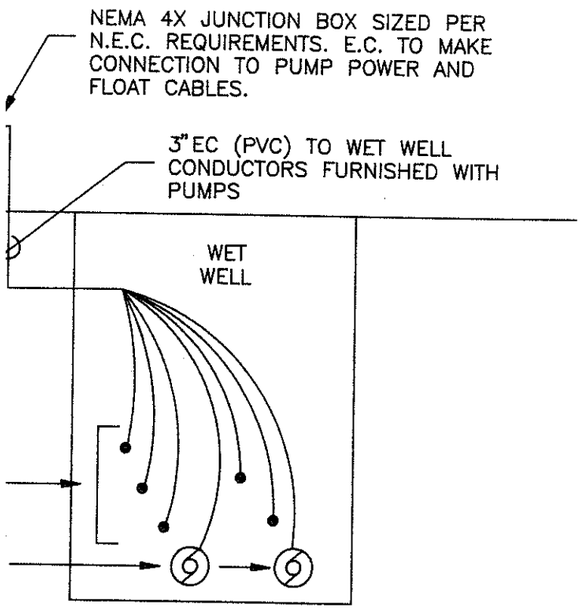
1#10G, 1"C TO CABANA POWER PANEL
E 60/2, Q–FRAME BREAKER IN EXISTING
SPACE

L FITTING

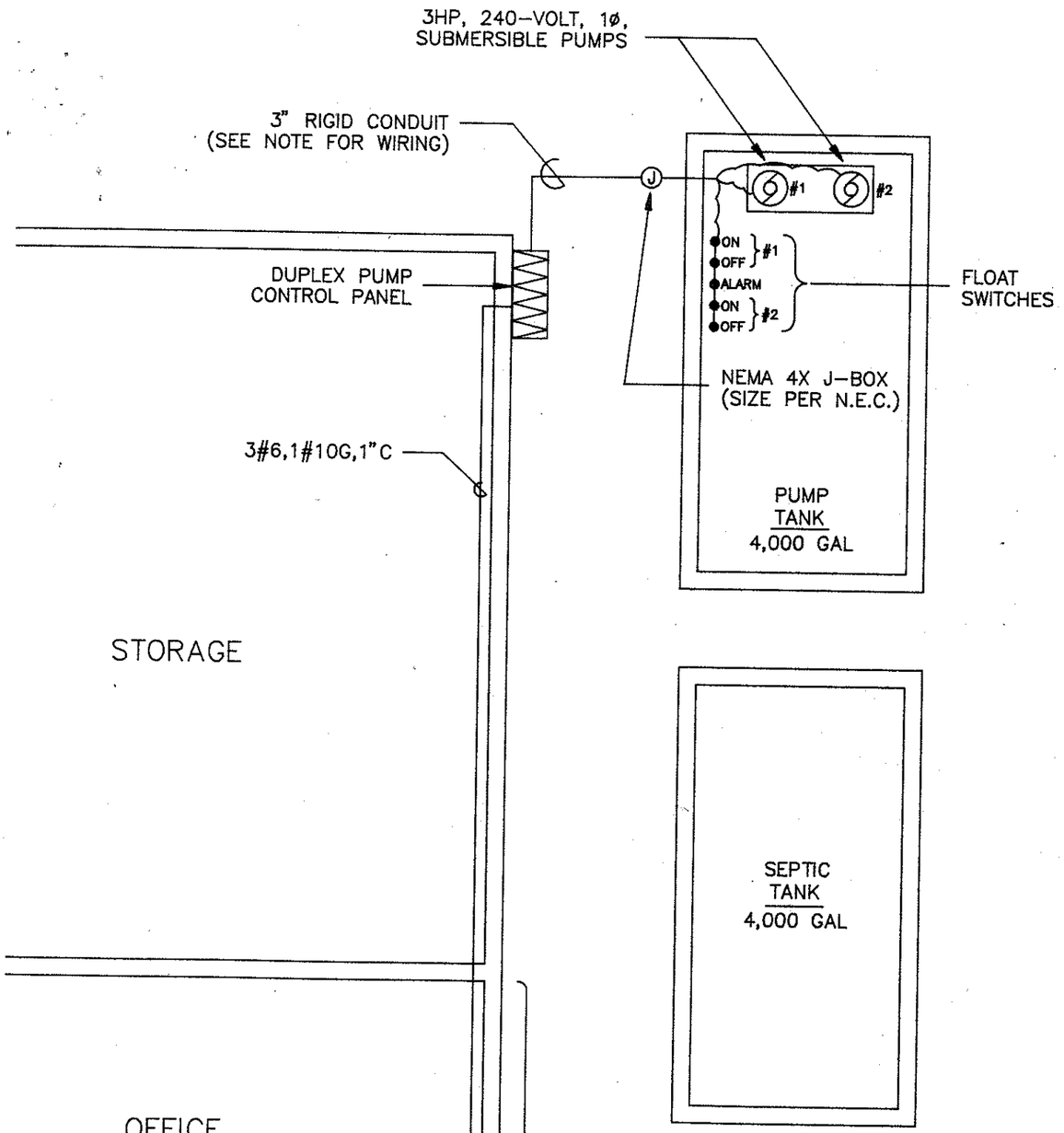


– ELECTRICAL

BOLS

ED ARE A BASIC STANDARD FOR ALL
SYMBOL MAY NOT NECESSARILY APPEAR
IMENSIONS ARE TO TOP OF THE OUTLET

VE CEILING, IN OVERHEAD SLAB OR IN



DIVISION 16 – ELECTRICAL

SECTION 1601 – GENERAL PROVISIONS

01 SCOPE

THE WORK COVERED BY DIVISION 16 OF THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, SUPPLIES, AND MATERIALS, AND PERFORMING ALL OPERATIONS, INCLUDING TRENCHING, BACKFILLING, CUTTING, CHANNELING, CHASING, AND PATCHING NECESSARY FOR THE INSTALLATION OF COMPLETE WIRING SYSTEMS IN STRICT ACCORDANCE WITH DIVISION 16 OF THESE SPECIFICATIONS, AND THE APPLICABLE DRAWINGS, INSTRUCTIONS TO BIDDERS, GENERAL CONDITIONS, AND DIVISION ONE, GENERAL REQUIREMENTS.

02 GENERAL.

A. THE INSTALLATION SHALL COMPLY WITH THE APPLICABLE RULES OF THE NATIONAL ELECTRICAL CODE AND RULES AND REGULATIONS OF LOCAL AUTHORITIES HAVING JURISDICTION. IN NO CASE SHALL THE MATERIALS AND WORKMANSHIP FAIL TO MEET THE MINIMUM REQUIREMENTS OF THE 1993 NATIONAL ELECTRICAL CODE.

1. THE REGULATIONS OF THE LOCAL UTILITY SHALL GOVERN SERVICE CONNECTIONS AND METERING PROVISIONS.

2. AN ELECTRICAL INSPECTION CERTIFICATE SHALL BE ISSUED BY THE LOCAL AUTHORITY BEFORE WORK WILL BE APPROVED FOR FINAL PAYMENT.

3. THIS CONTRACTOR SHALL DO ALL CUTTING NECESSARY FOR THE PROPER INSTALLATION OF THIS WORK AND SHALL REPAIR ANY DAMAGE DONE BY HIMSELF OR HIS WORKMEN TO CEILINGS, WALLS, FLOORS, PAVING, AND SEEDED AREAS.

B. SITE INSPECTION. EACH ELECTRICAL BIDDER SHALL VISIT THE SITE OF THE WORK AND FAMILIARIZE HIMSELF WITH THE CHARACTER AND CONDITIONS OF THE SITE AND THE PROPOSED BUILDING.

C. MATERIALS. ALL MATERIALS USED IN THIS WORK SHALL BENEW AND APPROVED BY THE UNDERWRITERS' LABORATORIES IN EVERY CASE WHERE THEY HAVE ESTABLISHED A STANDARD FOR THE PARTICULAR TYPE OF MATERIAL TO BE INSTALLED.

1. ALL LIGHTING FIXTURES SHALL BEAR THE LABEL OF UNDERWRITERS' LABORATORIES OR BE LISTED UNDER THEIR REEXAMINATION SERVICE.

2. CATALOG NUMBERS AND TRADE NAMES IN THESE SPECIFICATIONS AND NOTED ON THE DRAWINGS ARE INTENDED TO DESCRIBE THE MATERIAL, DEVICE OR APPARATUS WANTED.

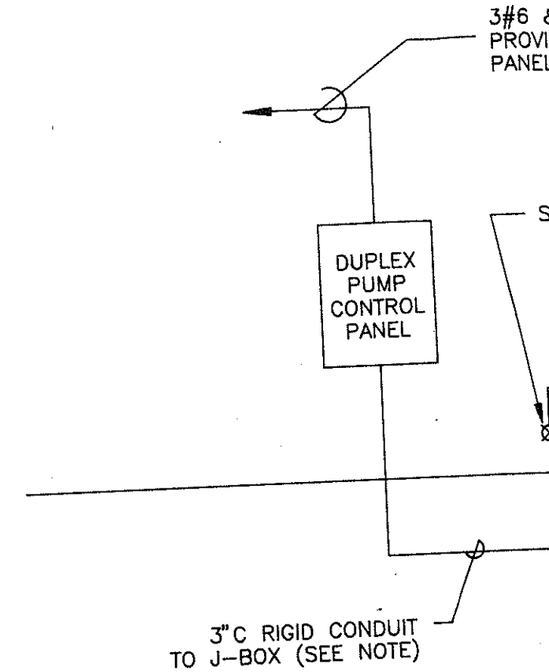
D. SUPERVISION. THE CONTRACTOR SHALL HAVE IN CHARGE OF THE WORK AT ALL TIMES DURING CONSTRUCTION A THOROUGHLY COMPETENT FOREMAN WITH EXTENSIVE EXPERIENCE IN THE WORK TO BE PERFORMED UNDER THIS CONTRACT. ANYONE DEEMED NOT CAPABLE BY THE ENGINEER SHALL BE REPLACED IMMEDIATELY UPON REQUEST AND AFTER A SATISFACTORY FOREMAN HAS BEEN ASSIGNED HE SHALL NOT BE WITHDRAWN WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

E. TESTS. A FULL SCALE TEST WITH ALL LIGHTS, EQUIPMENT, AND APPLIANCES IN OPERATION SHALL BE CONDUCTED BY THE CONTRACTOR AT HIS EXPENSE AND THE ELECTRICAL SYSTEM SHALL BE PROVEN SATISFACTORY FOR OPERATION AND FREE FROM DEFECTS. PARTICULAR ATTENTION SHALL BE PAID TO THE BALANCING OF THE SINGLE PHASE LOADS ON THE THREE PHASE SYSTEM. ANY AND ALL DEFECTS SHALL BE PROMPTLY REMEDIED.

1. THE CONTRACTOR SHALL TEST ALL WIRING AND CONNECTIONS FOR CONTINUITY AND GROUNDS BEFORE FIXTURES ARE CONNECTED AND HE SHALL DEMONSTRATE BY MEGGER TEST THE INSULATION RESISTANCE OF ANY CIRCUIT OR GROUP OF CIRCUITS. WHERE SUCH INSULATION RESISTANCE TEST INDICATES THE POSSIBILITY OF FAULTY INSULATION THE CONTRACTOR SHALL LOCATE THE POINT OR POINTS OF SUCH FAULTY INSULATION, AND HE SHALL PULL OUT THE CONDUCTOR AT FAULT, REPLACE WITH NEW CONDUCTOR, AND DEMONSTRATE BY FURTHER TEST THE ELIMINATION OF SUCH FAULT, ALL AT HIS OWN EXPENSE.

2. MINIMUM READINGS BETWEEN CONDUCTORS AND GROUNDED METAL RACEWAYS SHALL BE:
   (a) NO. 6 AWG AND SMALLER – ONE MILLION OHMS OR MORE.
   (b) NO. 4 AWG AND LARGER – 250,000 OHMS OR MORE.

03 GROUNDING AND BONDING. ALL CONDUIT, NEUTRAL CONDUCTORS OF THE WIRING SYSTEMS, AND ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED. THE GROUND CONNECTION OF THE ELECTRICAL SYSTEM NEUTRAL AND CONDUIT SYSTEM SHALL BE MADE AT THE MAIN SERVICE SWITCH CIRCUIT BREAKER. ALL FEEDER AND BRANCH CIRCUIT CONDUITS SHALL HAVE A GREEN GROUNDING



2 / E1 SITE PL

NOT TO SCA

ELECTRIC

THE ELECTRICAL SYMBOLS HEREINAFT
PROJECTS AS APPLICABLE. EACH AN

IL CENTER, OR SWITCHBOARD AS

EQUIRED BY N.E.C.

OTHERWISE INDICATED.

MODULE AS APPLICABLE.

HORSEPOWER AS INDICATED.

1 / E1 SITE PLAN – ELECTRICAL

1/4" = 1' 0"

NOTE:
PROVIDE 6#10 POWER WITH 1#10 AWG GROUND CONDUCTORS FOR PUMP POWER WIRING. PROVIDE #14 AWG CONDUCTORS AS REQUIRED FOR FLOATS, SEAL FAILURE, ETC.

K.M. ARMSTRONG ASSOCIATES, INC.
723 SOUTH SHARON AMITY ROAD
CHARLOTTE, N.C. 28211-2835
704-366-1776

COMM. NO. 12597-00 DATE 3-15-95
DESIGN JMH DRAWN JMH

NORTH CAROLINA PROFESSIONAL SEAL 16329 4-4-95 ENGINEER JAMES

NO.	DATE	REVISION	BY
1	4/95	REVISIONS	JMH

SHEET TITLE
ELECTRICAL

PROJECT
THE HARBOUR RECREATIONAL AREA
CRESENT RESOURCES IREDELL COUNTY, N.C.

Land Design

PROJECT NO. 75100
SCALE AS NOTED
DATE MARCH 1995
DRAWN BY CAD
CHECKED BY
DRAWING NO.

SECTION 1602 – BASIC MATERIALS AND METHODS

01 REQUIREMENTS OF SECTION 1601 SHALL APPLY.

02 WIRING. ALL WIRING SHOWN ON THE CONTRACT DRAWINGS SHALL BE IN CONDUIT UNLESS OTHERWISE HEREINAFTER SPECIFIED.

A. BRANCH CIRCUIT CONDUCTORS SHALL BE AS INDICATED ON THE DRAWINGS.

B. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET, AND NO SPLICES SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES. JUNCTION BOXES MAY BE UTILIZED WHERE REQUIRED.

03 CONDUIT SYSTEMS. CONDUIT SHALL BE RIGID STEEL CONDUIT, INTERMEDIATE METAL CONDUIT, OR ELECTRICAL METALLIC TUBING (EMT). EMT SHALL NOT BE INSTALLED UNDERGROUND OR IN SLABS ON GRADE.

A. AT THE CONTRACTOR'S OPTION RIGID SCHEDULE 40 NON–METALLIC CONDUIT (PVC) MAY BE USED IN LIEU OF STEEL CONDUIT WHERE INSTALLED UNDER BUILDING SLABS OR UNDERGROUND, AND SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ARTICLE 347 OF THE NEC. RIGID STEEL CONDUIT SHALL BE USED WHERE BEND GREATER THAN 45 DEGREES ARE REQUIRED. EXPOSED PVC CONDUIT SHALL NOT BE PERMITTED.

04 CONDUIT INSTALLATION.

A. CONDUITS SHALL BE CONCEALED WITHIN WALLS, CEILINGS, AND FLOOR WHERE POSSIBLE. EXPOSED RUNS OF CONDUIT SHALL BE SUPPORTED EVERY 8' WITH APPROVED TYPE SUPPORTS.

B. GALVANIZED STEEL INSULATED THROAT COMPRESSION RING TYPE FITTINGS SHALL BE USED FOR EMT WORK.

C. PULL CORDS SHALL BE INSTALLED IN ALL EMPTY CONDUITS. NO CONDULET TYPE FITTINGS SHALL BE ALLOWED ON SERVICE CONDUITS OR ANY OTHER CONDUIT 2" OR LARGER.

D. WHERE STEEL OR PVC CONDUIT IS INSTALLED UNDERGROUND OR UNDER BUILDING SLABS JOINTS SHALL BE MADE WATERTIGHT. ALL CONDUIT INSTALLED UNDERGROUND SHALL BE ENCASED IN A MINIMUM OF 3" OF CONCRETE WITH 2" SEPARATION BETWEEN ADJACENT CONDUITS.

E. UNDERGROUND CONDUIT OUTSIDE THE BUILDING SHALL HAVE A MINIMUM COVER OF 2' AND IF POSSIBLE SHALL BE GRADED SO AS TO HAVE A FALL OF AT LEAST 3" PER 100' TOWARD A DRAINAGE POINT.

1. ALL UNDERGROUND STEEL CONDUITS SHALL BE THOROUGHLY COATED WITH TWO COATS OF ASPHALTUM OR BITUMASTIC AND SHALL BE RETOUCHED AS REQUIRED AFTER BEING MADE UP.

05 SECONDARY CONDUCTORS. A COMPLETE SYSTEM OF CONDUCTORS SHALL BE INSTALLED IN THE RACEWAY SYSTEM. ONLY POWDERED SOAPSTONE OR OTHER NON–DELETORIOUS LUBRICANT APPROVED BY THE ENGINEER MAY BE USED IN PULLING CONDUCTORS IN CONDUIT.

A. ALL CONDUCTORS SHALL BE COPPER. CONDUCTORS UNLESS OTHERWISE NOTED, SHALL BE HEAT AND MOISTURE RESISTANT GRADE, THERMOPLASTIC INSULATED, TYPE THW, THWN, THHN, OR XHHW AS APPLICABLE.

1. CONDUCTORS NO. 8 AWG AND LARGER SHALL BE STRANDED COPPER. NO. 12 AWG AND NO. 10 AWG SHALL BE SOLID COPPER.

B. HOMERUNS MAY BE COMBINED IN ONE CONDUIT, PROVIDED ALL CONNECTIONS ARE IN ACCORDANCE WITH NEC REQUIREMENTS AND THE MAXIMUM UNBALANCED CURRENT IN THE NEUTRAL DOES NOY EXCEED THE CAPACITY OF THE CONDUCTOR.

C. COLOR CODE. ALL CONDUCTORS, FEEDERS, AND BRANCH CIRCUITS SHALL BE COLOR CODED BY PHASE AND SHALL BE PLAINLY MARKED. ALL IN ACCORDANCE WITH SECTIONS 210–5 AND 200–6 OF THE NEC RESPECTIVELY AND THE FOLLOWING ADDED PROVISIONS AS APPLICABLE FOR THE PROJECT:

1. 120/240 VOLT, SINGLE PHASE, 3–WIRE SYSTEMS: PHASE A, BLACK; PHASE B, RED; GROUNDED NEUTRAL, WHITE.

2. GROUNDING CONDUCTORS SHALL BE GREEN FOR EITHER SYSTEM.

AS APPLICABLE.

HOMERUN TO PANELBOAR APPLICABLE.

SEALOFF FITTING WHERE

J JUNCTION BOX SIZED PE

EQUIPMENT CONTROL PA

120 OR 240–VOLT, SING

EXISTING PANELBOARDS.