

# Town of Acton

-  
Acton, MA 01720

## Fire Station Generator Upgrades

DISTRICT No. 1  
CENTER FIRE STATION  
7 CONCORD ROAD  
ACTON, MA 01720

&

DISTRICT No. 2  
SOUTH FIRE STATION  
54 SCHOOL STREET  
ACTON, MA 01720

### DRAWING LIST

- E1.1: District 1, Center Fire Station, 7 Concord Rd. ELECTRICAL SITE PLAN & SYMBOL LIST
- E1.2: District 1, Center Fire Station, 7 Concord Rd. ELECTRICAL FLOOR PLANS & SITE DETAILS
- E1.3: District 1, Center Fire Station, 7 Concord Rd. ONE-LINE POWER RISER & DETAILS
- E2.1: District 2, South Fire Station, 54 School St. ELECTRICAL SITE PLAN
- E2.2: District 2, South Fire Station, 54 School St. ELECTRICAL FLOOR PLANS & SITE DETAILS
- E2.3: District 2, South Fire Station, 54 School St. ONE-LINE POWER RISER & DETAILS



Date: August 29, 2013

BID DOCUMENTS

# SYMBOL LIST (COMMON TO BOTH BUILDINGS)

## LEGEND NOTES:

THIS SHEET IS A GENERAL LIST OF SYMBOLS AND ABBREVIATIONS AND SHALL BE USED AS A DICTIONARY TO DEFINE ITEMS INDICATED ON DRAWINGS. NOT ALL SYMBOLS OR ABBREVIATIONS ARE NECESSARILY USED ON THIS PROJECT. ALL EQUIPMENT IS TO BE PROVIDED UNDER THIS SECTION UNLESS SPECIFICALLY INDICATED OTHERWISE.

## POWER

- 120/240 VOLT, 1 PHASE, 3 WIRE PANELBOARD.
- 120/240 VOLT, 1 PHASE, 3 WIRE NORMAL/EMERGENCY SYSTEM PANELBOARD.
- LIGHTING CONTACTOR
- CONTROL RELAY
- JUNCTION BOX - SIZE AS REQUIRED.
- MOTOR - NUMERAL INDICATES HORSEPOWER
- FUSED DISCONNECT SWITCH HEAVY DUTY TYPE - "3R" INDICATES NEMA 3R  
20 — INDICATES TIME DELAY FUSE SIZE.  
30 — INDICATES SAFETY SWITCH SIZE
- UNFUSED DISCONNECT SWITCH HEAVY DUTY TYPE - "3R" INDICATES NEMA 3R
- 20AMP 120VOLT DUPLEX OUTLET "C" INDICATES MTD. @ 48" A.F.F. OR ABOVE COUNTER
- SYSTEM GROUND OR EQUIPMENT GROUND.
- AUTOMATIC TRANSFER SWITCH.

## LIGHTING FIXTURES (REFER TO SCHEDULE FOR TYPE AND MOUNTING)

- WALL MOUNTED LIGHT
- FIXTURE ON EMERGENCY CIRCUIT.  
DAY-BRITE #SJ132-120-EB WITH 1-F032/78 LAMP
- EXIT SIGN UNIVERSAL MOUNTED SINGLE OR DOUBLE FACE AS INDICATED. EMERGITLITE CAT LX1(2)-RC-(X)R-C-U
- SINGLE POLE SWITCH. (TYPICALLY MTD. 48" AFF-U.N.O.)
- THREE-WAY SWITCH. (TYPICALLY MTD. 48" AFF-U.N.O.)

## SITE LEGEND

- GAS

## GENERAL DEMOLITION NOTES: (COMMON TO BOTH BUILDINGS)

1. REFER TO DEMOLITION SECTION OF SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
2. WHERE DOWNSTREAM DEVICES ARE AFFECTED BY THE DEMOLITION WORK THIS CONTRACTOR SHALL PROVIDE NEW SERVICES AS REQUIRED TO MAINTAIN SUCH DOWNSTREAM DEVICES.
3. ALL DEVICES AND/OR EQUIPMENT REMOVED BY THIS CONTRACTOR SHALL BE INSPECTED BY THE OWNER FOR DETERMINATION OF DISPOSAL OR STORAGE AS DIRECTED BY THE OWNER.
4. IT IS NOT THE INTENTION OF THESE DRAWINGS TO SHOW ALL EQUIPMENT TO BE DISCONNECTED AND/OR REMOVED. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO VISIT THE SITE PRIOR TO SUBMITTING HIS/HER BID TO DETERMINE THE EXACT QUANTITY AND TYPES OF EQUIPMENT TO BE REMOVED.
5. PARTICULAR CARE SHALL BE TAKEN TO AVOID CREATING HAZARDS ON THE PROJECT OR CAUSING DISRUPTION OF SERVICES REMAINING.
6. ALL EXISTING EQUIPMENT INDICATED TO BE REMOVED SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER. ALL EXISTING EQUIPMENT INDICATED TO BE TURNED OVER TO THE OWNER SHALL BE PRESENTED TO THE OWNER IN GOOD CONDITION AT A LOCATION DESIGNATED BY THE OWNER. ALL OTHER EQUIPMENT SHALL BE REMOVED FROM THE SITE.
7. REMOVE ALL ABANDONED CONDUCTORS AND EQUIPMENT NOT BUILT INTO THE BUILDING CONSTRUCTION. WHERE CEILING AND WALLS ARE REMOVED, ABANDONED WIRING SHALL BE REMOVED, AND ENDS OF LIVE SERVICES TO BE DISCONNECTED AND CUT-OFF.
8. ABANDONED ELEMENTS BUILT INTO WALLS SHALL BE MARKED "ABANDONED".
9. TURN OVER TO OWNER ANY FEEDER CONDUCTORS REMOVED.
10. CONFIRM ALL EXISTING UTILITIES PRIOR TO EXCAVATION.

## BRANCH CIRCUIT NOTES:

1. COORDINATE EXACT LOCATION OF ALL DEVICES AND EQUIPMENT w/ ENGINEER PRIOR TO INSTALLATION.
2. REFER TO MECHANICAL PLANS FOR ANY CHANGES AND FOR EXACT LOCATION OF ALL MECHANICAL EQUIPMENT.
3. WIRING IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS.
4. WIRING AND CONDUIT SHALL BE REQUIRED BETWEEN ALL OUTLETS INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS.
5. ALTHOUGH ALL BRANCH CIRCUIT WIRE AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.
6. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER MINIMUM #12 AWG SIZE, THINWALL INSULATION, 600 VOLTS RATED UNLESS OTHERWISE NOTED.

## WIRE AND RACEWAYS

- WIRING AND RACEWAY - NO. OF DIAGONAL LINES INDICATES NO. #12 AWG. ABSENCE OF LINES INDICATES 2 #12 AWG OR PROVIDE INSULATED GREEN GROUND WIRE WITH ALL BRANCH CIRCUITS (NOT INDICATED IN COUNT)
- HOMERUN TO PANEL - NO. OF ARROWS INDICATES NO. OF 20 AMP/1 POLE CIRCUITS TO PANEL - UNLESS NOTED OTHERWISE.
- EMERGENCY ONLY WIRING - MIN #2#10 AWG-#10 EG TO EMERGENCY PANEL.

## ABBREVIATIONS

- A.F.F. ABOVE FINISHED FLOOR
- ARCH. ARCHITECT
- A.T.C. SUB AUTO-TEMP CONTROL CONTRACTOR
- CL. CENTERLINE
- CLG. CEILING
- E.C. SUB ELECTRICAL CONTRACTOR
- F&I FURNISHED AND INSTALLED
- G.C. GENERAL CONTRACTOR
- H.V.A.C. SUB HEATING, VENTILATION, AND AIR CONDITIONING CONTRACTOR
- W.P. WEATHER PROOF
- E.G. EQUIPMENT GROUND SIZE PER NEC 250-95.
- EX EXISTING
- U.N.O. UNLESS OTHERWISE NOTED

## EXISTING EQUIPMENT

- DOTTED DENOTES EXISTING EQUIPMENT
- X EXISTING EQUIPMENT TO BE REMOVED AND CIRCUIT PULLED BACK TO NEXT ACTIVE OUTLET/BACK TO PANEL
- XM EXISTING EQUIPMENT TO REMAIN
- XR EXISTING EQUIPMENT TO BE REMOVED AND RELOCATED
- XL NEW LOCATION OF RELOCATED EXISTING EQUIPMENT
- XN EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED.

## GENERAL NOTES: (COMMON TO BOTH BUILDINGS)

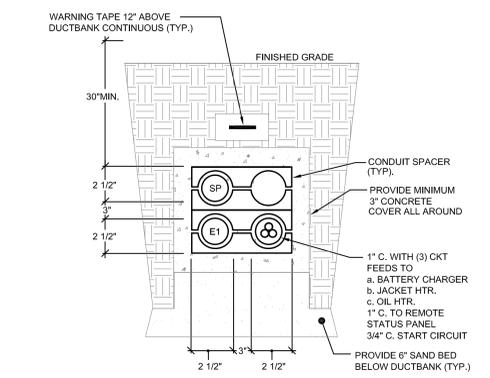
1. THE SCOPE OF WORK SHALL INCLUDE PROVIDING ALL WORK INDICATED, AND COORDINATION WITH ALL TRADES. SCOPE OF WORK IS INDICATED ON THE CONTRACT DOCUMENTS INCLUDING THE DRAWINGS AND THE SPECIFICATIONS, WHICH ARE COMPLEMENTARY. WORK INDICATED IN ANY CONTRACT DOCUMENT SHALL BE CONSIDERED PART OF THE SCOPE OF WORK. IN GENERAL, WORK REQUIREMENTS ARE NOT INDICATED IN BOTH DOCUMENTS. WHERE DOCUMENTS CONFLICT WITHIN THEMSELVES OR WITH CODES AND REGULATIONS, PROVIDE THE HIGHER QUANTITY AND QUALITY AND FOLLOW THE STRICTER REQUIREMENTS.
2. COORDINATE WITH THE GENERAL CONTRACTOR, OTHER TRADES AND OF MANUFACTURERS EQUIPMENT AND MAKE ALL FINAL CONNECTIONS AS REQUIRED, I.E. POWER, CONTROL, INTERLOCK, ETC.
3. ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH OSHA, NFPA STANDARDS, THE ELECTRICAL CODE AND THE LOCAL GOVERNING AUTHORITIES. THE DRAWINGS AND SPECIFICATIONS DO NOT ATTEMPT TO INDICATE ALL WORK REQUIRED BY CODES AND AUTHORITIES.
4. TEST ALL EQUIPMENT AND SYSTEMS INSTALLED TO CERTIFY COMPLIANCE WITH DRAWINGS, SPECIFICATIONS, CODES, LOCAL AUTHORITIES AND REGULATIONS. INCLUDE LABOR AND COSTS FOR TESTING, REVIEWS, APPROVALS AND CERTIFICATIONS.
5. DRAWINGS ARE DIAGRAMMATIC ONLY. EXACT LOCATION, MOUNTING HEIGHTS OF EQUIPMENT AND ROUTING OF RACEWAYS SHALL BE COORDINATED WITH THE EQUIPMENT REQUIREMENTS AND FIELD CONDITIONS.
6. FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE ELECTRICAL WORK COMPLETE AND READY FOR OPERATION.
7. SUPPORT ALL WORK FROM THE BUILDING STRUCTURE.
8. ALL MOUNTING HEIGHTS ARE TO CENTERLINE UNLESS OTHERWISE INDICATED.
9. IF EXACT MOUNTING OR RACEWAY ROUTINGS ARE NOT INDICATED (LOCATION OR HEIGHT) REQUEST CLARIFICATION PRIOR TO ROUGHING, OR INSTALLATION.
10. ELECTRICAL WORK SHALL BE RECESSED INTO WALLS OR INSTALLED ABOVE HUNG CEILING UNLESS OTHERWISE INDICATED.
11. DO NOT INSTALL OUTLETS BACK TO BACK. PROVIDE 24 INCH SPACING IN FIRE RATED WALLS.
12. PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES, SWITCHES AND OTHER ELECTRICAL BOXES ON EXTERIOR WALLS AND INTERIOR WALLS BETWEEN CONDITIONED AND NON-CONDITIONED SPACES.
13. WIRE AND CONDUIT SIZES INDICATED ON HOMERUNS SHALL BE CONTINUOUS THROUGHOUT CIRCUIT.
14. FURNISH AND INSTALL CODE REQUIRED DISCONNECTS WHICH ARE NOT FURNISHED BY THE HVAC OR PLUMBING CONTRACTORS.
15. INSTALL A GREEN GROUNDING CONDUCTOR WITHIN EACH RACEWAY SIZED IN ACCORDANCE WITH THE ELECTRIC CODE.
16. PROVIDE WATER-TIGHT AND GASKET SEALS INSIDE AND OUTSIDE OF CONDUITS THAT PENETRATE THE BUILDING BELOW GRADE. O.Z. GEDNEY OR APPROVED EQUAL. PROVIDE WEATHER-TIGHT SEAL AT PENETRATIONS ABOVE GRADE.
17. PROVIDE NRTL LISTED SMOKE AND FIRE SEALS AT ALL PENETRATIONS THROUGH FLOORS OR FULL HEIGHT (SLAB TO SLAB) WALLS.
18. USE CAUTION TO AVOID DAMAGE TO EXISTING UTILITY LINES AND/OR HARM TO PERSONNEL WORKING IN THESE AREAS.
19. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER MINIMUM #12 AWG. SIZE UNLESS OTHERWISE INDICATED.



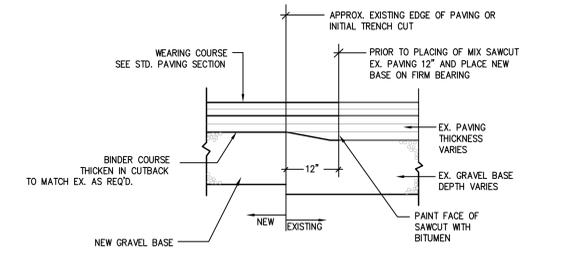
**1 PARTIAL SITE PLAN**  
E1.1 SCALE: 1"=20'-0"

## SITE NOTES:

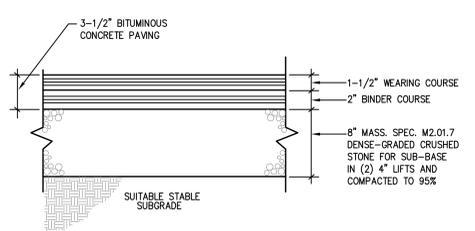
1. DO NOT RUN ANY UNDERGROUND RACEWAYS WITHIN PLANTING AREAS. REFER TO DRAWINGS FOR LOCATIONS. COORDINATE ROUTING IN THE FIELD.
2. REMOVE ALL EXISTING SITE ELECTRICS WHEN NO LONGER REQUIRED.



**2 GENERATOR DUCT-BANK DETAIL "A-A"**  
E1.1 SCALE: N.T.S.



**3 DETAIL OF PAVING ADDITION AT EXISTING AREAS**  
E1.1 SCALE: N.T.S.



**4 STANDARD PAVING SECTION**  
E1.1 SCALE: N.T.S.

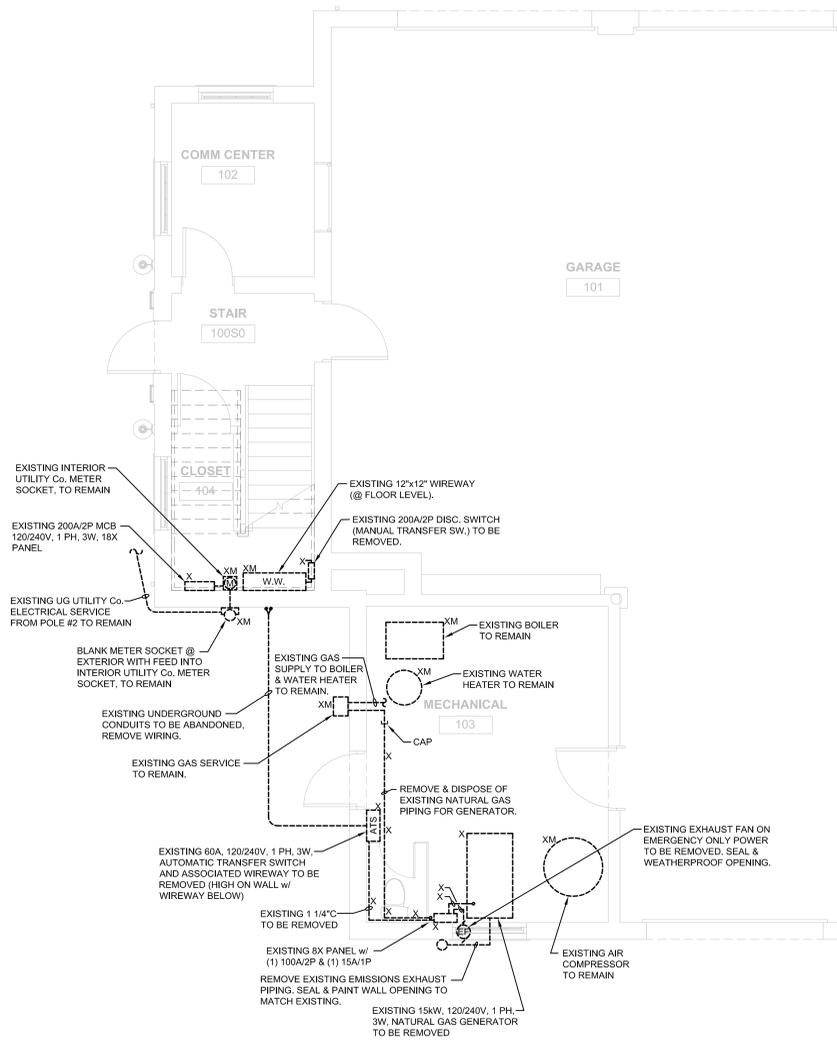
NO.	DATE	BY	REVISION

**REVISIONS**

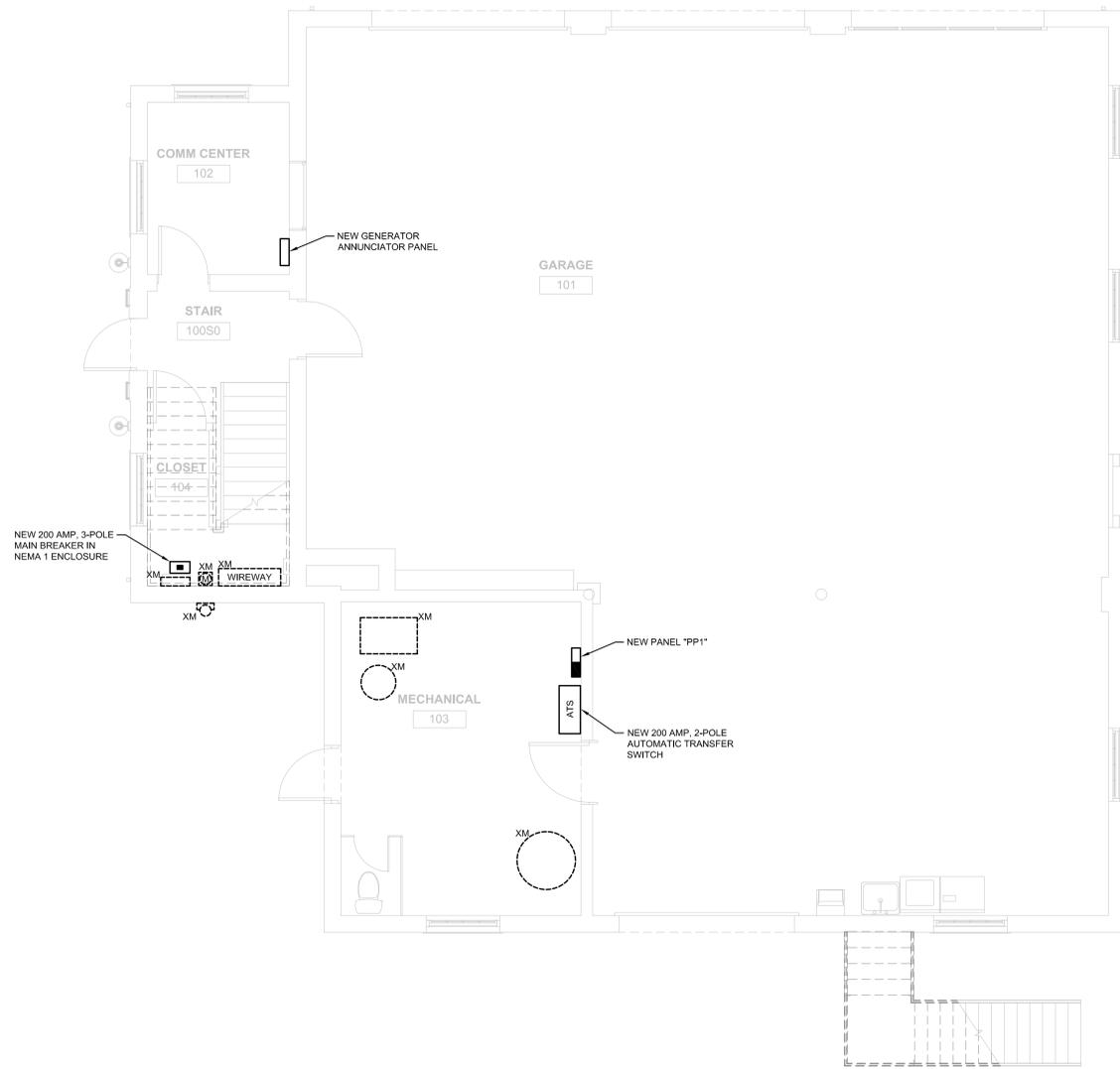
**GARCIA-GALUSKA-DESOUSA**  
CONSULTING ENGINEERS INC.  
370 FAUNCE CORNER ROAD, DARTMOUTH, MA 02747-1217  
508-998-5700 • FAX 508-998-0883 • E-MAIL info@g-g-d.com

DRAWN BY	MB	SCALE AS NOTED
CHECKED BY	JC	DATE 08/29/13

TITLE	ELECTRICAL SITE PLAN & SYMBOL LIST	JOB NO. 945004
PROJECT	District 1, Center Fire Station, 7 Concord Rd. Fire Station - Generator Upgrades	DWG. NO.
CLIENT	Town of Acton	<b>E1.1</b>



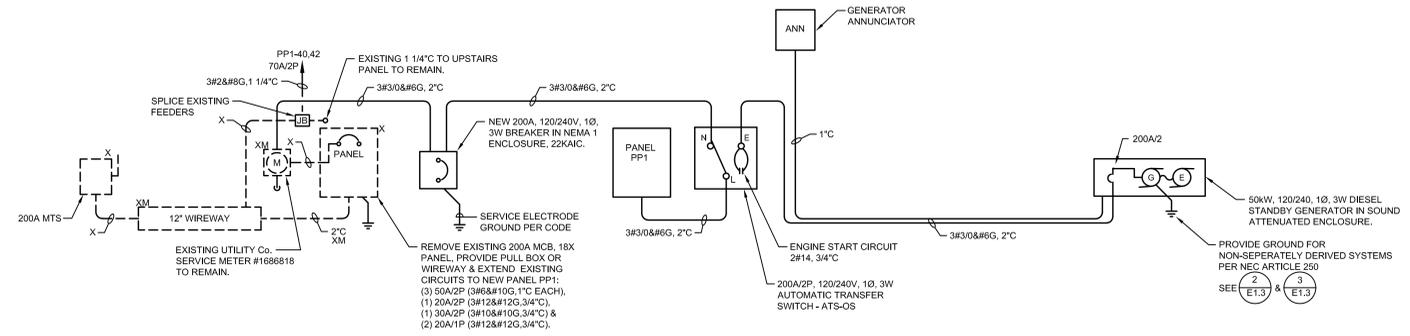
**1**  
E1.0 PARTIAL FIRST FLOOR PLAN - DEMOLITION  
SCALE: 1/4"=1'-0"



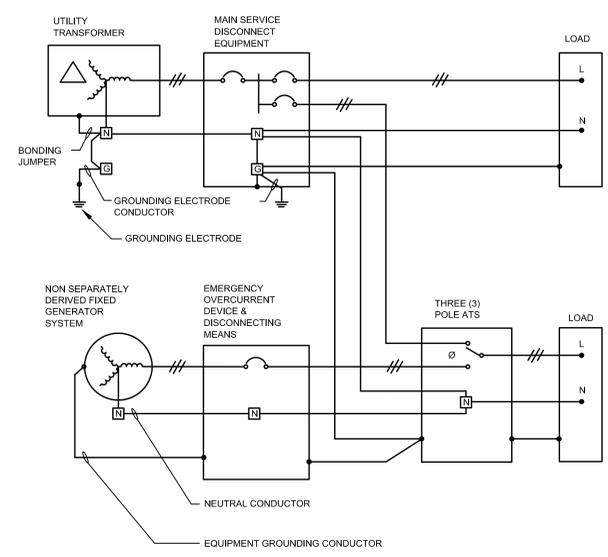
**1**  
E1.0 FIRST FLOOR PLAN - NEW WORK  
SCALE: 1/4"=1'-0"

NO.	DATE	BY	REVISION
REVISIONS			
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DRAWN BY MB		SCALE AS NOTED	
CHECKED BY JC		DATE 08/28/13	
TITLE ELECTRICAL FLOOR PLANS & SITE DETAILS			JOB NO. 945004
PROJECT District 1, Center Fire Station, 7 Concord Rd. Fire Station - Generator Upgrades			DWG. NO
CLIENT Town of Acton			E1.2

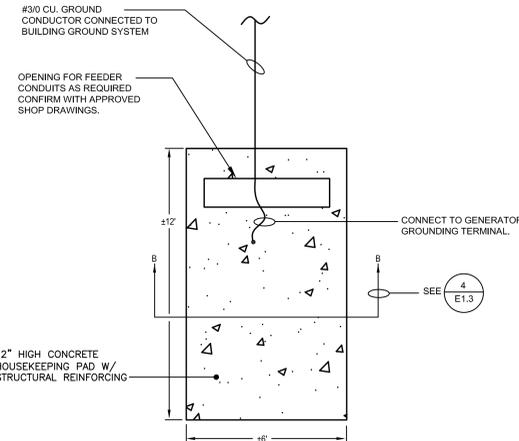
120/240V, 1Ø, 3W, 22 KAIC												
PANEL SCHEDULE												
PANEL NO.	LOCATION	MTG	MAIN BUS AMPS	MLO	BRANCH CKT BREAKER (AMPS)						TOTAL POLES	OTHERS
					1 POLE	2 POLE	3 POLE	15	20	30		
PP1	MECHANICAL 103	S	225	-	12	1	2	2	3		42	(1) 70/2



**1 ONE-LINE RISER DIAGRAM**  
E1.3 SCALE: N.T.S.

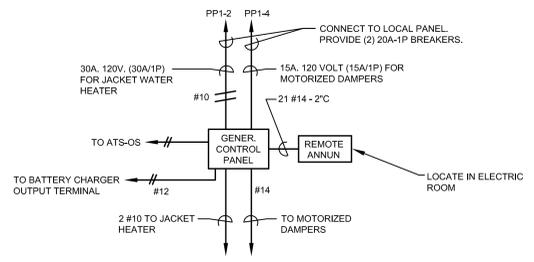


**2 NON-SEPARATELY DERIVED GENERATOR SYSTEM**  
E1.3 SCALE: N.T.S.

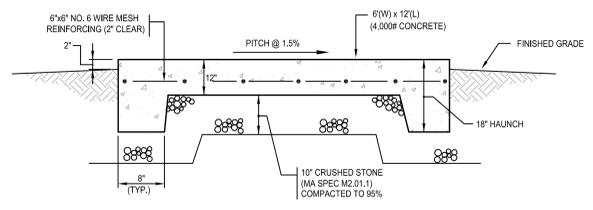


**3 GENERATOR PAD DETAIL (NON-SEPARATELY DERIVED SYSTEM)**  
E1.3 SCALE: N.T.S.

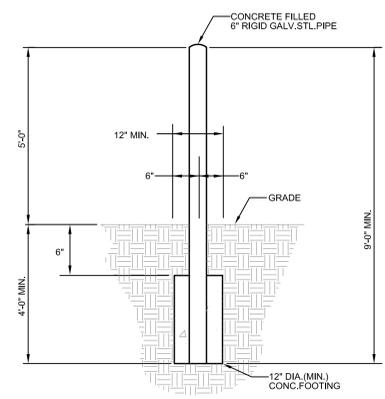
NOTES:  
1. PAD SHALL BE PROVIDED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. PAD SHALL BE PROVIDED BY G.C.  
2. PAD SHALL EXTEND 6" BEYOND GENERATOR, ALL AROUND.



**6 TYPICAL STANDBY GENERATOR CONTROL WIRING**  
E1.3 SCALE: N.T.S. (NOTE: MAY VARY BY MANUFACTURER)



**4 GENERATOR PAD DETAIL "B-B"**  
E1.3 SCALE: N.T.S.



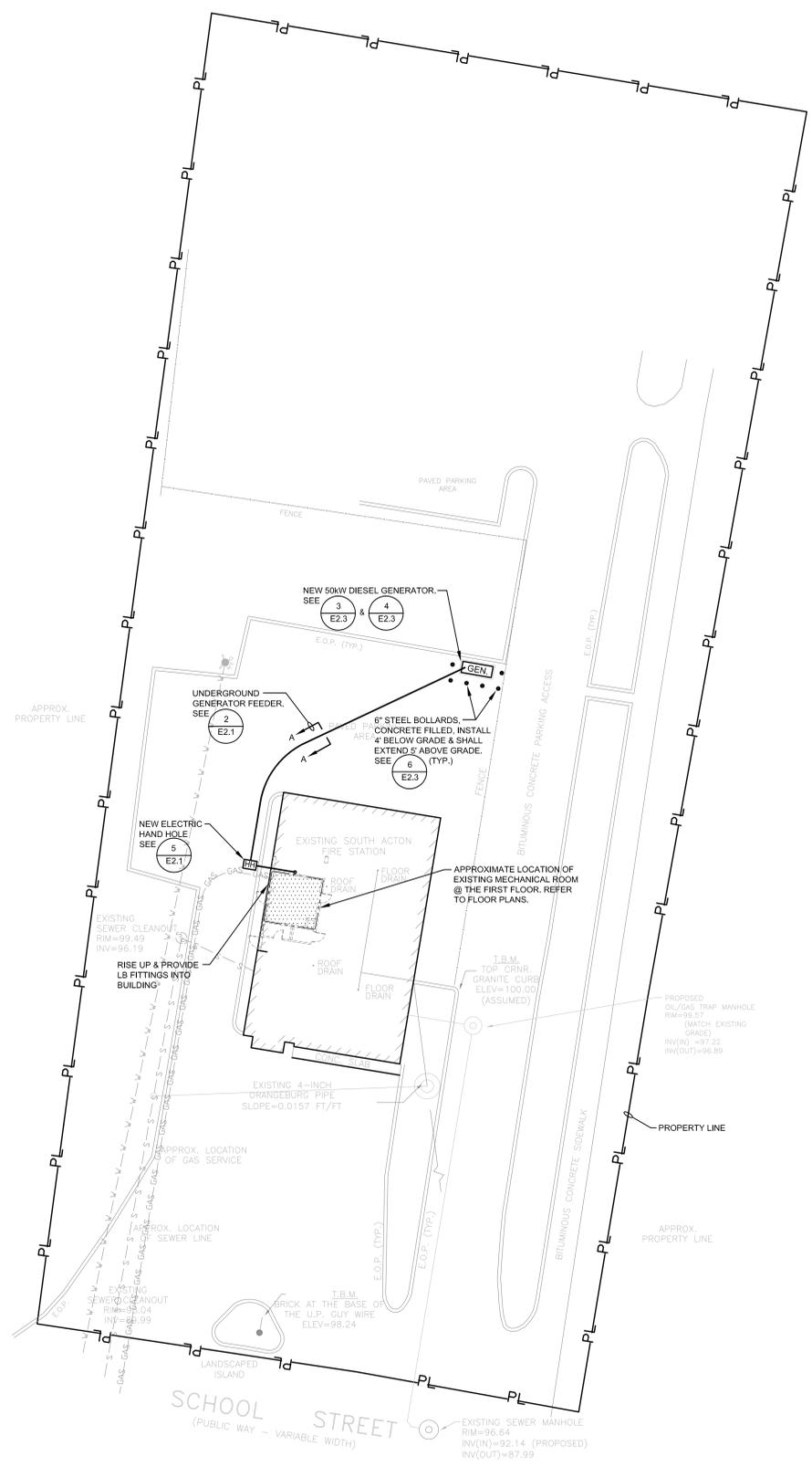
**7 TYPICAL BOLLARD DETAIL**  
E1.3 SCALE: N.T.S.

NO.	DATE	BY	REVISION
REVISIONS			

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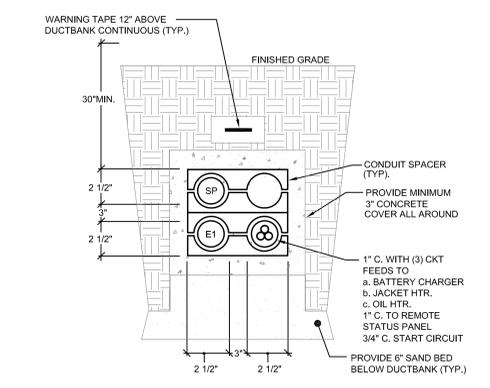
DRAWN BY MB	SCALE AS NOTED
CHECKED BY JC	DATE 08/28/13

TITLE	ONE-LINE POWER RISER & DETAILS	JOB NO. 945004
PROJECT	District 1, Center Fire Station, 7 Concord Rd. Fire Station - Generator Upgrades	DWG. NO. E1.3
CLIENT	Town of Acton	



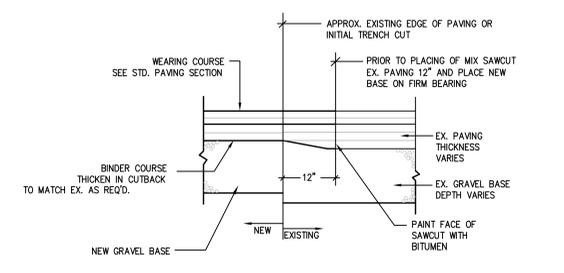
**1**  
**E1.1** PARTIAL SITE PLAN  
SCALE: 1"=20'-0"

- SITE NOTES:**
- DO NOT RUN ANY UNDERGROUND RACEWAYS WITHIN PLANTING AREAS, REFER TO DRAWINGS FOR LOCATIONS, COORDINATE ROUTING IN THE FIELD.
  - REMOVE ALL EXISTING SITE ELECTRICS WHEN NO LONGER REQUIRED.

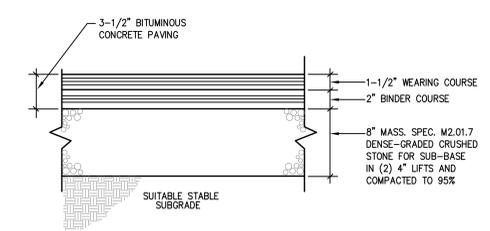


**2**  
**E2.1** GENERATOR DUCT-BANK DETAIL "A-A"  
SCALE: N.T.S.

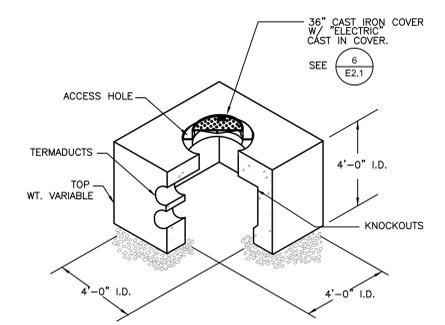
- E1** 2" ATS-OS SCHEDULE 40 P.V.C.
- SP** 2" SPARE - SCHEDULE 40 P.V.C. PROVIDE FULL LINE.



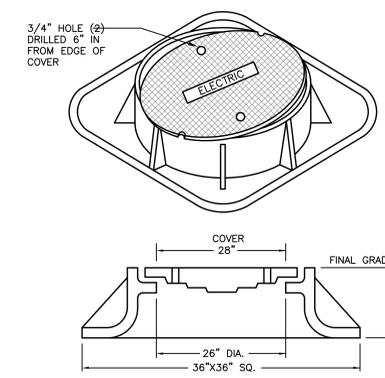
**3**  
**E2.1** DETAIL OF PAVING ADDITION AT EXISTING AREAS  
SCALE: N.T.S.



**4**  
**E2.1** STANDARD PAVING SECTION  
SCALE: N.T.S.



**5**  
**E2.1** TYPICAL HANDHOLE  
SCALE: N.T.S.



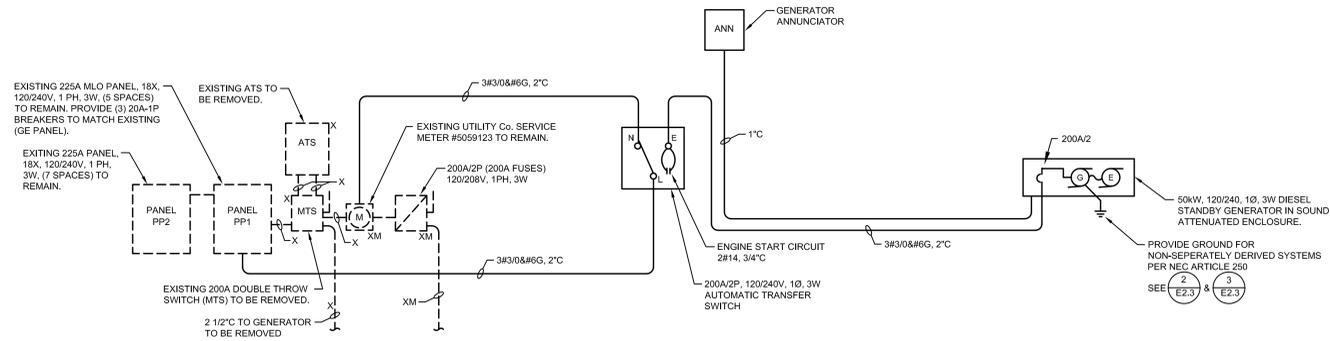
**6**  
**E2.1** FRAME AND COVER DETAIL  
SCALE: N.T.S.

- NOTES:**
- COVERS WILL HAVE "ELECTRIC", "TELEPHONE", OR "CATV" CAST IN THEM IN 3 INCH LETTERS.
  - FRAME AND COVER TO SUPPORT H20 WHEEL LOAD.
  - NO VAULT MANHOLE SHALL BE BURIED DEEPER THAN 18" BELOW FINISHED GRADE.
  - COVER SHALL BE FLUSH TO FINAL GRADE (CONCRETE, ASPHALT, GRAVEL, GRASS, ETC.)
- | FRAME | SUPPLIER & CATALOG#      | STOCK CODE |
|-------|--------------------------|------------|
|       | NACIP AE 124             | 07-29-229  |
|       | LEBARON LE-285L          |            |
|       | OR APPROVED EQUAL        |            |
| COVER | SUPPLIER & CATALOG#      | STOCK CODE |
|       | NACIP LE-28CS            | 07-15-530  |
|       | LEBARON LE-28CS ELECTRIC |            |
|       | OR APPROVED EQUAL        |            |

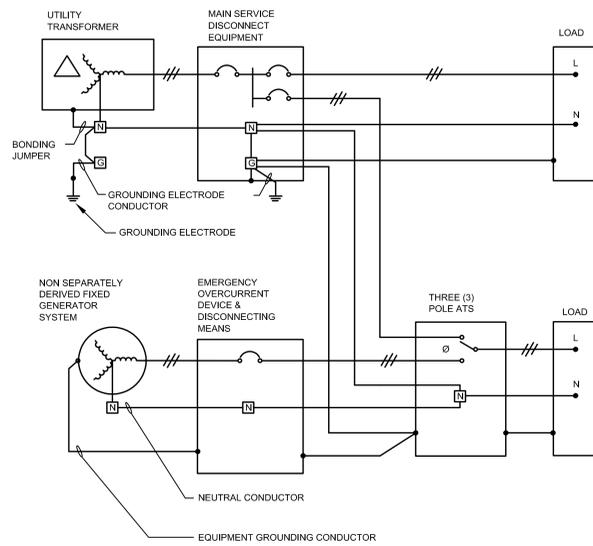
REVISIONS			
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	DRAWN BY MB CHECKED BY JC	SCALE AS NOTED DATE 08/29/13	JOB NO. 945004 DWG. NO. <b>E2.1</b>
TITLE ELECTRICAL SITE PLAN		PROJECT District 2, South Fire Station, 54 School St. Fire Station - Generator Upgrades	
CLIENT Town of Acton			

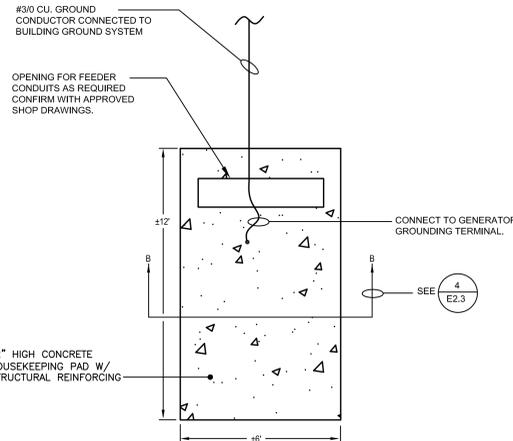




**1 ONE-LINE RISER DIAGRAM**  
E2.3 SCALE: N.T.S.

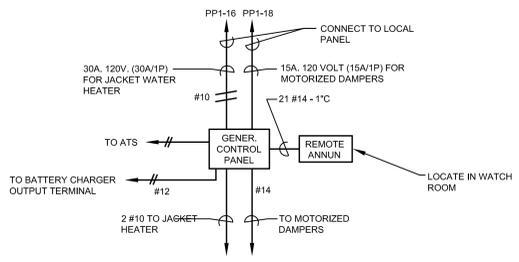


**2 NON-SEPARATELY DERIVED GENERATOR SYSTEM**  
E2.3 SCALE: N.T.S.

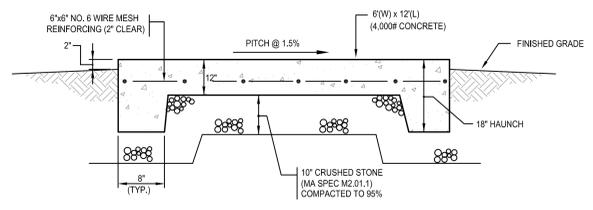


**3 GENERATOR PAD DETAIL (NON-SEPARATELY DERIVED SYSTEM)**  
E2.3 SCALE: N.T.S.

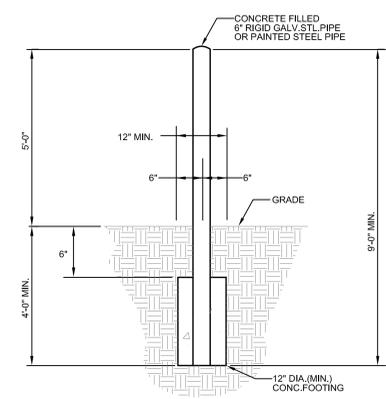
**NOTES:**  
1. PAD SHALL BE PROVIDED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. PAD SHALL BE PROVIDED BY G.C.  
2. PAD SHALL EXTEND 6" BEYOND GENERATOR, ALL AROUND.



**5 TYPICAL STANDBY GENERATOR CONTROL WIRING**  
E2.3 SCALE: N.T.S. (NOTE: MAY VARY BY MANUFACTURER)



**4 GENERATOR PAD DETAIL "B-B"**  
E2.3 SCALE: N.T.S.



**6 TYPICAL BOLLARD DETAIL**  
E2.3 SCALE: N.T.S.

REVISIONS			
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	DRAWN BY MB CHECKED BY JC	SCALE AS NOTED DATE 08/28/13	JOB NO. 945004 DWG. NO. <b>E2.3</b>

TITLE	ONE-LINE POWER RISER & DETAILS
PROJECT	District 2, South Fire Station, 54 School St. Fire Station - Generator Upgrades
CLIENT	Town of Acton