CONSTRUCTION PLANS

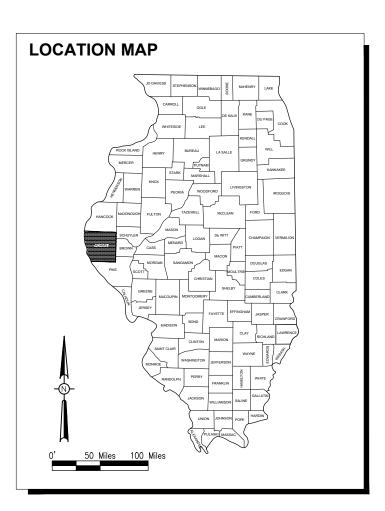
REALIGN TAXIWAY D

CITY OF QUINCY QUINCY REGIONAL AIRPORT-BALDWIN FIELD (UIN) QUINCY, ADAMS COUNTY, ILLINOIS

SBG PROJECT NO. 3-17-SBGP-105 IDA PROJECT NO. UIN-4332

DUE TO THE ANTICIPATED TIMING OF CONTRACT AWARD AND POTENTIAL FOR INCLEMENT WEATHER, IT IS NOT EXPECTED THAT CONSTRUCTION WILL BEGIN BEFORE MAY 2016.

VICINITY MAP Pymouls 5 Parick Received Brown Sillwell Brown Sillwell Sillwell Brown Sillwell Sillwel



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.

No.	Issue/Description	Sheets Changed	Date	Ву









ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AR108084	1/C #4 XLP-USE	L. F.	840	
AR108158	1/C #8 5 KV UG CABLE IN UD	L. F.	4,670	
AR108756	1/C #6 GROUND	L.F.	4,670	
AR109200	INSTALL ELECTRICAL EQUIPMENT	L.S.	1	
AR110202	2" PVC DUCT, DIRECT BURY	L.F.	280	
AR110502	2-WAY CONCRETE ENCASED DUCT	L.F.	125	
AR125410	MITL-STAKE MOUNTED	EA.	23	
AR125415	MITL-BASE MOUNTED	EA.	8	
AR125443	TAXI GUIDANCE SIGN, 3 CHARACTER	EA.	1	
AR125446	TAXI GUIDANCE SIGN, 6 CHARACTER	EA.	1	
AR125565	SPLICE CAN	EA.	2	
AR125901	REMOVE STAKE MOUNTED LIGHT	EA.	26	
AR125902	REMOVE BASE MOUNTED LIGHT	EA.	6	
AR125904	REMOVE TAXI GUIDANCE SIGN	EA.	2	
AR125941	ADJUST STAKE MOUNTED LIGHT	EA.	1	
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1	
AR150520	MOBILIZATION	L.S.	1	
AR150540	HAUL ROUTE	L.S.	1	
AR152410	UNCLASSIFIED EXCAVATION	C.Y.	3,806	
AR155540	BY-PRODUCT LIME	TON	255	
AR155616	SOIL PROCESSING-16"	S.Y.	7,070	
AR156520	INLET PROTECTION	EA.	3	
AR156530	TEMPORARY SEEDING	ACRE	4.7	
AR156531	EROSION CONTROL BLANKET	S.Y.	1,002	
AR156540	RIPRAP	S.Y.	11	
AR209510	CRUSHED AGGREGATE BASE COURSE	TON	2,016	
AR620520	PAVEMENT MARKING-WATERBORNE	S.F.	2,257	
AR620525	PAVEMENT MARKING-BLACK BORDER	S.F.	2,066	
AR701524	24" RCP, CLASS IV	L.F.	314	
AR701900	REMOVE PIPE	L.F.	314	
AR705506	6" PERFORATED UNDERDRAIN	L.F.	2,136	
AR705640	UNDERDRAIN CLEANOUT	EA.	4	
AR751411	INLET-TYPE A	EA.	1	
AR751900	REMOVE INLET	EA.	2	
AR752424	PRECAST REINFORCED CONC. FES 24"	EA.	1	
AR752903	REMOVE HEADWALL	EA.	1	
AR800469	REMOVE BITUMINOUS & PCC PAVEMENT	S.Y.	5,411	
AR800510	FAA P-501 PCC PAVEMENT, 10"	S.Y.	6,831	
AR800511	FAA P-605 JOINT SEALANT	L.F.	8,550	
AR901510	SEEDING	ACRE	4.7	
AR908510	MULCHING	ACRE	4.5	
	-		† · · · · ·	

	EARTHWORK QUANTITY SUMMARY							
Ī	WORK AREA	CUT (CY)	FILL (CY)	FILL + 20% (CY)	NET (CY)			
	TAXIWAY "D"	3,806**	2,971	3,566	240 (WASTE)			

** USED TO CALCULATE AR152410 PAY ITEM QUANTITY

	INDEX TO SHEETS				
SHEET NUMBER SHEET TITLE					
1	COVER SHEET				
2	SUMMARY OF QUANTITIES AND INDEX TO SHEETS				
3	PROPOSED SCOPE OF WORK				
4	CONSTRUCTION SAFETY AND PHASING PLAN- WORK AREA 1				
5	CONSTRUCTION SAFETY AND PHASING PLAN- WORK AREA 2				
6	CONSTRUCTION SAFETY AND PHASING DETAILS AND NOTES				
7	TYPICAL SECTIONS				
8	PROPOSED CONSTRUCTION PLAN				
9	PROPOSED PLAN AND PROFILE				
10	DRAINAGE DETAILS				
11	PROPOSED JOINTING PLAN SHEET 1				
12	PROPOSED JOINTING PLAN SHEET 2				
13	PROPOSED MARKING PLAN				
14	PAVEMENT MARKING DETAILS				
15	PROPOSED STORMWATER POLLUTION PREVENTION PLAN				
16	EXISTING ELECTRICAL PLAN				
17	PROPOSED ELECTRICAL PLAN				
18	AIRFIELD LIGHTING NOTES AND SCHEDULES				
19	ELECTRICAL DETAILS SHEET 1				
20	ELECTRICAL DETAILS SHEET 2				
21	ELECTRICAL DETAILS SHEET 3				
22	ELECTRICAL DETAILS SHEET 4				
23	ELECTRICAL NOTES SHEET 1				
24	ELECTRICAL NOTES SHEET 2				
25	GROUNDING NOTES				
26	ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES				
27	ELECTRICAL VAULT FLOOR PLAN				
28	EXISTING ONE-LINE DIAGRAM FOR VAULT				
29	PROPOSED VAULT ADDITIONS ONE-LINE DIAGRAM				
30	EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAYS				
31	EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAYS				
32	EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR WIND CONES				
33	PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAYS C, D, &				
34	LEGEND PLATE SCHEDULES				
35	GROUNDING DETAILS				
36	CROSS SECTIONS STA. 113+26 TO STA. 115+50				
37	CROSS SECTIONS STA. 116+00 TO STA. 116+75				
38	CROSS SECTIONS STA. 117+00 TO STA. 118+50				
39	CROSS SECTIONS STA. 119+00 TO STA. 120+50				
40	CROSS SECTIONS STA. 121+00 TO STA. 122+50				
41	CROSS SECTIONS STA. 123+00 TO STA. 125+00				

GENERAL NOTES:

QUANTITIES

PAYMENT WILL BE MADE UNDER THE ITEM NUMBERS, DESCRIPTIONS AND UNITS NOTED IN THE ABOVE TABLE IN ACCORDANCE WITH THE BASIS OF PAYMENT FOR EACH RESPECTIVE WORK ITEM COMPLETED AND ACCEPTED BY THE ENGINEER.

CERTIFIED PAYROLLS

THE RESIDENT ENGINEER CANNOT FORWARD CONSTRUCTION REPORTS TO THE ILLINOIS DIVISION OF AERONAUTICS FOR PROCESSING UNTIL ALL CERTIFIED PAYROLLS FOR THE PERIOD HAVE BEEN RECEIVED.

MATERIAL CERTIFICATIONS

MATERIALS TO BE INCORPORATED INTO THE PROJECT CANNOT BE USED WITHOUT PRIOR APPROVAL. ALL MATERIALS TO BE USED IN THE PROJECT MUST BE SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL. USE OF MATERIALS WITHOUT PRIOR APPROVAL AND ULTIMATELY DETERMINED TO BE UNACCEPTABLE BY THE ILLINOIS DIVISION OF AERONAUTICS ARE SUBJECT TO REMOVAL AND/OR NON-PAYMENT.

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



1645 Highway 104 Quincy, IL 62305



REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

Q1061

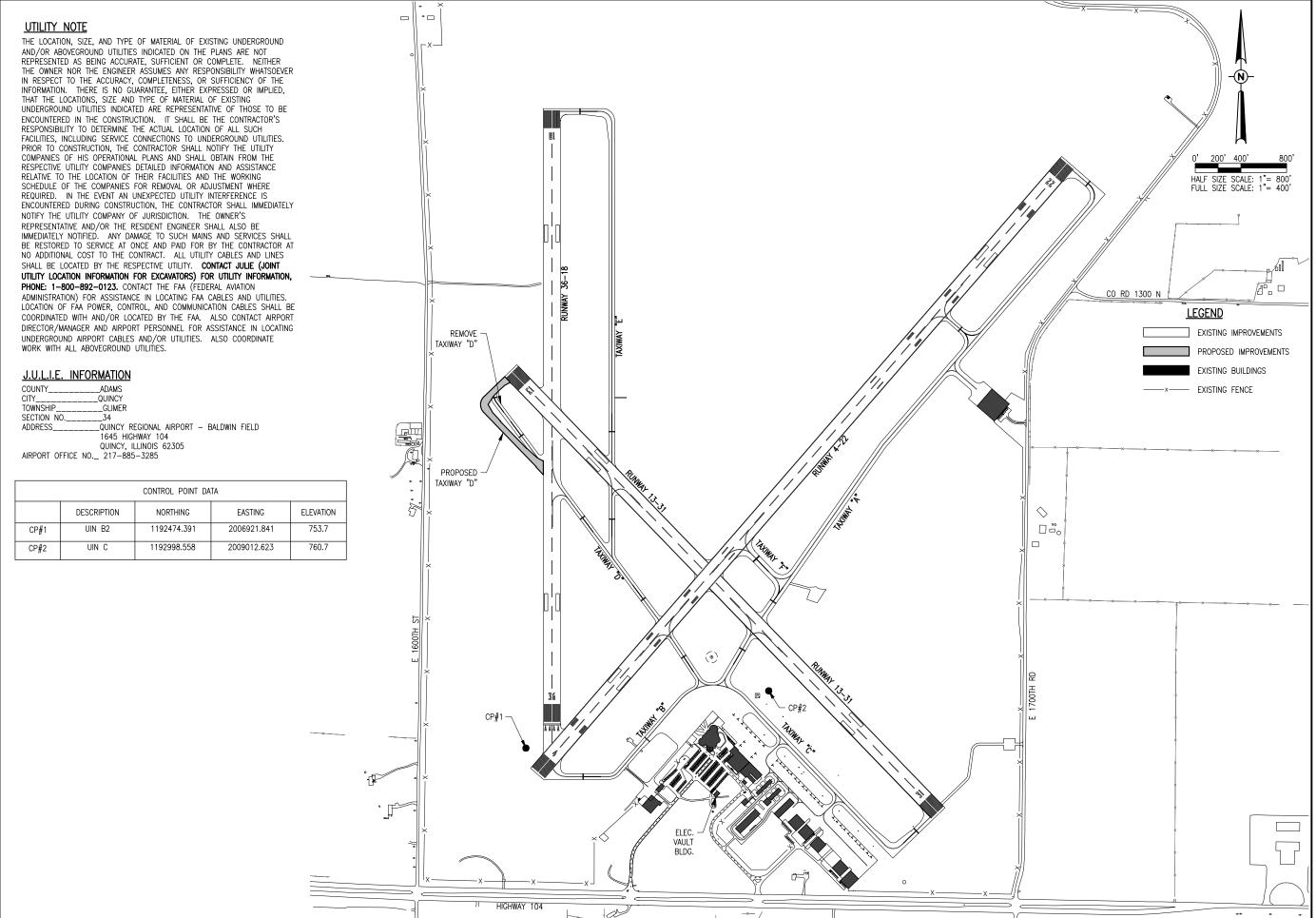
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ISSUE: JUNE 9, 2015					
DDO IECT NO: 4240000D					

PROJECT NO: 13A0080D CAD FILE: G-002-FLP.DWG DESIGN BY: JRH 06/10/2014

DRAWN BY: JRH 06/10/2014 REVIEWED BY: JDW 11/12/2014

SHEET TITLE

SUMMARY OF QUANTITIES AND INDEX TO SHEETS



CONTRACTHANSON

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

Quincy Regional Airport -Baldwin Field



1645 Highway 104 Quincy, IL 62305



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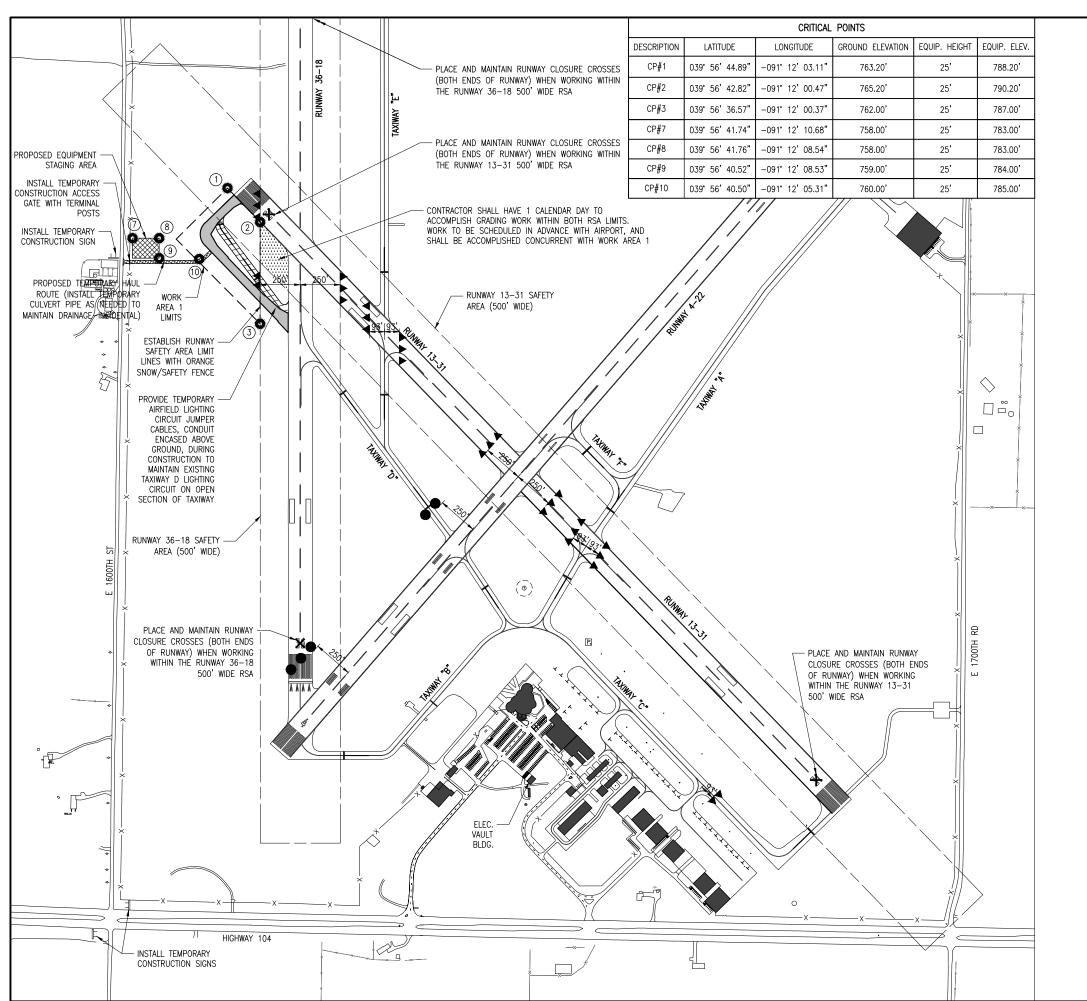
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NO.	DATE	DES	DWN	REV		
SSUE: JUNE 9, 2015						
PROJECT NO: 13A0080D						
CAD FILE: G-003-SOW.DWG						
DESIGN BY: JRH 06/09/2014						

REVIEWED BY:

DRAWN BY: JRH 06/09/2014

PROPOSED SCOPE OF WORK





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

Illinois Licensed Professional Service Corporation #184-001084

Quincy Regional Airport Baldwin Field



1645 Highway 104 Quincy, IL 62305



REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

QI061

WORK AREA NOTES

1. THE WORK ITEMS TO BE COMPLETED IN THIS AREA INCLUDE REMOVAL OF THE EXISTING TAXIWAY PAVEMENT AND ASSOCIATED LIGHTING AND DRAINAGE, CONSTRUCTION OF THE NEW TAXIWAY PAVEMENT AND ASSOCIATED LIGHTING AND DRAINAGE, INCLUDING PAVING, MARKING, AND FROSION CONTROL.

1) 0

0' 150' 300'

LEGEND

HALF SIZE SCALE: 1"= 600' FULL SIZE SCALE: 1"= 300'

EXISTING IMPROVEMENTS

PROPOSED TAXIWAY PAVEMENT

PROPOSED CONTRACTOR

RUNWAY SAFETY AREA

PLACE AND MAINTAIN

PLACE AND MAINTAIN BARRICADES WHEN RUNWAY

13-31 IS CLOSED

36-18 IS CLOSED

CRITICAL POINT

BARRICADES WHEN RUNWAY

TEMPORARY CONSTRUCTION SIGN

STAGING AREA AND HAUL ROAD

EXISTING BUILDINGS

EXISTING TAXIWAY PAVEMENT TO

BE REMOVED

(500' WIDE)

CONSTRUCTION TRAFFIC

—X—— EXISTING FENCE

- 2. THE CONTRACTOR MAY NOT WORK IN WORK AREAS 1 AND 2 SIMULTANEOUSLY, WITH THE EXCEPTION OF THE DESIGNATED AREA AS SHOWN ON THE WORK AREA 1 SAFETY AND PHASING PLAN. WORK WITHIN THIS DESIGNATED AREA SHALL BE LIMITED TO 1 CALENDAR DAY.
- 3. CLOSURE CROSSES AND BARRICADES SHALL BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION.
- 4. AT ALL TIMES, THE CONTRACTOR'S OPERATIONS SHALL BE SUCH AS TO MINIMIZE CLOSURES.
- 5. AT THE COMPLETION OF ALL WORK AREA CONSTRUCTION, THE HAUL ROADS, CULVERT, AND GATE ARE TO BE REMOVED. THE FENCELINE, HAUL ROAD AREA AND CONSTRUCTION EQUIPMENT PARKING AREA SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS PER THE
- 6. THE COSTS FOR PROVISION, PLACEMENT, MAINTENANCE AND REMOVAL OF BARRICADES, CLOSURE CROSSES AND TEMPORARY JUMPER CABLES/CONDUITS ON THE AIRFIELD AND ALL ASSOCIATED INCIDENTALS SHALL BE PAID FOR UNDER ITEM AR150520 MOBILIZATION.
- 7. THE COSTS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS GATE, TEMPORARY HAUL ROUTE AND EQUIPMENT STAGING AREA, TEMPORARY SIGNAGE AND ALL ASSOCIATED INCIDENTALS SHALL BE PAID FOR UNDER ITEM AR150540 HAUL ROUTE.

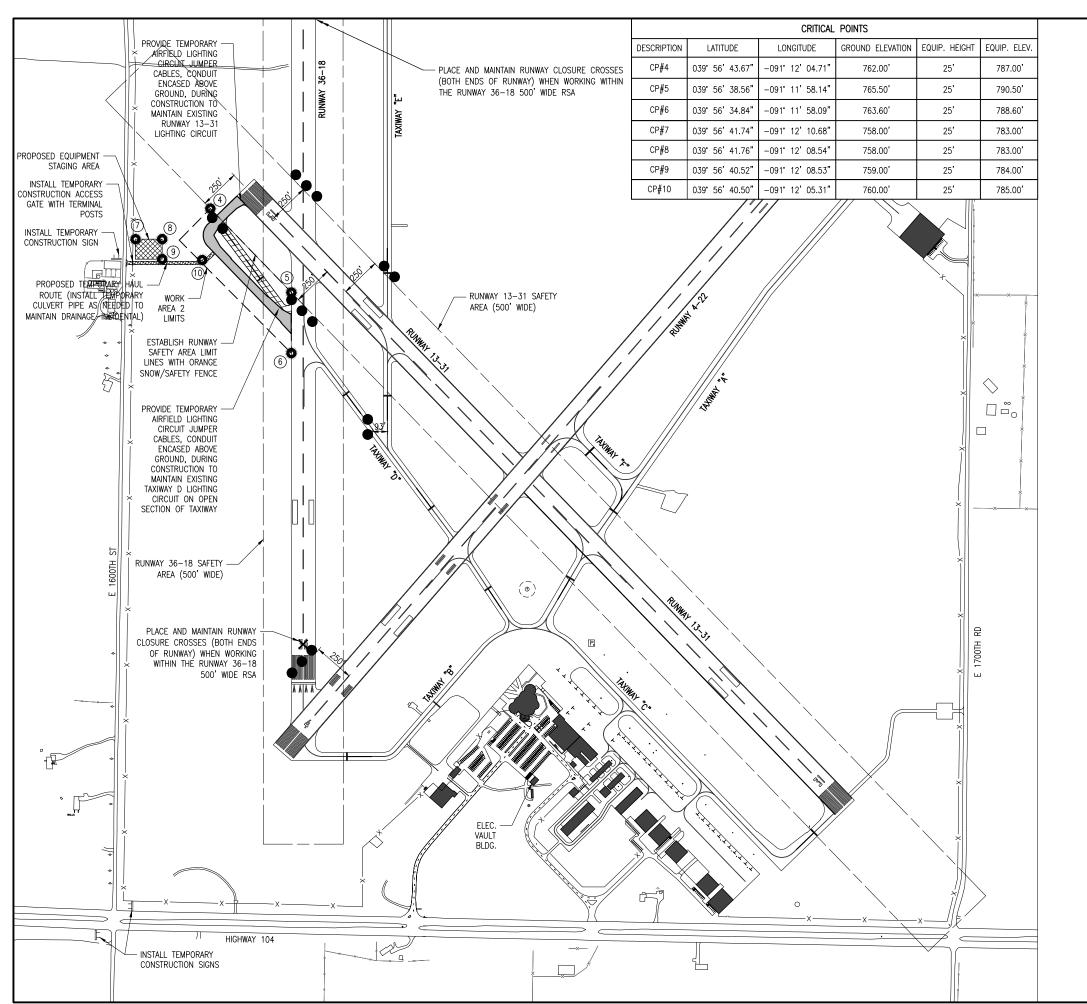
DESCRIPTION NO. DATE DES DWN REV ISSUE: JUNE 9, 2015 PROJECT NO: 13A0080D CAD FILE: C-004-SFY.DWG

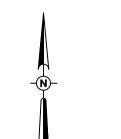
SHEET TITLE

CONSTRUCTION SAFETY AND PHASING PLAN-**WORK AREA 1**

DESIGN BY: JRH 06/09/2014

DRAWN BY: JRH 06/09/2014 REVIEWED BY: JDW 11/12/2014





0' 150' 300' 600 HALF SIZE SCALE: 1"= 600' FULL SIZE SCALE: 1"= 300'

<u>LEGEND</u>

EXISTING IMPROVEMENTS

EXISTING BUILDINGS

PROPOSED TAXIWAY PAVEMENT TO BE REMOVED

PROPOSED CONTRACTOR STAGING AREA AND HAUL ROAD

_____X ____ EXISTING FENCE _____ RUNWAY SAFETY AREA (500' WIDE)

PLACE AND MAINTAIN
BARRICADES WHEN RUNWAY
13-31 IS CLOSED

CONSTRUCTION TRAFFIC

PLACE AND MAINTAIN
BARRICADES WHEN RUNWAY
36-18 IS CLOSED

1 CRITICAL POINT

WORK AREA NOTES

- THE WORK ITEMS TO BE COMPLETED IN THIS AREA INCLUDE REMOVAL OF THE EXISTING TAXIWAY PAVEMENT AND ASSOCIATED LIGHTING AND DRAINAGE, CONSTRUCTION OF THE NEW TAXIWAY PAVEMENT AND ASSOCIATED LIGHTING AND DRAINAGE, INCLUDING PAVING, MARKING, AND FROSION CONTROL.
- 2. THE CONTRACTOR MAY NOT WORK IN WORK AREAS 1 AND 2 SIMULTANEOUSLY, WITH THE EXCEPTION OF THE DESIGNATED AREA AS SHOWN ON THE WORK AREA 1 SAFETY AND PHASING PLAN. WORK WITHIN THIS DESIGNATED AREA SHALL BE LIMITED TO 1 CALENDAR DAY.
- 3. CLOSURE CROSSES AND BARRICADES SHALL BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION.
- 4. AT ALL TIMES, THE CONTRACTOR'S OPERATIONS SHALL BE SUCH AS TO MINIMIZE CLOSURES.
- AT THE COMPLETION OF ALL WORK AREA CONSTRUCTION, THE HAUL ROADS, CULVERT, AND GATE ARE TO BE REMOVED. THE FENCELINE, HAUL ROAD AREA AND CONSTRUCTION EQUIPMENT PARKING AREA SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS PER THE SPECIFICATIONS.
- 6. THE COSTS FOR PROVISION, PLACEMENT, MAINTENANCE AND REMOVAL OF BARRICADES, CLOSURE CROSSES AND TEMPORARY JUMPER CABLES/CONDUITS ON THE AIRFIELD AND ALL ASSOCIATED INCIDENTALS SHALL BE PAID FOR UNDER ITEM AR150520 MOBILIZATION.
- 7. THE COSTS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS GATE, TEMPORARY HAUL ROUTE AND EQUIPMENT STAGING AREA, TEMPORARY SIGNAGE AND ALL ASSOCIATED INCIDENTALS SHALL BE PAID FOR UNDER ITEM AR150540 HAUL ROUTE.



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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

QI061

NO. DATE DESCRIPTION
DES DWN REV

ISSUE: JUNE 9, 2015

PROJECT NO: 13A0080D

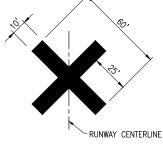
CAD FILE: C-004-SFY,DWG

DESIGN BY: JRH 06/09/2014

SHEET TITLE

CONSTRUCTION SAFETY AND PHASING PLAN-WORK AREA 2

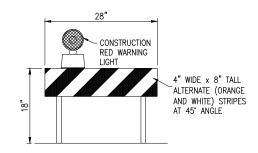
DRAWN BY: JRH 06/09/2014 REVIEWED BY: JDW 11/12/2014



- 1. TEMPORARY CLOSURE CROSS MARKINGS SHALL BE "AVIATION YELLOW."
- 2. TEMPORARY CLOSURE CROSS MARKINGS SHALL BE CONSTRUCTED OF PLYWOOD, SNOW FENCE OR APPROVED FABRIC AND SHALL BE SECURED TO PAVEMENT BY SANDBAGS OR OTHER APPROVED METHOD.
- 3. COST FOR PROVIDING, PLACING, MAINTAINING, AND REMOVING CLOSURE CROSSES SHALL BE INCLUDED IN THE COST OF THE OTHER CONTRACT

CLOSURE CROSS MARKER DETAIL

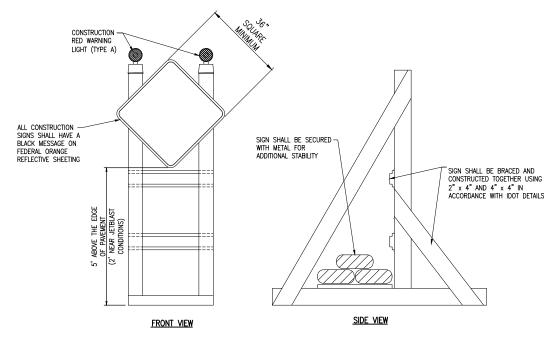
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MODIFIED TYPE II BARRICADE

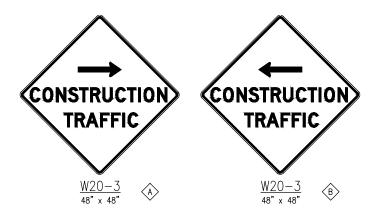
BARRICADE NOTES

- 1. 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.
- 2. MODIFIED TYPE II 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.
- 3. 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 AFTER SUNSET AND 1/2 HOUR BEFORE SUNRISE AND WHEN CONDITIONS EXIST WHICH TEND TO OBSCURE VISION.
- 5. BARRICADES SHALL BE SECURED TO THE GROUND BY APPROVED METHODS TO PREVENT MOVEMENT BY PROP WASH, JET BLAST OR OTHER WIND CURRENTS.
- 6. THE ONLY COLOR COMBINATION ON TYPE II 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.
- COST FOR PROVIDING, PLACING, MAINTAINING, AND REMOVING BARRICADES SHALL BE INCLUDED IN THE COST OF THE OTHER CONTRACT ITEMS.



SIGNAGE 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.
- 2. UNLESS OTHERWISE SPECIFIED, CONSTRUCTION SIGNS SHALL BE MOUNTED ON PORTABLE OR NON-PORTABLE SUPPORTS. A PORTABLE SUPPORT IS DEFINED AS A TYPICAL SIGN STANDARD AS SHOWN ON THIS SHEET. OR A SMALL LIGHT WEIGHT TRAILER, A NON-PORTABLE SUPPORT IS DEFINED AS DRIVEN METAL OR WOOD POST. ALL SIGNS, REGARDLESS OF THE TYPE OF SUPPORTS USED, SHALL BE MOUNTED SUCH THAT THE MESSAGE ON THE SIGN IS LEVEL IN THE HORIZONTAL PLANE AFTER PLACEMENT. THE COST OF CONSTRUCTION WARNING LIGHTS SHALL BE INCLUDED IN THE COST OF THE CONSTRUCTION
- CONSTRUCTION RED WARNING LIGHT: THESE ARE PORTABLE, LENS DIRECTED, ENCLOSED LIGHTS. THE COLOR OF THE LIGHT EMITTED SHALL BE RED. THEY ARE TO BE USED IN A LOW INTENSITY FLASHING MODE (TYPE A)
- THE LIGHTING SHALL BE MAINTAINED IN OPERATION DURING THE HOURS OF DARKNESS BETWEEN 1/2 HOUR AFTER SUNSET AND 1/2 HOUR BEFORE SUNRISE AND WHEN CONDITIONS EXIST WHICH TEND TO
- COST FOR PROVIDING, PLACING, MAINTAINING, AND REMOVING SIGNS SHALL BE INCLUDED IN ITEM AR150540 HAUL ROUTE.



<u>CONSTRUCTION SIGNS</u>

SAFETY NOTES

- FOLLOWING ARE THE CONSTRUCTION SAFETY PROCEDURES THAT THE CONTRACTOR SHALL FOLLOW THROUGHOUT THIS PROJECT. ADDITIONAL REQUIREMENTS ARE SHOWN ON THE CONSTRUCTION SAFETY AND PHASING PLAN SHEET AND THIS
- 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 AT THE PRECONSTRUCTION CONFERENCE, OR DURING THE COURSE OF THE CONTRACT.
- 3. 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.
- 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
- 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.
- 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.
- 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) EXTENDING OUT AND UPWARDS FROM ALL SIDES OF AN ACTIVE RUNWAY
- 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
- 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
- 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.
- 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
- 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
- 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. 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 ENGINEER.
- 17. CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED LIGHTS DURING PERIODS OF LOW VISIBILITY AS REQUIRED.
- 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
- 19. CONTRACTOR SHALL MOVE MAINTENANCE OF TRAFFIC COMPONENTS AT THE WRITTEN DIRECTION OF THE RESIDENT ENGINEER AT NO ADDITIONAL COST.
- 20. CONTRACTOR SHALL NOT REMOVE THE BARRICADES WITHOUT THE APPROVAL BY THE RESIDENT ENGINEER
- 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 AS NECESSARY TO
- 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.

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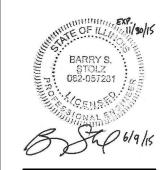
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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

Q1061

DESCRIPTION NO. DATE DES DWN REV ISSUE: JUNE 9, 2015

PROJECT NO: 13A0080D

CAD FILE: G-501-SFY.DWG DESIGN BY: JRH 06/10/2014 DRAWN BY: JRH 06/10/2014

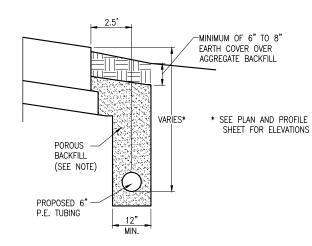
REVIEWED BY: JDW 11/12/2014

SHEET TITLE

CONSTRUCTION SAFETY AND PHASING DETAILS AND NOTES

(SLOPES AND DIMENSIONS VARY NEAR EXISTING PAVEMENT)

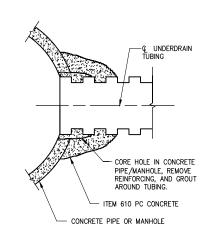
NOT TO SCALE



UNDERDRAIN DETAIL

NOT TO SCALE

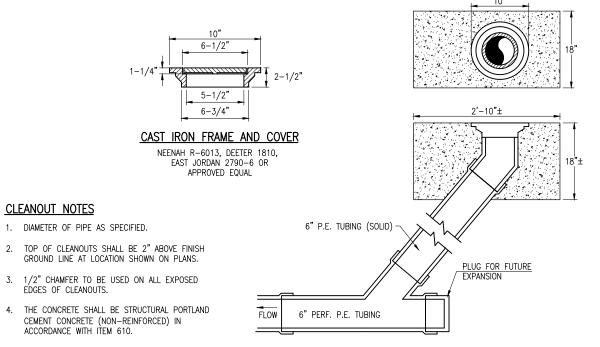
NOTE:
POROUS BACKFILL SHALL CONFORM TO THE REQUIREMENTS FOR IDOT CA-14 OR
IDOT CA-16 AND WILL BE CONSIDERED INCIDENTAL TO AR705506 6" PERF.
UNDERDRAIN AND NO ADDITIONAL COMPENSATION ALLOWED. CONTRACTOR SHALL
PLACE AND CONSOLIDATE THE POROUS BACKFILL TO THE SATISFACTION OF THE
RESIDENT ENGINEER.



STORM SEWER CONCRETE COLLAR AND GROUT CONNECTION

NOT TO SCALE

NOTE: COST FOR CONCRETE COLLAR SHALL BE INCIDENTAL TO UNDERDRAIN ITEMS.



UNDERDRAIN CLEANOUT TYPE B

NOT TO SCALE

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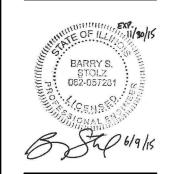
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REALIGN TAXIWAY D

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TYPICAL SECTIONS



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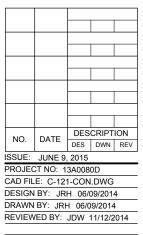


REALIGN TAXIWAY D

IDA No: UIN-4332

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PROPOSED CONSTRUCTION **PLAN**



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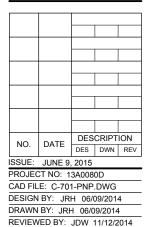


REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

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SHEET TITLE

PROPOSED PLAN AND PROFILE

TYPE A INLET NOTES

COMPLETE PER UNIT.

DEETER 2425-E.

1. INLET TO BE CONSTRUCTED OF STRUCTURAL P.C.

CONCRETE. THE CONTRACT UNIT PRICE PER INLET SHALL

INCLUDE THE FRAME, GRATE AND STEPS IN PLACE AND

2. 1/2" CHAMFER TO BE USED ON ALL EXPOSED CORNERS

3. THE FRAME AND GRATE SHALL BE NEENAH R-3475-A,

CONTRACT UNIT PRICE FOR EACH INLET.

OF INLETS. BARS TO BE INSTALLED 2" FROM FACE OF

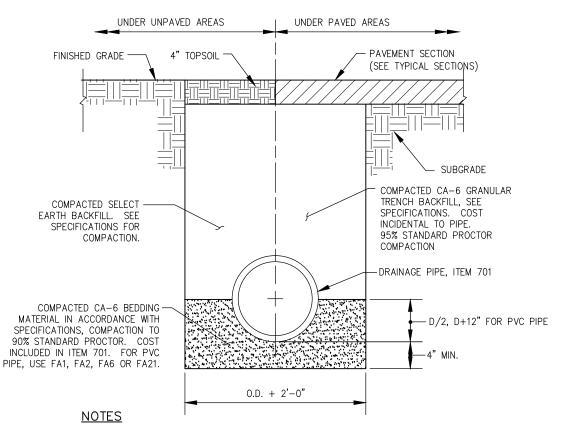
INLET STEPS SHALL BE NEENAH R-1980-1. 12" TO 15"

C.C. STEPS TO BE INSTALLED WHEN Y IS GREATER THAN

5'. THE COST OF THE STEPS SHALL BE INCLUDED IN THE

THE PROPOSED TYPE A INLET SHALL BE PAID FOR UNDER: AR751411 INLET - TYPE A $_$ $_$ PER EACH.

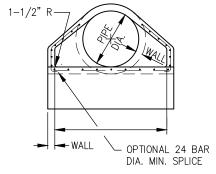




- 1. UNSUITABLE MATERIAL ENCOUNTERED DURING PLACEMENT OF BEDDING SHALL BE REMOVED AND REPLACED.
- 2. WITHIN 3 FEET OF PAVED AREA, GRANULAR BACKFILL IS TO BE USED INSTEAD OF
- 3. AT CONTRACTOR'S OPTION IDOT CONTROLLED LOW STRENGTH MATERIAL WITH A HIGH EARLY STRENGTH, "FLASH FILL", MAY BE USED INSTEAD OF GRANULAR TRENCH BACKFILL UNDER PAVEMENTS AT NO ADDITIONAL COST TO THE CONTRACT.

PIPE TRENCH NOT TO SCALE

WALL -END CONNECTION TO FIT PIPE USED - WALL PIPE DIA. STORM SEWER PAY LENGTH TOP VIEW



END VIEW

SEE F.E.S. WALL GRATING DETAIL FOR PLACEMENT PIPE DIA. -SAME REINF. AS INNER CAGE - WALL STD. REINF. FOR CIRCULAR CL.III, WALL B REINF. PRECAST OR CAST IN CONC. PIPE PLACE END BLOCK COST INCIDENTAL TO FLARED END SECTION. 2 - NO. 4 BARS

* 8" - 36" DIA. PIPE OR LESS 10" - GREATER THAN 36" DIA. PIPE

** 18" - 36" DIA. PIPE OR LESS 24" - GREATER THAN 36" DIA. PIPE

SECTION A-A

PIPE DIA.	WALL	А	В	С	D	E	R	SLOPE
24"	3"	9.5"	3'-7.5"	30"	6'-1.5"	4'-0"	*	1: 2.5

* RADIUS AS FURNSHIED BY MANUFACTURER

PRECAST CONCRETE FLARED END SECTION

(IDOT STANDARD 542301-MODIFIED) NOT TO SCALE

-M.S. ANCHORS -M.S. ANCHORS 3¾" 233" 32<u>1</u>" VARIABLE _30" MAX. I.D. Y-VARIARI F 36" MAX O.D 30" MAX. I.D. -KEYWAY POROUS BACKFILL NO. 1 POROUS BACKFILL NO. 1 -POROUS MATERIAL SHALL CONFORM TO THE REQUIREMENTS FOR BACKFILL NO.

	TYPE	QUANTITY PER INLET	DIMEN		SIZE	APPROX. WT. OF BARS IN INLET
	\bigcup_{A}	2	A 3'-4"	B 2'−4"	#5	16.7
A Ł				A		RCING STEEL BAR TYPE

<u>PLAN</u>

REINFORCING BARS SCHEDULE

CONCINETE QUANTITIES								
D INSIDE DIA.	CU. YARDS TO SUBTRACT	INVERT FORM	BOTTOM SIDES AND TOP					
OF PIPE	FOR 8" WALL	1 OIKW	Υ	TOTAL CU. YDS.				
12" 15"	.036	.120	3'	1.30				
15"	.051	.152	4'	1.62				
18"	.071	.134	5	1.93				
21"	.095	.140	6'	2.40				
24"	.121	.142	7'	2.55				
30"	.175	.146	8'	2.86				
			9'	3.18				
			10'	3.49				
			11'	3.80				
			12'	4.11				
			13'	4.42				
			14'	4.74				

CONCRETE QUANTITIES

PROPOSED TYPE A INLET

IDOT CA-7, CA-14 OR

CA-16.

SECTION A-A

NOT TO SCALE

SECTION B-B

DRAINAGE DETAILS

DES DWN REV ISSUE: JUNE 9, 2015 PROJECT NO: 13A0080D

DESCRIPTION

CAD FILE: C-501-DRN.DWG DESIGN BY: JRH 06/10/2014 DRAWN BY: JRH 06/10/2014

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SHEET TITLE

NO. DATE

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QUINCY

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BARRY S.

062-057281

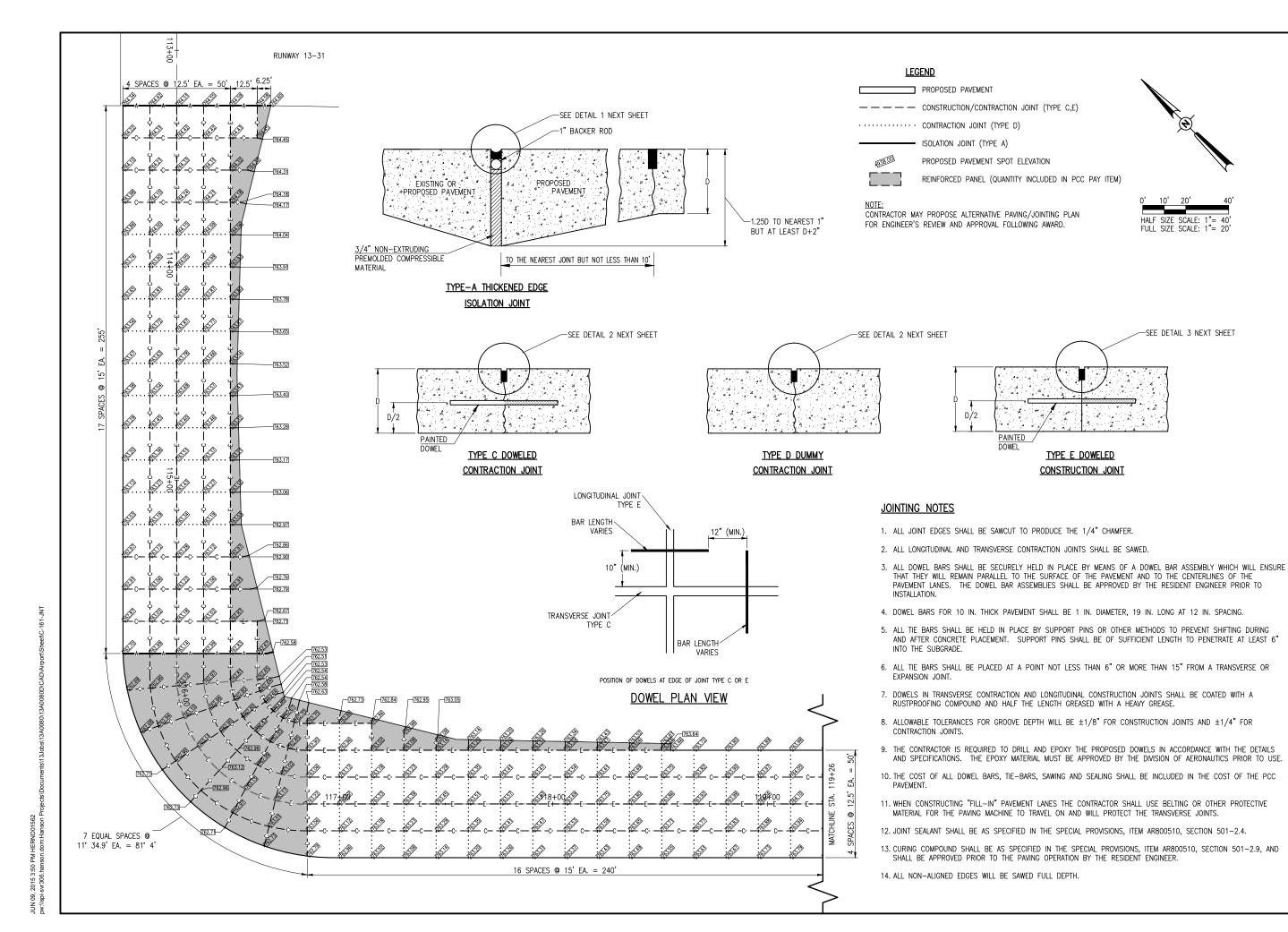
REALIGN TAXIWAY D

SBG No: 3-17-SBGP-105

IDA No: UIN-4332

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IDA No: UIN-4332

SBG No: 3-17-SBGP-105

Q1061

NO. DATE DESCRIPTION
DES DWN REV
ISSUE: JUNE 9, 2015
PROJECT NO: 13A0080D

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DESIGN BY: JRH 07/24/2014

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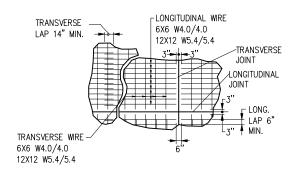
DRAWN BY: JRH 07/24/2014

REVIEWED BY: JDW 11/12/2014

SHEET TITLE

PROPOSED JOINTING PLAN SHEET 1

11



REINFORCEMENT SHEET WIRE FABRIC DETAIL

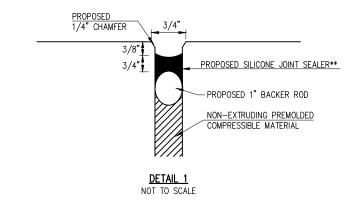
DIFFERENT WIRE MESH SIZES/CONFIGURATIONS OR SIZES ARE PERMITTED IF THE MINIMUM CROSS SECTIONAL AREA EQUALS 0.5 OR GREATER.

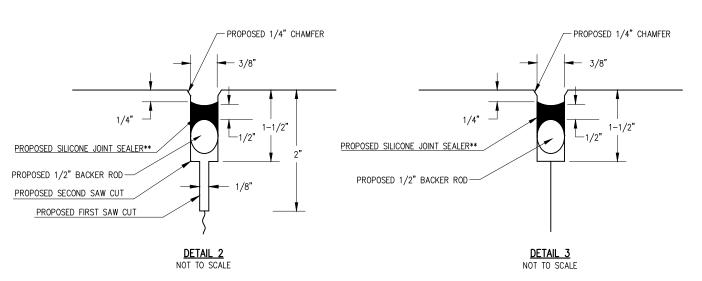


PAVEMENT REINFORCING DETAIL

REINFORCING NOTES:

- END LAPS SHALL BE A MINIMUM OF 12", BUT NOT LESS THAN 30 TIMES THE DIAMETER OF THE LONGITUDINAL WIRE OR BAR.
- SIDE LAPS SHALL BE A MINIMUM OF 6", BUT NOT LESS THAN 20 TIMES THE DIAMETER OF TRANSVERSE WIRE OR BAR.
- 3. END AND SIDE CLEARANCES SHALL BE A MAXIMUM OF 6" AND A MINIMUM OF 2".
- LONGITUDINAL MEMBERS SHALL BE SPACED NOT LESS THAN 4" NOR MORE THAN 12" APART.
- TRANSVERSE MEMBERS SHALL BE SPACED NOT LESS THAN 4" NOR MORE THAN 24"
- REINFORCING SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS, ITEM AR800510, SECTION 501-2.6.
- 7. PAVEMENT REINFORCING SHALL BE INCLUDED IN THE COST OF THE PCC PAVEMENT.





LEGEND

\$938.00

PROPOSED PAVEMENT

· · · · · CONTRACTION JOINT (TYPE D)

— — — — CONSTRUCTION/CONTRACTION JOINT (TYPE C,E)

PROPOSED PAVEMENT SPOT ELEVATION

CONTRACTOR MAY PROPOSE ALTERNATIVE PAVING/JOINTING PLAN

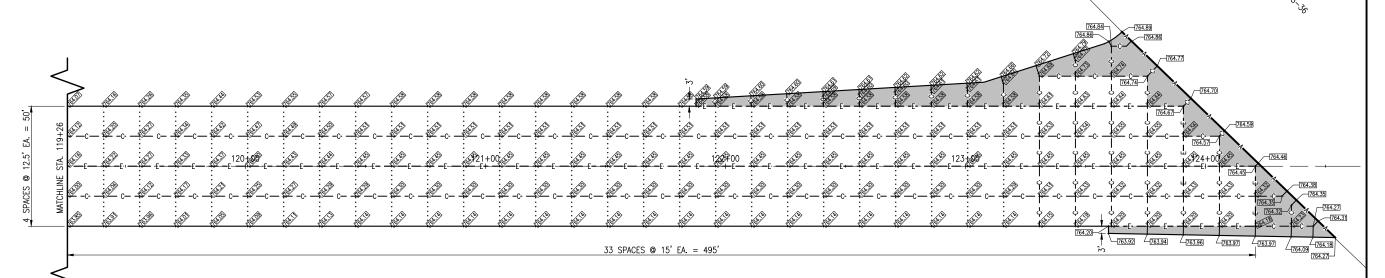
FOR ENGINEER'S REVIEW AND APPROVAL FOLLOWING AWARD.

REINFORCED PANEL (QUANTITY INCLUDED IN PCC PAY ITEM)

ISOLATION JOINT (TYPE A)

JOINT SEALING DETAILS

** PROPOSED JOINT SEALANT SHALL BE DOW CORNING 888 NON-SAG SILICONE JOINT SEALER, PECORA 301, OR APPROVED EQUAL.





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HALF SIZE SCALE: 1"= 40' FULL SIZE SCALE: 1"= 20'



REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

Q1061

DESCRIPTION NO. DATE DES DWN REV ISSUE: JUNE 9, 2015 PROJECT NO: 13A0080D CAD FILE: C-161-JNT.DWG DESIGN BY: JRH 07/24/2014

SHEET TITLE

PROPOSED JOINTING PLAN SHEET 2

DRAWN BY: JRH 07/24/2014 REVIEWED BY: JDW 11/12/2014



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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

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NO.	DATE	DES	CRIPT	ION		
NO.	DATE	DES	DWN	REV		
ISSUE:	JUNE 9,	2015				
PROJEC	CT NO: 1	3A008	0D			

CAD FILE: C-151-MRK.DWG

DESIGN BY: JRH 06/09/2014 DRAWN BY: JRH 06/09/2014

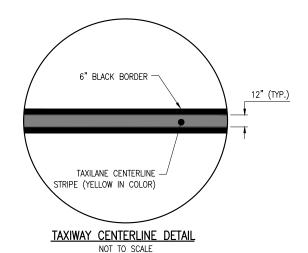
REVIEWED BY: JDW 11/12/2014

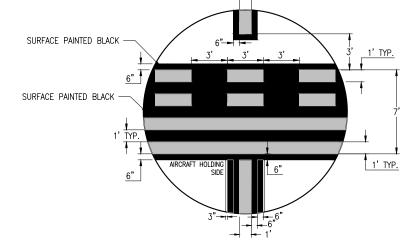
SHEET TITLE

PROPOSED MARKING PLAN

ENHANCED TAXIWAY CENTERLINE MARKING NOTES:

- 1. TAXIWAY CENTERLINE MARKINGS SHALL BE YELLOW IN COLOR AND OUTLINED IN BLACK.
- 2. TAXIWAY CENTERLINE MARKINGS SHALL BE ENHANCED FOR 150-FT PRIOR TO A RUNWAY HOLDING POSITION MARKING, UNLESS NOTED OTHERWISE. FOR A CURVED TAXIWAY CENTERLINE, THIS DISTANCE SHALL BE MEASURED ALONG THE CENTERLINE BEING ENHANCED TO A DISTANCE OF 150-FT.
- 3. WHERE TWO TAXIWAY CENTERLINES CONVERGE AT OR BEFORE THE RUNWAY HOLDING POSITION MARKING, PARTIAL INNER DASHED LINES LESS THAN 5 FEET AT THE POINT OF CONVERGENCE MAY BE
- 4. DASHES ON EITHER SIDE OF THE TAXIWAY CENTERLINE MUST BE ALIGNED, STARTING AND STOPPING WITH THE DASHES ON THE OPPOSITE SIDE OF THE CENTERLINE. TO ACCOMPLISH THIS FOR CURVED TAXIWAY CENTERLINES, THE MEASUREMENTS FOR THE DASHES AND GAPS SHALL BE MADE AT THE CENTERLINE AND EXTENDED PERPENDICULAR FROM THE CENTERLINE TO OBTAIN THE LOCATIONS OF THE DASHES.
- 5. ENHANCED TAXIWAY CENTERLINE MARKINGS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF FAA AC 150/5340-1, STANDARDS FOR AIRPORT MARKING.

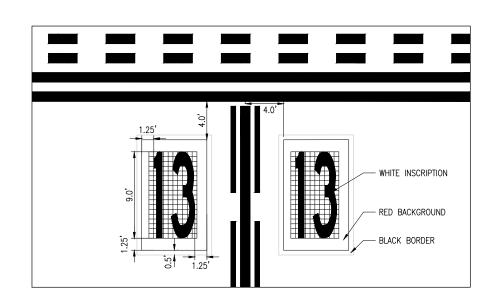


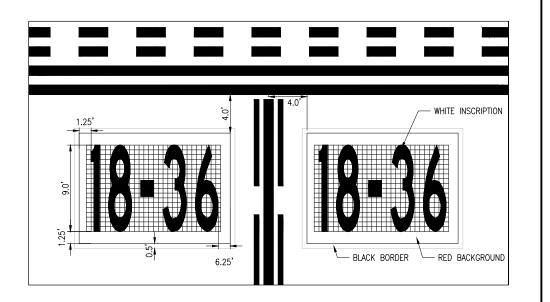


RUNWAY HOLDING POSITION DETAIL

"NOT TO SCALE"

ENHANCED TAXIWAY CENTERLINE MARKING DETAIL NOT TO SCALE





SURFACE PAINTED HOLDING POSITION SIGN DETAILS

TAXIWAY "D"

NOTE: GRID SHOWN FOR PROPER SIZING OF INSCRIPTIONS - NOT TO BE PAINTED. GRID SPACING IS 0.5 FEET.

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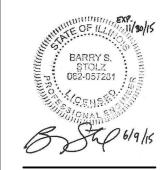
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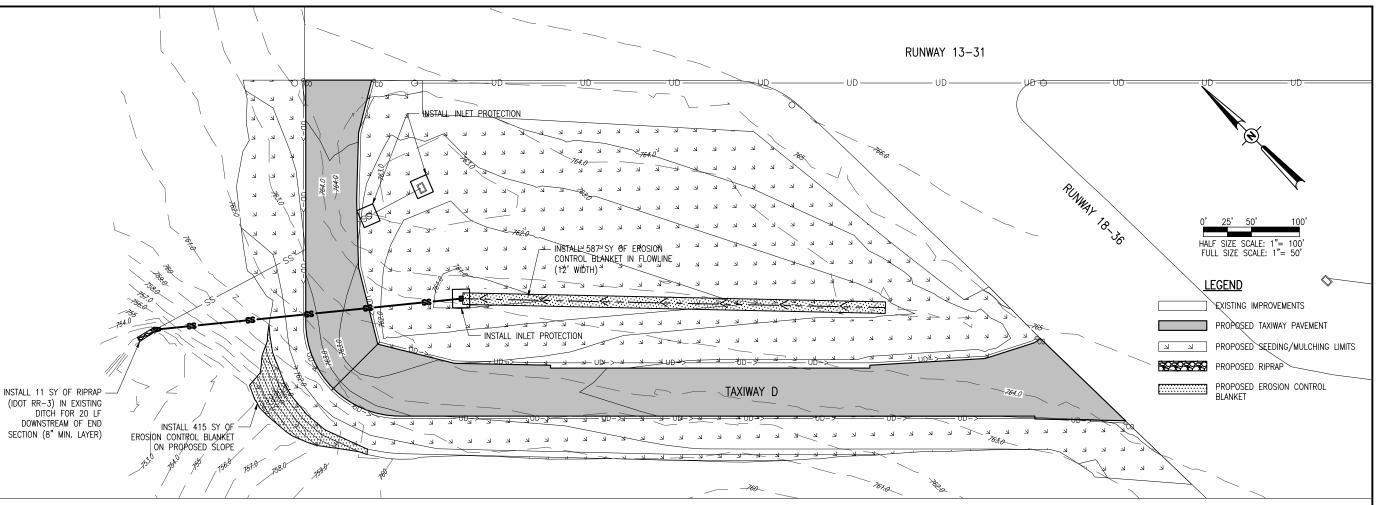
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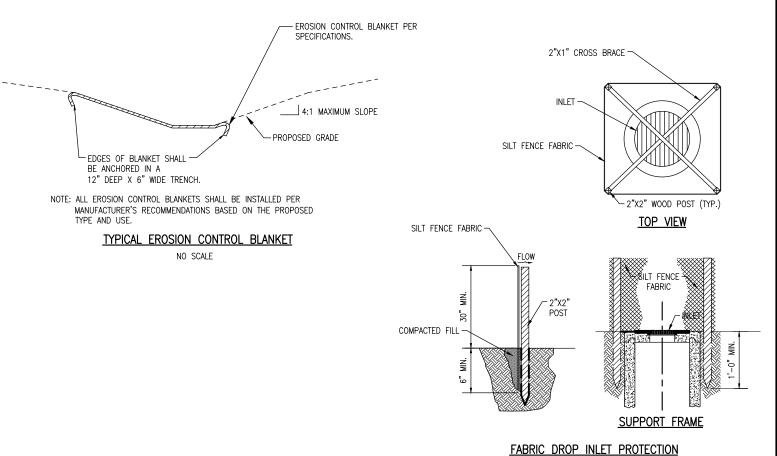
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PROJEC	CT NO: 1	3A008	0D			
CAD FIL	E: C-15	1-MRK	.DWG			
DESIGN	DESIGN BY: JRH 06/09/2014					
DRAWN	BY: JRI	H 06/0	9/2014	1		
REVIEW	/ED BY:	JDW ·	11/12/2	2014		

PAVEMENT MARKING DETAILS



STORM WATER POLLUTION PREVENTION NOTES

- 1. THE CONTRACTOR SHALL IMPLEMENT ALL PROVISIONS OF THE CONTRACT DOCUMENTS TO ASSURE THAT STORM WATER POLLUTION PREVENTION ITEMS ARE CONSTRUCTED AND MAINTAINED IN A TIMELY MANNER. SEDIMENTATION MUST NOT BE TRANSPORTED OF
- 2. THE CONTRACTOR SHALL BE REQUIRED TO IMPLEMENT AND MAINTAIN STORM WATER POLLUTION PREVENTION PRACTICES AND MEASURES PRIOR TO THE STRIPPING OF EXISTING VEGETATION WHERE EVER POSSIBLE AND AS SOON AS CONSTRUCTION PERMITS IN OTHER AREAS. POLLUTION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, INCLUDING THESE CONSTRUCTION PLANS, AND WITH STANDARDS AND SEDIMENT CONTROL, ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, CURRENT ISSUE. THE CONTRACTOR SHALL ADJUST HIS OPERATIONS AND IMPLEMENT POLLUTION CONTROL MEASURES SO THAT NO RUNOFF FROM STRIPPED AREAS WILL LEAVE THE CONSTRUCTION SITE OTHER THAN THROUGH SEDIMENT TRAPS OR OTHER SUITABLE CONTROL MEASURES.
- 3. POLLUTION CONTROL ITEMS SHALL BE PROVIDED AS NOTED ON THE STORM WATER POLLUTION PREVENTION PLAN AND IN THE STORM WATER POLLUTION PREVENTION DETAILS AND AS DIRECTED BY THE ENGINEER. THE LIMITS OF SUCH MEASURES SHALL BE STAKED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SUCH LIMITS MAY BE ADJUSTED BY THE ENGINEER TO ACCOUNT FOR ACTUAL SITE CONDITIONS EXPERIENCED DURING CONSTRUCTION. ADDITIONAL COMPENSATION FOR MEASURES EXCEEDING THE PLAN QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR EACH ITEM.
- 4. THE CONTRACTOR IS TO MAINTAIN AND ADJUST, REPAIR OR REPLACE ALL POLLUTION PREVENTION MEASURES AS REQUIRED OR AS DIRECTED BY THE ENGINEER UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. MAINTENANCE OF POLLUTION CONTROL MEASURES IS TO BE PROVIDED AT NO ADDITIONAL COST TO THE CONTRACT.



NOT TO SCALE



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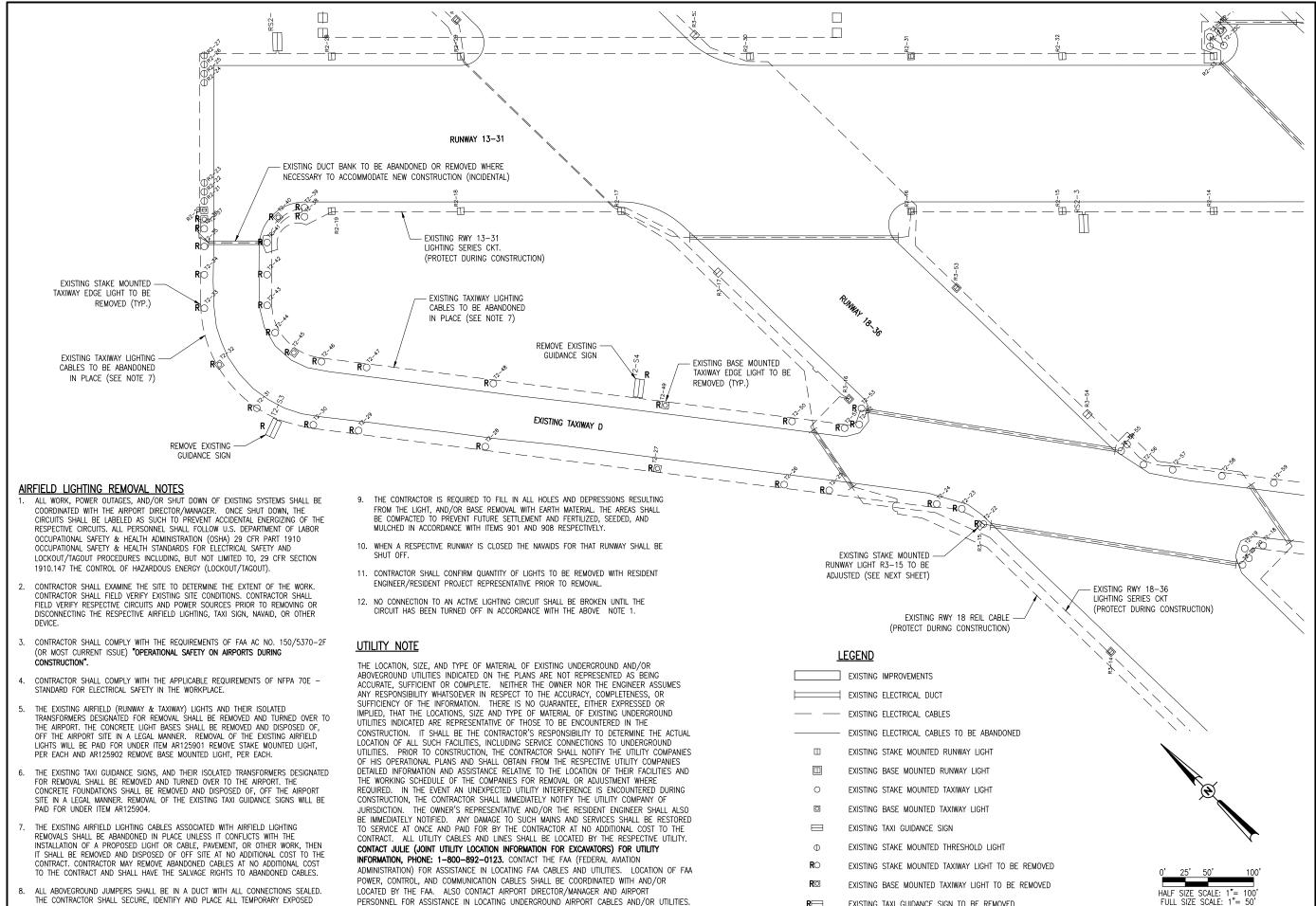
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ISSUE:	JUNE 9	2015				
PROJEC	CT NO: 1	3A008	0D			
CAD FIL	E: C-18	1-SWP	.DWG			
DESIGN	DESIGN BY: JRH 06/09/2014					
DRAWN	DRAWN BY: JRH 06/09/2014					
REVIEWED BY: JDW 11/12/2014						

PROPOSED STORMWATER POLLUTION PREVENTION PLAN

WIRING IN CONDUIT, DUCT, OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE

IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA 150/5370-2F, OPERATION

SAFETY ON AIRPORTS DURING CONSTRUCTION, SECTION 218, c



ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.

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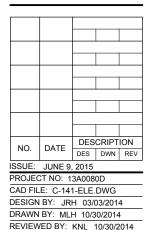


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EXISTING ELECTRICAL PLAN



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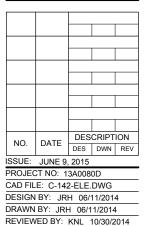


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IDA No: UIN-4332

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Q1061



SHEET TITLE

PROPOSED ELECTRICAL PLAN

AIRFIELD LIGHTING 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 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 OR DISCONNECTING THE RESPECTIVE AIRFIELD LIGHTING, NAVAID, OR OTHER DEVICE.
- PROPOSED AIRFIELD AND TAXIWAY LIGHTS SHALL BE PLACED 10' (FT.) FROM THE PAVEMENT EDGE UNLESS SHOWN OTHERWISE ON THESE CONSTRUCTION DRAWINGS. RUNWAY EXIT/TAXIWAY ENTRANCE LIGHTS SHALL BE PLACED AT 13 FT AND 18 FT FROM RUNWAY PAVEMENT EDGE AS DETAILED HEREIN. PROPOSED TAXI GUIDANCE SIGNS SHALL BE LOCATED SUCH THAT THE CLOSEST SIDE OF THE SIGN IS 15' FROM THE PAVEMENT EDGE, UNLESS SHOWN OTHERWISE.
- PROPOSED AIRFIELD LIGHTS, TAXIWAY LIGHTS, GUIDANCE SIGNS, OTHER AIRFIELD LIGHTING, SPLICE CANS, HANDHOLES, MANHOLES, ELECTRICAL DUCTS, AND CABLE SHALL BE INSTALLED AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS, SPECIAL PROVISIONS, RESPECTIVE DETAILS, AND MANUFACTURER'S RECOMMENDATIONS
- PROPOSED CABLE FOR RUNWAY AND TAXIWAY LIGHTING SHALL BE INSTALLED APPROXIMATELY 12' FROM THE PAVEMENT EDGE. CABLES SHALL BE PLACED A MINIMUM OF 18" BELOW FINISHED GRADE.
- THE PROPOSED RUNWAY AND TAXIWAY LIGHTING CABLE SHALL BE 1/C, #8 AWG, FAA L-824, 5000 VOLT. TYPE C UNDERGROUND CABLE IN UNIT DUCT.
- 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. ALL PROPOSED TAXIWAY LIGHTS WILL BE FITTED WITH 360° BLUE LENSES.
- 9. ALL PROPOSED RUNWAY, THRESHOLD, TAXIWAY LIGHTS, AND TAXI GUIDANCE SIGNS SHALL BE TAGGED BY THE CONTRACTOR IN ACCORDANCE WITH THE LIGHT NUMBERS SHOWN ON THESE CONSTRUCTION DRAWINGS.
- 10. SEE "TAXI GUIDANCE SIGN SCHEDULE" FOR INFO ON SIGN LEGENDS.
- 11. RUNWAY EXIT/TAXIWAY ENTRANCE LIGHTS (DUAL TAXIWAY LIGHTS TO DEFINE THE THROAT OR ENTRANCE INTO THE INTERSECTING TAXIING ROUTE) SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY SERIES CIRCUIT TO BE ILLUMINATED WHEN THE RUNWAY EDGE LIGHTS ARE ON TO COMPLY WITH FAA AC150/5340-30H PART 2.1.4b(4).
- 12. HOLDING POSITION SIGNS FOR RUNWAYS SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY SERIES CIRCUIT TO BE ILLUMINATED WHEN THE ASSOCIATED RUNWAY LIGHTS ARE ILLUMINATED TO COMPLY WITH FAA AC150/5340-18F, CHAPTER 1, PART 15 "SIGN OPERATION".
- 13. 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 150/5370-2F, PART 218, PARAGRAPH C. 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.
- 14. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR DUCT SHALL BE RUN TOGETHER IN THE SAME RACEWAY OR DUCT.
- 15. 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
- 16. 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.
- 17. IN THE EVENT THAT OTHER CONSTRUCTION PROJECTS ARE 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.
- 18. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED

	TAXI GUIDANCE SIGN SCHEDULE		
SIGN NUMBERS	LOCATION	SIDE A	SIDE B
R2-TGS22	TAXIWAY D INTERSECTION WITH RUNWAY 13 AT HOLD LINE	D 13	D BLANK
R3-TGS21	TAXIWAY D INTERSECTION WITH RUNWAY 18-36 AT HOLD LINE	D 18-36	13 个

TAXI GUIDANCE SIGN SCHEDULE

D TYPE L-858L LOCATION SIGN - YELLOW LEGEND AND BORDER ON A BLACK BACKGROUND

18-36 TYPE L-858R MANDATORY INSTRUCTION SIGN - BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON A RED BACKGROUND

RAMP ↑ TYPE L-858Y DIRECTION, DESTINATION, AND BOUNDARY SIGN - BLACK LEGEND ON A YELLOW BACKGROUND

BLANK BLANK - BLACK BACKGROUND

TAXI GUIDANCE SIGN NOTES

- 1. THE PROPOSED TAXI GUIDANCE SIGNS SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-44J (OR LATEST ISSUE IN FORCE) AND BE FAA-APPROVED FOR TYPE L-858Y DIRECTION, DESTINATION, AND BOUNDARY SIGNS (BLACK LEGEND ON YELLOW BACKGROUND); TYPE L-858R MANDATORY INSTRUCTION SIGN (BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON RED BACKGROUND), AND/OR TYPE L-858L LOCATION SIGN (YELLOW LEGEND AND BORDER ON BLACK
- 2. THE SIGNS SHALL BE SIZE 1, 18-IN. SIGN FACE WITH A 12-IN. LEGEND; STYLE 2, POWERED FROM A 4.8 TO 6.6 AMP SERIES LIGHTING CIRCUIT; CLASS 2, FOR OPERATION FROM -40 DEGREES F TO 131 DEGREES F; MODE 2, TO WITHSTAND WIND LOADS OF 200 M.P.H., BASE-MOUNTED, DOUBLE-SIDED, AS SPECIFIED ON THE PLANS.
- 3. THE EXISTING GUIDANCE SIGNS NOTED FOR REMOVAL ARE LUMACURVE BRAND.
- 4. THE PROPOSED TAXI GUIDANCE SIGNS SHALL BE LOCATED SUCH THAT THE CLOSEST SIDE OF THE SIGN IS 15' FROM THE PAVEMENT EDGE OR RESPECTIVE RUNWAY SURFACE EDGE.
- 5. ALL PROPOSED TAXI GUIDANCE SIGNS SHALL BE TAGGED BY THE CONTRACTOR IN ACCORDANCE WITH THE SIGN NUMBERS SHOWN ON THESE CONSTRUCTION DRAWINGS.
- 6. THE PROPOSED LIGHTED TAXI GUIDANCE SIGNS WILL BE PAID FOR UNDER THE FOLLOWING ITEMS: AR125443 TAXI GUIDANCE SIGN, 3 CHARACTER _____ PER EACH.
 AR125446 TAXI GUIDANCE SIGN, 6 CHARACTER _____ PER EACH.

	LIGHT LENS SCHEDULE						
I	LIGHT NUMBERS	LENS	ORIENTATION	FIXTURE TYPE			
	T2-22 TO T2-50	BLUE		L-861T			
ı	R2-19A TO R2-19B	BLUE		L-861T			

TAXIWAY LIGHT FIXTURE NOTES

1. THE PROPOSED TAXIWAY LIGHT FIXTURES SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-46D (OR LATEST ISSUE IN FORCE) AND BE FAA APPROVED FOR TYPE L-861T.

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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

QI061

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	NO.	DATE	DES	DWN	REV
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DRAWN BY: MLH 11/03/2014 REVIEWED BY: KNL 11/03/2014

SHEET TITLE

AIRFIELD LIGHTING **NOTES AND SCHEDULES**

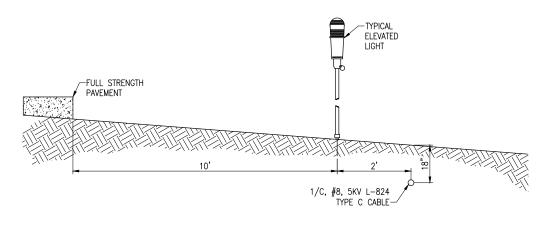
- 2. TRENCHES WITH MORE THAN TWO DUCTS OR CABLE IN UNIT DUCTS SHALL BE INCREASED 3" IN WIDTH PLUS DIAMETER OF RESPECTIVE DUCT FOR EACH ADDITIONAL CONDUIT, DUCT, OR CABLE IN UNIT DUCT; IF SPECIFIED ON PLANS TWO PARALLEL
- 3. DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS. MINIMUM COVER REQUIREMENTS FOR CABLES AND DUCTS AT AIRPORT RUNWAYS AND ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED IS 18 INCHES PER NEC 300.5 AND 300.50. 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 AND LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, HANDHOLE, OR MANHOLE.
- 5. DUCT INTERFACE TO HANDHOLES, MANHOLES, SPLICE CANS, OR OTHER JUNCTION STRUCTURES WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE CABLE IN UNIT DUCT PAY ITEM OR RESPECTIVE DUCT PAY ITEM.
- 6. ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.

-FINISHED GRADE

ر • ا

PLOWED CABLE

(NOT TO SCALE)



10' TO

TYPICAL

LIGHT

L-830

10" MIN.-

1/C, #8, 5KV L-824

TYPE C CABLE-

TRANSFORMER-

MIN. OF 3' OF SLACK IN EACH

PRIMARY CABLE, BEND RADIUS

PLAN VIEW

PAVEMENT EDGE

PROFILE VIEW

LIGHT AND CABLE INSTALLATION DETAIL (NOT TO SCALE)

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

-CABLE JACKET REMOVED, "PENCIL" INSULATION. CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE. PLASTIC BODY MOLD-POURING SPOUT COMPRESSION TYPE SLEEVE -SEAL ENDS OF MOLD WITH CONNECTORS, CRIMP WITH TOOL TAPE PROVIDED IN SPLICE KIT RECOMMENDED BY MANUFACTURER-TYPE A

FOR SPLICES IN LOW VOLTAGE CABLE (600V) HOMERUNS FOR EXTENSIONS TO EXISTING LOW VOLTAGE CABLES ONLY

CONTINUOUS HEAT SHRINK TUBING PLACED OVER THE ENTIRE L-823 CONNECTOR(S) BOTH MALE AND FEMALE AT ALL 5KV JUNCTIONS. THE HEAT SHRINK TUBING SHALL BE APPROXIMATELY 18" IN LENGTH WITH -WRAP WITH AT LEAST ONE LAYER OF RUBBER OR 6 INCHES OF MASTIC ON BOTH ENDS SYNTHETIC RUBBER TAPE AND ONE LAYER OF AND VOID OF MASTIC IN MIDDLE OF PLASTIC TAPE, ONE-HALF LAPPED, EXTENDED AT TUBE RATED FOR 5KV. LEAST 1-1/2 INCHES ON EACH SIDE OF JOINT ADDITIONAL ADHESIVE COMPOUND FILLER -RECEPTACLE END ∠UNDERGROUND CABLE SPEC. L-824, TYPICAL

> WITH LOOP CIRCUIT AND FOR SPLICES IN HOMERUNS TO EXISTING CABLES

> > HEAT SHRINKABLE TUBING WITH INTERNAL

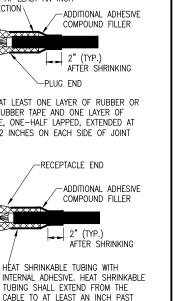
ADHESIVE. HEAT SHRINKABLE TUBING SHALL EXTEND FROM THE CABLE TO AT LEAST AN INCH PAST THE COMPLETED CONNECTION ADDITIONAL ADHESIVE RECEPTACLE END-COMPOUND FILLER AFTÈR SHRINKING -PLUG FND WRAP WITH AT LEAST ONE LAYER OF RUBBER OR FACTORY MOLDED SYNTHETIC RUBBER TAPE AND ONE LAYER OF TRANSFORMER LEADS-PLASTIC TAPE, ONE-HALF LAPPED, EXTENDED AT LEAST 1-1/2 INCHES ON EACH SIDE OF JOINT -RECEPTACLE END -ADDITIONAL ADHESIVE L-823 PLUG END-COMPOUND FILLER 2" (TYP.) AFTÈR SHRINKING TYPE C FOR SPLICES AT RUNWAY HÉAT SHRINKABLE TUBING WITH AND TAXIWAY LIGHTS INTERNAL ADHESIVE. HEAT SHRINKABLE

CABLE SPLICES

SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR SPLICE TYPE.

INSIDE DIAMETER OF CONNECTOR SHALL PROPERLY MATCH THE OUTSIDE DIAMETER OF CABLE.

2" (TYP.)
AFTER SHRINKING TYPE B FOR SPLICES AT JUNCTION OF HOMERUN



THE COMPLETED CONNECTION

ELECTRICAL DETAILS SHEET 1

DESCRIPTION

DES DWN REV

Offices Nationwide

1525 S. 6th Street

Springfield, IL 62568 fax: 217-788-2503 Illinois Licensed

www.hanson-inc.com

Hanson Professional Services Inc.

Professional Service Corporation #184-001084

KEVIN N.

LIGHTFOOT

062-047643

OF ILLE

REALIGN TAXIWAY D

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DRAWN BY: MLH 11/03/2014

REVIEWED BY: KNL 11/05/2014

11 30/2015

Quincy Regional Airport Baldwin Field

QUINCY

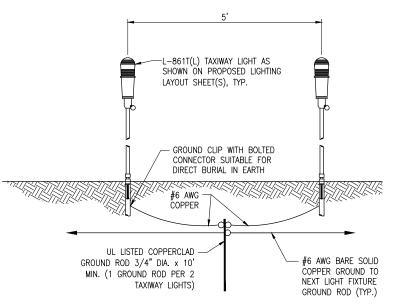
1645 Highway 104 Quincy, IL 62305

19

CABLES INSIDE UNIT DUCT

AS SHOWN ON PROPOSED

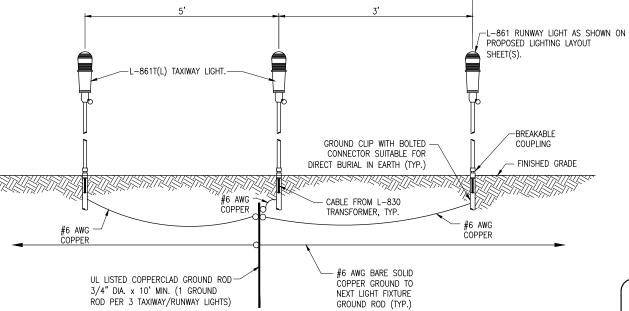
LIGHTING LAYOUT SHEET(S)-



GROUNDING DETAIL FOR ADJACENT

TAXIWAY LIGHTS

(NOT TO SCALE)



GROUNDING DETAIL FOR ADJACENT RUNWAY AND TAXIWAY LIGHTS (NOT TO SCALE) NOTES:

- SEE "ELECTRICAL NOTES SHEETS". SEE "ELECTRICAL NOTES SHEET 2" AND "GROUNDING NOTES" SHEET FOR GROUNDING NOTES FOR AIRFIELD LIGHTING.
- RUNWAY EXIT/TAXIWAY ENTRANCE LIGHTS (DUAL TAXIWAY LIGHTS TO DEFINE THE THROAT OR ENTRANCE INTO THE INTERSECTING TAXING ROUTE) SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY SERIES CIRCUIT TO BE ILLUMINATED WHEN THE RUNWAY EDGE LIGHTS ARE ON TO COMPLY WITH FAA AC 150/5340-30H, PART 2.1.4b(4).

PER FAA AC 150/5340-30H DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, A LIGHT BASE GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. 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.



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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

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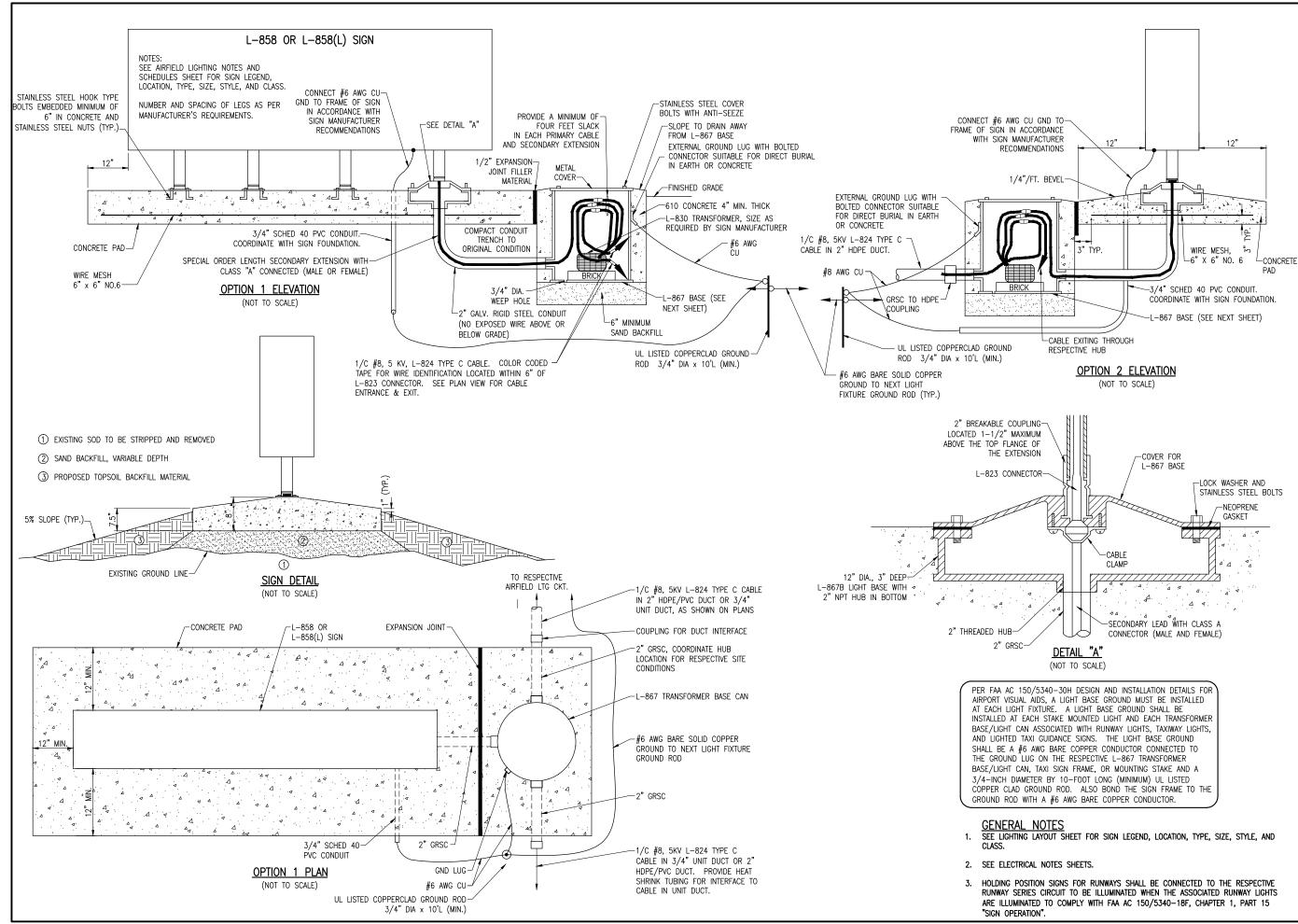
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ELECTRICAL DETAILS SHEET 2

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ELECTRICAL DETAILS SHEET 3

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- ADJUST FOR RESPECTIVE LOCATION OF DUCT TERMINATION

SURFACE COURSE

BASE COURSE.

PAVEMENT FDGE

A B CALL OF A B CALL

#10 PULL WIRE COIL A MINIMUM OF 3' AT DUCT ENDS

UNDERGROUND ELECTRICAL DUCT

(NOT TO SCALE)

INCLUDE INTERNAL & EXTERNAL -GROUND LUGS (REQUIRED PER

FINISHED GRADE-

610 CONCRETE-

IS MANDATORY PER FAA AC 150/5345-42G.

MIN. THICK

FAA AC 150/5345-42G)

INSTALL APPROVED PLUGS IN END OF DUCTS NOT USED.

DUCT MARKER

#6 AWG COPPER GROUDING ELECTRODE

WITH BOLTED CONNECTOR SUITABLE FOR

DIRECT BURIAL IN EARTH OR CONCRETE

CONDUCTOR, CONNECT TO BASE CAN

CONNECT TO GROUND ROD WITH EXOTHERMIC WELD CONNECTION

UL LISTED COPPERCLAD GROUND-

ROD 3/4" DIA X 10'LONG (MIN.).

COUPLING TO INTERFACE -

TO 2" DUCT. USE

BUSHING AND HEAT

SHRINK FOR INTERFACE

TO CABLE IN UNIT DUCT.

NOTE:

— NEW DUCT

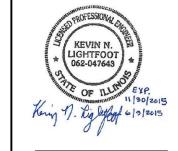
MARKER

DUCT BANK NOTES:

- 1. DIMENSIONS FOR CONCRETE COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
- 2. INCLUDE DUCT SPACERS AS MANUFACTURED BY UNDERGROUND DEVICES INC., OR APPROVED EQUAL TO MAINTAIN PROPER SEPARATION OF CONDUITS.
- 3. PROVIDE REBAR WHERE APPLICABLE TO ACCOMMODATE INTERFACE OF CONCRETE ENCASED DUCT BANKS TERMINATING IN HANDHOLE, PROVIDE REBAR WHERE APPLICABLE TO EXTEND AN EXISTING CONCRETE ENCASED DUCT BANK, REBAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 706, GRADE 60.
- 4. CONDUITS FOR CONCRETE ENCASED DUCT SHALL BE SCHEDULE 40 PVC CONFORMING TO ITEM 110.
- 5. MINIMUM DEPTH OF TOP OF DUCT ENCASEMENT SHALL BE 18" BELOW FINISHED GRADE.
- 6. HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT,
- 7. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT SHALL BE INSTALLED IN THE SAME RACEWAY OR DUCT.
- 8. DUCT INTERFACE TO HANDHOLES OR MANHOLES WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT PAY

CABLE & DUCT MARKER NOTES:

- 1. 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.
- 2. 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 FORMED AS DESCRIBED IN NOTE 4.
- 3. CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE
- 4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE ½" AND ¼" DEEP. ALL LETTERS, NUMBERS AND ARROWS
- 5. EMPLOY THE FOLLOWING METHODS WERE ADDITIONAL SPACE TO FIT LEGEND IS REQUIRED:
 - A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
 - C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE.



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1525 S. 6th Street Springfield, IL 62568

phone: 217-788-2450 fax: 217-788-2503

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REALIGN TAXIWAY D

IDA No: UIN-4332

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SHEET 4

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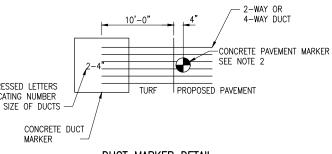
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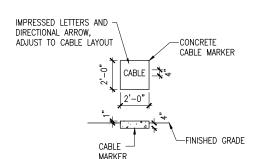
ELECTRICAL DETAILS

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TURF CABLE MARKERS "NOT TO SCALE"

IMPRESSED NUMBERS NOTING NUMBER & SIZE OF DUCTS. CONCRETE ADJUST FOR RESPECTIVE DUCT MARKER QUANTITY & SIZE OF DUCTS 2-4" - FINISHED GRADE MARKER

TURF DUCT MARKERS

TOP VIEW PRESTAMPED OR-CHISELED ON THE JOB DUCT (3/8" HIGH LETTERING MIN.) 2-4" 18" R. 3/16" INDICATES NUMBER AND SIZE OF DUCT BANK 0.15"

BITUMINOUS PAVEMENT DUCT MARKERS "NOT TO SCALE"

NOTES:

-3/8" THICK (MIN.) GALVANIZED STEEL COVER

SMOOTH TROWEL FINISH

L-867, CLASS IA, SIZE B, 24" BASE

WITH 2" HUBS AT 0°, 90°, & 180°

PLATE WITH STAINLESS STEEL BOLTS.

(SLOPE TO DRAIN)

' HURS

6" SAND CUSHION

TRANSFORMER BASE/SPLICE CAN DETAIL

(NOT TO SCALE)

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

-2" GRS CONDUIT

NIPPLE EXTENSION

- TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE.
- 2. BRASS DUCT MARKERS ARE AVAILABLE FROM G&S FOUNDRY & MANUFACTURING CO., INC., 210 KASKASKIA DRIVE, RED BUD, IL 62278, PHONE: (618)-282-4114

22

B. INCREASE THE MARKER SIZE TO 30" X 30".

IMPRESSED LETTERS INDICATING NUMBER AND SIZE OF DUCTS DUCT MARKER DETAIL "NOT TO SCALE

"NOT TO SCALE

DESCRIPTION

DES DWN REV

- 2. 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</u> EQUIPMENT COST.
- 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.
- 7. 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.
- 8. ANY AND ALL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE 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 PROJECT REPRESENTATIVE REGARDING ANY CHANGES FROM THE PLANS AND SPECIFICATIONS.
- 9. 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 DETAILED DESCRIPTION OF THE OVERALL EQUIPMENT AND ITS INDIVIDUAL COMPONENTS.
 - B. 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 BRIGHTNESS 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.
 - 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.
- 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.
- 7. THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:
 - A. 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.
- B. 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.
- 12. 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 POTENTIAL 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 BEARS THE UL LABEL PRIOR TO INSTALLING IT.
- 17. 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 TRANSFORMER CONNECTIONS WITH SUFFICIENT LAYERS OF INSULATING TAPE (3M SCOTCH 23 ALL-VOLTAGE SPLICING TAPE, 3M SCOTCH 130C LINERLESS RUBBER SPLICING TAPE, OR APPROVED EQUAL) AND COVER WITH VINYL ELECTRICAL TAPE (3M SCOTCH 88 VINYL ELECTRICAL TAPE OR APPROVED EQUAL) FOR FULL VALUE OF CABLE INSULATION VOLTAGE.
- UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG. COPPER MINUMUM.
- 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.
 - I. 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 "FLASH PROTECTION".

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

Quincy Regional Airport Baldwin Field



1645 Highway 104 Quincy, IL 62305



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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,

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.

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 ELECTRICAL DETAILS SHEET 1

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 FLECTRICAL DETAILS SHEET 1.

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

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.

13. 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

16. TOPS OF THE STAKES SUPPORTING LIGHT FIXTURES SHALL BE FLUSH WITH THE SURROUNDING GRADE.

17. 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 AS SHOWN IN DETAIL "B" ON ELECTRICAL DETAILS SHEET 1.

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

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

THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823 25. CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE

APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS.

LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT

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, FTC, SHALL BE 3500 PSL AIR-ENTRAINED.

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

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 WHATEVER 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.

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. PER FAA AC 150/5340-30H DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. 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 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. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR SUITABLE FOR DIRECT BURY IN EARTH OR CONCRETE. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE: 800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE: 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437), 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.

FURNISH AND INSTALL A #6 AWG BARE SOLID COPPER GROUND AND BOND IT TO EACH GROUND ROD AT THE RESPECTIVE AIRFIELD LIGHT FIXTURES AND TAXI GUIDANCE SIGNS. THE #6 AWG GROUND SHALL BE DIRECT BURIAL IN TRENCH APPROXIMATELY 12 TO 18 INCHES BELOW GRADE. THE GROUND CONDUCTOR MAY BE INSTALLED ABOVE THE #8 FAA L-824, 5000-VOLT CABLE IN UNIT DUCT OR IN AN ADJACENT TRENCH. THE #6 AWG GROUND SHALL BE CONNECTED TO EACH RESPECTIVE GROUND ROD WITH AN EXOTHERMIC WELD CONNECTION. THE COMPLETED GROUND WIRE INSTALLED WILL PROVIDE A GROUND RING SYSTEM FOR THE RESPECTIVE AIRFIELD LIGHTING CIRCUIT. THE GROUND WIRE WILL NOT BE INSTALLED WITH THE HOMERUN CABLES FOR THE RESPECTIVE AIRFIELD LIGHTING CIRCUIT BACK TO THE VAULT. THIS IS TO HELP ACCOMPLISH A GROUNDING RESISTANCE OF 25 OHMS OR LESS FOR THE GROUND ROD AT EACH LIGHT PER THE REQUIREMENTS IN FAA AC 150/5340-30H. THE #6 AWG BARE SOLID COPPER GROUND WILL BE PAID FOR UNDER ITEM AR108756 1/C #6 GROUND PER LINEAR FOOT

FOR BASE MOUNTED LIGHT FIXTURES THE LIGHT FIXTURE MUST BE BONDED TO THE LIGHT BASE INTERNAL GROUND LUG VIA A #6 AWG STRANDED COPPER WIRE RATED FOR 600 VOLTS WITH GREEN XHHW OR USE INSULATION. THE GROUND WIRE LENGTH MUST BE SUFFICIENT TO ALLOW THE REMOVAL OF THE LIGHT FIXTURE FROM THE LIGHT BASE FOR ROUTING MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S INSTRUCTIONS FOR PROPER METHODS OF ATTACHING BONDING WIRE.

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 2011 NATIONAL ELECTRICAL CODE ARTICLE 250-12.

PER FAA 150/5340-30H THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.

FOR TAXIWAY LIGHTS THAT ARE SPACED WITH LESS THAN 10 FEET OF SEPARATION BETWEEN THEM, PROVIDE ONE 3/4-INCH DIAMETER BY 10 FEET LONG GROUND ROD PER TWO ADJACENT TAXIWAY LIGHTS. LOCATE GROUND ROD MIDWAY BETWEEN THE TWO

STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100% DOMESTIC STEEL.

FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, 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 PROJECT REPRESENTATIVE.

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

Quincy Regional Airport Baldwin Field



1645 Highway 104 Quincy, IL 62305



REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

QI061

DESCRIPTION NO. DATE DES DWN REV ISSUE: JUNE 9, 2015

PROJECT NO: 13A0080D

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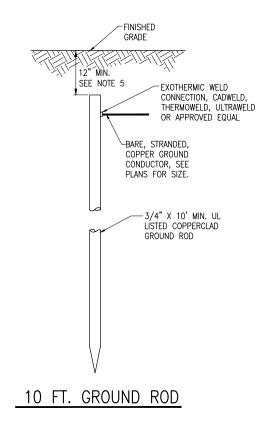
REVIEWED BY: KNL 11/05/2014

SHEET TITLE

ELECTRICAL NOTES SHEET 2

- 2. FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS FOR AIRFIELD LIGHTING (RUNWAY LIGHTING, TAXIWAY LIGHTING, TAXI GUIDANCE SIGNS, AND SPLICE CANS 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 ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE 1—800—248—9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE 918—663—1440) OR ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE 1—800—842—7437) 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 CONDUCTORS.
- 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 PROJECT REPRESENTATIVE.
- 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 PENETROX E. OR APPROVED EQUAL.
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2014 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- 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, THOMAS AND BETTS, OR 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.
- O. 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 REQUIPMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2014 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 GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE 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 2014 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 2014 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 COLOR 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, OR APPROVED EQUAL.
- 17. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- 19. 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 2014 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 TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS. STEEL USED TO MANUFACTURER GROUND RODS SHALL BE 100 PERCENT DOMESTIC STEFI



NOTES

- 1. TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
- . THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
- 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.
- 5. TOP OF GROUND RODS SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN.
- GROUND RODS FOR SPLICE CANS AND AIRFIELD LIGHTING SHALL BE A MINIMUM 3/4—INCH DIAMETER BY 10—FT LONG UL LISTED COPPER CLAD.

GROUND RODS
(NOT TO SCALE)



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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

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NO. DATE DESCRIPTION DES DWN REV

ISSUE: JUNE 9, 2015

PROJECT NO: 13A0080D

CAD FILE: E-004-GND.DWG

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GROUNDING NOTES

SHEET TITLE

REVIEWED BY: KNL 11/05/2014

ELEC	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				
a	INDICATING LIGHT				
W	моток				
#	LOAD, MOTOR, # = HORSEPOWER				
0	ELECTRIC UTILITY METER BASE				
•	JUNCTION BOX WITH SPLICE				
XXX	EQUIPMENT, XXX = DEVICE DESCRIPTION				
GND	GROUND BUS OR TERMINAL				
S/N	NEUTRAL BUS				
1	PANELBOARD WITH MAIN LUGS				
\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	PANELBOARD WITH MAIN BREAKER				
♣	Fuse panel with main fuse pullout				
	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE				
	CONTROL STATION				
N EM	TRANSFER SWTICH				
G	ENGINE GENERATOR SET				

	ELECTRICAL LEGEND - SCHEMATIC
\dashv \vdash	NORMALLY OPEN (N.O.) CONTACT
- \	NORMALLY CLOSED (N.C.) CONTACT
§*	STARTER COIL, * = STARTER NUMBER
Or Or	OVERLOAD RELAY CONTACT
©R*	CONTROL RELAY, * = CONTROL RELAY NUMBER
R*	RELAY, * = RELAY NUMBER
° °	TOGGLE SWITCH / 2 POSITION SWITCH
OFF AUTO	2-POSITION SELECTOR SWITCH
• ox	
HAND T AUTO XOO OOX	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)
	2 POLE DISCONNECT SWITCH
111	3 POLE DISCONNECT SWITCH
>	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
	S1 CUTOUT HANDLE REMOVED
	S1 CUTOUT HANDLE INSERTED
17%	N.O. THERMAL SWITCH
- <u>-</u> -	N.C. THERMAL SWITCH
	L-830 SERIES ISOLATION TRANSFORMER

	ELECTRICAL ABBREVIATIONS
A.F.F.	ABOVE FINSHED FLOOR
A, AMP	AMPERES
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
С	CONDUIT
CB	CIRCUIT BREAKER
СКТ	CIRCUIT
CR	CONTROL RELAY
CU	COPPER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
ЕМ	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
MAX	MAXIMUM
мсв	MAIN CIRCUIT BREAKER
МСМ	THOUSAND CIRCLUAR MIL
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
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
	-

OVERLOAD

	ECTRICAL 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			

AIRPORT 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			
HIRL	HIGH INTENSITY RUNWAY LIGHT			
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:

- CONTRACTOR SHALL EXAMINE THE SITE AND VAULT TO
- (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, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- 3. 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).
- 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 GRAY OR WHITE COLORED INSULATION (AS APPLICABLE) 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:

480/277 VAC. 1 PHASE. 3 WIRE PHASE A BROWN ORANGE PHASE B PHASE C YELLOW GROUND GREEN

- SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
- 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 LIFMC THAT IS NOT UL LISTED. CONFIRM
- HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR

- DETERMINE EXISTING SITE CONDITIONS.
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 NATIONAL ELECTRICAL CODE

COLOR CODE PHASE AND NEUTRAL CONDUCTOR INSULATION

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

- LTFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
- 7. ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES U.L. LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE

Offices Nationwide www.hanson-inc.com

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

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1645 Highway 104 Quincy, IL 62305



REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

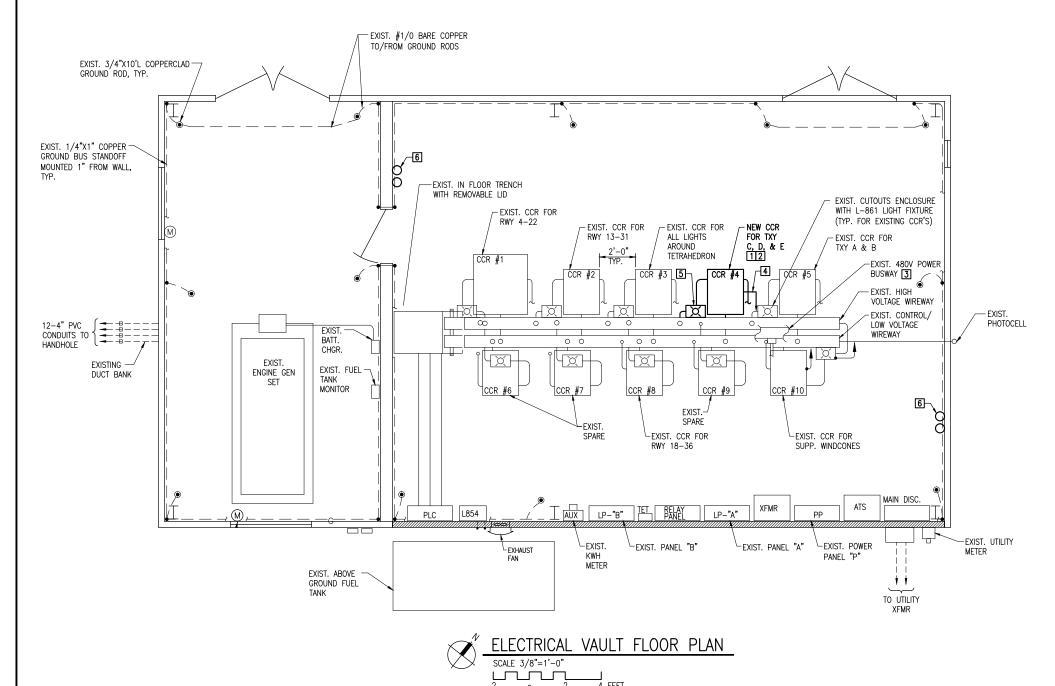
QI061

DESCRIPTION NO. DATE DES DWN REV ISSUE: JUNE 9, 2015 PROJECT NO: 13A0080D CAD FILE: E-003-NOTE.DWG

DESIGN BY: KNL 10/27/14 DRAWN BY: MLH 10/29/14 REVIEWED BY: KNL 11/05/2014

SHEET TITLE

ELECTRICAL LEGEND. ABBREVIATIONS AND **NOTES**



- 1 EXISTING 10 KW CCR FOR TAXIWAYS C, D, AND E SHALL BE REMOVED AND REPLACED WITH A NEW 15 KW CCR. EXISTING CCR SHALL BE TURNED OVER TO THE AIRPORT
- 2 SEE "PROPOSED VAULT ADDITIONS ONE LINE DIAGRAM" FOR LOW VOLTAGE INPUT POWER WIRING REQUIREMENTS TO CCR (CONSTANT CURRENT REGULATOR). SEE "PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAYS C, D & E" FOR CCR OUTPUT WIRING REQUIREMENTS. RECONNECT EXISTING CONTROL WIRING TO NEW CCR.
- 3 REPLACE EXISTING 480 VAC CIRCUIT BREAKER FOR TAXIWAY C, D, AND E CCR WITH A NEW CIRCUIT BREAKER THAT IS COMPATIBLE WITH THE EXISTING 480 VAC BUSWAY SYSTEM AND PROPERLY SIZED FOR THE RESPECTIVE CCR. CIRCUIT BREAKER SIZED IS ESTIMATED TO BE 50 AMP, 2-POLE OR 60 AMP, 2-POLE CORRESPONDING TO THE RESPECTIVE CCR MANUFACTURER RECOMMENDATIONS. CIRCUIT BREAKER SHALL HAVE 25,000 AIC (MINIMUM) RATING AT 480 VAC.
- #6 AWG COPPER BONDING CONDUCTOR FROM CCR FRAME TO VAULT GROUND BUS. CONNECT TO CCR WITH MANUFACTURER'S GROUND LUG OR TWO-HOLE TONGUE LONG BARREL COMPRESSION LUG AND 3/8" STAINLESS STEEL BOLTS, NUTS AND WASHERS. CONNECT TO VAULT GROUND BUS WITH TWO-HOLE TONGUE LONG BARREL COMPRESSION LUG AND 3/8" STAINLESS STEEL BOLTS, NUTS AND
- 5 EXISTING CUTOUT ENCLOSURE WITH NEW CUTOUTS. SEE "PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAYS C, D & E" FOR CCR OUTPUT WIRING REQUIREMENTS.

6 FURNISH AND INSTALL TWO UL RATED, 10 POUND CARBON DIOXIDE FIRE EXTINGUISHERS SUITABLE FOR USE ON CLASS C FIRES AND TWO 10 POUND CLASS 4A:80B:C DRY CHEMICAL ABC FIRE EXTINGUISHERS SUITABLE FOR USE ON CLASS A.B.C FIRES. IN THE VAULT SHELTER, PER NEPA 10 "PORTABLE FIRE EXTINGUISHERS" CLASS C ARE FOR FIRES THAT INVOLVE ENERGIZED FLECTRICAL FOUIPMENT, FIRE EXTINGUISHERS SHALL BE MADE IN THE UNITED STATES OF AMERICA TO COMPLY WITH BUY AMERICAN PREFERENCE REQUIREMENT. FIRE EXTINGUISHER TYPE CO2 SHALL BE AMEREX MODEL 330, ANSUL SENTRY 10 MODEL CD10A-1 OR APPROVED EQUAL. FIRE EXTINGUISHER DRY CHEMICAL TYPE ABC SHALL BE AMEREX MODEL B456, OR APPROVED EQUAL. PROVIDE WALL MOUNTING BRACKET FOR EACH FIRE EXTINGUISHER. CONFIRM MODEL NUMBERS WITH THE RESPECTIVE FIRE EXTINGUISHER MANUFACTURER.

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 SAFFTY 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).
- 2. 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.
- 4. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2F (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.
- CONTRACTOR SHALL CONDUCT MEGGER TESTS AND RECORD RESULTS FOR EACH EXISTING SERIES CIRCUIT PRIOR TO AIRFIELD LIGHTING MODIFICATIONS AND CABLE WORK. CONTRACTOR SHALL CONDUCT MEGGER TESTS AND RECORD RESULTS FOR EACH EXISTING SERIES CIRCUIT AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, AND /OR UPGRADES HAVE BEEN COMPLETED.
- THE RESPECTIVE SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE RESISTANCE TESTED AND RECORDED FOR EACH CIRCUIT AT THE VAULT PRIOR TO AIRFIELD LIGHTING MODIFICATIONS AND CABLE WORK. THE RESPECTIVE SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE RESISTANCE TESTED AND RECORDED FOR EACH CIRCUIT AT THE VAULT AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, AND /OR UPGRADES HAVE BEEN COMPLETED
- 8. EACH CCR SHALL BE TESTED FOR PROPER OPERATION BEFORE ANY AIRFIELD WORK THAT MIGHT AFFECT THE LIGHTING CIRCUITS, REMOVAL WORK, MODIFICATIONS AND/OR ADDITIONS AND AFTER THE AIRFIELD WORK AND ADDITIONS HAVE BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATORS IN THE AUTOMATIC AND MANUAL MODES OF OPERATION. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT PROJECT REPRESENTATIVE/RESIDENT ENGINEER.
- 9. CONTRACTOR SHALL FURNISH AND INSTALL LEGEND PLATES, WARNING LABELS AND SIGNS FOR THE VAULT AND VAULT EQUIPMENT AS DETAILED HEREIN. SEE "LEGEND PLATE SCHEDULES" SHEET.
- 10. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MAFUFACTURE'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCE, AND REQUIPEMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING, (OR OTHER THRID PARTY LISTING) AND/OR THE MANUFACTURE'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- 11. MAINTAIN SEPARATION OF HIGH VOLTAGE WIRING FROM LOW VOLTAGE WIRING TO COMPLY WITH NEC 300.3(C)(2). HIGH VOLTAGE AND LOW VOLTAGE WIRING SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, WIREWAY, PULL BOX. SPLICE CAN. HANDHOLE. OR MANHOLE.
- 12. MAINTAIN SEPARATION OF HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS. LOW VOLTAGE WIRING SHALL ENTER THE RESPETIVE CCR AT THE LOW VOLTAGE SECTION. HIGH VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE HIGH VOLTAGE SECTION.



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1645 Highway 104 Quincy, IL 62305



REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

QI061

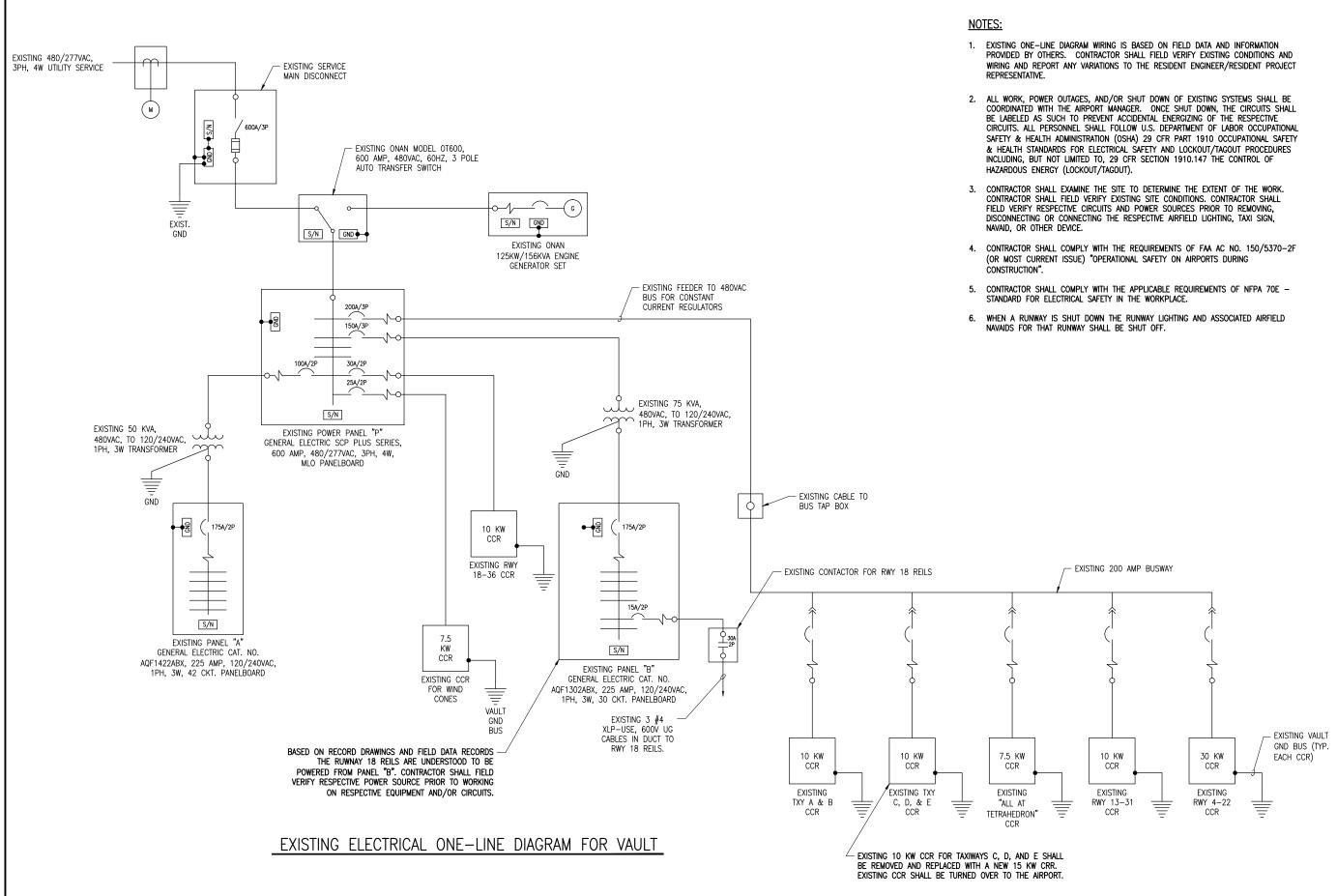
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ISSUE: JUNE 9, 2015					
PROJECT NO: 13A0080D					

CAD FILE: E-101-VLT.DWG DESIGN BY: KNL 10/29/2014

DRAWN BY: MLH 10/30/2014 REVIEWED BY: KNL 10/30/2014

SHEET TITLE

ELECTRICAL VAULT FLOOR PLAN





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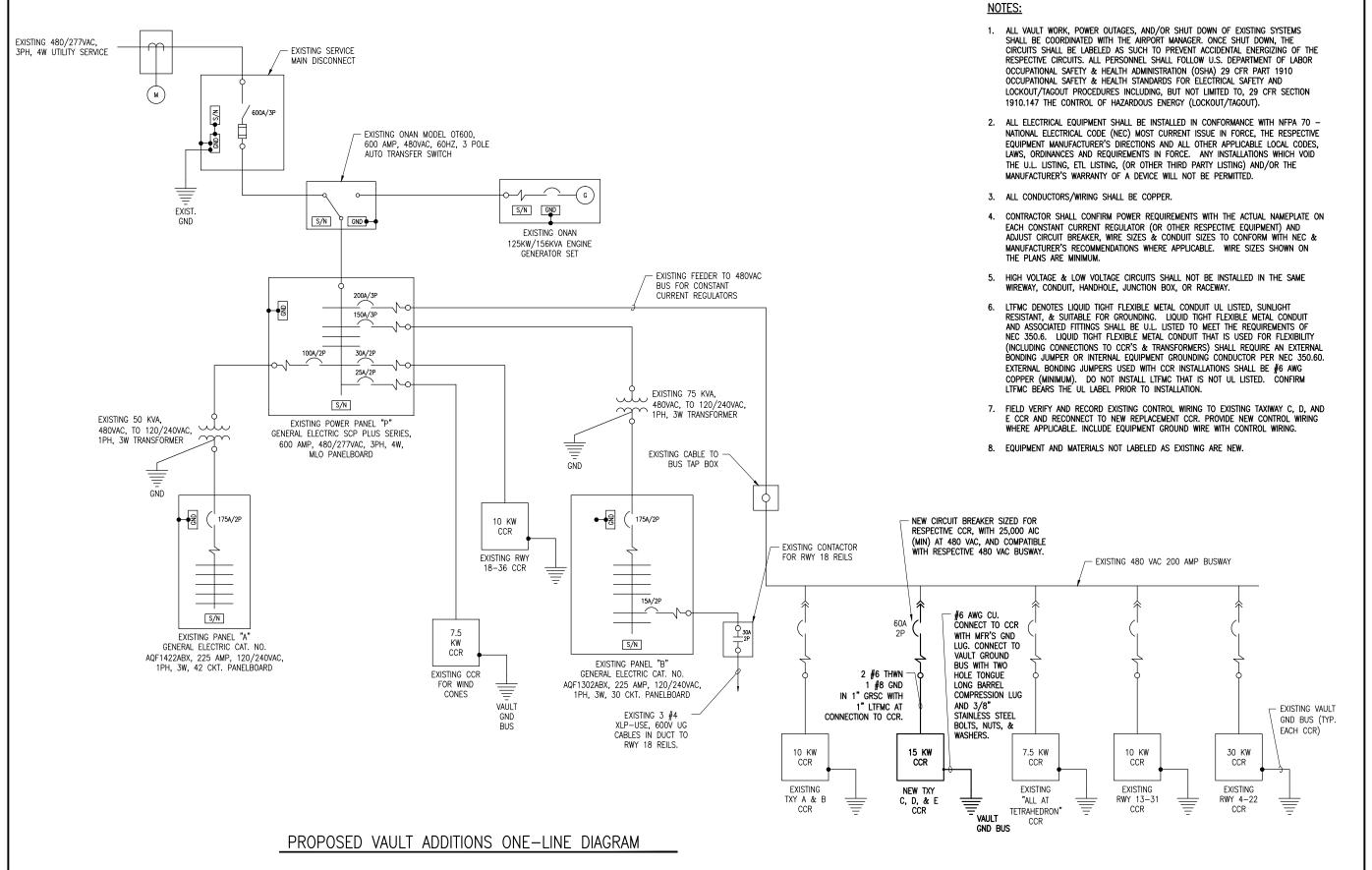
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REVIEW	/ED BY:	REVIEWED BY: KNL 11/05/2014					

SHEET TITLE

EXISTING ONE-LINE DIAGRAM FOR VAULT





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REALIGN TAXIWAY D

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CAD FIL	E: E-606	3-LIN.E	DWG			
DESIGN BY: KNL 11/04/2014						
DRAWN BY: MLH 11/05/2014						
REVIEW	ED BY:	KNL	11/05/2	014		

PROPOSED VAULT ADDITIONS ONE-LINE DIAGRAM

EXISTING L-861 30W QUARTZ

ON TOP OF ENCLOSURE

SERIES ISOLATION

EXISTING L-830 30/45W

BOTTOM OF ENCLOSURE

TRANSFORMER INSTALLED IN

TO RUNWAY 4-22

LIGHTING

EXISTING #8 AWG FAA

CABLE (TYP.)

L-824 TYPE C, 5000V

EXISTING CUTOUT ENCLOSURE.

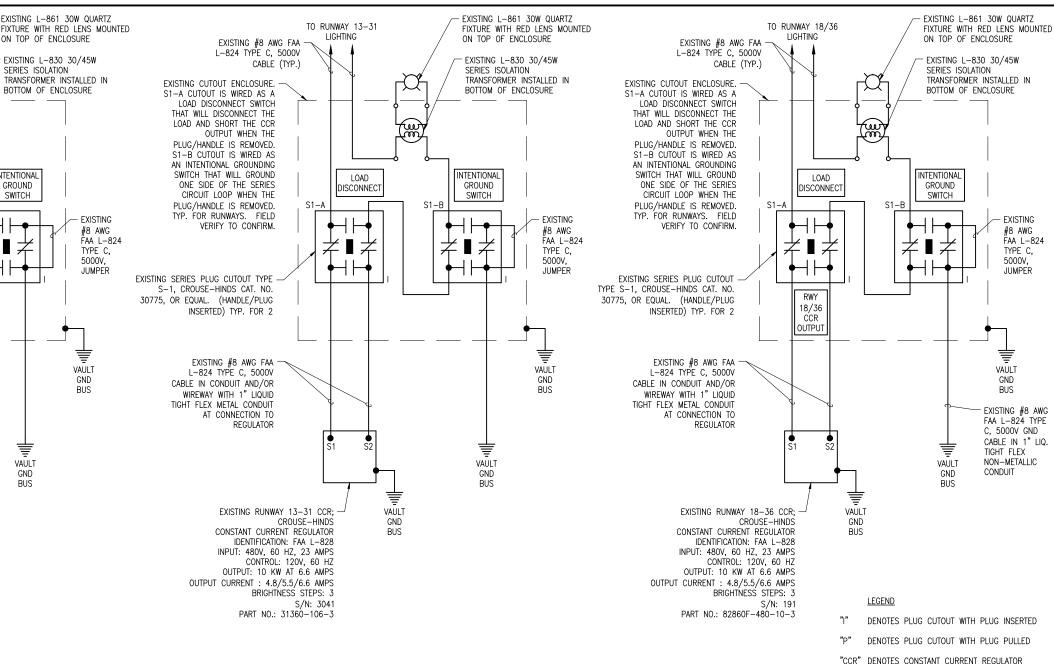
S1-A CUTOUT IS WIRED AS A

LOAD DISCONNECT SWITCH

THAT WILL DISCONNECT THE

LOAD AND SHORT THE CCR

OUTPUT WHEN THE



EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAYS

NOTES:

- ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE. 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
- CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS.
- 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.
- NOTE THE CONDITION OF THE EXISTING CUTOUTS IS UNKNOWN. IT IS POSSIBLE THAT SOME CUTOUTS MIGHT NOT FUNCTION PROPERLY. 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 AND RECORD EXISTING SERIES CIRCUITS PRIOR TO CABLE WORK AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, AND/OR UPGRADES HAVE BEEN COMPLETED, ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE.
- RUNWAY 4/22 CCR, RUNWAY 13/31 CCR, RUNWAY 18/36 CCR, AND THE ASSOCIATED CUTOUTS ARE EXISTING.
- THE RESPECTIVE CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, AND/OR ADDITIONS AND AFTER THE NEW CABLES AND LIGHTING SYSTEM MODIFICATIONS AND 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 OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT PROJECT REPRESENTATIVE/RESIDENT ENGINEER



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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

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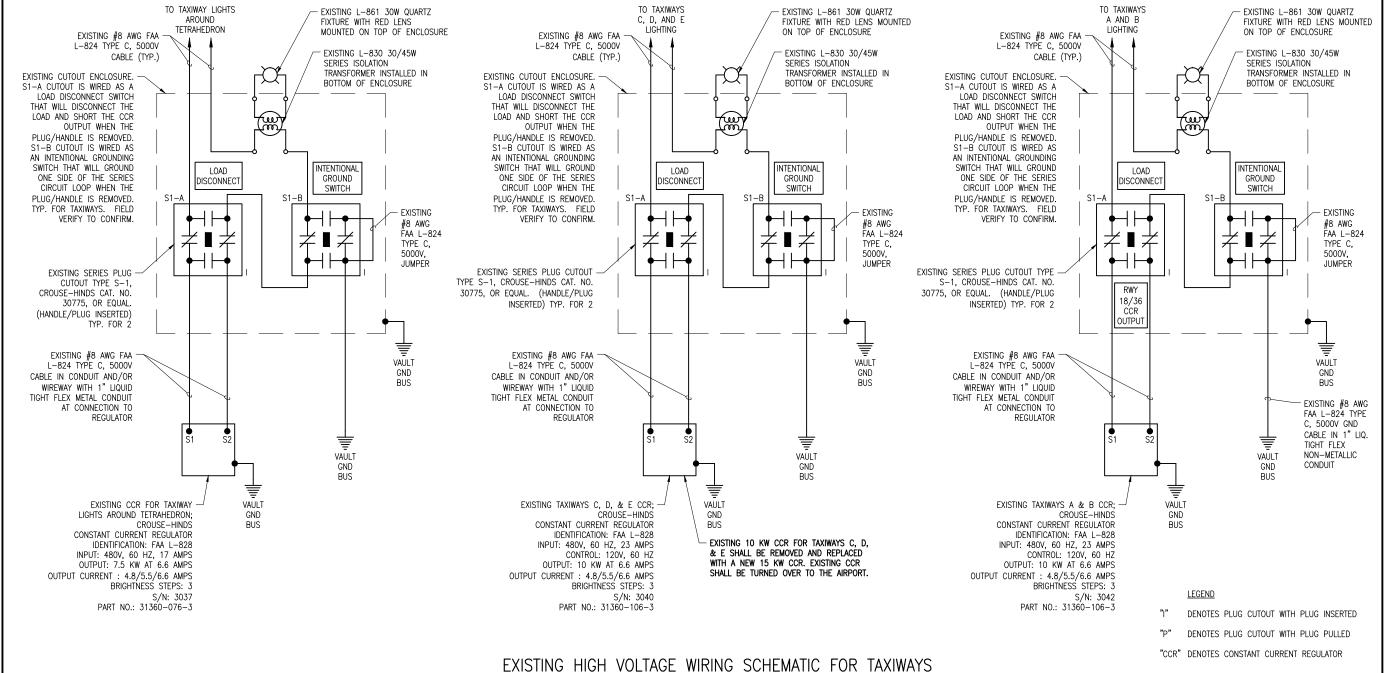
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SHEET TITLE

EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR **RUNWAYS**



NOTES:

- . ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE. 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).
- 2. 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.
- NOTE THE CONDITION OF THE EXISTING TAXIWAY CIRCUIT CUTOUTS IS UNKNOWN. IT IS POSSIBLE THAT SOME CUTOUTS MIGHT NOT FUNCTION PROPERLY. 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. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL.
- CONDUCT TESTS FOR AREAS OF WORK WHERE THE RESPECTIVE CIRCUITS MIGHT BE AFFECTED. MEGGER TEST AND RECORD EXISTING SERIES CIRCUITS PRIOR TO CABLE WORK AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, AND/OR UPGRADES HAVE BEEN COMPLETED. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE.
- CCR FOR TAXIWAY LIGHTS AROUND TETRAHEDRON, TAXIWAYS C, D, AND E CCR, TAXIWAYS A AND B CCR, AND THE ASSOCIATED CUTOUTS ARE EXISTING.
- THE RESPECTIVE CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, AND/OR ADDITIONS AND AFTER THE NEW CABLES AND LIGHTING SYSTEM MODIFICATIONS AND 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 OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT PROJECT REPRESENTATIVE/RESIDENT ENGINEER.



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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

Q1061

CAD FILE: E-603-LIN.DWG

DESIGN BY: KNL 11/03/2014

DRAWN BY: MLH 11/03/2014

REVIEWED BY: KNL 11/05/2014

SHEET TITLE

EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAYS RWY 4

L-806

WIND

CONE

-(()

EXISTING L-867, SIZE B, 24" DEEP SPLICE CAN. (TYP. EACH WIND CONE)

EXISTING L-830-14 500 WATT, 6.6/6.6

AMP SERIES ISOLATION TRANSFORMER

PER FAA AC 150/5345-47B. (TYP.

EACH WIND CONE)

WIND CONE

RWY 36

WIND CONE

L-806

WIND

CONE

()

RWY 1.3

WIND CONF

L-806

WIND

CONE

(W)

OUTPUT

INPUT

EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR WIND CONES



RWY 18

WIND CONE

L-806

WIND

CONE

()

OUTPUT

INPUT

- 1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/RESIDENT PROJECT REPRESENTATIVE. 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).
- 2. CONTRACTOR SHALL EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS.

RWY 22 WIND CONE

L-806

WIND

CONE

(;;;)

OUTPUT

INPUT

RWY .31

WIND CONE

L-806

WIND

CONE

(#)

OUTPU1

INPUT

- . 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.
- MEGGER TEST AND RECORD EXISTING SERIES CIRCUITS PRIOR TO CABLE WORK AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, AND/OR UPGRADES HAVE BEEN COMPLETED. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE.
- 5. CCR FOR THE WIND CONES, THE 6 SUPPLEMENTAL WIND CONES, AND THE ASSOCIATED CUTOUTS ARE EXISTING.
- 6. THE RESPECTIVE CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, AND/OR ADDITIONS AND AFTER THE NEW CABLES AND LIGHTING SYSTEM MODIFICATIONS AND 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 OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT PROJECT REPRESENTATIVE/RESIDENT ENGINEER.
- 7. WHEN A RUNWAY IS SHUT DOWN THE RESPECTIVE NAVAIDS (INCLUDING, BUT NOT LIMITED TO, WIND CONES) SHALL ALSO BE SHUT OFF.



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EXISTING #6 AWG BARE STRANDED COPPER

FROM WIND CONE SUPPORT POST TO GND

ROD. (TYP. FOR EACH WIND CONE)

EXISTING #6 AWG BARE STRANDED

GND ROD. (TYP. FOR EACH WIND

CONE)

COPPER FROM L-867 SPLICE CAN TO

EXISTING #6 AWG BARE STRANDED COPPER FROM CUTOUT ENCLOSURE TO GND ROD.

EXISTING 3/4" DIA. x 10'L UL LISTED COPPERCLAD GND ROD. MIN. BURY

30" BELOW GRADE. (TYP. FOR EACH

WIND CONE)

(TYP. FOR EACH WIND CONE)

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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

Q1061

NO. DATE DESCRIPTION DES DWN REV

ISSUE: JUNE 9, 2015

PROJECT NO: 13A0080D

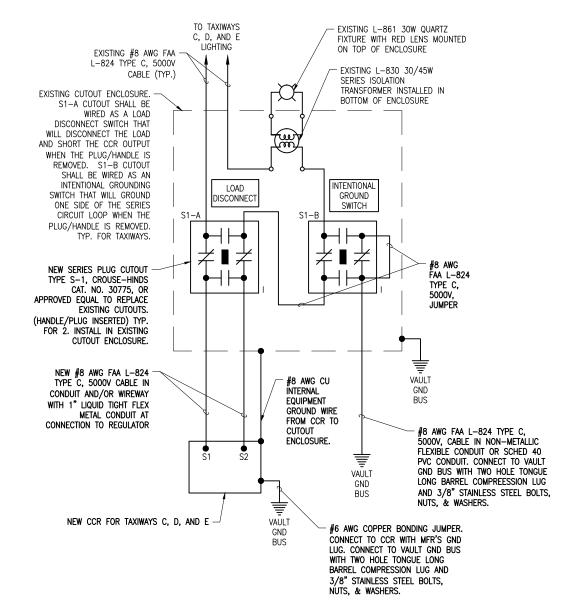
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DRAWN BY: MLH 11/03/2014

REVIEWED BY: KNL 11/05/2014

SHEET TITLE

EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR WIND CONES



PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAYS C, D, & E

NOTES:

- PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CONSTANT CURRENT REGULATOR (EXISTING & NEW) NOTING THE RUNWAY AND/OR TAXIWAY SERVED.
- EACH PLUG CUTOUT CABINET SHALL BE FURNISHED WITH A PHENOLIC ENGRAVED LEGEND PLATE THAT IDENTIFIES THE RESPECTIVE RUNWAY OR TAXIWAY CIRCUIT OR REGULATOR. INCLUDE AN ADDITIONAL LEGEND PLATE LABELED "CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF".
- PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR THE CUTOUTS TO IDENTIFY THE RESPECTIVE REGULATOR OUTPUT CONNECTION AND THE RESPECTIVE CIRCUIT LOAD CONNECTION.
- BOND EACH REGULATOR FRAME TO VAULT GROUND BUS WITH A DEDICATED #6 AWG COPPER BONDING JUMPER.
- PROVIDE ADEQUATE WORKING SPACE IN FRONT OF EACH CUTOUT ENCLOSURE TO MEET NEC CLEARANCE REQUIREMENTS.
- 6. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING AND SUNLIGHT RESISTANT. 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 LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL LISTED. CONFIRM LIQUID TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.
- 7. SERIES PLUG CUTOUTS SHALL BE TYPE S-1, RATED 5000 VOLTS, 20-AMP, AND SHALL COMPLY WITH FAA AC 150/5340-4C, SERIES PLUG CUTOUTS SHALL BE RATED SUITABLE FOR NORMAL OPERATION WITH HANDLE REMOVED OR HANDLE INSERTED. CUTOUTS SHALL DISCONNECT THE INPUT FROM THE OUTPUT, SHORT THE INPUT TERMINALS, AND SHORT THE OUTPUT TERMINALS WHEN THE HANDLE/PLUG IS REMOVED. CUTOUTS SHALL ALSO BE SUITABLE FOR USE AS AN INTENTIONAL GROUND SWITCH. SERIES PLUG CUTOUTS SHALL BE CROUSE-HINDS CAT. NO. 30775, OR APPROVED EQUAL THE RESPECTIVE MANUFACTURER SHALL CERTIFY IN WRITING THAT THEIR CUTOUT IS SUITABLE AND RATED FOR THE RESPECTIVE APPLICATION.
- HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, HANDHOLE, JUNCTION BOX, OR RACEWAY.
- 9. EQUIPMENT AND MATERIALS NOT LABELED AS EXISTING ARE NEW.



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REALIGN TAXIWAY D

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SHEET TITLE

PROPOSED HIGH VOLTAGE WIRING SCHEMATIC FOR TAXIWAYS C, D, & E

DRAWN BY: MLH 11/03/2014 REVIEWED BY: KNL 11/05/2014

CUTOUT ENCLOSURE FOR RUNWAY 4-22 CCR	CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF
LOAD DISCONNECT CUTOUT FOR RUNWAY 4-22 CCR	LOAD DISCONNECT
INTENTIONAL GROUND SWITCH CUTOUT FOR RUNWAY 4-22 CCR	INTENTIONAL GROUND SWITCH
RUNWAY 13-31 CCR	RUNWAY 13-31
CUTOUT ENCLOSURE FOR RUNWAY 13-31 CCR	RUNWAY 13-31
CUTOUT ENCLOSURE FOR RUNWAY 13-31 CCR	CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF
LOAD DISCONNECT CUTOUT FOR RUNWAY 13-31 CCR	LOAD DISCONNECT
INTENTIONAL GROUND SWITCH CUTOUT FOR RUNWAY 13-31 CCR	INTENTIONAL GROUND SWITCH
RUNWAY 18-36 CCR	RUNWAY 18-36
CUTOUT ENCLOSURE FOR RUNWAY 18-36 CCR	RUNWAY 18-36
CUTOUT ENCLOSURE FOR RUNWAY 18-36 CCR	CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF
LOAD DISCONNECT CUTOUT FOR RUNWAY 18-36 CCR	LOAD DISCONNECT
INTENTIONAL GROUND SWITCH CUTOUT FOR RUNWAY 18-36 CCR	INTENTIONAL GROUND SWITCH
CCR FOR TAXIWAY LIGHTS AROUND TETRAHEDRON	TAXIWAY LIGHTS AROUND TETRAHEDRON
CUTOUT ENCLOSURE FOR CCR FOR TAXIWAY LIGHTS AROUND TETRAHEDRON	TAXIWAY LIGHTS AROUND TETRAHEDRON
CUTOUT ENCLOSURE FOR CCR FOR TAXIWAY LIGHTS AROUND TETRAHEDRON	CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF
LOAD DISCONNECT CUTOUT FOR CCR FOR TAXIWAY LIGHTS AROUND TETRAHEDRON	LOAD DISCONNECT
INTENTIONAL GROUND SWITCH CUTOUT FOR CCR FOR TAXIWAY LIGHTS AROUND TETRAHEDRON	INTENTIONAL GROUND SWITCH
TAXIWAYS C, D & E CCR	TAXIWAYS C, D & E
CUTOUT ENCLOSURE FOR TAXIWAYS C, D & E CCR	TAXIWAYS C, D & E

VAULT LEGEND PLATE SCHEDULE

LABEL

RUNWAY 4-22

RUNWAY 4-22

DEVICE

CUTOUT ENCLOSURE FOR RUNWAY 4-22

RUNWAY 4-22 CCR

VAULT LEGEND PLAT	TE SCHEDULE
DEVICE	LABEL
CUTOUT ENCLOSURE FOR TAXIWAYS C, D & E CCR	CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF
LOAD DISCONNECT CUTOUT FOR TAXIWAYS C, D & E CCR	LOAD DISCONNECT
INTENTIONAL GROUND SWITCH CUTOUT FOR TAXIWAYS C, D & E CCR	INTENTIONAL GROUND SWITCH
TAXIWAYS A & B CCR	TAXIWAYS A & B
CUTOUT ENCLOSURE FOR TAXIWAYS A & B CCR	TAXIWAYS A & B
CUTOUT ENCLOSURE FOR TAXIWAYS A & B CCR	CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF
LOAD DISCONNECT CUTOUT FOR TAXIWAYS A & B CCR	LOAD DISCONNECT
INTENTIONAL GROUND SWITCH CUTOUT FOR TAXIWAYS A & B CCR	INTENTIONAL GROUND SWITCH
SERVICE DISCONNECT (NOTE THIS LEGEND PLATE SHALL HAVE BLACK LETTERS ON A WHITE BACKGROUND)	SERVICE DISCONNECT
SERVICE DISCONNECT (NOTE THIS LEGEND PLATE SHALL HAVE BLACK LETTERS ON A WHITE BACKGROUND)	WARNING SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED
SERVICE DISCONNECT (NOTE THIS LEGEND PLATE SHALL HAVE BLACK LETTERS ON A WHITE BACKGROUND)	NOTE ELECTRIC SERVICE IS BACKED UP BY AN ENGINE GENERATOR SET LOCATED IN THE VAULT
MAIN DISTRIBUTION PANELBOARD "P"	THIS PANELBOARD IS POWEREI BY THE SERVICE DISCONNECT AND THE ENGINE GENERATOR SET THROUGH THE TRANSFER SWITCH
LOW VOLTAGE WIREWAYS (PROVIDE 8 LEGEND PLATES AND DISTRIBUTE ON RESPECTIVE LOW VOLTAGE WIREWAYS)	LOW VOLTAGE
HIGH VOLTAGE WIREWAYS (PROVIDE 8 LEGEND PLATES AND DISTRIBUTE ON RESPECTIVE HIGH VOLTAGE WIREWAYS)	HIGH VOLTAGE

NOTES:

- LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4 HIGH WHITE LETTERS ON A RED BACKGROUND UNLESS NOTED OTHERWISE. EQUIPMENT THAT IS NOT BACKED UP BY THE ENGINE GENERATOR SET (SUCH AS THE ELECTRIC UTILITY SERVICE DISCONNECT) SHALL HAVE 1/4 HIGH BLACK LETTERS ON A WHITE BACKGROUND. SECURE WITH WEATHERPROOF ADHESIVE AND/OR MACHINE SCREWS.
- FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH SAFETY SWITCH, PANELBOARD, LOAD CENTER, CUTOUT, CCR, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 FLASH PROTECTION. 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.
- LEGEND PLATES, WARNING LABELS, AND SIGNS WILL BE CONSIDERED INCIDENTAL TO ITEM AR109200 INSTALL ELECTRICAL EQUIPMENT AND NO ADDITIONAL COMPENSATION WILL BE PROVIDED.



DANGER - HIGH VOLTAGE KEEP OUT SIGN

PROVIDE WARNING SIGN ON VAULT EXTERIOR DOORS LABELED DANGER - HIGH VOLTAGE - KEEP OUT PER THE REQUIREMENTS OF NEC 110.34 (C). PROVIDE MINIMUM OF 4 SIGNS (ONE ON EACH DOOR TO THE VAULT). SIGNS SHALL BE APPROXIMATELY 10H X 14W.



DANGER - HIGH VOLTAGE SIGN

FURNISH AND INSTALL DANGER – HIGH VOLTAGE LABELS/SIGNS FOR EACH CUTOUT ENCLOSURE, EACH CONSTANT CURRENT REGULATOR, AND THE HIGH VOLTAGE WIREWAY, TO COMPLY WITH FAA AC 150/5340–26B MAINTENANCE OF AIRPORT VISUAL AID FACILITIES. LABELS SHALL BE APPROXIMATELY 4 X 6 OR 5 X 7.



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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

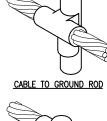
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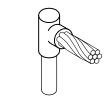
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INO.		DES	DWN	REV		
ISSUE:	ISSUE: JUNE 9, 2015					
PROJEC	CT NO: 1	3A008	0D			
CAD FILE: E-605-SCH.DWG						
DESIGN BY: KNL 11/03/2014						

DRAWN BY: MLH 11/03/2014 REVIEWED BY: KNL 11/05/2014

SHEET TITLE

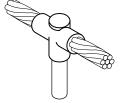
LEGEND PLATE SCHEDULES





CABLE TO GROUND ROD

CABLE TO CABLE HORIZONTAL PARALLEL TAP



CABLE TO GROUND ROD

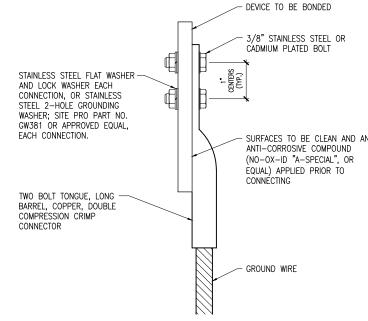


CABLES TO GROUND ROD

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 ERICO PRODUCTS, SOLON, OHIO, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, GRAYSLAKE, IL, OR THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES, TULSA, OKLAHOMA. VERIFY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR
- 2. 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 MACNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM

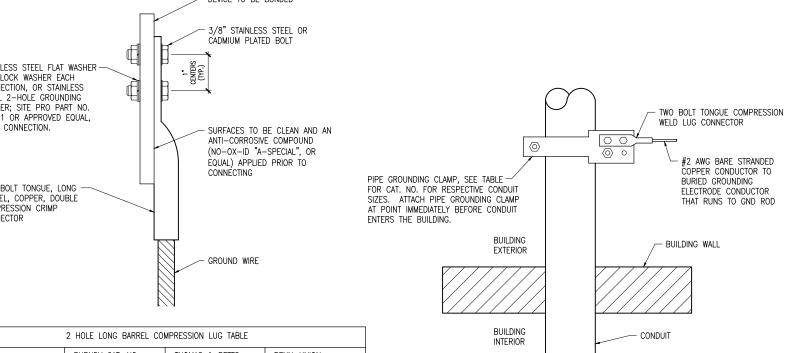
EXOTHERMIC WELD DETAILS



2 HOLE LONG BARREL COMPRESSION LUG TABLE					
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/OD-2TC38		
#2/0 AWG STRANDED	YA26-2TC38	256-30695-1116	BBLU-2/OD-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		

- ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
- 2. 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
- 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 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

GROUNDING LUG CONNECTION DETAIL



PIPE GROUNDING CLAMP TABLE				
BURNDY CAT. NO.	CONDUIT SIZE			
GAR3902TC	1/2" - 1"			
GAR3903TC	1 1/4" - 2"			
GAR3904TC	2 1/2" - 3 1/2"			
GAR3905TC	4" - 5"			
GAR3906TC	6"			
GAR3907TC	8"			

- EXTERIOR CONDUIT GROUNDING IS REQUIRED FOR THE PHOTOCELL CONDUIT, RADIO ANTENNA CONDUIT, & OTHER CONDUITS EXTENDING TO
- 2. CONNECTIONS TO BURIED GROUNDING ELECTRODE CONDUCTOR SHALL

EXTERIOR CONDUIT GROUNDING DETAIL

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REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

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NO.	DATE	DES	DWN	REV
ISSUE: JUNE 9, 2015				
PROJEC	T NO: 1	3A008	0D	

CAD FILE: E-505-DETL .DWG

DESIGN BY: KNL 11/04/2014 DRAWN BY: RAD 11/05/2014 REVIEWED BY: KNL 11/05/2014

SHEET TITLE

GROUNDING DETAILS



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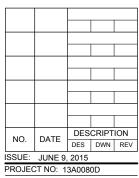


REALIGN TAXIWAY D

IDA No: UIN-4332

SBG No: 3-17-SBGP-105

QI061



PROJECT NO: 13A0080D

CAD FILE: C-301-XS.DWG

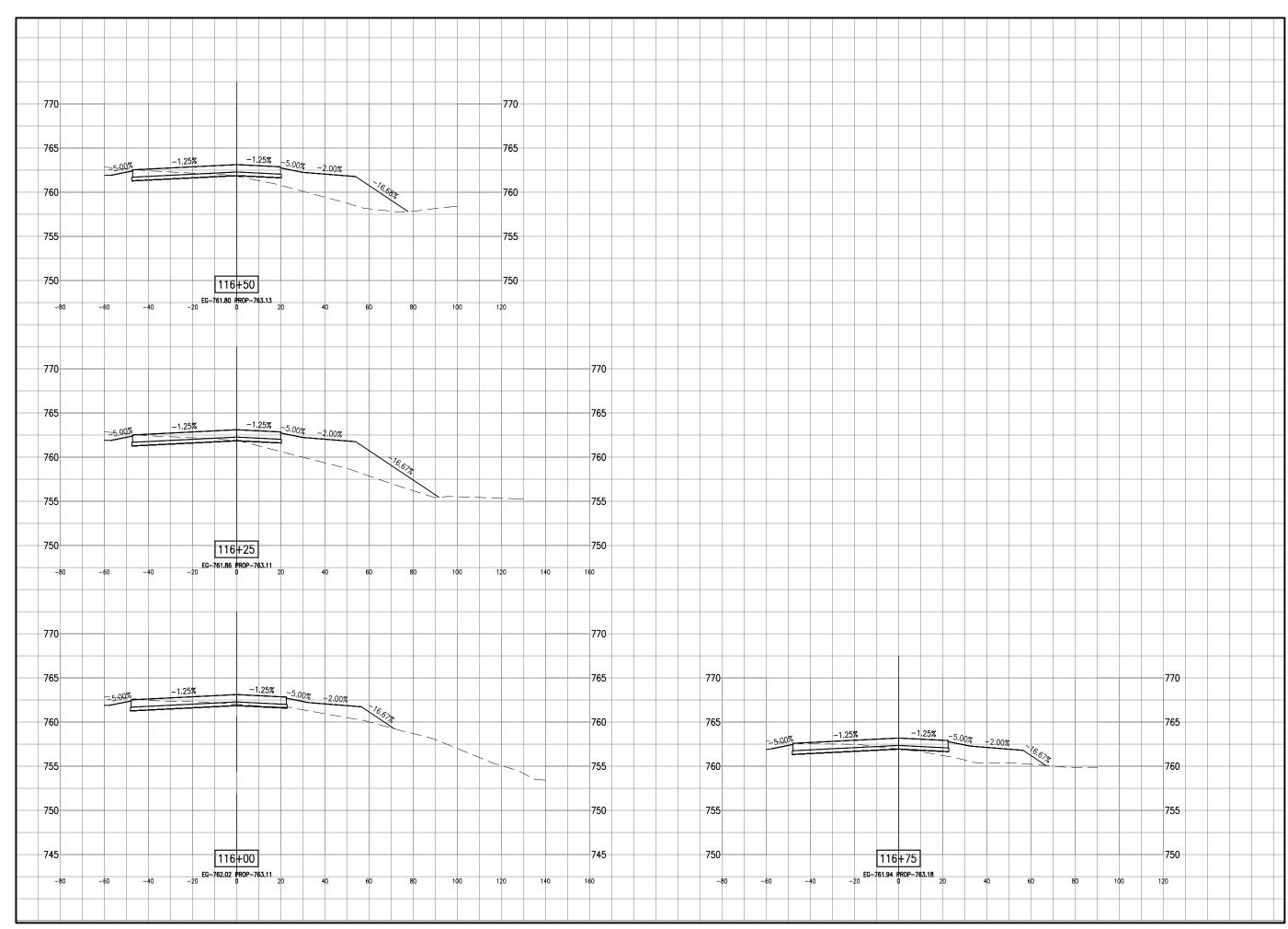
DESIGN BY: JRH 06/10/2014

DRAWN BY: JRH 06/10/2014

REVIEWED BY: JDW 11/12/2014

SHEET TITLE

CROSS SECTIONS STA. 113+26 TO STA. 115+50





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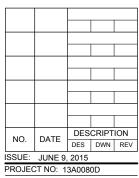


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SHEET TITLE

CROSS SECTIONS STA. 116+00 TO STA. 116+75



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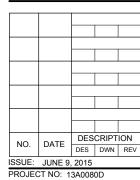


REALIGN TAXIWAY D

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SHEET TITLE

CROSS SECTIONS STA. 117+00 TO STA. 118+50



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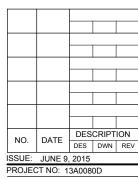


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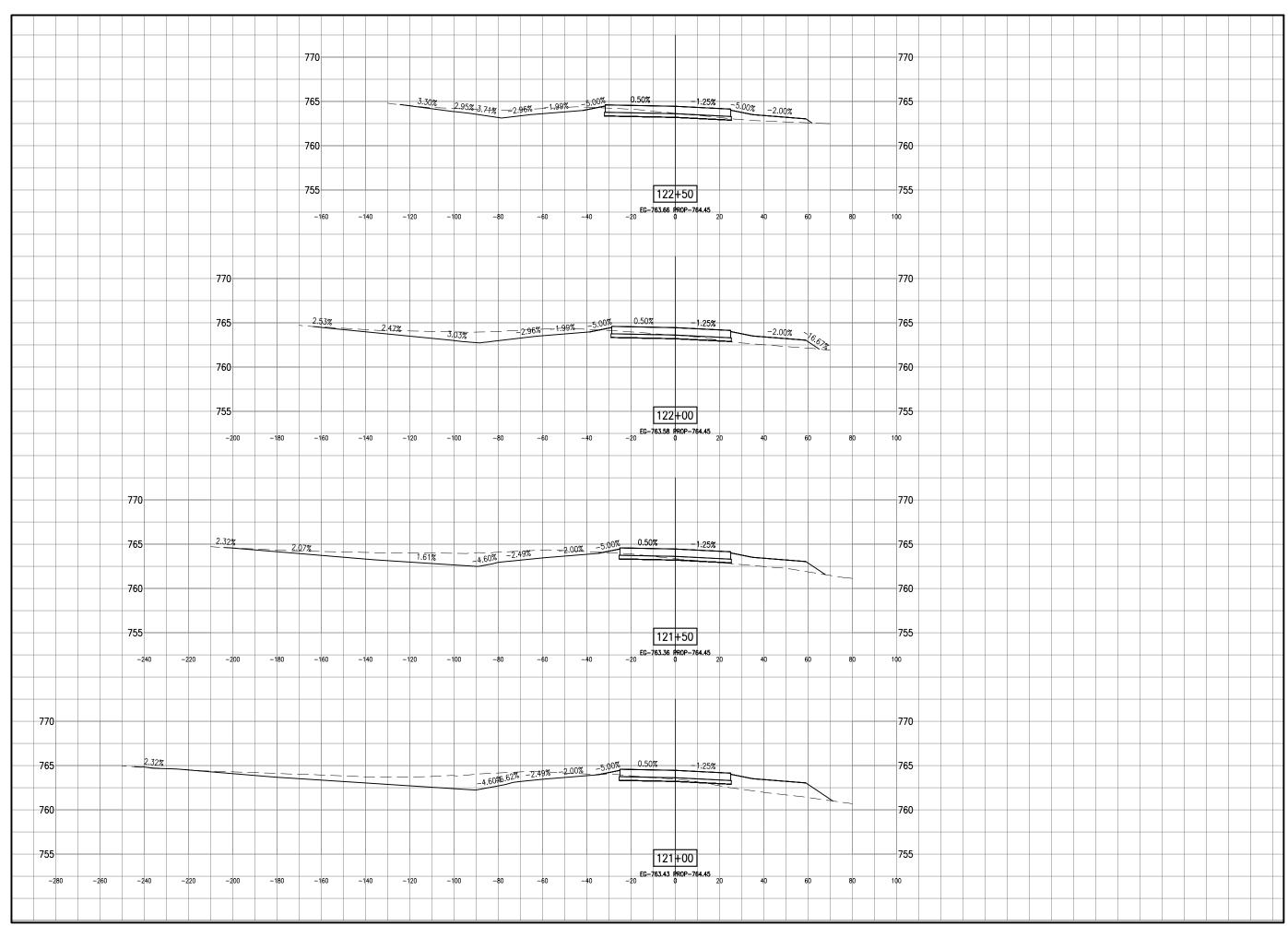
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REVIEWED BY: JDW 11/12/2014

SHEET TITLE

CROSS SECTIONS STA. 119+00 TO STA. 120+50





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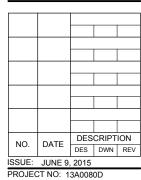


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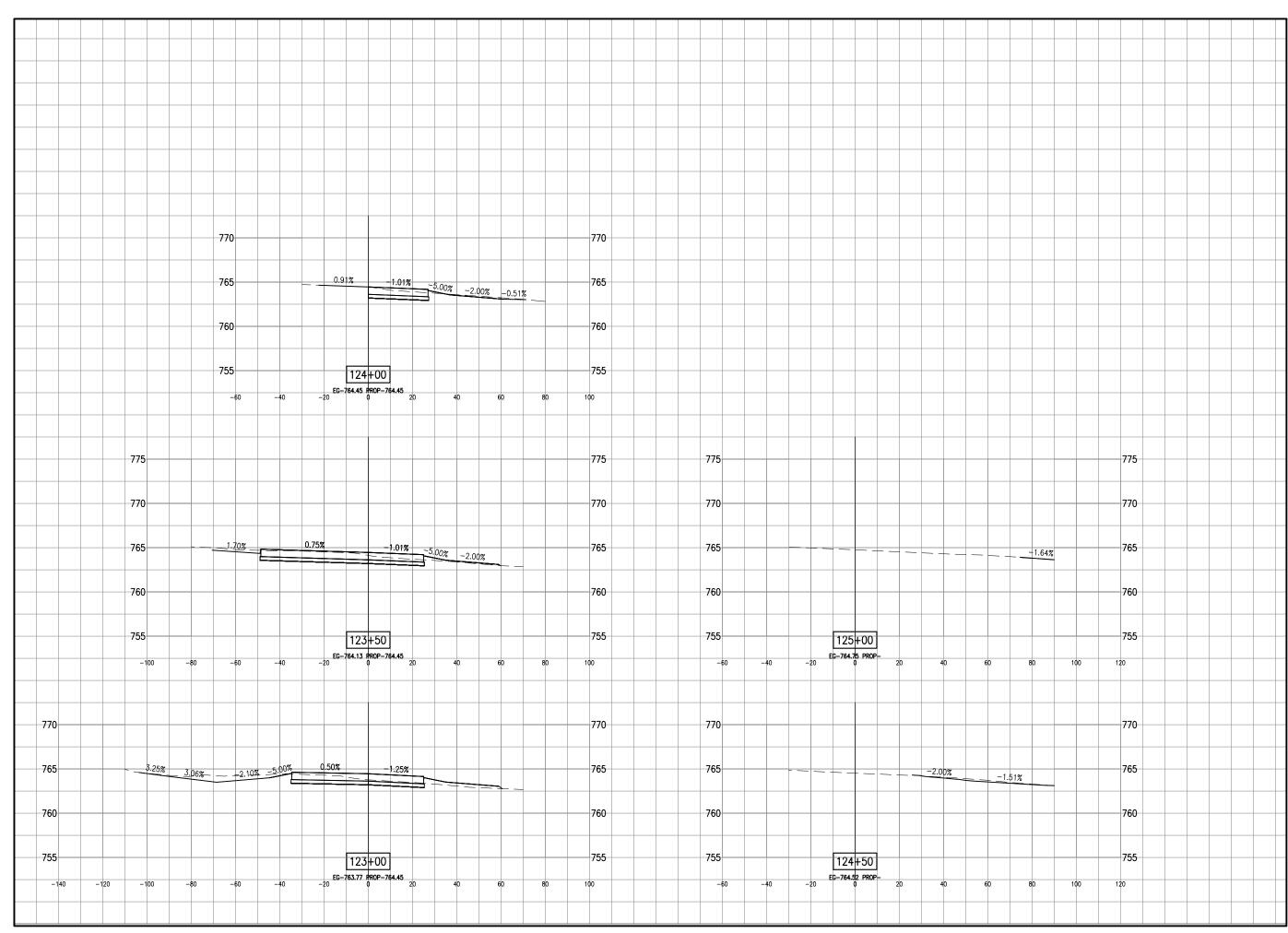
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REVIEWED BY: JDW 11/12/2014

SHEET TITLE

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PROJECT NO: 13A0080D

CAD FILE: C-301-XS.DWG

DESIGN BY: JRH 06/10/2014

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DRAWN BY: JRH 06/10/2014 REVIEWED BY: JDW 11/12/2014

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