CONSTRUCTION PLANS - ISSUED SEPTEMBER 14, 2018

PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

COLES COUNTY MEMORIAL AIRPORT (MTO)
MATTOON-CHARLESTON, COLES COUNTY, ILLINOIS

IDA PROJECT NO. MTO-4679 SBG PROJECT NO. 3-17-SBGP-TBD

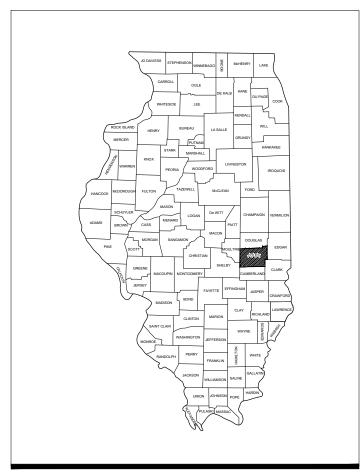
SCOPE OF WORK:

THIS PROJECT CONSIST OF REMOVING AND REPLACING THE MEDIUM INTENSITY TAXIWAY LIGHTING SYSTEMS ON TAXIWAY A EAST OF THE APRON, TAXIWAY C, TAXIWAY D AND THE CONNECTING TAXIWAYS WITH THE ASSOCIATED CABLING, DUCT WORK, HANDHOLES, MANHOLES, AND VAULT WORK. THIS PROJECT WILL ALSO INCLUDE NEW L-806(L) SUPPLEMENTAL LIGHTED WIND CONES WITH THE ASSOCIATED CABLING AND DUCT WORK.

COLES COUNTY MEMORIAL

Allehyille Cooks Mills Mill

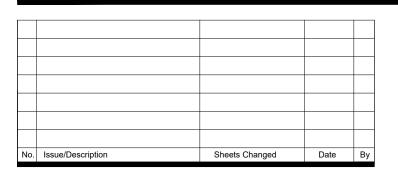
VICINITY MAP

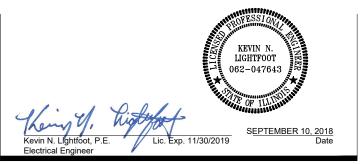


LOCATION MAP

NOTICE TO CONTRACTORS AND BIDDERS

THESE CONSTRUCTION PLANS RELY UPON THE SPECIAL PROVISIONS AND THE SPECIFICATIONS TO PROVIDE FOR A COMPLETE DESCRIPTION OF THE WORK AND CONSTRUCTION REQUIREMENTS. THE PLANS SHALL ONLY BE USED IN COMBINATION WITH ALL CONTRACT DOCUMENTS.









SUMMARY OF QUANTITIES - BASE BID							
ITEM NO.	DESCRIPTION	"TOTAL QUANTITY"	UNIT				
AR107508	L-806 WC 8' INTERNALLY LIT	2	EACH				
AR108108	1/C #8 5KV UG CABLE	16,683	L.F.				
AR108158	1/C #8 5KV UG CABLE IN UD	22,475	L.F.				
AR109200	INSTALL ELECTRICAL EQUIPMENT	1	L. S.				
AR110012	2" DIRECTIONAL BORE	710	L.F.				
AR110013	3" DIRECTIONAL BORE	1,110	L.F.				
AR110202	2" PVC DUCT, DIRECT BURY	4,053	L.F.				
AR110203	3" PVC DUCT, DIRECT BURY	960	L.F				
AR115610	ELECTRICAL HANDHOLE	6	EACH				
AR125410	MITL-STAKE MOUNTED	156	EACH				
AR125415	MITL-BASE MOUNTED	105	EACH				
AR125565	SPLICE CAN	3	EACH				
AR150510	ENGINEER'S FIELD OFFICE	1	L.S.				
AR150520	MOBILIZATION	1	L.S.				
AR800476	REMOVE AIRFIELD LIGHTING	1	L. S.				
AR800545	MITL-BASE MOUNTED SIZE D	16	EACH				

	INDEX TO SHEETS
Sheet Number	Sheet Title
1	COVER SHEET
2	SUMMARY OF QUANTITIES AND INDEX OF SHEETS
3	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 1
4	CONSTRUCTION SAFETY AND PHASING PLAN - PHASE 2
5	CONSTRUCTION SAFETY AND PHASING DETAILS AND NOTES
6	KEY PLAN SHEET 1
7	KEY PLAN SHEET 2
8	EXISTING AIRFIELD LIGHTING PLAN SHEET 1
9	EXISTING AIRFIELD LIGHTING PLAN SHEET 2
10	EXISTING AIRFIELD LIGHTING PLAN SHEET 3
11	EXISTING AIRFIELD LIGHTING PLAN SHEET 4
12	EXISTING AIRFIELD LIGHTING PLAN SHEET 5
13	EXISTING AIRFIELD LIGHTING PLAN SHEET 6
14	EXISTING AIRFIELD LIGHTING PLAN SHEET 7
15	EXISTING AIRFIELD LIGHTING PLAN SHEET 8
16	EXISTING AIRFIELD LIGHTING PLAN SHEET 9
17	AIRFIELD LIGHTING NOTES
18	PROPOSED AIRFIELD LIGHTING PLAN SHEET 1
19	PROPOSED AIRFIELD LIGHTING PLAN SHEET 2
20	PROPOSED AIRFIELD LIGHTING PLAN SHEET 3
21	PROPOSED AIRFIELD LIGHTING PLAN SHEET 4
22	PROPOSED AIRFIELD LIGHTING PLAN SHEET 5
23	PROPOSED AIRFIELD LIGHTING PLAN SHEET 6
24	PROPOSED AIRFIELD LIGHTING PLAN SHEET 7
25	PROPOSED AIRFIELD LIGHTING PLAN SHEET 8
26	PROPOSED AIRFIELD LIGHTING PLAN SHEET 9
27	RADIUS DETAIL SHEET 1
28	RADIUS DETAIL SHEET 2
29	RADIUS DETAIL SHEET 3
30	RADIUS DETAIL SHEET 4
31	LIGHT LOCATION TABLE - TAXIWAY CIRCUIT A-EAST
32	LIGHT LOCATION TABLE - TAXIWAY CIRCUITS C-NORTH AND C-SOUTH
33	LIGHT LOCATION TABLE - TAXIWAY CIRCUIT D
34	AIRFIELD LIGHTING DETAILS SHEET 1
35	AIRFIELD LIGHTING DETAILS SHEET 2
36	L-806 WIND CONE DETAILS
37	AIRFIELD LIGHTING CABLE SPLICE DETAILS
38	CONDUIT AND CABLE TRENCH DETAILS
39	CABLE AND DUCT MARKER DETAILS
40	ELECTRICAL HANDHOLE AND SPLICE CAN DETAILS
41	DUCT BANK INSTALLATION NOTES
42	ELECTRICAL NOTES SHEET 1
43	ELECTRICAL NOTES SHEET 2
44	GROUND RESISTANCE TESTING DETAILS
45	GROUNDING DETAILS
46	GROUNDING NOTES
47	ELECTRICAL LEGEND AND ABBREVIATIONS
48	EXISTING FLOOR PLAN FOR VAULT
49	NEW FLOOR PLAN FOR VAULT
50	VAULT LIGHTING PLAN
51	EXISTING ELECTRICAL ONE LINE DIAGRAM FOR VAULT
52	EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAYS
53	EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR TWY CKTS 1, 3, 3A & 5
54	EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR TWY CKTS 2, 6, & 7
55	PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR TWY CKTS 1,3,3A,&5
56	PROPOSED ELECTRICAL ONE-LINE FOR HEATERS & EXHAUST FANS
57	EXHAUST FAN WIRING SCHEMATICS
57	LAHAGGI I AN WINING SCHEWATICS



Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT

AUTHORITY

COLES CONTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

NO.	DATE	DES	CRIPT	ION
NO.	ואל	DES	DWN	REV
ISSUE: SEPTEMBER 14, 2018				
PROJEC	T NO: 1	84001	4D	

PROJECT NO: 18A0014D

CAD FILE: G-002-SQ.DWG

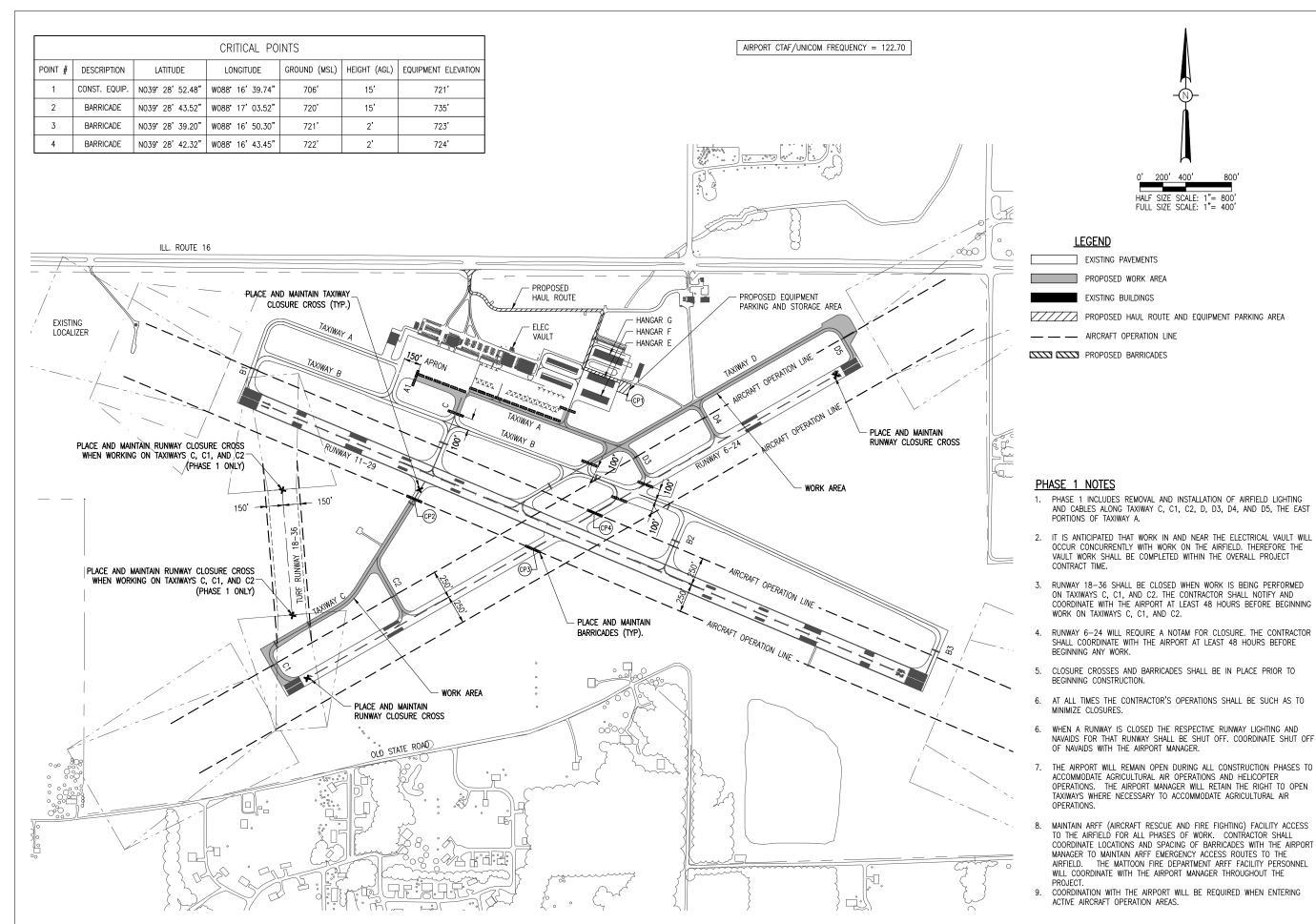
DESIGN BY: KNL 08/04/2018

DRAWN BY: MJD 08/05/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

SUMMARY OF QUANTITIES AND INDEX OF SHEETS





HALF SIZE SCALE: 1"= 800 FULL SIZE SCALE: 1"= 400

EXISTING PAVEMENTS PROPOSED WORK AREA

EXISTING BUILDINGS

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING **RUNWAY 6-24**

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

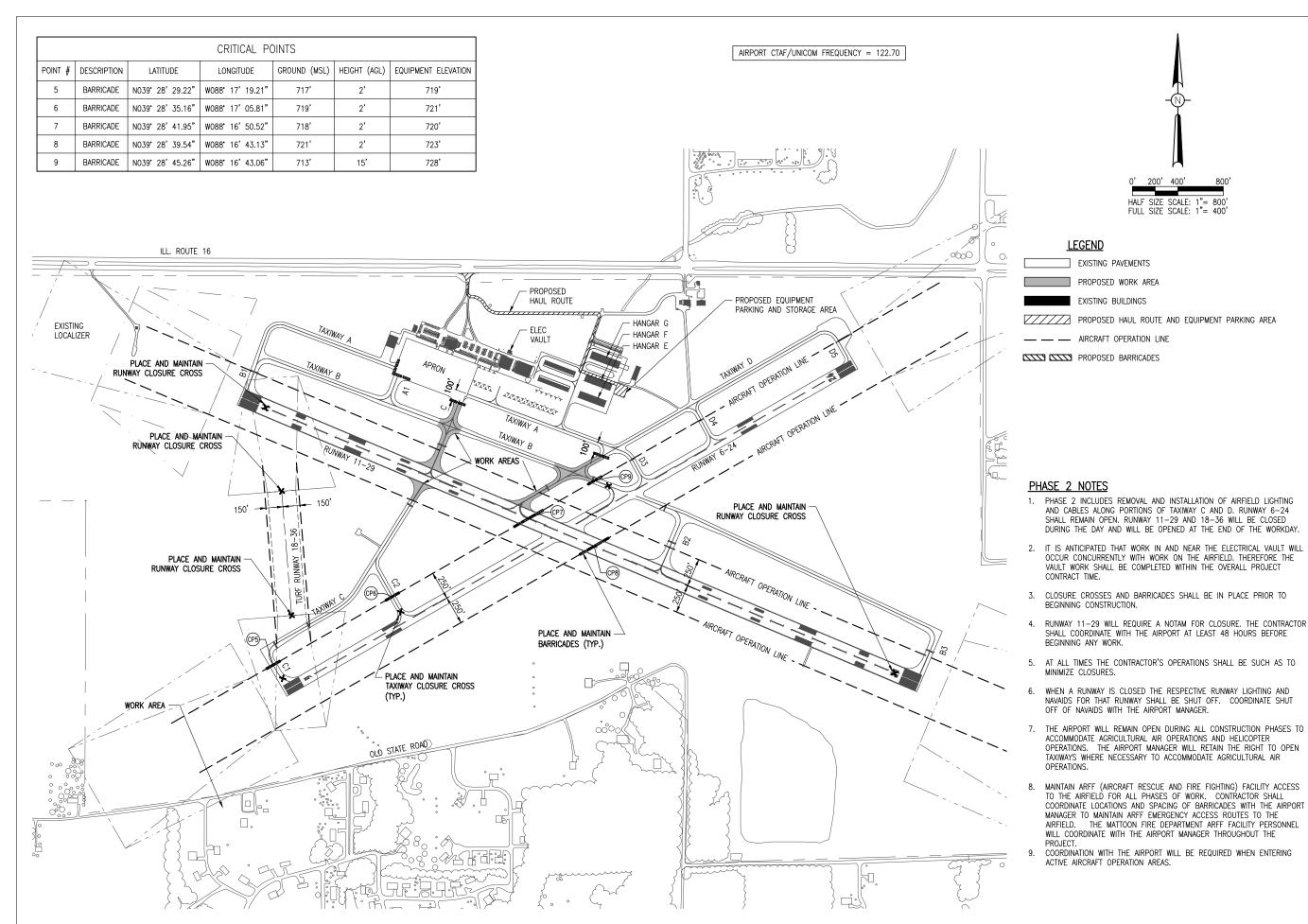
Contract No. CO065

DESCRIPTION NO. DATE DES DWN REV ISSUE: SEPTEMBER 14, 2018

PROJECT NO: 18A0014D CAD FILE: G-101-SFY.DWG DESIGN BY: MJD 07/11/2018 DRAWN BY: MJD 07/13/2018 REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

CONSTRUCTION SAFETY AND PHASING PLAN -PHASE 1





HALF SIZE SCALE: 1"= 800 FULL SIZE SCALE: 1"= 400

THE MATTOON FIRE DEPARTMENT ARFF FACILITY PERSONNEL

EXISTING PAVEMENTS PROPOSED WORK AREA

EXISTING BUILDINGS

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING **RUNWAY 6-24**

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

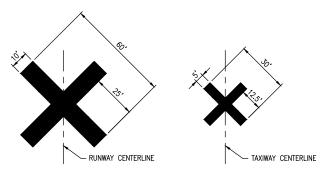
Contract No. CO065

DESCRIPTION NO. DATE DES DWN REV ISSUE: SEPTEMBER 14, 2018 PROJECT NO: 18A0014D

CAD FILE: G-101-SFY.DWG DESIGN BY: MJD 07/11/2018 DRAWN BY: MJD 07/13/2018 REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

CONSTRUCTION SAFETY AND PHASING PLAN -PHASE 2



- TEMPORARY "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL BE "AVIATION YELLOW"
- TEMPORARY "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL BE CONSTRUCTED OF PLYWOOD, DOUBLE-LAYERED SNOW FENCE OR APPROVED FABRIC AND SHALL BE SECURED TO PAVEMENT BY SANDBAGS OR OTHER APPROVED METHOD
- TEMPORARY "CLOSED RUNWAY" MARKINGS SHALL BE PLACED OVER THE RUNWAY DESIGNATION NUMBERS UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER/TECHNICIAN.
- 4. "CLOSED RUNWAY" AND "CLOSED TAXIWAY" MARKINGS SHALL NOT BE A PAY ITEM AND SHALL BE INCIDENTAL TO OTHER CONTRACT BID ITEMS.

TEMPORARY CLOSURE CROSS DETAIL

BARRICADE NOTES

- ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE ILLINOIS SUPPLEMENT (LATEST EDITION) AND THE FAA ADVISORY CIRCULARS (LATEST EDITION) UNLESS NOTED OTHERWISE. THE FAA OR MORE STRINGENT SPECIFICATIONS SHALL GOVERN.
- BARRICADES SHALL BE SPACED END TO END THE WIDTH OF THE PAVEMENT IN 10' INCREMENTS. BARRICADES ARE TO BE SET BACK 93' FROM THE ACTIVE TAXIWAY CENTERLINE OR AS SHOWN ON THE PLANS.
- CONSTRUCTION RED WARNING LIGHT: THESE ARE PORTABLE, LENS DIRECTED, ENCLOSED LIGHTS. THE COLOR OF THE LIGHT EMITTED SHALL BE RED. THEY MAY BE USED IN EITHER A STEADY BURN (TYPE C) OR LOW INTENSITY FLASHING MODE (TYPE A) UNLESS NOTED OTHERWISE.
- 4. THE LIGHTING SHALL BE MAINTAINED IN OPERATION DURING THE HOURS OF DARKNESS BETWEEN 1/2 HOUR BEFORE SUNSET AND 1/2 HOUR AFTER SUNRISE AND WHEN CONDITIONS EXIST WHICH TEND TO OBSCURE VISION.
- BARRICADES SHALL BE SECURED TO THE GROUND BY APPROVED METHODS TO PREVENT MOVEMENT BY PROP WASH, JET BLAST OR OTHER WIND CURRENTS.
- THE ONLY COLOR COMBINATION ON BARRICADES IS ORANGE AND WHITE. THE ORANGE STRIPES SHALL BE ENCAPSULATED LENS REFLECTIVE SHEETING. THE WHITE STRIPES SHALL BE EITHER ENCAPSULATED OR ENCLOSED LENS REFLECTIVE SHEETING AND MUST BE IN ACCEPTABLE CONDITION.
- 7. COST FOR PROVIDING, PLACING, MAINTAINING, AND REMOVING BARRICADES SHALL BE INCLUDED IN THE COST OF THE OTHER CONTRACT ITEMS.

SAFETY NOTES

- THE FOLLOWING NOTES ARE THE CONSTRUCTION SAFETY PROCEDURES THAT THE CONTRACTOR SHALL FOLLOW THROUGHOUT
 THIS PROJECT. ADDITIONAL REQUIREMENTS ARE SHOWN ON THE CONSTRUCTION SAFETY AND PHASING PLAN SHEETS.
- ALL PROVISIONS OF THE LATEST EDITION OF FAA ADVISORY CIRCULAR AC 150/5370-2 (CURRENT EDITION), "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION," APPLY TO THIS CONTRACT EXCEPT AS MODIFIED BY THIS SAFETY PLAN, OR AS MODIFIED BY THE OWNER THROUGH THE RESIDENT ENGINEER/TECHNICIAN AT THE PRE-CONSTRUCTION CONFERENCE, OR DURING THE COURSE OF THE CONTRACT.
- THE CONTRACTORS SHALL MINIMIZE DISRUPTION OF STANDARD OPERATING PROCEDURES FOR AERONAUTICAL ACTIVITY BY REMAINING WITHIN THE PRESCRIBED STAGING, CONSTRUCTION, AND PHASING AREAS PRESENTED ON THE CONSTRUCTION SAFETY AND PHASING PLAN SHEETS.
- 4. NO UNAUTHORIZED PERSONNEL SHALL ENTER ANY AREA OF THE AIRPORT THAT COULD POTENTIALLY BE HAZARDOUS. THE AIRPORT MANAGER RESERVES THE RIGHT TO SUSPEND OPERATIONS IN ORDER TO MAINTAIN SAFETY AT THE AIRPORT.
- CONTRACTOR EQUIPMENT, VEHICLES, AND PROJECT MATERIALS SHALL BE STORED AT THE STAGING AREA SHOWN ON THE PLAN VIEW, EXCEPT AS OTHERWISE PROVIDED FOR AT THE PRECONSTRUCTION CONFERENCE.
- 6. ALL CONSTRUCTION EQUIPMENT OPERATING IN THE PRESCRIBED CONSTRUCTION AREA IS REQUIRED TO DISPLAY A CHECKERBOARD FLAG PROPERLY LOCATED OR A ROTATING BEACON (STROBE) AS SPECIFIED IN AC 150/5210-5, "PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT" LATEST EDITION.
- 7. NO CONSTRUCTION MATERIAL STOCKPILES SHALL BE LOCATED WITHIN 250' OF ANY ACTIVE RUNWAY, WITHIN 93' OF ANY OTHER ACTIVE AIRPORT OPERATIONS AREA, OR PENETRATE A PART 77 IMAGINARY SURFACE (PROVIDED BY THE RESIDENT ENGINEER/TECHNICIAN) EXTENDING OUT AND UPWARDS FROM ALL SIDES OF AN ACTIVE RUNWAY.
- 8. CLOSED AIRFIELD PHASING AREAS, OPEN TRENCHES, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED WITH LIGHTED BARRICADES WITH STEADY BURNING OR FLASHING RED LIGHTS AS SPECIFIED IN 150/5370-2, "OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION, LATEST EDITION. LIGHTED BARRICADES MUST BE NO TALLER THAN 18" (EXCLUSIVE OF SUPPLEMENTARY LIGHTS AND FLAGS) ON THE TAXIWAYS AND COMPLY WITH ADVISORY CIRCULAR 150/5370-2, LATEST EDITION. CONTRACTOR SHALL NIGHT CHECK BARRICADES DAILY FOR PROPER OPERATION.
- O. NO OPEN TRENCHES WITHIN 250' OF AN ACTIVE RUNWAY CENTERLINE OR WITHIN 93' OF ANY AIRPORT OPERATIONS AREA WILL BE PERMITTED UNLESS PROPERLY MARKED. OTHER TRENCHES SHALL BE MAINTAINED SAFE, I.E., BARRICADED OR COVERED WITH STEEL PLATES IN ALL OTHER AREAS.
- 10. OPEN TRENCHES, EXCAVATIONS, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHOULD BE PROMINENTLY
 MARKED WITH ORANGE FLAGS AND LIGHTED WITH FLASHING RED LIGHTS DURING HOURS OF RESTRICTED VISIBILITY AND/OR
 DARKNESS
- 11. NO CONSTRUCTION EQUIPMENT GREATER THAN 25' TALL WILL BE PERMITTED ON THE AIRPORT. HOWEVER, OTHER EQUIPMENT TALLER THAN 25' MAY BE PERMITTED WITH THE APPROVAL OF THE AIRPORT MANAGER AND AIRSPACE APPROVAL BY THE FAA. THE TALLEST ANTICIPATED EQUIPMENT WILL BE A LINE TRUCK, CONCRETE TRUCK, AND/OR A DUMP TRUCK.
- 12. NO OPEN FLAME WELDING OR TORCH CUTTING OPERATION IS PERMITTED UNLESS ADEQUATE FIRE AND SAFETY PRECAUTIONS ARE PROVIDED AND HAVE BEEN APPROVED BY THE AIRPORT MANAGER NO FLARE POTS ARE ALLOWED ON THE PROJECT.
- 13. SOIL, DEBRIS, AND LOOSE MATERIAL DROPPED OR TRUCKED ONTO AIRPORT ROADS, TAXIWAYS, AND SOD SURFACES, OR WHICH CAN BE BLOWN ONTO SUCH SURFACES, SHALL BE IMMEDIATELY SWEPT, PICKED UP AND REMOVED, OR PLACED INTO CLOSED CONTAINERS. ANY DAMAGE TO AIRPORT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT NO COST TO THE OWNER.
- 14. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING AIRPORT LIGHTING AND NAVIGATIONAL ELECTRICAL SYSTEMS DURING CONSTRUCTION. A CONTACT PERSON AND TELEPHONE NUMBER FOR 24 HOUR EMERGENCY IMMEDIATE REPAIR SHALL BE SUBMITTED TO THE AIRPORT MANAGER AND RESIDENT ENGINEER/TECHNICIAN. HAUL ROUTES CROSSING PAVEMENT, DRAINAGE, MISCELLANEOUS. STRUCTURES AND/OR AIRFIELD CABLES SHALL BE PROTECTED FROM DAMAGE.
- 15. ALL AIRCRAFT AND AIRPORT OPERATIONS HAVE THE RIGHT-OF-WAY. CONTRACTOR TO YIELD TO VEHICLES AND REMAIN CLEAR AT ALL TIMES.
- 16. CONTRACTOR SHALL PLACE, SECURE, AND MAINTAIN LIGHTED BARRICADES AND CLOSURE CROSSES WHEN A RUNWAY/TAXIWAY/APRON IS CLOSED OR AS REQUIRED BY THE PLANS AND DESIGNATED BY THE RESIDENT FINGINEER/TECHNICIAN
- 17. CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED LIGHTS DURING PERIODS OF LOW VISIBILITY AS REGULARD.
- 18. THE CONTRACTOR SHALL PERIODICALLY PERFORM ONSITE INSPECTIONS THROUGHOUT THE DURATION OF THE PROJECT WITH THE IMMEDIATE REMEDY OF ANY DIFFERENCES, WHETHER CAUSED BY NEGLIGENCE, OVERSIGHT, OR PROJECT SCOPE CHANGE.
- 19. CONTRACTOR SHALL MOVE MAINTENANCE OF TRAFFIC COMPONENTS AT THE WRITTEN DIRECTION OF THE RESIDENT ENGINEER/TECHNICIAN AT NO ADDITIONAL COST.
- 20. CONTRACTOR SHALL NOT REMOVE THE BARRICADES WITHOUT THE APPROVAL BY THE RESIDENT ENGINEER/TECHNICIAN.
- 21. CONTRACTOR SHALL MAINTAIN FLASHERS, SIGNS AND/OR BARRICADES AS REQUIRED BY THE PLANS, CITY OR COUNTY REGULATIONS OR CONTRACTOR ACTIVITIES. CONTRACTOR SHALL OBTAIN ANY AND ALL REQUIRED LOCAL PERMITS UNLESS SPECIFIED OTHERWISE.
- 22. THE CONTRACTOR SHALL UTILIZE WATER AND/OR CHEMICALS APPROVED BY THE RESIDENT ENGINEER/TECHNICIAN AS NECESSARY TO CONTROL DUST.
- 23. NO CONSTRUCTION VEHICLES SHALL BE DRIVEN ACROSS ANY ACTIVE RUNWAY, INCLUDING TURF RUNWAYS. CONSTRUCTION EQUIPMENT OR CONSTRUCTION ACTIVITY WILL NOT BE PERMITTED WITHIN 250' OF ANY ACTIVE RUNWAY CENTERLINE OR WITHIN 93' OF ANY OTHER ACTIVE AIRPORT TAXIWAY OR APRON. HOWEVER, CONSTRUCTION MAY BE PERMITTED IN THESE AREAS IF THE CONTRACTOR HAS GAINED APPROVAL FROM THE AIRPORT MANAGER AT LEAST 7 DAYS IN ADVANCE OF THE SCHEDULED CONSTRUCTION PERIOD AND THE OPERATIONAL AREA IS CLOSED TO TRAFFIC AND PROPER NOTAMS ARE ISSUED BY THE AIRPORT MANAGER TO THE APPROPRIATE FLIGHT SERVICE STATION.
- 24. UNLESS SPECIFIED OTHERWISE, COST FOR THE ABOVE IS TO BE CONSIDERED INCIDENTAL TO THE PROJECT. SEPARATE PAYMENT SHALL NOT BE MADE.

HANSON Engineering | Planning | Alfed Services

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

AUTHORITY
COLES COUNTY AIRPORT
COLES COUNTY MEMORIAL AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

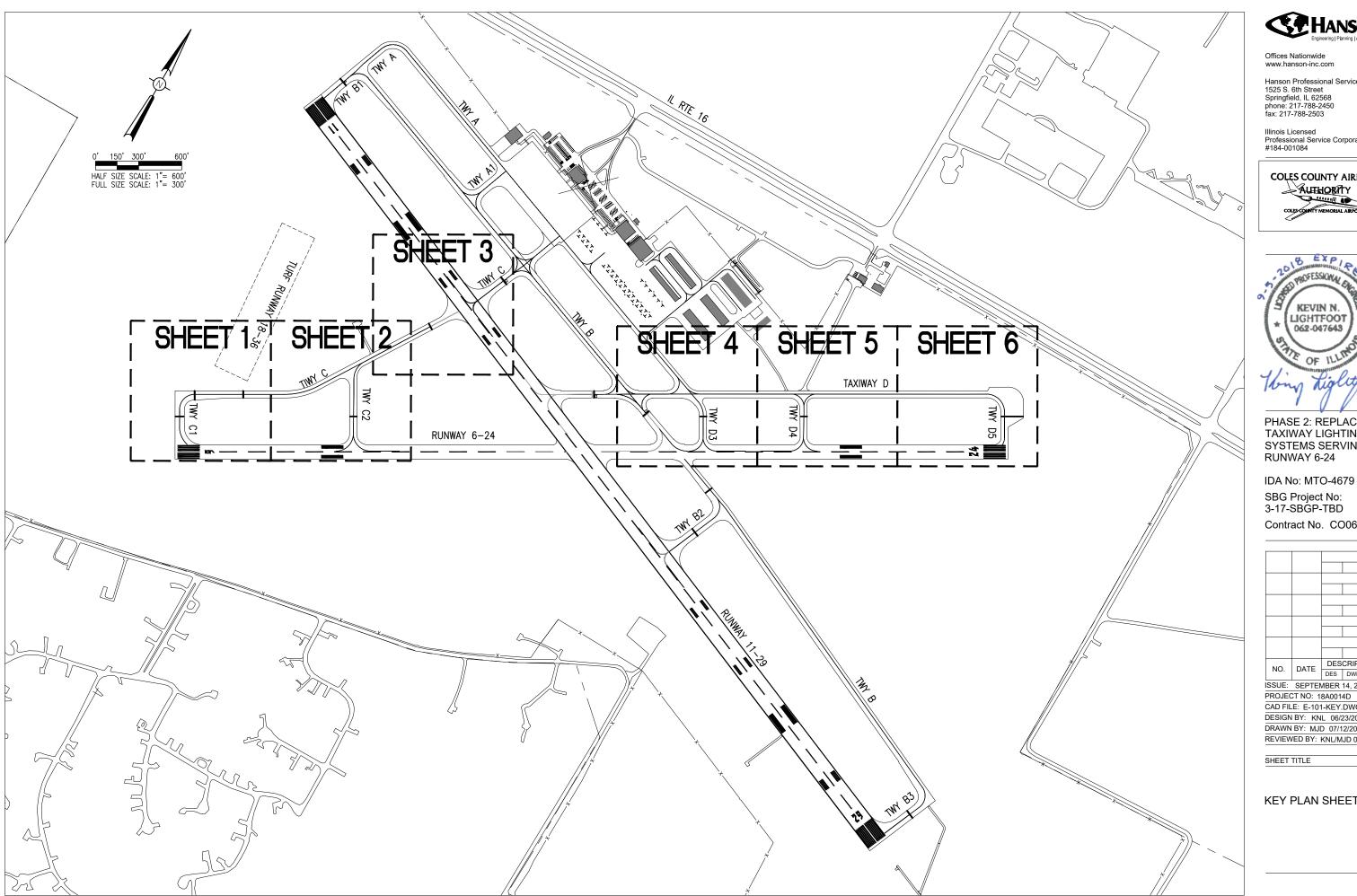
Contract No. CO065

NO.	DATE	DESCRIPTION			
INO.	DATE	DES	DWN	REV	
ISSUE: SEPTEMBER 14, 2018					
PROJEC	T NO: 1	8A001	4D		

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

CONSTRUCTION SAFETY AND PHASING DETAILS AND NOTES





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY

COLES COUNTY MEMORIAL AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

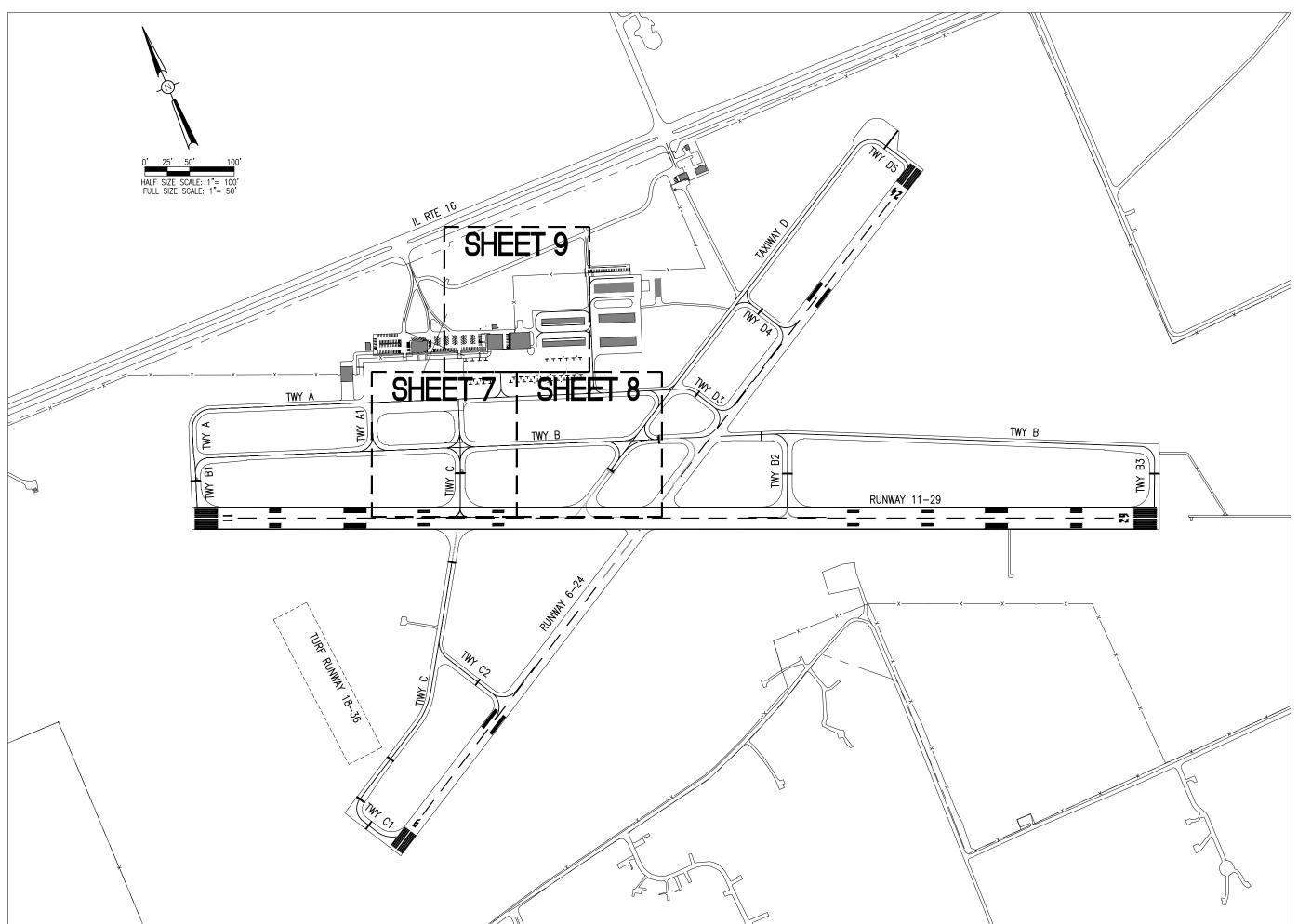
Contract No. CO065



CAD FILE: E-101-KEY.DWG DESIGN BY: KNL 06/23/2018 DRAWN BY: MJD 07/12/2018 REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

KEY PLAN SHEET 1





Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY

COLES COUNTY MEMORIAL AIRPORT

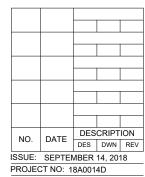


PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065



CAD FILE: E-101-KEY.DWG DESIGN BY: KNL 06/23/2018 DRAWN BY: MJD 07/12/2018 REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

KEY PLAN SHEET 2

AIRFIELD LIGHTING REMOVAL NOTES

- 1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT DIRECTOR/MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFÉTY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- 2. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. BASED ON RECORD DRAWINGS. EXISTING TAXIWAY LIGHT FIXTURES ON TAXIWAY A AND TAXIWAY C APPEAR TO HAVE BEEN INSTALLED IN 1982 AND EXISTING TAXIWAY LIGHT FIXTURES ON TAXIWAY D APPEAR TO HAVE BEEN INSTALLED IN 1981 AND 1990. SOME FIXTURES ARE MISSING AND MIGHT HAVE A STAKE, BASE, AND/OR TRANSFORMER REMAINING. EXISTING STAKE MOUNT FIXTURES HAVE CONCRETE BASES. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, WORKING ON, OR CONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT, OR OTHER DEVICE.
- 3. THE EXISTING TAXIWAY EDGE LIGHTS LOCATED ON THE TAXIWAY B AND TAXIWAY A-WEST SHALL REMAIN IN PLACE.
- 4. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2G (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
- 5. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E -STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
- 6. THE EXISTING AIRFIELD LIGHTS, THEIR ISOLATION TRANSFORMERS, MOUNTING STAKES, CONCRETE BASES, AND LIGHT BASES DESIGNATED FOR REMOVAL SHALL BE REMOVED AND DISPOSED OF, OFF THE AIRPORT SITE IN A LEGAL MANNER. REMOVAL OF THE EXISTING AIRFIELD LIGHTS WILL BE PAID FOR UNDER ITEM AR800476 REMOVE AIRFIELD LIGHTING
- 7. EXISTING SPLICE CANS, HANDHOLES AND/OR MANHOLES DESIGNATED FOR REMOVAL SHALL BE REMOVED AND DISPOSED OF OFF THE AIRPORT SITE IN A LEGAL MANNER. REMOVAL OF SPLICE CANS, HANDHOLES AND/OR MANHOLES WILL BE PAID FOR UNDER ITEM AR800476 REMOVE AIRFIELD LIGHTING PER LUMP SUM.

EXISTING RWY 6 REIL 240VAC FEEDER CKT; 3-1/C

#4 XLP-USE 600V CABLE IN UNIT DUCT

EXISTING 3" DUCT - 90 L.F. -

- 8. THE EXISTING TAXI GUIDANCE SIGNS, SHALL REMAIN IN PLACE. TAXI GUIDANCE SIGNS ON CIRCUITS SCHEDULED FOR REMOVAL AND/OR REPLACEMENT SHALL BE ÆCONNECTED TO THE RESPECTIVE NEW CIRCUIT
- 9. THE EXISTING AIRFIELD LIGHTING CABLES ASSOCIATED WITH AIRFIELD LIGHTING REMOVALS SHALL BE ABANDONED IN PLACE UNLESS IT CONFLICTS WITH THE /INSTALLATION OF A PROPOSED LIGHT OR CABLE, PAVEMENT, OR OTHER WORK, THEN/IT SHALL BE REMOVED AND DISPOSED OF OFF SITE AT NO ADDITIONAL COST TO THE CONTRACT. CONTRACTOR MAY REMOVE ABANDONED CABLES AT NO ADDITIONAL COST TO/THE CONTRACT AND SHALL HAVE THE SALVAGE RIGHTS TO ABANDONED CABLES.
- 10. ALL ABOVEGROUND JUMPERS SHALL BE IN A DUCT WITH ALL CONNECTIONS SEALED. THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT, OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA AC 150/5370-2G, OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION, SECTION 2.18.3 "LIGHTING AND VISUAL NAVAIDS."
- 11. THE CONTRACTOR IS REQUIRED TO FILL IN ALL HOLES AND DEPRESSIONS RESULTING FROM THE LIGHT, AND/OR BASE REMOVAL WITH EARTH MATERIAL. THE AREAS SHALL BE COMPACTED TO PREVENT FUTURE SETTLEMENT AND FERTILIZED, SEEDED, AND MULCHED IN ACCORDANCE WITH ITEMS 901 AND 908 RESPECTIVELY.

3

RUMMAY

T1-TGS2 IS CONNECTED

TO TWY CKT 1

- EXISTING VASI FEEDER CKT

- EXISTING RWY 6-24 LTG CKT

__ o_R

OR SP A

TAXIWAY C

- FXISTING TAXIWAY

LIGHTING CKT 1

 \longrightarrow STM \longrightarrow STM \longrightarrow STM \longrightarrow

- EXISTING VASI

 \Box

RUNWAY 6-24

- 12. WHEN A RESPECTIVE RUNWAY IS CLOSED THE NAVAIDS FOR THAT RUNWAY SHALL BE SHUT
- 13. CONTRACTOR SHALL CONFIRM RESPECTIVE LIGHTS TO BE REMOVED WITH RESIDENT ENGINEER/RESIDENT TECHNICIAN PRIOR/TO REMOVAL.

R2-TGS8 IS CONNECTED

TO RWY 6-24 LTG CKT

T1-TGS1 IS CONNECTED

TO TWY CKT 1

EXISTING TAXIWAY FDGE

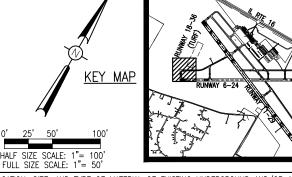
LIGHT TO BE REMOVED

R2-TGS9 IS CONNECTED TO RWY 6-24 LTG CKT

1'A R2

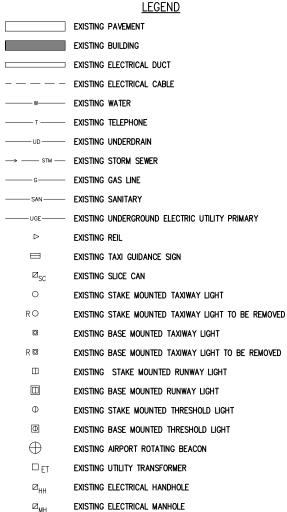
AXI

14.NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT SHALL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH THE ABOVE NOTE 1.



THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAIN'S AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.

ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER. CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.



EXISTING CLEAN-OUT



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084





PHASE 2: REPLACE **TAXIWAY LIGHTING** SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

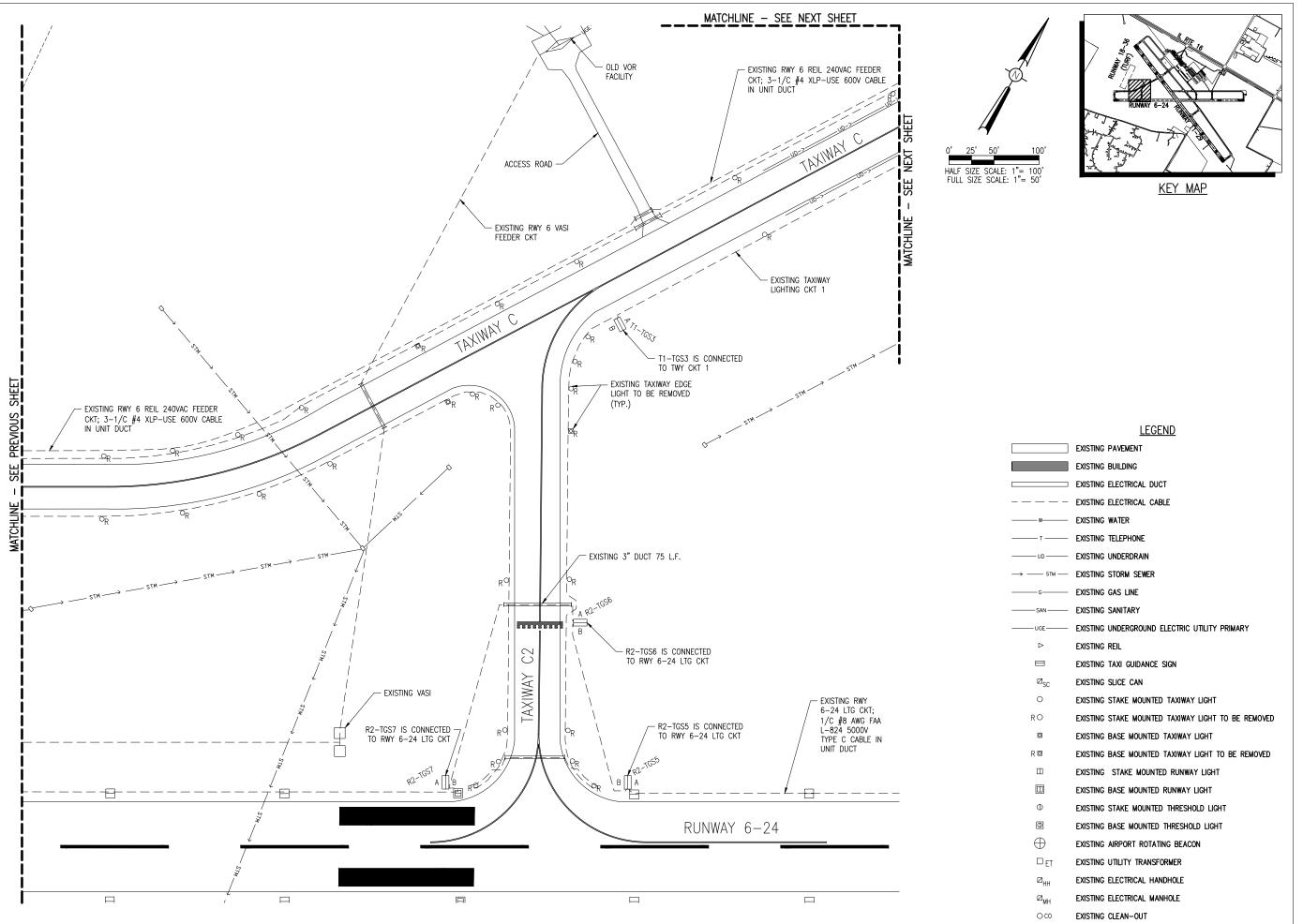
Contract No. CO065

NO.	DATE	DES	CRIPT	ION		
NO.	DATE	DES	DWN	REV		
SUE:	SEPTE	ИBER	14, 20	18		
ROJECT NO: 18A0014D						
AD FILE: E-141-ELE.DWG						
ESIGN BY: KNL 07/14/2018						
RAWN BY: MJD 07/16/2018						

SHEET TITLE

EXISTING AIRFIELD LIGHTING PLAN SHEET 1

REVIEWED BY: KNL/MJD 08/06/18





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

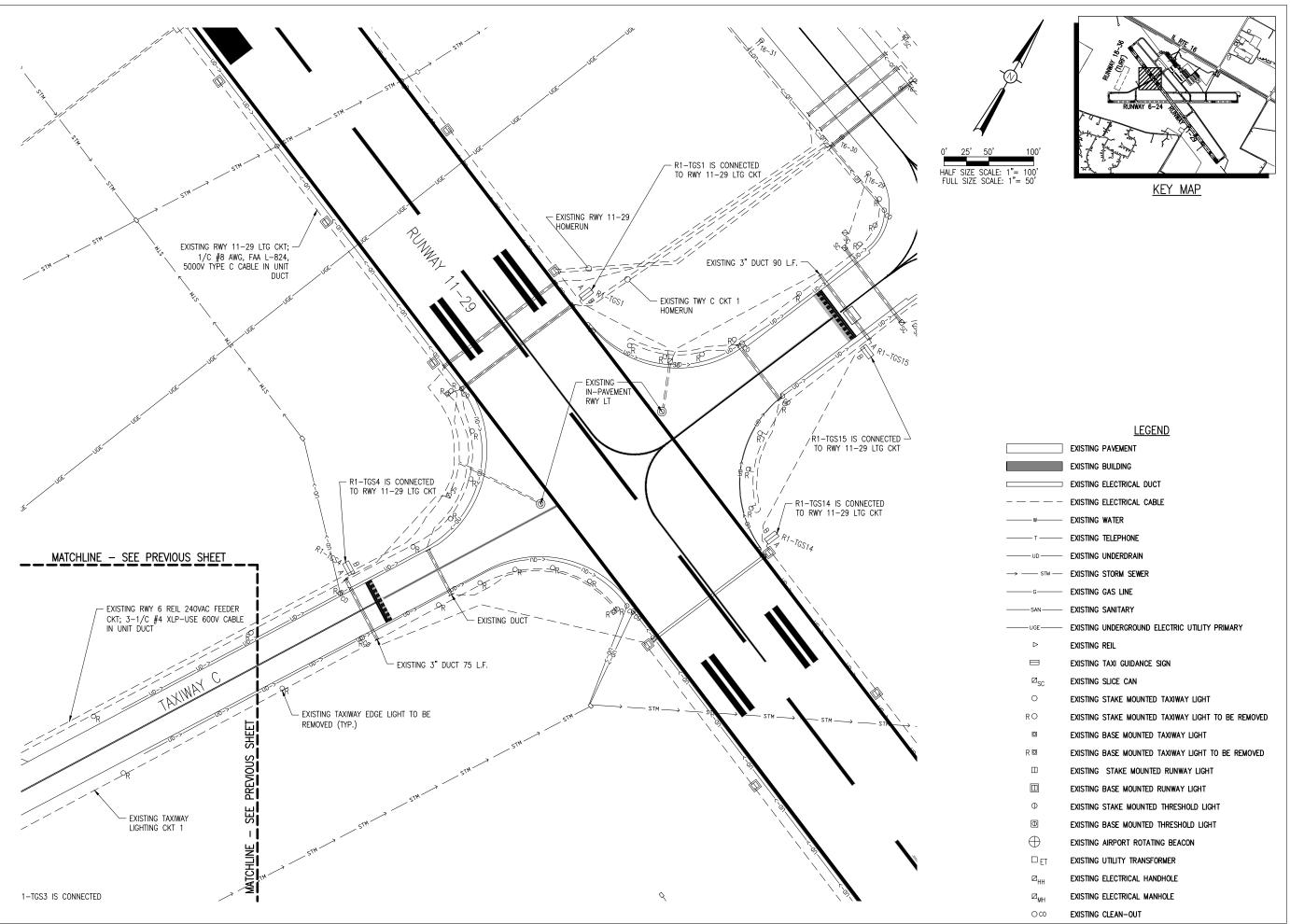
Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D

PROJECT NO: 18A0014D CAD FILE: E-141-ELE.DWG DESIGN BY: KNL 07/14/2018

DRAWN BY: MJD 07/16/2018
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARTORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

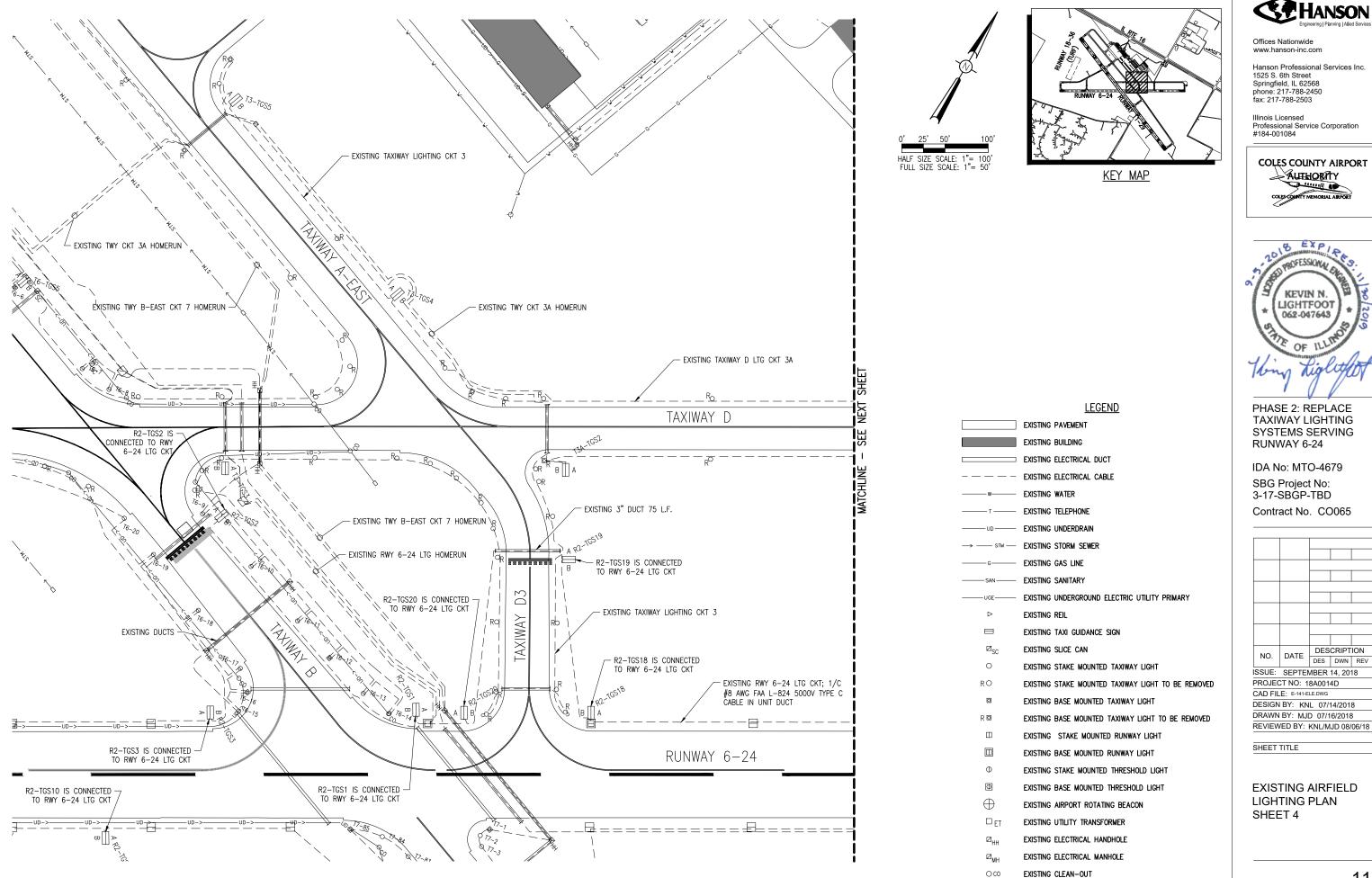
Contract No. CO065

NO.	DATE	DESCRIPTION		
INO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	ивек	14, 201	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-141-E	LE.DWG		
DESIGN	BY: KN	L 07/	14/201	В
DRAWN	BY: MJI	07/1	6/2018	3
REVIEW	/ED BY:	KNL/M	JD 08/	06/18

EXISTING AIRFIELD

SHEET TITLE

LIGHTING PLAN SHEET 3



Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY



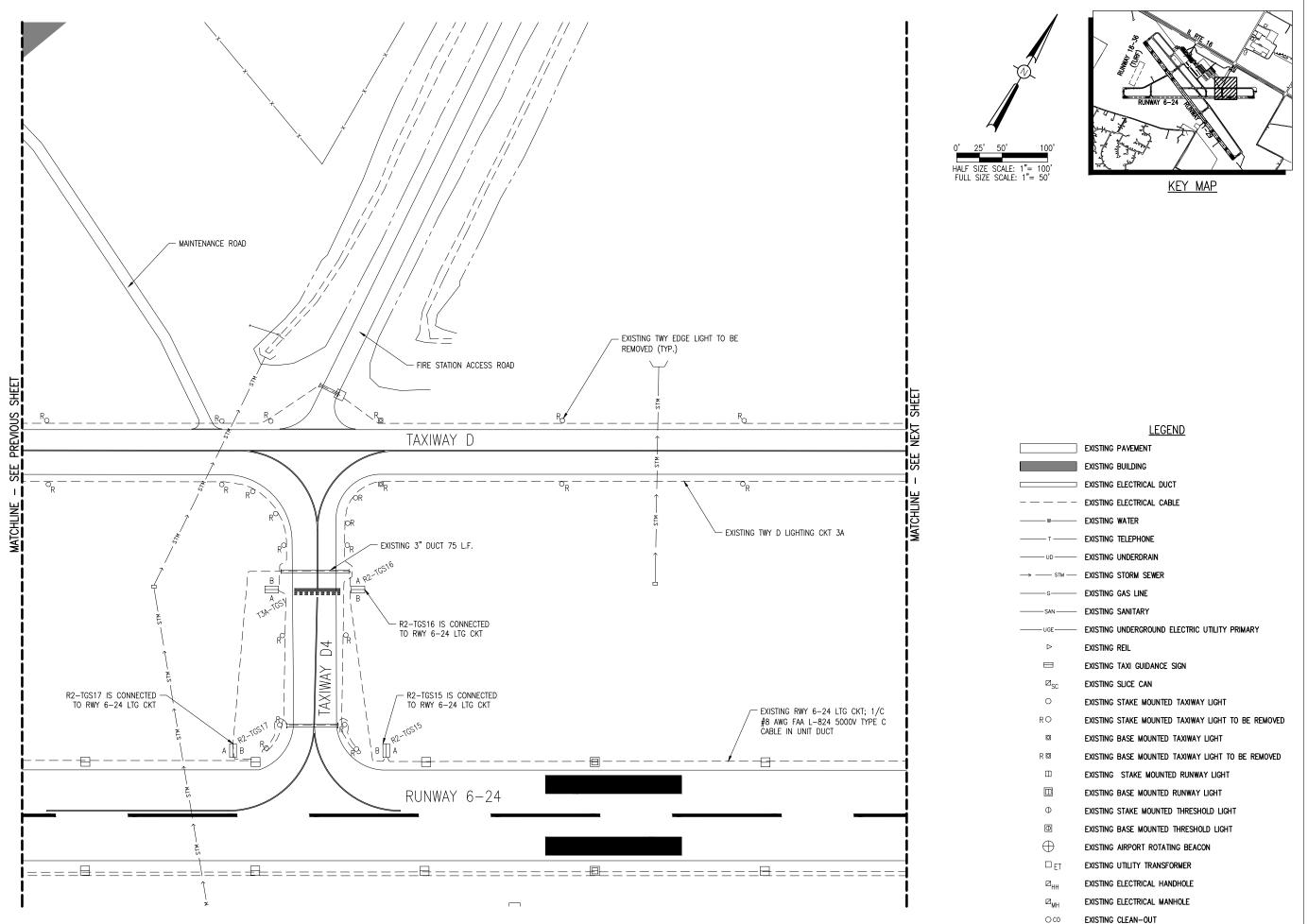
PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO.	DATE	DES	CRIPT	ION
INO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	ИBER	14, 20°	18
PROJEC	CT NO: 1	8A001	4D	
CAD FILE: E-141-ELE.DWG				
DESIGN	BY: KN	L 07/	14/201	8
DRAWN	BY: MJI	07/1	6/2018	3

SHEET TITLE





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD Contract No. CO065

IDA No: MTO-4679

NO. DATE DESCRIPTION DES DWN REV ISSUE: SEPTEMBER 14, 2018

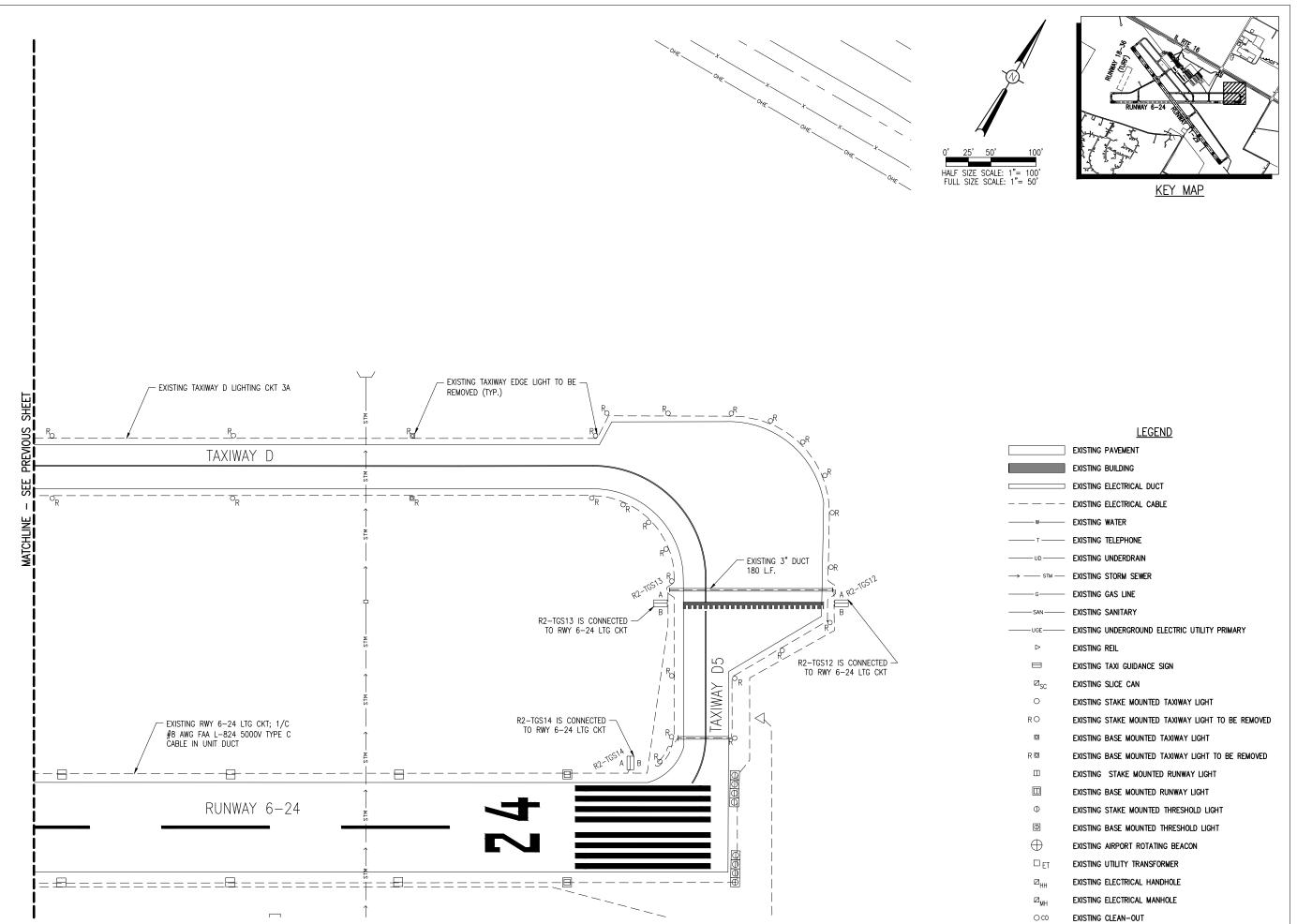
PROJECT NO: 18A0014D
CAD FILE: E-141-ELE.DWG
DESIGN BY: KNL 07/14/2018

DESIGN BY: KNL 07/14/2018
DRAWN BY: MJD 07/16/2018
REVIEWED BY: KNL/MJD 08/06/18

REVIEWED BY: KNL/MJD 08/06/1
SHEET TITLE

EXISTING AIRFIELD

LIGHTING PLAN SHEET 5





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARRORT



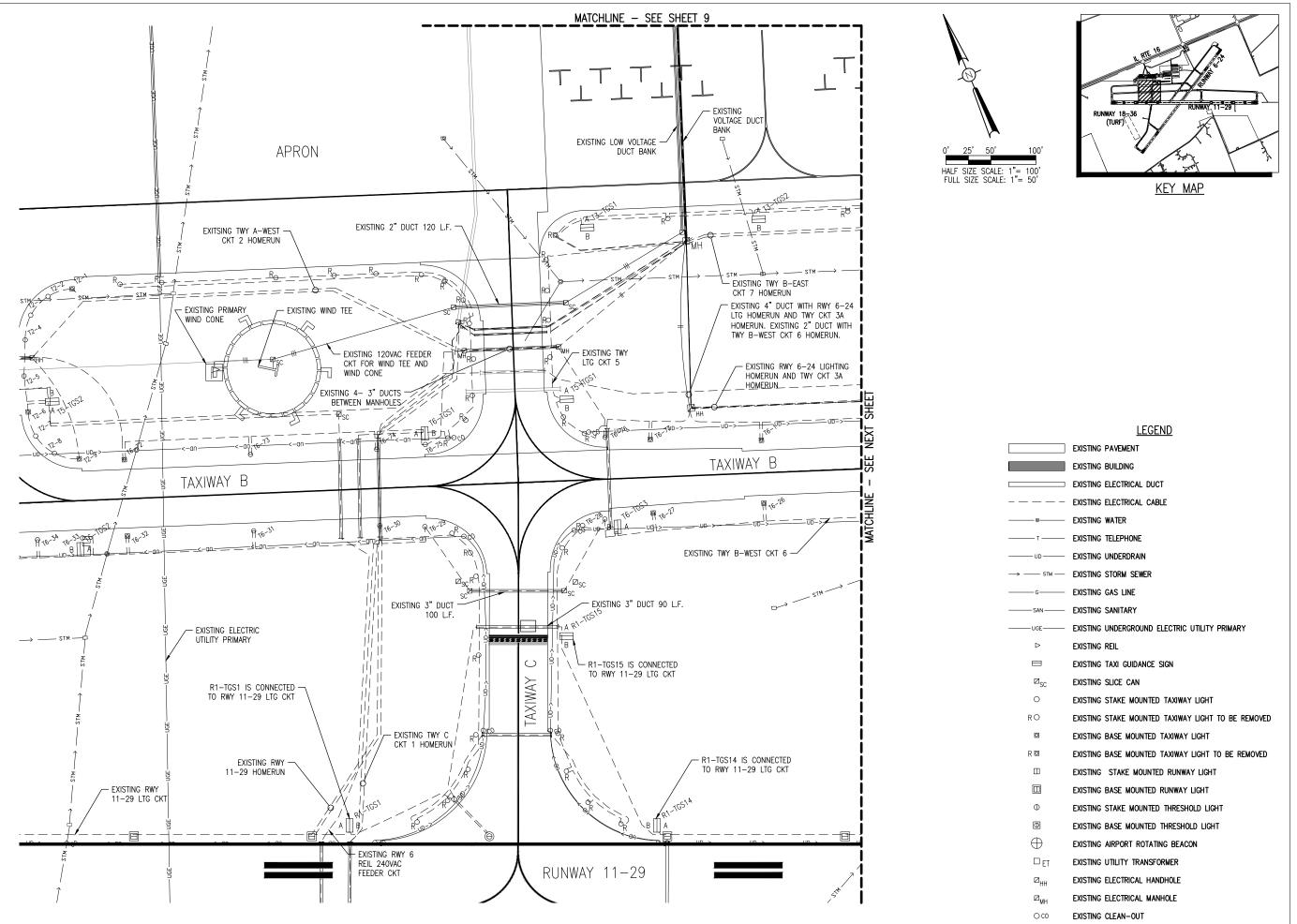
PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO	DATE	DESCRIPTION		
NO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	ИBER	14, 201	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-141-E	LE.DWG		
DESIGN	BY: KN	L 07/	14/201	8
DRAWN	BY: MJI	07/1	6/2018	3
REVIEW	/ED BY:	KNL/M	JD 08/	06/18

SHEET TITLE





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

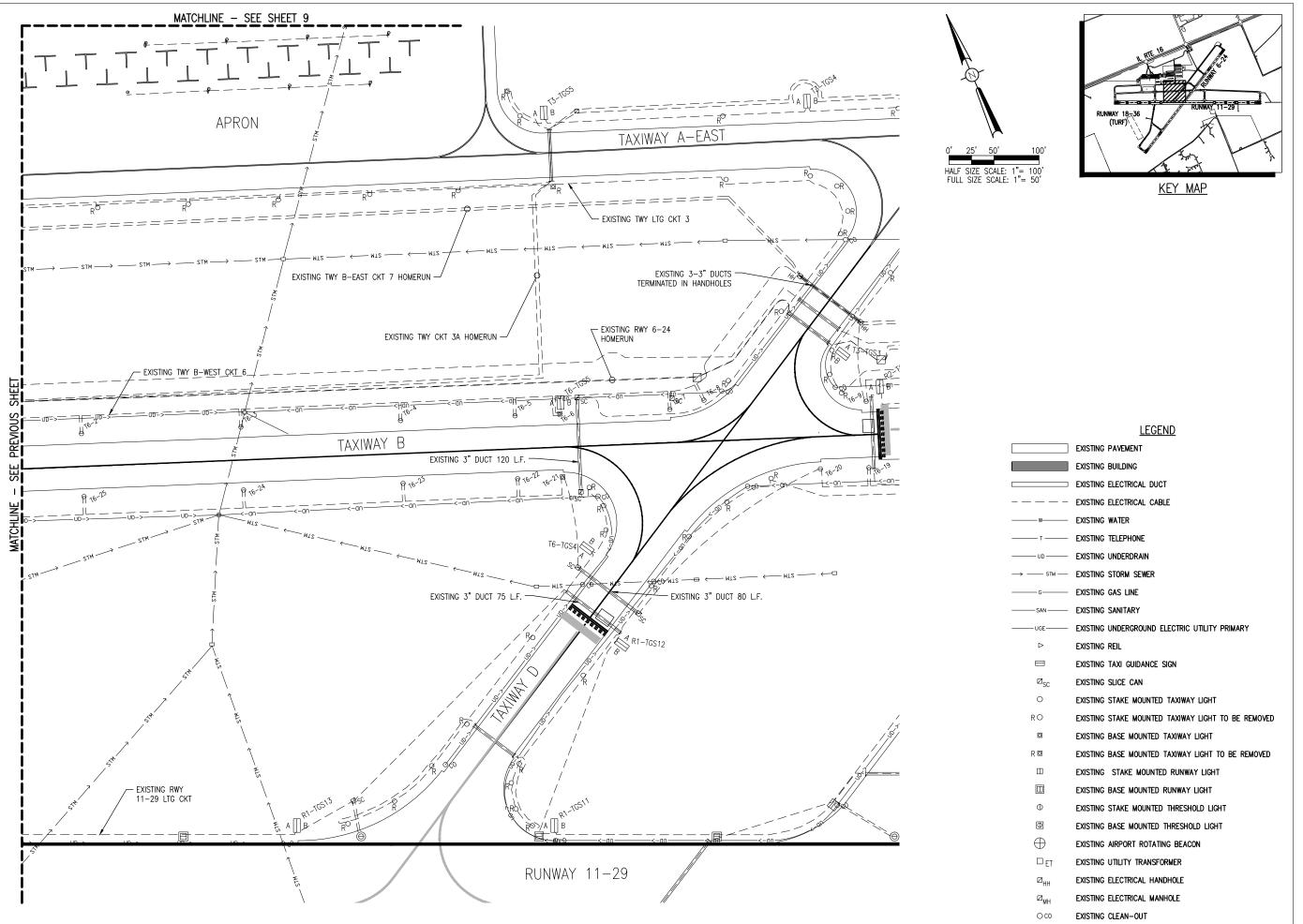
SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

NO.	DATE	DESCRIPTION			
NO.	DATE	DES	DWN	REV	
ISSUE:	SEPTE	ивек	14, 20	18	
PROJEC	CT NO: 1	8A001	4D		
CAD FIL	E: E-141-E	LE.DWG			
DESIGN	BY: KN	L 07/	14/201	8	
DRAWN	BY: MJI	07/1	7/2018	3	
REVIEW	/ED BY:	KNL/M	JD 08/	06/18	

SHEET TITLE





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084





PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

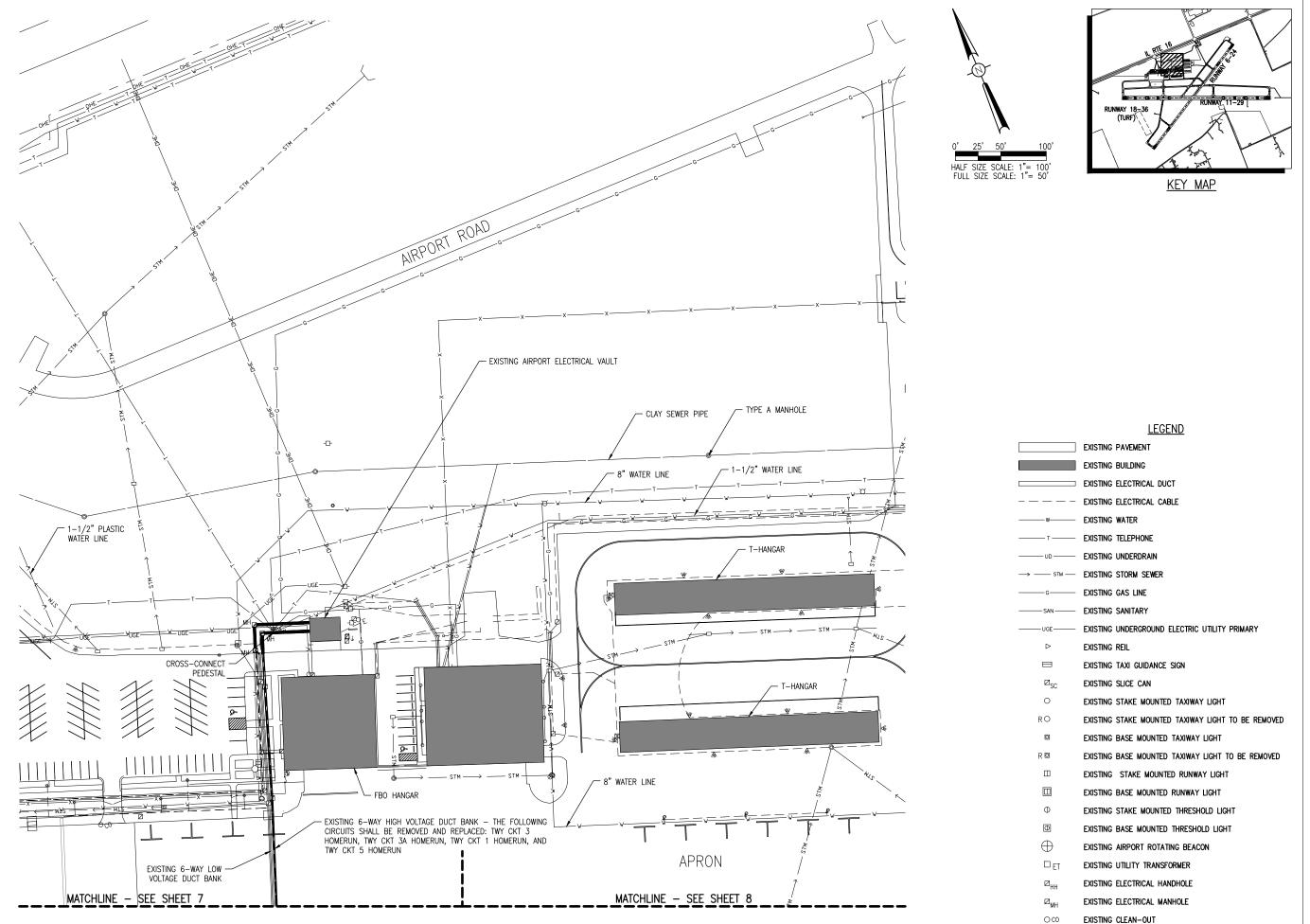
SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

		DE0		
NO.	DATE	DES	CRIPT	ION
140.	DAIL	DES	DWN	REV
ISSUE:	SEPTE	ивек	14, 201	18
PROJEC	T NO: 1	8A001	4D	
CAD FIL	E: E-141-E	LE.DWG		
DESIGN	BY: KN	L 07/	14/201	В
DRAWN	BY: MJI	07/1	7/2018	3
	ED BY:			

SHEET TITLE





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING **RUNWAY 6-24**

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

NO.	DATE	DES	CRIPT	ION			
NO.	DATE	DES	DWN	REV			
SSUE:	SEPTE	ИBER	14, 20	18			
PROJECT NO: 18A0014D							
CAD FILE: E-141-ELE.DWG							
ESIGN	ESIGN BY: KNL 07/14/2018						

DRAWN BY: MJD 07/16/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

- EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS.
- VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, RELOCATING, INSTALLING, OR CONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, OR OTHER DEVICE.
- 4. INSTALL AIRFIELD LIGHTS, TAXIWAY LIGHTS, GUIDANCE SIGNS, OTHER AIRFIELD LIGHTING, SPLICE CANS, HANDHOLES, MANHOLES, ELECTRICAL DUCTS, AND CABLE AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS. SPECIAL PROVISIONS. RESPECTIVE DETAILS. AND MANUFACTURER'S RECOMMENDATIONS.
- NEW CABLE FOR RUNWAY AND TAXIWAY LIGHTING CABLE IN AREAS ALONG THE RESPECTIVE PAVEMENT SHALL BE INSTALLED APPROXIMATELY 10' TO 14' FROM THE PAVEMENT EDGE. CABLES SHALL BE PLACED A MINIMUM OF 18" RFI OW FINISHED. GRADE.
- 6. LIGHTING CABLE FOR RUNWAY AND TAXIWAY LIGHTING SHALL BE 1/C, #8 AWG, FAA L-824, 5000 VOLT, TYPE C UNDERGROUND CABLE IN UNIT DUCT, OR DUCT. UNIT DUCT SHALL BE BLUE IN COLOR.
- 7. IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE, THE CONTRACTOR IS REQUIRED TO HAND DIG THE TRENCH NECESSARY FOR THE PROPOSED CABLE. AT OTHER LOCATIONS, THE PROPOSED CABLE MAY BE TRENCHED OR PLOWED INTO PLACE. HAND DIGGING, TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED CABLES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 8. GROUND ROD MUST BE INSTALLED AT EACH LIGHT FIXTURE. THE PURPOSE OF THE LIGHT BASE GROUND IS PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. PER NATIONAL ELECTRICAL CODE ARTICLE 250.53 "GROUNDING ELECTRODE SYSTEM INSTALLATION" RESISTANCE FROM THE GROUND ROD/ELECTRODE TO EARTH GROUND MUST BE 25 OHMS OR LESS VIA MEASUREMENT WITH A GROUND TESTER. GROUNDS RODS FOR LIGHT BASE GROUNDS SHALL BE 3/4—INCH BY 10—FEET MINIMUM LENGTH UL LISTED COPPER—CLAD STEEL SECTIONAL RODS. GROUND RODS SHALL BE PRODUCED FROM 100% DOMESTIC STEEL. EACH GROUND ROD SHALL BE TESTED AND THE RESULTS RECORDED FOR EACH AIRFIELD LIGHT FIXTURE INSTALLATION. COPIES OF GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE PROJECT ENGINEER AND/OR THE RESIDENT ENGINEER/TECHNICIAN.
- 9. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR DUCT SHALL BE RUN TOGETHER IN THE SAME RACEWAY OR DUCT.
- 10. TAXIWAY EDGE LIGHTS SHALL BE L-861T(L) WITH LIGHT EMITTING DIODE (LED) ILLUMINATION, 24" OVERALL HEIGHT
- 11. FAA AC 150/5270-10G "STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS", ITEM L-108 "UNDERGROUND POWER CABLE FOR AIRPORTS", REQUIRES THAT EVERY AIRFIELD LIGHTING CABLE SPLICER SHALL BE QUALIFIED IN MAKING CABLE SPLICES AND TERMINATIONS ON CABLES RATED ABOVE 5,000 VOLTS AC. CABLE SPLICING/TERMINATING PERSONNEL SHALL HAVE A MINIMUM OF THREE (3) YEARS CONTINUOUS EXPERIENCE IN TEMINATING/SPLICING MEDIUM VOLTAGE CABLE.
- 12. OTHER CONSTRUCTION PROJECTS MIGHT BE IN PROGRESS AT THE AIRPORT AT THE SAME TIME AS THIS PROJECT. THE CONTRACTOR WILL BE REQUIRED TO COOPERATE WITH ALL OTHER CONTRACTORS AND THE AIRPORT MANAGER IN THE COORDINATION OF THE WORK.
- 13. OBTAIN APPROVAL FROM THE AIRPORT MANAGER PRIOR TO SHUTTING DOWN A RUNWAY OR TAXIWAY. WHEN A RESPECTIVE RUNWAY IS CLOSED THE RESPECTIVE RUNWAY LIGHTING AND NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF. WHEN A RESPECTIVE TAXIWAY IS CLOSED THE RESPECTIVE TAXIWAY LIGHTING FOR THAT TAXIWAY SHALL BE SHUT OFF.
- 14. THE CONTRACTOR IS REQUIRED TO FILL IN ALL HOLES AND DEPRESSIONS RESULTING FROM THE NEW WORK, WITH EARTH MATERIAL. THE AREAS SHALL BE COMPACTED TO PREVENT FUTURE SETTLEMENT AND FERTILIZED, SEEDED, AND MULCHED IN ACCORDANCE WITH ITEMS 901 AND 908 RESPECTIVELY.
- 15. ALL ABOVEGROUND JUMPERS SHALL BE IN A DUCT WITH ALL CONNECTIONS SEALED. THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT, OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA 150/5370-2G, OPERATION SAFETY ON AIRPORTS DURING CONSTRUCTION, SECTION 2.18.3 "LIGHTING AND VISUAL NAVAIDS". ALL LABOR, MATERIALS, AND TIME NECESSARY TO COMPLY WITH THIS REQUIREMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 16. EXISTING AIRFIELD LIGHTING CABLES (SCHEDULED FOR REPLACEMENT) IN AREAS OF NEW WORK SHALL BE DISCONNECTED & REMOVED WHERE IN CONFLICT WITH NEW CONSTRUCTION. IN OTHER AREAS CABLES MAY BE ABANDONED IN PLACE. CABLES DESIGNATED FOR REMOVAL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. CONTRACTOR SHALL HAVE SALVAGE RIGHTS TO CABLES DESIGNATED FOR REMOVAL AND/OR REPLACEMENT.
- CONTRACTOR SHALL INTERFACE EXISTING AIRFIELD LIGHTING AND/OR TAXI SIGNS TO THE NEW, REMOVED, REINSTALLED, ADJUSTED, REPLACED, AND/OR RELOCATED AIRFIELD LIGHTING AND ASSOCIATED CIRCUITS.
- 18. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE, OR HANDHOLE.
- 19. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED. THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES. INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER/TECHNICIAN SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL

ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

AUTHORITY
COURSE OF THE MEMORIAL ABPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

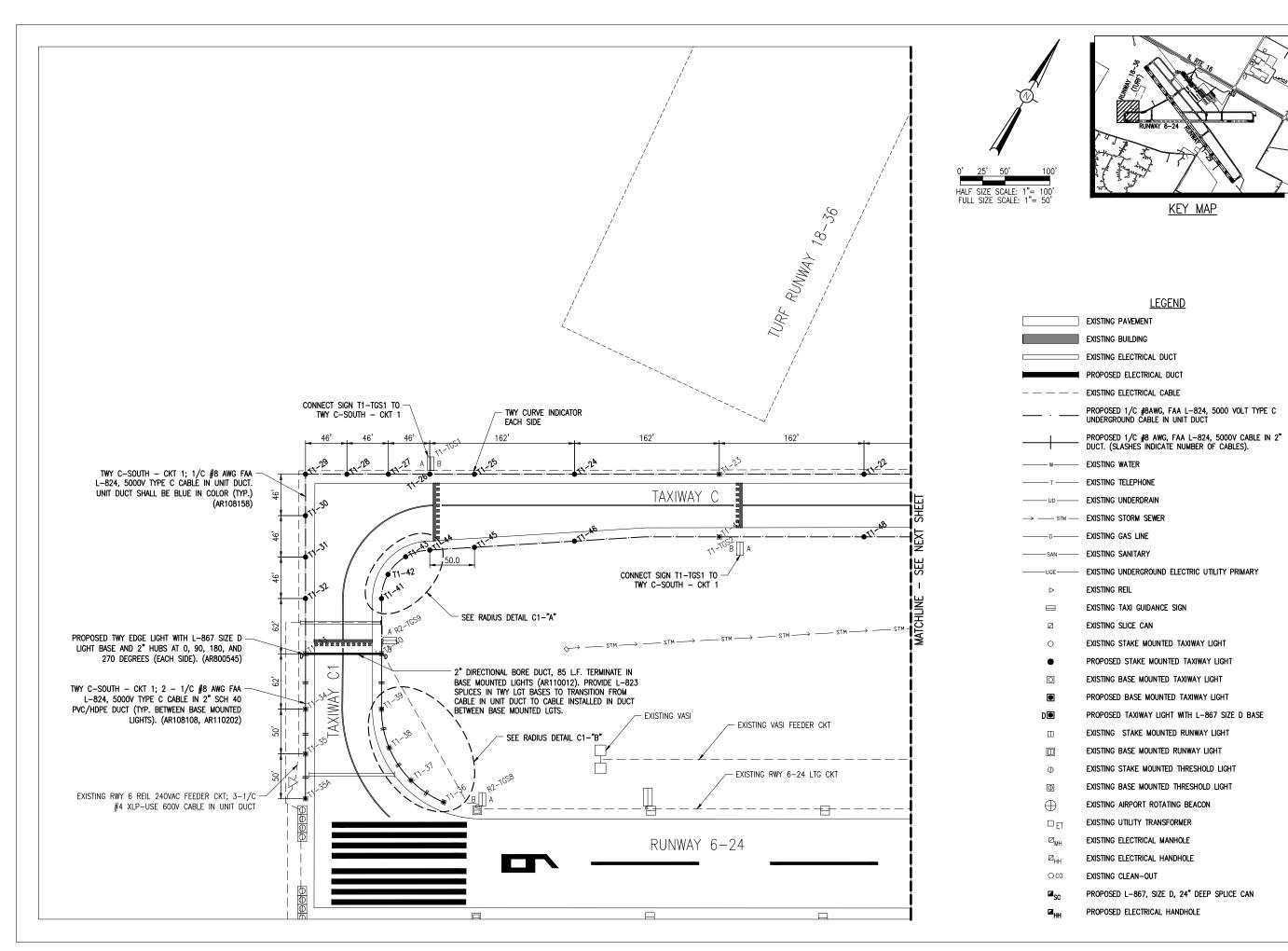
Contract No. CO065

NO.	DATE	DESCRIPTION				
INO.	DATE	DES	DWN	REV		
ISSUE: SEPTEMBER 14, 2018						
PROJECT NO: 18A0014D						
CAD EILE: E OUE NOTES DIVIC						

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-005-NOTES.DWG
DESIGN BY: KNL 06/23/2018
DRAWN BY: MJD 07/11/2018
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

AIRFIELD LIGHTING NOTES





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING **RUNWAY 6-24**

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

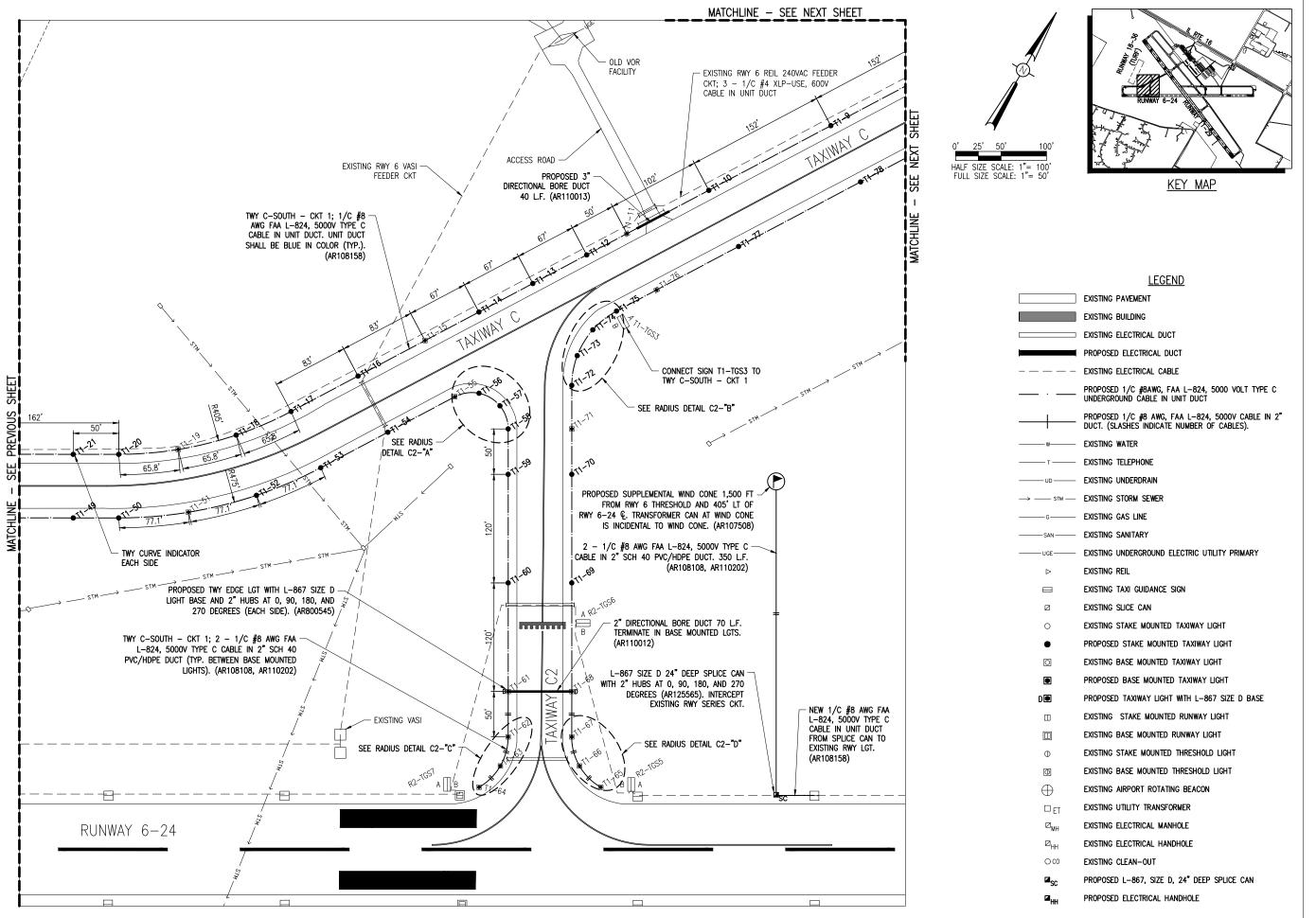
DESCRIPTION NO. DATE DES DWN REV ISSUE: SEPTEMBER 14, 2018 PROJECT NO: 18A0014D CAD FILE: E-142-ELE.DWG

DESIGN BY: KNL 07/14/2018

DRAWN BY: MJD 07/17/2018 REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

PROPOSED AIRFIELD LIGHTING PLAN SHEET 1





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT

AUTHORITY

COLES COUNTY MEMORIAL ARRORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D

CAD FILE - E-142-ELEDWG

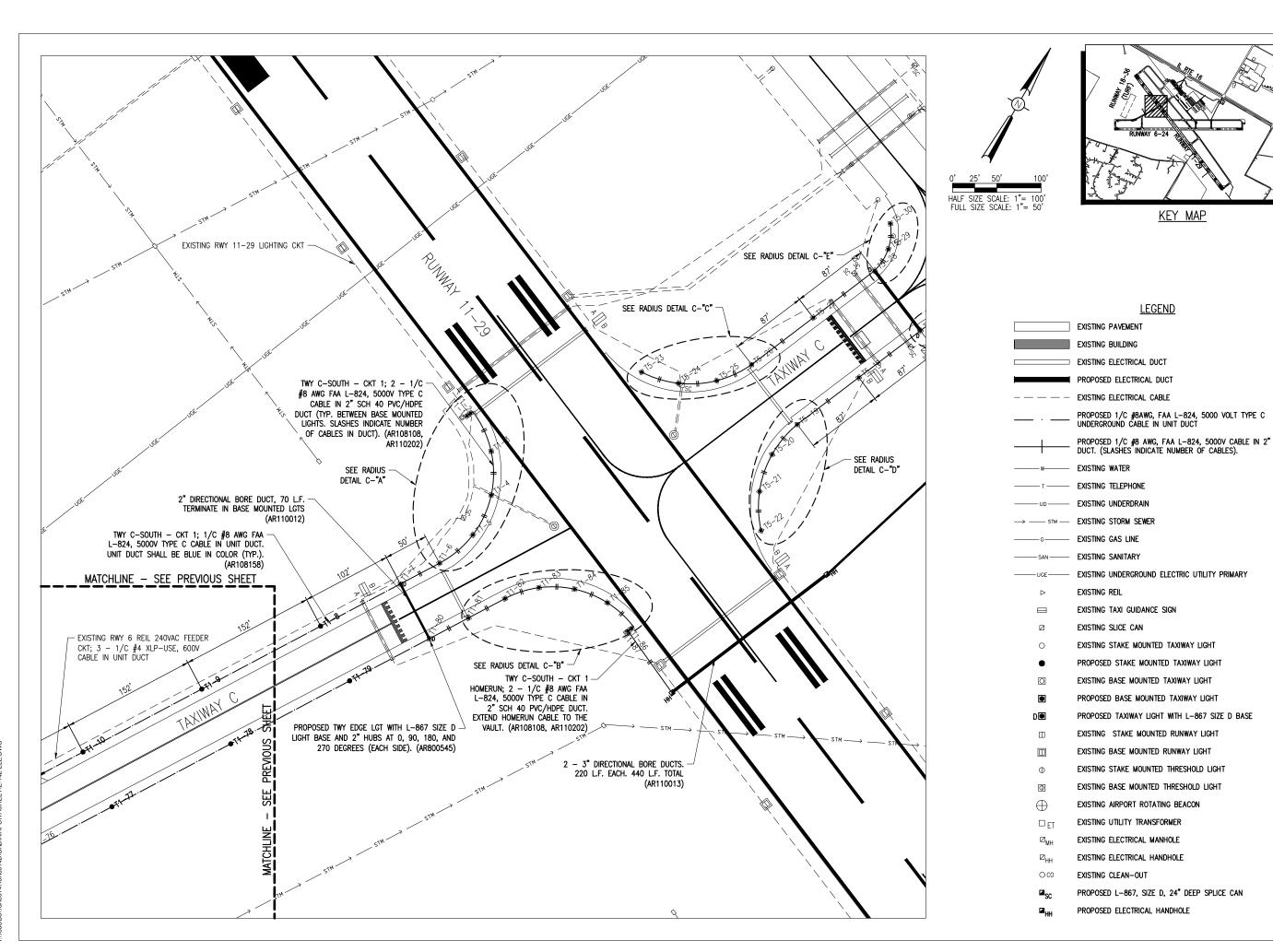
PROJECT NO: 18A0014D
CAD FILE: E-142-ELE.DWG
DESIGN BY: KNL 07/14/2018

DRAWN BY: MJD 07/17/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

PROPOSED AIRFIELD LIGHTING PLAN SHEET 2





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

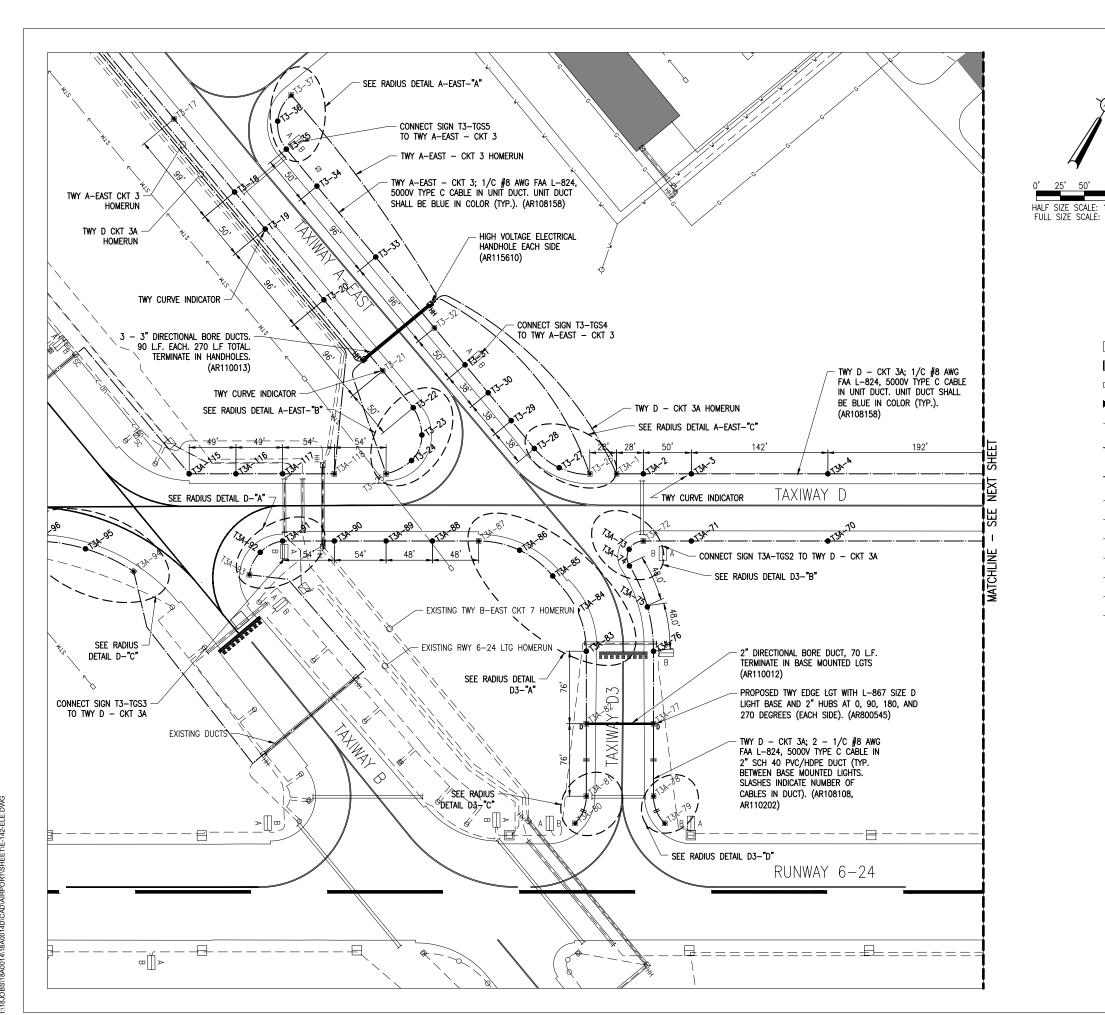
IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

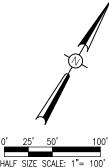
Contract No. CO065

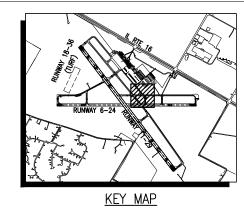
NO.	DATE	DES	CRIPT	ION
NO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	ИBER	14, 20°	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-142-E	LE.DWG		
DESIGN BY: KNL 07/14/2018				
DRAWN	BY: MJI	07/1	7/2018	3
REVIEW	/ED BY:	KNL/M	JD 08/	06/18

PROPOSED AIRFIELD LIGHTING PLAN

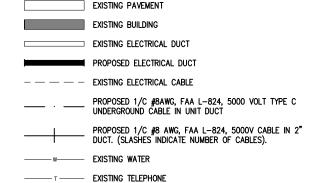
SHEET 3







LEGEND



→ --- STM -- EXISTING STORM SEWER --- EXISTING GAS LINE — SAN — EXISTING SANITARY

-UD ---- EXISTING UNDERDRAIN

EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY

EXISTING REIL

EXISTING TAXI GUIDANCE SIGN EXISTING SLICE CAN И

EXISTING STAKE MOUNTED TAXIWAY LIGHT

PROPOSED STAKE MOUNTED TAXIWAY LIGHT 0 EXISTING BASE MOUNTED TAXIWAY LIGHT

PROPOSED BASE MOUNTED TAXIWAY LIGHT

PROPOSED TAXIWAY LIGHT WITH L-867 SIZE D BASE

EXISTING STAKE MOUNTED RUNWAY LIGHT Ш EXISTING BASE MOUNTED RUNWAY LIGHT

EXISTING STAKE MOUNTED THRESHOLD LIGHT

EXISTING BASE MOUNTED THRESHOLD LIGHT Φ EXISTING AIRPORT ROTATING BEACON

 \oplus EXISTING UTILITY TRANSFORMER □ ET

 \square_{MH} EXISTING ELECTRICAL MANHOLE

EXISTING ELECTRICAL HANDHOLE $\square_{\rm HH}$

O 00 EXISTING CLEAN-OUT

Ф

PROPOSED L-867, SIZE D, 24" DEEP SPLICE CAN

PROPOSED ELECTRICAL HANDHOLE

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY



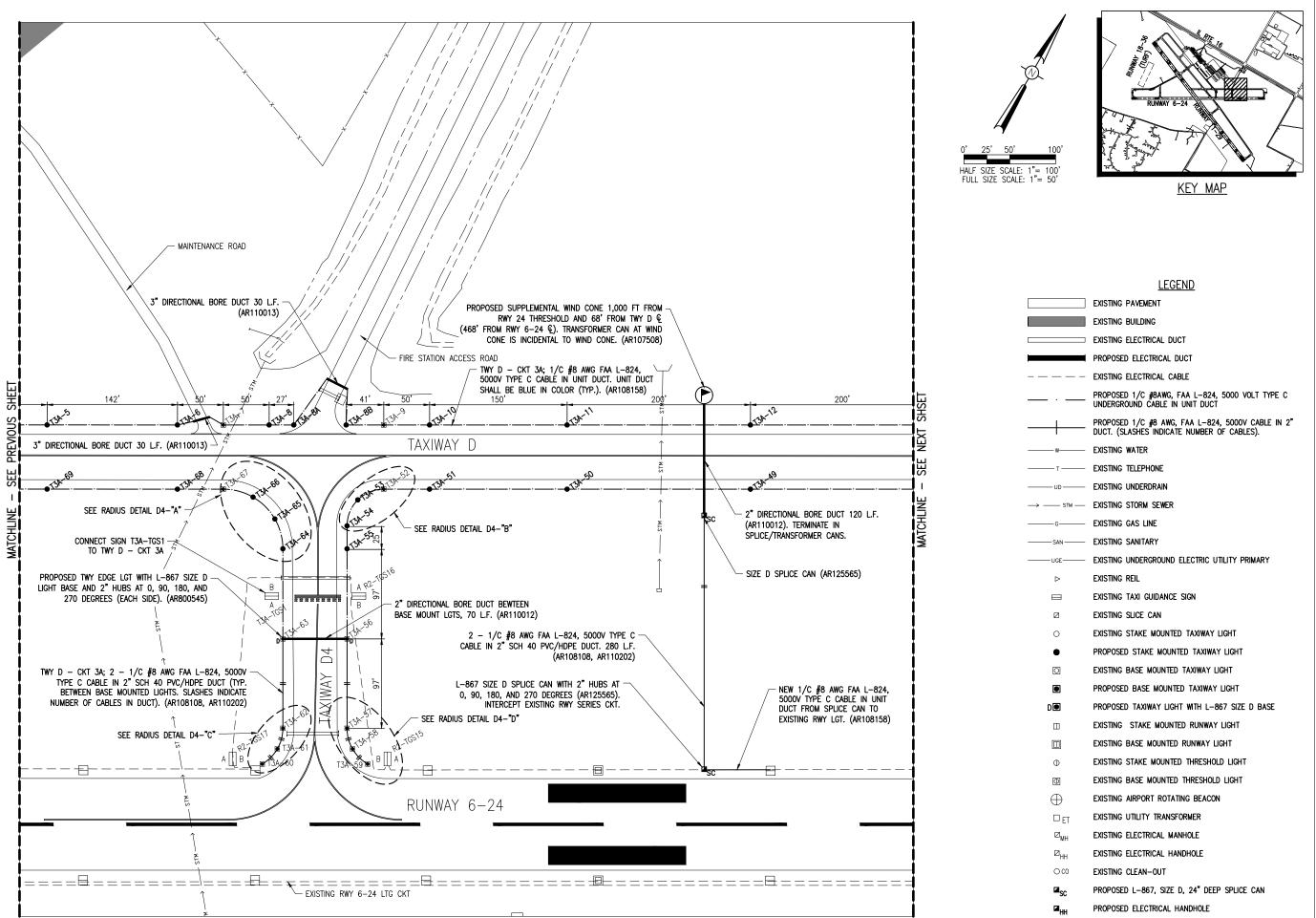
PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING **RUNWAY 6-24**

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

		DEC	L CRIPT	ION
NO.	DATE		_	
		DES	DWN	REV
ISSUE:	SEPTE	ИBER	14, 20	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-142-E	LE.DWG		
DESIGN BY: KNL 07/14/2018				
DRAWN	BY: MJI	07/1	6/2018	3
REVIEW	/ED BY:	KNL/M	JD 08/	06/18

PROPOSED AIRFIELD LIGHTING PLAN SHEET 4





Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY NEWFORIAL AIRCORT



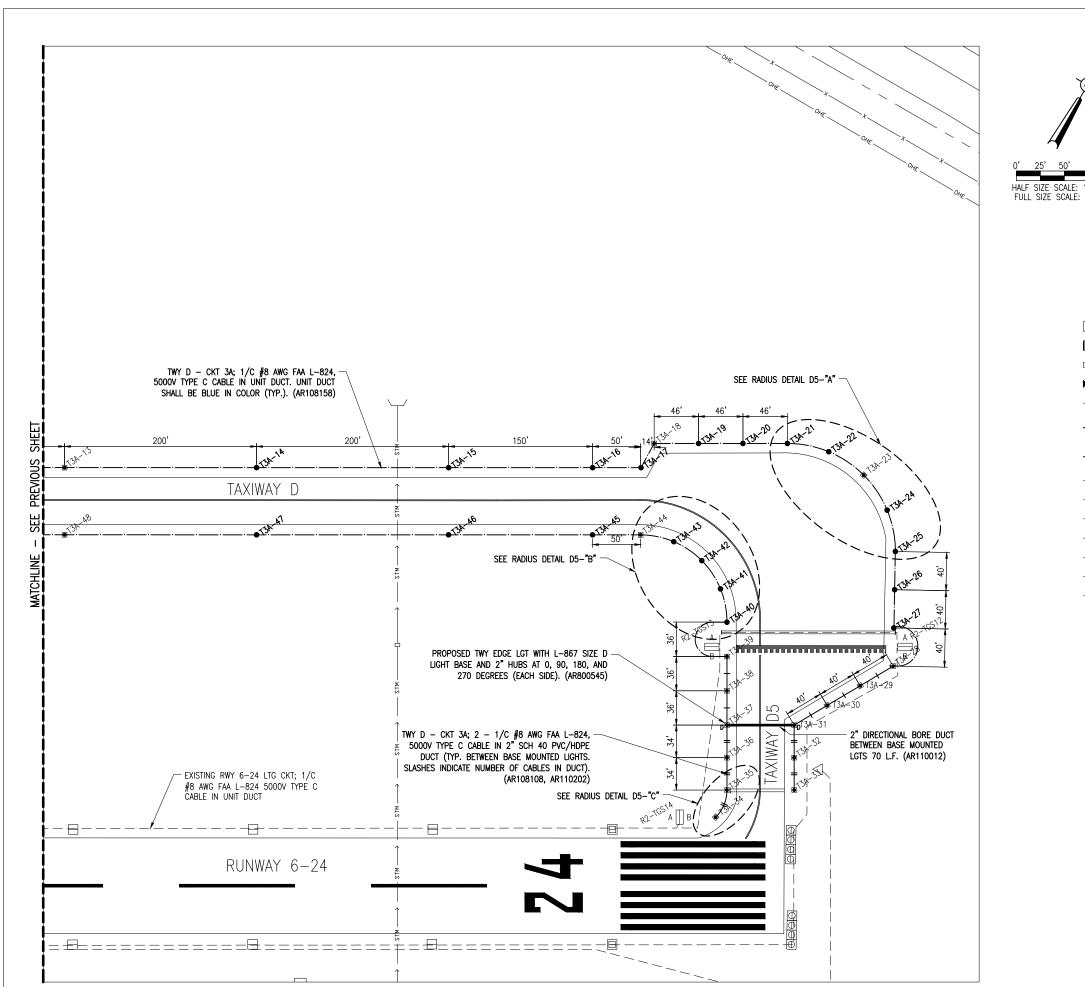
PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

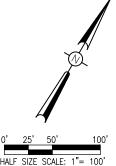
IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

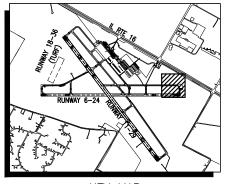
Contract No. CO065

NO.	DATE	DES	CRIPT	ION
NO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	ивек	14, 20°	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-142-E	LE.DWG		
DESIGN	BY: KN	L 07/	14/201	8
DRAWN	BY: MJI	07/1	8/2018	3
REVIEW	/ED BY:	KNI /M	.ID 08/	06/18

PROPOSED AIRFIELD LIGHTING PLAN SHEET 5

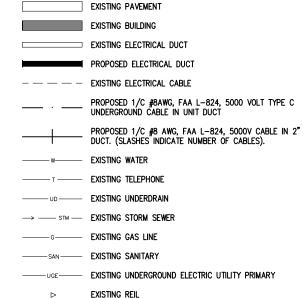






KEY MAP

<u>LEGEND</u>



EXISTING TAXI GUIDANCE SIGN EXISTING SLICE CAN

EXISTING STAKE MOUNTED TAXIWAY LIGHT

PROPOSED STAKE MOUNTED TAXIWAY LIGHT

EXISTING BASE MOUNTED TAXIWAY LIGHT PROPOSED BASE MOUNTED TAXIWAY LIGHT

PROPOSED TAXIWAY LIGHT WITH L-867 SIZE D BASE

EXISTING STAKE MOUNTED RUNWAY LIGHT Ш EXISTING BASE MOUNTED RUNWAY LIGHT

Φ EXISTING STAKE MOUNTED THRESHOLD LIGHT

Φ EXISTING BASE MOUNTED THRESHOLD LIGHT

 \oplus EXISTING AIRPORT ROTATING BEACON EXISTING UTILITY TRANSFORMER

□ ET \square_{MH} EXISTING ELECTRICAL MANHOLE

EXISTING ELECTRICAL HANDHOLE \square_{HH}

O 00 EXISTING CLEAN-OUT

PROPOSED L-867, SIZE D, 24" DEEP SPLICE CAN

PROPOSED ELECTRICAL HANDHOLE

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY



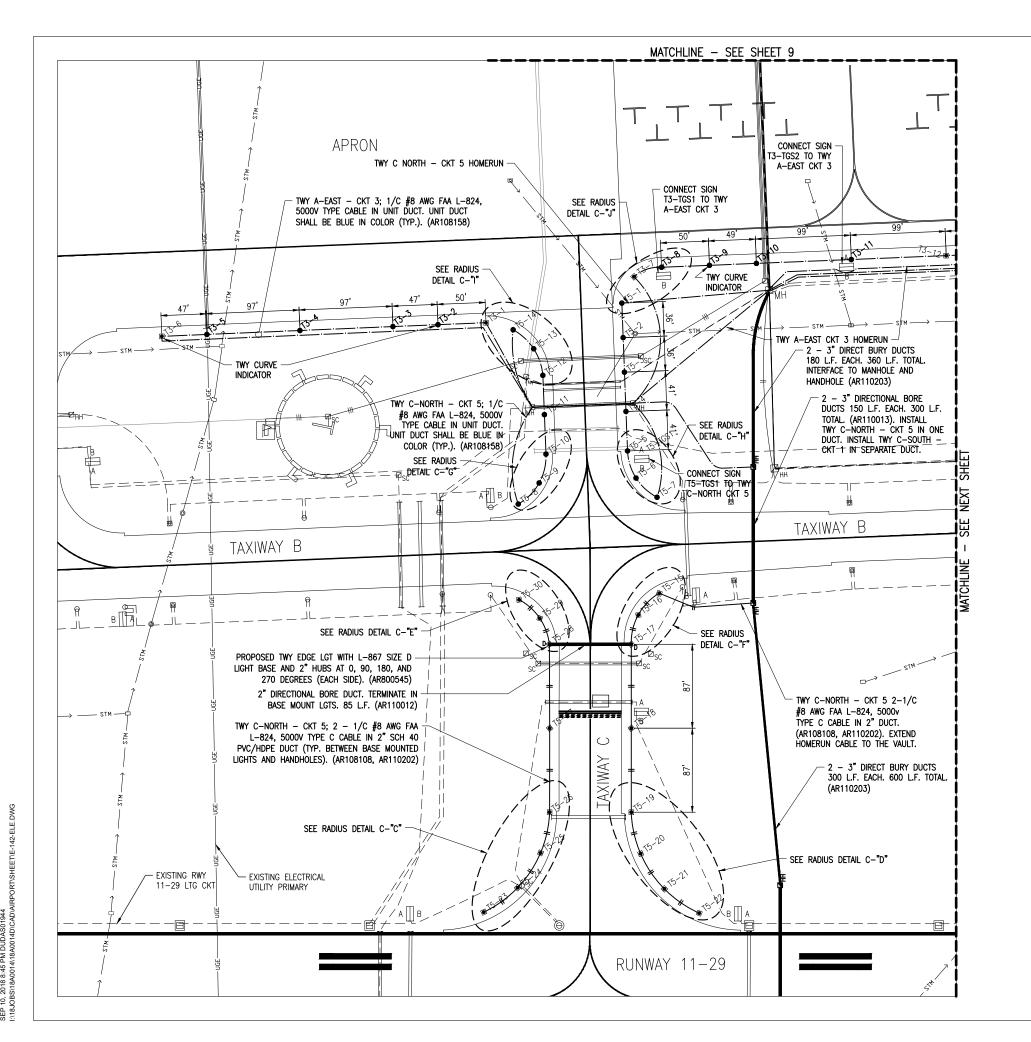
PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

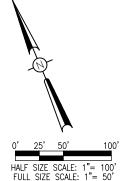
IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

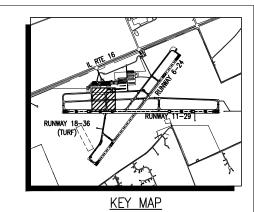
Contract No. CO065

NO.	DATE	DES	CRIPT	ION
NO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	ивек	14, 20°	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-142-E	LE.DWG		
DESIGN BY: KNL 07/14/2018				
DRAWN	BY: MJI	07/1	7/2018	3
REVIEW	/ED BY:	KNL/M	JD 08/	06/18

PROPOSED AIRFIELD LIGHTING PLAN SHEET 6







<u>LEGEND</u>

EXISTING PAVEMENT

EXISTING BUILDING

EXISTING ELECTRICAL DUCT

PROPOSED ELECTRICAL DUCT

EXISTING ELECTRICAL CABLE

PROPOSED 1/C #8AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT

PROPOSED 1/C #8 AWG, FAA L-824, 5000V CABLE IN 2" DUCT. (SLASHES INDICATE NUMBER OF CABLES).

EXISTING WATER

T EXISTING TELEPHONE

STM EXISTING STORM SEWER

G EXISTING GAS LINE

SAN EXISTING SANITARY

— EXISTING UNDERDRAIN

— EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY

Ш

Φ

EXISTING TAXI GUIDANCE SIGN

EXISTING STAKE MOUNTED TAXIWAY LIGHT

PROPOSED STAKE MOUNTED TAXIWAY LIGHT
 EXISTING BASE MOUNTED TAXIWAY LIGHT

PROPOSED BASE MOUNTED TAXIWAY LIGHT

PROPOSED BASE MOUNTED TAXIWAT LIGHT

D

PROPOSED TAXIWAY LIGHT WITH L-867 SIZE D BASE

EXISTING STAKE MOUNTED RUNWAY LIGHT

EXISTING BASE MOUNTED RUNWAY LIGHT

EXISTING STAKE MOUNTED THRESHOLD LIGHT

EXISTING BASE MOUNTED THRESHOLD LIGHT

EXISTING AIRPORT ROTATING BEACON

□ ET EXISTING UTILITY TRANSFORMER

 ${f f \square}_{
m HH}$ Existing electrical handhole

OCO EXISTING CLEAN-OUT

PROPOSED L−867, SIZE D, 24" DEEP SPLICE CAN

H PROPOSED ELECTRICAL HANDHOLE



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT

AUTHORITY

COLES COUNTY MEMORIAL ARRORT



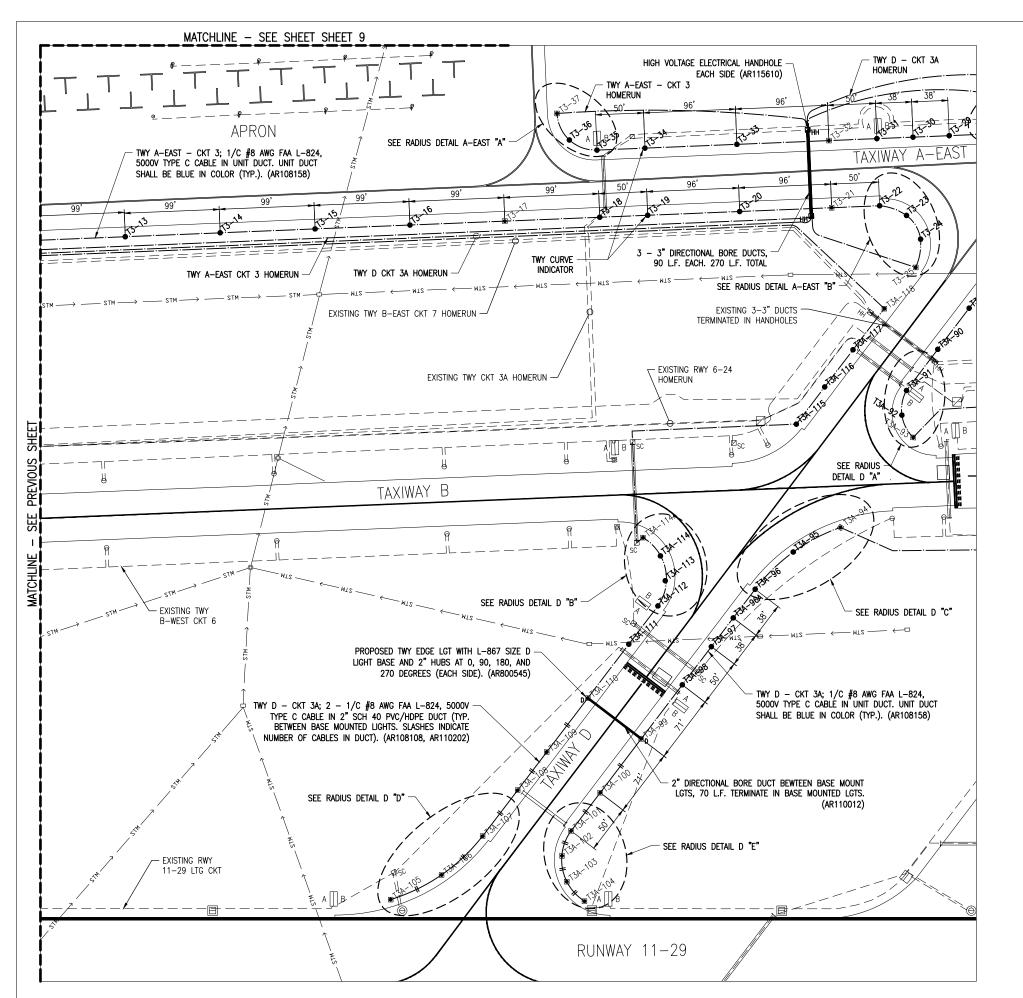
PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

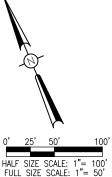
IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

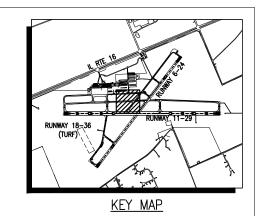
Contract No. CO065

NO.	DATE	DES	CRIPT	ION
NO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	ивек	14, 20°	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-142-E	LE.DWG		
DESIGN BY: KNL 07/14/2018				
DRAWN	DRAWN BY: MJD 07/18/2018			
REVIEW	/ED BY:	KNL/M	JD 08/	06/18

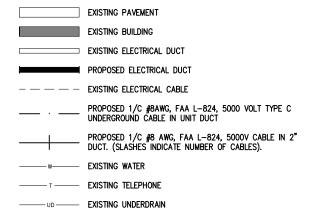
PROPOSED AIRFIELD LIGHTING PLAN SHEET 7







<u>LEGEND</u>



G EXISTING GAS LINE

SAN EXISTING SANITARY

UGE EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY

- STM - EXISTING STORM SEWER

EXISTING CIVEL COME CHARACTER CONTROL COME CONTROL CON

EXISTING REIL

EXISTING TAXI GUIDANCE SIGN

EXISTING SLICE CAN

O EXISTING STAKE MOUNTED TAXIWAY LIGHT

PROPOSED STAKE MOUNTED TAXIWAY LIGHT
 EXISTING BASE MOUNTED TAXIWAY LIGHT

PROPOSED BASE MOUNTED TAXIWAY LIGHT

D

PROPOSED TAXIWAY LIGHT WITH L-867 SIZE D BASE

EXISTING STAKE MOUNTED RUNWAY LIGHT

EXISTING BASE MOUNTED RUNWAY LIGHT

EXISTING BASE MOUNTED RUNWAY LIGHT
 EXISTING STAKE MOUNTED THRESHOLD LIGHT

EXISTING BASE MOUNTED THRESHOLD LIGHT

EXISTING AIRPORT ROTATING BEACON

EXISTING UTILITY TRANSFORMER

EXISTING UTILITY TRANSFORMER

MH EXISTING ELECTRICAL MANHOLE

□_{HH} EXISTING ELECTRICAL HANDHOLE

OCO EXISTING CLEAN-OUT

PROPOSED L-867, SIZE D, 24" DEEP SPLICE CAN

PROPOSED ELECTRICAL HANDHOLE

HANSON Engineering | Planning | Alted Serv

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT



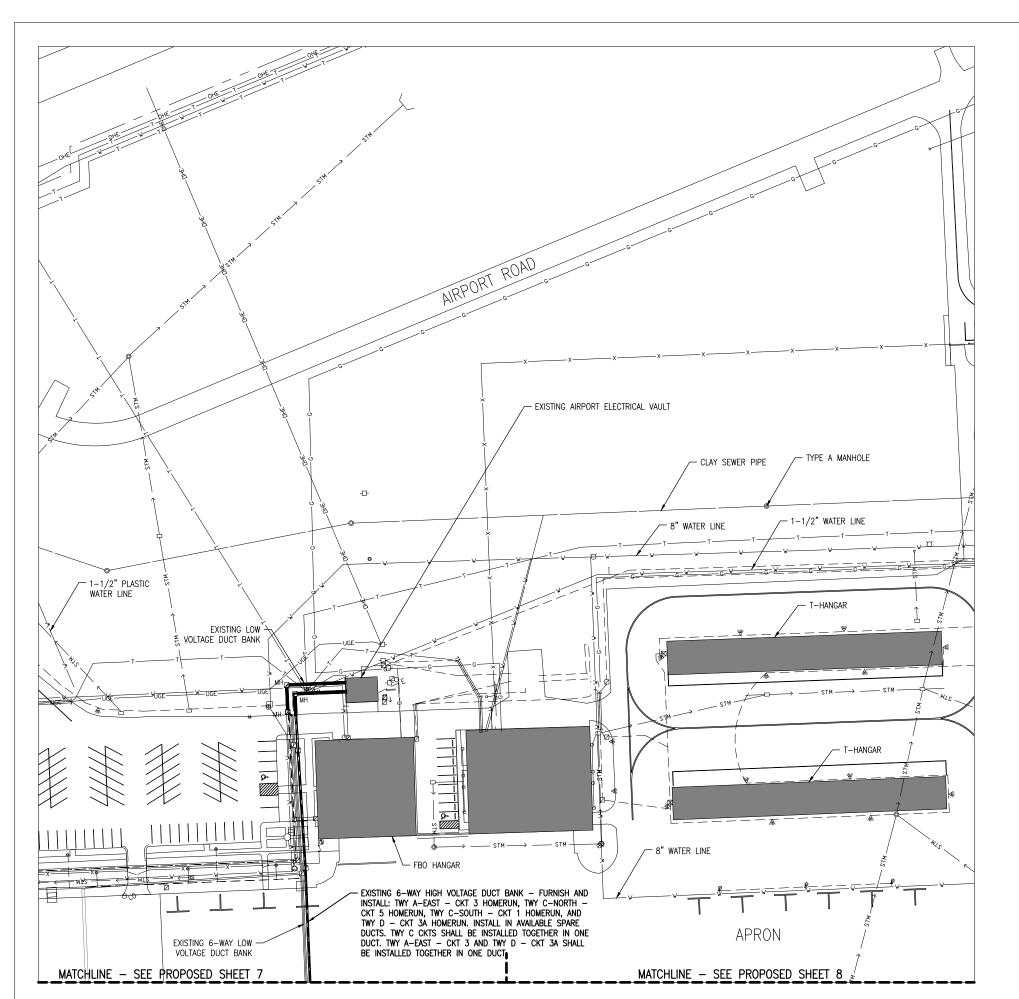
PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

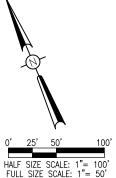
IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

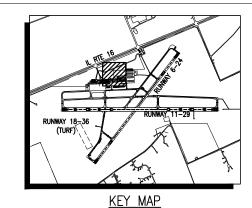
Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-142-ELE DWG
DESIGN BY: KNL 07/14/2018
DRAWN BY: MJD 07/18/2018
REVIEWED BY: KNL/MJD 08/06/18

PROPOSED AIRFIELD LIGHTING PLAN SHEET 8







<u>LEGEND</u>

EXISTING PAVEMENT

EXISTING BUILDING

EXISTING ELECTRICAL DUCT

PROPOSED ELECTRICAL DUCT

EXISTING ELECTRICAL CABLE

PROPOSED 1/C #8AWG, FAA L-824, 5000 VOLT TYPE C UNDERGROUND CABLE IN UNIT DUCT

PROPOSED 1/C #8 AWG, FAA L-824, 5000V CABLE IN 2" DUCT. (SLASHES INDICATE NUMBER OF CABLES).

EXISTING WATER

T EXISTING TELEPHONE

EXISTING UNDERDRAIN

SIM EXISTING STORM SEWER

GENERAL STORM SEWER

EXISTING SANITARY

JGE----- EXISTING UNDERGROUND ELECTRIC UTILITY PRIMARY

EXISTING REIL

Φ

 \oplus

EXISTING TAXI GUIDANCE SIGN

☑ EXISTING SLICE CAN

EXISTING STAKE MOUNTED TAXIWAY LIGHT

PROPOSED STAKE MOUNTED TAXIWAY LIGHT

EXISTING BASE MOUNTED TAXIWAY LIGHT

PROPOSED BASE MOUNTED TAXIWAY LIGHT

■ PROPOSED TAXIWAY LIGHT WITH L-867 SIZE D BASE

EXISTING STAKE MOUNTED RUNWAY LIGHT

EXISTING BASE MOUNTED RUNWAY LIGHT

EXISTING STAKE MOUNTED THRESHOLD LIGHT

EXISTING BASE MOUNTED THRESHOLD LIGHT

EXISTING AIRPORT ROTATING BEACON

 $\square_{\, {\sf ET}}$ Existing utility transformer

 \square_{MH} Existing electrical manhole

 ${f f \square}_{
m HH}$ Existing electrical handhole

OCO EXISTING CLEAN-OUT

PROPOSED L−867, SIZE D, 24" DEEP SPLICE CAN

HH PROPOSED ELECTRICAL HANDHOLE



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT

AUTHORITY

COLES COUNTY NEMODELA LEPTET



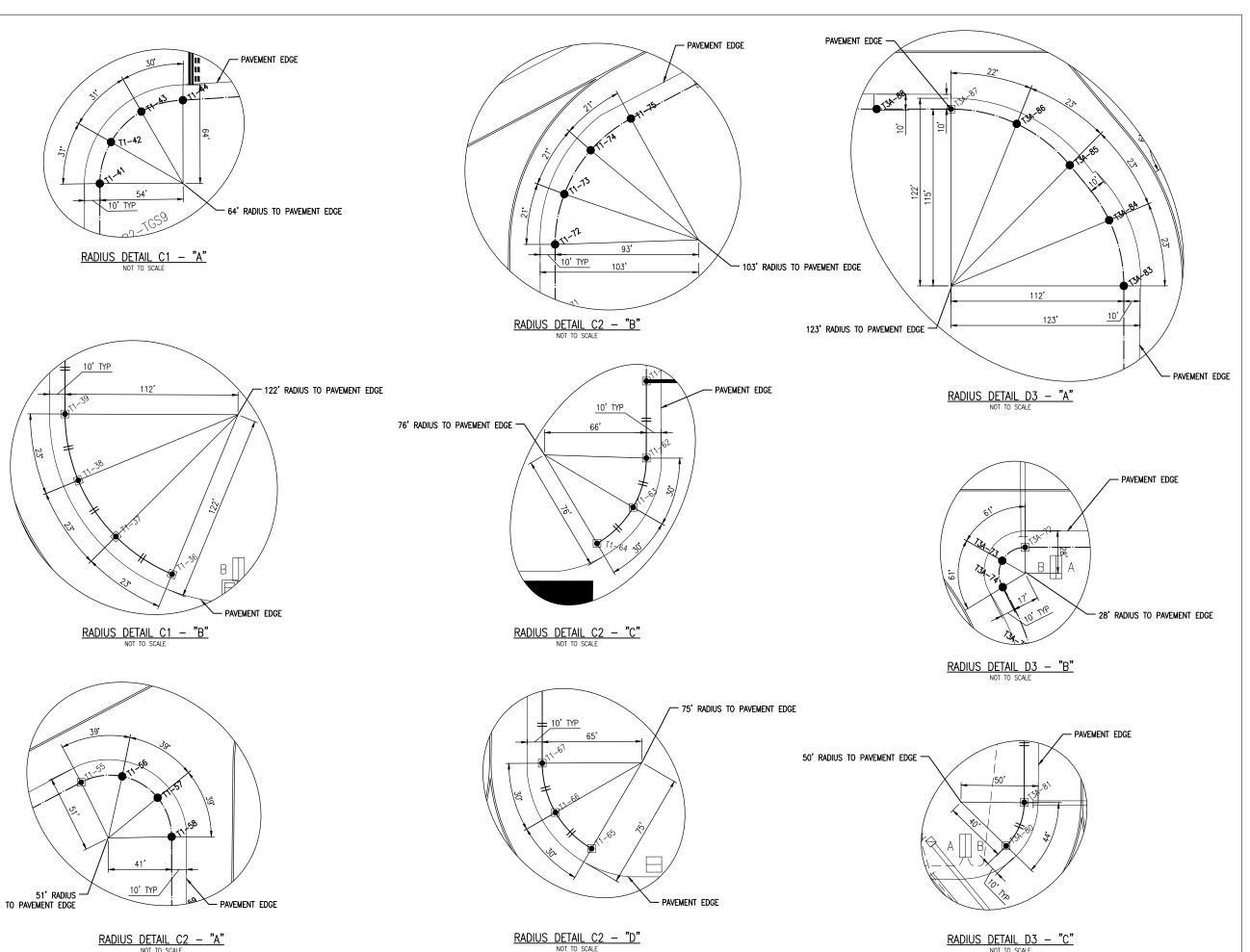
PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO.	DATE	DES	CRIPT	ION
INO.	DAIL	DES	DWN	REV
ISSUE:	SEPTE	MBER	14, 20	18
PROJEC	CT NO: 1	8A001	4D	
CAD FILE: E-142-ELE.DWG				
DESIGN	BY: KN	L 07/	14/201	8
DRAWN	BY: MJI	D 07/1	7/2018	3
REVIEW	/ED BY:	KNL/M	JD 08/	06/18

PROPOSED AIRFIELD LIGHTING PLAN SHEET 9



HANSON Engineering | Planning | Alled Services

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARROST



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD Contract No. CO065

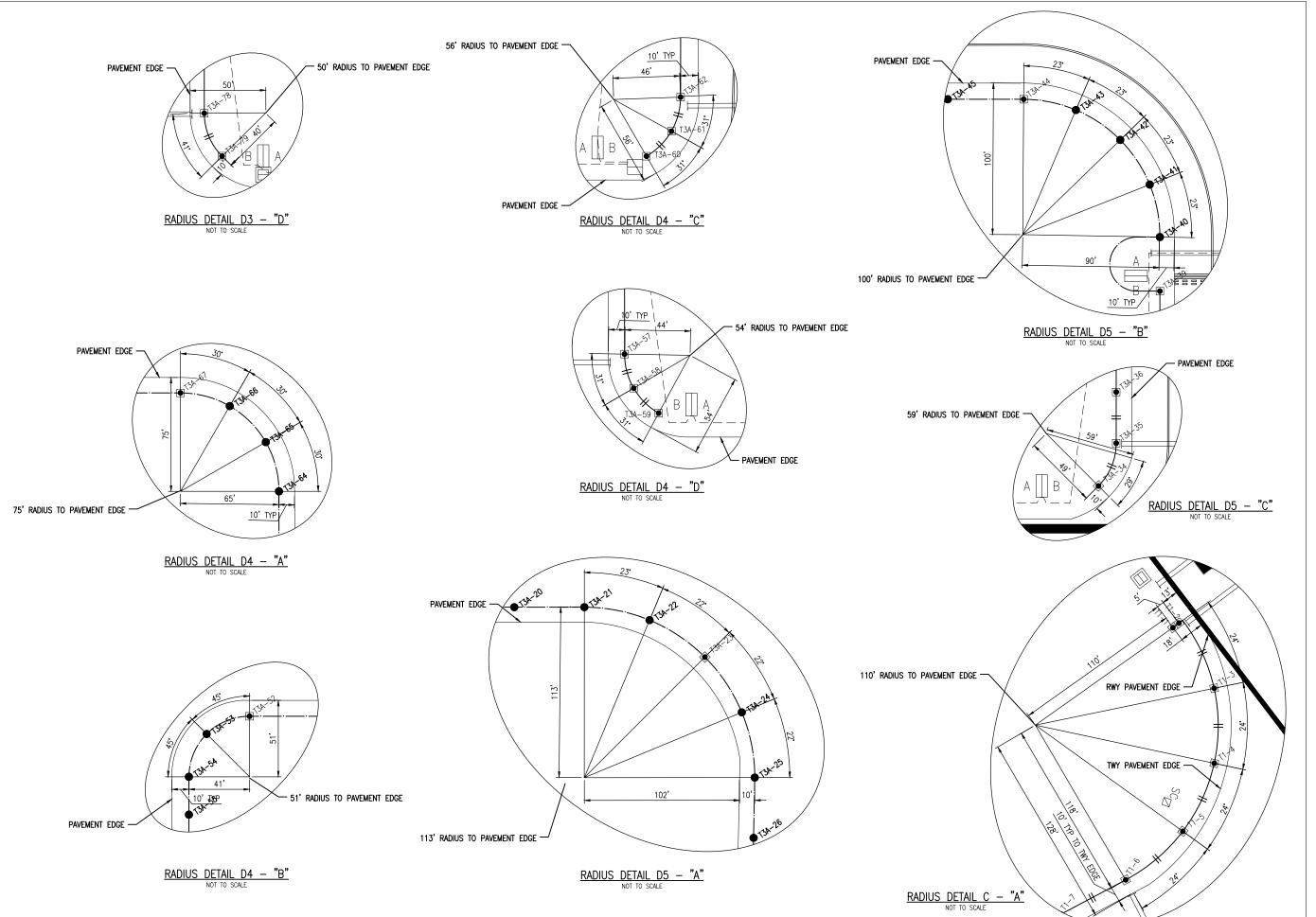
IDA No: MTO-4679

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CADELE: E 511 DETL DWG

CAD FILE: E-511-DETL.DWG
DESIGN BY: KNL 08/04/2018
DRAWN BY: MJD 08/04/2018
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

RADIUS DETAIL SHEET 1



HANSON Engineering | Planning | Alfed Services

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL AIRCORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D

CAD FILE: E-511-DETL.DWG

DESIGN BY: KNL 08/04/2018
DRAWN BY: MJD 08/04/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

RADIUS DETAIL SHEET 2



Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

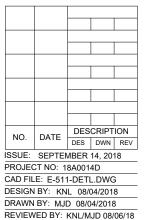
COLES COUNTY AIRPORT
AUTHORITY
COLES CONTY MEMORIAL ARFORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065



SHEET TITLE

RADIUS DETAIL SHEET 3



Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT

AUTHORITY

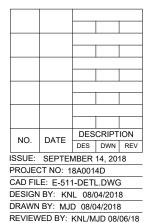
COLES COUNTY MEMORIAL ARTORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065



RADIUS DETAIL SHEET 4

LIGHT LOCATION TABLE FOR TWY A-EAST - CKT 3				
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE	
T3-1	1024953.34	998405.39		
T3-2	1024970.88	998358.57		
T3-3	1024987.28	998314.56		
T3-4	1025021.16	998223.70		
T3-5	1025055.04	998132.84		
T3-6	1025071.44	998088.83		
T3-7	1024937.51	998566.06		
T3-8	1024935.46	998596.30		
T3-9	1024917.93	998643.12		
T3-10	1024900.78	998688.94		
T3-11	1024866.10	998781.59		
T3-12	1024831.42	998874.24		
T3-13	1024796.74	998966.89		
T3-14	1024762.06	999059.54		
T3-15	1024727.38	999152.19		
T3-16	1024692.70	999244.84		
T3-17	1024658.02	999337.49		
T3-18	1024623.34	999430.14		
T3-19	1024605.81	999476.97		
T3-20	1024572.19	999566.78		

LIGHT LOCA	TION TABLE F	OR TWY A-EA	AST - CKT 3
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE
T3-21	1024538.57	999656.59	
T3-22	1024521.04	999703.41	
T3-23	1024500.87	999725.32	
T3-24	1024472.37	999729.21	
T3-25	1024447.22	999713.05	
T3-26	1024552.79	999897.13	
T3-27	1024542.41	999866.30	
T3-28	1024546.92	999833.92	
T3-29	1024560.15	999798.60	
T3-30	1024573.37	999763.28	
T3-31	1024586.59	999727.95	
T3-32	1024604.12	999681.13	
T3-33	1024637.75	999591.32	
T3-34	1024671.37	999501.51	
T3-35	1024688.90	999454.69	
T3-36	1024709.71	999432.34	
T3-37	1024740.23	999431.19	



Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084





PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

NO.	NO. DATE DESCRIPTION				
INO.	DATE	DES	DWN	REV	
ISSUE:	SEPTE	MBER	14, 20	18	
PROJEC	CT NO: 1	8A001	4D		

PROJECT NO: 18A0014D

CAD FILE: E-641-SCHD.DWG

DESIGN BY: KNL 07/29/2018

DRAWN BY: MJD 07/29/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

LIGHT LOCATION TABLE - TAXIWAY CIRCUIT A-EAST

LIGHT LOCATI	ON TABLE FOR	TWY C-SOUTH	- CKT 1
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE
T1-23	1022965.92	997131.39	
T1-24	1022885.44	996991.05	
T1-25	1022829.83	996894.08	
T1-26	1022804.96	996850.70	
T1-27	1022781.93	996810.54	
T1-28	1022758.91	996770.39	
T1-29	1022735.88	996730.23	
T1-30	1022695.72	996753.26	
T1-31	1022655.56	996776.29	
T1-32	1022615.39	996799.32	
T1-33	1022561.78	996830.07	
T1-34	1022508.16	996860.81	
T1-35	1022464.79	996885.68	
T1-35A	1022421.41	996910.55	
T1-36	1022494.83	997046.50	
T1-37	1022497.83	997002.70	
T1-38	1022517.36	996963.39	
T1-39	1022550.45	996934.55	
T1-40	1022604.06	996903.80	
T1-41	1022657.65	996873.01	
T1-42	1022684.65	996865.94	
T1-43	1022711.61	996873.20	

LIGHT LOCAT	ION TABLE FOR	TWY C-SOUTH	- CKT 1
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE
T1-44	1022731.40	996892.88	
T1-45	1022758.95	996934.72	
T1-46	1022820.50	997028.28	
T1-47	1022905.19	997166.21	
T1-48	1022985.67	997306.55	
T1-49	1023041.27	997403.52	
T1-50	1023066.14	997446.90	
T1-51	1023109.77	997510.42	
T1-52	1023163.10	997566.04	
T1-53	1023224.72	997612.32	
T1-54	1023295.25	997656.83	
T1-55	1023365.79	997701.34	
T1-56	1023382.39	997722.51	
T1-57	1023381.82	997749.41	
T1-58	1023364.34	997769.87	
T1-59	1023320.97	997794.74	
T1-60	1023217.29	997854.19	
T1-61	1023113.62	997913.64	
T1-62	1023070.24	997938.51	
T1-63	1023038.22	997946.99	
T1-64	1023006.24	997938.32	
T1-65	1023072.90	998054.57	

LIGHT LOCAT	ON TABLE FOR	TWY C-SOUTH	- CKT 1
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE
T1-66	1023081.57	998022.59	
T1-67	1023105.06	997999.24	
T1-68	1023148.44	997974.37	
T1-69	1023252.11	997914.91	
T1-70	1023355.79	997855.46	
T1-71	1023399.16	997830.59	
T1-72	1023440.70	997806.78	
T1-73	1023472.02	997795.69	
T1-74	1023505.24	997796.39	
T1-75	1023536.07	997808.79	
T1-76	1023578.36	997835.47	
T1-77	1023664.59	997889.89	
T1-78	1023793.12	997970.99	
T1-79	1023921.64	998052.09	
T1-80	1024007.87	998106.51	
T1-81	1024050.16	998133.19	
T1-82	1024089.70	998158.15	
T1-83	1024119.46	998185.25	
T1-84	1024138.05	998220.95	
T1-85	1024143.20	998260.87	
T1-86	1024131.52	998298.95	
T1-87	1024126.91	998297.01	

LIGHT LOCATION TABLE FOR TWY C-NORTH - CKT 5						
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE			
T5-1	1024917.15	998543.76				
T5-2	1024883.47	998530.99				
T5-3	1024849.77	998518.28				
T5-4	1024811.44	998503.83				
T5-5	1024772.96	998489.33				
T5-6	1024743.46	998486.52				
T5-7	1024716.54	998498.91				
T5-8	1024766.20	998362.95				
T5-9	1024777.97	998391.55				
T5-10	1024802.95	998409.79				
T5-11	1024841.43	998424.30				
T5-12	1024879.78	998438.68				
T5-13	1024908.94	998440.64				
T5-14	1024935.56	998428.59				
T5-15	1024623.53	998462.18				
T5-16	1024611.14	998433.34				
T5-17	1024585.90	998414.67				
T5-18	1024505.30	998380.66				
T5-19	1024424.67	998346.72				
T5-20	1024381.14	998338.89				

LIGHT LOCATION TABLE FOR TWY C-NORTH - CKT 5						
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE			
T5-21	1024337.74	998347.37				
T5-22	1024300.35	998370.99				
T5-23	1024388.52	998164.66				
T5-24	1024398.22	998207.00				
T5-25	1024422.37	998243.11				
T5-26	1024457.78	998268.26				
T5-27	1024538.35	998302.35				
T5-28	1024618.95	998335.98				
T5-29	1024647.87	998337.35				
T5-30	1024674.07	998325.01				



Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

AUTHORITY

COLES COUNTY AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO.	DATE	DES	CRIPT	ION	
INO.	DATE	DES	DWN	REV	
ISSUE: SEPTEMBER 14, 2018					
PROJECT NO: 18A0014D					

PROJECT NO: 18A0014D

CAD FILE: E-641-SCHD.DWG

DESIGN BY: KNL 07/29/2018

DRAWN BY: MJD 07/29/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

LIGHT LOCATION TABLE - TAXIWAY CIRCUITS C-NORTH AND C-SOUTH

LIGHT LOCATION TABLE FOR TWY D - CKT 3A						
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE			
T3A-1	1024566.68	999921.34				
T3A-2	1024580.56	999945.55				
T3A-3	1024605.43	999988.92				
T3A-4	1024676.15	1000112.25				
T3A-5	1024771.74	1000278.95				
T3A-6	1024842.46	1000402.27				
T3A-7	1024867.33	1000445.65				
T3A-8	1024892.20	1000489.02				
T3A-8A	1024905.61	1000512.40				
T3A-8B	1024934.00	1000561.91				
T3A-9	1024954.38	1000597.46				
T3A-10	1024979.26	1000640.84				
T3A-11	1025053.88	1000770.97				
T3A-12	1025153.37	1000944.48				
T3A-13	1025252.87	1001117.98				
T3A-14	1025352.36	1001291.49				
T3A-15	1025451.86	1001465.00				
T3A-16	1025526.48	1001595.13				
T3A-17	1025551.57	1001638.88				
T3A-18	1025580.21	1001638.18				
T3A-19	1025603.23	1001678.32				
T3A-20	1025626.24	1001718.46				
T3A-21	1025649.26	1001758.59				
T3A-22	1025663.25	1001800.20				
T3A-23	1025660.25	1001843.99				

LIGHT LOCATION TABLE FOR TWY D - CKT 3A LIGHT NUMBER NORTHING EASTING GROUND						
LIGHT NUMBER	NORTHING	EASTING	RESISTANCE			
T3A-24	1025640.72	1001883.31				
T3A-25	1025607.63	1001912.15				
T3A-26	1025572.71	1001931.28				
T3A-27	1025537.78	1001950.41				
T3A-28	1025502.86	1001969.55				
T3A-29	1025468.01	1001949.91				
T3A-30	1025433.16	1001930.27				
T3A-31	1025398.31	1001910.64				
T3A-32	1025368.88	1001927.52				
T3A-33	1025339.61	1001944.30				
T3A-34	1025274.42	1001887.48				
T3A-35	1025304.79	1001883.58				
T3A-36	1025334.05	1001866.79				
T3A-37	1025363.49	1001849.91				
T3A-38	1025394.47	1001832.15				
T3A-39	1025425.45	1001814.39				
T3A-40	1025456.43	1001796.62				
T3A-41	1025483.17	1001773.57				
T3A-42	1025499.06	1001742.03				
T3A-43	1025501.66	1001706.81				
T3A-44	1025490.63	1001673.33				
T3A-45	1025465.73	1001629.91				
T3A-46	1025391.13	1001499.82				
T3A-47	1025291.64	1001326.31				
T3A-48	1025192.14	1001152.81				

LIGHT NUMBER	NORTHING	FOR TWY D	GROUND RESISTANCE
T3A-49	1025092.65	1000979.30	RESISTANCE
T3A-50	1024993.15	1000805.79	
T3A-51	1024918.53	1000675.66	
T3A-52	1024893.66	1000632.28	
T3A-53	1024869.43	1000613.57	
T3A-54	1024839.06	1000617.48	
T3A-55	1024817.37	1000629.92	
T3A-56	1024732.10	1000678.82	
T3A-57	1024647.52	1000727.32	
T3A-58	1024631.00	1000743.74	
T3A-59	1024624.90	1000766.22	
T3A-60	1024567.70	1000666.46	
T3A-61	1024590.18	1000672.55	
T3A-62	1024612.70	1000666.59	
T3A-63	1024697.28	1000618.09	
T3A-64	1024782.55	1000569.19	
T3A-65	1024806.41	1000545.47	
T3A-66	1024815.22	1000513.00	
T3A-67	1024806.61	1000480.47	
T3A-68	1024781.73	1000437.10	
T3A-69	1024711.02	1000313.77	
T3A-70	1024615.42	1000147.07	
T3A-71	1024544.71	1000023.74	
T3A-72	1024519.83	999980.37	
T3A-73	1024504.91	999971.83	

LIGHT LO	CATION TABLE	FOR TWY D	- CKT 3A
LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANCE
T3A-74	1024490.17	999980.68	
T3A-75	1024462.42	1000018.15	
T3A-76	1024425.53	1000046.68	
T3A-77	1024360.03	1000084.23	
T3A-78	1024294.53	1000121.79	
T3A-79	1024275.82	1000146.03	
T3A-80	1024229.34	1000064.98	
T3A-81	1024259.71	1000061.07	
T3A-82	1024325.21	1000023.51	
T3A-83	1024390.71	999985.95	
T3A-84	1024422.95	999956.46	
T3A-85	1024441.24	999916.56	
T3A-86	1024447.38	999873.31	
T3A-87	1024434.49	999831.56	
T3A-88	1024410.49	999789.72	
T3A-89	1024386.49	999747.87	
T3A-90	1024359.69	999701.15	
T3A-91	1024332.89	999654.43	
T3A-92	1024311.06	999640.04	
T3A-93	1024285.11	999641.83	
T3A-94	1024228.17	999535.62	
T3A-95	1024223.68	999480.33	
T3A-96	1024203.41	999428.69	
T3A-96A	1024184.70	999396.08	
T3A-97	1024165.99	999363.46	

HT LO	CATION TABLE	FOR TWY D	- CKT 3A		LIGHT LOC	CATION TABLE	FOR TWY D	- CKT 3A
JMBER	NORTHING	EASTING	GROUND RESISTANCE		LIGHT NUMBER	NORTHING	EASTING	GROUND RESISTANO
74	1024490.17	999980.68			T3A-98	1024141.11	999320.09	
75	1024462.42	1000018.15			T3A-99	1024105.97	999258.83	
76	1024425.53	1000046.68			T3A-100	1024070.80	999197.60	
77	1024360.03	1000084.23			T3A-101	1024045.96	999154.20	
78	1024294.53	1000121.79			T3A-102	1024025.72	999135.41	
79	1024275.82	1000146.03			T3A-103	1023998.95	999129.51	
80	1024229.34	1000064.98			T3A-104	1023973.09	999138.61	
·81	1024259.71	1000061.07			T3A-105	1024053.08	998953.22	
82	1024325.21	1000023.51			T3A-106	1024056.13	999012.06	
83	1024390.71	999985.95			T3A-107	1024076.73	999067.15	
84	1024422.95	999956.46			T3A-108	1024106.68	999119.38	
85	1024441.24	999916.56			T3A-109	1024131.56	999162.75	
86	1024447.38	999873.31			T3A-110	1024166.70	999224.01	
87	1024434.49	999831.56			T3A-111	1024201.84	999285.26	
88	1024410.49	999789.72			T3A-112	1024226.71	999328.64	
89	1024386.49	999747.87			T3A-113	1024247.93	999345.87	
90	1024359.69	999701.15			T3A-114	1024273.72	999351.31	
91	1024332.89	999654.43			T3A-114A	1024298.36	999341.99	
92	1024311.06	999640.04			T3A-115	1024345.15	999535.12	
93	1024285.11	999641.83			T3A-116	1024369.39	999577.37	
94	1024228.17	999535.62			T3A-117	1024393.61	999619.61	
95	1024223.68	999480.33			T3A-118	1024420.41	999666.33	
96	1024203.41	999428.69						
		i		l				



Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY

COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

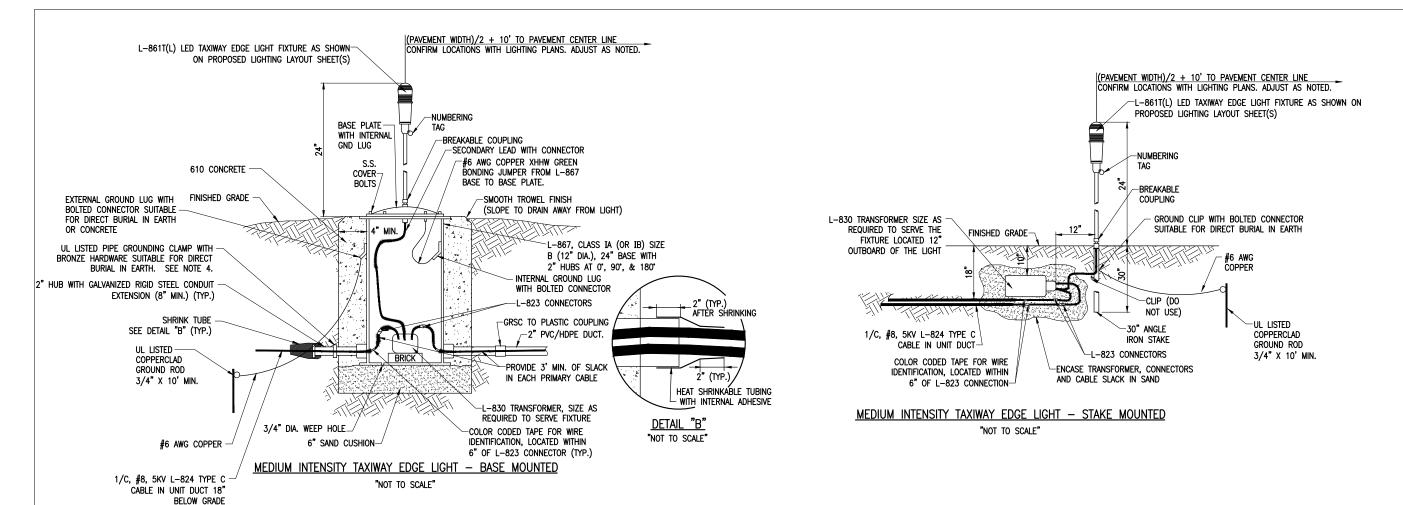
Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV ISSUE: SEPTEMBER 14, 2018 PROJECT NO: 18A0014D

CAD FILE: E-641-SCHD.DWG DESIGN BY: KNL 07/29/2018 DRAWN BY: MJD 07/29/2018 REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

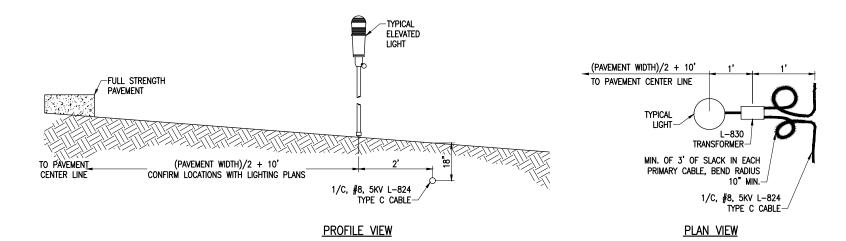
LIGHT LOCATION TABLE - TAXIWAY CIRCUIT D



35 1.1.2 WIN.

NOTE:
AFFIX NON-CORROSIVE TAG TO FIXTURE
FACING RUNWAY WITH SET SCREW, WIRE
TIE, OR METAL BAND. NUMERALS SHALL
BE ENGRAVED FOR PERMANENT
READABILITY.

NUMBERING TAG DETAIL
"NOT TO SCALE"



LIGHT AND CABLE INSTALLATION DETAIL
"NOT TO SCALE"

 ${\underline{\hbox{NOTES:}}\atop\hbox{SEE PROPOSED LIGHTING LAYOUT SHEET FOR LIGHT LOCATIONS.}}$

OTES:

- 1. SEE ELECTRICAL NOTES SHEETS.
- SEE "ELECTRICAL NOTES SHEET 2" AND "GROUNDING NOTES" SHEET FOR GROUNDING NOTES FOR AIRFIELD LIGHTING.
- 3. SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR LIGHT LOCATIONS
- 4. WHERE GROUND LUGS ARE NOT ACCESSIBLE ON BASE CANS, PROVIDE A UL LISTED PIPE GROUND CLAMP RATED FOR DIRECT BURIAL IN EARTH AND BOND TO THE METAL CONDUIT EXTENSION TO PROVIDE GROUND PATH TO LIGHT BASE.

A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FEET LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.



Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT

AUTHORITY

COLES COUNTY MEMORIAL AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

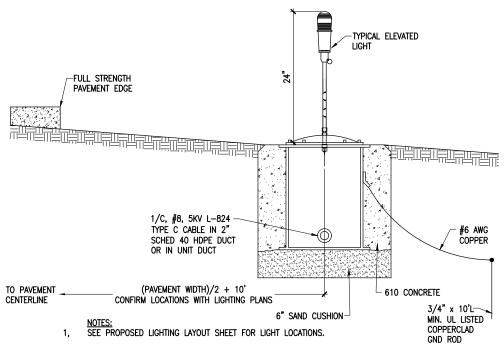
Contract No. CO065

NO.	DATE	DES	CRIPT	ION
NO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	MBER	14, 20°	18
PROJE	CT NO: 1	8A001	4D	
CAD FII	E: E-50	1-DET	L.DWG	}
DESIGN	BY: KN	L 06/	23/201	8
DRAWN	BY: MJI	D 07/1	0/2018	3

AIRFIELD LIGHTING DETAILS SHEET 1

SHEET TITLE

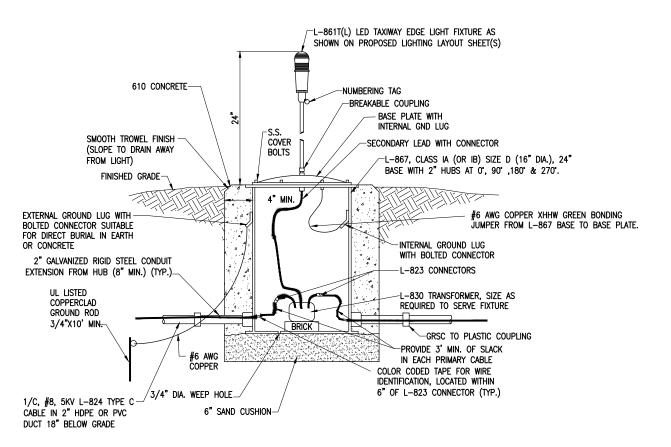
REVIEWED BY: KNL/MJD 08/06/18



ED LIGHTING LAYOUT SHEET FOR LIGHT LOCATIO

PROFILE VIEW

LIGHT AND INSTALLATION DETAIL



MEDIUM INTENSITY TAXIWAY EDGE LIGHT — BASE MOUNTED WITH L-867D CAN "NOT TO SCALE"

OTES:

1. SEE ELECTRICAL NOTES SHEETS.

- 2. SEE "ELECTRICAL NOTES SHEET 2" AND "GROUNDING NOTES" SHEET FOR GROUNDING NOTES FOR AIRFIELD LIGHTING.
- 3. SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR LIGHT LOCATIONS
- 4. WHERE GROUND LUGS ARE NOT ACCESSIBLE ON BASE CANS, PROVIDE A UL LISTED PIPE GROUND CLAMP RATED FOR DIRECT BURIAL IN EARTH AND BOND TO THE METAL CONDUIT EXTENSION TO PROVIDE GROUND PATH TO LIGHT BASE.

A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FEET LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.

HANSON Engineering | Planning | Alfed Services

Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARFORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO.	DATE	DES	CRIPT	ION
NO.	DAIL	DES	DWN	REV
ISSUE:	SEPTE	ИBER	14, 20	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-502	2-DETI	L.DWC	}

DESIGN BY: KNL 06/23/2018
DRAWN BY: MJD 07/10/2018
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

AIRFIELD LIGHTING DETAILS SHEET 2

- 1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE OWNER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS
 AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, INSTALLING, OR RECONNECTING THE RESPECTIVE AIRFIELD
 LIGHTING, NAVAID, OR OTHER DEVICE.
- SUPPLEMENTAL WIND CONES SHALL BE FAA APPROVED TYPE L-806(L) WITH LIGHT EMITTING DIODE ILLUMINATION, STYLE I-B (INTERNALLY LIGHTED), SIZE 1 (18-INCH DIAMETER BY 8 FEET LONG), AND SUITABLE FOR 6.6 AMP SERIES CIRCUIT POWER. WIND CONES SHALL INCLUDE CONSTANT-BRIGHTNESS SERIES CIRCUIT POWER ADAPTER. SEE SPECIAL PROVISION SPECS.
- 4. THE RUNWAY 6-24 LIGHTING CIRCUIT IS POWERED BY AN L-828, CLASS 1 6.6 AMP OUTPUT CURRENT, STYLE 1; 3 BRIGHTNESS STEPS CONSTANT CURRENT REGULATOR. COORDINATE WITH THE RESPECTIVE WIND CONE MANUFACTURER TO PROVIDE A COMPATIBLE AND PROPERLY SIZED SERIES ISOLATION TRANSFORMER FOR EACH WIND CONE.
- . SUPPLEMENTAL L-806 WIND CONES WILL BE PAID FOR UNDER ITEM AR107508 L-806 WC 8' INTERNALLY LIT PER EACH. SPLICE/TRANSFORMER CANS FOR WIND CONE SERIES CIRCUIT TRANSFORMERS WILL BE INCIDENTAL TO THE RESPECTIVE WIND CONE PAY ITEM.
- REBAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60 OR ASTM A615 GRADE 6 AND SHALL BE MANUFACTURED FROM 100% DOMESTIC STEEL. WELDED WIRE FABRIC SHALL CONFORM TO AASHTO M55, ASTM A82, OR ASTM A185 AND SHALL BE MANUFACTURED FROM 100% DOMESTIC STEEL.
- 7. FOR EACH GROUNDING ELECTRODE SYSTEM (GROUND ROD) THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUNDING SYSTEM WITH A INSTRUMENT THAT IS SPECIFICALLY DESIGNED FOR TESTING GROUNDING SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH GROUNDING ELECTRODE SYSTEM. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN.
- 8. RESTORE TURF AREAS AFFECTED BY WIND CONE INSTALLATION.

3/8" THICK (MIN.) GALVANIZED STEEL

SMOOTH TROWEL FINISH

SIZE B, 24" BASE WITH 2"

CONDUIT EXTENSION

(8" MIN. LENGTH) (TYP.).

2" GALVANIZED RIGID STEEL

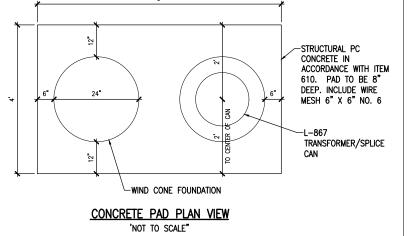
HUBS AT 0°, 90°, & 180°

COVER PLATE WITH STAINLESS STEEL

(SLOPE TO DRAIN)

L-867, CLASS IA,

INTERNALLY LIGHTED L806 WIND CONE (SERIES CIRCUIT TYPE) "NOT TO SCALE"



HANSON Engineering | Planning | Allied Services

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084



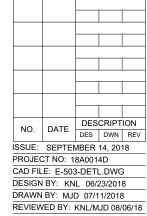


PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065



L-806 WIND CONE DETAILS

SHEET TITLE

INCLUDE INTERNAL & EXTERNAL GROUND LUGS -

FINISHED GRADE-

610 CONCRETE-

4" MIN. THICK

6" SAND CUSHION

WIND CONE TRANSFORMER CAN DETAIL

"NOT TO SCALE"

(REQUIRED PER FAA AC 150/5345-42H)

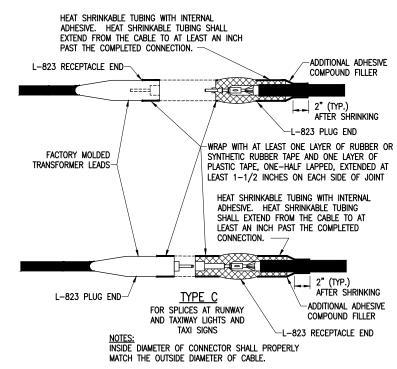
PROVIDE COUPLING

TO INTERFACE TO

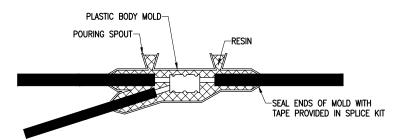
DUCT/CONDUIT

CABLE JACKET REMOVED, "PENCIL"

INSULATION. CONTRACTOR SHALL USE A



CABLE SPLICES
"NOT TO SCALE"

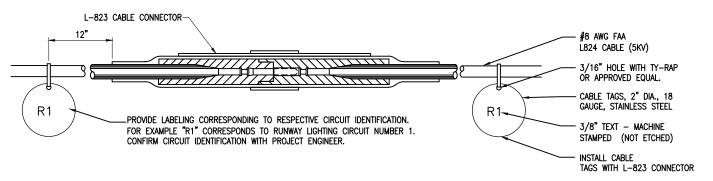


LOW VOLTAGE UNDERGROUND TAP SPLICE

FOR TAP SPLICES IN LOW VOLTAGE (600V) CABLE. SPLICES SHALL BE RATED AND LISTED SUITABLE FOR DIRECT BURIAL LOCATIONS. FOR SPLICES UP TO #2 AWG CONDUCTOR, SPLICES SHALL BE WYE RESIN TYPE POWER CABLE TAP SPLICE KIT SUITABLE FOR THE RESPECTIVE CABLES AND RESPECTIVE APPLICATION.

NOTES:

- SPLICE DETAILS ARE PROVIDED FOR NEW WORK AND TO ASSIST IN REPAIRS OF ACCIDENTAL OR UNEXPECTED INTERRUPTIONS AND/OR CUTS TO AIRFIELD LIGHTING CABLES.
- CONTRACTOR SHALL KEEP ON HAND A MINIMUM OF 10 SETS OF SPLICE KITS FOR L-823 CONNECTORS AND A MINIMUM OF 10 SETS OF TYPE A LOW VOLTAGE SPLICE KITS TO ACCOMMODATE REPAIRS.
- EVERY AIRFIELD LIGHTING CABLE SPLICER SHALL BE QUALIFIED IN MAKING CABLE SPLICES AND TERMINATIONS ON CABLES RATED AT AND/OR ABOVE 5,000 VOLTS AC TO COMPLY WITH THE REQUIREMENTS OF FAA AC 150/5370-10G ITEM L-108.
- 4. WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.
- . INSIDE DIAMETER OF RESPECTIVE CABLE CONNECTOR SHALL PROPERLY MATCH OUTSIDE DIAMETER OF CABLE.
- 6. WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT LAYERS OF HIGH VOLTAGE ELECTRICAL INSULATING TAPE (RUBBER SPLICING TAPE SUITABLE FOR PRIMARY ELECTRICAL INSULATION FOR SPLICING CABLE FROM 600 VOLTS TO 69,000 VOLTS) AND COVER WITH VINYL ELECTRICAL TAPE (ALL—WEATHER VINYL INSULATING TAPE SUITABLE FOR PROTECTIVE JACKETING FOR HIGH—VOLTAGE CABLE SPLICES AND REPAIRS) FOR FULL VALUE OF CABLE INSULATION VOLTAGE. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125, AND FAA AC 150/5370—106 ITEM L—108, HIGH VOLTAGE ELECTRICAL INSULATING TAPE SHALL BE 3M SCOTCH 23, 3M SCOTCH 30 CO RAPPROVED EQUIVALENT, AND VINYL ELECTRICAL TAPE SHALL BE 3M SCOTCH 88 OR APPROVED EQUIVALENT. TAPES MUST BE RATED SUITABLE FOR THE APPLICATION.
- PROVIDE CABLE TAGS TO IDENTIFY THE RESPECTIVE CIRCUITS ALL POINTS OF ACCESS INCLUDING L-867 BASES, L-868 BASES, HANDHOLES, MANHOLES, JUNCTION BOXES, AND WIREWAYS.
- 8. CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. FOR THE L-823 CONNECTORS, THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER THE KIT MANUFACTURER'S INSTRUCTIONS.



- 1 CONTRACTOR SHALL PROVIDE CARLE CIRCUIT IDENTIFICATION MARKERS ATTACHED TO BOTH SIDES OF EACH CARLE CONNECTION
- 2. CABLE IDENTIFICATION TAGS SHALL BE STAINLESS STEEL OR BRASS.
- 3. THE CABLE SHALL THOROUGHLY BE CLEANED PRIOR TO THE INSTALLATION OF THE L-823 CONNECTOR KIT.
- 4. ATTACH EACH CABLE TIE ENOUGH TO HOLD IN PLACE WITHOUT COMPRESSING EDGE OF CABLE TAG INTO CONDUCTOR. TRIM OFF EXCESS CABLE TIE.
- 5. CABLE TAGS SHALL BE PROVIDED AT ALL POINTS OF ACCESS INCLUDING L-867 BASES, L-868 BASES, HANDHOLES, MANHOLES, JUNCTION BOXES, AND WIREWAYS.

"NOT TO SCALE"

HANSON Engineering | Planning | Allied Services

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

AUTHORITY
COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO. DATE DESCRIPTION DES DWN REV ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-504-DETL.DWG
DESIGN BY: KNL 06/23/2018
DRAWN BY: MJD 07/11/2018

REVIEWED BY: KNL/MJD 08/06/18

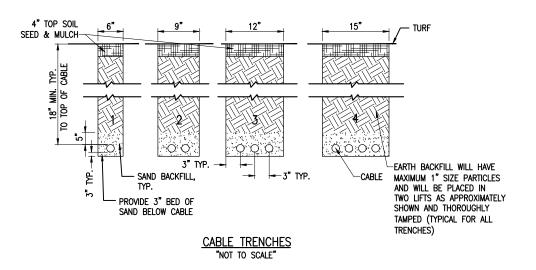
SHEET TITLE

AIRFIELD LIGHTING CABLE SPLICE DETAILS

CONDUIT IN TRENCH - PAVED AREAS "NOT TO SCALE"

CONDUIT IN TRENCH NOTES:

- 1. DIMENSIONS FOR COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
- UNSUITABLE MATERIAL ENCOUNTERED DURING PLACEMENT OF BEDDING SHALL BE REMOVED AND REPLACED.
- 3. TRENCHES WITH MORE THAN TWO DUCTS OR CABLE IN UNIT DUCTS SHALL BE INCREASED 3" IN WIDTH PLUS DIAMETER OF RESPECTIVE DUCT FOR EACH ADDITIONAL CONDUIT, DUCT, OR CABLE IN UNIT DUCT; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
- 4. DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS. MINIMUM COVER REQUIREMENTS FOR CABLES AND DUCTS AT AIRPORT RUNWAYS AND ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED IS 18 INCHES PER NEC 300.5 AND 300.50. MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED BELOW PAVEMENT OR ROADWAYS IS 30". MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED IN AREAS SUBJECT TO FARMING IS 42". ADJUST/INCREASE BURIAL DEPTHS TO ACCOMMODATE SITE CONDITIONS, DRAINAGE AND/OR OBSTRUCTIONS. COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT—BURIED CONDUCTOR, CABLE, CONDUIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE OR SIMILAR COVER.
- HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND/OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, INDUITED TO THE PROPERTY OF THE P
- CONDUIT, DUCT, CABLE, AND/OR CABLE IN UNIT DUCT INTERFACE TO HANDHOLES, MANHOLES, SPLICE CANS, OR OTHER JUNCTION STRUCTURES WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE CABLE PAY ITEM OR RESPECTIVE DUCT PAY ITEM.
- ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. <u>COST IS INCIDENTAL TO TRENCH</u>.



CABLE TRENCH NOTES:

- 1. DETAIL NUMBERS INDICATE NUMBER OF CABLES.
- TRENCHES WITH MORE THAN FOUR CABLES SHALL BE INCREASED 3" IN WIDTH FOR EACH ADDITIONAL CABLE; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
- 3. DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS. MINIMUM COVER REQUIREMENTS FOR CABLES AND DUCTS AT AIRPORT RUNWAYS AND ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED IS 8 INCHES PER NEC 300.5 AND 300.50. MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED BELOW PAVEMENT OR ROADWAYS IS 30". COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT-BURIED CONDUCTOR, CABLE, CONDUIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE OR SIMILAR COVER.
- 4. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND/OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, HANDHOLE, OR MANHOLE.
- CONDUIT, DUCT, CABLE, AND/OR CABLE IN UNIT DUCT INTERFACE TO HANDHOLES, MANHOLES, SPLICE CANS, OR OTHER JUNCTION STRUCTURES WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE CABLE PAY ITEM OR RESPECTIVE DUCT PAY ITEM.
- 6. ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. <u>COST IS INCIDENTAL TO TRENCH.</u>

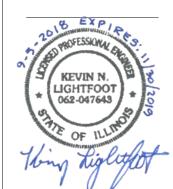


Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES CONTY MEMORIAL AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

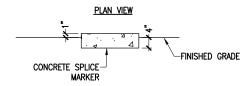
NO. DATE DESCRIPTION
DES DWN REV

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-505-DETL.DWG
DESIGN BY: KNL 06/23/2018

SHEET TITLE

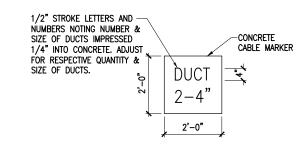
CONDUIT AND CABLE TRENCH DETAILS

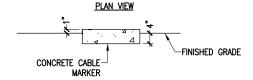
DRAWN BY: MJD 07/11/2018
REVIEWED BY: KNL/MJD 08/06/18



SECTION VIEW

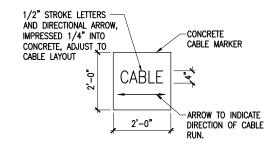
TURF CABLE MARKERS "NOT TO SCALE"

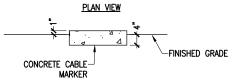




SECTION VIEW

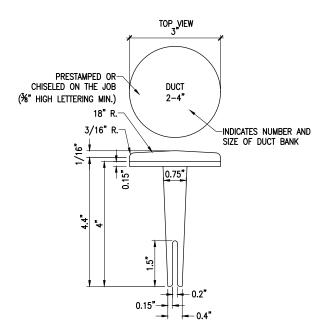
TURF CABLE MARKERS "NOT TO SCALE"





SECTION VIEW

TURF CABLE MARKERS "NOT TO SCALE"



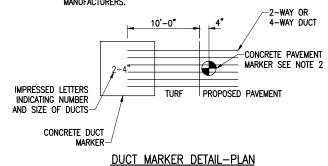
BITUMINOUS PAVEMENT DUCT MARKERS
"NOT TO SCALE"

NOTE:

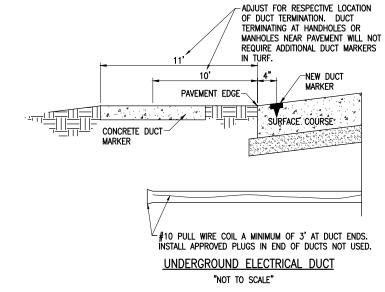
- TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE.

 MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH

 EDOLY CLUE
- BRASS DUCT MARKERS ARE AVAILABLE FROM G&S FOUNDRY & MANUFACTURING CO. INC., 210 KASKASKIA DRIVE, RED BUD, IL 62278, PHONE: (618)—282—4114, SURV—KAP, 3225 E. 47TH ST., TUCSON, AZ 85713, PHONE: (502)—622—6011, OR OTHER EQUIVALENT MANUFACTURERS.



"NOT TO SCALE"



CABLE & DUCT MARKER NOTES:

- THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
- BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE INFORMED AS DESCRIBED IN NOTE 4.
- 3. UNDERGROUND CABLE RUNS MUST BE IDENTIFIED BY CABLE MARKERS AT 200 FEET (61 M) MAXIMUM SPACING WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS MUST BE INSTALLED ABOVE THE CABLE. CABLE MARKERS ARE NOT REQUIRED FOR CABLE RUNS BETWEEN RUNWAY/TAXIWAY EDGE LIGHTS.
- 4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE ½" AND ¾" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.
- EMPLOY THE FOLLOWING METHODS WHERE ADDITIONAL SPACE TO FIT THE LEGEND IS REQUIRED:
 - A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
 - B. INCREASE THE MARKER SIZE TO 30" X 30".
 - C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE
- . TURF DUCT MARKERS ARE NOT REQUIRED AT PAVEMENT CROSSINGS WHERE DUCTS TERMINATE IN HANDHOLES, OR JUNCTION STRUCTURES.
- 7. LOCATION OF ALL DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICE/CONNECTIONS, EXCEPT THOSE AT ISOLATION TRANSFORMERS, MUST BE IDENTIFIED BY SPLICE MARKERS. SPLICE MARKERS MUST BE PLACED ABOVE THE SPLICE/CONNECTIONS. DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICES SHALL BE AVOIDED WHERE POSSIBLE. CABLE SPLICES SHALL BE LOCATED IN SPLICE CANS, LIGHT BASES, HANDHOLES, MANHOLES, OR OTHER JUNCTION STRUCTURES UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER, OR DETAILED ON THE PLANS.
- 8. THE CABLE AND SPLICE MARKERS MUST IDENTIFY THE CIRCUITS TO WHICH THE CABLES BELONG, FOR EXAMPLE: RWY 6-24, TWY C-CKT 1, TWY AE-CKT 3, AND TWY D-CKT 3A
- LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS MUST BE IDENTIFIED BY DUCT MARKERS.

HANSON Engineering | Planning | Allied Service

Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ABRORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

IDA No: MTO-4679

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D

CAD FILE: E-506-DETL.DWG

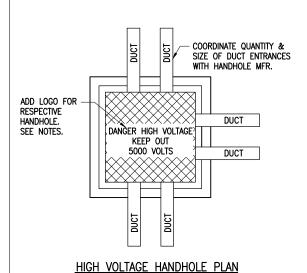
DESIGN BY: KNL 06/23/2018

DRAWN BY: MJD 07/11/2018

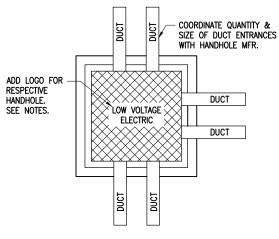
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

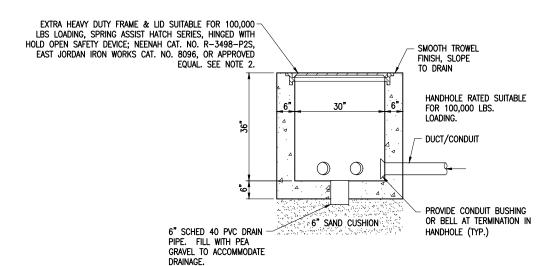
CABLE AND DUCT MARKER DETAILS



"NOT TO SCALE"



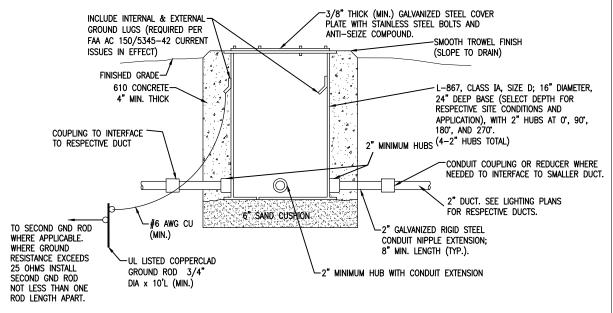
LOW VOLTAGE HANDHOLE PLAN
"NOT TO SCALE"



ELEVATION
"NOT TO SCALE"

HANDHOLE NOTES:

- LIDS FOR LOW VOLTAGE HANDHOLES (CONTAINING CIRCUITS RATED 600 VOLTS AND BELOW) SHALL BE LABELED "LOW VOLTAGE" OR "OV - 600V ELECTRIC". LIDS FOR HIGH VOLTAGE HANDHOLES CONTAINING AIRFIELD LIGHTING SERIES CIRCUIT WIRING SHALL BE LABELED "DANGER HIGH VOLTAGE KEEP OUT 5000 VOLTS" TO COMPLY WITH NEC ARTICLE 300.45 "WARNING SIGNS" AND NEC ARTICLE 314.30(D) "COVERS". COORDINATE LETTERING WITH MFR. HANDHOLES PROVIDED WITH THE WRONG LIDS SHALL HAVE THE LIDS REPLACED WITH THE CORRECT LIDS AT NO ADDITIONAL COST TO THE CONTRACT.
- 2. ELECTRICAL HANDHOLE, FRAME & LID SHALL BE CAPABLE OF WITHSTANDING MINIMUM 100,000 POUND LOADS AS CALLED FOR IN FAA ADVISORY CIRCULAR AC 150/5320-6E APPENDIX 3 ITEM 2.d. (1). AIRPORT HANDHOLE HOLE FRAME & LID SHALL BE NEENAH CATALOG NO. R-3498-P2S, EAST JORDAN IRON WORKS CAT. NO. 8096, OR APPROVED EQUAL.
- 3. REINFORCEMENT SHALL BE #6 BARS AT 6" CENTERS BASE & WALLS EACH WAY.
- 4. CONCRETE SHALL BE 5000 PSI AT 28 DAYS.
- 5. HANDHOLES SHALL BE PRECAST.
- 6. COORDINATE INSTALLATION OF HANDHOLES WITH RESPECTIVE FINISHED GRADE ELEVATION.
- ALL CORING, INTERFACE, AND LABOR ASSOCIATED WITH CONDUIT, DUCT, CABLE IN UNIT DUCT, AND/OR CABLE ENTRIES WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE HANDHOLE AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.



SPLICE CAN DETAIL "NOT TO SCALE"

NOTES FOR SPLICE CAN DETAIL:

- SPLICE CANS SHALL CONFORM TO THE REQUIREMENTS OF FAA AC 150/5345-42 (CURRENT ISSUES IN EFFECT), FOR TYPE L-867, CLASS IA, SIZE D, (16 IN. NOMINAL DIAMETER), AND 24 IN. DEEP AND/OR AS DETAILED ON THE PLANS. EACH SPLICE CAN SHALL INCLUDE INTERNAL AND EXTERNAL GROUND LUGS TO ACCOMMODATE THE RESPECTIVE APPLICATIONS. SPLICE CANS AND/OR JUNCTION CANS SHALL HAVE GALVANIZED STEEL COVERS, 3/8-INCH THICK (MINIMUM), WITH STAINLESS STEEL BOLTS.
- FOR THE PURPOSE OF ENHANCING SAFETY, EACH BASE MUST HAVE INSTALLED, BY THE MANUFACTURER, AN
 INTERNAL AND EXTERNAL GROUND STRAP THAT IS AVAILABLE FOR THE PURPOSE OF ATTACHING A GROUND
 LUG THAT IS CONNECTED TO AN EARTH GROUND OR A SAFETY GROUND CONDUCTOR INSTALLED WITH THE
 RESPECTIVE CIRCUIT. FOR AIRPORT PROJECTS RECEIVING FEDERAL FUNDS THIS REQUIREMENT IS
 MANDATORY PER FAA AC 150/5345-42 (CURRENT ISSUES IN EFFECT).
- APPLY AN OXIDE-INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS, AND ALL PLACES WHERE
 METAL COMES INTO CONTACT WITH METAL.
- 4. THE CONCRETE USED IN THE CONSTRUCTION OF THE BASES FOR THE AIRFIELD LIGHTING CANS SHALL BE IN ACCORDANCE WITH ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE.
- LIDS FOR THE SPLICE CANS CONTAINING HIGH VOLTAGE AIRFIELD LIGHTING CABLES SHALL INCLUDE MINIMUM 1/2—INCH HIGH LETTERING LABELED "DANGER HIGH VOLTAGE KEEP OUT" TO COMPLY WITH NEC ARTICLE 300.45 "WARNING SIGNS" AND NEC ARTICLE 314.71(E) "SUITABLE COVERS". THIS WILL NEED TO BE COORDINATED WITH THE SPLICE CAN MANUFACTURER.
- 6. LIDS FOR THE SPLICE CANS CONTAINING LOW VOLTAGE CABLES (RATED 600 VOLTS AND BELOW) WILL BE ACCEPTABLE TO USE BLANK COVERS.



Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES CHAT MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-507-DETL.DWG
DESIGN BY: KNL 06/23/2018
DRAWN BY: MJD 07/11/2018
REVIEWED BY: KNL /MJD 08/06/18

SHEET TITLE

ELECTRICAL HANDHOLE AND SPLICE CAN DETAILS

DUCT INSTALLATION NOTES

- I. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.
- 3. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELCTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FÉDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND LITILITIES ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.
- ADJUSTMENTS TO DUCT BANK ROUTES MIGHT BE REQUIRED TO ACCOMMODATE EXISTING SITE CONDITIONS AND UNDERGROUND LINES AND UTILITIES. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL COORDINATE DUCT ROUTE ADJUSTMENTS WITH THE RESIDENT ENGINEER/ RESIDENT TECHNICIAN AND THE AIRPORT MANAGER.
- 6. CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING CABLES, LINES, OR UTILITIES WITHIN 10 FT OF PROPOSED EXCAVATING/TRENCHING AREA. ANY CABLES, LINES, AND UTILITIES FOUND INTERFERING WITH PROPOSED EXCAVATION OR CABLE/TRENCHING SHALL BE HAND DUG AND EXPOSED. ANY DAMAGED CABLES OR OTHER UTILITIES SHALL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE RESPECTIVE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE. THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND OWNER SHALL BE NOTIFIED IMMEDIATELY IF ANY CABLES OR OTHER UTILITIES ARE DAMAGED.
- PAYMENT FOR LOCATING AND MARKING UNDERGROUND UTILITIES AND CABLES WILL
 NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE
 PERSPECTIVE DUICT INSTALLATION.
- 8. THE CONTRACTOR WILL DETERMINE IF THERE IS A CONFLICT BETWEEN THE INSTALLATION OF THE PROPOSED ELECTRICAL DUCTS AND ANY EXISTING UTILITIES. HE WILL MAKE ALL NECESSARY ADJUSTMENTS IN DEPTH OF INSTALLATION TO AVOID ANY AND ALL PROPOSED UNDERGROUND IMPROVEMENTS
- CONDUITS FOR DIRECT BURIAL OR CONCRETE ENCASED DUCT BANK SHALL BE SCHEDULE 40 PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651, LISTED SUITABLE FOR UNDERGROUND USE EITHER DIRECT-BURIED OR ENCASED IN CONCRETE, OR SCHEDULE 40 (MINIMUM) HDPE CONDUIT, UL LISTED, CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND LISTED SUITABLE FOR UNDERGROUND USE; EITHER DIRECT BURY OR ENCASED IN CONCRETE.

- 10. CONDUITS FOR DIRECTIONAL BORING SHALL BE SCHEDULE 40 PVC CONDUIT OR SCHEDULE 80 PVC CONDUIT, UL—LISTED, RATED FOR 90°C CABLE—CONFORMING TO NEMA STANDARD TC—2 AND UL 651 AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, SCHEDULE 80 HDPE CONDUIT, UL—LISTED, CONFORMING TO NEMA STANDARD TC—7 AND UL 651B AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, OR WALL TYPE SDR 13.5 OR SDR 11 HDPE CONDUIT MANUFACTURED IN ACCORDANCE WITH ASTM D—3350 (SPECIFICATION OF POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS) AND ASTM F2160 (STANDARD SPECIFICATION FOR SOLID WALL, HIGH—DENSITY POLYETHYLENE CONDUIT BASED ON CONTROLLED OUTSIDE DIAMETER), AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION. PER NEC 300.5 (K), RACEWAYS INSTALLED USING DIRECTIONAL BORING EQUIPMENT SHALL BE APPROVED FOR THE PURPOSE.
- 11. INSTALLATION OF CONDUIT AND DUCTS SHALL CONFORM TO ITEM 110 AIRPORT UNDERGROUND FLECTRICAL DUCT BANKS AND CONDUITS.
- 12. DUCTS INSTALLED IN TRENCH SHALL BE INSTALLED 18 IN. MINIMUM BELOW GRADE IN TURF AREAS NOT SUBJECT TO FARMING. DUCTS LOCATED IN AREAS SUBJECT TO FARMING SHALL BE 42 IN. MINIMUM BELOW GRADE. MINIMUM DEPTH OF TOP OF DUCT ENCASEMENT SHALL BE 42" IN AREAS UNDER ROADWAYS. WHERE DETAILED ON THE PLANS OR WHERE REQUIRED TO AVOID OBSTRUCTIONS, DUCTS SHALL BE BURIED DEEPER.
- 13. WHERE CONCRETE-ENCASED DUCT INTERFACES TO AN ELECTRICAL HANDHOLE OR MANHOLE, THE CONCRETE ENCASEMENT SHALL BE INSTALLED UP TO THE RESPECTIVE HANDHOLE OR MANHOLE. PROVIDE BUSHINGS OR BELLS AT CONDUIT TERMINATIONS IN ELECTRICAL HANDHOLES OR MANHOLES.
- 14. UNDERGROUND DUCTS INSTALLED BY DIRECTIONAL—BORING METHOD SHALL BE INSTALLED IN A MANNER THAT WILL NOT DAMAGE ANY EXISTING UNDERGROUND UTILITIES, AND SHALL NOT DISTURB OR DAMAGE THE RESPECTIVE PAVEMENT OR ROADWAY SURFACE. DUCTS SHALL BE DIRECTIONAL—BORED AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. THE DUCTS WILL BE BORED AT A MINIMUM DEPTH OF 42 IN. BELOW THE RESPECTIVE PAVEMENT IT IS BEING BORED UNDER.
- 15. A PULL WIRE SHALL BE INSTALLED IN EACH CONDUIT OR DUCT TO BE LEFT VACANT
- 16. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND/OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME RACEWAY. CONDUIT. DUCT. HANDHOLE. OR MANHOLE.
- 17. CONTROL CABLES SHALL BE RUN IN SEPARATE DUCTS FROM POWER CABLES.
- 18. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT SHALL BE INSTALLED IN THE SAME RACEWAY OR DICT
- 19. COORDINATE DUCT INTERFACE TO MANHOLES AND HANDHOLES. FIELD CUT OPENINGS FOR CONDUITS AND DUCTS TO INTERFACE TO MANHOLES AND/OR HANDHOLES. CUT WALL OF RESPECTIVE HANDHOLE OR MANHOLE WITH A TOOL DESIGNED FOR MATERIAL TO BE CUT. SIZE HOLES FOR RESPECTIVE DUCTS, CONDUITS, AND TERMINATION FITTINGS AND SEAL AROUND PENETRATIONS. ALL CORING, INTERFACE, CUTTING, AND SEALING WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION AND/OR RESPECTIVE HANDHOLE/MANHOLE INSTALLATION.
- 20. CONTRACTOR SHALL COORDINATE DUCT MARKING WITH AIRPORT.
- 21. ALL POWER AND CONTROL CABLES IN HANDHOLES, MANHOLES, AND JUNCTION BOXES SHALL BE TAGGED TO IDENTIFY THE RESPECTIVE CABLE. A MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MANHOLE; ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT. CABLE TAGS SHALL BE STAMPED BRASS TAGS OR OTHER WEATHERPROOF/WATERPROOF CORROSION BESISTANT MATERIAL



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES ON THE MEMORIAL AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

	NO.	DATE	DESCRIPTION		ION
NO.	DATE	DES	DWN	REV	
	ISSUE:	SEPTE	ИBER	14, 20°	18
	PROJEC	T NO: 1	8A001	4D	

PROJECT NO: 18A0014D

CAD FILE: E-508-DETL.DWG

DESIGN BY: KNL 06/23/2018

DRAWN BY: MJD 07/11/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

DUCT BANK INSTALLATION NOTES

- CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.
- 3. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- 4. THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS FURNISHED BY HIM, INCLUDING FAA APPROVED EQUIPMENT, ARE COMPATIBLE IN ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NONCOMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR SHALL BE REPLACED BY HIM AT NO ADDITIONAL COST TO THE AIRPORT SPONSOR WITH A SIMILAR UNIT, APPROVED BY THE ENGINEER (DIFFERENT MODEL OR DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.
- IN CASE THE CONTRACTOR ELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING EQUIPMENT REQUIRING ADDITIONAL WIRING, TRANSFORMERS, ADAPTORS, MOUNTINGS, ETC., TO THOSE SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATION, <u>ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE EQUIPMENT COST.</u>
- 6. THE CONTRACTOR INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) SHALL NOT GENERATE ANY ELECTROMAGNETIC INTERFERENCE IN THE EXISTING AND/OR NEW COMMUNICATIONS, WEATHER, AIR NAVIGATION, AND AIR TRAFFIC CONTROL EQUIPMENT. ANY EQUIPMENT GENERATING SUCH INTERFERENCE SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST WITH THE EQUIPMENT MEETING THE APPLICABLE SPECIFICATIONS AND NOT GENERATING ANY INTERFERENCE.
- WHEN A SPECIFIC TYPE, STYLE, CLASS, ETC. OF FAA APPROVED EQUIPMENT IS SPECIFIED ONLY THAT TYPE, STYLE, CLASS, WILL BE ACCEPTABLE, EVEN THOUGH EQUIPMENT OF OTHER TYPES STYLES, CLASSES, ETC. MAY BE APPROVED.
- ANY AND ALL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN TO THE CONTRACTOR REGARDING CHANGES IN OR DEVIATIONS FROM THE PLANS AND SPECIFICATIONS SHALL BE IN WRITING WITH COPIES SENT TO THE AIRPORT SPONSOR AND THE ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF AERONAUTICS. THE CONTRACTOR SHALL NOT ACCEPT ANY VERBAL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN REGARDING ANY CHANGES FROM THE PLANS AND SPECIFICATIONS.
- A MINIMUM OF THREE COPIES OF THE INSTRUCTION BOOK SHALL BE SUPPLIED WITH EACH DIFFERENT TYPE OF EQUIPMENT. THE BOOKS DESCRIBING A MORE SOPHISTICATED TYPE OF EQUIPMENT, SUCH AS REGULATORS, PAPI, REIL, ETC. AS A MINIMUM SHALL CONTAIN THE FOLLOWING:
 - A. A DETAILED DESCRIPTION OF THE OVERALL EQUIPMENT AND ITS INDIVIDUAL
 - 3. THEORY OF OPERATION INCLUDING THE FUNCTION OF EACH COMPONENT.
 - C. INSTALLATION INSTRUCTION.
 - D. START-UP INSTRUCTIONS.
 - E. PREVENTATIVE MAINTENANCE REQUIREMENTS.
 - F. CHART FOR TROUBLE-SHOOTING.
 - G. COMPLETE POWER AND CONTROL DETAILED WIRING DIAGRAM(S), SHOWING EACH CONDUCTOR/CONNECTION/COMPONENT "BLACK" BOXES ARE NOT ACCEPTABLE. THE DIAGRAM OF THE NARRATIVE SHALL SHOW VOLTAGE/CURRENTS/WAVE SHAPES AT STRATEGIC LOCATIONS TO BE USED WHEN CHECKING AND/OR TROUBLE—SHOOTING THE EQUIPMENT. WHEN THE EQUIPMENT HAS SEVERAL MODES OF OPERATION, SUCH AS SEVERAL BRIGHTINESS STEPS, THESE PARAMETERS SHALL BE INDICATED FOR ALL DIFFERENT MODES.
 - H. PARTS LIST WHICH WILL INCLUDE ALL MAJOR AND MINOR COMPONENTS SUCH AS RESISTORS, DIODES, ETC. IT SHALL INCLUDE A COMPLETE NOMENCLATURE OF EACH COMPONENT AND, IF APPLICABLE, THE NAME OF ITS MANUFACTURER AND THE CATALOG NUMBER.
- I. SAFETY INSTRUCTIONS.

POWER AND CONTROL NOTES

- 1. PROVIDE LEGEND PLATES FOR ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, CIRCUIT VOLTAGE AND PHASE. WHERE THE EQUIPMENT CONTAINS FUSES, ALSO IDENTIFY THE FUSE OR FUSE LINK AMPERE RATING. WHERE THE EQUIPMENT DOES NOT HAVE SUFFICIENT AREA TO INSTALL LEGEND PLATES, THE LEGEND PLATES SHALL BE INSTALLED ON THE WALL NEXT TO THE UNIT. LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.
- 2. COLOR CODE ALL PHASE WIRING BY THE USE OF COLORED WIRE INSULATION AND/OR COLORED TAPE. WHERE TAPE IS USED, THE WIRE INSULATION SHALL BE BLACK. BLACK AND RED SHALL BE USED FOR PHASE CONDUCTORS ON 120/240VAC SINGLE-PHASE, THREE WIRE SYSTEMS AND BLACK, ORANGE (FOR HIGH LEG) AND BLUE SHALL BE USED FOR PHASE CONDUCTORS ON 240/120VAC THREE-PHASE, FOUR WIRE SYSTEMS. NEUTRAL CONDUCTORS, SIZE NO. 6 AWG OR SMALLER, SHALL BE IDENTIFIED BY A CONTINUOUS WHITE OR NATURAL GRAY OUTER FINISH ALONG ITS ENTIRE LENGTH. NEUTRAL CONDUCTORS LARGER THAN NO. 6 AWG SHALL BE IDENTIFIED EITHER BY A CONTINUOUS WHITE OR NATURAL GRAY OUTER FINISH ALONG ITS ENTIRE LENGTH OR BY THE USE OF WHITE TAPE AT ITS TERMINATIONS AND INSIDE ACCESSIBLE WIREWAYS. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR SIZES (AWG OR KCMIL).
- ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE SHALL BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING SHALL BE EXTENDED TO THE POINT OF UTILIZATION.
- IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL, FTC.
- LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE INSTALLED IN SEPARATE WIREWAYS.
- NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND JUNCTION/PULL BOXES.
- THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:
 - IN STRAIGHT PULLS THE LENGTH OF THE BOX SHALL NOT BE LESS THAN EIGHT TIMES THE TRADE DIAMETER OF THE LARGER CONDUIT. THE TOTAL AREA (INCLUDING THE CONDUIT CROSS—SECTIONAL AREA) OF A BOX END SHALL BE AT LEAST 3 TIMES GREATER THAN THE TOTAL TRADE CROSS—SECTIONAL AREA OF THE CONDUITS TERMINATING AT THE END.
 - B. IN ANGLE PULLS OR 'U' PULLS THE DISTANCE BETWEEN EACH CONDUIT ENTRY INSIDE THE BOX AND THE OPPOSITE WALL OF THE BOX SHALL NOT BE LESS THAN SIX (6) TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT. THIS DISTANCE SHALL BE INCREASED FOR ADDITIONAL ENTRIES BY THE AMOUNT OF THE SUM OF THE DIAMETERS OF ALL OTHER CONDUIT ENTRIES ON THE SAME WALL AS THE BOX. THE DISTANCE BETWEEN CONDUIT ENTRIES ENCLOSING THE SAME CONDUCTOR SHALL NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT.
- A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, SQUARE DUCTS AND PULL/JUNCTION BOXES, SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL), INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE TERMINATIONS, CAST, CONDUIT TYPE OUTLETS SHALL NOT BE TREATED AS PULL/JUNCTION BOXES.
- EQUIPMENT CABINETS SHALL NOT BE USED AS PULL/JUNCTION BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT SHALL BE BROUGHT INTO THESE ENCLOSURES.
- SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS, AND AT EASILY ACCESSIBLE LOCATIONS.
- 11. CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL(S) SHALL BE
 THERMAL—MAGNETIC MOLDED CASE, PERMANENT TRIP WITH 100 AMPERE, MINIMUM
 FRAME.
- DUAL LUGS SHALL BE USED WHERE TWO (2) WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMINAL.
- ALL INTERIOR WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED ON HOT DIPPED GALVANIZED STEEL STRUT SUPPORT, OR STAINLESS STEEL STRUT SUPPORT, WITH CORROSION RESISTANT HARDWARE.
- 14. SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE HOT DIPPED GALVANIZED STEEL STRUT SUPPORT OR STAINLESS STEEL STRUT SUPPORT WITH STAINLESS STEEL HARDWARE. PROVIDE ZINC RICH PAINT APPLIED TO FIELD CUTS OF GALVANIZED STEEL SUPPORT TO MINIMIZE THE POTENTAL FOR CORROSION PER THE RESPECTIVE STRUT SUPPORT MANUFACTURER'S RECOMMENDATIONS.

- 15. CONDUITS FOR ELECTRIC SERVICE ENTRANCE AND FEEDERS SHALL BE AS DETAILED HEREIN ON THE PLANS. WHERE GALVANIZED RIGID STEEL CONDUIT IS SPECIFIED IT SHALL HAVE THREADED FITTINGS. SET SCREW TYPE FITTINGS WILL NOT BE ACCEPTABLE. CONDUITS FOR UNDERGROUND APPLICATIONS SHALL BE AS DETAILED HEREIN. CONDUITS FOR GROUNDING ELECTRODE CONDUCTORS OR INDIVIDUAL GROUNDING CONDUCTORS SHALL BE SCHEDULE 40 OR SCHEDULE 80 PVC.
- 16. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AT CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION OR WHERE FLEXIBILITY IS REQUIRED. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING, SUNLIGHT RESISTANT, AND RESISTANT TO OIL, GASOLINE, AND GREASE. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO MOTORS, TRANSFORMERS, & CONSTANT CURRENT REGULATORS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL. LISTED. CONFIRM LIQUID—TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
- UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.
- 18. ALL STEEL CONDUITS, FITTINGS, NUTS, BOLTS, ETC. SHALL BE GALVANIZED.
- USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG OR LARGER UNDERGROUND WIRE IS INSTALLED, USE INSULATED BUSHINGS.
- 20. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
- 21. WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT LAYERS OF HIGH VOLTAGE ELECTRICAL INSULATING TAPE (RUBBER SPLICING TAPE SUITABLE FOR PRIMARY ELECTRICAL INSULATION FOR SPLICING CABLE FROM 600 VOLTS TO 69,000 VOLTS) AND COVER WITH VINYL ELECTRICAL TAPE (ALL—WEATHER VINYL INSULATING TAPE SUITABLE FOR PROTECTIVE JACKETING FOR HIGH-VOLTAGE CABLE SPLICES AND REPAIRS) FOR FULL VALUE OF CABLE INSULATION VOLTAGE. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125 AND FAA AC 150/5370-10G ITEM L-108, HIGH VOLTAGE ELECTRICAL INSULATING TAPE SHALL BE 3M SCOTCH 23, 3M SCOTCH 130C OR APPROVED EQUIVALENT, AND VINYL ELECTRICAL TAPE SHALL BE 3M SCOTCH 88 OR APPROVED EQUIVALENT. TAPES MUST BE RATED SUITABLE FOR THE APPLICATION.
- UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG. COPPER MINIMUM.
- 23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:
 - A. FOR INTERIOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 12 (DUST TIGHT) ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. FOR EXTERIOR/OUTDOOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 4X STAINLESS STEEL ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. ALL CONDUIT ENTRIES INTO NEMA 4, 4X ENCLOSURES SHALL HAVE NEMA 4 HUBS LISTED SUITABLE FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE.
 - B. THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS, TERMINAL BLOCKS AND INCOMING AND INTERNAL WIRING.
 - C. ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED-EYE TERMINATIONS, OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.
 - D. WHEN THE ENCLOSURE COVER IS OPENED, ALL CIRCUIT COMPONENTS, WIRING AND TERMINALS SHALL BE EXPOSED AND ACCESSIBLE WITHOUT REMOVAL OF ANY PANELS, COVERS, ETC., EXCEPT THOSE COVERING HIGH VOLTAGE COMPONENTS.
 - E. ACCESS TO, OR REMOVAL OF A CIRCUIT COMPONENT OR TERMINAL BLOCK
 WILL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR
 TERMINAL BLOCK
 - F. EACH CIRCUIT COMPONENT SHALL BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWINGS AND ITS FUNCTION.
 - G. A COMPLETE WIRING DIAGRAM SHALL BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE
 - H. THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL.
 - . ALL WIRING SHALL BE NEATLY TRAINED AND LACED.
 - J. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG.
- 24. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH METER SOCKET, SERVICE DISCONNECT, SAFETY SWITCH, CUTOUT, PANELBOARD, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "ARC FLASH HAZARD WARNING".

Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO.	DATE	DES	CRIPT	ION	
NO.	DATE	DES	DWN	RE	
ISSUE:	ISSUE: SEPTEMBER 14, 2018				

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-001-NOTES.DWG
DESIGN BY: KNL 06/23/2018
DRAWN BY: MJD 07/10/2018
REVIEWED BY: KNL /MJD 08/06/18

SHEET TITLE

ELECTRICAL NOTES
SHEET 1

- NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND TRANSFORMERS SHALL BE BROUGHT ABOVE GROUND AT EDGE LIGHTS, SIGNS, REIL, PAPI. FTC.
- THERE SHALL BE NO EXPOSED POWER/CONTROL CABLES BETWEEN THE POINT WHERE THEY LEAVE THE UNDERGROUND (DEB OR L-867 BASES) AND WHERE THEY ENTER THE EQUIPMENT (SUCH AS TAXIWAY SIGNS, PAPI, REIL, ETC.) ENCLOSURES. THESE CABLES SHALL BE ENCLOSED IN RIGID CONDUIT OR IN FLEXIBLE, WATERTIGHT CONDUIT WITH BREAKABLE COUPLING(S) AT THE GRADE OR THE HOUSING COVER, AS SHOWN IN APPLICABLE DETAILS.
- 4. THE JOINTS OF THE L-823 PRIMARY CONNECTORS SHALL BE WRAPPED WITH AT LEAST ONE LAYER OF RUBBER OR SYNTHETIC RUBBER TAPE AND ONE LAYER OF PLASTIC TAPE, ONE-HALF LAPPED, EXTENDING AT LEAST 1-1/2 INCHES ON EACH SIDE OF THE JOINT. AS SHOWN ON AIRFIELD LIGHTING CABLE SPLICE DETAILS.
- THE CABLE ENTRANCE INTO THE FIELD-ATTACHED L-823 CONNECTORS SHALL BE ENCLOSED BY A HEAT-SHRINKABLE TUBING WITH CONTINUOUS INTERNAL ADHESIVE, AS SHOWN ON AIRFIELD LIGHTING CABLE SPLICE DETAILS.
- 6. L-823 TYPE II, TWO-CONDUCTOR SECONDARY CONNECTORS SHALL BE CLASS 'A' (FACTORY MOLDED).
- THERE SHALL BE NO SPLICES IN THE SECONDARY CABLE(S) WITHIN THE STEMS OF A RUNWAY/TAXIWAY EDGE/THRESHOLD LIGHTING FIXTURE AND THE WIREWAYS LEADING TO TAXIWAY SIGNS AND PAPI/REIL EQUIPMENT.
- ELECTRICAL INSULATING GREASE SHALL BE APPLIED WITHIN THE L-823, SECONDARY, TWO CONDUCTOR CONNECTORS TO PREVENT WATER ENTRANCE. THESE CONNECTORS SHALL NOT BE TAPED.
- DEB ISOLATION TRANSFORMERS SHALL BE BURIED AT A DEPTH OF TEN (10") INCHES
 ON A LINE CROSSING THE LIGHT AND PERPENDICULAR TO THE RUNWAY/TAXIWAY
 CENTERLINE AT A LOCATION TWELVE (12") INCHES FROM THE LIGHT OPPOSITE FROM
 THE RUNWAY/TAXIWAY.
- 10. A SLACK OF THREE (3') FEET, MINIMUM, PLUS DEPTH OF BASE CAN (IF APPLICABLE), SHALL BE PROVIDED IN THE PRIMARY CABLE AT EACH TRANSFORMER/CONNECTOR TERMINATION. AT STAKE—MOUNTED LIGHTS, THE SLACK SHALL BE LOOSELY COILED IMMEDIATELY BELOW THE ISOLATION TRANSFORMER. THERE SHALL BE NO ADDITIONAL PAYMENT FOR CABLE SLACK AND THEREFORE THE QUANTITY OF PROPOSED CABLE SLACK HAS NOT BEEN INCLUDED IN THE RESPECTIVE CABLE PAY ITEMS.
- 11. DIRECTION OF PRIMARY CABLES SHALL BE IDENTIFIED BY COLOR CODING AS FOLLOWS: WHEN FACING LIGHT WITH BACK TO PAVEMENT, CABLE TO THE LEFT IS CODED RED AND CABLE TO RIGHT IS CODED BLUE. THIS APPLIES TO STAKE MOUNTED LIGHTS AND BASE MOUNTED LIGHTS WHERE THE BASE HAS ONLY ONE ENTRANCE.
- 12. L-867 BASES SHALL BE SIZE B, 24" DEEP, CLASS I, UNLESS OTHERWISE NOTED.
- BASE MOUNTED BREAKABLE COUPLINGS SHALL NOT HAVE WEEP HOLES TO THE OUTSIDE. PLUGGED UP HOLES SHALL NOT BE ACCEPTABLE. IT SHALL BE A 1/4" DIAMETER, MINIMUM, OR EQUIVALENT OPENING FOR DRAINAGE FROM THE SPACE AROUND THE SECONDARY CONNECTOR INTO THE L-867 BASE.
- 14. THE ELEVATION OF THE BREAKABLE COUPLING GROOVE SHALL NOT EXCEED 1-1/2"
 ABOVE THE EDGE OF THE COVER IN CASE OF BASE MOUNTED COUPLINGS, OR THE TOP
 OF THE STAKE IN CASE OF STAKE MOUNTED COUPLINGS.
- 15. WHERE THE BREAKABLE COUPLING IS NOT AN INTEGRAL PART OF THE LIGHT FIXTURE STEM OR MOUNTING LEG, A BEAD OF SILICON SEAL SHALL BE APPLIED COMPLETELY AROUND LIGHT STEM OR WIREWAY AT BREAKABLE COUPLING TO PROVIDE A WATERTIGHT SFAL.
- TOPS OF THE STAKES SUPPORTING LIGHT FIXTURES SHALL BE FLUSH WITH THE SURROUNDING GRADE.
- PLASTIC LIGHTING FIXTURE COMPONENTS, SUCH AS LAMP HEADS, STEMS, BREAKABLE COUPLINGS, BASE COVERS, BRACKETS, STAKES, SHALL NOT BE ACCEPTABLE.
- 18. THE TOLERANCE FOR THE HEIGHT OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE: ONE (1) INCH. IN CASE OF STAKE MOUNTED LIGHTS, THE SPECIFIED LIGHTING FIXTURE HEIGHT SHALL BE MEASURED BETWEEN THE TOP OF THE STAKE AND THE TOP OF THE LENS. IN CASE OF BASE MOUNTED LIGHTS, THE SPECIFIED LIGHTING FIXTURE HEIGHT SHALL BE MEASURED BETWEEN THE TOP OF THE BASE FLANGE AND THE TOP OF THE LENS, THUS INCLUDING THE BASE COVER, THE FRANGIBLE COUPLING, THE STEM, THE LAMP HOUSING AND THE LENS.
- 19. THE TOLERANCE FOR THE LATERAL SPACING (LIGHT LANE TO RUNWAY/TAXIWAY CENTERLINE) OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE ONE (1) INCH. THIS ALSO APPLIES AT INTERSECTIONS TO LATERAL SPACING BETWEEN LIGHTS OF A RUNWAY/TAXIWAY AND THE INTERSECTING RUNWAY/TAXIWAY.

- ENTRANCES INTO L-867 BASES SHALL HAVE CONDUIT COUPLINGS OR REDUCERS TO INTERFACE UNIT DUCT/CONDUIT TO L-867 BASE HUBS, OR SHALL BE SEALED WITH HEAT SHRINK.
- GALVANIZED/PAINTED EQUIPMENT/COMPONENT SURFACES SHALL NOT BE DAMAGED BY DRILLING, FILING, ETC. DRAIN HOLES IN METAL TRANSFORMER HOUSINGS SHALL BE MADE BEFORE GALVANIZING.
- 22. EDGE LIGHT NUMBERING TAGS SHALL BE FACING THE PAVEMENT.
- CABLE/SPLICE/DUCT MARKERS SHALL BE PRECAST CONCRETE OF THE SIZE SHOWN.
 LETTERS/NUMBERS/ARROWS FOR THE LEGEND TO BE IMPRESSED INTO THE TOPS OF
 THE MARKERS SHALL BE PRE-ASSEMBLED AND SECURED IN THE MOLD BEFORE THE
 CONCRETE IS POURED. LEGEND INSCRIBED BY HAND IN WET CONCRETE SHALL NOT BE
 ACCEPTABLE.
- 24. ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 FEET MAXIMUM SPACING, WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS SHALL BE INSTALLED IMMEDIATELY ABOVE THE CABLES.
- THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823
 CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE
 SHOWN
- APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS.
- 27. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT MARKERS.
- WHERE A PARALLEL, CONSTANT VOLTAGE PAPI SYSTEM IS PROVIDED, THE "T" SPLICES SHALL BE OF THE CAST TYPE.
- CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND TRANSFORMER HOUSINGS, MARKINGS, ETC. SHALL BE 3500 PSI (MINIMUM) AT 14 DAYS, IN ACCORDANCE WITH ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE.
- 30. ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES SHALL BE TAGGED. USE EMBOSSED COPPER STRIPS TO BE ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MAN/HAND HOLE—ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT.
- 31. THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES. INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVE GROUND UTILITIES.
- 32. WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.

GROUNDING NOTES FOR AIRFIELD LIGHTING

- GROUNDING FOR RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS SHALL BE AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. A GROUND ROD MUST BE INSTALLED AT EACH LIGHT FIXTURE, TAXI GUIDANCE SIGN AND L-867/L-868 BASE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS. TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONNECTIONS TO LIGHT BASES MAY ALSO BE MADE WITH A UL 467 LISTED PIPE CLAMP CONNECTED TO THE GRSC NIPPLE EXTENDING FROM A THREADED LIGHT BASE HUB. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, INC., ULTRAWELD BY HARGER, OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS. TOP OF GROUND RODS SHALL BE BURIED 12 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS.
- 2. PER THE REQUIREMENTS OF FAA AC 150/5340-30J DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6 "LIGHT FIXTURE BONDING" IT NOTES THE FOLLOWING: BOND THE LIGHT FIXTURE TO THE LIGHT BASE INTERNAL GROUND LUG VIA A NO. 6 AWG STRANDED COPPER WIRE RATED 600 VOLTS WITH GREEN XHHW, THWN-2, OR OTHER SUITABLE INSULATION, BARE STRANDED CONDUCTOR OR A BRAIDED GROUND STRAP OF EQUIVALENT CURRENT RATING. THE BONDING CONDUCTOR LENGTH MUST BE SUFFICIENT TO ALLOW THE REMOVAL OF THE LIGHT FIXTURE FROM THE LIGHT BASE FOR ROUTINE MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S INSTRUCTIONS FOR PROPER METHODS OF ATTACHING A BONDING WIRE TO THE FIXTURE.
- STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100 PERCENT DOMESTIC STEEL.
- CLEAN ALL METAL SURFACES BEFORE MAKING GROUND CONNECTIONS. METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL PER 2017 NATIONAL ELECTRICAL CODE ARTICLE 250-12.
- 5. THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.
- 6. FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, JUNCTION STRUCTURE/L-867 BASE/L-868 BASE, OR OTHER AIRFIELD LIGHT FIXTURE, THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE AND EACH TAXI GUIDANCE SIGN INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, LONGER GROUND RODS OR ADDITIONAL GROUND RODS MIGHT BE REQUIRED. IF GROUND RESISTANCE EXCEEDS 25 OHMS CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND THE PROJECT ENGINEER.

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

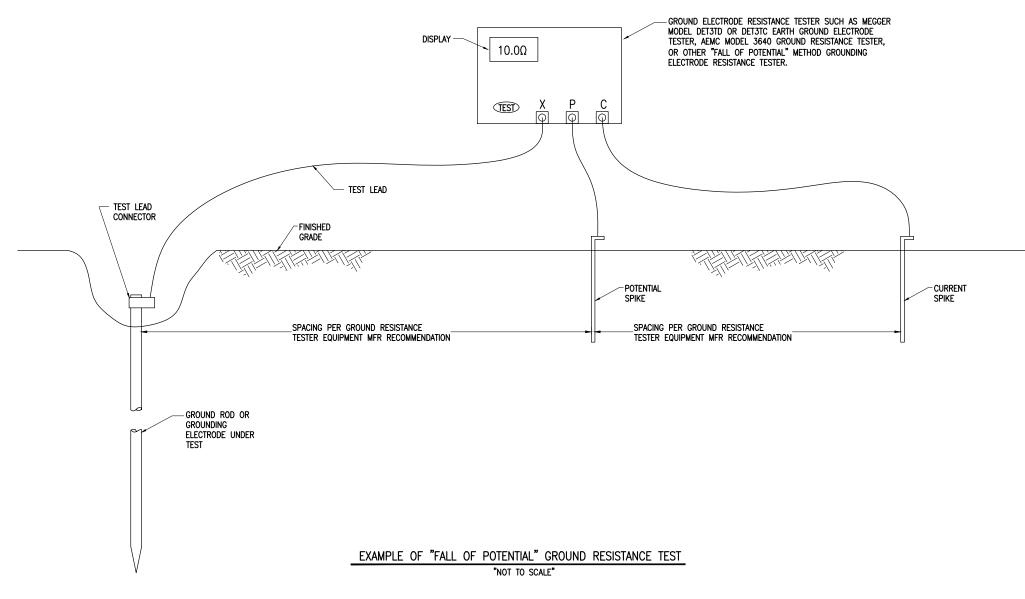
Contract No. CO065

NO.	DATE	DES	ION			
INO.	DATE	DES	DWN	REV		
ISSUE:	SEPTE	ИBER	14, 20	18		
PROJEC	CT NO: 1	8A001	4D			
CAD FILE: E-002-NOTES.DWG						
DESIGN	DESIGN BY: KNL 06/23/2018					
DRAWN	BY: MJI	07/1	0/2018	3		

ELECTRICAL NOTES SHEET 2

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE



NOTES

- 1. CONTRACTOR SHALL TEST AND RECORD THE RESISTANCE FOR EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING ELECTRODE SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN, AND THE PROJECT ENGINEER.
- 2. FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, SPLICE CAN AND NAVAID THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAIDS INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER / RESIDENT TECHNICIAN, AND THE PROJECT ENGINEER.
- GROUND RESISTANCE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH THE RESPECTIVE GROUND ELECTRODE RESISTANCE TESTING EQUIPMENT MANUFACTURER'S INSTRUCTIONS.
- RECORD SITE CONDITIONS DURING TESTS.
- "FALL OF POTENTIAL" TYPE GROUND ELECTRODE RESISTANCE TESTER IS RECOMMENDED FOR TESTING INDIVIDUAL STAND ALONE GROUND RODS.



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES CONTY MEMORIAL ARRORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

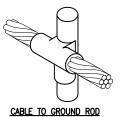
Contract No. CO065

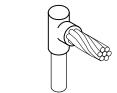
NO.	DATE	DESCRIPTION		ION
NO.		DES	DWN	REV
ISSUE: SEPTEMBER 14, 2018				
PROJECT NO: 18A0014D				

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-509-DETL.DWG
DESIGN BY: KNL 06/23/2018
DRAWN BY: MJD 07/11/2018
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

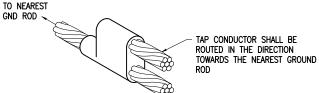
GROUND RESISTANCE TESTING DETAILS





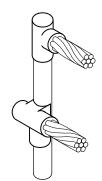
CABLE TO GROUND ROD





<u>CABLE TO CABLE</u>

<u>HORIZONTAL PARALLEL TAP</u>

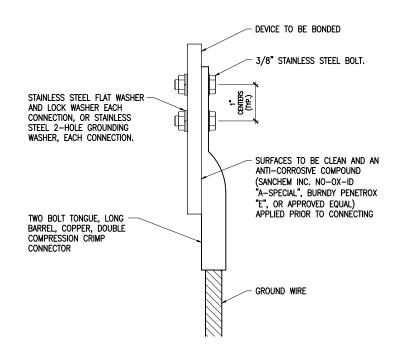


CABLES TO GROUND ROD

DETAIL NOTES

- 1. ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONDUCTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY PENTAIR ERICO PRODUCTS, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, OR THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES OR APPROVED EQUAL. VERIFY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.
- FOR APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.
- 3. INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 40 PVC CONDUIT AS REQUIRED IN FOUNDATIONS, FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT.

EXOTHERMIC WELD DETAILS

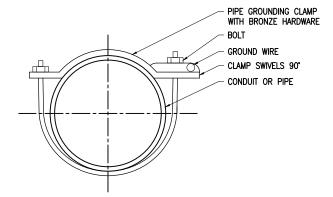


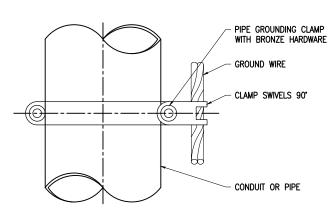
2 HOLE LONG BARREL COMPRESSION LUG TABLE (OR APPROVED EQUAL)				
WIRE SIZE	BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PENN-UNION CAT. NO.	
#8 AWG STRANDED	YA8C-2TC38	256-30695-1157	BBLU-8D-2TC38	
#6 AWG SOLID	YA8C-2TC38 OR YGA6C-2TC38E2G1			
#6 AWG STRANDED	YA6C-2TC38	256-30695-1158	BBLU-6D-2TC38	
#4 AWG STRANDED	YA4C-2TC38	256-30695-1159	BBLU-4D-2TC38	
#2 AWG STRANDED	YA2C-2TC38	256-30695-1160	BBLU-2D-2TC38	
#2 AWG SOLID	YA3C-2TC38	256-30695-1160	BBLU-3D-2TC38	
#1/0 AWG STRANDED	YA25-2TC38	256-30695-1162	BBLU-1/0D-2TC38	
#2/0 AWG STRANDED	YA26-2TC38	256-30695-1116	BBLU-2/0D-2TC38	
#3/0 AWG STRANDED	YA27-2TC38	54816BE	BBLU-3/0D-2TC38	
#4/0 AWG STRANDED	YA28-2TC38	256-30695-1117	BBLU-4/0D-2TC38	

NOTE

- ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
- GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE
- 3. GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS, & INDIVIDUAL GROUND WIRES SHALL NOT BE INSTALLED IN METAL CONDUIT. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC APTH FROM ENCIRCLING THE CONDUIT.
- 4. ALL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL





PIPE GROUNDING CLAMP TABLE (OR APPROVED EQUAL)				
BURNDY CAT. NO.	PIPE SIZE			
GAR3902-BU	3902BU	1/2" - 1"		
GAR3903-BU	3903BU	1 1/4" - 2"		
GAR3904-BU	3904BU	2 1/2" - 3 1/2"		
GAR3905-BU	3905BU	4" - 5"		
GAR3906-BU	3906BU	6"		

NOTES

. PIPE GROUNDING CLAMPS SHALL HAVE BRONZE HARDWARE, BE CORROSION RESISTANT, SUITABLE FOR DIRECT BURIAL IN EARTH OR CONCRETE, & UL467 LISTED.

PIPE/CONDUIT GROUNDING CLAMP DETAIL



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

AUTHORITY
COLES COUNTY AIRPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D

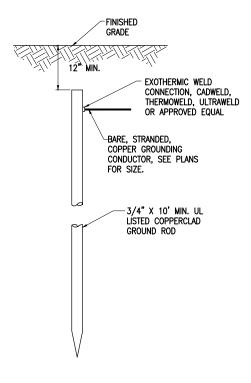
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-510-DETL.DWG
DESIGN BY: KNL 06/23/2018
DRAWN BY: MJD 07/11/2018
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

GROUNDING DETAILS

- 1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING AS MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THE LATEST NATIONAL ELECTRICAL CODE (NFPA 70) IN FORCE AND FAA-STD-019e (LIGHTNING AND SURGE PROTECTION, GROUNDING, BONDING, AND SHIELDING REQUIREMENTS FOR FACILITIES AND ELECTRONIC EQUIPMENT). THE RELIABILITY OF THE GROUNDING SYSTEM IS DEPENDENT ON CAREFUL, PROPER INSTALLATION AND CHOICE OF MATERIALS. IMPROPER PREPARATION OF SURFACES TO BE JOINED TO MAKE AN ELECTRICAL PATH, LOOSE JOINTS OR CORROSION CAN INTRODUCE IMPEDANCE THAT WILL SERIOUSLY IMPAIR THE ABILITY OF THE GROUND PATH TO PROTECT PERSONNEL AND EQUIPMENT AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELIABLE GROUND SYSTEM:
- 2. FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS FOR AIRFIELD LIGHTING (RUNWAY LIGHTING, TAXIWAY LIGHTING, TAXI GUIDANCE SIGNS & NAVAIDS) SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR OTHER APPLICATIONS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS AND THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, INC., ULTRAWELD BY HARGER, OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONNICTORS.
- 3. CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN, AND THE PROJECT FNGINFFR.
- 4. ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
- ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND, BURNDY PENTROX E, OR APPROVED EQUAL.
- 6. METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2017 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- 7. METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL—LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
- 8. ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, DOSSERT CORPORATION, ILSCO CORPORATION, PENN UNION CORPORATION, THOMAS & BETTS, OR APPROVED EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- 10. PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- 11. EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2017 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

- 12. ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2017 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2017 NEC 250-102.
- 13. IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS <u>WILL NOT</u> BE CONSIDERED AS ADEQUATE GROUNDING.
- 14. PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
- 15. EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
- 16. ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, DOSSERT CORPORATION, ILSCO CORPORATION, PENN UNION CORPORATION, THOMAS & BETTS OR APPROVED EQUAL.
- 17. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- 18. BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM
- INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 40 OR SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY ENCIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. GIRDLING OF A GROUND CONDUCTOR IS THE RESULT OF PLACING THE CONDUCTOR IN A RING OF MAGNETIC MATERIAL. THIS RING COULD BE A METALLIC CONDUIT, U-BOLT OR STRUT SUPPORT PIPE CLAMP, OR OTHER SUPPORT HARDWARE. THE RESULT OF GIRDLING GROUND CONDUCTORS SIGNIFICANTLY INCREASES THE INDUCTIVE IMPEDANCE OF THE GROUND CONDUCTOR. INDUCTIVE AND CAPACITIVE IMPEDANCE IS A TYPE OF RESISTANCE THAT OPPOSES THE FLOW OF ALTERNATING CURRENT. ANY INCREASE IN THE IMPEDANCE OF A GROUND CONDUCTOR REDUCES ITS ABILITY TO EFFECTIVELY MITIGATE RADIO FREQUENCY NOISE IN THE GROUND SYSTEM. THE CONDITION WHERE A GROUND CONDUCTOR IS GIRDLED DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLTS AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN A LOW DC RESISTANCE PATH.
- 20. IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2017 NEC 250—102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.
- 21. WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE RESIDENT ENGINEER OR PROJECT ENGINEER FOR FURTHER DIRECTIONS.
- 22. GROUND RODS SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA FROM
 100 PERCENT DOMESTIC STEEL TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM
 BUY AMERICAN REQUIREMENTS AND THE STEEL PRODUCTS PROCUREMENT ACT.



10 FT. GROUND ROD

GROUND RODS
(NOT TO SCALE)

NOTES

- 1. TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
- THE RESISTANCE TO GROUND OF THE GROUNDING ELECTRODES FOR AIRFIELD LIGHTING, NAVAIDS, AND SPLICE CANS SHALL NOT EXCEED 25 OHMS.
- 3. COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
- GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
- GROUND RODS FOR WIND CONE SHALL BE 3/4-IN DIAMETER BY 10
 FT LONG. TWO GROUND RODS SPACED MINIMUM 10 FT APART (ONE
 ROD LENGTH APART) SHALL BE FURNISHED AND INSTALLED FOR THE
 WIND CONE.
- GROUND RODS FOR INDIVIDUAL SPLICE CANS SHALL BE TWO 3/4-IN DIAMETER BY 10 FT LONG GROUND RODS SPACED MINIMUM OF 10 FT APART (ONE ROD LENGTH APART)



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

IDA No: MTO-4679

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-003-GND.DWG

SHEET TITLE

GROUNDING NOTES

DESIGN BY: KNL 06/23/2018

DRAWN BY: MJD 07/10/2018

REVIEWED BY: KNL/MJD 08/06/18

ELECTRICAL LEGEND — ONE—LINE DIAGRAM			
— —	CABLE TERMINATOR/LUG		
***	TRANSFORMER		
__	DISCONNECT SWITCH		
-\-	FUSIBLE DISCONNECT SWITCH		
	CIRCUIT BREAKER		
<u></u> - }-	THERMAL MAGNETIC CIRCUIT BREAKER		
	FUSE		
→	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE		
₩	GROUND — GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL		
Q	INDICATING LIGHT		
W	MOTOR		
(LOAD, MOTOR, # = HORSEPOWER		
	ELECTRIC UTILITY METER BASE		
•	JUNCTION BOX WITH SPLICE		
xxx	EQUIPMENT, XXX = DEVICE DESCRIPTION		
GND	GROUND BUS OR TERMINAL		
S/N	NEUTRAL BUS		
#	PANELBOARD WITH MAIN LUGS		
#1	PANELBOARD WITH MAIN BREAKER		
**************************************	FUSE PANEL WITH MAIN FUSE PULLOUT		
+	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE		
	CONTROL STATION		
N EM	TRANSFER SWITCH		
	ENGINE GENERATOR SET		

	ELECTRICAL LEGEND CONFINED			
	ELECTRICAL LEGEND - SCHEMATIC			
<u> </u>	NORMALLY OPEN (N.O.) CONTACT			
→ #	NORMALLY CLOSED (N.C.) CONTACT			
§*)	STARTER COIL, * = STARTER NUMBER			
— ∦ — or	OVERLOAD RELAY CONTACT			
(CR*)	CONTROL RELAY, * = CONTROL RELAY NUMBER			
R*	RELAY, * = RELAY NUMBER			
\ \ \ \	TOGGLE SWITCH / 2 POSITION SWITCH			
OFF AUTO	2-POSITION SELECTOR SWITCH			
HAND TAUTO SOO OOX	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)			
H	2 POLE DISCONNECT SWITCH			
111	3 POLE DISCONNECT SWITCH			
<u></u>	PHOTOCELL			
	TERMINAL BLOCK, * = TERMINAL NUMBER			
	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER			
	INTERNAL PANEL WIRING			
	FIELD WIRING			
	FUSE			
GND	GROUND BUS OR TERMINAL			
S/N	NEUTRAL BUS			
<u>+</u>	GROUND, GROUND ROD, GROUND BUS			
0 0	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR			
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S1 CUTOUT HANDLE REMOVED			
	S1 CUTOUT HANDLE INSERTED			
¹ -7°	N.O. THERMAL SWITCH			
J.	N.C. THERMAL SWITCH			
(Mar)	L-830 SERIES ISOLATION TRANSFORMER			

	ELECTRICAL ABBREVIATIONS
A.F.F.	ABOVE FINISHED FLOOR
A, AMP	AMPERES
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
С	CONDUIT
СВ	CIRCUIT BREAKER
CKT	CIRCUIT
CR	CONTROL RELAY
CU	COPPER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
ES	EMERGENCY STOP
ETL	INTERTEK - ELECTRICAL TESTING LABS
ETM	ELAPSE TIME METER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRSC	GALVANIZED RIGID STEEL CONDUIT
HID	HIGH INTENSITY DISCHARGE
HOA	HAND OFF AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
J	JUNCTION BOX
KVA	KILOVOLT AMPERE(S)
KW	KILOWATTS
LC	LIGHTING CONTACTOR
LTFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT (UL LISTED)
LTG	LIGHTING
LP	LIGHTING PANEL
	MAXIMUM
MAX	MAIN CIRCUIT BREAKER
MCB	
MCM	THOUSAND CIRCULAR MIL
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER METAL HALIDE
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE (NFPA 70)
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OHE	OVERHEAD ELECTRIC
0L	OVERLOAD

ELECTRICAL ABBREVIATIONS (CONTINUED)				
PB	PULL BOX			
PC	PHOTO CELL			
PDB	POWER DISTRIBUTION BLOCK			
PNL	PANEL			
RCPT	RECEPTACLE			
R	RELAY			
S	STARTER			
SPD	SURGE PROTECTION DEVICE			
SPST	SINGLE POLE SINGLE THROW			
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR			
TYP	TYPICAL			
UG	UNDERGROUND			
UGE	UNDERGROUND ELECTRIC			
UL	UNDERWRITER'S LABORATORIES			
٧	VOLTS			
W/	WITH			
W /0	WITHOUT			
WP	WEATHER PROOF			
XFER	TRANSFER			
XFMR	TRANSFORMER			

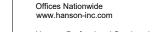
AIRPO	ORT EQUIPMENT/FACILITY ABBREVIATIONS
ASOS	AUTOMATED SURFACE OBSERVING SYSTEM
ATCT	AIR TRAFFIC CONTROL TOWER
AWOS	AUTOMATED WEATHER OBSERVING SYSTEM
CCR	CONSTANT CURRENT REGULATOR
DME	DISTANCE MEASURING EQUIPMENT
FAR	FEDERAL AVIATION REGULATION
GS	GLIDE SLOPE FACILITY
	HIGH INTENSITY RUNWAY LIGHT
HIRL	
ILS	INSTRUMENT LANDING SYSTEM
IM	INNER MARKER
LIR	LOW IMPACT-RESISTANT
LOC	LOCALIZER FACILITY
MALS	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM
MALSR	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATING LIGHTS
MIRL	MEDIUM INTENSITY RUNWAY LIGHT
MITL	MEDIUM INTENSITY TAXIWAY LIGHT
NDB	NON-DIRECTIONAL BEACON
PAPI	PRECISION APPROACH PATH INDICATOR
PLASI	PULSE LIGHT APPROACH SLOPE INDICATOR
RAIL	RUNWAY ALIGNMENT INDICATING LIGHTS
REIL	RUNWAY END IDENTIFIER LIGHT
RVR	RUNWAY VISUAL RANGE
VADI	VISUAL APPROACH DESCENT INDICATOR
VASI	VISUAL APPROACH SLOPE INDICATOR
VOR	VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE FACILITY
wc	WIND CONE

NOTES:

- KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING/CONSTRUCTION FOR USE AS A REFERENCE.
- 2. ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- 3. VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- 4. INSULATION ON PHASE AND NEUTRAL CONDUCTORS SHALL BE COLOR CODED FOR NO. 6 AWG OR SMALLER. PROVIDE COLORED INSULATION OR COLORED MARKING TAPE FOR PHASE AND NEUTRAL CONDUCTORS FOR NO. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR AWG AND/OR KCMIL TO COMPLY WITH NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE COLORED INSULATION FOR NO. 6 AWG AND SMALLER TO MEET THE REQUIREMENTS OF NEC 200.6. STANDARD COLORS FOR POWER WIRING AND BRANCH CIRCUITS SHALL BE AS FOLLOWS:

120/240 VAC. 1 PHASE, 3 WIRE
PHASE A BLACK
PHASE B RED
NEUTRAL WHITE
GROUND GREEN

- 5. NO EXPOSED POWER OR CONTROL WIRING WILL BE PERMITTED UNLESS APPROVED BY THE PROJECT ENGINEER.
- 6. SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
- 7. LTFMC DENOTES LIQUID TIGHT FLEXIBLE METAL CONDUIT UL LISTED, SUNLIGHT RESISTANT, & SUITABLE FOR GROUNDING. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS USED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER (MINIMUM). DO NOT INSTALL LITFMC THAT IS NOT UL LISTED. CONFIRM LITFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
- 8. ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES UL LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.
- CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, RELOCATING, WORKING ON, OR CONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT, OR OTHER DEVICE.
- 10. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE OR HANDHOLE.



Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES CHAPTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018

PROJECT NO: 18A0014D

CAD FILE: E-004-LGND.DWG

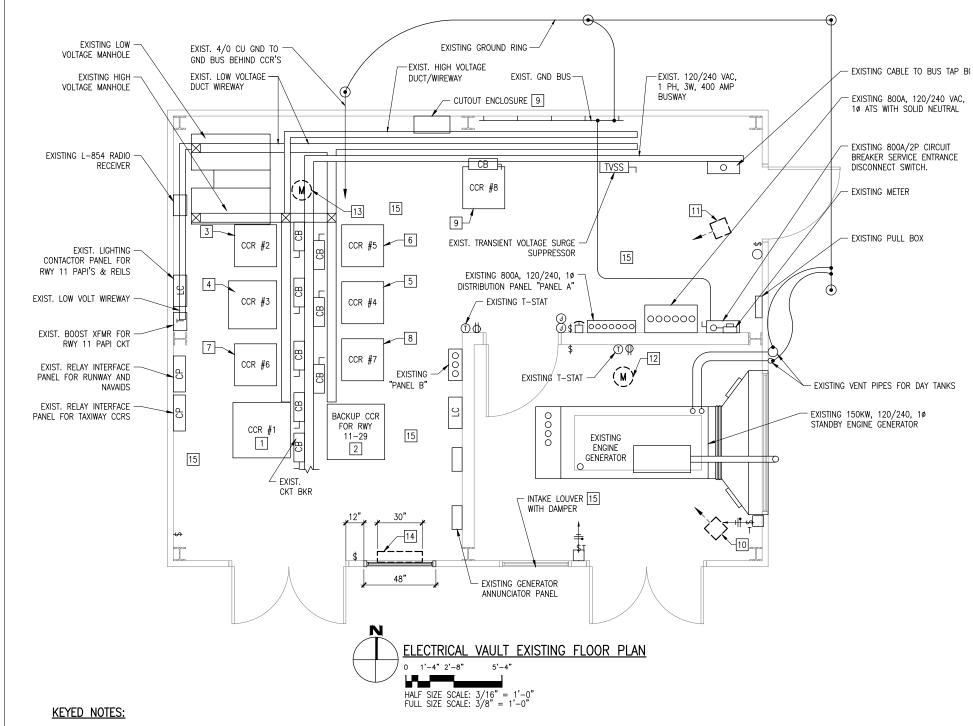
DESIGN BY: KNL 06/23/2018

DRAWN BY: MJD 07/11/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

ELECTRICAL LEGEND AND ABBREVIATIONS



- 1 EXISTING CCR NO. 1 FOR RUNWAY 11-29.
- 2 EXISTING BACKUP CCR FOR RUNWAY 11-29.
- 3 EXISTING CCR NO. 2 FOR RUNWAY 6-24.
- 4 EXISTING CCR NO. 3 FOR TAXIWAY CIRCUIT 7.
- S EXISTING CCR NO. 4 FOR TAXIWAY C SOUTH OF RUNWAY 11-29, CIRCUIT 1. EXISTING CCR #4 OUTPUT SHALL BE REWIRED TO POWER TWO SERIES CIRCUITS; TAXIWAY C SOUTH-CIRCUIT 1 AND TAXIWAY C NORTH-CIRCUIT 5. CCR NO. 4 IS A 10 KW UNIT. ADJUST TAPS FOR 5 KW OUTPUT TO ACCOMMODATE REPLICTION IN TAXIWAY LIGHTING LOADS
- ESISTING CCR NO. 5 FOR CIRCUITS 3 AND 3A. CIRCUITS 3 IS FOR EAST HALF OF APRON, TAXIWAY A-EAST, TAXIWAY D3, AND PART OF TAXIWAY D. CIRCUIT 3A IS FOR TAXIWAY D EAST OF TAXIWAY D3. EXISTING CCR NO. 5 OUTPUT SHALL BE REWIRED TO POWER ONE CIRCUIT FOR TAXIWAY D (INCLUDING CONNECTING TAXIWAYS D3, D4, AND D5). CCR NO. 4 IS A 10 KW UNIT. ADJUST TAPS FOR 5 KW OUTPUT TO ACCOMMODATE REDUCTION IN TAXIWAY LIGHTING LOADS.
- 7 EXISTING TAXIWAY CCR NO. 6 FOR CIRCUIT 5; TAXIWAY C NORTH OF RUNWAY 11-29 AND AREA BY WEST HALF OF APRON. THE EXISTING CCR NO. 6 OUTPUT SHALL BE REWIRED TO POWER TAXIWAY A-EAST CIRCUIT 3. CCR NO. 6 IS A 7.5 KW UNIT. ADJUST TAPS FOR 4 KW OUTPUT TO ACCOMMODATE REDUCTION IN TAXIWAY LIGHTING LOADS.

- 8 EXISTING CCR NO. 7 FOR TAXIWAY B-WEST CIRCUIT 6.
- 9 EXISTING CCR NO. 8 TAXIWAY A-WEST CIRCUIT 2. CCR NO. 8 IS A 7.5 KW UNIT. ADJUST TAPS FOR 4 KW OUTPUT TO ACCOMMODATE RESPECTIVE TAXIWAY LIGHTING LOADS.
- 10 EXISTING UNIT HEATER IN ENGINE GENERATOR ROOM TO BE REMOVED AND REPLACED WITH A NEW UNIT.
- 11 EXISTING UNIT HEATER IN CCR ROOM TO BE REMOVED AND REPLACED WITH A NEW UNIT.
- 12 EXISTING ROOF MOUNTED EXHAUST FAN FOR ENGINE GENERATOR ROOM TO BE REMOVED AND REPLACED WITH A NEW UNIT.
- [13] EXISTING ROOF MOUNTED EXHAUST FAN FOR CCR ROOM TO BE REMOVED AND REPLACED WITH A NEW UNIT.
- [14] EXISTING LOUVER APPROXIMATELY 48" WIDE BY 23.25" HIGH WITH A DAMPER THAT IS APPROXIMATELY 30" WIDE BY 22.75" HIGH. EXISTING DAMPER SHALL BE REMOVED AND REPLACED WITH A NEW UNIT.
- [15] EXISTING LIGHT FIXTURES INSIDE VAULT CCR ROOM AND GENERATOR ROOM SHALL BE REMOVED AND REPLACED WITH A NEW LIGHT FIXTURES. SEE "VAULT LIGHTING PLAN"

GENERAL NOTES:

- 1. CONTRACTOR SHALL COORDINATE WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS WITH THE AIRPORT MANAGER AND THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE. ANY SHUTDOWN OF EXISTING SYSTEMS SHALL BE SCHEDULED WITH AND APPROVED BY THE AIRPORT MANAGER PRIOR TO SHUTDOWN, ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS.
- 3. THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH AND QUALIFIED TO WORK ON 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.
- CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
- 5. EACH ACTIVE CCR SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS AND/OR ADDITIONS AND AFTER THE AIRFIELD LIGHTING REPLACEMENTS AND VAULT ADDITIONS HAVE BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES OF OPERATION. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE PROJECT ENGINEER.
- . REMOVAL AND DISPOSAL OF EXISTING DESIGNATED EQUIPMENT WILL BE CONSIDERED INCIDENTAL TO ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT. CONTRACTOR SHALL REVIEW WITH THE AIRPORT MANAGER ALL EQUIPMENT SCHEDULED FOR REMOVAL. WHERE THE AIRPORT DOES NOT WANT THE RESPECTIVE EQUIPMENT DESIGNATED FOR REMOVAL, THE CONTRACTOR SHALL DISPOSE OF THAT EQUIPMENT OFF OF THE AIRPORT SITE.



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

PROJECT NO: 18A0014D

CAD FILE: E-103-VLT.DWG

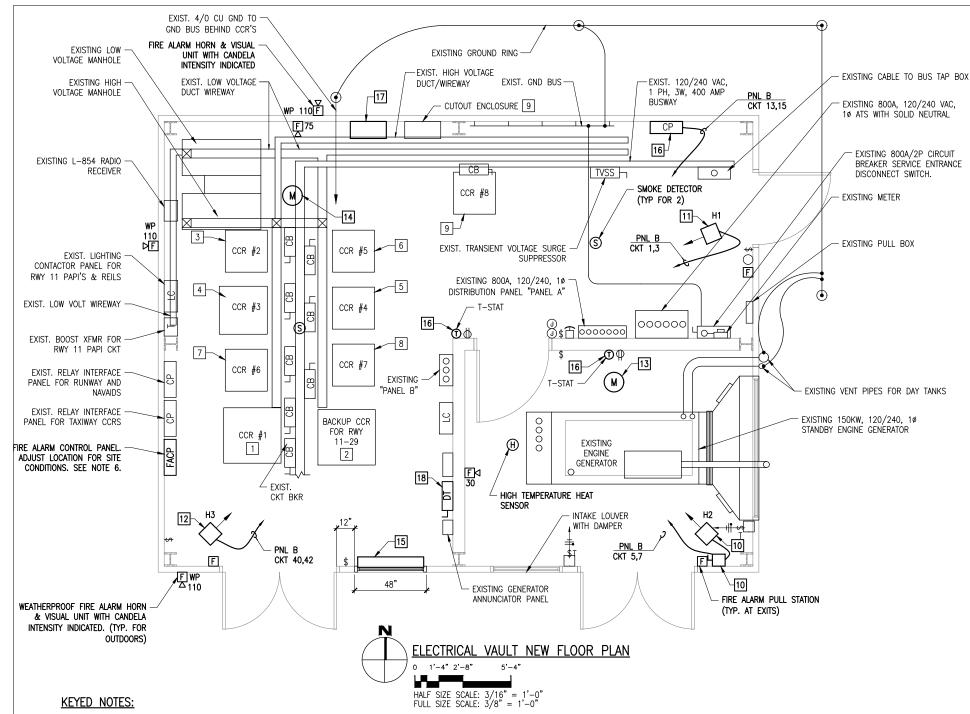
DESIGN BY: KNL 07/15/2018

DRAWN BY: RAD 07/23/2018

DRAWN BY: RAD 07/23/2018
REVIEWED BY: KNL/MJD 08/06/18

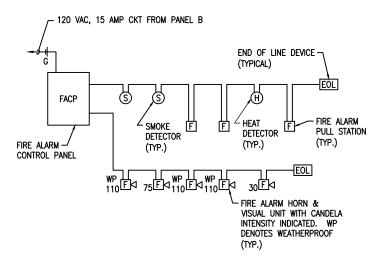
SHEET TITLE

EXISTING FLOOR PLAN FOR VAULT



GENERAL NOTES:

- 1. CONTRACTOR SHALL COORDINATE WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS WITH THE AIRPORT MANAGER AND THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE. ANY SHUTDOWN OF EXISTING SYSTEMS SHALL BE SCHEDULED WITH AND APPROVED BY THE AIRPORT MANAGER PRIOR TO SHUTDOWN. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- SEE "ELECTRICAL ONE—LINE DIAGRAM FOR PANEL B AND MECHANICAL EQUIPMENT" FOR INPUT POWER WIRING REQUIREMENTS.
- SEE "EXHAUST FAN WIRING SCHEMATICS" FOR POWER AND CONTROL OF VENTILATION
 SYSTEMS.
- 4. FURNISH AND INSTALL CONDUIT, FITTINGS, RACEWAYS, WIRING, ADJUSTMENTS, RELOCATIONS, AND ACCESSORIES TO ACCOMMODATE THE RESPECTIVE WORK.
- ALL WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT PER LUMP SUM.
- 6. FIRE DETECTION AND ALARM SYSTEM SHALL BE JOHNSON CONTROLS INC., SIMPLEX-GRINNELL 4007ES SERIES, HONEYWELL NOTIFIER, EQUIVALENT BY EDWARDS, OR APPROVED EQUAL. ALL WIRING SHALL BE IN EMT (INTERIOR) AND GRSC (EXTERIOR) AND ALL BOXES PAINTED RED AND MARKED FIRE ALARM. INSTALL IN ACCORDANCE WITH NFPA 72 AND MANUFACTURERS RECOMMENDATIONS.



FIRE ALARM ONE-LINE DIAGRAM

- 1 EXISTING CCR NO. 1 FOR RUNWAY 11-29.
- 2 EXISTING BACKUP CCR FOR RUNWAY 11-29.
- 3 EXISTING CCR NO. 2 FOR RUNWAY 6-24.
- 4 EXISTING CCR NO. 3 FOR TAXIWAY CIRCUIT 7.
- 5 EXISTING CCR NO. 4 FOR TAXIWAY C SOUTH OF RUNWAY 11-29, CIRCUIT 1. EXISTING CCR #4 OUTPUT SHALL BE REWIRED TO POWER TWO SERIES CIRCUITS; TAXIWAY C SOUTH-CIRCUIT 1 AND TAXIWAY C NORTH-CIRCUIT 5. CCR NO. 4 IS A 10 KW UNIT. ADJUST TAPS FOR 5 KW OUTPUT TO ACCOMMODATE REDUCTION IN TAXIWAY LIGHTING LOADS.
- 6 EXISTING CCR NO. 5 FOR CIRCUITS 3 AND 3A. CIRCUITS 3 IS FOR EAST HALF OF APRON, TAXIWAY A-EAST, TAXIWAY D.3, AND PART OF TAXIWAY D. CIRCUIT 3A IS FOR TAXIWAY D EAST OF TAXIWAY D.3. EXISTING CCR NO. 5 OUTPUT SHALL BE REWIRED TO POWER ONE CIRCUIT FOR TAXIWAY D (INCLUDING CONNECTING TAXIWAYS D.3, D.4, AND D.5), CCR NO. 4 IS A 10 KW UNIT. ADJUST TAPS FOR 5 KW OUTPUT TO ACCOMMODATE REDUCTION IN TAXIWAY LIGHTING LOADS.
- [7] EXISTING TAXIWAY CCR NO. 6 FOR CIRCUIT 5; TAXIWAY C NORTH OF RUNWAY 11-29 AND AREA BY WEST HALF OF APRON. THE EXISTING CCR NO. 6 OUTPUT SHALL BE REWIRED TO POWER TAXIWAY A-EAST CIRCUIT 3. CCR NO. 6 IS A 7.5 KW UNIT. ADJUST TAPS FOR 4 KW OUTPUT TO ACCOMMODATE REDUCTION IN TAXIWAY LIGHTING LOADS.

- 8 EXISTING CCR NO. 7 FOR TAXIWAY B-WEST CIRCUIT 6.
- 9 EXISTING CCR NO. 8 TAXIWAY A-WEST CIRCUIT 2. CCR NO. 8 IS A 7.5 KW UNIT. ADJUST TAPS FOR 4 KW OUTPUT TO ACCOMMODATE RESPECTIVE TAXIWAY LIGHTING LOADS.
- 10) NEW UNIT HEATER H-2 FOR ENGINE GENERATOR ROOM. UNIT HEATER FOR ENGINE ROOM SHALL BE 5KW, 240VAC, 1 PHASE, WITH THERMOSTAT CONTROL AND MOUNTING HARDWARE; MARLEY ENGINEERED PRODUCTS CAT. NO. HUH-524SA WITH HUHTA-1 THERMOSTAT KIT AND CWB-1 WALL/CEILING BRACKET, EQUIVALENT BY BERKO, EQUIVALENT BY CHROMALOX, OR OTHER APPROVED EQUAL. PROVIDE A NEW 30AMP, 2P, 240VAC HEAVY DUTY NOT FUSIBLE SAFETY SWITCH FOR UNIT HEATER.
- 11 NEW UNIT HEATER H-1 FOR CCR ROOM. UNIT HEATER FOR CCR ROOM SHALL BE 7.5KW, 240VAC, 1
 PHASE, WITH THERMOSTAT CONTROL AND MOUNTING HARDWARE; MARLEY ENGINEERED PRODUCTS CAT.
 NO. HUH-724SA WITH HUHTA-1 THERMOSTAT KIT AND CWB-1 WALL/CEILING BRACKET, EQUIVALENT
 BY BERKO, FOLIVAI FUN BY CHROMALOX. OR OTHER APPROVED FOLIAL.
- 12 NEW UNIT HEATER H-3 FOR CCR ROOM. UNIT HEATER FOR CCR ROOM SHALL BE 7.5KW, 240VAC, 1 PHASE, WITH THERMOSTAT CONTROL AND MOUNTING HARDWARE; MARLEY ENGINEERED PRODUCTS CAT. NO. HUH-724SA WITH HUHTA-1 THERMOSTAT KIT AND CWB-1 WALL/CEILING BRACKET, EQUIVALENT BY BERKO, EQUIVALENT BY CHROMALOX, OR OTHER APPROVED EQUAL.
- 13 NEW ROOF MOUNTED EXHAUST FAN FOR ENGINE GENERATOR ROOM; 1000 CFM (MINIMUM) AT 0.25" STATIC PRESSURE WITH 16 HP, 120VAC MOTOR, GREENHECK MODEL G-123-B DIRECT DRIVE CENTRIFUGAL ROOF EXHAUST FAN WITH CURB CAP ADAPTER, EQUIVALENT EXHAUST FAN BY COOK, OR APPROVED EQUAL. PROVIDE INSECT SCREEN AND FRACTIONAL HP DISCONNECT SWITCH. SELECT CURB ADAPTER TO INTERFACE TO THE ROOF. SEE "EXHAUST FAN WIRING SCHEMATICS".

- 14 NEW ROOF MOUNTED EXHAUST FAN FOR CCR ROOM; 1000 CFM (MINIMUM) AT 0.25" STATIC PRESSURE WITH 1/6 HP, 120VAC MOTOR, GREENHECK MODEL G-123-B DIRECT DRIVE CENTRIFUGAL ROOF EXHAUST FAN WITH CURB CAP ADAPTER, EQUIVALENT EXHAUST FAN BY COOK, OR APPROVED EQUAL. PROVIDE INSECT SCREEN AND FRACTIONAL HP DISCONNECT SWITCH. SELECT CURB ADAPTER TO INTERFACE TO THE ROOF. SEE "EXHAUST FAN WIRING SCHEMATICS".
- [15] EXISTING INTAKE LOUVER APPROXIMATELY 48" WIDE BY 23.25" HIGH. PROVIDE 120VAC LOW LEAK MOTORIZED DAMPER SIZED TO MATCH THE RESPECTIVE LOUVER. DAMPER SHALL BE RUSKIN CD40 SERIES WITH RUS—M120(5) ELECTRIC 120VOLT CONTROL DAMPER ACTUATOR, LEADER INDUSTRIES MODEL 438—SD SERIES WITH 120VOLT MOTOR ACTUATOR, OR APPROVED EQUAL. PROVIDE ALL HARDWARE TO INTERFACE TO EXISTING LOUVER.
- 16 NEW CONTROL PANEL FOR EXHAUST FANS. INTERFACE TO EXHAUST FAN AND THERMOSTAT FOR EACH ROOM. CONFIRM MOUNTING LOCATION WITH AIRPORT MANAGER. SEE "EXHAUST FAN WIRING SCHEMATICS".
- 17 NEW LOCKOUT/TAGOUT KIT. CONFORMING TO OSHA STANDARD 1910.147, SUITABLE FOR WALL MOUNTING WITH 20 LOCKOUT PADLOCKS EACH WITH A DIFFERENT KEY, 5 LOCKOUT HASPS TO ACCOMMODATE MULTIPLE PADLOCKS AND 100 LOCKOUT TAGS.
- 18 NEW 200 AMP, 240VAC, 2P DTFSS, FOR RWY 11-29 CCR'S. SEE "ELECTRICAL ONE LINE DIAGRAM FOR VAULT."



Offices Nationwide www.hanson-inc.com

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

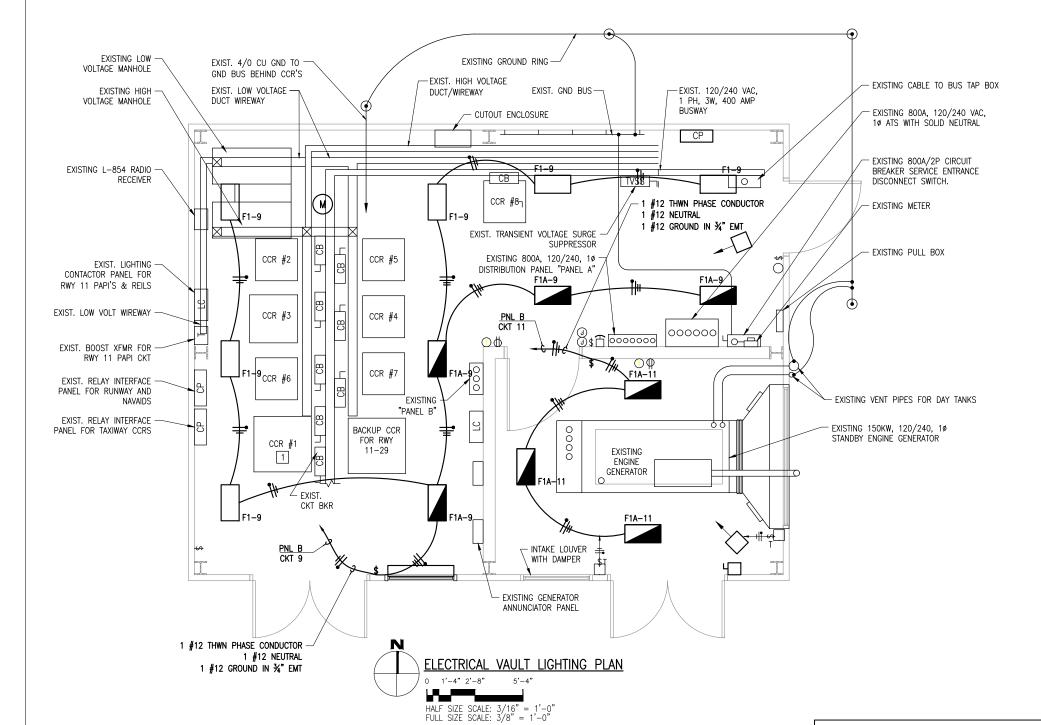
NO.	DATE	DES	CRIPT	ION
NO.		DES	DWN	REV
ISSUE: SEPTEMBER 14, 2018				
PROJECT NO: 18A0014D				

ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-104-VLT.DWG
DESIGN BY: KNL 07/15/2018
DRAWN BY: SKB 07/25/2018

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

NEW FLOOR PLAN FOR VAULT



GENERAL NOTES:

- 15 AMP & 20 AMP BRANCH CIRCUITS FOR LIGHTING & RECEPTACLES SHALL USE #12 AWG THWN (MIN.). EMT MAY BE USED FOR LIGHTING AND RECEPTACLE BRANCH CIRCUITS.
- LIGHT FIXTURES SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS. PROVIDE CERTIFICATION OF MANUFACTURE IN THE UNITED STATES WITH SHOP DRAWINGS SUBMITTAL.
- ADJUST LIGHT FIXTURE LOCATIONS WHERE NECESSARY TO ACCOMMODATE EQUIPMENT LAYOUT, OR AVOID INTERFERENCES.
- 4. TEST EMERGENCY LIGHTING AND CONFIRM PROPER OPERATION.
- 5. "USPOM" SUFFIX ON LITHONIA LIGHT FIXTURE CATALOG NUMBERS INDICATES UNITED STATES POINT OF MANUFACTURE.
- ALL WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT PER LUMP SIM

	ELECTRICAL LEGEND — PLANS
l ——	CONDUIT (EXPOSED)
	CONDUIT OR DUCT (CONCEALED OR BURIED)
ЮОО	WALL OR CEILING MT'D. JUNCTION BOX. CONFIGURATION VARIES WITH USE
40	SINGLE THROW DISCONNECT SWITCH
СР	CONTROL PANEL
W	MOTOR
	ENCLOSURE
	CIRCUIT BREAKER PANEL-SEE SCHEDULES
•	GROUND ROD
	#12 AWG TWHN COPPER UNLESS NOTED OTHERWISE. LONG SLASHES INDICATE NEUTRAL. SHORT SLASHES INDICATE HOT OR SWITCHED LEG. "G" OR SLASHES WITH DOT INDICATE SEPARATE GROUND WIRE.
PNL A 1,3,5	HOMERUN TO PANEL PNL A INDICATES PANEL 1,3,5 INDICATES CIRCUIT NUMBERS
F1-X	SURFACE MOUNTED LED FIXTURE. LETTER WITH NUMBER INDICATES FIXTURE TYPE. X= CIRCUIT NUMBER
F1-X	SURFACE MOUNTED LED FIXTURE WITH EMERGENCY BATTERY BACKUP. LETTER WITH NUMBER INDICATES FIXTURE TYPE. X= CIRCUIT NUMBER
\$	SINGLE POLE SWITCH

LIGHTING FIXTURE SCHEDULE MANUFACTURER & VOLTS REMARKS DESCRIPTION MOUNTING CATALOG NO. LED HIGH BAY FIXTURE SUITABLE FOR AMBIENT PENDANT, CHAIN. ADJUST LOCATIONS ITHONIA IBG-8000LM-SEF-AFL-TEMPERATURES UP TO 55 DEG C, SUITABLE FOR OR CARLE MOUNT TO AVOID PENDANT MOUNT, CHAIN OR CABLE SUSPENSION FD-120-40K-80CRI-10 FEET ABOVE INTERFERENCES USPOM, PHILIPS AND REASONABLY FINISHED FLOOR DAY-BRITE CAT. NO. FBX-08L-L-40-UNV-LFA EQUIVALENT BY H.E. WILLIAMS OR OTHER APPROVED FOLIVALENT SAME AS F1 EXCEPT PROVIDE AN EMERGENCY PENDANT, CHAIN, ADJUST LOCATIONS IBG-8000LM-SEF-AFL-BATTERY PACK CAPABLE OF OPERATING THE OR CABLE MOUNT TO AVOID INTERFERENCES LIGHT FIXTURE FOR 90 MINUTES. SUITABLE FOR FD-120-40K-80CRI-10 FEET ABOVE AMBIENT TEMPERATURES UP TO 45 DEG C. BPK-PS1050-USPOM AND REASONABLY FINISHED FLOOR CONFIRM BATTERY PACK OPTION WITH PHILIPS DAY-BRITE CAT. MAINTAIN LIGHT NO. FBX-08L-L-40-MANUFACUTRER. UNV-LFA-EMLED, EQUIVALENT BY H.E. WILLIAMS OR OTHER APPROVED EQUIVALENT

HANSON Engineering | Planning | Alfed Services

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES CONTY MEMORIAL ARRORY



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D

PROJECT NO: 18A0014D

CAD FILE: E-105-VLT.DWG

DESIGN BY: KNL 07/15/2018

DRAWN BY: SKB 07/25/2018

REVIEWED BY: KNL (M.ID 08/06/18

SHEET TITLE

VAULT LIGHTING PLAN

7. WHEN A TAXIWAY IS CLOSED THE RESPECTIVE TAXIWAY LIGHTING SHALL BE SHUT OFF.

Offices Nationwide

Hanson Professional Services Inc 1525 S. 6th Street Springfield, IL 62568 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT AUTHORITY



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

DESCRIPTION NO. DATE DES DWN REV ISSUE: SEPTEMBER 14, 2018 PROJECT NO: 18A0014D CAD FILE: E-601.DWG DESIGN BY: KNL 06/23/2018 DRAWN BY: MJD 07/11/2018

SHEET TITLE

ELECTRICAL ONE LINE DIAGRAMS FOR **VAULT**

REVIEWED BY: KNL/MJD 08/06/18

51

EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAYS

LEGEND

- "I" DENOTES PLUG CUTOUT WITH PLUG INSERTED
- "P" DENOTES PLUG CUTOUT WITH PLUG PULLED

"CCR" DENOTES CONSTANT CURRENT REGULATOR

NOTE: INFORMATION SHOWN ON THIS SHEET IS TO HELP WITH IDENTIFYING EXISTING CONDITIONS.

NOTES:

- 1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/TECHNICIAN. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS. VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, RECONNECTING, AND/OR INSTALLING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, OR OTHER DEVICES. CONTRACTOR SHALL REPORT ANY VARIATIONS, DEFICIENCIES, AND/OR APPARENT SAFETY CONCERNS TO THE RESIDENT ENGINEER/TECHNICIAN.
- 3. THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.
- 4. CONTRACTOR SHALL EXERCISE CAUTION, PRACTICE SAFETY, AND DISCONNECT THE SERIES CIRCUITS FROM THE RESPECTIVE CONSTANT CURRENT REGULATORS, AS APPLICABLE WHEN PERFORMING WORK ON THE AIRFIELD LIGHTING OR WORK THAT MIGHT AFFECT THE AIRFIELD LIGHTING. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL.
- MEGGER TEST (WITH AN INSULATION RESISTANCE TESTER) AND RECORD EXISTING SERIES CIRCUITS PRIOR TO CABLE WORK OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING SYSTEMS AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES, AND/OR OTHER WORK HAS BEEN COMPLETED. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE, (WITH AN OHMMETER).
- 6. THE RESPECTIVE RUNWAY AND TAXIWAY LIGHTING CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS, AND/OR OTHER WORK AND AFTER THE RESPECTIVE WORK HAS BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES OF OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT ENGINEER/TECHNICIAN. TEST RESULTS SHALL BE PROVIDED TO THE PROJECT ENGINEER AND RESIDENT ENGINEER/TECHNICIAN WITHIN 5 BUSINESS DAYS.
- 7. REFER TO INSTRUCTIONS IN THE VAULT FOR TRANSFER PROCEDURE TO BACKUP CCR FOR RUNWAY 11-29.



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COLES



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

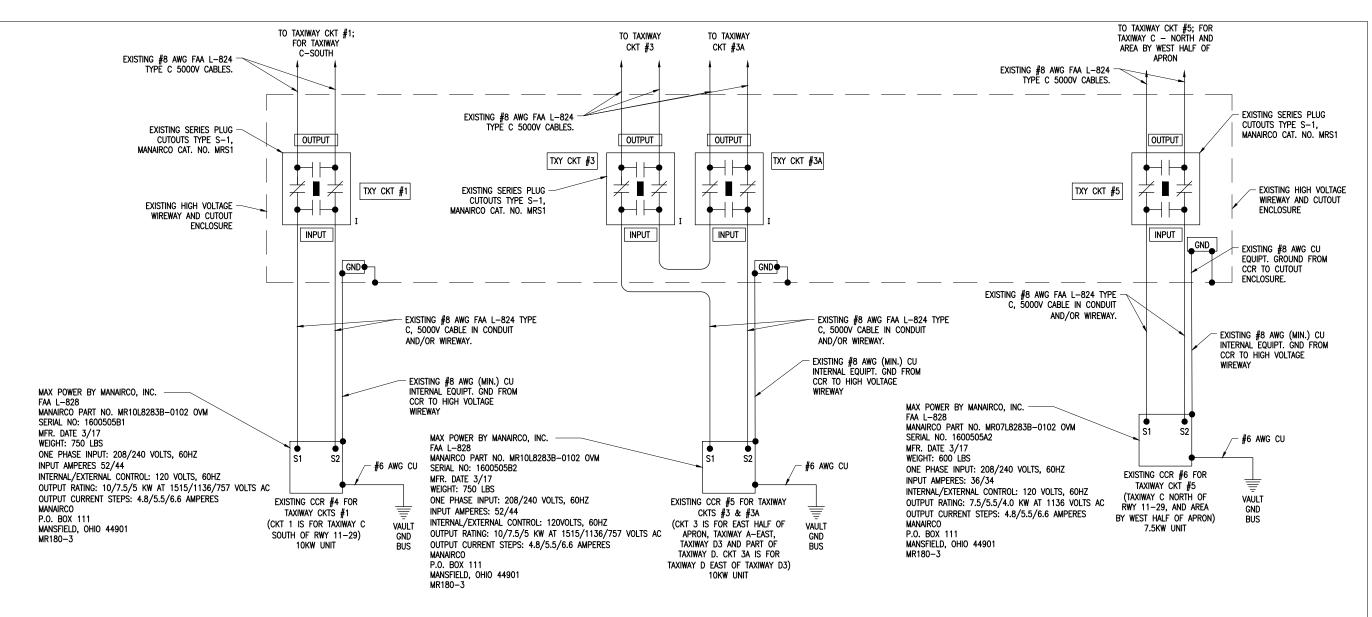
Contract No. CO065

NO.	DATE	DESCRIPTION		
INO.	DATE	DES	DWN	REV
ISSUE:	SEPTE	MBER	14, 20°	18
PROJEC	CT NO: 1	8A001	4D	
CAD FIL	E: E-602	2.DWG	;	
DESIGN	BY: KN	L 06/2	23/201	8
DRAWN	BY: MJI	D 07/1	1/2018	3

REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAYS



EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAY CKTS 1, 3, 3A, & 5

NOTES:

- 1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/TECHNICIAN. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, RECONNECTING, AND/OR INSTALLING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, OR OTHER DEVICES. CONTRACTOR SHALL REPORT ANY VARIATIONS, DEFICIENCIES, AND/OR APPARENT SAFETY CONCERNS TO THE RESIDENT ENGINEER/TECHNICIAN.
- 3. THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.
- 4. CONTRACTOR SHALL EXERCISE CAUTION, PRACTICE SAFETY, AND DISCONNECT THE SERIES CIRCUITS FROM THE RESPECTIVE CONSTANT CURRENT REGULATORS, AS APPLICABLE WHEN PERFORMING WORK ON THE AIRFIELD LIGHTING OR WORK THAT MIGHT AFFECT THE AIRFIELD LIGHTING. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL.
- 5. MEGGER TEST (WITH AN INSULATION RESISTANCE TESTER) AND RECORD EXISTING SERIES CIRCUITS PRIOR TO CABLE WORK OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING SYSTEMS AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES, AND/OR OTHER WORK HAS BEEN COMPLETED. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE, (WITH AN OHMMETER).
- 6. THE RESPECTIVE RUNWAY AND TAXIWAY LIGHTING CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS, AND/OR OTHER WORK, AND AFTER THE RESPECTIVE WORK HAS BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES OF OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT ENGINEER/TECHNICIAN. TEST RESULTS SHALL BE PROVIDED TO THE PROJECT ENGINEER AND RESIDENT ENGINEER/TECHNICIAN WITHIN 5 BUSINESS DAYS.

<u>LEGEND</u> DENOTES

"I" DENOTES PLUG CUTOUT WITH PLUG INSERTED

"P" DENOTES PLUG CUTOUT WITH PLUG PULLED

"CCR" DENOTES CONSTANT CURRENT REGULATOR

NOTE: INFORMATION SHOWN ON THIS SHEET IS TO HELP WITH IDENTIFYING EXISTING CONDITIONS.

HANSON Engineering I Planning I Alled Service

Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT

AUTHORITY

COLES COUNTY NEMOCIAL ARFORT

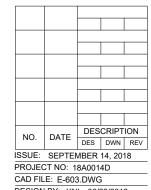


PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

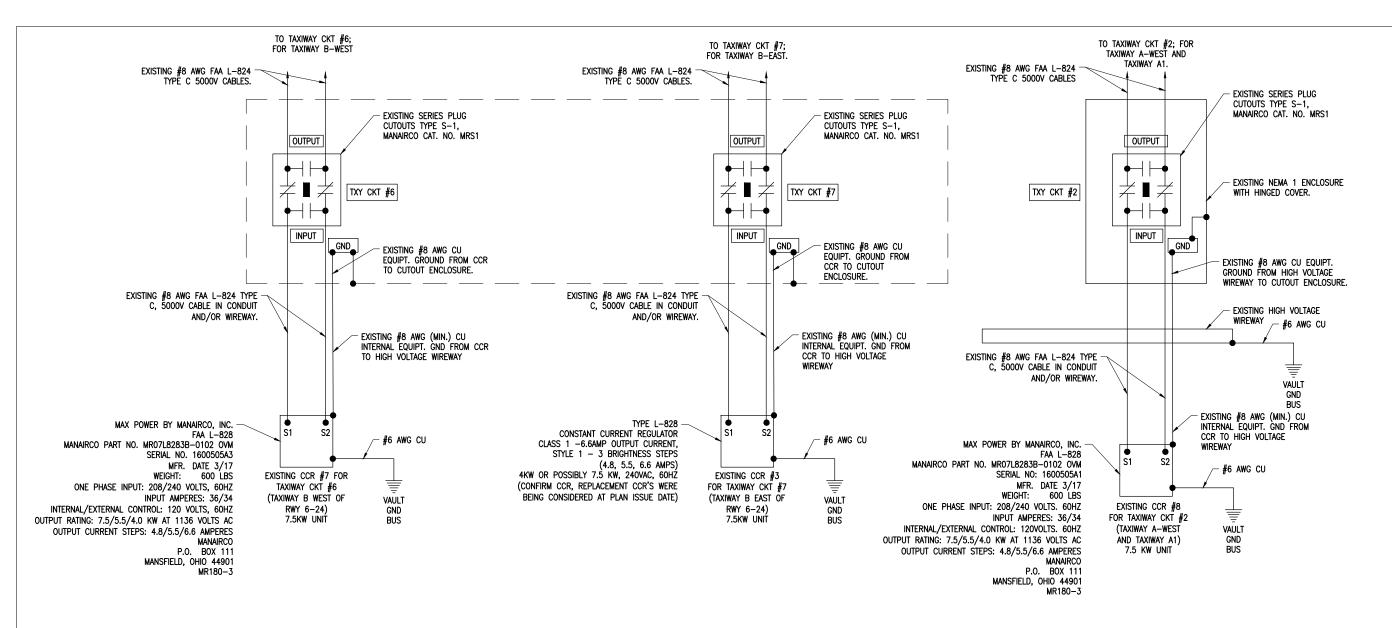
Contract No. CO065



DESIGN BY: KNL 06/23/2018
DRAWN BY: MJD 07/11/2018
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE

EXISTING HIGH
VOLTAGE WIRING
SCHEMATIC FOR
TWY CKTS 1, 3, 3A & 5



EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAY CKTS 2, 6, & 7

NOTES:

- 1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/TECHNICIAN. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY
 RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, RECONNECTING, AND/OR
 INSTALLING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, OR OTHER DEVICES. CONTRACTOR SHALL REPORT ANY VARIATIONS,
 DEFICIENCIES, AND/OR APPARENT SAFETY CONCERNS TO THE RESIDENT ENGINEER/TECHNICIAN.
- 3. THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.
- 4. CONTRACTOR SHALL EXERCISE CAUTION, PRACTICE SAFETY, AND DISCONNECT THE SERIES CIRCUITS FROM THE RESPECTIVE CONSTANT CURRENT REGULATORS, AS APPLICABLE WHEN PERFORMING WORK ON THE AIRFIELD LIGHTING OR WORK THAT MIGHT AFFECT THE AIRFIELD LIGHTING. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL.
- 5. MEGGER TEST (WITH AN INSULATION RESISTANCE TESTER) AND RECORD EXISTING SERIES CIRCUITS PRIOR TO CABLE WORK OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING SYSTEMS AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES, AND/OR OTHER WORK HAS BEEN COMPLETED. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE, (WITH AN OHMMETER).
- 6. THE RESPECTIVE RUNWAY AND TAXIWAY LIGHTING CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS, AND/OR OTHER WORK, AND AFTER THE RESPECTIVE WORK HAS BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES OF OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT ENGINEER/TECHNICIAN. TEST RESULTS SHALL BE PROVIDED TO THE PROJECT ENGINEER AND RESIDENT ENGINEER/TECHNICIAN WITHIN 5 BUSINESS DAYS.

<u>LEGEND</u>

"I" DENOTES PLUG CUTOUT WITH PLUG INSERTED

"P" DENOTES PLUG CUTOUT WITH PLUG PULLED

"CCR" DENOTES CONSTANT CURRENT REGULATOR

NOTE: INFORMATION SHOWN ON THIS SHEET IS TO HELP WITH IDENTIFYING EXISTING CONDITIONS.

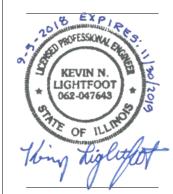


Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

AUTHORITY
COLES COUNTY AIRPORT

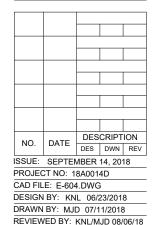


PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

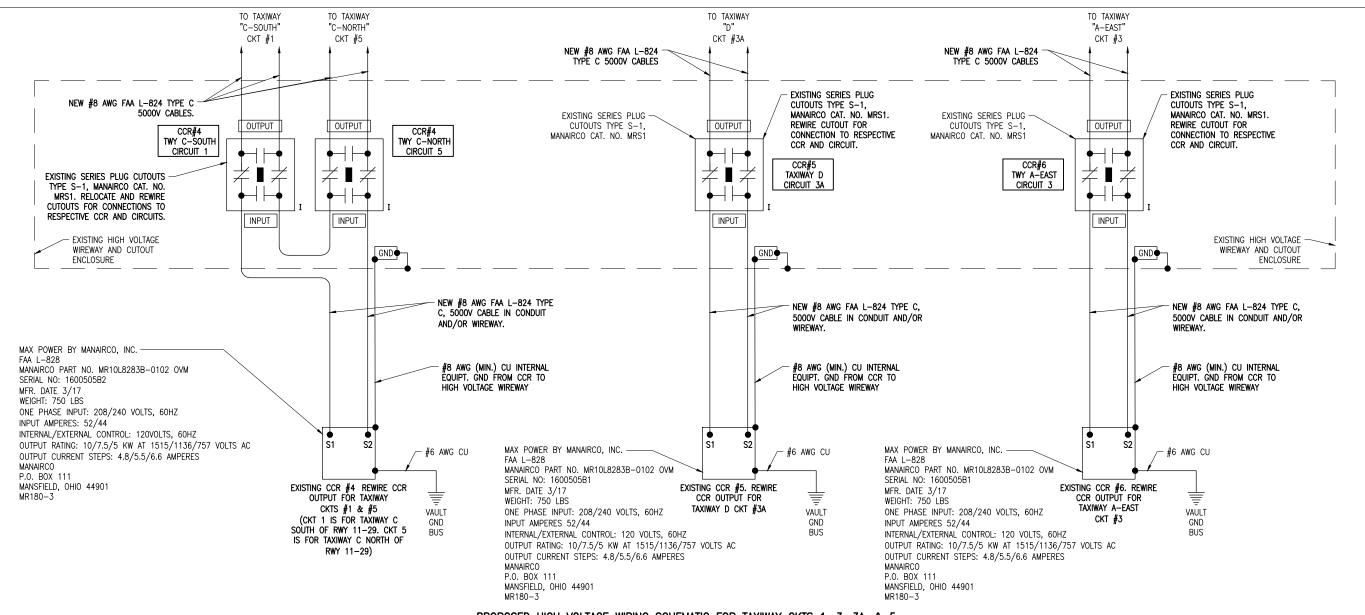
IDA No: MTO-4679

Contract No. CO065



EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR TWY CKTS 2, 6, & 7

SHEET TITLE



PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAY CKTS 1, 3, 3A, & 5

NOTES:

- . ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/TECHNICIAN. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, RECONNECTING, AND/OR INSTALLING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, OR OTHER DEVICES. CONTRACTOR SHALL REPORT ANY VARIATIONS, DEFICIENCIES, AND/OR APPARENT SAFETY CONCERNS TO THE RESIDENT ENGINEER/TECHNICIAN.
- 3. THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.
- 4. CONTRACTOR SHALL EXERCISE CAUTION, PRACTICE SAFETY, AND DISCONNECT THE SERIES CIRCUITS FROM THE RESPECTIVE CONSTANT CURRENT REGULATORS, AS APPLICABLE WHEN PERFORMING WORK ON THE AIRFIELD LIGHTING OR WORK THAT MIGHT AFFECT THE AIRFIELD LIGHTING. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL.
- 5. CCR #4 SHALL BE RECONNECTED TO POWER TAXIWAY C-SOUTH CKT #1 AND TAXIWAY C-NORTH CKT #5.
- 6. CCR #5 SHALL BE RECONNECTED TO POWER TAXIWAY D CKT #3A.
- 7. CCR #6 SHALL BE RECONNECTED TO POWER TAXIWAY A-EAST CKT #3.
- 8. ALL WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT PER LUMP SUM.

<u>LEGEND</u>

"P" DENOTES PLUG CUTOUT WITH PLUG PULLED

DENOTES PLUG CUTOUT WITH PLUG INSERTED

"CCR" DENOTES CONSTANT CURRENT REGULATOR



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL AIRPORT

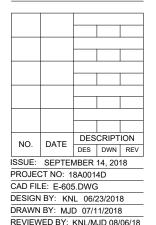


PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065



PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR TWY CKTS 1,3,3A,&5

SHEET TITLE

EXISTING 225AMP, 120/240VAC, 1PH,

PROPOSED ELECTRICAL ONE-LINE FOR HEATERS & EXHAUST FANS

EXHAUST FAN

EXHAUST FAN

<u>NOTES</u>

- 1. ALL VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 — NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- 3. ALL CONDUCTORS/WIRING SHALL BE COPPER.
- 4. COLOR CODE PHASE AND NEUTRAL CONDUCTOR INSULATION FOR NO. 4
 AWG OR SMALLER. PROVIDE COLORED INSULATION OR COLORED MARKING
 TAPE FOR PHASE AND NEUTRAL CONDUCTORS FOR NO. 3 AWG AND
 LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED
 INSULATION FOR ALL CONDUCTOR AWG AND/OR KCMIL TO COMPLY WITH
 NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE COLORED
 INSULATION FOR NO. 6 AWG AND SMALLER TO MEET THE REQUIREMENTS
 OF NEC 200.6. STANDARD COLORS FOR POWER WIRING AND BRANCH
 CIRCUITS SHALL BE AS FOLLOWS:

 120/240
 VAC.
 1
 PHASE.
 3
 WIRE

 PHASE A
 BLACK

 PHASE B
 RED

 NEUTRAL
 WHITE

 GROUND
 GREEN

- HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE OR HANDHOLE.
- 6. EQUIPMENT AND MATERIALS NOT LABELED AS "EXISTING" ARE NEW.
- FURNISH AND INSTALL A 15 AMP, 1—POLE BOLT—ON CIRCUIT BREAKER WITH 10,000 AIC AT 120 VAC IN PANEL B FOR THE FIRE ALARM CONTROL PANEL
- ALL WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT PER LUMP SUM.



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT
AUTHORITY
COLES COUNTY MEMORIAL ARTORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D

DESIGN BY: KNL 07/23/2018

DRAWN BY: SKB 07/23/2018

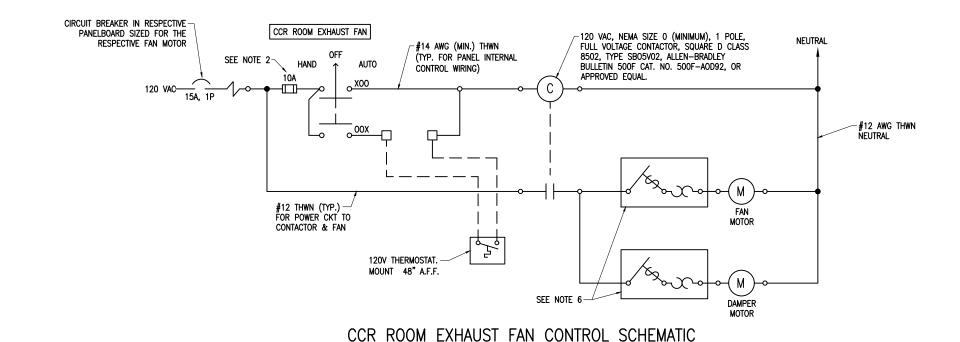
REVIEWED BY: KNL/MJD 08/06/18

CAD FILE: E-608.DWG

SHEET TITLE

PROPOSED ELECTRICAL ONE-LINE FOR HEATERS & EXHAUST FANS

ENGINE GENERATOR ROOM EXHAUST FAN CONTROL SCHEMATIC



NOTES:

- 1. CONTROL PANEL FOR VAULT EXHAUST FANS SHALL BE MANUFACTURED BY A UL 508 INDUSTRIAL CONTROL PANEL BUILDER OR AN FAA APPROVED L-821 PANEL BUILDER, AND SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN PREFERENCES REQUIREMENT. WHERE THE PANEL IS MANUFACTURED BY AN L-821 PANEL BUILDER IT SHALL BE LABELED AS AN L-821 PANEL.
- FUSING FOR FAN CIRCUIT CONTROL WIRING SHALL BE 10 AMP, 600 VAC, BUSSMAN CATALOG FNQ-R-10, OR APPROVED EQUAL, WITH FUSE BLOCKS, WITH BOX LUG TERMINALS, SIZED AS REQUIRED FOR THE RESPECTIVE APPLICATION. INCLUDE HARDWARE FOR MOUNTING. PROVIDE ONE BOX (5 MINIMUM QUANTITY) OF EACH TYPE AND SIZE OF FUSE, UPON COMPLETION OF THE JOB FOR USE AS SPARES.
- PROVIDE 3-POSITION MAINTAINED CONTACT "HAND-OFF-AUTO" SELECTOR SWITCH FOR FAN CONTACTOR & MOUNT ON CONTROL PANEL ENCLOSURE DOOR. SELECTOR SWITCH SHALL BE SQUARE D CLASS 9001, TYPE KS43FBH13, ALLEN-BRADLEY CAT. NO. 800T-J2A OR APPROVED EQUAL. INCLUDE LEGEND PLATE TO IDENTIFY EACH EXHAUST FAN; "CCR ROOM EXHAUST FAN" AND "ENGINE ROOM EXHAUST FAN".
- INCLUDE LEGEND PLATE ON CONTROL PANEL ENCLOSURE OUTER DOOR LABELED "NOTICE: CONTACTOR HAS REMOTE LOCATED CONTROLS AND MAY ACTIVATE AT ANY TIME."
- FIELD VERIFY CONTROL OF EXISTING DAMPER MOTOR FOR ENGINE GENERATOR INTAKE AIR.
 IF DAMPER MOTOR IS POWERED TO OPEN, CONNECT R1 NORMALLY OPEN CONTACT IN
 PARALLEL WITH EXISTING AUXILIARY CONTACT. IF DAMPER MOTOR IS POWERED TO CLOSE,
 CONNECT R1 NORMALLY CLOSED CONTACT IN SERIES WITH EXISTING AUXILIARY CONTACT.
- PROVIDE FRACTIONAL HORSEPOWER MOTOR MANUAL STARTER, WITH HANDLE/GUARD/LOCK OFF, IN NEMA 4 ENCLOSURE FOR FAN MOTOR. INCLUDE MELTING ALLOY TYPE THERMAL OVERLOADS SIZED AS REQUIRED TO PROTECT THE RESPECTIVE MOTOR. 120 VAC MOTORS SHALL HAVE SINGLE POLE STARTERS.
- TERMINAL BLOCKS FOR CONTROL PANEL SHALL BE NEMA RATED TERMINAL BLOCKS SIZED FOR RESPECTIVE WIRES AND AMPERAGE.
- 8. ALL WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT PER LUMP SUM.



Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed Professional Service Corporation #184-001084

COLES COUNTY AIRPORT

AUTHORITY

COLES COUNTY MEMORIAL ARRORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

SBG Project No: 3-17-SBGP-TBD

IDA No: MTO-4679

Contract No. CO065

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: SEPTEMBER 14, 2018
PROJECT NO: 18A0014D
CAD FILE: E-606.DWG
DESIGN BY: KNL 07/23/2018
DRAWN BY: SKB 07/23/2018

SHEET TITLE

EXHAUST FAN WIRING SCHEMATICS

REVIEWED BY: KNL/MJD 08/06/18

LEGEND F	PLATE SCHEDULE
CCR #3	CCR #3 TAXIWAY B-EAST CIRCUIT 7
CIRCUIT BREAKER FOR CCR #3	CCR #3 TAXIWAY B-EAST CIRCUIT 7
CUTOUT FOR CCR #3 TAXIWAY B-EAST — CKT 7	CCR #3 TAXIWAY B-EAST CIRCUIT 7
CCR #4	CCR #4 TAXIWAY C TWY C-SOUTH - CKT 1 TWY C-NORTH - CKT 5
CIRCUIT BREAKER FOR CCR #4	CCR #4 TAXIWAY C TWY C-SOUTH - CKT 1 TWY C-NORTH - CKT 5
CUTOUT FOR CCR #4, TAXIWAY C-SOUTH - CKT 1	CCR #4 TAXIWAY C - SOUTH CIRCUIT 1
CUTOUT FOR CCR #4 TAXIWAY C-NORTH - CKT 5	CCR #4 TAXIWAY C - NORTH CIRCUIT 5
CCR #5	CCR #5 TAXIWAY D CIRCUIT 3A
CIRCUIT BREAKER FOR CCR #5	CCR #5 TAXIWAY D CIRCUIT 3A
CUTOUT FOR CCR #5 TAXIWAY D – CKT 3A	CCR #5 TAXIWAY D CIRCUIT 3A
CCR #6	CCR #6 TAXIWAY A-EAST CIRCUIT 3
CIRCUIT BREAKER FOR CCR #6	CCR #6 TAXIWAY A-EAST CIRCUIT 3
CUTOUT FOR CCR #6 TAXIWAY A-EAST — CKT 3	CCR #6 TAXIWAY A-EAST CIRCUIT 3

LEGEND PLA	TE SCHEDULE
CCR #7	CCR #7 TAXIWAY B-WEST CIRCUIT 6
CIRCUIT BREAKER CCR #7	CCR #7 TAXIWAY B-WEST CIRCUIT 6
CUTOUT FOR CCR #7 TAXIWAY B-WEST – CKT 6	CCR #7 TAXIWAY B-WEST CIRCUIT 6
CCR #8	CCR #8 TAXIWAY A-WEST CIRCUIT 2
CIRCUIT BREAKER CCR #8	CCR #8 TAXIWAY A-WEST CIRCUIT 2
CUTOUT ENCLOSURE FOR CCR #8 TAXIWAY A-WEST — CKT 2	CCR #8 TAXIWAY A-WEST CIRCUIT 2
CUTOUT FOR CCR #8 TAXIWAY A-WEST – CKT 2	CCR #8 TAXIWAY A-WEST CIRCUIT 2
EACH CUTOUT INPUT SIDE CONNECTION	INPUT
EACH CUTOUT OUTPUT SIDE CONNECTION	ОИТРИТ

CABLE TAG SCHEDULE				
CIRCUIT	LABEL			
RUNWAY 11-29 LIGHTING CIRCUIT	R1			
RUNWAY 6-24 LIGHTING CIRCUIT	R2			
TAXIWAY C - SOUTH - CIRCUIT 1	T1			
TAXIWAY A-WEST - CIRCUIT 2	T2			
TAXIWAY A-EAST CIRCUIT 3	Т3			
TAXIWAY D - CIRCUIT 3A	ТЗА			
TAXIWAY C - NORTH - CIRCUIT 5	T5			
TAXIWAY B-WEST - CIRCUIT 6	Т6			
TAXIWAY B-EAST - CIRCUIT 7	Т7			

NOTES:

- 1. LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH WHITE LETTERS ON A RED BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.
- FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH SAFETY SWITCH, PANELBOARD, LOAD CENTER, CUTOUT, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "ARC-FLASH HAZARD WARNING". LABELS SHALL BE HAZARD COMMUNICATION SYSTEMS, LLC (190 OLD MILFORD RD., BOX 1174, MILFORD, PA 18337, PHONE: 1-877-748-0244) PART NO. H6010-9VWHBJ OR APPROVED EQUAL.
- 3. ALL POWER AND CONTROL CABLES IN HANDHOLES, MANHOLES, AND JUNCTION BOXES SHALL BE TAGGED TO IDENTIFY THE RESPECTIVE CABLE. A MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MANHOLE; ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT. CABLE TAGS SHALL BE STAMPED BRASS TAGS OR OTHER WEATHERPROOF/WATERPROOF CORROSION RESISTANT MATERIAL.



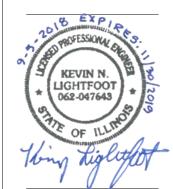
Offices Nationwide

Hanson Professional Services Inc. 1525 S. 6th Street Springfield, IL 62568 phone: 217-788-2450 fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084

AUTHORITY

COLES COUNTY MEMORIAL ARPORT



PHASE 2: REPLACE TAXIWAY LIGHTING SYSTEMS SERVING RUNWAY 6-24

IDA No: MTO-4679 SBG Project No: 3-17-SBGP-TBD

Contract No. CO065

NO.	DATE	DESCRIPTION				
INO.		DES	DWN	REV		
ISSUE:	ISSUE: SEPTEMBER 14, 2018					
PROJECT NO: 18A0014D						
CAD FILE: E-607-SCHD.DWG						
DESIGN BY: KNL 7/15/2018						

LEGEND PLATES AND SCHEDULES

DRAWN BY: RAD 7/24/2018
REVIEWED BY: KNL/MJD 08/06/18

SHEET TITLE