GENERAL NOTES AND SPECIFICATIONS

A. PROVIDE ALL MATERIALS, LABOR, EQUIPMENT AND SERVICES AND PERFORM ALL OPERATION IN CONNECTION WITH THE ELECTRICAL WORK. IT IS THE INTENT THAT THESE DRAWINGS PROVIDE THE WORK REQUIRED FOR AN ELECTRICAL INSTALLATION THAT IS COMPLETE IN EVERY RESPECT, READY FOR OPERATION.

B. ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL CODES AND THE REQUIREMENTS OF ANY OF THE AUTHORITIES HAVING JURISDICTION. ALL MATERIAL AND EQUIPMENT SHALL BE UL LISTED AND SHALL BEAR THE UL INSPECTION LABEL WHEREVER STANDARDS HAVE BEEN ESTABLISHED AT THE COMPLETION OF THE WORK, SECURE CERTIFICATES OF APPROVAL FROM THE VARIOUS AUTHORITIES HAVING JURISDICTION AND DELIVER SAME TO THE DESIGN PROFESSIONAL.

C. ALL WORK SHALL COMPLY WITH NECA STANDARD OF INSTALLATION (PUBLISHED BY THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION) AND NFPA 70 - NATIONAL ELECTRICAL CODE (NEC)-2014, MASSACHUSETTS ELECTRIC CODE AND ALL APPLICABLE SAFETY STANDARDS. COMPLY WITH APPLICABLE STANDARDS THE OWNER HAS DEVELOPED AS THEY PERTAIN TO THIS WORK.

D. "PROVIDE" MEANS TO SUPPLY, ERECT, INSTALL, TEST, AND CONNECT UP IN COMPLETE READINESS FOR REGULAR OPERATION. THE PARTICULAR WORK REFERRED TO "FURNISH" MEANS TO SUPPLY AND DELIVER TO THE JOB. "INSTALL" MEANS TO RECEIVE, INSTALL AND CONNECT UP IN COMPLETE READINESS FOR REGULAR OPERATION, THE PARTICULAR WORK REFERRED TO. "APPROVED EQUAL" MEANS AN EQUIPMENT OR MATERIAL WHICH, IN THE OPINION OF THE DESIGN PROFESSIONAL, IS EQUAL IN QUALITY, DURABILITY, APPEARANCE, STRENGTH, DESIGN, PERFORMANCE, PHYSICAL DIMENSIONS AND ARRANGEMENT TO THE EQUIPMENT OR MATERIAL SPECIFIED AND WILL FUNCTION ADEQUATELY IN ACCORDANCE WITH THE GENERAL DESIGN.

E. BEFORE SUBMITTING THE BID, VISIT EACH SITE WHERE WORK IS REQUIRED. SURVEY THE EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE DIFFICULTIES WHICH WILL AFFECT THE EXECUTION AND COMPLETION OF THE WORK. INVESTIGATE THE NATURE AND LOCATION OF THE WORK, THE GENERAL AND LOCAL CONDITIONS, PARTICULARLY THOSE BEARING UPON THE WORK REQUIRED, TRANSPORTATION, DISPOSAL, HANDLING AND STORAGE OF MATERIALS, AVAILABILITY OF LABOR, WATER, ELECTRICAL POWER, ROADS AND PHYSICAL CONDITIONS AT THE SITE NEEDED FOR THE PROSECUTION OF THE WORK AND ALL OTHER MATTERS UPON WHICH INFORMATION IS REASONABLY OBTAINABLE AND WHICH CAN IN ANY WAY AFFECT THE WORK OR THE COST THEREOF UNDER THE CONTRACT.

F. PROCURE AND PAY FOR ALL CERTIFICATES, FEES, TESTS, INSPECTIONS, BONDS, DEPOSITS AND ESCROW ACCOUNTS REQUIRED FOR COMPLETE INSTALLATION OF THE WORK. GIVE ALL NOTICES REQUIRED BY LAW, ORDINANCES OR THE RULES AND REGULATIONS OF THE VARIOUS AUTHORITIES. COMPLY WITH ALL ORDERS OF THE MASSACHUSETTS DEPARTMENT OF ENERGY PROTECTION, LOCAL DEPARTMENT OF BUILDINGS, COUNTY DEPARTMENTS OF HEALTH, FIRE MARSHAL, ETC. DELIVER TO THE OWNER'S REPRESENTATIVE ALL PERMITS AND CERTIFICATES OF APPROVAL ISSUED BY ALL TOWN, COUNTY AND STATE AGENCIES HAVING JURISDICTION IN CONNECTION WITH THIS WORK BEFORE THE CERTIFICATE FOR THE FINAL PAYMENT IS ISSUED.

G. NO WORK SHALL BE COVERED OVER UNTIL TEST HAVE BEEN PERFORMED AND THE AUTHORITIES HAVING JURISDICTION HAVE EXAMINED, INSPECTED AND APPROVED THE TESTS AND THE WORK. PROVIDE ALL CONTROLLED INSPECTIONS CONTROLLED REQUIRED BY THE REGULATIONS OF TOWN, COUNTY AND STATE. THE CONTROLLED INSPECTIONS SHALL BE MADE BY AN INSPECTOR MEETING THE PROFESSIONAL REQUIREMENTS SET FORTH BY STATE AND LOCAL LAWS AND SHALL BE CARRIED OUT IN ACCORDANCE WITH APPLICABLE TOWN, COUNTY AND STATE BUILDING CODES.

H. PROVIDE ALL NECESSARY INSURANCE, FREE OF EXTRA CHARGE AND AGREE TO INDEMNIFY AND SAVE HARMLESS THE PARTY CONTRACTING FOR SERVICES AGAINST LOSS OR EXPENSE.

I. THE DRAWINGS DO NOT UNDERTAKE TO ILLUSTRATE OR SET FORTH EVERY ITEM NECESSARY FOR THE WORK, AS IT IS ASSUMED THAT WITH THIS BID SUBMISSION, THE CONTRACTOR ACKNOWLEDGES THAT HE/SHE IS EXPERT IN THE SEVERAL LINES OF THE WORK AND IS CAPABLE OF INTERPRETING THEM. WHERE NO SPECIFIED MANUFACTURER OR QUALITY OF MATERIAL IS GIVEN, A FIRST-CLASS STANDARD ARTICLE AS APPROVED BY THE DESIGN PROFESSIONAL SHALL BE FURNISHED.

J. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUITS, PANELS, FIXTURES, ETC. THE LOCATION OF ALL ITEMS SHOWN THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED AT THE PROJECT AND SHALL HAVE THE APPROVAL OF THE DESIGN PROFESSIONAL BEFORE BEING INSTALLED . DO NOT SCALE DRAWINGS.

K. MAINTAIN AND PROTECT ALL EQUIPMENT, MATERIALS AND TOOLS FROM LOSS OR DAMAGE FROM ALL CAUSES UNTIL FINAL ACCEPTANCE BY THE OWNER.

L. IT IS REQUIRED THAT THE WORK INDICATED BE CARRIED OUT WITH A MINIMUM OF INTERFERENCE TO THE ESTABLISHED ROUTINE OF THE EXISTING BUILDINGS AND THAT ALL WORK BE PERFORMED WITHIN THE REQUIRED CONTRACT TIME.

M. THE OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING WHEN INTERRUPTION OF THE PRESENTLY MAINTAINED SERVICES, MECHANICAL, ELECTRICAL OR OTHERWISE IS REQUIRED. WRITTEN PERMISSION SHALL BE OBTAINED FROM THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WITH THE SHUT-DOWN.

N. PROVIDE ALL NECESSARY TRAILERS, EXTENSION CORDS AND LAMPS TO PROVIDE TEMPORARY LIGHT AND POWER FOR THE PROPER EXECUTION OF ALL WORK.

O. PROVIDE ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES OF ANY EQUIPMENT AND APPARATUS FURNISHED. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.

P. ALL WORK SHOWN ON THE DRAWINGS THAT IS NOT SPECIFICALLY INDICATED AS BEING EXISTING SHALL BE ASSUMED TO BE NEW.

Q. THE INSTALLATION OF ALL ELECTRICAL EQUIPMENT, LIGHTING, CONDUIT AND WIRING SHALL CONFORM TO THE LATEST EDITION IBC CODE EARTHQUAKE CONTROL SECTION 1622.

R. ALL EQUIPMENT INSTALLATIONS SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION MANUALS

S. ALL EQUIPMENT TO BE UL LISTED.

T. NO PART OF THESE DRAWINGS OR SPECIFICATIONS IS INTENDED TO ALLOW A VIOLATION OF PHYSICAL WORKING SPACE REQUIREMENTS AROUND ELECTRICAL EQUIPMENT.

U. VERIFY ALL UNDERGROUND UTILITIES WITH GROUND PENETRATING RADAR PRIOR TO ANY EXCAVATION.

V. USE "CALL BEFORE YOU DIG" SERVICE PRIOR TO ANY EXCAVATION (8-1-1 OR 800-272-1000).

W. CONTRACTOR TO PROVIDE TOILET FACILITIES DURING CONSTRUCTION.

1.1 SETBACK AREAS

A. ALL WORK WILL BE IN COMPLIANCE WITH THE SPECIAL USE PERMIT PRE-CONSTRUCTION CONDITION #1. NO SOIL DISTURBING WORK SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS IDENTIFIED THE LOCATIONS OF THE 31 "MOUND SETBACK AREAS" CONSISTING OF 29 SMALL MOUNDS, ONE STONE FORMATION AND ONE LARGE AMORPHOUS MOUND; ALL AS DOCUMENTED BY SWCA.

B. CONTRACTOR SHALL USE THE GPS COORDINATES FROM SWCA. EACH OF THE 31 MOUND SETBACK AREAS WILL BE ESTABLISHED BY LOCATING THE EXISTING GPS CO-ORDINATE, DETERMINING THE PERIMETER OF THE MOUND, THEN ESTABLISHING THE MOUND SETBACK AREA AT A PERIMETER SETBACK 15' FROM THE RESPECTIVE MOUND PERIMETER AND THEN A CONSTRUCTION FENCE BUILD AROUND THE PERIMETER OF THE MOUND SETBACK AREA; AND REMAINING IN PLACE UNTIL THE END OF CONSTRUCTION.

C. NO STUMPING WILL TAKE PLACE IN A MOUND SETBACK AREA AND NO PANELS WILL BE PLACED IN A MOUND SETBACK AREA.

D. PRIOR TO STUMPING, A TEMPORARY FENCE WILL BE ESTABLISHED IN THE SLOPE SETBACK AREA AND WILL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION. NO STUMPING WILL TAKE PLACE IN THE SLOPE SETBACK AREA AND NO PANELS WILL BE PLACED IN THE SLOPE SETBACK AREA.

1.2 BUILDING PENETRATIONS

A. N/A

1.3 TESTS

A. WIRE AND CABLE: PERFORM INSULATION RESISTANCE AND CONTINUITY TESTS FOR ALL CONDUCTORS . THESE SHALL BE COMPLETED PRIOR TO ENERGIZING. INVESTIGATE AND TAKE REMEDIAL ACTION WHEN CONTINUITY VALUES EXCEED 1.0 OHM AND/OR INSULATION RESISTANCE TESTS LESS THAN 500 MEGAOHMS.

B. GROUND RESISTANCE TESTS: RESISTANCE OF THE ELECTRICAL SYSTEM GROUNDING SHALL BE TESTED TO GROUND AT THE MAIN GROUND ELECTRODE CONNECTION TO ENSURE THAT GROUND RESISTIVITY VALUES DO NOT EXCEED 25 OHMS PER NEC.

1.4 GROUNDING

A. COMPLY WITH REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION, NEC, UL AND IEEE STANDARDS. SIZE GROUND CONDUCTORS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE EXCEPT WHERE LARGER SIZES ARE INDICATED.

B. GROUNDING BUSHINGS SHALL BE HOT-DIPPED GALVANIZED BODY, MOLDED PHENOLIC INSULATION, RATED AT150 DEG C. WITH COPPER-TINNED LAY-IN LUG. PROVIDE FOR ALL INCOMING AND OUTGOING CONDUITS TO THE DISTRIBUTION EQUIPMENT. USE STAINLESS STEEL SCREWS.

C. GROUND RODS SHALL BE STEEL CORE, COPPER JACKETED TYPE, HIGH STRENGTH STEEL ALLOY CORE WITH A MOLTEN-WELDED COVERING AND CONICAL POINT WITH CHAMFER EDGE AT TOP. DRIVING HEADS SHALL BE USED TO PROTECT TOPS OF RODS DURING DRIVING. MINIMUM SIZE ROD SHALL BE 5/8 INCH DIAMETER AND 8 FOOT LONG.

D. GROUND CONNECTORS FOR CONNECTING CABLE TO PIPE SHALL BE HIGH COPPER ALLOY OR BRONZE FITTINGS. PROVIDE AN OFFSET STEEL TONGUE FOR CONNECTIONS TO STEEL AND A DRILLED TONGUE FOR CONNECTION TO COPPER BUS BAR.

E. EXPOSED NON-CURRENT CARRYING METAL PARTS OF MODULE FRAMES, EQUIPMENT AND ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.134 AND 250.136(A). PHOTOVOLTAIC MODULES TO BE GROUNDED USING FACTORY GROUND POINT ONLY OR ANY METHOD APPROVED BY THE DESIGN PROFESSIONAL.

F. GROUND CONTINUITY SHALL BE MAINTAINED ACROSS CONDUIT/ENCLOSURE INTERFACE USING APPROVED JUMPER METHOD.

G. PARTS OF THE ELECTRICAL INSTALLATION TO BE GROUNDED AND BONDED SHALL INCLUDE BUT NOT BE LIMITED TO ELECTRICAL EQUIPMENT, RACEWAYS, CABLE TRAYS, BOXES, CABINETS AND OTHER NON-CURRENT CARRYING METAL PARTS OF THE WIRING SYSTEM, METAL CONDUIT, SWITCHGEAR, HOUSING AND NEUTRALS OF TRANSFORMERS, LIGHTING FIXTURES, PANEL DEVICES, FENCES AROUND ELECTRICAL EQUIPMENT AS APPLICABLE TO EQUIPMENT INSTALLED ON THIS PROJECT.

H. EXOTHERMIC WELDING PROCESS SHALL BE USED TO CONNECT UNDERGROUND, PERMANENTLY CONCEALED AND INACCESSIBLE CONNECTIONS TO FORM SOLID METAL JOINTS. MAKE ACCESSIBLE GROUND CONNECTIONS WITH MECHANICAL PRESSURE TYPE GROUND CONNECTIONS UNLESS OTHERWISE NOTED.

I. APPLY CORROSION-RESISTANT FINISH TO FILED-CONNECTIONS, BURIED METALLIC GROUNDING AND BONDING PRODUCTS, AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED, WHICH ARE SUBJECTED TO CORROSIVE ACTION.

1.5 CONDUITS AND FITTINGS

A. ABOVE GROUND: EMT: ANSI-C80.3, GALVANIZED THREADLESS, THIN WALL CONDUIT, MINIMUM 3/4 INCH. STEEL COMPRESSION CONNECTORS AND COUPLINGS. MECHANICAL SET SCREWS AND DIE-CAST TYPE COUPLINGS AND CONNECTORS SHALL NOT BE USED. USE METAL CONDUIT BODIES TO MATCH CONDUIT WITH COMPRESSION FITTINGS.

B. RACEWAYS IN CLOSE PROXIMITY OF OTHER TRADES, SHALL BE ARRANGED TO ALLOW FOR PROPER CLEARANCE FOR SERVICING, MAXIMUM HEADROOM, ETC. AND TO PRESENT A NEAT APPEARANCE. MAINTAIN ADEQUATE CLEARANCE BETWEEN CONDUIT AND PIPING WITH A MINIMUM OF 12 INCHES CLEARANCE BETWEEN CONDUIT AND SURFACES WITH TEMPERATURES EXCEEDING 104 DEGREES F.

C. JOIN RACEWAYS WITH FITTINGS DESIGNED AND APPROVED FOR THE PURPOSE AND MAKE JOINTS TIGHT. WHERE JOINTS CANNOT BE MADE TIGHT, USE BONDING JUMPERS TO PROVIDE ELECTRICAL CONTINUITY OF THE RACEWAY SYSTEM. MAKE RACEWAY TERMINATIONS TIGHT. WHERE SUBJECT TO VIBRATION OR DAMPNESS, USE INSULATION BUSHINGS TO PROTECT CONDUCTORS. CUT CONDUIT SQUARE USING SAW OR PIPE CUTTER AND DE-BURR CUT ENDS.

D. USE CONDUIT HUBS OR SEALING LOCKNUTS TO FASTEN CONDUIT TO BOXES IN DAMP AND WET LOCATIONS.

E. SUPPORT CONDUIT USING STEEL OR MALLEABLE IRON SINGLE OR DOUBLE HOLE CONDUIT STRAPS, LAY-IN ADJUSTABLE HANGERS, CLEVIS HANGERS AND SPLIT HANGERS AS REQUIRED. FASTEN CONDUIT SUPPORTS TO STRUCTURE AND SURFACES. DO NOT ATTACH CONDUIT SUPPORTS TO CEILING SUPPORT WIRES, OR ANY OTHER CONDUIT, PIPE, DUCT, ETC. DO NOT SUPPORT CONDUIT WITH WIRE OR PIPE HANGER STRAPS. ALL SUPPORTS SHALL CONFORM TO NEC 344.30.

F. BELOW GRADE: PVC SCHEDULE 80 CONDUIT NEMA TC2 UL 651, WITH MATCHING FITTINGS BY SAME MANUFACTURER AS THE CONDUIT. COMPLYING WITH NEMA TC 3 AND UL 51413.

G. CONDUIT EXPANSION FITTINGS SHALL BE PROVIDED AS REQUIRED PER NEC 300.7 & 352.44.

1.6 WIRE AND CABLE

A. ALL WIRE FOR LIGHT AND POWER INSTALLATIONS SHALL BE HIGH CONDUCTIVITY COPPER, 1000 VOLT INSULATED IN ACCORDANCE WITH THE NATIONAL BOARD OF FIRE UNDERWRITER'S STANDARDS.

B. PULL CONDUCTORS SIMULTANEOUSLY WITH UL LISTED PULLING COMPOUND OR LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER. USE PULLING MEANS INCLUDING, FISH TAPE, CABLE, ROPE, AND BASKET WEAVE WIRE/CABLE GRIPS WHICH WILL NOT DAMAGE CABLES OR RACEWAYS.

C. ALL WIRING SHALL BE FACTORY COLOR CODED. FOR MODIFICATIONS TO EXISTING SYSTEMS, MATCH COLOR CODING SCHEME ALREADY IN PLACE. OTHERWISE FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS:

240Y/120 VOLTS	PHASE	420 VOLTS
BLACK	A	BROWN
RED	B	ORANGE
BLUE	C	YELLOW
WHITE	NEUTRAL	GREY
GREEN	GROUND	GREEN

D. ALL WIRING IN PANELS SHALL BE NEATLY TIE-WRAPPED AND TRAINED WITHIN GUTTER SPACES. ALL CIRCUITS MUST HAVE TAGS THAT IDENTIFY THEM ACCORDING TO THE CIRCUIT LIST.

E. ALL EXPOSED 1000V PV WIRE WIRING ON DC SIDE TO BE BLACK FOR HOT CONDUCTORS, AND GREEN/BARE FOR GROUND SHALL BE MARKED SUNLIGHT RESISTANT. GROUNDED CONDUCTORS TO BE WHITE OR BLACK TAPED WITH WHITE STRIPE.

F. ALL WIRING ON AC SIDE SHALL BE 75°C RATED WITH A MINIMUM 480V RATED INSULATION.

G. SPLIT-WIRE LOOM SHALL (OR APPROVED EQUIVALENT) SHALL BE PROVIDED WHEREVER PV WIRES COME IN CONTACT WITH SHARP EDGES, AND IN CASE OF LARGE GAPS BETWEEN RACKING TABLES. USE HEYCO CLIPS ON EACH SIDE OF THE SPLIT LOOM

H. ALUMINUM CONDUCTORS SHALL BE INSTALLED PER THE NECA/AA 104/2012 GUIDELINES. PRIOR TO TERMINATION, CONDUCTORS ARE REQUIRED TO BE STRIPPED, CLEANED WITH A WIRE BRUSH AND TREATED WITH AN OXIDATION INHIBITOR APPROVED FOR USE WITH THE CONDUCTOR MANUFACTURER. ALL ALUMINUM TERMINATIONS SHALL BE COMPRESSION TYPE, 90°C, TERMINATED UTILIZING CRIMPING TOOLS APPROVED AND COMPATIBLE BY THE TERMINATION MANUFACTURER.

1.7 BOXES

A. CAST-IRON BOXES: NEMA FB 1, TYPE FD, IRON ALLOY, WATERPROOF, WITH THREADED RACEWAY ENTRIES, GASKETED COVER BY BOX MANUFACTURER AND FEATURES AND ACCESSORIES SUITABLE FOR EACH LOCATION, INCLUDING MOUNTING EARS, THREADED SCREW HOLES FOR DEVICES AND CLOSURE PLUGS.

B. GALVANIZED STEEL PULL BOXES: NEMA OS 1 WITH WELDED SEAMS. WHERE NECESSARY TO PROVIDE A RIGID ASSEMBLY, CONSTRUCT WITH INTERNAL STRUCTURAL STEEL BRACING, HOT-DIP GALVANIZED AFTER FABRICATION. COVER SHALL BE GASKETED, SCREWED OR BOLTED ON OF MATERIAL SAME AS BOX AND SHALL BE OF SIZE AND SHAPE TO SUIT APPLICATION. SIZES SHALL BE ADEQUATE TO MEET NEC VOLUME REQUIREMENTS, BUT IN NO CASE SMALLER THAN SIZES INDICATED. REMOVE SHARP EDGES WHERE THEY MAY COME IN CONTACT WITH WIRING OR PERSONNEL.

C. FOR INTERIOR DRY LOCATIONS USE GALVANIZED SHEET STEEL, NEMA TYPE 1. FOR LOCATIONS EXPOSED TO WEATHER OR DAMPNESS USE NEMA TYPE 3R BOXES, FULLY GASKETED. FOR WET LOCATIONS USE NEMA TYPE 4 BOXES WITH FULLY GASKETED WEATHERPROOF COVERS.

D. ELECTRICALLY GROUND ALL METAL BOXES TO CONDUIT SYSTEM. WHERE WIRING TO ITEMS INCLUDES A GROUNDING CONDUCTOR, ALSO PROVIDE A GROUNDING TERMINAL IN THE INTERIOR OF THE CABINET, BOX OR ENCLOSURE.

1.8 SUPPORTING DEVICES

A. PROVIDE MATERIALS, SIZES AND TYPES OF ANCHORS, FASTENERS AND SUPPORTS TO CARRY THE LOADS OF EQUIPMENT AND CONDUIT. CONSIDER THE WEIGHT OF WIRE IN CONDUIT WHEN SELECTING PRODUCTS. ATTACHMENTS SHALL BE RATED BY AN INDEPENDENT TESTING LABORATORY FOR THE RATED LOADING WITH A SAFETY FACTOR OF FIVE. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS. DO NOT USE SPRING STEEL CLIPS AND CLAMPS, POWDER-ACTUATED ANCHORS, TESTING FOR CONCRETE AND STEEL ATTACHMENTS SHALL BE IN ACCORDANCE WITH TEST CRITERIA ESTABLISHED BY UL SUPPORTS, SUPPORT HARDWARE, AND FASTENERS SHALL BE PROTECTED WITH ZINC COATING OR WITH TREATMENT OF EQUIVALENT CORROSION RESISTANCE. PRODUCTS FOR USE OUTDOORS SHALL BE HOT-DIP GALVANIZED. IN CORROSIVE AREAS, PRODUCTS SHALL BE TREATED WITH 15 MIL PVC COATING. ALL PRODUCTS SHALL BE TREATED AFTER CUTTING AND THREADING.

B. PROVIDE ANY SPECIAL WORK, INCLUDING BUT NOT LIMITED TO INTERMEDIATE STEEL CHANNELS, THAT MAY BE REQUIRED TO OVERCOME UNUSUAL CONDITIONS. DO NOT FASTEN TO ANY TRADES OTHER THAN THE STRUCTURAL SYSTEM WHERE SPECIFICALLY NOTED BELOW.

C. PROVIDE SUPPORTS FOR ALL RACEWAYS INCLUDING U-CHANNEL SYSTEMS, RISER CLAMPS, CONDUIT STRAPS, THREADED C-CLAMPS WITH RETAINERS AND WALL BRACKETS.

D. CONCRETE STRUCTURAL ELEMENTS AND MASONRY WALLS: USE CARBON STEEL WEDGE OR SLEEVE TYPE EXPANSION ANCHORS. COORDINATE ALL ANCHOR LOCATIONS IN POST-TENSIONED SLABS. HOLES CUT DEPTH OF MORE THAN 1-1/2 INCHES IN REINFORCED CONCRETE BEAMS OR MORE THAN 3/4 INCH IN REINFORCED CONCRETE SHALL NOT CUT THE MAIN REINFORCING BARS. FILL HOLES THAT ARE NOT USED.

E. HOLLOW MASONRY: USE STEEL SPRINGHEAD TYPE TOGGLE BOLTS AND HOLLOW WALL FASTENERS.

F. STEEL STRUCTURAL ELEMENTS: USE BEAM CLAMPS, STEEL FASTENERS AND CLEVIS HANGERS.

G. STEEL SURFACES: MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS.

H. PARTITIONS OF LIGHT STEEL CONSTRUCTION: SHEET METAL SCREWS.

I. WOOD ELEMENTS: USE WOOD SCREWS.

J. U-CHANNEL SYSTEMS: 12 GAUGE CARBON STEEL CHANNELS, WITH 9/16 X 7/8 INCH HOLES IN TOP SURFACE, 2 INCHES ON CENTER. PROVIDE FITTINGS AND ACCESSORIES THAT MATE AND MATCH WITH U-CHANNEL AND ARE OF THE SAME MANUFACTURER. PROVIDE ANGLES AND OTHER STANDARD STRUCTURAL SHAPES. CONNECT WITH WELDS OR MACHINE BOLTS TO FORM RIGID SUPPORTS.

K. A HANGER OR SUPPORT SHALL BE INSTALLED CLOSE TO THE POINT OF A CHANGE IN DIRECTION OF ALL CONDUIT RUNS, IN EITHER A HORIZONTAL OR VERTICAL PLANE.

L. SPACING OF CONDUIT SUPPORTS AS PER NEC REQUIREMENTS.

M. CABLE TIES FOR WIRE AND CABLE: PROVIDE CLIPS FROM WILEY ELECTRONICS OR APPROVED EQUAL

N. TORQUE MARKS SHALL BE APPLIED TO ALL FASTENERS, SCREWS, ETC THAT REQUIRE AND HAVE BEEN PROPERLY TORQUED

Conti
2045 LINCOLN HWY
EDISON, NJ 08817

Rev	Description	Date	Dwn	Chk
0	PERMIT SET	12/05/2016	EP	EP

DESIGNERS SEAL AND SIGN

DAVID J. COLOMBO ELECTRICAL No. 40425 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

12-07-2016

SYSTEM DESIGNER

SYSTEM OWNER

PROJECT NAME AND ADDRESS

SHUTESBURY GROUND MOUNT

PRATT CORNER RD AND REED RD, SHUTESBURY, MA 01072

SHEET TITLE

GENERAL NOTES SHEET 1

ENGINEER	DRAWN BY:
EDGAR PUESAN	EDGAR PUESAN
PROJECT NO. 1620400	SHEET NO. G-001
CREATION DATE 10/04/2016	
SCALE AS NOTED	

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