

ABBREVIATIONS

| | | | |
|-------|---|--------|---|
| A | AMPERES | NF | NON-FUSED |
| ACK | ACKNOWLEDGE | NC | NORMALLY CLOSED |
| AFR | AMPERES FRAME RATING | NO | NORMALLY OPEN |
| ALC | ALUMINUM CONDUIT | OL(S) | OVERLOAD RELAY CONTACT(S) |
| ALT | ALTERNATOR | OP | OPERATOR |
| AM | AMMETER | PF | POWER FACTOR |
| ANN | ANNUNCIATOR | PT(S) | POTENTIAL TRANSFORMER(S) |
| AS | AMMETER SWITCH | PRS | PLASTIC COATED RIGID STEEL CONDUIT |
| ATR | AMPERES TRIP RATING | PU | PICK UP OR PER UNIT |
| AWG | AMERICAN WIRE GAGE | PUR | PER UNIT RESISTANCE |
| | | PUX | PER UNIT REACTANCE |
| | | PVZ | PER UNIT IMPEDANCE |
| | | PVC | POLYVINYLCHLORIDE CONDUIT |
| BKR | BREAKER | REQ'D | REQUIRED |
| BLDG | BUILDING | RM | ROOM |
| | | RS | RIGID STEEL CONDUIT |
| CKT | CIRCUIT | RTD | RESISTANCE TEMPERATURE DEVICE |
| CL | CENTER LINE | RTM | RUNNING TIME METER |
| CO | CONVENIENCE OUTLET | SDS | SPECIFIED IN OTHER DIVISION OF SPECIFICATIONS |
| CONN | CONNECTIONS | SE | SERVICE ENTRANCE |
| CONTR | CONTRACTOR | SEC | SECOND OR SECONDARY |
| CP | CONTROL PANEL | SIG | SIGNAL |
| CPT | CONTROL POWER TRANSFORMER | SOL Vv | SOLENOID VALVE |
| CS | CONTROL STATION | SP | SINGLE POLE |
| CT | CURRENT TRANSFORMER | SPECS | SPECIFICATIONS |
| CU | COPPER | SW | SWITCH |
| | | TD | TIME DELAY |
| DE | DUAL ELEMENT | TEMP | TEMPERATURE |
| DIA | DIAMETER | TYP | TYPICAL |
| DISC | DISCONNECT | UH | UNIT HEATER |
| DP | DISTRIBUTION PANEL | | |
| DPS | DIFFERENTIAL PRESSURE SWITCH | V | VOLTS |
| | | VAR | VOLT-AMPERES REACTIVE |
| ELECT | ELECTRICAL | VARM | VOLT-AMPERES REACTIVE METER |
| EMT | ELECTRICAL METALLIC TUBING | VFD | VARIABLE FREQUENCY DRIVE |
| EO | ELECTRICAL OPERATOR | VM | VOLTMETER |
| EP | EXPLOSION PROOF | VS | VOLTMETER SWITCH |
| EQUIP | EQUIPMENT | Vv | VALVE |
| | | W | WATTS OR WIRE |
| FA | FIRE ALARM | W/ | WITH |
| FACP | FIRE ALARM CONTROL PANEL | WHM | WATT-HOUR METER |
| F & I | FURNISH AND INSTALL | WM | WATT METER |
| FU | FUSE OR FUSIBLE | WW | WIREWAY |
| | | WP | WEATHERPROOF |
| GFI | GROUND FAULT INTERRUPTER | XFMR | TRANSFORMER |
| GND | GROUND | XMTR | TRANSMITTER |
| GRS | GALVANIZED RIGID STEEL CONDUIT | Y | WYE |
| | | Z | IMPEDANCE |
| HD | HEAVY DUTY | | |
| HP | HORSEPOWER | | |
| HPS | HIGH PRESSURE SODIUM | | |
| HTR | HEATER | | |
| HZ | HERTZ (CYCLES/SECOND) | | |
| | | | |
| JMC | INTERMEDIATE METAL CONDUIT | | |
| INCAN | INCANDESCENT | | |
| IND | INDICATING OR INDICATOR | | |
| INST | INSTANTANEOUS | | |
| I & C | INSTRUMENTATION AND CONTROL | | |
| | | | |
| JB | JUNCTION BOX | | |
| | | | |
| kV | KILOVOLTS | | |
| kVA | KILOVOLT-AMPERES | | |
| kVAR | KILOVOLT-AMPERES REACTIVE | | |
| kW | KILOWATTS | | |
| | | | |
| LT | LIGHT | | |
| LMF | LIQUID-TIGHT METALLIC CORE FLEXIBLE CONDUIT | | |
| | | | |
| M | MOTOR STARTER OPERATING COIL | | |
| MAX | MAXIMUM | | |
| MCM | THOUSAND CIRCULAR MILS | | |
| MCP | MOTOR CIRCUIT PROTECTOR | | |
| MECH | MECHANICAL | | |
| MFR | MANUFACTURER | | |
| MH | METAL HALIDE | | |
| MIN | MINUTE OR MINIMUM | | |
| MTD | MOUNTED | | |
| MV | MERCURY VAPOR | | |

COLORS

| | | | |
|-----|-------|---|--------|
| A | AMBER | O | ORANGE |
| BK | BLACK | R | RED |
| BR | BROWN | V | VIOLET |
| BU | BLUE | W | WHITE |
| GRN | GREEN | Y | YELLOW |
| GY | GRAY | | |

DEVICE SYMBOLS

| | |
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| | WALL MOUNTED/CEILING EXIT LIGHT - LETTER & NUMBER SIMILAR TO HID OR INCANDESCENT FIXTURE, SLASH(ES) DENOTE FACE(S) AND ARROW(S) IF REQUIRED |
| | WALL MOUNTED/CEILING INCANDESCENT OR HID FIXTURE - CAPITAL LETTER DENOTES TYPE, NUMBER DENOTES CIRCUIT, SMALL LETTER DENOTES SWITCH LEG |
| | WALL MOUNTED/CEILING FLUORESCENT FIXTURES - LETTERS & NUMBERS SIMILAR TO INCANDESCENT FIXTURES |
| | DUPLEX CONVENIENCE OUTLET - NUMBER DENOTES CIRCUIT, INCHES DENOTE MOUNTING HEIGHT IF OTHER THAN NORMAL, LETTERS SPECIFY OTHER CONDITIONS IE. WP OR GFI |
| | JUNCTION BOX - CEILING/WALL MOUNTED |
| | THERMOSTAT |
| | SPECIAL PURPOSE OUTLET |
| | SWITCH-NO MARKING IS SINGLE POLE, 2 IS DOUBLE POLE, 3 IS 3-WAY, 4 IS 4-WAY |
| | MOTOR |
| | PUSHBUTTON STATION |
| | TELEPHONE |
| | CONTROL STATION |
| | BRANCH CIRCUIT - EXPOSED |
| | BRANCH CIRCUIT CONCEALED |
| | SLASHES INDICATE NUMBER OF #12 AWG WIRES IN CONDUIT, g SUBSCRIPT DENOTES AN INSULATED GROUND CONDUCTOR |
| | DOUBLE DUPLEX CONVENIENCE OUTLET |

SCHEMATIC SYMBOLS

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| | PRESS TO TEST LAMP - LETTER DENOTES COLOR |
| | SELECTOR SWITCH |
| | TORQUE SWITCH - NC, NO |
| | SHEAR PIN SWITCH - NC, NO |
| | CIRCUIT BREAKER |
| | MAGNETIC TRIP |
| | THERMAL TRIP |
| | RUNNING TIME METER |
| | CONTACT - NC, NO |
| | OPERATING COIL, LETTER OR NUMBER DENOTES DEVICE |
| | PLUG AND RECEPTACLE |
| | PUSHBUTTON CONTACT - NC, NO |
| | PUSHBUTTON SWITCH, MUSHROOM HEAD - NC, NO |
| | DOUBLE CIRCUIT PUSHBUTTON SWITCH |
| | MAINTAINED CONTACT PUSHBUTTON SWITCH |
| | ENERGIZED TIMER CONTROL - NC, NO |
| | DE-ENERGIZED TIMER CONTROL - NC, NO |
| | FLOW SWITCH - NC, NO |
| | LIQUID LEVEL SWITCH - NC, NO |
| | TEMPERATURE SWITCH - NC, NO |
| | PRESSURE SWITCH - NC, NO |
| | LIMIT SWITCH - NC, NO |
| | FUSE |
| | DISCONNECT SWITCH |
| | FUSED SWITCH |
| | GROUND CONNECTION |
| | INDICATING LIGHT - LETTER DENOTES COLOR |
| | CONTROL TRANSFORMER |
| | THERMAL OVERLOAD TRIP UNITS |
| | STABS |

ONE-LINE DIAGRAM SYMBOLS

| | |
|--|--|
| | AIR CIRCUIT BREAKER - DRAW OUT TYPE WITH OPERATING MECHANISM |
| | DISCONNECT SWITCH |
| | FUSED SWITCH |
| | LIGHTNING ARRESTER - GENERAL |
| | FUSE - NUMBER DENOTES RATING |
| | GROUND CONNECTION |
| | CONTROL OR INSTRUMENT SWITCH - LETTERS DENOTES FUNCTION |
| | RELAY OR CONTROL DEVICE - NUMBER DENOTES FUNCTION, AMERICAN NATIONAL STANDARD (ANSI) |
| | POTENTIAL TRANSFORMER - DRAW OUT TYPE WITH PRIMARY FUSES |
| | CURRENT TRANSFORMER |
| | CONTROL STATION |
| | INSTRUMENT - LETTER DENOTES TYPE |
| | INDICATING LIGHT - LETTER DENOTES COLOR |
| | MOTOR - NUMBER DENOTES HORSEPOWER |
| | MOTOR CIRCUIT PROTECTOR (MCP) |
| | MOLDED CASE CIRCUIT BREAKER |
| | CONTROL TRANSFORMER |
| | RUNNING TIME METER |
| | GROUND CONNECTION |
| | THERMAL OVERLOAD TRIP UNITS |
| | STABS |
| | POWER TRANSFORMER |
| | POWER FACTOR CAPACITORS WITH FUSING AND INDICATING LIGHTS |
| | SURGE CAPACITORS |
| | RELAY WITH SHORTING CONTACTS |

LIGHT FIXTURE SCHEDULE

| TYPE | DESCRIPTION | MANUFACTURER | CATALOG NUMBER | LAMPS | VOLTS | REMARKS |
|------|----------------------|--------------|-----------------------|------------|-------|---------|
| A | FLUORESCENT | LITHONIA | EJ240-CW | 2-40W-CW | 120 | 1 |
| B | OUTDOOR HPS | HI-TEK | TWH70S-120-PE-VG | 1-70W-HPS | 120 | 2 |
| C | OUTDOOR INCANDESCENT | CROUSE-HINDS | VXHA45GPRA | 1-100W-A | 120 | 3 |
| E | OUTDOOR HPS | HI-TEK | TFL400SRA2208-PER-DNA | 1-400W-HPS | 208 | 4 |
| | | | | | | |
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| | | | | | | |

- STEM MOUNT, COORDINATE EXACT HEIGHT.
- MOUNT AT 96".
- ON 1" CONDUIT AT 84" HIGH
- WITH TS-PE1-VG & RTA 25BCT20-BA28 POLE. SEE DETAIL SHEET E11.

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| REVISIONS | DATE | DESCRIPTION | DESIGNED PFK | CHECKED PFK |
|-----------|------|-------------|--------------|-------------|
| | | | | |
| | | | | |
| | | | | |

GRAPHIC SCALE
 0 HORIZ.
 0 VERT.

CITY OF ELK RIVER
 WASTEWATER TREATMENT FACILITIES
 SYMBOLS & ABBREVIATIONS