DIVISION 16 – ELECTRICAL

A. General Instructions:

1. Codes, Permits and Inspections:
   a. Wiring shall be in accordance with latest edition National Electrical Code (NEC), NFPA, and/or applicable local, state, and Utility Company rules, laws, codes, and ordinances.
   b. Secure all permits and inspections required for the installation of the electrical work.
   c. All work shall comply with the latest edition of the Americans With Disabilities Act (ADA).
   d. Pay all fees associated with new utility services.

2. Verifications:
   a. Verify mounting heights and locations of electrical equipment before installation or rough-in.
   b. Verify exact location of electrical service entrance including point of service and system characteristics.
3. Wiring Methods:
   a. The Electrical Contractor shall cooperate with other Contractors and install equipment in proper sequence so as not to interfere with the progress of other Contractors.
   b. All materials shall be new and carry the Underwriter's Label or be "listed" by that group, and be fully equal to makes specified.
   c. Use only insulated copper conductors in conduit. Use flexible conduit for connections to motors and similar equipment.
   d. All wiring shall be concealed and all outlets shall be flush mounted in finished spaces except as noted otherwise.

4. Tests:
   a. This Contractor shall be responsible for performing all tests necessary to prevent concealment of defective or improper work.
   b. Upon completion of work, test the installation thoroughly and render it free from shorts, grounds or improper connections.

5. Guarantee – This Contractor shall guarantee that all defective items of workmanship, material, labor or mechanical operation developing within one (1) year from the date of final acceptance of completed installation shall be replaced to the complete satisfaction of the Owner.

6. Workmanship – Electrical equipment shall be installed in a neat and workmanlike manner. Unsightly installations shall be removed or reworked at no additional expense to the Owner.

7. Identification of disconnecting means – Provide a permanent nameplate for each disconnect switch indicating its purpose. The marking shall be of sufficient durability to withstand the environment it is installed in as required by N.E.C. Section 110-22 and 230-72(a).

B. Electrical Equipment:

1. Conduits:
   a. All underground horizontal conduit shall be PVC.
   b. Provide a ground wire sized per N.E.C. Art. 250-122 in all conduits, both metallic and nonmetallic.
   c. Conduit shall be installed and sized according to code requirements and protected from damage during construction.
   d. Conduit may be re-routed where such action does not adversely affect the intended design or circuiting.
   e. Provide Robroy, Perma-Cote or Korkap PVC coated steel ells and risers. (typical)

2. Conductors:
   a. Conductors shall be copper, generally with 600 volt rated insulation. Branch circuit wiring min. size #12 Type "THW" or "THWN/THHN" as required. Service entrance, feeder conductors Type "THWN/THHN" or "XHHW". Low voltage wire shall be Type "TF" or "TFF" minimum #18 gauge unless noted otherwise. All other types shall be as required by N.E.C.
   b. All conductors shall be color coded with type and size marking. Connections to service equipment, feeder panels shall be made with solderless lugs. All splices, taps, connections to service entrance conductors shall be made by bronze solderless lugs. All other splices, connections shall be pressure type connectors.
   c. Insulate joints, splices with Scotch #33 plastic tape or plastic molded jackets.

3. Grounding:
   a. Provide system ground as required by N.E.C. and utility company if not already existing.
   b. Bond mechanical equipment frames.
   c. Bond all service entrance equipment and conduit system.
   d. An equipment grounding conductor sized per N.E.C. Art. 250-122 shall be provided in all conduits. The ground wire is required for both metallic and nonmetallic conduit installations.

4. Photo Electric Controls:
   a. Photo Electric Controls by Fork, Intermatic and Paragon equal to those indicated below and approved by the Engineer will be acceptable.

LIGHTING FIXTURE SCHEDULE

(P.E.C.)

FIXT. LTR.	MANUFACTURER	CATALOG NUMBER	LAMPS NO.	LAMPS TYPE	VOLTS	LENS/FINISH	DESCRIPTION	DIMENSIONS W	L	D	REMARKS
② P4	HOLOPHANE		1	100W MH	208	DK BRONZE	POLE MOUNTED				

① MANUFACTURERS LISTED IN THIS SCHEDULE OR APPROVED BY WRITTEN ADDENDUM WILL BE THE ONLY APPROVED MANUFACTURERS TO BID THE LIGHTING FIXTURES FOR THIS PROJECT. CONTRACTORS AND SUPPLIERS USING PRICING FROM MANUFACTURERS NOT LISTED ON SCHEDULE OR BY ADDENDUM DO SO AT THEIR OWN RISK.

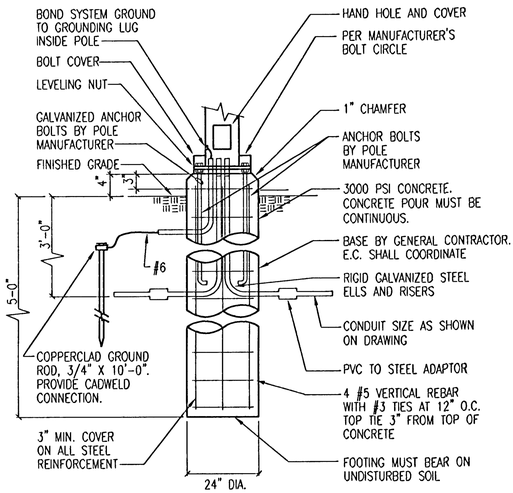
② HOLOPHANE FIXTURE #GUV-10-DMH-20-Z-8-N-RB-S-B WITH POLE #MR-S5/19-14-CADD WITH LUNAR OPTICS, TYPE V DISTRIBUTION AND NO HOUSE SIDE SHIELD.

EXIST. PNL. 'A'

208/120 VOLTS, 3 PHASE, 4 WIRE
200 AMP MAIN BKR, SURFACE MTD.
S.E. RATED W/GRD. BUS
80000 AIC LABELED

CIRC NO.	LOAD V. A.	LOAD TYPE	LOAD DESCRIPTION	P	AMP SIZE	SWG NO.	AMP SIZE	P	LOAD DESCRIPTION	LOAD TYPE	LOAD V. A.	CIRC NO.
① 1	1275	LGH	STREET LIGHTING	2	20	A	20	1	MOTORIZED GATE CONTROLLER	POW	1200	2
3	———	———	———————	—		B	20	1	MOTORIZED GATE CONTROLLER	POW	1200	4
5	11600	MTR	RECIRC PUMP (10HP)	3	60	C	20	1	LANDSCAPE SIGN	LGH	1200	6 ①
7	———	———	———————	—		A	20	1	LANDSCAPE LIGHTING	LGH	1000	8 ①
9	———	———	———————	—		B	20	1	LANDSCAPE LIGHTING	LGH	1000	10 ①
11	1200	LGH	GLENGATE GATE	1	20	C	20	1	LANDSCAPE LIGHTING	LGH	1000	12 ①
13	1200	LGH	GLENGATE GATE	1	20	A	20	1	SPARE	SPW		14
① 15	1000	LGH	SIGN	1	20	B	20	1	SPARE	SPW		16
① 17	1000	LGH	LANDSCAPE	1	20	C	20	1	SPARE	SPW		18
19			SPACE			A			SPACE			20
21			SPACE			B			SPACE			22
23			SPACE			C			SPACE			24

① CIRCUITS SHALL BE ROUTED VIA CONTACTOR AND CONTROLLED BY PHOTOCELL.



1 POLE BASE DETAIL FOR TYPES 'P4'
N.T.S.

SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING
P3 ←□	LIGHT FIXTURE & FIXTURE LETTER	POLE
WP	WEATHERPROOF	
PB	PULL BOX	
	ELECTRICAL DISTRIBUTION EQUIPMENT	
	CONDUIT RUN 2 CIRCUITS, 3#12 & 1#12 GRD.- 3/4"C.	EARTH/FLOOR
	CONDUIT RUN TWO (2) CIRCUITS - PHASE CONDUCTORS (#12 U.O.N.) - NEUTRAL CONDUCTOR (#12 U.O.N.) - SWITCH LEGS (#12 U.O.N.) - GROUND CONDUCTOR (#12 U.O.N.)	CEILING/WALL

GENERAL NOTES

1. E.C. SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS AND THE REQUIREMENTS CALLED OUT ON THE PLANS.
2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE, AND LOCAL ELECT. CODES OR REGULATIONS OF THE UTILITY COMPANY.
3. REFER TO SPECIFICATIONS FOR DATA NOT SHOWN ON DRAWINGS.
4. E.C. SHALL PAY FOR ALL FEES AND PERMITS FOR ELECTRICAL WORK ON THIS PROJECT.
5. E.C. IS RESPONSIBLE FOR DAMAGE TO CITY PROPERTY OR THE WORK BY OTHERS THAT MAY BE CAUSED BY THE E.C.'S WORK OR ACTIVITY IN THE AREA.
6. ALL ELECTRICAL WORK SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER. UNSIGHTLY INSTALLATION WORK SHALL BE REMOVED AND REWORKED AT THE DIRECTION OF THE FIELD ENGINEER OR THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
7. THE G.C. SHALL BE RESPONSIBLE FOR:
   PAYING ALL UTILITY BILLS FOR OPERATION OF THE ELECTRICAL SYSTEM THROUGH FINAL ACCEPTANCE. ALL SLEEVES, RUBBLE EXCAVATION AND REMOVAL, CONCRETE WORK, REINFORCING, STEEL SUPPORTS AND BRACKETS, SEAL AND GROUT ALL OPENINGS AFTER E.C. HAS COMPLETED ELECTRICAL WORK OR PORTIONS THEREOF, AREA CLEAN UP OF OWN WORK, PAINTING OF SURFACES REQUIRED BY CITY SPECS. OR UTILITY CO., AND ALL WORK REQUIRED FOR THE E.C. THAT IS NOT ELECTRICAL RELATED.
8. E.C. SHALL FURNISH AND INSTALL A SURGE ARRESTER: SQUARE 'D' #SDSA1175 OR APPROVED EQUAL AND INSTALL AT EACH SERVICE ENTRANCE.
9. E.C. SHALL PROVIDE, FURNISH AND INSTALL ALL PARTS, EQUIPMENT, SUPPLIES AND LABOR TO CONSTRUCT AND INSTALL A COMPLETE LIGHTING SYSTEM.
10. E.C. SHALL SHALL VERIFY ALL EQUIPMENT SPECIFIED ON THE LIGHTING PLAN AND COORDINATE MANUFACTURER'S CHANGES WITH PLAN INFORMATION AFTER NOTICE TO PROCEED IS GIVEN. THESE CHANGES SHALL NOT ACCRUE ADDITIONAL COST TO THE OWNER.
11. E.C. SHALL RECORD SYSTEM LOAD PER PHASE OF DISTRIBUTION PANEL AND SUBMIT FINAL READINGS TO OWNER WITH PRODUCT INFORMATION.
12. E.C. SHALL TEST COMPLETE SYSTEM TO INSURE CIRCUITS ARE FREE FROM SHORT CIRCUITS AND TO MAKE ALL NECESSARY ADJUSTMENTS TO ELECTRICAL EQUIPMENT. INSTALLED FIXTURES AND POLES SHALL BE CLEAN, FREE OF SCRATCHES AND MARKS.
13. E.C. SHALL DELIVER TO THE OWNER BEFORE FINAL ACCEPTANCE IN TRIPLICATE: SHOP DRAWINGS, CATALOGUE DATA, PRODUCT INFORMATION, OPERATION AND MAINTENANCE INSTRUCTIONS, AND PARTS LIST. DELIVER TWO RED LINE 'AS BUILT' BLUEPRINTS OF THE LIGHTING PLAN, ADDENDA AND CHANGE ORDERS THAT PERTAIN TO THIS WORK.
14. E.C. SHALL FULLY INSTRUCT THE OWNER OR IT'S REPRESENTATIVE AS TO THE PROPER OPERATION, CARE, MAINTENANCE AND CHARACTERISTICS OF THE LIGHTING SYSTEM AND IT'S EQUIPMENT.
15. ALL CONDUCTOR SIZES ARE FOR COPPER CONDUCTORS.
16. REFER TO THIS SHEET FOR ELECTRICAL SPECIFICATIONS.

ROBERT D. CRAIG 17443 10-31-06 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

OAK CREEK 3RD – PRIVATE STREETS AND STREET LIGHTING

ELECTRICAL SCHEDULES AND DETAILS

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	DCG	Job No.	20-06572	Sheet 25 of 45
Drawn by	MDB	Date	Oct 2006	

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Plot Scale 1:40 10-31-2006 1:29:21 PM by MDB
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