

ELECTRICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

V3.00

STANDARD MOUNTING HEIGHTS	
AUDIBLE APPLIANCES (CENTERLINE)	84"
ALARMS	48"
ANNUNCIATOR PANELS (DISPLAY)	60"
CONTROLS (TOP OF DEVICE)	48"
EXIT SIGNS (WALL MOUNTED)	80"
FIRE ALARM ANNUNCIATOR PANEL (DISPLAY)	60"
FIRE ALARM BELL (EXTERIOR) (CENTERLINE)	120"
FIRE ALARM CONTROL PANEL/UNIT (DISPLAY)	60"
INTERCOM (AREA ONLY)	36"
INTERCOMS (TOP OF DEVICE)	48"
PULL STATIONS (TOP OF DEVICE)	48"
PHOTOCELLS	144"
RECEPTACLES	16"
RECEPTACLES (EXTERIOR)	24"
RECEPTACLES (GARAGES)	24"
RECEPTACLES (POOLS)	27"
RECEPTACLES (ABOVE COUNTER)	+6" ABOVE BACKSPASH/COUNTER, 40" MAX
RECEPTACLES IN EQUIPMENT ROOMS	44"
REMOTE INDICATING LIGHT (EQUIPMENT ROOMS)	48"
REMOTE INDICATING LIGHT (FINISHED AREAS)	CEILING
SAFETY SWITCHES (TOP OF DEVICE)	48"
STARTERS (TOP OF DEVICE)	48"
SWITCHES (TOP OF DEVICE)	44"
TELEPHONE, DATA OUTLETS	SAME AS ADJACENT DEVICE, UNO
TELEPHONE TERMINAL BOARD (BOTTOM)	0"
TELEVISION OUTLETS	REFER TO ARCH DRAWINGS
VISIBLE APPLIANCES (CENTERLINE)	84"

INSTALL OUTLET BOXES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE, OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS, ARE AFF OR AFG TO BOTTOM OF OUTLET BOX, UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ABBREVIATIONS

AF	AMPERE FUSE SIZE	MFR	MANUFACTURER
AFD	ABOVE FINISHED CEILING	MIN	MINIMUM
AFB	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	MLV	MAGNETIC LOW-VOLTAGE
AHJ	AUTHORITY HAVING JURISDICTION	MOCP	MAXIMUM OVERCURRENT PROTECTION
AHU	AIR HANDLING UNIT	MTD	MOUNTED
AIC	AMPERE INTERRUPTING CAPACITY	N/A	NOT APPLICABLE
AS	AMPERE SWITCH SIZE	NF	NOT USED
ATS	AMPERE TRIP SETTING	NL	NIGHT LIGHT (24HR ON)
AV	AUDIO VISUAL	NRTL	NATIONALLY RECOGNIZED TESTING LABORATORY (CSA ETL, NSF, UL)
BAS	BUILDING AUTOMATION SYSTEM	NTS	NOT TO SCALE
BKR	BREAKER	OS	OCCUPANCY SENSOR
CAT	CONDUIT	P	POLE
CATV	CABLE TELEVISION SYSTEM	PHW	PHASE
CCTV	CLOSED CIRCUIT TELEVISION	PNL	PANEL
CD	CANDELA	PNLBD	PANELBOARD
CKT	CIRCUIT	PROVIDE	FURNISH AND INSTALL
CODE	APPLICABLE CODE ADOPTED BY JURISDICTION	PT	POTENTIAL TRANSFORMER
CT	CURRENT TRANSFORMER	QTY	QUANTITY
CTR	CENTER	RREL	RELOCATE
CVD	CUMULATIVE VOLTAGE DROP	RCPOT	RECEPTACLE
DCEMO	DEMOLITION	RLA	RUNNING LOAD AMPS
DPDT	DOUBLE-POLE, DOUBLE-THROW	RTU	ROOFTOP UNIT
DPST	DOUBLE-THROW, SINGLE-POLE, SINGLE-THROW	SCCR	SHORT-CIRCUIT CURRENT RATING
E/ETREX	EXISTING TO REMAIN	SD	SMOKE DUCT DETECTOR
EC	ELECTRICAL CONTRACTOR	SF	SQUARE FEET
EF	EXHAUST FAN	SPDT	SINGLE-POLE, SINGLE-THROW
EM	EMERGENCY	SPST	SINGLE-POLE, SINGLE-THROW
EMS	ENERGY MANAGEMENT SYSTEM	SSBJ	SUPPLY-SIDE BONDING JUMPER
ELV	ELECTRONIC LOW-VOLTAGE	ST	SHUNT TRIP
EWC	ELECTRIC WATER COOLER	SWBD	SWITCHBOARD
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SWGR	SWITCHGEAR
FACP	FIRE ALARM CONTROL PANEL	TBB	TELECOMMUNICATIONS BONDING BACKBONE
FCA	FAULT CURRENT AMPS AVAILABLE	TBD	TO BE DETERMINED
FCU	FAN COIL UNIT	TGB	TELECOMMUNICATIONS GROUND BUS BAR
FF	FINISHED FLOOR	TL	TWISTLOCK
FLA	FULL LOAD AMPS	TMGB	TELECOMMUNICATIONS MAIN GROUND BUS BAR
FLR	FLOOR	TX/XFMR	TRANSFORMER
GEC	GENERAL CONTRACTOR	TP	TYPICAL
GEC	GROUNDING ELECTRODE CONDUCTOR	UF	UNDER FLOOR
GES	GROUNDING ELECTRODE SYSTEM	UG	UNDERGROUND
GFR	GROUND FAULT RELAY	UIS	UNDERSLAB
G	GROUND	UH	UNIT HEATER
IG	ISOLATED GROUND	UNO	UNLESS NOTED OTHERWISE
ISC	SHORT CIRCUIT CURRENT	UPS	UNINTERRUPTIBLE POWER SUPPLY
JB/J-BOX	JUNCTION BOX	VD	VOLTAGE DROP
LF	LINEAR FEET	VFD	VARIABLE FREQUENCY DRIVE
LRA	LOOKED ROTOR AMPS	VS	VACUANCY SENSOR
LTGLTS	LIGHTING/LIGHTS	W	WIRE
MAU	MAKE-UP AIR UNIT	W/	WITH
MAX	MAXIMUM	WP	WEATHER PROOF
MCA	MINIMUM CIRCUIT AMPACITY	WR	WEATHER RESISTANT
MCB	MAIN CIRCUIT BREAKER	WT	WATERTIGHT
MCC	MOTOR CONTROL CENTER	XP	EXPLOSION-PROOF

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

EXISTING	NEW
DEMOLISH	FUTURE

SIGNALING

	SIGNALING BELL
	SIGNALING BUZZER
	LV TRANSFORMER

ANNOTATION

	MECHANICAL OR FIRE PROTECTION PLAN NOTE CALLOUT
	PLUMBING PLAN NOTE CALLOUT
	ELECTRICAL OR FIRE ALARM PLAN NOTE CALLOUT
	TECHNOLOGY PLAN CALLOUT
	PLUMBING EQUIPMENT DESIGNATION. (CONTRACTOR FURNISHED AND INSTALLED). REFER TO PLUMBING FIXTURE OR EQUIPMENT SCHEDULES
	EQUIPMENT DESIGNATION (OWNER FURNISHED, CONTRACTOR INSTALLED)
	MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
	CONNECTION POINT OF NEW WORK TO EXISTING
	DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
	SECTION CUT DESIGNATION

CIRCUITING & WIRING

	HOMERUN TO PANELBOARD. INFORMATION AT ARROWS ARE CIRCUIT NUMBERS AND PANELBOARD FOR TERMINATION. REFER TO PANELBOARD SCHEDULES FOR BRANCH CIRCUIT CONDUCTOR SIZES.
	INDICATES RELAY NUMBER
	CIRCUIT CONTINUATION OR PARTIAL CIRCUIT
	CONDUIT CONCEALED
	CONDUIT CONCEALED (EMERGENCY)
	CONDUIT IN UNDER FLOOR/GROUND CONSTRUCTION
	EXPOSED CONDUIT
	EXPOSED CONDUIT (EMERGENCY)
	FLEXIBLE CONDUIT
	LOW VOLTAGE CABLE (NOT ROUTED IN CONDUIT)
	CONDUIT TURNING DOWN
	CONDUIT TURNING UP
	CONNECTION POINT OR EQUIPMENT TERMINATION
	EQUIPMENT TERMINATION

CONDUCTOR TICK MARK LEGEND

WHERE TICK MARKS ARE SHOWN, THE FOLLOWING SHALL GOVERN:

	SWITCHED HOT (PHASE) CONDUCTORS (SHOWN TRAILING NEUTRAL)
	NEUTRAL (GROUNDED) CONDUCTOR
	UNSWITCHED HOT (PHASE) CONDUCTORS (SHOWN LEADING NEUTRAL)
	EQUIPMENT GROUNDING CONDUCTOR IN CONDUIT (GREEN INSULATION OR BARE)
	ISOLATED GROUNDING CONDUCTOR IN CONDUIT (GREEN INSULATION WITH YELLOW TRACER)

BRANCH CIRCUIT CONDUCTOR TABLE

WHERE TICK MARKS ARE NOT SHOWN, THE FOLLOWING SHALL GOVERN:

# OF POLES	HOT (PHASE)*	NEUTRAL (GROUNDED)**	GROUNDING***
1P	(1)	(1) UNO	(1)
2P	(2)	(1) UNO	(1)
3P	(3)	(1) UNO	(1)

* PROVIDE ADDITIONAL CONDUCTORS THROUGH ENTIRE CIRCUIT (SWITCHED, UNSWITCHED/EM, ETC.) AS INDICATED THROUGHOUT CONSTRUCTION DOCUMENTS AND AS REQUIRED FOR A COMPLETE AND WORKING SYSTEM.

** REFER TO SPECIFICATIONS FOR LIMITATIONS ON SHARING NEUTRAL (GROUNDED) CONDUCTORS. DO NOT CIRCUIT AS A MULTI-WIRE BRANCH CIRCUIT, UNO.

*** PROVIDE ADDITIONAL ISOLATED GROUNDING CONDUCTORS WHERE INDICATED.

REFER TO SPECIFICATIONS, PLANS, NOTES, WIRING AND CONTROL DIAGRAMS FOR ADDITIONAL CIRCUITING REQUIREMENTS.

ELECTRICAL ONE-LINE & RISER DIAGRAM

	SWITCH (RATINGS AS INDICATED)
	DRAWOUT CIRCUIT BREAKER (RATINGS AS INDICATED)
	FUSED SWITCH (RATING, POLES AND FUSE TYPE AS INDICATED)
	COMBINATION FUSED SWITCH/STARTER AND STARTER SIZE
	CIRCUIT BREAKER (RATINGS AS INDICATED)
	COMBINATION CIRCUIT BREAKER/STARTER AND STARTER SIZE
	PANELBOARD, SINGLE OR MULTI-SECTION (REFER TO SCHEDULES)
	ISOLATED POWER PANELBOARD W/ INTEGRAL TRANSFORMER (REFER TO SCHEDULES)
	TRANSFORMER (TYPE AND RATINGS AS INDICATED)
	SHIELDED TRANSFORMER (TYPE AND RATINGS AS INDICATED)
	AUTOMATIC TRANSFER SWITCH (RATINGS AS INDICATED)
	AUTOMATIC TRANSFER SWITCH WITH BYPASS (RATINGS AS INDICATED)
	GENERATOR (RATINGS AS INDICATED)
	NON-SEPARATELY DERIVED SOURCE OR SEPARATELY DERIVED SOURCE
	MDP
	COMBINATION DIGITAL VOLT METER/AMMETER
	CIRCUIT IDENTIFICATION (REFER TO CIRCUIT SCHEDULE)
	GROUND FAULT RELAY
	PHASE FAILURE RELAY
	KIRK-KEY INTERLOCK (# INDICATES KEY PAIR)
	SHUNT TRIP
	AMMETER (RANGE AS SPECIFIED OR REQUIRED)
	VOLTMETER (RANGE AS SPECIFIED OR REQUIRED)
	UTILITY METER (AS REQUIRED BY UTILITY)
	AMMETER SWITCH
	VOLTMETER SWITCH
	WATT-HOUR METER. "D" DENOTES DEMAND REGISTER, "15" DENOTES MINUTES OF DEMAND INTERVAL
	CURRENT TRANSFORMER RATING AS SPECIFIED OR REQUIRED
	POTENTIAL TRANSFORMER RATING AS SPECIFIED OR REQUIRED
	SURGE-PROTECTIVE DEVICE
	GROUND CONNECTION
	GROUND CONNECTION WITH TEST WELL
	GROUND ROD
	LIGHTNING ARRESTER
	CAPACITOR
	CONTACT (OPEN OR CLOSED)
	HEATER
	MOTOR
	BLOCK LOAD KW OR KVA
	FAULT POINT REFERENCED IN SHORT CIRCUIT CURRENT AND VOLTAGE DROP SPREADSHEET

GENERAL NOTES

1. READ THE SPECIFICATIONS AND REVIEW DRAWINGS OF ALL DIVISIONS OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS. PROVIDE ALL SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.
2. COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
3. ALL EXPOSED CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACE. COORDINATE WITH ARCHITECT.
4. ALL CIRCUITS SHALL HAVE A SEPARATE GREEN GROUND CONDUCTOR.
5. PROVIDE NEUTRAL CONDUCTOR FOR ALL 120V CIRCUITS OR AS OTHERWISE INDICATED.
6. REFER TO PANEL SCHEDULES FOR SPECIFIED CONDUCTOR SIZES PER BRANCH CIRCUIT. UNLESS OTHERWISE NOTED, ALL CIRCUITRY SHALL BE #12 AWG IN 3/4" CONDUIT.
7. PRIOR TO SUBMITTING BID, CONTRACTOR SHALL VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE FACILITY. REVIEW THE GENERAL NOTES AND ALL OTHER TRADE DRAWINGS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER OR OWNER, AS SPECIFIED, OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMITTING BID.
8. ALL WORK IS TO BE COORDINATED WITH THE REPRESENTATIVE
9. FOR ELECTRICAL DETAILS REFER TO MANUFACTURER DRAWINGS AND SPECIFICATIONS.
10. THE INFORMATION SHOWN IN THE SHORT-CIRCUIT AND VOLTAGE DROP CALCULATIONS SCHEDULE IS SHOWN FOR CALCULATION PURPOSES ONLY. CONTRACTOR SHALL NOT USE THE CONDUIT TYPES, CONDUCTOR TYPES, SIZES, QUANTITIES OR LENGTHS FOR TAKEOFFS OR BIDDING PURPOSES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THIS SCHEDULE AND OTHER PORTIONS OF THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL NOTIFY ENGINEER OF AS-BUILT CONDITIONS THAT CONSTITUTE A CHANGE FROM WHAT IS SHOWN ON THE SCHEDULE. THIS INCLUDES CONDUCTOR LENGTHS DIFFERING BY MORE THAN 10%.
11. FEEDER SIZES ARE BASED ON COPPER (CU) THHN/THWN-2 INSULATION, UNLESS NOTED OTHERWISE. AL WIRE MAY BE SUBSTITUTED FOR CU FEEDERS AS ALLOWED BY CODE. SPECIFICATIONS, AND OWNER, UNLESS NOTED OTHERWISE, ALL CONDUCTOR SIZES ARE BASED ON 75 DEG C RATED TERMINATIONS. UNLESS NOTED OTHERWISE, CONDUIT SIZES SHOWN ARE APPROPRIATE FOR SCHEDULE 40 PVC, EMT, GRS, IMC AND RMC; ADJUST SIZE AS NEEDED FOR OTHER RACEWAY TYPES. FOR ANY OTHER CONDITIONS MODIFY SIZES PER CODE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
12. PROVIDE A PERMANENT LABEL ON FRONT OF EQUIPMENT ENCLOSURE; REFER TO SPECIFICATIONS FOR LABEL REQUIREMENTS. LABEL SHALL READ AS FOLLOWS (INCLUDE RESPECTIVE NAMES IN BLANKS):

SERVICE EQUIPMENT LABEL:
LINE 1: NOMINAL VOLTAGE AND FREQUENCY IN HERTZ

LINE 2: SERVICE EQUIPMENT BUS RATING IN AMPS

LINE 3: SCCR OF SERVICE EQUIPMENT IN AMPS

LINE 4: MAXIMUM AVAILABLE FAULT CURRENT IN AMPS

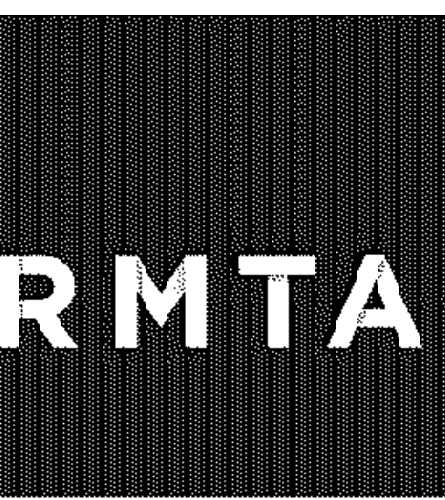
LINE 5: DATE CALCULATED

EXAMPLE:
208Y/120V, 60HZ
800A
SCCR = 65,000A
MAX AVAILABLE FAULT CURRENT = 58,815A
CALCULATED: 01/01/2018
13. OBTAIN THE AVAILABLE FAULT CURRENT DELIVERED BY UTILITY COMPANY AT THE POINT OF SERVICE. REPORT FINDINGS TO THE ENGINEER FOR ANALYSIS PRIOR TO BEGINNING CONSTRUCTION.
14. CONTRACTOR'S BID SHALL INCLUDE PROVISIONS TO PROVIDE ALL SERVICES RELATED TO THE CODE REQUIRED BUILDING SYSTEMS COMMISSIONING INCLUDING A COMMISSIONING PLAN, FUNCTIONAL TESTING, AND RELATED DOCUMENTATION. REPORTS AND OWNER TRAINING. THIS INCLUDES RETAINING THE SERVICES OF A 3RD PARTY REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY. REFER TO THE LATEST ADOPTED EDITION OF THE APPLICABLE ENERGY CODE FOR MORE INFORMATION. CONTRACTOR SHALL COMPLETE ALL RELATED COMMISSIONING REQUIREMENTS PRIOR TO FINAL INSPECTIONS IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, CODE AND MANUFACTURER'S INSTRUCTIONS.

HENDERSON ENGINEERS
8345 LENEVA DRIVE, SUITE 300
LENEVA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
195005044
MO. CORPORATE NUMBER: E-556D
12/31/20



Jun 24 2020



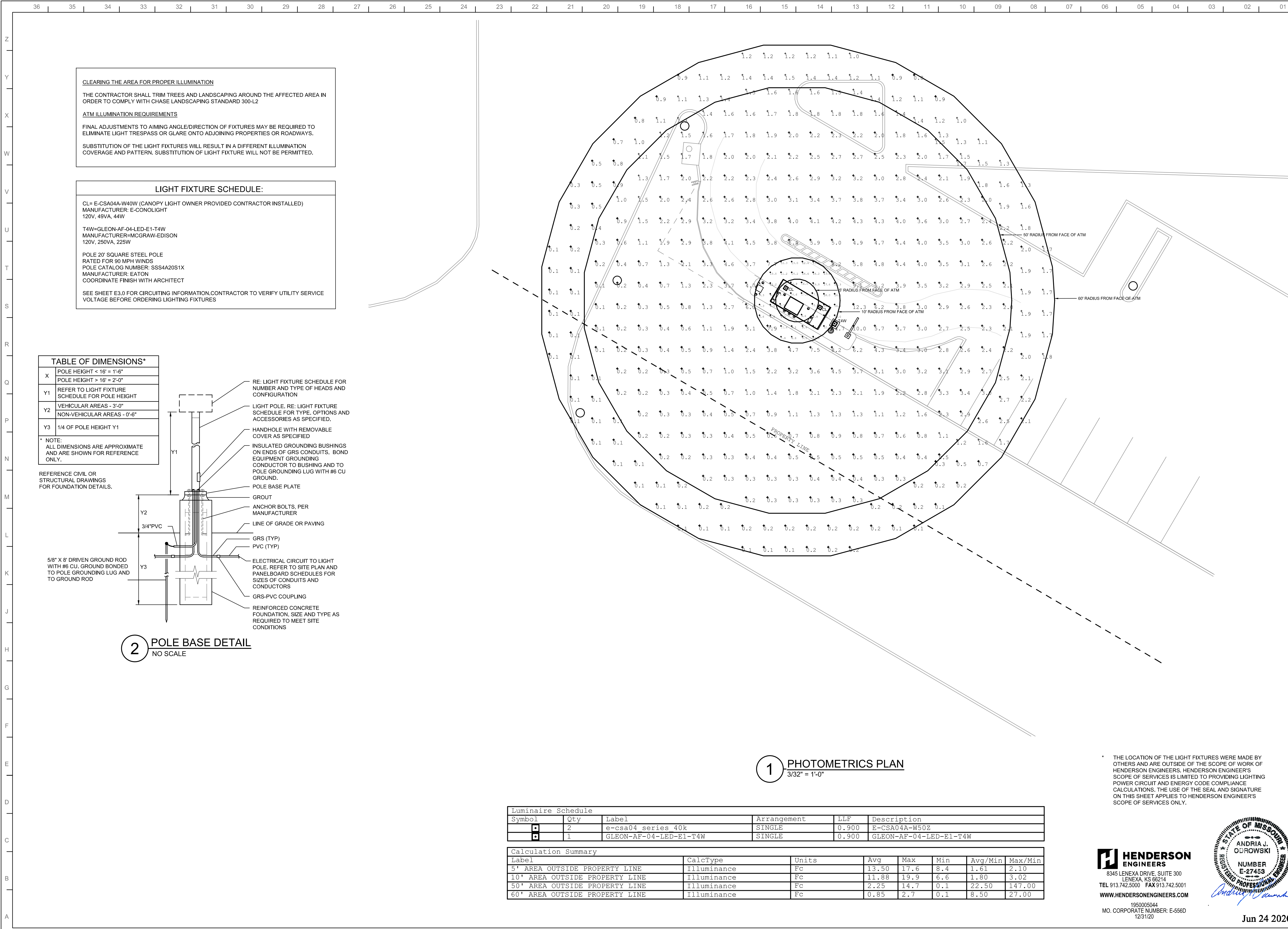
2000 SHAWNEE MISSION PARKWAY
STE 100 MISSION WOODS, KS 66205
TEL 816 502 1500 FAX 816 842 1878

RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
07/07/2020

PROJECT
**BLUE PARKWAY
& JEFFERSON ST.
DRIVE-UP ATM**
276 SW BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

SHEET TITLE
**SYMBOLS LIST AND
GENERAL NOTES**

PROJECT NUMBER 2019033.060	SHEET NUMBER E1.0
SHEET AUTHOR SGC	
CHECKED BY HEI QEV	
DATE JUNE 24, 2020	
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SHEET NUMBER	NOTA.BIZ



CLEARING THE AREA FOR PROPER ILLUMINATION
THE CONTRACTOR SHALL TRIM TREES AND LANDSCAPING AROUND THE AFFECTED AREA IN ORDER TO COMPLY WITH CHASE LANDSCAPING STANDARD 300-L2

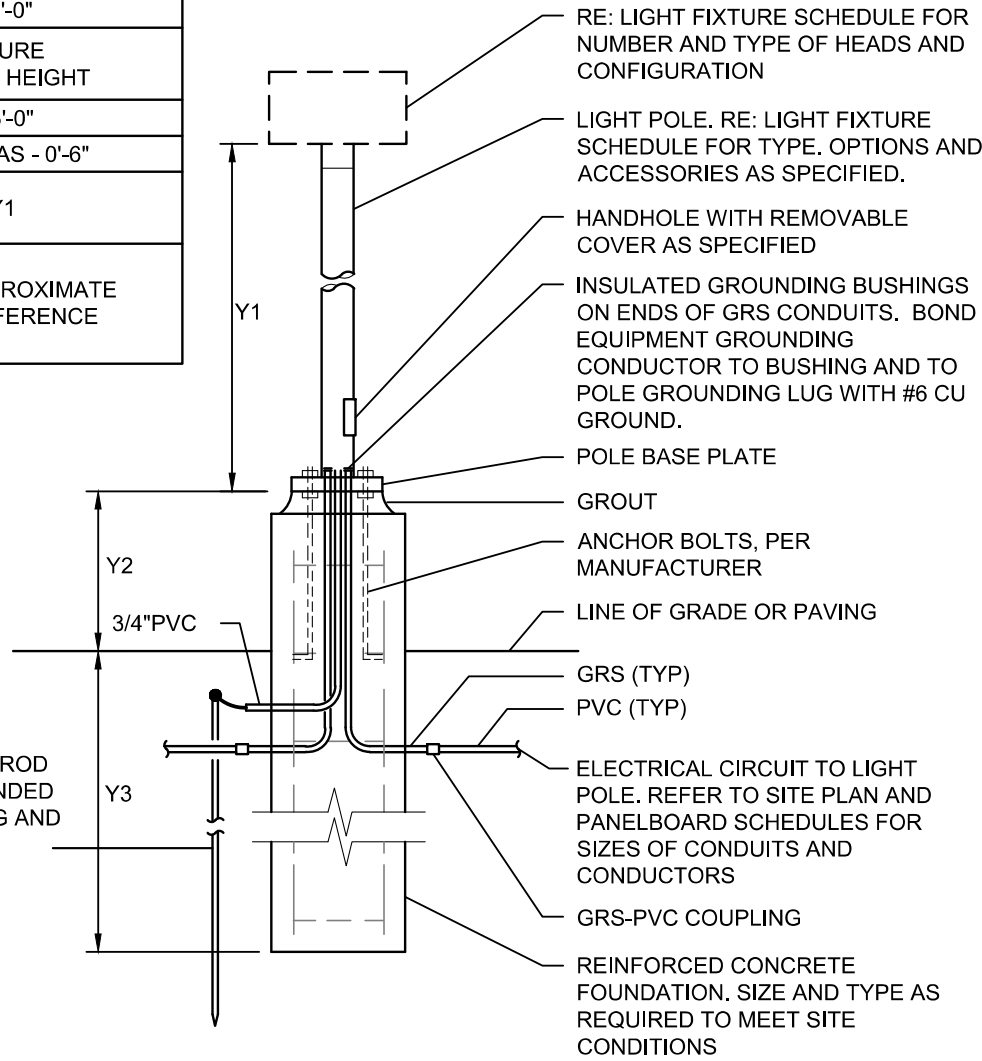
ATM ILLUMINATION REQUIREMENTS
FINAL ADJUSTMENTS TO AIMING ANGLE/DIRECTION OF FIXTURES MAY BE REQUIRED TO ELIMINATE LIGHT TRESPASS OR GLARE ONTO ADJOINING PROPERTIES OR ROADWAYS.
SUBSTITUTION OF THE LIGHT FIXTURES WILL RESULT IN A DIFFERENT ILLUMINATION COVERAGE AND PATTERN. SUBSTITUTION OF LIGHT FIXTURE WILL NOT BE PERMITTED.

LIGHT FIXTURE SCHEDULE:	
CL= E-CSA04A-W40W (CANOPY LIGHT OWNER PROVIDED CONTRACTOR INSTALLED)	
MANUFACTURER: E-CONOLIGHT	
120V, 49VA, 44W	
T4W=GLEON-AF-04-LED-E1-T4W	
MANUFACTURER=MCGRRAW-EDISON	
120V, 250VA, 225W	
POLE 20' SQUARE STEEL POLE	
RATED FOR 90 MPH WINDS	
POLE CATALOG NUMBER: SSS4A20S1X	
MANUFACTURER: EATON	
COORDINATE FINISH WITH ARCHITECT	
SEE SHEET E3.0 FOR CIRCUITING INFORMATION, CONTRACTOR TO VERIFY UTILITY SERVICE VOLTAGE BEFORE ORDERING LIGHTING FIXTURES	

TABLE OF DIMENSIONS*	
X	POLE HEIGHT < 16' = 1'-6"
	POLE HEIGHT > 16' = 2'-0"
Y1	REFER TO LIGHT FIXTURE SCHEDULE FOR POLE HEIGHT
Y2	VEHICULAR AREAS - 3'-0"
	NON-VEHICULAR AREAS - 0'-6"
Y3	1/4 OF POLE HEIGHT Y1

* NOTE:
ALL DIMENSIONS ARE APPROXIMATE AND ARE SHOWN FOR REFERENCE ONLY.

REFERENCE CIVIL OR STRUCTURAL DRAWINGS FOR FOUNDATION DETAILS.



2 POLE BASE DETAIL
NO SCALE

1 PHOTOMETRICS PLAN
3/32" = 1'-0"

Luminaire Schedule					
Symbol	Qty	Label	Arrangement	LLF	Description
□	2	e-csa04 series 40k	SINGLE	0.900	E-CSA04A-W50Z
□	1	GLEON-AF-04-LED-E1-T4W	SINGLE	0.900	GLEON-AF-04-LED-E1-T4W

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
5' AREA OUTSIDE PROPERTY LINE	Illuminance	Fc	13.50	17.6	8.4	1.61	2.10
10' AREA OUTSIDE PROPERTY LINE	Illuminance	Fc	11.88	19.9	6.6	1.80	3.02
50' AREA OUTSIDE PROPERTY LINE	Illuminance	Fc	2.25	14.7	0.1	22.50	147.00
60' AREA OUTSIDE PROPERTY LINE	Illuminance	Fc	0.85	2.7	0.1	8.50	27.00

* THE LOCATION OF THE LIGHT FIXTURES WERE MADE BY OTHERS AND ARE OUTSIDE OF THE SCOPE OF WORK OF HENDERSON ENGINEERS. HENDERSON ENGINEERS' SCOPE OF SERVICES IS LIMITED TO PROVIDING LIGHTING POWER CIRCUIT AND ENERGY CODE COMPLIANCE CALCULATIONS. THE USE OF THE SEAL AND SIGNATURE ON THIS SHEET APPLIES TO HENDERSON ENGINEER'S SCOPE OF SERVICES ONLY.

HENDERSON ENGINEERS
8345 LENEVA DRIVE, SUITE 300
LENEVA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
1950005044
MO. CORPORATE NUMBER: E-5568
12/31/20



Jun 24 2020



RMTA

2000 SHAWNEE MISSION PARKWAY
STE 100 MISSION WOODS, KS 66205
TEL 816 502 1500 FAX 816 842 1878

RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
07/07/2020

PROJECT
**BLUE PARKWAY
& JEFFERSON ST.
DRIVE-UP ATM**

276 SW BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

SHEET TITLE
**PHOTOMETRICS
PLAN**

PROJECT NUMBER
2019033.060

SHEET AUTHOR
SGC

CHECKED BY
HEI/GEV

DATE
JUNE 24, 2020

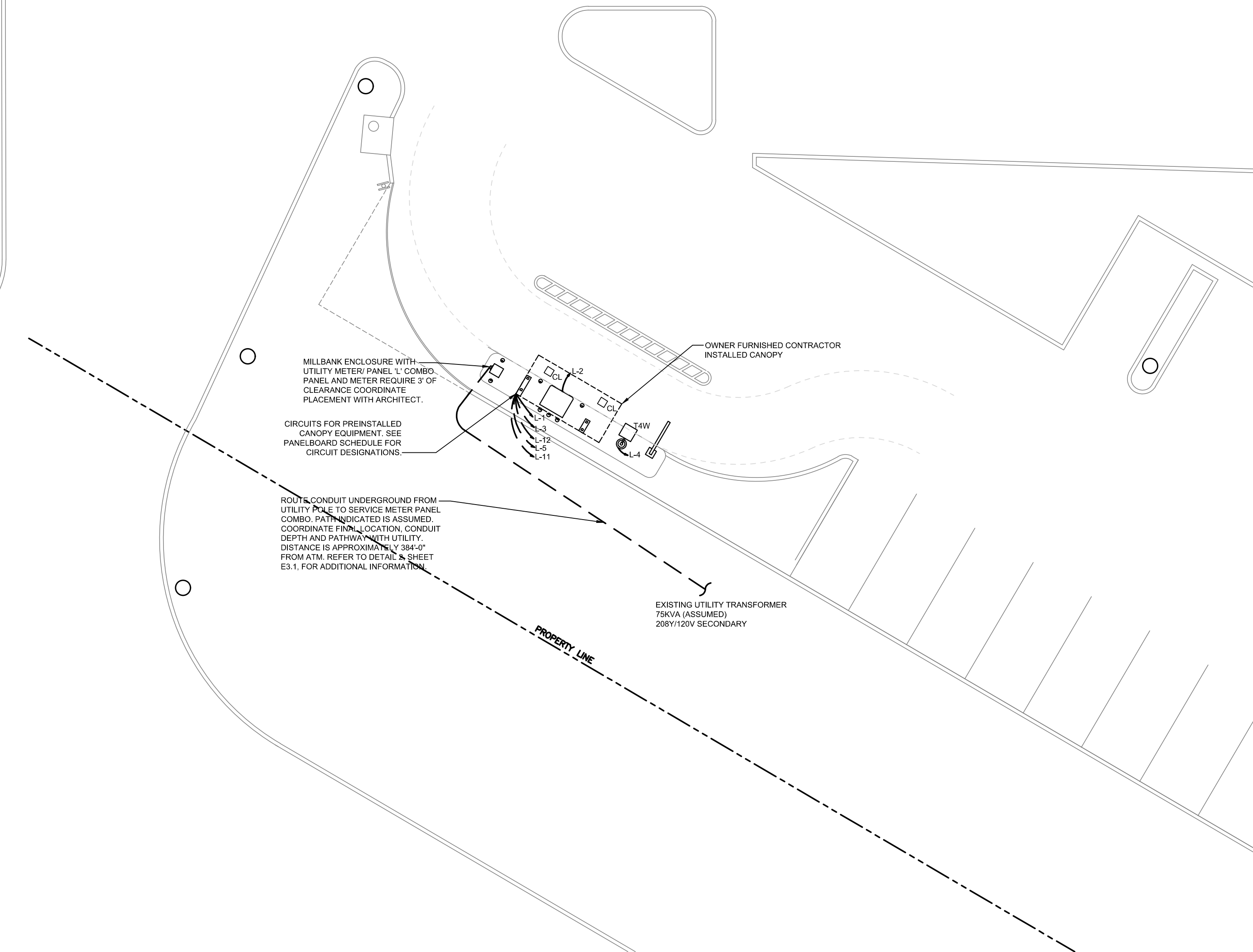
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SHEET NUMBER

E2.0

RMTA.BIZ

PANELBOARD: L (NEW)										REF FROM: "L" TRANSFORMER										LINE-30 DELUGS, MECHANICAL EQUIPMENT FOUND B.S.									
BUS AMP: 300										AC FACTS 8 23000 FULLY RATED																			
MAIN DISC/OPS: 100A/100										SERIES 47M																			
VOL. 15P/100: 200V/200, 3PH 1/1										VOLTAGE 15.5 KVA																			
SECTION 1										LOCATION V.L. 1/1, 1/1, 1/1, 1/1										SERVICE ENTRANCE RATED									
CAT NO.	DESCRIPTION	VOL. AMP. 3 PHASE			WIRE NO.	ERR AMP	P	ERR AMP	TYPE	V.L. 15P/100	DESCRIPTION			CAT NO.															
		A	B	C							A	E	C																
1	CANOPY LIFTING	84			2	20		30	1C	2 CC				1															
2	EXTENSION SWAGE		1200		2	20		12		2EC				2															
3	DISCONNECTS			800	2	20		20						3															
4	SPARE				2	20		20						4															
5	SPARE				2	20		20						5															
6	SPARE				2	20		20						6															
7	SPARE				2	20		20						7															
8	SPARE				2	20		20						8															
9	SPARE				2	20		20						9															
10	SPARE				2	20		20						10															
11	SPARE				2	20		20						11															
12	SPARE				2	20		20						12															
13	SPARE				2	20		20						13															
14	SPARE				2	20		20						14															
15	SPARE				2	20		20						15															
16	SPARE				2	20		20						16															
SUB-TOTAL		84		1200	1200				2 CC	2EC		4C		SUB-TOTAL															
TOTAL PHASE A VA 2084														LOAD	2000 VA	3F	LOAD	2000 VA	3F	TOTAL PHASE B VA 2084									
AMPS 12														LOAD	1000	3F	LOAD	1000	3F	TOTAL PHASE C VA 2084									
TOTAL PHASE A VA 1250														LOAD	6	3F	LOAD	6	3F	TOTAL PHASE D VA 1250									
AMPS 12														LOAD	334	3F	LOAD	334	3F	TOTAL PHASE E VA 1250									
TOTAL PHASE A VA 1600														LOAD	1000	3F	LOAD	1000	3F	TOTAL PHASE F VA 1600									
AMPS 12														LOAD	1000	3F	LOAD	1000	3F	TOTAL PHASE G VA 1600									
TOTAL PHASE A VA 3751														LOAD	1000	3F	LOAD	1000	3F	TOTAL PHASE H VA 3751									
AMPS 12														LOAD	1000	3F	LOAD	1000	3F	TOTAL PHASE I VA 3751									
PANELBOARD NOTES														RE-ROUTE CIRCUITRY W/IN CLOCK, BUSHING CONTACTOR															
														SEND DISPLAY - \$ 50.00 & DISPLAY CASE \$ 50.00															



UTILITY COMPANY: EVERGY (KCP&L)
UTILITY CONTACT: CONSTRUCTION HOTLINE
UTILITY PHONE NUMBER: 888-471-5275

FAULT CURRENT INFORMATION HAS NOT BEEN MADE AVAILABLE TO HENDERSON ENGINEERS, INC AT THIS TIME. FAULT CURRENT CALCULATIONS ARE AT THE SECONDARY OF AN ASSUMED 75KVA UTILITY TRANSFORMER, AN ASSUMED 1.5% IMPEDANCE, 208Y/120V, 3 PHASE, 13.879A FAULT CURRENT. CONTRACTOR TO VERIFY AVAILABLE FAULT CURRENT WITH UTILITY COMPANY AT THE SECONDARY SIDE OF THE TRANSFORMER AND REPORT FINDINGS TO ENGINEER IF FAULT CURRENT IS MORE THAN 13.879A.

Short-Circuit and Voltage Drop Calculations

Distances are for calculation purposes only and shall not be used by contractor to compute for bidding. Contractor shall notify Engineer of any field condition that results in a change of 10% or greater in road distance.

The following equations are based on the Pontby-Paint method where

$$ISC_{(2)} = ISC_{(1)} \times M_{(1)} \quad \text{for } 1/(1+f)$$

$ISC_{(1)} = \text{shortcircuit current at out point 1}$
 $ISC_{(2)} = \text{shortcircuit current at out point 2}$

Feeder $t_{(320)} = -7.32$ $p < 0.001$

Flecker: $f_{1st} = \sum x_{-} x_{1st}$

$$K_{FMR} = f_{301} \times P(sc4) \times V_p \times 1.73 \times \%$$

KFMR $t_{1,101} = P(sc_1) \times V_p \times \%Z$

$$\mathcal{B}_{\text{max}} = \bigvee p \times M \times IP_{sc}$$
 V_3

```
VOLTAGE DROP (E).
%VD=(R*cos(arccos(pf))+X*sin(arccos(pf)))/(L#*1.73)/
VOLTAGE DROP (I E).
%VD=(R*cos(arccos(pf))+X*sin(arccos(pf)))/(2*(L#*1)'E
```

R = reiserlein zinsper LF
 < = reiserlein zinsper LF

System Voltage 240/ 240V 1 phase																																	
Fault Fault #	Bus/FacordDescriptor	Source (fault Fort)	Phase	Source Inc (amp)	feeder					Conductor 'C' Value	Busbar 'C' Value	L-L Voltage (V)	Circuit Length (L)	Load Power Factor pf.	Circuit Load (Amperage)	Conductor			Transformer				f	n	Fault Current (amps)	Voltage Drop (%N.D.)	Cumulative Voltage Drop (%C.O.)	Fault Point (ft)					
					Circuit Type/DX	Material	Quantity of Faulted Set and Bus: Phase & Neutral Size	Resistance (F)	Reactance (X)							Access pf. (Ratiers)	Type	Degree Rse	k/A	Nw kMr Z	Esbng kMr Z	Sioconan Volags							Tip Seting				
1	Utility Service Point				T-890 with secondary voltage transformer																			Source Inc: 46.1kA Motor Contribution=				11059					
	Motor Contribution						30 The remote fed load motors (includes compressors) on this system																										
2	PANEL L"	1	3	140S	NM	C0	[Sets] if	3AwG	4811	--	2Y8	3B-	4.9	16	0.001210	3.00004'	0.441127							93.4	0.10	1359	-1.1%	-1.8%	2				

* THE INFORMATION SHOWN IN THE SHORT CIRCUIT AND VOLTAGE DROP CALCULATIONS SCHEDULE IS SHOWN FOR CALCULATION PURPOSES ONLY. CONTRACTOR SHALL NOT USE THE CONDUIT TYPES, CONDUCTOR TYPES, SIZES, QUANTITIES OR LENGTHS FOR TAKEOFFS OR BIDDING PURPOSES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THIS SCHEDULE AND OTHER PORTIONS OF THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL NOTIFY ENGINEER OF AS-BUILT CONDITIONS THAT CONSTITUTE A CHANGE FROM WHAT IS SHOWN BELOW: THIS INCLUDES CONDUCTOR LENGTHS DIFFERING BY MORE THAN 10%



Jun 24 2020



GOLDEN SANDS
GENERAL CONTRACTORS

RMTA

2000 SHAWNEE MISSION PARKWAY
STE 100 MISSION WOODS, KS 66205
TEL 816 502 1500 FAX 816 842 1878

**RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI**

07/07/2020

PROJECT

**BLUE PARKWAY
& JEFFERSON ST.
DRIVE-UP ATM**

276 SW BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64083

SHEET TITLE
SITE PLAN

PROJECT NUMBER
2019033 060

SHEET AUTHOR
SGC

CHECKED BY
HELQEV

10 20 30 40 50 60 70 80 90 100

JUNE 24, 2020

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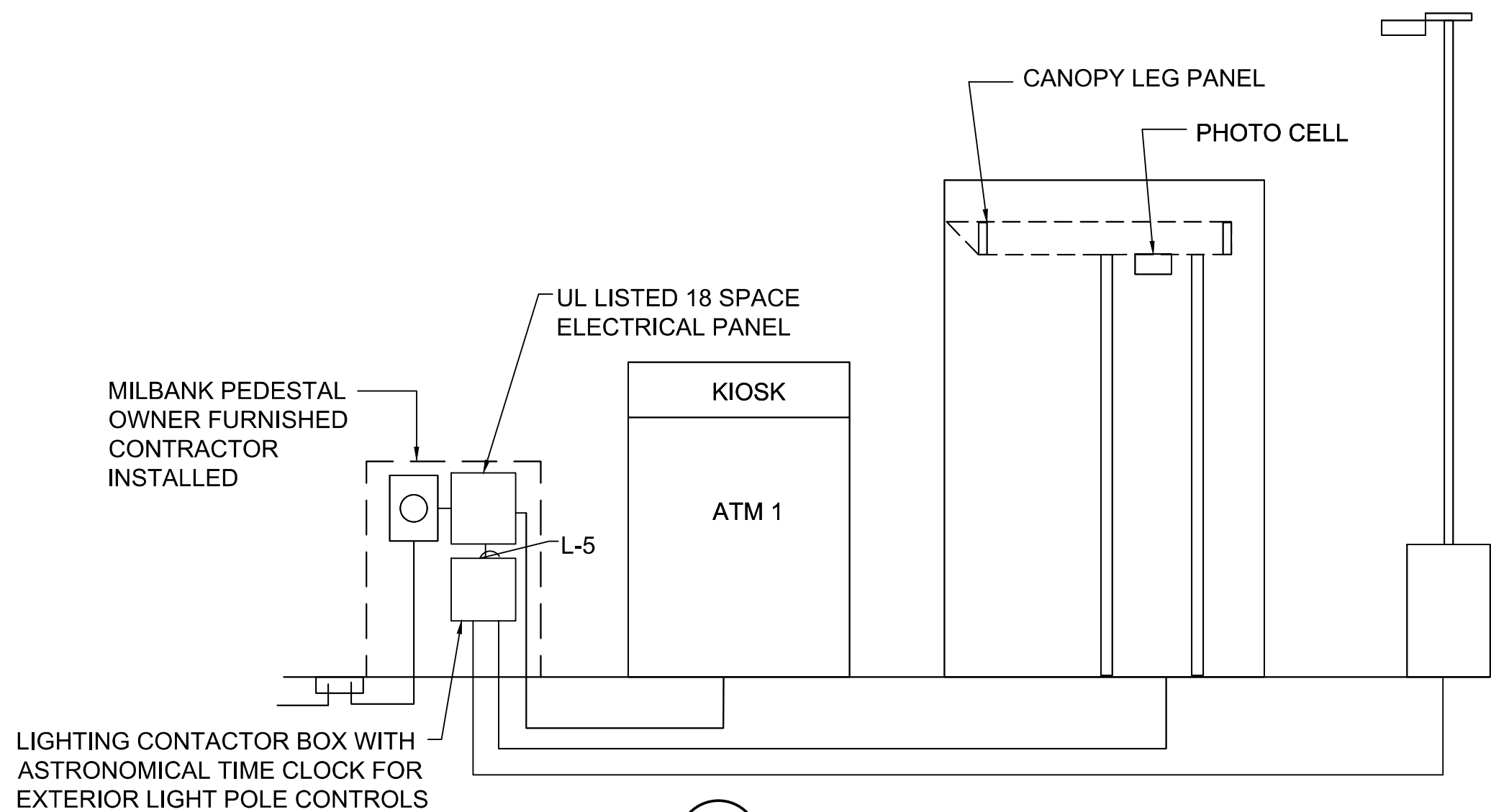
SHEET NUMBER

E'

E3.0

RM TA. BIZ

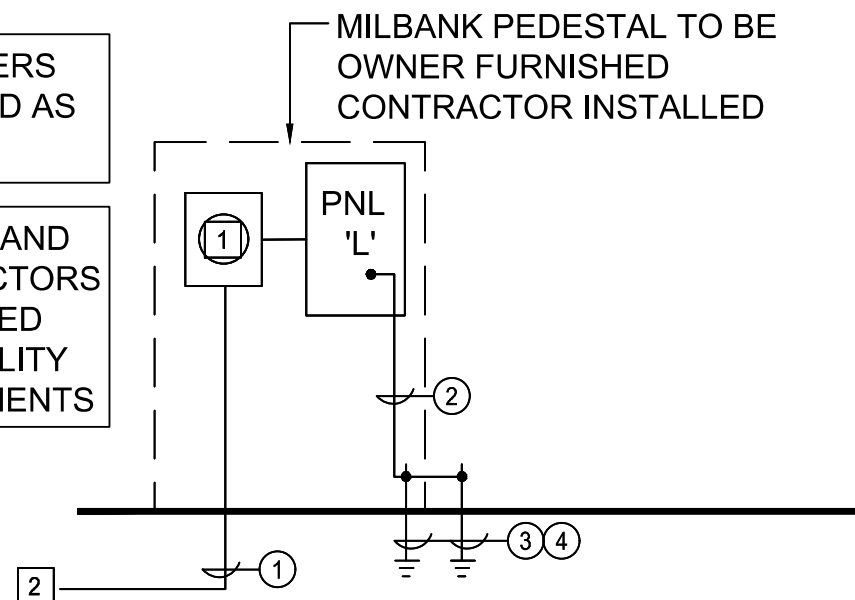
ANDRIA J. ODROWSKI



1 DRIVE-UP ATM ELEVATION
N.T.S.

ALL BONDING JUMPERS SHALL BE CONNECTED AS PER NEC 250-7

ACTUAL METERING AND SECONDARY CONDUCTORS SHALL BY PROVIDED ACCORDING TO UTILITY COMPANY REQUIREMENTS



2 RISER DIAGRAM
N.T.S.

RISER LEGEND

- NEW THWN CU WIRE IN NEW PVC SCH. 40 UNDERGROUND CONDUIT. SEE CHART BELOW.
- PROVIDE # 8 GROUND TO GROUND ROD IN MILBANK PEDESTAL.
- PROVIDE GROUND ROD PER MILBANK DRAWINGS.
- PROVIDE A CONCRETE-ENCASED ELECTRODE OF AT LEAST 20' FT OF #4 BARE COPPER CONDUCTOR AS PER NEC 250.52(3)(2).

HOT	NEUTRAL	GND.	CONDUIT
3-#3	1-#3	-	1-1/4"

DETAIL NOTES

- NEW ELECTRICAL METER TO BE INSTALLED UNDER THIS CONTRACT.
- TO POWER UTILITY COMPANY POINT OF CONNECTION. FIELD COORDINATION REQUIRED.

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66244
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
1950005844
MO. CORPORATE NUMBER: E-5568
12/31/20



Jun 24 2020

CHASE



GOLDEN SANDS
GENERAL CONTRACTORS

RMTA

2000 SHAWNEE MISSION PARKWAY
STE 100 MISSION WOODS, KS 66205
TEL 816 502 1500 FAX 816 842 1878

RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
07/07/2020

PROJECT
**BLUE PARKWAY
& JEFFERSON ST.
DRIVE-UP ATM**

276 SW BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

SHEET TITLE
RISER DIAGRAMS

PROJECT NUMBER
2019033.060
SHEET AUTHOR
SGC
CHECKED BY
HEI QEV

DATE
JUNE 24, 2020

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RMTA.BIZ

