

CONSTRUCTION PLANS

FOR

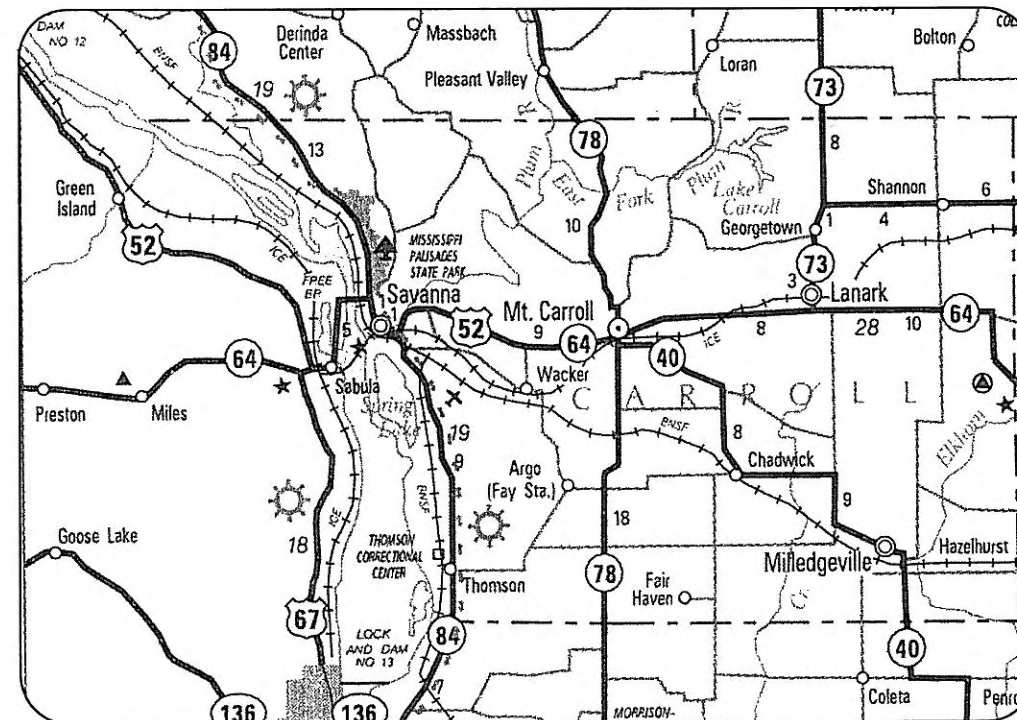
TRI-TOWNSHIP AIRPORT

SAVANNA, CARROLL COUNTY, ILLINOIS

REPLACE MIRL ON RUNWAY 13-31; FILL CRACKS AND REMARK RUNWAY 13-31

SCOPE OF WORK

THIS WORK SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE MEDIUM INTENSITY LIGHTING SYSTEM ON RUNWAY 13-31. ASSOCIATED WORK WILL INCLUDE INSTALLATION OF CABLE AND VAULT WORK. ALSO ASSOCIATED WITH THIS PROJECT WILL BE THE CLEANING AND SEALING OF BITUMINOUS CRACKS ON RUNWAY 13-31 AND THE RE-MARKING OF RUNWAY 13-31.



LOCATION



LOCATION OF COUNTY



COVERING ELECTRICAL DESIGN

HANSON
Hanson Professional Services Inc.
ELECTRICAL ENGINEER

Submitted by: *Kevin N. Lightfoot* ENG'R
Date Submitted: 1/13/2011
Lic. Exp. Date: 11/30/2011

HANSON
Hanson Professional Services Inc.

Submitted by: *Charles A. Hagloch* ENG'R
Date Submitted: 1/13/2011
Lic. Exp. Date: 11/30/2011

TRI-TOWNSHIP AIRPORT AUTHORITY

Approved: *[Signature]* AIRPORT MANAGER
Date: 1-13-2011

REVISION	DATE	DESCRIPTION

TRI-TOWNSHIP AIRPORT SAVANNA, CARROLL COUNTY ILLINOIS	A.I.P. PROJ.: 3-17-0091-B17 I.L. PROJ.: SFY-4056
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Hanson Proj. No. 10A0095D_0800 Filename: R-001CVR.DWG Scale: NOT TO SCALE Date: 01/13/11	LAYOUT: KNL 11/08/10 DRAWN: MAW 11/17/10 REVIEWED: CAH 12/01/10
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HANSON Hanson Professional Services Inc. 1925 South State Street Springfield, IL 62703-2986 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide	REPLACE MIRL ON RUNWAY 13-31 COVER SHEET
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1 1 of 27 sheets

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AR108158	1/C #8 5KV U.G. CABLE IN U.D.	L.F.	1,125	
AR109200	INSTALL ELECTRICAL EQUIPMENT	L.S.	1	
AR110014	4" DIRECTIONAL BORE	L.F.	40	
AR125505	MIRL, STAKE MOUNTED	EACH	30	
AR125510	MIRL, BASE MOUNTED	EACH	12	
AR125540	MI THRESHOLD LIGHT STAKE MTD	EACH	16	
AR125901	REMOVE STAKE MOUNTED LIGHT	EACH	44	
AR125902	REMOVE BASE MOUNTED LIGHT	EACH	12	
AR125904	REMOVE TAXI GUIDANCE SIGN	EACH	1	
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1	
AR201661	CLEAN & SEAL BITUMINOUS CRACKS	L.F.	22,756	
AR620520	PAVEMENT MARKING - WATERBORNE	S.F.	28,465	
AR620525	PAVEMENT MARKING - BLACK BORDER	S.F.	350	
AR620900	PAVEMENT MARKING REMOVAL	S.F.	1,410	
AR800507	FIELD LIGHTING ARRESTER	EACH	6	
AR800522	RUNWAY LIGHTING CABLE	L.F.	9,400	

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6	PROPOSED MARKING PLAN STA. 205+00 TO STA. 221+00
7	PROPOSED MARKING PLAN STA. 221+00 TO STA. 230+00
8	EXISTING LIGHTING PLAN STA. 189+00 TO STA. 204+00
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22	EXISTING ELECTRICAL ONE LINE DIAGRAM FOR Vault
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25	AIRFIELD LIGHTING WIRING SCHEMATIC
26	HIGH VOLTAGE WIRING SCHEMATIC
27	LEGEND PLATE SCHEDULE & GROUNDING DETAILS

REVISION	DATE

TRI-TOWNSHIP AIRPORT
SAVANNA, CARROLL COUNTY
ILLINOIS

Hanson Proj. No. 10A0095D_0800	Scale NOT TO SCALE	Date 01/13/11	LAYOUT KNL 11/08/10
Filename R-02FLP.DWG	Scale	Date	DRAWN MAW 11/17/10
			REVIEWED CAH 12/01/10



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REPLACE MIRL ON
RUNWAY 13-31

SUMMARY OF QUANTITIES
AND INDEX TO SHEETS

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UTILITY NOTE

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

HAUL ROUTE AND VEHICLE PARKING

THE CONTRACTOR WILL USE THE DESIGNATED HAUL ROUTE AND PARKING AREA AS SHOWN ON THIS SHEET. THE PROPOSED PARKING AREA WILL BE 200' X 200'. CONTRACTOR EQUIPMENT SHALL BE MOVED TO THE DESIGNATED CONTRACTOR PARKING AND STORAGE AREA WHEN NOT BEING USED. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THE PROPOSED HAUL ROUTE AND PARKING AREA THROUGHOUT THE COURSE OF THE PROJECT. ANY AREAS DAMAGED OUTSIDE OF THESE AREAS WILL BE REPAIRED BY THE CONTRACTOR AND AT THE CONTRACTOR'S OWN EXPENSE. AT THE CONCLUSION OF THE PROJECT THE CONTRACTOR WILL GRADE, FERTILIZE, SEED AND MULCH THE HAUL ROUTE AND PARKING AREA AS NEEDED TO RESTORE IT TO ITS ORIGINAL STATE. RESTORATION OF THE HAUL ROUTE AND PARKING AREA WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

CONTRACTOR RESPONSIBILITIES

THE CONTRACTOR'S EQUIPMENT PARKING AND STORAGE AREA WILL BE AS SHOWN ON THIS SHEET. THE CONTRACTOR'S EMPLOYEES WILL PARK THEIR VEHICLES IN THIS AREA. ONLY CONTRACTOR VEHICLES WILL BE ALLOWED OUTSIDE THIS AREA.

ALL CONSTRUCTION/OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH FAA ADVISORY CIRCULAR 150/5370-2E "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".

THE CONTRACTOR AND HIS EMPLOYEES WILL BE RESTRICTED TO THE WORK AREA AND ALL OTHER AREAS OF THE AIRPORT ARE "OFF LIMITS" TO THEM.

ALL WORK PERFORMED SHALL BE DONE IN A ORDERLY AND EFFECTIVE MANNER TO MINIMIZE RUNWAY CLOSURE.





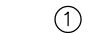

NO TRENCHES OR HOLES WILL REMAIN OPEN OVERNIGHT.

NO RUNWAY SHALL BE CLOSED OVERNIGHT.

BARRICADES AND TRAFFIC CONES

IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PLACE AND MAINTAIN BARRICADES AND TRAFFIC CONES AS DIRECTED BY THE AIRPORT MANAGER. THE BARRICADES WILL BE EQUIPPED WITH RED FLASHING OR RED STEADY-BURN LIGHTS AND 20" SQUARE ORANGE FLAGS. THE BARRICADES, THEIR MAINTENANCE, PLACEMENT AND REMOVAL WILL BE CONSIDERED AS AN INCIDENTAL ITEM TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

LEGEND

-  EXISTING IMPROVEMENTS
-  PROPOSED IMPROVEMENTS
-  EXISTING BUILDINGS
-  PROPOSED HAUL ROUTE AND EQUIPMENT PARKING AREA
-  PROPOSED BENCHMARK
-  PROPOSED BARRICADES OR TRAFFIC CONES

SCOPE OF WORK

THIS PROJECT SHALL CONSIST OF THE REMOVAL AND REPLACEMENT OF THE MEDIUM INTENSITY LIGHTING SYSTEM ON RUNWAY 13-31. ASSOCIATED WORK WILL INCLUDE INSTALLATION OF CABLE AND VAULT WORK. ALSO ASSOCIATED WITH THIS PROJECT WILL BE THE CLEANING AND SEALING OF BITUMINOUS CRACKS ON RUNWAY 13-31 AND THE RE-MARKING OF RUNWAY 13-31.

AIRPORT SECURITY NOTE

AIRPORT SECURITY WILL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR WILL CLOSE THE EXISTING GATE IN THE HAUL ROUTE AT THE END OF EACH WORKING DAY.

HEIGHT OF CONSTRUCTION EQUIPMENT

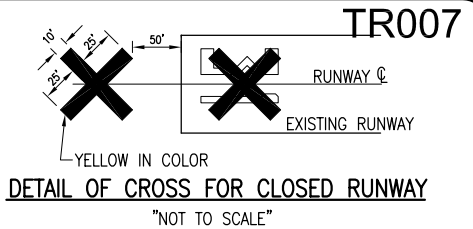
THE MAXIMUM ANTICIPATED HEIGHT OF THE CONSTRUCTION EQUIPMENT WILL BE 25 FEET. THE TALLEST EQUIPMENT IS EXPECTED TO BE A LINE TRUCK OR A CONCRETE TRUCK.

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 CERTIFICATION

COMPLETED WORK CANNOT BE PLACED ON A CONSTRUCTION REPORT UNTIL ALL MATERIAL CERTIFICATIONS FOR THAT PAY ITEM HAVE BEEN RECEIVED, REVIEWED AND ACCEPTED BY THE RESIDENT ENGINEER.



NOTE:

COST OF CONSTRUCTING, PLACING, MAINTAINING AND REMOVING CROSSES WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. THE CROSSES WILL BE YELLOW IN COLOR AND SHALL BE MADE OF A SUITABLE MATERIAL AS APPROVED BY THE AIRPORT MANAGER. THE CROSSES WILL BE PLACED OVER THE NUMERALS AND SECURED IN A MANNER APPROVED BY THE MANAGER. THE PROPOSED CROSSES WILL BE PLACED EACH DAY THE RUNWAY IS CLOSED AND REMOVED WHEN THE RUNWAY IS RE-OPENED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PLACEMENT AND REMOVAL OF THE CROSSES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

J.U.L.I.E. INFORMATION

COUNTY CARROLL
 CITY SAVANNA
 TOWNSHIP SAVANNA
 SECTION NO. 25
 ADDRESS TRI-TOWNSHIP AIRPORT
 8049 IL. ROUTE 84S
 SAVANNA, ILLINOIS 61074

CRITICAL POINT DATA

LATITUDE: 42° 02' 52.88"
 LONGITUDE: 90° 06' 42.68"
 ELEVATION: 612.00 M.S.L.

PROPOSED SAFETY PLAN

GENERAL - THE TRI-TOWNSHIP AIRPORT IS COMPRISED OF ONE RUNWAY. THE PROPOSED CONSTRUCTION WILL NECESSITATE CLOSING THE RUNWAY. ANY TIME THE CONTRACTOR IS WORKING WITHIN 200' OF THE RUNWAY CENTERLINE THE RUNWAY WILL BE CLOSED. THE RUNWAY WILL BE CLOSED ONLY DURING THE CONSTRUCTION DAY. AT THE END OF EACH CONSTRUCTION DAY THE CONTRACTOR WILL SMOOTH GRADE ALL AREAS WITHIN THE SAFETY AREA TO THE SATISFACTION OF THE RESIDENT ENGINEER AND RE-OPEN THE RUNWAY. ALL WORK INCLUDED IN OPENING AND CLOSING THE RUNWAY WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

IDENTIFICATION - WHEN THE CONTRACTORS VEHICLES AND EQUIPMENT ARE ON THE AIRPORT THEY SHALL BE PROPERLY MARKED WITH THREE (3') FOOT SQUARE CHECKERED FLAGS (INTERNATIONAL ORANGE AND WHITE). THE CONTRACTOR WILL ALSO PROVIDE WORKERS WITH SOME TYPE OF TAG OR GARMENT TO IDENTIFY THE PERSON AS BEING PART OF THE CONSTRUCTION CREW.

RADIO CONTROL - THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO-WAY RADIO CONTACT (122.70 MHz.) WITH THE AIRPORT UNICOM. THIS WILL KEEP THE CONTRACTOR IN CONSTANT CONTACT WITH THE TRI-TOWNSHIP AIRPORT AND ENABLE THE AIRPORT TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTIC EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

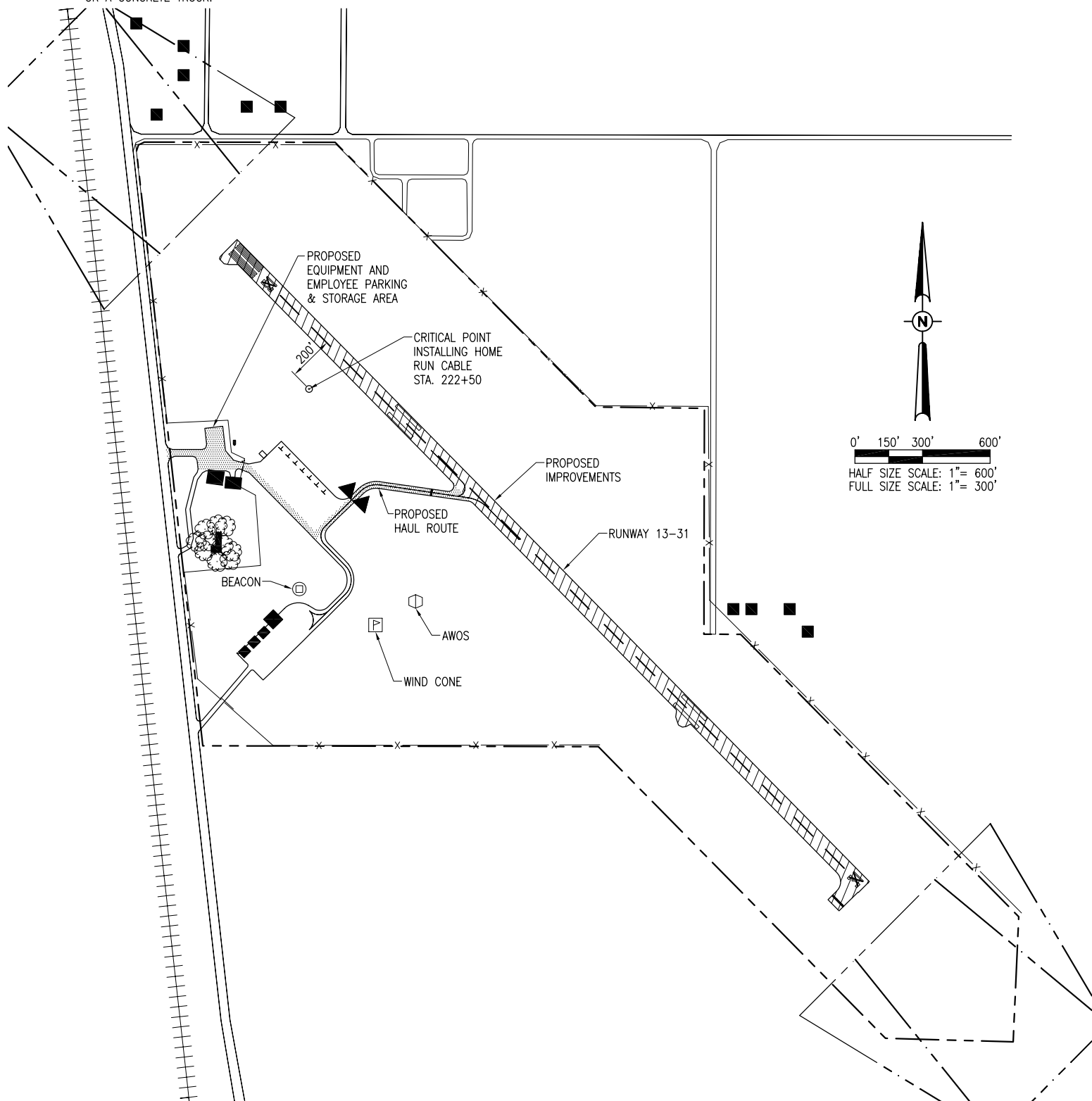
150-ENGINEER'S FIELD OFFICE NOTES

NO ACTUAL ENGINEER'S FIELD OFFICE WILL BE SUPPLIED AS PART OF THIS ITEM OF WORK. THE CONTRACTOR WILL FURNISH A CELL PHONE TO THE RESIDENT ENGINEER FOR HIS EXCLUSIVE USE FOR THE DURATION OF THIS PROJECT. THE RESIDENT ENGINEER WILL USE THIS PHONE FOR PROJECT BUSINESS ONLY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL CHARGES ASSOCIATED WITH THIS CELL PHONE.


THE PROPOSED CELL PHONE WILL BE PAID FOR UNDER ITEMS:
 AR150510 ENGINEER'S FIELD OFFICE ____ 1 L.S.

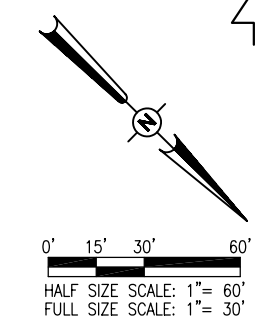
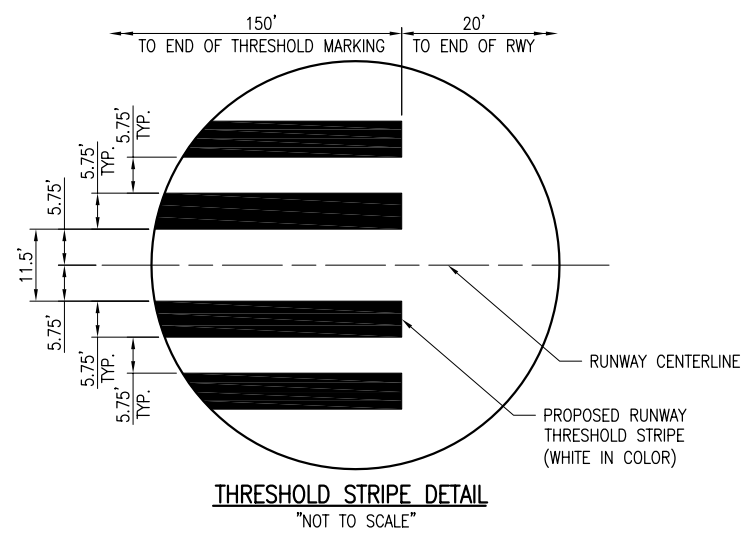
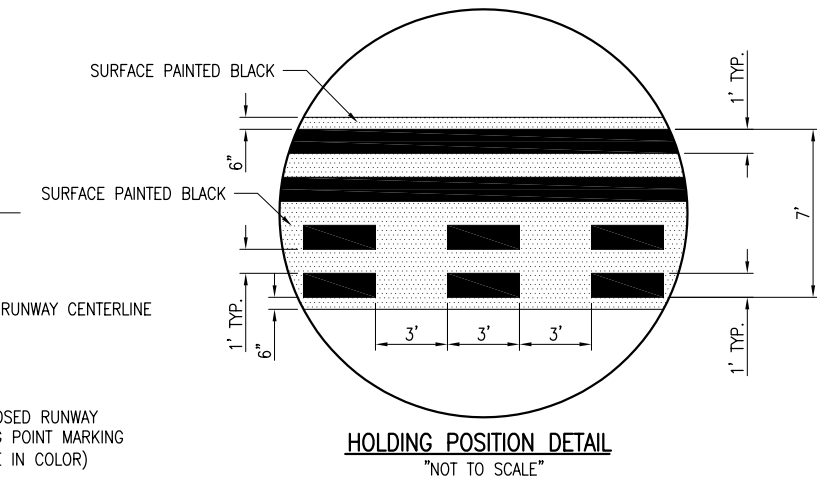
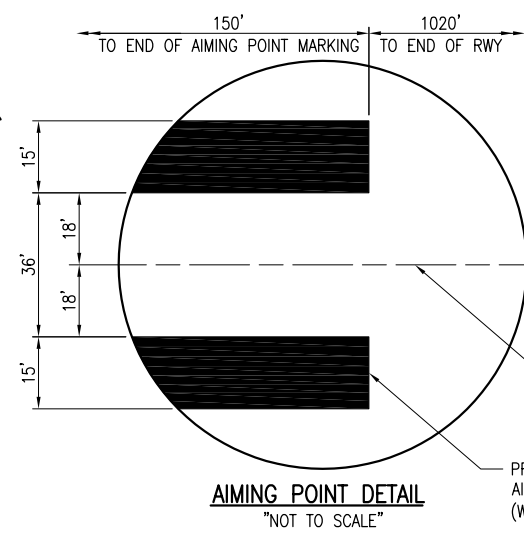
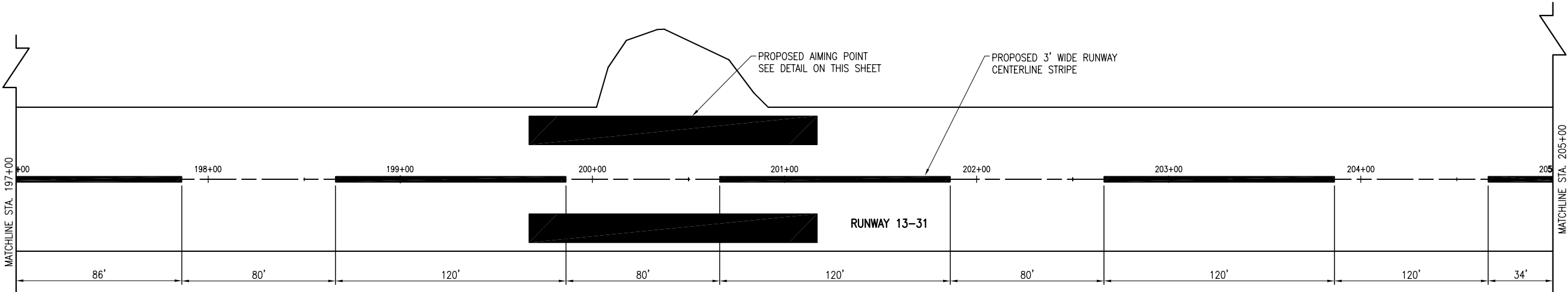
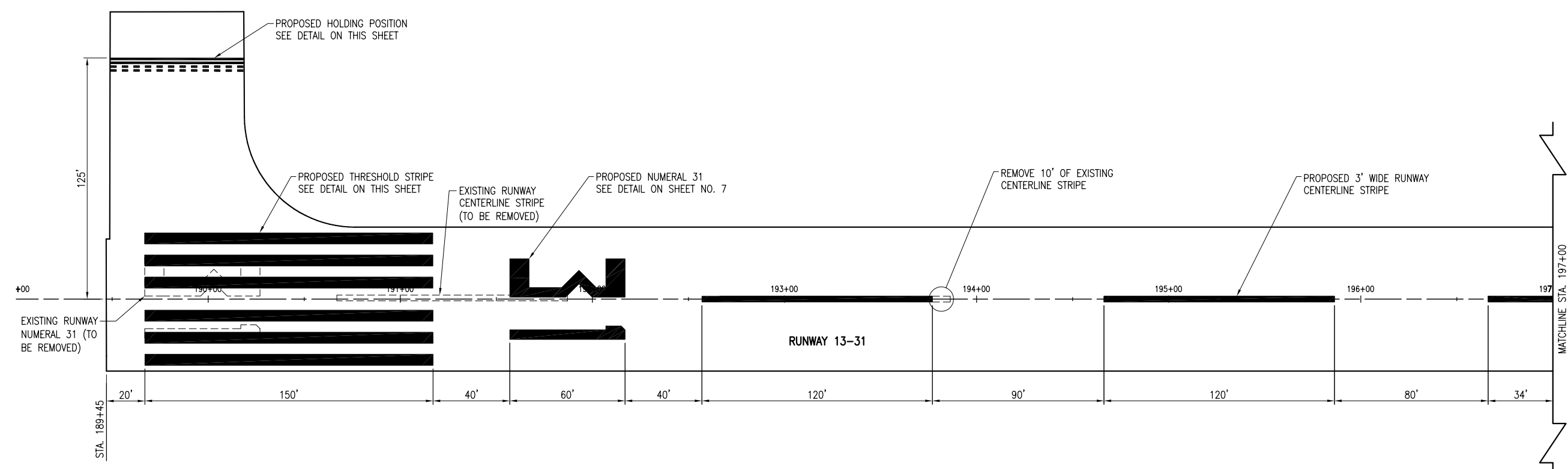
EROSION CONTROL

THIS PROJECT WILL DISTURB LESS THAN 1 ACRE OF LAND, THEREFORE NO N.P.D.E.S. PERMIT WILL BE REQUIRED.



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REVISION		TRI-TOWNSHIP AIRPORT SAVANNA, CARROLL COUNTY ILLINOIS	I.L. PROJ.: SFY-4056 A.L.P. PROJ.: 3-17-0091-B17																
DATE																			
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REPLACE MIRL ON RUNWAY 13-31		PROPOSED SAFETY PLAN																	
3		3 of 27 sheets																	



LEGEND

	EXISTING PAVEMENT
	EXISTING MARKING (TO BE REMOVED)
	PROPOSED MARKING

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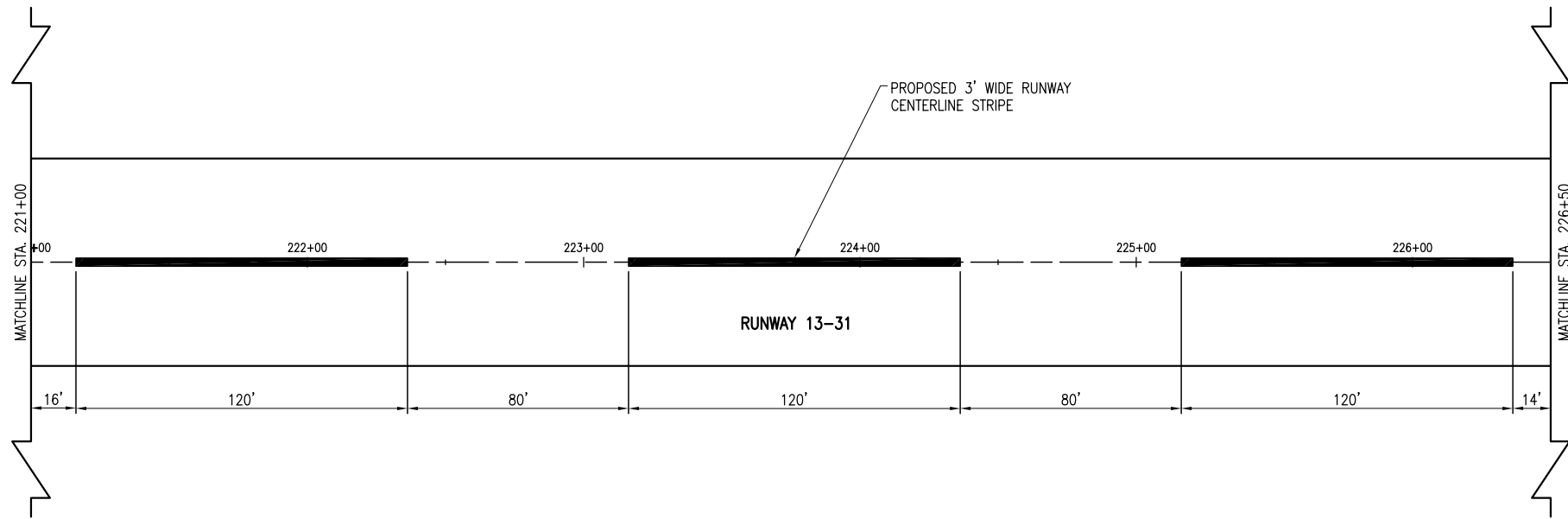
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TRI-TOWNSHIP AIRPORT
 SAVANNA, CARROLL COUNTY
 ILLINOIS
 I.L. PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17

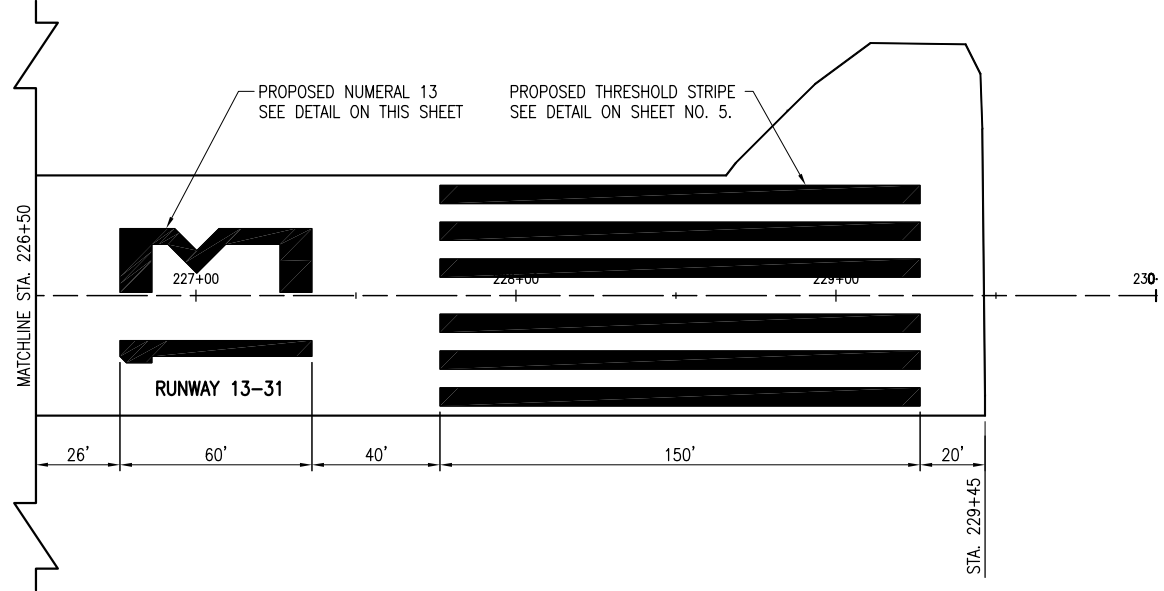
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REPLACE MRL ON
 RUNWAY 13-31
 PROPOSED MARKING PLAN
 STA. 189+00 TO STA. 205+00



MARKING QUANTITIES			
DESCRIPTION	UNIT AREA	NO. REQUIRED	TOTAL AREA
RUNWAY 13-31 CENTERLINE STRIPE	360	17	6,120
THRESHOLD STRIPE (RUNWAY END 13)	862.5	12	10,350
AIMING POINT	2,250	4	9,000
NUMERAL 1 (OF NUMERAL 13 AND 31)	320	2	640
NUMERAL 3 (OF NUMERAL 13 AND 31)	700	2	1,400
TOTAL WHITE			27,510
HOLDING POSITION (RUNWAY END 31)	210	1	210
TAXIWAY CENTERLINE	745	1	745
TOTAL YELLOW			955
HOLDING POSITION (BLACK BORDER)	350	1	350
TOTAL BLACK			350
TOTAL MARKING			28,815



620900-PAVEMENT MARKING REMOVAL NOTES

THE EXISTING PAVEMENT MARKING SHALL BE REMOVED IN ACCORDANCE WITH ITEM 620 "PAVEMENT MARKING" AS STATED ON PAGE 277 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS, ADOPTED NOVEMBER 2, 2009.

THE AREAS THAT ARE DESIGNATED FOR REMOVAL ARE SHOWN ON THE CONSTRUCTION PLANS.

ALL AREAS TO BE REMOVED ARE CALCULATED AREAS. ANY ADDITIONAL AREAS, DUE TO OVER SPRAY, SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

THE PROPOSED MARKING REMOVAL WILL BE PAID FOR UNDER ITEM:
AR620900 PAVEMENT MARKING REMOVAL ____ 1,410 S.F.

620-PAVEMENT MARKING-WATERBORNE NOTES

THE PAVEMENT MARKING-WATERBORNE (620) SHALL BE PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. ALL MARKING WILL BE YELLOW IN COLOR WITH A 6-IN BLACK BORDER. THE PROPOSED PAVEMENT MARKING WILL BE APPLIED IN TWO APPLICATIONS.

THIS ITEM SHALL CONSIST OF TAXIWAY CENTERLINE, AND TIEDOWN MARKING IN ACCORDANCE WITH THESE SPECIFICATIONS AND AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. ALL MARKING WILL BE YELLOW IN COLOR WITH A 6-IN BLACK BORDER. THE PROPOSED PAVEMENT MARKING WILL BE APPLIED IN TWO APPLICATIONS.

ANY MATERIAL DELIVERED THAT FAILS TO MEET THE SPECIFICATIONS SHALL BE DISPOSED OF BY THE VENDOR AND IMMEDIATELY REPLACED WITH ACCEPTABLE MATERIAL ENTIRELY AT THE VENDOR'S EXPENSE, INCLUDING HANDLING AND TRANSPORTATION CHARGES.

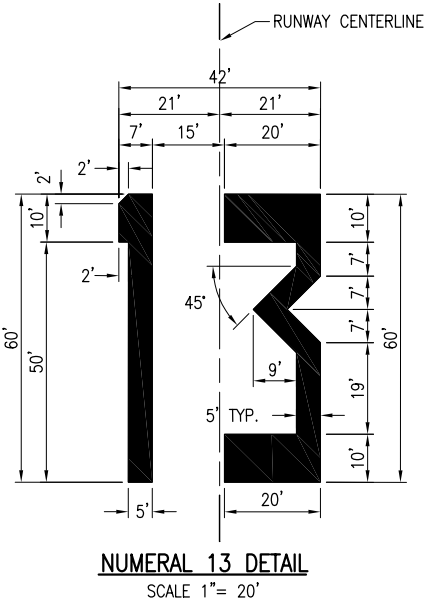
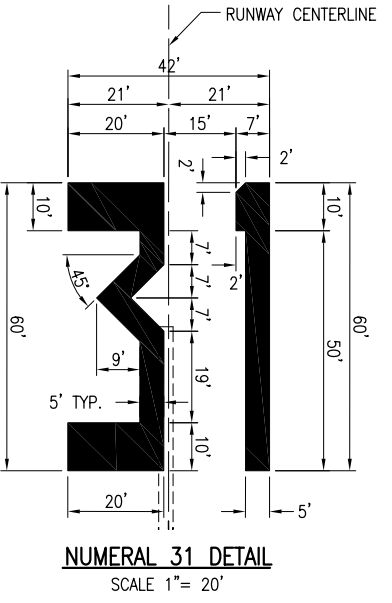
ALL CURING COMPOUND WILL BE CLEANED FROM CONCRETE PAVEMENT PRIOR TO APPLYING PAINT. NO EXCEPTIONS.

ALL PROPOSED MARKING WILL BE COMPLETED IN ACCORDANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION PLANS.

GLASS BEADS SHALL BE REQUIRED ONLY ON THE SECOND APPLICATION OF YELLOW MARKING.

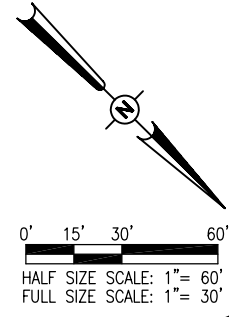
CUT-OFF SHEETS WILL BE REQUIRED TO INSURE STRAIGHT EDGES.

THE PROPOSED MARKING WILL BE PAID FOR UNDER ITEM:
AR620520 PAVEMENT MARKING-WATERBORNE ____ PER S.F.
AR620525 PAVEMENT MARKING-BLACK BORDER ____ PER S.F.



LEGEND

	EXISTING PAVEMENT
	PROPOSED MARKING



REVISION	DATE

TRI-TOWNSHIP AIRPORT
SAVANNA, CARROLL COUNTY
ILLINOIS

IL PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17

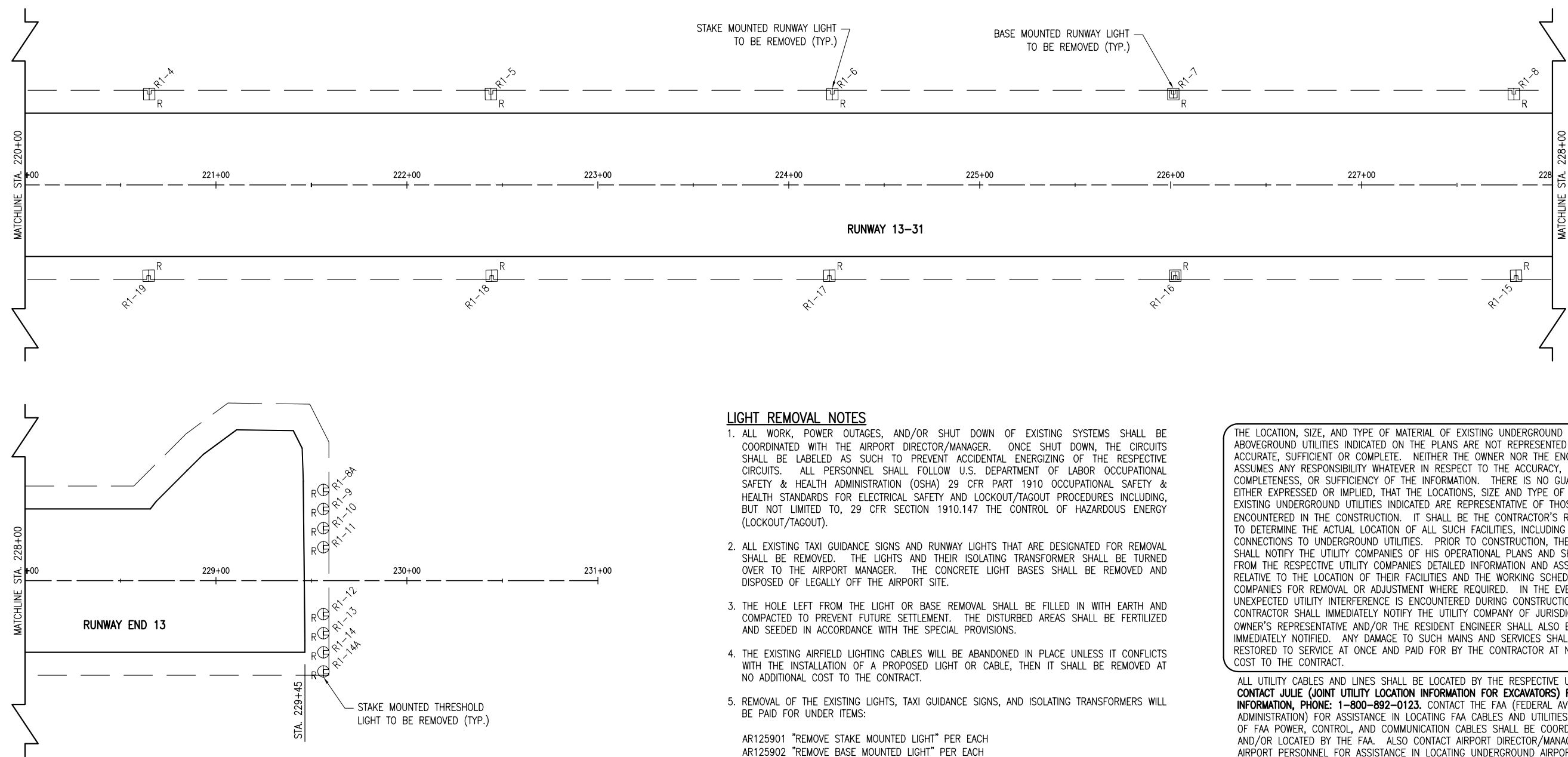
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REPLACE MRL ON
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PROPOSED MARKING PLAN
STA. 221+00 TO STA. 230+00

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LIGHT REMOVAL NOTES

1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT DIRECTOR/MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
2. ALL EXISTING TAXI GUIDANCE SIGNS AND RUNWAY LIGHTS THAT ARE DESIGNATED FOR REMOVAL SHALL BE REMOVED. THE LIGHTS AND THEIR ISOLATING TRANSFORMER SHALL BE TURNED OVER TO THE AIRPORT MANAGER. THE CONCRETE LIGHT BASES SHALL BE REMOVED AND DISPOSED OF LEGALLY OFF THE AIRPORT SITE.
3. THE HOLE LEFT FROM THE LIGHT OR BASE REMOVAL SHALL BE FILLED IN WITH EARTH AND COMPACTED TO PREVENT FUTURE SETTLEMENT. THE DISTURBED AREAS SHALL BE FERTILIZED AND SEEDED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
4. THE EXISTING AIRFIELD LIGHTING CABLES WILL BE ABANDONED IN PLACE UNLESS IT CONFLICTS WITH THE INSTALLATION OF A PROPOSED LIGHT OR CABLE, THEN IT SHALL BE REMOVED AT NO ADDITIONAL COST TO THE CONTRACT.
5. REMOVAL OF THE EXISTING LIGHTS, TAXI GUIDANCE SIGNS, AND ISOLATING TRANSFORMERS WILL BE PAID FOR UNDER ITEMS:

 AR125901 "REMOVE STAKE MOUNTED LIGHT" PER EACH
 AR125902 "REMOVE BASE MOUNTED LIGHT" PER EACH
 AR125904 "REMOVE TAXI GUIDANCE SIGN" PER EACH

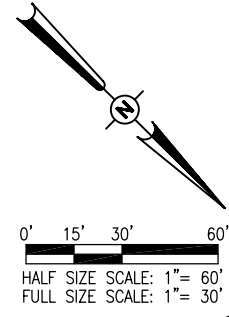
 THE EXISTING LIGHTS TO BE REMOVED ARE IN THE SAME APPROXIMATE LOCATION AS THE PROPOSED RUNWAY LIGHTS. THERE ARE 12 BASE MOUNTED AND 44 STAKE MOUNTED LIGHTS TO BE REMOVED AND 1 TAXI GUIDANCE SIGN.
6. THE RUNWAY WILL BE CLOSED DURING THE CONSTRUCTION DAY AND OPENED AT THE END OF DAILY CONSTRUCTION. ALL OPEN HOLES AND TRENCHES WILL BE FILLED AT THE END OF THE CONSTRUCTION DAY BEFORE THE RUNWAY IS RE-OPENED. THE EXISTING LIGHTS WILL BE REMOVED AS NEW CABLE AND LIGHTS ARE INSTALLED. AT THE END OF THE CONSTRUCTION DAY THE NEW LIGHTS AND CABLE WILL BE CONNECTED TO THE REMAINING EXISTING LIGHTING CIRCUIT IN ORDER THAT THE LIGHTING CIRCUIT REMAIN OPERATIONAL EACH NIGHT OR DURING NON-CONSTRUCTION PERIODS. THE CONTRACTOR WILL FURNISH JUMPER CABLES OR ADDITIONAL CONNECTOR KITS AS REQUIRED TO PLACE THE LIGHTING CIRCUIT BACK INTO OPERATION. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THIS WORK.
7. ALL ABOVE GROUND JUMPERS SHALL BE IN A DUCT WITH ALL CONNECTIONS SEALED. THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA AC 150/5370-2E, PART 3-6, C.
8. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

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

LEGEND

- EXISTING PAVEMENT
- EXISTING RUNWAY LTG ELECTRICAL CABLES (TO BE ABANDONED)
- EXISTING STAKE MOUNTED RUNWAY LIGHT (TO BE REMOVED)
- EXISTING BASE MOUNTED RUNWAY LIGHT (TO BE REMOVED)
- EXISTING STAKE MOUNTED RUNWAY THRESHOLD LIGHT (TO BE REMOVED)



REVISION	DATE

TRI-TOWNSHIP AIRPORT
SAVANNA, CARROLL COUNTY
ILLINOIS

IL. PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17

Hanson Proj. No. 10A00950_0800	FILENAME R-141ELE.DWG	NOT TO SCALE	DATE 01/13/11
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DRAWN	MAW	11/17/10	
REVIEWED	CAH	12/01/10	

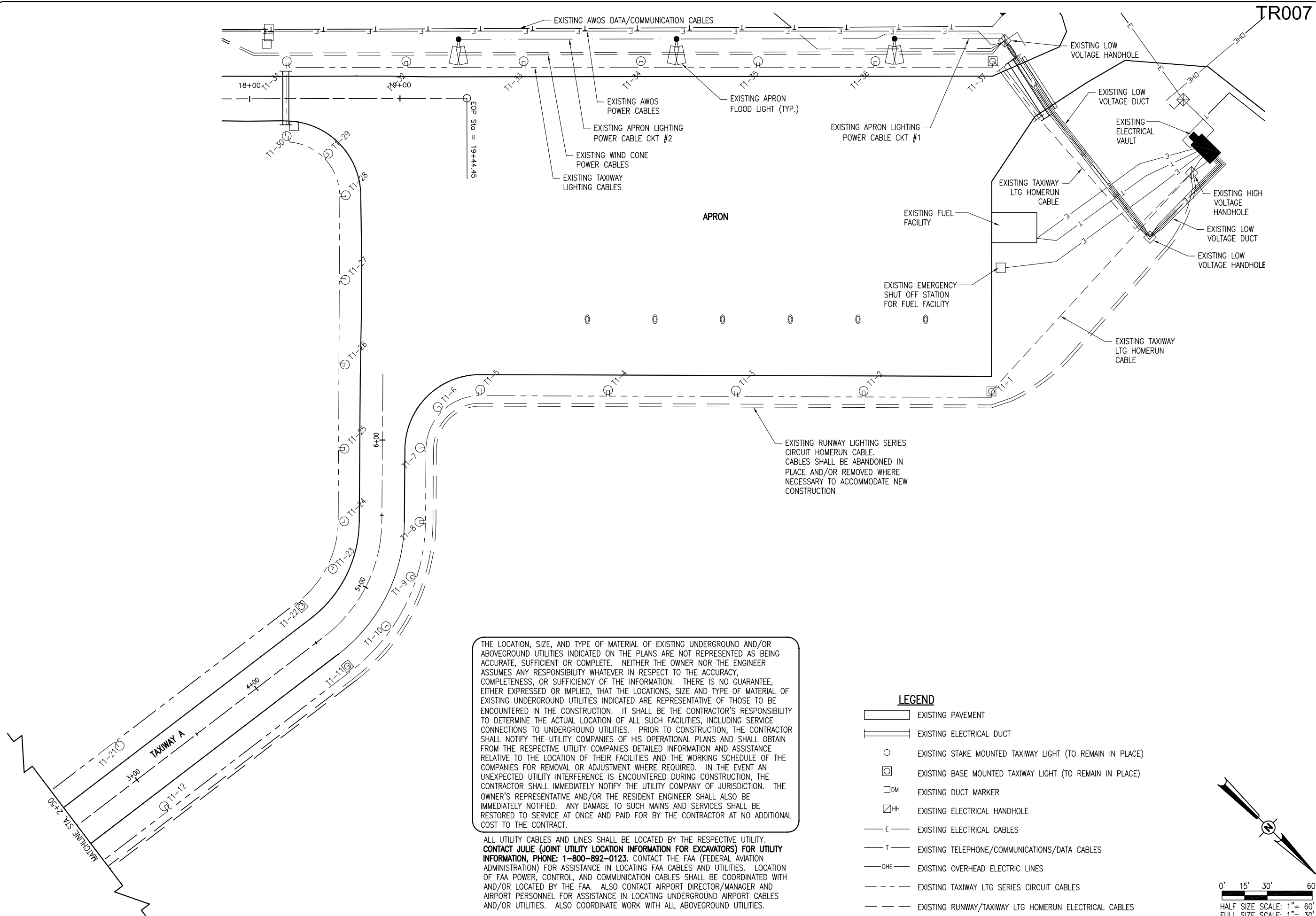
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REPLACE MRL ON
RUNWAY 13-31

EXISTING LIGHTING PLAN
STA. 220+00 TO STA. 230+00

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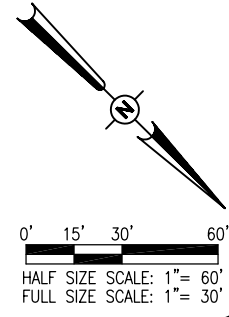
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- LEGEND**
- EXISTING PAVEMENT
 - EXISTING ELECTRICAL DUCT
 - EXISTING STAKE MOUNTED TAXIWAY LIGHT (TO REMAIN IN PLACE)
 - EXISTING BASE MOUNTED TAXIWAY LIGHT (TO REMAIN IN PLACE)
 - EXISTING DUCT MARKER
 - EXISTING ELECTRICAL HANDHOLE
 - EXISTING ELECTRICAL CABLES
 - EXISTING TELEPHONE/COMMUNICATIONS/DATA CABLES
 - EXISTING OVERHEAD ELECTRIC LINES
 - EXISTING TAXIWAY LTG SERIES CIRCUIT CABLES
 - EXISTING RUNWAY/TAXIWAY LTG HOMERUN ELECTRICAL CABLES



REVISION	DATE

TRI-TOWNSHIP AIRPORT
 SAVANNA, CARROLL COUNTY
 ILLINOIS

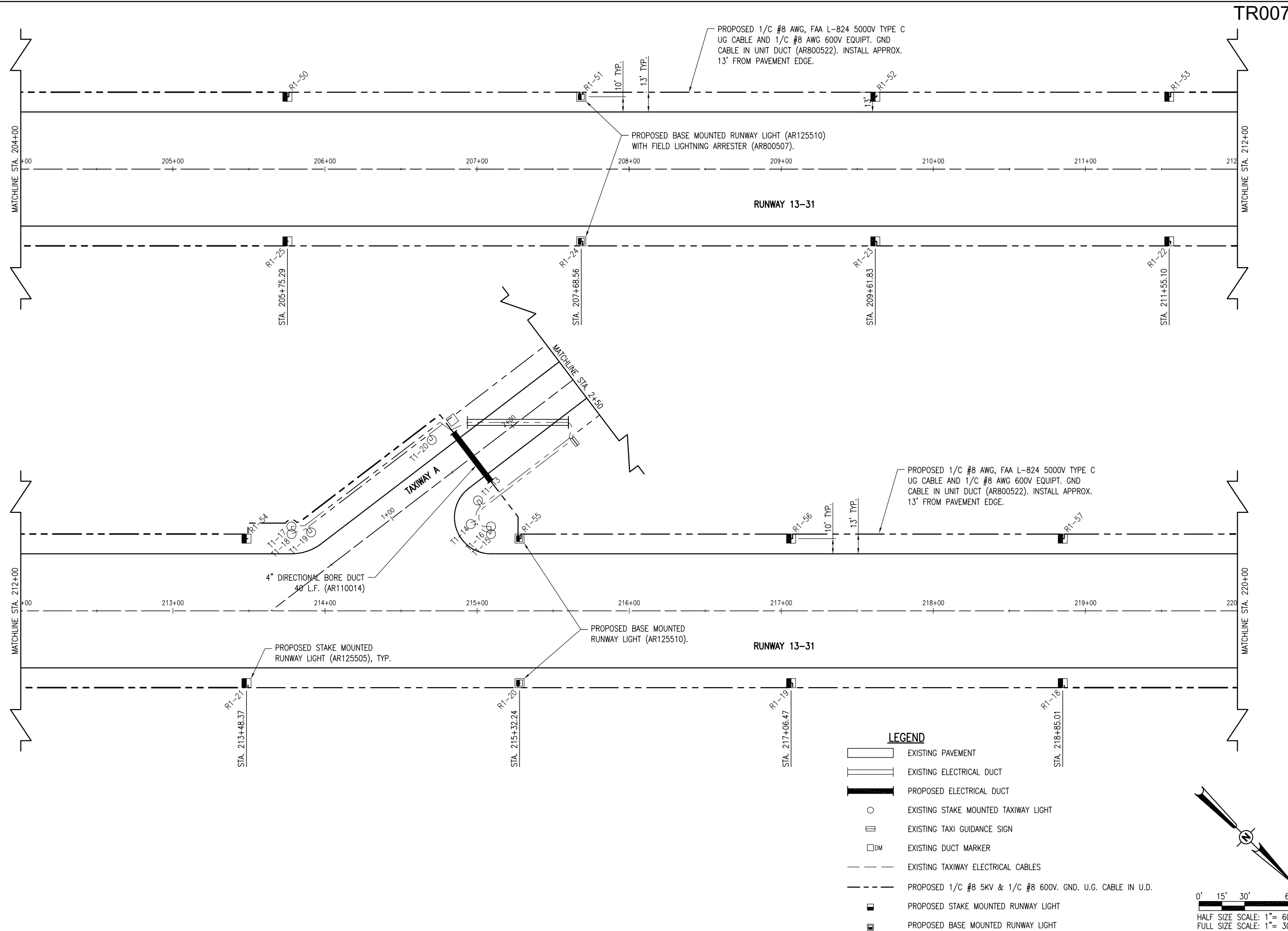
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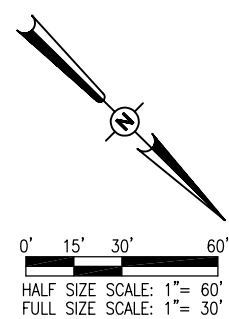
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 RUNWAY 13-31

EXISTING HOMERUN PLAN



LEGEND

	EXISTING PAVEMENT
	EXISTING ELECTRICAL DUCT
	PROPOSED ELECTRICAL DUCT
	EXISTING STAKE MOUNTED TAXIWAY LIGHT
	EXISTING TAXI GUIDANCE SIGN
	EXISTING DUCT MARKER
	EXISTING TAXIWAY ELECTRICAL CABLES
	PROPOSED 1/C #8 5KV & 1/C #8 600V. GND. U.G. CABLE IN U.D.
	PROPOSED STAKE MOUNTED RUNWAY LIGHT
	PROPOSED BASE MOUNTED RUNWAY LIGHT



DATE	REVISION

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TRI-TOWNSHIP AIRPORT
 SAVANNA, CARROLL COUNTY
 ILLINOIS

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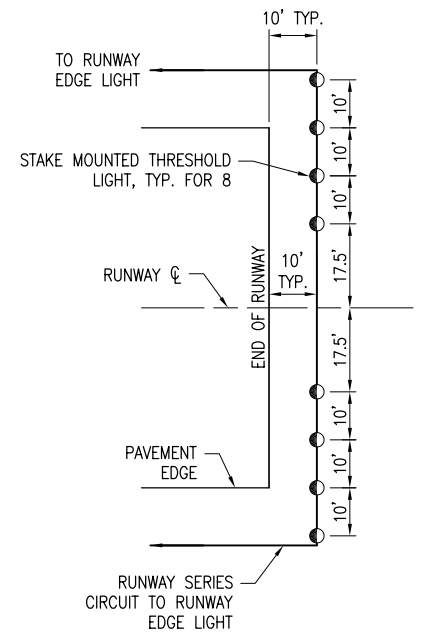
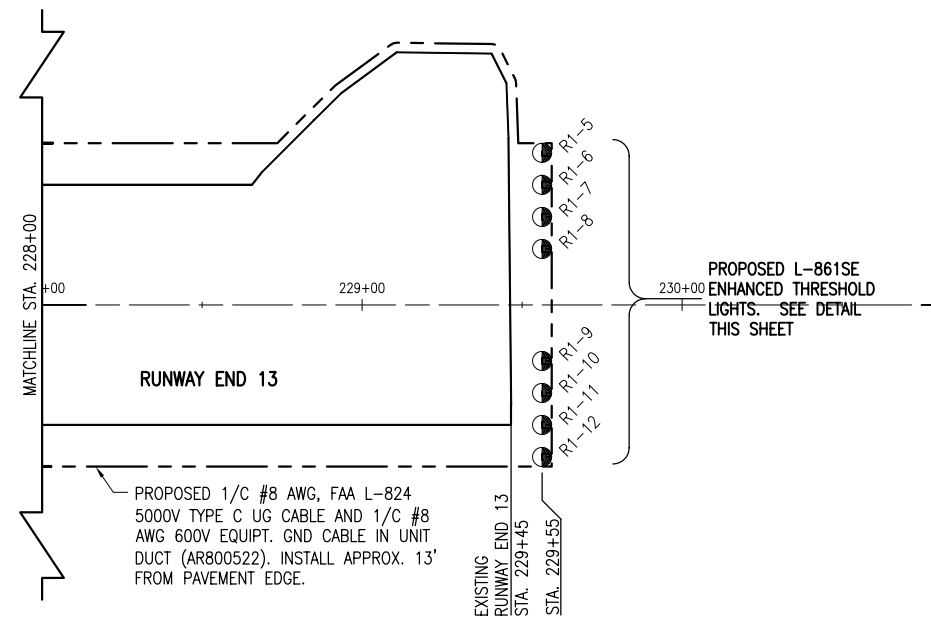
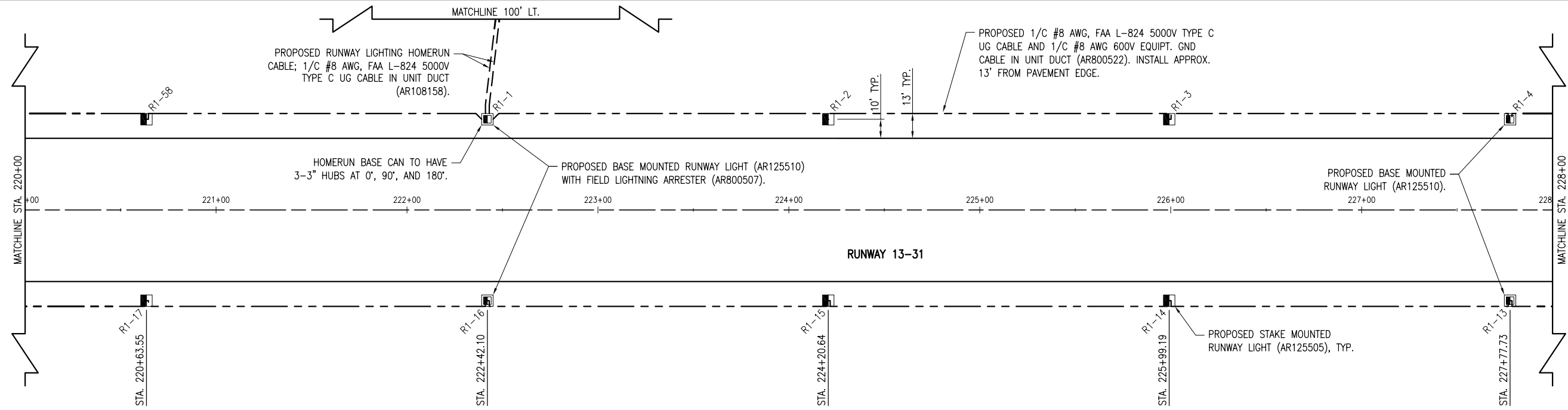
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REPLACE MRL ON
 RUNWAY 13-31

PROPOSED LIGHTING PLAN
 STA. 204+00 TO STA. 220+00

13
 13 of 27 sheets



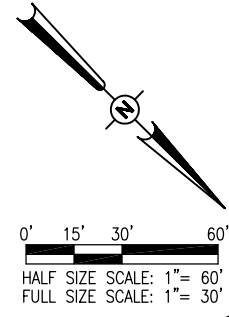
LIGHT LENS SCHEDULE		
LIGHT NUMBERS	LENS	ORIENTATION
R1-1 TO R1-4	HALF AMBER/HALF CLEAR-WHITE	AMBER SIDE FACING SOUTH
R1-5 TO R1-12	HALF RED/HALF GREEN	RED SIDE FACING SOUTH (TOWARD THRESHOLD)
R1-13 TO R1-23	HALF AMBER/HALF CLEAR-WHITE	AMBER SIDE FACING SOUTH
R1-24 TO R1-33	HALF AMBER/HALF CLEAR-WHITE	AMBER SIDE FACING NORTH
R1-34 TO R1-41	HALF RED/HALF GREEN	RED SIDE FACING NORTH (TOWARD THRESHOLD)
R1-42 TO R1-51	HALF AMBER/HALF CLEAR-WHITE	AMBER SIDE FACING NORTH
R1-52 TO R1-58	HALF AMBER/HALF CLEAR-WHITE	AMBER SIDE FACING SOUTH

LIGHTING NOTES

1. THE PROPOSED RUNWAY & THRESHOLD LIGHTS SHALL BE PLACED 10' FROM THE PAVEMENT EDGE UNLESS SHOWN OTHERWISE.
2. THE PROPOSED RUNWAY & THRESHOLD LIGHTS SHALL BE CONSTRUCTED AT THE LOCATIONS SHOWN ON THE PROPOSED LIGHTING PLAN AND IN ACCORDANCE WITH THE DETAILS AND THE SPECIFICATIONS.
3. PROPOSED CABLES SHALL BE LOCATED APPROXIMATELY 13' FROM THE PAVEMENT EDGE UNLESS SHOWN OTHERWISE. CABLES SHALL BE INSTALLED A MINIMUM OF 18" BELOW FINISHED GRADE.
4. THE PROPOSED RUNWAY LIGHTING CABLE INSTALLED BETWEEN RUNWAY LIGHT FIXTURES SHALL BE 1/C #8 AWG, FAA L-824 5000V, TYPE C UNDERGROUND CABLE & 1/C #8 AWG 600V, TYPE XLP-USE EQUIPMENT GROUND CABLE WITH GREEN COLORED INSULATION IN UNIT DUCT. THE PROPOSED RUNWAY LIGHTING HOMERUN CABLE SHALL BE 1/C #8 AWG FAA L-824 5000V, TYPE C UNDERGROUND CABLE IN UNIT DUCT.
5. IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE, THE PROPOSED CABLE SHALL BE TRENCHED INTO PLACE. ALL OTHER LOCATIONS THE PROPOSED CABLE MAY BE EITHER TRENCHED OR PLOWED INTO PLACE. TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED CABLES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
6. THE PROPOSED LIGHTS SHALL BE FITTED WITH LENSES IN ACCORDANCE WITH THE SPECIFICATIONS AND THE LIGHT LENS SCHEDULE ON THIS SHEET.
7. ALL PROPOSED RUNWAY & THRESHOLD LIGHTS SHALL BE TAGGED IN ACCORDANCE WITH THE LIGHT NUMBERS SHOWN ON THE PLANS.
8. FURNISH & INSTALL A FIELD LIGHTNING ARRESTOR WITH SURGE CURRENT RATING OF 25,000 AMPS, SUITABLE FOR USE ON 6.6 AMP SERIES CKT AND SUITABLE FOR WET LOCATIONS, WITH BASE MOUNTED RUNWAY LIGHTS WHERE NOTED ON THE PROPOSED LIGHTING PLANS. SEE SPECIAL PROVISION SPECIFICATIONS FOR ITEM AR800507 "FIELD LIGHTNING ARRESTOR" FOR REQUIREMENTS. FIELD LIGHTNING ARRESTORS, ASSOCIATED L-823 CABLE CONNECTIONS, GROUND WIRE AND CONNECTORS WILL BE PAID FOR UNDER ITEM AR800507 "FIELD LIGHTNING ARRESTOR" PER EACH.
9. THRESHOLD LIGHTS SHALL BE TYPE L-861SE FIXTURES TO COMPLY WITH FAA AC 150/5340-30E DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, TABLE 2-2 EDGE LIGHTING SYSTEM DESIGN GUIDE.
10. DURING CONSTRUCTION, THE EXISTING RUNWAY AND TAXIWAY LIGHTING CIRCUITS MAY BE INOPERABLE DURING THE DAY. HOWEVER, THE CIRCUIT SHALL BE FUNCTIONING AT THE END OF THE CONSTRUCTION DAY. THE CONTRACTOR WILL DO WHATEVER IS NECESSARY TO HAVE THE CIRCUITS ACTIVE AT THE END OF THE CONSTRUCTION DAY. THE WORK WILL BE CONSIDERED AS PART OF THE LIGHTING INSTALLATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
11. HIGH VOLTAGE CIRCUITS & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT OR HANDHOLE.

LEGEND

- EXISTING PAVEMENT
- PROPOSED 1/C #8 5KV & 1/C #8 600V. GND. U.G. CABLE IN U.D.
- PROPOSED 1/C #8 5KV U.G. CABLE IN U.D.
- PROPOSED STAKE MOUNTED RUNWAY LIGHT
- PROPOSED BASE MOUNTED RUNWAY LIGHT
- PROPOSED STAKE MOUNTED RUNWAY THRESHOLD LIGHT



REVISION	DATE

TRI-TOWNSHIP AIRPORT
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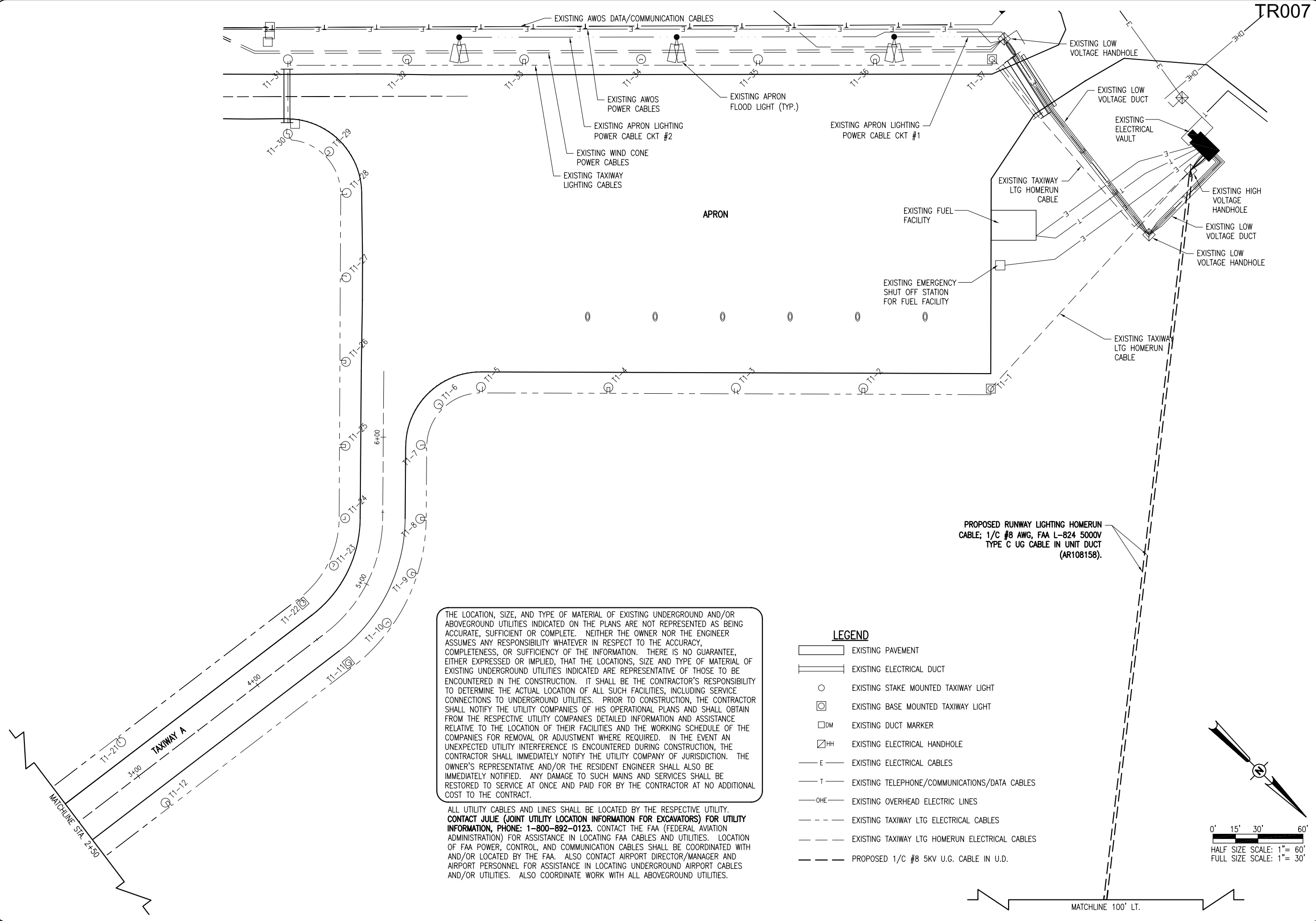
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REPLACE MIRL ON
RUNWAY 13-31

PROPOSED LIGHTING PLAN
STA. 220+00 TO STA. 230+00

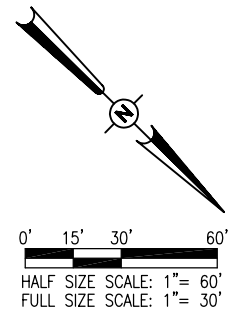
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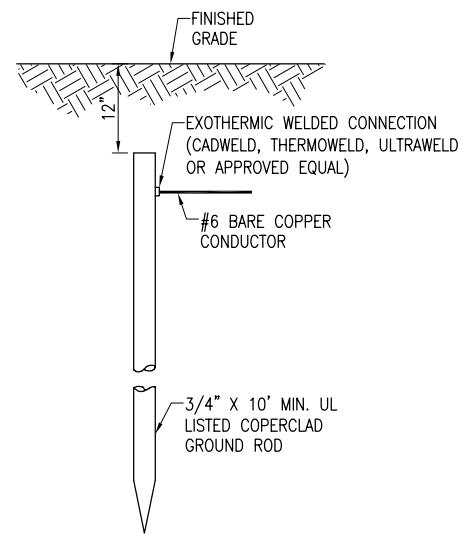
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- LEGEND**
- EXISTING PAVEMENT
 - EXISTING ELECTRICAL DUCT
 - EXISTING STAKE MOUNTED TAXIWAY LIGHT
 - EXISTING BASE MOUNTED TAXIWAY LIGHT
 - EXISTING DUCT MARKER
 - EXISTING ELECTRICAL HANDHOLE
 - EXISTING ELECTRICAL CABLES
 - EXISTING TELEPHONE/COMMUNICATIONS/DATA CABLES
 - EXISTING OVERHEAD ELECTRIC LINES
 - EXISTING TAXIWAY LTG ELECTRICAL CABLES
 - EXISTING TAXIWAY LTG HOMERUN ELECTRICAL CABLES
 - PROPOSED 1/C #8 5KV U.G. CABLE IN U.D.

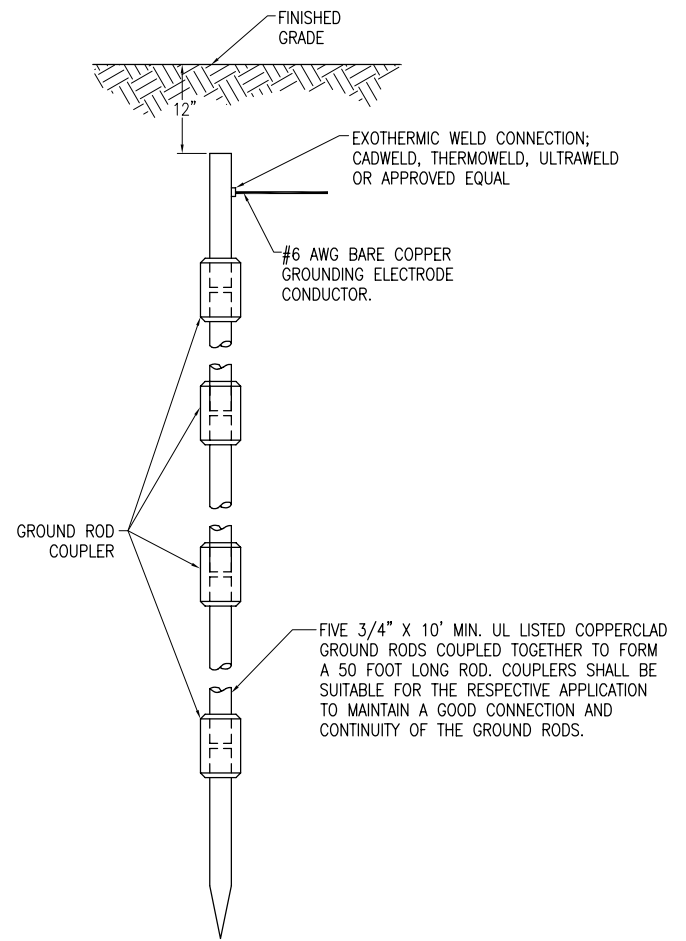


PROPOSED RUNWAY LIGHTING HOMERUN CABLE; 1/C #8 AWG, FAA L-824 5000V TYPE C UG CABLE IN UNIT DUCT (AR108158).

REVISION		TRI-TOWNSHIP AIRPORT SAVANNA, CARROLL COUNTY ILLINOIS	I.L. PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17								
DATE											
Hanson Proj. No. 10A0095D_0800 Filename R-142ELE.DWG Scale 1" = 30' Date 01/13/11		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>LAYOUT</td> <td>KNL</td> <td>11/08/10</td> </tr> <tr> <td>DRAWN</td> <td>MAW</td> <td>11/17/10</td> </tr> <tr> <td>REVIEWED</td> <td>CAH</td> <td>12/02/10</td> </tr> </table>	LAYOUT	KNL	11/08/10	DRAWN	MAW	11/17/10	REVIEWED	CAH	12/02/10
LAYOUT	KNL	11/08/10									
DRAWN	MAW	11/17/10									
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<p>© Copyright Hanson Professional Services Inc. 2011 Hanson Professional Services Inc. 1525 South Sixth Street Springfield, Illinois 62703-2886 Ph: (217) 788-2450 Fax: (217) 788-2503 www.hanson-inc.com Offices Nationwide</p>		REPLACE MIRL ON RUNWAY 13-31	PROPOSED HOMERUN PLAN								
<p style="font-size: 24pt; font-weight: bold;">15</p> 15 of 27 sheets											



10 FT. GROUND ROD
(NOT TO SCALE)



50 FT. GROUND ROD

NOTES FOR GROUND RODS

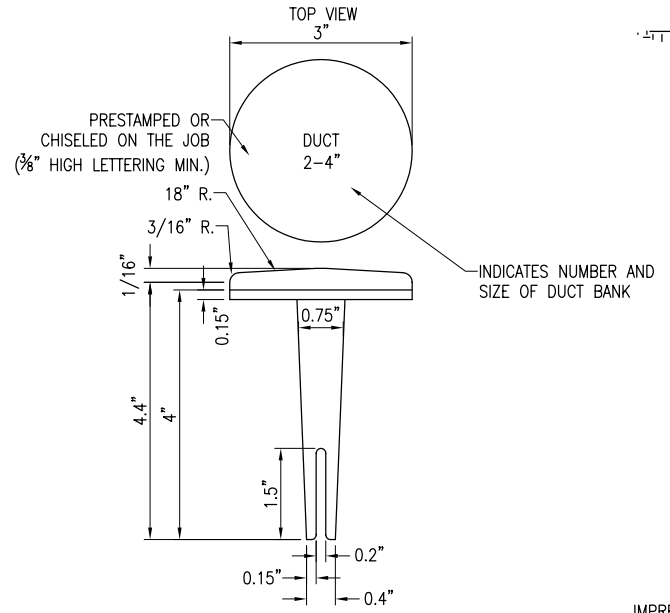
1. TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
2. THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
3. COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
4. GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.

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 OR 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 AS DESCRIBED IN NOTE 4.
3. CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE RUNS.
4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.

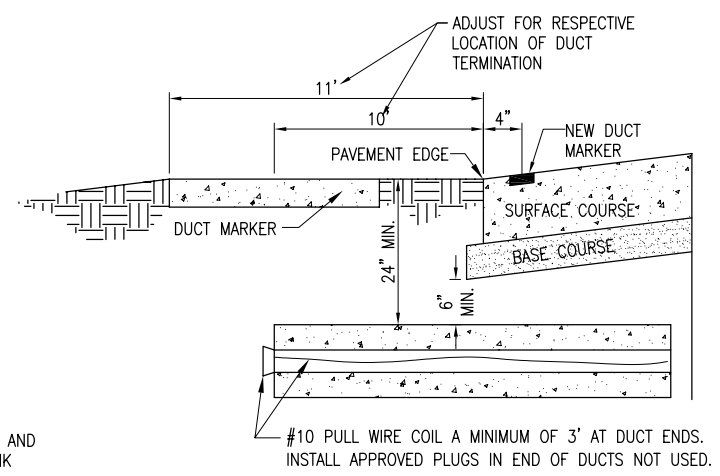
THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND 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 ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.

CALL J.U.L.I.E. FOR UTILITY INFORMATION AT 1-800-892-0123.

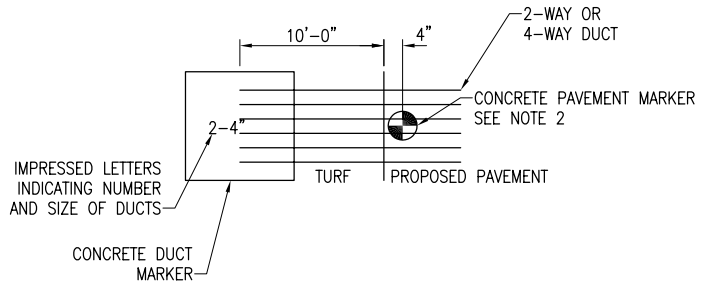


BITUMINOUS PAVEMENT DUCT MARKERS
(NOT TO SCALE)

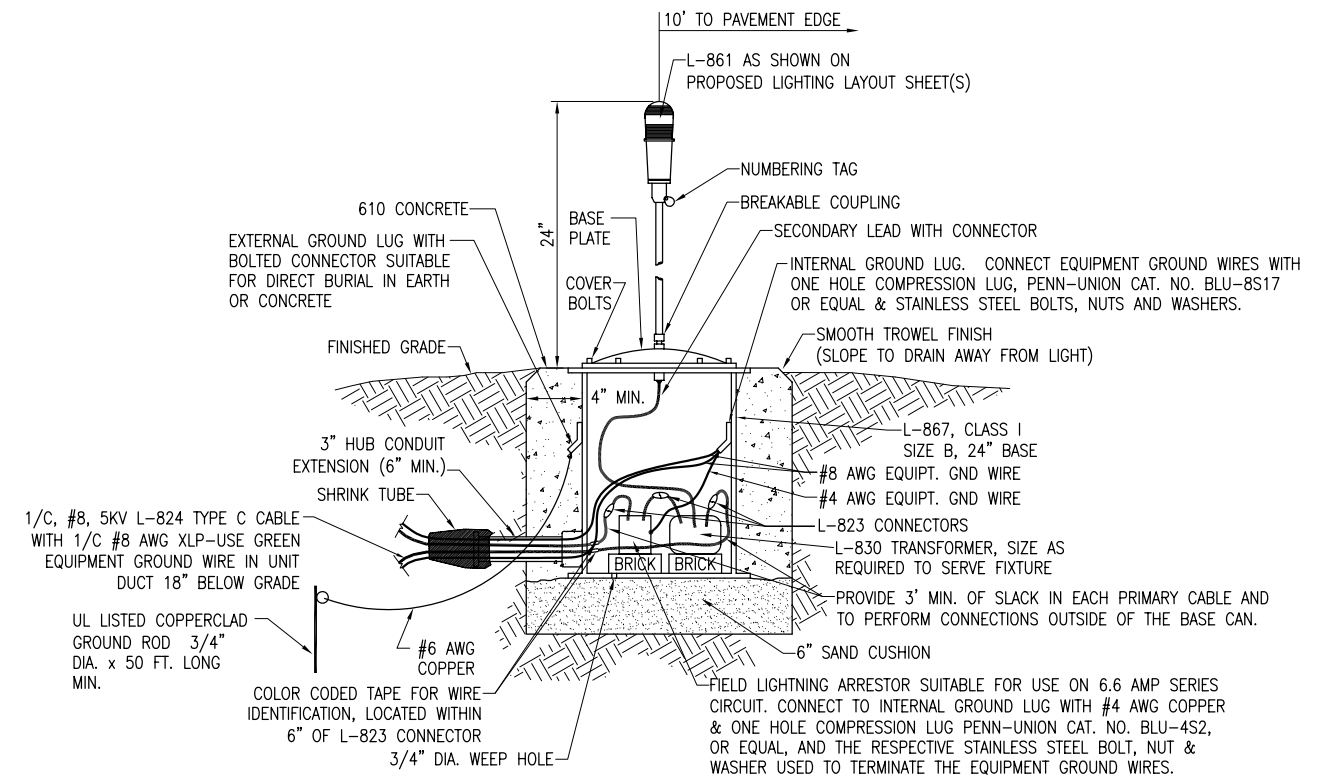
NOTE:
TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE.



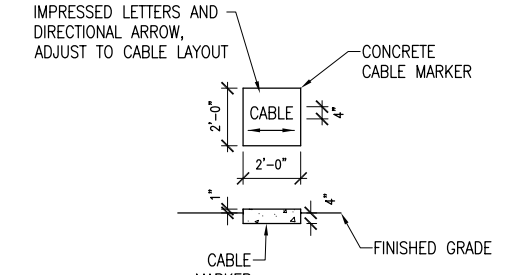
UNDERGROUND ELECTRICAL DUCT
(NOT TO SCALE)



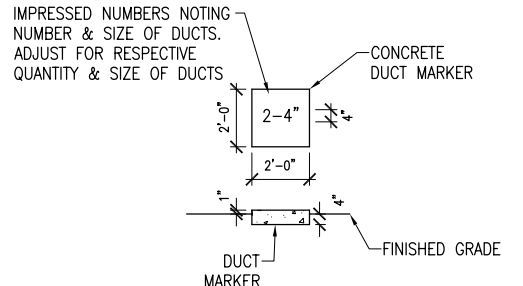
DUCT MARKER DETAIL
(NOT TO SCALE)



MEDIUM INTENSITY LIGHT - BASE MOUNTED WITH FIELD LIGHTNING ARRESTOR
(NOT TO SCALE)



TURF CABLE MARKERS
(NOT TO SCALE)



TURF DUCT MARKERS
(NOT TO SCALE)

REVISION				
DATE				
TRI-TOWNSHIP AIRPORT SAVANNA, CARROLL COUNTY ILLINOIS				
I.L. PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17				
Hanson Proj. No.	10A0095D_0800	LAYOUT	KNL	11/08/10
Filename	E-502.DWG	DRAWN	MAW	11/17/10
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Date	01/13/11			
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REPLACE MRL ON RUNWAY 13-31		PROPOSED ELECTRICAL DETAILS SHEET 2		
17 17 of 27 sheets				

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GENERAL NOTES


1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 – NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER’S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER’S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
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.
5. 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, ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE 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 ENGINEER 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 FAA FIELD OFFICE (ADO/AFO). THE CONTRACTOR SHALL NOT ACCEPT ANY VERBAL INSTRUCTIONS FROM THE RESIDENT ENGINEER 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. 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.
 - I. SAFETY INSTRUCTIONS.

POWER AND CONTROL NOTES

1. PROVIDE LEGEND PLATES FOR ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, CIRCUIT VOLTAGE AND PHASE. WHERE THE EQUIPMENT CONTAINS FUSES, ALSO IDENTIFY THE FUSE OR FUSE LINK AMPERE RATING. WHERE THE EQUIPMENT DOES NOT HAVE SUFFICIENT AREA TO INSTALL LEGEND PLATES, THE LEGEND PLATES SHALL BE INSTALLED ON THE WALL NEXT TO THE UNIT. LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4” HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.
2. COLOR CODE ALL PHASE WIRING BY THE USE OF COLORED WIRE INSULATION AND/OR COLORED TAPE. WHERE TAPE IS USED, THE WIRE INSULATION SHALL BE BLACK. BLACK AND RED SHALL BE USED FOR SINGLE-PHASE, THREE WIRE SYSTEMS AND BLACK, RED AND BLUE SHALL BE USED FOR THREE-PHASE 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).
3. 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.
4. IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL, ETC.
5. LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE INSTALLED IN SEPARATE WIREWAYS.
6. 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.
8. 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.
9. EQUIPMENT CABINETS SHALL NOT BE USED AS PULL/JUNCTION BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT SHALL BE BROUGHT INTO THESE ENCLOSURES.
10. 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.
13. 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 THAT IS NOT UL LISTED.
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.
19. 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.
22. UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG. COPPER MINIMUM.
23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:
 - A. FOR INTERIOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 12 (DUST TIGHT) ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. FOR EXTERIOR/OUTDOOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 4X STAINLESS STEEL ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. ALL CONDUIT ENTRIES INTO NEMA 4, 4X ENCLOSURES SHALL HAVE NEMA 4 HUBS LISTED SUITABLE FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE.
 - B. THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS, TERMINAL BLOCKS AND INCOMING AND INTERNAL WIRING.
 - C. ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED-EYE TERMINATIONS, OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.
 - D. WHEN THE ENCLOSURE COVER IS OPENED, ALL CIRCUIT COMPONENTS, WIRING AND TERMINALS SHALL BE EXPOSED AND ACCESSIBLE WITHOUT REMOVAL OF ANY PANELS, COVERS, ETC., EXCEPT THOSE COVERING HIGH VOLTAGE COMPONENTS.
 - E. ACCESS TO, OR REMOVAL OF A CIRCUIT COMPONENT OR TERMINAL BLOCK WILL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR TERMINAL BLOCK.
 - F. EACH CIRCUIT COMPONENT SHALL BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWINGS AND ITS FUNCTION.
 - G. A COMPLETE WIRING DIAGRAM SHALL BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE.
 - H. THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL.
 - 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, CUTOFF, PANELBOARD, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 “FLASH PROTECTION”.

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REPLACE MIRL ON RUNWAY 13-31			PROPOSED ELECTRICAL NOTES SHEET 1		
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AIRFIELD LIGHTING NOTES

1. UNLESS OTHERWISE NOTED, ALL UNDERGROUND AIRFIELD LIGHTING SERIES CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE FAA APPROVED 5000 VOLT L-824 TYPE. ALL UNDERGROUND FIELD POWER LOW VOLTAGE (600 VOLT & BELOW) CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE UL LISTED 600 VOLT, TYPE XLP-USE-2 COPPER CONDUCTORS. CONDUCTOR SIZES SHALL BE AS SPECIFIED, HEREIN.
2. NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND TRANSFORMERS SHALL BE BROUGHT ABOVE GROUND AT EDGE LIGHTS, SIGNS, REIL, PAPI, ETC.
3. THERE SHALL BE NO EXPOSED POWER/CONTROL CABLES BETWEEN THE POINT WHERE THEY LEAVE THE UNDERGROUND (DEB OR L-867 BASES) AND WHERE THEY ENTER THE EQUIPMENT (SUCH AS TAXIWAY SIGNS, PAPI, REIL, ETC.) ENCLOSURES. THESE CABLES SHALL BE ENCLOSED IN RIGID CONDUIT OR IN FLEXIBLE, WATERTIGHT CONDUIT WITH BREAKABLE COUPLING(S) AT THE GRADE OR THE HOUSING COVER, AS SHOWN IN APPLICABLE DETAILS.
4. THE JOINTS OF THE L-823 PRIMARY CONNECTORS SHALL BE WRAPPED WITH AT LEAST ONE LAYER OF RUBBER OR SYNTHETIC RUBBER TAPE AND ONE LAYER OF PLASTIC TAPE, ONE-HALF LAPPED, EXTENDING AT LEAST 1-1/2 INCHES ON EACH SIDE OF THE JOINT, AS SHOWN ON SHEET NO. 16.
5. 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 SHEET NO. 16. HEAT SHRINKABLE TUBING SHALL EXTEND FROM THE CABLE JOINT TO OVER THE COMPLETED CONNECTION IN ACCORDANCE WITH RECOMMENDATION NOTED IN FAA AC 150/5340-30E, PART 12.4 "CABLE, CABLE CONNECTORS, PLUGS AND RECEPTACLES, (5) PRIMARY CABLE CONNECTIONS.
6. L-823 TYPE II, TWO-CONDUCTOR SECONDARY CONNECTORS SHALL BE CLASS 'A' (FACTORY MOLDED).
7. 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.
8. ELECTRICAL INSULATING GREASE SHALL BE APPLIED WITHIN THE L-823, SECONDARY, TWO CONDUCTOR CONNECTORS TO PREVENT WATER ENTRANCE. THESE CONNECTORS SHALL NOT BE TAPED.
9. DEB ISOLATION TRANSFORMERS SHALL BE BURIED AT A DEPTH OF TEN (10") INCHES ON A LINE CROSSING THE LIGHT AND PERPENDICULAR TO THE RUNWAY/TAXIWAY CENTERLINE AT A LOCATION TWELVE (12") INCHES FROM THE LIGHT OPPOSITE FROM THE RUNWAY/TAXIWAY.
10. A SLACK OF THREE (3') FEET, MINIMUM, 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.
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 SEAL.
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.

GROUNDING NOTES FOR AIRFIELD LIGHTING

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.
20. 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 SHEET NO. 16.
21. 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.
23. CABLE/SPLICE/DUCT MARKERS SHALL BE PRECAST CONCRETE OF THE SIZE SHOWN. LETTERS/NUMBERS/ARROWS FOR THE LEGEND TO BE IMPRESSED INTO THE TOPS OF THE MARKERS SHALL BE PRE-ASSEMBLED AND SECURED IN THE MOLD BEFORE THE CONCRETE IS POURED. LEGEND INSCRIBED BY HAND IN WET CONCRETE SHALL NOT BE ACCEPTABLE.
24. ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 FEET MAXIMUM SPACING, WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS SHALL BE INSTALLED IMMEDIATELY ABOVE THE CABLES.
25. THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823 CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE SHOWN.
26. APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS.
27. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT MARKERS.
28. WHERE A PARALLEL, CONSTANT VOLTAGE PAPI SYSTEM IS PROVIDED, THE "T" SPLICES SHALL BE OF THE CAST TYPE.
29. CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND TRANSFORMER HOUSINGS, MARKINGS, ETC. SHALL BE 3000 PSI, AIR-ENTRAINED.
30. ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES SHALL BE TAGGED. USE EMBOSSED COPPER STRIPS TO BE ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MAN/HAND HOLE-ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT.
31. THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. 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 ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. CALL J.U.L.I.E. FOR UTILITY INFORMATION AT 1-800-892-0123. ALSO CONTACT AIRPORT MANAGER AND/OR RESPECTIVE AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. CONTACT FAA FOR ASSISTANCE IN LOCATING THEIR CABLES.
32. WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.

1. 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 150/5340-30E 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. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A UL LISTED COPPER CLAD GROUND ROD. THE GROUND RODS FOR STAKE MOUNTED LIGHTS SHALL BE 3/4-INCH DIAMETER BY 10-FOOT LONG. THE GROUND RODS FOR BASE CANS SHALL BE 3/4-INCH DIAMETER BY 50-FOOT LONG (5-10 FT. GROUND RODS COUPLED TOGETHER). ALL MOUNTING STAKES AND BASE CANS ASSOCIATED WITH THE TAXIWAY LIGHTING SYSTEM SHALL BE BONDED TOGETHER WITH A #8 AWG EQUIPMENT GROUND WIRE RUN WITH THE 5000 VOLT SERIES CIRCUIT CONDUCTOR. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONNECTIONS TO 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) OR 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.
2. 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 2008 NATIONAL ELECTRICAL CODE ARTICLE 250-12.
3. PER FAA 150/5340-30E THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS. THE GROUNDING REQUIREMENTS DESCRIBED IN NOTE 1 ABOVE ARE TO COMPLY WITH THE REQUIREMENTS OF FAA AC 150/5340-30E, AND TO ACCOMMODATE THE SANDY SOIL CONDITIONS AT THE AIRPORT. CONTRACTOR SHALL PERFORM GROUND RESISTANCE TESTS AND PROVIDE TEST RESULTS TO RESIDENT ENGINEER. TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE RESIDENT ENGINEER.

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REVISION	DATE

**TRI-TOWNSHIP AIRPORT
SAVANNA, CARROLL COUNTY
ILLINOIS**

IL PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17

Hanson Proj. No. 10A0095D_0800	E-003.DWG	NOT TO SCALE	01/13/11
Filename	Scale	Date	LAYOUT
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**REPLACE MIRL ON
RUNWAY 13-31**

**PROPOSED ELECTRICAL
NOTES SHEET 2**

ELECTRICAL LEGEND – ONE-LINE DIAGRAM	
	CABLE TERMINATOR/LUG
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	FUSE
	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE
	GROUND – GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL
	INDICATING LIGHT
	MOTOR
	LOAD, MOTOR, # = HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE
	EQUIPMENT, XXX = DEVICE DESCRIPTION
	GROUND BAR, GROUND BUS, OR GROUND TERMINAL
	SOLID NEUTRAL, NEUTRAL BUS, OR NEUTRAL TERMINAL
	PANELBOARD WITH MAIN LUGS
	PANELBOARD WITH MAIN BREAKER
	FUSE PANEL WITH MAIN FUSE PULLOUT
	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE
	CONTROL STATION
	TRANSFER SWITCH
	ENGINE GENERATOR SET

ELECTRICAL LEGEND – SCHEMATIC	
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	STARTER COIL, * = STARTER NUMBER
	OVERLOAD RELAY CONTACT
	CONTROL RELAY, * = CONTROL RELAY NUMBER
	RELAY, * = RELAY NUMBER
	TOGGLE SWITCH / 2 POSITION SWITCH
	2-POSITION SELECTOR SWITCH
	3-POSITION SELECTOR SWITCH (H-O-A SHOWN)
	2 POLE DISCONNECT SWITCH
	3 POLE DISCONNECT SWITCH
	PHOTOCELL
	TERMINAL BLOCK, * = TERMINAL NUMBER
	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER
	INTERNAL PANEL WIRING
	FIELD WIRING
	FUSE
	GROUND BAR, GROUND BUS, OR GROUND TERMINAL
	SOLID NEUTRAL, NEUTRAL BUS, OR NEUTRAL TERMINAL
	GROUND, GROUND ROD, GROUND BUS
	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
	S1 CUTOUT HANDLE REMOVED
	S1 CUTOUT HANDLE INSERTED
	N.O. THERMAL SWITCH
	N.C. THERMAL SWITCH
	L-830 SERIES ISOLATION TRANSFORMER

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

ELECTRICAL ABBREVIATIONS (CONTINUED)	
PB	PULL BOX
PC	PHOTO CELL
PDB	POWER DISTRIBUTION BLOCK
PNL	PANEL
RCPT	RECEPTACLE
R	RELAY
S	STARTER
SPD	SURGE PROTECTION DEVICE
SPST	SINGLE POLE SINGLE THROW
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UL	UNDERWRITER'S LABORATORIES
V	VOLTS
W/	WITH
W/O	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
MALSRL	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

ELECTRICAL LEGEND – PLANS	
	CONDUIT (EXPOSED)
	CONDUIT OR UNIT DUCT (CONCEALED OR BURIED)
	POLE OR CONDUIT MOUNTED LIGHT FIXTURE
	WALL OR CEILING MTD. JUNCTION BOX. CONFIGURATION VARIES WITH USE
	SINGLE THROW DISCONNECT SWITCH
	SINGLE THROW, FUSIBLE DISCONNECT SWITCH
	ENCLOSED CIRCUIT BREAKER
	DOUBLE THROW SAFETY SWITCH, MANUAL TRANSFER SWITCH
	CONTROL PANEL
	TRANSFORMER
	ELECTRIC UTILITY METER
	ENCLOSURE
	CIRCUIT BREAKER PANEL-SEE SCHEDULES
	GROUND ROD
	#12 AWG THWN COPPER UNLESS NOTED OTHERWISE. LONG SLASHES INDICATE NEUTRAL. SHORT SLASHES INDICATE HOT OR SWITCHED LEG. SLASHES WITH DOT INDICATE SEPARATE GROUND WIRE.
	HOMERUN TO PANEL PNL A INDICATES PANEL 1,3,5 INDICATES CIRCUIT NUMBERS
	PHOTO-ELECTRIC CELL

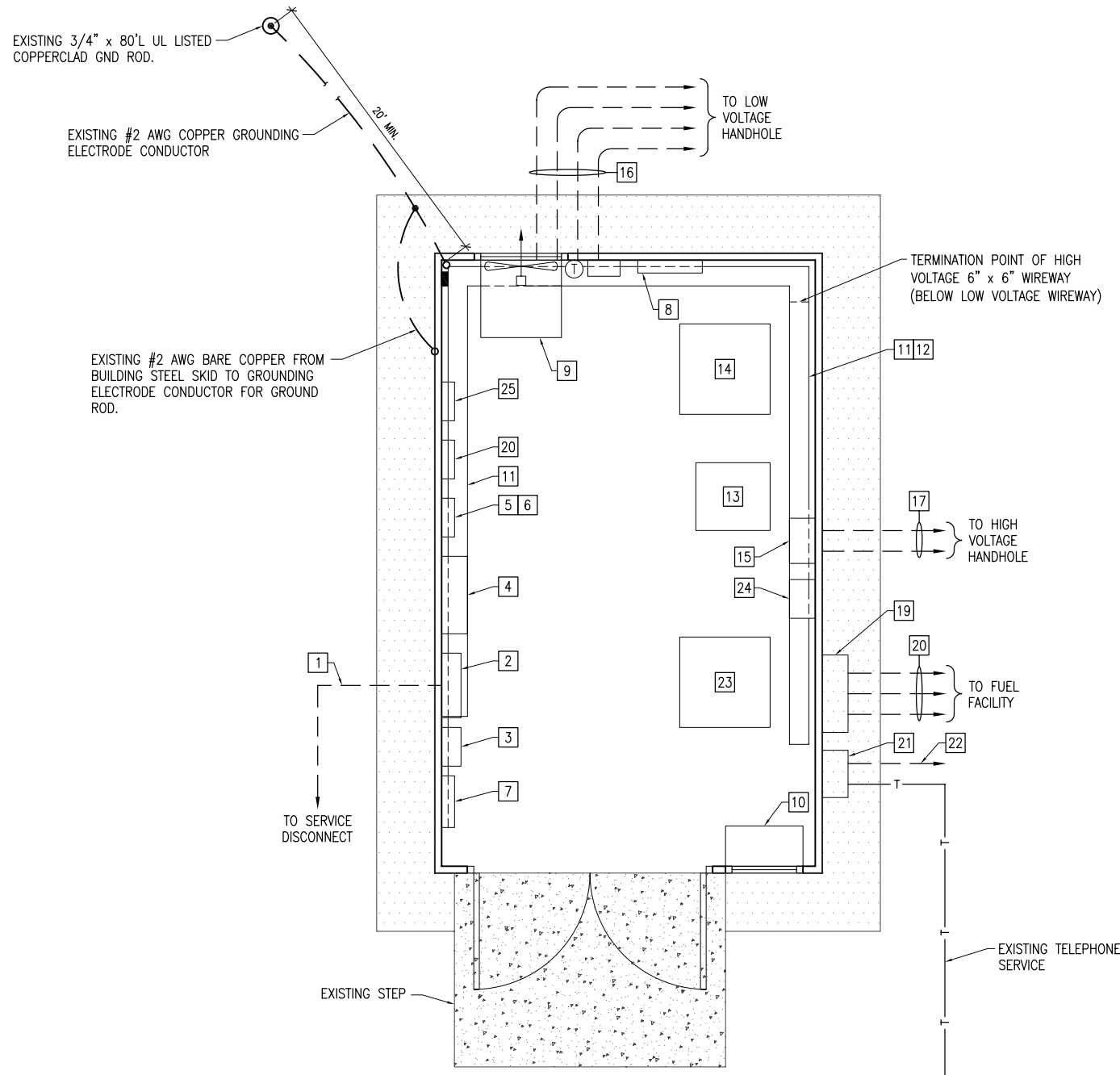
NOTES:

- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 – NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- 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).
- COLOR CODE PHASE AND NEUTRAL CONDUCTOR INSULATION FOR NO. 6 AWG OR SMALLER. PROVIDE COLORED INSULATION OR COLORED MARKING TAPE FOR PHASE AND NEUTRAL CONDUCTORS FOR NO. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR AWG AND/OR KCMIL TO COMPLY WITH NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE COLORED INSULATION FOR NO. 6 AWG AND SMALLER TO MEET THE REQUIREMENTS OF NEC 200.6. STANDARD COLORS FOR POWER WIRING AND BRANCH CIRCUITS SHALL BE AS FOLLOWS:

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

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DATE					
TRI-TOWNSHIP AIRPORT SAVANNA, CARROLL COUNTY ILLINOIS					
I.L. PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17					
Hanson Proj. No.	10A0095D_0800	LAYOUT	KNL	11/08/10	
Filename	E-001.DWG	DRAWN	MAW	11/17/10	
Scale	NOT TO SCALE	REVIEWED	CAH	12/02/10	
Date	01/13/11				
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REPLACE MIRL ON RUNWAY 13-31			ELECTRICAL LEGEND AND ABBREVIATIONS		
20 of 27 sheets					



KEYED NOTES

- 1 EXISTING 120/240 VAC, 1PH, 3W FEEDER FROM SERVICE BREAKER TO VAULT PANEL.
- 2 EXISTING VAULT PANELBOARD.
- 3 EXISTING AC SURGE PROTECTOR/TVSS.
- 4 EXISTING RELAY/LIGHTING CONTACTOR PANEL.
- 5 EXISTING L-854 RADIO CONTROL UNIT WITH RELAY INTERFACE PANEL BELOW.
- 6 EXISTING RELAY INTERFACE PANEL FOR RUNWAY 13-31 (BELOW L-854 RADIO CONTROL UNIT).
- 7 EXISTING ELECTRIC WALL HEATER EH-1.
- 8 EXISTING ELECTRIC WALL HEATER EH-2.
- 9 EXISTING EXHAUST FAN EF-1.
- 10 EXISTING INTAKE LOUVER L-1.
- 11 EXISTING 6" BY 6" LOW VOLTAGE WIREWAY.
- 12 EXISTING 6" BY 6" HIGH VOLTAGE WIREWAY.
- 13 EXISTING SPARE/BACKUP CCR FOR RUNWAY 13-31 TO BE RELOCATED FOR USE AS A SPARE/BACKUP CCR FOR TAXIWAY.
- 14 EXISTING RUNWAY 13-31 CONSTANT CURRENT REGULATOR TO BE RELOCATED FOR USE AS A SPARE/BACKUP CCR FOR RUNWAY 13-31.
- 15 EXISTING SERIES PLUG CUTOUTS IN A NEMA 12 ENCLOSURE WITH HINGED COVER, FOR RWY 13-31 LIGHTING CIRCUIT TO BE RELOCATED TO THE WEST WALL TO ACCOMMODATE SPACE FOR A NEW RUNWAY 13-31 CCR.
- 16 EXISTING 4-4" GRSC FROM LOW VOLTAGE WIREWAY TO DUCT BANK.
- 17 EXISTING 2-4" GRSC FROM HIGH VOLTAGE WIREWAY TO HIGH VOLTAGE HANDHOLE.
- 18 EXISTING FUEL FACILITY LOAD CENTER.
- 19 EXISTING NEMA 4X SS J-BOX FOR FUEL FACILITY CIRCUITS.
- 20 EXISTING FUEL FACILITY CIRCUITS IN 3/4" GRSC.
- 21 EXISTING RELOCATED TELEPHONE NETWORK INTERFACE BOX.
- 22 EXISTING TELEPHONE CABLE IN 3/4" GRSC TO FUEL SYSTEM CONTROLLER.
- 23 EXISTING TAXIWAY CONSTANT CURRENT REGULATOR.
- 24 EXISTING SERIES PLUG CUTOUT WITH ENCLOSURE FOR TAXIWAY LIGHTING CIRCUIT TO BE REMOVED AND REPLACED WITH A PAIR OF CUTOUTS & ENCLOSURES TO BE INSTALLED ON THE WEST WALL.
- 25 EXISTING RELAY INTERFACE PANEL FOR TAXIWAY CCR.

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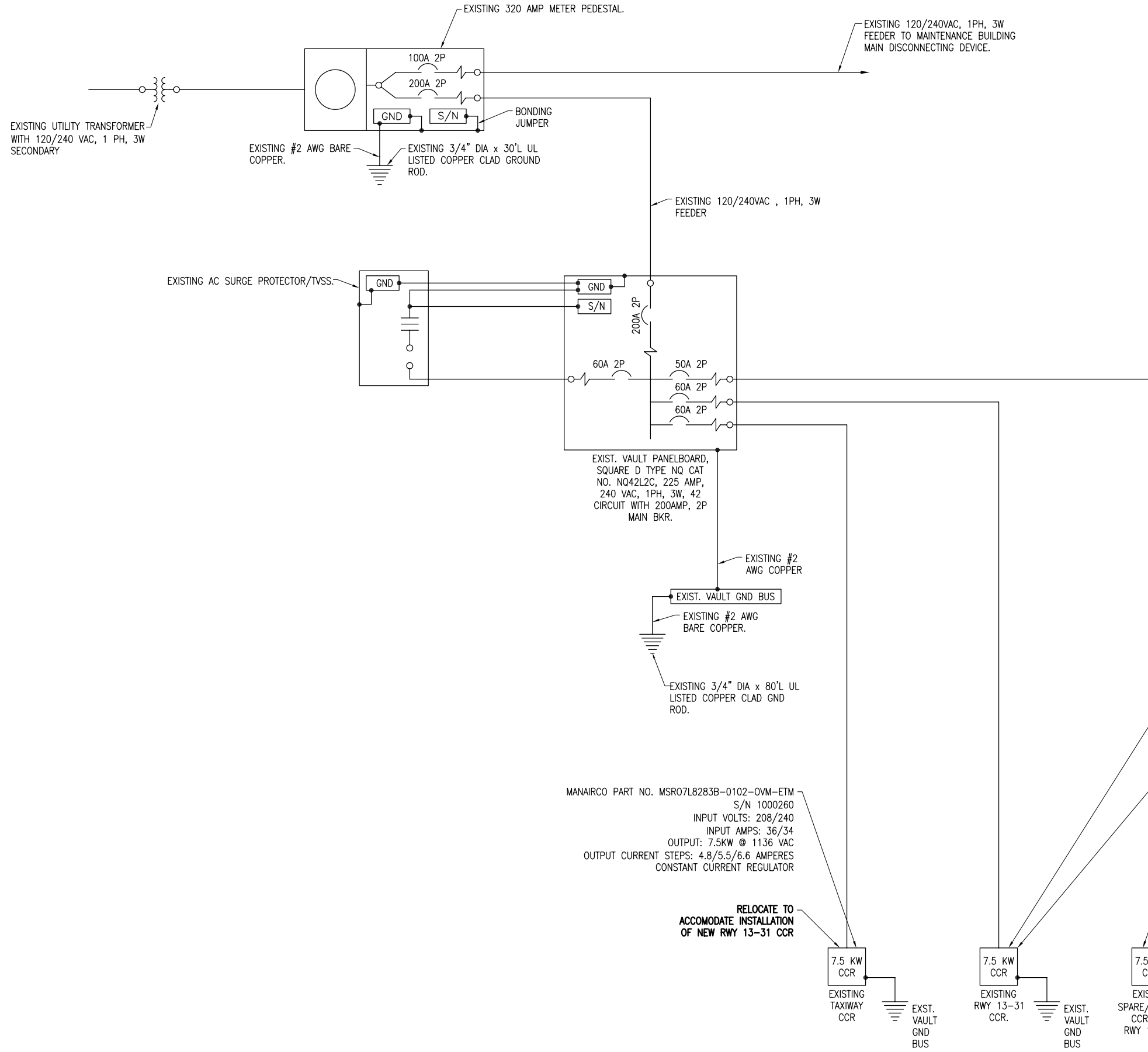
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REPLACE MIRL ON
RUNWAY 13-31

VAULT EXISTING FLOOR PLAN

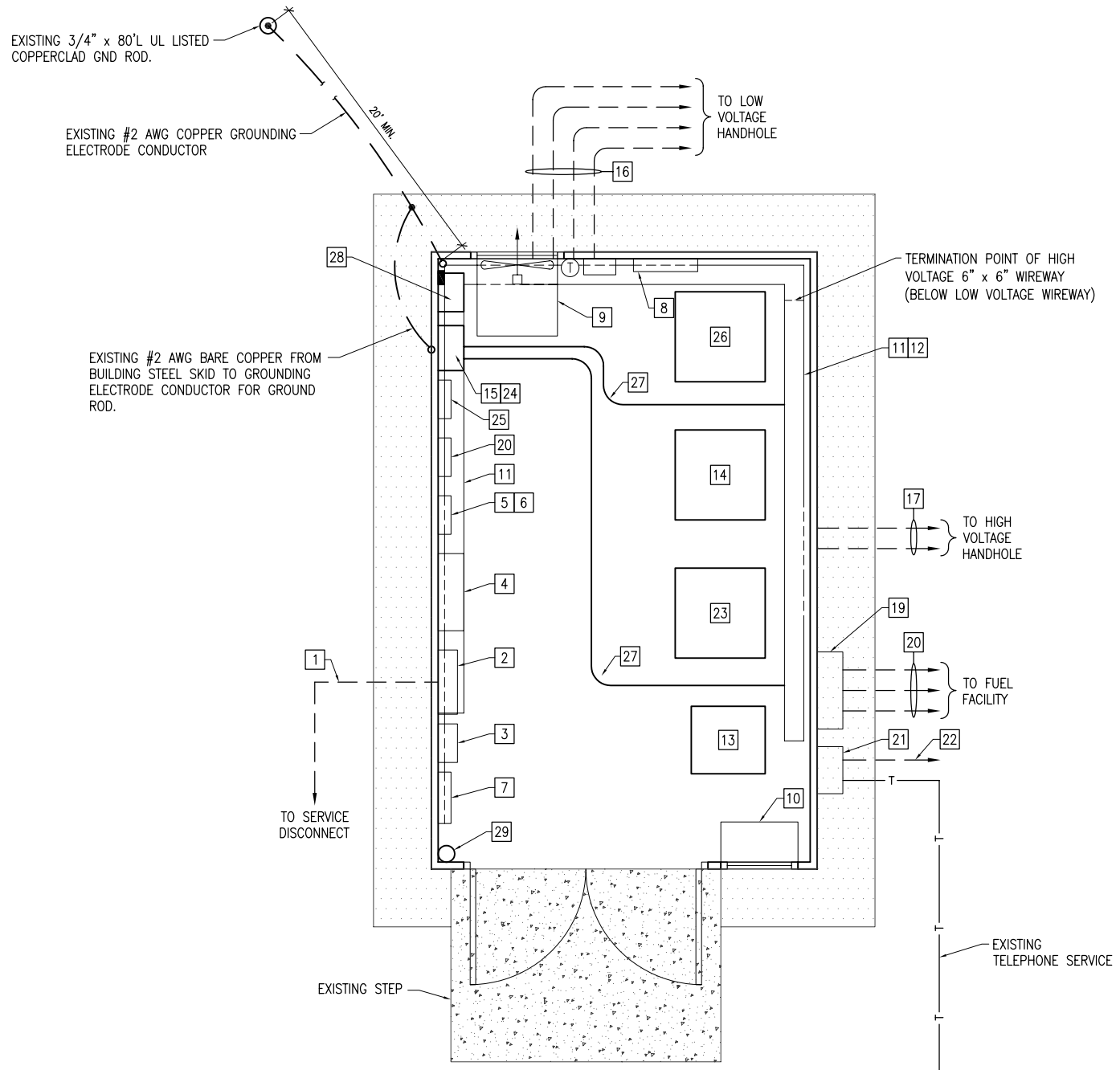


- NOTES**
1. ALL VAULT WORK AND/OR POWER OUTAGES SHALL BE COORDINATED WITH THE AIRPORT MANAGER.
 2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS TO CONFIRM POWER AND CONTROL CIRCUITS.
 3. ALL VAULT WORK, POWER OUTAGES AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. 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).
 4. EXISTING POWER & CONTROL CIRCUITS SHALL BE LOCATED, IDENTIFIED, DISCONNECTED, REROUTED & RECONNECTED TO THE NEW AND RELOCATED CONSTANT CURRENT REGULATORS AS DETAILED HEREIN. ALL EXISTING AIRFIELD LIGHTING SYSTEMS SHALL BE OPERABLE DURING NIGHTFALL UNLESS OTHERWISE APPROVED BY THE AIRPORT MANAGER AND/OR OTHERWISE DETAILED HEREIN. CONTRACTOR SHALL PROVIDE ALL TEMPORARY WORK AS NECESSARY TO MAINTAIN OPERATION OF THE AIRFIELD LIGHTING SYSTEMS AT NIGHTFALL. CONTRACTOR SHALL COORDINATE TRANSFER OF EXISTING AIRFIELD CIRCUITS TO MINIMIZE DOWN TIME.
 5. CCR DENOTES CONSTANT CURRENT REGULATOR.

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EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR VAULT

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I.L. PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17					
Hanson Proj. No. 10A0095D_0800 Filename E-601.DWG Scale NOT TO SCALE Date 01/13/11					
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REPLACE MIRL ON RUNWAY 13-31			EXISTING ELECTRICAL ONE LINE DIAGRAM FOR VAULT		
22 22 of 27 sheets					



Vault Proposed Electrical Equipment Plan
 FULL SIZE SCALE 1/2"=1'-0"
 HALF SIZE SCALE 1/4"=1'-0"
 1 0 2 4 FEET

GENERAL NOTES

1. SEE "NEW ELECTRICAL ONE LINE DIAGRAM FOR VAULT" FOR LOW VOLTAGE INPUT POWER WIRING REQUIREMENTS TO CCR'S (CONSTANT CURRENT REGULATORS). SEE "HIGH VOLTAGE WIRING SCHEMATIC" FOR CCR OUTPUT WIRING REQUIREMENTS. SEE "AIRFIELD LIGHTING WIRING SCHEMATIC" FOR CCR CONTROL WIRING REQUIREMENTS. PROVIDE 5 FEET MINIMUM CLEAR WORKING SPACE IN FRONT OF EACH CCR AND EACH SERIES PLUG CUTOUT.
2. CONSTANT CURRENT REGULATORS AND THEIR RESPECTIVE SERIES PLUG CUTOUTS SHALL BE CLEARLY LABELED TO IDENTIFY THE RESPECTIVE REGULATOR DESIGNATION, RUNWAY OR TAXIWAY SERVED, POWER SOURCE OR CIRCUIT, AND VOLTAGE SYSTEM.
3. MAINTAIN SEPARATION OF HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS. LOW VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE LOW VOLTAGE SECTION. HIGH VOLTAGE WIRING SHALL ENTER THE RESPECTIVE CCR AT THE HIGH VOLTAGE SECTION

KEYED NOTES

- 1 EXISTING 120/240 VAC, 1PH, 3W FEEDER FROM SERVICE BREAKER TO VAULT PANEL.
- 2 EXISTING VAULT PANELBOARD.
- 3 EXISTING AC SURGE PROTECTOR/TVSS.
- 4 EXISTING RELAY/LIGHTING CONTACTOR PANEL.
- 5 EXISTING L-854 RADIO CONTROL UNIT WITH RELAY INTERFACE PANEL BELOW.
- 6 EXISTING RELAY INTERFACE PANEL FOR RUNWAY 13-31 (BELOW L-854 RADIO CONTROL UNIT).
- 7 EXISTING ELECTRIC WALL HEATER EH-1.
- 8 EXISTING ELECTRIC WALL HEATER EH-2.
- 9 EXISTING EXHAUST FAN EF-1.
- 10 EXISTING INTAKE LOUVER L-1.
- 11 EXISTING 6" BY 6" LOW VOLTAGE WIREWAY.
- 12 EXISTING 6" BY 6" HIGH VOLTAGE WIREWAY.
- 13 RELOCATED SPARE/BACKUP CCR FOR TAXIWAY. SEE GENERAL NOTE 1.
- 14 RELOCATED SPARE/BACKUP CCR FOR RUNWAY 13-31. SEE GENERAL NOTE 1.
- 15 RELOCATED SERIES PLUG CUTOUTS IN A NEMA 12 ENCLOSURE WITH HINGED COVER, FOR RWY 13-31 LIGHTING CIRCUIT. MOUNT ON WEST WALL APPROXIMATELY 5'-6" ABOVE FLOOR FROM TOP OF ENCLOSURE. LOCATE CUTOUT ENCLOSURE FOR TAXIWAY CIRCUIT BELOW. SEE GENERAL NOTE 1.
- 16 EXISTING 4-4" GRSC FROM LOW VOLTAGE WIREWAY TO DUCT BANK.
- 17 EXISTING 2-4" GRSC FROM HIGH VOLTAGE WIREWAY TO HIGH VOLTAGE HANDHOLE. INSTALL RWY 13-31 HOMERUN CABLES IN SPARE HIGH VOLTAGE CONDUIT.
- 18 EXISTING FUEL FACILITY LOAD CENTER.
- 19 EXISTING NEMA 4X SS J-BOX FOR FUEL FACILITY CIRCUITS.
- 20 EXISTING FUEL FACILITY CIRCUITS IN 3/4" GRSC.
- 21 EXISTING RELOCATED TELEPHONE NETWORK INTERFACE BOX.
- 22 EXISTING TELEPHONE CABLE IN 3/4" GRSC TO FUEL SYSTEM CONTROLLER.
- 23 EXISTING TAXIWAY CONSTANT CURRENT REGULATOR. SEE GENERAL NOTE 1.
- 24 NEW SERIES PLUG CUTOUTS, TYPE S-1 IN A NEMA 1 OR NEMA 12 ENCLOSURE WITH HINGED COVER, FOR TAXIWAY LIGHTING CIRCUIT. LOCATE BELOW CUTOUT ENCLOSURE FOR RUNWAY CIRCUIT.
- 25 EXISTING RELAY INTERFACE PANEL FOR TAXIWAY REGULATORS. SEE AIRFIELD LIGHTING WIRING SCHEMATIC FOR WIRING REQUIREMENTS.
- 26 NEW RUNWAY 13-31 CONSTANT CURRENT REGULATOR.
- 27 6 #8 AWG FAA L-824, 5000V TYPE C CABLES IN 1.5" GRSC FROM HV WIREWAY TO RESPECTIVE CUTOUTS; (RUNWAY OR TAXIWAY). PROVIDE LTFMC AT CONNECTION TO HIGH VOLTAGE WIREWAY TO GET AROUND LOW VOLTAGE WIREWAY, FIELD VERIFY CONDUIT ROUTE & AVOID INTERFERENCES WITH LIGHTING & OTHER EQUIPMENT.
- 28 TAXIWAY CCR TRANSFER RELAY CONTROL PANEL. FIELD VERIFY LOCATION OF CONTROL PANEL. COORDINATE WITH AIRPORT MANAGER & RESIDENT ENGINEER.
- 29 FURNISH & INSTALL A 10 LB CO2 FIRE EXTINGUISHER SUITABLE FOR USE ON CLASS C FIRES, AMEREX MODEL 3819 OR APPROVED EQUAL.

REVISION	DATE

TRI-TOWNSHIP AIRPORT
 SAVANNA, CARROLL COUNTY
 ILLINOIS

IL. PROJ.: SFY-4056 A.I.P. PROJ.: 3-17-0091-B17

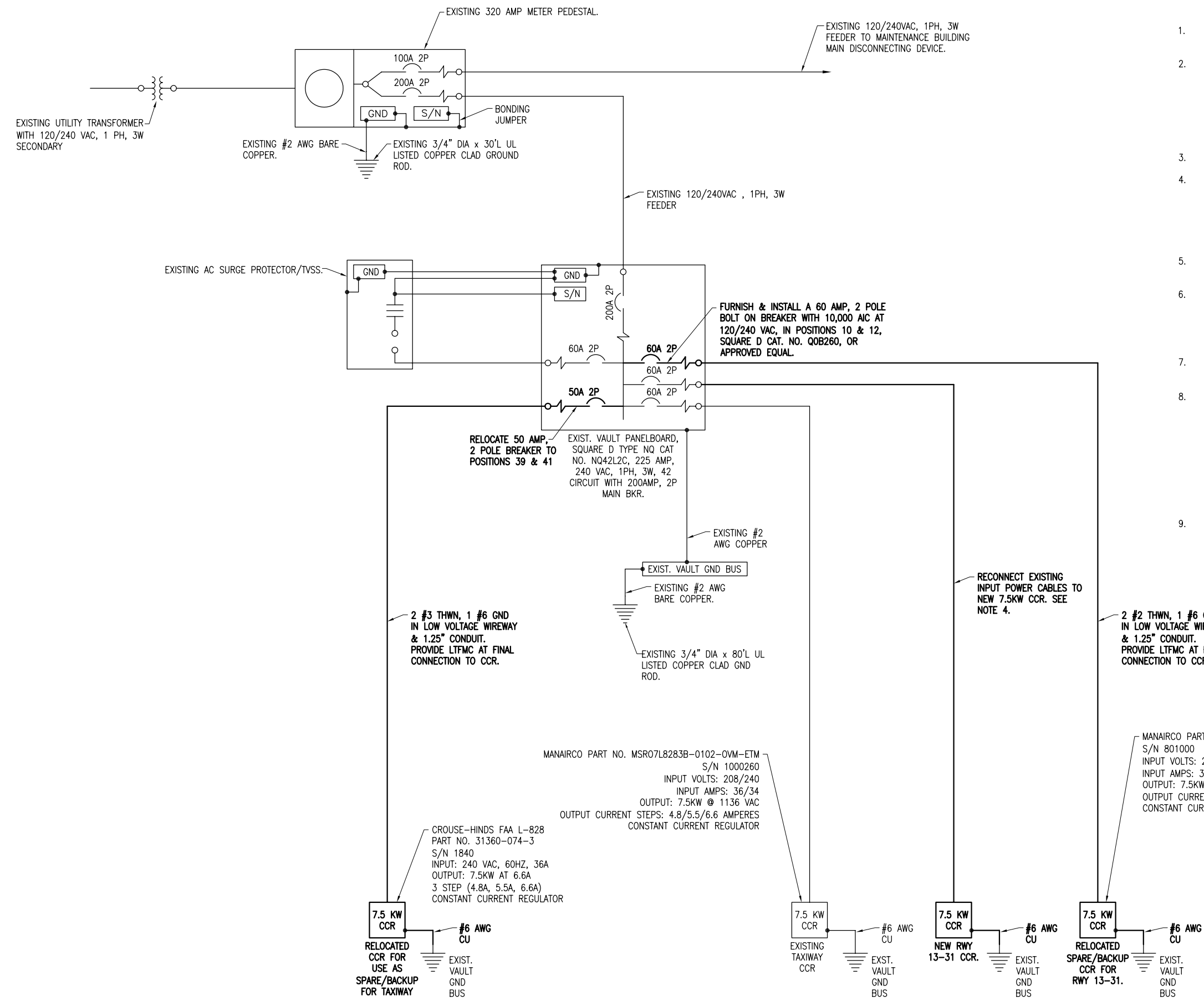
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REPLACE MIRL ON
 RUNWAY 13-31

VAULT PROPOSED FLOOR PLAN

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- NOTES**
1. ALL VAULT WORK AND/OR POWER OUTAGES SHALL BE COORDINATED WITH THE AIRPORT MANAGER.
 2. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70-NATIONAL ELECTRIC CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE SHALL NOT BE PERMITTED.
 3. ALL EQUIPMENT SHOWN NOT LABELED AS EXISTING IS NEW.
 4. CONTRACTOR SHALL CONFIRM POWER REQUIREMENTS WITH THE ACTUAL NAMEPLATE ON EACH CONSTANT CURRENT REGULATOR (OR OTHER RESPECTIVE EQUIPMENT) AND ADJUST CIRCUIT BREAKER, WIRE SIZES & CONDUIT SIZES TO CONFORM WITH NEC & MANUFACTURER'S RECOMMENDATIONS WHERE APPLICABLE. WIRE SIZES SHOWN ON THE PLANS ARE MINIMUM.
 5. HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY.
 6. BRANCH CIRCUIT TO NEW REGULATOR & RELOCATED REGULATORS SHALL BE INSTALLED IN THE RESPECTIVE LOW VOLTAGE WIREWAY/DUCT, WITH GRSC AT TRANSITIONS AND UL LISTED LIQUID TIGHT FLEXIBLE METAL CONDUIT AT FINAL CONNECTIONS TO THE REGULATOR. CONDUITS SHALL BE SIZED IN ACCORDANCE WITH NEC.
 7. BOND NEW & RELOCATED REGULATORS TO THE RESPECTIVE VAULT GROUND BUS WITH A DEDICATED #6 AWG BONDING JUMPER.
 8. 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 LTFMC THAT IS NOT UL LISTED. CONFORM LTFMC BEARS THE UL LABEL PRIOR TO INSTALLING IT.
 9. VAULT WORK SHALL BE PAID FOR UNDER ITEM AR109200.

NEW ELECTRICAL ONE-LINE DIAGRAM FOR VAULT

REVISION	DATE

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ILLINOIS

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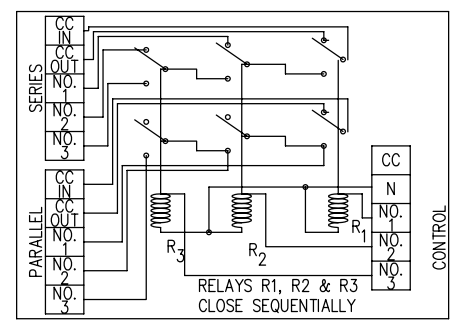
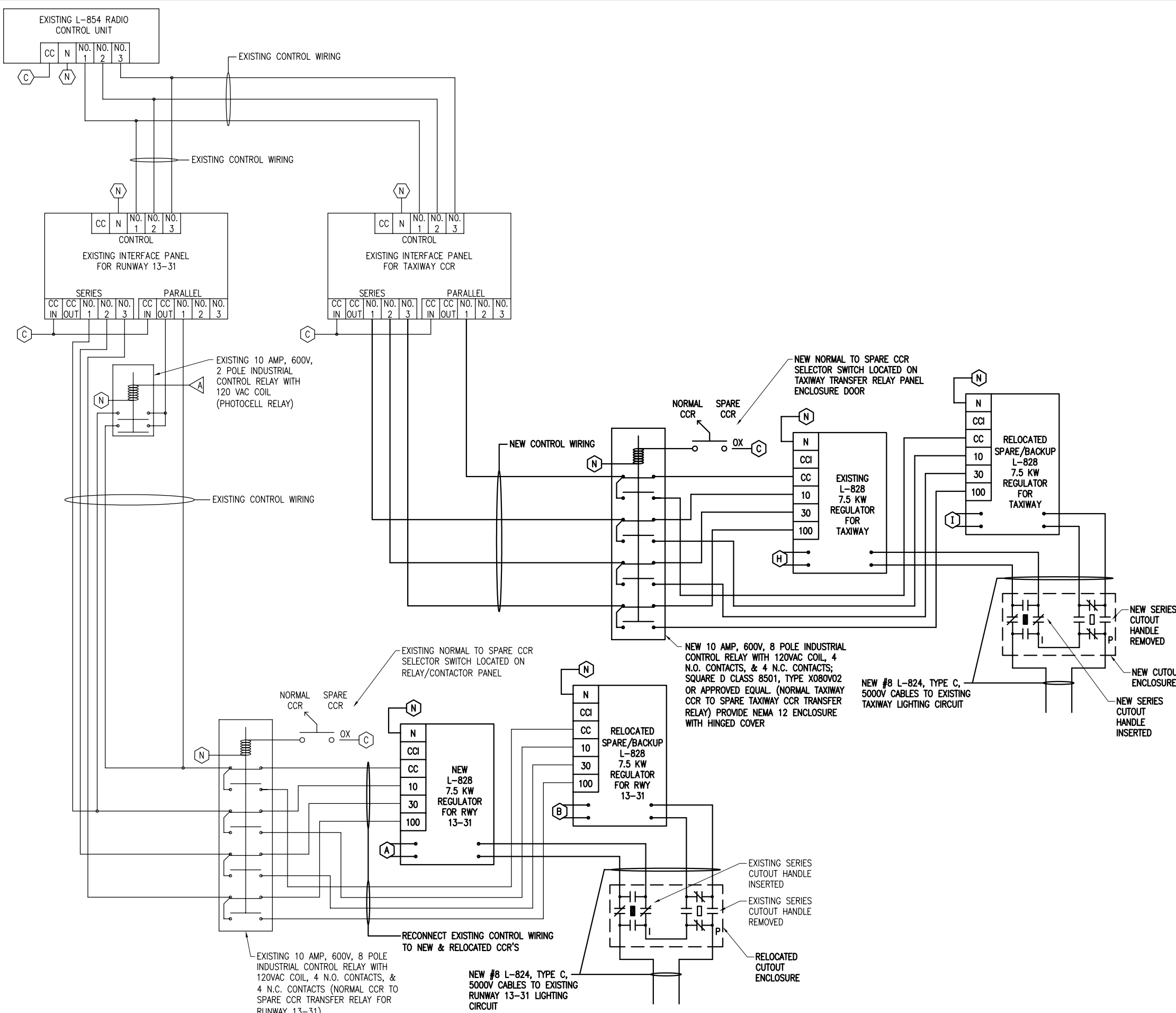
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NEW ELECTRICAL ONE LINE
DIAGRAM FOR VAULT

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NOTES

1. ALL ELECTRICAL EQUIPMENT WILL BE WIRED IN ACCORDANCE WITH THE SCHEMATIC WIRING DIAGRAM AND ALL APPLICABLE CODES.
2. ALL CONTROL CABLE WILL BE NO. 12 AWG, 600 VOLT CABLE.
3. ALL ELECTRICAL EQUIPMENT WILL BE PROPERLY LABELED AND ALL ELECTRICAL CABLES WILL BE TAGGED.
4. ALL ELECTRICAL CABLES INSIDE THE VAULT WILL BE IN CONDUIT OR DUCT.
5. THE L-854 RADIO OUTPUT SHALL BE ACTIVE 24 HOURS/DAY. PHOTOCELL OR PHOTOCELL BYPASS SWITCH SHALL ACTIVATE 10% BRIGHTNESS FOR THE RUNWAY. THE RUNWAY/TAXIWAY CIRCUITS WILL BE CONTROLLED BY THE L-854 RADIO CONTROL UNIT IN THE FOLLOWING MANNER:
 3 CLICKS - 10% BRIGHTNESS
 5 CLICKS - 30% BRIGHTNESS
 7 CLICKS - 100% BRIGHTNESS
6. EQUIPMENT GROUND WIRES SHALL BE INCLUDED WITH EACH BRANCH CIRCUIT & EACH CONTROL CIRCUIT.
7. COLOR CODING FOR THE CONTROL WIRING TO EACH CONSTANT CURRENT REGULATOR (CCR) SHALL BE CONSISTENT FOR ALL REGULATORS. COLOR CODING SHALL BE AS FOLLOWS:
 CC - RED
 10% - ORANGE (WHERE APPLICABLE)
 30% - YELLOW
 100% - BLUE
 NEUTRAL - WHITE
 EQUIPT. GND. - GREEN

ALSO TAG THE CONTROL WIRES WITH THE RESPECTIVE DESIGNATION (CC, 10%, 30%, 100%)

SHEET LEGEND

- (A) EXISTING VAULT PANEL CKT 14, 16 (RWY 13-31 CCR)
- (B) VAULT PANEL CKT 10, 12 (SPARE CCR FOR RWY 13-31)
- (C) EXISTING VAULT PANEL CKT 27 (RADIO & PHOTOCELL CONTROL)
- (H) VAULT PANEL CKT 40, 42 (TAXIWAY CCR)
- (I) VAULT PANEL CKT 39, 41 (SPARE CCR FOR TAXIWAY)
- (N) N DESIGNATES NEUTRAL FROM THE RESPECTIVE PANEL THAT POWERS THE DEVICE. FOR CONTROL CIRCUIT INPUTS TO CCR'S N SHALL BE FROM THE RESPECTIVE INTERFACE PANEL CIRCUIT NEUTRAL CONNECTION.

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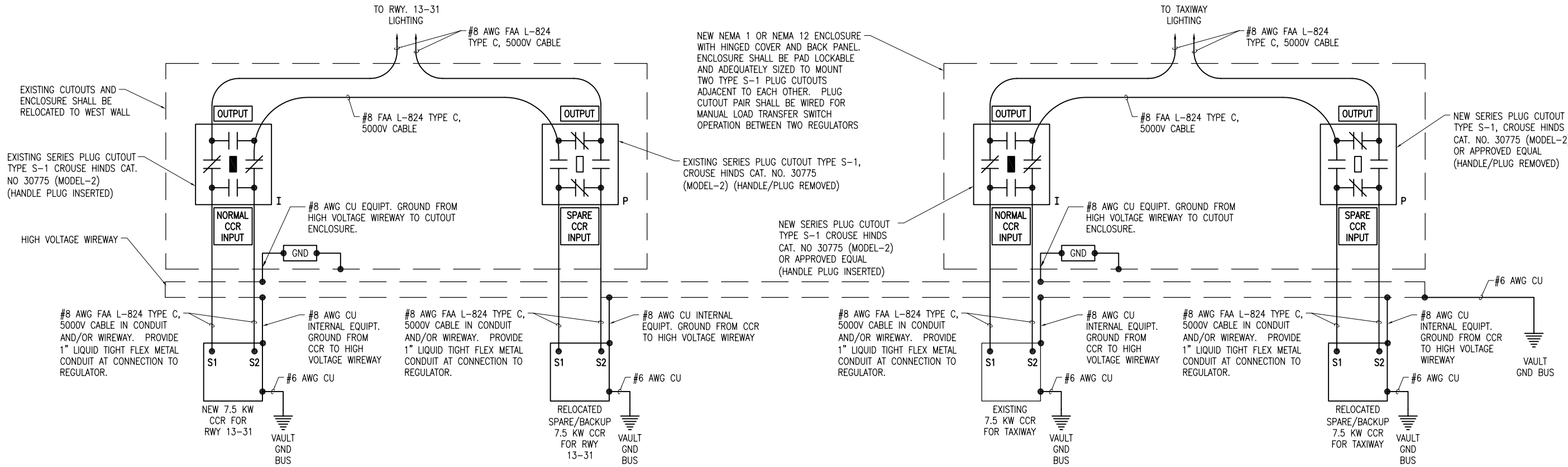
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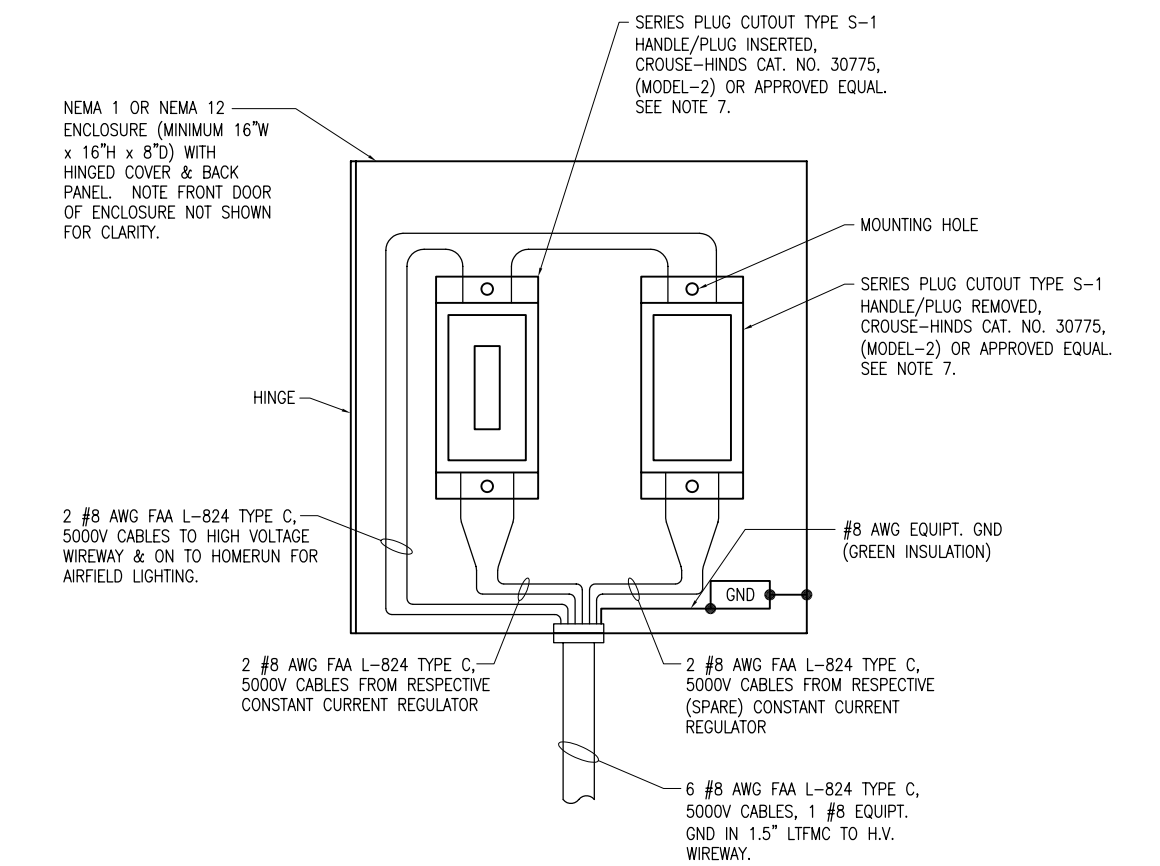
AIRFIELD LIGHTING WIRING
 SCHEMATIC

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AIRFIELD LIGHTING CONTROL WIRING SCHEMATIC



HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAY AND TAXIWAY



SERIES PLUG CUTOUT MOUNTING DETAIL FOR TAXIWAY CIRCUIT

LEGEND

- "I" DENOTES PLUG CUTOUT WITH PLUG INSERTED
- "P" DENOTES PLUG CUTOUT WITH PLUG PULLED
- "CCR" DENOTES CONSTANT CURRENT REGULATOR

NOTES

1. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR EACH CONSTANT CURRENT REGULATOR (EXISTING & NEW) NOTING THE RUNWAY AND/OR TAXIWAY SERVED.
2. 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".
3. PROVIDE PHENOLIC ENGRAVED LEGEND PLATES FOR THE CUTOUTS TO IDENTIFY THE RESPECTIVE REGULATOR OUTPUT CONNECTION AND THE RESPECTIVE CIRCUIT LOAD CONNECTION.
4. BOND EACH REGULATOR FRAME TO VAULT GROUND BUS WITH A DEDICATED #6 AWG COPPER BONDING JUMPER.
5. 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 BE SUITABLE FOR MANUAL TRANSFER OPERATION (ONE SERIES CIRCUIT LOOP WITH THE CAPABILITY OF BEING POWERED FROM EITHER OF TWO CONSTANT CURRENT REGULATOR POWER SOURCES). 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.
8. HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY.
9. SPLICES FOR RUNWAY AND TAXIWAY SERIES CIRCUITS SHALL BE FAA APPROVED TYPE L-823 CONNECTORS AND SHALL BE INSTALLED IN SPLICE BOXES OR THE HIGH VOLTAGE WIREWAY.

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<p>REPLACE MIRL ON RUNWAY 13-31</p>					<p>HIGH VOLTAGE WIRING SCHEMATIC</p>					
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VAULT LEGEND PLATE SCHEDULE	
DEVICE	LABEL
RUNWAY 13-31 CCR	RUNWAY 13-31
SPARE RUNWAY 13-31 CCR	SPARE FOR RUNWAY 13-31
CUTOUT ENCLOSURE FOR RUNWAY 13-31	RUNWAY 13-31 CUTOUTS
INTERIOR BACK SIDE OF DOOR OF CUTOUT ENCLOSURE FOR RUNWAY 13-31	RUNWAY 13-31 CUTOUTS
TAXIWAY CCR	TAXIWAY
CUTOUT ENCLOSURE FOR TAXIWAY	TAXIWAY CUTOUTS
INTERIOR BACK SIDE OF DOOR OF CUTOUT ENCLOSURE FOR TAXIWAY	TAXIWAY CUTOUTS
CUTOUT ENCLOSURE FOR TAXIWAY	CAUTION OPERATE CUTOUTS WITH CCR SHUT OFF
TAXIWAY CUTOUT NORMAL CCR INPUT SIDE CONNECTION	NORMAL CCR INPUT
TAXIWAY CUTOUT SPARE CCR INPUT SIDE CONNECTION	SPARE CCR INPUT
TAXIWAY CUTOUT OUTPUT SIDE CONNECTION	OUTPUT
SPARE TAXIWAY CCR	SPARE FOR TAXIWAY
TAXIWAY NORMAL CCR TO SPARE CCR TRANSFER RELAY	TAXIWAY NORMAL CCR TO SPARE CCR TRANSFER RELAY
EXISTING RUNWAY SELECTOR SWITCH FOR TRANSFER OF NORMAL CCR TO SPARE CCR	RUNWAY 13-31

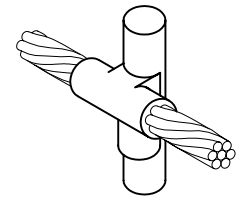
NOTE: LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.

FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH SAFETY SWITCH, PANELBOARD, LOAD CENTER, CUTOUT & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "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.

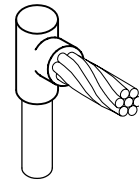


"DANGER - HIGH VOLTAGE" SIGN

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".



CABLE TO GROUND ROD



CABLE TO GROUND ROD

DETAIL NOTES

- ALL BELOW GRADE CONNECTIONS TO GROUND RODS 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 DIRECTIONS.

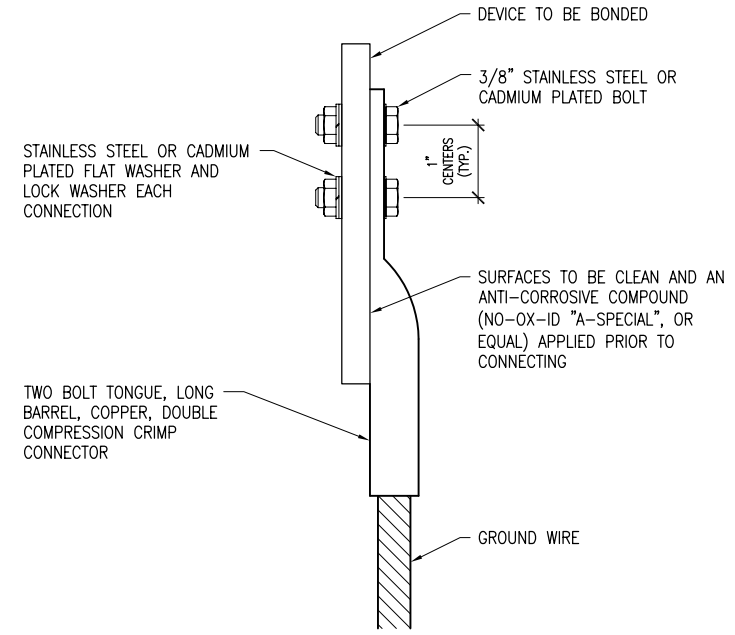
EXOTHERMIC WELD DETAILS

DIRECTIONS TO TRANSFER TAXIWAY LIGHTING FROM NORMAL CCR TO SPARE CCR.

- SHUT OFF INPUT POWER (CIRCUIT BREAKER) TO BOTH TAXIWAY CCR'S & TURN CCR SELECTOR SWITCHES TO OFF.
- PULL CUTOUT HANDLE FROM NORMAL TAXIWAY CCR UNIT & INSERT INTO SPARE TAXIWAY CCR CUTOUT.
- TURN ON INPUT POWER (CIRCUIT BREAKER) TO SPARE TAXIWAY CCR.
- GO TO TAXIWAY TRANSFER RELAY PANEL & TURN "TAXIWAY CCR TRANSFER" SELECTOR SWITCH FROM "NORMAL" TO "SPARE" POSITION.
- TURN SELECTOR SWITCH ON SPARE TAXIWAY CCR TO "REMOTE" POSITION.

PROVIDE PLACARD OR LEGEND PLATE FOR TAXIWAY CONSTANT CURRENT REGULATOR PAIR AS NOTED ABOVE: LETTERING TO BE MIN. 1/4" HIGH, BLACK ON WHITE BACKGROUND. LOCATE PLACARD ADJACENT TO CUTOUT ENCLOSURE OR AS DIRECTED BY THE AIRPORT MANAGER.

TAXIWAY CCR TRANSFER PROCEDURE



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-1/0D-2TC38
#2/0 AWG STRANDED	YA26-2TC38	256-30695-1116	BBLU-2/0D-2TC38
#3/0 AWG STRANDED	YA27-2TC38	54816BE	BBLU-3/0D-2TC38
#4/0 AWG STRANDED	YA28-2TC38	256-30695-1117	BBLU-4/0D-2TC38

NOTES

- GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIP MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE.
- 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 PATH FROM ENCIRCLING THE CONDUIT.
- 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 NEC 250-12.

GROUNDING LUG CONNECTION DETAIL

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REPLACE MIRL ON RUNWAY 13-31		LEGEND PLATE SCHEDULE & GROUNDING DETAILS			
27 27 of 27 sheets					