ABBREVIATIONS

A	AMPERES
ACK	ACKNOWLEDGE
AFR	AMPERES FRAME RATING
ALC	ALUMINUM CONDUIT
ALT	ALTERNATOR
AM	AMMETER
ANN	ANNUNCIATOR
AS	AMMETER SWITCH
ATR	AMPERES TRIP RATING
AWG	AMERICAN WIRE GAGE
BKR	BREAKER
BLDG	BUILDING
CKT	CIRCUIT
℄	CENTER LINE
CO	CONVENIENCE OUTLET
CONN	CONNECTIONS
CONTR	CONTRACTOR
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CS	CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
DE	DUAL ELEMENT
DIA	DIAMETER
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DPS	DIFFERENTIAL PRESSURE SWITCH
ELECT	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
EO	ELECTRICAL OPERATOR
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
F & I	FURNISH AND INSTALL
FU	FUSE OR FUSIBLE
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL CONDUIT
HD	HEAVY DUTY
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HZ	HERTZ (CYCLES/SECOND)
IMC	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
NF	NON-FUSED
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OL(S)	OVERLOAD RELAY CONTACT(S)
OP	OPERATOR
PF	POWER FACTOR
PT(S)	POTENTIAL TRANSFORMER(S)
PRS	PLASTIC COATED RIGID STEEL CONDUIT
PU	PICK UP OR PER UNIT
PUR	PER UNIT RESISTANCE
PUX	PER UNIT REACTANCE
PUZ	PER UNIT IMPEDANCE
PVC	POLYVINYLCHLORIDE CONDUIT
REQ'D	REQUIRED
RM	ROOM
RS	RIGID STEEL CONDUIT
RTD	RESISTANCE TEMPERATURE DEVICE
RTM	RUNNING TIME METER
SDS	SPECIFIED IN OTHER DIVISION OF SPECIFICATIONS
SE	SERVICE ENTRANCE
SEC	SECOND OR SECONDARY
SIG	SIGNAL
SOL Vv	SOLENOID VALVE
SP	SINGLE POLE
SPECS	SPECIFICATIONS
SW	SWITCH
TD	TIME DELAY
TEMP	TEMPERATURE
TYP	TYPICAL
UH	UNIT HEATER
V	VOLTS
VAR	VOLT-AMPERES REACTIVE
VARM	VOLT-AMPERES REACTIVE METER
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VS	VOLTMETER SWITCH
Vv	VALVE
W	WATTS OR WIRE
W/	WITH
WHM	WATT-HOUR METER
WM	WATT METER
WW	WIREWAY
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
Y	WYE
Z	IMPEDANCE

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

- X/3 — WALL MOUNTED/CEILING EXIT LIGHT – LETTER & NUMBER SIMILAR TO HID OR INCANDESCENT FIXTURE, SLASH(ES) DENOTE FACE(S) AND ARROW(S) IF REQUIRED
- X1/2 — WALL MOUNTED/CEILING INCANDESCENT OR HID FIXTURE – CAPITAL LETTER DENOTES TYPE, NUMBER DENOTES CIRCUIT, SMALL LETTER DENOTES SWITCH LEG
- B/4 a, F/2 b — WALL MOUNTED/CEILING FLUORESCENT FIXTURES – LETTERS & NUMBERS SIMILAR TO INCANDESCENT FIXTURES
- A c d B / 1 5
- 16, 24" WP — 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
- 3 — SWITCH–NO MARKING IS SINGLE POLE, 2 IS DOUBLE POLE, 3 IS 3–WAY, 4 IS 4–WAY
- MOTOR
- PUSHBUTTON STATION
- TELEPHONE
- CS — 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

- R — PRESS TO TEST LAMP – LETTER DENOTES COLOR
- RUN / OFF / AUTO — SELECTOR SWITCH
- TORQUE SWITCH – NC, NO
- SHEAR PIN SWITCH – NC, NO
- CIRCUIT BREAKER
- MAGNETIC TRIP
- THERMAL TRIP
- RTM — RUNNING TIME METER
- CONTACT – NC, NO
- 52 M — 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
- R — INDICATING LIGHT – LETTER DENOTES COLOR
- CONTROL TRANSFORMER
- THERMAL OVERLOAD TRIP UNITS
- STABS

ONE–LINE DIAGRAM SYMBOLS

- 52 — AIR CIRCUIT BREAKER – DRAW OUT TYPE WITH OPERATING MECHANISM
- DISCONNECT SWITCH
- FUSED SWITCH
- LA — LIGHTNING ARRESTER – GENERAL
- 30A — FUSE – NUMBER DENOTES RATING
- GROUND CONNECTION
- VS — CONTROL OR INSTRUMENT SWITCH – LETTERS DENOTES FUNCTION
- 52 M — RELAY OR CONTROL DEVICE – NUMBER DENOTES FUNCTION, AMERICAN NATIONAL STANDARD (ANSI)
- POTENTIAL TRANSFORMER – DRAW OUT TYPE WITH PRIMARY FUSES
- CURRENT TRANSFORMER
- CS — CONTROL STATION
- AM — INSTRUMENT – LETTER DENOTES TYPE
- R — INDICATING LIGHT – LETTER DENOTES COLOR
- 20 — MOTOR – NUMBER DENOTES HORSEPOWER
- MOTOR CIRCUIT PROTECTOR (MCP)
- MOLDED CASE CIRCUIT BREAKER
- CONTROL TRANSFORMER
- RTM — RUNNING TIME METER
- GROUND CONNECTION
- THERMAL OVERLOAD TRIP UNITS
- STABS
- POWER TRANSFORMER
- POWER FACTOR CAPACITORS WITH FUSING AND INDICATING LIGHTS
- SURGE CAPACITORS
- 51N — 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

1. STEM MOUNT. COORDINATE EXACT HEIGHT.
2. MOUNT AT 96".
3. ON 1" CONDUIT AT 84" HIGH
4. WITH TS–PE1–VG & RTA 258CT20–BA28 POLE. SEE DETAIL SHEET E11.

This drawing was prepared by:
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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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REVISIONS

DATE	DESCRIPTION

DESIGNED PFK
CHECKED PFK
DRAWN DTB
GRAPHIC SCALE 0 HORIZ. 0 VERT.

CITY OF ELK RIVER
WASTEWATER TREATMENT FACILITIES
SYMBOLS & ABBREVIATIONS

E1

DATE DEC 1993 SHEET ___ OF ___ SHEETS PROJECT NO. 230–151

KAI#92361AJ--SHEET E1---PS:1=1
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