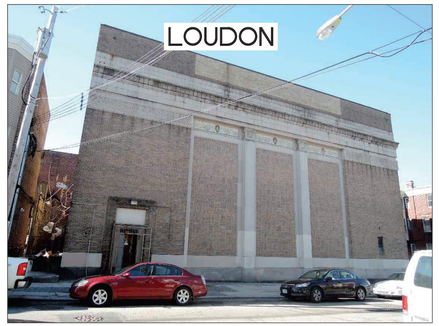
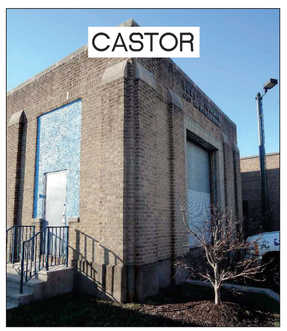
Southeastern Pennsylvania
Transportation Authority

ENGINEERING, MAINTENANCE AND CONSTRUCTION DEPARTMENT

TRACTION POWER SUBSTATION REHABILITATION
CONTRACT 5
BROAD – PARK – LOUDON – CASTOR





FTA NUMBER:
SEPTA PROJECT NUMBER: S874230

LIST OF DRAWINGS: SEE SHEETS G101 – G104
ACT NOTIFICATION LIST:

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR
HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

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CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
COVER SHEET

SCALE: NTS	SCALE FACTOR: -
DATE: 10/16/2017	DRAWN BY: MJB / CHECKED BY: VS
WORK ORDER NO.: -	
SHEET NUMBER: **G100**	
DWG. NO.: 1 OF 10	
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STATUS: 50% SUBMISSION

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GENERAL

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131	COM107	FIBER NODE DIAGRAM

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HDR Engineering, Inc.
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
INDEX OF DRAWINGS - GENERAL & BROAD

SCALE: NTS	SCALE FACTOR: -
DATE: 10/16/2017	DRAWN BY: MB
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G101

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COMPUTER FILE NO.: 17AN-G101
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STATUS: 50% SUBMISSION

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PARK

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234	TP218	STAGE 3 MEZZANINE & FIRST FLOOR EQUIPMENT PLANS
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257	COM205	PROPOSED FIRST FLOOR PLAN
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DATE PRINTED: 10/21/2025

CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
INDEX OF DRAWINGS - PARK

SCALE: NTS	SCALE FACTOR: -
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SHEET NUMBER
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STATUS: 50% SUBMISSION

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LOUDON

CIVIL

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320	E304	DEMOLITION LIGHTING FIRST FLOOR PLAN
321	E305	PROPOSED POWER BASEMENT FLOOR PLAN
322	E306	PROPOSED POWER FIRST FLOOR PLAN
323	E307	PROPOSED LIGHTING BASEMENT FLOOR PLAN
324	E308	PROPOSED LIGHTING FIRST FLOOR PLAN
325	E309	DEMOLITION SINGLE LINE DIAGRAM
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341	TP307	EXISTING FIRST FLOOR EQUIPMENT PLAN
342	TP308	EXISTING BASEMENT EQUIPMENT PLAN
343	TP309	PROPOSED SINGLE LINE DIAGRAM
344	TP310	STAGING ACTIVITIES & NOTES
345	TP311	STAGE 1 SINGLE LINE DIAGRAM
346	TP312	STAGE 1 FIRST FLOOR EQUIPMENT PLAN
347	TP313	STAGE 1 BASEMENT EQUIPMENT PLAN
348	TP314	STAGE 2 SINGLE LINE DIAGRAM
349	TP315	STAGE 2 FIRST FLOOR EQUIPMENT PLAN
350	TP316	STAGE 2 BASEMENT EQUIPMENT PLAN
351	TP317	STAGE 3 SINGLE LINE DIAGRAM
352	TP318	STAGE 3 FIRST FLOOR EQUIPMENT PLAN
353	TP319	STAGE 3 BASEMENT EQUIPMENT PLAN
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356	TP326	PROPOSED FIRST FLOOR EQUIPMENT ELEVATIONS
357	TP327	PROPOSED BASEMENT EQUIPMENT ELEVATIONS
358	TP332	13.2 KV CABLE & DUCT BANK
359	TP333	4.8 KV CABLE & DUCT BANK
360	TP334	BATTERY & CONTROL DIAGRAM
361	TP337	PROTECTION & RELAY SINGLE LINE DIAGRAM – SHEET 1
362	TP338	PROTECTION & RELAY SINGLE LINE DIAGRAM – SHEET 2
363	TP339	CIRCUIT BREAKER CONTROL DIAGRAMS – TYPICAL
364	TP340	DC RECTIFIER CONTROL SCHEMATIC
365	TP341	DC GROUND FAULT PROTECTION SCHEME
366	TP342	DC REMOTE CONTROL BOARD CONTROL SCHEMATIC
367	TP343	SCADA POINTS LIST
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COMMUNICATIONS

370	COM300	GENERAL NOTES, SYMBOLS & ABBREVIATIONS
371	COM301	DEMOLITION BASEMENT FLOOR PLAN
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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
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MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR
HDR Engineering, Inc.
Philadelphia, PA

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CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
INDEX OF DRAWINGS - LOUDON

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Philadelphia, PA

REV.	DATE	DESCRIPTION	BY	CKD	APD

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CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
INDEX OF DRAWINGS - CASTOR

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GENERAL NOTES:

1. THE NOTES ARE APPLICABLE TO ALL TRACTION POWER SUBSTATIONS (TPSSs) AND ALL WORKS UNDER THIS CONTRACT PACKAGE.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS INCLUDING THE SPECIFICATIONS AND THE DRAWINGS AND REQUIREMENTS/GUIDELINES SPECIFIED IN THE LATEST EDITIONS OF NATIONAL ELECTRICAL CODE (NEC), NATIONAL ELECTRICAL SAFETY CODE (NESC) AND AREMA.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL CODES, RULES, AND REGULATIONS HAVING JURISDICTION OVER ANY PORTION OF WORK SPECIFIED IN THESE DOCUMENTS.
4. THE DRAWINGS INDICATE SPECIFIC DESIGN INTENT. THE DESIGN/BUILD CONTRACTOR (HEREAFTER REFERRED TO AS 'CONTRACTOR'), SHALL DEVELOP THE FINAL DESIGN BASED ON THESE INTENTS. THE INTENTS MAY BE MODIFIED WITH SEPTA APPROVAL ONLY.
5. THE CONSTRUCTION WORK INCLUDING DEMOLITION AND REMOVALS FOR BROAD, PARK AND LOUDON TPSS WILL BE DONE IN STAGES MAKING SURE THAT ONE TRANSFORMER–RECTIFIER LINE–UP IS ALWAYS OPERATIONAL, UNLESS OTHERWISE STATED. REFER TO THE STAGING PLANS OF INDIVIDUAL TPSS IN THE 'TP DRAWINGS' FOR DETAILS.
6. THE CONTRACTOR SHALL, PRIOR TO COMMENCEMENT OF WORK, TAKE EXACT MEASUREMENTS TO VERIFY ALL DIMENSIONS SHOWN ON THE DRAWINGS AS WELL AS OBTAIN OTHER NECESSARY DIMENSIONS FOR THE PURPOSE OF PREPARING FINAL DESIGN SUBMITTALS. SHOP DRAWINGS AND ANY OTHER DRAWINGS PREPARED BY THE CONTRACTOR SHALL INCLUDE A STATEMENT CERTIFYING THAT THOSE HAVE BEEN PREPARED IN ACCORDANCE WITH THE FIELD–MEASURED DIMENSIONS.
7. THE SEPTA PROJECT MANAGER SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE DRAWINGS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE DRAWINGS WITHOUT THE WRITTEN APPROVAL OF SEPTA.
8. THE CONTRACTOR SHALL COORDINATE WITH PECO FOR ALL WORK RELATED TO THE UTILITY, IN COORDINATION WITH THE SEPTA PROJECT MANAGER.
9. THE CONTRACTOR SHALL IDENTIFY ALL UNDERGROUND UTILITIES BY HAND DIGGING AND / OR OTHER APPROVED MEANS PRIOR TO MECHANICAL EXCAVATION. ANY DAMAGE TO THE EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.
10. ALL ABANDONED EQUIPMENT AND EQUIPMENT CABLES SHALL BE REMOVED FROM THE TPSS UNLESS OTHERWISE NOTED, AND PROPERLY DISPOSED OFF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
11. THE CONTRACTOR SHALL DEVELOP AND FURNISH DETAILED POWER AND CONTROL CABLE DRAWINGS AND SCHEDULES AND EQUIPMENT INTERCONNECTION DIAGRAMS FOR APPROVAL OF SEPTA, AND INSTALL ALL CABLES AS PER APPROVED PLAN.
12. THE CONTRACTOR SHALL COOPERATE WITH SEPTA'S REPRESENTATIVES AND ALL OTHER CONTRACTORS PERFORMING WORK ON THIS JOB SITE DURING THE PERFORMANCE OF THIS CONTRACT.
13. THE CONTRACTOR SHALL OBTAIN AND INCUR THE COST OF ALL REQUIRED PERMITS AND CERTIFICATES. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS.
14. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE THE WORK OF ALL OTHER SUBCONTRACTORS FOR THIS PROJECT. THE CONTRACTOR IS ALSO RESPONSIBLE FOR COORDINATION WITH SEPTA AND OTHER EXTERNAL AGENCIES.
15. THE CONTRACTOR SHALL COORDINATE THE WORK WITH OTHER CONTRACTORS AND AGENCIES SO AS TO MINIMIZE THE REQUIREMENT OF TPSS OUTAGES.
16. THE CONTRACTOR SHALL SCHEDULE HIS WORK AS DIRECTED BY SEPTA WHICH WILL TAKE INTO ACCOUNT OPERATIONAL CONTINGENCIES IN THE SYSTEM TO ENSURE CONTINUED OPERATION OF THE TRAIN SERVICES.
17. THE CONTRACTOR SHALL TAKE CARE TO MAINTAIN A SAFE AND SECURE WORK AREA AT ALL TIMES THROUGH THE USE OF, AMONG OTHER THINGS, SAFETY EQUIPMENT, FENCING, PROTECTIVE BARRIERS, TEMPORARY DIRECTIONAL SIGNAGE AND FALL PROTECTION.
18. ACCESS TO THE WORK SITE AND STORAGE OF MATERIALS AND EQUIPMENT ON THE PREMISES SHALL BE APPROVED BY SEPTA.
19. THE CONTRACTOR SHALL KEEP THE ADJACENT WORK AREAS, STAGING AREAS AND BUILDING ACCESS AREAS CLEAN OF DEBRIS, AND WILL BE RESPONSIBLE FOR ALL MAINTENANCE AND CLEANING OF THESE AREAS DURING THE COURSE OF THE PROJECT.
20. SEPTA REQUIRES ALL PERSONNEL WORKING ON THEIR PROPERTY TO HAVE SEPTA PHOTO IDENTIFICATION. SEPTA WILL ARRANGE TO HAVE THE IDENTIFICATION CARDS MADE AT THE BEGINNING OF THE CONTRACT AND THROUGHOUT THE DURATION OF THE CONTRACT.
21. SHOULD UNFORESEEN CONDITIONS OR OTHER CAUSES NECESSITATE CONSTRUCTION DETAILS NOT IN ACCORDANCE WITH THESE DRAWINGS, THE CONTRACTOR SHALL NOTIFY SEPTA.
22. THE CONTRACTOR SHALL PROTECT ALL AREAS IN SUCH A MANNER AS TO ELIMINATE HAZARDS TO PERSONS AND PROPERTY, TO MINIMIZE INTERFERENCE WITH USE OF ADJACENT AREAS, UTILITIES AND STRUCTURES OR INTERRUPTION OF SUCH UTILITIES.
23. ANY GROUND PENETRATIONS SHALL BE COORDINATED WITH ON–SITE PERSONNEL PRIOR TO COMMENCING CONSTRUCTION.
24. THE CONTRACTOR SHALL MAINTAIN WORKING CLEARANCE FROM ALL LIVE PARTS AS SPECIFIED BY SEPTA. CLEARANCE LESS THAN THESE WILL REQUIRE AN OUTAGE OR SEPTA APPROVED PROTECTIVE BARRIER.
25. SEPTA SAFETY PROCEDURES FOR PROTECTION AND OUTAGES SHALL BE ADHERED TO AT ALL TIMES.
26. THE CONTRACTOR SHALL COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS AND ENVIRONMENTAL PROTECTION AGENCY (EPA) REGULATIONS. THE CONTRACTOR SHALL TAKE PROPER HEALTH AND SAFETY MEASURES WHEN EXCAVATING AND PERFORMING EARTH MOVING ACTIVITIES.
27. ALL ELECTRIFIED FACILITIES SUCH AS UNDERGROUND AND EXPOSED CABLES, ASSOCIATED ISOLATING SWITCHES AND OTHER ASSOCIATED EQUIPMENT SHALL BE CONSIDERED LIVE AT ALL TIMES (UNLESS DE–ENERGIZED AND PROPERLY GROUNDED). PRIOR TO START OF ANY WORK ALL SEPTA SAFETY INSTRUCTIONS SHALL BE COMPLIED WITH. AFFECTED SECTIONS SHALL BE DE–ENERGIZED AND GROUNDED IN ACCORDANCE WITH SEPTA PROCEDURES.
28. PRIOR TO COMMENCING WORK OBTAIN WRITTEN PERMISSION TO WORK ON THE EXISTING TRANSFORMERS, RECTIFIERS, CIRCUIT BREAKERS AND OTHER ASSOCIATED EQUIPMENT, AFTER SEPTA HAS DE–ENERGIZED AND OPENED ALL SWITCHES; AND APPLIED PROTECTIVE GROUNDS.
29. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL INSPECT DELIVERED MATERIALS AND EQUIPMENT FOR ANY DEFECTS.
30. THE CONTRACTOR ALONG WITH THE ONSITE SEPTA INSPECTOR IS RESPONSIBLE FOR A DAILY VISUAL INSPECTION OF THE EXISTING FIRE ALARM SYSTEM TO ASSURE IT IS FUNCTIONALLY OPERATIONAL AND WITHOUT TROUBLE, PRIOR TO COMMENCING WITH ANY WORK WITHIN THE TPSS.
31. THE CONTRACTOR SHALL ADVISE THE ONSITE SEPTA INSPECTOR OF ANY ANTICIPATED WORK DURING THAT DAY THAT COULD OR WOULD ADVERSELY IMPACT THE FIRE ALARM SYSTEM.
    A. EXAMPLES OF TASKS THAT COULD OR WOULD IMPACT THE FIRE ALARM SYSTEM INCLUDE BUT ARE NOT LIMITED TO:
        I. CUTTING.
        II. WELDING.
        III. BRAZING.
        IV. SOLDERING.
        V. DEMOLITION OF BUILDING MATERIALS THAT RESULTS IN ABOVE NORMAL AIRBORNE DUST AND /OR PARTICULATES.
        VI. REMOVAL OF THE FIRE ALARM PANEL POWER.
        VII. REMOVAL OF THE FIRE ALARM PANEL.
        VIII. REMOVAL OR DISCONNECTING TERMINAL OR PERIPHERAL DEVICES, I.E., INITIATING CIRCUIT DEVICES DETECTORS, PULL STATIONS, ETC.
        IX. REMOVAL OR DISCONNECTING TERMINAL OR PERIPHERAL DEVICES, I.E., NOTIFICATION CIRCUIT DEVICES, AUDIBLE OR VISUAL NOTIFICATION APPLIANCES, ETC.
        X. EXPOSING THE FIRE ALARM SYSTEM TO WEATHER RELATED ELEMENTS, RAIN, EXCESSIVE HEAT OR EXCESSIVE COLD.
    B. WHERE ANY OF THE ABOVE CONDITIONS EXIST, THE FIRE ALARM SYSTEM IS TO BE SILENCED, AND THE HUMAN MACHINE INTERFACE (HMI) IS TO BE NOTIFIED OF POTENTIAL ALARMS RELATED TO THE WORK BEING PERFORMED.
32. WHEN THE FIRE ALARM SYSTEM IS INTENTIONALLY IMPAIRED IT IS INCUMBENT UPON THE CONTRACTOR TO REMAIN WATCHFUL FOR ANY CIRCUMSTANCE OR EVENT THAT WARRANTS THE ACTIVATION OF THE FIRE ALARM SYSTEM. SHOULD A CIRCUMSTANCE OR EVENT ARISE DURING A PERIOD WHEN THE FIRE ALARM SYSTEM IS IMPAIRED, THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING 911 TO REPORT THE EVENT.
33. AT THE COMPLETION OF EACH WORK DAY THE FIRE ALARM SYSTEM IS TO BE RETURNED TO NORMAL OPERATIONAL STATUS. THIS WILL REQUIRE THE CONTRACTOR TO ASSURE THAT ALL ALARMS THAT MAY HAVE ACCRUED DURING THE WORK DAY HAVE BEEN CLEARED AND THE SYSTEM IS CAPABLE OF BEING PLACED IN FULL FUNCTIONAL SERVICE. IF THE SYSTEM IS NOT ABLE TO BE RESTORED THE CONTRACTOR SHALL ADVISE THE ONSITE SEPTA INSPECTOR, WHO AT THAT TIME WILL MAKE THE DECISION AS TO ORGANIZE A FIRE WATCH AND/OR HAVE THE CONTRACTOR CALL IN HIS FIRE ALARM SERVICE PROVIDER TO MAKE THE NECESSARY REPAIRS. IN ALL CASES THE CONTRACTOR IS RESPONSIBLE FOR THE OPERATION OF THE FIRE ALARM SYSTEM ONCE THE WORK IN THE TPSS BEGINS AND UNTIL THE WORK IN THE TPSS IS COMPLETE.
34. THE DEMOLITION OF THE EXISTING FIRE ALARM SYSTEM WILL NOT COMMENCE UNTIL THE NEW FIRE ALARM SYSTEM IS FULLY INSTALLED AND ACCEPTED BY THE AUTHORITY HAVING JURISDICTION AND SEPTA.

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SYSTEM SAFETY

DIRECTOR OF ENGINEERING - B&B

MANAGER - ARCH / ENGINEERING

PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
GENERAL NOTES

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DESCRIPTION OF WORK:

1. CONSTRUCTION CONTRACT NUMBER 5 CONSISTS OF UPGRADING EXISTING TRACTION POWER SUBSTATIONS (TPSS) LOCATED AT BROAD, PARK AND LOUDON ON THE SEPTA BROAD STREET SUBWAY LINE AND CASTOR ON THE ROUTE 59 TRACKLESS TROLLEY OF THE CITY TRANSIT DIVISION (CTD). THE REHABILITATION SHALL REPLACE ALL MAIN TRACTION POWER EQUIPMENT, INCLUDING CABLES, AND MISCELLANEOUS ACCESSORY COMPONENTS AT THE FACILITIES.
2. THE REHABILITATION WORK SHALL BE INITIATED IN THE FOLLOWING ORDER FOR THE BROAD STREET SUBWAY LINE. FIRST BROAD AND LOUDON, THEN PARK. THE REHABILITATION OF CASTOR TPSS SHALL BE DONE INDEPENDENT OF THE ABOVE.
3. COMPLETION OF THE 50% DESIGN TO 100% LEVEL:
   A. COMPLETING THE 50% DESIGN SUPPLIED WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS TO A 100% LEVEL.
   B. SIGNING AND SEALING THE DRAWINGS, REPORTS AND SPECIFICATIONS.
4. SITE DEMOLITION AND CLEARING FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. CLEARING AND GRUBBING INCLUDING REMOVAL AND DISPOSAL OF DEBRIS AND ABANDONED EQUIPMENT.
   B. SELECTIVE DEMOLITION OF PIPES, CONDUITS, DUCT BANKS, MANHOLES, FUEL TANKS AND METAL CASES.
   C. RECYCLE SCRAP METAL.
   D. TEST, THEN DISPOSE OF AS HAZARDOUS WASTE SCRAP MATERIAL, STORAGE TANK AND CONTAMINATED SOIL.
5. SITE FENCING:
   A. CONSTRUCT NEW CHAIN LINK FENCING AROUND BUILDING AND EQUIPMENT YARD INCLUDING SWINGING GATE AT CASTOR TPSS.
   B. REPLACE THE EXISTING CHAIN LINK SECURITY GATE AT PARK TPSS. REPLACE THE IRON FENCE IN THE ALLEY AT PARK AND LOUDON TPSS.
6. SITE UTILITIES FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. PROTECT IN PLACE SITE UTILITIES AS INDICATED ON THE CONTRACT DRAWINGS.
7. GRADING, STORM WATER SYSTEM AND SEDIMENTATION CONTROL FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. GRADE AT SITE IN ACCORDANCE WITH CONTRACT DRAWINGS.
   B. PROVIDE SEDIMENTATION CONTROL TO INCLUDE FILTER FABRIC, FILTER BAGS FOR INLET PROTECTION; STORM PROTECTION.
8. EQUIPMENT YARD PADS FOR CASTOR TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. CONSTRUCT NEW ELECTRICAL EQUIPMENT PADS AS INDICATED ON THE CONTRACT DRAWINGS.
9. CAST–IN–PLACE CONCRETE FOUNDATIONS FOR CASTOR TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. CONSTRUCT FOUNDATIONS FOR OUTDOOR ELECTRICAL EQUIPMENT AS INDICATED ON THE CONTRACT DRAWINGS.
10. CONTROL SYSTEMS FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. DEMOLISH EXISTING CONCRETE EQUIPMENT PADS AND REFINISH FLOOR.
   B. RELOCATE EXISTING BATTERIES AND OTHER AUXILIARY POWER SUPPLY EQUIPMENT TO FACILITATE THE WORK.
   C. NEW PROTECTION AND CONTROL PANELS:
      1) INSTALLATION OF NEW PROTECTION AND CONTROL PANELS.
      2) DECOMMISSION AND REMOVE EXISTING CONTROL PANELS AFTER COMMISSIONING OF ALL NEW EQUIPMENT.
      3) INSTALLATION OF CABLE TRAYS AND CABLE LADDER.
11. STRUCTURAL REPAIRS TO EXISTING MASONRY WALLS FOR EACH TPSS IN CONTRACT NO. 5:
   A. REMOVE VEGETATION FROM WALL JOINTS.
   B. REMOVE EFFLORESCENCE FROM WALL FACE.
   C. REPAIR SPALLED AREAS. SEAL CONCRETE.
   D. SEAL CONCRETE.
   E. REFINISH/REPAIR MASONRY WALLS AND BRICK FENCE POSTS.
   F. REPAIR ROOF SYSTEM EXCEPT AT BROAD WHERE A SEPTA PROJECT IS UNDERWAY.
12. WORK THAT WILL BRING EACH TPSS IN CONSTRUCTION CONTRACT NO. 5 INTO COMPLIANCE WITH ALL RELEVANT CODES, REGULATIONS, STANDARDS, ETC.:
   A. CAGING OF ACCESS LADDERS.
   B. SIGNAGE.
   C. ADD DOORS AND STAIRS.
13. MECHANICAL AND HVAC SYSTEM FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. ENERGY RECOVERY VENTILATOR UNITS.
   B. ELECTRIC UNIT HEATER.
   C. HEAT PUMP.
   D. EXHAUST FAN IN BATTERY ROOM.
   E. AIR CONDITIONING SPLIT SYSTEM FOR BATTERY ROOM.
   F. LOUVERS WITH DAMPERS.
   G. EMERGENCY EYE WASH IN BATTERY ROOM.
   H. HVAC UNIT.
   I. ELECTRICAL CONTROLS AND SENSORS.
   J. POWER CONNECTIONS, CONDUCTORS IN RACEWAYS AND SUPPORTS.
14. ARCHITECTURAL SYSTEM FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. SEAL OPENINGS.
   B. REPLACE OR REPAIR WINDOWS AND DOORS.
   C. REPLACE ROLL–UP DOORS AS INDICATED ON THE CONTRACT DRAWINGS.
15. AUXILIARY POWER SYSTEM, TO INCLUDE ALL CABLING AND AC POWER PANEL TO RECEIVE POWER FROM EXISTING PECO SUPPLY FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5.
   A. TPSS BATTERY SYSTEM (136 V DC SYSTEM):
      1) RELOCATE, TEMPORARILY IF REQUIRED, EXISTING BATTERIES TO FACILITATE THE WORK IN THE CONTROL ROOM.
      2) INSTALL NEW BATTERIES. INSTALL NEW BATTERY CHARGERS.
      3) INSTALL NEW DC TO AC INVERTER.
      4) REMOVE EXISTING BATTERY SYSTEM AND DISPOSE PER SEPTA INSTRUCTIONS.
   B. NEW 136 V DC POWER PANEL.
   C. AC POWER PANEL TO PROVIDE POWER FOR LIGHTING AND NEW EQUIPMENT.
   D. AUXILIARY POWER CONDUITS, BOXES AND CONDUCTORS.
   E. DISCONNECT SWITCHES.
   F. AUXILIARY TRANSFORMER(S).
   G. BONDING AND GROUNDING.
   H. NEW OUTDOOR CABLE RACEWAY SYSTEMS AS REQUIRED.
16. LIGHTING FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. SITE LIGHTING TO SUIT NEW EQUIPMENT ARRANGEMENT.
   B. INDOOR LIGHTING, RECEPTACLES.
17. FIRE ALARM AND INTRUSION DETECTION FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. FIRE ALARM SYSTEM.
   B. INTRUSION DETECTION SYSTEM, INCLUDING CCTV SYSTEM.
   C. CONTROLS IN INTERFACE WITH HVAC FOR SHUT DOWN.
18. COMMUNICATION AND SCADA SYSTEM FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5:
   A. PROVIDE REMOTE TERMINAL UNIT (RTU) WITH INTEGRATED TPSS GATEWAY COMPUTER.
   B. SCADA CONDUITS OR CABLE TRAYS AND CABLES FOR INDICATION AND CONTROL CIRCUITS.
   C. TPSS CONTROLS AND SENSORS.
   D. MODIFICATION OF SCADA HOST COMPUTER IS BY SEPTA. PROVIDE LABOR FOR TESTING.
   E. REPLACING THE COMMUNICATION CABLE FROM THE TPSS TERMINATION CABINET TO THE NEAREST OUTDOOR JUNCTION BOX.
19. TRACTION POWER AND SEPTA EMERGENCY AC AND DC POWER SYSTEMS EQUIPMENT, FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5, TO INCLUDE INCOMING MEDIUM VOLTAGE SUPPLY, 15 KV AC SWITCHGEAR (FOR 13.2 KV CIRCUITS), TRACTION TRANSFORMER RECTIFIERS SETS, AUXILIARY AND SIGNAL POWER TRANSFORMERS, 15 KV SWITCHGEAR (FOR 4.8KV CIRCUITS), 1000 V DC SWITCHGEAR, TRACTION RETURN SYSTEM, AUXILIARY POWER SUPPLY NETWORK, TRACTION POWER AND RETURN CABLES, RAIL RETURN BUS, RETURN CABLES INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING (AS INDICATED ON THE CONTRACT DRAWINGS):
   A. 15 KV AC INCOMING/FEEDER CIRCUIT BREAKERS:
      1) SEVEN (7) BREAKERS EACH AT BROAD AND PARK TPSS.
      2) EIGHT (8) AT LOUDON TPSS.
      3) THREE (3) AT CASTOR TPSS.
   B. ONE (1) 15 KV AC TIE CIRCUIT BREAKER AT EACH OF BROAD, PARK AND LOUDON TPSS.
   C. 700 V DC CIRCUIT BREAKERS WITH A WITHDRAWABLE DIRECT ACTING TRIP ELEMENT:
      1) TWO (2) CATHODE BREAKERS AT EACH OF BROAD, PARK AND LOUDON TPSS.
      2) TEN (10) FEEDDER BREAKERS AT BROAD, NINE (9) FEEDER BREAKERS AT PARK AND ELEVEN (11) AT LOUDON TPSS.
      3) THREE (3) STATION SERVICE BREAKERS EACH AT LOUDON AND PARK TPSS, FIVE (5) STATION SERVICE BREAKERS AT BROAD TPSS.
      4) ONE (1) CATHODE BREAKERS AND TWO (2) FEEDER BREAKERS AT CASTOR TPSS.
   D. TWO (2) 4 MVA TRANSFORMER RECTIFIER SETS AT EACH OF BROAD, PARK, AND LOUDON TPSS.
   E. ONE (1) 1 MVA TRANSFORMER RECTIFIER SET AT CASTOR TPSS.
   F. ONE (1) 2 MVA LIGHTING AND POWER TRANSFORMER (13.2 KV/4.8 KV) AT EACH OF BROAD, PARK AND LOUDON TPSS.
   G. AUXILIARY TRANSFORMERS (13.2 KV/120–208 V):
      1) TWO (2) EACH 150 KVA AT BROAD, PARK, AND LOUDON TPSS.
      2) ONE (1) EACH 45 KVA AT CASTOR TPSS.
   H. POTENTIAL AND CURRENT TRANSFORMERS (PTS, CTS).
   I. 500 KW DIESEL GENERATOR SET WITH INTEGRATED LOAD BANK AT 25% OF NAMEPLATE RATING AT BROAD TPSS.
   J. 500 KW RECTIFIER AT BROAD TPSS.
   K. 4.8 KV AC WITHDRAWABLE CIRCUIT BREAKERS (15 KV RATED):
      1) NINE (9) AT BROAD TPSS.
      2) SIX (6) AT PARK TPSS.
      3) FIVE (5) AT LOUDON TPSS.
   L. MANUAL DISCONNECT SWITCHES.
   M. DC CURRENT SHUNTS.
   N. SURGE ARRESTERS.
   O. RENEWAL OF ALL HIGH VOLTAGE BUSES, WIRES, CONNECTIONS, INSULATORS, CONDUIT, ETC.
   P. REPLACE EXISTING RETURN RAIL/GROUND BUSSES, INSTALL NEW RETURN RAIL/GROUND BUSSES AND RETURN RAIL CABLES FROM THE TPSSs TO THE NEAREST MANHOLE. COORDINATE REPLACEMENT WITH SEPTA.
   Q. GROUND GRID WITH GROUND BUSES AND CONNECTIONS TO THE EQUIPMENT AND PERIMETER FENCING. INSTALL NEW GROUND GRID AND ASSOCIATED CONDUCTORS TO SUPPLEMENT AND/OR REPLACE THE EXISTING GROUND GRID AND ALL EQUIPMENT CONNECTIONS. THIS SHALL INCLUDE RETURN CIRCUIT CONNECTIONS IN THE AREAS AFFECTED BY THE NEW AND EXISTING EQUIPMENT.
20. RECOVER REDUNDANT ASSETS AND RETURN TO SEPTA (SPARES/ASSET VALUE) FOR EACH TPSS IN CONSTRUCTION CONTRACT NO. 5.
21. DEMOLITION, REMOVAL AND DISPOSAL OF EQUIPMENT:
   A. ALL CIRCUIT BREAKERS INSIDE BUILDING AFTER SEPTA HAS REMOVED ASBESTOS CONTAINING COMPONENTS. COORDINATE WITH SEPTA FOR THE DETAILS AND SCHEDULE. SEPTA WILL REMOVE PARTS FROM EXISTING CIRCUIT BREAKERS BEFORE REMOVING EXISTING CIRCUIT BREAKERS FROM THE PROJECT SITE.
   B. ALL TRANSFORMER–RECTIFIER SETS.
   C. ALL AUXILIARY TRANSFORMERS.
   D. GENERATOR–RECTIFIER SET AT BROAD TPSS AND ALL ITS ATTACHMENTS INCLUDING ACTIVE AND ABANDONED FUEL TANKS.
   E. ALL PTS, CTS, DISCONNECT SWITCHES.
   F. 125 V DC BATTERIES, BATTERY CHARGERS.
22. TESTING, COMMISSIONING, TRAINING AND PLACING INTO REVENUE SERVICE OF ALL COMPONENTS AND EQUIPMENT TO MAKE A COMPLETE OPERATING SYSTEM; FOLLOWED BY POST COMMISSIONING TESTING.
23. FINAL DESIGN, PROCURE MATERIALS, MANUFACTURE, FACTORY TESTING, DELIVERY AND STORAGE OF COMPONENTS AND MATERIALS, INSTALLATION, ALL FIELD TESTING, COMMISSIONING AND BRINGING INTO REVENUE SERVICE ALL COMPONENTS NECESSARY FOR IMPLEMENTATION OF FULL AND CORRECT OPERATION OF THE TPSSs.
24. PERFORM ALL WORK BASED ON THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL DEVELOP THE FINAL DESIGN DRAWINGS AND SPECIFICATIONS FOR REVIEW AND APPROVAL BY SEPTA. CONSTRUCTION WORK SHALL NOT BE COMMENCED UNTIL SEPTA HAS APPROVED THE FINAL DESIGN DRAWINGS AND SPECIFICATIONS.
25. VERIFY AND UPDATE ALL DESIGN REQUIREMENTS PRIOR TO COMMENCEMENT OF DETAILED/FINAL DESIGN.
26. THE TPSS FUNCTIONALITY WILL REMAIN AS EXISTS TODAY, EXCEPT FOR THE CHANGES AS SPECIFIED IN THE CONTRACT DRAWINGS.
27. ABATEMENT OR REMEDIATION OF CONTAMINATED OR HAZARDOUS MATERIALS.
28. VERIFICATION OF EXISTING CONDITIONS INCLUDING UTILITIES.
29. FINAL CONSTRUCTION PLANS FOR ALL TPSS WORK INCLUDING TEMPORARY STRUCTURES, SIGNED AND SEALED BY AN ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA.
30. FINAL CONSTRUCTION SPECIFICATIONS FOR ALL TPSS WORK INCLUDING TEMPORARY STRUCTURES, SIGNED AND SEALED BY AN ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA.
31. ALL PERMITS REQUIRED TO PERFORM CONSTRUCTION WORK FROM MUNICIPAL AUTHORITY HAVING JURISDICTION OF THE WORK SITE.
32. WORK PLANS THAT ARE FULLY COORDINATED WITH THE SEPTA OPERATIONS MANAGER.
33. SUPPORT SEPTA PUBLIC INVOLVEMENT INITIATIVE WITH TECHNICAL INFORMATION AND PRESENTATION GRAPHICS.
34. PROVIDE TEMPORARY POWER.
35. AS–BUILT DRAWINGS.

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR
HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
DESCRIPTION OF WORK

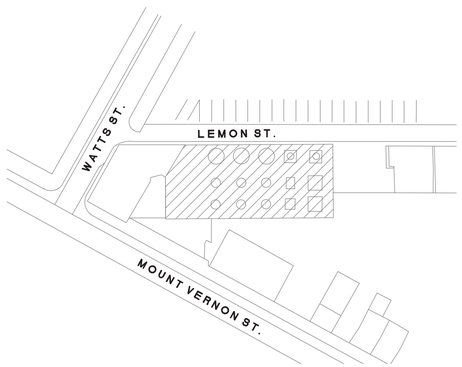
SCALE: NTS	SCALE FACTOR: -
DATE: 10/16/2017	DRAWN BY: MB
WORK ORDER NO.: -	CHECKED BY: VS

SHEET NUMBER
G107

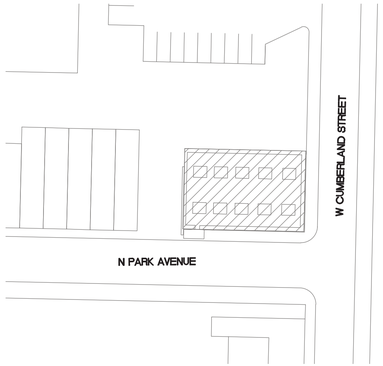
DWG. NO.:	7	OF	10
SHT. NO.:	7	OF	452
ARCHIVE NO.:			

COMPUTER FILE NO.: 17AN-G107
REV. NO.: -

STATUS: 50% SUBMISSION



BROAD TPSS



PARK TPSS

LOUDON TPSS

CASTOR TPSS

STAGE			
1.	DEVELOP FINAL DESIGN		
2.	ORDER MAJOR EQUIPMENT		
3.	MOBILIZATION & SITE WORK		
4.	REHABILITATION PER THE DETAILED STAGING PLAN		
5.	FIELD TESTING & COMMISSIONING	MOBILIZATION & SITE WORK	
6.	DEMOBILIZATION	REHABILITATION PER THE DETAILED STAGING PLAN	
7.		FIELD TESTING & COMMISSIONING	MOBILIZATION & SITE WORK
8.	MOBILIZATION & SITE WORK	DEMOBILIZATION	REHABILITATION PER THE DETAILED STAGING PLAN
9.	REHABILITATION PER THE DETAILED STAGING PLAN		FIELD TESTING & COMMISSIONING
10.	FIELD TESTING & COMMISSIONING		DEMOBILIZATION
11.	DEMOBILIZATION		

NOTES:

1. COORDINATE THE TRACTION POWER SUBSTATION (TPSS) REHABILITATION SCHEDULE WITH SEPTA TO MINIMIZE THE IMPACT TO THE SYSTEM OPERATION.
2. THE REHABILITATION OF BROAD TPSS AND LOUDON TPSS WILL BE DONE SIMULTANEOUSLY, WITH SOME STAGGER.
3. THE REHABILITATION OF PARK TPSS WILL BE DONE AFTER THE REHABILITATION OF BROAD TPSS.
4. THE REHABILITATION OF CASTOR TPSS CAN BE DONE INDEPENDENTLY OF THE REHABILITATION OF BROAD STREET LINE TPSS.
5. THE CONTRACTOR SHALL COORDINATE WITH SEPTA TO ENSURE THAT DURING THE REHABILITATION WORK ON CASTOR TPSS, THE OTHER TPSSs FEEDING ROUTE 59 TRACKLESS TROLLEY ARE IN WORKING CONDITION.

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
SUGGESTED OVERALL STAGING

SCALE: NTS | SCALE FACTOR: -
DATE: 10/16/2017 | DRAWN BY: MB | CHECKED BY: VS
WORK ORDER NO.: -
SHEET NUMBER: **G108**
DWG. NO.: 8 OF 10
SHT. NO.: 8 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-G108 | REV. NO.: -

STATUS: 50% SUBMISSION

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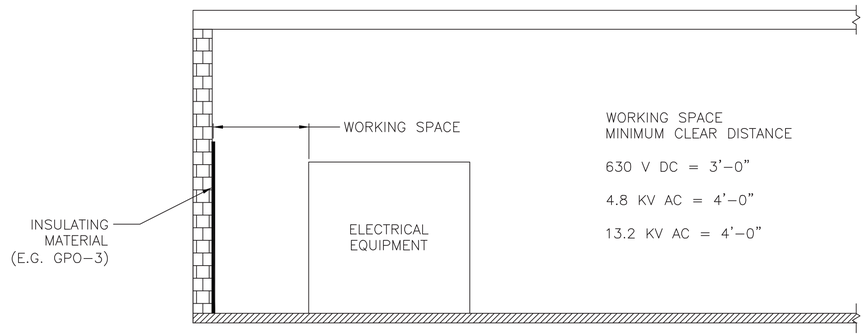
WORKING SPACE FOR ELECTRICAL EQUIPMENT (NEC ARTICLE 110.34)

CONDITION #1

EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE.

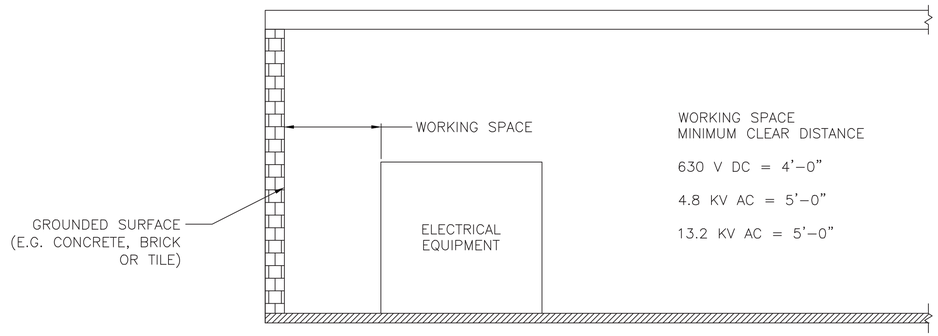
PARTS ON THE OTHER SIDE ARE NOT LIVE OR GROUNDED, OR ARE GUARDED BY INSULATING MATERIAL.



CONDITION #2

EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE.

GROUNDED PARTS ON THE OTHER SIDE (E.G. TILE, BRICK OR CONCRETE WALLS).

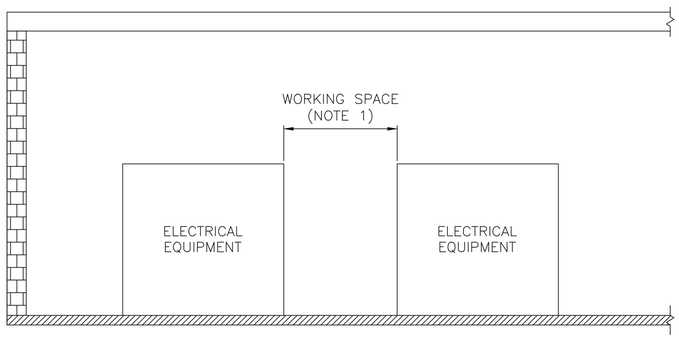


NOTES:

1. REFER TO PUBLICATION NFPA 70, NATIONAL ELECTRICAL CODE (NEC), FOR MORE DETAILS.

CONDITION #3

EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.



NOTES:

1. THE MINIMUM CLEAR DISTANCE DOES NOT INCLUDE FOR EQUIPMENT DOORS BEING OPEN, THUS THE DISTANCES SHOULD BE INCREASED TO COMPENSATE.

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL, PHILADELPHIA, PA 19107

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

CONTRACT 5
BROAD - PARK - LOUDON - CASTOR
TRACTION POWER SUBSTATION REHABILITATION
GENERAL
WORKING CLEARANCES FOR ELECTRICAL EQUIPMENT

SCALE: NTS
SCALE FACTOR: -
DATE: 10/16/2017
DRAWN BY: MJB
CHECKED BY: EZ
WORK ORDER NO.: -
SHEET NUMBER: **G109**
DWG. NO.: 9 OF 10
SHT. NO.: 9 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-G109
REV. NO.: -

STATUS: 50% SUBMISSION

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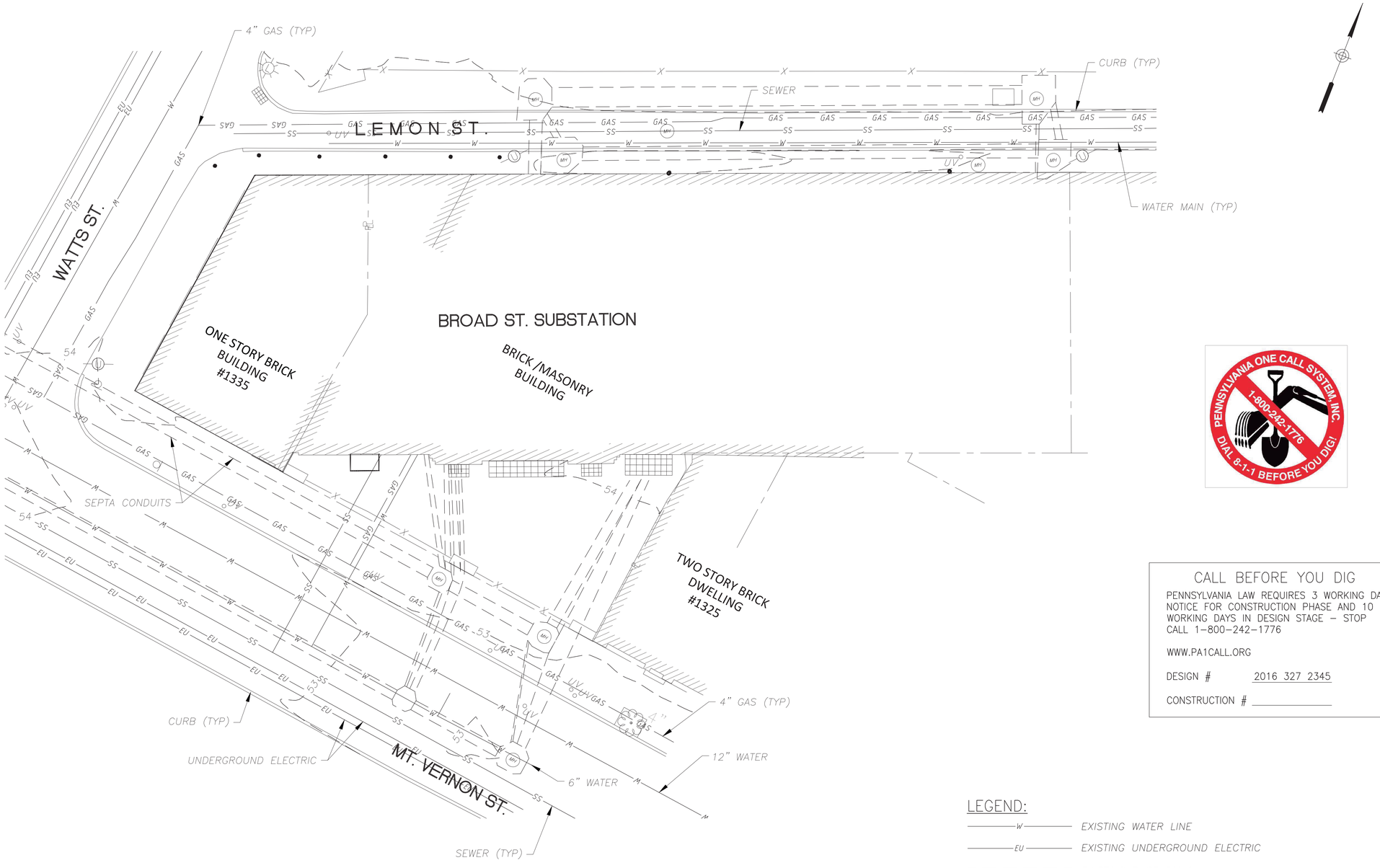
CONDUIT AND CABLE SCHEDULE

TAG	FROM	TO	VIA	CONDUIT			CONDUCTORS			INSULATION TYPE	LENGTH APPROX.	DWG
				NO.	SIZE	TYPE	NO.	SIZE	TYPE			
--	--	--	--	--	--	--	--	--	--	--	--	--



PLAN VIEW

10 5 0 10

SCALE: 1"=10'

NOTES:

1. VERTICAL DATUM NAVD 88 AND HORIZONTAL DATUM PENNSYLVANIA STATE PLANE COORDINATE SYSTEM SOUTH ZONE (NAD 83) ESTABLISHED BY GLOBAL POSITIONING SYSTEM METHODOLOGY.
2. UNDERGROUND UTILITIES AND FACILITIES HAVE BEEN PLOTTED FROM MULTIPLE SOURCES AND ARE SHOWN IN APPROXIMATE LOCATIONS. FIELD VERIFY AS NECESSARY.
3. EXISTING FEATURES SHOWN HEREON ARE DEPICTED AS THEY EXISTED IN MARCH 2016.
4. PROPERTY LINE INFORMATION HEREON SHOULD BE CONSIDERED APPROXIMATE AND SHOWN FOR INFORMATIONAL PURPOSES ONLY, BASED ON THE CITY PLAN CP-58 PROVIDED BY THE PHILADELPHIA CITY PLANS UNIT, PHILADELPHIA DEPARTMENT OF RECORDS TAX MAP 5-N-17 AND PASDA GIS INFORMATION.

LEGEND:

- W — EXISTING WATER LINE
- EU — EXISTING UNDERGROUND ELECTRIC
- EXISTING DUCT BANK
- GAS — GAS — EXISTING GAS LINE
- SS — EXISTING SANITARY/SEWER
- PL — PROPERTY LINE
- X — EXISTING FENCE
- MH — EXISTING MANHOLE

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 DIAL 8-1-1 BEFORE YOU DIG!

CALL BEFORE YOU DIG

PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL 1-800-242-1776

WWW.PA1CALL.ORG

DESIGN # 2016 327 2345

CONSTRUCTION # _____

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
CIVIL
EXISTING CONDITIONS

SCALE: AS SHOWN	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
	CHECKED BY: SEG
WORK ORDER NO.: 276491	
SHEET NUMBER: **C100**	
DWG. NO.: 1 OF 3	
SHT. NO.: 11 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-C100	REV. NO.: -

STATUS: 50% SUBMISSION

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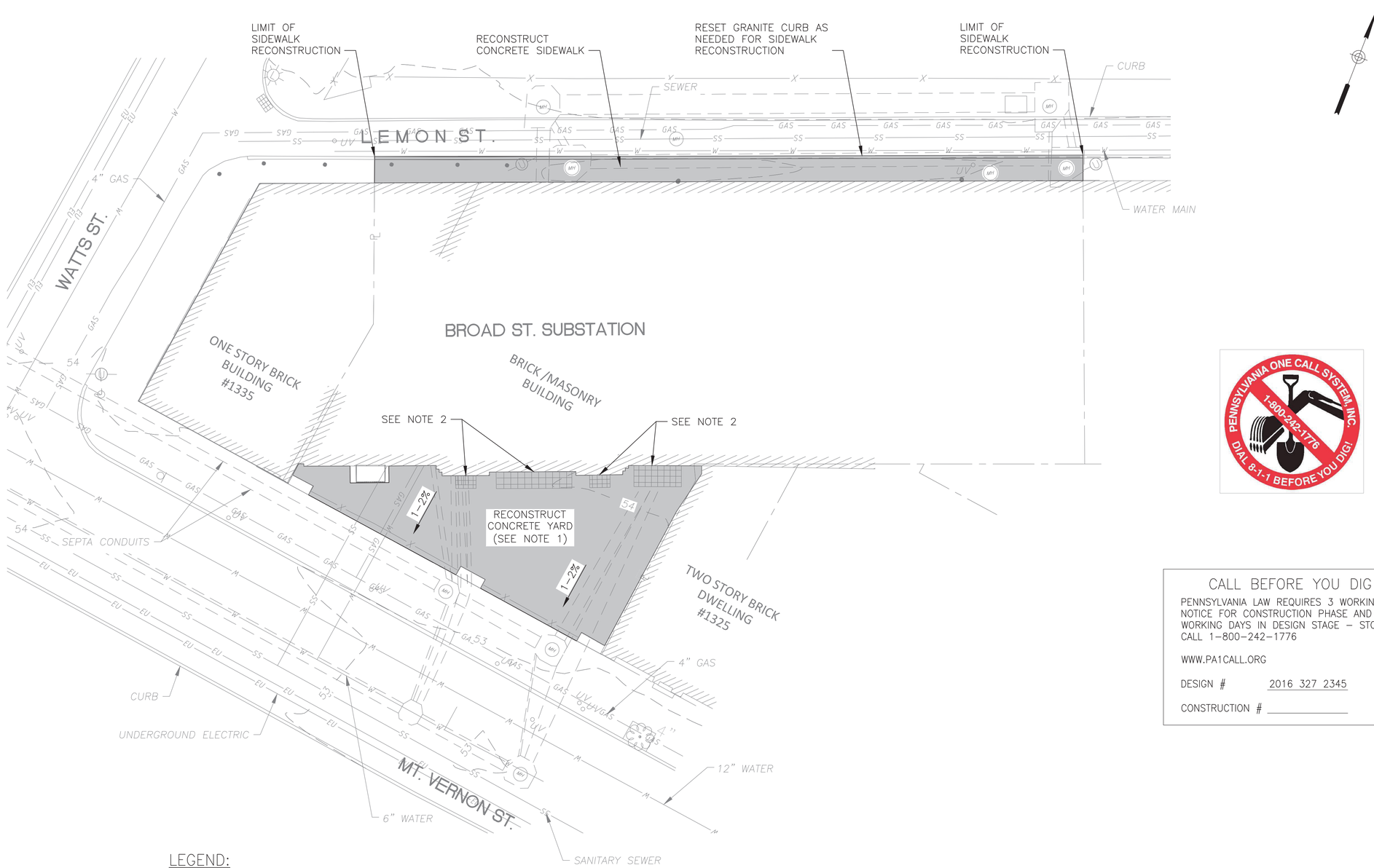

NOTES:

1. DESIGN YARD CONCRETE TO SUPPORT ANTICIPATED VEHICLE LOADS.
2. DEMOLISH GRATED WELLS. DESIGN BACKFILL AND PAVEMENT TO SUPPORT ANTICIPATED VEHICLE LOADS.

LEGEND:

- W — EXISTING WATER LINE
- EU — EXISTING UNDERGROUND ELECTRIC
- EXISTING DUCT BANK
- GAS — GAS — EXISTING GAS LINE
- SS — EXISTING SANITARY/SEWER
- PL — PROPERTY LINE
- x — EXISTING FENCE
- MH — EXISTING MANHOLE
- CONCRETE REPLACEMENT

PLAN VIEW

10 5 0 10

SCALE: 1"=10'

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 DIAL 8-1-1 BEFORE YOU DIG!

CALL BEFORE YOU DIG

PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE – STOP CALL 1-800-242-1776

WWW.PA1CALL.ORG

DESIGN # 2016 327 2345

CONSTRUCTION # _____

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EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR
HDR Engineering, Inc.
Philadelphia, PA

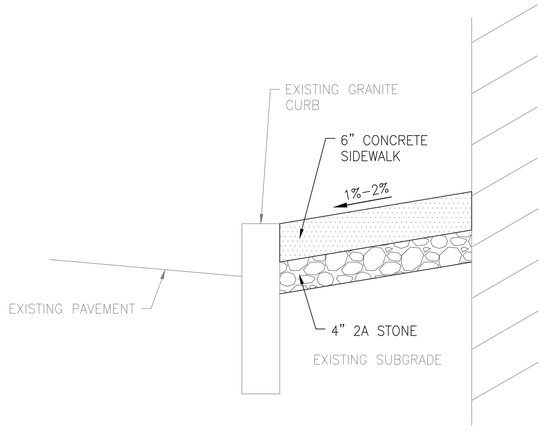
REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
CIVIL
SITE PLAN

SCALE: AS SHOWN	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
	CHECKED BY: SEG
WORK ORDER NO.: 276491	
SHEET NUMBER: C101	
DWG. NO.: 2 OF 3	
SHT. NO.: 12 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-C101	REV. NO.: -

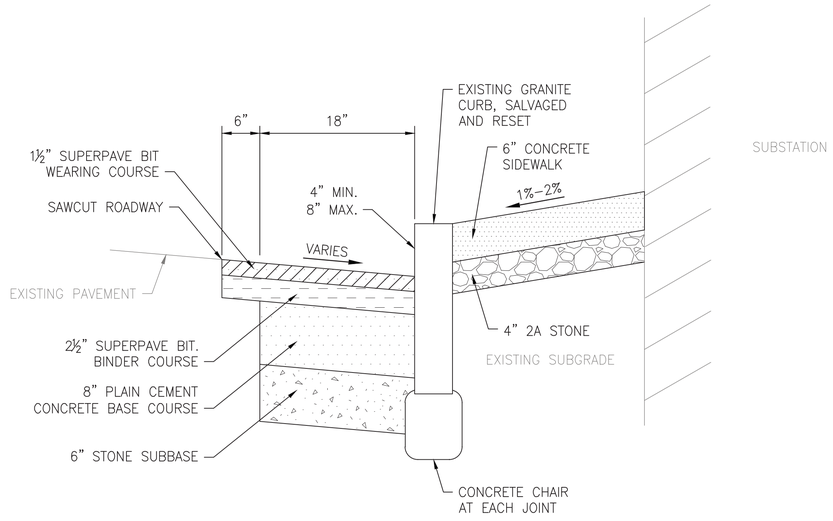
STATUS: 50% SUBMISSION



TYPICAL SECTION

CONCRETE SIDEWALK

N.T.S.



TYPICAL SECTION

RESET OF GRANITE CURB

N.T.S.

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C:\PW\WORKING\PITTD\197862\17AN-C102.DWG

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
CIVIL
CURB & PAVEMENT DETAILS

SCALE: AS SHOWN	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
	CHECKED BY: SEG
WORK ORDER NO.: 276491	
SHEET NUMBER: **C102**	
DWG. NO.: 3 OF 3	
SHT. NO.: 13 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-C102	REV. NO.: -

STATUS: 50% SUBMISSION

LEGEND–SYMBOLS:

SYMBOL	DESCRIPTION
DIMENSION	DIMENSION TO CENTER LINE
DIMENSION	DIMENSION TO FINISHED FACE
DIMENSION	DIMENSION TO ROUGH FACE
1 A100 PLAN SCALE: 1/4" = 1'–0" FILE: – REF: –	DRAWING TITLE
A A100	ELEV/SECT REFERENCE; ELEVATION REFERENCE; DWG/SHT NO.
A100 1 2	ELEV REFERENCE; INTERIOR ELEVATION REFERENCE; DWG/SHT NO.
1 A100	DETAIL REFERENCE
1 A100	SECTION REFERENCE
1	PARTITION TYPE
1	REVISION NUMBER
1	DOOR NUMBER
1	WINDOW NUMBER
1	COLUMN GRID NUMBER
0.0 REF. ELEV.	REFERENCE ELEVATION LINE
	EXISTING DOOR
	NEW DOOR
	ACCESSIBLE SYMBOL
UP DN	STAIR/RAMP DIRECTION
12 X	ROOF PITCH
+24.90	EXISTING SPOT ELEVATION
+24.90	NEW SPOT ELEVATION
	NORTH ARROW

LEGEND–HATCH PATTERNS:

SYMBOL	DESCRIPTION
	EARTH
	SAND
	CAST STONE
	CONCRETE
	BRICK
	MASONRY–CMU
	GLAZED CMU
	2–HOUR FIRE RATED CMU WALL
	CERAMIC TILE
	RIGID INSULATION BOARD
	SOFT INSULATION
	WOOD FRAMING–CONTINUOUS
	WOOD BLOCKING
	PLYWOOD
	FINISH WOOD
	STEEL
	ALUMINUM

GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS INCLUDING THE SPECIFICATIONS AND THESE DRAWINGS.
2. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
3. THE DRAWINGS INDICATE A SPECIFIC DESIGN INTENT. THIS INTENT IS NOT SUBJECT TO SUBSTITUTION. WHERE SPECIFIC MATERIALS ARE IDENTIFIED AND ARCHITECTURAL STYLES SHOWN, THESE SHALL BE PROVIDED UNLESS APPROVED OTHERWISE.
4. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE COMMONWEALTH OF PENNSYLVANIA CODES, RULES AND REGULATIONS, LOCAL CODES AND ALL OTHER STATE AGENCIES HAVING JURISDICTION OVER ANY PORTION OF WORK SPECIFIED IN THESE DOCUMENTS.
5. THE CONTRACTOR SHALL SUBMIT A WORKPLAN FOR SEPTA APPROVAL, SHOWING A DETAILED WORK SCHEDULE.
6. THE DIMENSIONS SHOWN ON THE DRAWINGS MAY VARY FROM THE ACTUAL EXISTING DIMENSIONS IN THE FIELD. IT IS, THEREFORE, IMPERATIVE THAT THE CONTRACTOR, PRIOR TO COMMENCEMENT OF WORK, TAKE EXACT MEASUREMENTS TO VERIFY ALL DIMENSIONS SHOWN ON THE DRAWINGS AS WELL AS OBTAIN OTHER NECESSARY DIMENSIONS FOR THE PURPOSE OF PREPARING SUBMITTALS. SHOP DRAWINGS AND ANY OTHER DRAWINGS PREPARED BY THE CONTRACTOR SHALL INCLUDE A STATEMENT CERTIFYING THAT THOSE HAVE BEEN PREPARED IN ACCORDANCE WITH THE FIELD–MEASURED DIMENSIONS.
7. THE SEPTA PROJECT MANAGER SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE DRAWINGS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE DRAWINGS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE SEPTA PROJECT MANAGER.
8. THE CONTRACTOR IS INSTRUCTED TO COOPERATE WITH SEPTA'S REPRESENTATIVES AND ALL OTHER CONTRACTORS PERFORMING WORK ON THIS JOB SITE DURING THE PERFORMANCE OF THIS CONTRACT.
9. UNLESS OTHERWISE NOTED ON THE DRAWINGS AND SPECIFICATIONS, ALL FACILITIES SHALL REMAIN IN PLACE AND IN SERVICE DURING DEMOLITION AND CONSTRUCTION UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL PROTECT, PRESERVE, INCORPORATE, AND TEMPORARILY RELOCATE (IF REQUIRED) AND SUPPORT ALL EXISTING FACILITIES, STRUCTURE, UTILITIES, AND OTHER ITEMS TO REMAIN, SUBJECT TO THE APPROVAL OF THE SEPTA PROJECT MANAGER. THE CONTRACTOR IS TO REPAIR OR REPLACE ANY ITEMS DAMAGED DURING THE COURSE OF WORK TO THE SATISFACTION AND APPROVAL OF THE SEPTA PROJECT MANAGER AT NO ADDITIONAL COST TO SEPTA.
10. THE CONTRACTOR SHALL MAINTAIN FLOW FOR ALL EXISTING UTILITIES. COORDINATE ANY REQUIRED SHUTDOWNS WITH THE SEPTA PROJECT MANAGER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND INCURRING THE COST OF ALL REQUIRED PERMITS AND CERTIFICATES.
12. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS.
13. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL DRAWINGS AND SPECIFICATIONS, AND COORDINATE WORK WITH ALL OTHER CONTRACTORS AND SUBCONTRACTORS FOR THIS PROJECT.
14. THE CONTRACTOR SHALL TAKE REASONABLE CARE TO MAINTAIN A SAFE AND SECURE WORK AREA AT ALL TIMES THROUGH THE USE OF, AMONG OTHER THINGS, SAFETY EQUIPMENT, FENCING, TEMPORARY DIRECTIONAL SIGNAGE AND FALL PROTECTION.
15. ACCESS TO THE WORK SITE AND STORAGE OF MATERIALS AND EQUIPMENT ON THE PREMISES OR AS DETERMINED BY SEPTA SHALL BE APPROVED BY THE SEPTA PROJECT MANAGER.
16. THE CONTRACTOR SHALL KEEP THE ADJACENT WORK AREAS, STAGING AREAS AND BUILDING ACCESS AREAS CLEAN OF DEBRIS, AND WILL BE RESPONSIBLE FOR ALL MAINTENANCE AND CLEANING OF THESE AREAS DURING THE COURSE OF THE PROJECT.
17. SEPTA REQUIRES ALL PERSONNEL WORKING ON THEIR PROPERTY TO HAVE A SEPTA PHOTO IDENTIFICATION. SEPTA WILL ARRANGE TO HAVE THE IDENTIFICATION CARDS MADE AT THE BEGINNING OF THE CONTRACT AND THROUGHOUT THE DURATION OF THE CONTRACT.
18. SHOULD UNFORESEEN CONDITIONS OR OTHER CAUSES NECESSITATE CONSTRUCTION DETAILS NOT IN ACCORDANCE WITH THESE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE SEPTA PROJECT MANAGER.
19. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROCURE AND PAY FOR THE RENTAL EXPENSES AND THE MAINTENANCE OF TRAILERS AND OTHER RENTAL EQUIPMENT FOR THE ENTIRE DURATION OF THE PROJECT. THIS CONSISTS OF BUT IS NOT LIMITED TO ALL LABOR, MATERIAL, EQUIPMENT AND SERVICES REQUIRED.
20. WRITTEN DIMENSIONS ON THE DRAWINGS SHALL TAKE PRECEDENCE, SCALING OF DRAWINGS IS PROHIBITED. LARGE SCALE DRAWINGS SHALL TAKE PRECEDENCE OVER SMALL SCALE DRAWINGS.
21. ALL LUMBER EXPOSED TO THE ELEMENTS OR IN CONTACT WITH MASONRY SHALL BE PRESSURE–TREATED.
22. THE CONTRACTOR IS TO PROTECT ALL AREAS IN SUCH A MANNER AS TO ELIMINATE HAZARDS TO PERSONS AND PROPERTY; TO MINIMIZE INTERFERENCE WITH USE OF ADJACENT AREAS, UTILITIES AND STRUCTURES, OR INTERRUPTION OF USE OF SUCH UTILITIES.
23. IF CHANGE TO THE PROJECT IS REQUIRED, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING INFORMATION ABOUT IMPACT OF CHANGE ON CONSTRUCTION SCHEDULE.
24. ALL FINISH COLORS TO BE DETERMINED BY THE SEPTA PROJECT MANAGER.
25. ALL EXISTING CONDITIONS ARE TO BE FIELD–VERIFIED BEFORE COMMENCEMENT OF WORK.
26. ALL NEWLY INSTALLED MATERIALS SHALL BE ASBESTOS–FREE.
27. ALL SPECIFIED MANUFACTURERS AND MODEL NUMBERS INDICATE BASIS OF DESIGN PRODUCTS. PROPOSED ALTERNATES AND EQUIVALENTS MUST BE REVIEWED AND APPROVED BY THE SEPTA PROJECT MANAGER.
28. ALL MATERIALS AND PRODUCTS IN THIS PROJECT MUST COMPLY WITH THE BUY AMERICA ACT.
29. THE CONTRACTOR IS RESPONSIBLE FOR SECURITY OF HIS MATERIAL AND PROPERTY.
30. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY UTILITIES.
31. THE CONTRACTOR IS RESPONSIBLE FOR SNOW REMOVAL.
32. CONSTRUCTION/TREATMENTS/ETC AT THE SPECIFIC SITE WILL BE SIMILAR AT ALL OTHER LOCATIONS UNDER THE CONTRACT UNLESS OTHERWISE NOTED.

DEMOLITION NOTES:

1. DO NOT ALLOW DEMOLISHED OR REMOVED MATERIALS TO DROP, FALL OR IMPACT AGAINST STRUCTURES TO REMAIN. PROTECT ALL STRUCTURES TO REMAIN FROM DAMAGE OF ANY KIND.
2. REMOVE ALL DEMOLISHED MATERIAL PROMPTLY FROM SITE.
3. AFTER REMOVAL AND PATCHING OF ELEMENTS, THE FINISHED APPEARANCE SHALL MATCH ADJACENT EXISTING SURFACES AND FINISHES.
4. NO DIGGING OR EXCAVATION MAY TAKE PLACE PRIOR TO PLACING A PA ONE CALL FOR THE ENTIRE PROJECT SITE. IN ADDITION, NO DIGGING OR EXCAVATION MAY TAKE PLACE PRIOR TO THE LOCATING OF NEAR AND ADJACENT BURIED AND OVERHEAD UTILITIES.
5. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
6. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
GENERAL NOTES & LEGENDS

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC; CHECKED BY: SF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A100**	
DWG. NO.: 1 OF 23	
SHT. NO.: 14 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A100	REV. NO.: -

STATUS: 50% SUBMISSION

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ABBREVIATIONS:

ABV	ABOVE
A/C	AIR CONDITIONING
ACST	ACOUSTIC
ADDL	ADDITIONAL
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
APPROX	APPROXIMATELY
ARCH	ARCHITECTURAL
ASB	ASBESTOS
ASPH	ASPHALT
ASPHRS	ASPHALT ROOF SHINGLES
ASSN	ASSOCIATION
ASST	ASSISTANT
ASSY	ASSEMBLY
AVE	AVENUE
AVG	AVERAGE
AVPA	AUDIO/VISUAL PUBLIC ADDRESS
BALC	BALCONY
BC	BOTTOM OF CURB
BD	BOARD
BETW	BETWEEN
BLDG	BUILDING
BLK'G	BLOCKING
BLR	BOILER
BM	BEAM
BM	BENCHMARK
BP	BASEPLATE
BRDG	BRIDGING
BRG	BEARING
BS	BOTH SIDES
BSMT	BASEMENT
BTM	BOTTOM
BTU	BRITISH THERMAL UNIT
BTWN	BETWEEN
BUR	BUILT-UP ROOFING
C/C	CENTER TO CENTER
CAB	CABINET
CAP	CAPACITY
CARP	CARPET
CDR	COILING DOOR
CER	CERAMIC TILE
CI	CAST IRON
CIP	CAST IRON PIPE
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR/CLEARANCE
CLOS	CLOSET
CMIU	CONCRETE MASONRY INSULATED UNIT
CMU	CONCRETE MASONRY UNIT
CNCL	CONCEALED
CO	CLEANOUT
CO	COMPANY
COL	COLUMN
COMP	COMPOSITION
CONC	CONCRETE
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CRV	CURVED
CSK	COUNTERSINK
CTD	COATED
CTR	CENTER
CTRL	CONTROL
CUH	CABINET UNIT HEATER
D	DEPTH
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLISH/DEMOLITION
DEPT	DEPARTMENT
DIA, ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTANCE
DIV	DIVISION
DL	DEAD LOAD
DMPF	DAMPROOFING
DN	DOWN
DPN	DEMOUNTABLE PARTITION MANUFACTURER
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DW	DISHWASHER
DWG	DRAWING
E	EAST
EA	EACH
EF	EXHAUST FAN
EGEN	EMERGENCY GENERATOR
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
ELEV	ELEVATION
ELEV	ELEVATOR
ELEC	ELECTRIC/ELECTRICAL
EMER	EMERGENCY
ENCL	ENCLOSURE
ENG	ENGINEER
ENT	ENTRANCE
EQ	EQUAL
EQUIP	EQUIPMENT
ETC.	ET CETERA
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EX	EXISTING
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATE
FBD	FIBERBOARD
FD	FLOOR DRAIN
FDR	FIRE DOOR
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER & CABINET
FHY	FIRE HYDRANT
FIN	FINISH/FINISHED
FL	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FLRG	FLOORING
FND	FOUNDATION
FNTN	FOUNTAIN
FP	FIREPROOF
FRP	FIBERGLASS REINFORCED PANELING
FRT	FIRE RETARDANT TREATED
FT	FEET/FOOT
FTG	FOOTING
FURN	FURNITURE
FVD	FARE VENDING DEVICE
GA	GAUGE
GAR	GARAGE
GALV	GALVANIZED
GEN	GENERATOR
GFI	GROUND FAULT INTERUPTOR
GL	GLASS
GOVT	GOVERNMENT
GR	GRADE
GRD	GROUND
GSF	GROSS SQUARE FEET
GVL	GRAVEL
GWB	GYPSUM WALLBOARD
GYP	GYPSUM
H	HIGH
HDWE	HARDWARE
HM	HOLLOW METAL
HMD	HOLLOW METAL DOOR
HORIZ	HORIZONTAL
HPT	HIGH POINT
HR	HOUR
HT	HEIGHT
HTR	HEATER
HVAC	HEATING/VENTILATION/AIR CONDITIONING
HWH	HOT WATER HEATER
ID	INSIDE DIAMETER
IE	FOR EXAMPLE
IH	INTAKE HOOD
IN	INCH/INCHES
INCL	INCLUDING
INSUL	INSULATION
INT	INTERIOR
JB	JUNCTION BOX
JST	JOIST
JT	JOINT
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LF	LINEAR FEET
LG	LENGTH
LH	LEFT HAND
LIB	LIBRARY
LIN	LINEAR
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LPT	LOW POINT
LT	LIGHT
LVL	LEVEL
LWC	LIGHTWEIGHT CONCRETE
MAINT	MAINTENANCE
MANF	MANUFACTURER
MAS	MASONRY
MAT	MATERIAL
ETC.	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MEZZ	MEZZANINE
MGR	MANAGER
MH	MAN HOLE
MID	MEDIA INFORMATION DISPLAY
MIL	MILITARY
MIN	MINIMUM
MISC	MISCELLANEOUS
ML	METAL LATH
MLDG	MOLDING
MLP	METAL LATH AND PLASTER
MO	MASONRY OPENING
MOD	MODULAR
MOD	MOTOR OPERATED DAMPER
MRL	MACHINE ROOM LESS ELEVATOR
MTG	MOUNTING
MTL	METAL
N	NORTH
N/A	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
NOM	NOMINAL
NRC	NOISE-REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OCC	OCCUPANT
OD	OUTSIDE DIAMETER
OFD	OVERFLOW DRAIN
OFF	OFFICE
OH	OPPOSITE HAND
OHDR	OVERHEAD DOOR
OPNG	OPENING
OPP	OPPOSITE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OVHD	OVERHEAD
OZ	OUNCE
P/L	PROPERTY LINE
PASS	PASSENGER
PC	PRE-CAST
PERF	PERFORATED
PIM	PERSONS PER INCH PER MINUTE
PIP	POURED-IN-PLACE
PL	PLATE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT
PORC	PORCELAIN
PP	PER PERSON
PPM	PERSONS PER MINUTE
PPS	PARKING PAY STATION
PREFAB	PRE-FABRICATED
PR	PAIR
PROJ	PROJECT
PROP	PROPERTY
PROP LN	PROPERTY LINE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
PT	PRESSURE TREATED
PTD	PAINTED
PTN	PARTITION
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
QLTY	QUALITY
QTY	QUANTITY
QTF	QUARRY-TILE FLOOR
R	RISER
RAD	RADIUS
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REBAR	REINFORCING BAR
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCED
REQ'D	REQUIRED
RET	RETURN
REV	REVISION
RFG	ROOFING
RH	RIGHT HAND
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RWC	RAIN WATER CONDUCTOR
RWL	RAIN WATER LEADER
S	SOUTH
SAPC	SUSPENDED ACOUSTICAL PANEL CEILING
SCHED	SCHEDULE
SDG	SIDING
SECT	SECTION
SF	SQUARE FOOT/FEET
SGFT	STRUCTURAL GLAZED FACING TILE
SH	SHOWER
SHLV	SHELF/SHELVING
SHT	SHEET
SI	INTERNATIONAL SYSTEM OF UNITS
SIM	SIMILAR
SKY	SKYLIGHT
SLDR	SLIDING DOOR
SMLS	SEAMLESS
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SPKR	SPEAKER
SQ	SQUARE
SS	STAINLESS STEEL
ST	STORY
ST	STREET
STD	STANDARD
STOR	STORAGE
STL	STEEL
STRUCT	STRUCTURAL
STWY	STAIRWAY
SUPT	SUPERINTENDENT
SUPVR	SUPERVISOR
SUR	SURFACE
SUSP	SUSPENDED/SUSPENSION
SYS	SYSTEM
T/O	TOP OF
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TAN	TANGENT
TC	TOP OF CURB
TDD	TELECOMMUNICATIONS DISPLAY DEVICE
TEL	TELEPHONE
TEMP	TEMPORARY
THERM	THERMAL
THK	THICK/THICKNESS
THRU	THROUGH
TR	TREAD
TRANS	TRANSFORMER
TRTD	TREATED
TYP.	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY
VAT	VINYL ASBESTOS TILE
VCT	VINYL COMPOSITE TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VOL	VOLUME
VTR	VENT THRU ROOF
W	WEST
W	WIDE
W/	WITH
W/O	WITHOUT
WBD	WALLBOARD
WC	WATER CLOSET
WD	WOOD
WDR	WATER DOOR
WH	WATER HEATER
WIN	WINDOW
WT	WIEGHT
WTRPRF	WATERPROOFING
WWF	WELDED WIRE FABRIC
XFMR	TRANSFORMER
YD	YARD

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PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
ARCHITECTURAL
ABBREVIATIONS

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
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WORK ORDER NO.: 276491	
SHEET NUMBER: **A101**	
DWG. NO.: 2 OF 23	
SHT. NO.: 15 OF 452	
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COMPUTER FILE NO.: 17AN-A101	REV. NO.: -

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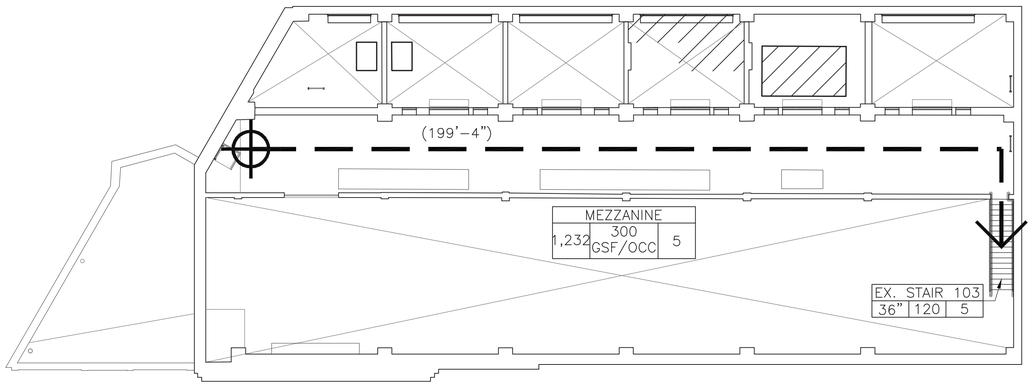
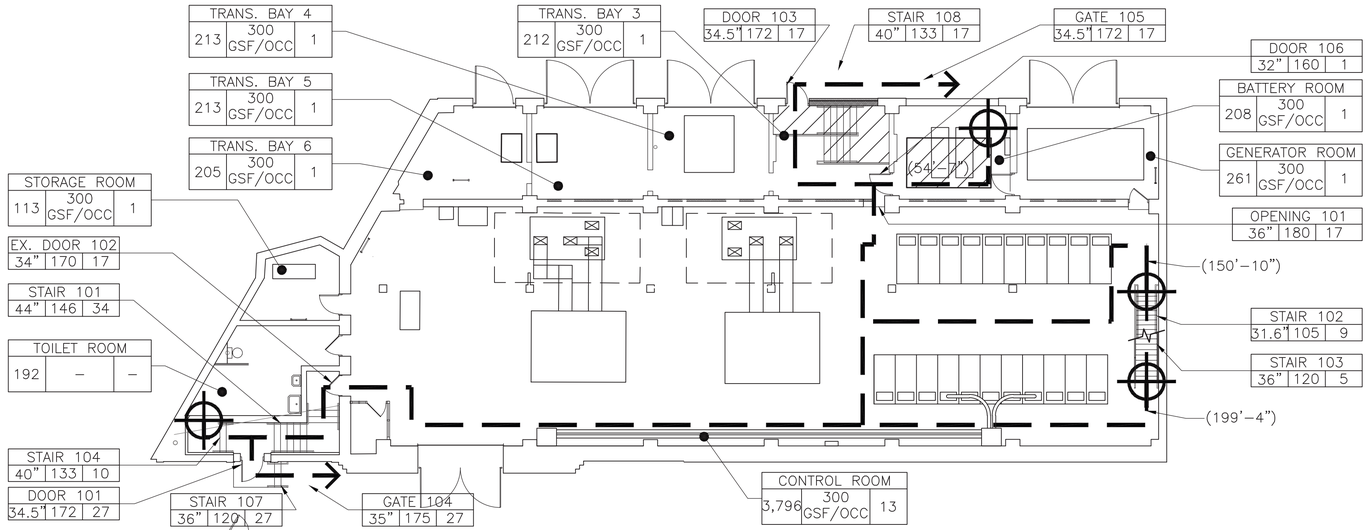
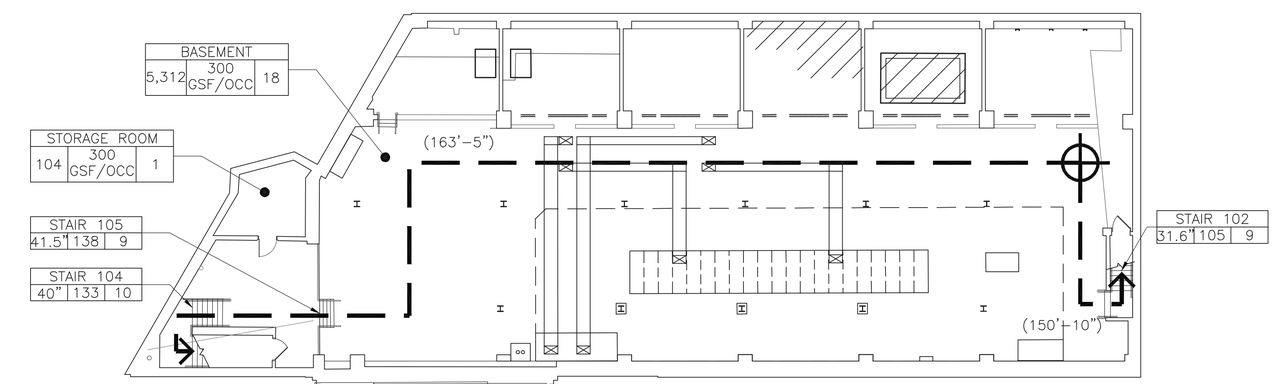


1 A102 MEZZANINE EGRESS PLAN
SCALE: 3/32" = 1'-0"



2 A102 FIRST FLOOR EGRESS PLAN
SCALE: 3/32" = 1'-0"



3 A102 BASEMENT EGRESS PLAN
SCALE: 3/32" = 1'-0"

2009 INTERNATIONAL EXISTING BUILDING CODE	
CHAPTER 4 – CLASSIFICATION OF WORK	
404.1	ALTERATION LEVEL 2

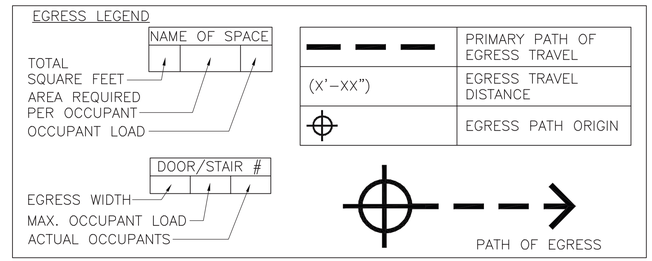
2009 INTERNATIONAL BUILDING CODE					
CODE SECTION	SECTION TITLE	CODE REQUIREMENT	EXISTING	PROVIDED	REMARKS
CHAPTER 3 – USE AND OCCUPANCY CRITERIA					
306	USE GROUP	F-1	F-1	F-1	BUILDING IS UNMANNED AND TYPICALLY UNOCCUPIED
CHAPTER 5 – USE AND OCCUPANCY CLASSIFICATION					
TABLE 503	HEIGHT/AREA	2 ST (55 FT) 15,500 SF	2 ST (51.5 FT) 12,531 SF	2 ST (51.5 FT) 12,531 SF	
CHAPTER 6 – TYPES OF CONSTRUCTION					
TABLE 601	FIRE RESISTANCE RATING				
	PRIMARY STRUCTURE	IIB	IIB	IIB	
	BEARING WALLS EXTERIOR	0	0	0	
	BEARING WALLS INTERIOR	0	0	0	
	NON-BEARING WALLS EXT.	SEE TABLE 602			
	NON-BEARING WALLS INT.	0	0	0	
	FLOOR CONSTRUCTION	0	0	0	
	ROOF CONSTRUCTION	0	0	0	
CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES					
708.4	SHAFT ENCLOSURE, LESS THAN 4 STORIES	1 HOUR RATED	N/A	N/A	
CHAPTER 8 – INTERIOR FINISHES					
TABLE 803.9	INTERIOR WALL AND CEILING FINISHES (NOT SPRINKLERED)				
	ROOMS AND ENCLOSED SPACES	CLASS C	N/A	CLASS C	
	CORRIDORS	CLASS C	N/A	CLASS C	
	EXIT PASSAGEWAYS	CLASS B	N/A	CLASS B	
CHAPTER 9 – FIRE PROTECTION SYSTEMS					
903.2.4	GROUP F-1				
	AREA EXCEEDS	12,000 SF	12,531 SF	12,531 SF	EXISTING NON-COMPLIANT
	FIRE AREA LOCATED MORE THAN 3 STORIES ABOVE GRADE	3 STORIES	2 STORY	2 STORY	
	COMBINED FIRE AREA	24,000 SF	12,531 SF	12,531 SF	
CHAPTER 10 – MEANS OF EGRESS					
TABLE 1004.1.1	OCCUPANT LOAD				
	ACCESSORY STORAGE AREA/ MECHANICAL EQUIPMENT ROOM	300 SF/PER PERSON	43 PERSONS	43 PERSONS	
1005.1	MINIMUM REQUIRED EGRESS WIDTH				
	STAIRS	0.3" PER PERSON	31.6"	31.6"	
	OTHER EGRESS COMPONENTS	0.2" PER PERSON	33"	69"	

NOTE
1. AUTOMATIC SPRINKLER SYSTEM IS REQUIRED. BUILDING WILL REMAIN NON-COMPLIANT.
2. BUILDING IS UNMANNED AND TYPICALLY UNOCCUPIED.

PHILADELPHIA PLUMBING CODE					
CODE SECTION	SECTION TITLE	CODE REQUIREMENT	EXISTING	PROVIDED	REMARKS
TABLE P-701	MINIMUM NUMBER OF PLUMBING FIXTURES				
	WATER CLOSET (MALE/FEMALE)	26-50 PERSONS=3	1	1	EXISTING NON-COMPLIANT
	LAVATORY (MALE/FEMALE)	1 PER 10 PERSONS=4	1	1	EXISTING NON-COMPLIANT
	DRINKING FOUNTAIN	1 PER 75 PERSONS=1	1	1	EXISTING WATER COOLER

NOTE
1. BUILDING IS UNMANNED AND TYPICALLY UNOCCUPIED.

EGRESS LEGEND



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PROJECT MANAGER

HDR
HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
CODE DATA

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DATE: 08/22/2025
DRAWN BY: AC
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WORK ORDER NO.: 276491
SHEET NUMBER: **A102**
DWG. NO.: 3 OF 23
SHT. NO.: 16 OF 452
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REV. NO.: -

STATUS: 50% SUBMISSION

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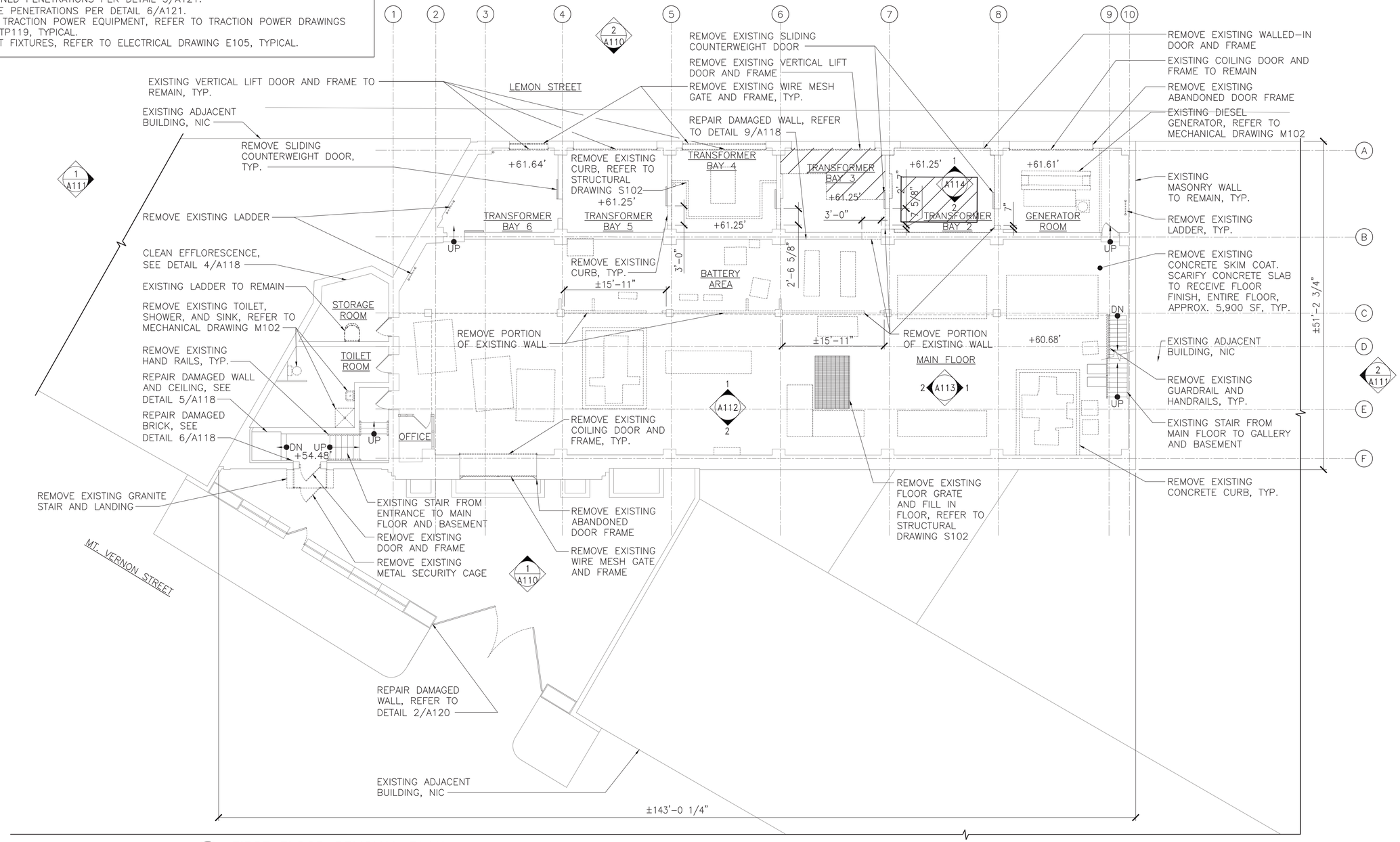
NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
5. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
6. FLOOR WILL BE MADE AVAILABLE IN STAGES AS THE EXISTING EQUIPMENT IS REMOVED PER OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN.
7. SEAL ALL ABANDONED PENETRATIONS PER DETAIL 5/A121.
8. REPAIR ALL ACTIVE PENETRATIONS PER DETAIL 6/A121.
9. REMOVE EXISTING TRACTION POWER EQUIPMENT, REFER TO TRACTION POWER DRAWINGS TP112 THROUGH TP119, TYPICAL.
10. REMOVE ALL LIGHT FIXTURES, REFER TO ELECTRICAL DRAWING E105, TYPICAL.



1 A103 FIRST FLOOR REMOVAL PLAN
SCALE: 1/8" = 1'–0"

8 6 4 2 0 8
SCALE: 1/8"=1'–0"

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HDR Engineering, Inc.
Philadelphia, PA
SOWINSKI SULLIVAN

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BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
GROUND FLOOR REMOVAL PLAN

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DATE: 08/22/2025	DRAWN BY: AC
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WORK ORDER NO.: 276491	
SHEET NUMBER: **A103**	
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COMPUTER FILE NO.: 17AN-A103	REV. NO.: -

STATUS: 50% SUBMISSION

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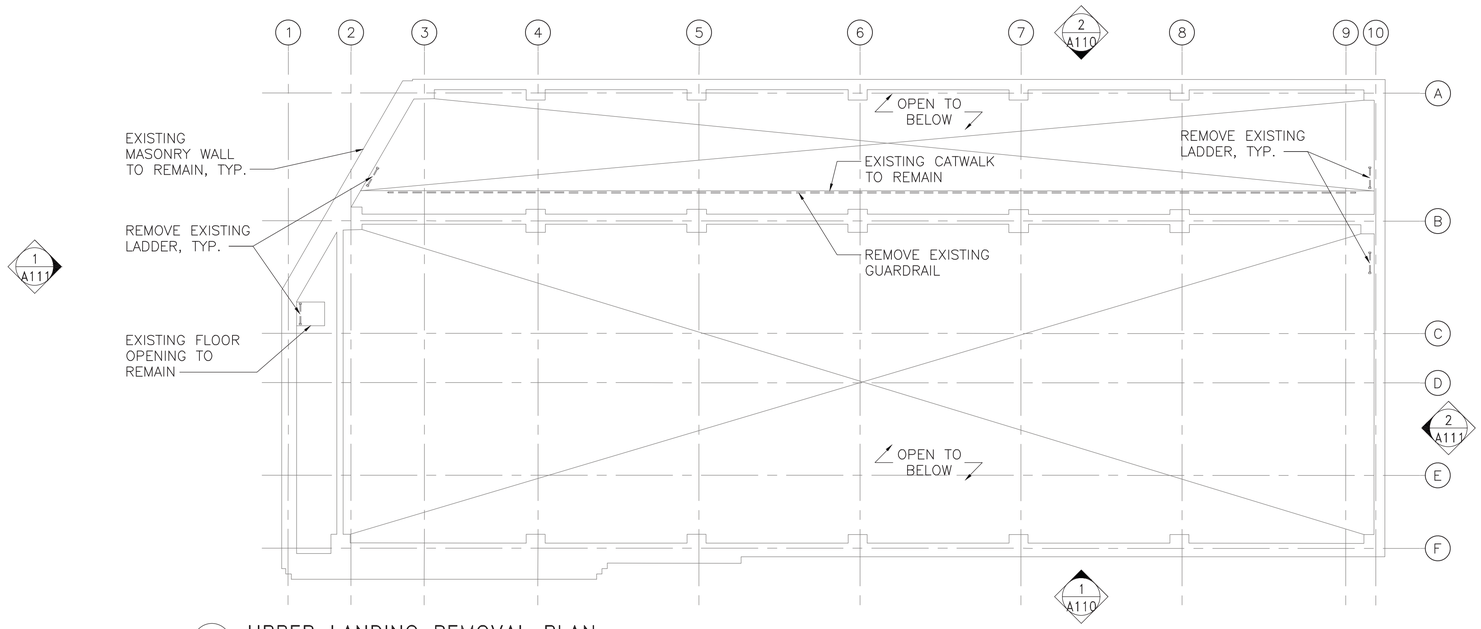
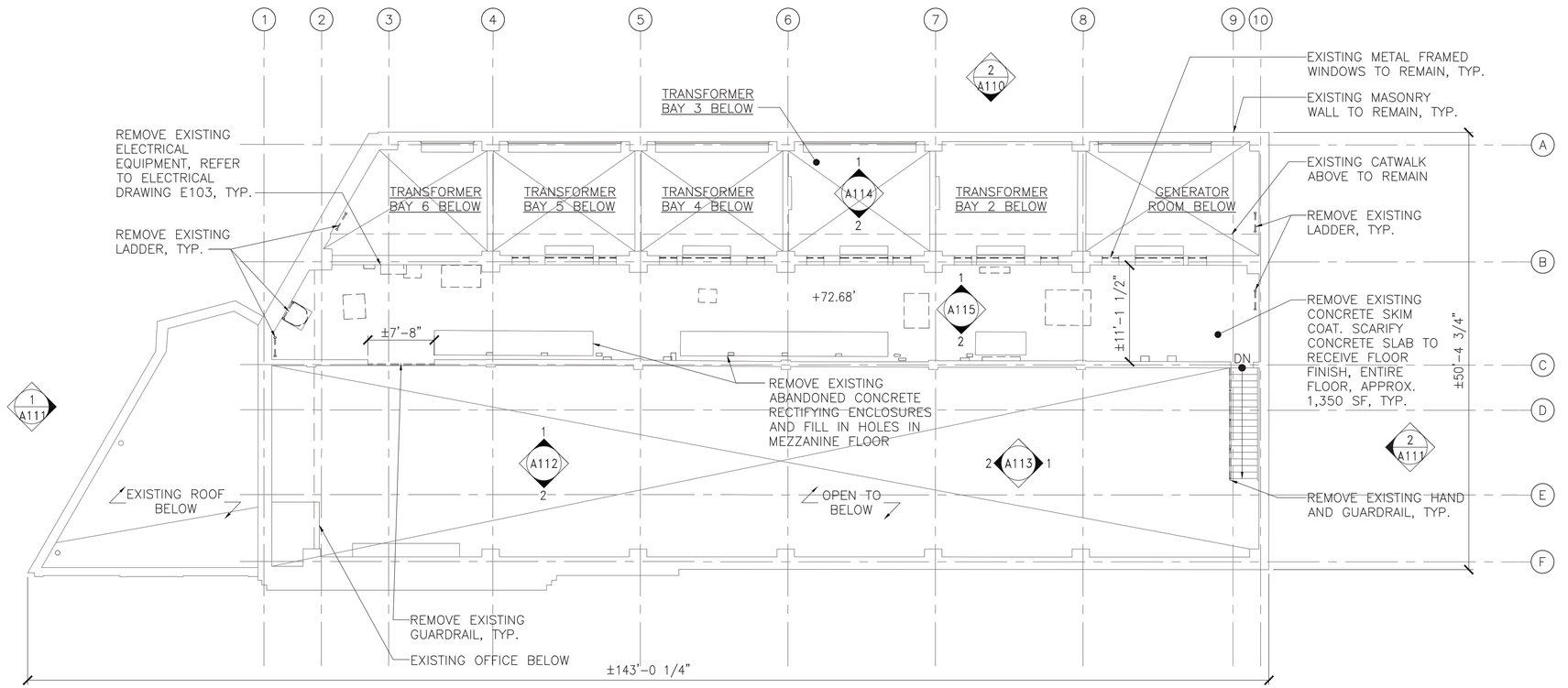


2 A104 UPPER LANDING REMOVAL PLAN
SCALE: 1/8" = 1'-0"

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
5. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
6. FLOOR WILL BE MADE AVAILABLE IN STAGES AS THE EXISTING EQUIPMENT IS REMOVED PER OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN.
7. SEAL ALL ABANDONED PENETRATIONS PER DETAIL 5/A121.
8. REPAIR ALL ACTIVE PENETRATIONS PER DETAIL 6/A121.
9. REMOVE EXISTING TRACTION POWER EQUIPMENT, REFER TO TRACTION POWER DRAWINGS TP112 THROUGH TP119, TYPICAL.
10. REMOVE ALL EXISTING LIGHT FIXTURES, REFER TO ELECTRICAL DRAWING E106, TYPICAL.



1 A104 MEZZANINE REMOVAL PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA
SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
MEZZANINE REMOVAL PLANS

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: AC
CHECKED BY: BF
WORK ORDER NO.: 276491
SHEET NUMBER: **A104**
DWG. NO.: 5 OF 23
SHT. NO.: 18 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-A104
REV. NO.: -

STATUS: 50% SUBMISSION

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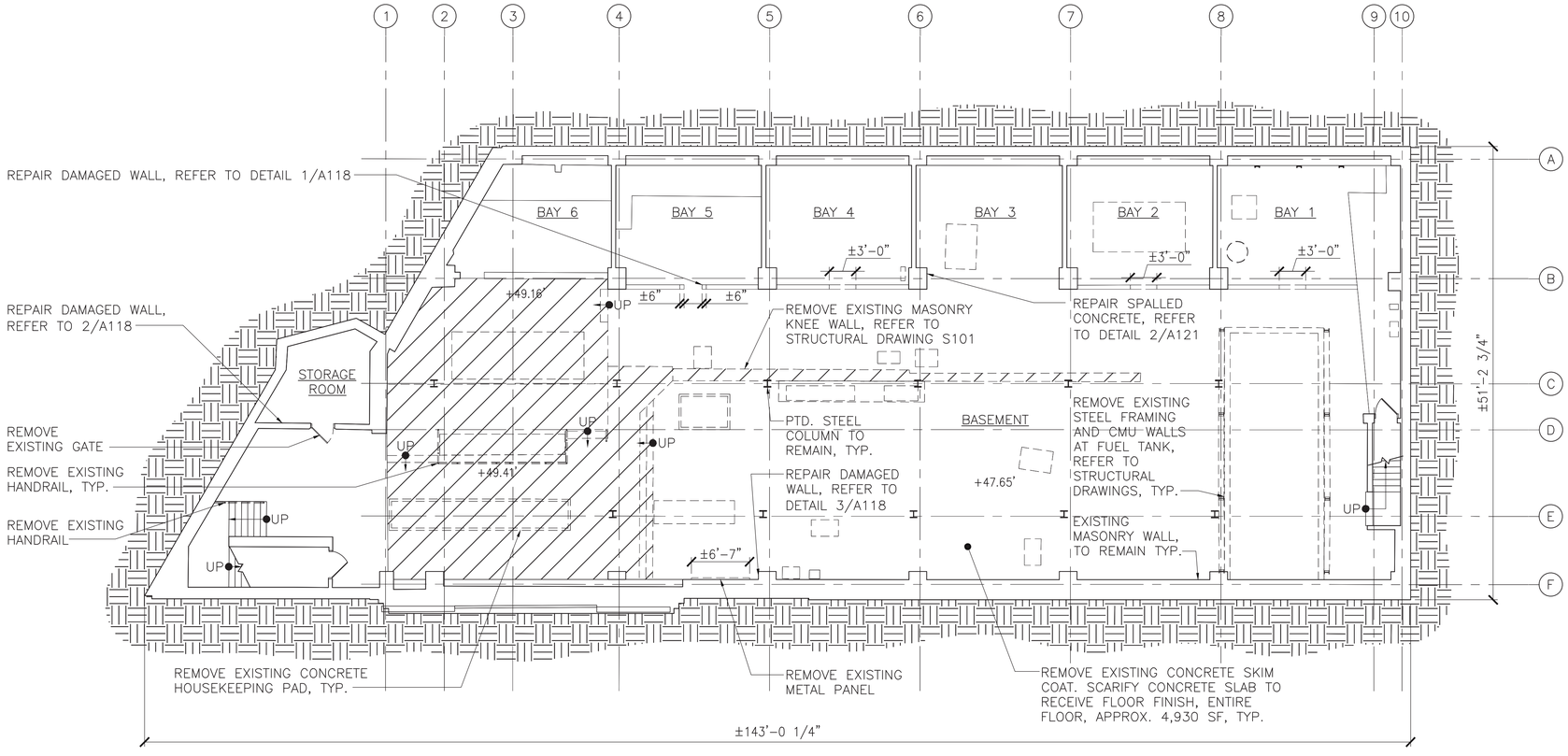
NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
5. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
6. FLOOR WILL BE MADE AVAILABLE IN STAGES AS THE EXISTING EQUIPMENT IS REMOVED PER OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN.
7. SEAL ALL ABANDONED PENETRATIONS PER DETAIL 5/A121.
8. REPAIR ALL ACTIVE PENETRATIONS PER DETAIL 6/A121.
9. REMOVE EXISTING TRACTION POWER EQUIPMENT, REFER TO TRACTION POWER DRAWINGS TP112 THROUGH TP119, TYPICAL.
10. REMOVE EXISTING LIGHT FIXTURES, REFER TO ELECTRICAL DRAWING E104, TYPICAL.



1 / A105 BASEMENT REMOVAL PLAN
SCALE: 1/8" = 1'-0"

LEGEND

AREA OF FLOOR TO BE LOWERED (APPROX 1,100 SF) REFER TO STRUCTURAL DRAWING S101

8 6 4 2 0 8

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

50% SUBMISSION
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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
BASEMENT REMOVAL PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A105**	
DWG. NO.: 6 OF 23	
SHT. NO.: 19 OF 453	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A105	REV. NO.: -

STATUS: 50% SUBMISSION

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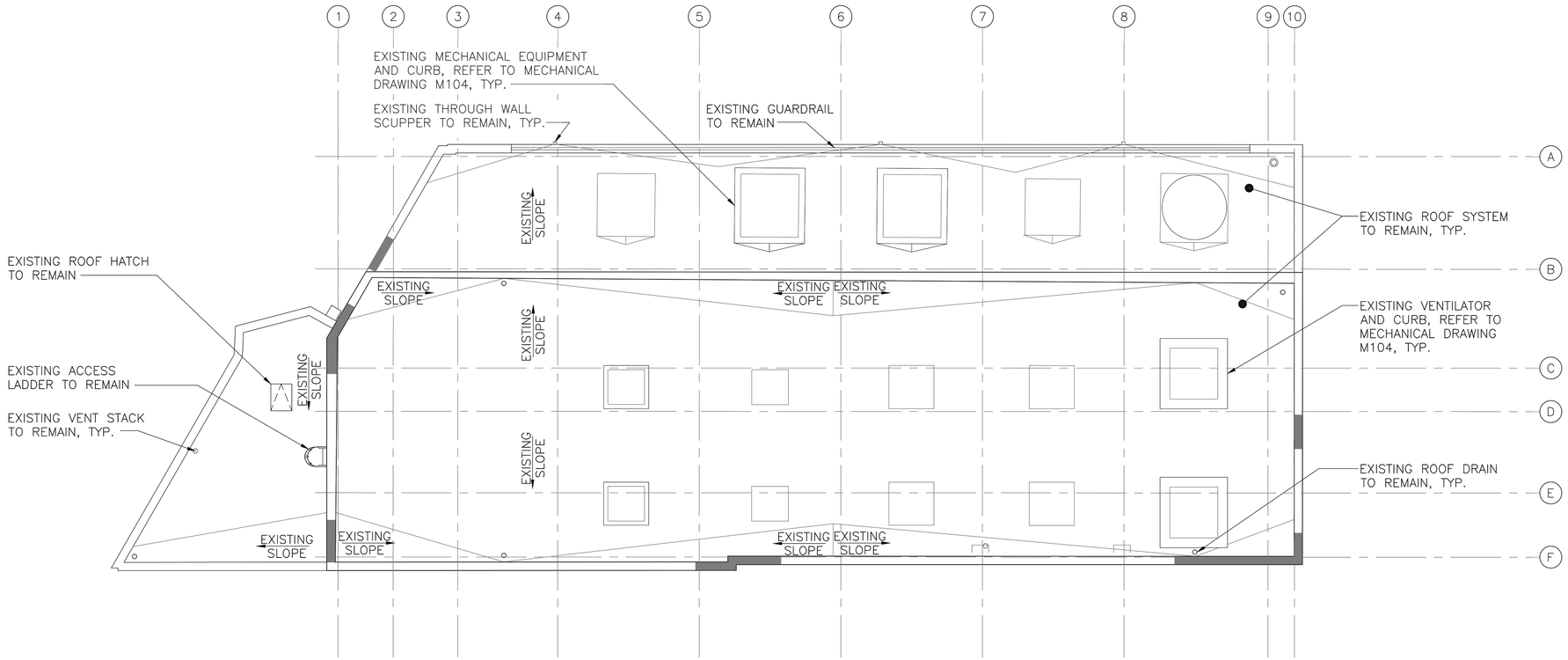
NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. WORK SITE IS AN ACTIVE TPSS. FOLLOW ALL SEPTA SAFETY RULES.
4. WORK SHALL BY PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING A POWER OUTAGE.



1 A106 ROOF REMOVAL PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL, PHILADELPHIA, PA 19107

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
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PROJECT MANAGER

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Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
ROOF REMOVAL PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A106**	
DWG. NO.: 7 OF 23	
SHT. NO.: 20 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A106	REV. NO.: -

STATUS: 50% SUBMISSION

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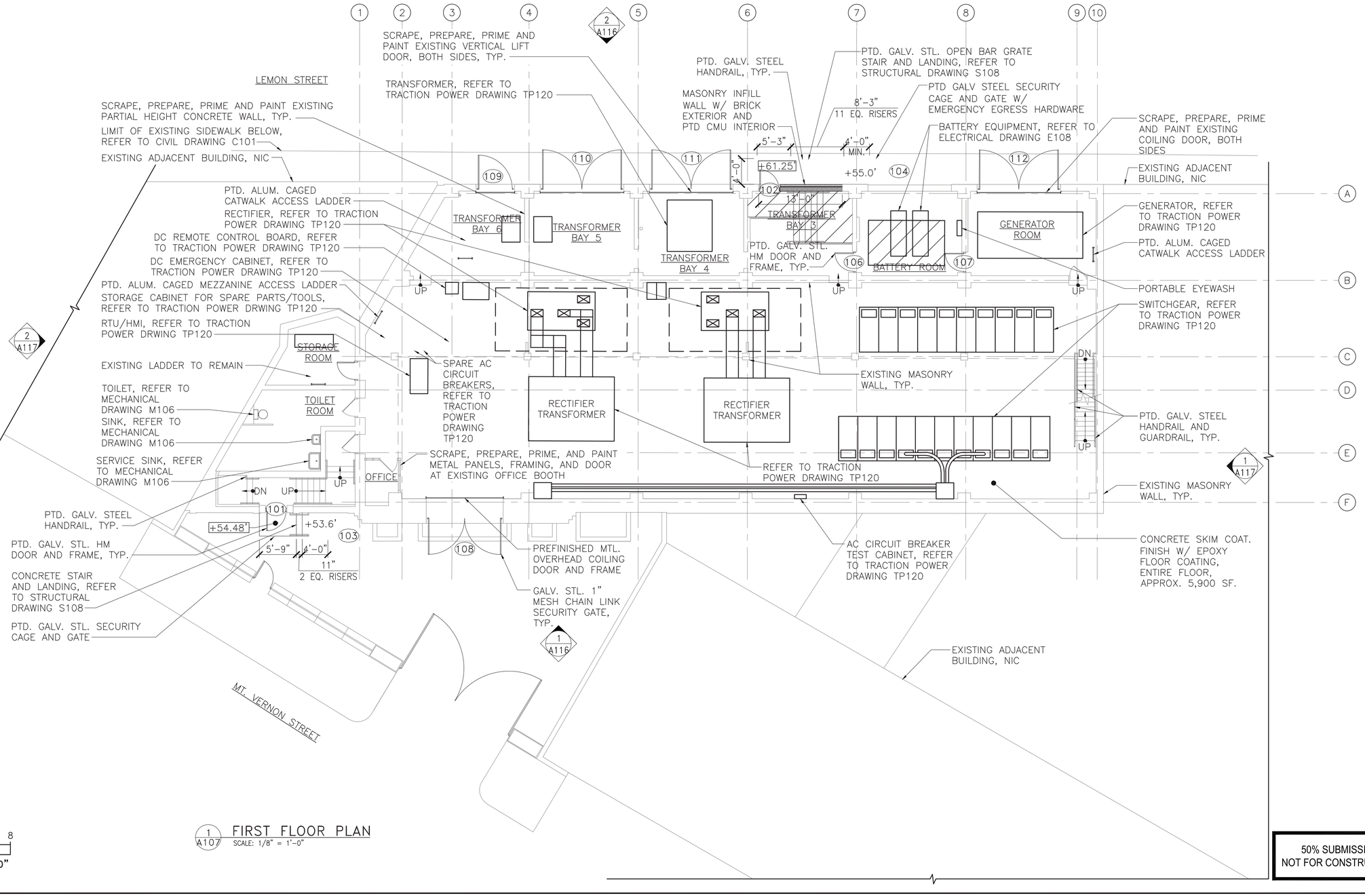
NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWING INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
5. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
6. FLOOR WILL BE MADE AVAILABLE IN STAGES AS THE EXISTING EQUIPMENT IS REMOVED PER OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN.
7. SCRAPE, PREPARE, PRIME AND PAINT ENTIRE SURFACE OF EXISTING CONCRETE CEILING, TYPICAL.
8. SCRAPE, PREPARE, PRIME AND PAINT ALL EXPOSED STRUCTURAL STEEL ROOF FRAMING, TYPICAL.
9. REFER TO TRACTION POWER DRAWING TP120 FOR TRACTION POWER EQUIPMENT LAYOUT, TYPICAL.



8 6 4 2 0 8

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

1 A107 FIRST FLOOR PLAN

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

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTID\16898\8117AN-A107.DWG

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

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Philadelphia, PA

SOWINSKI SULLIVAN

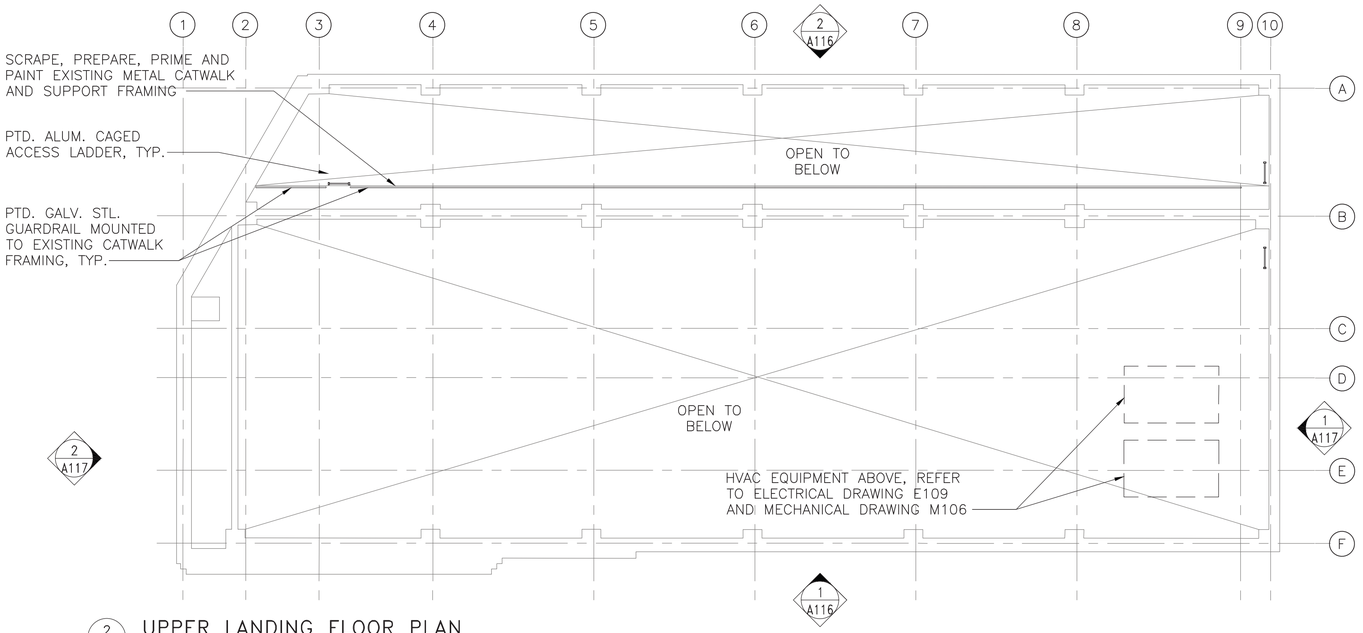
REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

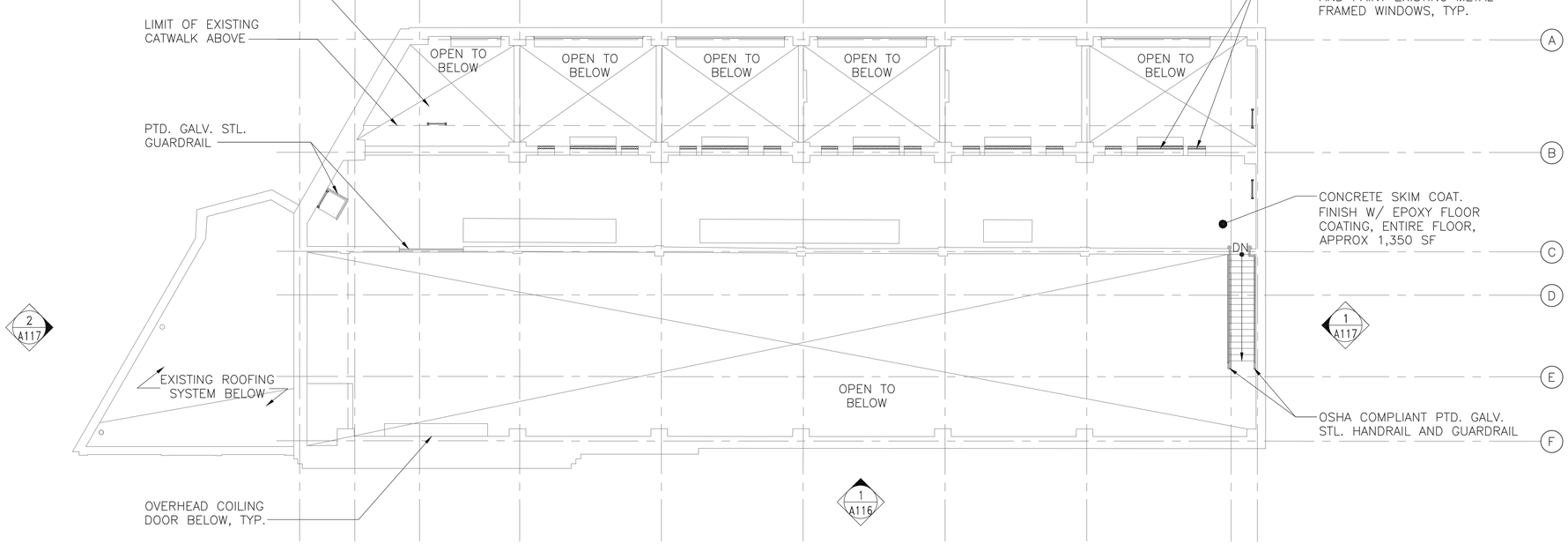
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
PROPOSED GROUND FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: AC
CHECKED BY: BF
WORK ORDER NO.: 276491
SHEET NUMBER: **A107**
DWG. NO.: 8 OF 23
SHT. NO.: 21 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-A107
REV. NO.: -

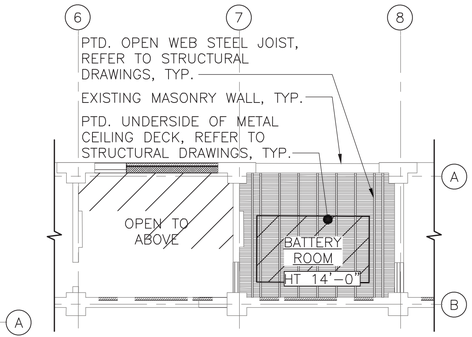
STATUS: 50% SUBMISSION



2 A108 UPPER LANDING FLOOR PLAN
SCALE: 1/8" = 1'-0"



1 A108 MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"



3 A108 BATTERY ROOM RCP
SCALE: 1/8" = 1'-0"

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWING INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
5. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
6. FLOOR WILL BE MADE AVAILABLE IN STAGES AS THE EXISTING EQUIPMENT IS REMOVED PER OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN.
7. REFER TO TRACTION POWER DRAWING TP120 FOR TRACTION POWER EQUIPMENT LAYOUT, TYPICAL.

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA
SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
PROPOSED MEZZANINE FLOOR PLANS

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A108**	
DWG. NO.: 9 OF 23	
SHT. NO.: 22 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A108	REV. NO.: -

STATUS: 50% SUBMISSION

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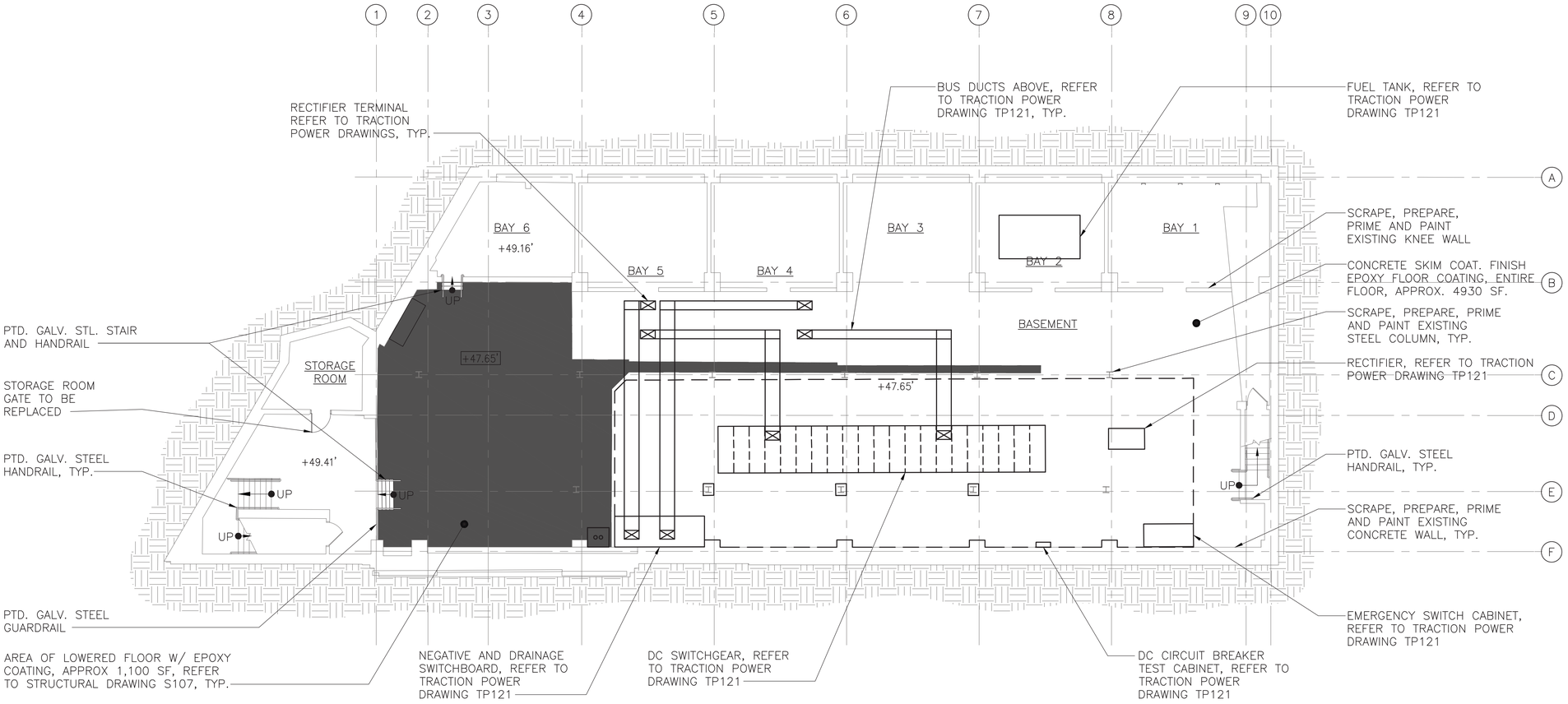
NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWING INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
5. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
6. FLOOR WILL BE MADE AVAILABLE IN STAGES AS THE EXISTING EQUIPMENT IS REMOVED PER OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN.
7. SCRAPE, PREPARE, PRIME AND PAINT ENTIRE SURFACE OF EXISTING CONCRETE CEILING AND CONCRETE BEAMS, TYPICAL.
8. REFER TO TRACTION POWER DRAWING TP121 FOR TRACTION POWER EQUIPMENT LAYOUT, TYPICAL.



1 A109 BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

AREA OF LOWERED FLOOR (APPROX 1,100 SF)

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL, PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
PROPOSED BASEMENT FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC / CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A109**	
DWG. NO.: 10 OF 23	
SHT. NO.: 23 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A109	REV. NO.: -

STATUS: 50% SUBMISSION

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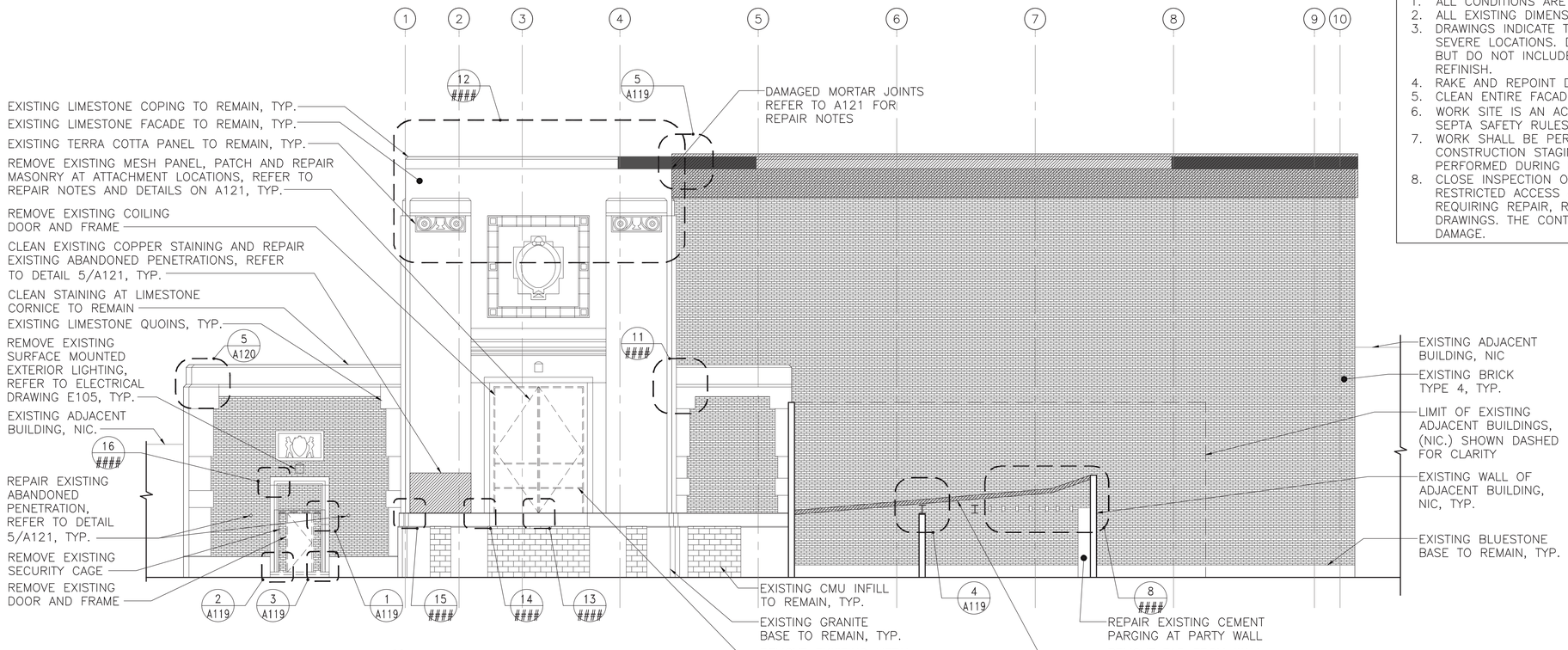
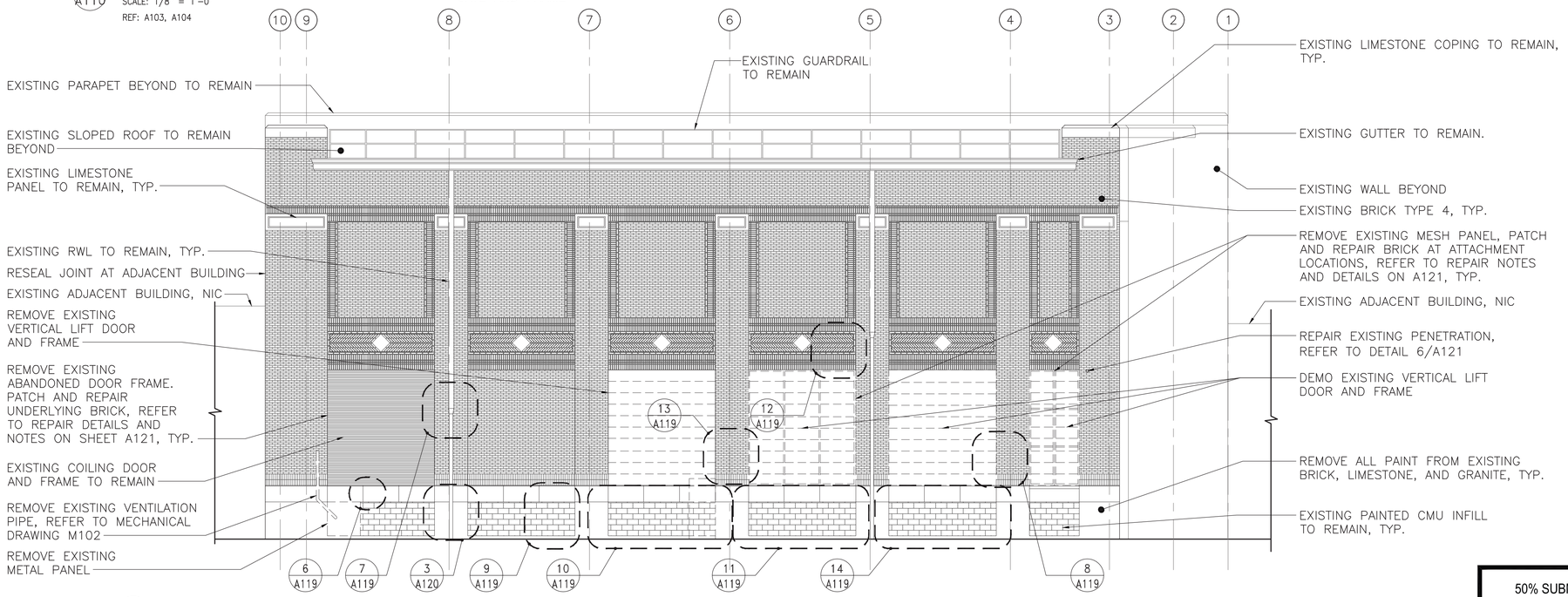


1 A110 EXISTING SOUTH ELEVATION
SCALE: 1/8" = 1'-0"
REF: A103, A104



2 A110 EXISTING NORTH ELEVATION
SCALE: 1/8" = 1'-0"
REF: A103, A104

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. RAKE AND REPOINT DAMAGED MORTAR JOINTS, EACH ELEVATION.
5. CLEAN ENTIRE FACADE, EACH ELEVATION.
6. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
7. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
8. CLOSE INSPECTION OF PORTIONS OF THE FACADE WAS NOT POSSIBLE DUE TO RESTRICTED ACCESS AT PRIVATE PROPERTY. DUE TO THIS, NOT ALL AREAS REQUIRING REPAIR, RESTORATIONS OR REFURBISHING ARE INCLUDED ON DRAWINGS. THE CONTRACTOR SHALL INSPECT ENTIRE BUILDING AND REPAIR ALL DAMAGE.

BRICK LEGEND:

1. BRICK TYPE 1=HY-TEX BRICK
2. BRICK TYPE 2=ENAMELED BRICK-"GREEN"
3. BRICK TYPE 3=ENAMELED BRICK-"GRANITE MARBLE"
4. BRICK TYPE 4=FACE BRICK

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
EXISTING ELEVATIONS - SHEET 1

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC / CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A110**	
DWG. NO.: 11 OF 23	
SHT. NO.: 24 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A110	REV. NO.: -

STATUS: 50% SUBMISSION

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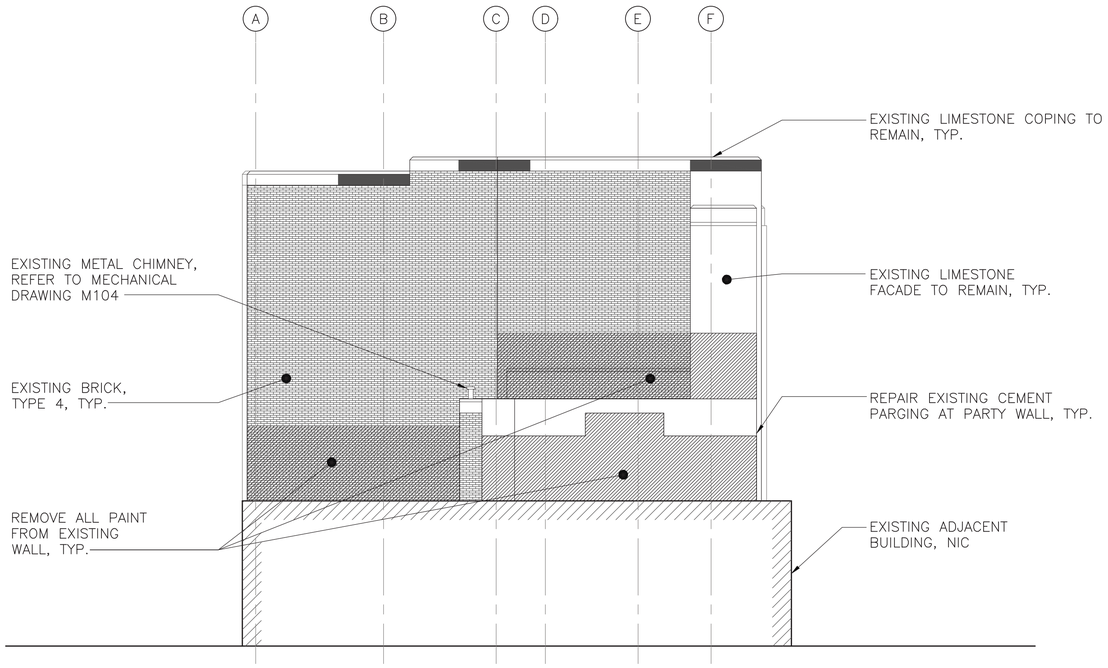


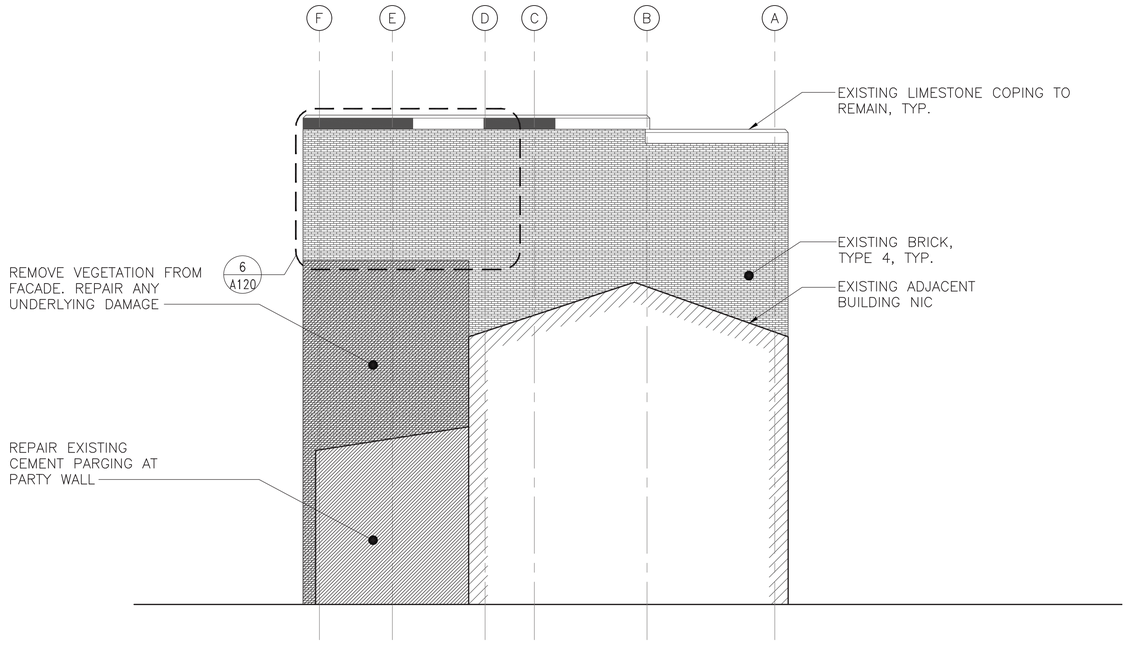
1 A111 EXISTING WEST ELEVATION
SCALE: 1/8" = 1'-0"
REF: A103, A104

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. RAKE AND REPOINT DAMAGED MORTAR JOINTS, EACH ELEVATION.
5. CLEAN ENTIRE FACADE, EACH ELEVATION.
6. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
7. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
8. CLOSE INSPECTION OF PORTIONS OF THE FACADE WAS NOT POSSIBLE DUE TO RESTRICTED ACCESS AT PRIVATE PROPERTY. DUE TO THIS, NOT ALL AREAS REQUIRING REPAIR, RESTORATIONS OR REFURBISHING ARE INCLUDED ON DRAWINGS. THE CONTRACTOR SHALL INSPECT ENTIRE BUILDING AND REPAIR ALL DAMAGE.

BRICK LEGEND:

1. BRICK TYPE 1 = HY-TEX BRICK
2. BRICK TYPE 2 = ENAMELED BRICK – "GREEN"
3. BRICK TYPE 3 = ENAMELED BRICK – "GRANITE MARBLE"
4. BRICK TYPE 4 = FACE BRICK



2 A111 EXISTING EAST ELEVATION
SCALE: 1/8" = 1'-0"
REF: A103, A104

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
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PHILADELPHIA, PA 19107

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CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA
SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
EXISTING ELEVATIONS - SHEET 2

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A111**	
DWG. NO.: 12 OF 23	
SHT. NO.: 25 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A111	REV. NO.: -

STATUS: 50% SUBMISSION

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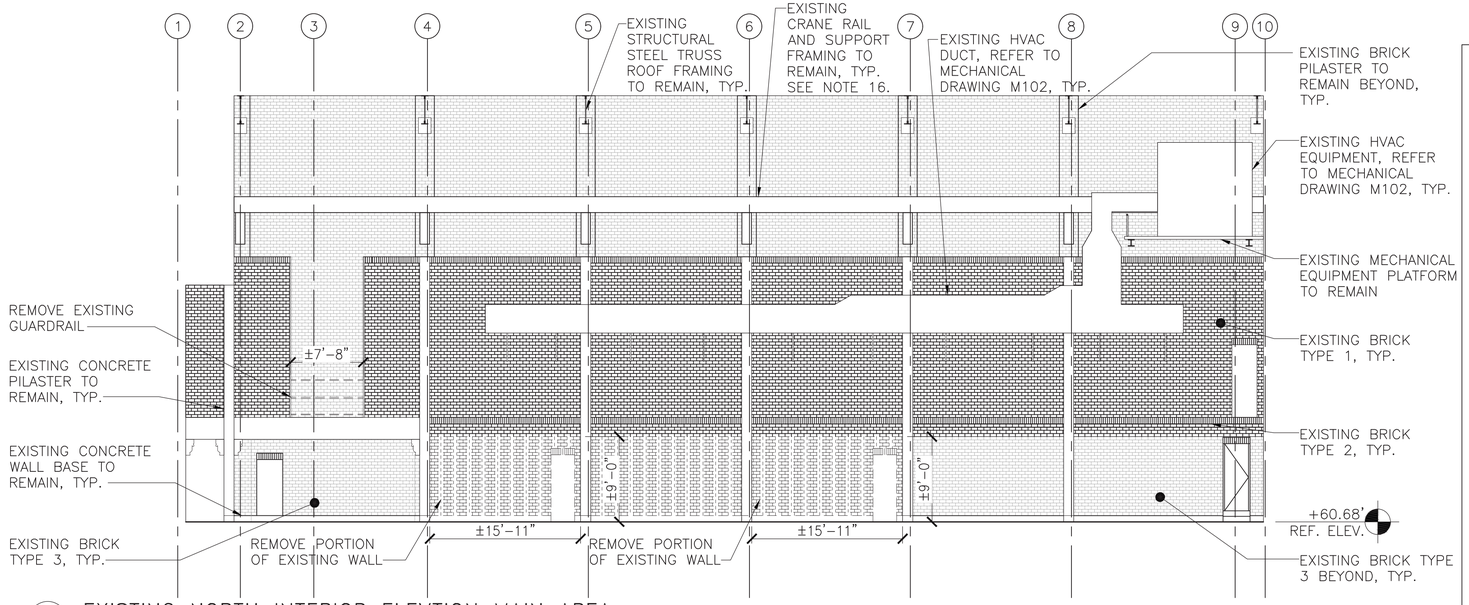


1 A112 EXISTING NORTH INTERIOR ELEVTION MAIN AREA

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

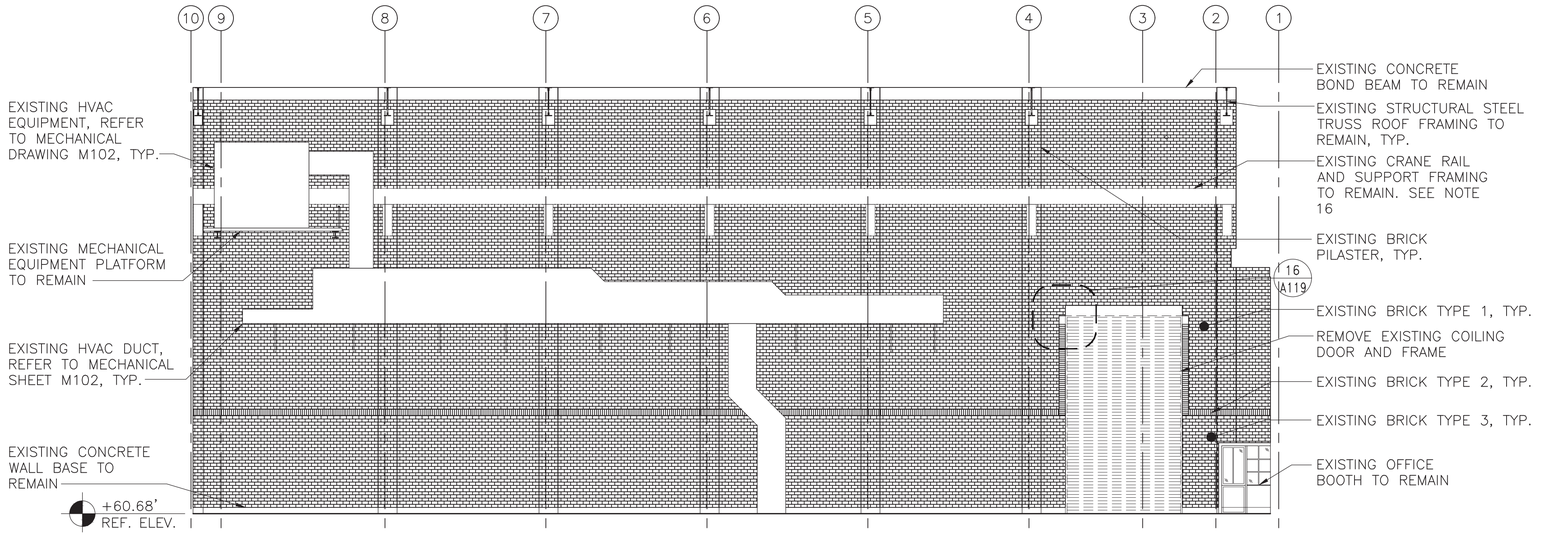
REF: A103, A104

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. SCRAPE, PREPARE, PRIME AND PAINT ENTIRE SURFACE OF CONCRETE CEILING, ALL ROOMS.
5. REMOVE ALL PAINT FROM ALL BRICK SURFACES, ALL ROOMS, EACH WALL.
6. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
7. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
8. SEAL ALL ABANDONED PENETRATIONS PER DETAIL 5/A121.
9. REPAIR ALL ACTIVE PENETRATIONS PER DETAIL 6/A121.
10. SCRAPE, PREPARE, PRIME, AND PAINT EXISTING CATWALK AND ASSOCIATED STEEL SUPPORT FRAMING, TYPICAL.
11. SCRAPE, PREPARE, PRIME, AND PAINT EXISTING OVERHEAD CRANE, CRANE RAIL, AND ASSOCIATED STEEL SUPPORT FRAMING, TYPICAL.
12. SCRAPE, PREPARE, PRIME AND PAINT ALL EXPOSED STEEL FRAMING, TYPICAL.
13. SCRAPE, PREPARE, PRIME AND PAINT EXISTING WINDOW FRAMES AND MUNTINS, TYPICAL.
14. REMOVE ALL EXISTING LIGHT FIXTURES, REFER TO ELECTRICAL DRAWINGS E104, E105 AND E106, TYPICAL.
15. REMOVE ALL EXISTING TRACTION POWER EQUIPMENT, REFER TO TRACTION POWER DRAWINGS TP112 THROUGH TP119, TYPICAL.
16. CRANE TO BE FULLY INSPECTED TO VERIFY REQUIREMENTS TO BRING CRANE SYSTEM BACK INTO OPERATION. FOR BIDDING PURPOSES, ASSUME COSTS FOR THE FOLLOWING:
    A. INSPECTION
    B. CRANE TESTING
    C. HOIST REPLACEMENT
    D. REFURBISHMENT OF REMAINING SYSTEM INCLUDING CLEANING AND PAINTING

BRICK LEGEND:

1. BRICK TYPE 1 = HY-TEX BRICK
2. BRICK TYPE 2 = ENAMELED BRICK – "GREEN"
3. BRICK TYPE 3 = ENAMELED BRICK – "GRANITE MARBLE"
4. BRICK TYPE 4 = FACE BRICK



2 A112 EXISTING SOUTH INTERIOR ELEVTION MAIN AREA

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

REF: A103, A104

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
EXISTING INTERIOR ELEVATIONS - SHEET 1

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: SF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A112**	
DWG. NO.: 13 OF 23	
SHT. NO.: 26 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A112	REV. NO.: -

STATUS: 50% SUBMISSION

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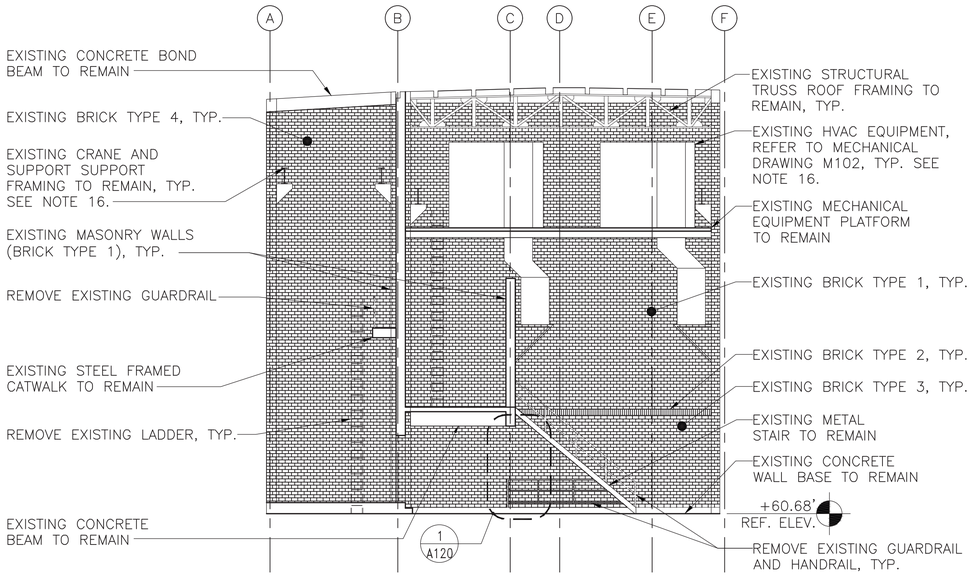
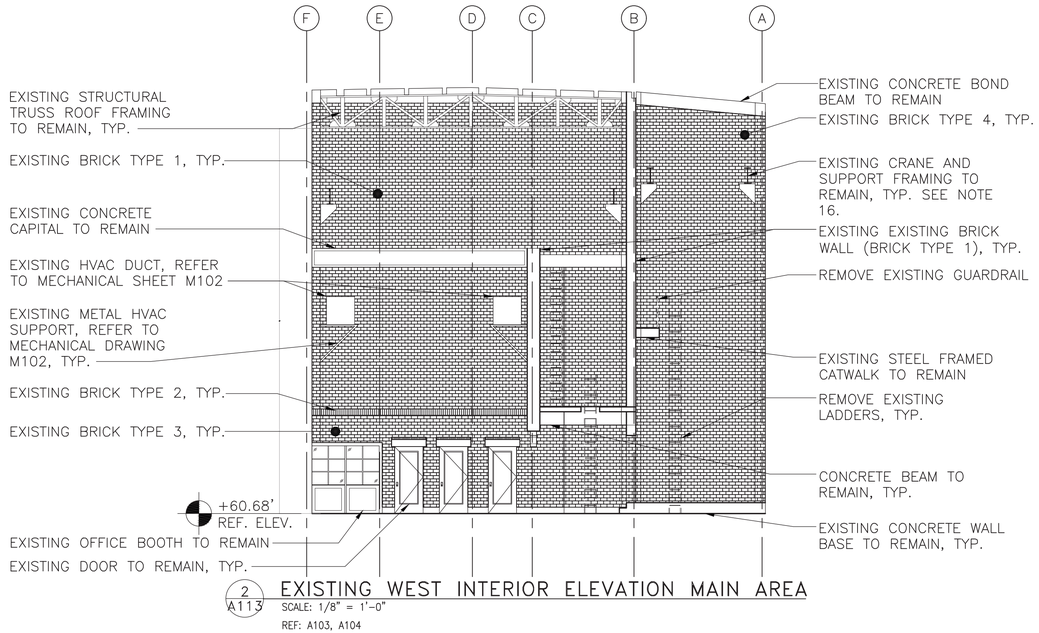


1 A113 EXISTING EAST INTERIOR ELEVATION MAIN AREA

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

REF: A103, A104



2 A113 EXISTING WEST INTERIOR ELEVATION MAIN AREA

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

REF: A103, A104

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. SCRAPE, PREPARE, PRIME AND PAINT ENTIRE SURFACE OF CONCRETE CEILING, ALL ROOMS.
5. REMOVE ALL PAINT FROM ALL BRICK SURFACES, ALL ROOMS, EACH WALL.
6. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
7. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
8. SEAL ALL ABANDONED PENETRATIONS PER DETAIL 5/A121.
9. REPAIR ALL ACTIVE PENETRATIONS PER DETAIL 6/A121.
10. SCRAPE, PREPARE, PRIME, AND PAINT EXISTING CATWALK AND ASSOCIATED STEEL SUPPORT FRAMING, TYPICAL.
11. SCRAPE, PREPARE, PRIME, AND PAINT EXISTING OVERHEAD CRANE, CRANE RAIL, AND ASSOCIATED STEEL SUPPORT FRAMING, TYPICAL.
12. SCRAPE, PREPARE, PRIME AND PAINT ALL EXPOSED STEEL FRAMING, TYPICAL.
13. SCRAPE, PREPARE, PRIME AND PAINT EXISTING WINDOW FRAMES AND MUNTINS, TYPICAL.
14. REMOVE ALL EXISTING LIGHT FIXTURES, REFER TO ELECTRICAL DRAWINGS E104, E105 AND E106, TYPICAL.
15. REMOVE ALL EXISTING TRACTION POWER EQUIPMENT, REFER TO TRACTION POWER DRAWINGS TP112 THROUGH TP119, TYPICAL.
16. CRANE TO BE FULLY INSPECTED TO VERIFY REQUIREMENTS TO BRING CRANE SYSTEM BACK INTO OPERATION. FOR BIDDING PURPOSES, ASSUME COSTS FOR THE FOLLOWING:
    A. INSPECTION
    B. CRANE TESTING
    C. HOIST REPLACEMENT
    D. REFURBISHMENT OF REMAINING SYSTEM INCLUDING CLEANING AND PAINTING

BRICK LEGEND:

1. BRICK TYPE 1 = HY-TEX BRICK
2. BRICK TYPE 2 = ENAMELED BRICK – "GREEN"
3. BRICK TYPE 3 = ENAMELED BRICK – "GRANITE MARBLE"
4. BRICK TYPE 4 = FACE BRICK

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL, PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
EXISTING INTERIOR ELEVATIONS - SHEET 2

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: A113	
DWG. NO.: 14 OF 23	
SHT. NO.: 27 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A113	REV. NO.: -

STATUS: 50% SUBMISSION

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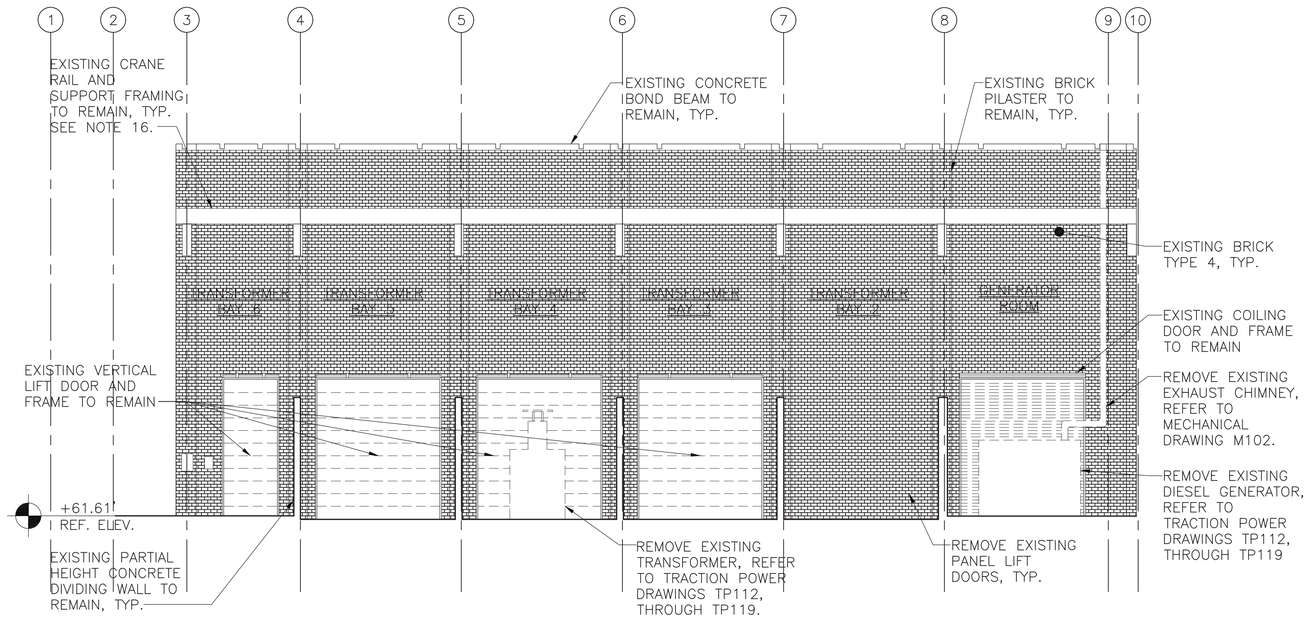
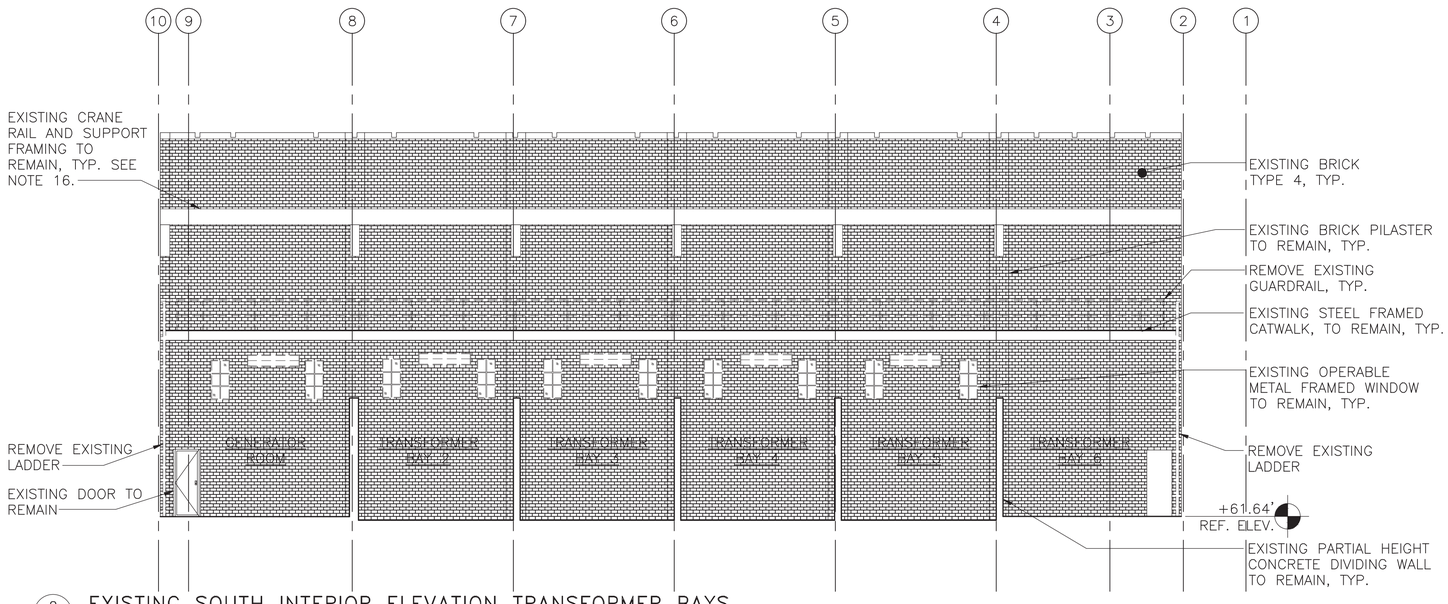


1 A114 EXISTING NORTH INTERIOR ELEVATION TRANSFORMER BAYS

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

REF: A103, A104



2 A114 EXISTING SOUTH INTERIOR ELEVATION TRANSFORMER BAYS

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

REF: A103, A104

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. SCRAPE, PREPARE, PRIME AND PAINT ENTIRE SURFACE OF CONCRETE CEILING, ALL ROOMS.
5. REMOVE ALL PAINT FROM ALL BRICK SURFACES, ALL ROOMS, EACH WALL.
6. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
7. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
8. SEAL ALL ABANDONED PENETRATIONS PER DETAIL 5/A121.
9. REPAIR ALL ACTIVE PENETRATIONS PER DETAIL 6/A121.
10. SCRAPE, PREPARE, PRIME, AND PAINT EXISTING CATWALK AND ASSOCIATED STEEL SUPPORT FRAMING, TYPICAL.
11. SCRAPE, PREPARE, PRIME, AND PAINT EXISTING OVERHEAD CRANE, CRANE RAIL, AND ASSOCIATED STEEL SUPPORT FRAMING, TYPICAL.
12. SCRAPE, PREPARE, PRIME AND PAINT ALL EXPOSED STEEL FRAMING, TYPICAL.
13. SCRAPE, PREPARE, PRIME AND PAINT EXISTING WINDOW FRAMES AND MUNTINS, TYPICAL.
14. REMOVE ALL EXISTING LIGHT FIXTURES, REFER TO ELECTRICAL DRAWINGS E104, E105 AND E106, TYPICAL.
15. REMOVE ALL EXISTING TRACTION POWER EQUIPMENT, REFER TO TRACTION POWER DRAWINGS TP112 THROUGH TP119, TYPICAL.
16. CRANE TO BE FULLY INSPECTED TO VERIFY REQUIREMENTS TO BRING CRANE SYSTEM BACK INTO OPERATON. FOR BIDDING PURPOSES, ASSUME COSTS FOR THE FOLLOWING:
    A. INSPECTION
    B. CRANE TESTING
    C. HOIST REPLACEMENT
    D. REFURBISHMENT OF REMAINING SYSTEM INCLUDING CLEANING AND PAINTING

BRICK LEGEND:

1. BRICK TYPE 1 = HY-TEX BRICK
2. BRICK TYPE 2 = ENAMELED BRICK – "GREEN"
3. BRICK TYPE 3 = ENAMELED BRICK – "GRANITE MARBLE"
4. BRICK TYPE 4 = FACE BRICK

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL,
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
EXISTING INTERIOR ELEVATIONS - SHEET 3

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A114**	
DWG. NO.: 15 OF 23	
SHT. NO.: 28 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A114	REV. NO.: -

STATUS: 50% SUBMISSION

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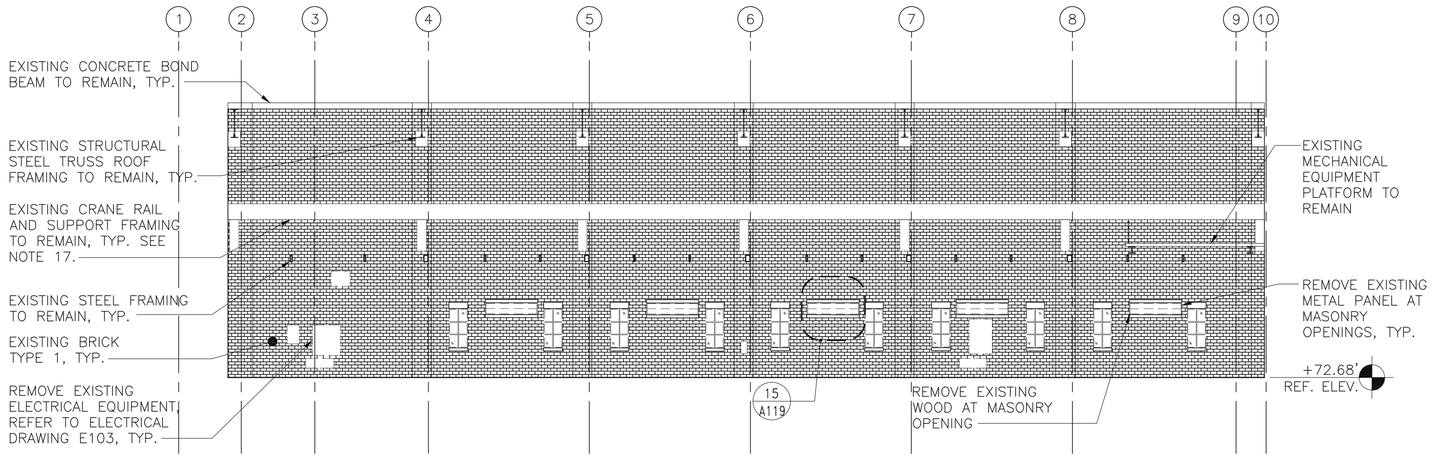
NOTES:

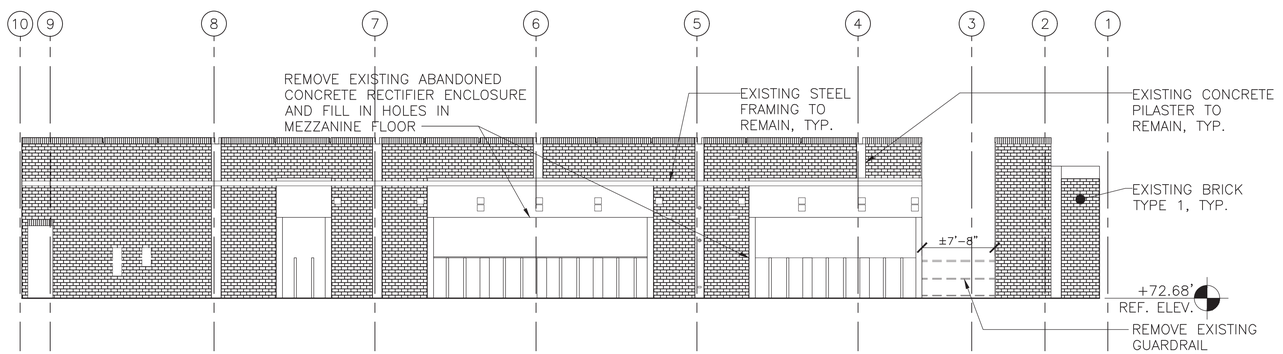
1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. SCRAPE, PREPARE, PRIME AND PAINT ENTIRE SURFACE OF CONCRETE CEILING, ALL ROOMS.
5. REMOVE ALL PAINT FROM ALL BRICK SURFACES, ALL ROOMS, EACH WALL.
6. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
7. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
8. SEAL ALL ABANDONED PENETRATIONS PER DETAIL 5/A121.
9. REPAIR ALL ACTIVE PENETRATIONS PER DETAIL 6/A121.
10. SCRAPE, PREPARE, PRIME, AND PAINT EXISTING CATWALK AND ASSOCIATED STEEL SUPPORT FRAMING, TYPICAL.
11. SCRAPE, PREPARE, PRIME, AND PAINT EXISTING OVERHEAD CRANE, CRANE RAIL, AND ASSOCIATED STEEL SUPPORT FRAMING, TYPICAL.
12. SCRAPE, PREPARE, PRIME AND PAINT ALL EXPOSED STEEL FRAMING, TYPICAL.
13. SCRAPE, PREPARE, PRIME AND PAINT EXISTING WINDOW FRAMES AND MUNTINS, TYPICAL.
14. REMOVE ALL ABANDONED TRACTION POWER EQUIPMENT. PATCH AND REPAIR ANY DAMAGE TO UNDERLYING WALL. REFER TO DETAIL 4/A120 FOR TYPICAL CONDITIONS AND TO TRACTION POWER DRAWINGS, TYPICAL.
15. REMOVE ALL EXISTING LIGHT FIXTURES, REFER TO ELECTRICAL DRAWINGS E104, E105 AND E106, TYPICAL.
16. REMOVE ALL EXISTING TRACTION POWER EQUIPMENT, REFER TO TRACTION POWER DRAWINGS TP112 THROUGH TP119, TYPICAL.
17. CRANE TO BE FULLY INSPECTED TO VERIFY REQUIREMENTS TO BRING CRANE SYSTEM BACK INTO OPERATION. FOR BIDDING PURPOSES, ASSUME COSTS FOR THE FOLLOWING:
    A. INSPECTION
    B. CRANE TESTING
    C. HOIST REPLACEMENT
    D. REFURBISHMENT OF REMAINING SYSTEM INCLUDING CLEANING AND PAINTING

BRICK LEGEND:

1. BRICK TYPE 1 = HY-TEX BRICK
2. BRICK TYPE 2 = ENAMELED BRICK – "GREEN"
3. BRICK TYPE 3 = ENAMELED BRICK – "GRANITE MARBLE"
4. BRICK TYPE 4 = FACE BRICK



1 A115 EXISTING MEZZANINE NORTH INTERIOR ELEVATION
SCALE: 1/8" = 1'-0"
REF: A104



2 A115 EXISTING MEZZANINE SOUTH INTERIOR ELEVATION
SCALE: 1/8" = 1'-0"
REF: A104

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
EXISTING INTERIOR ELEVATIONS - SHEET 4

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A115**	
DWG. NO.: 16 OF 23	
SHT. NO.: 29 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A115	REV. NO.: -

STATUS: 50% SUBMISSION

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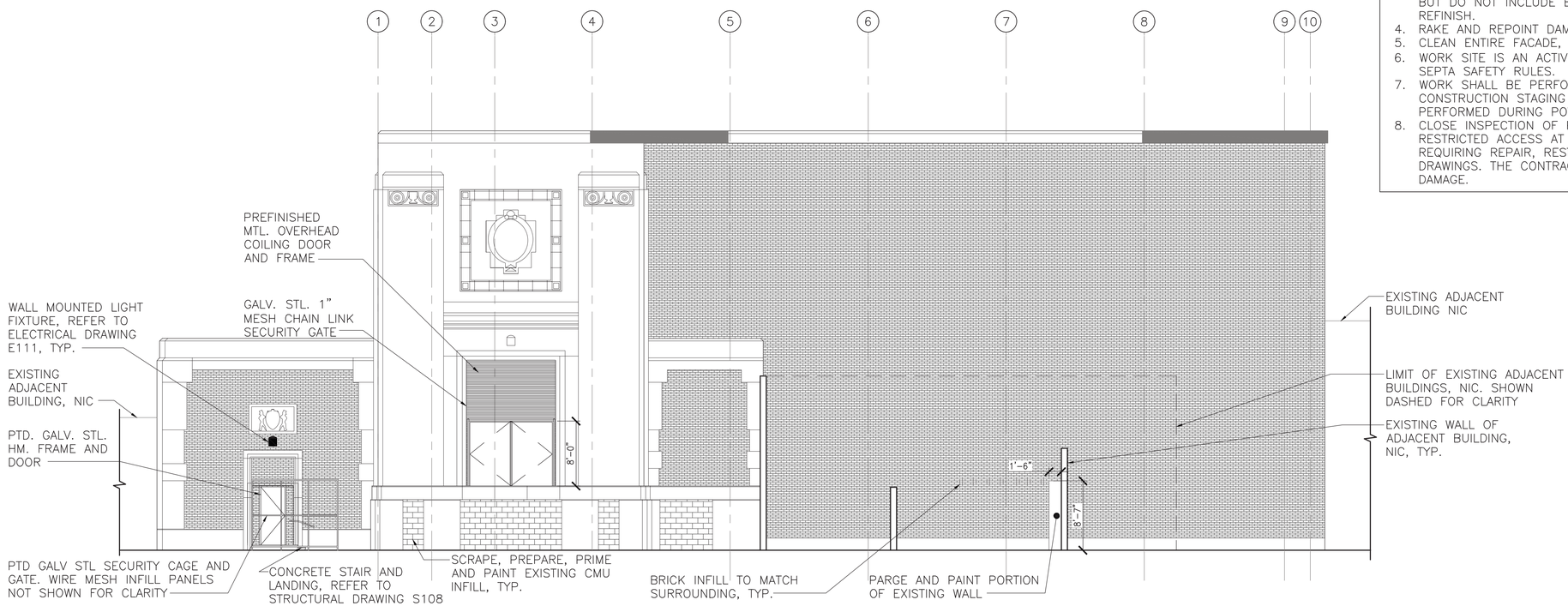
NOTES:

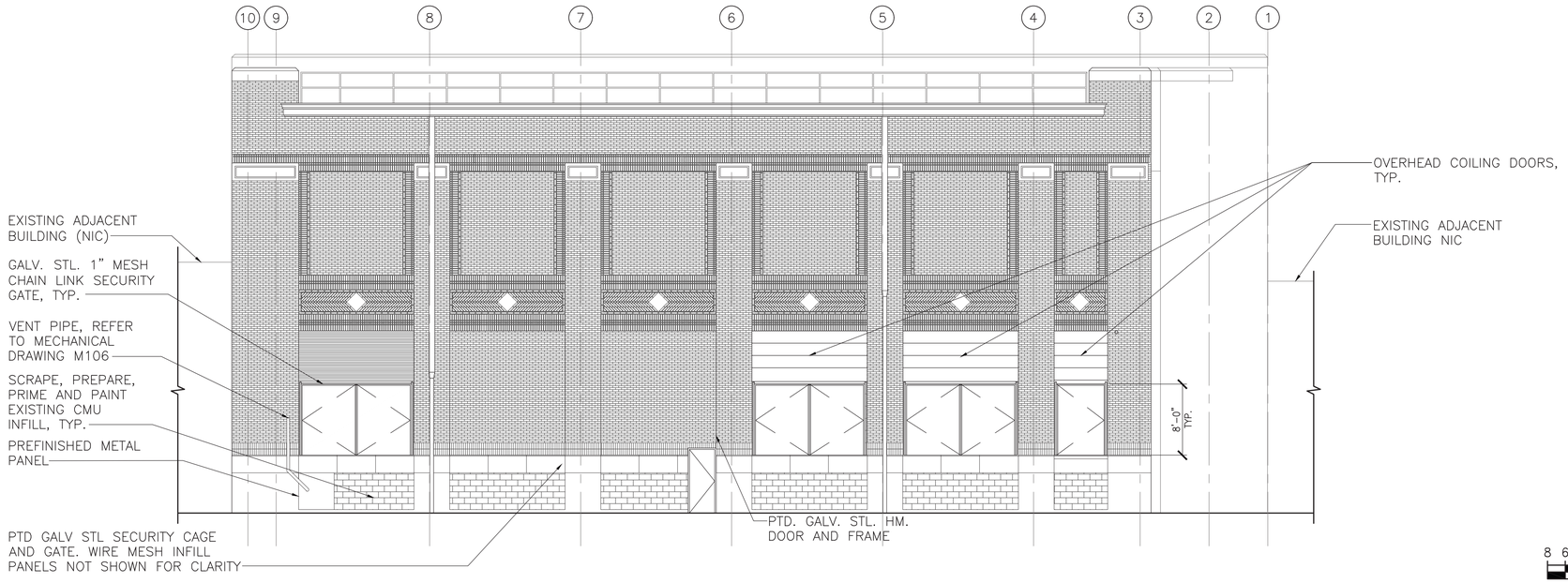
1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. RAKE AND REPOINT DAMAGED MORTAR JOINTS, EACH ELEVATION.
5. CLEAN ENTIRE FACADE, EACH ELEVATION.
6. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
7. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
8. CLOSE INSPECTION OF PORTIONS OF THE FACADE WAS NOT POSSIBLE DUE TO RESTRICTED ACCESS AT PRIVATE PROPERTY. DUE TO THIS, NOT ALL AREAS REQUIRING REPAIR, RESTORATIONS OR REFURBISHING ARE INCLUDED ON DRAWINGS. THE CONTRACTOR SHALL INSPECT ENTIRE BUILDING AND REPAIR ALL DAMAGE.

BRICK LEGEND:

1. BRICK TYPE 1 = HY-TEX BRICK
2. BRICK TYPE 2 = ENAMELED BRICK-"GREEN"
3. BRICK TYPE 3 = ENAMELED BRICK-"GRANITE MARBLE"
4. BRICK TYPE 4 = FACE BRICK



1 A116 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"
REF: A107, A108



2 A116 NORTH ELEVATION
SCALE: 1/8" = 1'-0"
REF: A107, A108

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
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PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
PROPOSED ELEVATIONS - SHEET 1

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: SF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A116**	
DWG. NO.: 17 OF 23	
SHT. NO.: 30 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A116	REV. NO.: -

STATUS: 50% SUBMISSION

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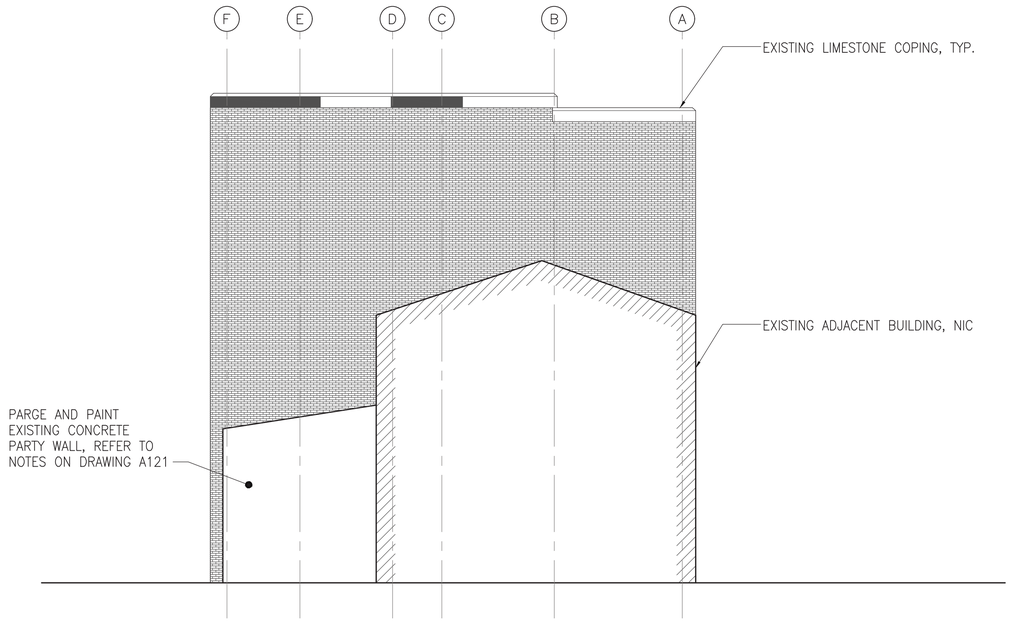
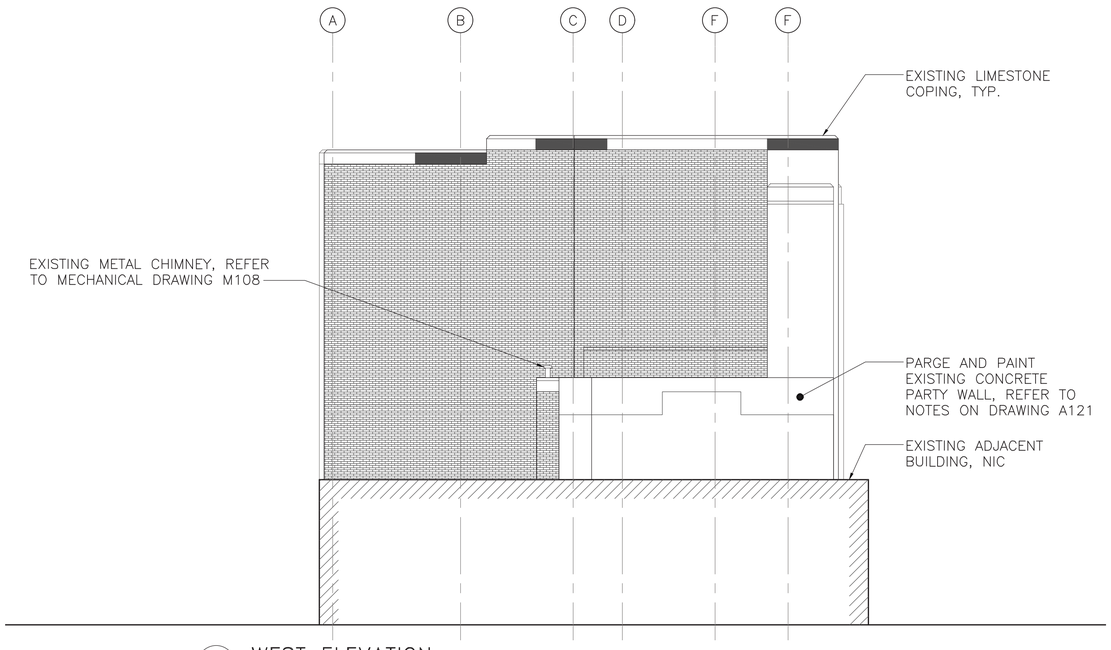


1 A117 EAST ELEVATION
SCALE: 1/8" = 1'-0"
REF: A107, A108



2 A117 WEST ELEVATION
SCALE: 1/8" = 1'-0"
REF: A107, A108

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. RAKE AND REPOINT DAMAGED MORTAR JOINTS, EACH ELEVATION.
5. CLEAN ENTIRE FACADE, EACH ELEVATION.
6. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). FOLLOW ALL SEPTA SAFETY RULES.
7. WORK SHALL BE PERFORMED IN STAGES ACCORDING TO OVERALL CONSTRUCTION STAGING AND SEQUENCING PLAN. SOME WORK MAY ONLY BE PERFORMED DURING POWER OUTAGE.
8. CLOSE INSPECTION OF PORTIONS OF THE FACADE WAS NOT POSSIBLE DUE TO RESTRICTED ACCESS AT PRIVATE PROPERTY. DUE TO THIS, NOT ALL AREAS REQUIRING REPAIR, RESTORATIONS OR REFURBISHING ARE INCLUDED ON DRAWINGS. THE CONTRACTOR SHALL INSPECT ENTIRE BUILDING AND REPAIR ALL DAMAGE.

BRICK LEGEND:

1. BRICK TYPE 1=HY-TEX BRICK
2. BRICK TYPE 2=ENAMELED BRICK-"GREEN"
3. BRICK TYPE 3=ENAMELED BRICK-"GRANITE MARBLE"
4. BRICK TYPE 4=FACE BRICK

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
PROPOSED ELEVATIONS - SHEET 2

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: AC
	CHECKED BY: BF
WORK ORDER NO.: 276491	
SHEET NUMBER: **A117**	
DWG. NO.: 18 OF 23	
SHT. NO.: 31 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-A117	REV. NO.: -

STATUS: 50% SUBMISSION

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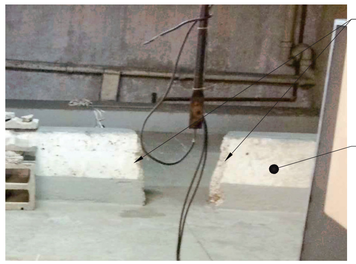
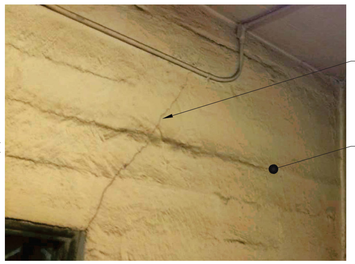
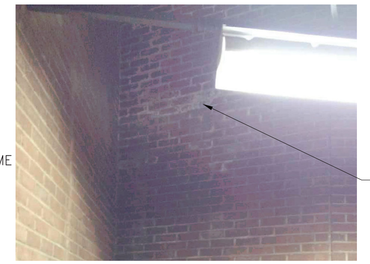


1 A118 DAMAGED CONCRETE
SCALE: NOT TO SCALE
REF: A105



2 A118 CRACKED CONCRETE
SCALE: NOT TO SCALE
REF: A105

3 A118 DAMAGED METAL PANELS
SCALE: NOT TO SCALE
REF: A105



4 A118 EFFLORESCENCE
SCALE: NOT TO SCALE
REF: A103

5 A118 DAMAGED CEILING
SCALE: NOT TO SCALE
REF: A103

6 A118 DAMAGED BRICK
SCALE: NOT TO SCALE
REF: A103

7 A118 DAMAGED BRICK
SCALE: NOT TO SCALE
REF: A103

8 A118 HOLES IN WALL
SCALE: NOT TO SCALE
REF: A110

9 A118 DAMAGED BRICK
SCALE: NOT TO SCALE
REF: A103

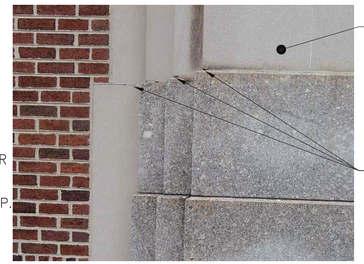
10 A118 DAMAGED BRICK
SCALE: NOT TO SCALE
REF: A103

11 A118 CRACKED LIMESTONE
SCALE: NOT TO SCALE
REF: A110

12 A118 OPEN JOINTS
SCALE: NOT TO SCALE
REF: A110

13 A118 CHIPPED GRANITE
SCALE: NOT TO SCALE
REF: A110

14 A118 DAMAGED GRANITE
SCALE: NOT TO SCALE
REF: A110



15 A118 OPEN MORTAR JOINT
SCALE: NOT TO SCALE
REF: A110

16 A118 OPEN MORTAR JOINT
SCALE: NOT TO SCALE
REF: A110

30% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA
SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
PHOTO DETAILS - SHEET 1

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 4/2/2017
DRAWN BY: AC
CHECKED BY: JM
WORK ORDER NO.: 276491
SHEET NUMBER: **A118**
DWG. NO.: 19 OF 23
SHT. NO.: 32 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-A118.dwg
REV. NO.: -

STATUS: 30% SUBMISSION

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REMOVE EXISTING METAL SECURITY CAGE

RAKE AND REPOINT EXISTING OPEN MORTAR JOINT

CRACKED LIMESTONE DOOR SURROUND, REFER TO DETAIL 3/A121

1 A119 CRACKED SURROUND
SCALE: NOT TO SCALE
REF: A110

REMOVE MOSS FROM CORNER. REPAIR ANY DAMAGE TO UNDERLYING GRANITE

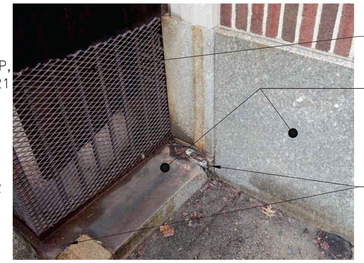
DAMAGED GRANITE STOOP, REFER TO DETAIL 2/A121

REMOVE EXISTING METAL SECURITY CAGE

FILL VOID AT LOCATION OF REMOVED FENCE POST, REFER TO REPAIR DETAIL 5/A121

CRACKED GRANITE STOOP, REFER TO DETAIL 2/A121

2 A119 DAMAGED STOOP
SCALE: NOT TO SCALE
REF: A110



REMOVE EXISTING METAL SECURITY CAGE

CLEAN EXISTING GRANITE, TYP.

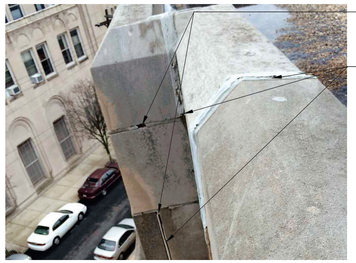
DAMAGED GRANITE STOOP, REFER TO DETAIL 2/A121

3 A119 DAMAGED STOOP
SCALE: NOT TO SCALE
REF: A110

REMOVE TAR FROM EXISTING WALL, TYP.

EXPOSED STEEL MEMBER, REFER TO STRUCTURAL DRAWINGS

4 A119 EXPOSED STEEL MEMBER
SCALE: NOT TO SCALE
REF: A110

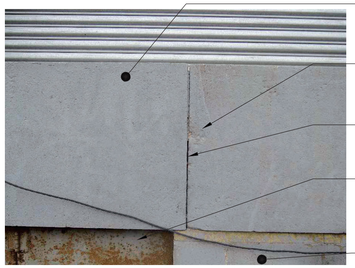


RAKE AND REPOINT OPEN MORTAR JOINT, TYP.

REMOVE SEALANT FROM EXISTING JOINT RAKE AND REPOINT WITH COMPATIBLE MORTAR, TYP.

NOTE: PORTIONS OF THE PARAPET AND COPING ARE TO BE REBUILT UNDER SEPTA ROOF REPLACEMENT PROJECT WORK ORDER NUMBER 1AJ-3100. COORDINATE WORK AT PARAPET WITH SEPTA ROOF REPLACEMENT PROJECT WORK ORDER NUMBER 1AJ-3100

5 A119 OPEN MORTAR JOINT
SCALE: NOT TO SCALE
REF: A110



REMOVE ALL PAINT FROM EXISTING GRANITE, TYP.

SPALLED GRANITE, REFER TO DETAIL 2/A121

RAKE AND REPOINT EXISTING OPEN MORTAR JOINT

REMOVE AND REPLACE EXISTING METAL PANEL WITH PREFINISHED METAL PANEL

SCRAPE, PREPARE, PRIME AND PAINT EXISTING METAL PANEL, TYP.

6 A119 SPALLED GRANITE
SCALE: NOT TO SCALE
REF: A110

COORDINATE WORK AT RWL WITH SEPTA ROOF REPLACEMENT PROJECT WORK ORDER NUMBER 079-3100

SPALLED BRICK, REFER TO DETAIL 1/A121

7 A119 SPALLED BRICK
SCALE: NOT TO SCALE
REF: A110

SPALLED BRICK, REFER TO DETAIL 1/A121

FILL ABANDONED PENETRATION, REFER TO DETAIL 5/A121, TYP.

8 A119 ABANDONED PENETRATIONS
SCALE: NOT TO SCALE
REF: A110

RAKE AND REPOINT OPEN MORTAR JOINT, TYP.

CRACKED GRANITE STOOP, REFER TO DETAIL 3/A121

SCRAPE, PREPARE, PRIME AND PAINT EXISTING CMU, TYP.

SCRAPE, PREPARE, PRIME AND PAINT EXISTING CMU, TYP.

REPAIR SIDEWALK, REFER TO CIVIL DRAWINGS, TYP.

9 A119 CRACKED GRANITE
SCALE: NOT TO SCALE
REF: A110

REMOVE PAINT FROM EXISTING GRANITE, TYP.

SPALLED GRANITE, REFER TO DETAIL 2/A121

CRACKED GRANITE, REFER TO DETAIL 3/A121

RAKE AND REPOINT OPEN MORTAR JOINTS, TYP.

SCRAPE, PREPARE, PRIME AND PAINT EXISTING CMU, TYP.

10 A119 SPALLED GRANITE
SCALE: NOT TO SCALE
REF: A110

SPALLED GRANITE, REFER TO DETAIL 2/A121

REMOVE ALL PAINT FROM EXISTING GRANITE, TYP.

SCRAPE, PREPARE, PRIME, AND PAINT EXISTING CMU

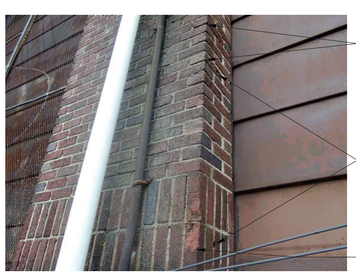
CRACKED MORTAR JOINT, REFER TO DETAIL 4/A121

11 A119 SPALLED GRANITE
SCALE: NOT TO SCALE
REF: A110

RAKE AND REPOINT OPEN MORTAR JOINTS, TYP.

RAKE AND REPOINT OPEN MORTAR JOINTS, TYP.

12 A119 OPEN MORTAR JOINTS
SCALE: NOT TO SCALE
REF: A110

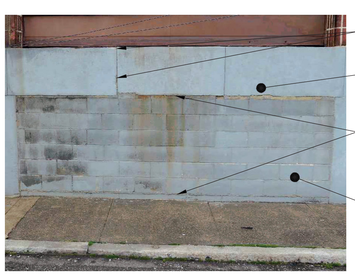


RAKE AND REPOINT OPEN MORTAR JOINTS, TYP.

FILL ABANDONED PARTITION, REFER TO DETAIL 5/A121

SPALLED BRICK, REFER TO DETAIL 1/A121

13 A119 SPALLED BRICK
SCALE: NOT TO SCALE
REF: A110



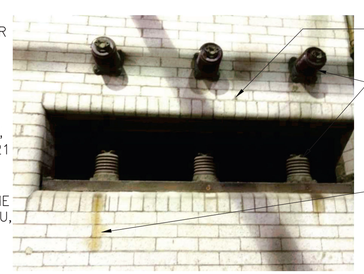
SPALLED GRANITE, REFER TO DETAIL 1/A121

REMOVE PAINT FROM EXISTING GRANITE, TYP.

CRACKED MORTAR JOINT, REFER TO DETAIL 4/A121

SCRAPE, PREPARE, PRIME AND PAINT EXISTING CMU, TYP.

14 A119 SPALLED GRANITE
SCALE: NOT TO SCALE
REF: A110



CRACKED BRICK, REFER TO DETAIL 3/A121

REMOVE ABANDONED INSULATOR, TYP.

CLEAN EXISTING BRICK, TYP.

15 A119 LOOSE BRICK
SCALE: NOT TO SCALE
REF: A115

REPOINT OPEN MORTAR JOINT

SCRAPE, PREPARE, PRIME AND PAINT EXISTING CONCRETE LINTEL

DAMAGED BRICK, REFER TO REPAIR NOTES ON DRAWING A121

16 A119 DAMAGED BRICK
SCALE: NOT TO SCALE
REF: A112

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA
SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
PHOTO DETAILS - SHEET 2

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: AC
CHECKED BY: BF
WORK ORDER NO.: 276491
SHEET NUMBER: **A119**
DWG. NO.: 20 OF 23
SHT. NO.: 33 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-A119
REV. NO.: -

STATUS: 50% SUBMISSION

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REMOVE EXISTING CONCRETE AND REPLACE WITH BRICK AND MATCH SURROUNDING, TYP.

REMOVE AND REPLACE EXISTING GUARDRAIL AND HANDRAIL

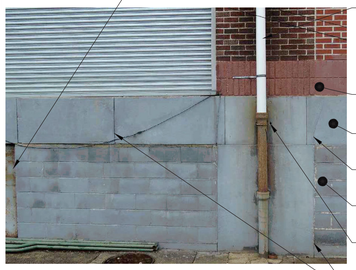
1 A120 **DAMAGED BRICK**
SCALE: NOT TO SCALE
REF: A113

SPALLED LIMESTONE, REFER TO DETAIL 2/A121

RAKE AND REPOINT MORTAR JOINT, TYP.

REMOVE AND REPLACE EXISTING GUARDRAIL

2 A120 **CRACKED LIMESTONE**
SCALE: NOT TO SCALE
REF: A103



SCRAPE, PREPARE, PRIME AND PAINT EXISTING METAL PANEL, TYP.

COORDINATE WORK AT RWL WITH SEPTA ROOF REPLACEMENT PROJECT WORK ORDER NUMBER 079–3100

REMOVE ALL PAINT FROM EXISTING BRICK, TYP.

REMOVE ALL PAINT FROM EXISTING GRANITE, TYP.

CRACKED GRANITE, REFER TO DETAIL 3/A121

REMOVE ALL PAINT FROM EXISTING CMU, TYP.

FILL ABANDONED PENETRATION, REFER TO DETAIL 5/A121, TYP.

RAKE AND REPAIR OPEN MORTAR JOINT, TYP.

3 A120 **CRACKED GRANITE**
SCALE: NOT TO SCALE
REF: A110

SCRAPE, PREPARE, PRIME AND PAINT EXISTING STEEL FRAMING, TYP.

CLEAN ENTIRE SURFACE OF EXISTING WALL, TYP.

REMOVE ABANDONED INSULATORS AND OTHER ELECTRICAL EQUIPMENT, REFER TO TRACTION POWER DRAWINGS TP112 THROUGH TP119, TYP. FILL UNDERLYING PENETRATIONS, REFER TO DETAIL 5/A121, TYP.

4 A120 **ABANDONED EQUIPMENT**
SCALE: NOT TO SCALE
REF: TYP.

RAKE AND REPOINT OPEN MORTAR JOINT, TYP.

CLEAN ENTIRE SURFACE OF WALL, TYP.

NOTE: COORDINATE WORK AT PARAPET WITH SEPTA ROOF REPLACEMENT PROJECT WORK ORDER NUMBER 079–3100

SPALLED LIMESTONE, SEE REPAIR DETAIL 2/A121, TYP.

5 A120 **OPEN MORTAR JOINT**
SCALE: NOT TO SCALE
REF: A110

RAKE AND REPOINT OPEN MORTAR JOINT, TYP.

CLEAN ENTIRE SURFACE OF WALL, TYP.

NOTE: COORDINATE WORK AT PARAPET WITH SEPTA ROOF REPLACEMENT PROJECT WORK ORDER NUMBER 079–3100

REMOVE EXISTING VEGETATION, TYPICAL

6 A120 **OPEN MORTAR JOINT**
SCALE: NOT TO SCALE
REF: A111

50% SUBMISSION
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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

SOWINSKI SULLIVAN

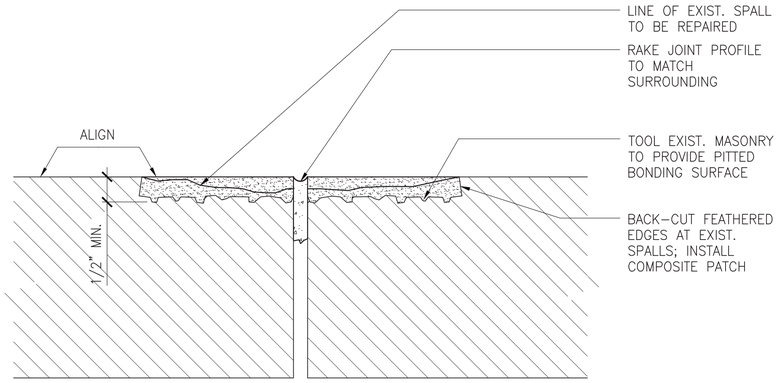
REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

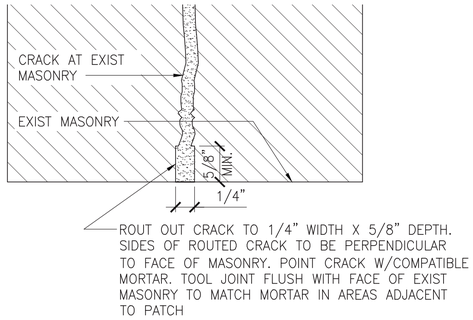
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
ARCHITECTURAL
PHOTO DETAILS - SHEET 3

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: AC
CHECKED BY: BF
WORK ORDER NO.: 276491
SHEET NUMBER: **A120**
DWG. NO.: 21 OF 23
SHT. NO.: 34 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-A120
REV. NO.: -

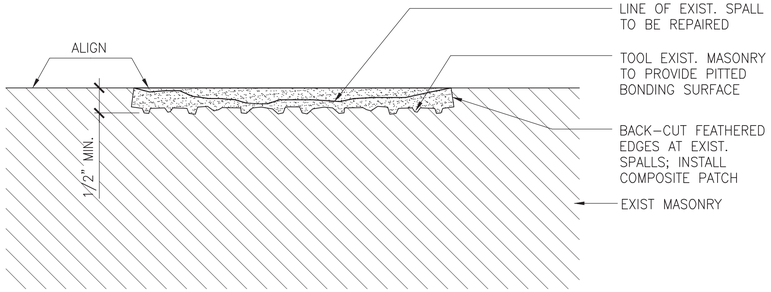
STATUS: 50% SUBMISSION



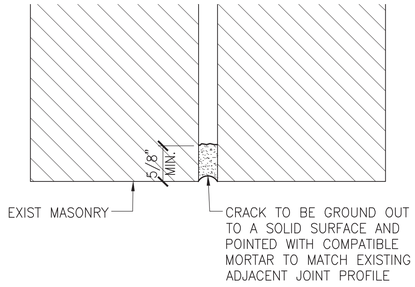
1 A121 MASONRY SPALL REPAIR AT JOINT
SCALE: 6" = 1'-0"



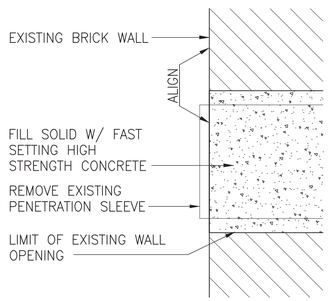
3 A121 MASONRY CRACK REPAIR
SCALE: 6" = 1'-0"



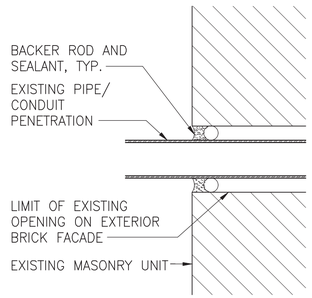
2 A121 MASONRY SPALL REPAIR
SCALE: 6" = 1'-0"



4 A121 MORTAR JOINT REPAIR
SCALE: 6" = 1'-0"



5 A121 ABANDONED PENETRATION REPAIR
SCALE: 6" = 1'-0"



6 A121 PENETRATION REPAIR
SCALE: 6" = 1'-0"

6 3 0 6

SCALE: 6"=1'0"

NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. PATCHING CEMENT SHALL BE DESIGNED FOR THE REPAIR OF HORIZONTAL, VERTICAL, AND OVERHEAD CONCRETE AND MASONRY SURFACES.
5. MORTAR SHALL BE COMPATIBLE WITH EXISTING MORTAR IN HARDNESS, TEXTURE AND COLOR.

REPAIR NOTES

BRICK:
1. POWERWASH ALL BRICK SURFACES TO REMOVE DIRT AND GRIME.
2. RAKE AND REPOINT ALL AREAS OF DAMAGED MORTAR JOINTS.
3. REMOVE AND RE-INSTALL BRICKS AT SEVERE CRACK LOCATIONS.
4. GRIND OUT CRACK. PREP, PRIME AND PAINT METAL SURFACE OF SHELF ANGLE, REMORTAR.
5. WATERPROOF BRICK WALLS WITH AN APPROVED BREATHABLE CLEAR SILANE SOLUTION.
6. REPLACE ALL MISSING, CRACKED, BROKEN AND SPALLED BRICK.
7. REPAIR CRACKS IN WALLS.
8. REMOVE AND REBUILD THE BOWING AREA OF BRICK WALL LOCATED IN THE CENTER END OF THE WEST ELEVATION. APPROXIMATELY 150 S.F. WORK AREA, 10 S.F. OF THIS AREA IS TO BE REMOVED AND REBUILT.
9. REPAIR ALL CRACKED BRICK, MAXIMUM CRACK WIDTH 1/8". REPLACE BRICK WHERE CRACK EXCEEDS 1/8".
10. REPOINT OPEN MORTAR JOINTS IN EXISTING AREAS AS SHOWN.
11. REMOVE ALL EXISTING PAINT ON BRICK.

WALL PENETRATIONS:
1. REMOVE ABANDONED PROJECTIONS, FILL OPEN HOLES SOLID WITH NON-SHRINK GROUT.
2. AT SMALL PIPE/CONDUIT WALL PENETRATIONS SEAL VOID BETWEEN PIPE AND WALL WITH BACKER ROD AND SEALANT.
3. SEAL PERIMETER OF CONDUIT AND SLEEVES.
4. REMOVE ABANDONED PIPING, FILL OPEN HOLES SOLID WITH NON-SHRINK GROUT.

STEEL LINTELS:
1. EXISTING FAILING LINTELS TO BE REMOVED & REPLACED.
2. RAKE AND RE-CAULK METAL/ MASONRY TIE-IN.
3. PREPARE RUSTED LINTEL TO BARE METAL, PRIME (1 COAT) AND PAINT (2 COATS).
4. REMOVE AND REPLACE DAMAGED LINTELS. COORDINATE WITH STRUCTURAL DRAWINGS.

POWERWASHING, SCRAPING, AND SANDING:
1. TESTING SHALL BE PERFORMED TO DETERMINE PRESENCE OF LEAD. IF LEAD IS PRESENT, ALL INSTANCES SHALL BE REMEDIATED. ALL REMEDIATION WORK SHALL BE PREFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND LAWS.
2. PAINTED SURFACES BEING POWERWASHED SHALL BE "CONTAINED" AS PER CODE.
3. DRY SCRAPING OR SANDING OF PAINTED SURFACES MAY ONLY BE PERFORMED WITH EQUIPMENT UTILIZING VACUUM ATTACHMENT W/ HEPA FILTER, AS PER CODE.

ASBESTOS REMOVAL:
1. TESTING SHALL BE PERFORMED TO DETERMINE THE PRESENCE OF ASBESTOS. IF ASBESTOS IS PRESENT, ALL INSTANCES SHALL BE ABATED. ALL ABATEMENT WORK SHALL BE PREFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND LAWS.
2. REMOVAL OF NON-FRIABLE ASBESTOS CONTAINING MATERIALS SHALL BE PERFORMED IN SUCH A MANNER THAT THE MATERIALS REMAIN NON-FRIABLE DURING THE RENOVATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE MATERIALS ARE REMOVED WITHOUT RENDERING THE MATERIAL FRIABLE. REFER TO ASBESTOS ABATEMENT SPECIFICATIONS FOR ADDITIONAL INFORMATION ON REMOVAL PROCEDURES.

GRANITE:
1. REMOVE ALL EXISTING PAINT ON GRANITE.
2. POWERWASH ALL GRANITE SURFACES TO REMOVE DIRT AND GRIME.
3. REPAIR CRACKS IN WALLS.
4. REPOINT ALL OPEN MORTAR JOINTS.
5. WATERPROOF GRANITE WITH APPROVED, CLEAR, BREATHABLE SILANE SOLUTION.

LIMESTONE:
1. REMOVE ALL EXISTING PAINT ON LIMESTONE.
2. POWERWASH ALL SURFACES TO CLEAN STONES.
3. REPAIR AND RESTORE ALL SPALLED AND BROKEN LIMESTONE.
4. RAKE AND REPOINT ALL OPEN JOINTS.
5. WATERPROOF LIMESTONE WITH APPROVED, CLEAR, BREATHABLE SILANE SOLUTION.

TERRA COTTA:
1. POWER WASH ALL SURFACES TO REMOVE DIRT AND GRIME.
2. REPAIR AND RESTORE DAMAGED TERRA COTTA.
3. REPLACE TERRA COTTA UNITE WITH SEVERE SPALLING.
4. RAKE AND REPOINT ALL OPEN JOINTS.
5. WATERPROOF TERRA COTTA WITH APPROVED SEALANT PER SPECIFICATION 04212.

POLYCHROME TERRA COTTA:
1. POWER WASH ALL SURFACES TO REMOVE DIRT AND GRIME.
2. MECHANICALLY ABRADE SURFACES TO REMOVE LOOSE GLAZING.
3. FILL IN CRACKS, REBUILD DAMAGED SECTIONS AND CROSS JOINTS WITH THE ELASTORMERIC COATING SYSTEM'S APPROVED PASTE.
4. REMOVE AND REINSTALL SECTIONS THAT HAVE SEPARATED MORE THAN 3/8" FROM EACH OTHER AT HORIZONTAL JOINTS.
5. PRIME SURFACE.
6. APPLY COLOR CAST.

CEMENT PARGE:
1. POWER WASH REPAIR AREA AND SURROUNDING AREA.
2. APPLY CEMENT PARGE EVENLY WITH EXISTING.
3. PAINT TO MATCH EXISTING.

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
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PHILADELPHIA, PA 19107

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA
SOWINSKI SULLIVAN

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
MISCELLANEOUS DETAILS - SHEET 1

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: AC
CHECKED BY: BF
WORK ORDER NO.: 276491
SHEET NUMBER: **A121**
DWG. NO.: 22 OF 23
SHT. NO.: 35 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-A121
REV. NO.: -

STATUS: 50% SUBMISSION

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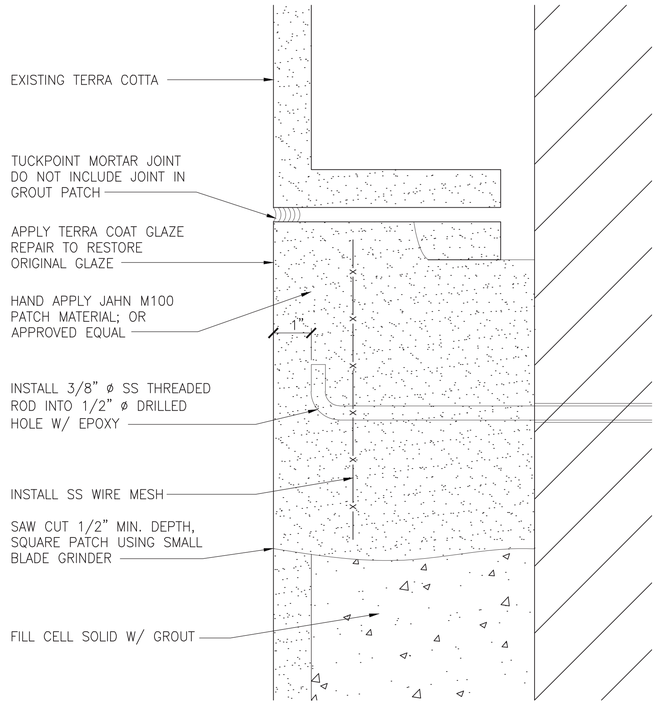
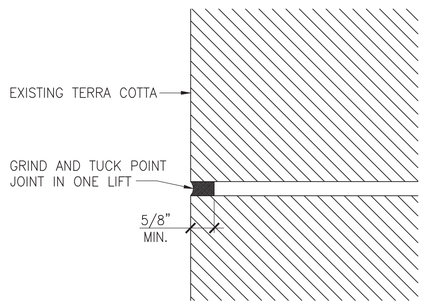
NOTES:

1. ALL CONDITIONS ARE EXISTING UNLESS NOTED OTHERWISE, TYPICAL.
2. ALL EXISTING DIMENSIONS SHALL BE VERIFIED IN FIELD, TYPICAL.
3. DRAWINGS INDICATE THE VARIOUS TYPES OF REPAIRS REQUIRED AT THE MOST SEVERE LOCATIONS. DRAWINGS SHOW THE INTENT OF THE SCOPE OF WORK BUT DO NOT INCLUDE EVERY SMALL AREA REQUIRING REPAIR, RESTORATION OR REFINISH.
4. PATCHING CEMENT SHALL BE DESIGNED FOR THE REPAIR OF HORIZONTAL, VERTICAL, AND OVERHEAD CONCRETE AND MASONRY SURFACES.
5. MORTAR SHALL BE COMPATIBLE WITH EXISTING MORTAR IN HARDNESS, TEXTURE AND COLOR.



1 A122 GROUT PATCH FOR TERRA COTTA
SCALE: 6" = 1'-0"



2 A122 POINTING FOR TERRA COTTA
SCALE: 6" = 1'-0"

6 3 0 6

SCALE: 6"=1'0"

50% SUBMISSION
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C:\PW\WORKING\PITTD\68908117AN-A122.DWG

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ARCHITECTURAL
MISCELLANEOUS DETAILS - SHEET 2

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: AC
CHECKED BY: BF
WORK ORDER NO.: 276491
SHEET NUMBER: **A122**
DWG. NO.: 23 OF 23
SHT. NO.: 36 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-A122
REV. NO.: -

STATUS: 50% SUBMISSION

GENERAL:

1. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL DRAWINGS AND SPECIFICATIONS CONTAINED HEREIN.
2. ALL WORK RELATED TO THE STAGING, CONSTRUCTION PRACTICES AND SAFETY OF THE PROJECT'S WORKERS AND PROPERTY SHALL BE CONSIDERED MEANS AND METHODS AND SHALL BE COMPLETED BY THE CONTRACTOR IN ACCORDANCE WITH STANDARD INDUSTRY PRACTICE AND ALL CODES AND STANDARDS.
3. ALL DRAWINGS HAVE BEEN PREPARED IN ACCORDANCE WITH THE 2009 INTERNATIONAL BUILDING CODE AS WELL AS ALL REFERENCED STANDARDS CONTAINED THEREIN.
4. EVALUATION AND COMPLIANCE WITH LOADING RESTRICTIONS FOR MEANS AND METHODS OF CONSTRUCTION AS WELL AS STAGING FOR OTHER TRADES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL WORK SHALL BE INSPECTED IN ACCORDANCE WITH CHAPTER 17 OF THE REFERENCED BUILDING CODE. SUBMIT ALL REPORTS TO THE SEPTA PROJECT MANAGER FOR REVIEW. AT THE COMPLETION OF THE PROJECT, THE SPECIAL INSPECTION REPORT SHALL BE COMPLETED, SIGNED BY THE SPECIAL INSPECTOR AND SUBMITTED TO THE SEPTA PROJECT MANAGER FOR RECORD PURPOSES.
6. SCALING OF DRAWINGS TO DETERMINE DIMENSIONS OF ELEMENTS IS NOT PERMITTED.
7. ALL HORIZONTAL AND VERTICAL DIMENSIONS CONTAINED ON THE STRUCTURAL DRAWINGS WERE DEVELOPED USING EXISTING SURVEY INFORMATION FOR THE PURPOSE OF THIS PROJECT. ANY DIMENSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS SHOULD BE COORDINATED WITH THE OTHER DISCIPLINE DRAWINGS.
8. THE STRUCTURAL DOCUMENTS ARE TO BE USED IN COORDINATION WITH THE ELECTRICAL AND CIVIL, DRAWINGS AND SPECIFICATIONS AS WELL AS THOSE OF ALL OTHER DISCIPLINES. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE SEPTA PROJECT MANAGER PRIOR TO THE COMMENCEMENT OF WORK.
9. DESIGN LOADS FOR THE PROJECT ARE LISTED IN THE LOAD SCHEDULE BELOW:
   a. SNOW LOAD 25 PSF
   b. DEAD LOAD VARIES, SEE INDIVIDUAL DRAWINGS
   c. WIND LOAD PER IBC CODE

EXISTING CONSTRUCTION:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, COORDINATION AND INSTALLATION OF SHORING AND STABILIZATION OF EXISTING CONSTRUCTION AS REQUIRED TO PERFORM THE WORK CONTAINED IN THE DRAWINGS AND SPECIFICATIONS.
2. DIMENSIONS SHOWN REFERRING TO EXISTING STRUCTURES ARE FOR REFERENCE ONLY. ALL DIMENSIONS RELATED TO EXISTING FRAMING SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
3. THE CONTRACTOR SHALL NOTIFY THE SEPTA PROJECT MANAGER OF ANY INFORMATION RELATING TO EXISTING STRUCTURES THAT HAS BEEN UNCOVERED DUE TO DEMOLITION.

FOUNDATIONS:

1. EXCAVATE THE FOUNDATION AREAS TO THE DEPTH AND EXTENT INDICATED ON THE FOUNDATION DRAWINGS. ALL FOOTING AND SLAB SUBGRADES SHALL BE APPROVED IN WRITING BY THE SEPTA PROJECT MANAGER PRIOR TO BACKFILLING. SUBMIT ALL REPORTS TO THE SEPTA PROJECT MANAGER FOR RECORD.
2. BOTTOM OF FOUNDATIONS SHALL BEAR ON SOIL CAPABLE OF SAFELY SUPPORTING 3000 PSF.
3. BOTTOM OF FOOTINGS SHALL BEAR ON:
   a. UNDISTURBED VIRGIN SOIL.
   b. CONTROLLED COMPACTED FILL.
   c. DENSIFIED NATURAL SOIL.
   d. ROCK.
   e. OTHER.
   CAPABLE OF SAFELY SUPPORTING 3000 PSF.
4. BOTTOM OF FOOTING SUBGRADE MUST BE INSPECTED AND APPROVED BY A REGISTERED GEOTECHNICAL ENGINEER BEFORE PLACING ANY CONCRETE FOUNDATIONS. APPROVAL IN WRITING MUST INDICATE THE SOIL IS ADEQUATE TO SAFELY SUSTAIN THE SPECIFIED BEARING PRESSURE. SUBMIT ALL REPORTS TO THE SEPTA PROJECT MANAGER FOR RECORD.
5. BOTTOM OF ALL FOOTINGS SUBJECTED TO FREEZE THAW CONDITIONS SHALL BE A MINIMUM 3 FEET BELOW FINISH GRADE OR TOP OF SLAB ELEVATION WHICHEVER IS LOWER.
6. RETAINING WALLS SHALL BE BACKFILLED AND COMPACTED WITH MATERIAL PRODUCING A MAXIMUM ACTIVE EQUIVALENT FLUID LATERAL EARTH PRESSURE OF 45 PSF.
7. WALLS RETAINING EARTH SHALL NOT BE BACKFILLED UNTIL A MINIMUM OF 70 PERCENT OF SPECIFIED COMPRESSIVE STRENGTH IS ACHIEVED. BASEMENT WALLS SHALL NOT BE BACKFILLED, UNLESS ADEQUATELY BRACED, UNTIL FLOOR SLAB IS IN PLACE AND ATTAINS A MINIMUM OF 70 PERCENT OF SPECIFIED COMPRESSIVE STRENGTH.
8. SITE RETAINING WALLS AND EXPOSED CONCRETE WALLS SHALL HAVE CONTROL JOINTS A MAXIMUM OF 20 FEET ON CENTER UNLESS OTHERWISE NOTED ON THE DRAWINGS. MASONRY OR CONCRETE WALLS WITH INTEGRAL COLUMN PIERS OR PILASTERS SHALL HAVE A FORMED CONTROL JOINT ON ONE SIDE OF EACH PIER ON THE EXPOSED FACE OF THE WALL. JOINTS SHALL BE FILLED WITH SEALANT AS NOTED ON THE ARCHITECTURAL DRAWINGS.
9. UNDERPINNING, SHEETING AND SHORING NOTED ON THE DRAWINGS SHALL BE DESIGNED AND DETAILED BY A REGISTERED PROFESSIONAL ENGINEER WITH A MINIMUM OF 3 YEARS EXPERIENCE IN THE DESIGN OF FOUNDATION SHORING. SUBMIT SIGNED AND SEALED DRAWINGS, CALCULATIONS, AND A STAGING PLAN TO THE SEPTA PROJECT MANAGER FOR REVIEW AND RECORD.

CONCRETE:

1. ALL CONCRETE SHALL BE READY-MIX AND HAVE THE FOLLOWING CHARACTERISTICS:
   a. SLABS ON GRADE:
      1). A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
      2). A MINIMUM OF 520 LBS. OF CEMENT PER CUBIC YARD.
      3). SLUMP (AT POINT OF CONCRETE PLACEMENT) SHALL BE 3 INCH MINIMUM AND 5 INCH MAXIMUM.
   b. FOOTINGS AND FOUNDATION WALLS:
      1). A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
      2). A MINIMUM OF 520 LBS. OF CEMENT PER CUBIC YARD.
      3). SLUMP (AT POINT OF CONCRETE PLACEMENT) SHALL BE 3 INCH MINIMUM AND 5 INCH MAXIMUM.
2. ALL CONCRETE EXPOSED TO EXTERIOR CONDITIONS SHALL HAVE CHARACTERISTICS IN ACCORDANCE WITH ACI BUILDING CODE (ACI 318) AND THE 2012 INTERNATIONAL BUILDING CODE:
   a. MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO SHALL BE 0.45.
   b. MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
3. ALL CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS:
   a. ACI BUILDING CODE (ACI 318).
   b. THE ACI DETAILING MANUAL (SP.66).
4. ALL REINFORCING STEEL SHALL BE GALVANIZED AND SHALL BE MANUFACTURED FROM HIGH STRENGTH BILLET STEEL CONFORMING TO ASTM DESIGNATION A615 GRADE 60. LAP ALL BARS MINIMUM 48 BAR DIAMETERS UNLESS OTHERWISE NOTED OTHERWISE.
5. ALL WWF SHALL BE GALVANIZED AND SHALL BE MANUFACTURED FROM HIGH STRENGTH STEEL CONFORMING TO ASTM A185. LAP ALL WWF A MINIMUM OF 6 INCHES.
6. PLACE TRANSVERSE REINFORCING (SWB) IN BOTTOM LAYER OF CONTINUOUS FOOTINGS. PROVIDE CORNER BARS IN FOOTINGS TO MATCH CONTINUOUS REINFORCEMENT. EXTEND WALL FOOTING REINFORCING INTO COLUMN FOOTINGS A MINIMUM OF 2 FEET.
7. PROVIDE KEYS IN CONCRETE WALLS, PIERS, GRADE BEAMS AND FOOTINGS AT INTERSECTIONS UNLESS NOTED OTHERWISE. PROVIDE CORNER BARS TO MATCH HORIZONTAL REINFORCEMENT AT WALL CORNERS AND TEE INTERSECTIONS.
8. CONCRETE SHALL ACHIEVE A MINIMUM OF 70 PERCENT OF THE DESIGN STRENGTH PRIOR TO STEEL ERECTION. WRITTEN CONFIRMATION OF THIS STRENGTH SHOULD BE SUBMITTED TO THE SEPTA PROJECT MANAGER PRIOR TO THE COMMENCEMENT OF STEEL ERECTION.
9. CONCRETE COVER OVER REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI 318.

STEEL:

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE. ALL STRUCTURAL STEEL WIDE FLANGE (W) SHAPES SHALL BE ASTM A992 GRADE 50 (V50). ALL STRUCTURAL STEEL S, M, AND HP SHAPES SHALL BE ASTM A572 GRADE 50 (V50). ALL OTHER STRUCTURAL STEEL SHALL BE ASTM A36 UNLESS OTHERWISE NOTED.
2. ALL STEEL SHALL BE THOROUGHLY CLEANED IN ACCORDANCE WITH SSPC. SP3 AND BE TREATED AS FOLLOWS:
   a. HAVE A SHOP COAT OF RUST INHIBITIVE PAINT.
3. ORIENT ALL MILL CAMBER UPWARD DURING FABRICATION AND ERECTION.
4. ALL SHOP AND FIELD WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED, AS DESCRIBED IN THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE, AWS D1.1, TO PERFORM THE TYPE OF WORK REQUIRED.
5. ALL BOLTS USED FOR THE ANCHORAGE TO CONCRETE AS SPECIFIED ON THE DRAWINGS SHALL CONFORM TO ASTM F1554.
6. ALL STEEL CONNECTIONS SHALL BE BOLTED WITH A MINIMUM OF 3/4" A325N HIGH STRENGTH BOLTS OR WELDED AS DESIGNED BY THE STEEL FABRICATOR.
7. ALL TENSION CONTROLLED BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F1852 AND ASTM F2280.
8. ALL BRACE CONNECTIONS SHALL BE BOLTED WITH A MINIMUM OF 3/4" DIAMETER A490.SC HIGH STRENGTH BOLTS OR WELDED.
9. ALL ALUMINUM AND STEEL MEMBERS SHALL BE TREATED OR PROPERLY SEPARATED TO PREVENT GALVANIC AND CORROSIVE EFFECTS.
10. ALL STEEL WELDING RODS SHALL BE AS FOLLOWS:
    a. E70XX FOR STEEL CONNECTIONS.
    b. E80XX FOR BRACE CONNECTIONS.
    c. E60XX FOR STEEL TO METAL STUD CONNECTIONS.
11. SUBMIT ALL STEEL SHOP DRAWINGS FOR REVIEW PRIOR TO ANY FABRICATION. SUBMIT CALCULATIONS FOR ALL BRACE CONNECTIONS TO COLUMNS (CALCULATIONS NEED NOT BE SIGNED AND SEALED).
12. STEEL FABRICATOR IS SOLELY RESPONSIBLE FOR COORDINATING WITH THE CONTRACTOR FOR THE PURPOSE OF SURVEYING AND VERIFICATION OF EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO THE LOCATION, ELEVATION, AND DIMENSIONS OF WALLS AND FRAMING THAT EXIST AT THE TIME OF THE STEEL ERECTION.
13. ALL LINTELS AND SHELF ANGLES SHALL BE PAINTED AND GALVANIZED. ANY POINTS OF WELDING SHALL BE TOUCHED UP IN THE FIELD WITH A ZINC-RICH PAINT BY THE STEEL ERECTOR.
14. ALL EXPOSED STEEL (GANTRY COLUMNS AND WALKWAYS, ETC.) SHALL BE HOT DIP GALVANIZED. ANY POINTS OF WELDING SHALL BE TOUCHED UP IN THE FIELD WITH A ZINC-RICH PAINT BY THE STEEL ERECTOR.

MASONRY:

1. MASONRY UNITS SHALL BE:
   a. NORMAL WEIGHT MASONRY UNITS.
   b. ASTM C90 SOLID OR ASTM C90 HOLLOW GROUTED SOLID BELOW GRADE.
   c. ASTM C90 HOLLOW ABOVE GRADE.
   d. WITH MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI (AVERAGE OF 3 UNITS).
   e. ALL CMU SHALL BE LAID IN A FULL BED OF MORTAR.
   f. CONSTRUCT COLUMN PIERS INTEGRALLY WITH FOUNDATION AND ABOVE GRADE WALLS AND CONTINUE HORIZONTAL WALL REINFORCEMENT THROUGH THE PIER.
   g. GROUT COLUMN PIERS AND WALLS MONOLITHICALLY.
2. FOLLOWING ARE THE BLOCK STRENGTHS REQUIRED:
   a. ASTM C90 SOLID 2000 PSI ON GROSS AREA OF INDIVIDUAL UNITS.
   b. ASTM C90 SOLID 1500 PSI ON NET AREA OF AVERAGE OF 3 UNITS PER ACI.530.
   c. ASTM C90 HOLLOW 1700 PSI ON NET AREA OF INDIVIDUAL UNITS.
3. ALL MORTAR SHALL BE ASTM C270 TYPE S WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI AT 28 DAYS.
4. ALL MORTAR SHALL BE FIELD OBTAINED MORTAR CUBES TESTED IN ACCORDANCE WITH ASTM C270 AND ASTM C780.
5. GROUT SHALL BE A HIGH SLUMP MIX:
   a. IN ACCORDANCE WITH ASTM C476.
   b. HAVING A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
   c. FROM FIELD OBTAINED TEST PRISMS.
6. ALL CONCRETE MASONRY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES ACI 530/ASCE 5/TMS 402 AND THE SPECIFICATION FOR MASONRY STRUCTURES ACI 530.1/ASCE 6/TMS 602.
7. PROVIDE HOT-DIPPED GALVANIZED TRUSS TYPE HORIZONTAL JOINT REINFORCEMENT, MIN. 9 GA. AT 16" ON CENTER VERTICAL IN ALL MASONRY WALLS. SPACE HORIZONTAL JOINT REINFORCEMENT AT 8 INCHES ON CENTER IN ALL PARAPETS. USE SHOP FABRICATED SPECIAL PIECES AT ALL CORNERS AND TEES.

PAINTING:

1. ALL STEEL SHALL BE CLEANED, PRIMED AND REPAINTED. NOTE EXISTING PAINT MAY BE LEAD BASED. PROPER CONTAINMENT AND DISPOSAL MUST BE PROVIDED.

MINIMUM SIZE OF FILET WELDS	
MATERIAL THICKNESS OF THINNER PART JOINED (IN.)	MINIMUM SIZE OF FILET WELD[a] (IN.)
TO 1/4 INCLUSIVE	1/8
OVER 1/4 TO 1/2	3/16
OVER 1/2 TO 3/4	1/4
OVER 3/4	5/16
[a]LEG DIMENSION OF FILET WELDS. SINGLE-PASS WELDS MUST BE USED	

ABBREVIATIONS

@	AT
ACI	AMERICAN CONCRETE INSTITUTE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
B/	BOTTOM OF
B.O.B.	BOTTOM OF BRIDGE
B.O.B.PL.	BOTTOM OF BASE PLATE
B.O.S.	BOTTOM OF STEEL
CL.	CLEAR
℄	CENTERLINE
CMU	CONCRETE MASONRY UNIT
CONT	CONTINUOUS
CU.	COPPER
DIA., ø	DIAMETER
DWG.	DRAWING
(E), EX	EXISTING
EL	ELEVATION
E.W. E.F.	EACH WAY EACH FACE
F	FAHRENHEIT
F.O.C.	FACE OF COLUMN
FT.	FOOT
G	GRADE
GA.	GAUGE
H	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
HT.	HEIGHT
IBC	INTERNATIONAL BUILDING CODE
I.E.	FOR EXAMPLE
IN.	INCH
LLV	LONG LEG VERTICAL
LBS.	POUNDS
MAX.	MAXIMUM
MIN.	MINIMUM
(MOD)	MODIFIED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O.C.	ON CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADIMINSTRATION
PL	PLATE
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RECT	RECTIFIER
REF	REFERENCE
R/W	RIGHT OF WAY
(S)	SURVEY ELEVATION
SSPC	SOCIETY OF PROTECTIVE COATINGS
SWB	TRANSVERSE REINFORCEMENT
T/FDN	TOP OF FOUNDATION
TMS	THE MASONRY SOCIETY
TOS	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V, VERT	VERTICAL
VC	VERTICAL CURVE
W/	WITH
WP	WORKING POINT
WWF	WELDED WIRE FABRIC
XFMR	TRANSFORMER

NOTE:

1. WORK SITE IS AN ACTIVE TRACTION POWER SUBSTATION (TPSS). ALL WORK REFERENCED ON THESE DRAWINGS SHALL BE PERFORMED DURING AN OUTAGE AND UNDER THE DIRECTION OF SEPTA.
2. FOR MORE GENERAL NOTES SEE DRAWING G105.

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REV/	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
GENERAL NOTES & ABBREVIATIONS

SCALE: N/A	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA
WORK ORDER NO.: 276491	
SHEET NUMBER: **S100**	
DWG. NO.: 1 OF 18	
SHT. NO.: 37 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-S100	REV. NO.: -

STATUS: 50% SUBMISSION

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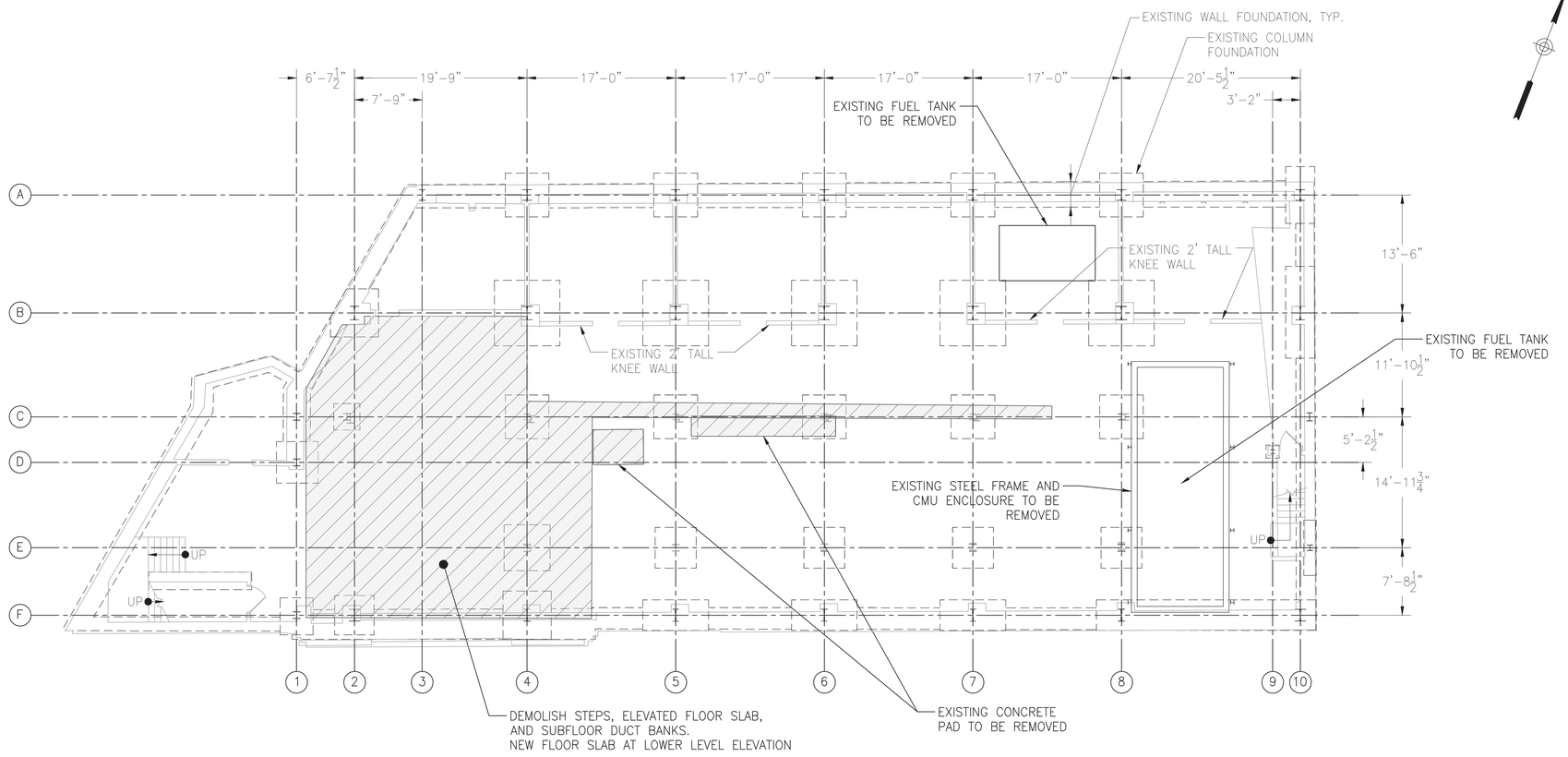

EXISTING CONDITIONS & REMOVAL – BASEMENT

$\frac{1}{8}$"=1'–0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- SELECT DEMOLITION OF EXISTING CONCRETE EQUIPMENT PADS.
- DEMOLISH STAIRS, DUCT BANKS AND LEVEL FLOOR.

8 6 4 2 0 8

SCALE: 1/8"=1'–0"

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
EXISTING CONDITIONS & REMOVAL - BASEMENT

SCALE: 1/8" = 1'-0"	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JMA

WORK ORDER NO.: 276491
SHEET NUMBER: **S101**
DWG. NO.: 2 OF 17
SHT. NO.: 38 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-S101
REV. NO.: -

STATUS: 50% SUBMISSION

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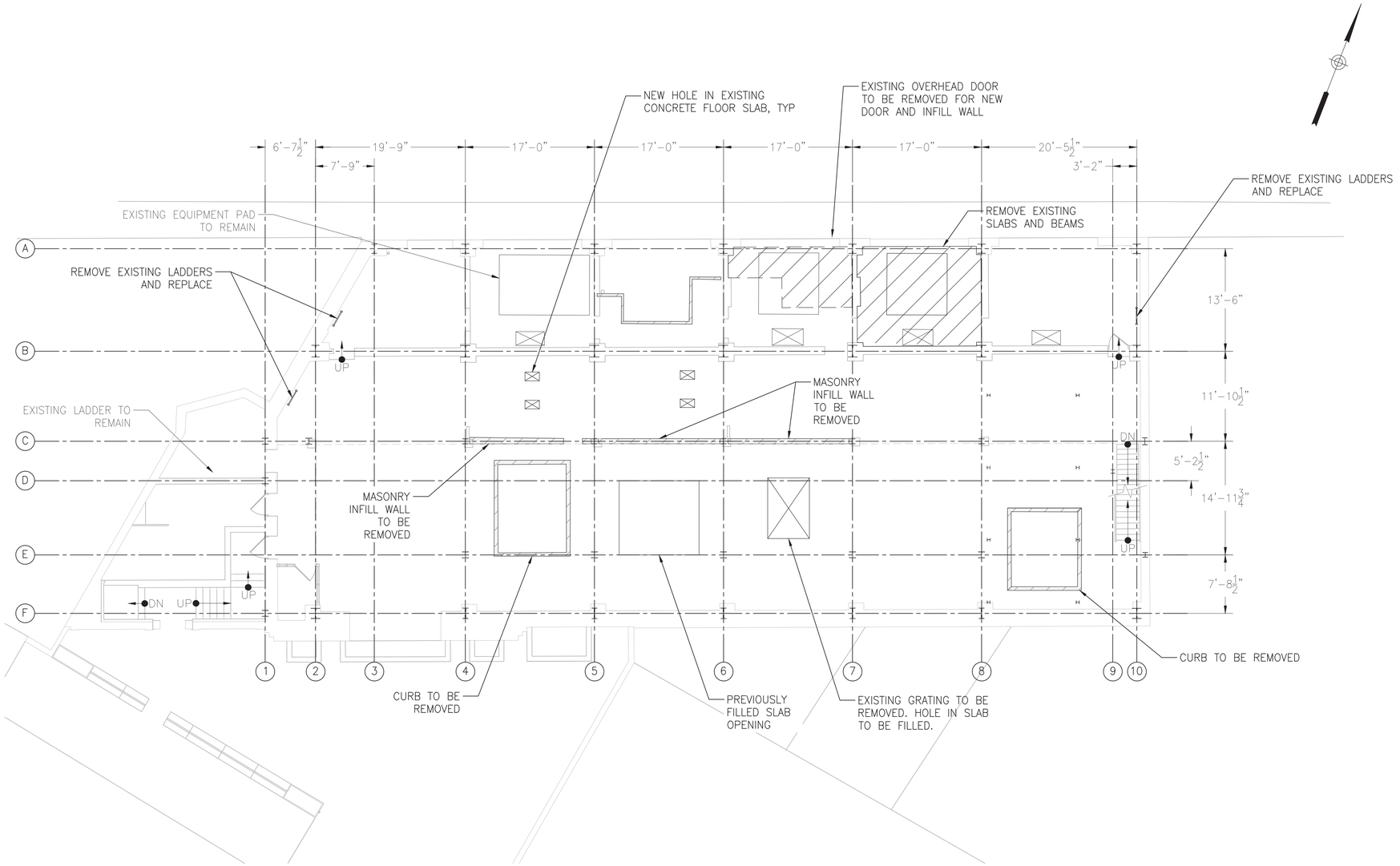

EXISTING CONDITIONS & REMOVAL – FIRST FLOOR

$\frac{1}{8}$"=1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- SELECT DEMOLITION OF EXISTING CMU INFILL WALLS.
- SELECT DEMOLITION OF FREE STANDING WALLS.
- REMOVE LADDERS.

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL,
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
EXISTING CONDITIONS & REMOVAL - FIRST FLOOR

SCALE: 1/8" = 1'-0"	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA
WORK ORDER NO.: 276491	
SHEET NUMBER: **S102**	
DWG. NO.: 3 OF 17	
SHT. NO. 39 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-S102	REV. NO.: -

STATUS: 50% SUBMISSION

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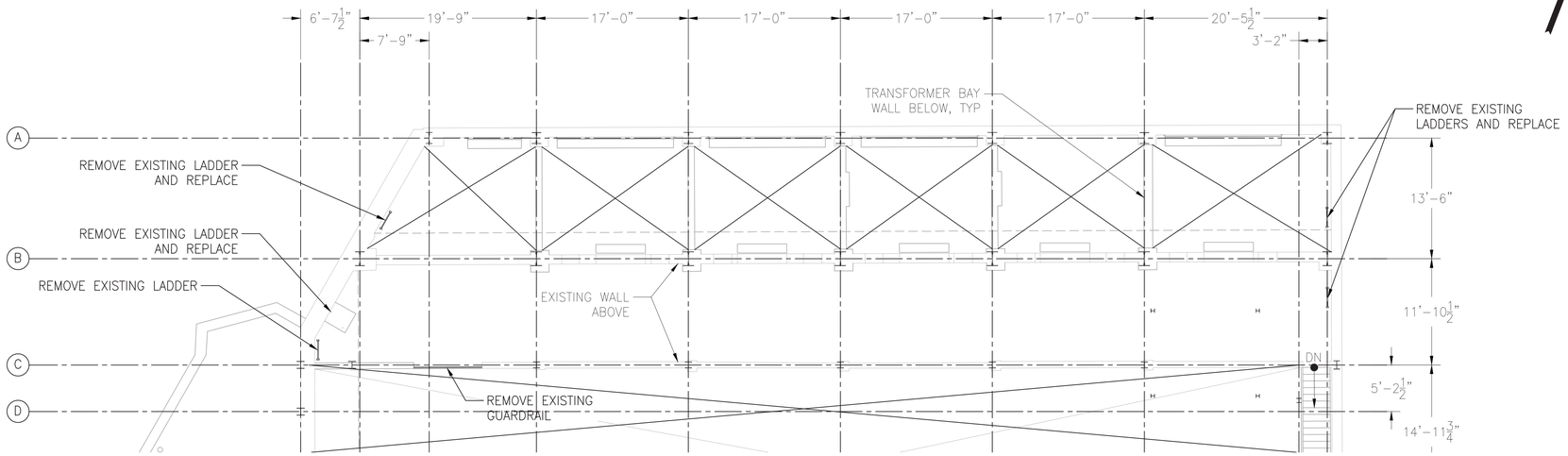
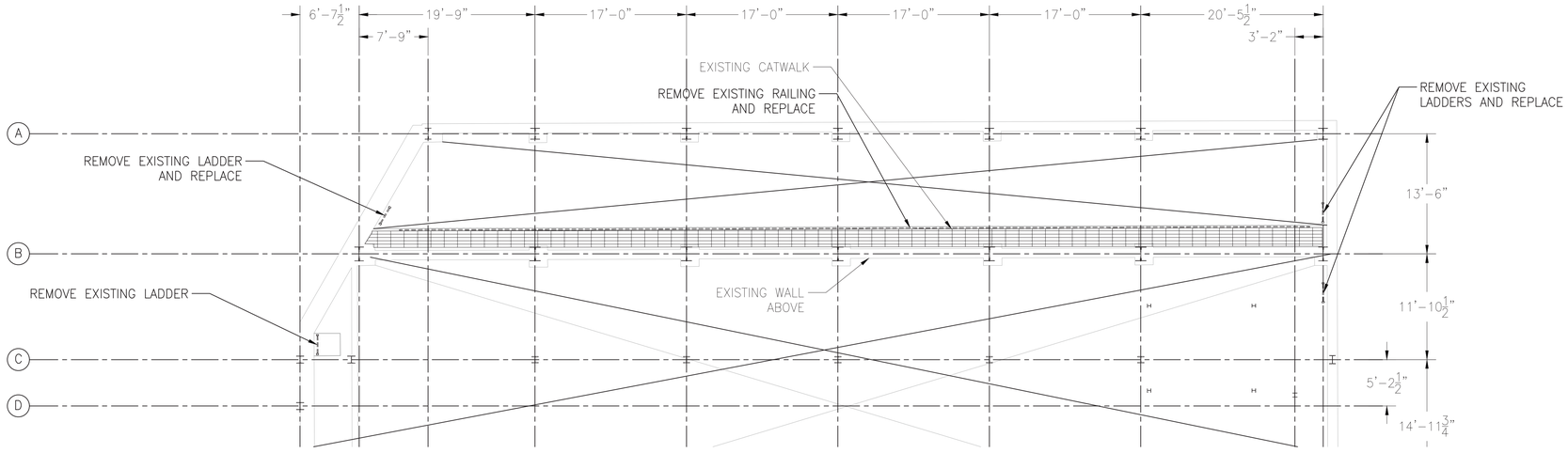


EXISTING CONDITIONS & REMOVAL – MEZZANINE

$\frac{1}{8}$"=1'-0"



EXISTING CONDITIONS & REMOVAL – CATWALK

$\frac{1}{8}$"=1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- REMOVE LADDERS.
- REMOVE GALLERY GUARDRAIL.
- REMOVE CATWALK GUARDRAIL.

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

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DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
EXISTING CONDITIONS & REMOVAL - MEZZANINE

SCALE: 1/8" = 1'-0"	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA

WORK ORDER NO.: 276491

SHEET NUMBER
S103

DWG. NO.:	4	OF	17
SHT. NO.:	40	OF	452

ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-S103
REV. NO.: -

STATUS: 50% SUBMISSION

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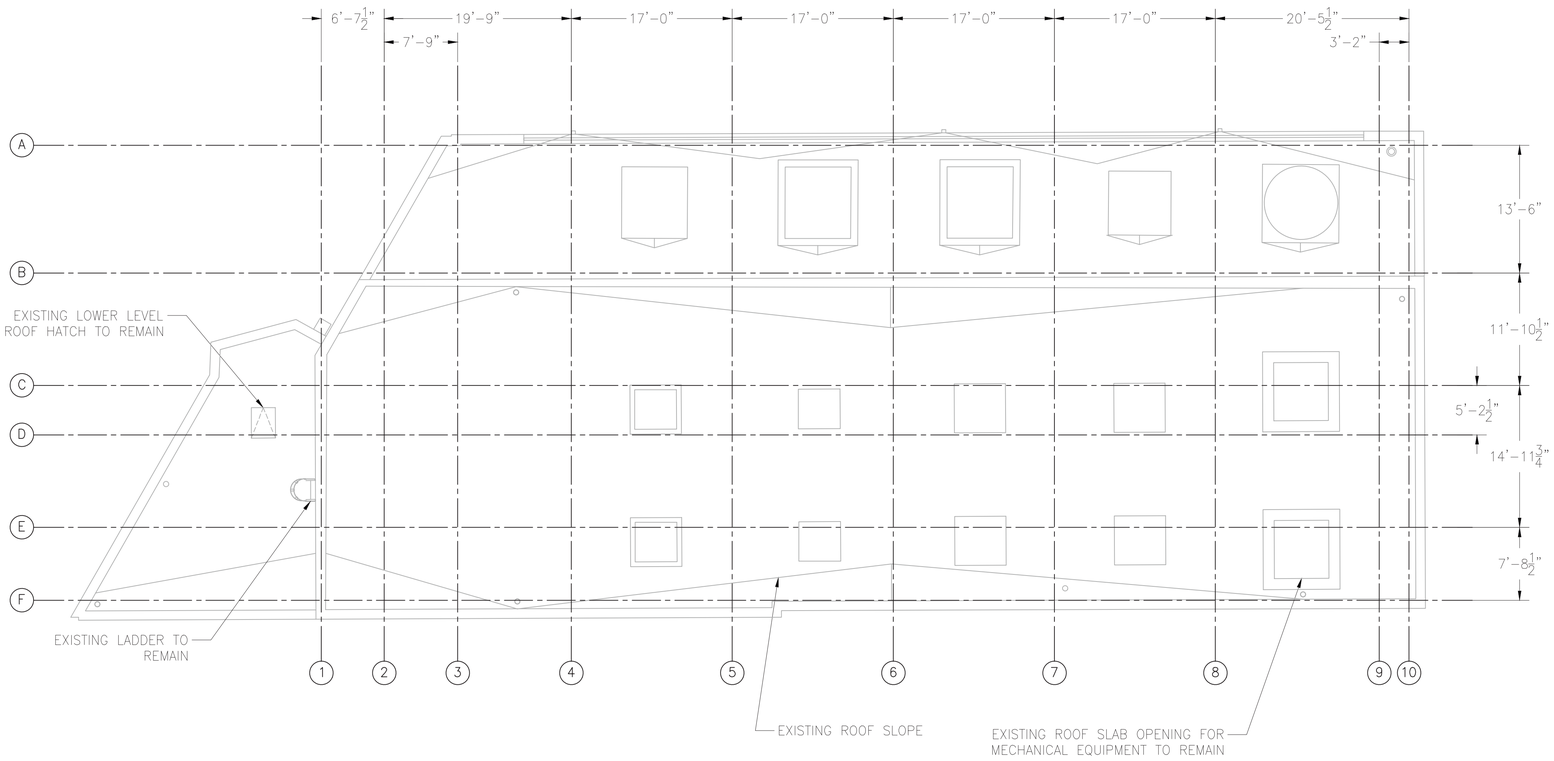

EXISTING CONDITIONS & REMOVAL – ROOF

$\frac{1}{8}$"=1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- NONE.

8 6 4 2 0 8

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

50% SUBMISSION
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DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
EXISTING CONDITIONS & REMOVAL - ROOF

SCALE: 1/8" = 1'-0"	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA

WORK ORDER NO.: 276491

SHEET NUMBER
S104

DWG. NO.: 5 OF 17
SHT. NO.: 41 OF 452
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-S104
REV. NO.: -

STATUS: 50% SUBMISSION

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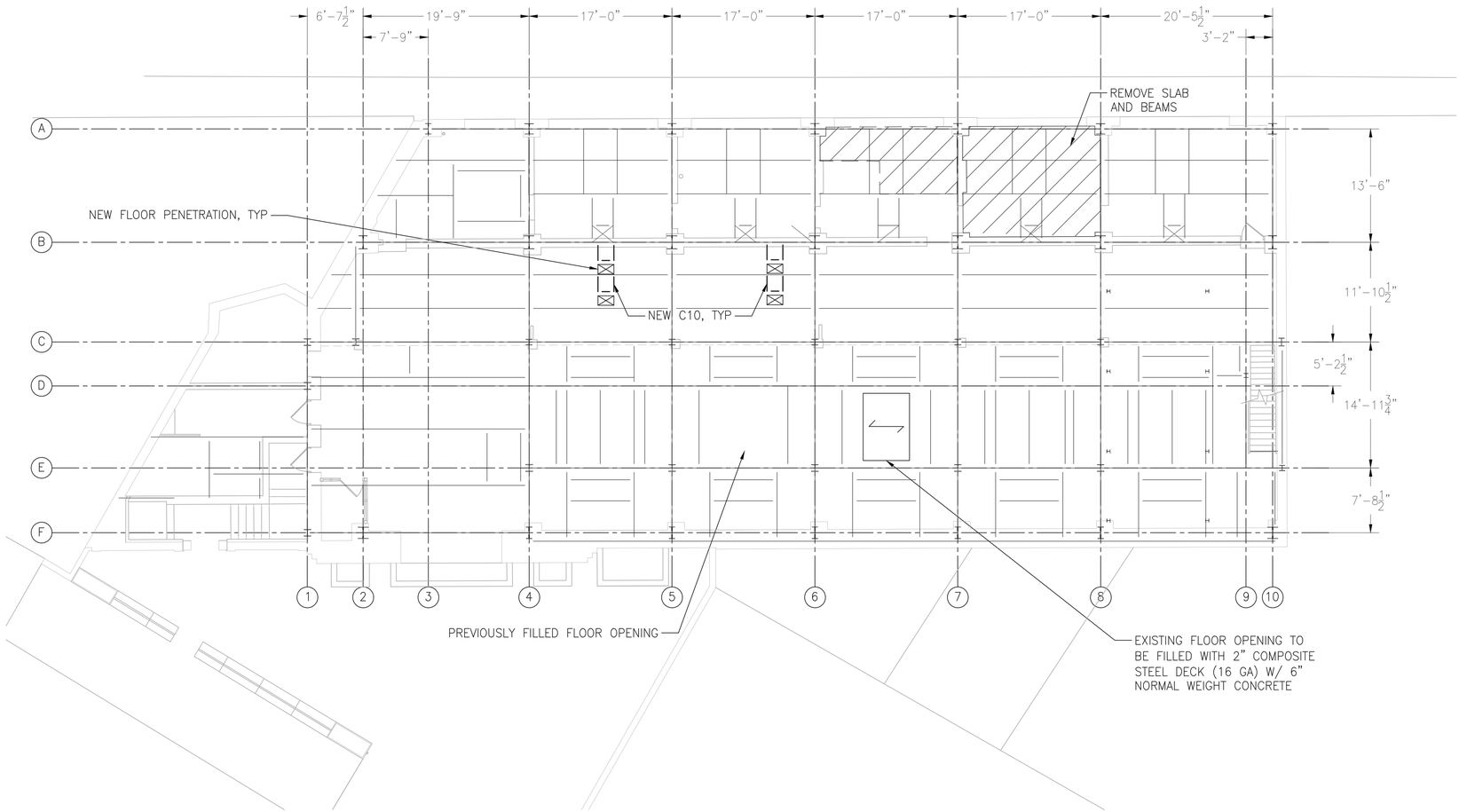

EXISTING FIRST FLOOR FRAMING PLAN

$\frac{1}{8}$"=1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.
2. ALL FRAMING IS EXISTING UNLESS OTHERWISE NOTED.

WORK ON THIS DRAWING:
- NEW FLOOR PENETRATIONS.

8 6 4 2 0 8

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

50% SUBMISSION
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
EXISTING FIRST FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA

WORK ORDER NO.: 276491

SHEET NUMBER
S105

DWG. NO.: 6 OF 17
SHT. NO.: 42 OF 452
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-S105
REV. NO.: -

STATUS: 50% SUBMISSION

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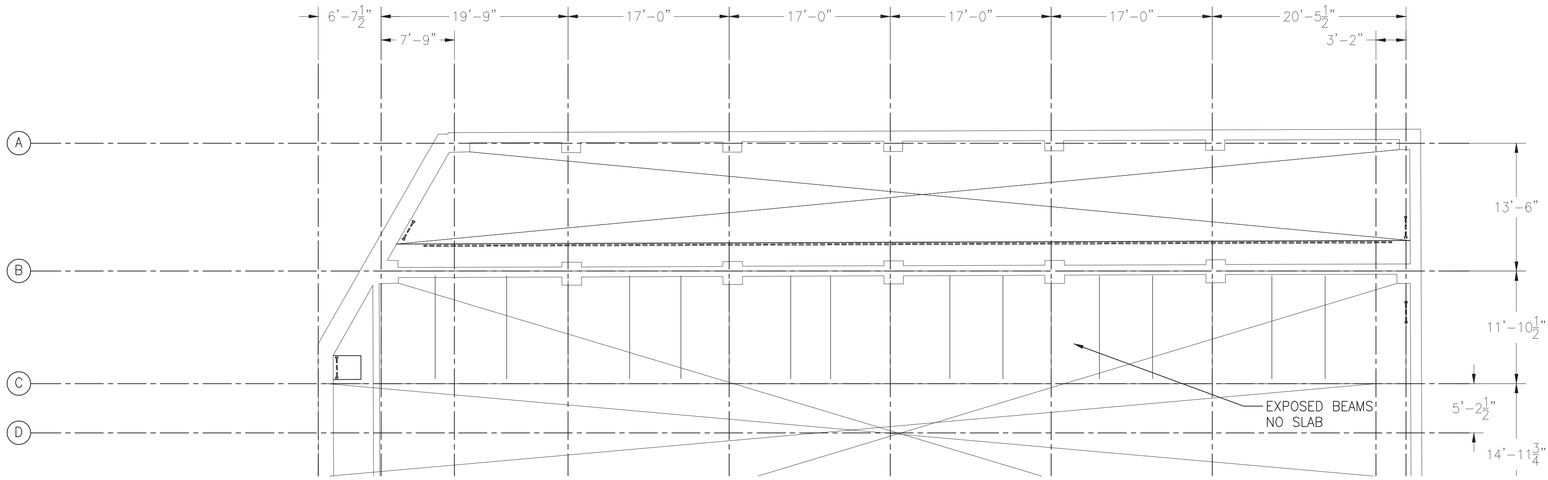
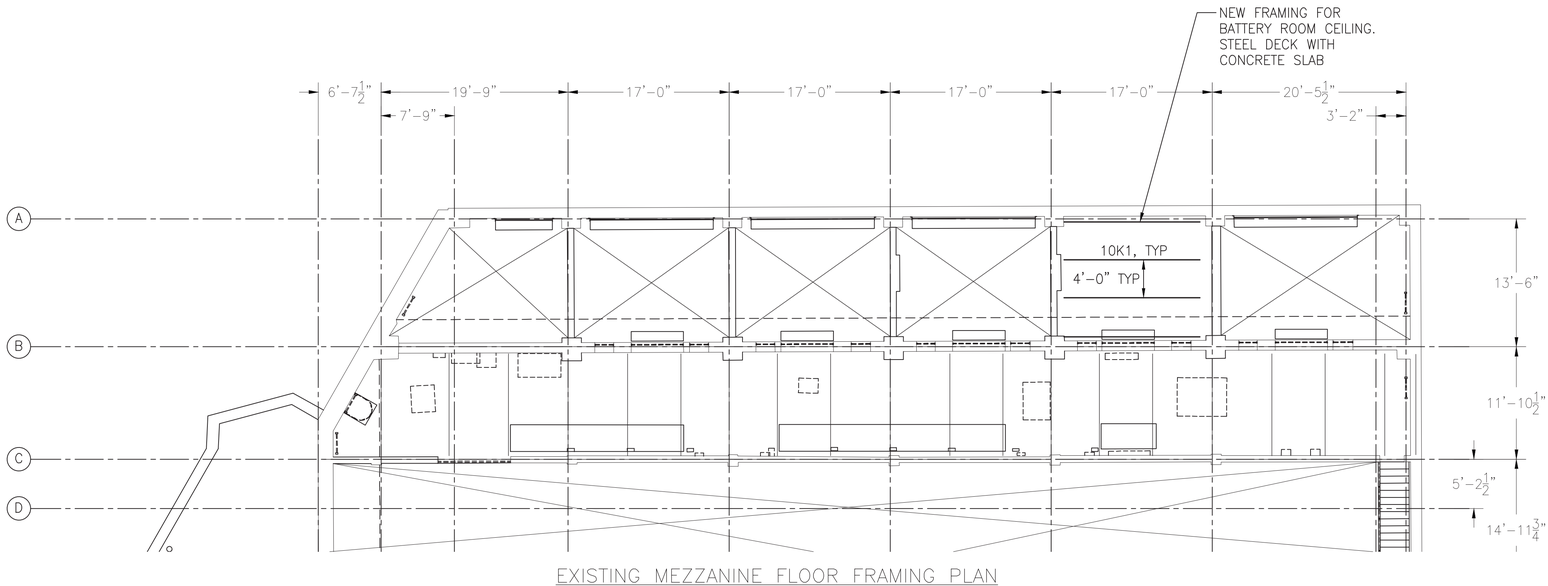


EXISTING MEZZANINE CEILING FRAMING PLAN

$\frac{1}{8}$"=1'-0"



EXISTING MEZZANINE FLOOR FRAMING PLAN

$\frac{1}{8}$"=1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.
2. ALL FRAMING IS EXISTING UNLESS OTHERWISE NOTED.

WORK ON THIS DRAWING:
- BATTERY ROOM CEILING FRAMING.

8 6 4 2 0 8

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

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DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
EXISTING MEZZANINE FRAMING PLAN

SCALE: 1/8" = 1'-0"	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA
WORK ORDER NO.: 276491	
SHEET NUMBER: **S106**	
DWG. NO.: 7 OF 17	
SHT. NO.: 43 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-S106	REV. NO.: -

STATUS: 50% SUBMISSION

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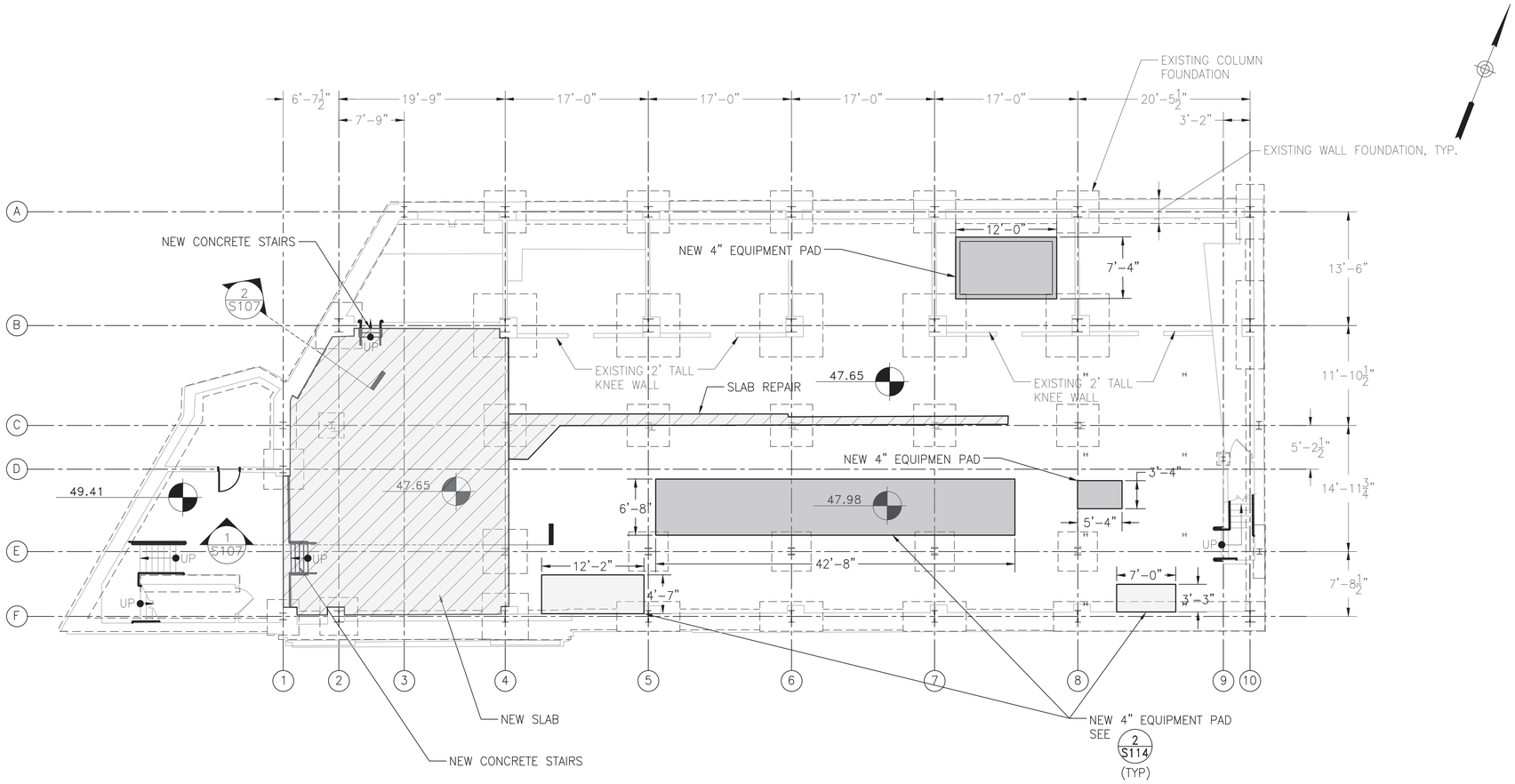
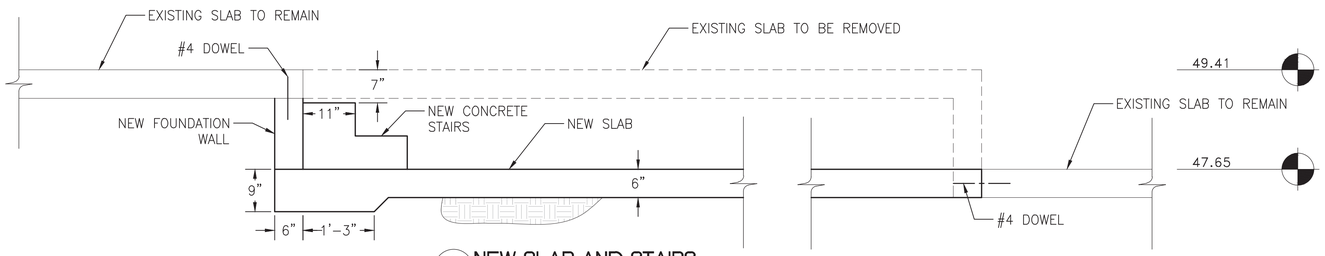


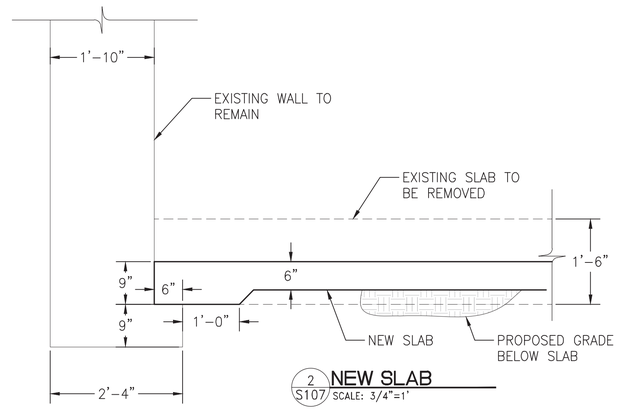
PROPOSED BASEMENT PLAN
$\frac{1}{8}$"=1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.
2. FINAL EQUIPMENT PAD TO BE FINALIZED ONCE TANK IS PROCURED.

WORK ON THIS DRAWING:
- NEW CONCRETE FLOOR SLAB.
- NEW CONCRETE EQUIPMENT PADS.
- NEW CONCRETE STAIRS.



1 S107 NEW SLAB AND STAIRS
SCALE: 3/4"=1'



2 S107 NEW SLAB
SCALE: 3/4"=1'

12 8 4 0 12
SCALE: 3/4"=1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
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DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
PROPOSED BASEMENT PLAN

SCALE: AS NOTED	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA
WORK ORDER NO.: 276491	
SHEET NUMBER: **S107**	
DWG. NO.: 8 OF 17	
SHT. NO.: 44 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-S107	REV. NO.: -

STATUS: 50% SUBMISSION

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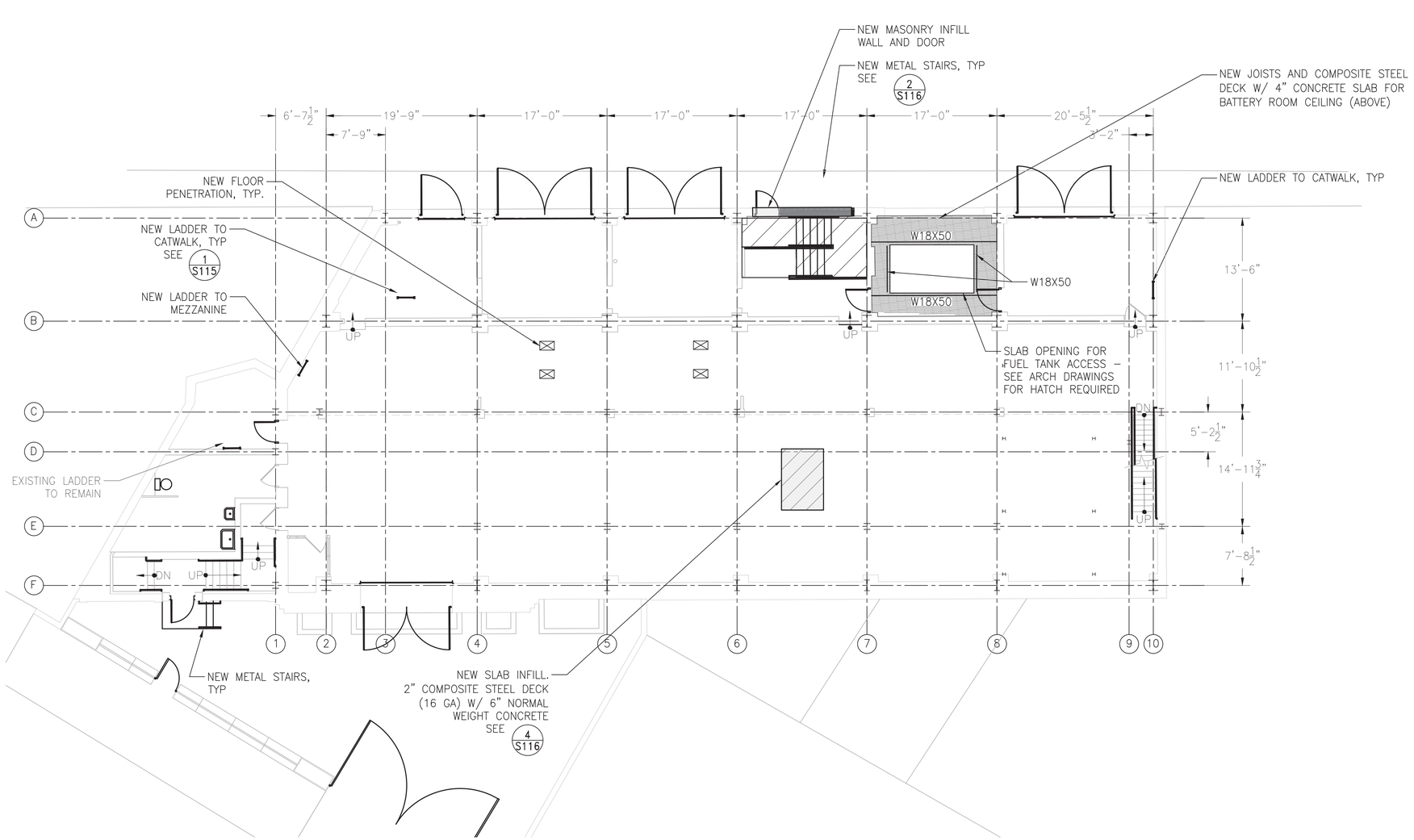

PROPOSED FIRST FLOOR PLAN

$\frac{1}{8}$"=1'–0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.
2. FINALIZED SIZE OF SLAB OPENING TO BE COORDINATED WITH PROCURED FUEL TANK.

WORK ON THIS DRAWING:
- NEW FLOOR PENETRATIONS.
- NEW LADDERS.
- NEW SLAB INFILL.

8 6 4 2 0 8

SCALE: 1/8"=1'–0"

50% SUBMISSION
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SYSTEM SAFETY

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DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
PROPOSED FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0" | SCALE FACTOR: -
DATE: 08/22/2025 | DRAWN BY: MKT | CHECKED BY: JWA
WORK ORDER NO.: 276491
SHEET NUMBER: **S108**
DWG. NO.: 9 OF 17
SHT. NO.: 45 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-S108
REV. NO.: -

STATUS: 50% SUBMISSION

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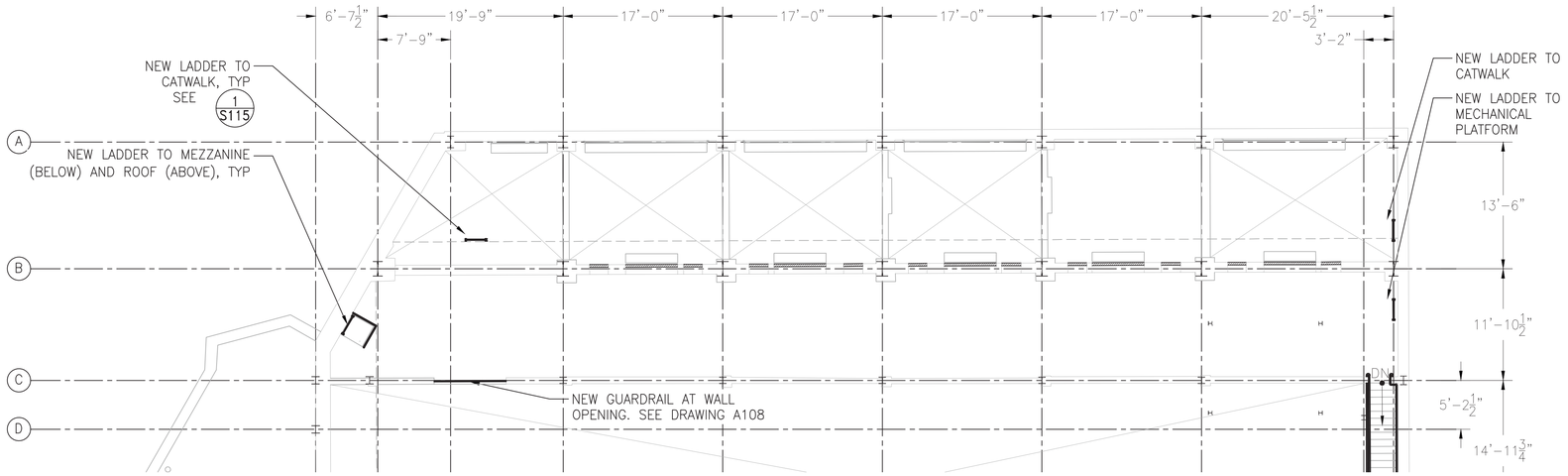
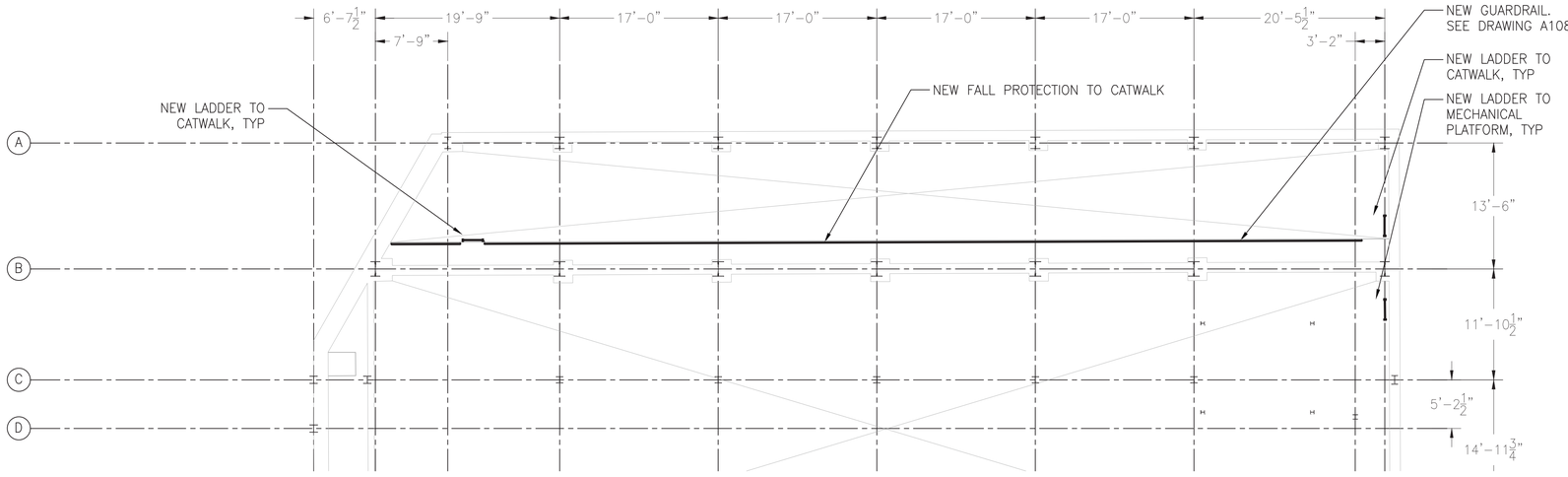


PROPOSED MEZZANINE PLAN

$\frac{1}{8}$"=1'-0"



PROPOSED CATWALK PLAN

$\frac{1}{8}$"=1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- NEW LADDERS.
- NEW GALLERY GUARDRAIL.
- NEW CATWALK GUARDRAIL.

8 6 4 2 0 8

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

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DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
PROPOSED MEZZANINE PLAN

SCALE: 1/8" = 1'-0" | SCALE FACTOR: -
DATE: 08/22/2025 | DRAWN BY: MKT | CHECKED BY: JWA
WORK ORDER NO.: 276491
SHEET NUMBER: **S109**
DWG. NO.: 10 OF 17
SHT. NO.: 46 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-S109 | REV. NO.: -

STATUS: 50% SUBMISSION

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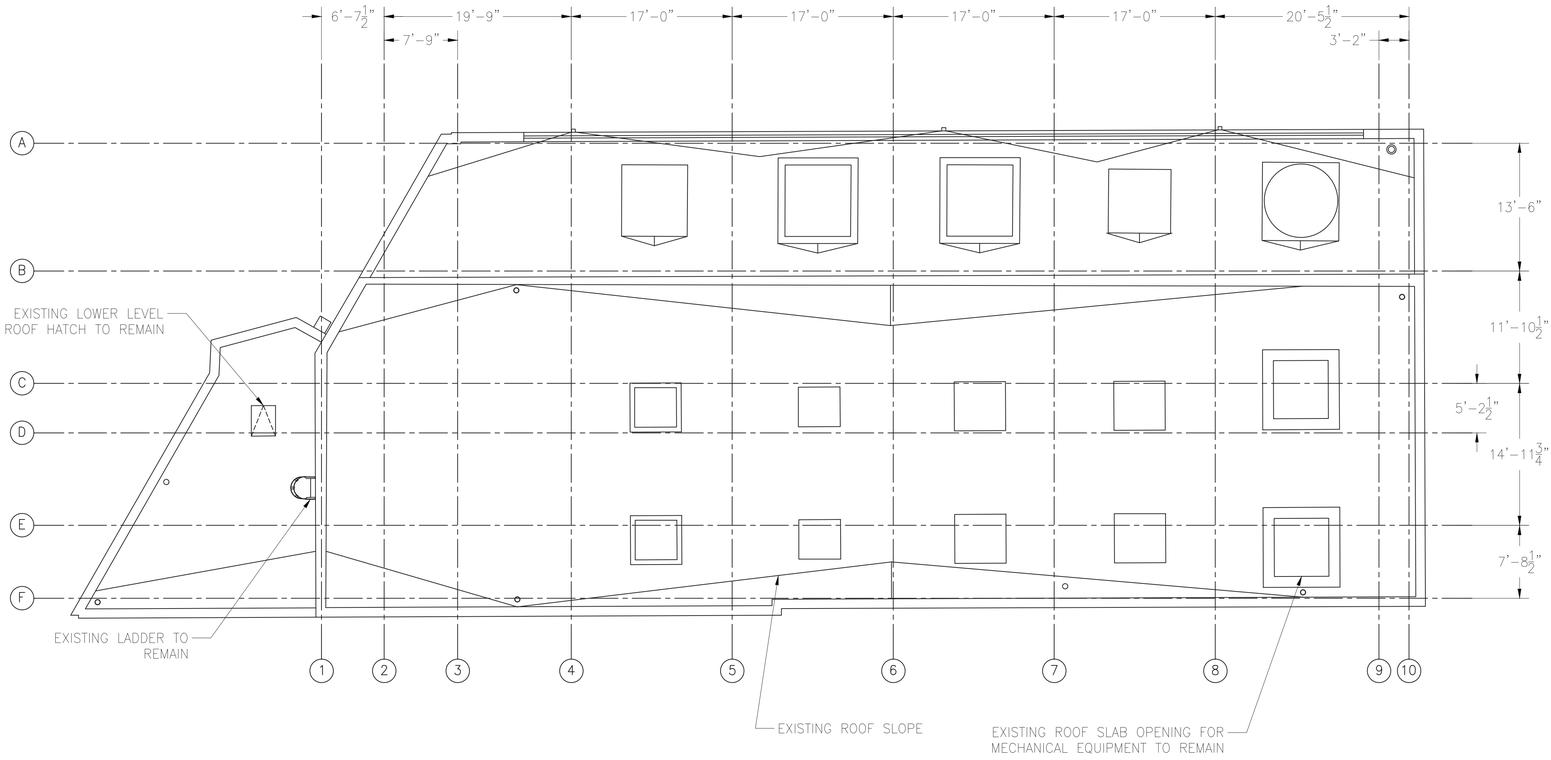

PROPOSED ROOF LAYOUT

$\frac{1}{8}$"=1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- NONE.

8 6 4 2 0 8

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

50% SUBMISSION
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DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
PROPOSED ROOF LAYOUT

SCALE: 1/8" = 1'-0"	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA
WORK ORDER NO.: 276491	
SHEET NUMBER: **S110**	
DWG. NO.: 11 OF 17	
SHT. NO.: 47 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-S110	REV. NO.: -

STATUS: 50% SUBMISSION

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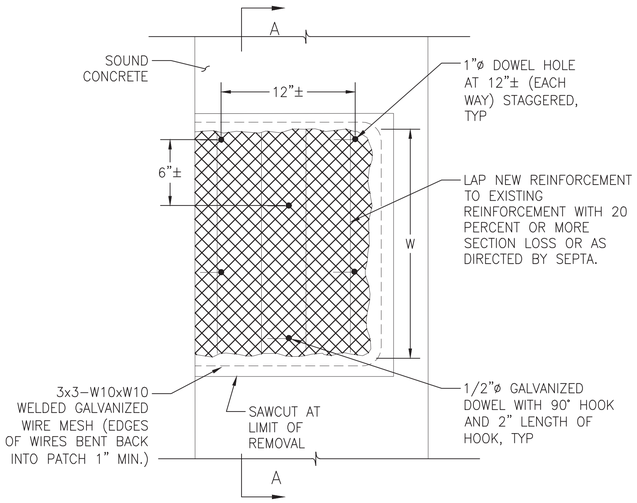
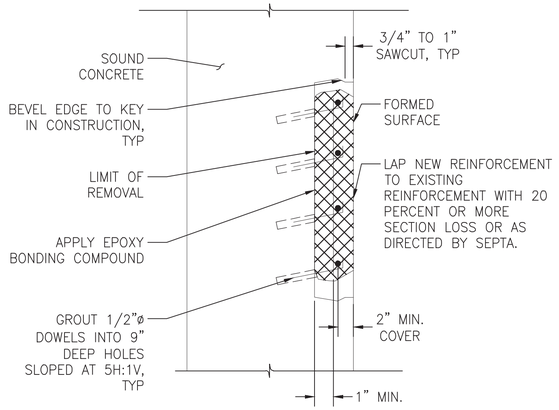
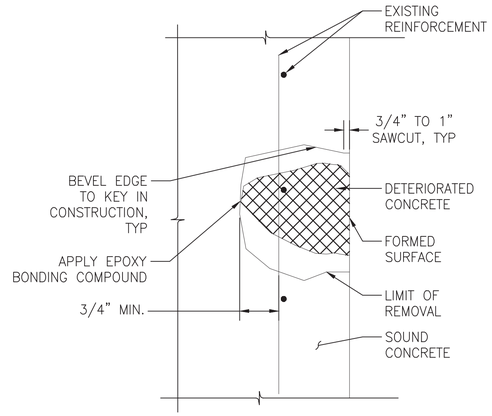


ELEVATION VIEW



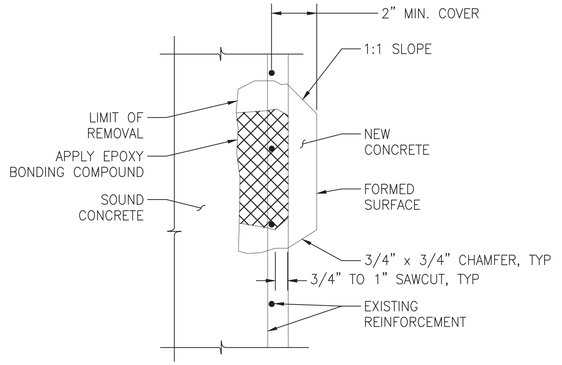
SECTION A–A
NEW REINFORCEMENT



SECTION A–A
EXISTING REINFORCEMENT

NOTE:

REPAIR TYPE 2 IS USED WHEN DEPTH OF DETERIORATED CONCRETE IS GREATER THAN 3/4" AND EXISTING REINFORCEMENT SPACED ≤ 12" ON CENTERS. OTHERWISE USE REPAIR TYPE 2A.



SECTION A–A
BLISTER DETAIL

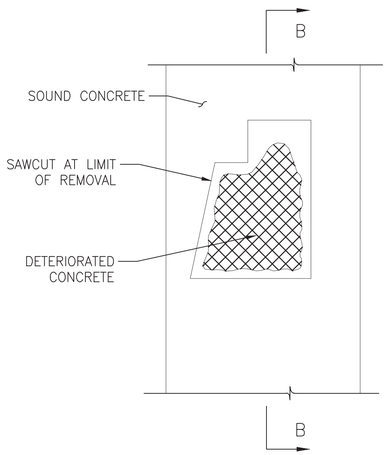
NOTE:

CONCRETE REPAIR TYPE 2 DETAIL FOR AREAS WITH EXISTING REINFORCEMENT HAVING LESS THAN 2" OF COVER.

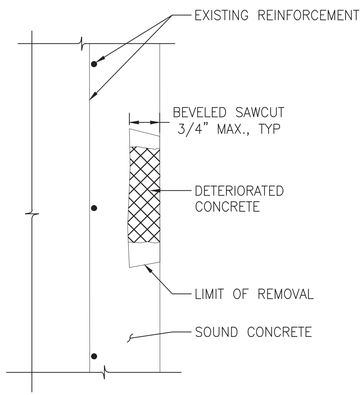
1 S111 CONCRETE REPAIR TYPE 2
SCALE: N.T.S.

REINFORCED CONCRETE REPAIR TYPE 2 NOTES:

1. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 3/4" MINIMUM TO 1" MAXIMUM BUT NOT TO THE DEPTH OF THE REINFORCEMENT STEEL. BACK BEVEL EDGE BEYOND SAWCUT.
2. USE HAND TOOLS TO REMOVE ALL LOOSE AND DELAMINATED CONCRETE THAT PROVIDES A SOUND BOND BETWEEN EXISTING CONCRETE AND NEW CONCRETE. PNEUMATIC HAMMERS WITH IMPACT RATINGS OF 3 FT–LBS OR LESS MAY BE USED IF REQUIRED.
3. IF DETERIORATED CONCRETE EXTENDS BEYOND THE PRIMARY REINFORCEMENT, REMOVE THE CONCRETE TO AT LEAST 3/4" BEHIND THE REINFORCEMENT.
4. APPLY AN EPOXY BONDING COMPOUND BETWEEN THE EXISTING AND THE NEW CLASS A CEMENT CONCRETE.
5. "W" REPRESENTS LEAST DIMENSION OF DETERIORATED CONCRETE.
6. USE DOWELS ONLY WHEN "W" DIMENSION OF DETERIORATED CONCRETE IS GREATER THAN 2'–0" AND NEW OR EXISTING REINFORCEMENT CANNOT ADEQUATELY BE DEVELOPED BY LAPPING WITH EXISTING REINFORCEMENT.
7. USE A PACHOMETER TO LOCATE EXISTING REINFORCEMENT WHEN DRILLING DOWEL HOLES TO AVOID DRILLING THRU EXISTING BARS.
8. AN APPROVED EPOXY ANCHORING SYSTEM IN 90° HOLES MAY REPLACE GROUT IN SLOPED HOLES. USE A 6" MINIMUM EMBEDMENT AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
9. A #4 DEFORMED REINFORCEMENT BENT "L" BAR MAY REPLACE THE 1/2" DIAMETER DOWEL HOOK.
10. ALTERNATE WIRE MESH MAY BE SUBSTITUTED FOR 3x3–W10xW10, PROVIDED WIRE SPACING DOES NOT EXCEED 4" AND AN EQUIVALENT STEEL AREA IS PROVIDED. NEW REINFORCEMENT BARS MAY BE OMITTED IF WIRE MESH STEEL AREA EXCEEDS EXISTING REINFORCEMENT.
11. CLEAN EXISTING REINFORCEMENT BY MECHANICAL MEANS.
12. LAP EQUIVALENT NEW REINFORCEMENT TO THE EXISTING REINFORCEMENT AS DIRECTED.
13. REINFORCEMENT BARS TO BE GALVANIZED.



ELEVATION VIEW



SECTION B–B

2 S111 CONCRETE REPAIR TYPE 1
SCALE: N.T.S.

NOTE:

REPAIR TYPE 1 IS USED WHEN DEPTH OF DETERIORATED CONCRETE IS LESS THAN EQUAL TO 3/4".

REINFORCED CONCRETE REPAIR TYPE 1 NOTES:

1. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 3/4" MAXIMUM.
2. REMOVE ALL LOOSE AND DELAMINATED CONCRETE TO PROVIDE A SOUND BOND BETWEEN EXISTING CONCRETE AND PATCHING.
3. APPLY A RAPID HARDENING CONCRETE PATCHING MATERIAL FROM AN APPROVED MANUFACTURER AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

LEGEND

REMOVE DETERIORATED CONCRETE

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- CONCRETE REPAIRS.

50% SUBMISSION
NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
CONCRETE REPAIR DETAILS - SHEET 1

SCALE: AS NOTED	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA
WORK ORDER NO.: 276491	
SHEET NUMBER: **S111**	
DWG. NO.: 12 OF 17	
SHT. NO.: 48 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-S111	REV. NO.: -

STATUS: 50% SUBMISSION

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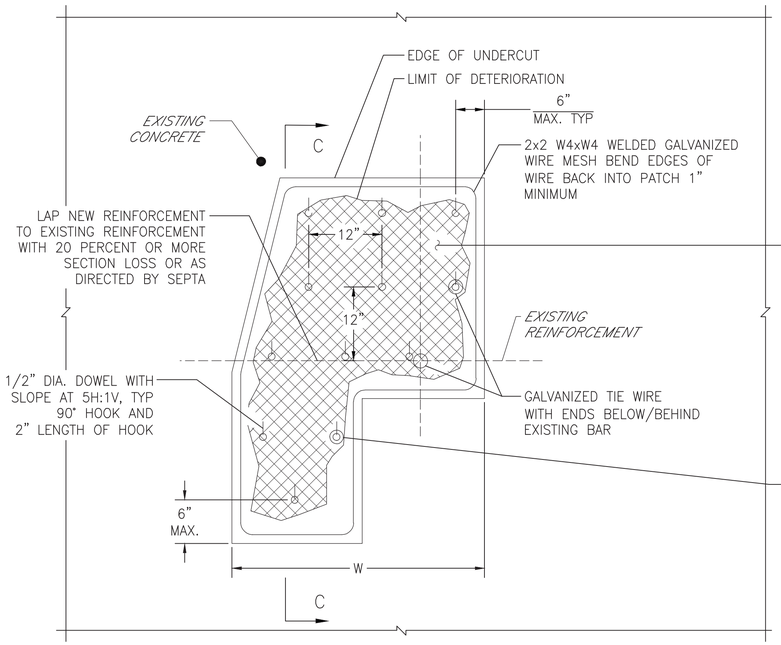
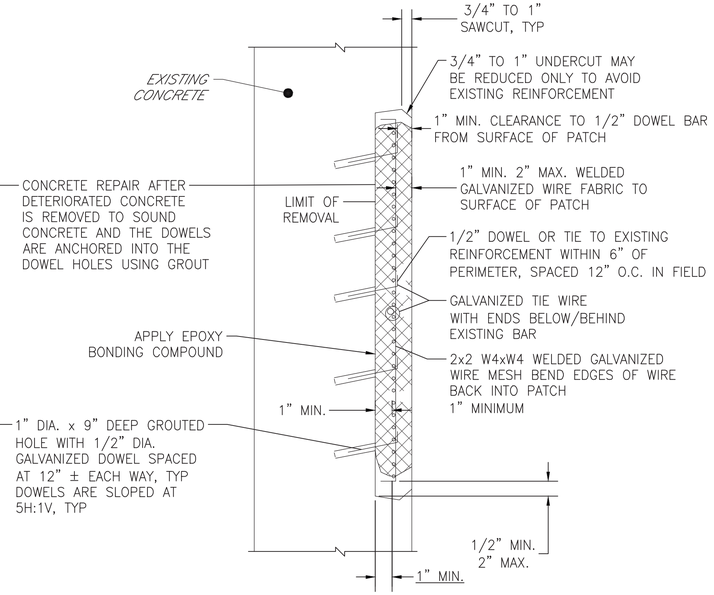
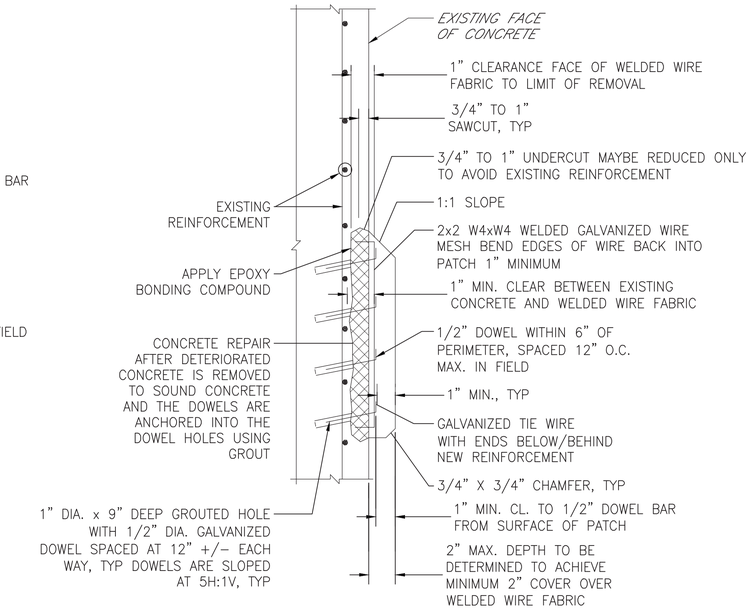


ELEVATION VIEW



SECTION C–C



SECTION C–C
BLISTER DETAIL

NOTE:

SHALLOW REMOVAL CONDITION IF PATCH CANNOT ENGAGE EXISTING REINFORCEMENT.

1 S112 CONCRETE REPAIR TYPE 2A
SCALE: N.T.S.

REINFORCED CONCRETE REPAIR TYPE 2A NOTES:

1. REPAIR TYPE 2A IS USED WHEN DEPTH OF DETERIORATION IS GREATER THAN 3/4" AND EXISTING REINFORCEMENT IS SPACED GREATER THAN 12" ON CENTER.
2. PROVIDE GALVANIZED WIRE TIE TO CONNECT EXISTING REINFORCEMENT AND GALVANIZED 2x2 W4xW4 WELDED WIRE MESH ALONG THE PERIMETER OF THE REMOVAL AREA AT A MAXIMUM SPACING OF 6" FROM THE EDGE OF THE REMOVAL. PROVIDE TIES AT 12" SPACING IN BOTH HORIZONTAL AND VERTICAL DIRECTIONS ALONG THE PERIMETER AND WITHIN THE AREA OF REMOVAL. IF EXISTING REINFORCEMENT IS SPACED AT GREATER THAN 12" SPACING OR NOT LOCATED TO PROVIDE TIE LOCATIONS AS LISTED ABOVE, PROVIDE 1/2" GROUTED DOWELS AS SHOWN ON THE DRAWING TO PROVIDE THE LOCATIONS AT THE SAME SPACINGS.
3. USE ONLY AN APPROVED POLYMER MODIFIED AND SPECIAL CEMENTS, MORTARS AND CONCRETES AS LISTED IN THE SPECIFICATIONS.
4. SQUARE OF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 3/4" MINIMUM TO 1" MAXIMUM BUT NOT TO THE DEPTH OF THE REINFORCEMENT STEEL BACK BEVEL EDGE BEYOND SAWCUT.
5. USE HAND TOOLS TO REMOVE ALL LOOSE AND DELAMINATED CONCRETE TO PROVIDE A SOUND BOND BETWEEN EXISTING CONCRETE AND NEW CONCRETE. PNEUMATIC HAMMER WITH IMPACT RATINGS OF 3 FT–LBS OR LESS MAY BE USED IF REQUIRED.
6. IF DETERIORATED CONCRETE EXTENDS BEYOND THE PRIMARY REINFORCEMENT, REMOVE THE CONCRETE TO AT LEAST 1" BEHIND THE REINFORCEMENT.
7. APPLY AN EPOXY BONDING COMPOUND BETWEEN THE EXISTING AND THE NEW 4000 PSI CONCRETE.
8. "W" REPRESENTS LEAST DIMENSION OF DETERIORATED CONCRETE.
9. USE DOWELS ONLY WHEN "W" DIMENSION OF DETERIORATED CONCRETE IS GREATER THAN 2'–0" AND NEW OR EXISTING REINFORCEMENT CANNOT ADEQUATELY BE DEVELOPED BY LAPPING WITH EXISTING REINFORCEMENT.
10. USE A PACHOMETER TO LOCATE EXISTING REINFORCEMENT WHEN DRILLING DOWEL HOLES TO AVOID DRILLING THRU EXISTING BARS.
11. AN APPROVED EPOXY ANCHORING SYSTEM IN 90° HOLES MAY REPLACE GROUT IN SLOPED HOLES. USE A 6" MINIMUM EMBEDMENT AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
12. A #4 DEFORMED GALVANIZED REINFORCEMENT BENT "L" BAR MAY REPLACE THE 1/2" DIAMETER DOWEL HOOK.
13. ALTERNATIVE WIRE MESH MAY BE SUBSTITUTED FOR 2x2–W4xW4, PROVIDED WIRE SPACING DOES NOT EXCEED 4", AND AN EQUIVALENT STEEL AREA IS PROVIDED. NEW REINFORCEMENT BARS MAY BE OMITTED IF WIRE MESH STEEL EXCEEDS EXISTING REINFORCEMENT.
14. CLEAN EXISTING REINFORCEMENT BY MECHANICAL MEANS AND APPLY EPOXY COATING.
15. LAP EQUIVALENT NEW REINFORCEMENT TO THE EXISTING REINFORCEMENT AS DIRECTED.
16. EXISTING AND NEW REINFORCEMENT BARS AND WELDED WIRE MESH TO BE GALVANIZED.

LEGEND

– REMOVE DETERIORATED CONCRETE.

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- CONCRETE REPAIRS.

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
CONCRETE REPAIR DETAILS - SHEET 2

SCALE: AS NOTED	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA
WORK ORDER NO.: 276491	
SHEET NUMBER: **S112**	
DWG. NO.: 12 OF 17	
SHT. NO.: 49 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-S112	REV. NO.: -

STATUS: 50% SUBMISSION

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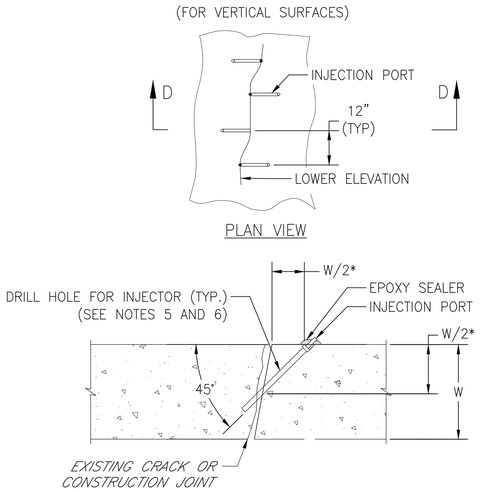
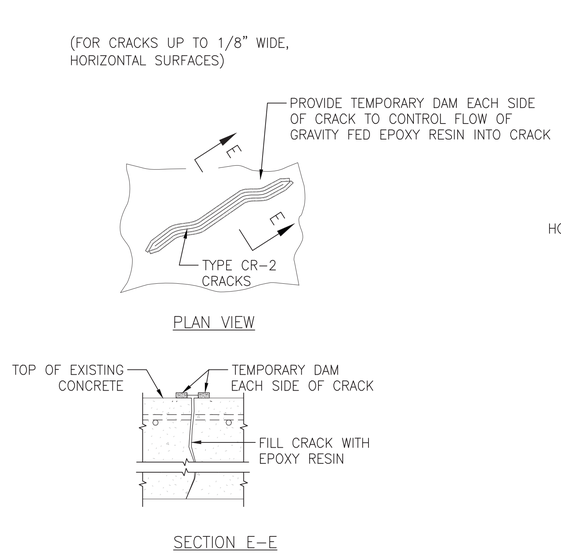


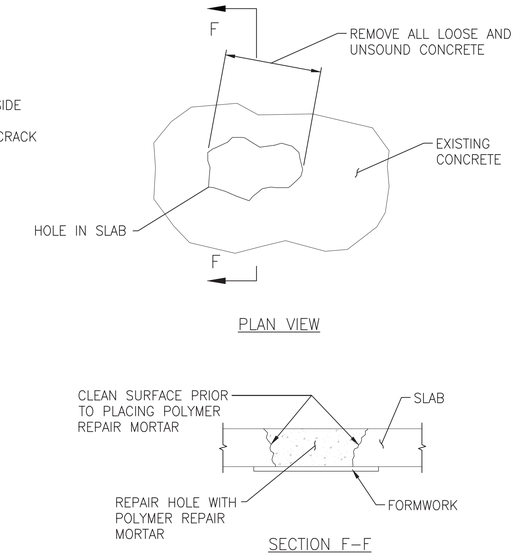
CRACK INJECTION REPAIR NOTES:

1. IN THE PRESENCE OF THE SEPTA PROJECT MANAGER, INSPECT AND DOCUMENT CONCRETE SURFACES FOR EXTENT, TYPE AND LOCATION OF CONCRETE CRACK REPAIRS.
2. THIS DETAIL APPLIES AT ALL VISIBLE ACTIVE (I.E. SHOWING EVIDENCE OF SEEPAGE OR LEAKAGE) AND INACTIVE CRACKS IN OVERHEAD SLABS AND VERTICAL WALL SURFACES AND AT ALL ACTIVE CONSTRUCTION JOINTS.
3. DIMENSIONS SHOWN WITH AN ASTERISK (*) SHALL BE ADJUSTED AS REQUIRED TO PREVENT DAMAGE TO EXISTING REINFORCING BARS.
4. DRILL HOLE SIZE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. INSTALL INJECTION PORTS, SEAL AND PRESSURE INJECT EPOXY RESIN OR HYDROPHILIC POLYURETHANE RESIN AT EACH HOLE LOCATION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
6. REMOVE INJECTION PORTS, SEAL AND FILL HOLE WITH DRYPACK MORTAR AFTER PRESSURE INJECTION WORK IS COMPLETE.
7. PRIOR TO COMMENCEMENT OF WORK, ENGAGE THE MANUFACTURER'S FACTORY–AUTHORIZED TECHNICAL REPRESENTATIVE FOR CONSULTATION ON–SITE PROJECT INSPECTION, AND TECHNICAL TRAINING ON THE FIRST DAY OF THE WORK AND AT THE REQUEST OF THE SEPTA PROJECT MANAGER.
8. REFER TO SPECIFICATION SECTION 03930 "CONCRETE REPAIR" FOR FURTHER INFORMATION.

1 S113 TYPE 3 CRACK INJECTION REPAIR DETAIL
SCALE: N.T.S.



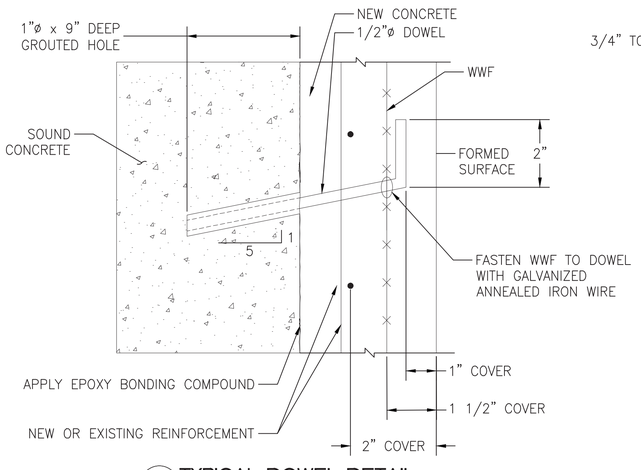
2 S113 TYPE 4 GRAVITY CRACK REPAIR DETAIL
SCALE: N.T.S.



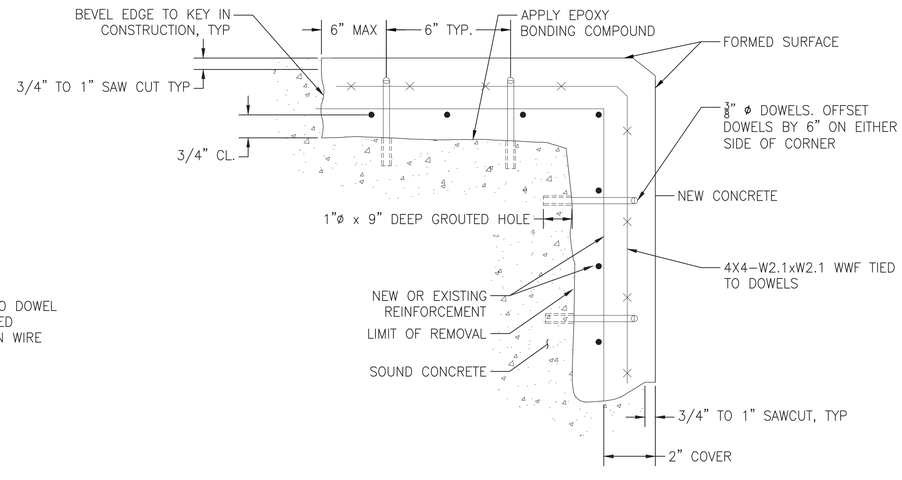
NOTE:

IF THE HOLE EXCEEDS 12" IN ANY DIRECTION DOWEL #5 BARS INTO EXISTING SLAB IN THAT DIRECTION

3 S113 TYPE 5 CONCRETE HOLE REPAIR DETAIL
SCALE: N.T.S.



4 S113 TYPICAL DOWEL DETAIL
SCALE: N.T.S



5 S113 TYPICAL CORNER REPAIR DETAIL
SCALE: N.T.S.

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- CONCRETE REPAIRS.

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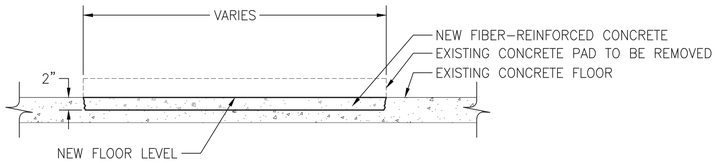
REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
CONCRETE REPAIR DETAILS - SHEET 3

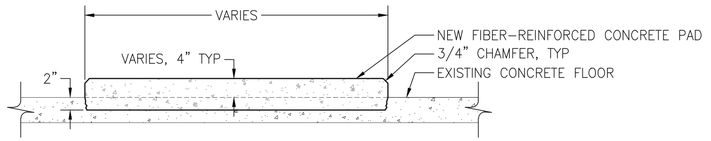
SCALE: AS NOTED
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: MKT
CHECKED BY: JWA
WORK ORDER NO.: 276491
SHEET NUMBER: **S113**
DWG. NO.: 14 OF 17
SHT. NO.: 50 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-S113
REV. NO.: -

STATUS: 50% SUBMISSION



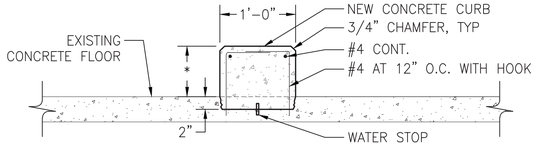
REMOVE EXISTING CONCRETE PAD TO A POINT 2" BELOW ADJACENT FLOOR. CLEAN AND PREPARE CONCRETE. POUR NEW FIBER REINFORCED CONCRETE TO LEVEL FLOOR.

1 S114 **INTERIOR CONCRETE PAD REMOVAL**
SCALE: N.T.S.



REMOVE EXISTING CONCRETE SLAB TO A POINT 2" BELOW ADJACENT FLOOR. CLEAN AND PREPARE CONCRETE. SET FORM. POUR NEW FIBER REINFORCED CONCRETE TO NEW PAD LEVEL.

2 S114 **NEW INTERIOR CONCRETE PAD**
SCALE: N.T.S.



REMOVE EXISTING CONCRETE SLAB TO A POINT 2" BELOW ADJACENT FLOOR. CLEAN AND PREPARE CONCRETE. SET FORM. POUR NEW CONCRETE CURB.

3 S114 **NEW INTERIOR CONCRETE CURB**
SCALE: N.T.S.

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- REMOVAL OF EXISTING CONCRETE EQUIPMENT PADS.
- NEW CONCRETE EQUIPMENT PADS IN EXISTING SLAB.
- NEW CONCRETE CURB IN EXISTING SLAB.

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
FOUNDATION & PAD DETAILS

SCALE: AS NOTED
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: MKT
CHECKED BY: JWA
WORK ORDER NO.: 276491
SHEET NUMBER **S114**
DWG. NO.: 15 OF 17
SHT. NO.: 51 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-S114
REV. NO.: -

STATUS: 50% SUBMISSION

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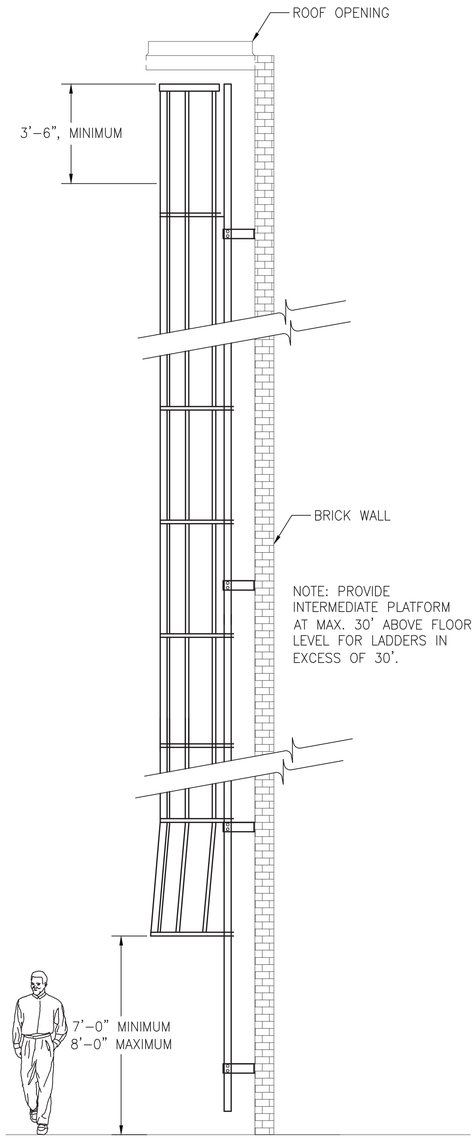
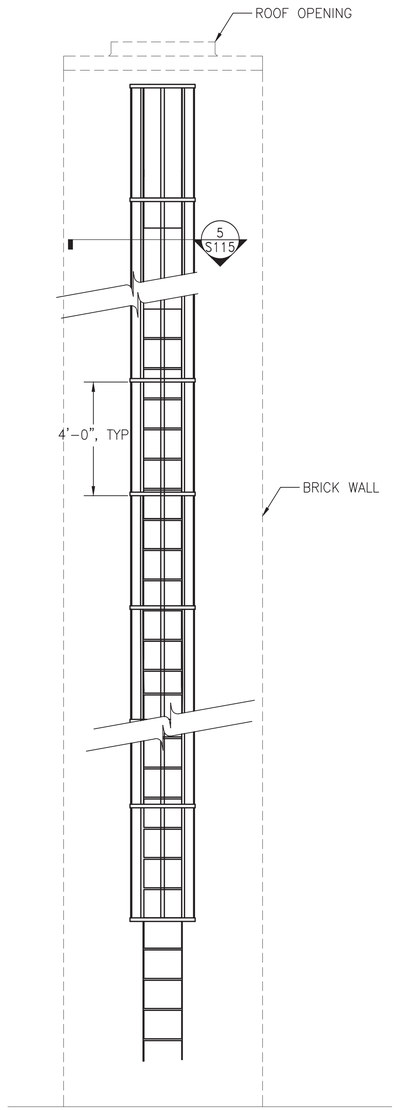
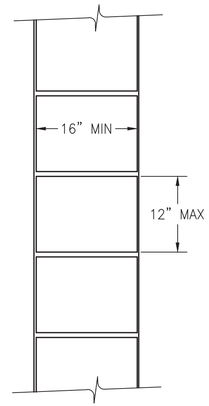


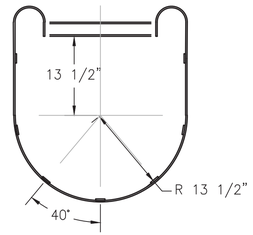
1 S115 LADDER - SIDE ELEVATION
SCALE: 3/8" = 1'–0"



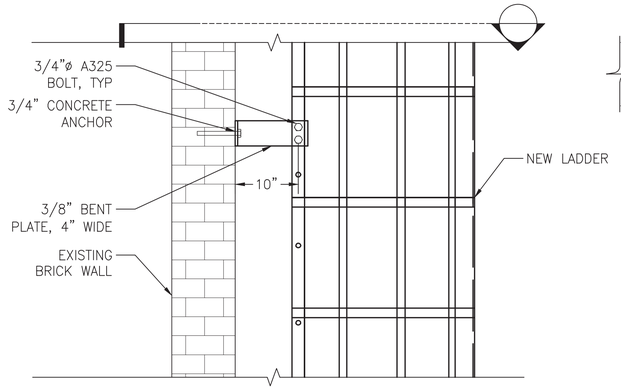
2 S115 LADDER - FRONT ELEVATION
SCALE: 3/8" = 1'–0"

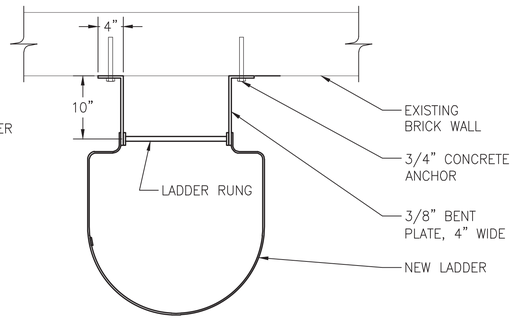


3 S115 TYPICAL LADDER DETAIL
SCALE: 1" = 1'–0"



4 S115 TYPICAL CAGE SECTION
SCALE: 1" = 1'–0"





5 S115 LADDER TO WALL CONNECTION
SCALE: 1" = 1'–0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.
2. EXISTING ACCESS LADDERS SHALL BE REMOVED AND REPLACED WITH OSHA COMPLIANT LADDERS PER THIS DRAWING.

WORK ON THIS DRAWING:
- NEW LADDER.

4 2 0 4
SCALE: 3/8"=1'–0"
1 0 1
1 INCH

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
FALL PROTECTION DETAILS - SHEET 1

SCALE: AS NOTED
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: MKT
CHECKED BY: JWA
WORK ORDER NO.: 276491
SHEET NUMBER: **S115**
DWG. NO.: 16 OF 17
SHT. NO.: 52 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-S115
REV. NO.: -

STATUS: 50% SUBMISSION

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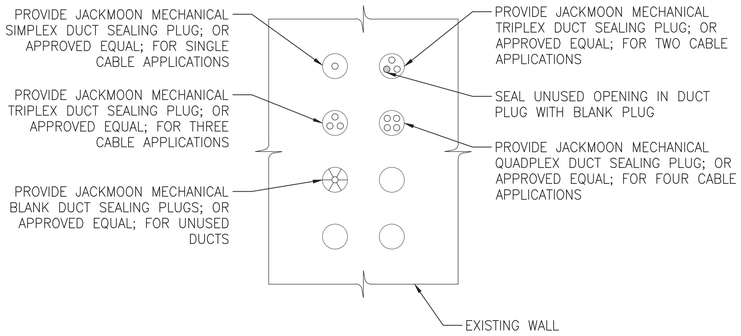
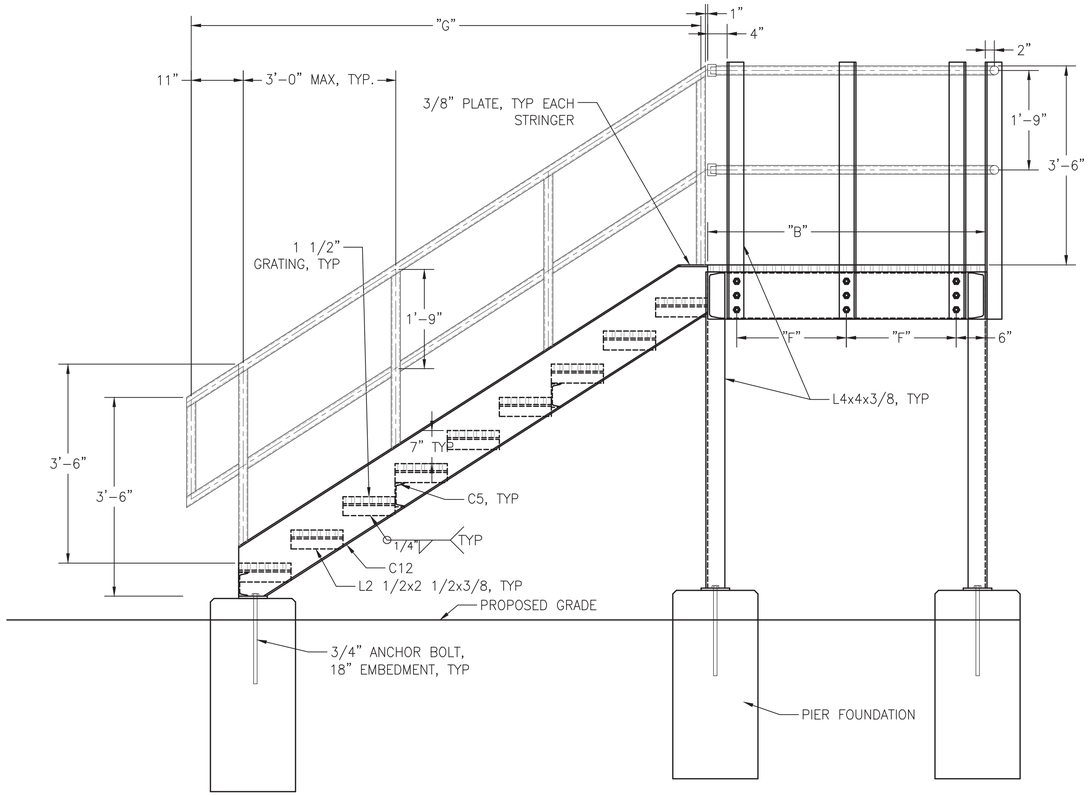
NOTES:

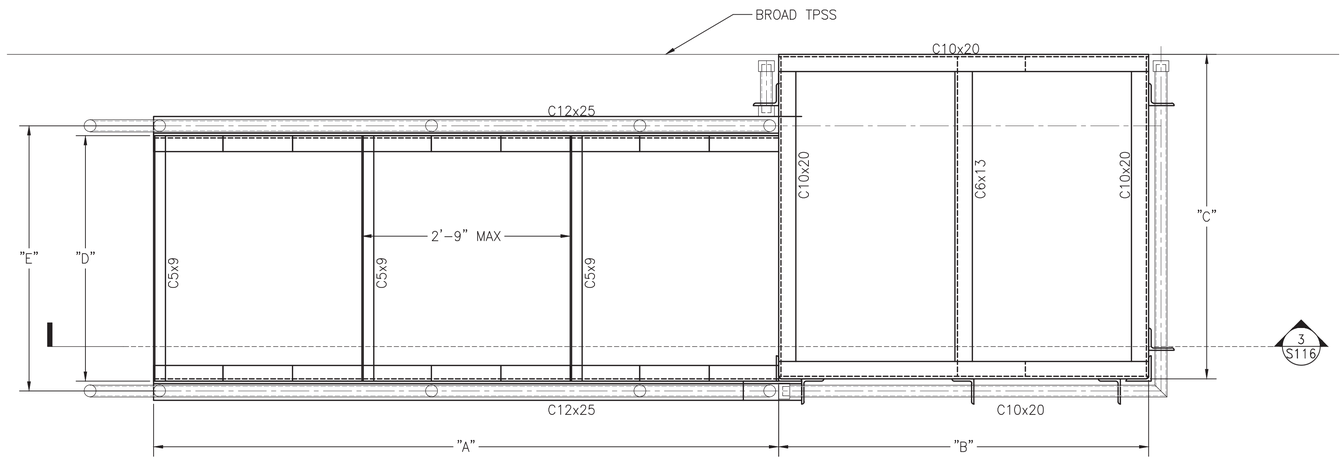
1. COORDINATE CABLE SIZES WITH TRACTION POWER DRAWINGS. COORDINATE DUCT INNER DIAMETER SIZE WITH TRACTION POWER DRAWINGS AND VERIFY IN FIELD.
2. SEAL UNUSED OPENINGS IN DUCT PLUGS WITH BLANK PLUGS.



1 S116 **DUCTBANK SEALING**
SCALE: N.T.S.



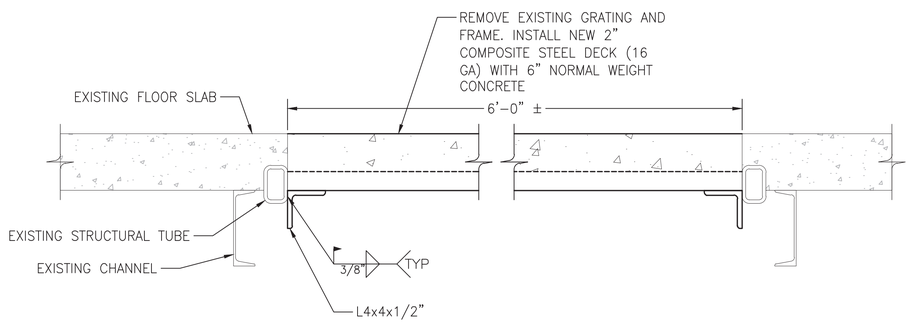
3 S116 **METAL STAIRS - SECTION**
SCALE: 3/4" = 1'-0"



2 S116 **METAL STAIRS - PLAN**
SCALE: 1" = 1'-0"

BROAD TPSS STAIR DIMENSIONS		
	STAIRCASE	
DIMENSION	FRONT	REAR
"A"	0'-11"	8'-3"
"B"	5'-8"	4'-11"
"C"	4'-3"	4'-3"
"D"	3'-3"	3'-3"
"E"	3'-6"	3'-6"
"F"	2'-4"	1'-11"
"G"	1'-8½"	9'-0"

NOTE: REAR STAIRS SHOWN. FRONT STAIRS SIMILAR.



4 S116 **NEW CONCRETE FLOOR SLAB AT EXISTING GRATE**
SCALE: N.T.S.

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- NEW DUCT BANK SEALS.
- NEW METAL STAIRS.
- NEW SLAB INFILL.

12 8 4 0 12

SCALE: 3/4"=1'-0"

1 0 1

1 INCH

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
STRUCTURAL
BUILDING DETAILS - SHEET 1

SCALE: AS NOTED	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MKT
	CHECKED BY: JWA
WORK ORDER NO.: 276491	
SHEET NUMBER: **S116**	
DWG. NO.: 17 OF 17	
SHT. NO.: 53 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-S116	REV. NO.: -

STATUS: 50% SUBMISSION

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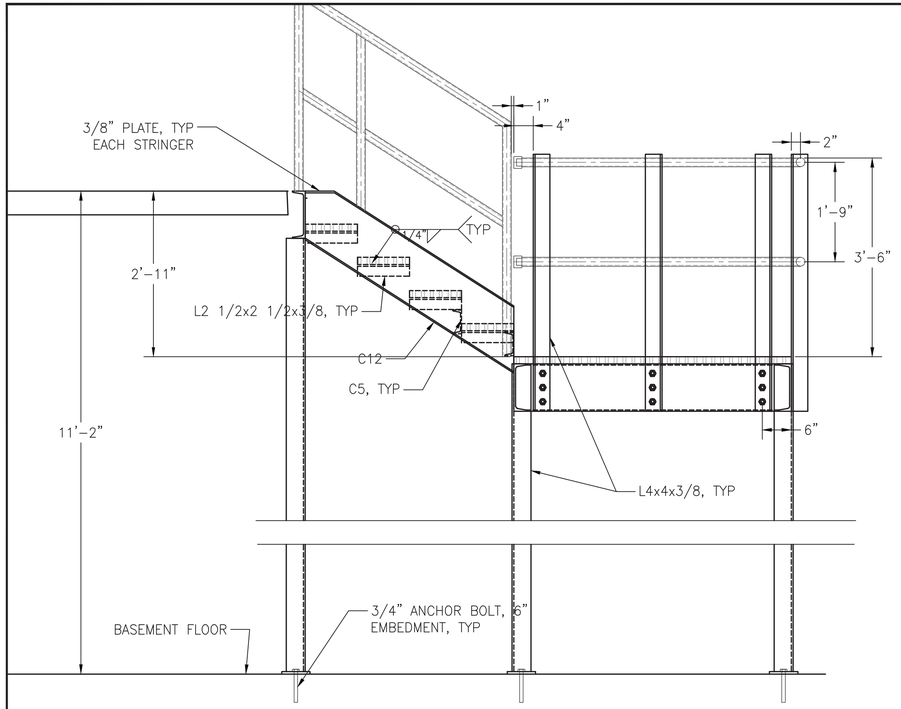
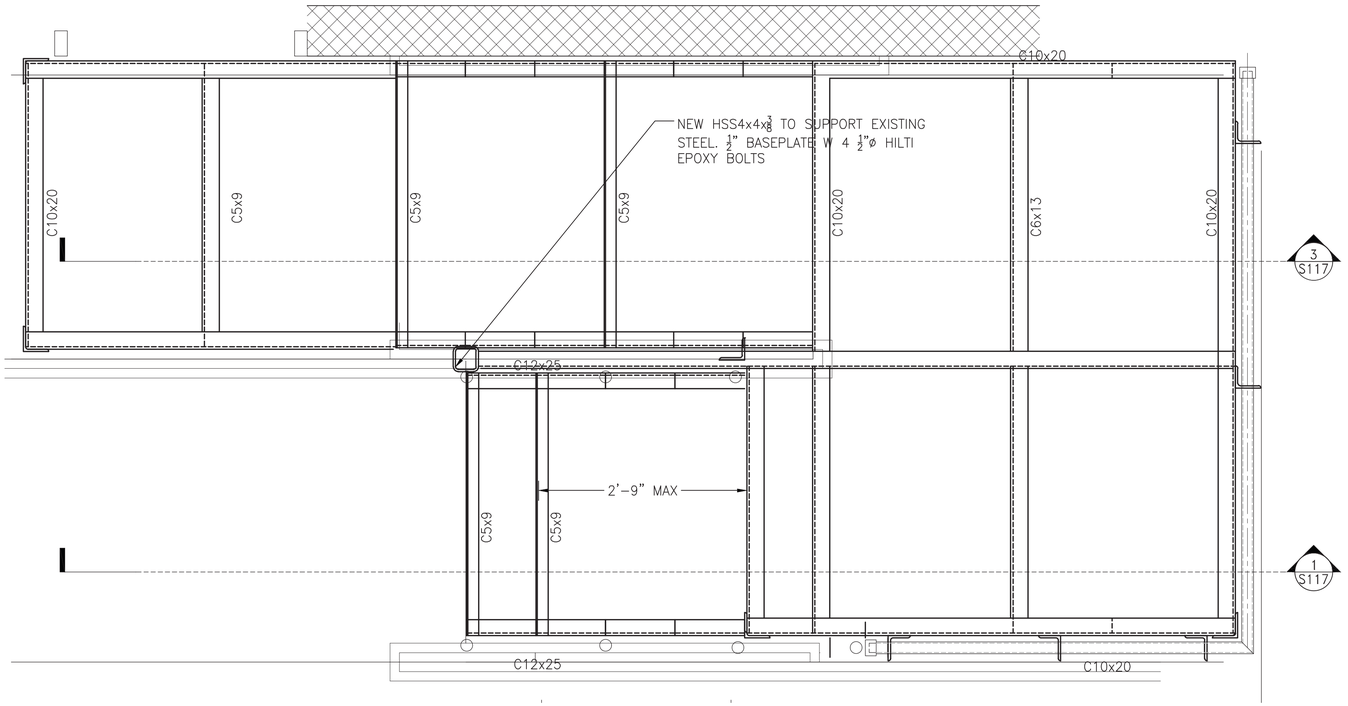
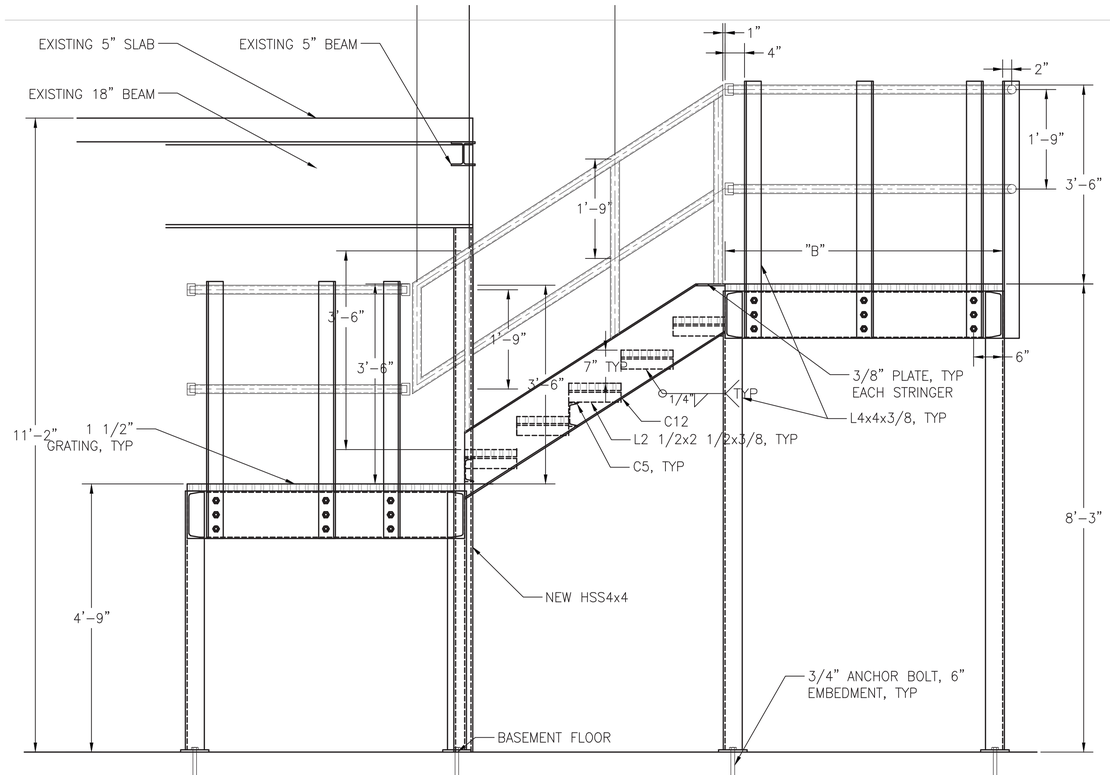


1 S117 METAL STAIRS - SECTION
SCALE: 3/4" = 1'-0"



2 S117 METAL STAIRS - PLAN
SCALE: 1" = 1'-0"



3 S117 METAL STAIRS - SECTION
SCALE: 3/4" = 1'-0"

NOTES:
1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING S100.

WORK ON THIS DRAWING:
- NEW METAL STAIRS.

12 8 4 0 12
SCALE: 3/4"=1'-0"
1 0 1
1 INCH

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/15/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
STRUCTURAL
BUILDING DETAILS - SHEET 2

SCALE: AS NOTED
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: MKT
CHECKED BY: JWA
WORK ORDER NO.: 276491
SHEET NUMBER: **S117**
DWG. NO.: 18 OF 18
SHT. NO.: 54 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-S117
REV. NO.: -

STATUS: 50% SUBMISSION

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LEGEND-SYMBOLS:

SYMBOL	DESCRIPTION
	POINT OF DISCONNECTION FROM EXISTING
	POINT OF CONNECTION OF NEW TO EXISTING
X / X	EQUIP TYPE / EQUIP # — EQUIPMENT TAG
	DEMO
	NEW WORK
	EXISTING TO REMAIN (E)
	NEW SANITARY PIPING
T	THERMOSTAT
	SUPPLY AIR DIFFUSER
	RETURN AIR REGISTER
M	MOTORIZED DAMPER
	AIRFLOW DIRECTION
	BACKDRAFT DAMPER
	FLOOR DRAIN
H	HYDROGEN DETECTOR

ABBREVIATIONS:

@	AT
A	AMPERES
AC	AIR CONDITIONER
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
CD	CONDENSATE DRAIN/CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
COP	COEFFICIENT OF PERFORMANCE
CU	CONDENSER UNIT
CW	COLD WATER
DB	DRY BULB
DIA, ø	DIAMETER
DN	DOWN
DW	DOMESTIC WATER
(E)	EXISTING TO REMAIN
EA	EXHAUST AIR
EAT	EXHAUST AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EQUIP	EQUIPMENT
(ER)	EXISTING TO BE RELOCATED
EER	ENERGY EFFICIENCY RATIO
ERV	ENERGY RECOVERY VENTILATION UNIT
ETC.	ET CETERA
EUH	ELECTRIC UNIT HEATER
EW	EYE WASH
EX	EXHAUST, EXTERNAL
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FP	FIRE PROTECTION
FT	FEET
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HEIGHT
HP	HORSEPOWER/HEAT PUMP
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HW	HOT WATER
HZ	HERTZ (CYCLES PER SECOND)
IN	INCH
IRH	INFRARED RADIANT HEATER
KW	KILOWATT
L	LENGTH
LBS	POUNDS
LAT	LATENT AIR TEMPERATURE
LV	LOUVER
MBH	THOUSANDS OF BTUS PER HOUR
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCP	MAIN CONTROL PANEL
MD	MOTORIZED DAMPER
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
(N)	NEW
NO., #	NUMBER
OA	OUTSIDE AIR
Ø	PHASE
PREP	PREPARE
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
(R)	EXISTING TO BE REMOVED
RA	RETURN AIR
RD	ROOF DRAIN
(RE)	RELOCATED EXISTING
RL	RAIN LEADER
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SAN	SANITARY
SA	SUPPLY AIR
S.F., FT^2	SQUARE FEET
SD	SCUPPER DRAIN
SP	STATIC PRESSURE
SR	SUPPLY REGISTER
T	THERMOSTAT
TYP	TYPICAL
U/G	UNDER GROUND
V	VOLT, VENT
VD	VOLUME DAMPER
W	WIDTH
WB	WET BULB
WC	WATER CLOSET/WATER COLUMN

GENERAL NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR NEW AND EXISTING GENERAL CONSTRUCTION WORK.
2. COMPLY WITH THE PHILADELPHIA PLUMBING CODE AND PHILADELPHIA MECHANICAL CODE IN ADDITION TO THE APPLICABLE MUNICIPAL CODES AND STANDARDS.
3. REVIEW ALL PROJECT DOCUMENTS OF ALL TRADES FOR A THOROUGH UNDERSTANDING OF PROJECT AND ANY CROSS REFERENCING OF WORK. REVIEW ALL PROJECT REQUIREMENTS PRIOR TO BIDDING. DISCREPANCIES BETWEEN DOCUMENTS SHALL BE REPORTED TO SEPTA PROJECT MANAGER PRIOR TO BIDDING.
4. INSTALL ALL EQUIPMENT WITH ADEQUATE CLEARANCES FOR MAINTENANCE AND SERVICING AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND APPLICABLE CODES.
5. OBTAIN AND PAY FOR ALL PERMITS AND PAY FOR ALL COSTS OF MATERIALS. HANDLE, STORE AND PROTECT ALL EQUIPMENT TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROTECT THE WORK SITE AND NEW AND EXISTING WORK AGAINST ANY DAMAGE, INCLUDING BUT NOT LIMITED TO WATER, DUST, HEAT, FREEZING ETC. UNTIL FINAL COMPLETION AND ACCEPTANCE BY SEPTA.
6. REFER TO SPECIFICATIONS FOR MATERIALS TO BE USED AND METHODS OF INSTALLATION.
7. WHERE UTILITIES AND/OR SERVICES REQUIRE SHUTDOWN FOR THE WORK TO BE PERFORMED, NOTIFY THE SEPTA PROJECT MANAGER. IN WRITING, A MINIMUM OF TWO (2) WEEKS PRIOR TO THE REQUESTED SHUTDOWN.
8. STORAGE OF MATERIALS AND/OR EQUIPMENT SHALL NOT BE ALLOWED OTHER THAN WITHIN THE LIMITS OF THE STAGING AREA OR CONFINES OF THE PROJECT WORK AREA AND AS APPROVED BY THE SEPTA PROJECT MANAGER.
9. PERFORM ALL WORK IN A NEAT AND WORKMANLIKE MANNER TO THE SATISFACTION OF SEPTA STANDARDS.
10. RESTORE ALL EXISTING WORK DISTURBED OR DAMAGED BY THE DEMOLITION AND CONSTRUCTION ACTIVITIES TO MATCH EXISTING ORIGINAL CONDITION OR BETTER.
11. REMOVE, RECYCLE AND DISPOSE OF ALL CONSTRUCTION WASTE AND DEMOLITION DEBRIS IN ACCORDANCE WITH THE APPROVED CONSTRUCTION WASTE MANAGEMENT PLAN.
12. MAINTAIN A COPY OF THE CURRENT SET OF CONTRACT DOCUMENTS WITH THE CONTRACTOR AS–BUILT INFORMATION AT THE JOB SITE AT ALL TIMES.
13. VERIFY ALL DIMENSIONS IN THE FIELD AND REPORT DISCREPANCIES, IF ANY, TO THE SEPTA PROJECT MANAGER FOR CLARIFICATION PRIOR TO STARTING ANY AFFECTED WORK.
14. PATCH AND REPAIR ALL OPENINGS LEFT IN EXISTING WALL SURFACES OR CEILINGS BY THE REMOVAL OF EXISTING SURFACE AND OR SEMI–RECESSED FITTINGS OR PIPING AND FINISH SUCH AREAS TO MATCH ADJACENT SURFACES.
15. PRIOR TO DELIVERY OF ANY MATERIALS TO THE SITE, PROVIDE SAFETY DATA SHEETS FOR ALL REQUIRED ITEMS AND MATERIALS USED IN THE WORK TO THE SEPTA PROJECT MANAGER.
16. COMPLY WITH ALL SEPTA SAFETY STANDARDS AND INCLUDE ALL COSTS TO TRAIN AND QUALIFY CONTRACTOR'S PERSONNEL IN SEPTA SAFETY STANDARDS. SEE GENERAL CONDITIONS OF THE SPECIFICATIONS.
17. REVIEW POTENTIAL ITEMS FOR SALVAGE AND RETENTION BY SEPTA WITH THE SEPTA PROJECT MANAGER PRIOR TO REMOVAL TO DETERMINE DISPOSITION.
18. THESE DRAWINGS SHOW HVAC AND PLUMBING WORK. SEE FPXXX DRAWINGS FOR FIRE SUPPRESSION WORK.

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
GENERAL NOTES, SYMBOLS & ABBREVIATIONS

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DNP
	CHECKED BY: DJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **M100**	
DWG. NO.: 1 OF 10	
SHT. NO.: 55 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-M100	REV. NO.: ----

STATUS: 50% SUBMISSION

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GENERAL NOTES:

1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

KEYED NOTES:

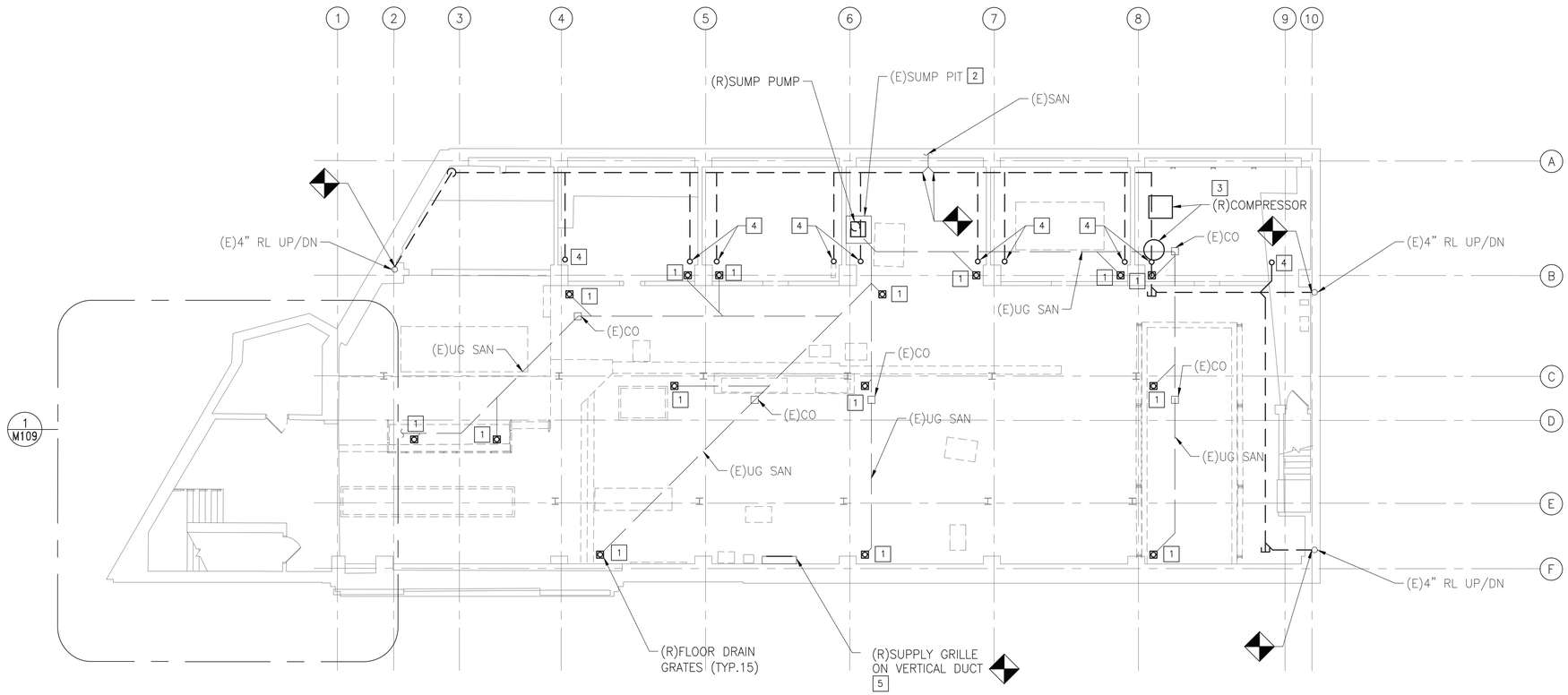
[1] REMOVE THE FLOOR DRAIN GRATE. FLUSH THE ENTIRE UNDERGROUND SANITARY SYSTEM PRIOR TO INSTALLING A NEW DRAIN GRATE.

[2] THOROUGHLY CLEAN THE SUMP PIT PRIOR TO INSTALLING NEW SUMP PUMP.

[3] THE CONTRACTOR SHALL LOCATE ALL AIR COMPRESSOR PIPING THROUGHOUT THE BUILDING AND REMOVE IT ALONG WITH THE AIR COMPRESSOR AND CONNECTED APPARATUS.

[4] REMOVE SANITARY PIPE UP TO FLOOR DRAIN.

[5] BEFORE START OF WORK, MEASURE AND RECORD (E) AIRFLOW RATE.



1 M101 DEMOLITION BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

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REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
DEMOLITION BASEMENT FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DNP
	CHECKED BY: DJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **M101**	
DWG. NO.: 2 OF 10	
SHT. NO.: 56 OF 453	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-M101	REV. NO.: ----

STATUS: 50% SUBMISSION

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GENERAL NOTES:

1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

KEYED NOTES:

[1] REMOVE THE GENERATOR EXHAUST FLUE IN ITS ENTIRETY FROM GENERATOR THROUGH THE ROOF.

[2] REMOVE THE RAIN LEADER FROM THE ROOF DRAIN DISCHARGE LOCATION TO THE LOCATION WITHIN WALL AS SHOWN. CLEAN THE VERTICAL LEADER WITHIN THE WALL PRIOR TO INSTALLING A NEW LEADER.

[3] THE CONTRACTOR SHALL VERIFY CONDITIONS OF THE GUTTERS AND DOWNSPOUTS. IF THEY ARE NEWLY INSTALLED AS PART OF THE ROOF REPLACEMENT PROJECT THEN NO WORK NEEDED. OTHERWISE REPLACE BOTH GUTTER AND DOWNSPOUTS TO GRADE LEVEL. THOROUGHLY CLEAN THE UNDERGROUND PIPING PRIOR TO INSTALLING NEW GUTTER AND DOWNSPOUTS.

[4] REMOVE THE WATER FOUNTAIN AND CONNECTED APPURTENANCES. THE CONTRACTOR SHALL PATCH THE FLOOR OPENING AFTER DEMOLITION.

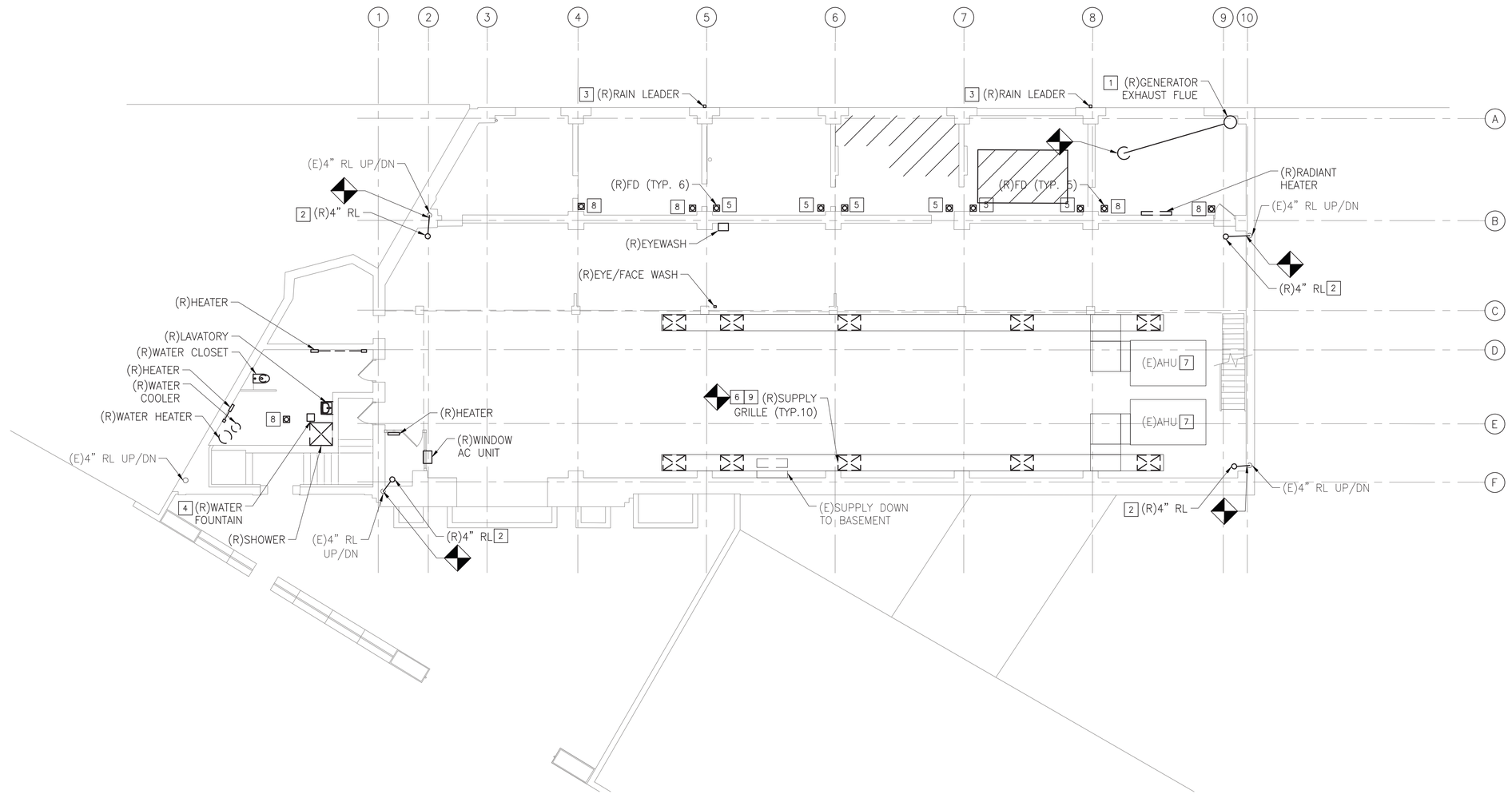
[5] REMOVE FLOOR DRAIN AND THE CONNECTED APPURTENANCES. THE CONTRACTOR SHALL PATCH THE FLOOR OPENING TO MATCH EXISTING FLOOR AFTER DEMOLITION.

[6] REMOVE ALL THE SUPPLY GRILLES. THOROUGHLY CLEAN THE ENTIRE DUCTWORK.

[7] REMOVE THE CURRENT ROLL FILTER ASSEMBLY AND THE BELT DRIVEN MOTOR. THE CONTRACTOR SHALL THOROUGHLY CLEAN THE ENTIRE AIR HANDLING UNIT INCLUDING BUT NOT LIMITED TO THE FAN AND THE OUTSIDE AIR INTAKE.

[8] REMOVE THE FLOOR DRAIN AND CONNECTED APPURTENANCES.

[9] BEFORE START OF WORK, MEASURE AND RECORD (E) AIRFLOW RATE.



1 M102 DEMOLITION FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
DEMOLITION FIRST FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **M102**	
DWG. NO.: 3 OF 10	
SHT. NO.: 57 OF 453	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-M102	REV. NO.: ---

STATUS: 50% SUBMISSION

GENERAL NOTES:

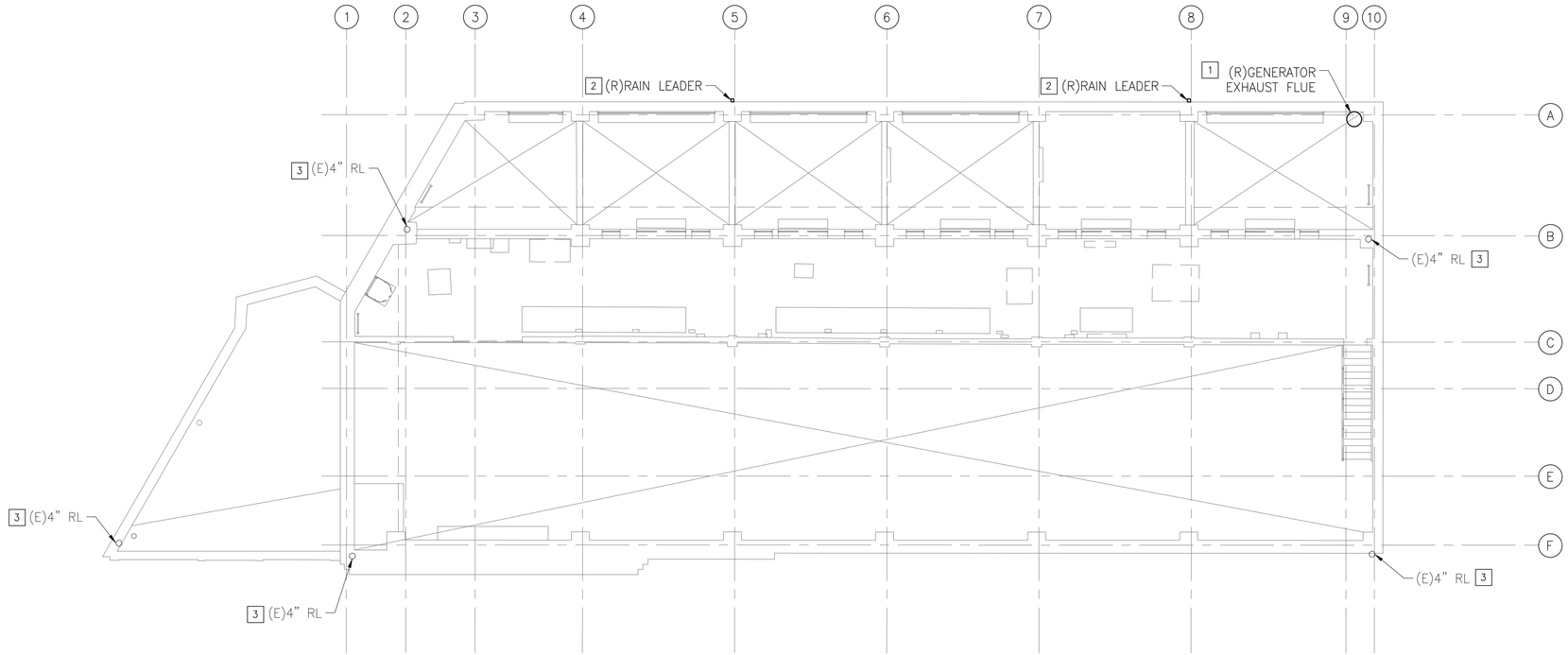
1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

KEYED NOTES:

[1] REMOVE THE GENERATOR EXHAUST FLUE IN ITS ENTIRETY FROM THE GENERATOR.

[2] THE CONTRACTOR SHALL VERIFY CONDITION OF THE GUTTERS AND DOWNSPOUTS. IF THEY ARE NEWLY INSTALLED AS PART OF THE ROOF REPLACEMENT PROJECT THEN NO WORK NEEDED. OTHERWISE REPLACE BOTH GUTTER AND DOWNSPOUTS TO GRADE LEVEL. THOROUGHLY CLEAN THE UNDERGROUND PIPING PRIOR TO INSTALLING NEW GUTTER AND DOWNSPOUTS.

[3] THOROUGHLY CLEAN THE RAIN LEADER WITHIN THE WALL PRIOR TO CONNECTING A NEW LEADER IN THE BASEMENT.



1 / M103 DEMOLITION MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

50% SUBMISSION
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
MECHANICAL
DEMOLITION MEZZANINE FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DNP
	CHECKED BY: DJM

WORK ORDER NO.: 276491

SHEET NUMBER
M103

DWG. NO.: 4 OF 10
SHT. NO.: 58 OF 453
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-M103
REV. NO.: ----

STATUS: 50% SUBMISSION

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GENERAL NOTES:

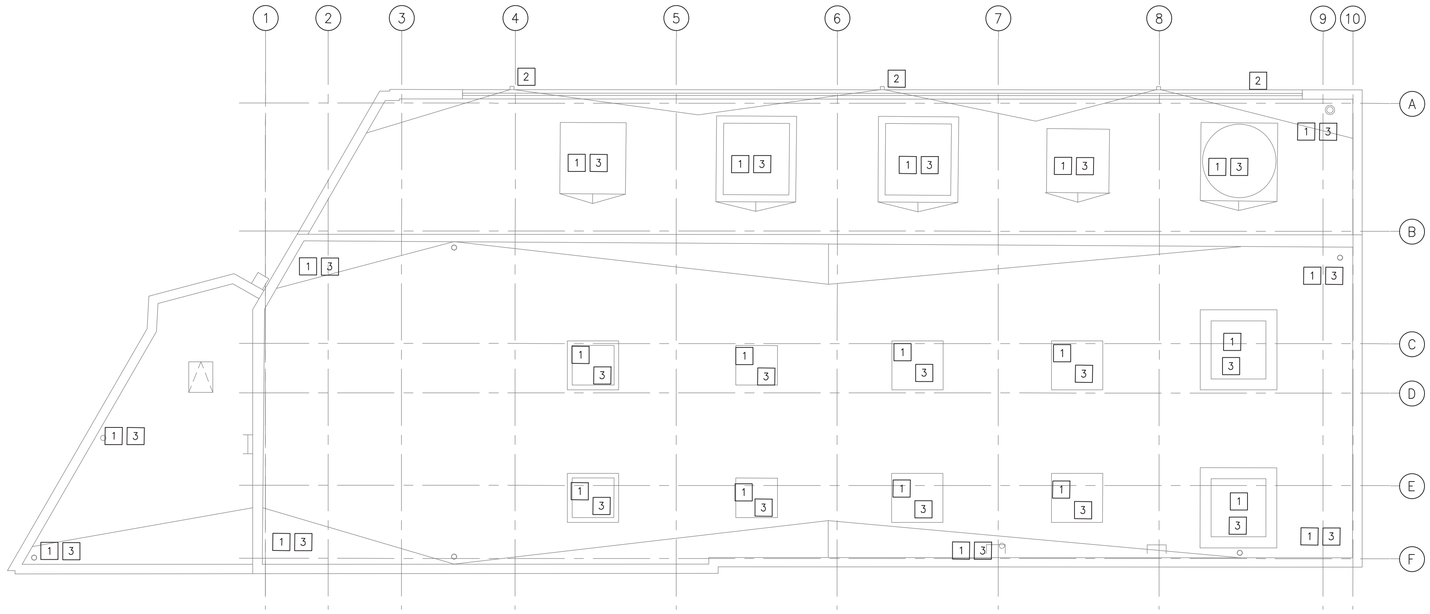
1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

KEYED NOTES:

[1] ANY ITEMS RELATED TO THE ROOF WORK IS ASSUMED TO BE TAKEN CARE OF IN THE ROOF REPLACEMENT PROJECT, WHICH PRESUMABLY INCLUDES REMOVING ALL THE VENTILATORS, REPLACING THE EXHAUST FAN FOR THE GENERATOR AREA, REPLACING ALL THE DAMPERS, CAPPING ALL THE UNUSED OPENINGS, REPLACING ALL VENT PIPING, REPLACING THE EXHAUST FLUE, REPLACING ALL THE ROOF DRAINS AND REPLACING THE ROOF COVERS FOR THE AIR HANDLING UNIT OUTDOOR INTAKES PRIOR TO STARTING WORK.

[2] THE CONTRACTOR SHALL VERIFY CONDITION OF THE GUTTERS AND DOWNSPOUTS. IF THEY ARE NEWLY INSTALLED AS PART OF THE ROOF REPLACEMENT PROJECT THEN NO WORK NEEDED. OTHERWISE REPLACE BOTH GUTTER AND DOWNSPOUTS TO GRADE LEVEL. THOROUGHLY CLEAN THE UNDERGROUND PIPING PRIOR TO INSTALLING NEW GUTTER AND THE DOWNSPOUTS.

[3] THE CONTRACTOR SHALL VERIFY ALL THE ITEMS DESCRIBED IN KEY NOTE #1 HAVE BEEN TAKEN CARE OF UNDER THE ROOF REPLACEMENT PROJECT. IF THE CONTRACTOR FINDS ANY ITEM MISSING THEN HE/SHE SHALL REPLACE THE ITEM UNDER THIS PROJECT FOLLOWING ALL APPLICABLE CODES AND REGULATIONS.



1 M104 DEMOLITION ROOF PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL,
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
DEMOLITION ROOF PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: DNP
CHECKED BY: DJM
WORK ORDER NO.: 276491
SHEET NUMBER: **M104**
DWG. NO.: 5 OF 10
SHT. NO.: 59 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-M104
REV. NO.: ----

STATUS: 50% SUBMISSION

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GENERAL NOTES:

1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

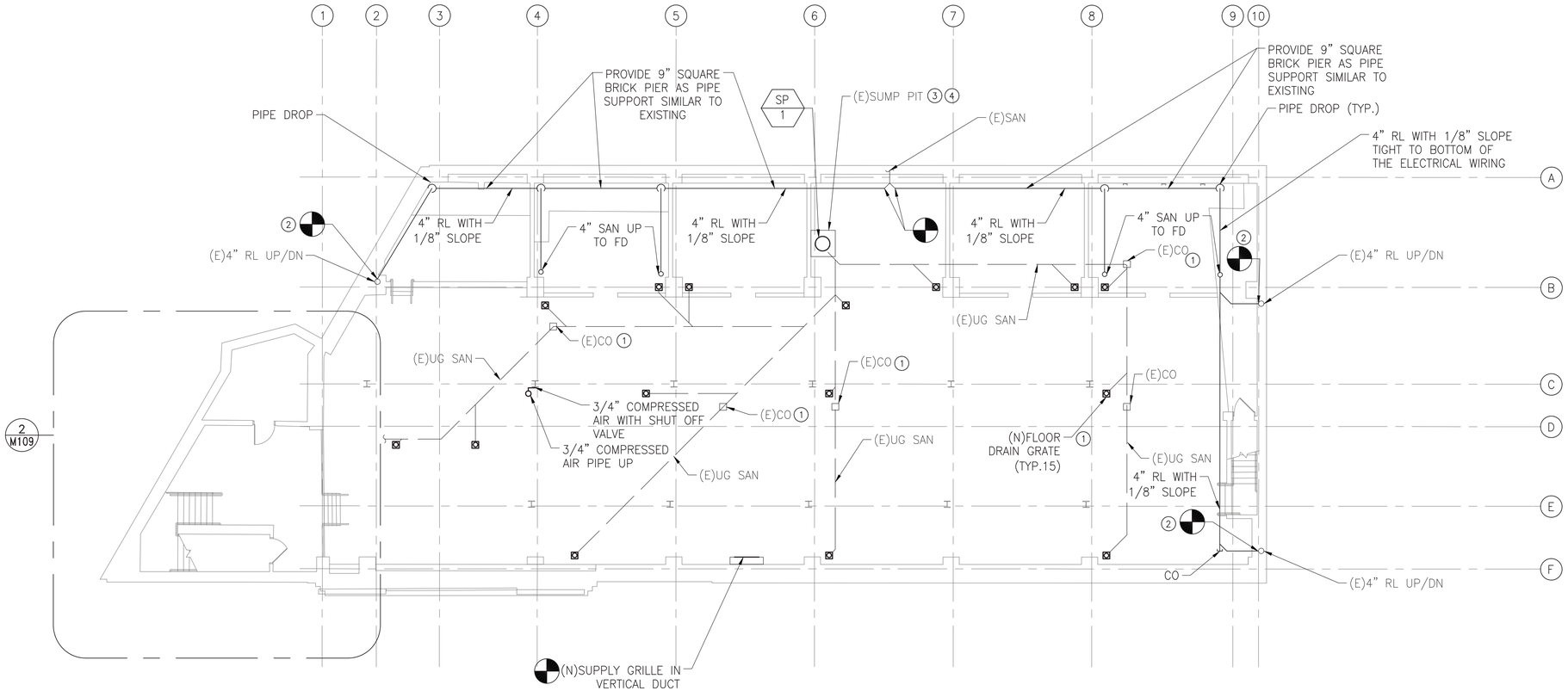
KEYED NOTES:

(1) THOROUGHLY CLEAN THE UNDERGROUND SANITARY PIPING FROM THE FLOOR DRAIN OPENINGS AND THE CLEANOUTS PROVIDED PRIOR TO INSTALLING NEW FLOOR DRAIN GRATES.

(2) THOROUGHLY CLEAN THE RAIN LEADER WITHIN THE WALL PRIOR TO CONNECTING NEW PIPING.

(3) THOROUGHLY CLEAN THE SUMP PIT AND PIPING WITHIN SUMP PIT PRIOR TO INSTALLING NEW SUMP PUMP.

(4) PROVIDE DUPLEX SUMP PUMP. BOTH PUMPS SHALL BE SAME MODEL AS DESCRIBED IN THE SCHEDULE.



1 M105 PROPOSED BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

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DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
PROPOSED BASEMENT FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DNP / CHECKED BY: DJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **M105**	
DWG. NO.: 6 OF 10	
SHT. NO.: 60 OF 453	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-M105	REV. NO: ---

STATUS: 50% SUBMISSION

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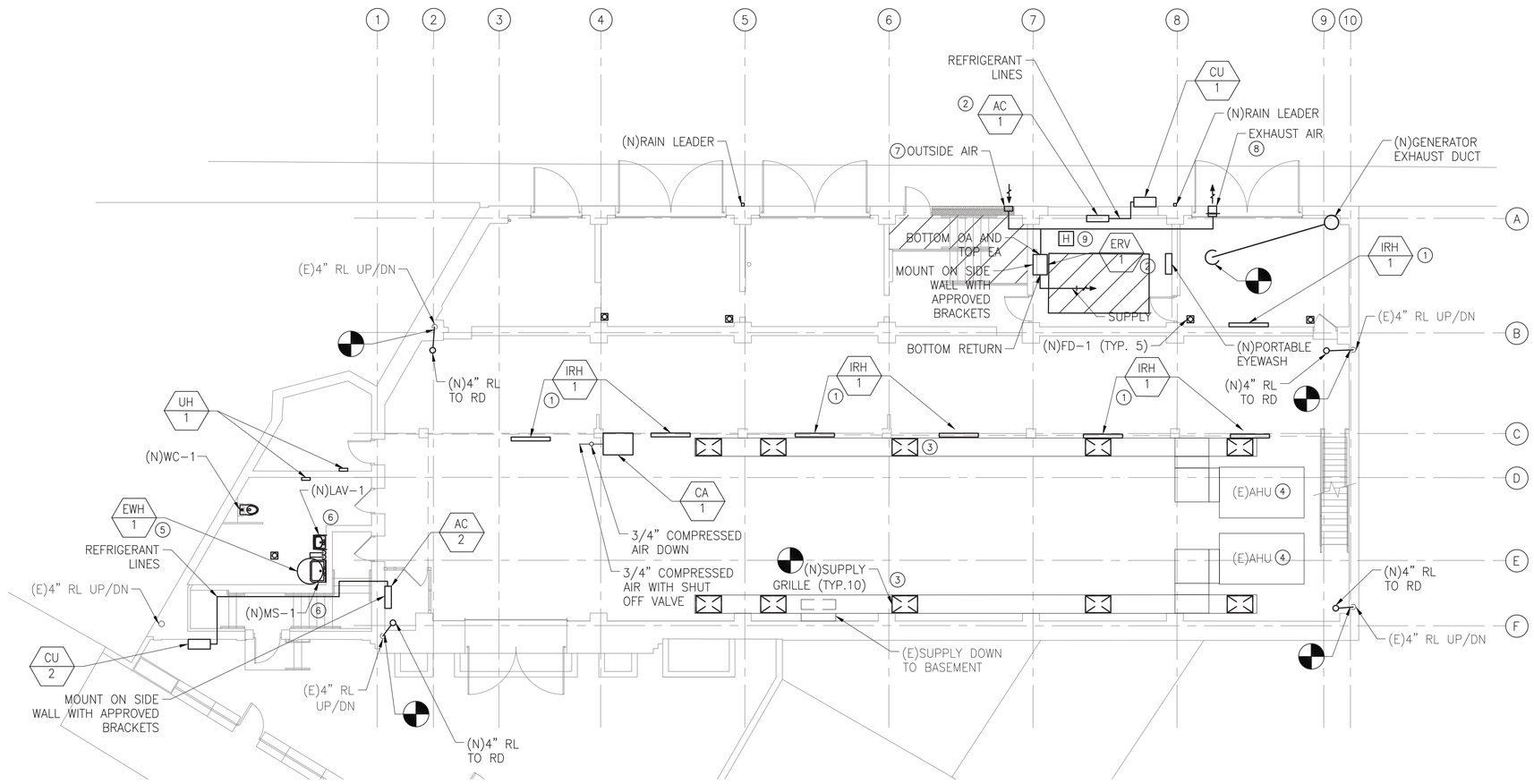
GENERAL NOTES:

1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

KEYED NOTES:

1. CONTROL THE INFRARED RADIANT HEATERS WITH A ON/OFF/AUTO CONTROL PANEL. HEATERS SHALL BE ANGLED TOWARDS THE FLOOR.
2. INTERLOCK THE ENERGY RECOVERY VENTILATOR AND THE SPLIT UNIT WITH A CONTROL PANEL.
3. THOROUGHLY CLEAN THE DUCTWORK PRIOR TO INSTALLING NEW SUPPLY GRILLES.
4. THOROUGHLY CLEAN THE AIR HANDLING UNIT PRIOR TO INSTALLING NEW FILTER MEDIA AND MOTOR.
5. PROVIDE A PLATFORM FOR THE ELECTRIC WATER HEATER TO BE MOUNTED ON THE WALL ABOVE THE MOP SINK.
6. PROVIDE A THERMOSTATIC MIXING VALVE FOR BOTH THE MOP SINK AND THE LAVATORY.
7. PROVIDE AN INTAKE LOUVER FOR THE OUTSIDE AIR OPENING.
8. PROVIDE AN EXHAUST LOUVER WITH A BACKDRAFT DAMPER.
9. THE CONTRACTOR TO DESIGN A HYDROGEN DETECTION SYSTEM FOR BATTERY ROOM.



1 M106 PROPOSED FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
PROPOSED FIRST FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DNP CHECKED BY: DJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **M106**	
DWG. NO.: 7 OF 10	
SHT. NO.: 61 OF 453	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-M106	REV. NO.: -----

STATUS: 50% SUBMISSION

C:\PW\WORKING\PITTID1689095\17AN-M106.DWG

GENERAL NOTES:

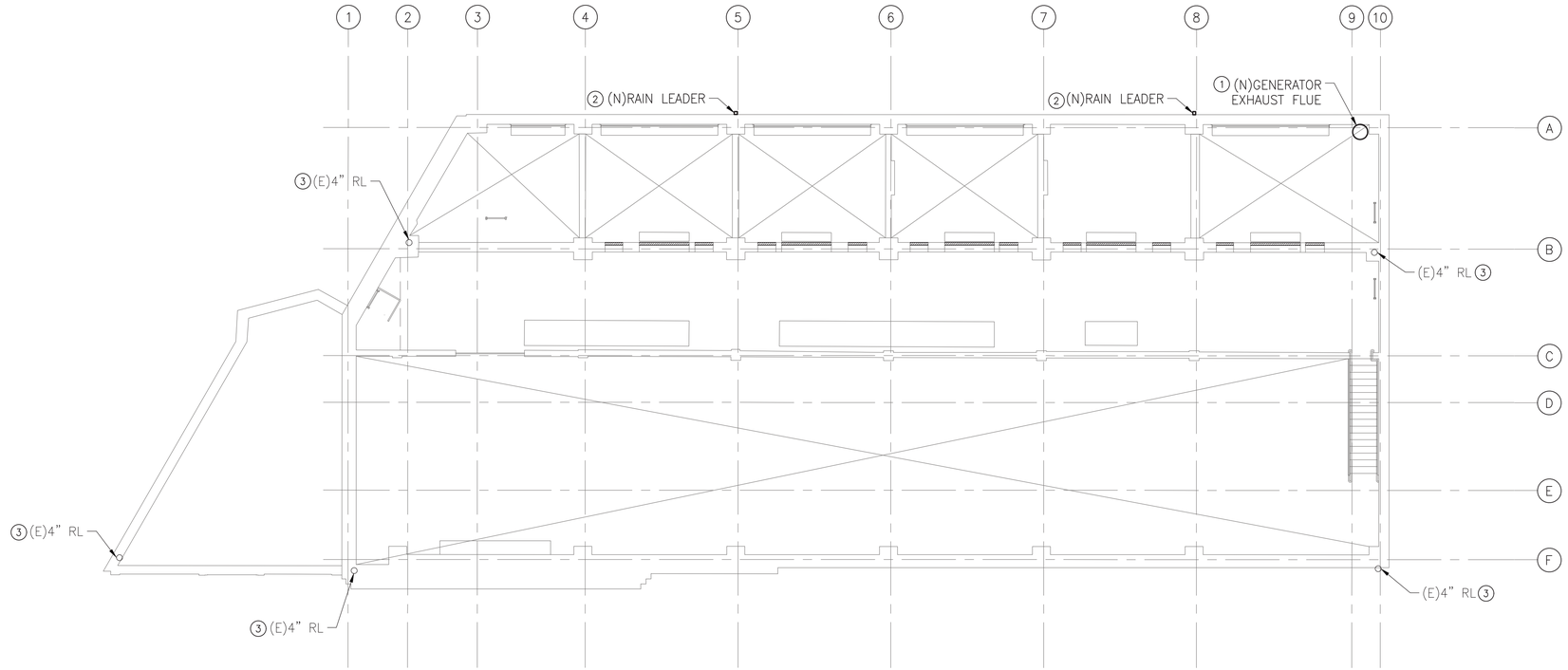
1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

KEYED NOTES:

(1) REPLACE THE GENERATOR EXHAUST FLUE IN ITS ENTIRETY FROM THE GENERATOR TO THE ROOF.

(2) THE CONTRACTOR SHALL VERIFY CONDITION OF THE GUTTERS AND DOWNSPOUTS. IF THEY ARE NEWLY INSTALLED AS PART OF THE ROOF REPLACEMENT PROJECT THEN NO WORK NEEDED. OTHERWISE REPLACE BOTH GUTTER AND DOWNSPOUTS TO GRADE LEVEL. THOROUGHLY CLEAN THE UNDERGROUND PIPING PRIOR TO INSTALLING NEW GUTTER AND THE DOWNSPOUTS.

(3) THOROUGHLY CLEAN THE RAIN LEADER WITHIN THE WALL PRIOR TO CONNECTING NEW LEADER IN THE BASEMENT.



1 / M107 PROPOSED MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

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DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
MECHANICAL
PROPOSED MEZZANINE FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: DJM

WORK ORDER NO.: 276491

SHEET NUMBER
M107

DWG. NO.:	8	OF	12
SHT. NO.:	61	OF	452

ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-M107
REV. NO.: ----

STATUS: 50% SUBMISSION

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GENERAL NOTES:

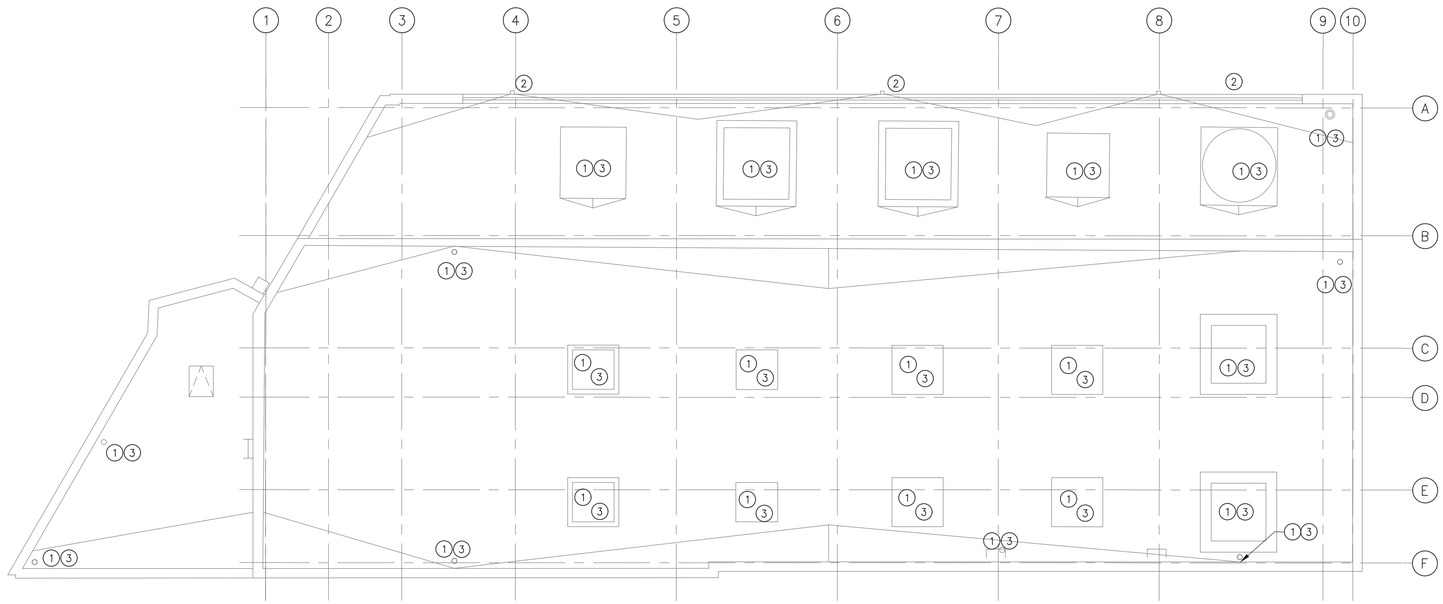
1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

KEYED NOTES:

(1) ANY ITEMS RELATED TO THE ROOF WORK IS ASSUMED TO BE TAKEN CARE OF IN THE ROOF REPLACEMENT PROJECT WHICH PRESUMABLY INCLUDES REMOVING ALL THE VENTILATORS, REPLACING THE EXHAUST FAN FOR THE GENERATOR AREA, REPLACING ALL THE DAMPERS, CAPPING ALL THE UNUSED OPENINGS, REPLACING ALL VENT PIPING, REPLACING THE EXHAUST FLUE, REPLACING ALL THE ROOF DRAINS AND REPLACING THE ROOF COVERS FOR THE AIR HANDLING UNIT OUTDOOR INTAKES PRIOR TO STARTING WORK.

(2) THE CONTRACTOR SHALL VERIFY CONDITION OF THE GUTTERS AND DOWNSPOUTS. IF THEY ARE NEWLY INSTALLED AS PART OF THE ROOF REPLACEMENT PROJECT THEN NO WORK NEEDED. OTHERWISE REPLACE BOTH GUTTER AND DOWNSPOUTS TO GRADE LEVEL. THOROUGHLY CLEAN THE UNDERGROUND PIPING PRIOR TO INSTALLING NEW GUTTER AND DOWNSPOUTS.

(3) THE CONTRACTOR SHALL VERIFY ALL THE ITEMS DESCRIBED IN KEY NOTE #1 HAS BEEN TAKEN CARE OF UNDER THE ROOF REPLACEMENT PROJECT, IF THE CONTRACTOR FINDS ANY ITEM MISSING THEN HE/SHE SHALL REPLACE THE ITEM UNDER THIS PROJECT FOLLOWING ALL APPLICABLE CODES AND REGULATIONS.



1 / M108 PROPOSED ROOF PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
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DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
MECHANICAL
PROPOSED ROOF PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: DNP
CHECKED BY: DJM
WORK ORDER NO.: 276491
SHEET NUMBER: **M108**
DWG. NO.: 8 OF 10
SHT. NO.: 62 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-M108
REV. NO.: ----

STATUS: 50% SUBMISSION

C:\PW\WORKING\PITTID1689095\17AN-M108.DWG

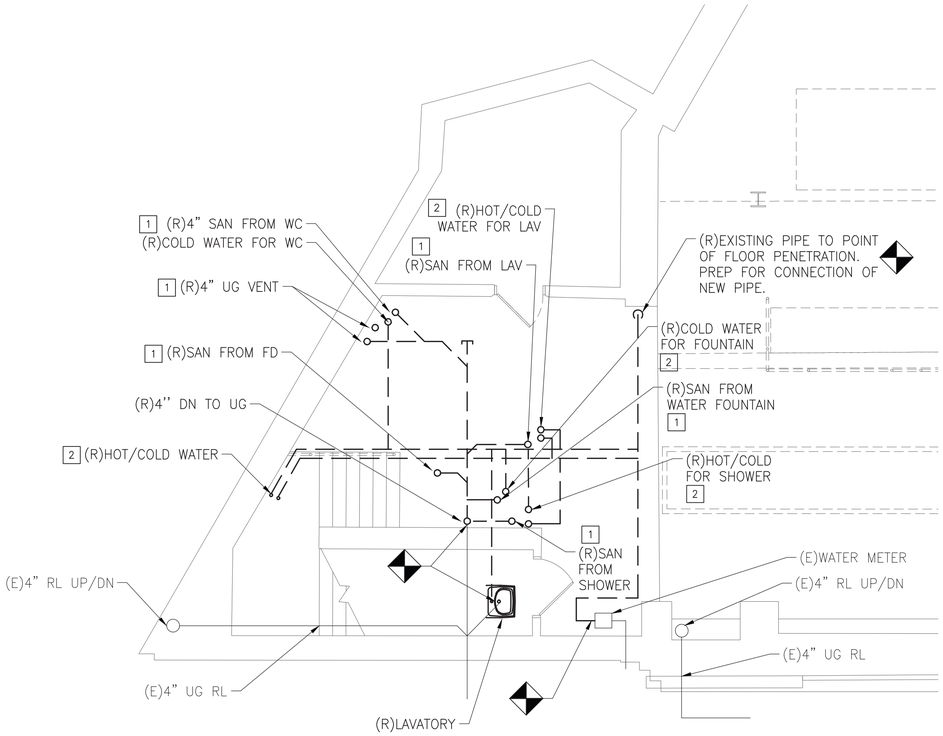
GENERAL NOTES:

1. REFER TO DRAWING M100 FOR THE GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING M110 FOR THE SCHEDULES AND CONTROLS.
3. REFER TO DRAWING M111 FOR THE DETAILS.

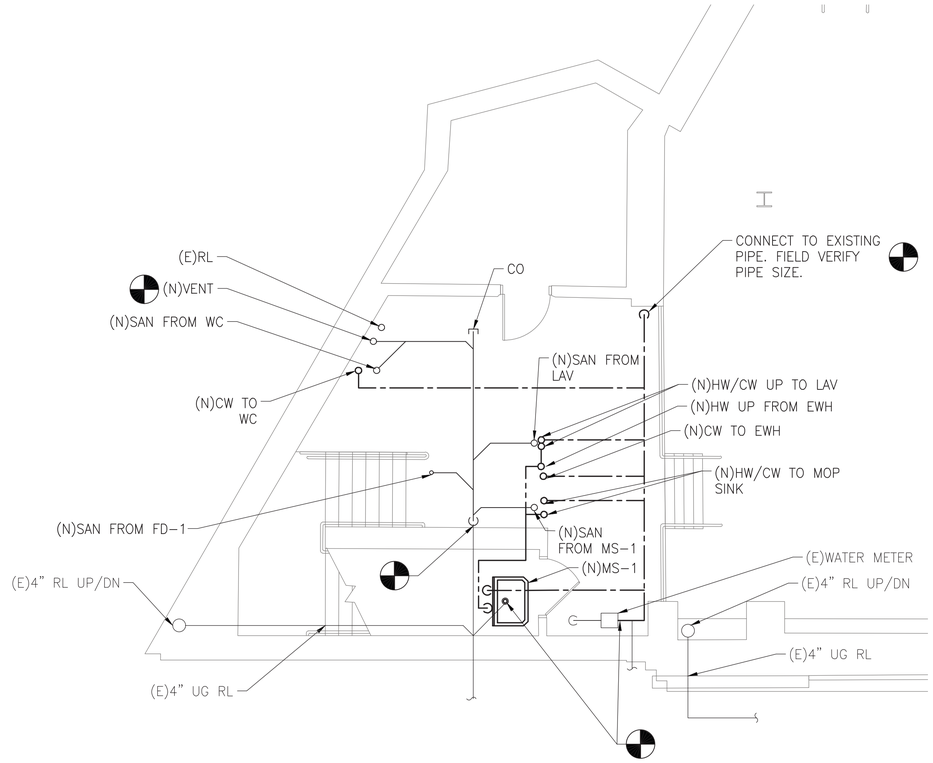
DEMOLITION KEYED NOTES:

[1] REMOVE ALL EXPOSED SANITARY PIPING TO LOCATION SHOWN. THE CONTRACTOR SHALL PROVIDE CLEARANCE ON THE VERTICAL PIPE TO CONNECT NEW PIPING TO THE UNDERGROUND PIPE.

[2] REMOVE ENTIRE DOMESTIC WATER PIPING TO THE WATER METER. THE CONTRACTOR SHALL REMOVE ALL THE PIPE SUPPORTS.



1 M109 ENLARGED DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



2 M109 ENLARGED NEW WORK PLAN
SCALE: 1/4" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
ENLARGED PLANS

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: DNP
CHECKED BY: DJM
WORK ORDER NO.: 276491
SHEET NUMBER: **M109**
DWG. NO.: 9 OF 10
SHT. NO.: 63 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-M109
REV. NO: ---

STATUS: 50% SUBMISSION

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ERV 1 ENERGY RECOVERY VENTILATOR

TAG	LOCATION	FRESH AIR	EXHAUST	SUPPLY FAN			EXHAUST FAN			WHEEL	ENERGY RECOVERY WHEEL DATA – COOLING					ENERGY RECOVERY WHEEL DATA – HEATING			ELECTRICAL DATA			MAXIMUM DIMENSIONS	MAXIMUM	BASIS OF DESIGN		REMARKS
		CFM	CFM	EXT. SP. (IN WC)	QTY	FAN HP EACH	EXT. SP. (IN WC)	QTY	FAN HP EACH	MOTOR HP	EAT DB (F)	EAT WB (F)	LAT DB (F)	LAT WB (F)	EFFECTIVENESS (%)	EAT DB (F)	LAT DB (F)	EFFECTIVENESS (%)	V/Ø/HZ	MCA	MOCP	L x W x H (IN)	WEIGHT (LBS)	MANUFACTURER	MODEL	
ERV–1	BATTERY ROOM	440	440	0.5	1	1/4	0.5	1	1/4	–	93.2	78.3	82.2	69.4	60.7	12.6	47.4	60.7	120/1/60	8.6	15	40.2X28.6X17.9	160	GREENHECK	MINIVENT–450	SEE NOTES

NOTES:
1. PROVIDE SIDE WALL MOUNTING BRACKETS. INTERLOCK THE ENERGY RECOVERY VENTILATOR AND THE SPLIT UNIT TO OPERATE IN UNISON VIA A SINGLE THERMOSTAT.
2. REFER TO DRAWINGS FOR THE LOCATION AND QUANTITY.

SR 1 GRILLE/REGISTER/DIFFUSER SCHEDULE

TAG	DESCRIPTION	FRAME TYPE	CFM RANGE	NECK SIZE	FACE SIZE	FINISH	MANUFACTURER & MODEL NO. (BASIS OF DESIGN)	REMARKS
SR–1	SUPPLY REGISTER	DUCT MOUNTED	T.B.D.	T.B.D.	SAME AS NECK	WHITE	TITUS MOD# 301FL	SEE NOTES

NOTES:
1. INCLUDE OPPOSED BLADE DAMPER FOR BALANCING IN EACH DEVICE.
2. THE SCHEDULES MANUFACTURERS ARE BASIS OF DESIGN. THE CONTRACTOR SHALL REFER TO SPECIFICATION SECTIONS FOR "OR APPROVED EQUAL" MANUFACTURERS.

IRH 1 INFRARED RADIANT HEATER SCHEDULE

TAG	CAPACITY (KW)	LENGTH	WIDTH	ELEMENT TYPE	ELECTRICAL	AMPS	MANUFACTURER AND MODEL	REMARKS
IRH–1	3	55.4"	5.4"	FROSTED QUARTZ	208/1/60	14.4	FOSTORIA OCH–57–208V	11 LBS. WITH VERTICAL MOUNTING BRACKET

NOTES:
1. REFER TO DRAWINGS FOR THE LOCATION AND QUANTITY.

AC # SPLIT SYSTEM SCHEDULE

TAG	AREA SERVED	TOTAL COOLING CAPACITY (MBH)	TOTAL HEATING CAPACITY (MBH)	SEER	REFRIGERANT	ELECTRICAL			MANUFACTURER & MODEL NO. (BASIS OF DESIGN)	REMARKS
						OUTDOOR MCA	BREAKER SIZE (A)	V/Ø/HZ		
AC–1/ CU–1	BATTERY ROOM	12	14	22	R410A	25	15	208/1/60	MITSUBISHI MOD# MSZ–GL12NA–U1 FOR INDOOR AND MOD# MUZ–GL12NA–U1 FOR OUTDOOR	1
AC–2/ CU–2	OFFICE	9	10	N/A	R410A	25	15	208/1/60	MITSUBISHI MOD# MSZ–GL09NA–U1 FOR INDOOR AND MOD# MUZ–GL09NA–U1 FOR OUTDOOR	2

NOTES:
1. CONTROL SPLIT HEAT PUMP UNIT AND ENERGY RECOVERY VENTILATOR WITH A SINGLE THERMOSTAT USING A PROGRAMMABLE CONTROLLER.
2. CONTROL SPLIT HEAT PUMP UNIT WITH A UNIT MOUNTED THERMOSTAT.

PLUMBING SCHEDULE

TAG	DESCRIPTION	FIXTURE CONNECTION SIZE (IN)				MANUFACTURER & MODEL NO. (BASIS OF DESIGN)
		CW	HW	SAN	V	
WC–1	WATER CLOSET	1	–	3	2	AMERICAN STANDARD CADET FLOWISE MODEL 2462.100. VITREOUS CHINA, HIGH EFFICIENCY 1.1 GPF ULTRA–LOW CONSUMPTION, ELONGATED BOWL. PROVIDE AMERICAN STANDARD SEAT MODEL 5324.019.
LAV–1	LAVATORY	1/2	1/2	1 1/4	1 1/4	AMERICAN STANDARD LUCERNE WALL–HUNG (ADA) LAVATORY MODEL 0356.421, WALL MOUNTED SINGLE HOLE. 1 1/4" P–TRAP WITH GRID DRAIN 1/2" SUPPLIES WITH STOPS. PROVIDE AMERICAN STANDARD MODEL 1480100 FAUCET WITH A WATTS MODEL LFL1170–M2 MIXING VALVE. PROVIDE S–TRAP ASSEMBLY.
FD	FLOOR DRAIN	–	–	3	3	JAY R. SMITH MODEL NUMBER 2005Y ROUND TOP NICKEL BRONZE STRAINER (6"ROUND). PROVIDE P–TRAP FOR EACH DRAIN.
MS–1	MOP SINK	1/2	1/2	3	3	ZURN MODEL Z1996–24. SIZE 24" X 24". PROVIDE SERVICE SINK FAUCET ZURN MODEL Z1996–SF AND WATTS MODEL LFL1170–M2 MIXING VALVE.

SP 1 SUMP PUMP SCHEDULE

TAG	AREA SERVED	GPM	HEAD (FT)	ELECTRICAL		MANUFACTURER & MODEL NO. (BASIS OF DESIGN)
				HP	V/Ø/HZ	
SP–1	BASEMENT SUMP PIT	30	25	1/2	120/1/60	LIBERTY PUMPS MODEL 281–2, CLASS 25 CAST–IRON, VORTEX ENGINEERED IMPELLER, AUTOMATIC RESET, PROVIDE CONTROLS AND DISCONNECT SWITCH.

UH 1 UNIT HEATER SCHEDULE

TAG	BTU	CFM	POWER (KW)	V/Ø/HZ	MANUFACTURER & MODEL NO. (BASIS OF DESIGN)	REMARKS
UH–1	6138	100	1	120/1/60	QMARK MOD# CWH3180F	SEE NOTES

NOTES:
1. REFER TO DRAWINGS FOR THE LOCATION AND QUANTITY.

CA 1 AIR COMPRESSOR SCHEDULE

TAG	CAPACITY (GAL.)	MAX PSI	CFM@ 90PSI	HP	V/Ø/HZ	MANUFACTURER & MODEL NO. (BASIS OF DESIGN)	REMARKS
CA–1	80	140	16	5	208/1/60	CAMPBELL HAUSFELD MODEL TQ3104	SEE NOTES

NOTES:
1. REFER TO DRAWINGS FOR THE LOCATION AND QUANTITY.

EWH 1 ELECTRIC WATER HEATER SCHEDULE

TAG	AREA SERVED	ELECTRICAL		MANUFACTURER & MODEL NO. (BASIS OF DESIGN)
		KW	V/Ø/HZ	
EWH–1	TOILET ROOM AND BASEMENT	4	208/1/60	BRADFORD WHITE MODEL LE120L3–3 WITH 23 GPH RECOVERY. WITH VERTICAL MOUNTING BRACKET.

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BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
SCHEDULES

SCALE: AS SHOWN | SCALE FACTOR: 1:1
DATE: 08/22/2025 | DRAWN BY: DNP | CHECKED BY: DJM
WORK ORDER NO.: 276491
SHEET NUMBER: **M110**
DWG. NO.: 11 OF 12
SHT. NO.: 64 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-M110
REV. NO.: ----

STATUS: 50% SUBMISSION

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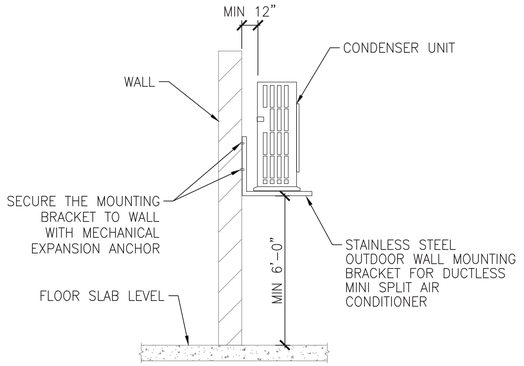
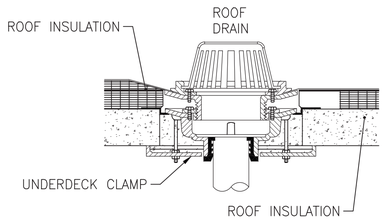
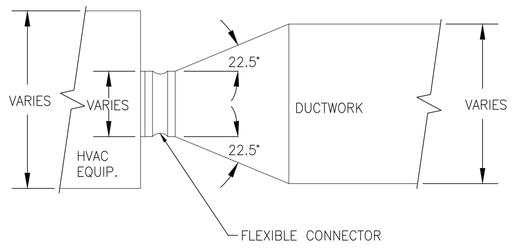


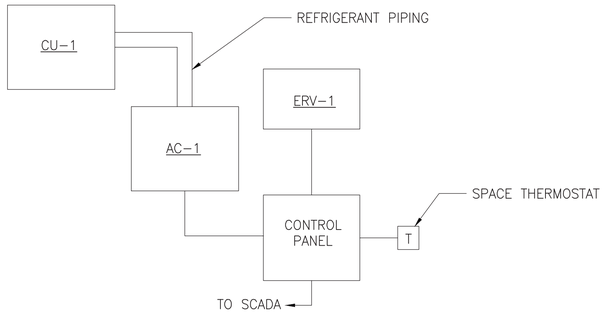
1 M111 CONDENSER WALL MOUNTING DETAIL
SCALE: NO SCALE



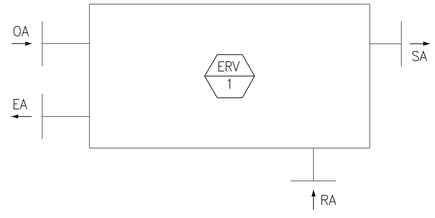
2 M111 ROOF DRAIN DETAIL
SCALE: NO SCALE



3 M111 TYPICAL SUPPLY DUCT TRANSITION
SCALE: NO SCALE



4 M111 BATTERY ROOM CONTROL DIAGRAM
SCALE: NO SCALE



5 M111 ERV DUCT CONNECTION–ELEVATION
SCALE: NO SCALE

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
MECHANICAL
MISCELLANEOUS DETAILS

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: DNP
CHECKED BY: DJM
WORK ORDER NO.: 276491
SHEET NUMBER: **M111**
DWG. NO.: 10 OF 10
SHT. NO.: 64 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-M111
REV. NO.: ----

STATUS: 50% SUBMISSION

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ELECTRICAL / LIGHTING SYMBOLS:

SYMBOL	DESCRIPTION
	PANEL, 208/120V PANEL. REFER TO DRAWING E116 FOR PANEL SCHEDULES.
'XX'	INDUSTRIAL LED LUMINAIRE, ENCLOSED/WET LOCATION. 'XX' REPRESENTS DESIGNATION. REFER TO DRAWING E115 FOR LUMINAIRE SCHEDULE.
'XX'	INDUSTRIAL LUMINAIRE ENCLOSED/WET LOCATION, CONNECTED TO EMERGENCY CIRCUIT. 'XX' REPRESENTS DESIGNATION. REFER TO DRAWING E115 FOR LUMINAIRE SCHEDULE.
'XX'	UP/DOWN COLUMN MOUNTED EXTERIOR LUMINAIRE. 'XX' REPRESENTS DESIGNATION. REFER TO DRAWING E115 FOR LUMINAIRE SCHEDULE.
'XX' 'XX' 'XX'	WALL MOUNTED LUMINAIRE, TYPE AS NOTED. 'XX' REPRESENTS DESIGNATION. REFER TO DRAWING E115 FOR LUMINAIRE SCHEDULE.
'XX'	DOCK LIGHT, 'XX' REPRESENTS DESIGNATION. REFER TO DRAWING E115 FOR LUMINAIRE SCHEDULE.
'XX'	EXIT SIGN, SINGLE FACE, WALL MOUNTED. ARROW INDICATES CHEVRON DIRECTION. 'XX' REPRESENTS DESIGNATION. REFER TO DRAWING E115 FOR LUMINAIRE SCHEDULE.
'XX'	EXIT SIGN, SINGLE FACE, CEILING MOUNTED. ARROW INDICATES CHEVRON DIRECTION. 'XX' REPRESENTS DESIGNATION. REFER TO DRAWING E115 FOR LUMINAIRE SCHEDULE.
S_a	20A, 120/277V AC, SINGLE POLE TOGGLE SWITCH. a DENOTES SWITCH ZONE.
S_3	20A, 120/277V AC, THREE–WAY SWITCH.
S_M	MANUAL MOTOR STARTER (MATCH VOLTAGE, PHASE AND AMPACITY TO EQUIPMENT SERVED).
	DUPLEX RECEPTACLE, NEMA 5–20R, 20A, 125V.
GFI	DUPLEX RECEPTACLE, NEMA 5–20R, 20A, 125V WITH (GFCI) GROUND FAULT CURRENT INTERRUPTER PROTECTION.
WP	DUPLEX RECEPTACLE, NEMA 5–20R, 20A, 125V WITH (GFCI) GROUND FAULT CURRENT INTERRUPTER PROTECTION IN A WEATHER–PROOF ENCLOSURE.
	QUADRUPLEX RECEPTACLE, TWO (2) NEMA 5–20R, 20A, 125V.
	SPECIAL RECEPTACLE.
M	MOTOR.
	NON–FUSIBLE DISCONNECT SWITCH, 30A/3P, 600V UNLESS OTHERWISE NOTED.
WP	FUSIBLE DISCONNECT SWITCH, SIZE AS NOTED. WP REPRESENTS WEATHER–PROOF NEMA 3R ENCLOSURE.
3 PP	BRANCH CIRCUIT HOMERUN INDICATES PANEL AND CIRCUIT BREAKER NUMBER.
J J J	JUNCTION BOX.
T	TRANSFORMER, TYPE AS NOTED.
S	SUMP PUMP.
M	PECO UTILITY METER.
	PECO UTILITY POLE.
	30A CUTOUT FUSE.
H	HYDROGEN DETECTOR

DETAIL CALLOUT SYMBOLS:

X / X	EQUIPMENT CALLOUT REFER TO MECHANICAL, FIRE PROTECTION AND PLUMBING FOR ADDITIONAL INFORMATION.
3 / E101	DETAIL # / DRAWING #
3 / E101	SECTION # / DRAWING #

LINETYPE CONVENTIONS:

	ELECTRICAL EQUIPMENT DESIGNATED BY SOLID HEAVY LINE WEIGHT INDICATES NEW WORK TO BE FURNISHED AND INSTALLED.
	ELECTRICAL EQUIPMENT DESIGNATED BY SOLID LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT TO REMAIN, UNLESS OTHERWISE INDICATED.
	ELECTRICAL EQUIPMENT DESIGNATED BY DASHED HEAVY LINE WEIGHT REPRESENTS EXISTING EQUIPMENT TO BE REMOVED AND DISPOSED, UNLESS INDICATED TO BE REMOUNTED, RELOCATED OR TURNED OVER TO SEPTA.

SINGLE LINE SYMBOLS:

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER, RATING AS INDICATED
	DISCONNECT SWITCH, RATING AS INDICATED
	FUSED DISCONNECT SWITCH, RATING AS INDICATED
	FUSE, RATING AS INDICATED
	DRAWOUT CIRCUIT BREAKER, RATING AS INDICATED
	TRANSFORMER, RATING AS INDICATED
	SHIELDED ISOLATION TRANSFORMER, RATING AS INDICATED
15KV–120V / 2	POTENTIAL TRANSFORMER UPPER NUMBER: RATIO LOWER NUMBER: QUANTITY OF XFMR
■	EXOTHERMIC WELD
	GROUND
	BATTERIES
	GENERATOR, RATINGS AS INDICATED
	AUTOMATIC TRANSFER SWITCH, RATINGS AS INDICATED
	DROPPING RESISTORS, RATINGS AS INDICATED
M	NON–UTILITY CURRENT TRANSFORMER AND METER

STANDARD MOUNTING HEIGHTS:

12" BELOW FINISH CEILING	BATTERY LIGHTING UNITS AND REMOTE WALL MOUNTED LIGHT HEADS (OR 1'–0" BELOW FINISHED CEILING TO TOP OF UNIT).
9'–0"	PENDANT–HUNG INDUSTRIAL AND STRIP LIGHTING FIXTURES UNLESS OTHERWISE NOTED.
6'–8"	TOP OF BACK–MOUNTED WALL EXIT FIXTURES (NOT MOUNTED ABOVE DOORS).
6'–0"	TOP OF HIGHEST ELECTRICAL SAFETY DISCONNECT SWITCHES, MAGNETIC STARTERS, CONTACTORS.
46"	LIGHT SWITCHES
24"–18"	ELECTRICAL RECEPTACLES, 24" WITHIN MECHANICAL OR ELECTRICAL ROOMS AND WORKSHOPS.
00"	FINISHED FLOOR

NOTES:

1. MOUNTING HEIGHTS TO CENTER OF OUTLETS UNLESS OTHERWISE NOTED.
2. THE ABOVE MOUNTING HEIGHTS SHALL BE ADHERED TO UNLESS NOTED OTHERWISE ON THE DRAWINGS OR SPECIFICATION.

ELECTRICAL ABBREVIATIONS:

(E)	EXISTING WORK – EQUIPMENT TO REMAIN
(ER)	EXISTING WORK – EQUIPMENT TO BE REMOVED AND RELOCATED/REPLACED
(N)	NEW WORK – EQUIPMENT
(R)	EXISTING EQUIPMENT TO BE DISCONNECTED AND REMOVED
(RE)	RELOCATED/REPLACED EXISTING WORK
A, AMPS	AMPERES
AC	ALTERNATING CURRENT, AIR CONDITIONER
AF	AMPERES, FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AS	AMPERES, SWITCH
AT	AMPERES, TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BCW	BARE COPPER WIRE
BKR	BREAKER
C	CLOSED
C OR CND	CONDUIT
CA	COMPRESSOR
CALC	CALCULATION
CLG	CEILING, EQUIPMENT MOUNTED EITHER ON OR IN CEILING AREA
CT	CURRENT TRANSFORMER
CTRL	CONTROL
CU	CONDENSER
DC	DIRECT CURRENT
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
EMH	ELECTRICAL MANHOLE
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
ERV	ENERGY RECOVERY VENTILATION UNIT
ETC	ET CETERA
EWH	ELECTRIC WATER HEATER
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FMC	FLEXIBLE METAL CONDUIT
FOIC	FIBER OPTIC INTERFACE CABINET
FP	FIRE PROTECTION
G OR GND	GROUND
GFCI OR GFI	GROUND FAULT CIRCUIT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HOA	HAND/OFF/AUTO
HZ	HERTZ
IRH	INFRARED RADIANT HEATER
IT	INFORMATION TECHNOLOGY
IDS	INTRUSION DETECTION SYSTEM
KA	KILO AMPERES
KAIC	KILO AMPERES, INTERRUPTING CAPACITY
KCMIL	KILO CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
L	LINE
LCD	LIQUID CRYSTAL DISPLAY
LED	LIGHT EMITTING DIODE
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LS	LIGHTING STANDARD
LSIG	LONG–TIME, SHORT–TIME, INSTANTANEOUS AND GROUND FAULT
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MOPD	MAXIMUM OVERCURRENT PROTECTIVE DEVICE
MTR	MOTOR
#	NUMBER
N	NEUTRAL
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NIC	NOT IN CONTRACT
NVS	NETWORK VIDEO STORAGE
O	OPEN
OVHD	OVERHEAD
P	POLE
PH, ø	PHASE
PT	POTENTIAL TRANSFORMER
PWR	POWER
QTY	QUANTITY
RMC	RIGID METAL CONDUIT
RMS	ROOT–MEAN–SQUARE
RNC	RIGID NON–METALLIC CONDUIT
RTU	REMOTE TERMINAL UNIT
S	SECURITY
SC	SECURITY CAMERA
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SCCR	SHORT CIRCUIT CURRENT RATING
SLC	SIGNALING LINE CIRCUIT
SMR	SURFACE METAL RACEWAY
SP	SUMP PUMP
STP	SHIELDED TWISTED PAIR
SWGR	SWITCHGEAR
SYM.	SYMMETRICAL
TBD	TO BE DETERMINED
TCOM	TELECOMMUNICATIONS
TDDE	TIME–DELAY DUAL ELEMENT (FUSES)
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UE	UNDERGROUND ELECTRIC
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SOURCE
V	VOLTS
VA	VOLT AMPS
VIF	VERIFY IN FIELD
VP	VACUUM PUMP
VT	VOLTAGE TRANSFORMER
W	WIRE
WC	WATER COOLER CONNECTION
WP	WEATHERPROOF
XFMR	TRANSFORMER

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REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
NOTES, SYMBOLS & ABBREVIATIONS

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: MM
	CHECKED BY: JB
WORK ORDER NO.: 276491	
SHEET NUMBER: **E100**	
DWG. NO.: 1 OF 17	
SHT. NO.: 65 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-E100	REV. NO.: ----

STATUS: 50% SUBMISSION

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DEMOLITION SCOPE OF WORK:

A. REFER TO DEMOLITION DRAWINGS FOR LIMITS OF DEMOLITION. COORDINATE DISPOSAL OF EQUIPMENT WITH SEPTA. STAGING OF ITEMS FOR DEMOLITION SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. DEMOLITION OF EXISTING TRANSFORMER AND ASSOCIATED CONDUIT AND CIRCUITRY.

C. DEMOLITION OF EXISTING PANELS AND ASSOCIATED CONDUIT AND CIRCUITRY.

D. DEMOLITION OF EXISTING DISCONNECT SWITCHES AND ASSOCIATED CONDUIT AND CIRCUITRY.

E. DEMOLITION OF EXISTING TRANSFER SWITCH AND ASSOCIATED CONDUIT AND CIRCUITRY.

F. DEMOLITION OF EXISTING BATTERY CHARGERS AND ASSOCIATED CONDUIT AND CIRCUITRY.

G. DEMOLITION OF EXISTING BATTERIES AND ASSOCIATED CONDUIT AND CIRCUITRY.

H. DEMOLITION OF EXISTING BATTERY RESISTOR AND ASSOCIATED CONDUIT AND CIRCUITRY.

I. DEMOLITION OF EXISTING BATTERY SELECTOR PANEL AND ASSOCIATED CONDUIT AND CIRCUITRY.

J. DEMOLITION OF EXISTING CONDUIT AND CIRCUITRY TO MECHANICAL ITEMS.

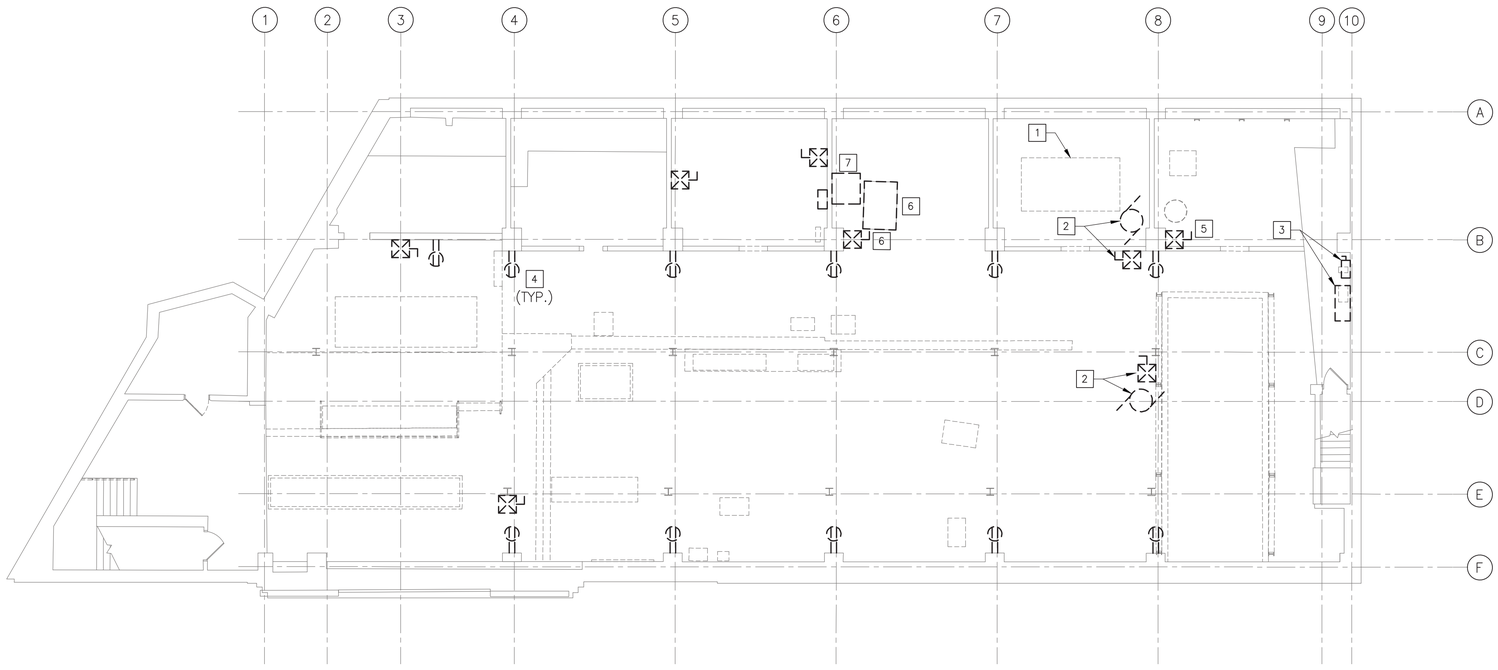
K. DEMOLITION OF EXISTING RECEPTACLES AND ASSOCIATED CONDUIT AND CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. DEMOLITION PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. DISCUSS AND COORDINATE ALL UTILITY WORK WITH PECO PRIOR TO COMMENCING ANY UTILITY WORK.
4. OBTAIN AND ADHERE TO PECO'S INSTALLATION GUIDELINES.
5. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
6. CONTACT THE SEPTA PROJECT MANAGER IF ISSUES ARISE IN THE FIELD THAT MAY DISRUPT EXISTING SYSTEMS.
7. REMOVE ALL DEVICES, WIRING, JUNCTION BOXES AND ASSOCIATED APPURTENANCES WITHIN SCOPE OF DEMOLITION.
8. LEGALLY DISPOSE OF DEVICES INDICATED TO BE REMOVED. OFFER EQUIPMENT TO SEPTA AND DISPOSE OF THE EQUIPMENT THAT SEPTA DOES NOT WISH TO RETAIN.
9. COORDINATE WORK CONCERNING EXISTING EQUIPMENT AND SERVICES IN THE BUILDING. COORDINATE REQUIRED POWER INTERRUPTIONS WITH SEPTA PER DIVISION 1 SPECIFICATIONS.
10. EQUIPMENT, PANELS OR DISCONNECT SWITCHES INDICATED TO BE REMOVED SHALL INCLUDE THE REMOVAL OF ALL CONDUCTORS, INCLUDING CONDUIT AND WIRING, SHALL BE REMOVED BACK TO SOURCE.

KEYED NOTES:

1. DE-ENERGIZE AND REMOVE TANK LEVEL INDICATOR, LEAK DETECTION, FUEL PUMPS. ETC. COORDINATE REMOVAL WITH SEPTA SYSTEM SAFETY ENVIRONMENTAL DEPARTMENT. REFER TO TRACTION POWER DRAWINGS FOR FUEL TANK REMOVAL.
2. DE-ENERGIZE AND REMOVE DIESEL FUEL OIL PUMP AND ASSOCIATED CONTROLS. COORDINATE REMOVAL WITH SEPTA SYSTEM SAFETY ENVIRONMENTAL DEPARTMENT. REFER TO TRACTION POWER DRAWINGS FOR FUEL TANK REMOVAL.
3. DE-ENERGIZE AND REMOVE EMERGENCY PANEL AND FUSED DISCONNECT.
4. REMOVE ALL RECEPTACLES AND ASSOCIATED WIRE AND CONDUIT BACK TO SOURCE.
5. DE-ENERGIZE AND REMOVE AIR COMPRESSOR CIRCUIT.
6. DE-ENERGIZE AND REMOVE 600V BATTERY CHARGER.
7. DE-ENERGIZE AND REMOVE SUMP PUMP CIRCUIT.



1/E101 ELECTRICAL DEMOLITION POWER BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
DEMOLITION POWER BASEMENT FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E101**
DWG. NO.: 2 OF 17
SHT. NO.: 67 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E101
REV. NO.: ----

STATUS: 50% SUBMISSION

C:\PW\WORKING\PITTD1668091\17AN-E101.DWG

DEMOLITION SCOPE OF WORK:

A. REFER TO DEMOLITION DRAWINGS FOR LIMITS OF DEMOLITION. COORDINATE DISPOSAL OF EQUIPMENT WITH SEPTA. STAGING OF ITEMS FOR DEMOLITION SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. DEMOLITION OF EXISTING TRANSFORMER AND ASSOCIATED CONDUIT AND CIRCUITRY.

C. DEMOLITION OF EXISTING PANELS AND ASSOCIATED CONDUIT AND CIRCUITRY.

D. DEMOLITION OF EXISTING DISCONNECT SWITCHES AND ASSOCIATED CONDUIT AND CIRCUITRY.

E. DEMOLITION OF EXISTING TRANSFER SWITCH AND ASSOCIATED CONDUIT AND CIRCUITRY.

F. DEMOLITION OF EXISTING BATTERY CHARGERS AND ASSOCIATED CONDUIT AND CIRCUITRY.

G. DEMOLITION OF EXISTING BATTERIES AND ASSOCIATED CONDUIT AND CIRCUITRY.

H. DEMOLITION OF EXISTING DROPPING RESISTORS AND ASSOCIATED CONDUIT AND CIRCUITRY.

I. DEMOLITION OF EXISTING BATTERY TANSFER PANEL AND ASSOCIATED CONDUIT AND CIRCUITRY.

J. DEMOLITION OF EXISTING CONDUIT AND CIRCUITRY TO MECHANICAL ITEMS.

K. DEMOLITION OF EXISTING RECEPTACLES AND ASSOCIATED CONDUIT AND CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. DEMOLITION PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. DISCUSS AND COORDINATE ALL UTILITY WORK WITH PECO PRIOR TO COMMENCING ANY UTILITY WORK.
4. OBTAIN AND ADHERE TO PECO'S INSTALLATION GUIDELINES.
5. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
6. CONTACT THE SEPTA PROJECT MANAGER IF ISSUES ARISE IN THE FIELD THAT MAY DISRUPT EXISTING SYSTEMS.
7. REMOVE ALL DEVICES, WIRING, JUNCTION BOXES AND ASSOCIATED APPURTENANCES WITHIN SCOPE OF DEMOLITION.
8. LEGALLY DISPOSE OF DEVICES INDICATED TO BE REMOVED. OFFER EQUIPMENT TO SEPTA AND DISPOSE OF THE EQUIPMENT THAT SEPTA DOES NOT WISH TO RETAIN.
9. COORDINATE WORK CONCERNING EXISTING EQUIPMENT AND SERVICES IN THE BUILDING. COORDINATE REQUIRED POWER INTERRUPTIONS WITH SEPTA PER DIVISION 1 SPECIFICATIONS.
10. EQUIPMENT, PANELS OR DISCONNECT SWITCHES INDICATED TO BE REMOVED SHALL INCLUDE REMOVAL OF ALL CONDUCTORS, INCLUDING CONDUIT AND WIRING, SHALL BE REMOVED BACK TO SOURCE.
11. THE DEMOLITION OF THE EXISTING FIRE ALARM SYSTEM WILL NOT COMMENCE UNTIL THE NEW FIRE ALARM SYSTEM IS FULLY INSTALLED AND ACCEPTED BY THE AUTHORITY HAVING JURISDICTION AND SEPTA.

KEYED NOTES:

1. DE-ENERGIZE AND REMOVE "LIGHTING PANEL 2", 208/120V 3ø, 4W 100A MCB.
2. DE-ENERGIZE AND REMOVE PANEL "PP-2" 208/120V 400A MCB.
3. DE-ENERGIZE AND REMOVE "BATTERY DISTRIBUTION PANEL 2" 225A.
4. DE-ENERGIZE AND REMOVE "LIGHTING PANEL 1", 208/120V, 3ø, 4W, 100A MCB.
5. DE-ENERGIZE AND REMOVE PANEL "PP-1" 208/120V, 3ø, 4W, 400A MCB.
6. DE-ENERGIZE AND REMOVE FIRE ALARM DISCONNECT SWITCH.
7. LOCAL SUPERVISORY CABINET. REFER TO TRACTION POWER WORKSCOPE.
8. DE-ENERGIZE AND REMOVE 130V BATTERY CHARGER RECTIFIER, 50A DC.
9. DE-ENERGIZE AND REMOVE BATTERY TRANSFER PANEL.
10. SCADA TERMINATION CABINET. REFER TO TRACTION POWER WORKSCOPE
11. SCADA CABINET. REFER TO TRACTION POWER WORKSCOPE
12. DE-ENERGIZE AND REMOVE GENERATOR PANEL.
13. DE-ENERGIZE AND REMOVE ALL RECEPTACLES AND ASSOCIATED WIRE AND CONDUIT BACK TO SOURCE.
14. DE-ENERGIZE AND REMOVE ELECTRICITY METERS.
15. DE-ENERGIZE AND REMOVE E.P.O. SWITCH.
16. DE-ENERGIZE AND REMOVE OVERHEAD DOOR MOTOR AND CONTROL.
17. DE-ENERGIZE AND REMOVE ALL DEVICES, EQUIPMENT, WIRE AND CONDUIT IN THIS AREA.
18. DE-ENERGIZE AND REMOVE DISCONNECT SWITCHES.
19. DE-ENERGIZE AND REMOVE GENERATOR BATTERY CHARGER.
20. EQUIPMENT TO BE REMOVED. REFER TO TRACTION POWER WORKSCOPE.
21. EXISTING TABLE TO BE REMOVED.
22. DE-ENERGIZE AND REMOVE POWER TO FIRE ALARM CONTROL PANEL.
23. DE-ENERGIZE AND REMOVE BATTERIES AND 200A BATTERY DISCONNECT SWITCH.
24. DE-ENERGIZE AND REMOVE HEATER CIRCUIT.
25. DE-ENERGIZE AND REMOVE WATER COOLER CIRCUIT.
26. DE-ENERGIZE AND REMOVE WATER HEATER CIRCUIT.
27. DE-ENERGIZE AND REMOVE WATER FOUNTAIN CIRCUIT.
28. DE-ENERGIZE AND REMOVE WINDOW AC UNIT CIRCUIT.
29. DE-ENERGIZE AND REMOVE RADIANT HEATER CIRCUIT.
30. DE-ENERGIZE AND REMOVE DROPPING RESISTORS.

1 E102 ELECTRICAL DEMOLITION POWER FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

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CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
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DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

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CHADDS FORD, PA 19317
PHONE: 610.872.7600
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
DEMOLITION POWER FIRST FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM

WORK ORDER NO.: 276491

SHEET NUMBER
E102

DWG. NO.:	3	OF	17
SHT. NO.:	68	OF	452

ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-E102
REV. NO.: -----

STATUS: 50% SUBMISSION

C:\PWWORKING\PITTD\D16880\917\17AN-E102.DWG

DEMOLITION SCOPE OF WORK:

A. REFER TO DEMOLITION DRAWINGS FOR LIMITS OF DEMOLITION. COORDINATE DISPOSAL OF EQUIPMENT WITH SEPTA. STAGING OF ITEMS FOR DEMOLITION SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. DEMOLITION OF EXISTING TRANSFORMER AND ASSOCIATED CONDUIT AND CIRCUITRY.

C. DEMOLITION OF EXISTING PANELS AND ASSOCIATED CONDUIT AND CIRCUITRY.

D. DEMOLITION OF EXISTING DISCONNECT SWITCHES AND ASSOCIATED CONDUIT AND CIRCUITRY.

E. DEMOLITION OF EXISTING TRANSFER SWITCH AND ASSOCIATED CONDUIT AND CIRCUITRY.

F. DEMOLITION OF EXISTING BATTERY CHARGERS AND ASSOCIATED CONDUIT AND CIRCUITRY.

G. DEMOLITION OF EXISTING BATTERIES AND ASSOCIATED CONDUIT AND CIRCUITRY.

H. DEMOLITION OF EXISTING BATTERY RESISTOR AND ASSOCIATED CONDUIT AND CIRCUITRY.

I. DEMOLITION OF EXISTING BATTERY SELECTOR PANEL AND ASSOCIATED CONDUIT AND CIRCUITRY.

J. DEMOLITION OF EXISTING CONDUIT AND CIRCUITRY TO MECHANICAL ITEMS.

K. DEMOLITION OF EXISTING RECEPTACLES AND ASSOCIATED CONDUIT AND CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. DEMOLITION PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. DISCUSS AND COORDINATE ALL UTILITY WORK WITH PECO PRIOR TO COMMENCING ANY UTILITY WORK.
4. OBTAIN AND ADHERE TO PECO'S INSTALLATION GUIDELINES.
5. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
6. CONTACT THE SEPTA PROJECT MANAGER IF ISSUES ARISE IN THE FIELD THAT MAY DISRUPT EXISTING SYSTEMS.
7. REMOVE ALL DEVICES, WIRING, JUNCTION BOXES AND ASSOCIATED APPURTENANCES WITHIN SCOPE OF DEMOLITION.
8. LEGALLY DISPOSE OF DEVICES INDICATED TO BE REMOVED. OFFER EQUIPMENT TO SEPTA AND DISPOSE OF THE EQUIPMENT THAT SEPTA DOES NOT WISH TO RETAIN.
9. COORDINATE WORK CONCERNING EXISTING EQUIPMENT AND SERVICES IN THE BUILDING. COORDINATE REQUIRED POWER INTERRUPTIONS WITH SEPTA PER DIVISION 1 SPECIFICATIONS.
10. EQUIPMENT, PANELS OR DISCONNECT SWITCHES INDICATED TO BE REMOVED SHALL INCLUDE REMOVAL OF ALL CONDUCTORS, INCLUDING CONDUIT AND WIRING, SHALL BE REMOVED BACK TO SOURCE.

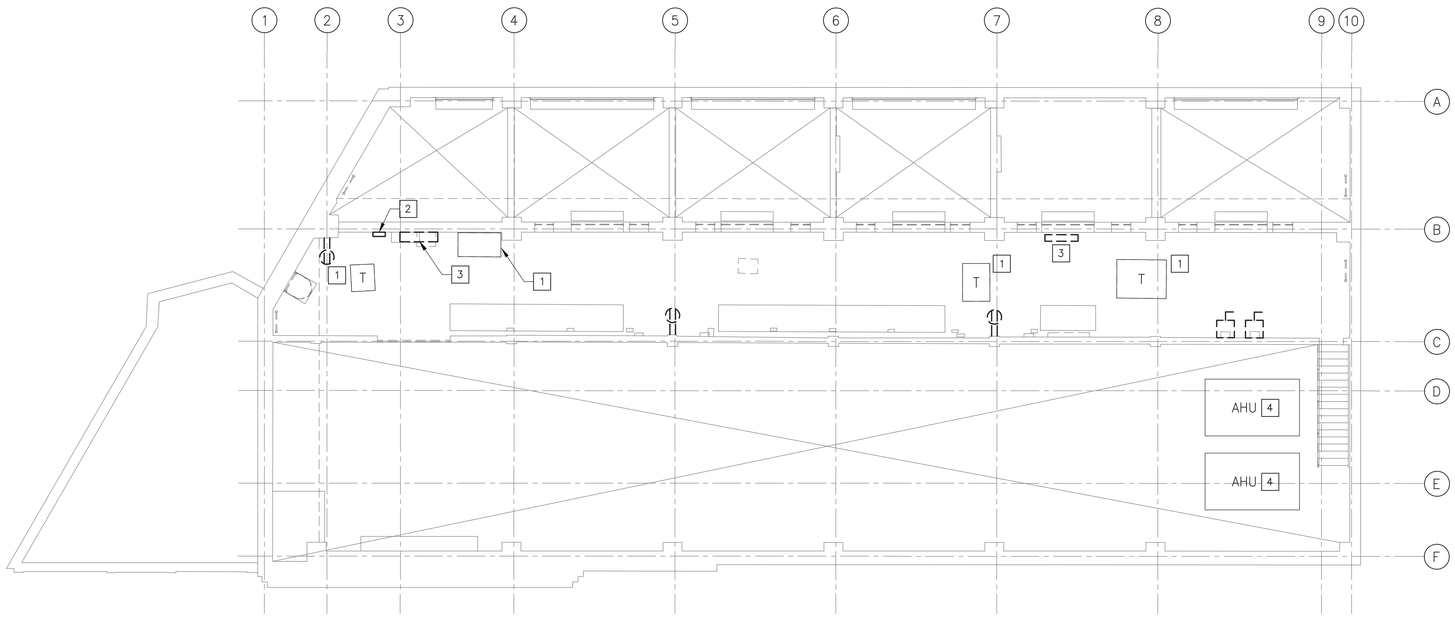
KEYED NOTES:

[1] EQUIPMENT TO BE REMOVED. REFER TO TRACTION POWER WORKSCOPE.

[2] DE-ENERGIZE AND REMOVE 400A ENCLOSED CIRCUIT BREAKER.

[3] DE-ENERGIZE AND REMOVE 400A ATS #1 AND #2.

[4] DE-ENERGIZE AND REMOVE AIR HANDLING UNIT CIRCUIT.



1 / E103 ELECTRICAL DEMOLITION POWER MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
ELECTRICAL
DEMOLITION POWER MEZZANINE FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM

WORK ORDER NO.: 276491

SHEET NUMBER
E103

DWG. NO.: 4 OF 17
SHT. NO.: 69 OF 452
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-E103
REV. NO.: ----

STATUS: 50% SUBMISSION

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DEMOLITION SCOPE OF WORK:

A. REFER TO DEMOLITION DRAWINGS FOR LIMITS OF DEMOLITION. COORDINATE DISPOSAL OF EQUIPMENT WITH SEPTA. STAGING OF ITEMS FOR DEMOLITION SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. DEMOLITION OF EXISTING INTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CONDUIT AND CIRCUITRY.

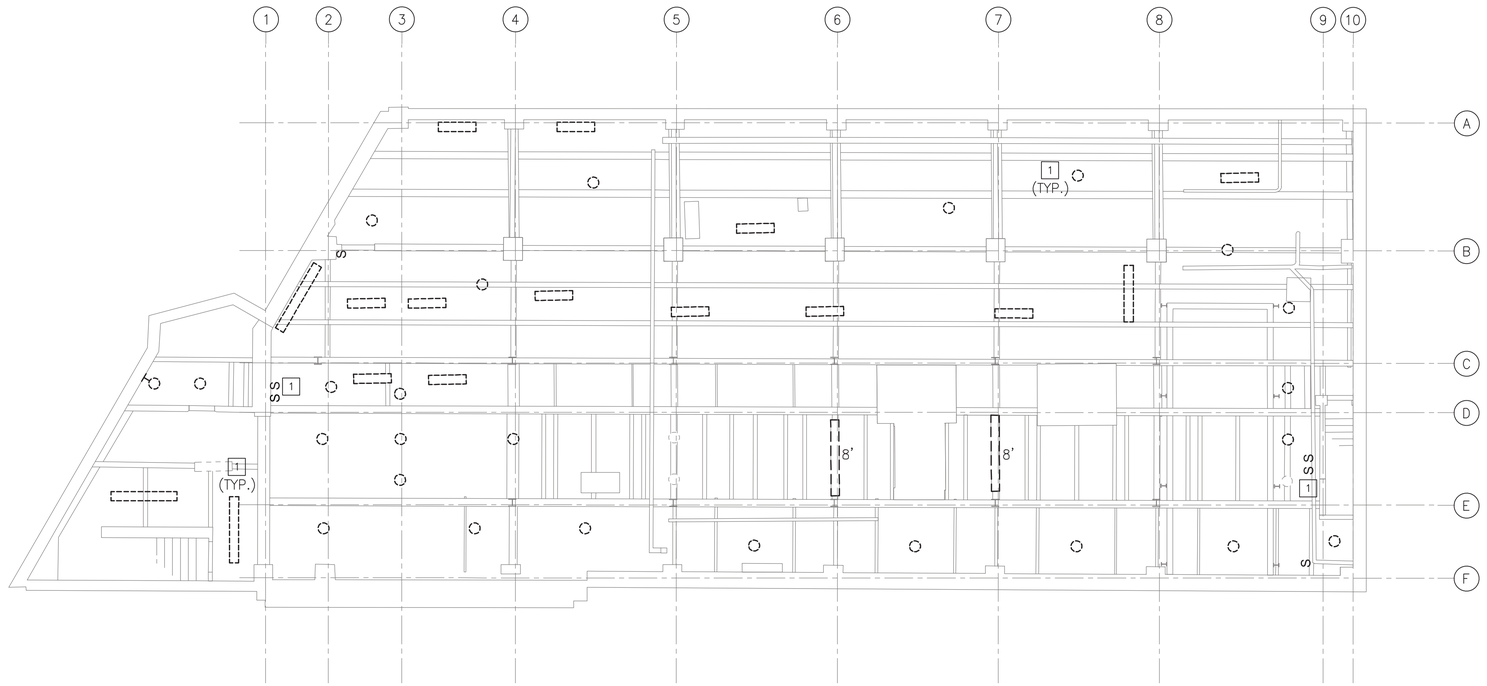
C. DEMOLITION OF EXISTING EXTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CONDUIT AND CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. DEMOLITION PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. DISCUSS AND COORDINATE ALL UTILITY WORK WITH PECO PRIOR TO COMMENCING ANY UTILITY WORK.
4. OBTAIN AND ADHERE TO PECO'S INSTALLATION GUIDELINES.
5. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
6. CONTACT THE SEPTA PROJECT MANAGER IF ISSUES ARISE IN THE FIELD THAT MAY DISRUPT EXISTING SYSTEMS.
7. REMOVE ALL DEVICES, WIRING, JUNCTION BOXES AND ASSOCIATED APPURTENANCES WITHIN SCOPE OF DEMOLITION.
8. LEGALLY DISPOSE OF DEVICES INDICATED TO BE REMOVED. OFFER EQUIPMENT TO SEPTA AND DISPOSE OF THE EQUIPMENT THAT SEPTA DOES NOT WISH TO RETAIN.
9. COORDINATE WORK CONCERNING EXISTING EQUIPMENT AND SERVICES IN THE BUILDING. COORDINATE REQUIRED POWER INTERRUPTIONS WITH SEPTA PER DIVISION 1 SPECIFICATIONS.
10. EQUIPMENT, PANELS OR DISCONNECT SWITCHES INDICATED TO BE REMOVED SHALL INCLUDE THE REMOVAL OF ALL CONDUCTORS, INCLUDING CONDUIT AND WIRING, SHALL BE REMOVED BACK TO SOURCE.

KEYED NOTES:

[1] DE-ENERGIZE AND REMOVE LIGHTING FIXTURES AND SWITCHES. REMOVE ALL WIRE AND CONDUIT BACK TO SOURCE.



1/E104 ELECTRICAL DEMOLITION LIGHTING BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
DEMOLITION LIGHTING BASEMENT FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E104**
DWG. NO.: 5 OF 17
SHT. NO.: 69 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E104
REV. NO.: ----

STATUS: 50% SUBMISSION

C:\PW\WORKING\PITTD\16880911\17AN-E104.DWG

DEMOLITION SCOPE OF WORK:

A. REFER TO DEMOLITION DRAWINGS FOR LIMITS OF DEMOLITION. COORDINATE DISPOSAL OF EQUIPMENT WITH SEPTA. STAGING OF ITEMS FOR DEMOLITION SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. DEMOLITION OF EXISTING INTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CONDUIT AND CIRCUITRY.

C. DEMOLITION OF EXISTING EXTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CONDUIT AND CIRCUITRY.

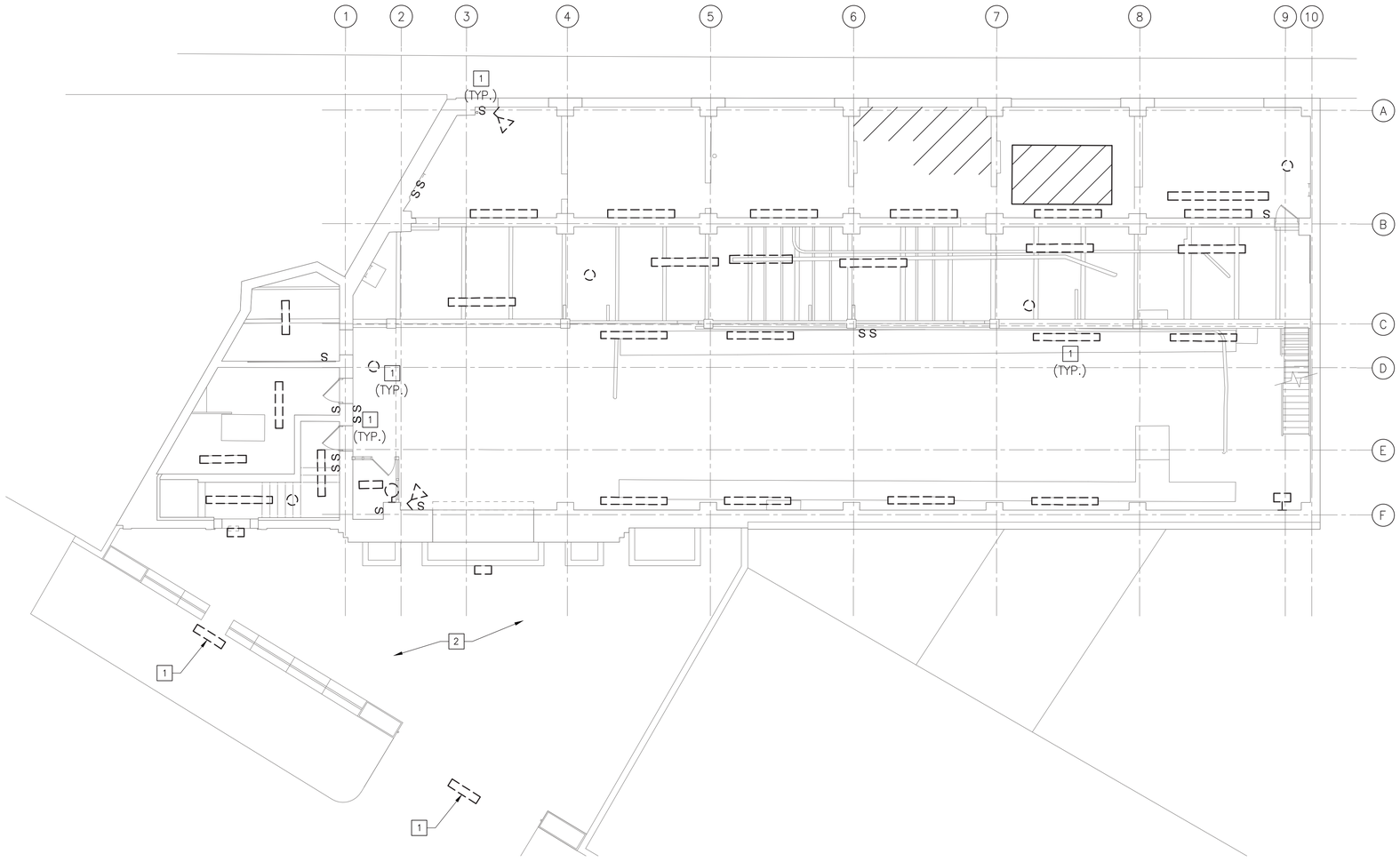
GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. DEMOLITION PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. DISCUSS AND COORDINATE ALL UTILITY WORK WITH PECO PRIOR TO COMMENCING ANY UTILITY WORK.
4. OBTAIN AND ADHERE TO PECO'S INSTALLATION GUIDELINES.
5. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
6. CONTACT THE SEPTA PROJECT MANAGER IF ISSUES ARISE IN THE FIELD THAT MAY DISRUPT EXISTING SYSTEMS.
7. REMOVE ALL DEVICES, WIRING, JUNCTION BOXES AND ASSOCIATED APPURTENANCES WITHIN SCOPE OF DEMOLITION.
8. LEGALLY DISPOSE OF DEVICES INDICATED TO BE REMOVED. OFFER EQUIPMENT TO SEPTA AND DISPOSE OF THE EQUIPMENT THAT SEPTA DOES NOT WISH TO RETAIN.
9. COORDINATE WORK CONCERNING EXISTING EQUIPMENT AND SERVICES IN THE BUILDING. COORDINATE REQUIRED POWER INTERRUPTIONS WITH SEPTA PER DIVISION 1 SPECIFICATIONS.
10. EQUIPMENT, PANELS OR DISCONNECT SWITCHES INDICATED TO BE REMOVED SHALL INCLUDE THE REMOVAL OF ALL CONDUCTORS, INCLUDING CONDUIT AND WIRING, SHALL BE REMOVED BACK TO SOURCE.

KEYED NOTES:

[1] DE-ENERGIZE AND REMOVE LIGHTING FIXTURES AND SWITCHES. REMOVE ALL WIRE AND CONDUIT BACK TO SOURCE.

[2] DE-ENERGIZE AND REMOVE ALL LIGHTS, SWITCHES, WIRE AND CONDUIT IN THIS AREA.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DEMOLITION SCOPE OF WORK:

A. REFER TO DEMOLITION DRAWINGS FOR LIMITS OF DEMOLITION. COORDINATE DISPOSAL OF EQUIPMENT WITH SEPTA. STAGING OF ITEMS FOR DEMOLITION SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. DEMOLITION OF EXISTING INTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CONDUIT AND CIRCUITRY.

C. DEMOLITION OF EXISTING EXTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CONDUIT AND CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. DEMOLITION PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. DISCUSS AND COORDINATE ALL UTILITY WORK WITH PECO PRIOR TO COMMENCING ANY UTILITY WORK.
4. OBTAIN AND ADHERE TO PECO'S INSTALLATION GUIDELINES.
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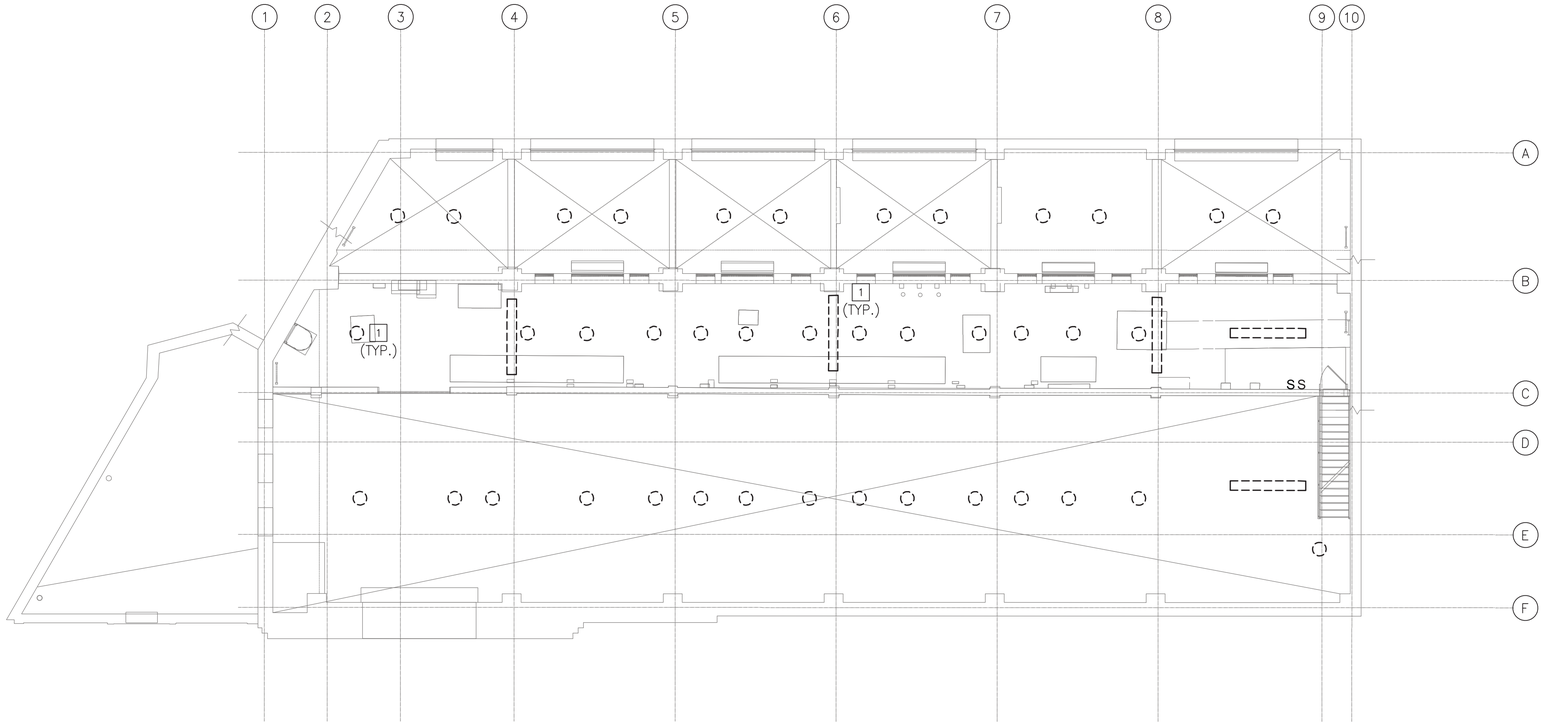
10. EQUIPMENT, PANELS OR DISCONNECT SWITCHES INDICATED TO THE REMOVED SHALL INCLUDE THE REMOVAL OF ALL CONDUCTORS, INCLUDING CONDUIT AND WIRING, SHALL BE REMOVED BACK TO SOURCE.

KEYED NOTES:

[1] DE-ENERGIZE AND REMOVE LIGHTING FIXTURES AND SWITCHES. REMOVE ALL WIRE AND CONDUIT BACK TO SOURCE.



1 / E106 ELECTRICAL DEMOLITION LIGHTING MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTID\6889091\17AN-E106.DWG

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
DEMOLITION LIGHTING MEZZANINE FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E106**
DWG. NO.: 7 OF 17
SHT. NO.: 71 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E106
REV. NO.: ----

STATUS: 50% SUBMISSION

PROPOSED SCOPE OF WORK:

A. REFER TO PROPOSED DRAWINGS FOR NEW WORK. STAGING OF NEW WORK SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. NEW TRANSFORMER AND ASSOCIATED CIRCUITRY.

C. NEW PANELS AND ASSOCIATED CIRCUITRY.

D. NEW DISCONNECT SWITCHES AND ASSOCIATED CIRCUITRY.

E. NEW TRANSFER SWITCHES AND ASSOCIATED CIRCUITRY.

F. NEW BATTERY CHARGERS AND ASSOCIATED CIRCUITRY.

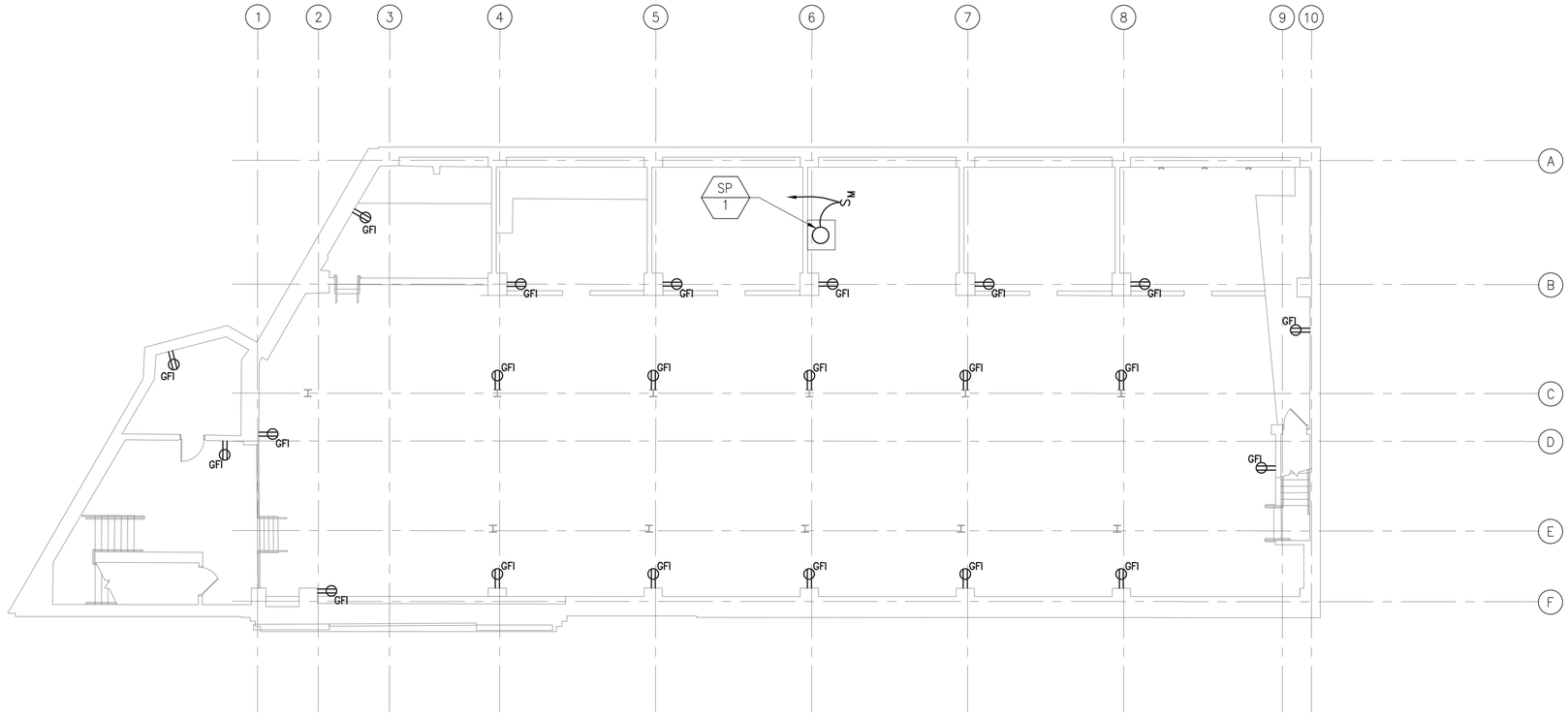
G. NEW BATTERIES AND ASSOCIATED CIRCUITRY.

H. NEW CIRCUITRY TO MECHANICAL ITEMS.

I. NEW RECEPTACLES AND ASSOCIATED CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
4. EXISTING DISTRIBUTION GEAR SHALL REMAIN ENERGIZED UNTIL ALL NEW FEEDERS ARE READY FOR CUT OVER.
5. REFER TO PANEL SCHEDULES ON DRAWING E116 FOR ADDITIONAL REQUIREMENTS.
6. PROVIDE COMPLETE AND ACCURATE CIRCUIT DIRECTORIES FOR ALL NEW PANELS AFTER NEW WORK IS COMPLETE.
7. COORDINATE ALL INTERCONNECTIONS TO MECHANICAL EQUIPMENT WITH TRADE CONTRACTOR PRIOR TO COMMENCING WORK.
8. ALL INTERIOR RECEPTACLES SHALL BE GFCI TYPE AND MOUNTED AT 36" AFF UNLESS OTHERWISE INDICATED.
9. ALL EXTERIOR RECEPTACLES SHALL BE GFCI TYPE MOUNTED IN A WEATHERPROOF GANG BOX, AND MOUNTED AT 48" AFG UNLESS OTHERWISE INDICATED.



1 / E107 ELECTRICAL PROPOSED POWER BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PWWORKINGSPITTID\66909\17AN-E107.DWG

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
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MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

ARORA ENGINEERS
ARORA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
PROPOSED POWER BASEMENT FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB / CHECKED BY: CJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **E107**	
DWG. NO.: 8 OF 17	
SHT. NO.: 72 OF 453	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-E107	REV. NO.: ---

STATUS: 50% SUBMISSION

PROPOSED SCOPE OF WORK:

A. REFER TO PROPOSED DRAWINGS FOR NEW WORK. STAGING OF NEW WORK SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. NEW TRANSFORMER AND ASSOCIATED CIRCUITRY.

C. NEW PANELS AND ASSOCIATED CIRCUITRY.

D. NEW DISCONNECT SWITCHES AND ASSOCIATED CIRCUITRY.

E. NEW TRANSFER SWITCHES AND ASSOCIATED CIRCUITRY.

F. NEW BATTERY CHARGERS AND ASSOCIATED CIRCUITRY.

G. NEW BATTERIES AND ASSOCIATED CIRCUITRY.

H. NEW CIRCUITRY TO MECHANICAL ITEMS.

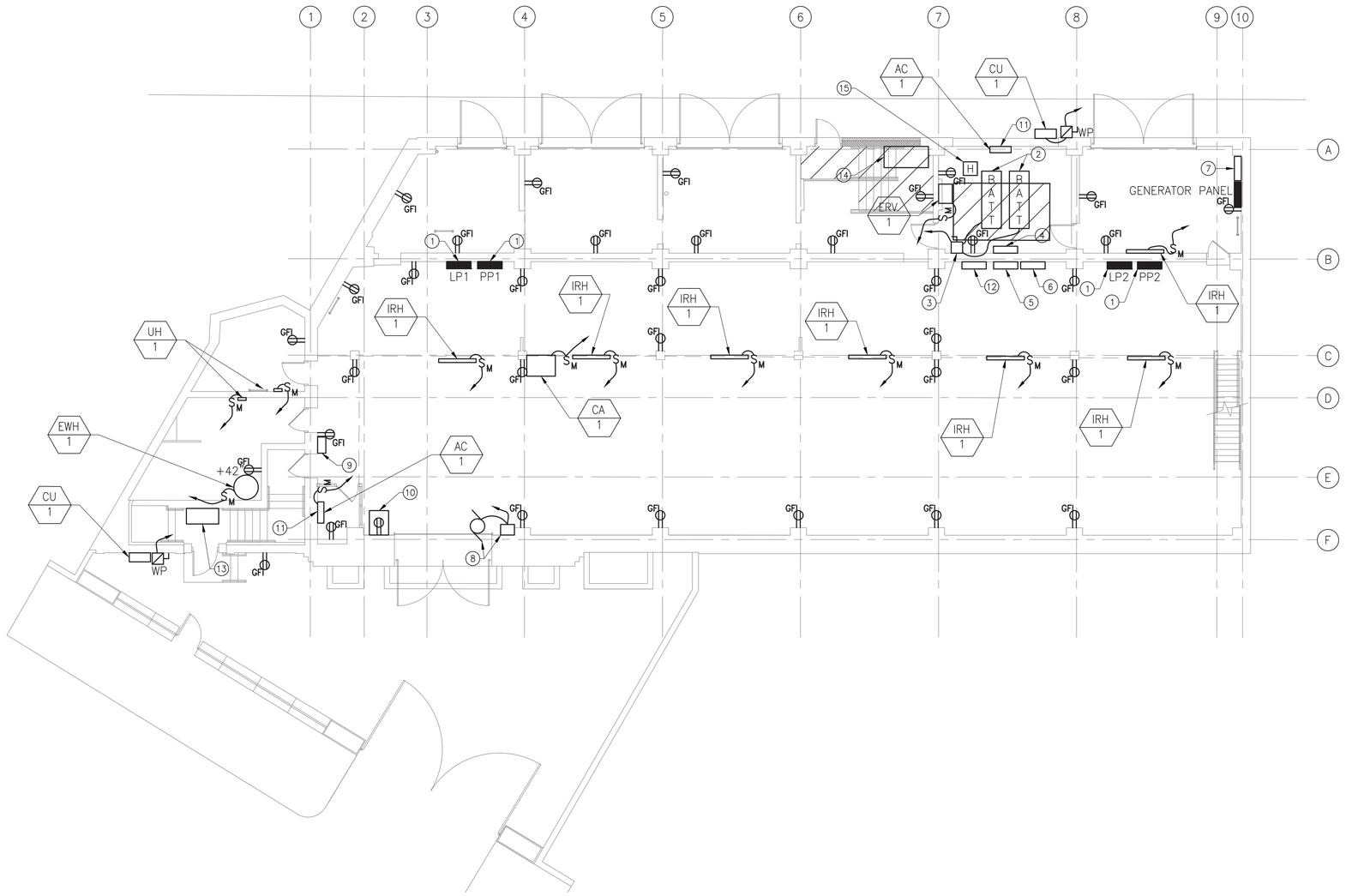
I. NEW RECEPTACLES AND ASSOCIATED CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
4. EXISTING DISTRIBUTION GEAR SHALL REMAIN ENERGIZED UNTIL ALL NEW FEEDERS ARE READY FOR CUT OVER.
5. REFER TO PANEL SCHEDULES ON DRAWING E116 FOR ADDITIONAL REQUIREMENTS.
6. PROVIDE COMPLETE AND ACCURATE CIRCUIT DIRECTORIES FOR ALL NEW PANELS AFTER NEW WORK IS COMPLETE.
7. COORDINATE ALL CONNECTIONS TO MECHANICAL EQUIPMENT WITH TRADE CONTRACTOR PRIOR TO COMMENCING WORK.
8. ALL INTERIOR RECEPTACLES SHALL BE GFCI TYPE AND MOUNTED AT 36" AFF UNLESS OTHERWISE INDICATED.
9. ALL EXTERIOR RECEPTACLES SHALL BE GFCI TYPE MOUNTED IN A WEATHERPROOF GANG BOX, AND MOUNTED AT 48" AFG UNLESS OTHERWISE INDICATED.

KEYED NOTES:

1. FURNISH AND INSTALL PANELS. REFER TO PANEL SCHEDULES ON DRAWING E116.
2. FURNISH AND INSTALL BATTERIES AND BATTERY RACKS.
3. FURNISH AND INSTALL BATTERY FUSED DISCONNECT SWITCH.
4. FURNISH AND INSTALL 125V DC PANEL.
5. FURNISH AND INSTALL BATTERY TRANSFER PANEL.
6. FURNISH AND INSTALL BATTERY CHARGER.
7. FURNISH AND INSTALL GENERATOR BATTERY CHARGER.
8. FURNISH AND INSTALL OVERHEAD DOOR AND CONTROLLER.
9. INTRUSION DETECTION SYSTEM PANEL. REFER TO COMMUNICATIONS WORKSCOPE.
10. FIBER OPTIC INTERCONNECTION CABINET. REFER TO COMMUNICATIONS WORKSCOPE.
11. AC-1 IS POWERED FROM CIRCUIT SUPPLYING CU-1.
12. FURNISH AND INSTALL DROPPING RESISTORS.
13. FURNISH AND INSTALL 1P/20A 120V CIRCUIT TO FIRE ALARM CONTROL PANEL.
14. FURNISH AND INSTALL WORKBENCH.
15. FURNISH AND INSTALL HYDROGEN GAS DETECTION SYSTEM.



1 E108 ELECTRICAL PROPOSED POWER FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTD1\68909\17AN-E108.DWG

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
PROPOSED POWER FIRST FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E108**
DWG. NO.: 9 OF 17
SHT. NO.: 73 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E108
REV. NO.: ---

STATUS: 50% SUBMISSION

PROPOSED SCOPE OF WORK:

A. REFER TO PROPOSED DRAWINGS FOR NEW WORK. STAGING OF NEW WORK SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. NEW TRANSFORMER AND ASSOCIATED CIRCUITRY.

C. NEW PANELS AND ASSOCIATED CIRCUITRY.

D. NEW DISCONNECT SWITCHES AND ASSOCIATED CIRCUITRY.

E. NEW TRANSFER SWITCHES AND ASSOCIATED CIRCUITRY.

F. NEW BATTERY CHARGERS AND ASSOCIATED CIRCUITRY.

G. NEW BATTERIES AND ASSOCIATED CIRCUITRY.

H. NEW CIRCUITRY TO MECHANICAL ITEMS.

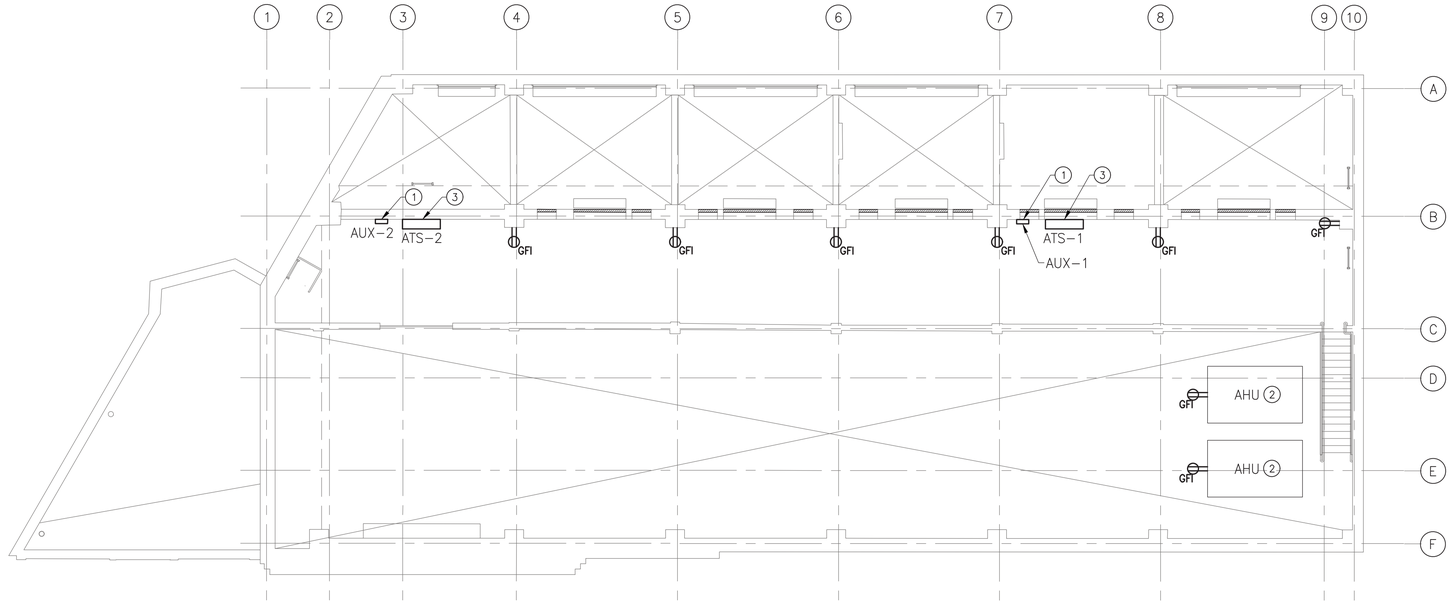
I. NEW RECEPTACLES AND ASSOCIATED CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
4. EXISTING DISTRIBUTION GEAR SHALL REMAIN ENERGIZED UNTIL ALL NEW FEEDERS ARE READY FOR CUT OVER.
5. REFER TO PANEL SCHEDULES ON DRAWING E116 FOR ADDITIONAL REQUIREMENTS.
6. PROVIDE COMPLETE AND ACCURATE CIRCUIT DIRECTORIES FOR ALL NEW PANELS AFTER NEW WORK IS COMPLETE.
7. COORDINATE ALL INTERCONNECTIONS TO MECHANICAL EQUIPMENT WITH TRADE CONTRACTOR PRIOR TO COMMENCING WORK.
8. ALL INTERIOR RECEPTACLES SHALL BE GFCI TYPE AND MOUNTED AT 36" AFF UNLESS OTHERWISE INDICATED.
9. ALL EXTERIOR RECEPTACLES SHALL BE GFCI TYPE MOUNTED IN A WEATHERPROOF GANG BOX, AND MOUNTED AT 48" AFG UNLESS OTHERWISE INDICATED.

KEYED NOTES:

1. FURNISH AND INSTALL SECONDARY 400A, 208V, 3Ø ENCLOSED CIRCUIT BREAKER.
2. FURNISH AND INSTALL CONNECTIONS TO TWO (2) EXISTING AIR HANDLING UNITS SUSPENDED FROM ROOF. FURNISH AND INSTALL 3P/100A DISCONNECT AT EACH UNIT. PROVIDE 120V/20A DUPLEX RECEPTACLE AT EACH UNIT.
3. FURNISH AND INSTALL 400A AUTOMATIC TRANSFER SWITCH.



1 / E109 ELECTRICAL PROPOSED POWER MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'–0"

8 6 4 2 0 8
SCALE: 1/8"=1'–0"

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
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FAX 610.485.7960

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
PROPOSED POWER MEZZANINE FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E109**
DWG. NO.: 10 OF 17
SHT. NO.: 75 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E109
REV. NO.: ----

STATUS: 50% SUBMISSION

C:\PW\WORKING\PITTID\16890\9117AN-E109.DWG

PROPOSED SCOPE OF WORK:

A. REFER TO PROPOSED DRAWINGS FOR NEW WORK. STAGING OF NEW WORK SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. NEW INTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CIRCUITRY.

C. NEW EXTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
4. REFER TO PANEL SCHEDULES ON DRAWING E116 FOR ADDITIONAL REQUIREMENTS.
5. PROVIDE COMPLETE AND ACCURATE CIRCUIT DIRECTORIES FOR ALL NEW PANELS AFTER NEW WORK IS COMPLETE.
6. REFER TO LUMINAIRE SCHEDULE ON DRAWING E115.

1 / E110 ELECTRICAL PROPOSED LIGHTING BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
PROPOSED LIGHTING BASEMENT FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E110**
DWG. NO.: 11 OF 17
SHT. NO.: 76 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E110
REV. NO.: ----

STATUS: 50% SUBMISSION

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PROPOSED SCOPE OF WORK:

A. REFER TO PROPOSED DRAWINGS FOR NEW WORK. STAGING OF NEW WORK SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. NEW INTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CIRCUITRY.

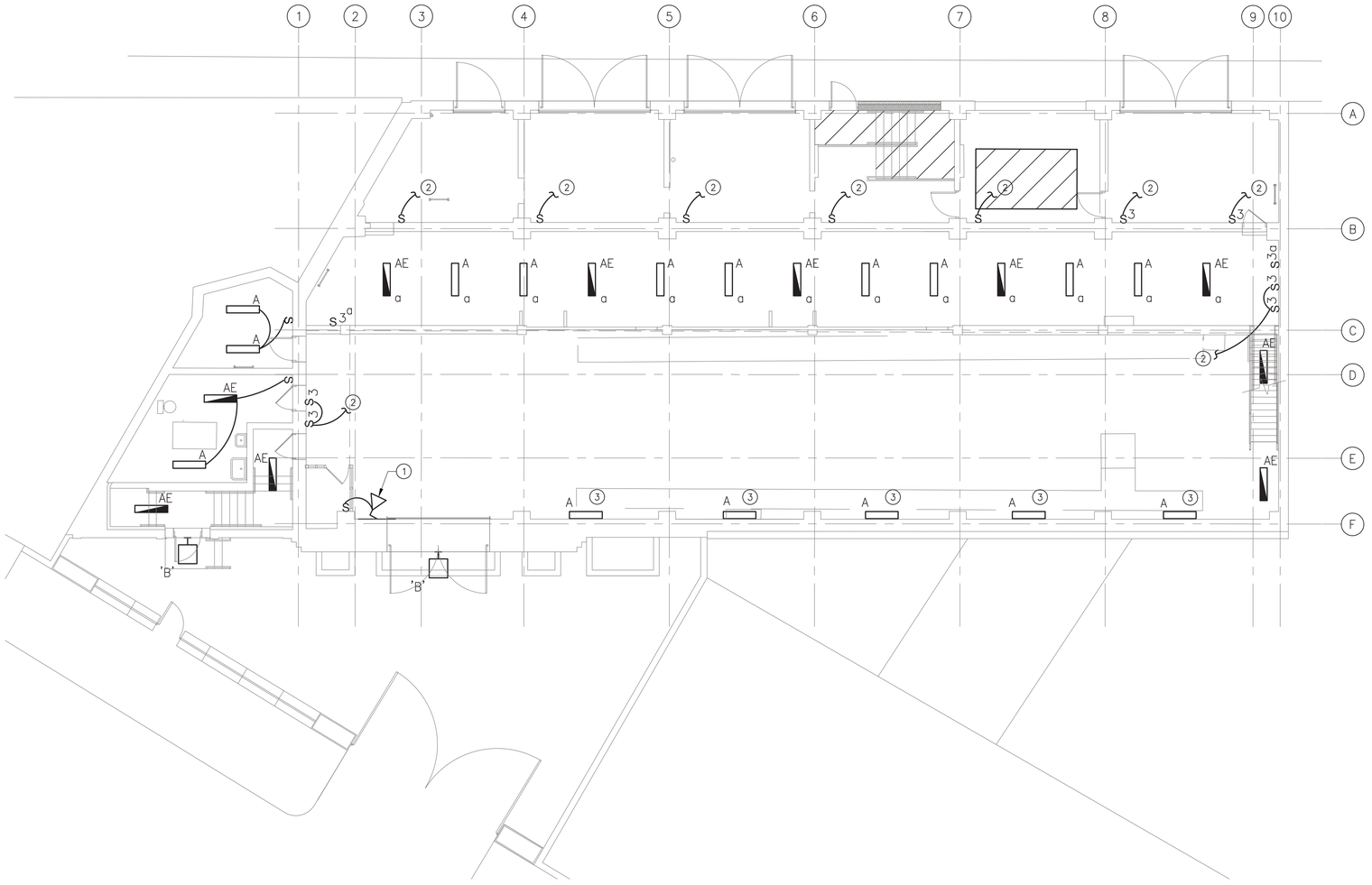
C. NEW EXTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
4. REFER TO PANEL SCHEDULES ON DRAWING E116 FOR ADDITIONAL REQUIREMENTS.
5. PROVIDE COMPLETE AND ACCURATE CIRCUIT DIRECTORIES FOR ALL NEW PANELS AFTER NEW WORK IS COMPLETE.
6. REFER TO LUMINAIRE SCHEDULE ON DRAWING E115.

KEYED NOTES:

1. FURNISH AND INSTALL LOADING DOCK LIGHT.
2. TO LIGHT FIXTURES ABOVE. REFER TO DRAWING E112.
3. WALL MOUNT AT 8'-0" AFF.



1 / E111 ELECTRICAL PROPOSED LIGHTING FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
PROPOSED LIGHTING FIRST FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **E111**	
DWG. NO.: 12 OF 17	
SHT. NO.: 77 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-E111	REV. NO.: ----

STATUS: 50% SUBMISSION

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PROPOSED SCOPE OF WORK:

A. REFER TO PROPOSED DRAWINGS FOR NEW WORK. STAGING OF NEW WORK SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY AND ENSURING SEAMLESS OPERATIONS OF EQUIPMENT.

B. NEW INTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CIRCUITRY.

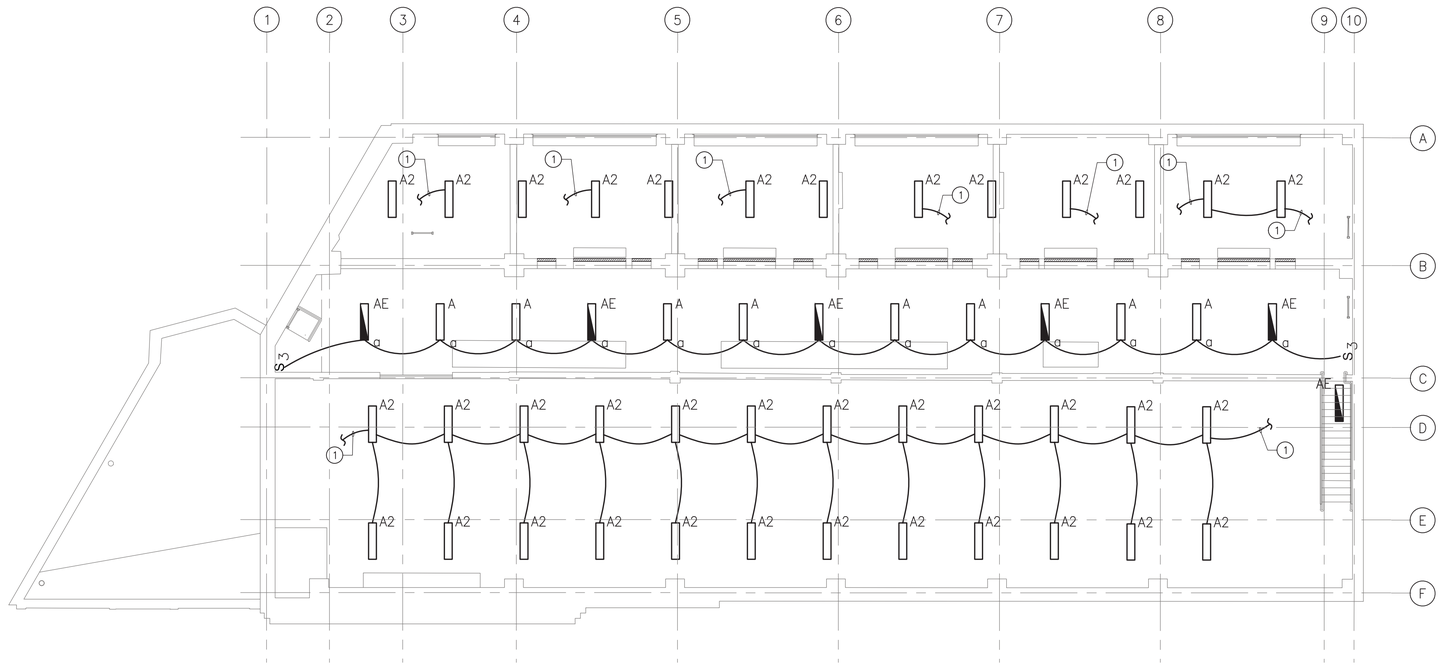
C. NEW EXTERIOR LIGHTING AND ASSOCIATED SWITCHING AND CIRCUITRY.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATIONS REFER TO DRAWING E100.
2. PLAN IS DIAGRAMMATIC. FIELD VERIFY EXACT LOCATIONS AND DIMENSIONS.
3. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING POWER DISTRIBUTION SYSTEMS.
4. REFER TO PANEL SCHEDULES ON DRAWING E116 FOR ADDITIONAL REQUIREMENTS.
5. PROVIDE COMPLETE AND ACCURATE CIRCUIT DIRECTORIES FOR ALL NEW PANELS AFTER NEW WORK IS COMPLETE.
6. REFER TO LUMINAIRE SCHEDULE ON DRAWING E115.

KEYED NOTES:

(1) CONTROLLED BY SWITCH BELOW. REFER TO DRAWING E111.



1 / E112 ELECTRICAL PROPOSED LIGHTING MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
PROPOSED LIGHTING MEZZANINE FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB / CHECKED BY: CJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **E112**	
DWG. NO.: 13 OF 17	
SHT. NO.: 78 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-E112	REV. NO.: ---

STATUS: 50% SUBMISSION

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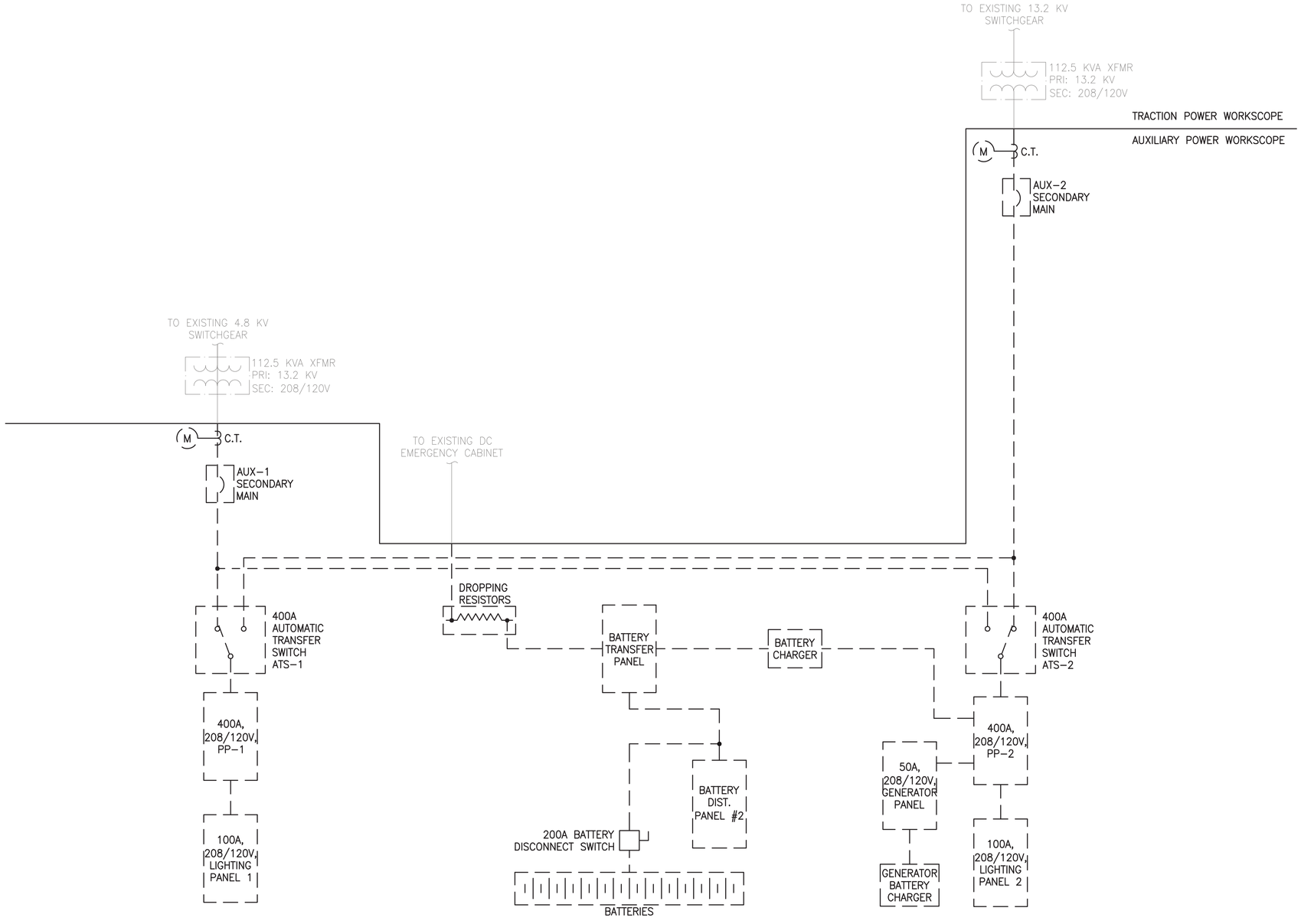
GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATION REFER TO DRAWING E100.



1 E113 ELECTRICAL DEMOLITION SINGLE LINE DIAGRAM
SCALE: NONE

50% SUBMISSION
NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
DEMOLITION SINGLE LINE DIAGRAM

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB CHECKED BY: CJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **E113**	
DWG. NO.: 14 OF 17	
SHT. NO.: 79 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-E113	REV. NO.: ---

STATUS: 50% SUBMISSION

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PROPOSED SCOPE OF WORK:

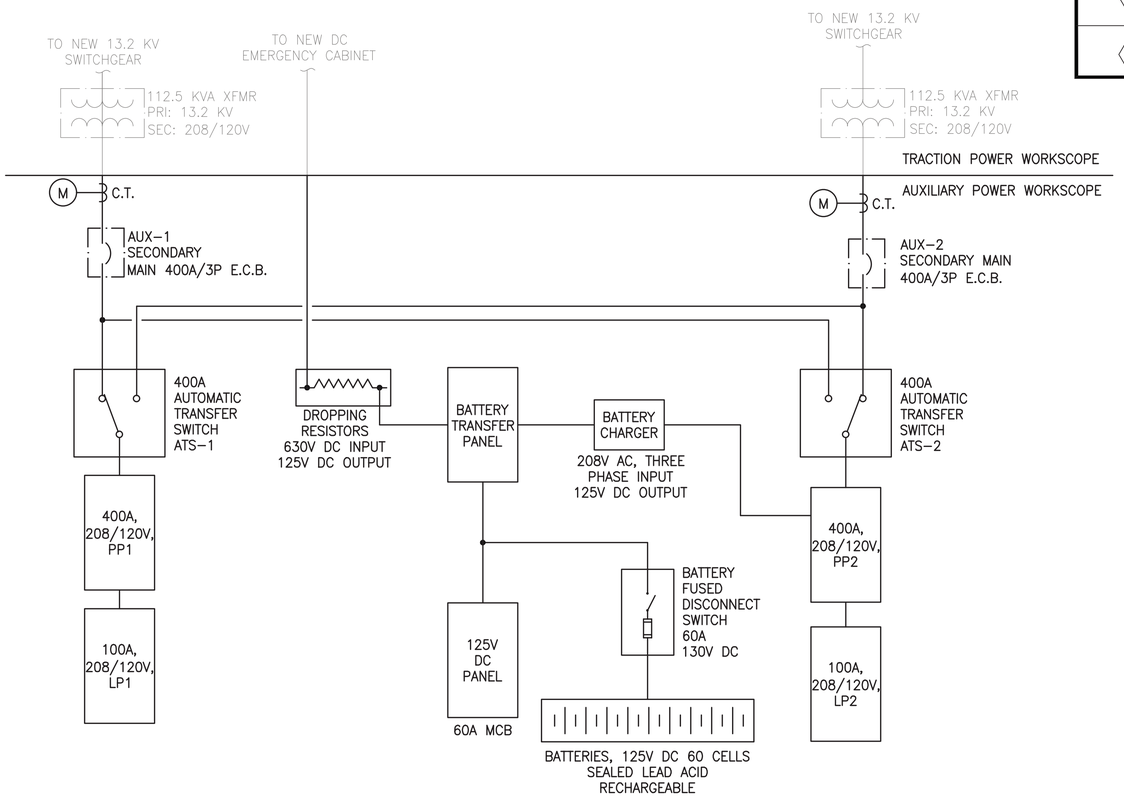
A. REFER TO PROPOSED DRAWINGS FOR NEW WORK. STAGING OF NEW WORK SHALL BE COORDINATED WITH THE SEPTA PROJECT MANAGER TO ENSURE CONTINUITY OF CIRCUITRY AND ENSURING SEAMLESS OPERATION OF EQUIPMENT.

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS AND ABBREVIATION REFER TO DRAWING E100.
2. EXISTING DISTRIBUTION GEAR SHALL REMAIN ENERGIZED UNTIL ALL NEW FEEDERS ARE READY FOR CUT OVER.
3. THE CONTRACTOR SHALL PROVIDE COMPLETE AND ACCURATE CIRCUIT DIRECTORIES FOR ALL NEW PANELS AFTER NEW WORK IS COMPLETED.

FEEDER SCHEDULE

FEEDER NUMBER	QUANTITY OF SETS	QUANTITY OF CONDUCTORS	600 VOLT COPPER CONDUCTOR SIZE	600 VOLT COPPER GROUND CONDUCTOR SIZE	CONDUIT TRADE SIZE	NOTES
1	–	–	–	–	–	–
2	–	–	–	–	–	–
3	–	–	–	–	–	–
4	–	–	–	–	–	–
5	–	–	–	–	–	–
6	–	–	–	–	–	–
7	–	–	–	–	–	–
8	–	–	–	–	–	–
9	–	–	–	–	–	–



1 E114 ELECTRICAL PROPOSED SINGLE LINE DIAGRAM
SCALE: NONE

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
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DIRECTOR OF ENGINEERING - B&B
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FAX 610.485.7960

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
PROPOSED SINGLE LINE DIAGRAM

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E114**
DWG. NO.: 15 OF 17
SHT. NO.: 80 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E114
REV. NO.: ----

STATUS: 50% SUBMISSION

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LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MOUNTING	MANUFACTURER	CATALOG NO.	LAMP INFORMATION			
					TYPE	LAMP QTY	WATTS EACH	VOLTS
'A'	CEILING OR WALL MOUNTED ROUGH SERVICE FIXTURE 4000K, 80CRI, CLEAR POLYCARBONATE LENS, WIDE DISTRIBUTION, INJECTION MOLDED, IMPACT RESISTANT POLYCARBONATE HOUSING	CEILING OR WALL	LITHONIA	VAP-4000LM-PCL-WD-120-GZ10-40K-80CRI-QMB	LED	–	42	120
'AE'	CEILING OR WALL MOUNTED ROUGH SERVICE FIXTURE 4000K, 80CRI, CLEAR POLYCARBONATE LENS, WIDE DISTRIBUTION, INJECTION MOLDED, IMPACT RESISTANT POLYCARBONATE HOUSING, EMERGENCY BATTERY LED DRIVER	CEILING OR WALL	LITHONIA	VAP-4000LM-PCL-WD-120-GZ10-40K-80CRI-QMB -BZL722	LED	–	42	120
'AB'	CEILING MOUNTED ROUGH SERVICE FIXTURE 4000K, 80CRI, CLEAR POLYCARBONATE LENS, WIDE DISTRIBUTION, INJECTION MOLDED, IMPACT RESISTANT POLYCARBONATE HOUSING, HIGH LUMEN OUTPUT	CEILING	LITHONIA	VAP-12000LM-PCL-WD-120-GZ10-40K-80CRI-QMB –	LED	–	107	120
'B'	DIE-CAST ALUMINUM LED WALLPACK FIXTURE, 5000K, GLASS LENS WITH WIRE GUARD, TYPE 3 MEDIUM DISTRIBUTION, INTEGRAL PHOTOCELL	WALL	LITHONIA	TWH LED-20C-1000-50K-T3M-120-PE-TP-WG-DDBXD –	LED	20	72	120
'D'	DOCK LIGHT	WALL	TBD	TBD	–	1	ALL	120
'X'	THERMOPLASTIC EXIT SIGN, EMERGENCY OPERATION, NICKEL-CADMIUM BATTERY, UNIVERSAL MOUNTING KIT, SELF-DIAGNOSTICS, 90-MINUTE CAPACITY FOR EMERGENCY LAMPS	UNIVERSAL	LITHONIA	LQM S W 3 R 120/277 EL N SD –	LED	–	.92	120

50% SUBMISSION
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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
ELECTRICAL SCHEDULES

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E115**
DWG. NO.: 16 OF 17
SHT. NO.: 81 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E115
REV. NO.: ---

DATE PRINTED: 10/21/2025
STATUS: 50% SUBMISSION
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PANEL SCHEDULE

PANEL: PP1 | INTERRUPTING RATING: 22 KAIC | MOUNTING: SURFACE
VOLTAGE: 208Y/120V | PHASE: 3 | WIRE: 4 | BUS AMPS: 400A | MAIN: 400A MCB
NEMA 3R | NEUTRAL: 100% | COPPER GROUND BUS | LOCATION:

CIRCUIT	DESCRIPTION	WIRE	POLES	BKR SIZE	VA	VA / PHASE A	VA / PHASE B	VA / PHASE C	VA	BKR SIZE	POLES	WIRE	DESCRIPTION	CIRCUIT
1	–	–	–	–	0	0			0	–	–	–	–	2
3	–	–	–	–	0		0		0	–	–	–	–	4
5	–	–	–	–	0			0	0	–	–	–	–	6
7	–	–	–	–	0	0			0	–	–	–	–	8
9	–	–	–	–	0		0		0	–	–	–	–	10
11	–	–	–	–	0			0	0	–	–	–	–	12
13	–	–	–	–	0	0			0	–	–	–	–	14
15	–	–	–	–	0		0		0	–	–	–	–	16
17	–	–	–	–	0			0	0	–	–	–	–	18
19	–	–	–	–	0	0			0	–	–	–	–	20
21	–	–	–	–	0		0		0	–	–	–	–	22
23	–	–	–	–	0			0	0	–	–	–	–	24
25	–	–	–	–	0	0			0	–	–	–	–	26
27	–	–	–	–	0		0		0	–	–	–	–	28
29	–	–	–	–	0			0	0	–	–	–	–	30
31	–	–	–	–	0	0			0	–	–	–	–	32
33	–	–	–	–	0		0		0	–	–	–	–	34
35	–	–	–	–	0			0	0	–	–	–	–	36
37	–	–	–	–	0	0			0	–	–	–	–	38
39	–	–	–	–	0		0		0	–	–	–	–	40
41	–	–	–	–	0			0	0	–	–	–	–	42

NOTES:

TOTALS: 0 | 0 | 0
0 VA
0.00 AMPS

PANEL SCHEDULE

PANEL: PP2 | INTERRUPTING RATING: 22 KAIC | MOUNTING: SURFACE
VOLTAGE: 208Y/120V | PHASE: 3 | WIRE: 4 | BUS AMPS: 400A | MAIN: 400A MCB
NEMA 3R | NEUTRAL: 100% | COPPER GROUND BUS | LOCATION:

CIRCUIT	DESCRIPTION	WIRE	POLES	BKR SIZE	VA	VA / PHASE A	VA / PHASE B	VA / PHASE C	VA	BKR SIZE	POLES	WIRE	DESCRIPTION	CIRCUIT
1	–	–	–	–	0	0			0	–	–	–	–	2
3	–	–	–	–	0		0		0	–	–	–	–	4
5	–	–	–	–	0			0	0	–	–	–	–	6
7	–	–	–	–	0	0			0	–	–	–	–	8
9	–	–	–	–	0		0		0	–	–	–	–	10
11	–	–	–	–	0			0	0	–	–	–	–	12
13	–	–	–	–	0	0			0	–	–	–	–	14
15	–	–	–	–	0		0		0	–	–	–	–	16
17	–	–	–	–	0			0	0	–	–	–	–	18
19	–	–	–	–	0	0			0	–	–	–	–	20
21	–	–	–	–	0		0		0	–	–	–	–	22
23	–	–	–	–	0			0	0	–	–	–	–	24
25	–	–	–	–	0	0			0	–	–	–	–	26
27	–	–	–	–	0		0		0	–	–	–	–	28
29	–	–	–	–	0			0	0	–	–	–	–	30
31	–	–	–	–	0	0			0	–	–	–	–	32
33	–	–	–	–	0		0		0	–	–	–	–	34
35	–	–	–	–	0			0	0	–	–	–	–	36
37	–	–	–	–	0	0			0	–	–	–	–	38
39	–	–	–	–	0		0		0	–	–	–	–	40
41	–	–	–	–	0			0	0	–	–	–	–	42

NOTES:

TOTALS: 0 | 0 | 0
0 VA
0.00 AMPS

PANEL SCHEDULE

PANEL: LP1 | INTERRUPTING RATING: 22 KAIC | MOUNTING: SURFACE
VOLTAGE: 208Y/120V | PHASE: 3 | WIRE: 4 | BUS AMPS: 225A | MAIN: 100A MCB
NEMA 3R | NEUTRAL: 100% | COPPER GROUND BUS | LOCATION:

CIRCUIT	DESCRIPTION	WIRE	POLES	BKR SIZE	VA	VA / PHASE A	VA / PHASE B	VA / PHASE C	VA	BKR SIZE	POLES	WIRE	DESCRIPTION	CIRCUIT
1	–	–	–	–	0	0			0	–	–	–	–	2
3	–	–	–	–	0		0		0	–	–	–	–	4
5	–	–	–	–	0			0	0	–	–	–	–	6
7	–	–	–	–	0	0			0	–	–	–	–	8
9	–	–	–	–	0		0		0	–	–	–	–	10
11	–	–	–	–	0			0	0	–	–	–	–	12
13	–	–	–	–	0	0			0	–	–	–	–	14
15	–	–	–	–	0		0		0	–	–	–	–	16
17	–	–	–	–	0			0	0	–	–	–	–	18
19	–	–	–	–	0	0			0	–	–	–	–	20
21	–	–	–	–	0		0		0	–	–	–	–	22
23	–	–	–	–	0			0	0	–	–	–	–	24
25	–	–	–	–	0	0			0	–	–	–	–	26
27	–	–	–	–	0		0		0	–	–	–	–	28
29	–	–	–	–	0			0	0	–	–	–	–	30
31	–	–	–	–	0	0			0	–	–	–	–	32
33	–	–	–	–	0		0		0	–	–	–	–	34
35	–	–	–	–	0			0	0	–	–	–	–	36
37	–	–	–	–	0	0			0	–	–	–	–	38
39	–	–	–	–	0		0		0	–	–	–	–	40
41	–	–	–	–	0			0	0	–	–	–	–	42

NOTES:

TOTALS: 0 | 0 | 0
0 VA
0.00 AMPS

PANEL SCHEDULE

PANEL: LP2 | INTERRUPTING RATING: 22 KAIC | MOUNTING: SURFACE
VOLTAGE: 208Y/120V | PHASE: 3 | WIRE: 4 | BUS AMPS: 225A | MAIN: 100A MCB
NEMA 3R | NEUTRAL: 100% | COPPER GROUND BUS | LOCATION:

CIRCUIT	DESCRIPTION	WIRE	POLES	BKR SIZE	VA	VA / PHASE A	VA / PHASE B	VA / PHASE C	VA	BKR SIZE	POLES	WIRE	DESCRIPTION	CIRCUIT
1	–	–	–	–	0	0			0	–	–	–	–	2
3	–	–	–	–	0		0		0	–	–	–	–	4
5	–	–	–	–	0			0	0	–	–	–	–	6
7	–	–	–	–	0	0			0	–	–	–	–	8
9	–	–	–	–	0		0		0	–	–	–	–	10
11	–	–	–	–	0			0	0	–	–	–	–	12
13	–	–	–	–	0	0			0	–	–	–	–	14
15	–	–	–	–	0		0		0	–	–	–	–	16
17	–	–	–	–	0			0	0	–	–	–	–	18
19	–	–	–	–	0	0			0	–	–	–	–	20
21	–	–	–	–	0		0		0	–	–	–	–	22
23	–	–	–	–	0			0	0	–	–	–	–	24
25	–	–	–	–	0	0			0	–	–	–	–	26
27	–	–	–	–	0		0		0	–	–	–	–	28
29	–	–	–	–	0			0	0	–	–	–	–	30
31	–	–	–	–	0	0			0	–	–	–	–	32
33	–	–	–	–	0		0		0	–	–	–	–	34
35	–	–	–	–	0			0	0	–	–	–	–	36
37	–	–	–	–	0	0			0	–	–	–	–	38
39	–	–	–	–	0		0		0	–	–	–	–	40
41	–	–	–	–	0			0	0	–	–	–	–	42

NOTES:

TOTALS: 0 | 0 | 0
0 VA
0.00 AMPS

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
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MANAGER - ARCH / ENGINEERING
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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
ELECTRICAL
PANEL SCHEDULES

SCALE: AS SHOWN | SCALE FACTOR: 1:1
DATE: 08/22/2025 | DRAWN BY: WAB | CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **E116**
DWG. NO.: 17 OF 17
SHT. NO.: 82 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-E116 | REV. NO.: ----

STATUS: 50% SUBMISSION

C:\PW\WORKING\PITTD1\68909\17AN-E116.DWG

LEGEND-SYMBOLS:

SYMBOL	DESCRIPTION
— — — — —	DEMOLITION WORK
———————	EXISTING WORK
———————	NEW WORK
CM	CONTROL MODULE
MM	MONITORING MODULE
	SMOKE DETECTOR
	HEAT DETECTOR
FACP	FIRE ALARM CONTROL PANEL
F	MANUAL PULLSTATION W/ PROTECTIVE COVER
(##)	FIRE ALARM WALL MOUNTED STROBE, (##) DENOTES CANDELA
(G) (##) (WP)	FIRE ALARM WALL MOUNTED HORN/STROBE, (##) DENOTES CANDELA (G) DENOTES PROTECTIVE GUARD (WP) DENOTES WEATHERPROOF ENCLOSURE

***HEAVY LINEWEIGHTS SHALL REPRESENT NEW WORK/NEW DEVICES.**

*LIGHT/LIGHTER LINEWEIGHTS SHALL REPRESENT EXISTING DEVICES.

ABBREVIATIONS:

A.F.F.	ABOVE FINISHED FLOOR	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
AHJ	AUTHORITY HAVING JURISDICTION	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
AWG	AMERICAN WIRE GAUGE	RGS	RIGID GALVANIZED STEEL
CD	CANDELA	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
CKT	CIRCUIT	SLC	SIGNALING LINE CIRCUIT
CM	CONTROL MODULE	SPK	SPEAKER CIRCUIT
EOL	END OF LINE	SUP	SUPERVISORY
FACP	FIRE ALARM CONTROL PANEL	TBL	TROUBLE
FMC	FLEXIBLE METAL CONDUIT	TS	TAMPER SWITCH
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING	VAC	VOLTAGE – ALTERNATING CURRENT
IBC	INTERNATIONAL BUILDING CODE	VDC	VOLTAGE – DIRECT CURRENT
IDC	INITIATING DEVICE CIRCUIT	WP	WEATHERPROOF
G	PROTECTIVE GUARD		
JB	JUNCTION BOX		
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT		
MIN	MINIMUM		
MM	MONITORING MODULE		
NAC	NOTIFICATION APPLIANCE CIRCUIT		
NEC	NATIONAL ELECTRICAL CODE		

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS AFFECTING THIS PROJECT AND COORDINATE WITH ALL OTHER TRADES.
2. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL CAPACITIES AND LOCATIONS OF EQUIPMENT TO BE REMOVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE TO DETERMINE ACTUAL PHYSICAL SIZE, CAPACITIES AND LOCATIONS OF EXISTING EQUIPMENT TO BE REMOVED.
3. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, COORDINATE ALL REQUIRED EQUIPMENT AND SYSTEMS SHUTDOWN WITH SEPTA, AND PROVIDE SEPTA TWO (2) WEEKS NOTICE OF SAME.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING AS IT MAY APPLY TO THE AREAS OF DEMOLITION, OR MAY BE AFFECTED BY PIPE, DUCTWORK, EQUIPMENT AND APPURTENANCES. PATCH AND REPAIR SHALL MATCH EXISTING BUILDING STRUCTURE.
5. COORDINATE DEMOLITION WORK WITH ALL OTHER TRADES. STAGE WORK IN CONJUNCTION WITH OTHER TRADE STAGING AND STAGING DRAWINGS.
6. THE DEMOLITION/REMOVAL OF ITEMS BY THE CONTRACTOR SHALL BE AS FOLLOWS, UNLESS SPECIFICALLY NOTED OTHERWISE, ITEMS SHOWN IN HEAVY LINEWEIGHT DASHED LINES ON DEMOLITION DRAWINGS ARE EXISTING ITEMS TO BE REMOVED; LIGHT LINEWEIGHT ITEMS ARE EXISTING ITEMS TO REMAIN.

DEMOLITION NOTES (CONT):

7. DEMOLISHED EQUIPMENT/SERVICES WILL BE REMOVED BACK TO THE LIMIT OF DEMOLITION AS INDICATED ON DRAWINGS, OR TO THE NEAREST HEADER OR JUNCTION. PROVIDE CAPS AS NECESSARY.
8. THE CONTRACTOR SHALL FIELD VERIFY OTHER EQUIPMENT/UTILITIES NOT ASSOCIATED WITH THIS WORK BUT LYING WITHIN THE WORK AREA, AND WILL NOT DISTURB THAT EQUIPMENT/UTILITIES. THESE EQUIPMENT/UTILITIES SHALL BE PROTECTED SO THAT THE SERVICE IS NOT INTERRUPTED. THE CONTRACTOR SHALL REPAIR ANY DAMAGE DONE TO THE EQUIPMENT/UTILITIES IN PERFORMANCE OF THE WORK.
9. ALL ITEMS BEING REMOVED SHALL BE TURNED OVER TO SEPTA OR REMOVED FROM SITE AS DIRECTED, UNLESS OTHERWISE DESIGNATED.
10. THE CONTRACTOR SHALL KEEP WORK AREA CLEAN, ORDERLY, AND WORKMAN LIKE, AND REMOVE ALL DEMOLISHED TRASH/RUBBLE/CONSTRUCTION DEBRIS FROM SITE DAILY.
11. UNLESS OTHERWISE INDICATED, DEMOLITION WASTE BECOMES PROPERTY OF THE CONTRACTOR.
12. HISTORIC ITEMS, RELICS, ANTIQUES, AND SIMILAR OBJECTS INCLUDING, BUT NOT LIMITED TO, CORNERSTONES AND THEIR CONTENTS, COMMEMORATIVE PLAQUES AND TABLETS, AND OTHER ITEMS OF INTEREST OR VALUE TO SEPTA THAT MAY BE UNCOVERED DURING DEMOLITION REMAIN THE PROPERTY OF SEPTA. CAREFULLY SALVAGE IN A MANNER TO PREVENT DAMAGE AND PROMPTLY RETURN TO SEPTA.
13. NOTIFY THE SEPTA PROJECT MANAGER OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND DRAWINGS BEFORE PROCEEDING WITH SELECTIVE DEMOLITION.
14. IF SUSPECTED HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB; IMMEDIATELY NOTIFY THE SEPTA PROJECT MANAGER.
15. REVIEW RECORD DOCUMENTS OF EXISTING CONSTRUCTION PROVIDED BY SEPTA. SEPTA DOES NOT GUARANTEE THAT EXISTING CONDITIONS ARE THE SAME AS THOSE INDICATED IN RECORD DOCUMENTS.
16. WHEN UNANTICIPATED ELEMENTS THAT CONFLICT WITH INTENDED FUNCTION OR DESIGN ARE ENCOUNTERED, INVESTIGATE AND MEASURE THE NATURE AND EXTEND OF CONFLICT. PROMPTLY SUBMIT A WRITTEN REPORT TO THE SEPTA PROJECT MANAGER.
17. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
18. PROCEED WITH SELECTIVE DEMOLITION SYSTEMATICALLY, FROM HIGHER TO LOWER LEVEL. COMPLETE SELECTIVE DEMOLITION OPERATIONS ABOVE EACH FLOOR OR TIER BEFORE DISTURBING SUPPORTING MEMBERS ON THE NEXT LOWER LEVEL.
19. NEATLY CUT OPENINGS AND HOLES PLUMB, SQUARE AND TRUE TO DIMENSIONS REQUIRED. USE CUTTING METHODS LEAST LIKELY TO DAMAGE CONSTRUCTION TO REMAIN OR ADJOINING CONSTRUCTION.
20. USE HAND TOOLS OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING AND CHOPPING, TO MINIMIZE DISTURBANCE OF ADJACENT SURFACES. TEMPORARILY COVER OPENINGS TO REMAIN. CUT OR DRILL FROM THE EXPOSED OR FINISHED SIDE INTO CONCEALED SURFACES TO AVOID MARRING EXISTING FINISHED SURFACES.

GENERAL NOTES:

1. ALL WORK INDICATED ON THESE DRAWINGS IS BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.
2. EXISTING CONDITIONS SHOWN ARE BASED ON HISTORICAL DOCUMENTS, CIVIL SURVEYS AND SITE OBSERVATIONS. ALL DIMENSIONS AND CONDITIONS ARE TO BE VERIFIED IN THE FIELD.
3. INSTALL ALL EQUIPMENT WITH ADEQUATE CLEARANCES FOR MAINTENANCE AND SERVICING AND IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND APPLICABLE CODES.

GENERAL NOTES (CONT):

4. FIRE ALARM DEVICES SHALL BE ACCESSIBLE TO ALLOW PERIODIC INSPECTION, CLEANING AND MAINTENANCE. A FIRE ALARM DEVICE SHALL BE CONSIDERED ACCESSIBLE IF IT CAN BE READILY AND SAFELY ACCESSED WITH THE USE OF A LADDER OR A BOOM LIFT.
5. OBTAIN AND PAY FOR ALL PERMITS AND PAY FOR ALL COSTS OF MATERIALS. HANDLE, STORE AND PROTECT ALL EQUIPMENT TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROTECT THE WORK SITE AND ALL WORK AGAINST ANY DAMAGE INCLUDING BUT NOT LIMITED TO WATER, DUST, HEAT, FREEZING ETC. UNTIL FINAL COMPLETION AND ACCEPTANCE BY SEPTA.
6. REFER TO SPECIFICATIONS FOR MATERIALS TO BE USED AND METHODS OF INSTALLATION.
7. SUBMIT EQUIPMENT TAG–OUT METHODS AND PROCEDURES TO THE SEPTA PROJECT MANAGER FOR REVIEW AND APPROVAL. WHERE UTILITIES AND/OR SERVICES REQUIRE SHUTDOWN FOR THE WORK TO BE PERFORMED, NOTIFY THE SEPTA PROJECT MANAGER, IN WRITING, A MINIMUM OF TWO (2) WEEKS PRIOR TO THE REQUESTED SHUTDOWN.
8. STORAGE OF MATERIALS AND/OR EQUIPMENT IS NOT PERMITTED OTHER THAN WITHIN THE LIMITS OF THE STAGING AREA OR CONFINES OF THE PROJECT WORK AREA AND AS APPROVED BY THE SEPTA PROJECT MANAGER.
9. PERFORM ALL WORK IN A NEAT AND WORKMANLIKE MANNER TO THE SATISFACTION OF SEPTA.
10. REMOVE ALL CONSTRUCTION DEBRIS IN ACCORDANCE WITH APPROVED CONSTRUCTION WASTE MANAGEMENT PLAN.
11. CONCEAL CONDUIT OR CABLE EXTENSIONS TO THE GREATEST EXTENT PRACTICABLE. KEEP SURFACE MOUNTED DEVICES, BOXES, AND EXPOSED SURFACE MOUNTED METAL RACEWAYS TO A MINIMUM AND ONLY AS APPROVED IN ADVANCED BY THE SEPTA PROJECT MANAGER. INSTALL EXPOSED HORIZONTAL CONDUIT RUNS SUPPORTED BY OVERHEAD STRUCTURE OR SUPPORTED HIGH ON WALLS.
12. KEEP A COPY OF THE CURRENT SET OF CONTRACT DOCUMENTS WITH THE CONTRACTOR AS–BUILT INFORMATION AT THE JOB SITE AT ALL TIMES.
13. REVIEW ALL PROJECT DOCUMENTS FOR A THOROUGH UNDERSTANDING OF PROJECT AND ANY CROSS REFERENCING OF WORK. REVIEW ALL PROJECT REQUIREMENTS PRIOR TO BIDDING. REPORT ANY DISCREPANCIES BETWEEN DOCUMENTS TO THE SEPTA PROJECT MANAGER PRIOR TO BIDDING.
14. VERIFY ALL DIMENSIONS IN THE FIELD AND REPORT DISCREPANCIES, IF ANY, TO THE SEPTA PROJECT MANAGER FOR CLARIFICATION PRIOR TO STARTING ANY WORK.
15. COORDINATE, PROVIDE AND INSTALL RACEWAY, BACKBOXES, JUNCTION BOXES, PULL BOXES, PULL STRING AND CONDUIT REQUIRED.
16. RESTORE ALL EXISTING WORK DISTURBED BY THE CONSTRUCTION TO ITS PREVIOUS EXISTING CONDITION OR BETTER.
17. PRIOR TO DELIVERY OF ANY MATERIALS TO THE SITE, PROVIDE SAFETY DATA SHEETS FOR ALL REQUIRED ITEMS AND MATERIALS, USED IN THE WORK, TO THE CONTRACTOR.
18. PATCH AND REPAIR ALL OPENINGS LEFT IN EXISTING SURFACES BY THE REMOVAL OF EXISTING SURFACE AND OR SEMI–RECESSED BOXES OR RACEWAYS AND FINISH SUCH AREAS TO MATCH ADJACENT SURFACES.
19. COMPLY WITH ALL SEPTA SAFETY STANDARDS AND INCLUDE ALL COSTS TO TRAIN AND QUALIFY THEIR PERSONNEL IN SEPTA SAFETY STANDARDS.
20. REVIEW POTENTIAL ITEMS FOR SALVAGE AND RETENTION BY SEPTA WITH THE SEPTA PROJECT MANAGER PRIOR TO REMOVAL TO DETERMINE DISPOSITION.
21. COORDINATE LOCATIONS OF EXPANSION JOINTS WITH STRUCTURAL DRAWINGS. FURNISH AND INSTALL UL LISTED EXPANSION JOINT FITTINGS FOR CONDUITS CROSSING EXPANSION JOINTS.
22. SUPPORT ALL CONDUCTORS IN VERTICAL RACEWAYS WITH CONDUIT RISER CABLE GRIPS.
23. COORDINATE INSTALLATION OF FIRE ALARM DEVICES WITH OTHER TRADES.

GENERAL NOTES (CONT):

24. FIRE ALARM DEVICES SHALL NOT BE INSTALLED WHERE THEY CANNOT BE MAINTAINED WITHOUT.
    A. SHUTTING DOWN POWER IN THE TPSS, OR
    B. ENDANGERING A MAINTENANCE TECHNICIAN.
25. CEILING MOUNTED SMOKE DETECTORS TO BE MOUNTED TO UNDERSIDE OF STEEL BEAMS, IF APPLICABLE.
26. THE DEMOLITION OF THE EXISTING FIRE ALARM SYSTEM WILL NOT COMMENCE UNTIL THE NEW FIRE ALARM SYSTEM IS FULLY INSTALLED AND ACCEPTED BY THE AUTHORITY HAVING JURISDICTION AND SEPTA.
27. SPLICING OF WIRES AND USE OF WIRE NUTS IS NOT PERMITTED ANYWHERE IN THE FIRE ALARM SYSTEM.

FIRE ALARM NOTES:

1. THE FIRE ALARM WORK IS BY THE CONTRACTOR AND FIRE ALARM SUB–CONTRACTOR, UNLESS OTHERWISE NOTED.
2. THE FIRE ALARM SYSTEM SCOPE OF WORK INCLUDES THE INSTALLATION AND TESTING OF A NEW FIRE ALARM CONTROL SYSTEM AND INVOLVES THE FOLLOWING:
   A. INSTALLATION OF A NEW FIRE ALARM CONTROL PANEL AND ASSOCIATED WIRING, BACK BOXES, ETC. AND ALL ASSOCIATED APPURTENANCES.
   B. INSTALLATION OF PULL STATIONS AS NEEDED.
   C. INSTALLATION OF HORN STROBES/STROBES TO INCLUDE A BOOSTER POWER SUPPLY AS NEEDED.
   D. INSTALLATION OF HEAT/SMOKE DETECTORS AS NEEDED.
   E. THE DEMOLITION SHALL OCCUR AT THE CONCLUSION OF THE FINAL TESTING AND ACCEPTANCE OF THE NEW FIRE ALARM SYSTEM.
3. THE PROJECT SHALL BE IN ACCORDANCE WITH THE FOLLOWING CODES, STANDARDS, TESTING LABORATORIES AND UNDERWRITING AGENCY:
   A. 2010 CITY OF PHILADELPHIA BUILDING CODE (INTERNATIONAL BUILDING CODE 2009 AS AMENDED).
   B. 2010 CITY OF PHILADELPHIA FIRE CODE.
   C. 2010 CITY OF PHILADELPHIA MECHANICAL CODE.
   D. NFPA 70, NATIONAL ELECTRIC CODE, CURRENT EDITION.
   E. NFPA 72, NATIONAL FIRE ALARM CODE, CURRENT EDITION.
   F. ADAAG, ADA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES, CURRENT EDITION.
   G. ANSI/ASME A17.1, SAFETY CODE FOR ELEVATORS AND ESCALATORS, CURRENT EDITION.
   H. UL LISTED PRODUCTS FOR FIRE ALARM USE CONSIDERING ENVIRONMENTAL CONDITIONS.
   I. FM GLOBAL APPROVED PRODUCTS.
   J. PROJECT SPECIFICATIONS.
   K. SEPTA REQUIREMENTS.
4. THIS DESIGN PACKAGE IS NOT MEANT TO PROVIDE FINAL QUANTITIES AS THEY ARE DIAGRAMMATICAL AND SHOW THE INTENT OF SEPTA'S REQUEST FOR A FULLY INSTALLED AND FULLY OPERATIONAL SYSTEM. ALL FINAL QUANTITIES OF ALL REQUIRED PARTS AND PIECES TO PROVIDE SAID COMPLETE SYSTEM ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR UNDER THIS CONTRACT.
   A. FURNISH AND INSTALL ALL CONDUITS, FITTINGS, OUTLETS, JUNCTION BOXES, SUPPORTS, HANGERS, WIRE AND CABLE AND OTHER ITEMS INCIDENTAL TO AND/OR REQUIRED TO COMPLETE THE INSTALLATION, IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. THIS SHALL INCLUDE WIRE AND CONDUIT REQUIRED TO OPERATE BOTH NEW AND EXISTING EQUIPMENT CIRCUITS DURING EACH STAGE OF THE WORK.
   B. FINAL QUANTITIES OF FIRE ALARM CONTROL PANEL CABINETS, TO INCLUDE TRANSPONDERS, ENCLOSURES AND BOOSTER PANELS SHALL BE COORDINATED.

FIRE ALARM NOTES (CONT):

   C. FOR ANY EXPOSED EQUIPMENT AND RACEWAYS, SUBMIT PROPOSED LOCATIONS TO THE SEPTA PROJECT MANAGER IN ADVANCE.
   D. ALL 120V AC CIRCUITS REQUIRED TO POWER ALL PANELS AND OR ENCLOSURES AS COORDINATED ABOVE SHALL BE INCLUDED IN THIS SCOPE OF WORK. SUBMIT THIS INFORMATION IN ITS ENTIRETY TO THE SEPTA PROJECT MANAGER AS PART OF THE SHOP DRAWING PACKAGE.
   E. FAILURE TO COORDINATE AND INCLUDE ANY PART OR PIECE REQUIRED TO PROVIDE AN ENTIRELY COMPLETE AND FUNCTIONING FIRE ALARM SYSTEM PRIOR TO BID SHALL NOT BE SUBJECT TO A CHANGE ORDER, AND SHALL BE BORNE SOLELY OF THIS CONTRACT.
5. SEPTA HAS THE RIGHT TO SALVAGE ANY EQUIPMENT TO BE REMOVED. ANY EQUIPMENT NOT SALVAGED SHALL BE REMOVED AND DISPOSED OF, OFF SITE PREMISES BY THE CONTRACTOR. THE CONTRACTOR SHALL MAKE PROVISIONS TO RETAIN ANY AND ALL REMOVED EQUIPMENT AS REQUESTED BY THE SEPTA PROJECT MANAGER.
6. NOTIFY SEPTA SYSTEM SAFETY FIRE MARSHALL OF ALL FIRE ALARM SHUTDOWNS, AND BEING PLACED IN TEST MODE WITHIN SEVEN (7) DAYS OF OPERATION.
7. INITIATING DEVICE AND ANNUNCIATOR DATA CIRCUIT WIRING SHALL BE 2C #16 TYPE FPLR UNLESS OTHERWISE INDICATED.
8. NOTIFICATION CIRCUIT AND AUX POWER 24V DC WIRING SHALL BE 2C #14 TYPE FPLR UNLESS OTHERWISE INDICATED.
9. MOUNT ALL DEVICES IN COMPLIANCE WITH PHILADELPHIA BUILDING CODE, NFPA CODES AND STANDARDS. REFER TO TYPICAL MOUNTING HEIGHT DETAIL ON THE FIRE ALARM DETAIL DRAWING AND COORDINATE WITH ARCHITECTURAL DRAWINGS.
10. OBTAIN APPROVAL FROM THE SEPTA PROJECT MANAGER FOR ALL LOCATIONS IN ADVANCE OF LAYOUT.
11. SHOW ACTUAL DETAILED RISER WITH DEVICE ADDRESSING AND NOMENCLATURE ON SHOP DRAWINGS.
12. JUNCTION AND PULL BOXES ARE NOT NECESSARILY ALL INDICATED. PROVIDE JUNCTION BOXES AND PULL BOXES WHERE MANDATED BY THE NEC, AND AS REQUIRED TO FACILITATE EASE OF INSTALLATION. PROVIDE NEMA TYPE 4X STAINLESS STEEL JUNCTION BOXES AND SIZE IN ACCORDANCE WITH ARTICLE 314 OF THE NEC. SUBMIT PROPOSED LOCATIONS TO THE SEPTA PROJECT MANAGER FOR APPROVAL.
13. ALL INTERIOR AND EXTERIOR RACEWAY SHALL BE RGS CONDUIT. UTILIZE FMC AND LFMC, WHERE PERMITTED IN THE SPECIFICATIONS IN LIMITED LENGTHS NO MORE THAN 6'–0". USE MINIMUM CONDUIT SIZE OF 3/4", UNLESS OTHERWISE NOTED. DO NOT EXCEED CONDUIT FILL RATIO PER THE NEC.
14. COORDINATE CONDUIT IN EXPOSED AREAS WITH EXISTING STRUCTURES, CABLE TRAYS AND PIPING; OBTAIN APPROVAL FROM THE SEPTA PROJECT MANAGER OF CONDUIT LAYOUT AND PATH PRIOR TO INSTALLATION.
15. LABEL FIRE ALARM CONDUITS PER THE PROJECT SPECIFICATIONS. ALL "EXPOSED" FIRE ALARM CONDUIT SHALL BE PAINTED TO MATCH EXISTING FINISHES. PAINT SAMPLES SHALL BE SUBMITTED FOR APPROVAL WITHIN THE SHOP DRAWINGS PACKAGE TO THE SEPTA PROJECT MANAGER.
16. PROTECT EXISTING CABLES AND EQUIPMENT DURING CONSTRUCTION. PAY FOR ALL COSTS ASSOCIATED WITH THE REPAIR OF ANY DAMAGED CABLES AND EQUIPMENT.
17. FIRE ALARM DEVICES SHALL NOT BE INSTALLED WHERE ACCESS IS IMPEDED BY MECHANICAL SYSTEMS, DUCTS, PIPES OR CONDUITS.
18. COORDINATE INSTALLATION OF FIRE ALARM DEVICES WITH THE MECHANICAL TRADE.
19. CEILING MOUNTED SMOKE DETECTORS TO BE MOUNTED TO UNDERSIDE OF STEEL BEAMS, IF APPLICABLE.

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EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
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REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
FIRE ALARM
NOTES, SYMBOLS & ABBREVIATIONS

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
WORK ORDER NO.: 276491	CHECKED BY: CJM

SHEET NUMBER
FA100

DWG. NO.:	1	OF	8	
SHT. NO.:	82	OF	452	
ARCHIVE NO.:				
COMPUTER FILE NO.: 17AN-FA100				REV. NO.: ---

STATUS: 50% SUBMISSION

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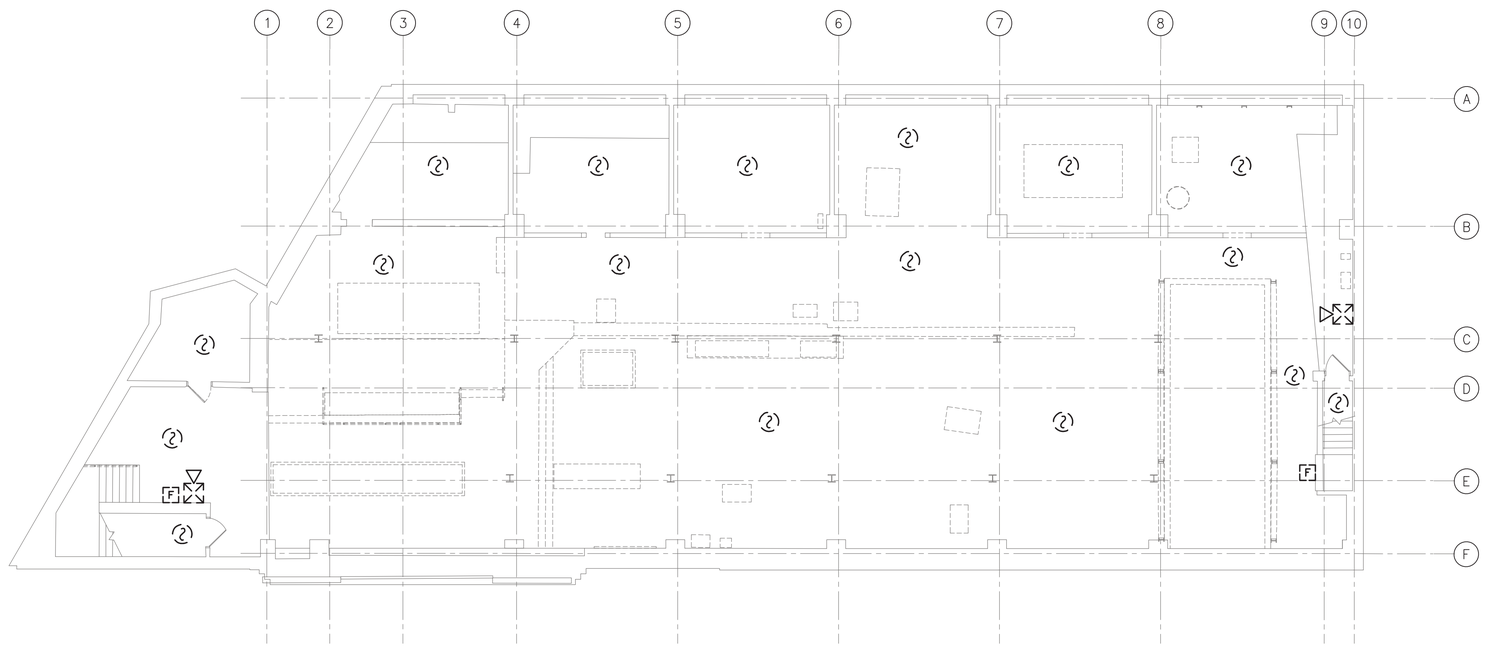
GENERAL NOTES:

1. REFER TO DRAWING FA100 FOR NOTES, SYMBOLS & ABBREVIATIONS.
2. SEE FIRE ALARM DETAILS ON DRAWING FA107.



1 / FA101 FIRE ALARM DEMOLITION BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
FIRE ALARM
DEMOLITION BASEMENT FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM

WORK ORDER NO.: 276491

SHEET NUMBER: **FA101**

DWG. NO.: 2 OF 8
SHT. NO.: 83 OF 452
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-FA101
REV. NO.: ---

STATUS: 50% SUBMISSION

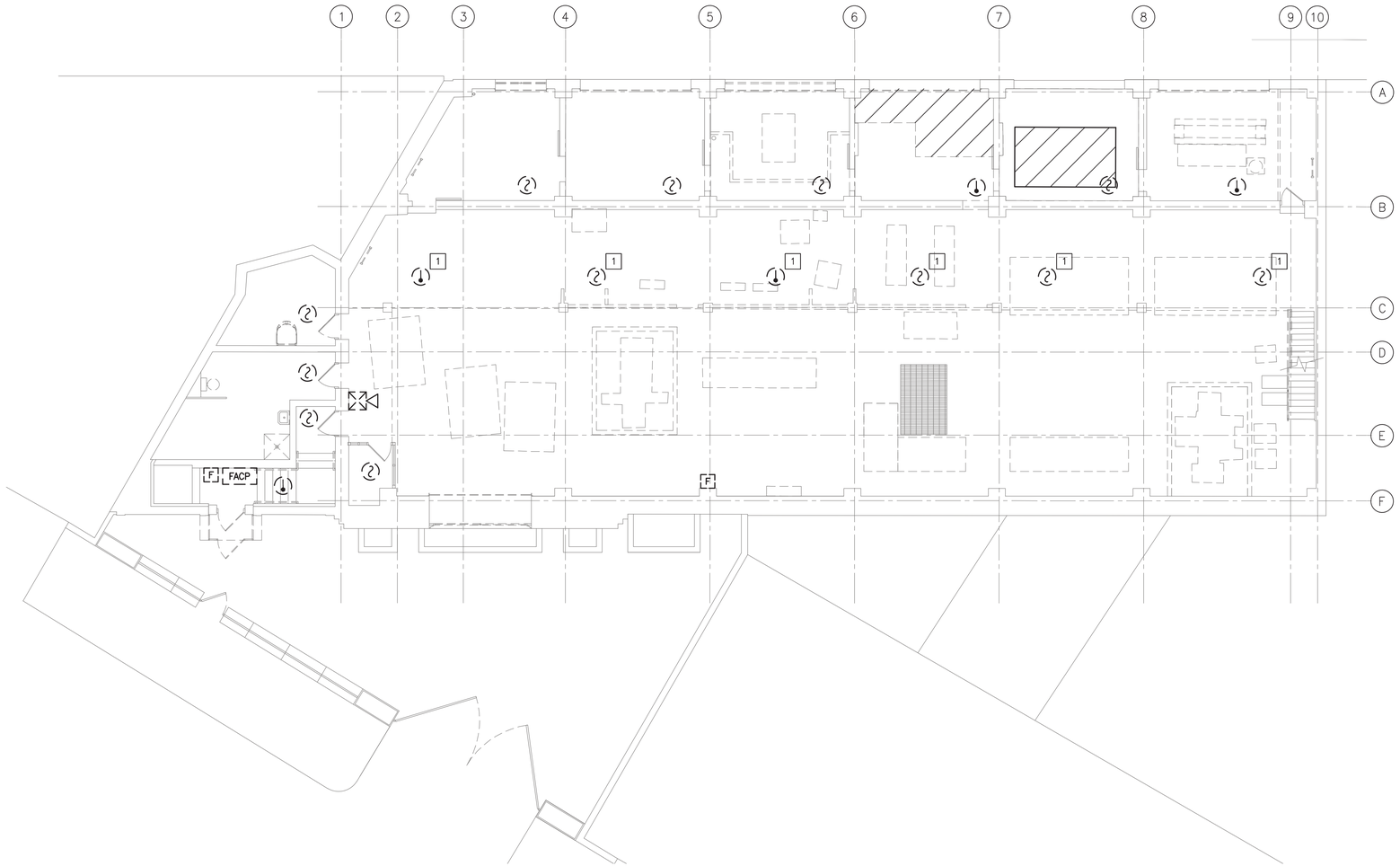
C:\PW\WORKING\PITTD\18880\42\17AN-FA101.DWG

GENERAL NOTES:

1. REFER TO DRAWING FA100 FOR NOTES, SYMBOLS & ABBREVIATIONS.
2. SEE FIRE ALARM DETAILS ON DRAWING FA107.

KEYED NOTES:

[1] DEVICE LOCATED BELOW PLATFORM.



1 / FA102 FIRE ALARM DEMOLITION FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

50% SUBMISSION
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
FIRE ALARM
DEMOLITION FIRST FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM

WORK ORDER NO.: 276491

SHEET NUMBER: **FA102**

DWG. NO.:	3	OF	8
SHT. NO.:	84	OF	452

ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-FA102
REV. NO.: ----

STATUS: 50% SUBMISSION

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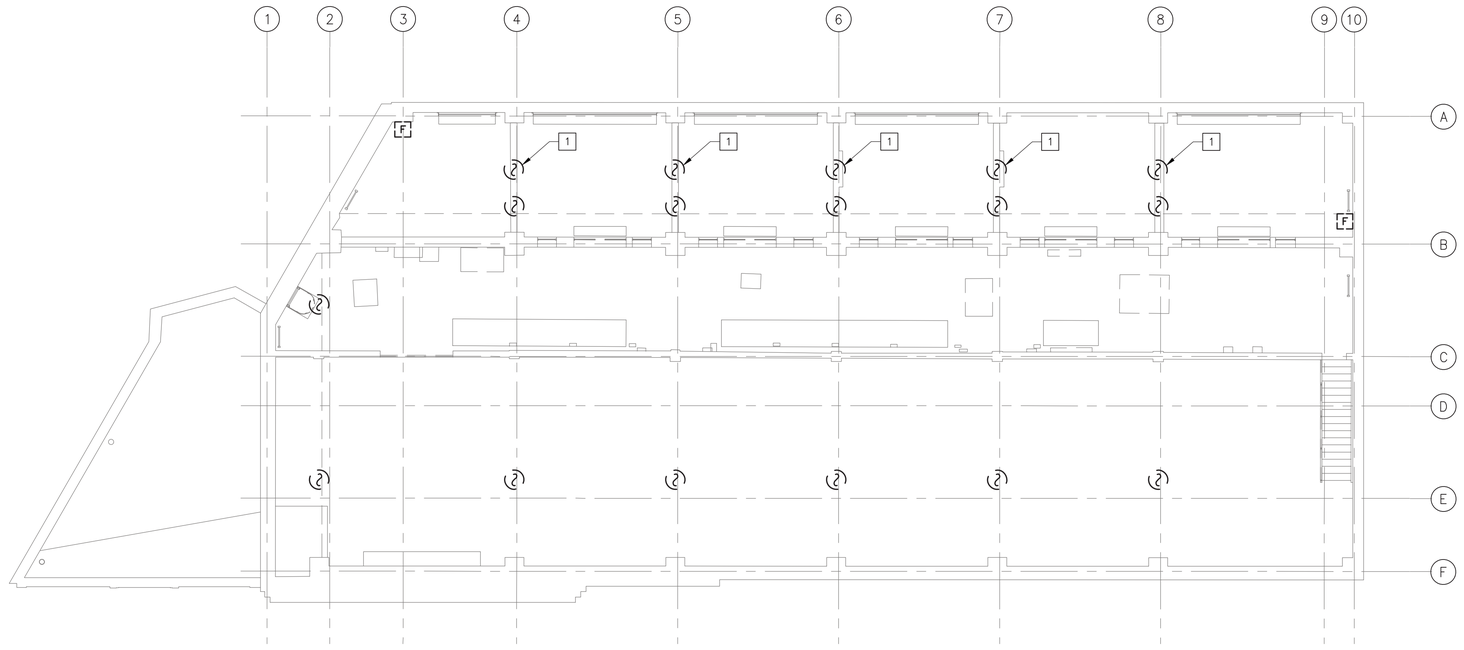
GENERAL NOTES:

1. REFER TO DRAWING FA100 FOR NOTES, SYMBOLS & ABBREVIATIONS.
2. SEE FIRE ALARM DETAILS ON DRAWING FA107.

KEYED NOTES:

[1] DEVICE LOCATED BELOW STEEL BEAM.



1 / FA103 FIRE ALARM DEMOLITION MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION
REHABILITATION
FIRE ALARM
DEMOLITION MEZZANINE FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
WORK ORDER NO.: 276491	CHECKED BY: CJM

SHEET NUMBER
FA103

DWG. NO.: 4 OF 8
SHT. NO.: 85 OF 452
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-FA103
REV. NO.: 1

STATUS: 50% SUBMISSION

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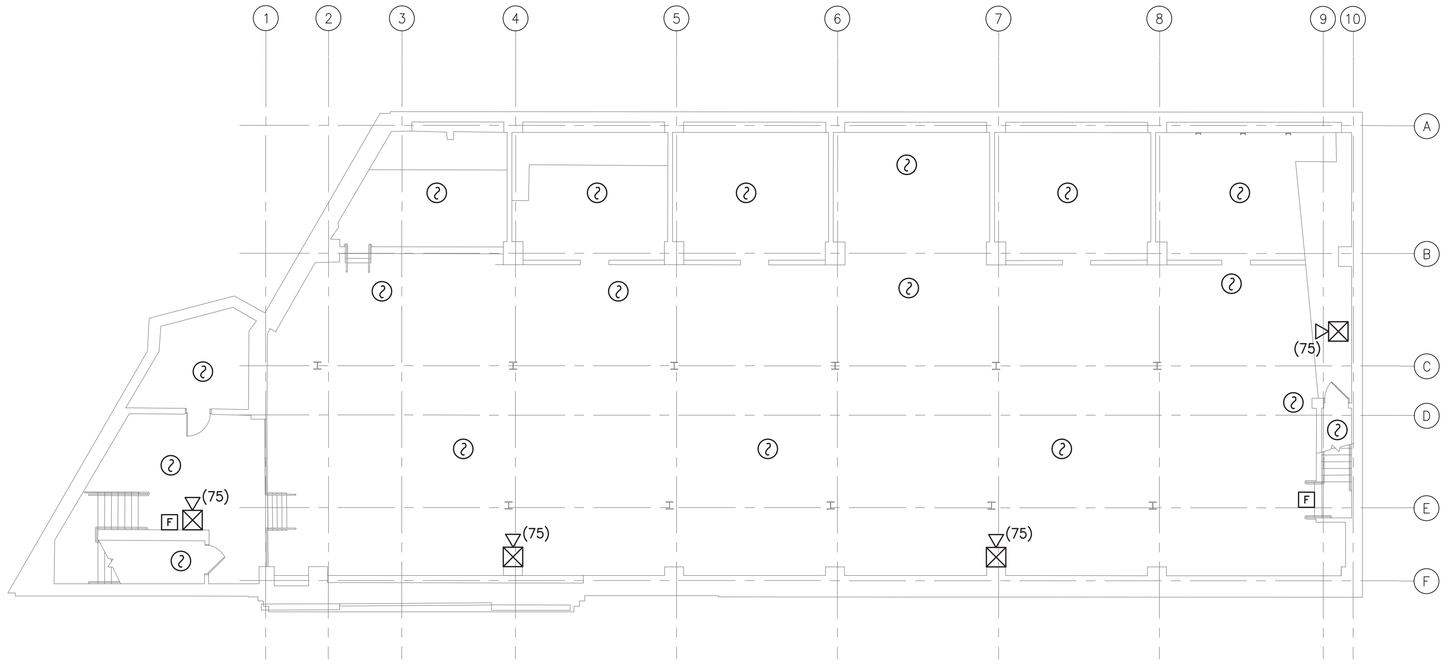
GENERAL NOTES:

1. REFER TO DRAWING FA100 FOR NOTES, SYMBOLS & ABBREVIATIONS.
2. SEE FIRE ALARM DETAILS ON DRAWING FA107.



1 / FA104 FIRE ALARM PROPOSED BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
FIRE ALARM
PROPOSED BASEMENT FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM

WORK ORDER NO.: 276491

SHEET NUMBER
FA104

DWG. NO.:	5	OF	8
SHT. NO.:	86	OF	452

ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-FA104
REV. NO.: ----

STATUS: 50% SUBMISSION

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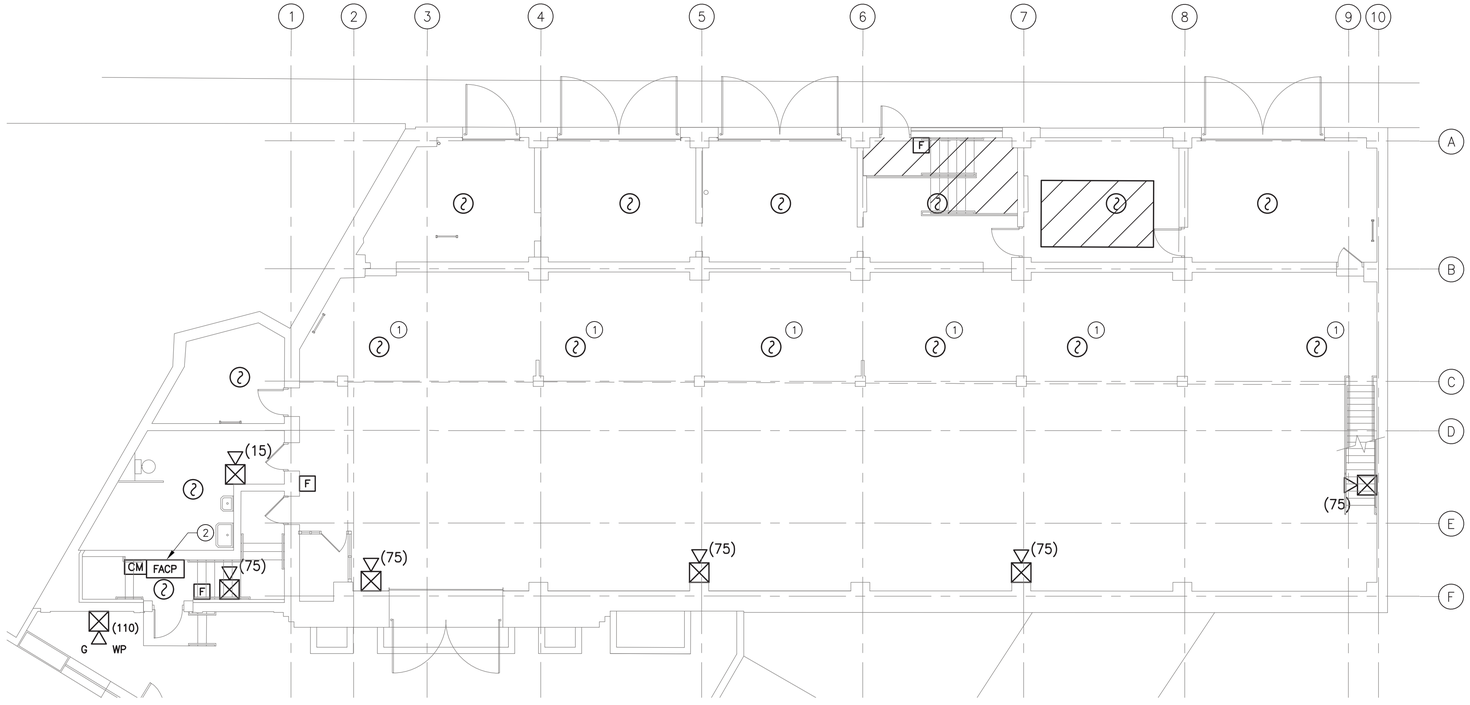
GENERAL NOTES:

1. REFER TO DRAWING FA100 FOR NOTES, SYMBOLS & ABBREVIATIONS.
2. SEE FIRE ALARM DETAILS ON DRAWING FA107.

KEYED NOTES:

(1) DEVICE LOCATED BELOW PLATFORM.

(2) SEPTA APPROVED FIRE ALARM CONTROL PANEL WITH BATTERY CABINET MOUNTED BELOW. PROVIDE THE APPROPRIATE "CM" MODULES NECESSARY FOR INTERFACING WITH SEPTA'S SCADA SYSTEM. TRADES SHALL COORDINATE THE INTERFACE CONNECTIONS BETWEEN THE FIRE ALARM MODULES AND THE APPROPRIATE SCADA CONNECTION POINTS. THE CONTRACTOR TO COORDINATE WITH SECURITY/SPECIAL SYSTEMS TRADE FOR INTERFACE OF CONTROL EQUIPMENT NECESSARY FOR THE RELEASE OF ANY ELECTRICALLY LOCKED EGRESS DOORS.



1 / FA105 FIRE ALARM PROPOSED FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

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BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
FIRE ALARM
PROPOSED FIRST FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: WAB
CHECKED BY: CJM
WORK ORDER NO.: 276491
SHEET NUMBER: **FA105**
DWG. NO.: 6 OF 8
SHT. NO.: 87 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-FA105
REV. NO.: ----

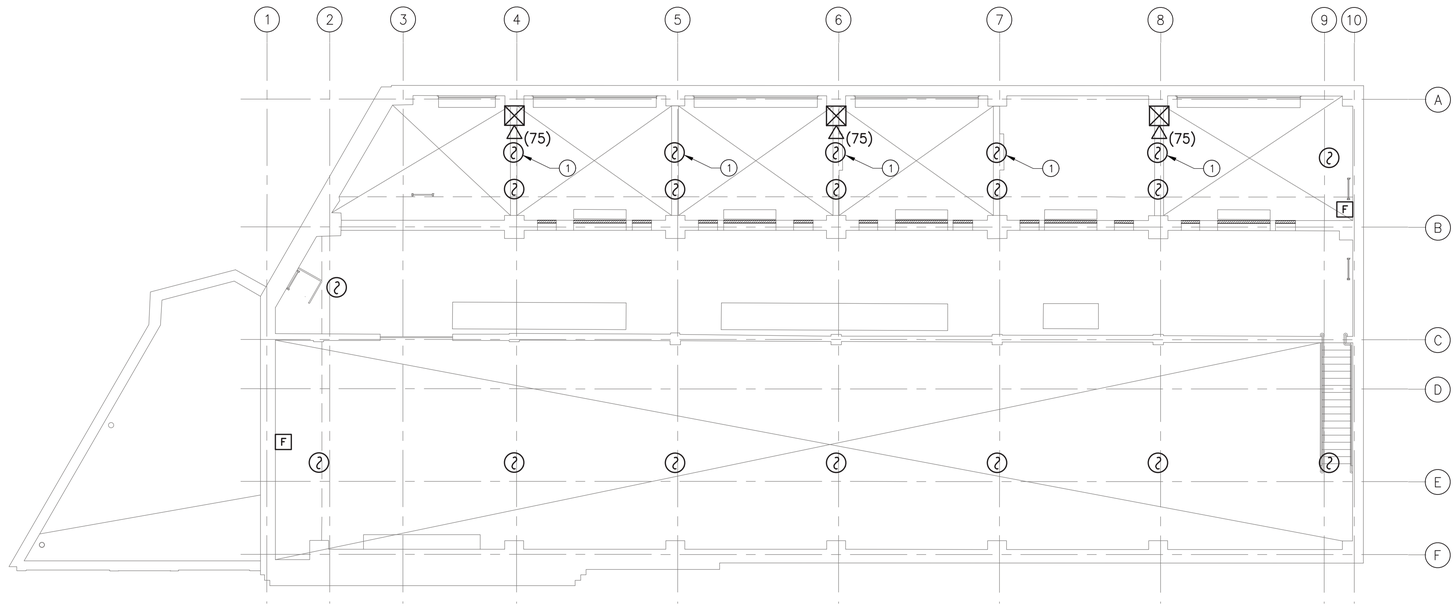
STATUS: 50% SUBMISSION

GENERAL NOTES:

1. REFER TO DRAWING FA100 FOR NOTES, SYMBOLS & ABBREVIATIONS.
2. SEE FIRE ALARM DETAILS ON DRAWING FA107.

KEYED NOTES:

(1) DEVICE LOCATED BELOW STEEL BEAM.



1 FA106 FIRE ALARM PROPOSED MEZZANINE FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
FIRE ALARM
PROPOSED MEZZANINE FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM

WORK ORDER NO.: 276491

SHEET NUMBER
FA106

DWG. NO.: 7 OF 8
SHT. NO.: 88 OF 452
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-FA106
REV. NO.: ----

STATUS: 50% SUBMISSION

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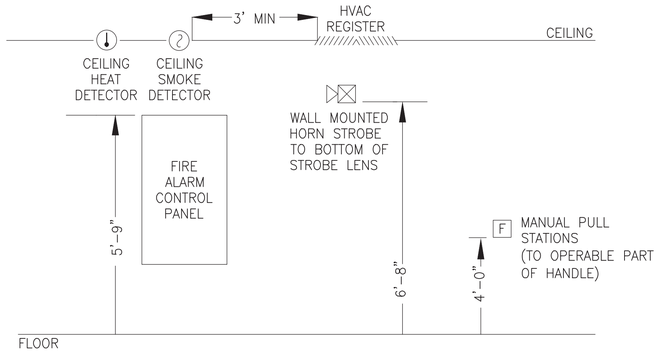
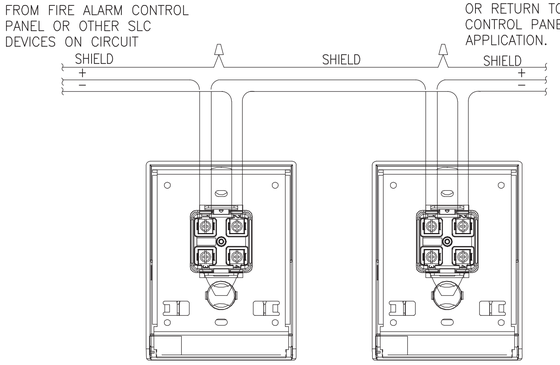


NOTE: COORDINATE WITH OTHER TRADE PLANS AND ELEVATIONS FOR SPECIFIC LOCATIONS OF FIRE ALARM DEVICES.

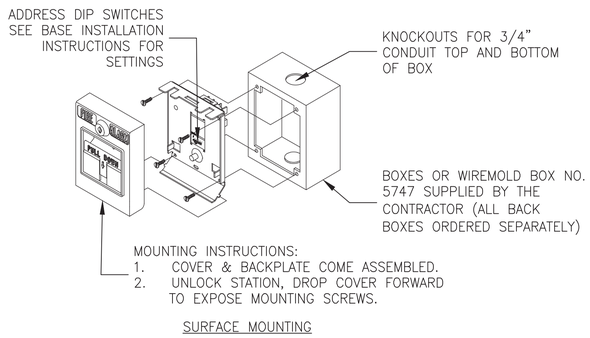
1 FA107 TYPICAL FIRE ALARM DEVICE AND EQUIPMENT MOUNTING HEIGHTS
SCALE: NOT TO SCALE



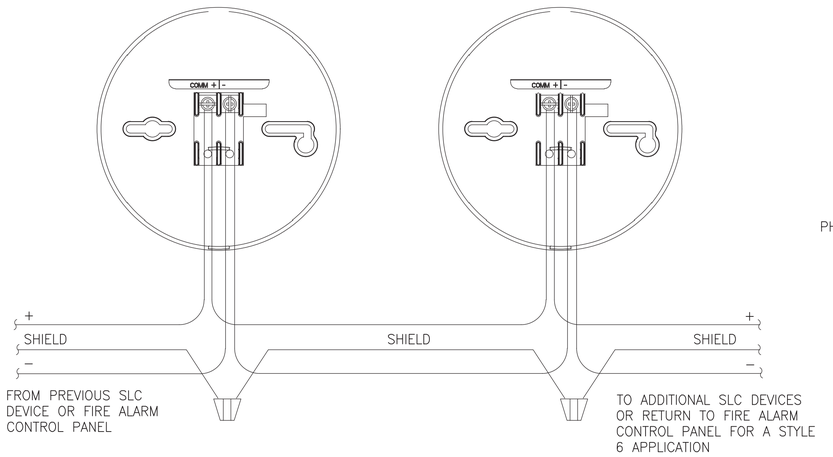
2 FA107 TYPICAL FIRE ALARM SLC MODULE DEVICE CIRCUITING AND CONNECTION
SCALE: NOT TO SCALE

GENERAL NOTES:

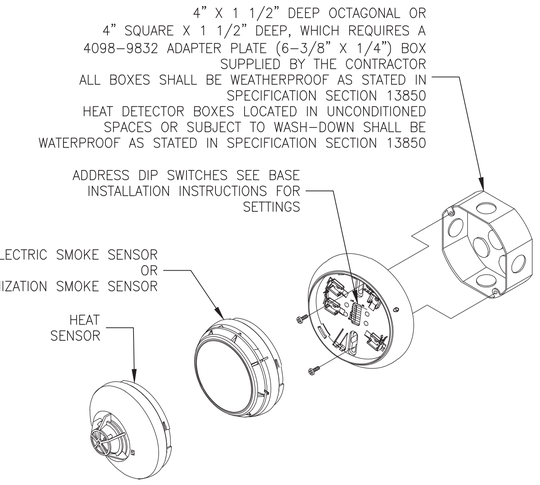
1. EXISTING CONDITIONS SHOWN ARE BASED ON HISTORICAL DOCUMENTS, CIVIL SURVEYS AND SITE OBSERVATIONS. ALL DIMENSIONS AND CONDITIONS ARE TO BE VERIFIED IN THE FIELD.
2. REFER TO DRAWING FA100 FOR NOTES, SYMBOLS & ABBREVIATIONS.



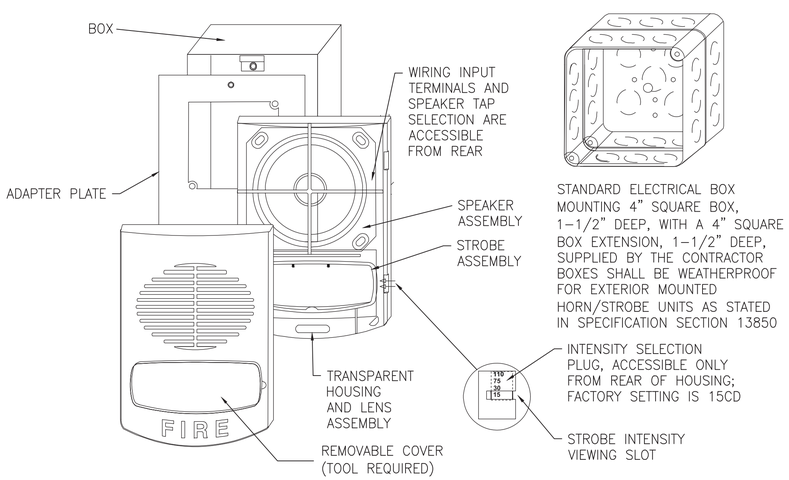
3 FA107 TYPICAL MANUAL PULL STATION MOUNTING
SCALE: NOT TO SCALE



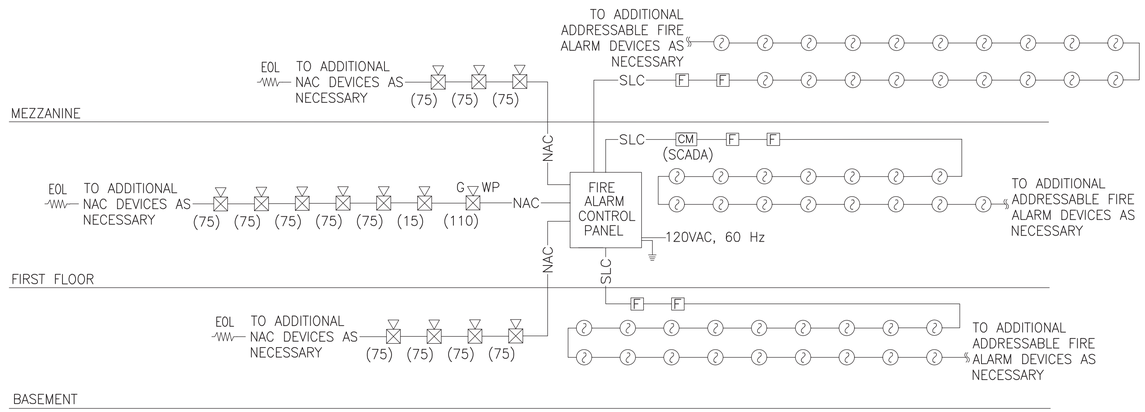
4 FA107 TYPICAL FIRE ALARM SLC SENSOR DEVICE CIRCUITING AND CONNECTION
SCALE: NOT TO SCALE



5 FA107 TYPICAL SMOKE OR HEAT DETECTOR MOUNTING
SCALE: NOT TO SCALE



6 FA107 TYPICAL HORN/STROBE MOUNTING
SCALE: NOT TO SCALE



7 FA107 TYPICAL FIRE ALARM RISER DIAGRAM
SCALE: NOT TO SCALE

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
FIRE ALARM
DETAILS

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: WAB
	CHECKED BY: CJM
WORK ORDER NO.: 276491	
SHEET NUMBER: **FA107**	
DWG. NO.: 8 OF 8	
SHT. NO.: 89 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-FA107	REV. NO.: ----

STATUS: 50% SUBMISSION

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1	1M	1000 KCMIL DC POSITIVE CABLE
	1MR	1000 KCMIL DC NEGATIVE RETURN CABLE
	10GND	NO. 10 AWG GROUND CONDUCTOR
	2M	2000 KCMIL DC POSITIVE CABLE
	2MR	2000 KCMIL DC NEGATIVE RETURN CABLE
	2 NO. 6	2 NO. 6 AWG CONDUCTOR
	2"C	2 INCH CONDUIT
A	A	AMPERES
	A–XD	CURRENT TRANSDUCER
	AC	ALTERNATING CURRENT
	AF	AMPERES FRAME
	AFF	ABOVE FINISHED FLOOR
	AIC	AMPS INTERRUPTING CAPACITY
	AL	ALUMINUM
	AM	AMMETER
	ANN	ANNUNCIATOR
	APPROX	APPROXIMATE
	AS	AMMETER SWITCH
	ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
	AT	AMPERES TRIP
	AUX	AUXILIARY
	AVE	AVENUE
	AWG	AMERICAN WIRE GAUGE
B	BDP	BATTERY DISTRIBUTION PANEL
	BKR	BREAKER
	BLDG	BUILDING
	BLK	BLOCKED OR BLOCKAGE
	BLVD	BOULEVARD
	BT	BUS TIE CIRCUIT BREAKER
C	C	CONDUIT, CONTACTOR
	CB	CIRCUIT BREAKER
	CF	CLOSING FUSE
	CI	CAST IRON
	CL	CURB LINE
	CKT	CIRCUIT
	CLF	CURRENT LIMITING FUSE
	COMP	COMPRESSOR
	CONC	CONCRETE
	CS	CONTROL SWITCH
	CST	CONTROL TEST SWITCH
	CT	CURRENT TRANSFORMER
	CX	DC CURRENT TRANSFORMER
D	DB	DECIBELS
	DC	DIRECT CURRENT
	DEPT	DEPARTMENT
	DET	DETAIL
	DIA	DIAMETER
	DIM	DIMENSIONS
	DISC	DISCONNECT
	DP	DEEP
	DWG	DRAWING
E	E	EAST
	EB	EASTBOUND
	EL, ELEV	ELEVATION
	EMG	EMERGENCY
	EMH	ELECTRIC MANHOLE
	EPR	ETHYLENE PROPYLENE RUBBER
	EQ	EQUAL
E	ER	ELECTRICALLY RESET
	EX	EXISTING
F	F–XD	FREQUENCY TRANSDUCER
	FDR	FEEDER
	FL	FLOOR
	FPP	FIBER PATCH PANEL
	FRE	FIBER REINFORCED EPOXY (SEE RTRC)
	FT	FEET
	FUT	FUTURE
G	G	GREEN
	GAL	GALLON
	GALV	GALVINIZED
	GIL	GREEN INDICATING LIGHT
	GND	GROUND
	GR	GRADE
	GRS	GALVANIZED RIGID STEEL
H	HMI	HUMAN MACHINE INTERFACE
	HORIZ	HORIZONTAL
	HR	HAND RESET
	HV	HIGH VOLTAGE
	HW	HOT WATER
	HZ	HERTZ
I	IB	INBOUND
	ID	INSIDE DIAMETER, IDENTIFICATION
	IED	INTELLIGENT ELECTRONIC DEVICE
	IN	INCH
	ISO	ISOLATION
	INST	INSTANTANEOUS
J	JB	JUNCTION BOX
K	KA	KILO–AMPERES
	KCMIL	THOUSAND CIRCULAR MILS
	KV	KILO–VOLTS
	KVA	KILO–VOLT AMPERES
	KW	KILO–WATTS
L	L	LOCAL
	LBS	POUNDS
	LC	LOAD CENTER
	LO	LOCKOUT
	LP	LIGHTING POLE FIXTURE, LOW POINT
	LS	LIMIT SWITCH
	LV	LOW VOLTAGE
M	MAX	MAXIMUM
	MAN, MNL	MANUAL
	MCB	MAIN CIRCUIT BREAKER
	MCM	MILLION CIRCULAR MILLIMETERS
	MFR–M	MULTI–FUNCTION RELAY METERING
	MH	MANHOLE
	MIN	MINIMUM
	MMFO	MULTIMODE FIBER OPTIC CABLE
	MPR	MOTOR PROTECTION RELAY
	MR	MULTI–RATIO
	MV	MILLIVOLT
N	N	NORTH
	NB	NORTHBOUND
	NC, N.C.	NORMALLY CLOSED
	NEG, N	NEGATIVE
	NEUT, N	NEUTRAL
	NIC	NOT IN CONTRACT
	NLTC	NO LOAD TAP CHANGER
	NO, N.O.	NORMALLY OPEN
	N.T.S.	NOT TO SCALE
O	OB	OUTBOUND
	OC	ON–CENTER, OVERCURRENT
	OCS	OVERHEAD CATENARY SYSTEM
	OD	OUTSIDE DIAMETER
	OOS	OUT OF SERVICE
P	PAC	PROGRAMMABLE AUTOMATION CONTROLLER
	PC	PERSONAL COMPUTER
	PECO	PHILADELPHIA ELECTRIC COMPANY
	PH, ø	PHASE
	PL	POSITIVE LOCAL, PLATE, PROPERTY LINE
	PLC	PROGRAMMABLE LOGIC CONTROLLER
	POL	POLARIZING
	POS	POSITIVE
	PROP	PROPERTY
	PRT	PHILADELPHIA RAPID TRANSIT
	PT	POTENTIAL TRANSFORMER
	PTS	POTENTIAL TRANSFORMERS
	PVC	POLY VINYL CHLORIDE
	PWR	POWER
Q	QTY	QUANTITY
R	R	RETURN NEGATIVE CABLE, RED
	REC	RECEPTACLE
	RECT	RECTIFIER
	REQ'D	REQUIRED
	RES	RESISTOR
	RGS	RIGID GALVANIZED STEEL
	RIL	RED LIGHT INDICATION
	RM	ROOM
	RMC	RIGID METAL CONDUIT
	ROW	RIGHT OF WAY
	RTRC	REINFORCED THERMOSETTING RESIN CONDUIT
	RTU	REMOTE TERMINAL UNIT
S	S	SECTION, SOUTH, SUPERVISORY
	SA	SURGE ARRESTOR
	SB	SOUTHBOUND
	SC	SHORT CIRCUIT, SURGE CAPACITOR
	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
	SE	STORED ENERGY
	SEC	SECOND
	SEPTA	SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
	SS	SUBSTATION
	ST	STREET
	STA	STATIONING
	STD	STANDARD
S	SUPL	OVERHEAD SUPPLEMENTARY CABLE
	SUPV	SUPERVISORY
	SVC	SERVICE
	SW	SWITCH
	SWGR	SWITCHGEAR
T	T	TRANSFORMER
	TEMP	TEMPERATURE
	TF	TRIPPING FUSE
	THK	THICK
	TK	TRACK
	TOT	TOTALIZER
	TP	TRACTION POWER
	TPSS	TRACTION POWER SUBSTATION
	TRANSF	TRANSFER
	TS	TEST SWITCH
	TW	TROLLEY WIRE
	TYP	TYPICAL
U	U/G	UNDERGROUND
	UON	UNLESS OTHERWISE NOTED
V	V	VOLTS OR VOLTAGE
	V–XD	VOLTAGE TRANSDUCER
	VA	VALVE, VOLT–AMPERE
	VAR	VOLT–AMPERE REACTIVE
	VM	VOLTMETER
	VS	VOLTMETER SWITCH
W	W	WEST, WIRE, WHITE
	W/	WITH
	W–XD	WATTAGE TRANSDUCER
	WB	WESTBOUND
	WH	WATT–HOUR METER
	WLI	WHITE LIGHT INDICATION
	WP	WATERPROOF
X	XD	TRANSDUCER
	XFMR	TRANSFORMER
Y	YEL	YELLOW
Z	ZL	ZIP LINE, POLY PULL LINE

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
ABBREVIATIONS

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MJB
	CHECKED BY: YL
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP100**	
DWG. NO.: 1 OF 34	
SHT. NO.: 90 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP100	REV. NO.: -

STATUS: 50% SUBMISSION

30E = CLEARING RATING FUSE

CLF = CURRENT LIMITING FUSE

TRANSFORMER

POTENTIAL TRANSFORMER
UPPER = NO. RATIO
LOWER = NO. QTY OF XFMR

CURRENT TRANSFORMER
UPPER = NO. RATIO
LOWER = NO. QTY OF XFMR

3 PHASE DELTA CONNECTION

3 PHASE WYE CONNECTION

3 PHASE WYE CONNECTION (GROUNDED)

OPEN DELTA CONNECTION (GROUNDED / UN-GROUNDED)

BUS DUCT

MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER

FUSE DISCONNECT SWITCH

MANHOLE DESIGNATIONS

ELECTRIC MANHOLE NO. 30

TELEPHONE MANHOLE NO. 1

MANHOLE AT GRADE

EXISTING MANHOLE

SECTION "2" AS SHOWN ON DRAWING TP130

DEVICE DISCONNECT CONTACTS

RELAY OPERATING COIL NUMBER
DESIGNATES RELAY TYPE

DC CIRCUIT BREAKER

FUNCTIONAL INTERCONNECTION AMONG CONTROL PROTECTIVE AND POWER DEVICES (ARROW DENOTES DIRECTION OF CONTROL)

DIODE/DIODE RECTIFIER

DC CURRENT SHUNT

NEON HIGH VOLTAGE INDICATORS
(CABLE ALIVE INDICATION)

WITHDRAWABLE SINGLE POLE
DC CIRCUIT BREAKER
WITH DIRECT ACTING TRIP ELEMENT

NORMALLY OPEN CONTACT

NORMALLY CLOSED CONTACT

SURGE ARRESTER

LIGHTNING ARRESTER

GENERATOR

BATTERY

GROUND

GROUND ROD

CABLE ROUTE THROUGH FLOOR

CABLE ROUTE THROUGH CEILING

MANUAL-AUTOMATIC
TRANSFER MODE
SELECTOR SWITCH

CONTROL SWITCH

STORED ENERGY DEVICE

MULTIFUNCTION RELAY/IED
A = AMMETER
V = VOLTMETER
KWH = KILOWATT-HOUR METER

CABLE TERMINATION SEALING END

KILO-WATTHOUR METER

WATTHOUR METER DEMAND

CURRENT TRANSDUCER

VOLTAGE TRANSDUCER

AMMETER

AMMETER SWITCH

VOLTMETER

VOLTMETER SWITCH

TEST SWITCH

NO LOAD TAP CHANGER

PHASING RECEPTACLE

THREE-POLE SINGLE THROW SWITCH

DISCONNECT SWITCH, 1-POLE
N.O. = NORMALLY OPEN
N.C. = NORMALLY CLOSED

DISCONNECT SWITCH
2-POLE

BLUE INDICATING LAMP
(HEATER AMMETER)

GREEN INDICATING LAMP
(BREAKER OPEN)

RED INDICATING LAMP
(BREAKER CLOSED)

WHITE INDICATING LAMP
(SPRINGS CHARGED)

AMBER INDICATING LAMP

KEY INTERLOCK

LOCAL/SUPERVISORY CONTROL SWITCH

GROUND DETECTION RELAY

CONNECTION TO SCADA

50% SUBMISSION
NOT FOR CONSTRUCTION

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Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
LEGENDS & SYMBOLS

SCALE: NTS	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: MLB
	CHECKED BY: YL

WORK ORDER NO.: 276491

SHEET NUMBER
TP101

DWG. NO.: 2 OF 34
SHT. NO.: 92 OF 448
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-TP101
REV. NO.: -

STATUS: 50% SUBMISSION

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DEVICE	DESCRIPTION
01	AC CIRCUIT BREAKER LOCAL CONTROL SWITCH
01–R	RECTIFIER 15KV AC CIRCUIT BREAKER REMOTE CONTROL SWITCH
04	RECTIFIER MASTER CONTROL RELAY
11	MULTI–FUNCTION RELAY – HEALTHY / FAILED
25	SYNCHRONISM CHECK RELAY
26RA	RECTIFIER HEAT SINK OVER–TEMPERATURE STAGE 1 – ALARM
26RX	AUXILIARY RELAY FOR DEVICE 26R
26RT	RECTIFIER HEAT SINK OVER–TEMPERATURE STAGE 2 – TRIP
26RHX	AUXILIARY RELAY FOR DEVICE 26RH
26A	TRANSFORMER OIL OVER–TEMPERATURE STAGE 1 – ALARM
26T	TRANSFORMER OIL OVER–TEMPERATURE STAGE 2 – TRIP
27	UNDERVOLTAGE RELAY
27A	LOSS OF DC AUXILIARY SUPPLY – ALARM
27T	LOSS OF DC AUXILIARY SUPPLY – TRIP
30	ANNUNCIATOR RELAY
32	RECTIFIER MAIN DC CIRCUIT BREAKER DIRECTIONAL INST O.C. TRIP DEVICE (REVERSE CURRENT)
33R	RECTIFIER COMPARTMENT DOOR SAFETY INTERLOCK
33T	TRANSFORMER COMPARTMENT DOOR SAFETY INTERLOCK
43 L/S	CONTROL MODE SELECTOR SWITCH
47	PHASE SEQUENCE RELAY
48	RECTIFIER INCOMPLETE SEQUENCE
49A	TRANSFORMER WINDING OVER–TEMPERATURE STAGE 1 – ALARM
49T	TRANSFORMER WINDING OVER–TEMPERATURE STAGE 2 – TRIP & LOCKOUT
50/51	INSTANTANEOUS AND TIME OVER–CURRENT – PHASE
50N/51N	INSTANTANEOUS AND TIME OVER–CURRENT – GROUND
51	TIME OVERCURRENT RELAY – PHASE
51C	TIME OVERCURRENT RELAY – CABLE OVERLOAD
51N	TIME OVERCURRENT RELAY – GROUND
51R	TIME OVERCURRENT RELAY – RECTIFIER OVERLOAD
52	AC CIRCUIT BREAKER
52–BT	AC CIRCUIT BREAKER – BUS TIE
52–F	AC CIRCUIT BREAKER – FEEDER
52–L	AC CIRCUIT BREAKER – INCOMING LINE
52–T	AC CIRCUIT BREAKER – RECTIFIER
58A	RECTIFICATION FAILURE RELAY – ALARM
58T	RECTIFICATION FAILURE RELAY – TRIP
64P	RECTIFIER GROUND RELAY – STRUCTURE HOT (TRIP)
64N	RECTIFIER GROUND RELAY – STRUCTURE GROUNDED (ALARM)
67	DIRECTIONAL OVERCURRENT RELAY – PHASE
67N	DIRECTIONAL OVERCURRENT RELAY – GROUND
69	PERMISSIVE CONTROL DEVICE

DEVICE	DESCRIPTION
71A	TRANSFORMER LOW OIL LEVEL – ALARM
71T	TRANSFORMER LOW OIL LEVEL – TRIP
72–R	DC CIRCUIT BREAKER – RECTIFIER MAIN DC
74	ALARM RELAY
86	LOCKOUT RELAY
86B	LOCKOUT RELAY – BUS DIFFERENTIAL
86X	LOCKOUT RELAY – RECTIFIER CONDITIONAL
84	BLOWN FUSE INDICATION
87B	DIFFERENTIAL RELAY – BUS ZONE
89	LOAD INTERRUPTER SWITCH
89N	RECTIFIER NEGATIVE LEAD DISCONNECT SWITCH
94	TRIPPING RELAY
98	RECTIFIER LOSS OF DIODE
99	RECTIFIER LOSS OF DIODE
101	DC CIRCUIT BREAKER – LOCAL CONTROL (TRIP/CLOSE) SWITCH
111	MULTI–FUNCTION RELAY – HEALTHY / FAILED
143	DC CIRCUIT BREAKER – CONTROL MODE SELECTOR (LOCAL/REMOTE/HMI) SWITCH
150F	DC TRACTION FEEDER – RATE OF RISE RELAY
164S	DC SWITCHGEAR – GROUND RELAY – STRUCTURE HOT (TRIP)
164SX	DC SWITCHGEAR – GROUND RELAY – STRUCTURE GROUNDED (ALARM)
169	DC TRACTION FEEDER – PERMISSIVE SETUP RELAY
172	DC TRACTION FEEDER CIRCUIT BREAKER
176	DC FEEDER CIRCUIT BREAKER – INSTANTANEOUS SERIES TRIP (DIRECT ACTING)
176F	DC FEEDER CIRCUIT BREAKER– INSTANTANEOUS OVERCURRENT RELAY
201C	SUPERVISORY INTERPOSING RELAY – CLOSE
201T	SUPERVISORY INTERPOSING RELAY – TRIP
GDR	GROUND DETECTION RELAY

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PROJECT MANAGER

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Philadelphia, PA

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DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
DEVICE TABLES

SCALE: NTS
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: MJB
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP102**
DWG. NO.: 3 OF 34
SHT. NO.: 93 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP102
REV. NO.: -

STATUS: 50% SUBMISSION

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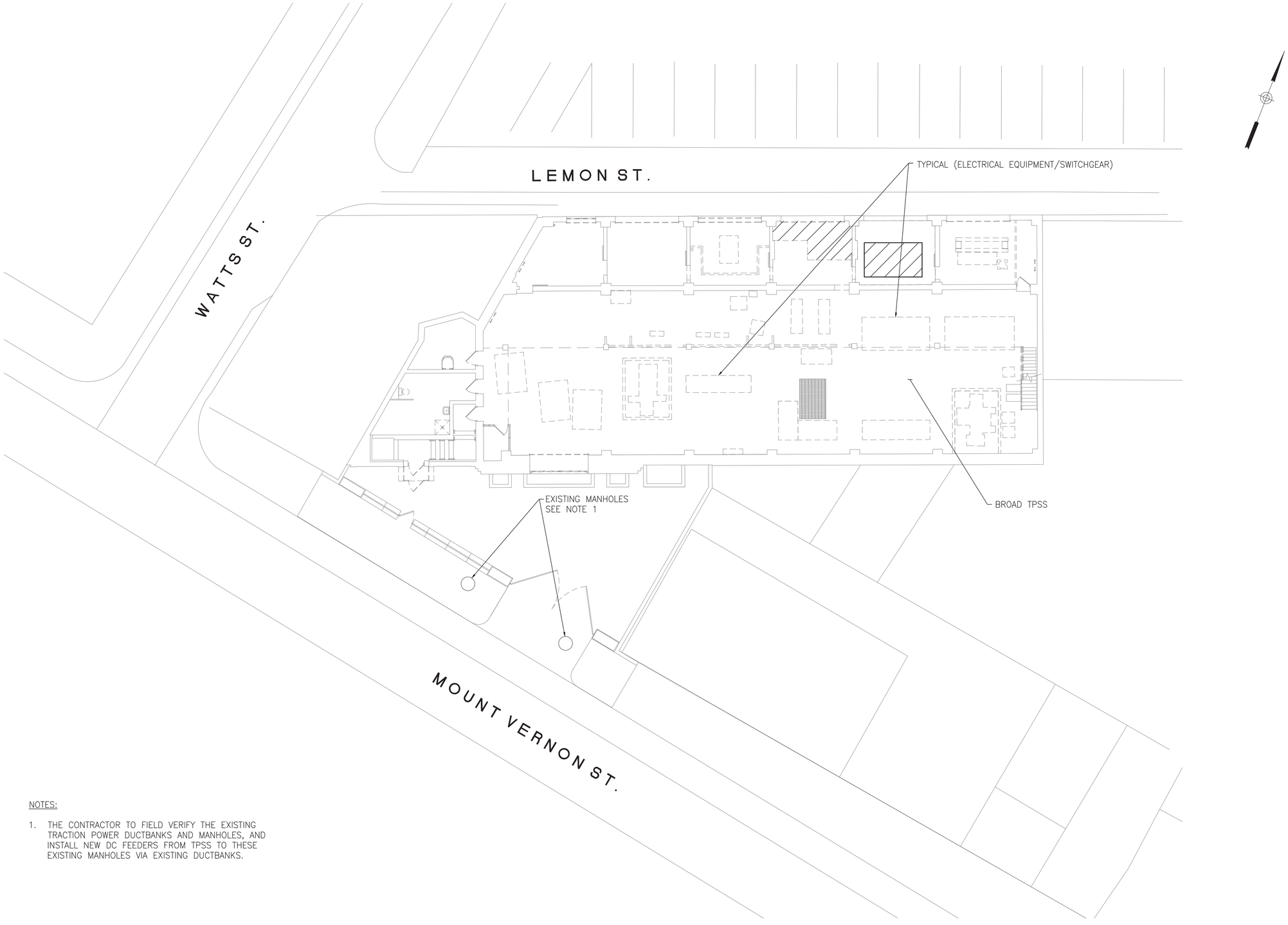

NOTES:

1. THE CONTRACTOR TO FIELD VERIFY THE EXISTING TRACTION POWER DUCTBANKS AND MANHOLES, AND INSTALL NEW DC FEEDERS FROM TPSS TO THESE EXISTING MANHOLES VIA EXISTING DUCTBANKS.

10 5 0 10

SCALE: 1"=10'

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTD1\9394831\17AN-TP105.DWG

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DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
SUBSTATION SITE PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DMV CHECKED BY: YL

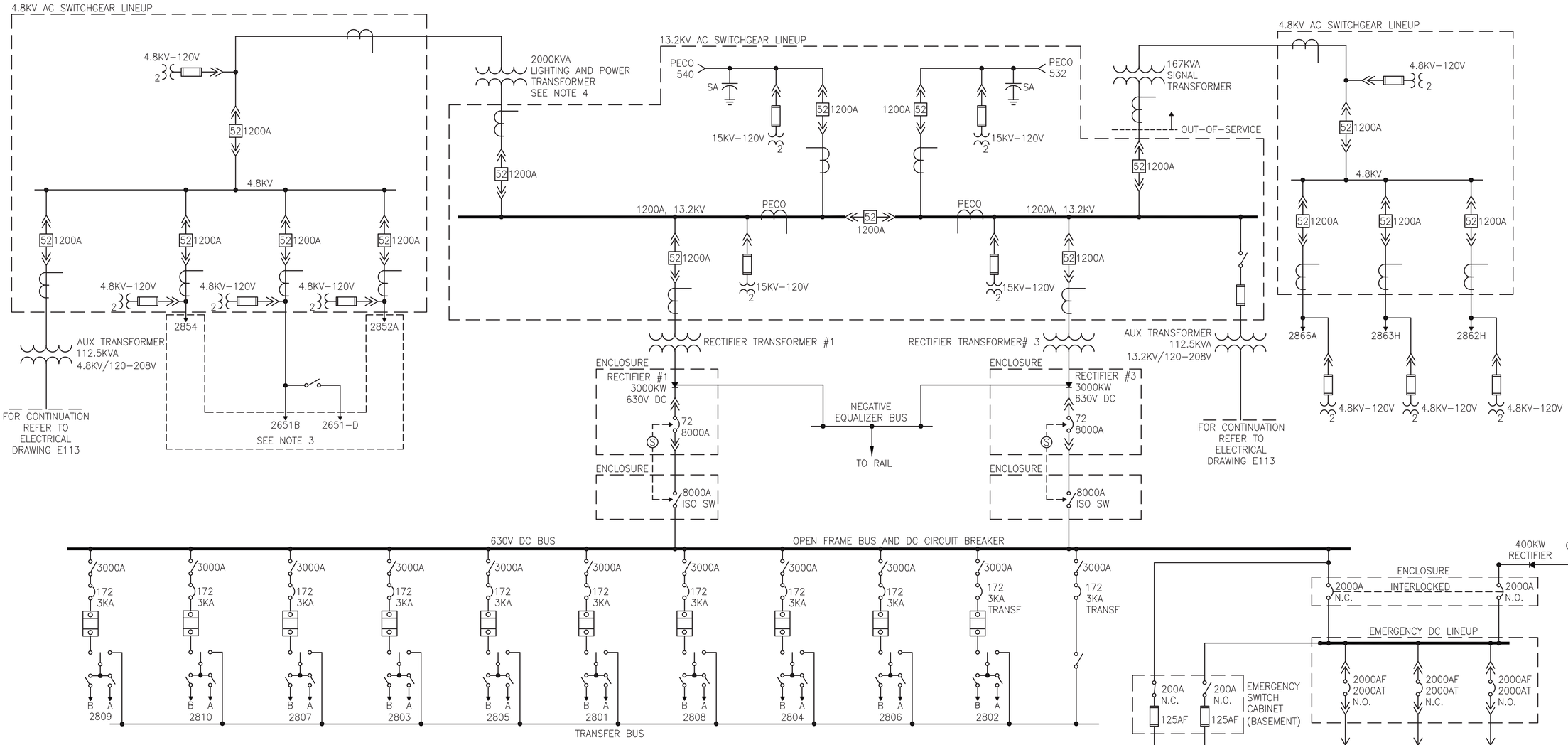
WORK ORDER NO.: 276491

SHEET NUMBER
TP105

DWG. NO.: 4 OF 34
SHT. NO.: 94 OF 448
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-TP105
REV. NO.: -

STATUS: 50% SUBMISSION



NOTES:

1. REFER TO DRAWING TP101 FOR LEGENDS AND SYMBOLS.
2. REFER TO SEPTA DRAWING E01 OF WORK ORDER 763–3002 FOR THE 630V DC EMERGENCY POWER SINGLE LINE DIAGRAM.
3. REFER TO SEPTA WORK ORDER 30206 DRAWING 7E–16563 FOR THE 4800V SINGLE LINE DIAGRAM.
4. THE EXISTING 2000 KVA LIGHTING AND POWER TRANSFORMER IS CURRENTLY OUT OF SERVICE. THE TPSS CURRENTLY HAS ONLY ONE AUXILIARY TRANSFORMER.
5. DEMOLISH EXISTING DC POSITIVE AND NEGATIVE CABLES OUT TO THE MANHOLES NEAREST THE TPSS BUILDING.

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTD1959483\17AN-TP106.DWG

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Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

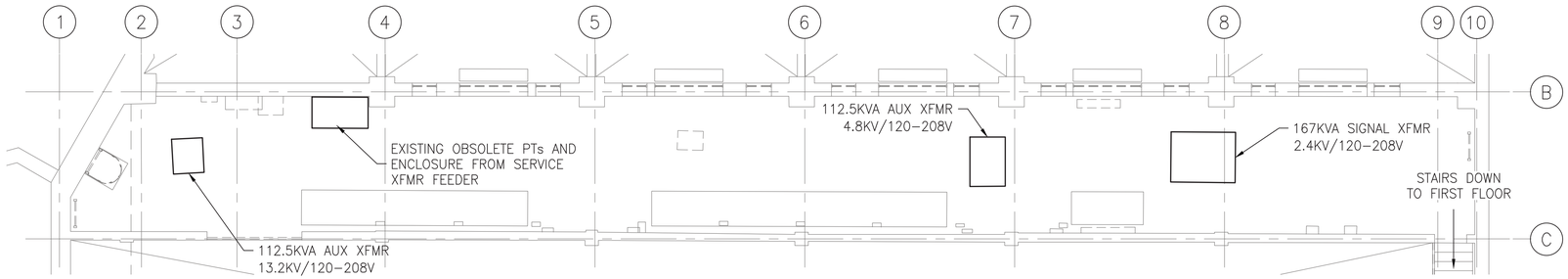
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
EXISTING SINGLE LINE DIAGRAM

SCALE: N.T.S.	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: DMW
	CHECKED BY: YL
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP106**	
DWG. NO.: 5 OF 34	
SHT. NO.: 95 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP106	REV. NO.: -

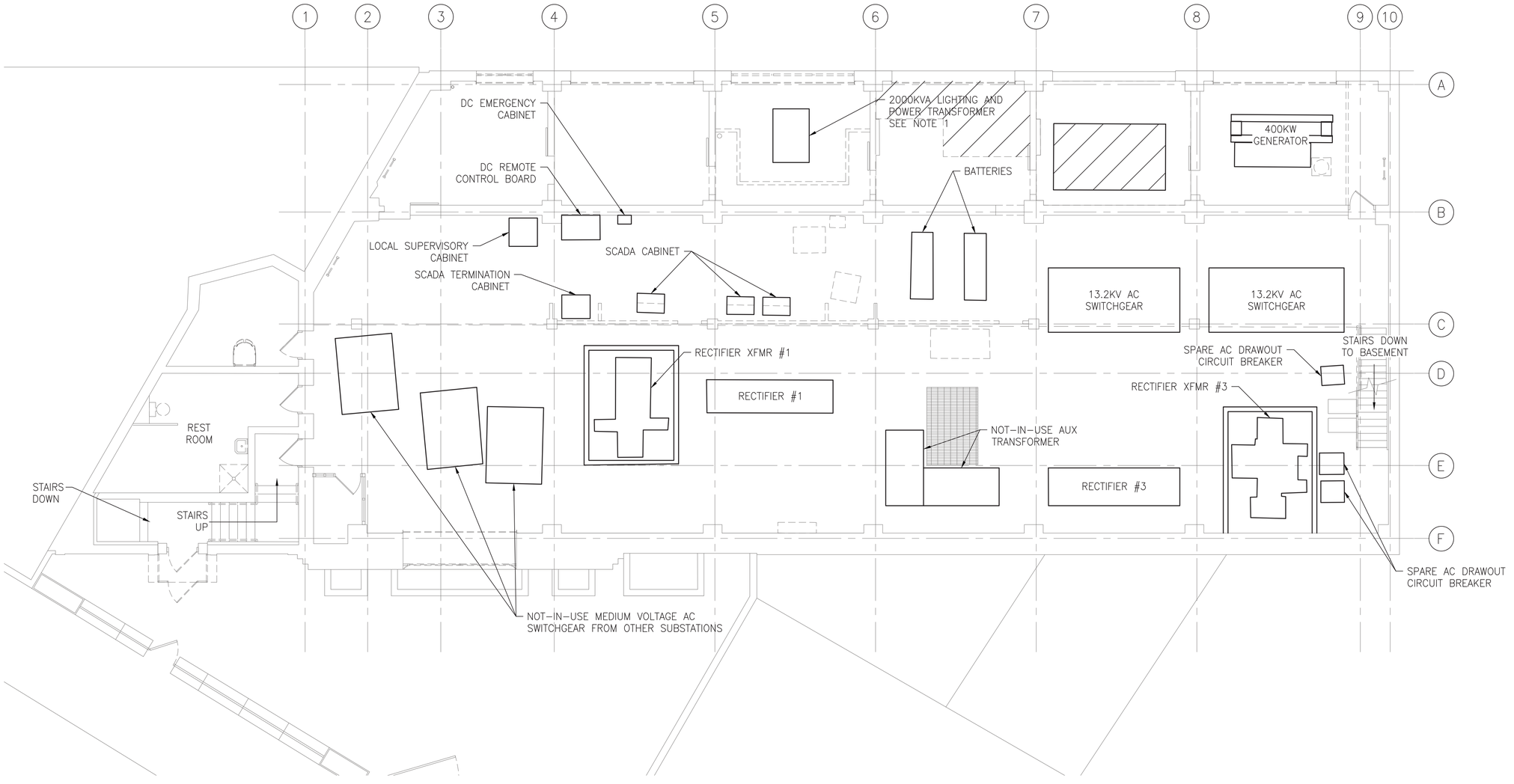
STATUS: 50% SUBMISSION

NOTES:

1. THE 4.8KV TRANSFORMER IS CURRENTLY OUT OF SERVICE.
2. BOLD ITEMS ON THIS DRAWING TO BE DEMOLISHED.



1 TP107 EXISTING MEZZANINE EQUIPMENT PLANS
SCALE: 1" = 6'



2 TP107 EXISTING FLOOR PLAN EQUIPMENT PLANS
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

50% SUBMISSION
NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

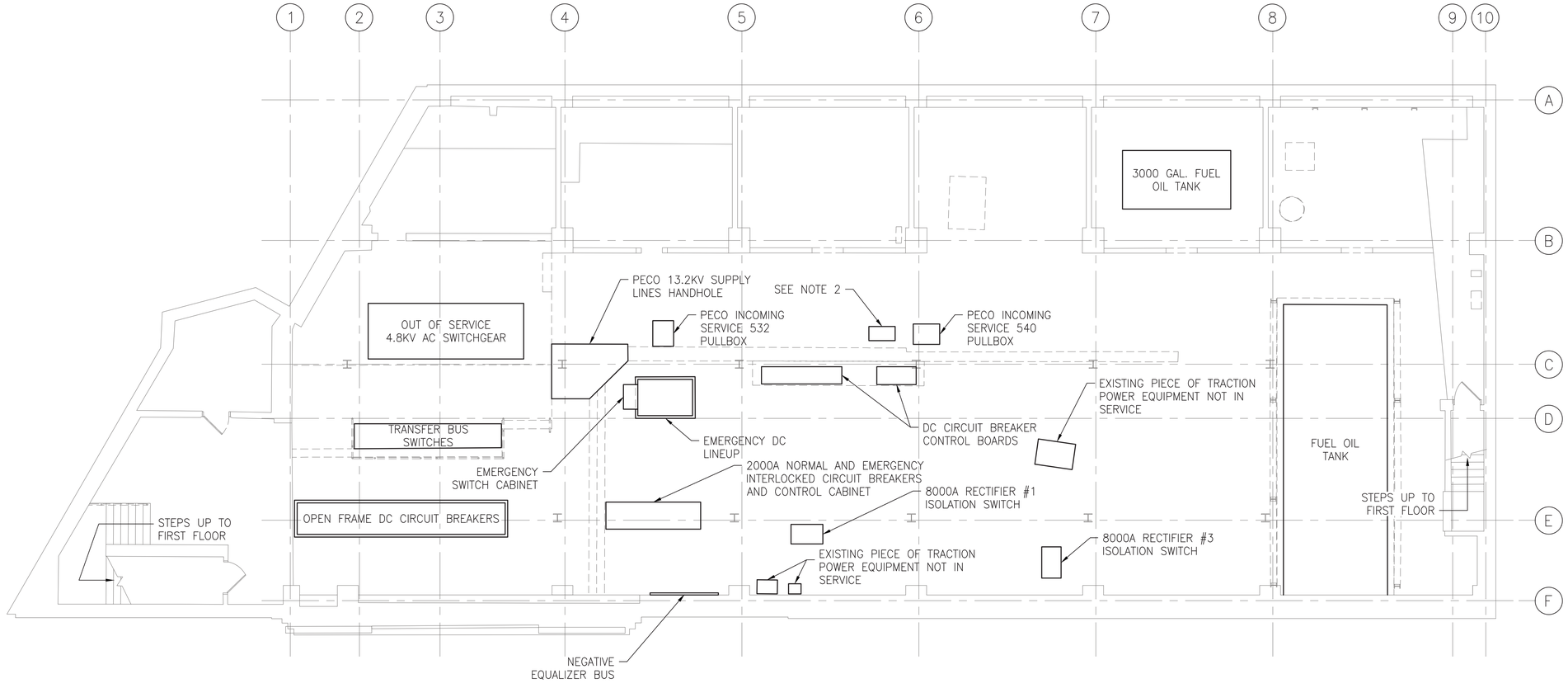
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
EXISTING MEZZANINE & FIRST FLOOR EQUIPMENT PLANS

SCALE: AS SHOWN
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: MJB
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP107**
DWG. NO.: 6 OF 34
SHT. NO.: 96 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP107
REV. NO.: -

STATUS: 50% SUBMISSION

NOTES:

1. BOLD ITEMS ON THIS DRAWING TO BE DEMOLISHED.
2. EXISTING EXPOSED PECO FEED 540 13.2KV SPLICE SUPPORTED ON CONCRETE BLOCKS.



1 / TP108 EXISTING BASEMENT EQUIPMENT PLAN
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

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Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
EXISTING BASEMENT EQUIPMENT PLAN

SCALE: AS SHOWN	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MLB / CHECKED BY: YL
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP108**	
DWG. NO.: 7 OF 34	
SHT. NO.: 97 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP108	REV. NO.: -

STATUS: 50% SUBMISSION

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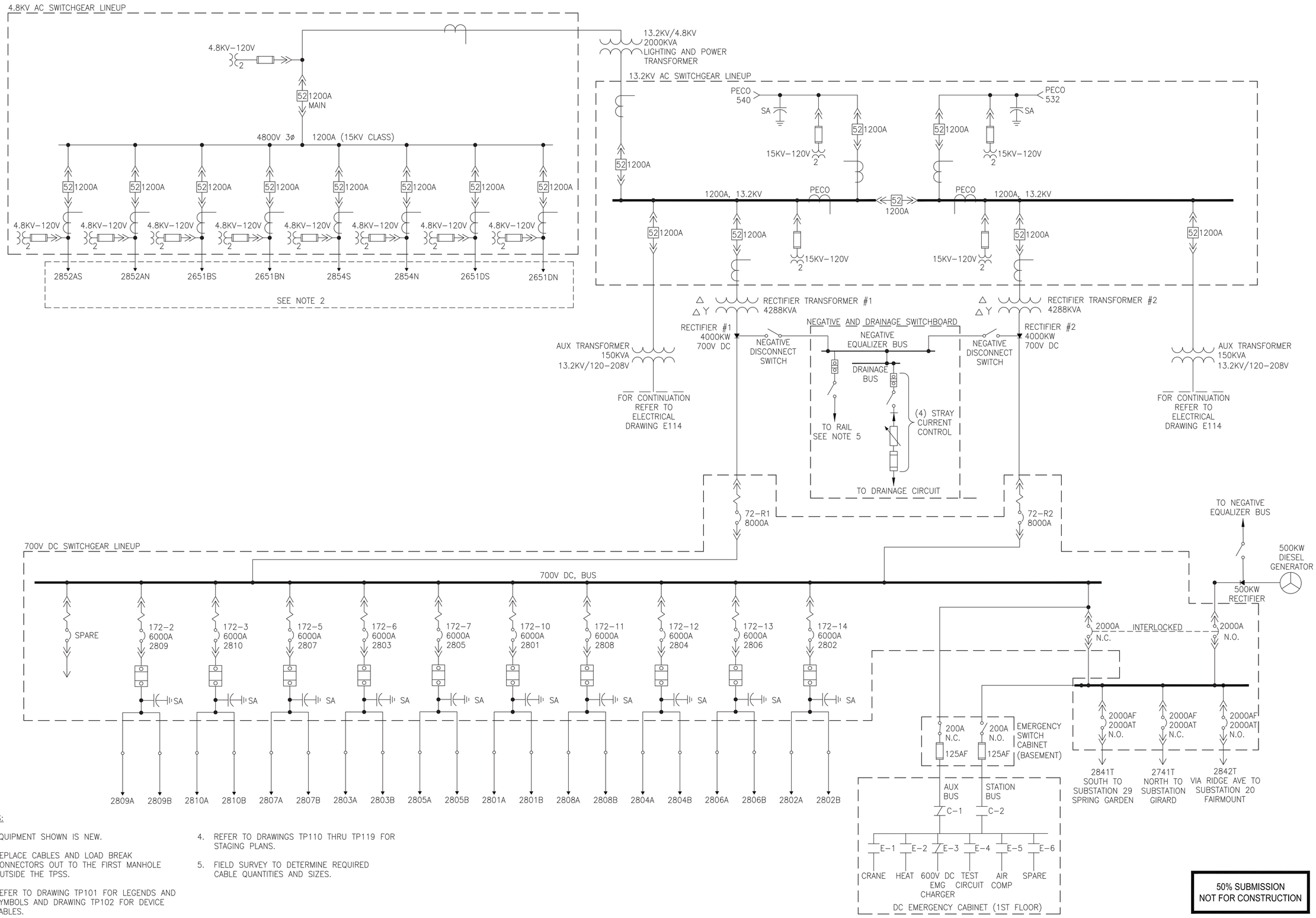

NOTES:

1. EQUIPMENT SHOWN IS NEW.
2. REPLACE CABLES AND LOAD BREAK CONNECTORS OUT TO THE FIRST MANHOLE OUTSIDE THE TPSS.
3. REFER TO DRAWING TP101 FOR LEGENDS AND SYMBOLS AND DRAWING TP102 FOR DEVICE TABLES.
4. REFER TO DRAWINGS TP110 THRU TP119 FOR STAGING PLANS.
5. FIELD SURVEY TO DETERMINE REQUIRED CABLE QUANTITIES AND SIZES.

50% SUBMISSION
NOT FOR CONSTRUCTION

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PROJECT MANAGER

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Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
PROPOSED SINGLE LINE DIAGRAM

SCALE: N.T.S.	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
WORK ORDER NO.: 276491	CHECKED BY: BH
SHEET NUMBER: **TP109**	
DWG. NO.: 8 OF 34	
SHT. NO.: 98 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP109	REV. NO.: -

STATUS: 50% SUBMISSION

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OUTAGE TYPES:

1. SHORT TERM OUTAGES

   a. "RUSH TO RUSH" OUTAGES:

      THESE OUTAGES WILL OCCUR AS NEEDED BETWEEN 0900–1500.

   b. OVERNIGHT OUTAGES:

      OVERNIGHT OUTAGES WILL TAKE PLACE BETWEEN 0030–0430 MONDAY THROUGH FRIDAY.

STAGING NOTES:

1. REHABILITATION OF THE TPSS SHALL PROCEED IN STAGES. REMOVAL OF EXISTING EQUIPMENT AND INSTALLATION OF NEW EQUIPMENT SHALL BE SEQUENCED SO PART OF THE SUBSTATION SHALL BE AVAILABLE TO PROVIDE TRACTION POWER TO THE SYSTEM.
2. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ALL REQUIRED TEMPORARY CONTROL, BATTERY, AND POWER CABLE CONNECTIONS, AND ANY EQUIPMENT AND WORK NEEDED FOR THE SEAMLESS TRANSFER OF OPERATIONS FROM EXISTING TO NEW EQUIPMENT AT NO ADDITIONAL COST TO SEPTA.
3. WORKERS CANNOT WORK WITHIN 15 FEET OF ENERGIZED CONDUCTORS UNLESS A PROTECTIVE BARRIER IS IN PLACE.
4. STAGING DRAWINGS ARE INTENDED TO COMPLEMENT THIS DRAWING SET. ALL WORK IS NOT NECESSARILY DISCUSSED IN THE STAGING PLANS. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK SHOWN ON THE DRAWINGS AND SPECIFICATIONS.
5. SURFACE PREPARATION AND PAINTING CAN BE PERFORMED AT ANY TIME UNLESS ELECTRICAL CLEARANCES REQUIRE OUTAGES. THE CONTRACTOR SHALL SUBMIT A PAINTING PLAN TO SEPTA FOR APPROVAL PRIOR TO SCHEDULING WORK. IN GENERAL, PAINTING IN THE VICINITY OF ELECTRICAL EQUIPMENT MUST BE COORDINATED WITH PLANNED ACTIVITIES IN AND AROUND THESE ITEMS. IT IS ANTICIPATED THAT "RUSH TO RUSH" AND WEEKEND OUTAGES WILL BE USED REGULARLY FOR PAINTING ACTIVITIES. IT IS SEPTA'S INTENT THAT PAINTING AROUND AND ABOVE EQUIPMENT SHALL TAKE PLACE PRIOR TO EQUIPMENT REPLACEMENT.
6. THE CONTRACTOR IS ENCOURAGED TO MODIFY OUTAGE SCHEDULE TO OPTIMIZE WORK. ANY REVISIONS MUST BE APPROVED BY SEPTA.

STAGING COORDINATION WITH BROAD STREET LINE TRACTION POWER SUBSTATIONS:

1. THE CONTRACTOR SHALL COORDINATE STAGING PLAN WITH OVERALL STAGING IN THIS CONTRACT. COORDINATION SHALL BE THROUGH SEPTA.

OPERATIONAL CONSTRAINTS DURING CONSTRUCTION:

1. AT LEAST ONE RECTIFIER UNIT SHALL REMAIN IN SERVICE AT ALL TIMES DURING REHABILITATION WORK, EXCEPT DURING SHORT TERM OUTAGES AS SHOWN ON THIS DRAWING.

STAGING ACTIVITIES:

STAGE 1 (DRAWINGS TP111 THRU TP113):

1. REMOVE OUT OF SERVICE EQUIPMENT.
2. INSTALL TEMPORARY PROTECTIVE BARRIERS AROUND EXISTING DC SWITCHGEAR.
3. REMOVE CONCRETE ENCASED FUEL OIL TANK IN PIECES USING THE EXISTING ACCESS POINTS.
4. CUT AND REINFORCE WALL TO ACCOMMODATE NEW RECTIFIER TRANSFORMER LAYOUT.
5. REMOVE EXISTING RECTIFIER TRANSFORMER SET #1. REMOVE EXISTING 8000A RECTIFIER #1 ISOLATION SWITCH IN THE BASEMENT.
6. INSTALL NEW RTU/HMI EQUIPMENT. INSTALL CONTROL POWER AND RTU/HMI INTERCONNECTIONS. TRANSFER CONTROL OF EXISTING TP EQUIPMENT STILL IN OPERATION TO NEW RTU/HMI, TEST THE OPERATION. REMOVE EXISTING RTU AND SCADA CABINETS.
7. INSTALL NEW BATTERY SET, DISCONNECT SWITCH, CHARGER, AND 125V DC DISTRIBUTION PANEL. ENERGIZE THE NEW BATTERY SYSTEM FROM EXISTING POWER DISTRIBUTION PANEL ON THE TEMPORARY BASIS. TIE–IN ON THE TEMPORARY BASIS NEW AND EXISTING 125V DC BATTERY DISTRIBUTION PANELS. REMOVE EXISTING BATTERY SET WITH ASSOCIATED EQUIPMENT. THE EXISTING 125V DC BATTERY DISTRIBUTION PANEL SHALL REMAIN UNTIL ALL CONTROL CIRCUITS ARE TRANSFERRED TO NEW 125V DC PANEL.
8. REMOVE EXISTING EMERGENCY SWITCH CABINET AND EMERGENCY DC LINEUP (BASEMENT). REMOVE EXISTING DC EMERGENCY CABINET, EXISTING 400KW RECTIFIER, EXISTING 400KW GENERATOR SET AND EXISTING ENCLOSURE WITH INTERLOCKED 2000A CIRCUIT BREAKERS CONNECTING 400KW RECTIFIER TO EXISTING EMERGENCY DC LINEUP.
9. INSTALL INSULATED FLOOR COVERING, BUS WORK, AND NEW DC SWITCHGEAR LINEUP IN THE BASEMENT. INSTALL NEW DC CIRCUIT BREAKER TEST CABINET.
10. INSTALL NEW TRANSFORMER RECTIFIER SET #1 AND TEMPORARY FEED IT FROM EXISTING 13.2KV AC SWITCHGEAR.
11. CONNECT NEW TRANSFORMER RECTIFIER SET #1 TO NEW DC CIRCUIT BREAKER 72–R1.
12. INSTALL NEW NEGATIVE EQUALIZER BUS WITH NEW DRAINAGE SWITCHBOARD. CONNECT NEW TRANSFORMER RECTIFIER SET #1 TO NEW NEGATIVE SYSTEM,
13. TEMPORARY CONNECT EXIST TRANSFORMER RECTIFIER SET #3 TO NEW NEGATIVE SYSTEM. REMOVE EXISTING NEGATIVE EQUALIZER BUS.
14. INSTALL NEW 500KW RECTIFIER AND NEW 500KW GENERATOR SET. CONNECT NEW RECTIFIER TO NEW 2000A DC BREAKER WHICH IS PART OF NEW DC SWITCHGEAR LINEUP. CONNECT RECTIFIER TO NEW NEGATIVE SYSTEM.
15. INSTALL NEW EMERGENCY SWITCH CABINET AND NEW DC EMERGENCY CABINET.
16. INSTALL NEW FEEDER CABLES FROM NEW 700V DC SWITCHGEAR ONE TRACK AT A TIME. EXISTING FEEDERS NEED TO BE REMOVED FIRST TO MAKE ROOM IN THE EXISTING DUCT BANK TO INSTALL NEW FEEDER. COORDINATE WITH SEPTA FOR APPROVAL.
17. DE–ENERGIZE AND DISCONNECT 4.8KV FEEDERS. DE–ENERGIZE AND DISCONNECT 2000KVA LIGHTING AND POWER TRANSFORMER, 167KVA SIGNAL TRANSFORMER, AND 4.8KV/120–208 AUXILIARY TRANSFORMER. REMOVE THESE TRANSFORMERS AND 4.8KV SWITCHGEARS.
18. FIELD SURVEY AND PROVIDE FINAL DESIGN FOR THE REPLACEMENT OF THE DC REMOTE CONTROL PANEL (CABINET).

STAGE 2 (DRAWINGS TP114 THRU TP116):

1. OPEN EXISTING MV DRAWOUT CIRCUIT BREAKER AND DISCONNECT CONDUCTORS TO EXISTING TRANSFORMER RECTIFIER SET #3. REMOVE EXISTING TRANSFORMER RECTIFIER SET #3, EXISTING 8000A RECTIFIER #3 ISOLATION SWITCH.
2. INSTALL NEW 13.2KV AC MV SWITCHGEAR LINEUP.
3. INSTALL TWO (2) NEW 150KVA, 13.2KV/120–208V AUXILIARY TRANSFORMERS AND CONNECT TRANSFORMERS TO NEW 13.2KV SWITCHGEAR.
4. DISCONNECT PECO FEEDER 532 FROM THE EXISTING 13.2KV AC SWITCHGEAR, TRANSFER THE FEEDER TO THE NEW 13.2KV AC SWITCHGEAR AND ENERGIZE IT.
5. PLACE IN SERVICE BOTH 150KVA, 13.2KV/120–208V AUXILIARY TRANSFORMERS AND REMOVE EXISTING AUXILIARY TRANSFORMERS.
6. INSTALL NEW TRANSFORMER RECTIFIER SET #2 (IN PLACE OF SET #3) WITH CONNECTIONS TO NEW 13.2KV AC SWITCHGEAR, NEW 700V DC BREAKER 72–R2 AND NEGATIVE EQUALIZER BUS.
7. AFTER TRANSFORMER RECTIFIER SET #2 IS IN SERVICE, DISCONNECT PECO FEEDER 540 FROM THE EXISTING 13.2KV AC SWITCHGEAR, TRANSFER THE FEEDER TO THE NEW 13.2KV AC SWITCHGEAR AND ENERGIZE IT.
8. DISCONNECT THE TRANSFORMER RECTIFIER SET #1 FROM EXISTING 13.2KV AC SWITCHGEAR AND RECONNECT THE SET TO THE NEW 13.2KV AC SWITCHGEAR.
9. REMOVE EXISTING 13.2KV AC SWITCHGEARS.
10. REMOVE EXISTING 3000 GAL. AND INSTALL NEW FUEL OIL TANK FOR NEW GENERATOR.

STAGE 3 (DRAWINGS TP117 THRU TP119):

1. INSTALL NEW 4.8KV AC SWITCHGEAR AND 2000KVA LIGHTING AND POWER TRANSFORMER.
2. CONNECT NEW 2000KVA LIGHTING AND POWER TRANSFORMER TO NEW 13.2KV AC SWITCHGEAR..
3. DE–ENERGIZE EXISTING DC CIRCUIT BREAKERS, OPEN HATCH IN FIRST FLOOR SLAB WHERE THERE IS A FORMER CUT TO REMOVE THE EXISTING DC CIRCUIT BREAKERS.
4. LEVEL THE FLOOR.

NOTES:

1. REMOVE INDICATES REMOVAL AND PROPER DISPOSAL OF EQUIPMENT AFTER SEPTA HAS SALVAGED PARTS THROUGHOUT CONTRACT.

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGING ACTIVITIES & NOTES

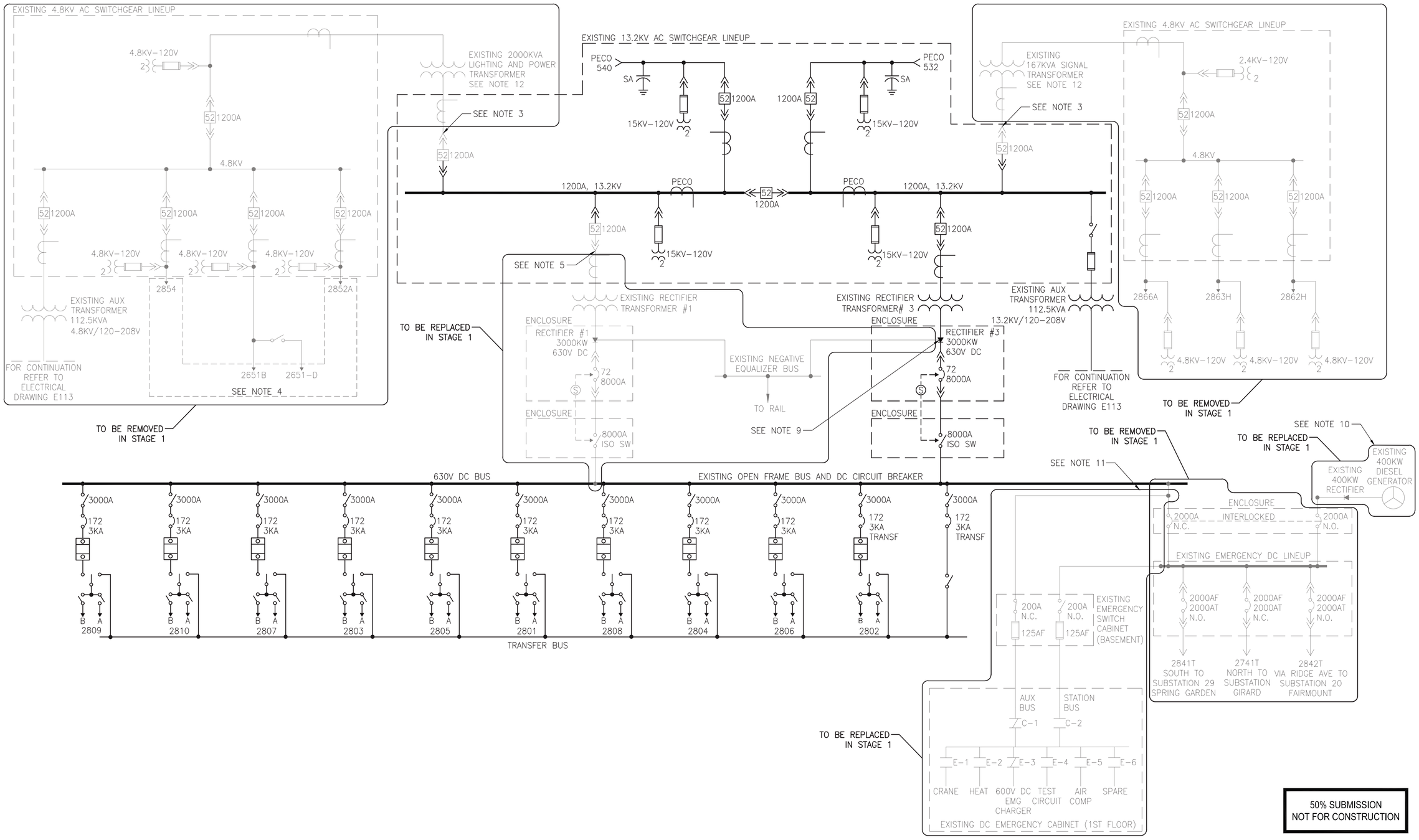
SCALE: NTS | SCALE FACTOR: -
DATE: 08/22/2025 | DRAWN BY: ARG | CHECKED BY: CL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP110**
DWG. NO.: 9 OF 34
SHT. NO.: 99 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP110 | REV. NO.: -

STATUS: 50% SUBMISSION

C:\PW\WORKING\PITTD1\95948\17AN-TP110.DWG

NOTES:

1. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 1.
2. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE-ENERGIZED DURING STAGE 1.
3. OPEN EXISTING MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER AND DISCONNECT CONDUCTORS FROM LOAD SIDE OF CIRCUIT BREAKER.
4. DE-ENERGIZE AND DISCONNECT EXISTING CONDUCTORS FROM EXISTING 4.8 KV SWITCHGEAR.
5. OPEN EXISTING MEDIUM VOLTAGE CIRCUIT BREAKER AND DISCONNECT CONDUCTORS FROM LOAD SIDE OF THIS CIRCUIT BREAKER. REMOVE TRANSFORMER RECTIFIER SET #1. REMOVE 8000A RECTIFIER #1 ISOLATION SWITCH.
6. INSTALL NEW TRANSFORMER RECTIFIER SET #1 AND TEMPORARY CONNECT THIS SET TO EXISTING 13.2KV AC SWITCHGEAR.
7. INSTALL NEW 700V DC SWITCHGEAR LINEUP IN THE BASEMENT. CONNECT NEW RECTIFIER TRANSFORMER SET #1 TO NEW 700V DC SWITCHGEAR.
8. INSTALL NEW NEGATIVE EQUALIZER BUS WITH NEW DRAINAGE SWITCHBOARD. CONNECT NEW RECTIFIER TRANSFORMER SET #1 TO NEW NEGATIVE SYSTEM.
9. DISCONNECT NEGATIVE CONDUCTORS FROM EXISTING RECTIFIER #3. TEMPORARY CONNECT EXISTING RECTIFIER #3 TO NEW NEGATIVE AND DRAINAGE SWITCHBOARD.
10. DISCONNECT CONDUCTORS FROM EXISTING 400KW GENERATOR SET. REMOVE EXISTING 400KW RECTIFIER AND 400KW GENERATOR SET. INSTALL NEW 500KW RECTIFIER AND 500KW GENERATOR SET. INTERCONNECT WITH NEW 700V DC SWITCHGEAR AND NEGATIVE EQUALIZER BUS.
11. REMOVE EXISTING AND INSTALL NEW EMERGENCY SWITCH CABINET AND DC EMERGENCY CABINET.
12. REMOVE EXISTING 2000KVA LIGHTING AND POWER XFMR, 167KVA SIGNAL XFMR, AND 4.8KV SWITCHGEARS.
13. REFER TO DRAWING TP101 FOR LEGENDS AND SYMBOLS AND DRAWING TP102 FOR DEVICE TABLES.
14. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.



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MANAGER - ARCH / ENGINEERING
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Philadelphia, PA

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DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 1 SINGLE LINE DIAGRAM

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MB
	CHECKED BY: VS
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP111**	
DWG. NO.: 10 OF 34	
SHT. NO.: 100 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP111	REV. NO.: -

STATUS: 50% SUBMISSION

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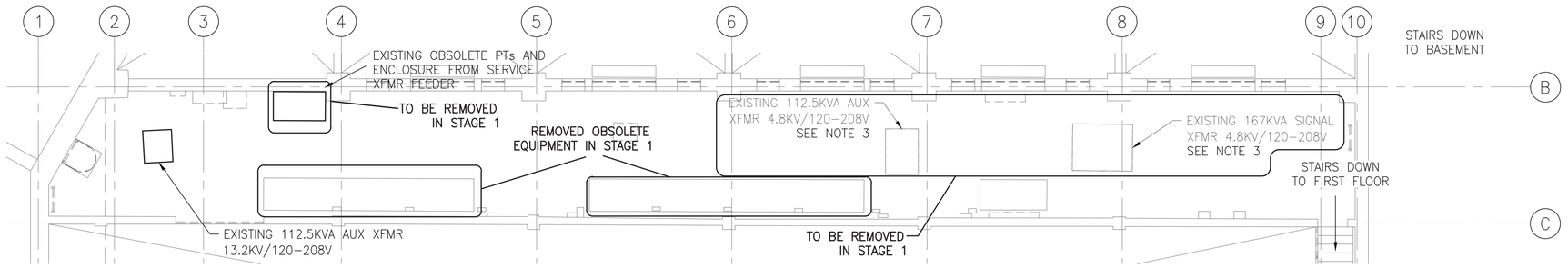
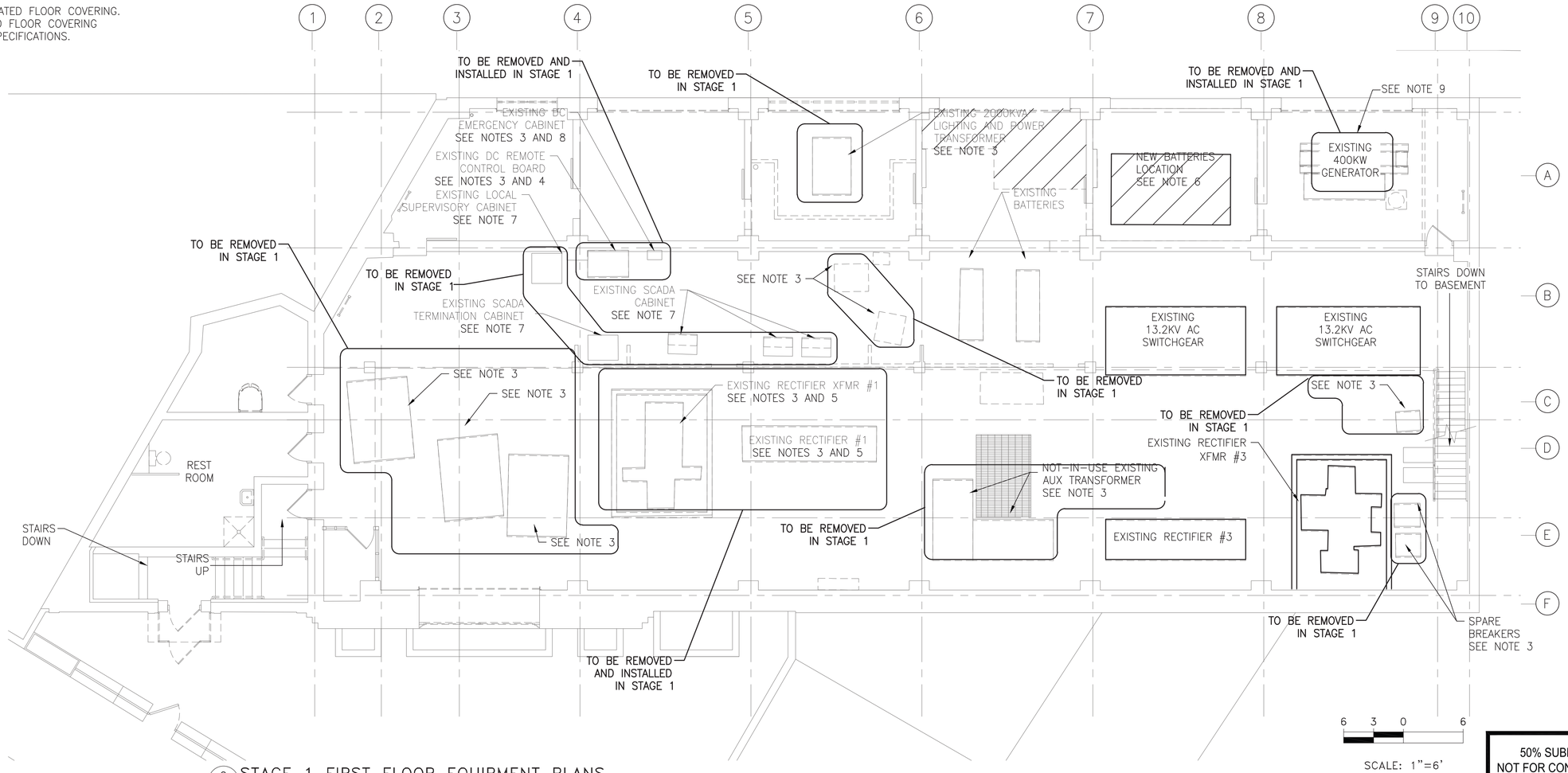
NOTES:

1. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE-ENERGIZED DURING STAGE 1.
2. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 1.
3. REMOVE EQUIPMENT AFTER SEPTA HAS SALVAGED PARTS.
4. REMOVE EXISTING DC REMOTE CONTROL BOARD AND INSTALL NEW DC REMOTE CONTROL BOARD.
5. REMOVE EXISTING RECTIFIER TRANSFORMER SET #1. INSTALL NEW RECTIFIER TRANSFORMER SET #1 AND CONNECT TO NEW 700V DC SWITCHGEAR IN BASEMENT.
6. INSTALL NEW BATTERIES ON FIRST FLOOR.
7. REMOVE EXISTING LOCAL SUPERVISORY CABINET, SCADA TERMINATION CABINET AND SCADA CABINETS. CONNECT NEW AND EXISTING EQUIPMENT TO NEW INTERFACE CABINET AND RTU/HMI.
8. REMOVE EXISTING DC EMERGENCY CABINET AND INSTALL NEW DC EMERGENCY CABINET.
9. REMOVE EXISTING 400KW GENERATOR SET AND INSTALL NEW 500KW GENERATOR SET.
10. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.
11. REMOVE EXISTING INSULATED FLOOR COVERING. PROVIDE NEW INSULATED FLOOR COVERING CONFORMING TO THE SPECIFICATIONS.



1 TP112 STAGE 1 MEZZANINE EQUIPMENT PLANS
SCALE: 1" = 6'



2 TP112 STAGE 1 FIRST FLOOR EQUIPMENT PLANS
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

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DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

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Philadelphia, PA

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DATE PRINTED: 10/21/2025

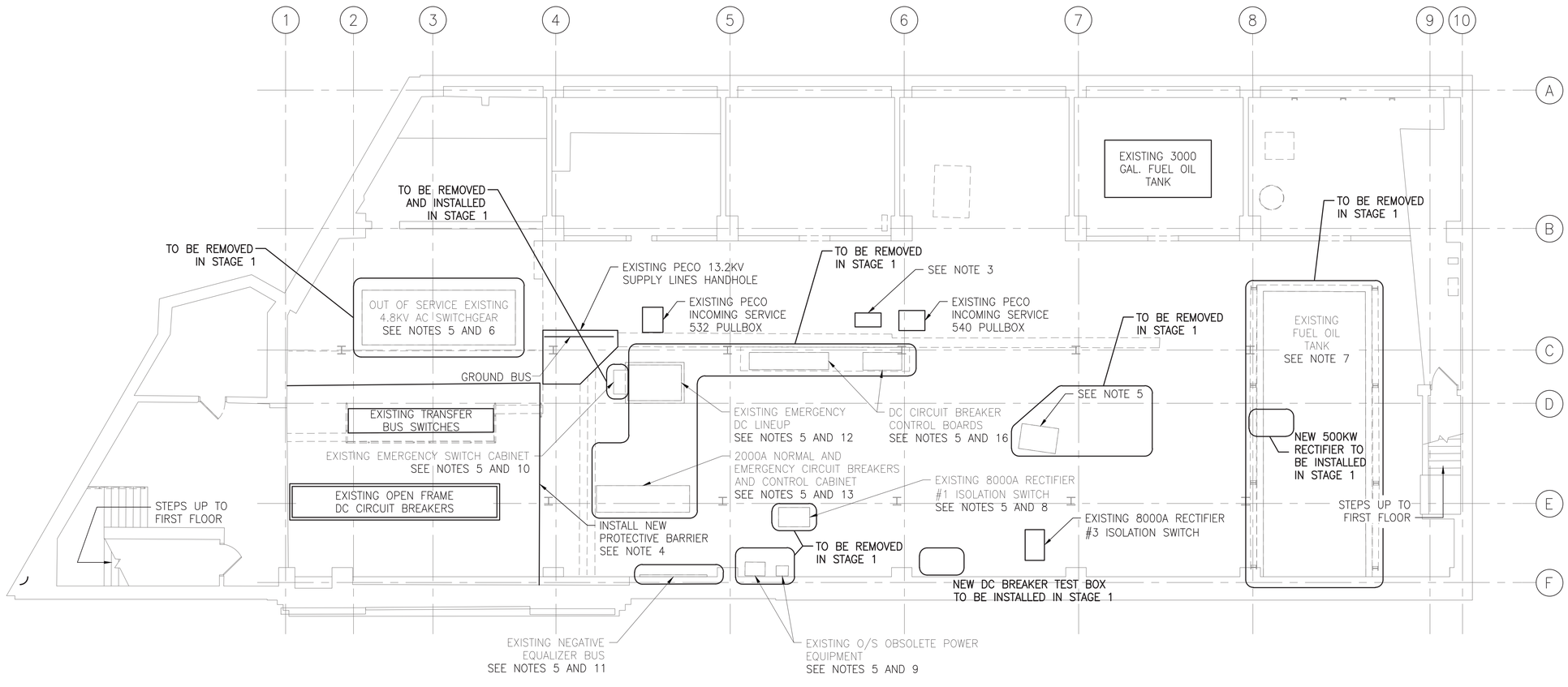
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 1 MEZZANINE & FIRST FLOOR EQUIPMENT PLANS

SCALE: NTS
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: ARG
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP112**
DWG. NO.: 11 OF 34
SHT. NO.: 101 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP112
REV. NO.: -

STATUS: 50% SUBMISSION

NOTES:

1. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE-ENERGIZED DURING STAGE 1.
2. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 1.
3. PROTECT EXISTING EXPOSED PECO FEED 540 13.2KV SPLICE SUPPORTED ON CONCRETE BLOCKS.
4. INSTALL TEMPORARY PROTECTIVE BARRIERS AROUND EXISTING DC EQUIPMENT.
5. REMOVE EQUIPMENT AFTER SEPTA HAS SALVAGED PARTS.
6. REMOVE 4.8KV AC SWITCHGEAR.
7. REMOVE CONCRETE ENCASED FUEL OIL TANK IN PILES USING THE EXISTING ACCESS POINTS. FILL IN AND RESTORE FLOOR. COORDINATE REMOVAL WITH SEPTA SYSTEM SAFETY ENVIRONMENTAL DEPARTMENT.
8. REMOVE EXISTING 8000A RECTIFIER #1 ISOLATION SWITCH.
9. REMOVE EXISTING O/S OBSOLETE POWER EQUIPMENT.
10. REMOVE EXISTING EMERGENCY SWITCH CABINET AND INSTALL NEW EMERGENCY SWITCH CABINET.
11. INSTALL NEW NEGATIVE AND DRAINAGE SWITCHBOARD. TEMPORARY CONNECT EXISTING RECTIFIER SET #3 TO NEW NEGATIVE SYSTEM. CONNECT NEW TRANSFORMER RECTIFIER SET #1 AND NEW 500KVA EMERGENCY RECTIFIER TO NEW NEGATIVE SYSTEM. REMOVE EXISTING NEGATIVE EQUALIZER BUS.
12. REMOVE EXISTING EMERGENCY DC LINEUP.
13. REMOVE EXISTING 2000A NORMAL AND EMERGENCY CIRCUIT BREAKERS AND CONTROL CABINET.
14. REMOVE EXISTING EMERGENCY RECTIFIER AND INSTALL NEW 500KW EMERGENCY RECTIFIER.
15. INSTALL NEW 700V DC SWITCHGEAR. REMOVE DC FEEDER CONNECTIONS FROM EXISTING 630V DC EQUIPMENT AND MAKE NEW CONNECTIONS TO NEW 700V DC SWITCHGEAR.
16. REMOVE EXISTING DC CIRCUIT BREAKER CONTROL BOARDS.
17. REMOVE EXISTING INSULATED FLOOR COVERING. PROVIDE NEW INSULATED FLOOR COVERING CONFORMING TO THE SPECIFICATIONS.
18. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.



1 / TP113 STAGE 1 BASEMENT EQUIPMENT PLAN
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

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MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

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Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

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BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 1 BASEMENT EQUIPMENT PLAN

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
	CHECKED BY: YL
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP113**	
DWG. NO.: 12 OF 33	
SHT. NO.: 102 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP113	REV. NO.: -

STATUS: 50% SUBMISSION

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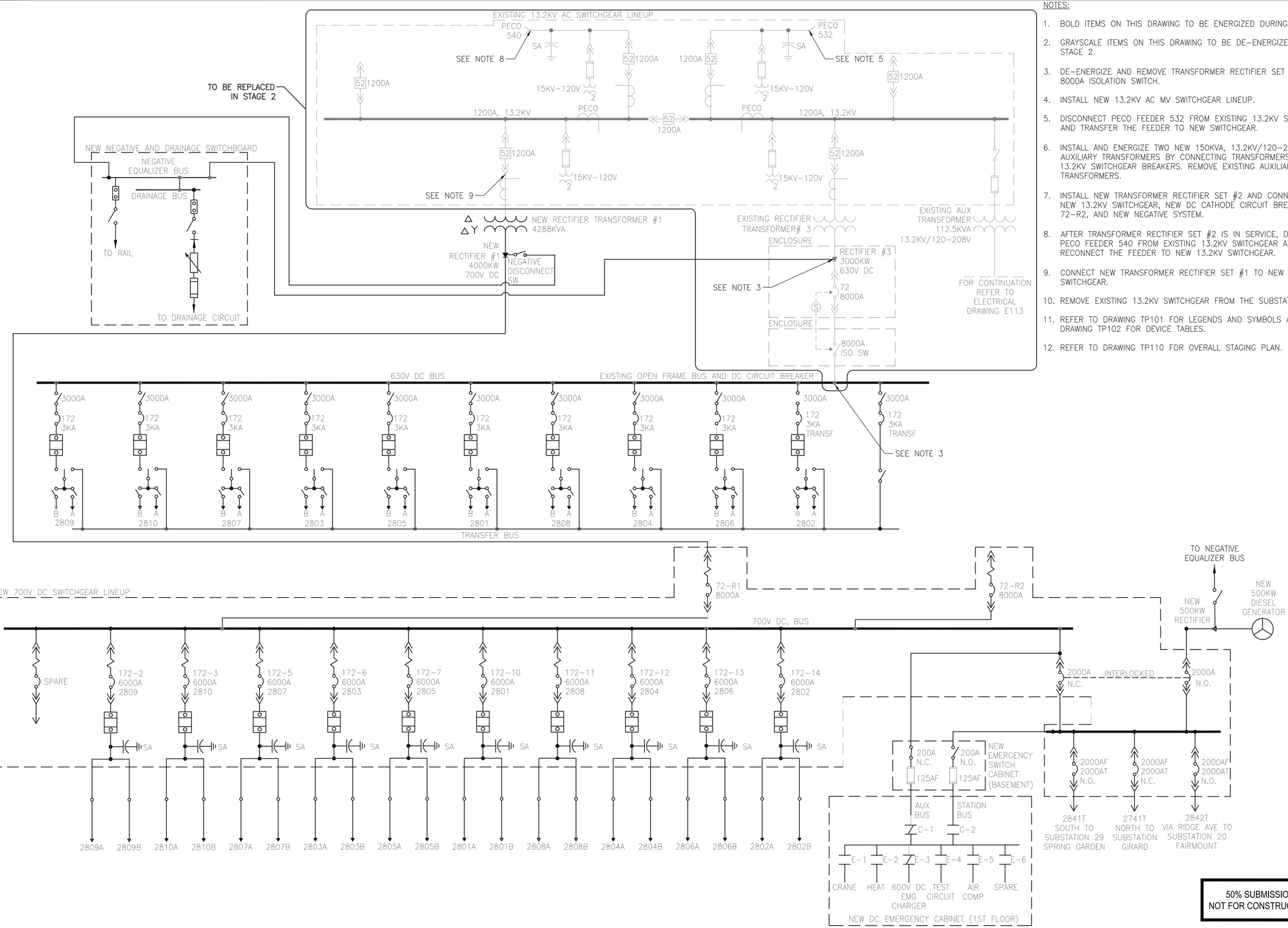

NOTES:

1. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 2.
2. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE–ENERGIZED DURING STAGE 2.
3. DE–ENERGIZE AND REMOVE TRANSFORMER RECTIFIER SET #3 WITH 8000A ISOLATION SWITCH.
4. INSTALL NEW 13.2KV AC MV SWITCHGEAR LINEUP.
5. DISCONNECT PECO FEEDER 532 FROM EXISTING 13.2KV SWITCHGEAR AND TRANSFER THE FEEDER TO NEW SWITCHGEAR.
6. INSTALL AND ENERGIZE TWO NEW 150KVA, 13.2KV/120–208V AUXILIARY TRANSFORMERS BY CONNECTING TRANSFORMERS TO NEW 13.2KV SWITCHGEAR BREAKERS. REMOVE EXISTING AUXILIARY TRANSFORMERS.
7. INSTALL NEW TRANSFORMER RECTIFIER SET #2 AND CONNECT IT TO NEW 13.2KV SWITCHGEAR, NEW DC CATHODE CIRCUIT BREAKER 72–R2, AND NEW NEGATIVE SYSTEM.
8. AFTER TRANSFORMER RECTIFIER SET #2 IS IN SERVICE, DISCONNECT PECO FEEDER 540 FROM EXISTING 13.2KV SWITCHGEAR AND RECONNECT THE FEEDER TO NEW 13.2KV SWITCHGEAR.
9. CONNECT NEW TRANSFORMER RECTIFIER SET #1 TO NEW 13.2KV SWITCHGEAR.
10. REMOVE EXISTING 13.2KV SWITCHGEAR FROM THE SUBSTATION.
11. REFER TO DRAWING TP101 FOR LEGENDS AND SYMBOLS AND DRAWING TP102 FOR DEVICE TABLES.
12. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 2 SINGLE LINE DIAGRAM

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: YL
WORK ORDER NO.: 276491	CHECKED BY: YS
SHEET NUMBER: **TP114**	
DWG. NO.: 13 OF 34	
SHT. NO.: 103 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP114	REV. NO.: -

STATUS: 50% SUBMISSION

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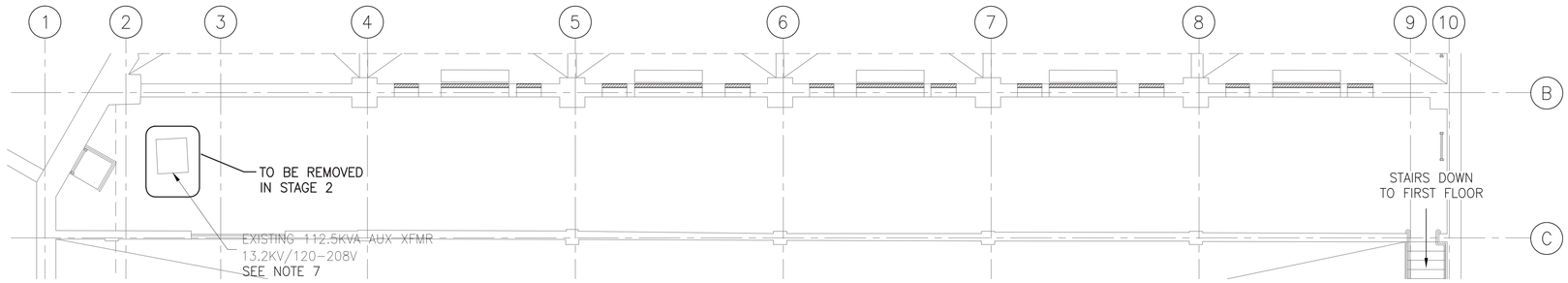
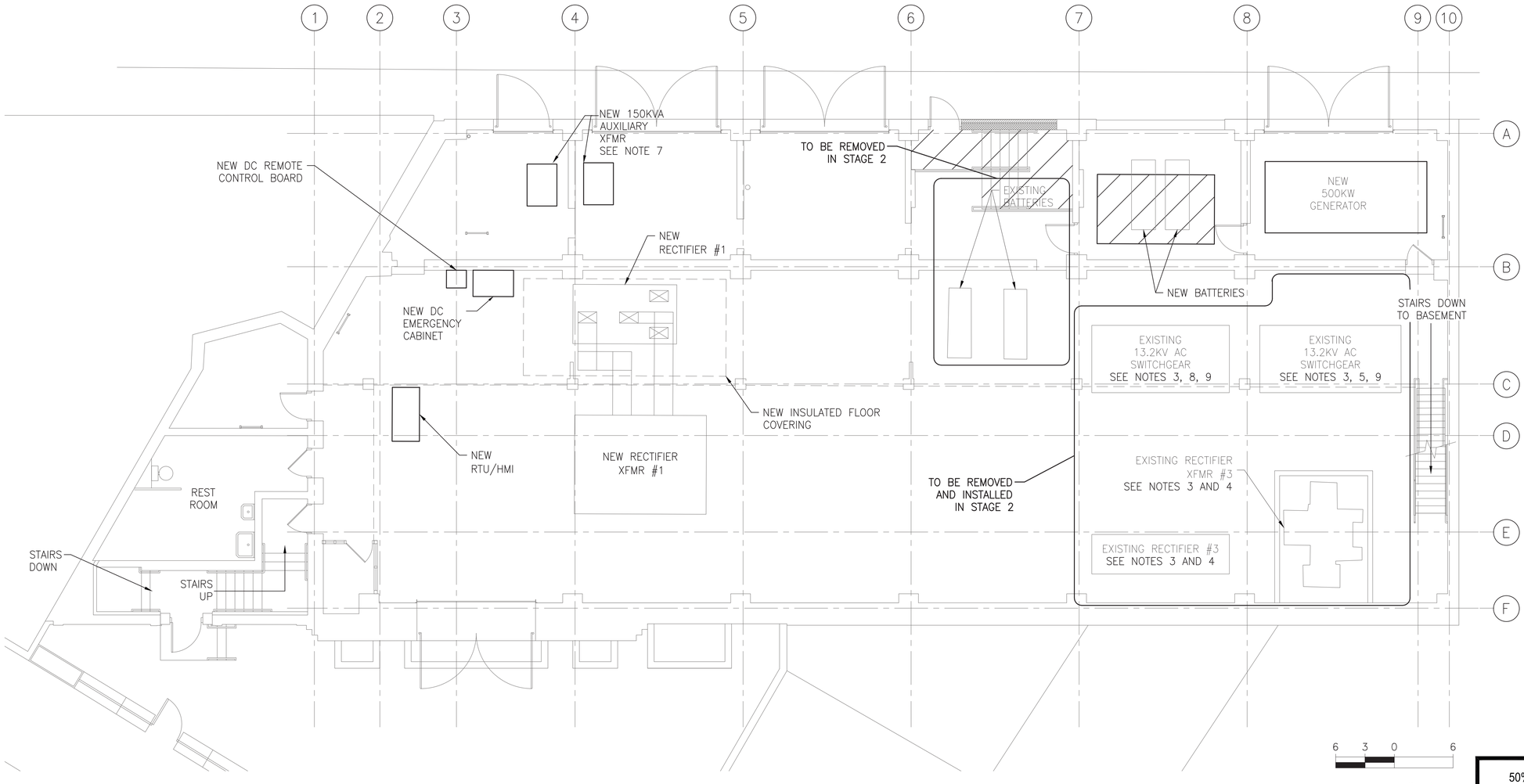
NOTES:

1. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE–ENERGIZED DURING STAGE 2.
2. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 2.
3. REMOVE EQUIPMENT AFTER SEPTA HAS SALVAGED PARTS.
4. REMOVE EXISTING RECTIFIER TRANSFORMER SET #3.
5. INSTALL NEW 13.2KV AC SWITCHGEAR. TRANSFER PECO FEEDER 532 TO NEW SWITCHGEAR.
6. INSTALL NEW RECTIFIER TRANSFORMER SET #2.
7. INSTALL TWO (2) NEW 150KVA AUXILIARY TRANSFORMERS. REMOVE EXISTING AUXILIARY TRANSFORMER FROM MEZZANINE.
8. AFTER NEW TRANSFORMER RECTIFIER SET #2 IS IN SERVICE, TRANSFER PECO FEEDER 540 TO NEW 13.2KV SWITCHGEAR.
9. REMOVE EXISTING 13.2KV SWITCHGEAR.
10. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.
11. REMOVE EXISTING INSULATED FLOOR COVERING. PROVIDE NEW INSULATED FLOOR COVERING CONFORMING TO THE SPECIFICATIONS.



1 TP115 STAGE 2 MEZZANINE EQUIPMENT PLANS
SCALE: 1" = 6'



2 TP115 STAGE 2 FIRST FLOOR EQUIPMENT PLANS
SCALE: 1" = 6'

50% SUBMISSION
NOT FOR CONSTRUCTION

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DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR
HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

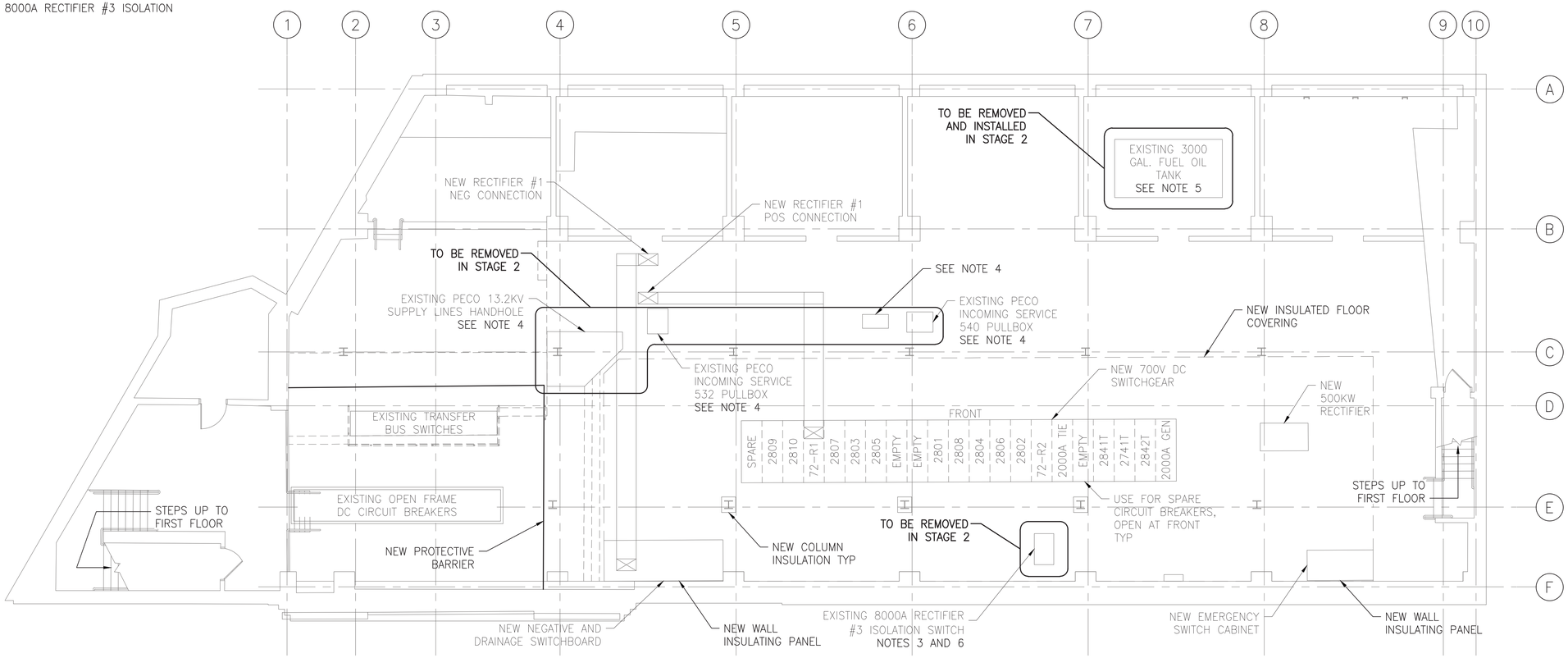
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 2 MEZZANINE & FIRST FLOOR EQUIPMENT PLANS

STATUS: 50% SUBMISSION

SCALE: AS SHOWN
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: YL
CHECKED BY: YS
WORK ORDER NO.: 276491
SHEET NUMBER: **TP115**
DWG. NO.: 14 OF 34
SHT. NO.: 104 OF 453
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP115
REV. NO.: -

NOTES:

1. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE-ENERGIZED DURING STAGE 2.
2. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 2.
3. REMOVE EQUIPMENT AFTER SEPTA HAS SALVAGED PARTS.
4. REMOVE EXISTING PECO HANDHOLE, PULLBOXES AND EXPOSED CABLE SPLICE. INSTALL NEW PULLBOXES AND CONDUITS TO SUPPLY NEW 13.2KV AC SWITCHGEAR ON FIRST FLOOR.
5. REMOVE EXISTING GENERATOR FUEL OIL TANK AND INSTALL A NEW GENERATOR FUEL OIL TANK. COORDINATE REMOVAL WITH SEPTA SYSTEM SAFETY ENVIRONMENTAL DEPARTMENT.
6. REMOVE EXISTING 8000A RECTIFIER #3 ISOLATION SWITCH.
7. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.



1 / TP116 STAGE 2 BASEMENT EQUIPMENT PLAN
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

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EM&C DIVISION
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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 2 BASEMENT EQUIPMENT PLAN

SCALE: AS SHOWN	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
WORK ORDER NO.: 276491	CHECKED BY: YL

SHEET NUMBER
TP116

DWG. NO.:	15	OF	34
SHT. NO.:	105	OF	448

ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-TP116
REV. NO.: -

STATUS: 50% SUBMISSION

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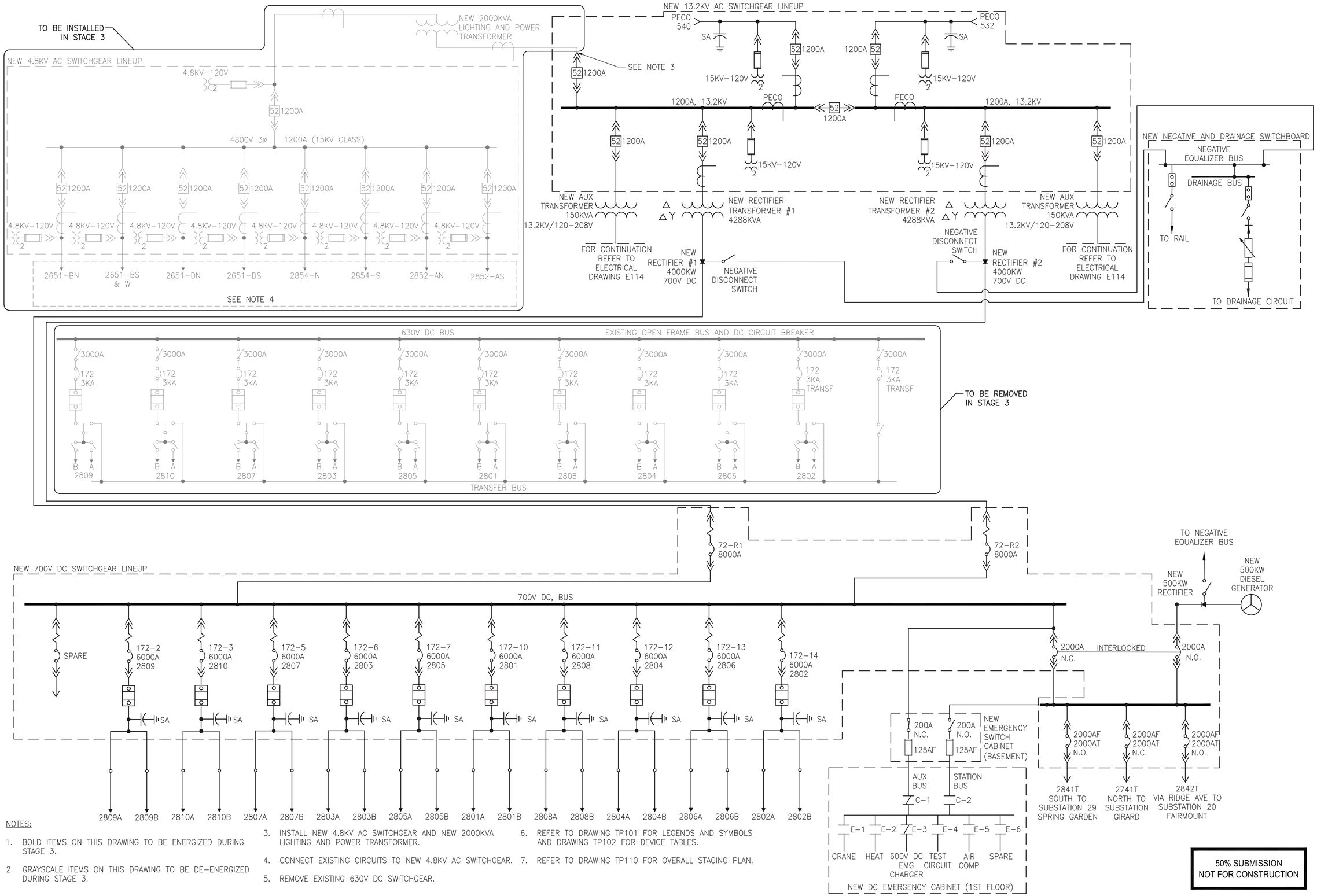

NOTES:

1. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 3.
2. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE–ENERGIZED DURING STAGE 3.
3. INSTALL NEW 4.8KV AC SWITCHGEAR AND NEW 2000KVA LIGHTING AND POWER TRANSFORMER.
4. CONNECT EXISTING CIRCUITS TO NEW 4.8KV AC SWITCHGEAR.
5. REMOVE EXISTING 630V DC SWITCHGEAR.
6. REFER TO DRAWING TP101 FOR LEGENDS AND SYMBOLS AND DRAWING TP102 FOR DEVICE TABLES.
7. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.

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MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

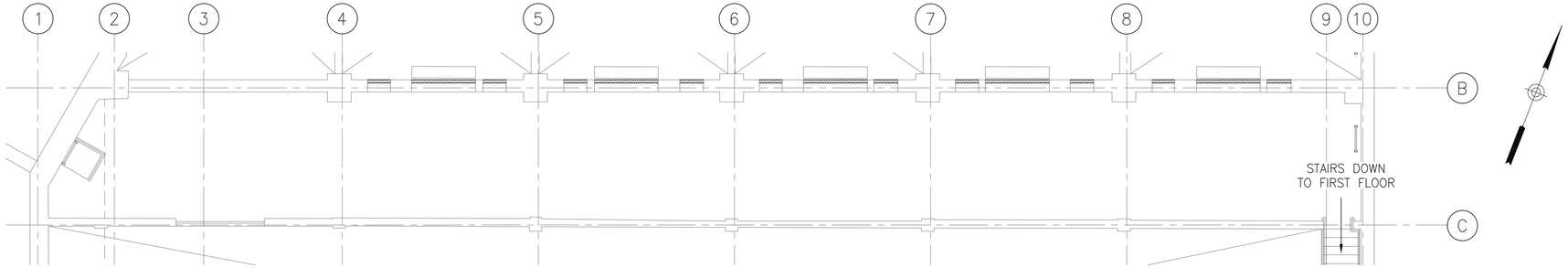
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 3 SINGLE LINE DIAGRAM

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
	CHECKED BY: YL
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP117**	
DWG. NO.: 16 OF 34	
SHT. NO.: 106 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP117	REV. NO.: -

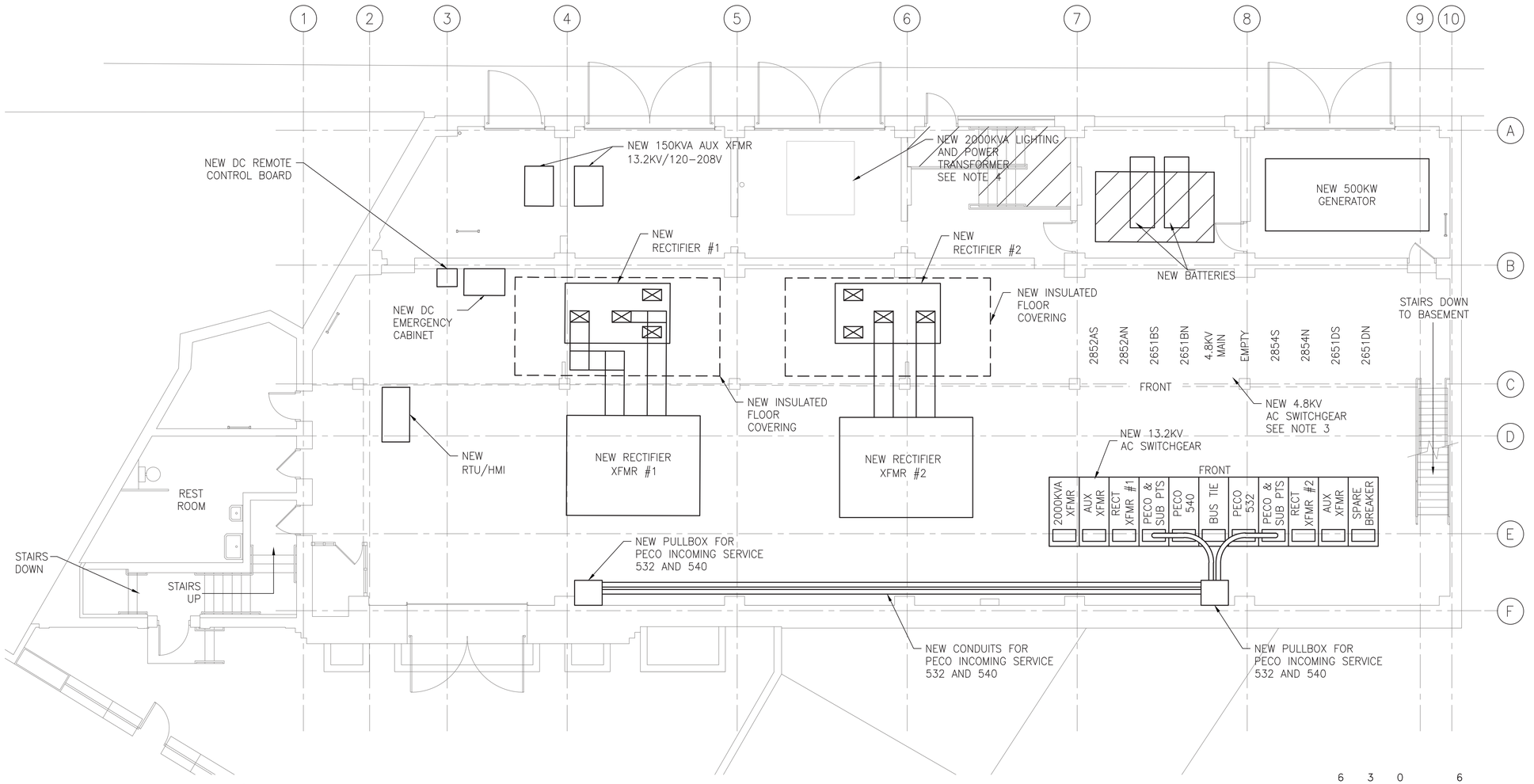
STATUS: 50% SUBMISSION

NOTES:

1. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE-ENERGIZED DURING STAGE 3.
2. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 3.
3. INSTALL NEW 4.8KV AC SWITCHGEAR.
4. INSTALL NEW 2000KVA LIGHTING AND POWER TRANSFORMER.
5. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.



1 / TP118 STAGE 3 MEZZANINE EQUIPMENT PLANS
SCALE: 1" = 6'



2 / TP118 STAGE 3 FIRST FLOOR EQUIPMENT PLANS
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITT\D1959483\17AN-TP118.DWG

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

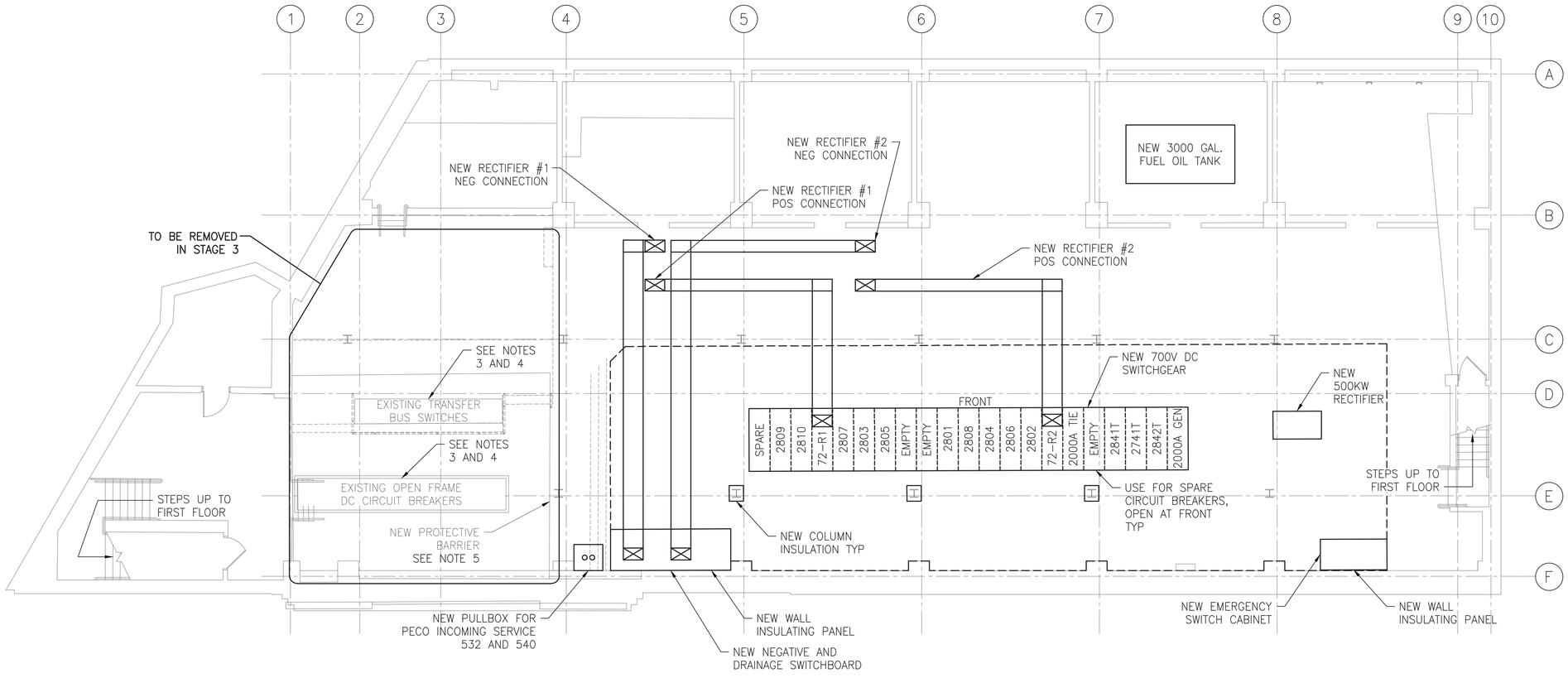
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 3 MEZZANINE & FIRST FLOOR EQUIPMENT PLANS

SCALE: AS SHOWN	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
WORK ORDER NO.: 276491	CHECKED BY: YL
SHEET NUMBER: **TP118**	
DWG. NO.: 17 OF 34	
SHT. NO.: 107 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP118	REV. NO.: -

STATUS: 50% SUBMISSION

NOTES:

1. GRAYSCALE ITEMS ON THIS DRAWING TO BE DE-ENERGIZED DURING STAGE 3.
2. BOLD ITEMS ON THIS DRAWING TO BE ENERGIZED DURING STAGE 3.
3. REMOVE EQUIPMENT AFTER SEPTA HAS SALVAGED PARTS.
4. REMOVE EXISTING TRANSFER BUS SWITCHES AND EXISTING OPEN FRAME DC CIRCUIT BREAKERS.
5. REMOVE NEW PROTECTIVE BARRIER.
6. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LIMITS OF EXISTING BASEMENT FLOOR THAT IS TO BE LEVELED.
7. REFER TO DRAWING TP110 FOR OVERALL STAGING PLAN.



1 / TP119 STAGE 3 BASEMENT EQUIPMENT PLAN
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

50% SUBMISSION
NOT FOR CONSTRUCTION

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Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
STAGE 3 BASEMENT EQUIPMENT PLAN

SCALE: AS SHOWN
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: ARG
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP119**
DWG. NO.: 18 OF 34
SHT. NO.: 108 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP119
REV. NO.: -

STATUS: 50% SUBMISSION

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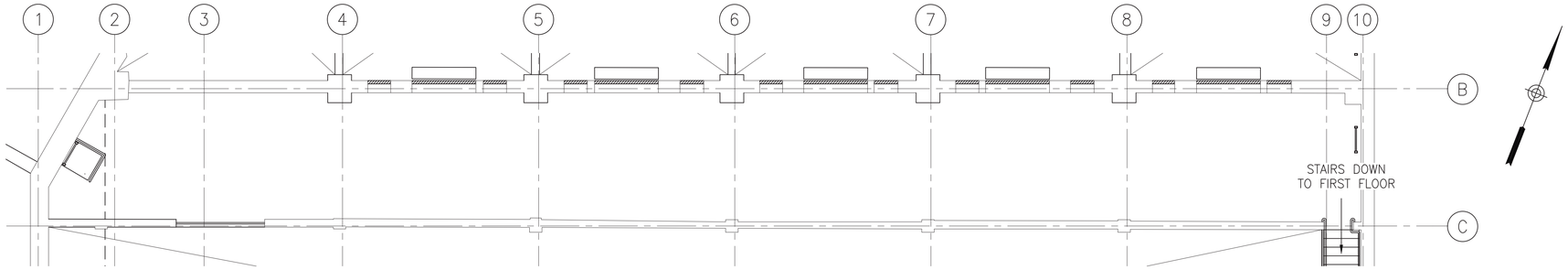
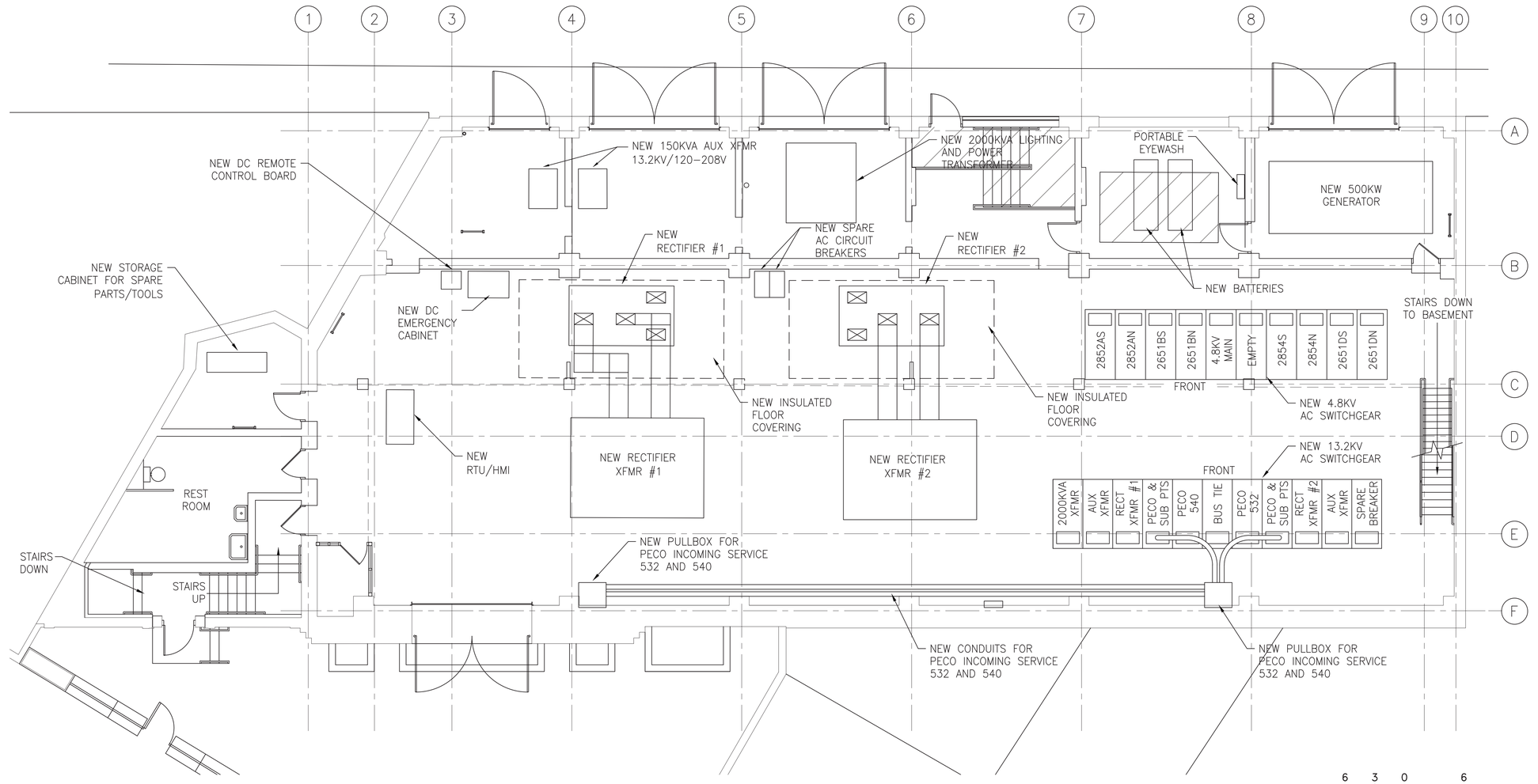
NOTES:

1. THIS DRAWING REFLECTS THE FINAL CONFIGURATION OF TPSS EQUIPMENT BASED UPON THE CONSTRUCTION STAGING. REFER TO DRAWING TP110 FOR STAGING NOTES.



1 TP120 PROPOSED MEZZANINE EQUIPMENT PLANS
SCALE: 1" = 6'



2 TP120 PROPOSED FIRST FLOOR EQUIPMENT PLANS
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

50% SUBMISSION
NOT FOR CONSTRUCTION

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DATE PRINTED: 10/21/2025

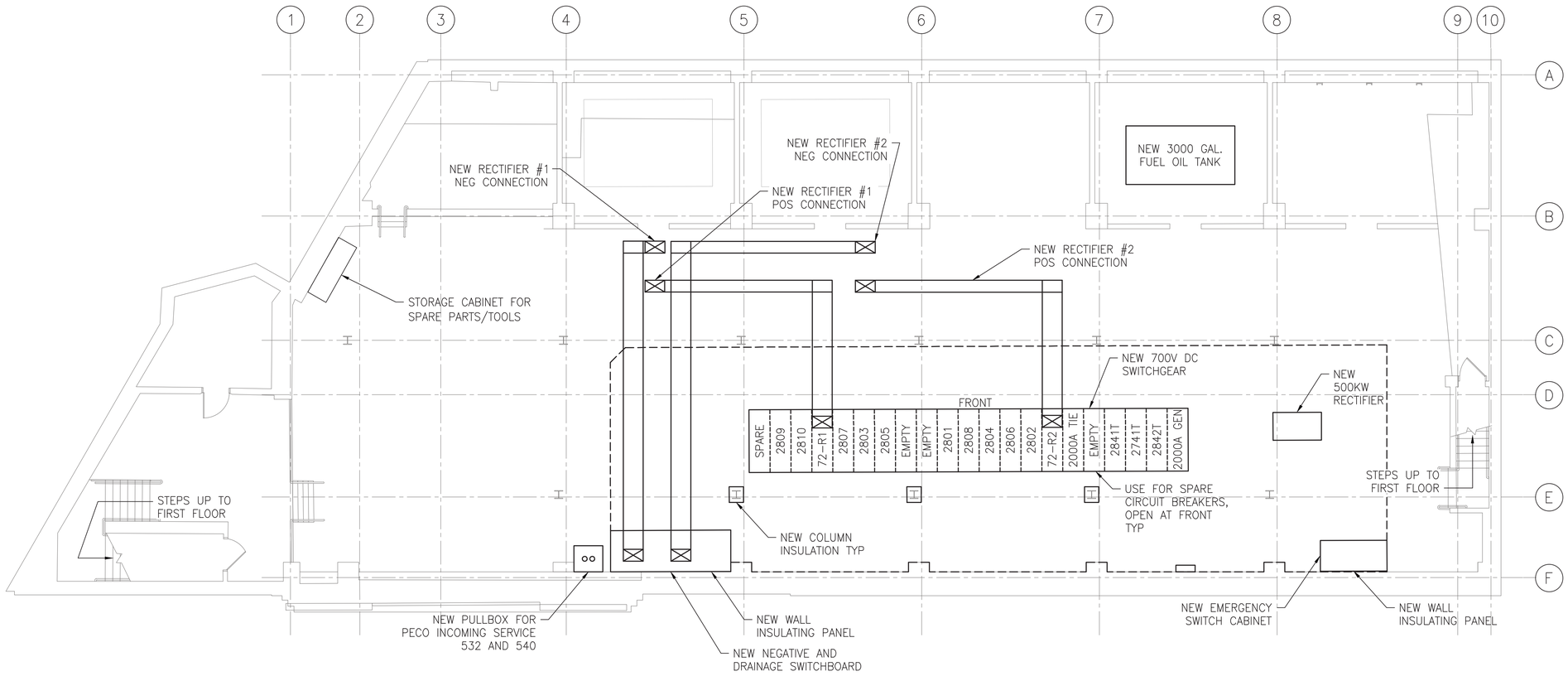
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
PROPOSED MEZZANINE & FIRST FLOOR EQUIPMENT PLANS

SCALE: AS SHOWN
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: ARG
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP120**
DWG. NO.: 19 OF 34
SHT. NO.: 109 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP120
REV. NO.: -

STATUS: 50% SUBMISSION

NOTES:

1. THIS DRAWING REFLECTS THE FINAL CONFIGURATION OF TPSS EQUIPMENT BASED UPON THE CONSTRUCTION STAGING. REFER TO DRAWING TP110 FOR STAGING NOTES.



1 TP121 PROPOSED BASEMENT EQUIPMENT PLAN
SCALE: 1" = 6'

6 3 0 6
SCALE: 1"=6'

50% SUBMISSION
NOT FOR CONSTRUCTION

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CHIEF ENGINEERING OFFICER - B&B

CHIEF RAIL TRANSIT OFFICER

SYSTEM SAFETY

DIRECTOR OF ENGINEERING - B&B

MANAGER - ARCH / ENGINEERING

PROJECT MANAGER

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Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
PROPOSED BASEMENT EQUIPMENT PLAN

SCALE: AS SHOWN
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: ARG
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP121**
DWG. NO.: 20 OF 34
SHT. NO.: 110 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP121
REV. NO.: -

STATUS: 50% SUBMISSION

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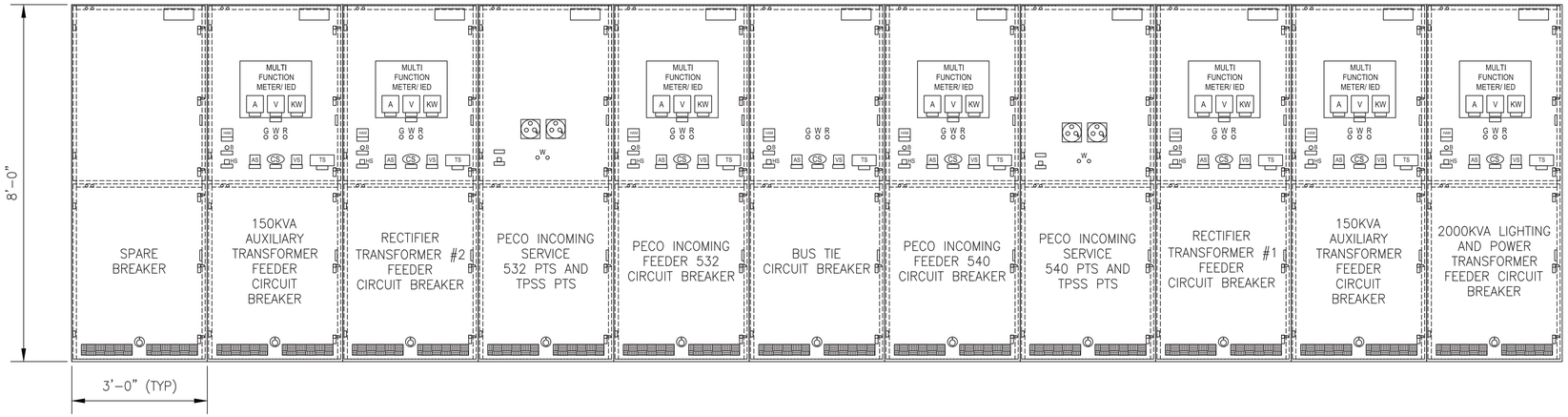
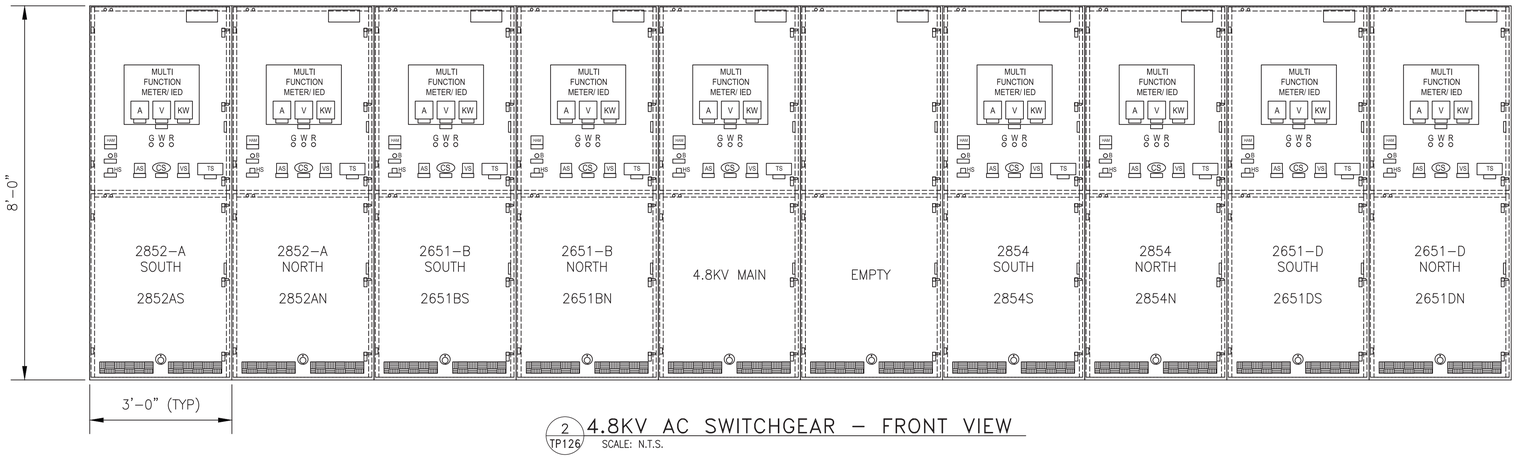


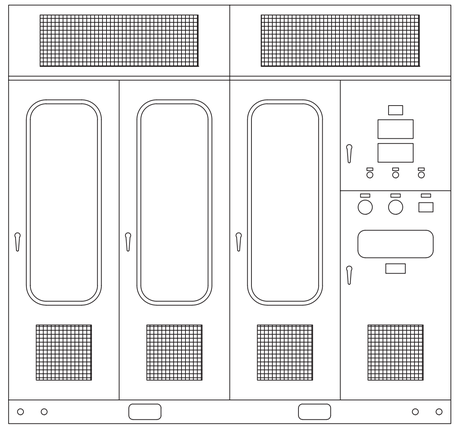
1 TP126 13.2KV AC SWITCHGEAR – FRONT VIEW
SCALE: N.T.S.

NOTES:

1. FOR DETAIL REQUIREMENTS, SEE CONTRACT SPECIFICATIONS.
2. ALL DIMENSIONS AND LAYOUTS SHOWN ARE TYPICAL AND WILL VARY BY MANUFACTURER.
3. REFER TO DRAWING TP120 FOR FINAL FIRST FLOOR EQUIPMENT LAYOUT PLAN.



2 TP126 4.8KV AC SWITCHGEAR – FRONT VIEW
SCALE: N.T.S.



3 TP126 700V DC 4000KW RECTIFIER – FRONT VIEW
SCALE: N.T.S.

50% SUBMISSION
NOT FOR CONSTRUCTION

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DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

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Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

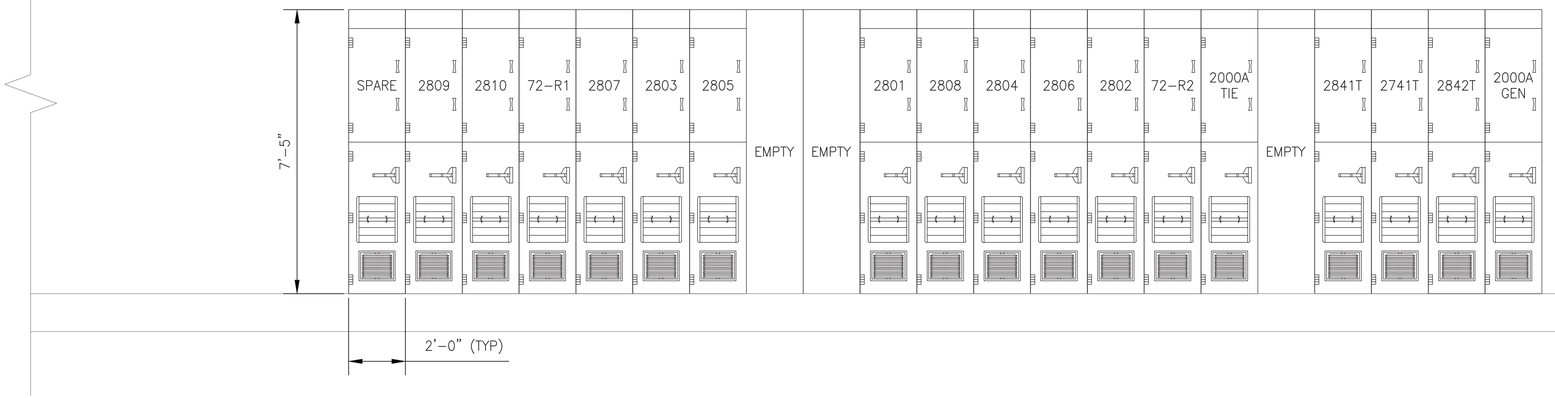
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
PROPOSED FIRST FLOOR EQUIPMENT ELEVATIONS

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: YL
	CHECKED BY: VS
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP126**	
DWG. NO.: 21 OF 34	
SHT. NO.: 111 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP126	REV. NO.: -

STATUS: 50% SUBMISSION

NOTES:

1. REFER TO DRAWING TP121 FOR FINAL BASEMENT EQUIPMENT LAYOUT PLAN.



1 / TP127 700V DC SWITCHGEAR FRONT ELEVATION

SCALE: N.T.S.

50% SUBMISSION
NOT FOR CONSTRUCTION

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
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CHIEF ENGINEERING OFFICER - B&B

CHIEF RAIL TRANSIT OFFICER

SYSTEM SAFETY

DIRECTOR OF ENGINEERING - B&B

MANAGER - ARCH / ENGINEERING

PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

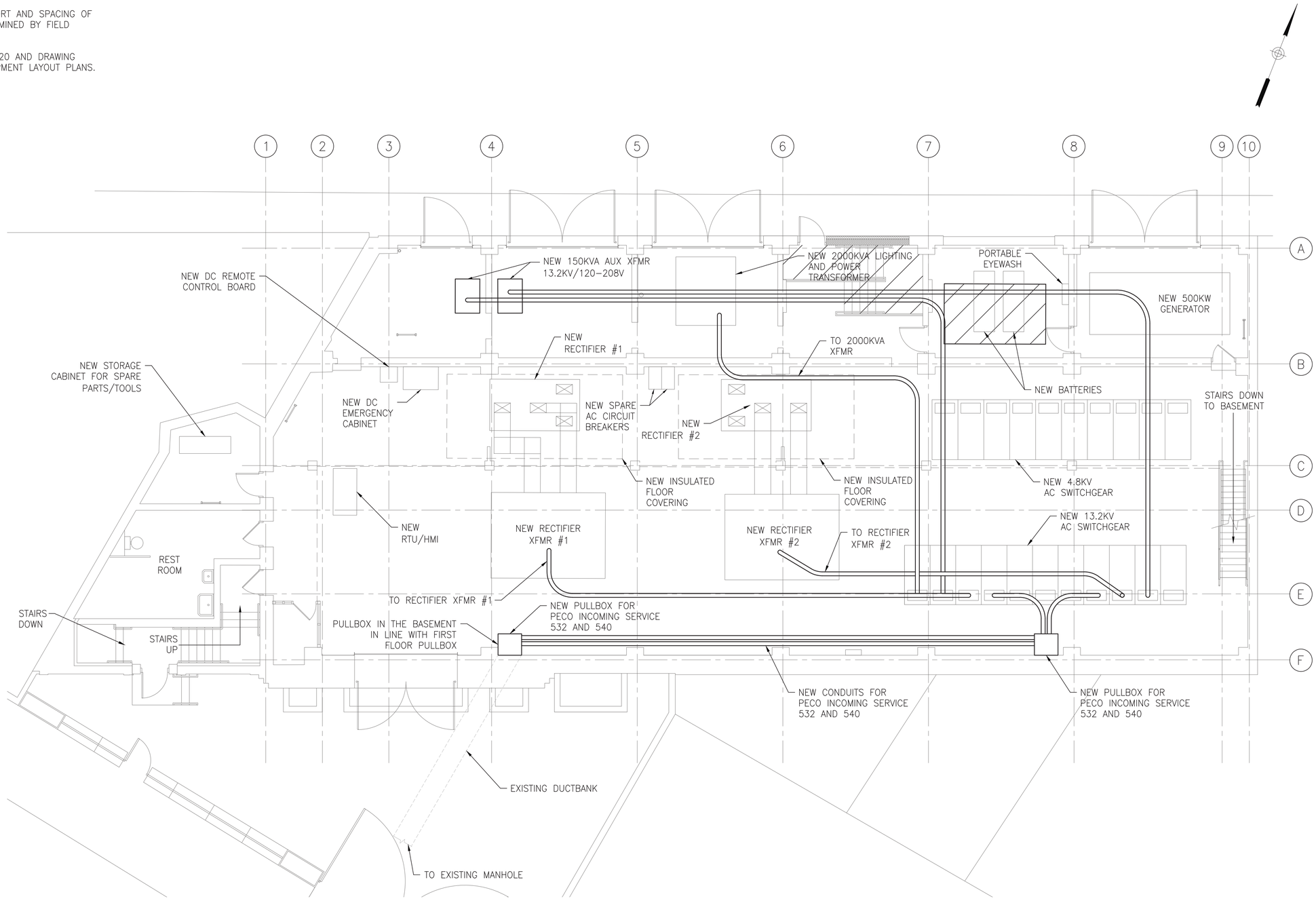
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
PROPOSED BASEMENT EQUIPMENT ELEVATIONS

SCALE: NTS
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: YL
CHECKED BY: VS
WORK ORDER NO.: 276491
SHEET NUMBER: **TP127**
DWG. NO.: 22 OF 34
SHT. NO.: 112 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP127
REV. NO.: -

STATUS: 50% SUBMISSION

NOTES:

1. EXACT LOCATION, SUPPORT AND SPACING OF CONDUITS TO BE DETERMINED BY FIELD CONDITIONS.
2. REFER TO DRAWING TP120 AND DRAWING TP121 FOR FINAL EQUIPMENT LAYOUT PLANS.



6 3 0 6

SCALE: 1"=6'

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTD1\95948\17AN-TP132.DWG

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DIRECTOR OF ENGINEERING - B&B
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PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

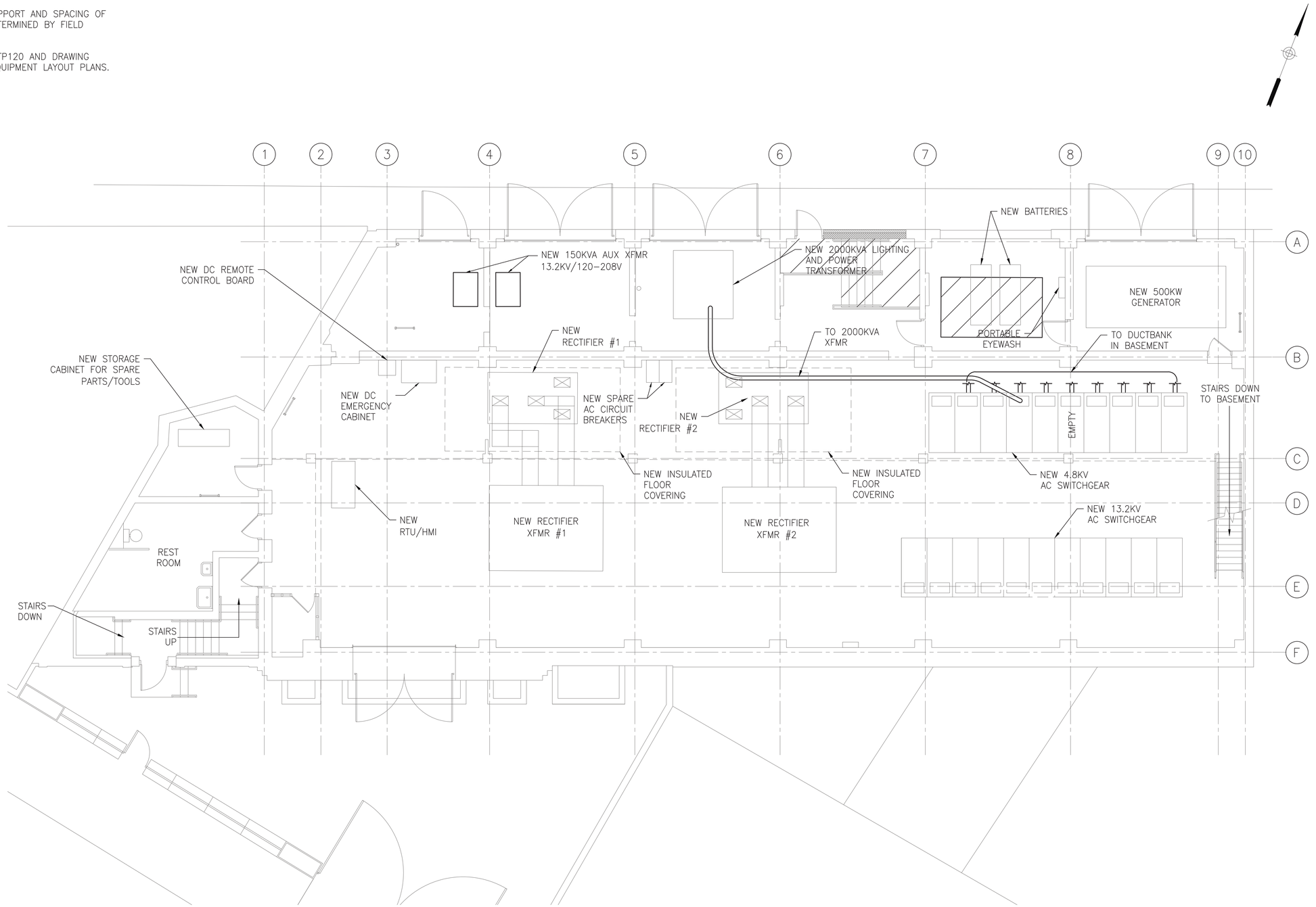
BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
13.2 KV CABLE & DUCT BANK

SCALE: NTS
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: YL
CHECKED BY: YS
WORK ORDER NO.: 276491
SHEET NUMBER: **TP132**
DWG. NO.: 23 OF 34
SHT. NO.: 113 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP132
REV. NO.: -

STATUS: 50% SUBMISSION

NOTES:

1. EXACT LOCATION, SUPPORT AND SPACING OF CONDUITS TO BE DETERMINED BY FIELD CONDITIONS.
2. REFER TO DRAWING TP120 AND DRAWING TP121 FOR FINAL EQUIPMENT LAYOUT PLANS.



6 3 0 6

SCALE: 1"=6'

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTD\195948317AN-TP133.DWG

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

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Philadelphia, PA

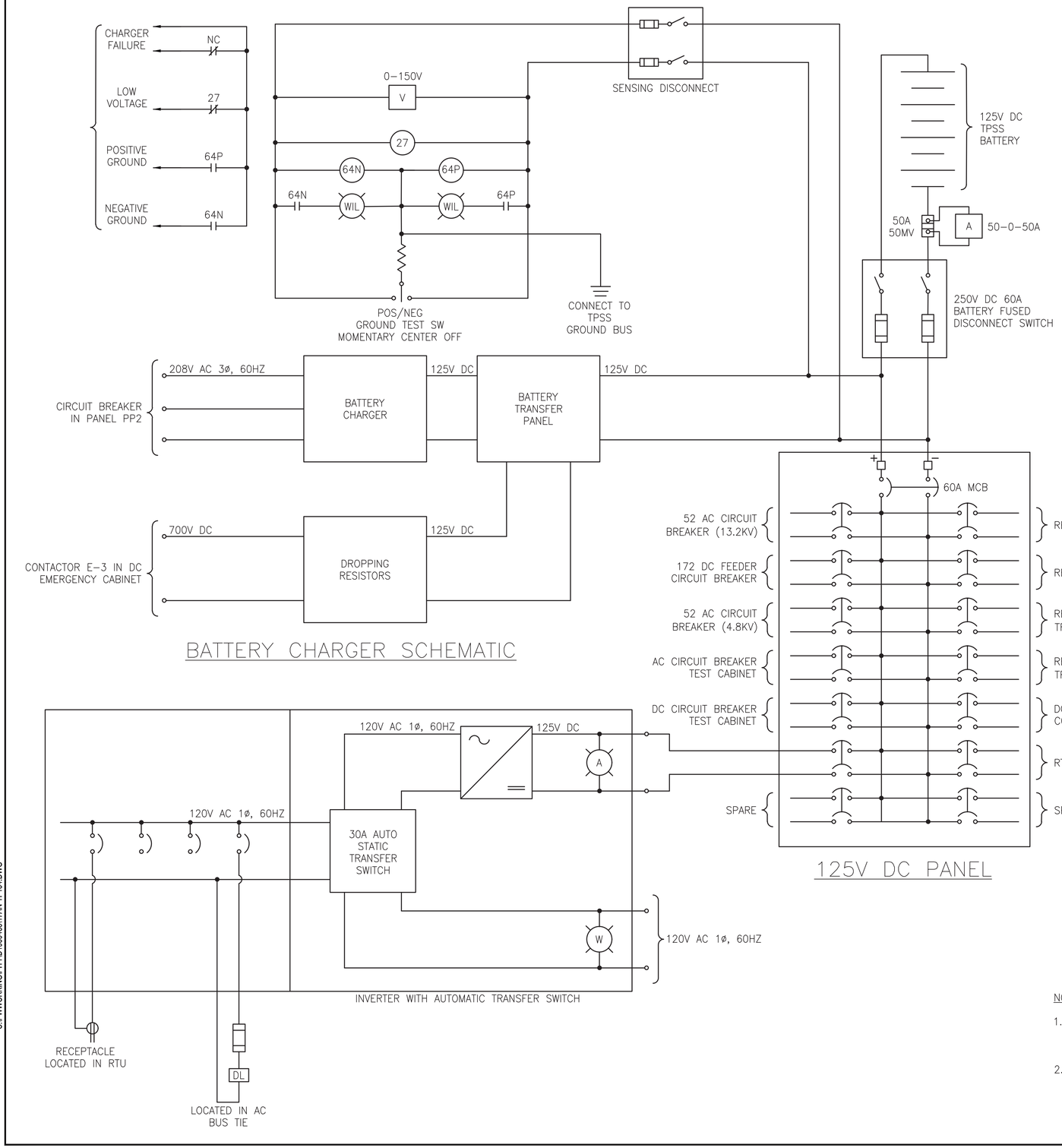
REV	DATE	DESCRIPTION	BY	CK'D	APD

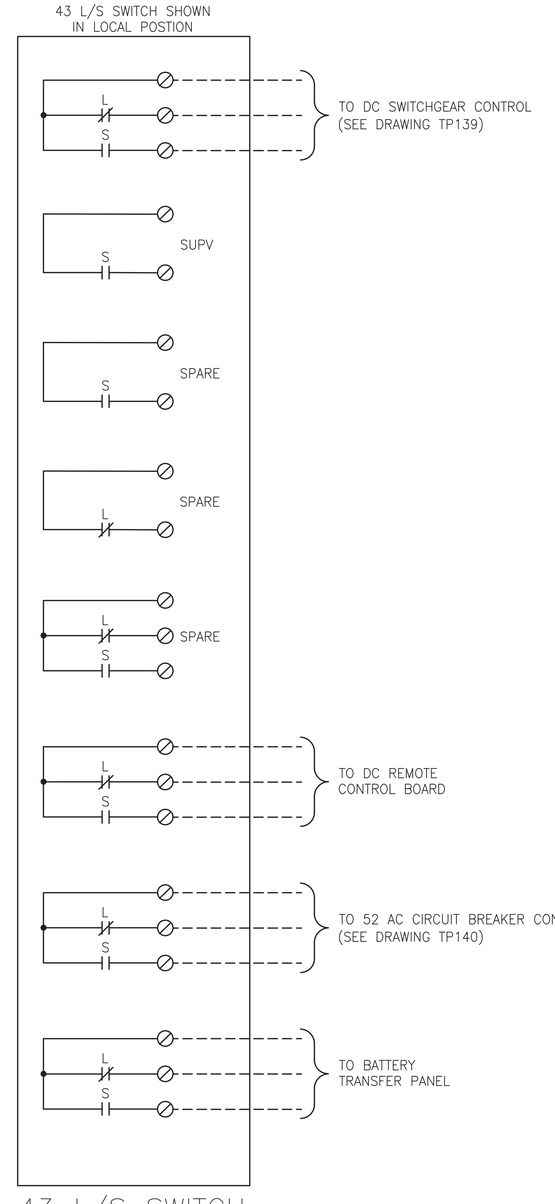
DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
4.8 KV CABLE & DUCT PLAN

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: ARG
	CHECKED BY: YL
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP133**	
DWG. NO.: 24 OF 34	
SHT. NO.: 114 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP133	REV. NO.: -

STATUS: 50% SUBMISSION





NOTES:

1. THIS IS A TYPICAL BATTERY AND CONTROL CABLE PLAN. THE CONTRACTOR SHALL DEVELOP THE DESIGN TO 100 PERCENT BASED ON SITE CONDITIONS.
2. THE DESIGN SHALL CONFORM TO STANDARD OPERATING PROCEDURES OF SEPTA DURING NORMAL AND EMERGENCY SITUATIONS.

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTD1\59948317\AN-TP134.DWG

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DIRECTOR OF ENGINEERING - B&B
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PROJECT MANAGER

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Philadelphia, PA

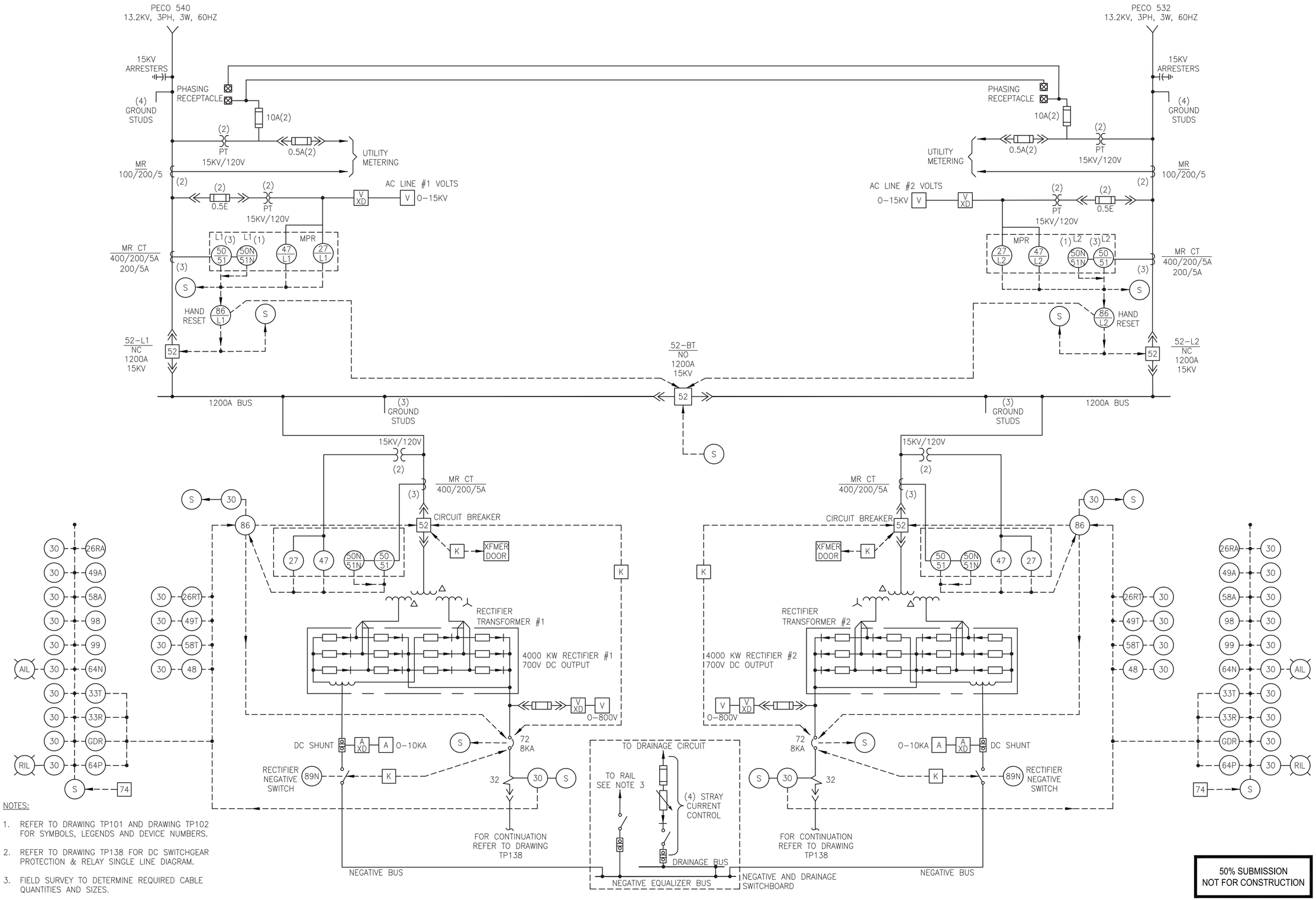
REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
BATTERY & CONTROL DIAGRAM

SCALE: NTS
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: DMH
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP134**
DWG. NO.: 25 OF 34
SHT. NO.: 115 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP134
REV. NO.: -

STATUS: 50% SUBMISSION



NOTES:

1. REFER TO DRAWING TP101 AND DRAWING TP102 FOR SYMBOLS, LEGENDS AND DEVICE NUMBERS.
2. REFER TO DRAWING TP138 FOR DC SWITCHGEAR PROTECTION & RELAY SINGLE LINE DIAGRAM.
3. FIELD SURVEY TO DETERMINE REQUIRED CABLE QUANTITIES AND SIZES.

50% SUBMISSION
NOT FOR CONSTRUCTION

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

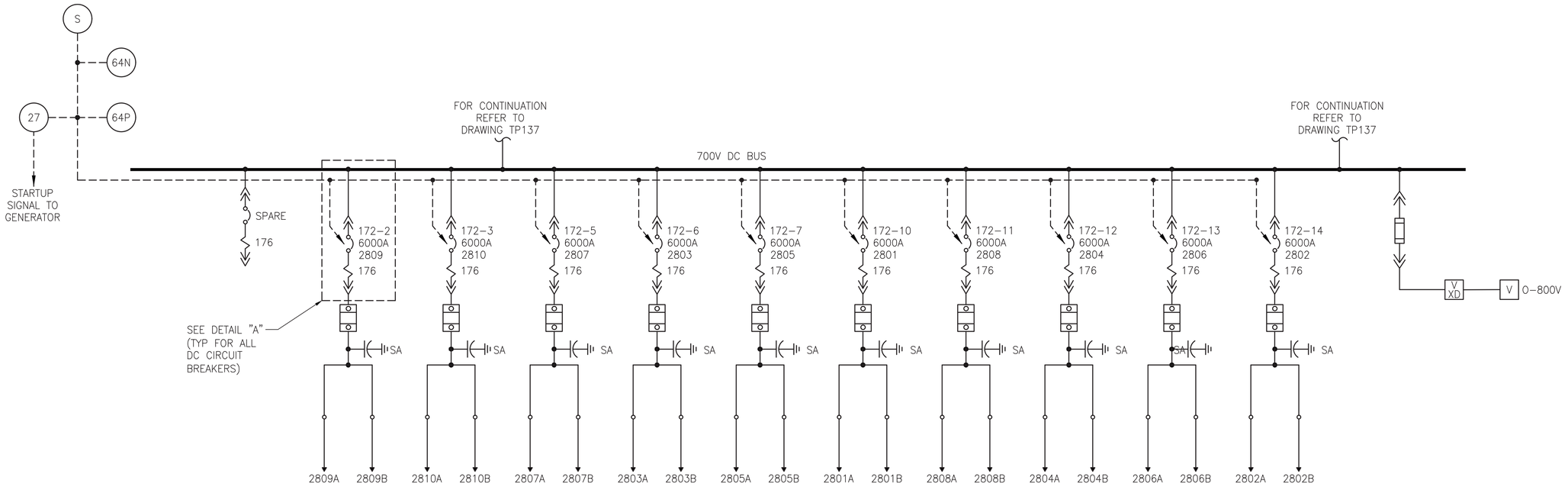
REV	DATE	DESCRIPTION	BY	CKD	APD

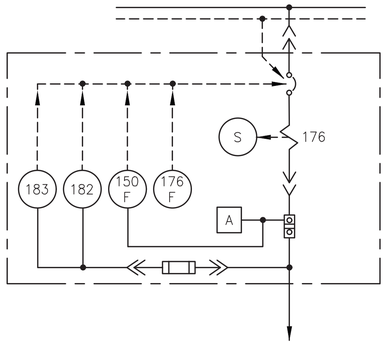
DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
PROTECTION & RELAY SINGLE LINE DIAGRAM - SHEET 1

SCALE: NTS
SCALE FACTOR:
DATE: 08/22/2025
DRAWN BY: DMH
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP137**
DWG. NO.: 26 OF 34
SHT. NO.: 116 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP137
REV. NO.: -

STATUS: 50% SUBMISSION





DETAIL "A"
(TYP)

NOTES:

1. REFER TO DRAWING TP101 AND DRAWING TP102 FOR SYMBOLS, LEGENDS AND DEVICE NUMBERS.
2. SEE DRAWING TP137 FOR AC SWITCHGEAR PROTECTION & RELAY SINGLE LINE DIAGRAM.

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
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PHILADELPHIA, PA 19107

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CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
PROTECTION & RELAY SINGLE LINE DIAGRAM -SHEET 2

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: DMW
	CHECKED BY: BH

WORK ORDER NO.: 276491

SHEET NUMBER **TP138**

DWG. NO.: 27 OF 34
SHT. NO.: 117 OF 452
ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-TP138
REV. NO.: -

DATE PRINTED: 10/21/2025
STATUS: 50% SUBMISSION

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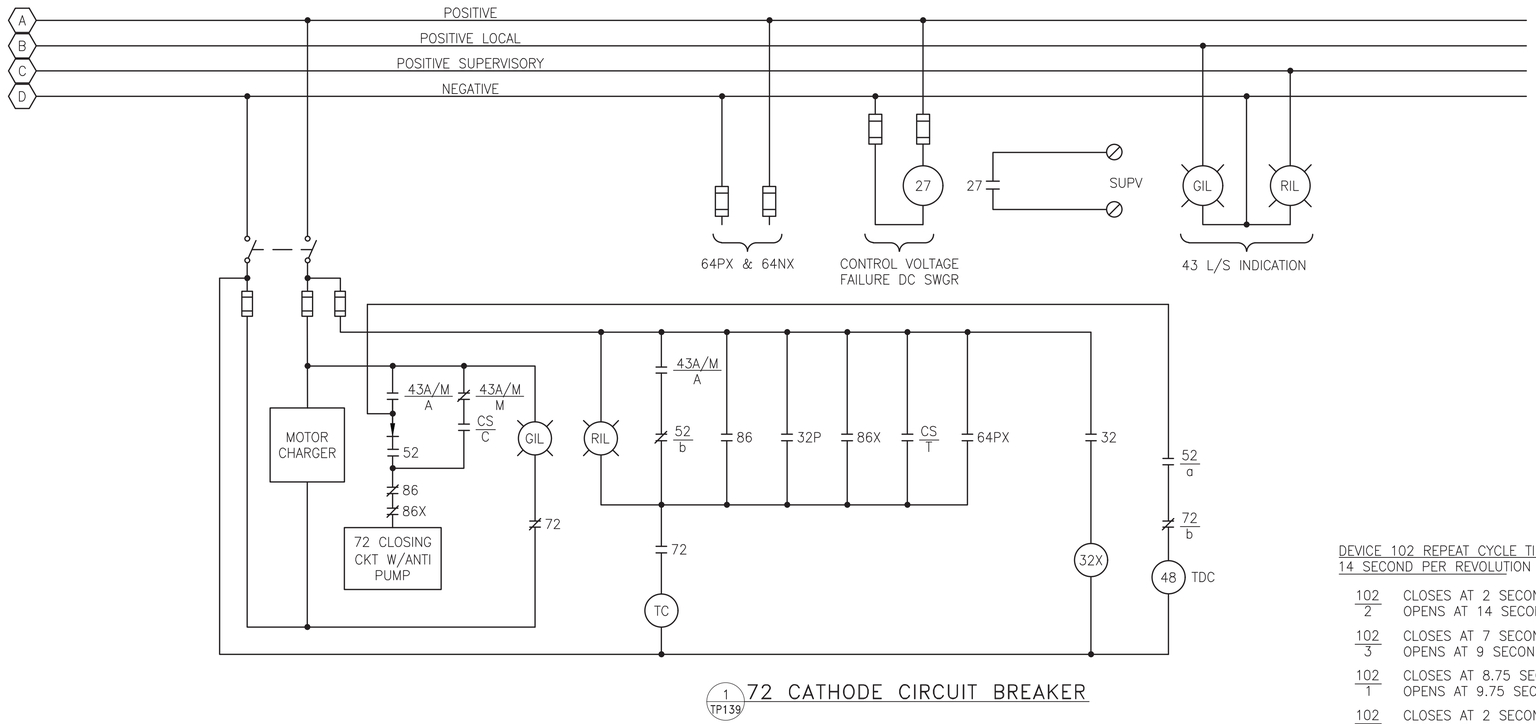
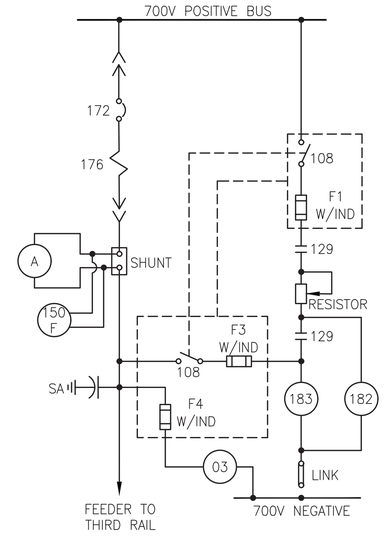
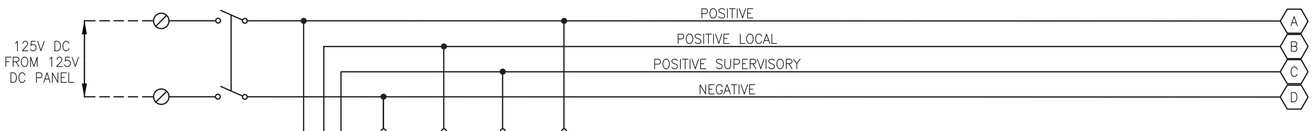


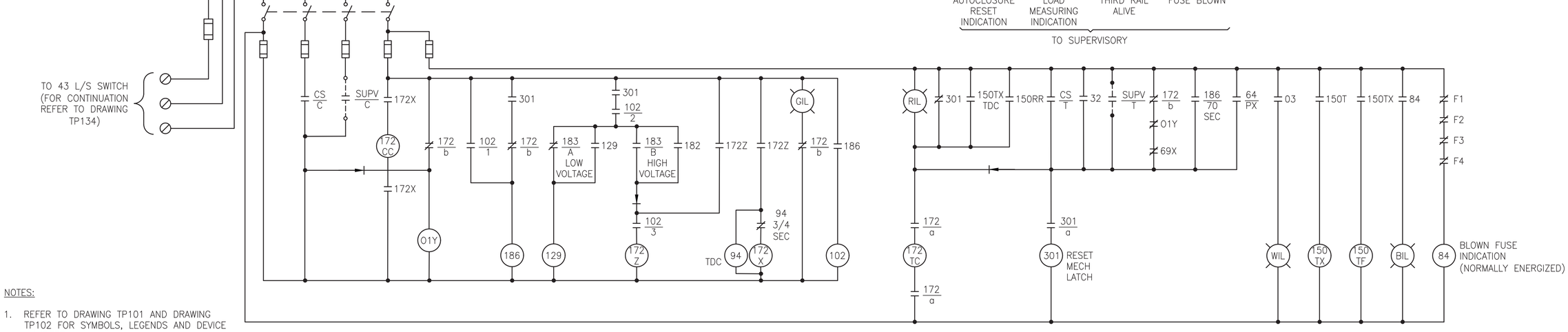
1 TP139 72 CATHODE CIRCUIT BREAKER

DEVICE 102 REPEAT CYCLE TIME
14 SECOND PER REVOLUTION

102/2	CLOSES AT 2 SECONDS OPENS AT 14 SECONDS
102/3	CLOSES AT 7 SECONDS OPENS AT 9 SECONDS
102/1	CLOSES AT 8.75 SECONDS OPENS AT 9.75 SECONDS
102/4	CLOSES AT 2 SECONDS OPENS AT 12 SECONDS







2 TP139 172 DC FEEDER CIRCUIT BREAKER

NOTES:

1. REFER TO DRAWING TP101 AND DRAWING TP102 FOR SYMBOLS, LEGENDS AND DEVICE NUMBERS.
2. THESE ARE TYPICAL CONTROL DIAGRAMS. THE CONTRACTOR SHALL DEVELOP THE DESIGN TO 100 PERCENT BASED ON SITE CONDITIONS.
3. THE CONTRACTOR SHALL ESTABLISH CURRENT TRANSFORMER AND POTENTIAL TRANSFORMER RATIOS TO MEET THE PROTECTIVE RELAYING REQUIREMENTS.

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
CIRCUIT BREAKER CONTROL DIAGRAMS - TYPICAL

SCALE: NTS
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: BH
CHECKED BY: VS
WORK ORDER NO.: 276491
SHEET NUMBER: **TP139**
DWG. NO.: 28 OF 34
SHT. NO.: 118 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP139
REV. NO.: -

STATUS: 50% SUBMISSION

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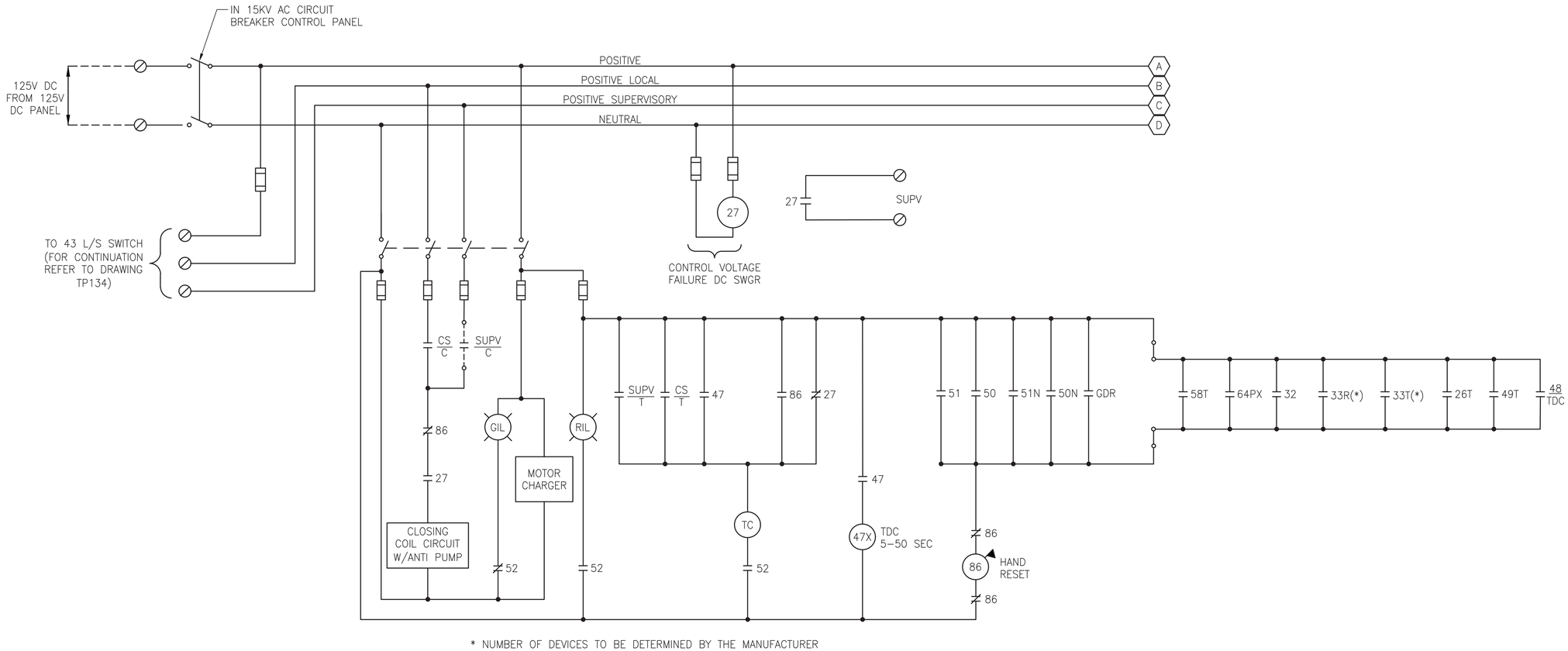
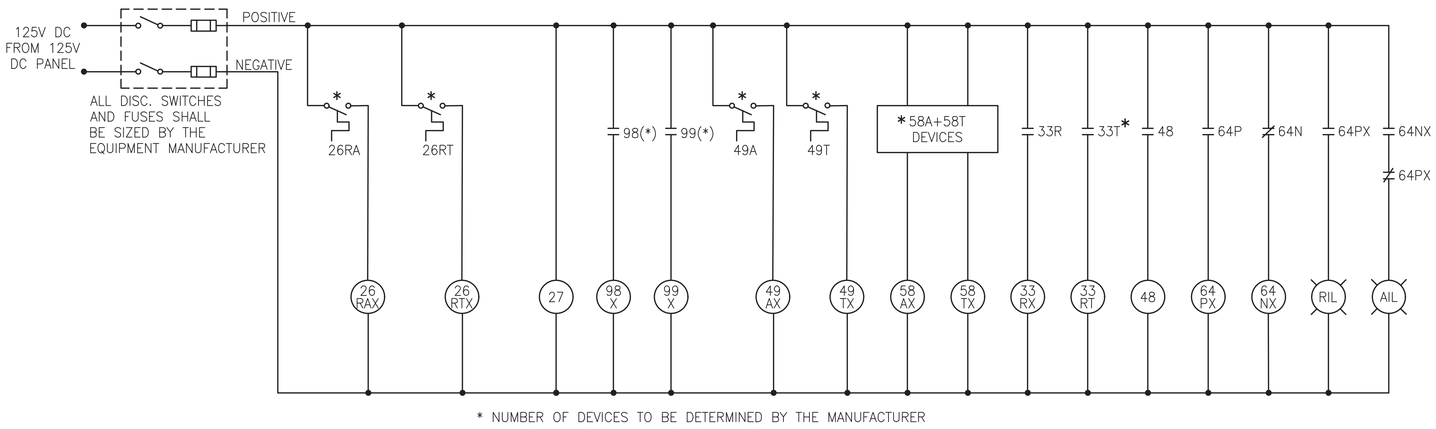


1 TP140 52 AC CIRCUIT BREAKER CONTROL



2 TP140 RECTIFIER CONTROL

NOTES:

1. REFER TO DRAWING TP101 AND DRAWING TP102 FOR SYMBOLS, LEGENDS AND DEVICE NUMBERS.
2. THESE ARE TYPICAL CONTROL DIAGRAMS. THE CONTRACTOR SHALL DEVELOP THE DESIGN TO 100 PERCENT BASED ON SITE CONDITIONS.
3. THE CONTRACTOR SHALL ESTABLISH CURRENT TRANSFORMER AND POTENTIAL TRANSFORMER RATIOS TO MEET THE PROTECTIVE RELAYING REQUIREMENTS AND SHALL COORDINATE RELAYING WITH THE UTILITY COMPANY.
4. REFER TO DRAWING TP139 FOR ADDITIONAL CONTROL DIAGRAMS.

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
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PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
DC RECTIFIER CONTROL SCHEMATIC

SCALE: NTS
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: DMH
CHECKED BY: BH
WORK ORDER NO.: 276491
SHEET NUMBER: **TP140**
DWG. NO.: 29 OF 34
SHT. NO.: 119 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP140
REV. NO.: -

STATUS: 50% SUBMISSION

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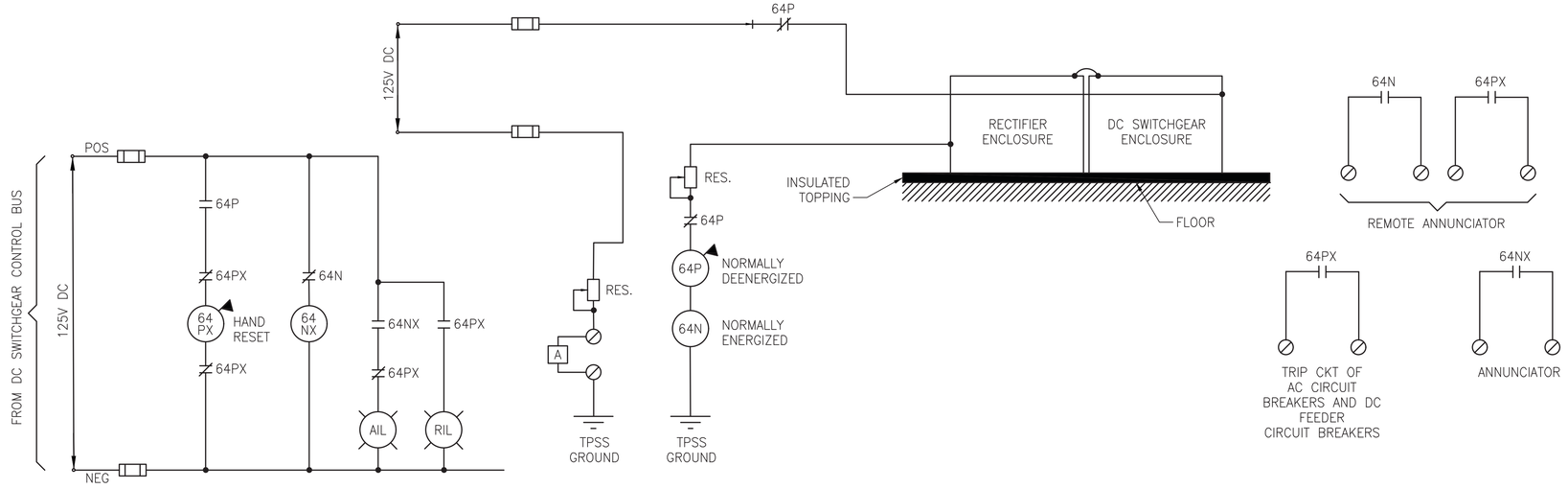

1 TP141 RECTIFIER AND DC SWITCHGEAR POTENTIAL MONITORING CIRCUIT (TYPICAL)

NOTES:

1. REFER TO DRAWING TP101 AND DRAWING TP102 FOR SYMBOLS, LEGENDS AND DEVICE NUMBERS.
2. THIS IS A TYPICAL DC GROUND FAULT PROTECTION SCHEME. THE CONTRACTOR SHALL DEVELOP THE DESIGN TO 100 PERCENT BASED ON SITE CONDITIONS.

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SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
DC GROUND FAULT PROTECTION SCHEME

SCALE: NTS
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: DMH
CHECKED BY: YL
WORK ORDER NO.: 276491
SHEET NUMBER: **TP141**
DWG. NO.: 30 OF 34
SHT. NO.: 120 OF 448
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-141
REV. NO.: -

STATUS: 50% SUBMISSION

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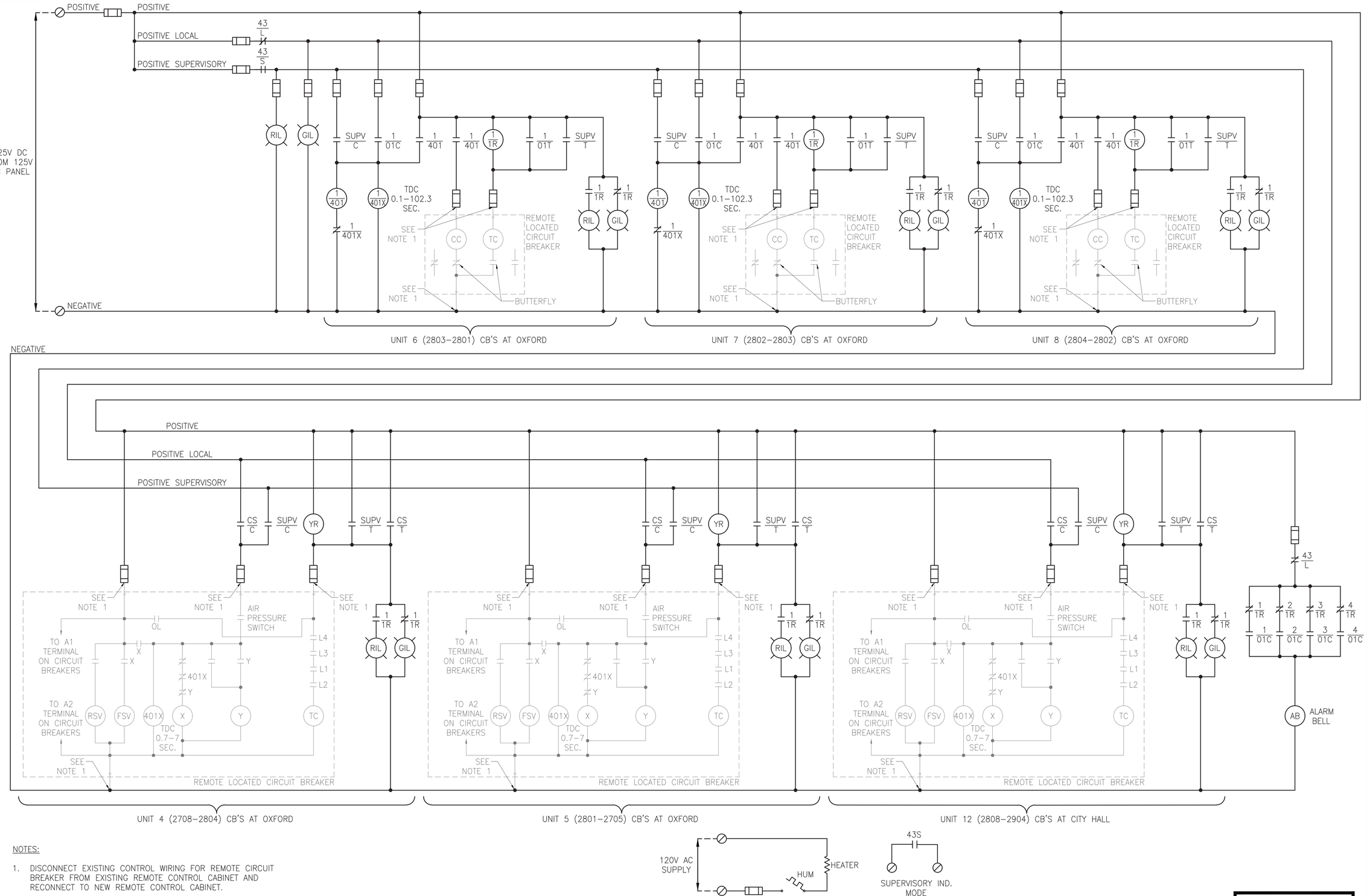

NOTES:

1. DISCONNECT EXISTING CONTROL WIRING FOR REMOTE CIRCUIT BREAKER FROM EXISTING REMOTE CONTROL CABINET AND RECONNECT TO NEW REMOTE CONTROL CABINET.

1 / TP142 DC REMOTE CONTROL BOARD CONTROL SCHEMATIC

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR
HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
DC REMOTE CONTROL BOARD CONTROL SCHEMATIC

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: DMH
	CHECKED BY: YL
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP142**	
DWG. NO.: 31 OF 34	
SHT. NO.: 121 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP142	REV. NO.: -

STATUS: 50% SUBMISSION

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BUS POTENTIAL TRANSFORMER SCADA POINTS

DEVICE	STATUS INDICATION	POINT NUMBER
TELEMETRY POINTS		
15KV BUS 1	VOLTAGE	1
15KV BUS 2	VOLTAGE	2
SPARE	–	3
SPARE	–	4

RECTIFIER TRANSFORMER SCADA POINTS

TOTAL RECTIFIER TRANSFORMERS = 2

DEVICE	STATUS INDICATION	POINT NUMBER
TEMPERATURE (49)	ALARM–T1	1
	TRIP–T2	2
REFLECTIVE FAILURE (58T)		3
CONTROL POINTS		
NONE	–	
TELEMETRY POINTS		
VOLTAGE	VOLTAGE	1

15KV CIRCUIT BREAKER SCADA POINTS

TOTAL 15KV AC CIRCUIT BREAKERS (FOR 13.2KV) = 6

DEVICE	STATUS INDICATION	POINT NUMBER
CIRCUIT BREAKER	OPENED	1
	CLOSED	2
CIRCUIT BREAKER FAILURE RELAY (50BF)	OPERATED	3
	FAILURE	4
UNDER VOLTAGE RELAY (27)	TRIPPED	5
	SET	6
PHASE BALANCE RELAY (47)	TRIPPED	7
	SET	8
OVERCURRENT RELAY (50/51)	OPERATED	9
	FAILURE	10
LOCAL/REMOTE SWITCH	LOCAL	11
	REMOTE	12
CIRCUIT BREAKER TRIP	TRIPPER	13
CIRCUIT BREAKER READY	READY	14
	–	15
CIRCUIT BREAKER WATCHDOG	WATCHDOG	16
	–	17
RESERVED	N.O.	18
	N.C.	19
RESERVED	N.O.	20
	N.C.	21
RESERVED	N.O.	22
	N.C.	23
CONTROL POINTS		
CIRCUIT BREAKER	OPEN	1
	CLOSE	2
RESERVED	–	3
	–	4
TELEMETRY POINTS		
AMMETER (AM)	CURRENT	1

INCOMING CIRCUIT BREAKER SCADA POINTS

15KV LINE: PECO 504, PECO 532
TOTAL CIRCUIT BREAKERS = 2

DEVICE	STATUS INDICATION	POINT NUMBER
CIRCUIT BREAKER	OPENED	1
	CLOSED	2
CONTROL POINTS		
CIRCUIT BREAKER	OPENED	1
	CLOSED	2
RESERVED	–	3
	–	4
TELEMETRY POINTS		
AMMETER (AM)	CURRENT	1
RESERVED	–	2
VOLTMETER (VM)	VOLTS	3

RECTIFIER SCADA POINTS

TOTAL RECTIFIERS = 2

DEVICE	STATUS INDICATION	POINT NUMBER
RECTIFIER COMPARTMENT DOOR SAFETY INTERLOCK (33R)	TRIP	1
RECTIFICATION FAILURE (58)	ALARM–T1	2
	TRIP–T2	3
RECTIFIER STRUCTURE GROUNDED (64N)	OPERATED	4
	FAILURE	5
RECTIFIER STRUCTURE HOT (64P)	OPERATED	6
	FAILURE	7
BLOWN FUSE IN SURGE PROTECTION CIRCUIT (99X)	ALARM	8
RECTIFIER HEAT SINK OVER–TEMPERATURE	ALARM–T1	9
	TRIP–T2	10

AUXILIARY AND LIGHTING AND POWER TRANSFORMER SCADA POINTS

TOTAL TRANSFORMERS = 3

DEVICE	STATUS INDICATION	POINT NUMBER
TEMPERATURE (49T)	ALARM–T1	1
	TRIP–T2	2
REFLECTIVE FAILURE (58T)	–	3
CONTROL POINTS		
NONE		
TELEMETRY POINTS		
NONE		

FIRE ALARM PANEL

DEVICE	STATUS INDICATION	POINT NUMBER
FIRE ALARM	ON	1
FACP STATUS	TROUBLE	2

BATTERY SYSTEM

DEVICE	STATUS INDICATION	POINT NUMBER
DEVICE	OPENED	1
	CLOSED	2
BATTERY STATUS	ENABLED	3
	DISABLED	4
BATTERY VOLTAGE	NORMAL	5
	LOW	6
CONTROL POWER	AC POWER	7
	NO AC POWER	8
MAINTENANCE	OVERVOLTAGE	9
	UNDERVOLTAGE	10
GAS DETECTION ALARM	NORMAL	11
	ALARM	12
CONTROL POINTS		
NONE		
TELEMETRY POINTS		
NONE		

DC SWITCHGEAR SCADA POINTS

TOTAL CATHODE CIRCUIT BREAKERS = 2
TOTAL DC FEEDER CIRCUIT BREAKERS = 10

DEVICE	STATUS INDICATION	POINT NUMBER
CATHODE CIRCUIT BREAKER	OPENED	1
	CLOSED	2
CATHODE CIRCUIT BREAKER DIRECTIONAL POWER RELAY	OPERATED	3
	FAILURE	4
DC FEEDER CIRCUIT BREAKER	OPENED	5
	CLOSED	6
DC FEEDER CIRCUIT BREAKER RATE OF RISE AND OVER CURRENT RELAY	150F	7
DC FEEDER CIRCUIT BREAKER OVER VOLTAGE RELAY	176	8
LOSS OF DC AUXILIARY SUPPLY (27A AND 27T)	ALARM–T1	9
	TRIP–T2	10
CONTROL POINTS		
CATHODE CIRCUIT BREAKER	OPEN	1
	CLOSE	2
DC FEEDER CIRCUIT BREAKER	–	3
	–	4
TELEMETRY POINTS		
AMMETER (AM)	CURRENT	1

INTRUSION PANEL

DEVICE	STATUS INDICATION	POINT NUMBER
INTRUSION ALARM	ON	1
INTRUSION PANEL STATUS	TROUBLE	2
CONTROL POINTS		
INTRUSION ALARM	ARM	1
	DISARM	2

15KV CIRCUIT BREAKER SCADA POINTS

TOTAL 15KV AC CIRCUIT BREAKERS (FOR 4.8KV) = 9

DEVICE	STATUS INDICATION	POINT NUMBER
CIRCUIT BREAKER	OPENED	1
	CLOSED	2
CIRCUIT BREAKER FAILURE RELAY (50BF)	OPERATED	3
	FAILURE	4
UNDER VOLTAGE RELAY (27)	TRIPPED	5
	SET	6
PHASE BALANCE RELAY (47)	TRIPPED	7
	SET	8
OVERCURRENT RELAY (50/51)	OPERATED	9
	FAILURE	10
LOCAL/REMOTE SWITCH	LOCAL	11
	REMOTE	12
CIRCUIT BREAKER TRIP	TRIPPER	13
CIRCUIT BREAKER READY	READY	14
	–	15
CIRCUIT BREAKER WATCHDOG	WATCHDOG	16
	–	17
RESERVED	N.O.	18
	N.C.	19
RESERVED	N.O.	20
	N.C.	21
RESERVED	N.O.	22
	N.C.	23
CONTROL POINTS		
CIRCUIT BREAKER	OPEN	1
	CLOSE	2
RESERVED	–	3
	–	4
TELEMETRY POINTS		
AMMETER (AM)	CURRENT	1

BATTERY TRANSFER PANEL

DEVICE	STATUS INDICATION	POINT NUMBER
CONTACTOR #1	OPENED	1
	CLOSED	2
CONTACTOR #2	OPENED	3
	CLOSED	4
CONTROL POINTS		
CONTACTOR #1	OPEN	1
	CLOSE	2
CONTACTOR #2	OPEN	3
	CLOSE	4
TELEMETRY POINTS		
NONE		

NOTES:
1. THERE IS ONLY ONE LOCAL/REMOTE SELECTOR SWITCH.
2. THIS SCADA POINTS LIST IS FOR GUIDANCE ONLY. THE CONTRACTOR IS TO DEVELOP A FINAL POINT COUNT AS PART OF THE FINAL DESIGN AND ANY SEPTA SPECIFIC ADDITIONS AT THIS LOCATION.

50% SUBMISSION
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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL,
PHILADELPHIA, PA 19107

CHIEF ENGINEER - EM&C
CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
SCADA POINTS LIST

SCALE: NTS | SCALE FACTOR: -
DATE: 08/22/2025 | DRAWN BY: MJB | CHECKED BY: VS
WORK ORDER NO.: 276491
SHEET NUMBER: **TP143**
DWG. NO.: 32 OF 34
SHT. NO.: 122 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-TP143 | REV. NO.: -

STATUS: 50% SUBMISSION

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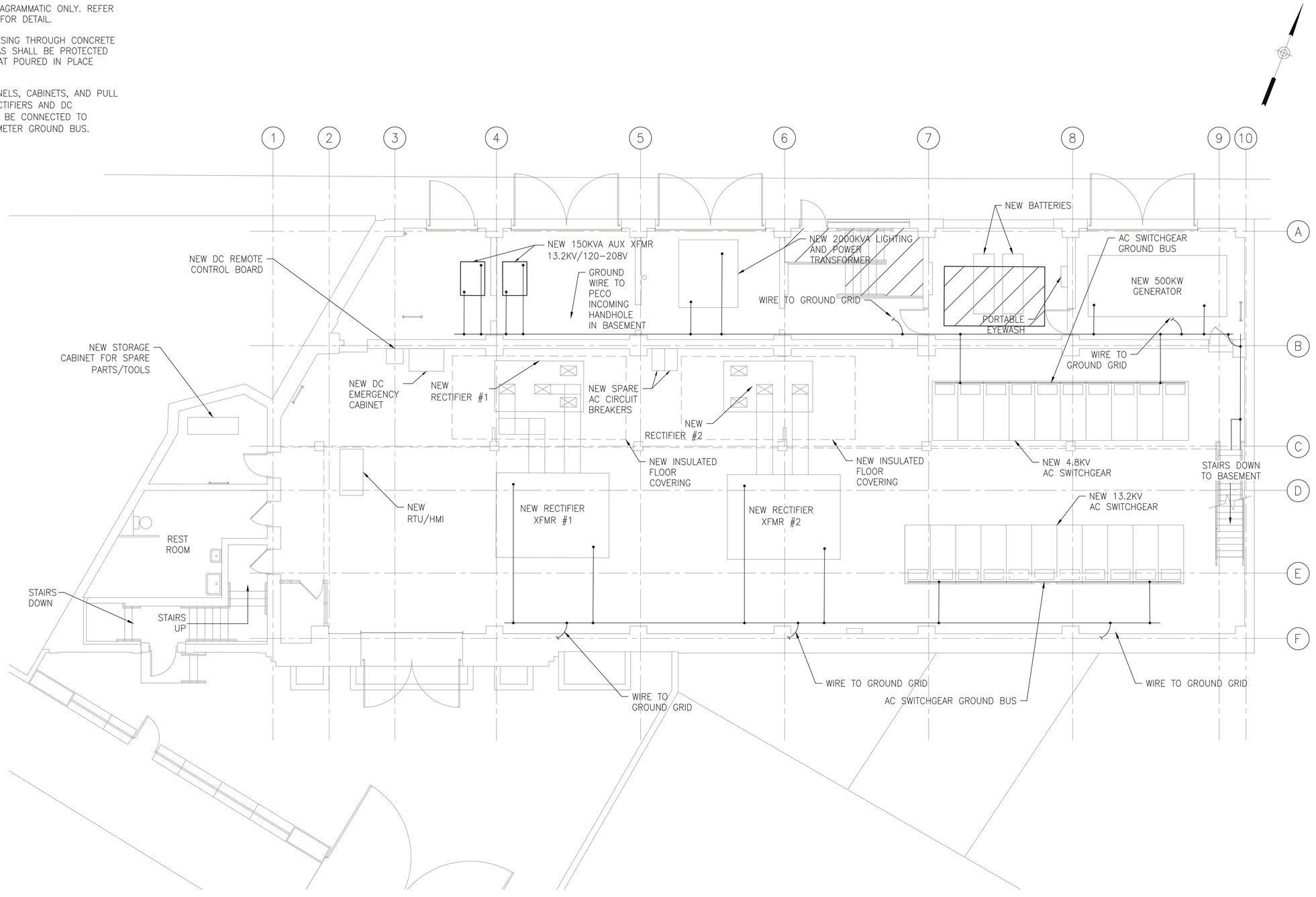
NOTES:

1. GROUND CABLES SHALL, IN GENERAL, RUN PARALLEL TO OR AT RIGHT ANGLES TO FLOORS, WALLS AND STRUCTURAL MEMBERS.
2. THIS DRAWING IS DIAGRAMMATIC ONLY. REFER TO SPECIFICATIONS FOR DETAIL.
3. GROUND CABLE PASSING THROUGH CONCRETE INTO EXPOSED AREAS SHALL BE PROTECTED AGAINST ABRASION AT POURED IN PLACE CONCRETE SLABS.
4. ALL ELECTRICAL PANELS, CABINETS, AND PULL BOXES (EXCEPT RECTIFIERS AND DC SWITCHGEAR) SHALL BE CONNECTED TO SUBSTATION"S PERIMETER GROUND BUS.



6 3 0 6

SCALE: 1"=6'

50% SUBMISSION
NOT FOR CONSTRUCTION

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EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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CHIEF ENGINEERING OFFICER - B&B
CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
GROUNDING PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: YL
	CHECKED BY: VS

WORK ORDER NO.: 276491

SHEET NUMBER: **TP145**

DWG. NO.:	33	OF	34
SHT. NO.:	122	OF	448

ARCHIVE NO.:

COMPUTER FILE NO.: 17AN-TP145

REV. NO.: -

STATUS: 50% SUBMISSION

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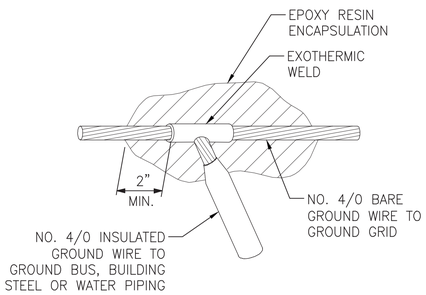
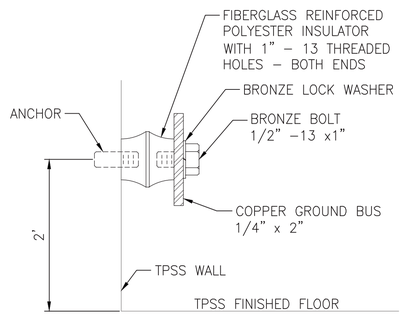
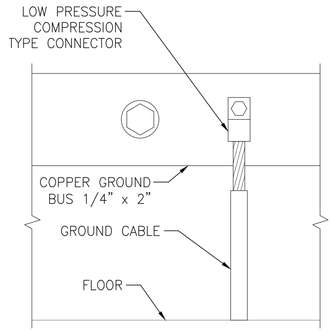


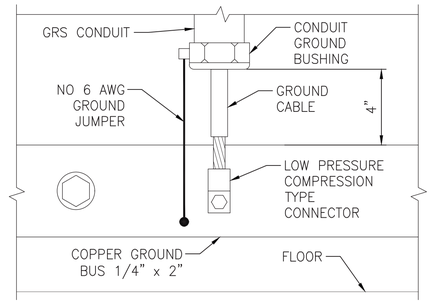
1 TP146 GROUND GRID EXOTHERMIC WELD CONNECTION WITH MOISTURE SEAL
SCALE: NONE



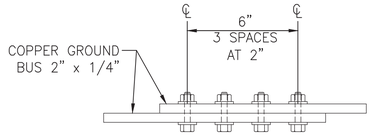
2 TP146 GROUND BUS MOUNTING
SCALE: NONE



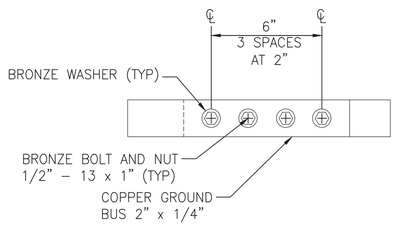
3 TP146 GROUND BUS CONNECTION FOR CAST IN CONCRETE SLAB GROUND WIRE AT AC SWITCHGEAR, RECTIFIER TRANSFORMER
SCALE: NONE



4 TP146 GROUND BUS CONNECTION IN EXPOSED GRS CONDUIT FOR EQUIPMENT GROUNDING
SCALE: NONE

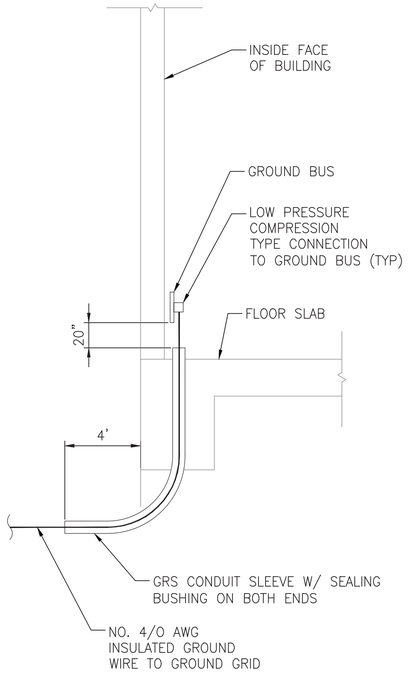


TOP VIEW

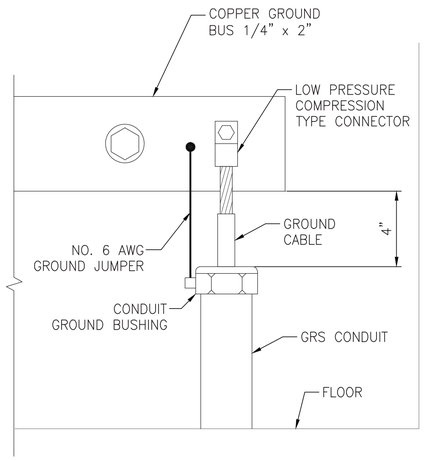


FRONT VIEW

5 TP146 GROUND BUS SPLICE JOINT
SCALE: NONE



6 TP146 GROUND WIRE ROUTING FROM GROUND GRID TO GROUND BUS
SCALE: NONE



7 TP146 GROUND BUS CONNECTIONS FROM GROUND GRID
SCALE: NONE

50% SUBMISSION
NOT FOR CONSTRUCTION

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EM&C DIVISION
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PHILADELPHIA, PA 19107

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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
DIRECTOR OF ENGINEERING - B&B
MANAGER - ARCH / ENGINEERING
PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
TRACTION POWER
GROUNDING DETAILS

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: DMW
	CHECKED BY: YL
WORK ORDER NO.: 276491	
SHEET NUMBER: **TP146**	
DWG. NO.: 34 OF 34	
SHT. NO.: 123 OF 448	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-TP146	REV. NO.: -

STATUS: 50% SUBMISSION

SECURITY SYMBOLS LEGEND:

SYMBOL	DESCRIPTION
	CCTV CAMERA, FIXED WITH ENVIRONMENTAL DOME. PROVIDE BACK BOX AND RGS CONDUIT. (2) CAT6 CABLES PER CAMERA. INSTALL CONNECTOR AND COIL SPARE CABLE IN JUNCTION BOX. INDOOR SHALL BE CMP AND OUTDOOR SHALL BE CMX OUTDOOR RATED JACKETS.
DC	DOOR CONTACT. PROVIDE UTP IN 3/4" RGS. SURFACE MOUNT.
AV	INDOOR/OUTDOOR SELF CONTAINED ARMORED SIREN/STROBE. PROVIDE UTP IN MIN 3/4" RGS.
KP	INTRUSION DETECTION KEY PAD. PROVIDE UTP IN 3/4" RGS TO PANEL
MD	MOTION DETECTOR. PROVIDE UTP IN MIN 3/4" RGS.
DC	DOOR CONTACT TO BE REMOVED.
REX	REQUEST TO EXIT PUSH BUTTON TO BE REMOVED.
ML	MAG LOCK TO BE REMOVED.

TELECOMMUNICATION SYMBOLS LEGEND:

SYMBOL	DESCRIPTION
▼	VOICE CONNECTION – SINGLE GANG JUNCTION BOX WITH RGS CONDUIT AS INDICATED ROUTED TO TELEPHONE BLOCK IN TELECOM CABINET. W: WALL MOUNTED PHONE OUTLET WITH (1) ONE CAT6 VOICE CABLE.
▼	VOICE CONNECTION TO BE REMOVED

LINETYPE CONVENTIONS:

- ---------- DEMO
- ———— EXISTING
- ———— NEW

ELECTRONICS ABBREVIATIONS:

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
APPROX.	APPROXIMATELY
AWG	AMERICAN WIRE GAUGE
AVPA	AUDIO/VISUAL PUBLIC ADDRESS
BICSI	BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL
C	CONDUIT
CAT	CATEGORY
CCD	CENTER CITY DISTRICT
CCTV	CLOSED CIRCUIT TELEVISION
CMP	COMMUNICATIONS PLENUM
CMX	COMMUNICATIONS RESIDENTIAL
COMM	COMMUNICATION
COTS	COMMERCIAL OFF THE SHELF
CPU	CENTRAL PROCESSING UNIT
CU	COPPER
DIA	DIAMETER
DVI	DIGITAL VISUAL INTERFACE
DVR	DIGITAL VIDEO RECORDER
EIA	ELECTRONIC INDUSTRIES ALLIANCE
EM	EMERGENCY
ETC	ET CETERA
(E)	EXISTING EQUIPMENT TO REMAIN
FACP	FIRE ALARM CONTROL PANEL
FMC	FLEXIBLE METALLIC CONDUIT
HMI	HUMAN MACHINE INTERFACE
IDP	INTRUSION DETECTION PANEL
IDS	INTRUSION DETECTION SYSTEM
JB	JUNCTION BOX
KBD	KEYBOARD
KVM	KEYBOARD VIDEO MOUSE
LB	POUND
LCD	LIQUID CRYSTAL DISPLAY
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
ML	ELECTRO-MAGNETIC LOCK
MAX	MAXIMUM
MIN	MINIMUM
MON	MONITOR
(N)	NEW WORK/EQUIPMENT TO BE PROVIDED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOM	NOMINAL
NPT	NEW PAYMENT TECHNOLOGY
NO	NUMBER
NVR	NETWORK VIDEO RECORDER
OD	OUTER DIAMETER
PC	PERSONAL COMPUTER
PDU	POWER DISTRIBUTION UNIT
PP	PATCH PANEL
PTZ	PAN/TILT/ZOOM
(RE)	RELOCATED EXISTING
RGS	RIGID GALVANIZED STEEL
RTU	REMOTE TERMINAL UNIT
RX	REQUEST TO EXIT
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
TA	TRANSPORTATION AGENT
TDMM	TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
TPSS	TRACTION POWER SUBSTATION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TWPR	TWISTED PAIR
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
USB	UNIVERSAL SERIAL BUS
UTP	UNSHIELDED TWISTED PAIR
VA	VOLT AMPERE
VAC	VOLTS ALTERNATING CURRENT
VGA	VIDEO GRAPHICS ARRAY
W/	WITH

GENERAL CONSTRUCTION NOTES:

1. COMPLY WITH LATEST APPLICABLE EDITION OF NFPA 70 (NEC), AND WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION, THE DEPARTMENT OF LICENSES AND INSPECTIONS (L & I) AND THE CITY OF PHILADELPHIA.
2. INSTALL ALL EQUIPMENT WITH ADEQUATE CLEARANCES FOR MAINTENANCE AND SERVICING AND IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND APPLICABLE CODES.
3. OBTAIN AND PAY FOR ALL PERMITS AND PAY FOR ALL COSTS OF MATERIALS. HANDLE, STORE AND PROTECT ALL EQUIPMENT TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROTECT THE WORK SITE AND ALL WORK AGAINST ANY DAMAGE (INCLUDING BUT NOT LIMITED TO WATER, DUST, HEAT, FREEZING, ETC.) UNTIL FINAL COMPLETION AND ACCEPTANCE BY SEPTA.
4. REFER TO SPECIFICATIONS FOR MATERIALS TO BE USED AND METHODS OF INSTALLATION.
5. WHERE UTILITIES AND/OR SERVICES REQUIRE SHUTDOWN FOR THE WORK TO BE PERFORMED, NOTIFY THE SEPTA PROJECT MANAGER, IN WRITING, A MINIMUM OF TWO (2) WEEKS PRIOR TO THE SCHEDULED SHUTDOWN.
6. STORAGE OF MATERIALS AND/OR EQUIPMENT IS NOT PERMITTED OTHER THAN WITHIN THE LIMITS OF THE STAGING AREA OR CONFINES OF THE PROJECT WORK AREA AND AS APPROVED BY THE SEPTA PROJECT MANAGER.
7. REMOVE ALL CONSTRUCTION DEBRIS IN ACCORDANCE WITH APPROVED CONSTRUCTION WASTE MANAGEMENT PLAN.
8. KEEP A COPY OF THE CURRENT SET OF CONTRACT DOCUMENTS (WITH AS-BUILT INFORMATION) AT THE JOB SITE AT ALL TIMES.
9. REVIEW ALL PROJECT DOCUMENTS OF ALL TRADES FOR A THOROUGH UNDERSTANDING OF PROJECT AND ANY CROSS REFERENCING OF WORK. REVIEW ALL PROJECT REQUIREMENTS PRIOR TO BIDDING. REPORT ANY DISCREPANCIES BETWEEN DOCUMENTS TO THE SEPTA PROJECT MANAGER PRIOR TO BIDDING.
10. PRIOR TO DELIVERY OF ANY MATERIALS TO THE SITE, PROVIDE SAFETY DATA SHEETS FOR ALL REQUIRED ITEMS AND MATERIALS, USED IN THE WORK, TO THE SEPTA PROJECT MANAGER.
11. COMPLY WITH ALL SEPTA SAFETY STANDARDS AND INCLUDE ALL COSTS TO TRAIN AND QUALIFY PERSONNEL IN SEPTA SAFETY STANDARDS
12. UTILIZE PENNSYLVANIA ONE CALL PRIOR TO ANY UNDERGROUND WORK INCLUDING TRENCHING OR DIGGING. COMPLIANCE WITH ALL LAWS, RULES AND REGULATIONS REGARDING UTILITY CROSSING SHALL BE CONSIDERED AS PART OF THIS CONTRACT. THE CONTRACTOR SHALL NOT SEEK ADDITIONAL REIMBURSEMENT FOR ALTERNATIVE MEANS OF INSTALLATION FOR COMPLIANCE.
13. THE CONTRACTOR SHALL ROPE AND ROD ALL CONDUITS INTENDED FOR REUSE AT THE EXPENSE OF THE CONTRACTOR. SEPTA SHALL BE PRESENT. IF A CONDUIT CANNOT BE REUSED THIS SHALL BE REPORTED TO THE SEPTA PROJECT MANAGER AT ONCE.

GENERAL TELECOMMUNICATIONS NOTES:

1. IF CONFLICTS ARE FOUND BETWEEN THE TELECOMMUNICATIONS DRAWINGS AND ANY OTHER DRAWINGS ASSOCIATED WITH THE PROJECT, NOTIFY THE SEPTA PROJECT MANAGER AT ONCE AND FIELD VERIFY PRIOR TO INSTALLATION OF ANY PATHWAY AND/OR DEVICE.
2. JUNCTION AND PULL BOXES ARE NOT NECESSARILY ALL INDICATED. PROVIDE JUNCTION BOXES AND PULL BOXES WHERE MANDATED BY THE NEC, AND AS REQUIRED FOR EASE OF INSTALLATION. PROVIDE BOXES SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC AND PER APPROVED CONTRACTOR COORDINATION DRAWINGS.
3. CONCEAL CONDUIT OR CABLE EXTENSIONS TO THE GREATEST EXTENT PRACTICABLE. KEEP SURFACE MOUNTED DEVICES, BOXES, AND EXPOSED SURFACE MOUNTED METAL RACEWAYS TO A MINIMUM AND ONLY AS APPROVED IN ADVANCED BY THE SEPTA PROJECT MANAGER.
4. VERIFY ALL DIMENSIONS IN THE FIELD AND REPORT DISCREPANCIES, IF ANY, TO THE SEPTA PROJECT MANAGER FOR CLARIFICATION PRIOR TO STARTING ANY WORK.
5. ALL INTERIOR AND EXTERIOR RACEWAY SHALL BE RGS CONDUIT. UTILIZE FMC AND LFMC IN LIMITED LENGTHS AS NECESSARY, OR AS REQUIRED BY THE NEC. USE MINIMUM CONDUIT SIZE OF 3/4", UNLESS OTHERWISE NOTED. DO NOT EXCEED CONDUIT FILL RATIO PER THE NEC.
6. PATCH AND REPAIR ALL OPENINGS LEFT IN EXISTING SURFACES BY THE REMOVAL OF EXISTING SURFACE AND OR SEMI-RECESSED BOXES OR RACEWAYS AND FINISH SUCH AREAS TO MATCH ADJACENT SURFACES.
7. MAINTAIN MINIMUM BEND RADIUS OF 10 TIMES THE OUTER DIAMETER FOR CONDUITS GREATER THAN 2" DIAMETER AND 6 TIMES THE OUTER DIAMETER FOR CONDUITS EQUAL OR LESS THAN 2" DIAMETER.
8. REAM AND BUSH THE ENDS OF ALL CONDUITS. PROVIDE AND LEAVE IN PLACE PULL STRINGS IN ALL EMPTY CONDUITS.
9. PROVIDE HANGERS, ANCHORS, MOUNTING HARDWARE, GROUND LUGS AND STRAPS AS REQUIRED TO ENSURE PROPER INSTALLATION OF PATHWAY COMPONENTS. INSTALL ALL COMPONENTS AS PER MANUFACTURER'S RECOMMENDATIONS AND PER ALL APPLICABLE CODES.
10. GROUND ALL CONDUITS, CABINETS AND EQUIPMENT AS PER MANUFACTURER'S RECOMMENDATIONS AND PER ALL APPLICABLE CODES.
11. PROPERLY LABEL ALL CABLES, RECEPTACLES, CONNECTION BLOCKS AND PATCH PANELS IN ACCORDANCE WITH TIA-606B AND BICSI TDMM 13TH EDITION.
12. PROVIDE WHITE LABEL WITH TYPE WRITTEN LEGIBLE CHARACTERS, PRINTED WITH NON-SMEAR INK AND INDUSTRIAL GRADE SELF ADHESIVE BACKING. PROVIDE ROOM NUMBERS AND CABLE LENGTHS FOR EACH END OF THE INSTALLED CABLE.
13. PRIOR TO SYSTEM ACCEPTANCE, SUBMIT AN AS-BUILT LABEL REPORT PROVIDING THE ROOM NUMBERS AND THE CABLE LENGTHS FOR EACH OF THE INSTALLED CABLES.
14. INSTALLATION OF CATEGORY 6 UTP CABLE SHALL BE IN ACCORDANCE WITH EIA/TIA GUIDELINES. CABLE INSTALLATION AND TERMINATIONS THAT DO NOT COMPLY SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO SEPTA.
    - 14.1. THE MAXIMUM PULLING TENSION FOR A SINGLE CABLE SHALL NOT EXCEED 25 POUNDS.
    - 14.2. THE MINIMUM BENDING RADIUS OF THE CABLE SHALL NOT BE LESS THAN 4 TIMES THE OUTSIDE DIAMETER OF THE CABLE.
    - 14.3. THE CABLE SHALL BE INSTALLED WITHOUT KINKS OR TWISTS AND THE APPLICATION OF CABLE TIES SHALL NOT DEFORM THE CABLE BUNDLE. CONDUITS SHALL TRANSITION INTO CABLE TRAYS USING CONDUIT END BELLS. NO CABLE SHALL BE INSTALLED OVER ROUGH CONDUIT EDGES IN ANY TRANSITION.
    - 14.4. STRIP BACK ONLY AS MUCH CABLE JACKET AS IS REQUIRED TO TERMINATE THE CABLE. CABLE PAIRS SHALL NOT BE UNTWISTED MORE THAN 1/2 INCH.
    - 14.5. CABLES SHALL BE TESTED PER THE SPECIFICATIONS. CABLES WHICH DO NOT PASS TESTS SHALL BE REPLACED OR RECTIFIED BY THE CONTRACTOR AT NO ADDITIONAL COST.
    - 14.6. THE CONTRACTOR SHALL NOT INSTALL ANY NEW CATEGORY 6 CABLE AT LENGTHS GREATER THAN 90 METERS FROM PATCH PANEL TO OUTLET BOX. THE CONTRACTOR SHALL BRING ANY CONDITIONS EXCEEDING THE CABLE LIMIT DISTANCE TO THE SEPTA PROJECT MANAGER.
15. INTRUSION ALARM SHALL COMMUNICATE ARM, DISARM, ALARM AND TROUBLE VIA THE REMOTE TERMINAL UNIT.

50% SUBMISSION
NOT FOR CONSTRUCTION

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
1234 MARKET ST, 13TH FL.
PHILADELPHIA, PA 19107

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REV	DATE	DESCRIPTION	BY	CK'D	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
COMMUNICATIONS
GENERAL NOTES, SYMBOLS & ABBREVIATIONS

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DC CHECKED BY: EH
WORK ORDER NO.: 276491	
SHEET NUMBER: **COM100**	
DWG. NO.: 1 OF 8	
SHT. NO.: 124 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-COM100	REV. NO.:

STATUS: 50% SUBMISSION

C:\PW\WORKING\PITTD\16898917AN-COM100.DWG

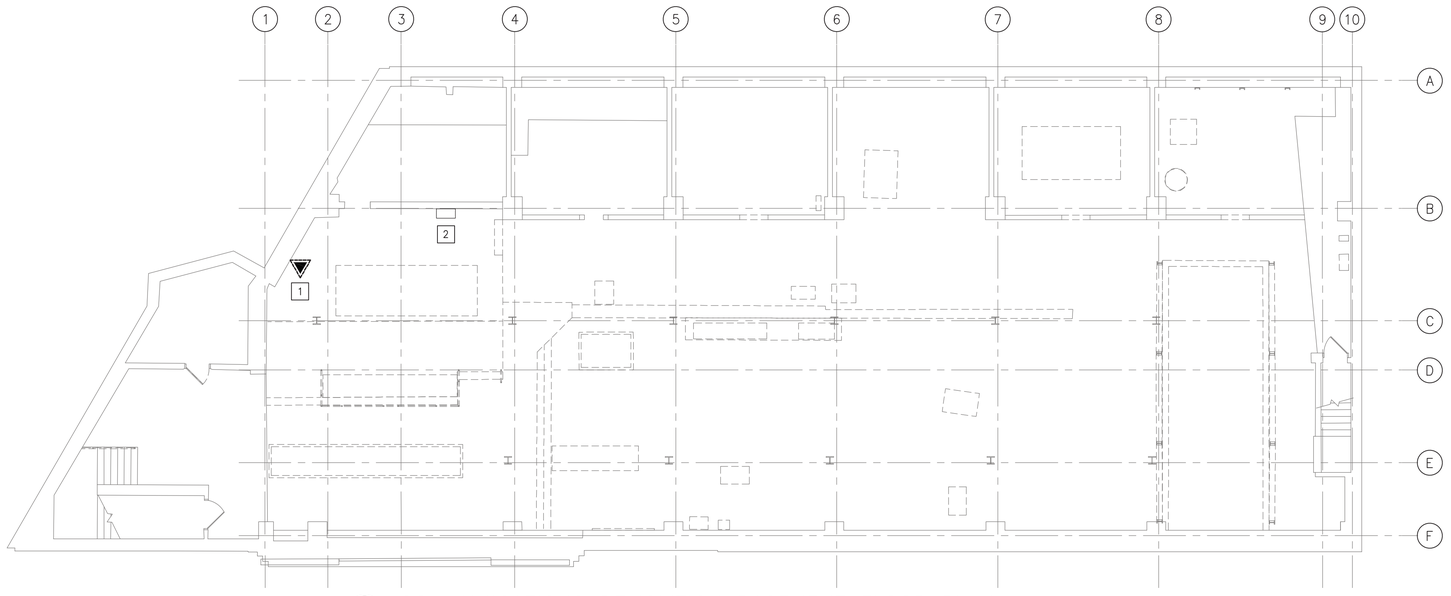
GENERAL NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS REFER TO DRAWING COM100.
2. REMOVE ALL CONDUITS, CABLES, STATION JACKS AND BOXES RELATED TO TELECOMMUNICATIONS TO SOURCE.
3. DISCARD ALL REMOVED EQUIPMENT.

KEYED NOTES:

[1] REMOVE PHONE, CABLE AND ASSOCIATED APPURTENANCES TO SOURCE.

[2] EXISTING FIBER OPTIC CABLE SPLICE ENCLOSURE TO REMAIN.



1 COM101 COMMUNICATIONS DEMOLITION BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

50% SUBMISSION
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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
COMMUNICATIONS
DEMOLITION BASEMENT FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: DC
CHECKED BY: EH
WORK ORDER NO.: 276491
SHEET NUMBER: **COM101**
DWG. NO.: 2 OF 8
SHT. NO.: 125 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-COM101
REV. NO.: ---

STATUS: 50% SUBMISSION

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GENERAL NOTES:

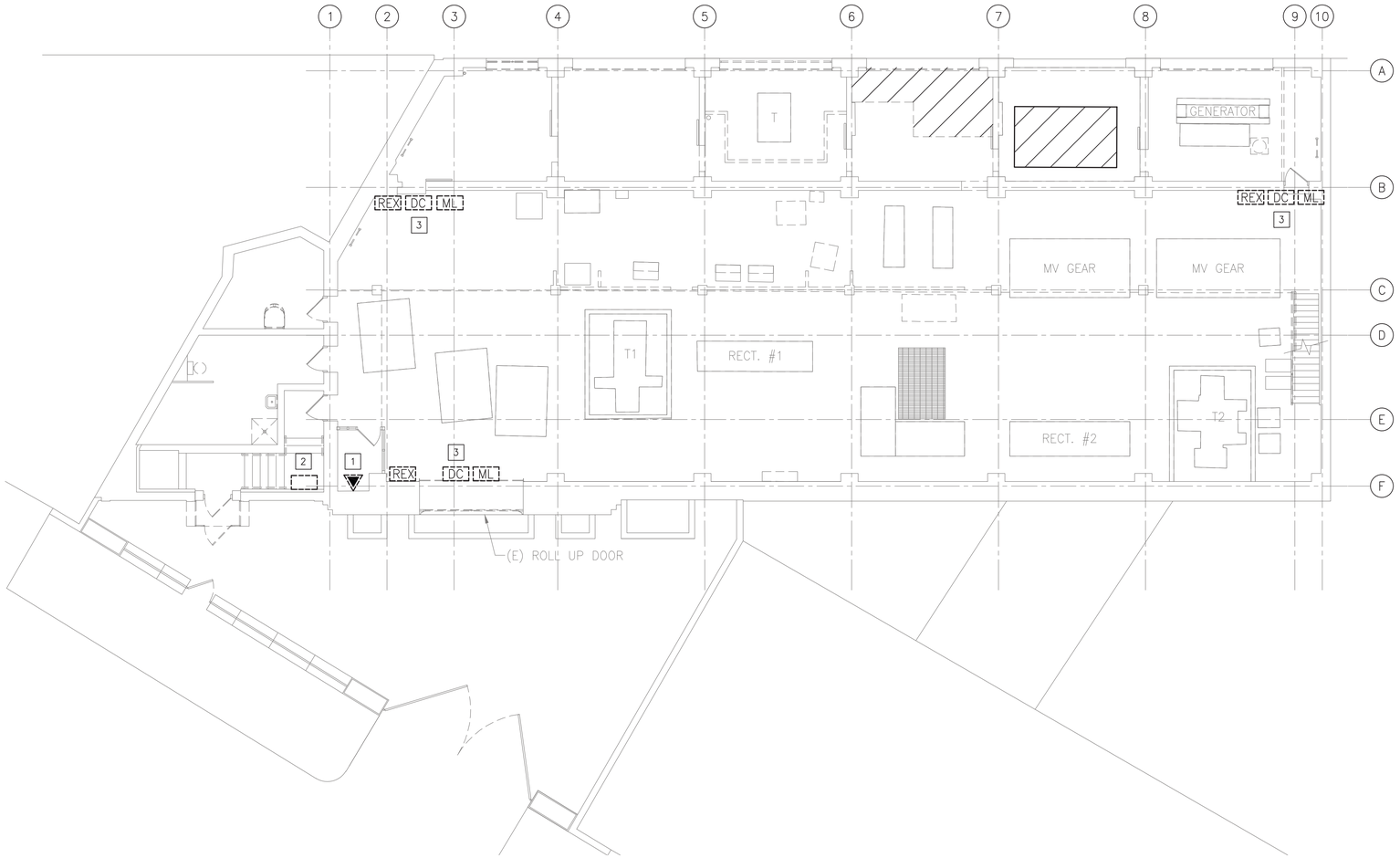
1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS REFER TO DRAWING COM100.
2. REMOVE ALL CONDUITS, CABLES, STATION JACKS AND BOXES RELATED TO TELECOMMUNICATIONS TO SOURCE.
3. DISCARD ALL REMOVED EQUIPMENT.

KEYED NOTES:

[1] REMOVE PHONE, CABLE AND ASSOCIATED APPURTENANCES TO SOURCE.

[2] EXISTING DOOR INTRUSION ALARM PANEL AND ASSOCIATED EQUIPMENT AND WIRING TO BE REMOVED.

[3] REMOVE DOOR CONTACT, CONDUIT AND WIRING BACK TO SOURCE.



1 COM102 COMMUNICATIONS DEMOLITION FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8

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

50% SUBMISSION
NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
COMMUNICATIONS
DEMOLITION FIRST FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DC
	CHECKED BY: EH
WORK ORDER NO.: 276491	
SHEET NUMBER: **COM102**	
DWG. NO.: 3 OF 8	
SHT. NO.: 126 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-COM102	REV. NO.: ----

STATUS: 50% SUBMISSION

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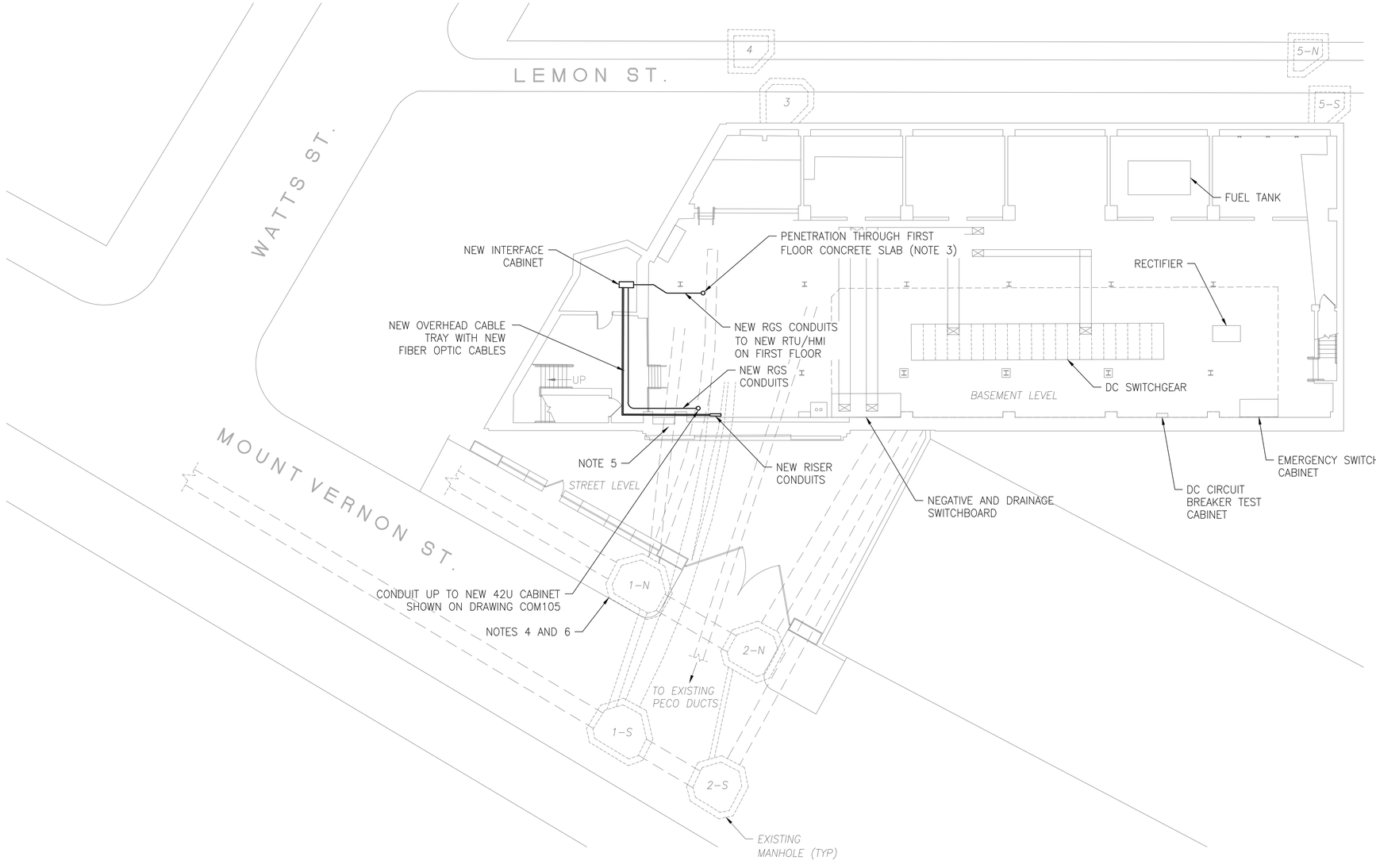

NOTES:

1. GRAYSCALE ITEMS ON THIS DRAWING TO REMAIN.
2. BOLD ITEMS ON THIS DRAWING ARE NEW.
3. REFER TO DRAWING TP120 FOR LOCATION OF NEW RTU/HMI ON FIRST FLOOR.
4. INSPECT EXISTING MANHOLES WITH SEPTA SUPERVISION AND DETERMINE EXACT COMMUNICATION CABLE PATHS INTO THE BUILDING.
5. REMOVE EXISTING COMMUNICATION CABLES, CONDUITS AND EQUIPMENT ONCE NEW PRODUCTS ARE INSTALLED AND TESTED AS FUNCTIONAL. PULL INTO THE TPSS NEW FIBER OPTIC CABLE (BY SEPTA) FROM AN EXISTING MANHOLE OFF MT. VERNON STREET.
6. REFER TO CITY OF PHILADELPHIA REFERENCE DRAWINGS: CONTRACT NO. 224 SHEET 25803, CONTRACT NO 147 SHEETS 23187, 23206, AND 23207.
7. REMOVE FROM THE TPSS EACH INDIVIDUAL ABANDONED COMMUNICATION CABLE OUT TO MANHOLES 1-N, 1-S, 2-N, 2-S IN COORDINATION WITH EXISTING TPSS EQUIPMENT REMOVALS.

10 5 0 10

SCALE: 1"=10'

50% SUBMISSION
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CHIEF RAIL TRANSIT OFFICER

SYSTEM SAFETY

DIRECTOR OF ENGINEERING - B&B

MANAGER - ARCH / ENGINEERING

PROJECT MANAGER

HDR Engineering, Inc.
Philadelphia, PA

REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
COMMUNICATIONS
INTERFACE CABINET & CABLE PLANS

SCALE: AS SHOWN
SCALE FACTOR: -
DATE: 08/22/2025
DRAWN BY: MLB
CHECKED BY: EZ
WORK ORDER NO.: 276491
SHEET NUMBER: **COM103**
DWG. NO.: 4 OF 8
SHT. NO.: 127 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-COM103
REV. NO.: -

STATUS: 50% SUBMISSION

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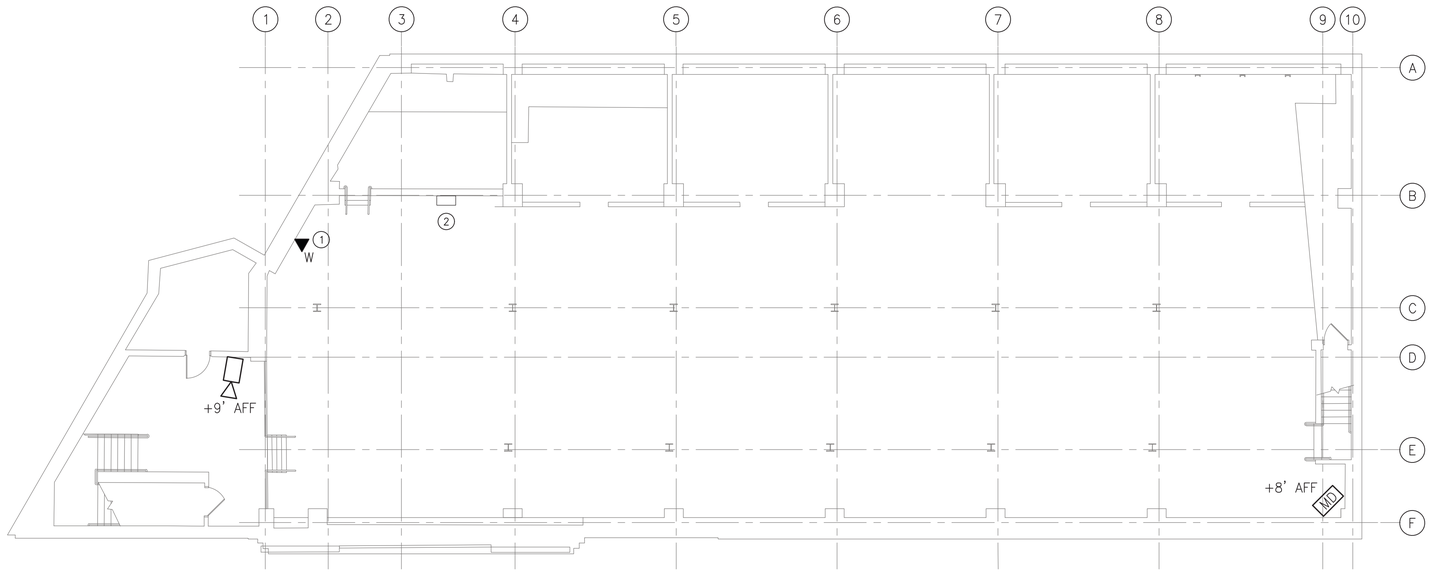
GENERAL NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS REFER TO DRAWING COM100.
2. COORDINATE ALL FINAL LOCATIONS, MOUNTING HEIGHTS AND DETAILS, EQUIPMENT QUANTITIES WITH SEPTA C&S. ENSURE CAMERA LINE OF SIGHT.

KEYED NOTES:

(1) NEW TELEPHONE SHALL UTILIZE THE EXISTING INCOMING SERVICE CONNECTION. ALL CABLE SHALL BE IN MINIMUM 3/4" RGS CONDUIT. INSTALL (N) CAT6 CABLE TO (N) TERMINATION 110 BLOCK IN (N) COMMUNICATIONS CABINET.

(2) EXISTING FIBER OPTIC CABLE SPLICE ENCLOSURE.



1 COM104 COMMUNICATIONS PROPOSED BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

50% SUBMISSION
NOT FOR CONSTRUCTION

C:\PW\WORKING\PITTD\16890817AN-COM104.DWG

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
COMMUNICATIONS
PROPOSED BASEMENT FLOOR PLAN

SCALE: AS SHOWN
SCALE FACTOR: 1:1
DATE: 08/22/2025
DRAWN BY: DC
CHECKED BY: EH
WORK ORDER NO.: 276491
SHEET NUMBER: **COM104**
DWG. NO.: 5 OF 8
SHT. NO.: 128 OF 452
ARCHIVE NO.:
COMPUTER FILE NO.: 17AN-COM104
REV. NO.: ---

STATUS: 50% SUBMISSION

GENERAL NOTES:

1. FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS REFER TO DRAWING COM100.
2. COORDINATE ALL FINAL LOCATIONS, MOUNTING HEIGHTS AND DETAILS, EQUIPMENT QUANTITIES WITH SEPTA C&S. ENSURE CAMERA LINE OF SIGHT.

KEYED NOTES:

(1) INTRUSION DETECTION PANEL. ALL COMPONENT CABLING SHALL BE IN MINIMUM OF 3/4" RGS CONDUIT. PROGRAM SYSTEM PER SPECIFICATION 13700.

(2) ALL AUDIO VISUAL STROBES SHALL ALARM AFTER 60 SECONDS IF ANY OF THE DOOR CONTACTS ARE BROKEN AND THE ALARM IS NOT DISARMED AND THE PANEL SHALL AUTOMATICALLY SIGNAL THE SEPTA MONITORING STATION VIA THE RTU CONNECTION.

(3) FURNISH AND INSTALL A 12 POSITION TERMINAL BLOCK HOUSED IN A LOCKABLE 8" X 8" X 4" NEMA 3R ENCLOSURE. EXTEND SIGNAL CABLE FROM THE IDS PANEL AND TERMINATE ON TERMINAL BLOCK FOR IDS MONITORING. COORDINATE FINAL CONNECTION TO THE RTU.

(4) CCTV CAMERA SHALL BE MOUNTED TO THE BUILDING FACADE 15 FEET ABOVE FINISHED GRADE TO MONITOR ENTRANCE. TWO (2) CAT6 CABLES IN 1" RGS CONDUIT SHALL BE ROUTED TO SURGE PROTECTOR DEVICES BEFORE LANDING ON THE NEW PATCH PANEL LOCATED IN EQUIPMENT CABINET. CABLE TYPE SHALL BE CMX OUTDOOR RATED.

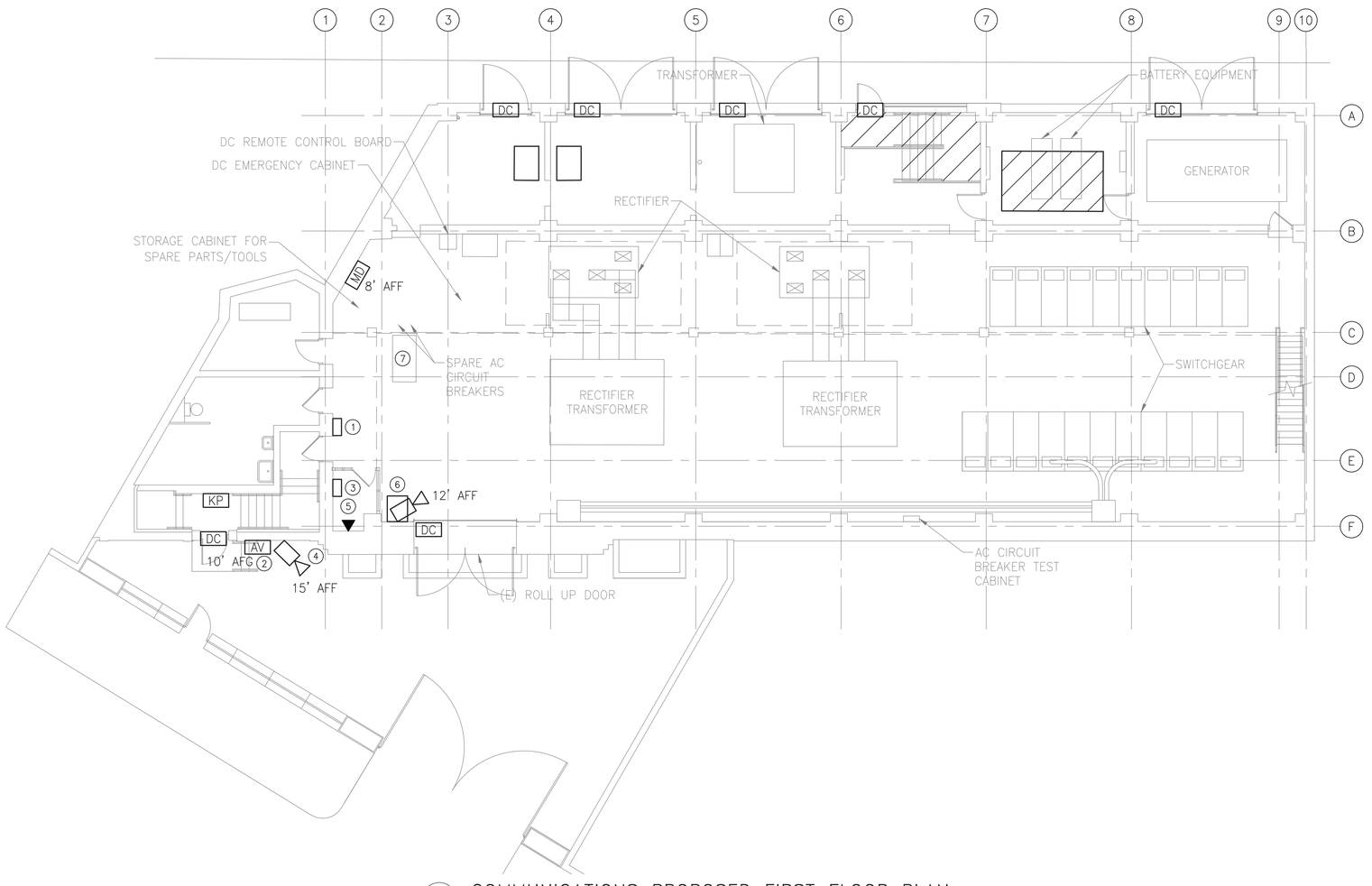
(5) NEW TELEPHONE SHALL UTILIZE THE EXISTING INCOMING SERVICE CONNECTION. ALL CABLE SHALL BE IN MINIMUM 3/4" RGS CONDUIT. INSTALL (N) CAT6 CABLE TO (N) TERMINATION 110 BLOCK IN (N) COMMUNICATIONS CABINET.

(6) FURNISH AND INSTALL NEW 42U, LOCKABLE CABINET. FURNISH AND INSTALL FOLLOWING COMPONENTS PER SPECIFICATION:

1. CCTV LCD/KEYBOARD CONSOLE.
2. RIGID PC.
3. LIGHTNING PROTECTION.
4. 110 TELEPHONE BLOCK.
5. CAT6 PATCH PANEL.
6. SHELF MOUNTED MEDIA CONVERTER.
7. 2200VA UPS.

COORDINATE FINAL EQUIPMENT LIST WITH SEPTA C&S.

(7) RTU/HMI. REFER TO TRACTION POWER DRAWINGS FOR DETAILED DRAWINGS.



1 COM105 COMMUNICATIONS PROPOSED FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

8 6 4 2 0 8
SCALE: 1/8"=1'-0"

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SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY
EM&C DIVISION
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CHIEF RAIL TRANSIT OFFICER
SYSTEM SAFETY
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PHONE 610.459.2600
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REV	DATE	BY	CK'D	APD	DESCRIPTION

DATE PRINTED: 10/21/2025

STATUS: 50% SUBMISSION

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
COMMUNICATIONS
PROPOSED FIRST FLOOR PLAN

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DC
	CHECKED BY: EH
WORK ORDER NO.: 276491	
SHEET NUMBER: **COM105**	
DWG. NO.: 6 OF 8	
SHT. NO.: 129 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-COM105	REV. NO.: 1

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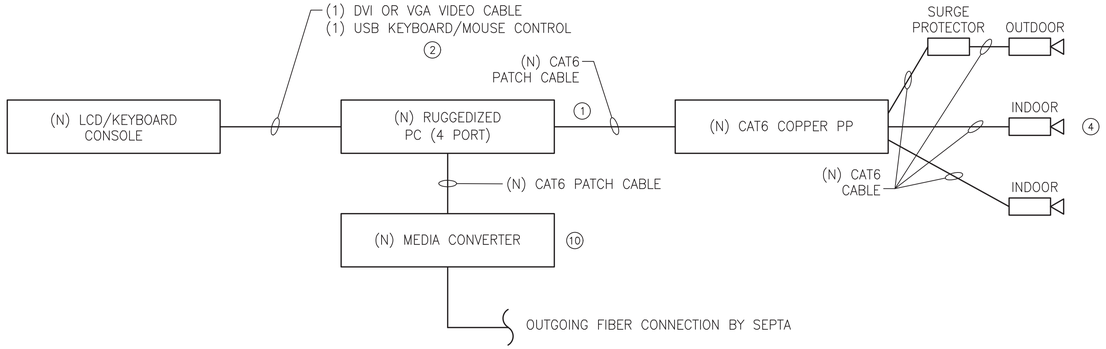
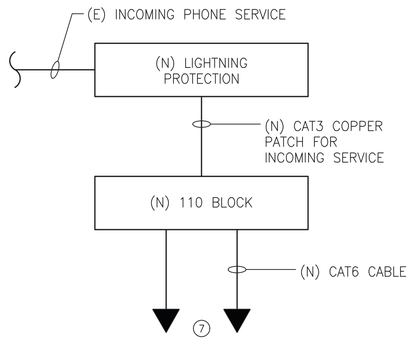
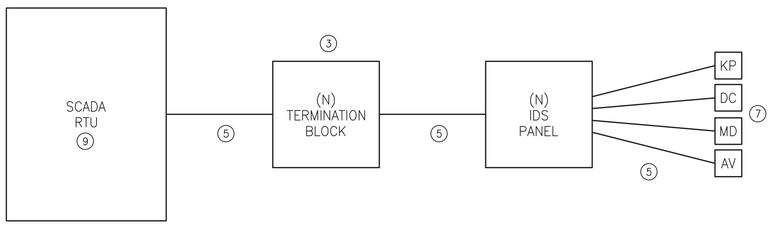


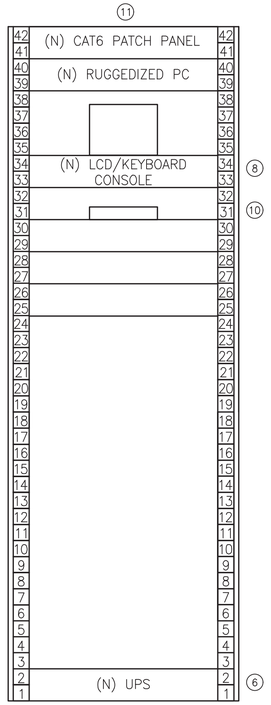
1 COM106 CCTV BLOCK DIAGRAM
SCALE: NOT TO SCALE



2 COM106 VOICE BLOCK DIAGRAM
SCALE: NOT TO SCALE



3 COM106 INTRUSION DETECTION BLOCK DIAGRAM
SCALE: NOT TO SCALE



4 COM106 TELECOM CABINET ELEVATION
SCALE: NOT TO SCALE

KEYED NOTES:

1. COORDINATE ALL HARDWARE AND FINAL QUANTITIES WITH SEPTA C&S.
2. FURNISH AND INSTALL GENETIC PRO BASE SOFTWARE ON PC, (1) CAMERA LICENSE PER CAMERA, (1) FEDERATION LICENSE FOR THE SITE.
3. THE CONTRACTOR TO FURNISH AND INSTALL SIGNAL CABLE FROM IDS PANEL TO TERMINATION BLOCK. COORDINATE CONNECTION TO RTU.
4. REFER TO DRAWINGS COM104 AND COM105 FOR PROPER QUANTITIES. UTILIZE CMX OUTDOOR JACKET FOR OUTDOOR CAMERAS. OUTDOOR CABLE MAY NOT EXCEED 50 FEET INSIDE BUILDING.
5. ALL MULTI-CONDUCTOR CABLE SHALL BE IN 3/4" RGS. ALL SECURITY CABLE SHALL BE LOW IMPEDANCE AND A MINIMUM OF NO. 18 AWG CONDUCTOR SIZE. CONDUCTOR QUANTITIES ARE PER MANUFACTURER'S SPECIFICATION.
6. NETWORK ADDRESSABLE UPS. APPROXIMATELY 2200VA AND SHALL LAST A MINIMUM OF 70 MINUTES. PHYSICAL SIZE SHALL MAINTAIN 2 RACK UNITS SPACE WITH NECESSARY BATTERY PACK QUANTITIES.
7. REFER TO DRAWINGS COM104 AND COM105 FOR PROPER QUANTITIES.
8. FURNISH AND INSTALL RACK-MOUNTED 17" LCD/KEYBOARD CONSOLE.
9. REFER TO TRACTION POWER DRAWINGS FOR SCADA RTU CONNECTION DETAILS.
10. COPPER TO FIBER MEDIA CONVERTER ON RACK MOUNT SHELF CONNECT CCTV PC FOR CONNECTIVITY OVER SEPTA'S FIBER NETWORK. FINAL FIBER CONNECTION BY SEPTA.
11. COORDINATE FINAL RACK LAYOUT WITH SEPTA C&S.

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REV	DATE	DESCRIPTION	BY	CK'D	APP'D

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
COMMUNICATIONS
SINGLE LINE DIAGRAM

SCALE: AS SHOWN	SCALE FACTOR: 1:1
DATE: 08/22/2025	DRAWN BY: DC
	CHECKED BY: EH
WORK ORDER NO.: 276491	
SHEET NUMBER: **COM106**	
DWG. NO.: 7 OF 8	
SHT. NO.: 130 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-COM106	REV. NO.: ---

STATUS: 50% SUBMISSION

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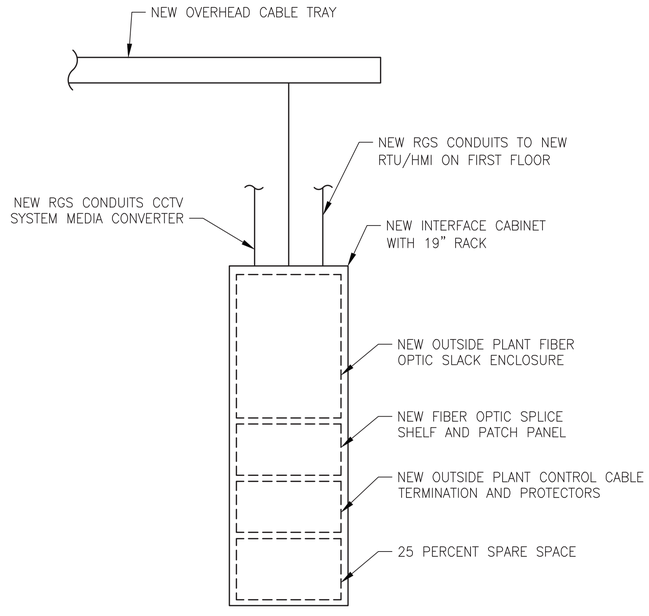
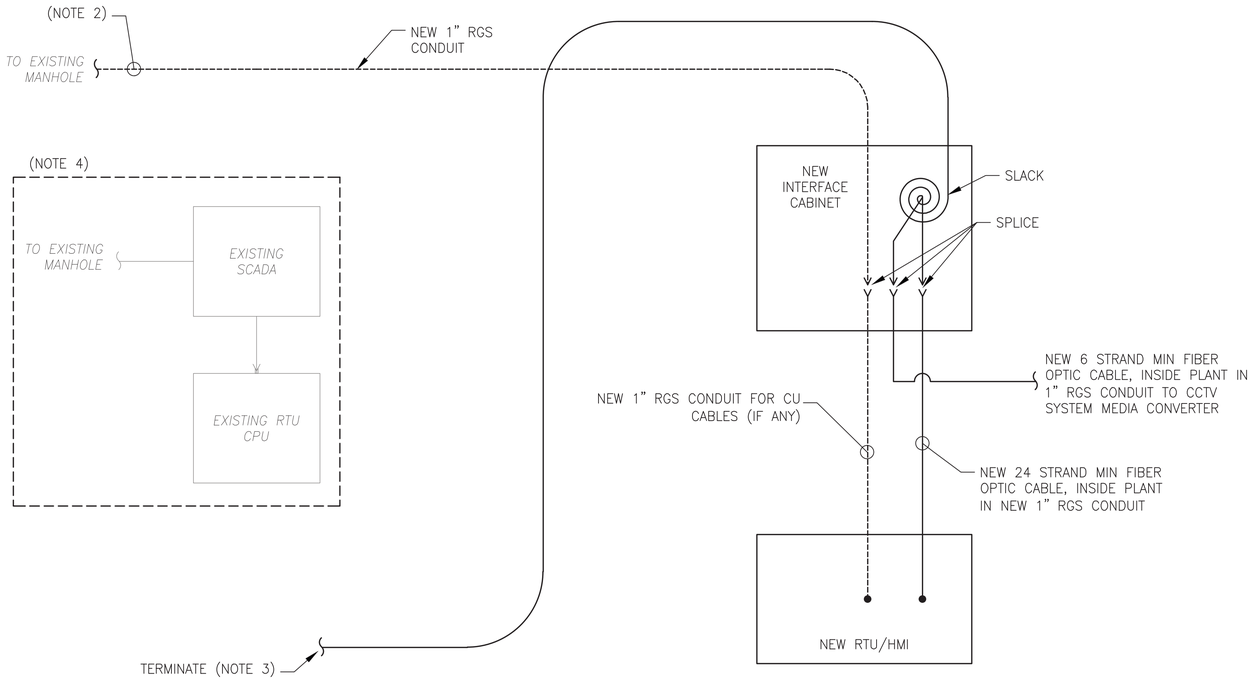
NOTES:

1. CABINET ARRANGEMENT TO BE FRONT ACCESS ONLY FOR ENCLOSED TIA/EIA 19" RACK.
2. THE CONTRACTOR TO INSTALL NEW CONTROL CABLE FROM AN EXISTING MANHOLE ON MT. VERNON STREET TO NEW INTERFACE CABINET.
3. THE CONTRACTOR TO TRANSFER OVER FROM EXISTING FIBER TO NEW CONTROL ROOM.
4. REMOVE EXISTING COMMUNICATION CABLES, CONDUITS AND EQUIPMENT ONCE NEW PRODUCTS ARE INSTALLED AND TESTED AS FUNCTIONAL.
5. BOLD ITEMS ON THIS DRAWING ARE NEW.
6. GRAYSCALE ITEMS ON THIS DRAWING TO REMAIN.



1 COM107 COMM/INTERFACE CABINETS DETAIL ELEVATION VIEW
N.T.S



2 COM107 FIBER NODE DIAGRAM
N.T.S.

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REV	DATE	DESCRIPTION	BY	CKD	APD

DATE PRINTED: 10/21/2025

BROAD
SUBWAY/ELEVATED TRAINS
TRACTION POWER SUBSTATION REHABILITATION
COMMUNICATIONS
FIBER NODE DIAGRAM

SCALE: NTS	SCALE FACTOR: -
DATE: 08/22/2025	DRAWN BY: MJB / CHECKED BY: EZ
WORK ORDER NO.: 276491	
SHEET NUMBER: **COM107**	
DWG. NO.: 8 OF 8	
SHT. NO.: 131 OF 452	
ARCHIVE NO.:	
COMPUTER FILE NO.: 17AN-COM107	REV. NO.: -

STATUS: 50% SUBMISSION

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