANK, REFER TO GROUNDING DIAGRAM.
4. MAINTAIN MINIMUM 1'–0" VERTICAL AND 2'–0" HORIZONTAL SEPARATION OF GAS LINE FROM OTHER UTILITIES.
5. CONNECTION POINT MAY VARY WITH GENERATOR MANUFACTURER.
6. VERIFY LOCATION OF ALL EQUIPMENT PRIOR TO INSTALLATION.
7. COORDINATE GAS PIPE INSTALLATION WITH GAS COMPANY AND OTHER DISIPLINES/UTILITIES.
8. CONTRACTOR SHALL ADHERE TO APPLICABLE STATE & LOCAL CODES.
9. FLEXIBLE CONNECTION TO BE SAME SIZE PIPING THAT IS PROVIDED BY THE GENERATOR SUPPLIER.
10. CONTRACTOR TO VERIFY GAS PRESSURE PER NOTE ON "GAS PIPE SIZING SCHEDULE".
11. CONTRACTOR TO PROVIDE LOW POINT DRAINS AND HIGH POINT VENTS PER NFPA AND AGA CODES.
12. CONTRACTOR SHALL PROVIDE PROPANE TANK AND PIPING TO BE INSTALLED PER GENERATOR MANUFACTURERS REQUIREMENTS.
13. THE PROPANE TANK, PIPING, FITTINGS AND OTHER APPURTENANCES SHALL COMPLY WITH NFPA 58, LIQUEFIED PETROLEUM GAS CODE, INCLUDING THOSE ITEMS NOT SHOWN ON THE DRAWINGS, BUT REQUIRED BY NFPA 58 – I.E. PRESSURE RELIEF, VAPOR SHUT–OFF VALVE, LIQUID LEVEL GAGE, EXCESS FLOW VALVE, AS APPLICABLE, ETC.

GENERATOR MANUFACTURER CERTIFIED ELECTRICIAN:

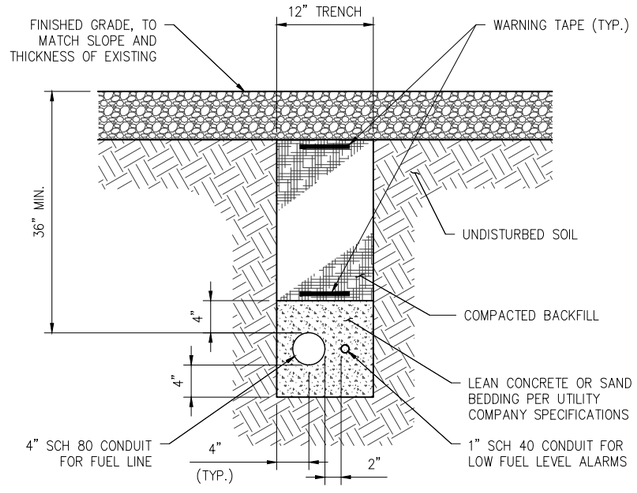
1. COMPLETE FUEL CONNECTIONS.
2. TERMINATE ALARMS AND CONTROL CIRCUITS TO THE GENERATOR.
3. INSTALL FUEL REGULATORS.
4. FINAL INSPECTION AND STARTUP.
5. NOTIFY CONSTRUCTION MANAGER TWO DAYS PRIOR TO STARTUP SCHEDULE.
6. RUN LOAD TEST AS REQUIRED.
7. EMAIL COPY OF STARTUP CHECKLIST TO CONSTRUCTION MANAGER

SPECIFICATIONS:

1. PIPE (ABOVE GROUND): STEEL PIPE: ASTM A53, TYPE E OR S, ELECTRIC–RESISTANCE WELDED OR SEAMLESS, GRADE A OR B, SCHEDULE 40 BLACK STEEL, PAINTED YELLOW.
2. PIPE FITTINGS (ABOVE GROUND)
   A. GRAY–IRON THREAD FITTING: ASME B16.4, CLASS 125, STANDARD PATTERN.
   B. UNIONS: AMSE B16.39, CLASS 150, BLACK MALLEABLE IRON, FEMALE PATTERN, BRASS TO IRON SEAT, GROUND JOINT.
   C. TRANSITION FITTING: TYPE, MATERIAL, AND END CONNECTIONS TO MATCH PIPING BEING JOINED.
   D. PROVIDE DI–ELECTRIC UNIONS WHERE REQUIRED BETWEEN DIFFERENT METALLIC PIPE MATERIALS.
3. PIPE (UNDERGROUND): POLYETHYLENE (PE) PIPE: ASTM. D 2513, SDR 11 OR IN ACCORDANCE WITH LOCAL CODES AND REGULATIONS.
4. PE FITTINGS (UNDERGROUND): ASTM D 2683, SOCKET TYPE OR ASTM D 3281. BUTT TYPE WITH DIMENSIONS MATCHING ASTM D 2513, SDR 11 , PE PIPE.
5. TRANSITION FITTINGS: MANUFACTURED PIPE FITTING FOR CONNECTION TO PE PIPE AND WITH ONE ASTM A 533/A 53M, SCHEDULED 40, BLACK STEEL PIPE END FOR THREADED CONNECTION TO BLACK STEEL PIPE.
6. SERVICE–LINE RISER: MANUFACTURED PIPE FITTING WITH PE PIPE INLET FOR CONNECTION TO UNDERGROUND PE PIPE: PE PIPE RISER SECTION WITH PROTECTIVE–COATED, ANODES, STEEL CASING AND THREADED OUTLET FOR THREADED CONNECTION TO ABOVE GROUND STEEL PIPING.



NOTES:
1. FINAL CONNECTION TO GENERATOR INTAKE TO BE VIA SS FLEXIBLE PIPE CONNECTION PROVIDED BY GENERATOR MANUFACTURER



NOTES:
1. BACKFILL SHALL BE CLEAN FILL WITHOUT STONES AND SHALL BE THOROUGHLY COMPACTED IN 12" LAYERS BY TAMPING OR APPROVED EQUAL METHOD. NO BELLYING OF TRENCH SHALL BE ALLOWED.
2. SCH 40 PVC CONDUIT SHALL BE USED BELOW GRADE.
3. SCH 80 PVC CONDUIT SHALL BE USED UNDER ROADWAY.

1 PROPANE DETAILS

SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
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03/25/2025

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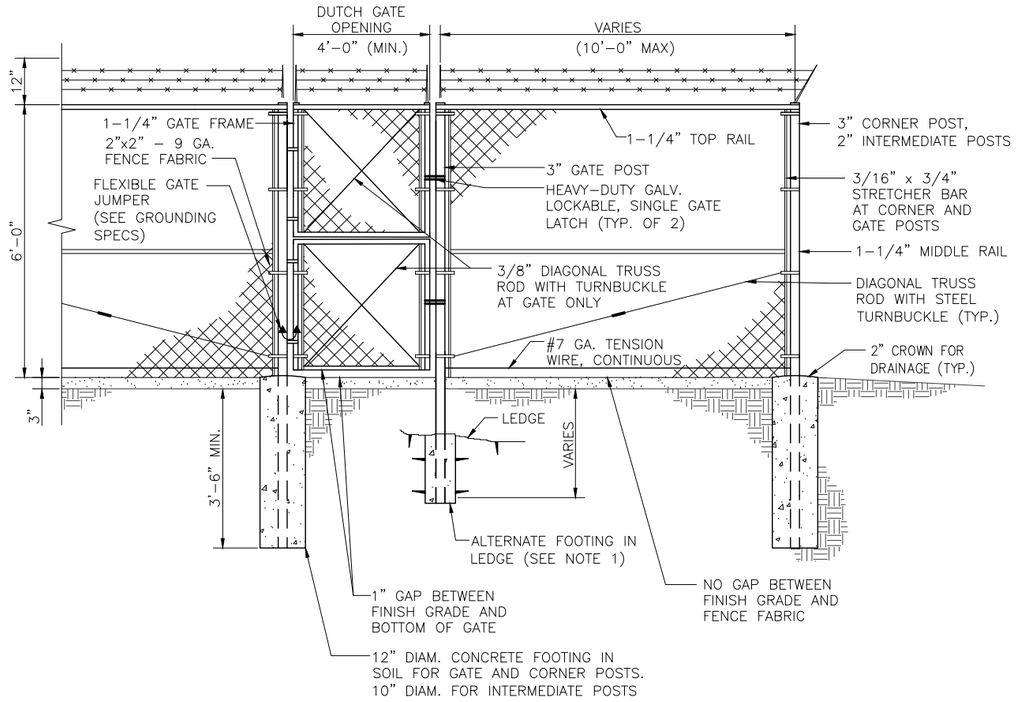
TROOP A/H
89 POWOW STREET
AMESBURY, MA 01913
ESSEX
SELF SUPPORT TOWER

SHEET TITLE:
PROPANE DETAILS

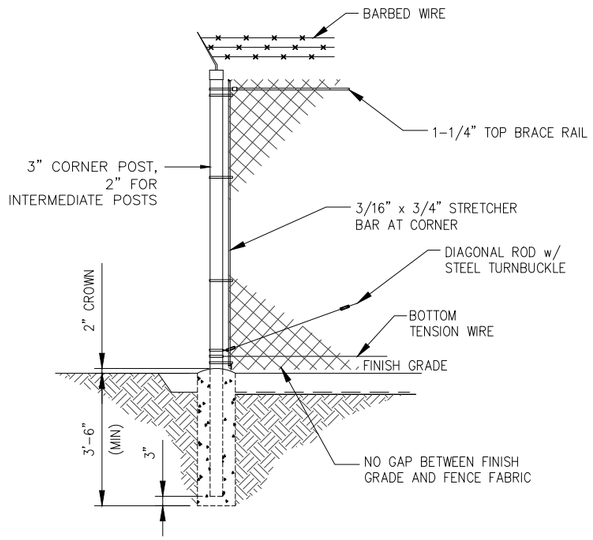
SHEET NUMBER: A21

REVISION: 100%



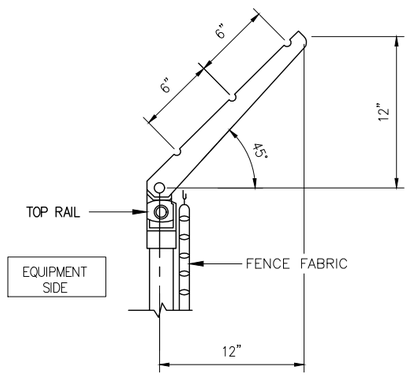
1 4' DUTCH ACCESS GATE DETAIL

SCALE: NOT TO SCALE



2 FENCE DETAIL

SCALE: NOT TO SCALE



3 EXTENSION ARM DETAIL

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

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ESSEX

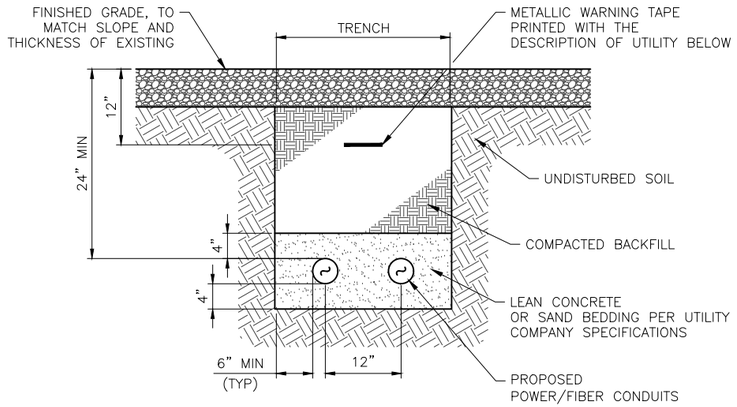
SELF SUPPORT TOWER

SHEET TITLE:

FENCE DETAILS

SHEET NUMBER: A22

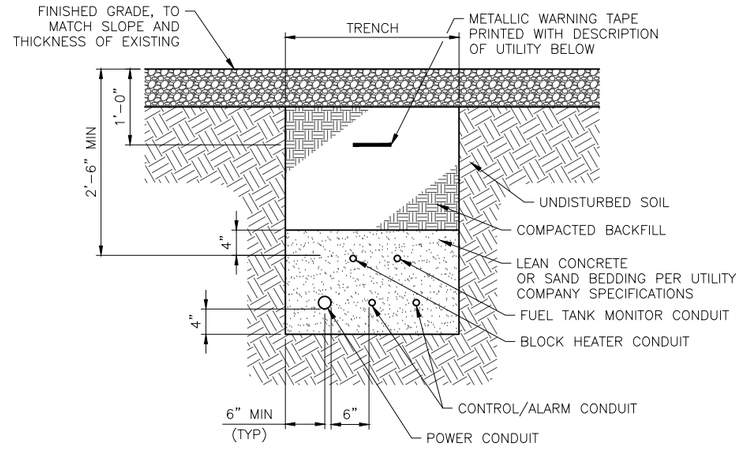
REVISION: 100%



NOTES:
1. BACKFILL SHALL BE CLEAN FILL WITHOUT STONES AND SHALL BE THOROUGHLY COMPACTED IN 12" LAYERS BY TAMPING OR APPROVED EQUAL METHOD. NO BELLYING OF TRENCH SHALL BE ALLOWED.
2. SCH 40 PVC CONDUIT SHALL BE USED BELOW GRADE.
3. SCH 80 PVC CONDUIT SHALL BE USED UNDER ROADWAY.
4. DEPENDING ON SITE CONDITIONS, WHEN IN THE SAME TRENCH, CONDUITS MAY BE SPACED HORIZONTALLY OR VERTICALLY WITH 12" SPACING.

1 UTILITY TRENCH DETAIL

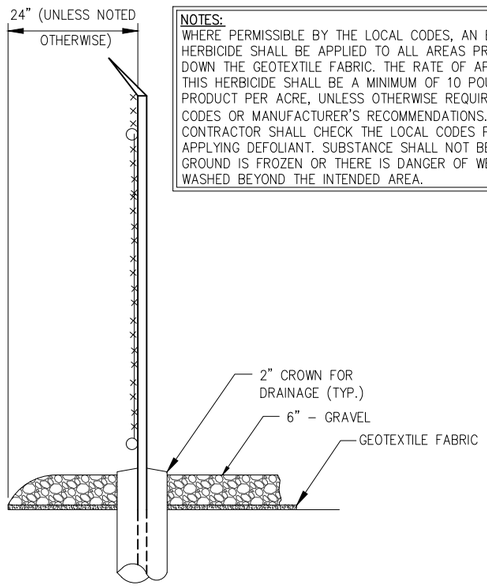
SCALE: NOT TO SCALE



NOTES:
1. BACKFILL SHALL BE CLEAN FILL WITHOUT STONES AND SHALL BE THOROUGHLY COMPACTED IN 12" LAYERS BY TAMPING OR APPROVED EQUAL METHOD. NO BELLYING OF TRENCH SHALL BE ALLOWED.
2. SCH 40 PVC CONDUIT SHALL BE USED BELOW GRADE.
3. SCH 80 PVC CONDUIT SHALL BE USED UNDER ROADWAY.
4. DEPENDING ON SITE CONDITIONS, WHEN IN THE SAME TRENCH, CONDUITS MAY BE SPACED HORIZONTALLY OR VERTICALLY WITH 6" SPACING.

2 GENERATOR TRENCH DETAIL

SCALE: NOT TO SCALE



NOTES:
WHERE PERMISSIBLE BY THE LOCAL CODES, AN EPA APPROVED HERBICIDE SHALL BE APPLIED TO ALL AREAS PRIOR TO LAYING DOWN THE GEOTEXTILE FABRIC. THE RATE OF APPLICATION OF THIS HERBICIDE SHALL BE A MINIMUM OF 10 POUNDS OF PRODUCT PER ACRE, UNLESS OTHERWISE REQUIRED BY LOCAL CODES OR MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL CHECK THE LOCAL CODES PRIOR TO APPLYING DEFOLIANT. SUBSTANCE SHALL NOT BE APPLIED IF GROUND IS FROZEN OR THERE IS DANGER OF WEED KILLER BEING WASHED BEYOND THE INTENDED AREA.

3 COMPOUND SURFACING DETAIL

SCALE: NOT TO SCALE

4 NOT USED

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

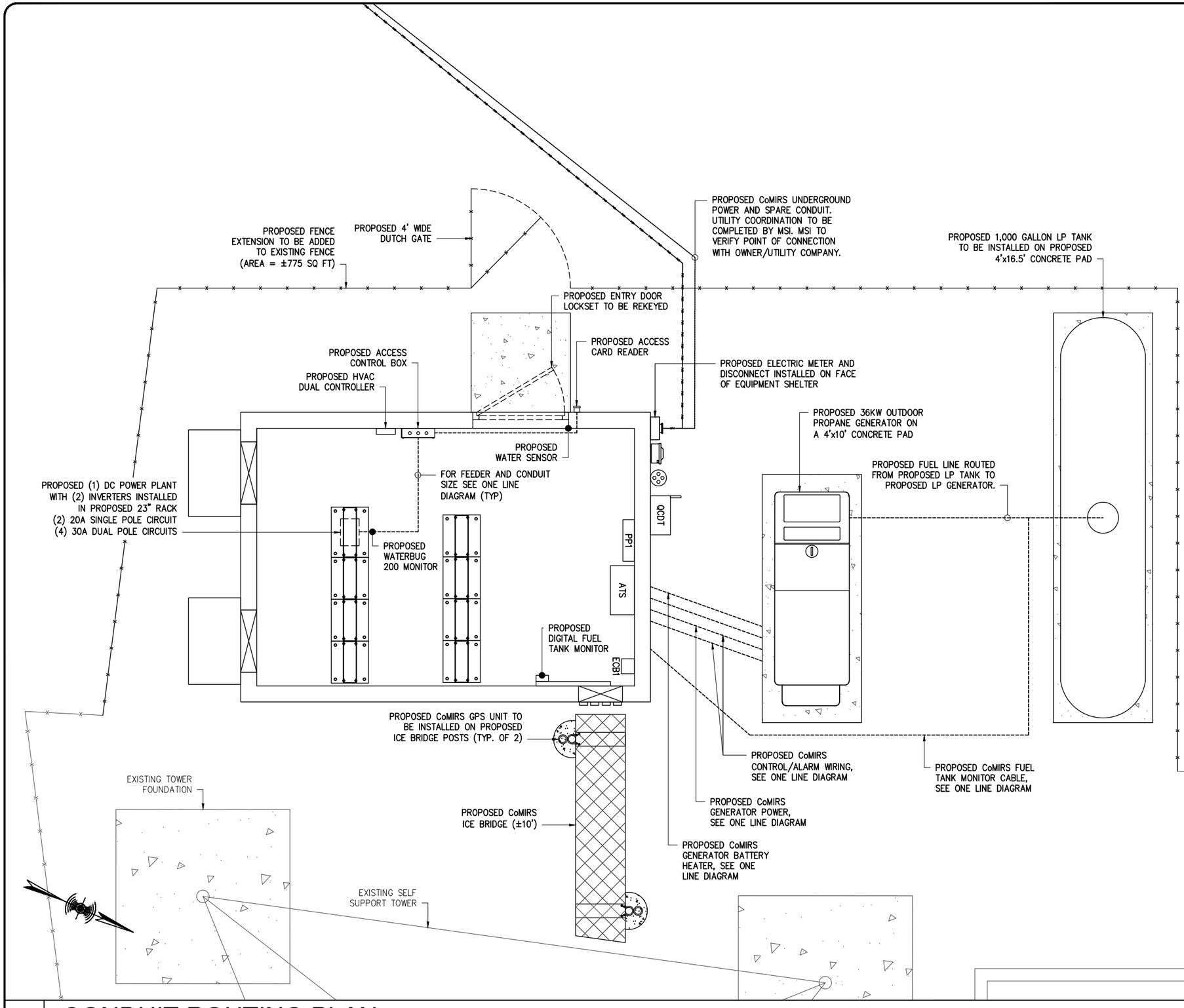
SELF SUPPORT TOWER

SHEET TITLE:

CIVIL DETAILS

SHEET NUMBER: A23

REVISION: 100%



1 CONDUIT ROUTING PLAN

SCALE: 1" = 4' (11"x17"), 1" = 2' (22"x34")

ALL CONSTRUCTION ACTIVITIES AND MODIFICATIONS DONE IN ACCORDANCE WITH THE 2017 REVISION OF MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATION SITES.

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

UTILITY PLAN

SHEET NUMBER: E01

REVISION: 100%

ELECTRICAL NOTES:
1. ALL ELECTRICAL INSTALLATIONS AND MODIFICATIONS TO BE IN ACCORDANCE WITH NEC (NFPA 70) AND LOCAL BUILDING CODES.

2. CONTRACTOR TO BALANCE LOAD WITHIN PANEL.

3. OTHER EXISTING ELECTRICAL INFORMATION NOT SHOWN FOR CLARITY.

NOTE:
DRAWINGS INCLUDED HERE AREA EXTRACTED FROM SHELTER MANUFACTURER DRAWINGS PROVIDED TO AIROSMITH AND ARE FOR INFORMATIONAL PURPOSES ONLY.

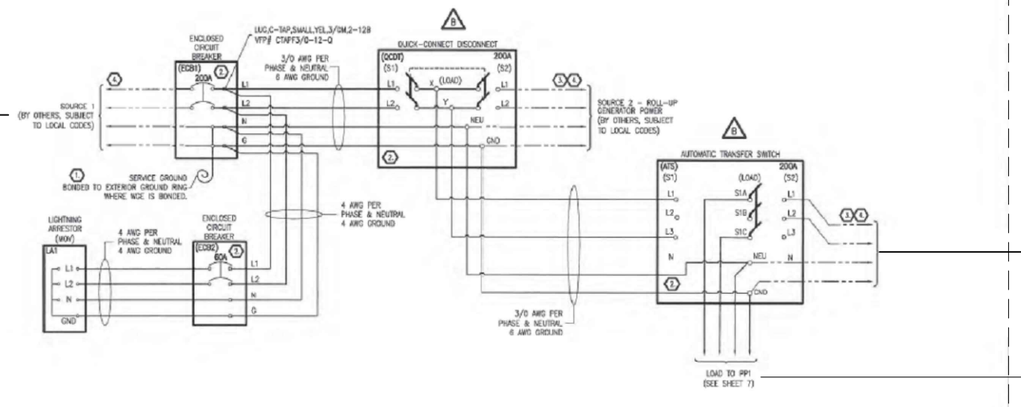
SERVICE RATED SINGLE METER ENCLOSURE, BOTTOM FED, WITH BYPASS LEVER

(3) 3/0 AWG + (1) #6 AWG GROUND IN 2" SCH 80 PVC CONDUIT

200A, 600V RATED, FUSED DISCONNECT SWITCH MOUNTED TO FACE OF EQUIPMENT SHELTER

(3) 3/0 AWG + (1) #6 AWG GROUND IN 2" SCH 80 PVC CONDUIT

PROPOSED CoMIRS UNDERGROUND POWER AND SPARE CONDUIT. UTILITY COORDINATION TO BE COMPLETED BY MSI. MSI TO VERIFY POINT OF CONNECTION WITH OWNER/UTILITY COMPANY.



(3) 3/0 AWG + (1) #6 AWG GROUND IN 2" SCH 80 PVC CONDUIT

PROPOSED 36KW LP GENERATOR

(2) #12 AWG AND (1) #12 AWG GROUND IN 1" SCH 80 PVC CONDUIT FOR BLOCK HEATER

NOTES

1. 15FT COIL OF 2 AWG TINNED (SOLID) WIRE LOCATED IN ECB1 WITH REQUIRED LUG.
2. ALL DISTRIBUTION EQUIPMENT HAS A 10,000 A.I.C FAULT CURRENT RATING AND THE AVAILABLE FAULT CURRENT SHALL BE VERIFIED BY THE CUSTOMER.
3. DO NOT BOND NEUTRAL TO GROUND AT THE GENERATOR
4. IN ORDER TO COMPLY WITH NEC 250.6(A) AND 250.24(A)(1) AND 250.24(A)(5), THERE SHALL BE ONLY ONE NEUTRAL TO GROUND BOND IN THE ELECTRICAL SYSTEM.

PFS CORPORATION
Approval Limited to Factory Built Portion Only
State: Massachusetts
Signature: Mark Iverson
Title: Staff Plan Reviewer
Date: 2/16/23

PROPOSED DC RACK

PROPOSED DC TO AC INVERTER 1

PROPOSED DC TO AC INVERTER 2

(1) SET OF (2) #12 AWG AND (1) #12 AWG GROUND ROUTED IN (1) 1/2" EMT

PROPOSED ACCESS CONTROL BOX

(3) 1" SCH 80 PVC CONDUITS FOR CONTROL WIRING AND ALARMS

1 ELECTRICAL ONE LINE DIAGRAM

SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
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PROJECT ID
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COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:
ELECTRIC
ONE LINE DIAGRAM

SHEET NUMBER: E02

REVISION: 100%

NOTE:
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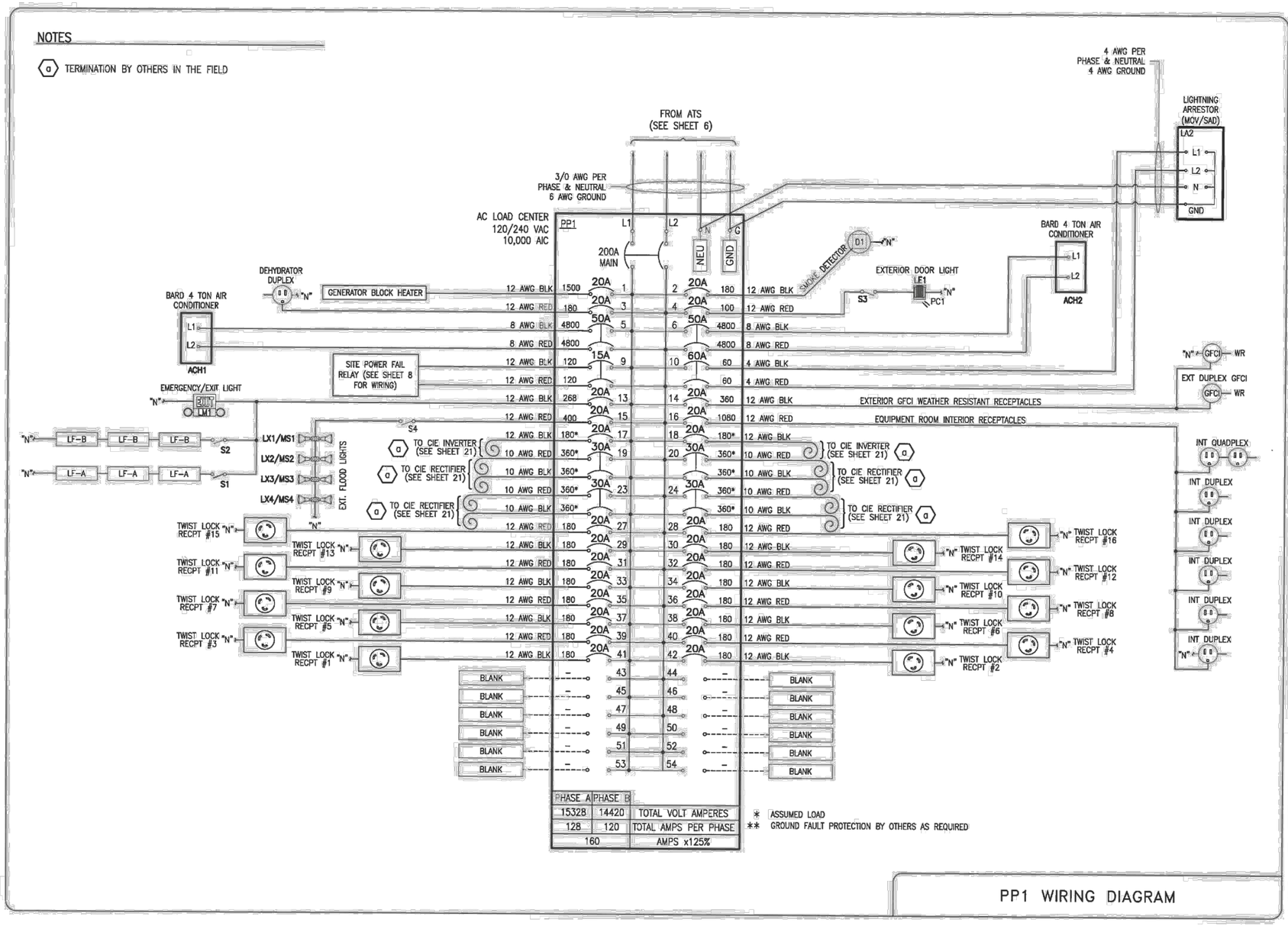
ELECTRICAL NOTES:
1. ALL ELECTRICAL INSTALLATIONS AND MODIFICATIONS TO BE IN ACCORDANCE WITH NEC (NFPA 70) AND LOCAL BUILDING CODES.

2. CONTRACTOR TO BALANCE LOAD WITHIN PANEL.

3. OTHER EXISTING ELECTRICAL INFORMATION NOT SHOWN FOR CLARITY.

NOTES

(a) TERMINATION BY OTHERS IN THE FIELD



PP1 WIRING DIAGRAM

REVISIONS			
CHG. BY	APPR. BY	DATE	REV
NEJ	RDJ	01/27/23	A
SECOND CHECK			
MSO	JJC	02/03/23	B
UPDATED SHEETS 1,4,6,7,14,18			
NEJ	JJC	03/20/23	C
UPDATED 1,5,13-16,18,22,30			
NEJ	[illegible]	07/05/23	D
MC# EXP. DATE, ADDED -002			

Customer Name(s):
CoMIRS c/o Motorola Solutions
P.O.'s #: DS95629356
VFP Job #: 220272/#12984
220273/#12986
220274/#12988
220275/#14171
220276/#12992
220277/#12994
220278/#12996
Dash #: ALL MODELS

MASSACHUSETTS
MC# 0254, EXP 04/30/24
TPIA# 02

VFP, INC.
CORPORATE OFFICE
5410 Fallowater Lane
Roanoke, Virginia 24018-0906
(540)977-0500 (540)977-5555 fax
MANUFACTURING FACILITY
402 Industrial Park Road
Duffield, Virginia 24244
(276)431-4000 (276)431-1756 fax

DRAWN BY: N. JESSEE	DATE: 12/22/22
CHECKED BY: D. KIDD	DATE: 01/24/23
CHECKED BY: R. JONES	DATE: 01/27/23

DO NOT SCALE DRAWING

SIZE	CAGE NO	REV
B		D

SCALE	MODEL
NTS	6914

TITLE: 11'8" x 16'6" x 9'2" CONCRETE SHELTER

DRAWING NO. 206914

SHEET 7 or 31

1 PP1 WIRING DIAGRAM
SCALE: NOT TO SCALE

CLIENT:
MOTOROLA SOLUTIONS
MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:
AIROSMITH
AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
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COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER
Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

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ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:
SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:
PP1
WIRING DIAGRAM

SHEET NUMBER: E03
REVISION: 100%

LEGEND

GPS

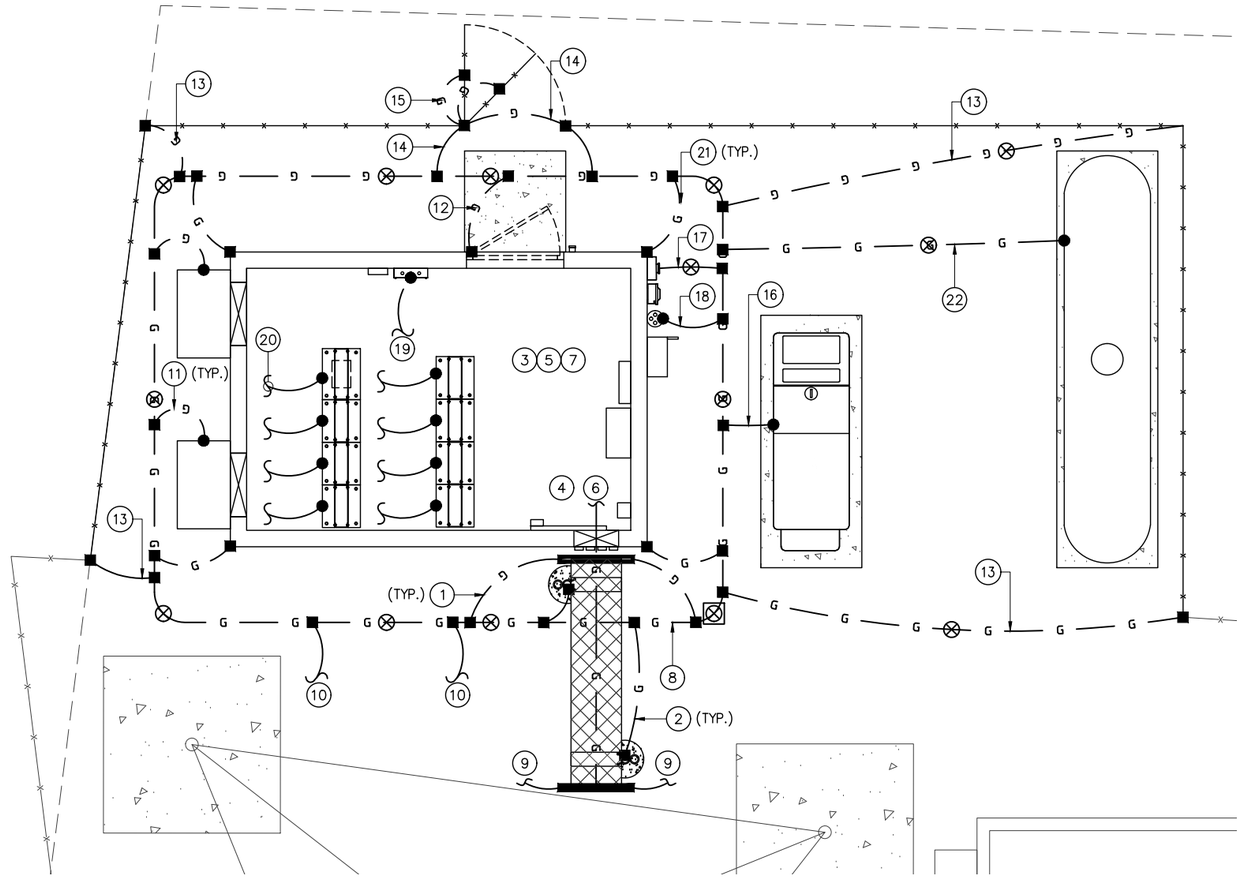
CAMERA (4 LENS)

GROUNDING SYMBOLS

- GROUND BAR
- GROUND ROD
- ACCESS WELL
- GROUND ROD WITH ACCESS
- COMPRESSION TYPE CONNECTION
- CADWELD TYPE CONNECTION
- G — #2 AWG BARE SOLID TINNED COPPER WIRE
- (#) INDICATES CODED NOTE

ALL CONSTRUCTION ACTIVITIES AND MODIFICATIONS DONE IN ACCORDANCE WITH THE 2017 REVISION OF MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATION SITES.

KEY	DESCRIPTION
1	BOND SHELTER EGB TO GROUND RING (TYP.)
2	BOND ICE BRIDGE TO PROPOSED GROUND RING.
3	SYSTEM GROUND RESISTANCE SHALL NT EXCEED 5 OHMS. A THREE POINT SYSTEM RESISTANCE TEST SHALL BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH MOTOROLA SPECIFICATION R56. A. PERFORM THREE TESTS AT EACH SITE. B. CONTRACTOR SHALL PROVIDE A WRITTEN REPORT ON FORMS PROVIDED WITHIN THE MOTOROLA SPECIFICATION R56 CONSISTING OF THE FOLLOWING: SITE NAME, ADDRESS AND IDENTIFICATION NUMBER, DESCRIPTION OF SITE SOIL AND MOISTURE CONDITION, DESCRIPTION OF WEATHER, MODEL NUMBER OF TESTING EQUIPMENT, DATE OF LAST CALIBRATION, SITE SKETCH SHOWING LOCATION OF TEST PROBES AND ALL FIELD DATA COLLECTED (READINGS, RANGE, TEST, MILLIAMPS, ETC.) C. CONTRACTOR SHALL NOTIFY THE MOTOROLA CONSTRUCTION MANAGER IF THERE ARE ANY DIFFICULTIES PERFORMING SYSTEM RESISTANCE TESTS OR IF MEASUREMENTS ARE ABOVE 5 OHMS. THE MOTOROLA CONSTRUCTION MANAGER SHALL PROVIDE INSTRUCTION TO THE CONTRACTOR TO INSTALL ADDITIONAL GROUNDING MEASURES TO MEET THE 5 OHM REQUIREMENT.
4	GROUND COAX TO EXTERNAL GROUND BAR (EGB) AND TOWER GROUND BAR (TGB).
5	PROPOSED INTERIOR PERIMETER GROUND BUS (NOT SHOWN FOR CLARITY, INCLUDED WITH SHELTER DRAWING).
6	INTERIOR GROUND SYSTEM GROUNDED TO PROPOSED GROUND RING.
7	INTERIOR PERIMETER GROUND BUS GROUNDED TO MASTER GROUND BAR.
8	PROPOSED SHELTER GROUND RING BURIED TO A DEPTH OF 30" OR 6" BELOW THE FROST LINE, WHICHEVER IS GREATER.
9	BOND PROPOSED TOWER GROUND BAR TO EXISTING TOWER GROUND RING (TYP. x 2)
10	BOND PROPOSED SHELTER GROUND RING TO EXISTING TOWER GROUND RING (TYP. 2 PLACES)
11	BOND HVAC UNITS TO PROPOSED SHELTER GROUND RING (TYP.)
12	BOND ALL EXTERIOR AWNINGS, DOOR, DOOR FRAME, ETC. TO PROPOSED SHELTER GROUND RING.
13	BOND FENCE CORNER POSTS AND ADDITIONAL FENCE POSTS LOCATED WITHIN 20' OF PROPOSED SHELTER GROUND RING AS NEEDED TO LIMIT THE DISTANCE BETWEEN BONDED POSTS TO 40' (TYP.). BOND FENCE MESH, POSTS AND BARB STRANDS NEAR EACH POST BONDING POINT TO PROPOSED GROUND RING (TYP.).
14	BOND EACH GATE POST TO PROPOSED GROUND RING (TYP.) AND BOND GATE POSTS TOGETHER.
15	BOND GATE POST TO EACH GATE (TYP.).
16	BOND GENERATOR TO PROPOSED GROUND RING.
17	SERVICE ENTRANCE GROUND ROD.
18	CAMERA MOUNT GROUND TO BE ROUTED IN LIQUID TIGHT TO THE EXISTING BUILDING GROUND RING. LIQUID TIGHT TO EXTEND 18" BELOW GRADE AND GROUNDING TO BE ATTACHED USING AN EXOTHERMIC WELD TO THE PROPOSED BUILDING GROUND RING PER 2017 REVISION OF MOTOROLA R56.
19	BOND PROPOSED ACCESS CONTROL BOX TO PROPOSED EQUIPMENT ROOM HALO PER 2017 REVISION OF MOTOROLA R56.
20	BOND PROPOSED EQUIPMENT INSTALLED IN EQUIPMENT RACK TO PROPOSED EQUIPMENT ROOM HALO PER 2017 REVISION OF MOTOROLA R56.
21	BOND PROPOSED SHELTER PLATES TO PROPOSED SHELTER GROUND RING.
22	BOND PROPANE TANK TO PROPOSED GROUND RING.



1 COMPOUND GROUNDING PLAN

SCALE: 1" = 6' (11"x17"), 1" = 3' (22"x34")

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

GROUNDING
PLAN & NOTES

SHEET NUMBER: G01

REVISION: 100%

GENERAL GROUNDING NOTES (AS APPLICABLE):

1. GROUND ALL EXPOSED METALLIC OBJECTS USING A TWO-HOLE NEMA DRILLED CONNECTOR SUCH AS THOMAS & BETTS #32207 OR APPROVED EQUAL.

2. THE CONTRACTOR SHALL NOTIFY THE MOTOROLA SOLUTIONS CONSTRUCTION MANAGER WHEN THE GROUND RING IS INSTALLED SO THEY CAN INSPECT GROUND RING BEFORE IT IS CONCEALED.

3. ALL EXTERIOR GROUND CONDUCTORS SHALL BE SIZED PER 2017 REVISION OF MOTOROLA R56 AND SHALL BE BARE SOLID TINNED COPPER. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. THE RADIUS OF ANY BEND SHALL NOT BE LESS THAN 8" AND THE INCLUSIVE ANGLE OF ANY BEND SHALL NOT EXCEED 90°. GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD THE BURIED GROUND RING.

4. ALL BELOW GROUND EXTERNAL CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. ALL EXOTHERMIC WELDS TO BURIED GROUND RING SHALL BE THE PARALLEL-TYPE, EXCEPT FOR THE GROUND RODS WHICH ARE TEE-TYPE EXOTHERMIC WELDS. REPAIR ALL GALVANIZED SURFACES THAT HAVE BEEN DAMAGED BY EXOTHERMIC WELDING. USE SPRAY GALVANIZED SUCH AS HOLUB LECTROSOL #15-501.

5. WHERE MECHANICAL CONNECTORS (TWO-HOLE OR CLAMP) ARE USED, APPLY A LIBERAL PROTECTIVE COATING OF A CONDUCTIVE ANTI-OXIDE COMPOUND (KOPR-SHIELD #CP8-TB BY THOMAS & BETTS) ON ALL CONNECTORS. PROVIDE LOCK WASHERS ON ALL MECHANICAL CONNECTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT. THOROUGHLY REMOVE ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTORS, REPAINT TO MATCH EXISTING AFTER CONNECTION IS MADE TO MAINTAIN CORROSION RESISTANCE. ALL GROUND CONNECTIONS SHALL BE APPROVED FOR THE TYPES OF METALS BEING ATTACHED TO.

6. ITS ASSUMED THAT THE EXISTING GROUNDING IS FIVE (5) OHMS OR LESS. ONCE CONSTRUCTION IS COMPLETED THE CONTRACTOR IS TO PERFORM A CLAMP ON GROUND RESISTANCE TEST ON THE GROUND SYSTEM. DOCUMENTED RESULTS OF THE GROUND TEST TO BE SENT TO THE MOTOROLA SOLUTIONS CONSTRUCTION MANAGER.

7. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.

8. THE GROUND CONDUCTORS SHALL BE RUN STRAIGHT FOR MINIMUM INDUCTANCE AND VOLTAGE DROP. SINCE CABLE BENDS INCREASE INDUCTANCE, THE MINIMUM REQUIRED BENDING RADIUS IS 8 INCHES WHEN BENDS ARE UNAVOIDABLE. ALL METAL WORK WITHIN 10 FEET OF THE GROUND RING SHALL BE DIRECTLY BONDED TO THIS GROUND SYSTEM, WITHOUT USING SERIES OR DAISY CHAIN CONNECTION ARRANGEMENTS.

9. PAINT, ENAMEL, LACQUER AND OTHER ELECTRICALLY NON-CONDUCTIVE COATINGS SHALL BE REMOVED FROM THREADS AND SURFACE AREAS WHERE CONNECTIONS ARE MADE TO ENSURE GOOD ELECTRICAL CONTINUITY.

10. CONNECTIONS BETWEEN DISSIMILAR METALS SHALL NOT BE MADE UNLESS THE CONDUCTORS ARE SEPARATED BY A SUITABLE MATERIAL THAT IS A PART OF THE ATTACHMENT DEVICE LISTED AND APPROVED FOR USE WITH THE SPECIFIC DISSIMILAR METALS MAY BE USED FOR THE PURPOSE.

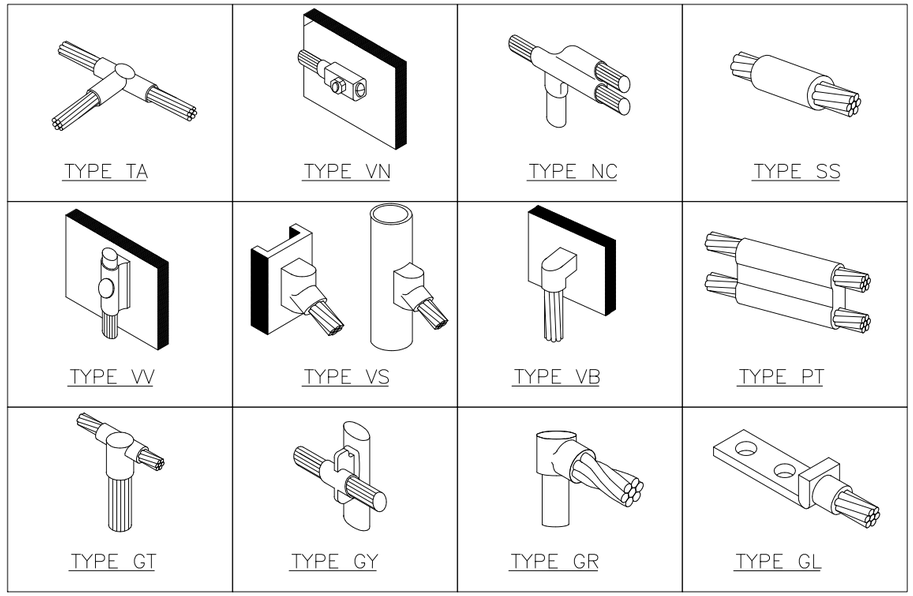
11. ALL BELOW GRADE GROUND SYSTEM CONDUCTORS SHALL BE A MINIMUM DEPTH OF 30" (OR 6" BELOW THE FROST LINE, WHICHEVER IS GREATER).

12. ALL ABOVE GRADE GROUNDING TAILS LONGER THAN 36" TO BE ENCLOSED IN 3/4" RIGID PVC CONDUIT SECURED EVERY 36". ALL ABOVE GRADE GROUNDING TAILS LESS THAN 36" OR WHERE BENDS ARE REQUIRED SHALL BE ENCLOSED IN PVC NMLT CONDUIT & SECURED AS REQUIRED. ALL CONDUITS TO EXTEND 16" BELOW FINISH GRADE & THE ABOVE GRADE ENDS SEALED WITH CLEAR SILICONE.

13. ALL GROUND CABLE IN CONCRETE OR THROUGH WALL SHALL BE IN 3/4" PVC CONDUIT. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTOR SLEEVES.

1 GROUNDING NOTES

SCALE: NOT TO SCALE



NOTE: ERICO CADWELD "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH PROJECT MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.

2 EXOTHERMIC WELD DETAILS

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866
PROJECT ID
P-37768

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PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston 03/25/2025

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ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

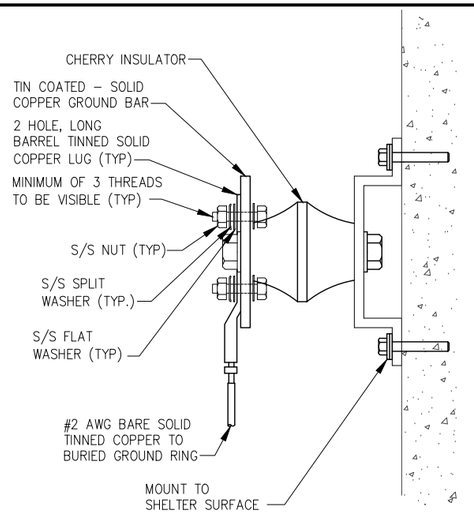
SELF SUPPORT TOWER

SHEET TITLE:

GROUNDING DETAILS

SHEET NUMBER: G02

REVISION: 100%



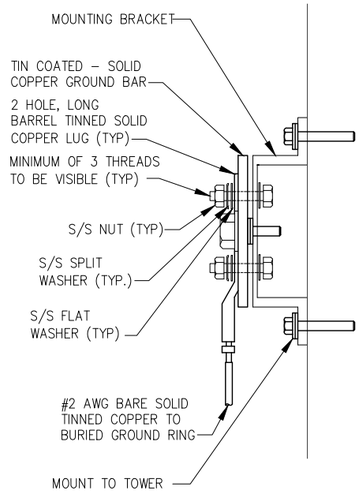
NOTE:
1. ALL HARDWARE 18–8 STAINLESS STEEL INCLUDING SPLIT WASHERS.

2. COAT WIRE END WITH ANTI–OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.

3. APPLY ANTI–OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING. DO NOT COAT ENTIRE BAR

1 INSULATED GROUND BAR

SCALE: NOT TO SCALE



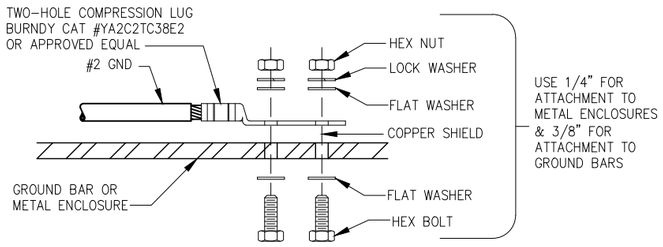
NOTE:
1. ALL HARDWARE 18–8 STAINLESS STEEL INCLUDING SPLIT WASHERS.

2. COAT WIRE END WITH ANTI–OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.

3. APPLY ANTI–OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING. DO NOT COAT ENTIRE BAR

2 NON-INSULATED GROUND BAR

SCALE: NOT TO SCALE



INSTALLATION NOTES:
1. BOLTS, WASHERS, AND NUTS SHALL BE STAINLESS STEEL.

2. SELECT BOLT LENGTH TO PROVIDE A MINIMUM OF THREE EXPOSED THREADS.

3. BURNISH MOUNTING SURFACE TO REMOVE PAINT IN THE AREA OF LUG CONTACT.

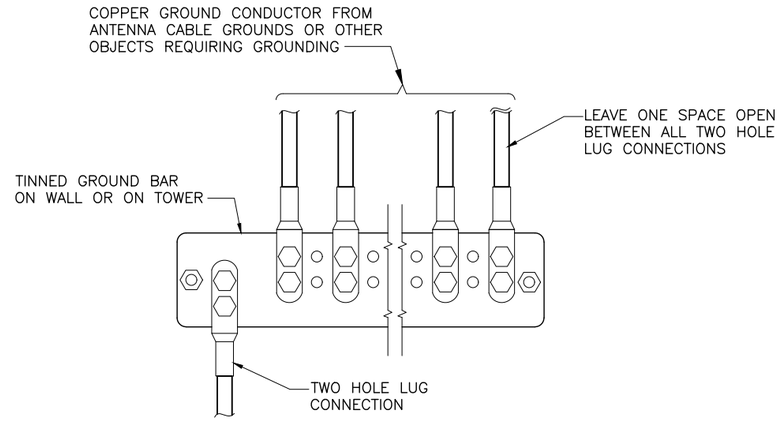
4. APPLY COPPER–SHIELD COMPOUND TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS COMPOUND.

5. ALL METAL ELECTRICAL EQUIPMENT SHALL BE EXTERNALLY GROUNDED TO THE TOWER EGR. (PAINTED METAL SURFACES MUST HAVE SMALL SECTION OF PAINT REMOVED BEFORE INSTALLATION, AND SHALL BE SPRAYED LIGHTLY WITH CLEAR COAT LACQUER FINISH).

6. FOR FLAT WASHERS, NO OVERLAPPING OF SINGLE HOLE WASHERS. IF NEEDED 2 HOLE LUG WASHER CAN BE USED (BONDWASHER OR EQUAL).

3 GROUND LUG

SCALE: NOT TO SCALE



4 GROUND WIRE TO GROUND BAR

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
318 WEST AVE.
SARATOGA SPRINGS, NY 12866

PROJECT ID
P-37768

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PROFESSIONAL STAMP:

COMMONWEALTH OF MASSACHUSETTS
JOSEPH R. JOHNSTON
No. 50391
PROFESSIONAL ENGINEER

Joseph R. Johnston
03/25/2025

DRAWINGS ISSUED FOR:

REV.	DATE	DRAWN	DESCRIPTION	QA/QC
100%	03/25/25	KPG	FOR PERMIT	NJT

0 1 2
ORIGINAL SIZE IN INCHES

PROJECT INFORMATION:

SITE:
AMESBURY - POW WOW HILL II
TROOP A/H

89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

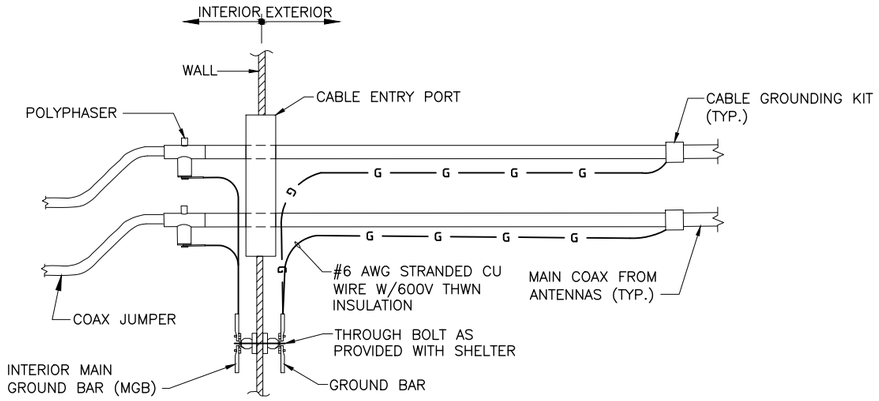
GROUNDING DETAILS

SHEET NUMBER:

G03

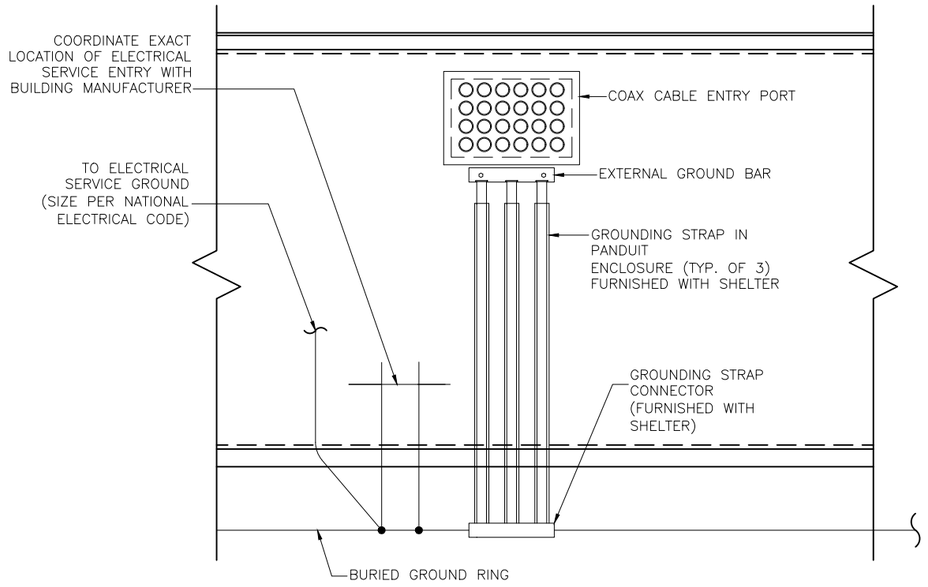
REVISION:

100%



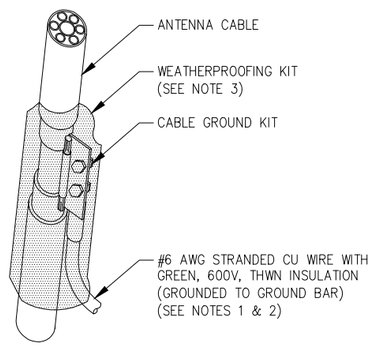
1 CABLE GROUNDING AT CABLE ENTRY PORT

SCALE: NOT TO SCALE



2 EQUIPMENT SHELTER GROUNDING DETAIL

SCALE: NOT TO SCALE



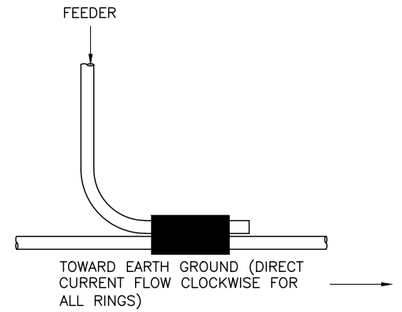
NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

3. WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

3 CABLE GROUND KIT

SCALE: NOT TO SCALE



4 GROUND CONDUCTOR CONNECTION

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
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Joseph R. Johnston 03/25/2025

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89 POWOW STREET
AMESBURY, MA 01913
ESSEX

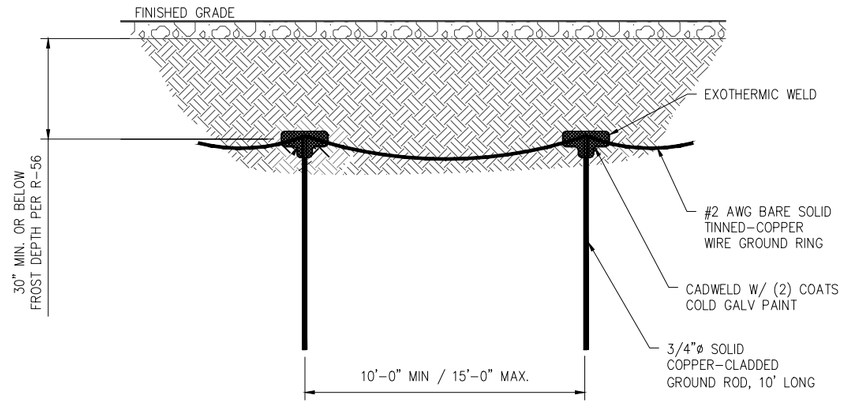
SELF SUPPORT TOWER

SHEET TITLE:

GROUNDING DETAILS

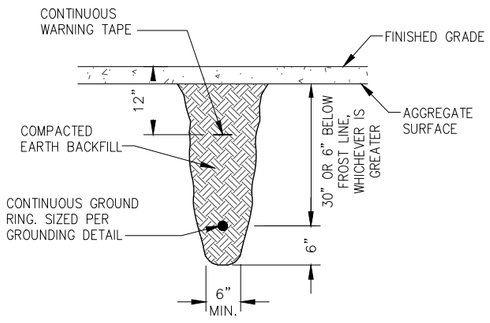
SHEET NUMBER: G04

REVISION: 100%



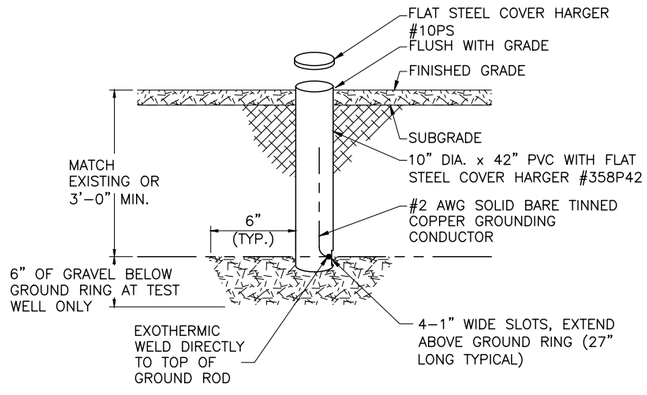
1 TYPICAL GROUND ROD DETAIL

SCALE: NOT TO SCALE



2 TRENCH DETAIL FOR GROUND RING

SCALE: NOT TO SCALE



3 GROUND INSPECTION WELL DETAIL

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

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AIROSMITH DEVELOPMENT
AIROSMITH ENGINEERING
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89 POWOW STREET
AMESBURY, MA 01913
ESSEX

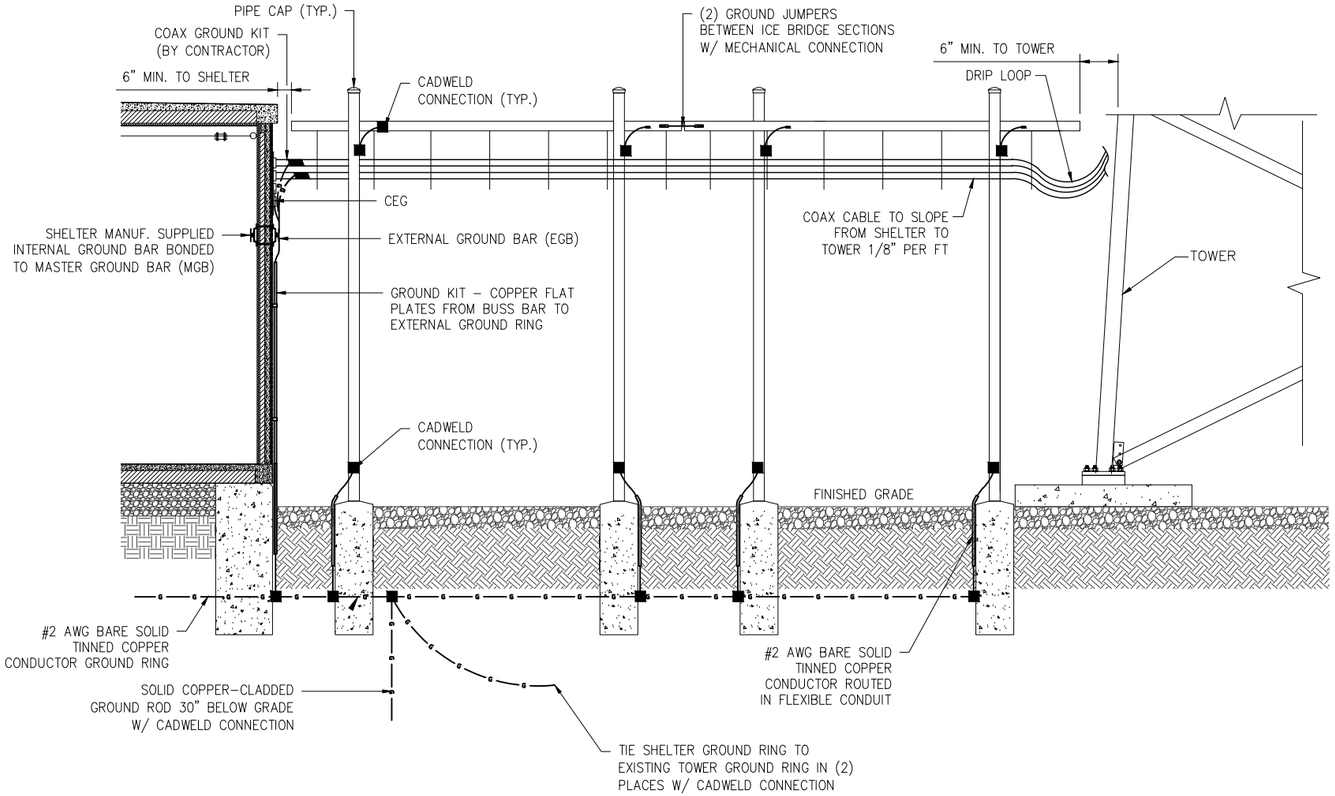
SELF SUPPORT TOWER

SHEET TITLE:

GROUNDING DETAILS

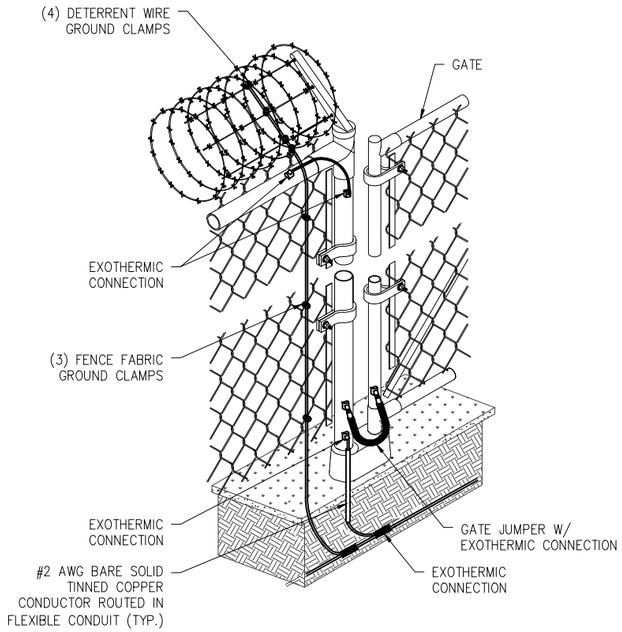
SHEET NUMBER: G05

REVISION: 100%



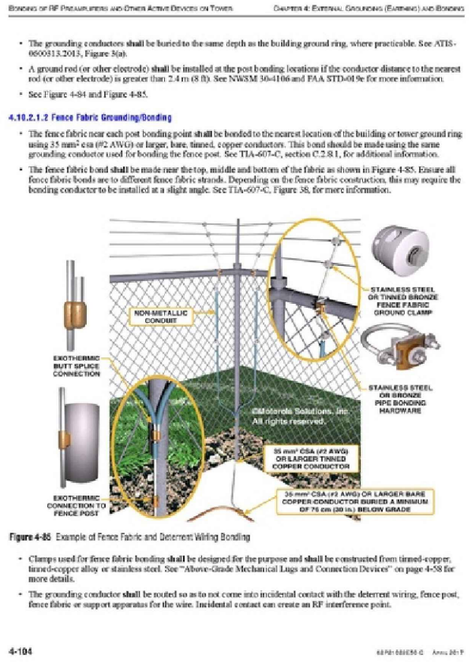
1 ICE BRIDGE GROUNDING DETAIL

SCALE: NOT TO SCALE



2 GATE POST GROUNDING DETAIL

SCALE: NOT TO SCALE



Bonding of RF Preamplifiers and Other Active Devices on Towers — Chapter 4: External Grounding (Earthing) and Bonding

- The grounding conductors **shall** be buried to the same depth as the building ground ring, where practicable. See ATIS-0600313.2013, Figure 3(a).
- A ground rod (or other electrode) **shall** be installed at the post bonding locations if the conductor distance to the nearest rod (or other electrode) is greater than 2.4 m (8 ft). See NWSM 30-4106 and FAA STD-00 9e for more information.
- See Figure 4-84 and Figure 4-85.

4.10.2.1.2 Fence Fabric Grounding/Bonding

- The fence fabric near each post bonding point **shall** be bonded to the nearest location of the building or tower ground ring using 35 mm² csa (#2 AWG) or larger, bare, tinned, copper conductors. This bond should be made using the same grounding conductor used for bonding the fence post. See TIA-607-C, section C.2.8.1, for additional information.
- The fence fabric bond **shall** be made near the top, middle and bottom of the fabric as shown in Figure 4-85. Ensure all fence fabric bonds are to different fence fabric strands. Depending on the fence fabric construction, this may require the bending conductor to be installed at a slight angle. See TIA-607-C, Figure 38, for more information.

Figure 4-85 Example of Fence Fabric and Deterrent Wiring Bonding

- Clamps used for fence fabric bonding **shall** be designed for the purpose and **shall** be constructed from tinned-copper, tinned-copper alloy or stainless steel. See "Above-Grade Mechanical Lugs and Connection Devices" on page 4-58 for more details.
- The grounding conductor **shall** be routed so as to not come into incidental contact with the deterrent wiring, fence post, fence fabric or support apparatus for the wire. Incidental contact can create an RF interference point.

4-104

3 FENCE FABRIC GROUNDING

SCALE: NOT TO SCALE

CLIENT:

MOTOROLA SOLUTIONS

MASSACHUSETTS STATE POLICE

CONSULTANT TEAM:

AIROSMITH

AIROSMITH DEVELOPMENT
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89 POWOW STREET
AMESBURY, MA 01913
ESSEX

SELF SUPPORT TOWER

SHEET TITLE:

GROUNDING DETAILS

SHEET NUMBER: G06

REVISION: 100%