4-24-09 Letting

Item 13A

LI031
TOTAL SHEETS - 23

CONSTRUCTION PLANS

FOR

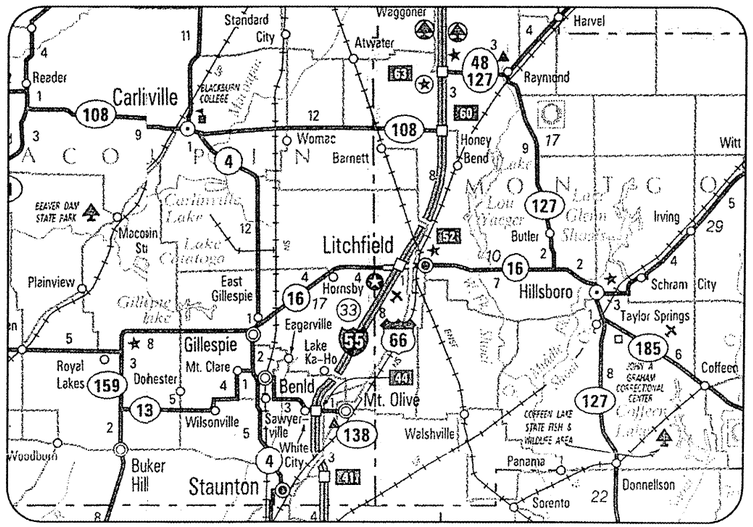
LITCHFIELD MUNICIPAL AIRPORT

LITCHFIELD, MONTGOMERY COUNTY, ILLINOIS

REHABILITATE RUNWAY 9-27

SCOPE OF WORK

THIS PROJECT CONSISTS OF CRACK CLEANING AND SEALING, APPLICATION OF A 0.10' POROUS FRICTION COURSE AND MARKING OF RUNWAY 9-27 AND THE INSTALLATION OF PAPIS ON RUNWAY 9-27.



LOCATION

LOCATION OF COUNTY

ILL. PROJ.:	3LF-3559
A.I.P. PROJ.:	3-17-0063-B13
LATITUDE:	39° 09' 59"
LONGITUDE:	89° 40' 29"
ELEVATION:	690.0' M.S.L.
DATE:	FEBRUARY 8, 2008

LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

COVERING ELECTRICAL DESIGN

HANSON
Hanson Professional Services Inc.
ELECTRICAL ENGINEER
Submitted by: Kevin N. Lightfoot ENG'R
Date Submitted 4/11/2008
Lics. Exp. Date 11/30/2009

LICENSED PROFESSIONAL ENGINEER
CHARLES A. HAGLOCH
062-37821
STATE OF ILLINOIS

HANSON
Hanson Professional Services Inc.
CIVIL ENGINEER
Submitted by: Charles A. Hagloch ENG'R
Date Submitted 4/11/08
Lics. Exp. Date Nov. 30, 2009

LITCHFIELD AIRPORT AUTHORITY
Approved _____ CHAIRMAN
Date 2/19/08
Approved James F. Wright SECRETARY
Date 2/19/2008

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS
IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HEI Project No. 814-06RWYD 0800
Filename R-001CVR.DWG
Scale NOT TO SCALE
Date 02/08/08

LAYOUT	B.A.K.	12/05/05
DRAWN	B.A.K.	12/05/05
REVIEWED	C.A.H.	01/29/08

HANSON
Hanson Professional Services Inc.
525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

COVER SHEET

1

1 of 23 sheets

DATE: JAN 11, 2008 10:04 AM HAGLOOO362
C:\AIRPORTS\LITCHFIELD\814-06RWY\AIRPORT\SHEETS\R-001CVR.DWG - COVER

LI031

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AR125470	MODIFY EXISTING SIGN PANEL	EACH	2	
AR108656	3/C #6 600V UG CABLE IN UD	L.F.	5740	
AR109200	INSTALL ELECTRICAL EQUIPMENT	L.S.	1	
AR125620	ABBREVIATED PAPI (L-881 SYSTEM)	EACH	2	
AR125909	REMOVE VASI	EACH	2	
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1	
AR150540	HAUL ROUTE	L.S.	1	
AR152480	SHOULDER ADJUSTMENT	S.Y.	2,844	
AR201661	CLEAN & SEAL BITUMINOUS CRACKS	L.F.	1,429	
AR401655	BUTT JOINT CONSTRUCTION	S.Y.	210	
AR401910	REMOVE & REPLACE BIT. PAVEMENT	S.Y.	590	
AR402622	POROUS FRICTION COURSE, 0.10'	S.Y.	33,634	
AR603510	BITUMINOUS TACK COAT	GAL.	8,409	
AR620520	PAVEMENT MARKING - WATERBORNE	S.F.	19,522	
AR620525	PAVEMENT MARKING - BLACK BORDER	S.F.	375	
AR751949	ADJUST INSPECTION HOLE	EACH	1	
AR901510	SEEDING	ACRE	0.6	
AR908520	EXCELSIOR BLANKET	S.Y.	2,844	

INDEX TO SHEETS

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-813

HSI Project No. 814-06RWY0 0800_
Filename R-002FLP.DWG
Scale NOT TO SCALE
Date 01/29/08

LAYOUT	B.A.K.	12/05/05
DRAWN	B.A.K.	12/05/05
REVIEWED	C.A.H.	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C.
ON RUNWAY 9-27

SUMMARY OF QUANTITIES
AND
INDEX TO SHEETS

2

SCOPE OF WORK

THIS PROJECT CONSISTS OF CRACK CLEANING AND SEALING, APPLICATION OF A 0.10" POROUS FRICTION COURSE AND INSTALLATION OF PAPIS ON RUNWAY 9-27.

AIRPORT SECURITY NOTE

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

UTILITY NOTE

THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND AGENCIES WHICH HAVE LINES OR CONDUITS IN THE PROPOSED WORK AREA. ALL LINES AND CONDUITS SHALL BE LOCATED AND IDENTIFIED FOR DEPTH BEFORE ANY EXCAVATION BEGINS. THE CONTRACTOR WILL CALL J.U.L.I.E. (1-800-892-0123) TO ACCOMPLISH THE ABOVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL UNDERGROUND NON-JULIE UTILITIES LOCATED WITHIN THE PROPOSED CONSTRUCTION LIMITS. THESE UNDERGROUND IMPROVEMENTS WILL BE LOCATED AT THE CONTRACTOR'S OWN EXPENSE PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

HEIGHT OF CONSTRUCTION EQUIPMENT

THE MAXIMUM ANTICIPATED HEIGHT OF THE CONSTRUCTION EQUIPMENT WILL BE 25 FEET. THE TALLEST EQUIPMENT IS EXPECTED TO BE A TRACTOR-TRAILER TRUCK.

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'. 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 PAID FOR UNDER ITEM:
AR150540 "HAUL ROUTE"_____1 L.S.

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.

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

THE CONTRACTOR SHALL KEEP RUNWAY 18-36 OPEN AT ALL TIMES AND MAINTAIN CONTINUOUS TAXIWAY ACCESS TO ALL HANGARS AND ADMINISTRATIVE AREAS.

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

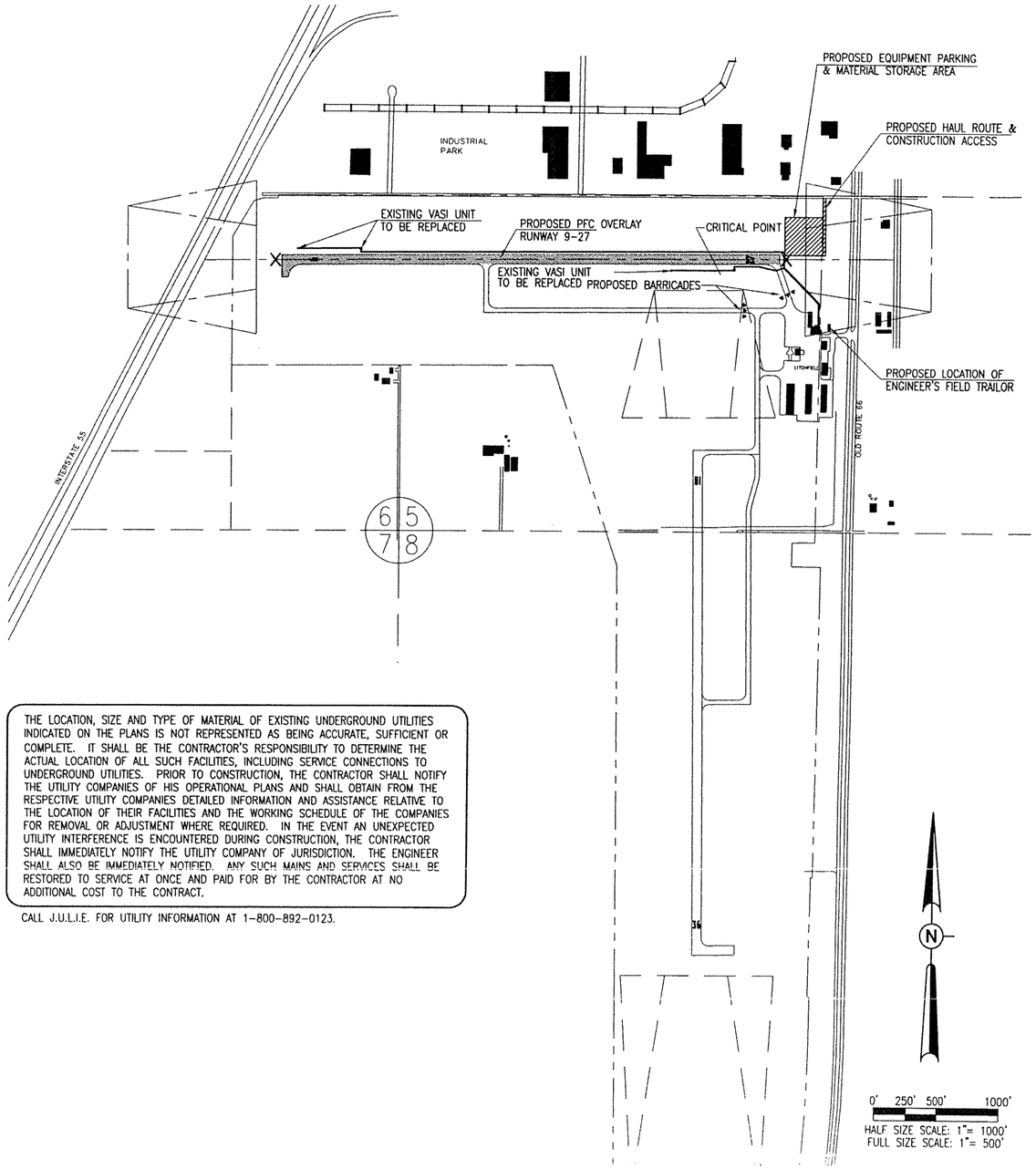
NO TRENCHES OR HOLES WILL REMAIN OPEN OVERNIGHT.

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 BARRICADES

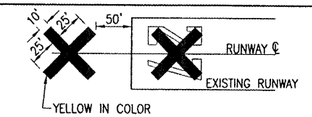


THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND 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.

N

0' 250' 500' 1000'
HALF SIZE SCALE: 1"= 1000'
FULL SIZE SCALE: 1"= 500'



DETAIL OF CROSS FOR CLOSED RUNWAY

"NOT TO SCALE"

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 OFF THE END OF EACH RUNWAY AS DETAILED ABOVE AND SECURED IN A MANNER APPROVED BY THE AIRPORT MANAGER. THE PROPOSED CROSSES WILL BE IN PLACE 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. THE CONTRACTOR WILL BE RESPONSIBLE FOR SHUTTING OFF/ON ELECTRICAL CIRCUITS PERTAINING TO THE CLOSED/OPENED RUNWAY. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

J.U.L.I.E. INFORMATION

COUNTY_____MONTGOMERY
CITY_____LITCHFIELD
TOWNSHIP_____SOUTH LITCHFIELD
SECTION NO._____5 & 8
ADDRESS_____LITCHFIELD MUNICIPAL AIRPORT
P.O. BOX 381
US ROUTE 66
LITCHFIELD, IL 62056

CRITICAL POINT DATA

LATITUDE: 39° 10' 01.252"
LONGITUDE: 89° 40' 18.181"
ELEVATION: 683.3 M.S.L.

PROPOSED SAFETY PLAN

GENERAL - THE LITCHFIELD MUNICIPAL AIRPORT IS COMPRISED OF A 3,900 FT BY 75 FT EAST-WEST (9-27) RUNWAY AND A 4,000 FT BY 75 FT NORTH-SOUTH (18-36) RUNWAY. THE PROPOSED CONSTRUCTION WILL NECESSITATE CLOSING RUNWAY 9-27 FOR THE DURATION OF THE PROJECT. RUNWAY 18-36 WILL REMAIN OPEN THROUGH OUT THIS PROJECT. 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 CONTRACTOR'S 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 (122.8 MHz.) WITH THE AIRPORT UNICOM. THIS WILL KEEP THE CONTRACTOR IN CONSTANT CONTACT WITH THE LITCHFIELD MUNICIPAL 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

THE PROPOSED ENGINEER'S FIELD OFFICE WILL BE FURNISHED, MAINTAINED, AND REMOVED IN ACCORDANCE WITH ITEM AR150510 "ENGINEER'S FIELD OFFICE" AS STATED ON PAGE 168 OF THE SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS, ADOPTED JULY 1, 2004.

THE LOCATION OF THE PROPOSED ENGINEER'S FIELD OFFICE WILL BE CONFIRMED AT THE PRE-CONSTRUCTION MEETING.

THE ENGINEERING FIRM WILL MAKE PAYMENT FOR ALL LONG DISTANCE TELEPHONE CALLS IN EXCESS OF ONE HUNDRED DOLLARS ($100.00) PER MONTH.

THE CONTRACOTR 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 ENGINEER'S FIELD OFFICE 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.

LI031

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

A.I.P. PROJ.: 3-17-0063-B13
IL. PROJ.: 3LF-3559

HEI Project No. 814-06RWY0.0800
Filename R-003SFY.DWG
Scale SCALE
Date 01/29/08

LAYOUT	B.A.K.	12/06/05
DRAWN	B.A.K.	12/06/05
REVIEWED	C.A.H.	01/29/08

HANSON

Hanson Professional Services Inc.
1525 S. Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

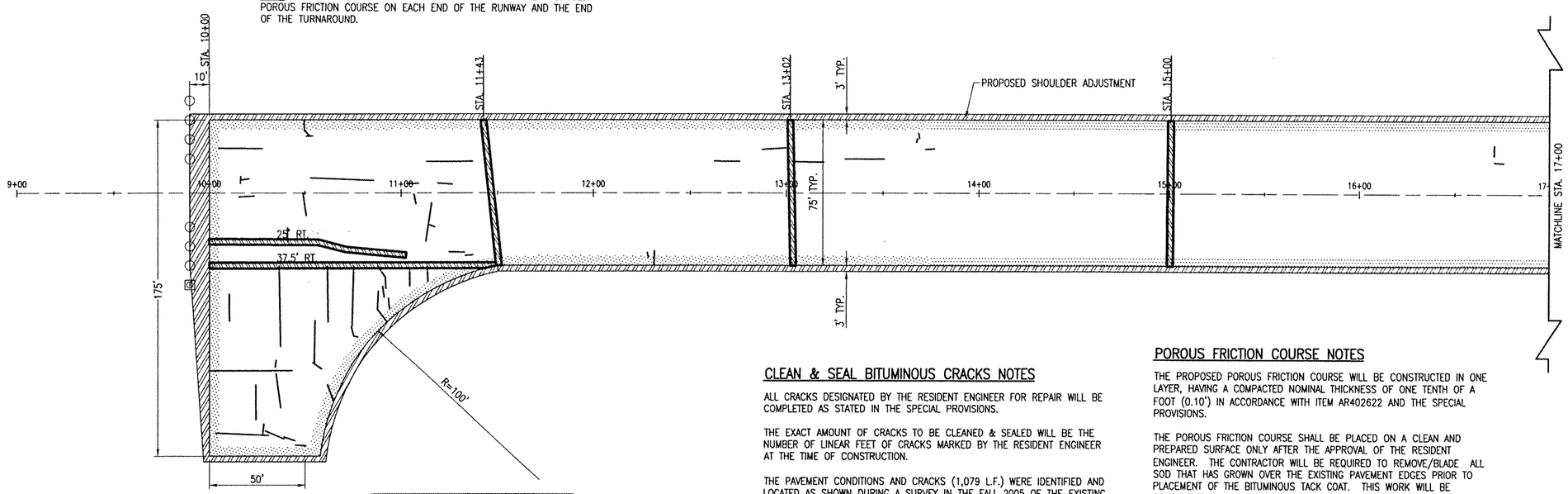
PROPOSED SAFETY PLAN

3
3 OF 23 SHEETS

FEB 11, 2008 10:27 AM HAGLOOB382
J:\AIRPORTS\LITCHFIELD\814-06RWY\AIRPORT\SHEETS\R-00.1SFY.DWG - Layout1

LI031

NOTE: THE SHOULDER ADJUSTMENT WILL BE FLUSH WITH THE PROPOSED POROUS FRICTION COURSE ON EACH END OF THE RUNWAY AND THE END OF THE TURNAROUND.



REMOVE & REPLACE QUANTITIES

LOCATION	CALCULATED LENGTH	SQUARE YARDS
25' RT.	103 L.F.	34.3 S.Y.
37.5' RT.	149 L.F.	49.7 S.Y.
STA. 11+43	75 L.F.	25 S.Y.
STA. 13+02	75 L.F.	25 S.Y.
STA. 15+00	75 L.F.	25 S.Y.
STA. 17+53	75 L.F.	25 S.Y.
STA. 20+94	75 L.F.	25 S.Y.
STA. 23+12	75 L.F.	25 S.Y.
STA. 24+36	62.5 L.F.	20.8 S.Y.
SUB TOTAL	764.5 L.F.	255 S.Y.

CLEAN & SEAL BITUMINOUS CRACKS NOTES

ALL CRACKS DESIGNATED BY THE RESIDENT ENGINEER FOR REPAIR WILL BE COMPLETED AS STATED IN THE SPECIAL PROVISIONS.

THE EXACT AMOUNT OF CRACKS TO BE CLEANED & SEALED WILL BE THE NUMBER OF LINEAR FEET OF CRACKS MARKED BY THE RESIDENT ENGINEER AT THE TIME OF CONSTRUCTION.

THE PAVEMENT CONDITIONS AND CRACKS (1,079 L.F.) WERE IDENTIFIED AND LOCATED AS SHOWN DURING A SURVEY IN THE FALL 2005 OF THE EXISTING RUNWAY. IN A SUBSEQUENT SURVEY AN ADDITIONAL (350 L.F.) OF CRACKS WERE IDENTIFIED.

THE PROPOSED PAVEMENT MILLING WILL BE ACCOMPLISHED BEFORE THE CRACKS ARE CLEANED & SEALED. THE RESIDENT ENGINEER WILL DETERMINE IF THE CRACKS LOCATED IN A MILLED AREA ARE LARGE ENOUGH TO WARRANT REPAIR.

THE BITUMINOUS CRACK CLEANING & SEALING WILL BE PAID FOR UNDER ITEM:

AR201661 – CLEAN & SEAL BITUMINOUS CRACKS = 1,429 L.F.

POROUS FRICTION COURSE NOTES

THE PROPOSED POROUS FRICTION COURSE WILL BE CONSTRUCTED IN ONE LAYER, HAVING A COMPACTED NOMINAL THICKNESS OF ONE TENTH OF A FOOT (0.10') IN ACCORDANCE WITH ITEM AR402622 AND THE SPECIAL PROVISIONS.

THE POROUS FRICTION COURSE SHALL BE PLACED ON A CLEAN AND PREPARED SURFACE ONLY AFTER THE APPROVAL OF THE RESIDENT ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO REMOVE/BLADE ALL SOD THAT HAS GROWN OVER THE EXISTING PAVEMENT EDGES PRIOR TO PLACEMENT OF THE BITUMINOUS TACK COAT. THIS WORK WILL BE CONSIDERED PART OF THE POROUS FRICTION COURSE INSTALLATION.

THE SURFACES TO BE OVERLAYED WILL BE SPRAYED WITH AN APPLICATION OF A BITUMINOUS TACK COAT. AN APPLICATION RATE OF 0.25 GAL/S.Y. (DILUTED) WAS USED FOR CALCULATING THE QUANTITY OF TACK FOR THIS APPLICATION. THE EXACT RATE OF APPLICATION WILL BE DETERMINED BY THE RESIDENT ENGINEER AT THE TIME OF CONSTRUCTION.

THE PROPOSED POROUS FRICTION COURSE WILL BE PAID FOR UNDER ITEM AR402622 – POROUS FRICTION COURSE, 0.10' = 33,634 S.Y.

NOTE

±684 L.F. OF CRACKS TO BE CLEANED & SEALED MARKED ON THIS SHEET.

LEGEND

- EXISTING PAVEMENT
- PROPOSED PFC OVERLAY
- PROPOSED CLEAN & SEAL BITUMINOUS CRACKS
- REMOVE & REPLACE BIT. PAVEMENT
- PROPOSED SHOULDER ADJUSTMENT

0' 15' 30' 60'

FULL SIZE SCALE: 1"= 30'
HALF SIZE SCALE: 1"= 60'

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HEI Project No. 814-06RWY0 0800
Filename R-121CON.DWG
Scale SCALE: 1"=30'
Date 01/29/08

LAYOUT	BAK	12/13/05
DRAWN	BAK	12/13/05
REVIEWED	CAH	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

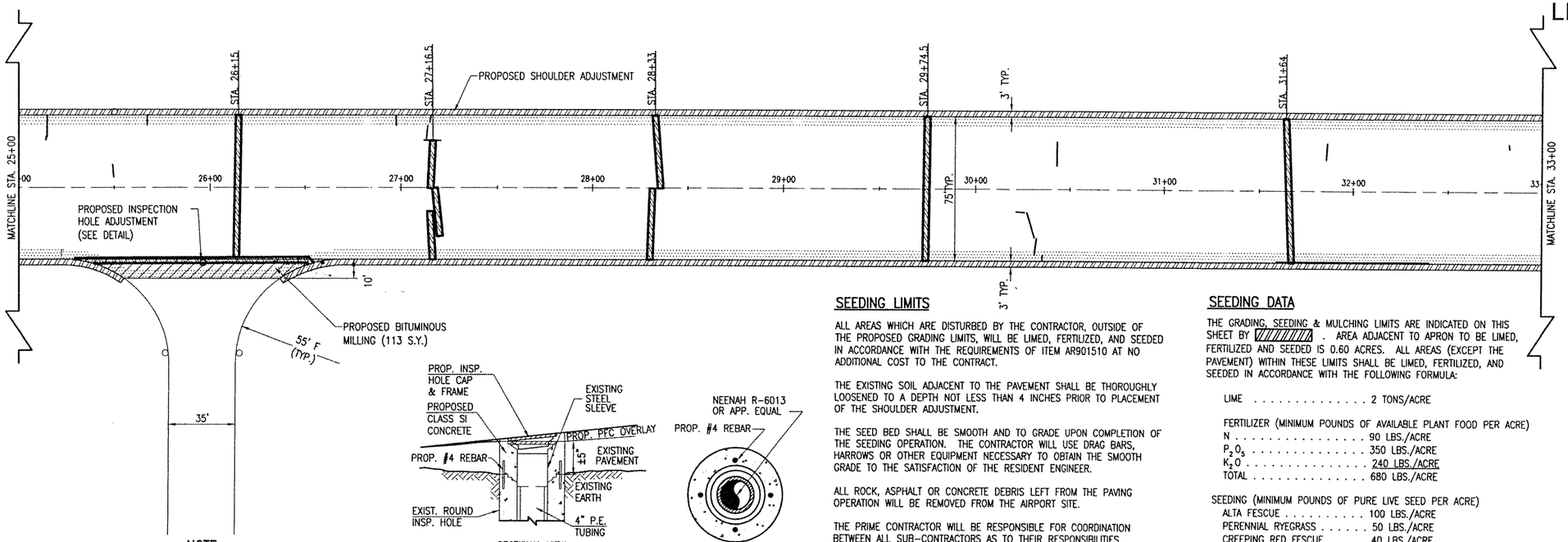
PROPOSED P.F.C. ON RUNWAY 9-27

PROPOSED CONSTRUCTION PLAN STA. 10+00 TO STA. 25+00

4

APR 11, 2008 10:27 AM HAGLOOO332
J:\PROJ\LITCHFIELD\814-06RWY\AIRPORT\SHEETS\R-121CON.DWG – STA. 10+00 TO 25+00

LI031



NOTE

±237 L.F. OF CRACKS TO BE CLEANED & SEALED MARKED ON THIS SHEET.

INSPECTION HOLE ADJUSTMENT DETAIL

"NOT TO SCALE"

SEEDING LIMITS

ALL AREAS WHICH ARE DISTURBED BY THE CONTRACTOR, OUTSIDE OF THE PROPOSED GRADING LIMITS, WILL BE LIMED, FERTILIZED, AND SEEDED IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM AR901510 AT NO ADDITIONAL COST TO THE CONTRACT.

THE EXISTING SOIL ADJACENT TO THE PAVEMENT SHALL BE THOROUGHLY LOOSENED TO A DEPTH NOT LESS THAN 4 INCHES PRIOR TO PLACEMENT OF THE SHOULDER ADJUSTMENT.

THE SEED BED SHALL BE SMOOTH AND TO GRADE UPON COMPLETION OF THE SEEDING OPERATION. THE CONTRACTOR WILL USE DRAG BARS, HARROWS OR OTHER EQUIPMENT NECESSARY TO OBTAIN THE SMOOTH GRADE TO THE SATISFACTION OF THE RESIDENT ENGINEER.

ALL ROCK, ASPHALT OR CONCRETE DEBRIS LEFT FROM THE PAVING OPERATION WILL BE REMOVED FROM THE AIRPORT SITE.

THE PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATION BETWEEN ALL SUB-CONTRACTORS AS TO THEIR RESPONSIBILITIES PERTAINING TO THE SEEDING OPERATION.

SEEDING DATA

THE GRADING, SEEDING & MULCHING LIMITS ARE INDICATED ON THIS SHEET BY ▨. AREA ADJACENT TO APRON TO BE LIMED, FERTILIZED AND SEEDED IS 0.60 ACRES. ALL AREAS (EXCEPT THE PAVEMENT) WITHIN THESE LIMITS SHALL BE LIMED, FERTILIZED, AND SEEDED IN ACCORDANCE WITH THE FOLLOWING FORMULA:

LIME . . . . . 2 TONS/ACRE

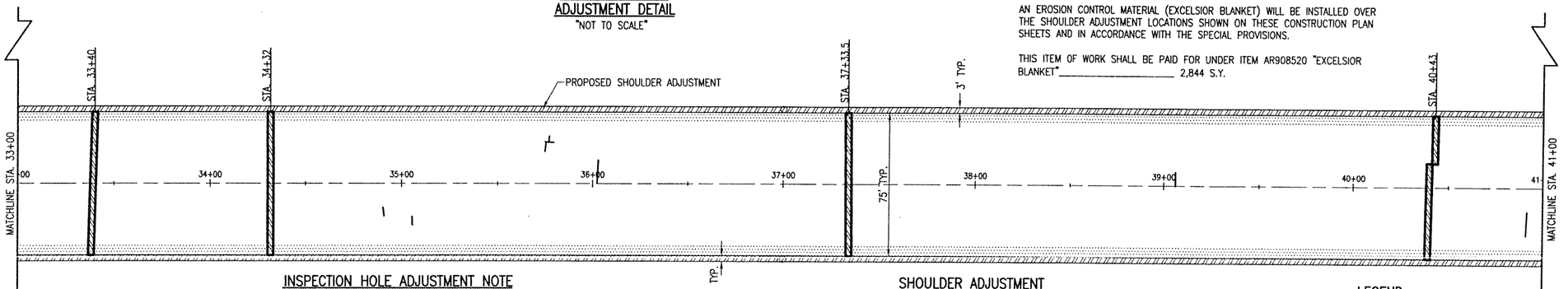
FERTILIZER (MINIMUM POUNDS OF AVAILABLE PLANT FOOD PER ACRE)
N . . . . . 90 LBS./ACRE
P_2O_5 . . . . . 350 LBS./ACRE
K_2O . . . . . 240 LBS./ACRE
TOTAL . . . . . 680 LBS./ACRE

SEEDING (MINIMUM POUNDS OF PURE LIVE SEED PER ACRE)
ALTA FESCUE . . . . . 100 LBS./ACRE
PERENNIAL RYEGRASS . . . . . 50 LBS./ACRE
CREEPING RED FESCUE . . . . . 40 LBS./ACRE
SPRING OATS . . . . . 10 LBS./ACRE

EXCELSIOR BLANKET NOTES

AN EROSION CONTROL MATERIAL (EXCELSIOR BLANKET) WILL BE INSTALLED OVER THE SHOULDER ADJUSTMENT LOCATIONS SHOWN ON THESE CONSTRUCTION PLAN SHEETS AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THIS ITEM OF WORK SHALL BE PAID FOR UNDER ITEM AR908520 "EXCELSIOR BLANKET"_____ 2,844 S.Y.



REMOVE & REPLACE QUANTITIES

LOCATION	CALCULATED LENGTH	SQUARE YARDS
37.5' RT.	127 L.F.	42 S.Y.
STA. 26+15	75 L.F.	25 S.Y.
STA. 27+16.5	75 L.F.	25 S.Y.
STA. 28+33	75 L.F.	25 S.Y.
STA. 29+74.5	75 L.F.	25 S.Y.
STA. 31+64	75 L.F.	25 S.Y.
STA. 33+40	75 L.F.	25 S.Y.
STA. 34+32	75 L.F.	25 S.Y.
STA. 37+33.5	75 L.F.	25 S.Y.
STA. 40+43	75 L.F.	25 S.Y.
SUB TOTAL	802 L.F.	267 S.Y.

INSPECTION HOLE ADJUSTMENT NOTE

THE CONTRACTOR WILL SAW THE EXISTING PAVEMENT ±6" IN DEPTH AND ±1' LATERALLY AROUND CENTER OF THE EXISTING INSPECTION HOLE TO EXPOSE THE EXISTING CONCRETE OF THE INSPECTION HOLE. THE CONTRACTOR WILL CAREFULLY REMOVE THE EXISTING STEEL SLEEVE, INSPECTION HOLE LID AND SURROUNDING PAVEMENT AND DISPOSE OF OFF THE AIRPORT.

THE CONTRACTOR WILL NEXT INSTALL 4-NO. 4 REBAR WHICH WILL BE DRILLED AND GROUTED INTO PLACE AS SHOWN ON THIS PAGE.

THE CONTRACTOR WILL PROVIDE A SUITABLE PIPE AND MATCH THE SHAPE OF THE EXISTING STRUCTURE WITH A SIMILAR FORM TO THE ELEVATION OF THE PROPOSED POROUS FRICTION COURSE GRADE.

THE CONTRACTOR SHALL USE 610 "STRUCTURAL PORTLAND CEMENT CONCRETE".

THE CONTRACTOR WILL REMOVE THE FORM ONCE THE CONCRETE HAS CURED AND BACKFILL THE REMAINING VOID WITH THE BITUMINOUS SURFACE MIX UTILIZED FOR THE BITUMINOUS PAVEMENT REPAIRS.

THE PROPOSED PAVEMENT & INSPECTION HOLE REMOVAL, PROVIDING A NEW FRAME, LID & PIPE, THE CONCRETE COLLAR AND CORRESPONDING BITUMINOUS BACKFILL WILL BE PAID FOR UNDER ITEM:
AR751949 "ADJUST INSPECTION HOLE"_____1 EACH.

SHOULDER ADJUSTMENT

1. SHOULDER ADJUSTMENT WILL BE PERFORMED ADJACENT TO ALL PAVEMENT OVERLAY AREAS TO PROVIDE A MAXIMUM OF 1-½" DROP-OFF. PRIOR TO PLACING THE SHOULDER MATERIAL, THE LIMITS WILL BE MOWED AND PULVERIZED, DISKED, OR TILLED TO THE SATISFACTION OF THE RESIDENT ENGINEER. THE PROPOSED GRADING, SEEDING AND MULCHING LIMITS ARE SHOWN ON THE CONSTRUCTION PLANS AS PROPOSED SHOULDER ADJUSTMENT. A 1 INCH DROP SHALL BE MAINTAINED FROM THE PAVEMENT EDGE TO THE EARTH SHOULDER UNLESS OTHERWISE NOTED. THE EARTH FILLETS WILL NOT REQUIRE COMPACTING OR GRADING, OTHER THAN LIGHT ROLLING AND SHAPING. THE MATERIAL FOR THE PROPOSED EARTH FILLETS WILL BE OBTAINED FROM OFF-SITE.

2. THE MATERIAL FOR THE PROPOSED SHOULDER ADJUSTMENT WILL BE PAID FOR UNDER: ITEM AR152480 "SHOULDER ADJUSTMENT"

3. QUANTITY OF "SHOULDER ADJUSTMENT"_____ 2,844 SQ. YDS.

LEGEND

- EXISTING PAVEMENT
- PROPOSED PFC OVERLAY
- PROPOSED BITUMINOUS MILLING
- REMOVE & REPLACE BIT. PAVEMENT
- PROPOSED SHOULDER ADJUSTMENT
- PROPOSED CLEAN & SEAL BITUMINOUS CRACKS

0' 15' 30' 60'
FULL SIZE SCALE: 1"= 30'
HALF SIZE SCALE: 1"= 60'

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HSI Project No. 814-06RWYD 0800
Filename R-121CON.DWG
Scale SCALE: 1"=30'
Date 01/29/08

LAYOUT	BAK	12/13/05
DRAWN	BAK	12/13/05
REVIEWED	CAH	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

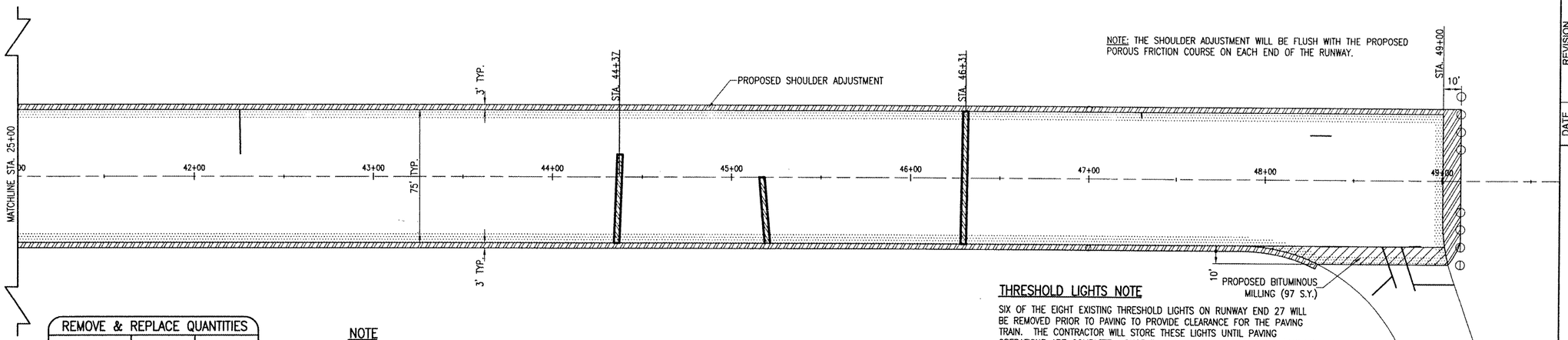
PROPOSED P.F.C. ON RUNWAY 9-27

PROPOSED CONSTRUCTION PLAN STA. 25+00 TO STA. 41+00

5

5 of 23 Sheets

LI031



NOTE: THE SHOULDER ADJUSTMENT WILL BE FLUSH WITH THE PROPOSED POROUS FRICTION COURSE ON EACH END OF THE RUNWAY.

REMOVE & REPLACE QUANTITIES		
LOCATION	CALCULATED LENGTH	SQUARE YARDS
STA. 44+37	50 L.F.	17 S.Y.
STA. 45+17	37.5 L.F.	12.5 S.Y.
STA. 46+31	75 L.F.	25 S.Y.
175' RT.	40 L.F.	13.3 S.Y.
SUB TOTAL	202.5 L.F.	68 S.Y.

NOTE

±146 L.F. OF CRACKS TO BE CLEANED & SEALED MARKED ON THIS SHEET.

REMOVE & REPLACE BITUMINOUS PAVEMENT

THE AREA DESIGNATED AS ▨ ON THE CONSTRUCTION SHEETS WITHIN THESE PLANS WILL HAVE THE EXISTING PAVEMENT REMOVED (FULL DEPTH) TO THE ROCK SUBGRADE. ALL REMOVED MATERIAL WILL BE DISPOSED OF OFF THE AIRPORT. THE WIDTH OF THE REMOVAL AREA IS 3 FT.

WHERE THE PROPOSED REMOVAL AREA ABUTTS THE EXISTING PAVEMENT, THE PAVEMENT WILL BE SAWED AS SHOWN ON THE DETAIL ON THIS SHEET. THE SAWING WILL BE CONSIDERED AS PART OF THE PROPOSED PAVEMENT REMOVAL AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

THE EXISTING AGGREGATE BASE COURSE WILL COMPACTED TO THE SATISFACTION OF THE RESIDENT ENGINEER.

THE BITUMINOUS SURFACE COURSE SHALL BE AN IDOT HIGHWAY MIX, APPROVED BY THE DIVISION OF AERONAUTICS (IDA) AND SUITABLE AS PATCHING MATERIAL. AN AVERAGE OF TWO (2) NUCLEAR DENSITY TESTS PER 100 S.Y. PER LIFT WILL BE REQUIRED FOR ACCEPTANCE TESTING. THE AVERAGE OF THESE TWO (2) TESTS MUST BE ABOVE 90% FOR ACCEPTANCE. THE FINAL LIFT OF SURFACE COURSE SHALL BE INSTALLED FLUSH WITH THE EXISTING ADJACENT PAVEMENT OR TRIMMED/FILLED PRIOR TO PLACING THE POROUS FRICTION COURSE.

THE BITUMINOUS SURFACE CORSE WILL BE INSTALLED AS PER THE SUPPLEMENTAL SPECIFICATIONS EXCEPT AS STATED IN THESE PLANS. THE REMOVAL AND DISPOSAL OF THE EXISTING PAVEMENT; PROVIDING AND INSTALLING THESE MATERIALS TO GRADE IS CONSIDERED PART OF THIS PAY ITEM AND NO OTHER COMPENSATION WILL BE ALLOWED.

THE PAVEMENT CONDITIONS AND CRACKS WERE IDENTIFIED DURING A SURVEY IN THE FALL 2005 OF THE EXISTING RUNWAY.

THE REMOVAL AND REPLACEMENT OF BITUMINOUS PAVEMENT WILL BE PAID FOR UNDER ITEM:
AR401910 "REMOVE & REPLACE BITUMINOUS PAVEMENT"-----590 SQ. YDS.

THRESHOLD LIGHTS NOTE

SIX OF THE EIGHT EXISTING THRESHOLD LIGHTS ON RUNWAY END 27 WILL BE REMOVED PRIOR TO PAVING TO PROVIDE CLEARANCE FOR THE PAVING TRAIN. THE CONTRACTOR WILL STORE THESE LIGHTS UNTIL PAVING OPERATIONS ARE COMPLETE. ONCE PAVING IS COMPLETE, THE CONTRACTOR WILL INSTALL THE THRESHOLD LIGHTS TO THEIR ORIGINAL POSITIONS. THE REMOVAL, STORAGE AND RE-INSTALLATION OF THESE THRESHOLD LIGHTS WILL BE CONSIDERED PART OF THE POROUS FRICTION COURSE INSTALLATION AND NO OTHER COMPENSATION WILL BE ALLOWED.

BUTT JOINT CONSTRUCTION NOTES

THE AREA DESIGNATED BY ▨ ON THESE DRAWINGS SHALL BE CUT OR MILLED TO ACCOMMODATE THE POROUS FRICTION COURSE OVERLAY. THIS ITEM WILL BE COMPLETED AS DETAILED IN THE SPECIAL PROVISIONS.

IF THE MILLING OPERATION DOES NOT PROVIDE A TRUE SQUARE EDGE AT THE BUTT JOINT THEN THE EXISTING PAVEMENT WILL BE SAWED. THE SAWING WILL BE CONSIDERED AS AN INCIDENTAL ITEM TO "BITUMINOUS PAVEMENT MILLING" AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

ALL MILLED MATERIAL, UNLESS WANTED BY THE AIRPORT, WILL BE DISPOSED OF BY THE CONTRACTOR, OFF THE AIRPORT SITE.

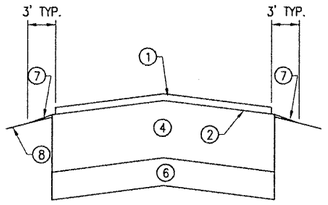
ANY ADJACENT PAVEMENT THAT IS DAMAGED BY THE MILLING OPERATIONS WILL BE REPAIRED AT THE CONTRACTOR'S OWN EXPENSE, TO THE SATISFACTION OF THE RESIDENT ENGINEER.

PRIOR TO APPLYING THE PFC OVERLAY, ALL MILLED AREAS WILL BE BROOMED AND BLOWN CLEAN OF LOOSE MATERIALS AND DEBRIS. A BITUMINOUS TACK COAT WILL BE APPLIED AS REQUIRED BY THE SPECIAL PROVISIONS. THE VERTICAL FACE OF ALL SAW CUTS WILL BE PAINTED WITH A LIQUID ASPHALT.

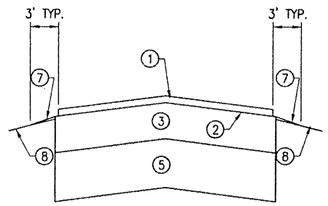
THE EXISTING PAVEMENT WILL BE MILLED TO A DEPTH OF 0.10' AT THE MATCHLINE AND TAPER TO A DEPTH OF 0.0' AT THE OTHER MILLING LIMIT.

ALL BITUMINOUS PAVEMENT MILLING AREAS WILL BE LOCATED AND MARKED BY THE RESIDENT ENGINEER.

THE BITUMINOUS PAVEMENT MILLING WILL BE PAID FOR UNDER ITEM:
AR401655 - BUTT JOINT CONSTRUCTION = 210 S.Y.



TYPICAL SECTION STA. 10+00 TO STA. 16+00
"NOT TO SCALE"



TYPICAL SECTION STA. 16+00 TO STA. 49+00
"NOT TO SCALE"

LEGEND FOR TYPICAL SECTIONS

1. 402 - PROPOSED POROUS FRICTION COURSE, 0.10'
2. 603 - PROPOSED BIT. TACK COAT (0.25 GAL. S.Y.)
3. 201/401 - EXISTING BIT. BASE/SURFACE COURSE (7" DEPTH)
4. 201/401 - EXISTING BIT. BASE/SURFACE COURSE 13" DEPTH)
5. 209 - AGGREGATE BASE COURSE (10"-12" DEPTH)
6. 209 - AGGREGATE BASE COURSE (4" DEPTH)
7. 152 - SHOULDER ADJUSTMENT
8. EXISTING GRADE

SUMMARY OF QUANTITIES

ITEM NUMBER	DESCRIPTION	UNIT	TOTAL QUANTITIES
AR152480	SHOULDER ADJUSTMENT	S.Y.	2,844
AR201661	CLEAN & SEAL BITUMINOUS CRACKS	L.F.	1,429
AR401655	BUTT JOINT CONSTRUCTION	S.Y.	210
AR401910	REMOVE & REPLACE BIT. PAVEMENT	S.Y.	590
AR402622	POROUS FRICTION COURSE, 0.10'	S.Y.	33,634
AR603510	BITUMINOUS TACK COAT	GAL.	8,409
AR901510	SEEDING	ACRE	0.60
AR908520	EXCELSIOR BLANKET	S.Y.	2,844

LEGEND

- EXISTING PAVEMENT
- PROPOSED PFC OVERLAY
- PROPOSED BITUMINOUS MILLING
- REMOVE & REPLACE BIT. PAVEMENT
- PROPOSED SHOULDER ADJUSTMENT
- PROPOSED CLEAN & SEAL BITUMINOUS CRACKS

0' 15' 30' 60'
FULL SIZE SCALE: 1"= 30'
HALF SIZE SCALE: 1"= 60'

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HEI Project No. 814-06RWYD 0800
Filename R-121CON.DWG
Scale SCALE: 1"=30'
Date 01/29/08

LAYOUT	BAK	12/13/05
DRAWN	BAK	12/13/05
REVIEWED	CAH	01/29/08

HANSON

Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

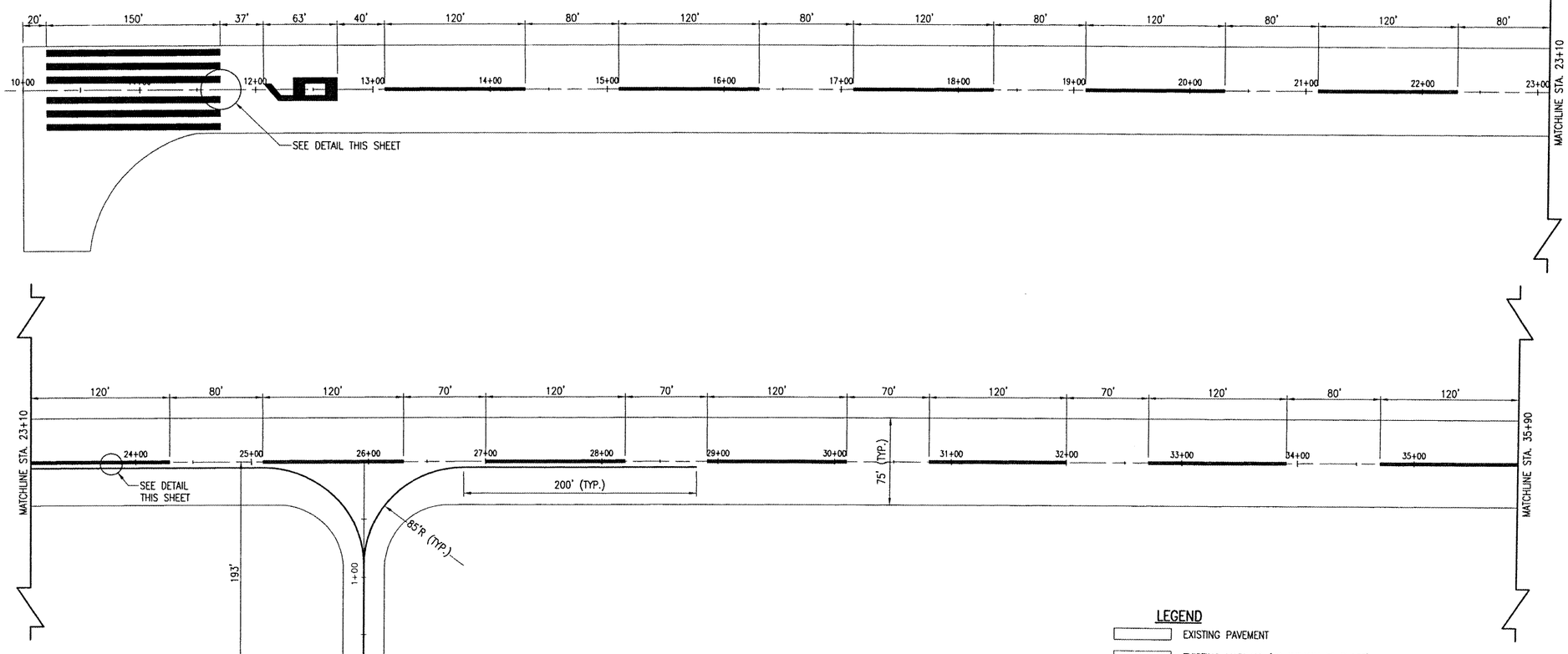
PROPOSED P.F.C. ON RUNWAY 9-27

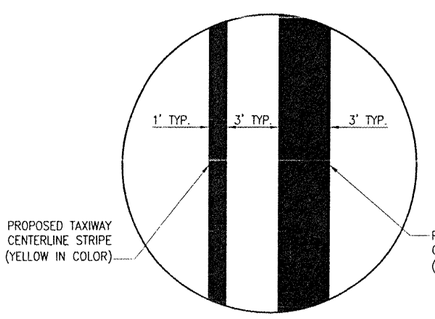
PROPOSED CONSTRUCTION PLAN STA. 41+00 TO STA. 49+00

6

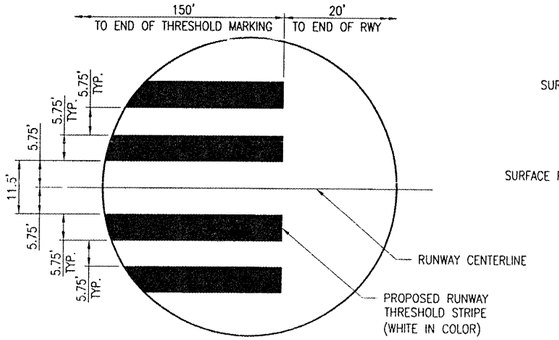
6 OF 23 SHEETS

LI031

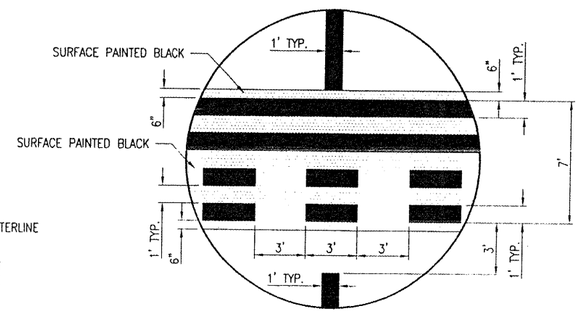




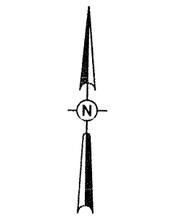
TAXIWAY CENTERLINE LEAD-IN DETAIL
"NOT TO SCALE"



THRESHOLD STRIPE DETAIL
"NOT TO SCALE"



HOLDING POSITION DETAIL
"NOT TO SCALE"



0' 25' 50' 100'
FULL SIZE SCALE 1" = 50'
HALF SIZE SCALE 1" = 100'

LEGEND

- EXISTING PAVEMENT
- EXISTING MARKING (TO REMAIN IN PLACE)
- PROPOSED MARKING

NO.	REVISION	DATE	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

MEI Project No. 814-06RWY0800
Filename R-101MRK.DWG
Scale SCALE: 1"=50'
Date 01/29/08

LAYOUT	KDM	12/19/05
DRAWN	KDM	12/19/05
REVIEWED	CAH	01/29/08

HANSON

Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

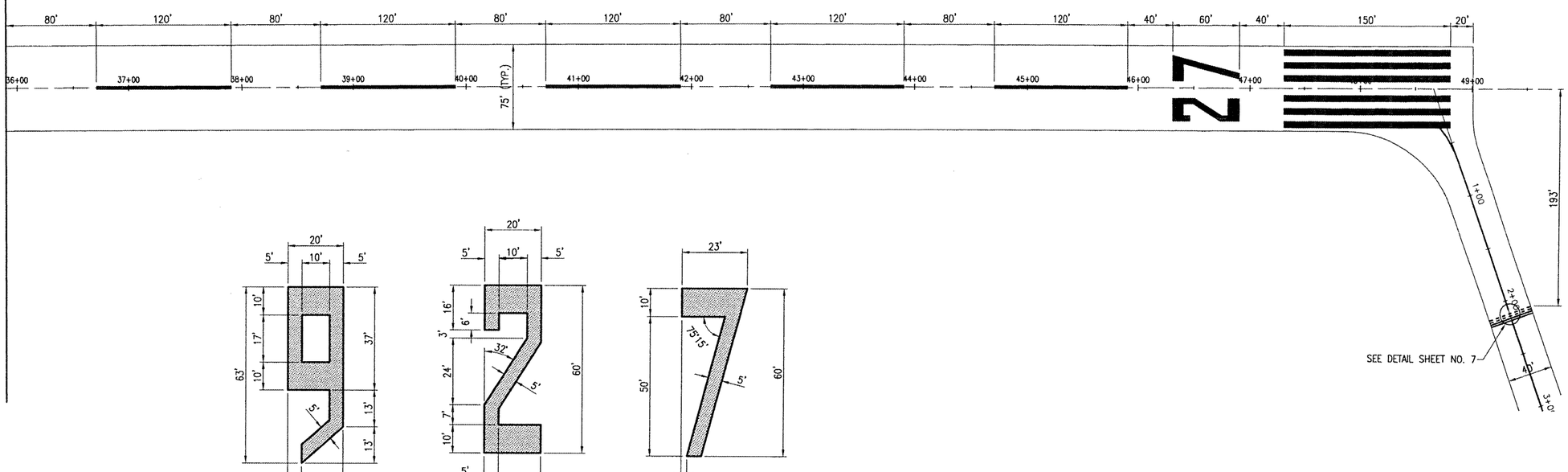
PROPOSED MARKING PLAN (RWY 9-27) STA. 10+00 TO STA. 35+90

7

9 of 23 sheets

APR 11, 2008 10:28 AM HAGLOOO332
J:\AIRPORTS\LITCHFIELD\814-06RWY.AIRPORT\SHEETS\R-101MRK.DWG - 10+00 TO 35+90

LI031



NUMERAL 9 DETAIL
"NOT TO SCALE"

NUMERAL 2 DETAIL
"NOT TO SCALE"

NUMERAL 7 DETAIL
"NOT TO SCALE"

RUNWAY 9-27 MARKING QUANTITIES

DESCRIPTION	UNIT AREA	NUMBER REQUIRED	TOTAL AREA (S.F.)
RUNWAY 9-27 CENTERLINE STRIPE	360	17	6,120
THRESHOLD	862.5	12	10,350
NUMERAL 9	735	1	735
NUMERAL 2 (OF NUMERAL 27)	650	1	650
NUMERAL 7 (OF NUMERAL 27)	500	1	500
		TOTAL (WHITE)	18,355
HOLDING POSITION (TAXIWAY)	105	1	105
HOLDING POSITION (RUNWAY END 27)	120	1	120
TAXIWAY LEAD-IN STRIPE	200	2	400
85° RADIUS	133.5	2	267
TAXIWAY STRIPE (TAXIWAY)	100	1	175
TAXIWAY STRIPE (RUNWAY END 27)	175	1	100
		TOTAL (YELLOW)	1,167
HOLDING POSITION (BLACK BORDER - TAXIWAY)	175	1	175
HOLDING POSITION (BLACK BORDER - RUNWAY END 27)	200	1	200
		TOTAL (BLACK)	375
		TOTAL MARKING	19,897

MARKING NOTES

THE PROPOSED HOLDING POSITION LINE WILL BE SOLID AND YELLOW IN COLOR, OUTLINED WITH BLACK, AND CONSTRUCTED IN ACCORDANCE WITH THE DETAIL SHOWN ON SHEET 7.

ALL PROPOSED RUNWAY CENTERLINE STRIPES WILL BE SOLID AND WHITE IN COLOR. EACH CENTERLINE STRIPE WILL BE 3' IN WIDTH BY 120' IN LENGTH(17 QTY.).

THE THRESHOLD STRIPES WILL BE SOLID AND WHITE IN COLOR. EACH THRESHOLD STRIPE WILL BE 5.75' IN WIDTH BY 150' IN LENGTH. (12 QTY.)

THE QUANTITY PROVIDED IS BASED ON THE ACTUAL AREA OF MARKING TO BE APPLIED ON THE RUNWAY.

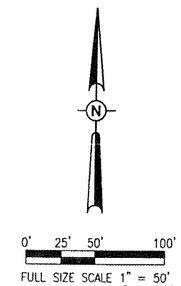
TWO COATS OF PAINT ARE REQUIRED FOR ALL MARKING.

MARKING WILL HAVE A REFLECTIVE MEDIA APPLIED ON THE SECOND COAT IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

APPLICATION RATES WILL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
ALL PROPOSED MARKING WILL BE PAID FOR UNDER:
ITEM: AR620520 "PAVEMENT MARKING-WATERBORNE"_____ PER SQ. FT.
ITEM: AR620525 "PAVEMENT MARKING-BLACK BORDER"_____ PER SQ. FT.

LEGEND

- EXISTING PAVEMENT
- EXISTING MARKING (TO REMAIN IN PLACE)
- PROPOSED MARKING



FULL SIZE SCALE 1" = 50'
HALF SIZE SCALE 1" = 100'

REVISION	BY	DATE

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HSI Project No. 814-06RWYD 0800
Filename R-101MRK.DWG
Scale SCALE:1" = 50'
Date 01/29/08

LAYOUT	KDM	12/19/05
DRAWN	KDM	12/19/05
REVIEWED	CAH	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

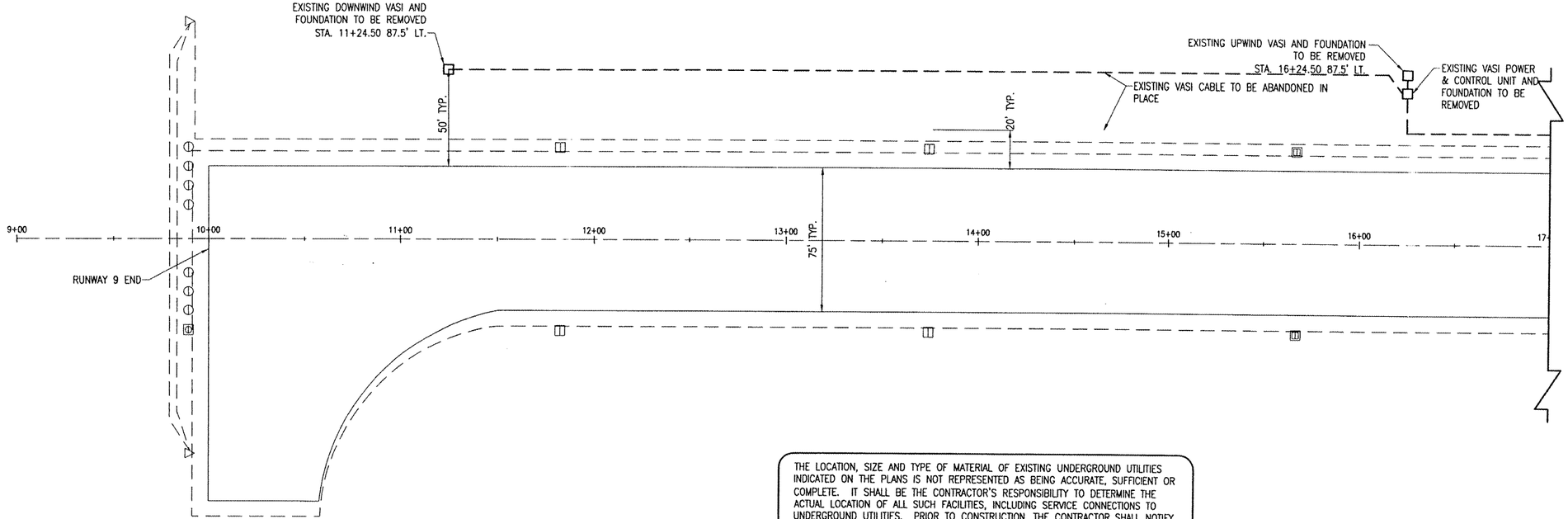
PROPOSED P.F.C. ON RUNWAY 9-27

PROPOSED MARKING PLAN (RWY 9-27) STA. 35+90 TO STA. 49+00

8

9 of 23 sheets

APR 11, 2008 10:20 AM HAGL000182
I:\AIRPORTS\LITCHFIELD\814-06RWY\AIRPORT\SHEETS\R-101MRK.DWG - 35+90 TO 49+00

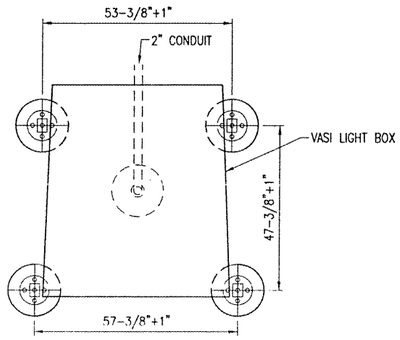


THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND 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.

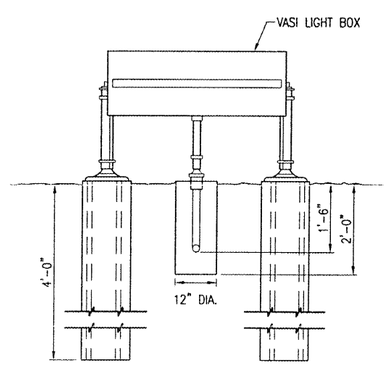
CALL J.U.L.I.E. FOR UTILITY INFORMATION AT 1-800-892-0123.

LEGEND

- EXISTING PAVEMENT
- EXISTING VASI POWER CABLE TO BE ABANDONED
- EXISTING VASI UNIT TO BE REMOVED
- EXISTING AIRFIELD LIGHTING POWER CABLE
- EXISTING REIL POWER AND CONTROL CABLES
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED RUNWAY THRESHOLD LIGHT
- EXISTING REIL
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED TAXIWAY LIGHT



TOP VIEW



FRONT VIEW

V.A.S.I. DETAIL

VASI REMOVAL NOTES

THE EXISTING VASI AND POWER & CONTROL UNITS SHOWN AT THE LOCATIONS ON SHEETS 9 AND 10 ARE TO BE UNBOLTED, REMOVED AND TURNED OVER TO THE AIRPORT MANAGER.

THE EXISTING VASI CONCRETE BASES ARE TO BE REMOVED TO THEIR FULL DEPTH AND DISPOSED OF OFF THE AIRPORT SITE. FOR DIMENSIONS OF THE EXISTING VASI BASES, SEE THE DETAIL ON THIS SHEET.

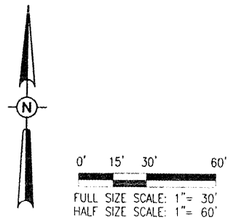
THE HOLES LEFT FROM THE VASI BASES AND POWER & CONTROL UNITS WILL BE FILLED IN WITH EARTH AND COMPACTED TO PREVENT FUTURE SETTLEMENT. THE DISTURBED AREAS WILL BE FERTILIZED AND SEEDED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE EXISTING VASI CABLES WILL BE ABANDONED IN PLACE UNLESS IT CONFLICTS WITH THE INSTALLATION OF A PROPOSED LIGHT OR CABLE, THEN IT WILL BE REMOVED AT NO ADDITIONAL COST TO THE CONTRACT.

AN EXISTING VASI UNIT CONSISTS OF THE DOWNWIND VASI, UPWIND VASI AND VASI POWER & CONTROL UNIT.

REMOVAL OF THE EXISTING VASI UNITS WILL BE PAID FOR UNDER ITEM: AR125909 "REMOVE VASI" PER EACH.

QUANTITY OF VASI UNITS TO BE REMOVED ---------- 2 EACH.



DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HEI Project No. 814-06RWY9 0800
Filename R-141ELE.DWG
Scale SCALE: 1"=30'
Date 01/29/08

LAYOUT	MDR	01/08/08
DRAWN	MDR	01/08/0/
REVIEWED	CAH/KNL	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2866
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

EXISTING ELECTRICAL PLAN
RUNWAY END 9

9

LI031

VASI POWER AND CONTROL CABLES FOR RUNWAY 9 END TO BE ABANDONED IN PLACE

41+00 42+00 43+00 44+00 45+00 46+00 47+00

MATCHLINE STA. 47+00

75' TYP.

20' TYP.

50'

EXISTING UPWIND VASI AND FOUNDATION TO BE REMOVED STA. 40+50 87.5' RT.

EXISTING VASI CABLES TO BE ABANDONED IN PLACE

EXISTING VASE POWER & CONTROL UNIT AND FOUNDATION TO BE REMOVED

EXISTING DOWNWIND VASI UNIT AND FOUNDATION TO BE REMOVED STA. 45+50 87.5' RT.

LEGEND

- EXISTING PAVEMENT
- EXISTING VASI POWER CABLE TO BE ABANDONED
- EXISTING VASI UNIT TO BE REMOVED
- EXISTING AIRFIELD LIGHTING POWER CABLE
- EXISTING REIL POWER AND CONTROL CABLES
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED RUNWAY THRESHOLD LIGHT
- EXISTING REIL
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED TAXIWAY LIGHT
- EXISTING TAXI GUIDANCE SIGN
- EXISTING STAKE MOUNTED TAXIWAY LIGHT
- EXISTING ELECTRICAL DUCT
- EXISTING HANDHOLE

EXISTING VASI POWER CABLES FOR RUNWAY 9 END TO BE ABANDONED IN PLACE

RUNWAY 27 END

MATCHLINE STA. 47+00

48+00 49+00 50+00

EXISTING VASI POWER CABLES FOR RUNWAY END 27 TO BE ABANDONED IN PLACE

40'

TAXIWAY

MATCHLINE STA. 47+00

MATCHLINE STA. 47+00

TAXIWAY

EXISTING VASI POWER CABLES FOR RUNWAY ENDS 9 AND 27 TO BE ABANDONED IN PLACE

EXISTING VAULT

N

0' 15' 30' 60'

FULL SIZE SCALE: 1"= 30'
HALF SIZE SCALE: 1"= 60'

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.

DATE | REVISION | BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HSI Project No. 814-06RWYD 0800
Filename R-141ELE.DWG
Scale SCALE: 1"=30'
Date 01/29/08

LAYOUT	MDR	01/11/08
DRAWN	MDR	01/11/08
REVIEWED	CAH/KNL	01/29/08

HANSON

Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

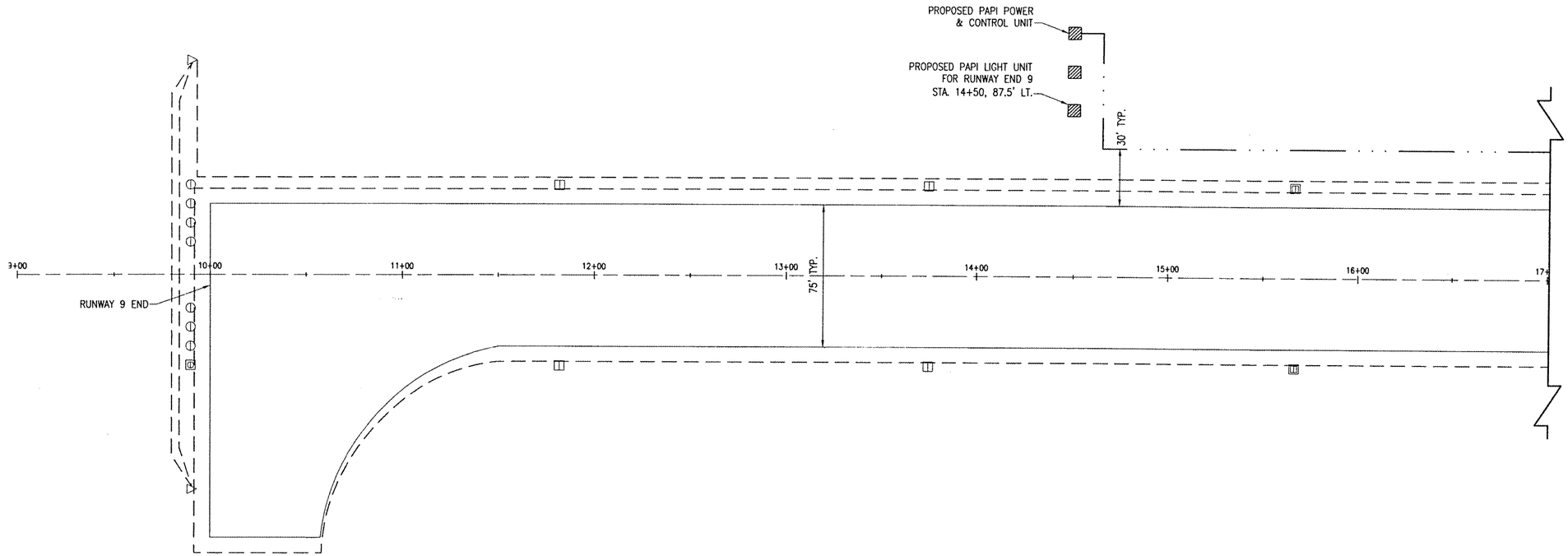
EXISTING ELECTRICAL PLAN RUNWAY END 27

10

10 OF 23 SHEETS

APR 11, 2008 10:30 AM HAGL000382
J:\AIRPORTS\LITCHFIELD\814-06RWY\AIRPORT\SHEETS\R-141ELE.DWG - RWY 27 END

LI031

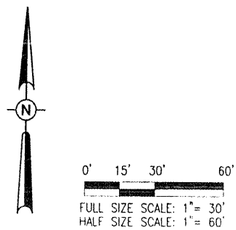


LEGEND

- EXISTING PAVEMENT
- EXISTING AIRFIELD LIGHTING POWER CABLE
- EXISTING REIL POWER AND CONTROL CABLES
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED RUNWAY THRESHOLD LIGHT
- EXISTING REIL
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED RUNWAY THRESHOLD LIGHT
- PROPOSED 3/C #6 600V UG CABLE IN UNIT DUCT (PAPI POWER CABLES)
- PROPOSED PAPI UNIT

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.



DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3JF-3559 A.I.P. PROJ.: 3-17-0063-B13

HEI Project No. 814-06RWYD 0800
Filename R-142ELE.DWG
Scale SCALE: 1"=30'
Date 01/29/08

LAYOUT	MDR	01/15/08
DRAWN	MDR	01/15/08
REVIEWED	CAH/KNL	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2888
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

PROPOSED ELECTRICAL PLAN FOR RUNWAY END 9

11

LI031

3/C #6 600V UG CABLE IN UD TO RWY 9 PAPI PCU

41+00 42+00 43+00 44+00 45+00 46+00 47

75' TYP.

MATCHLINE STA. 47+00

30' TYP.

PROPOSED PAPI LIGHT UNIT FOR RUNWAY END 27 STA. 44+50, 87.5' RT.

PROPOSED PAPI POWER & CONTROL UNIT

MATCHLINE STA. 49+22.40 163.93' RT.

3/C #6 600V UG CABLE IN UD TO RWY 9 PAPI PCU

MATCHLINE STA. 47+00

48+00 49+00 50+00

40' TYP.

RUNWAY END 27

3/C #6 600V UG CABLE IN UD TO RWY 27 PAPI PCU

40'

EXISTING DUCT

MATCHLINE STA. 49+22.40 163.93' RT.

EXISTING VAULT

EXISTING HANDHOLE

LEGEND

- EXISTING PAVEMENT
- EXISTING AIRFIELD LIGHTING POWER CABLE
- EXISTING REIL POWER AND CONTROL CABLES
- EXISTING STAKE MOUNTED RUNWAY LIGHT
- EXISTING STAKE MOUNTED RUNWAY THRESHOLD LIGHT
- EXISTING REIL
- EXISTING BASE MOUNTED RUNWAY LIGHT
- EXISTING BASE MOUNTED TAXIWAY LIGHT
- EXISTING TAXI GUIDANCE SIGN
- EXISTING STAKE MOUNTED TAXIWAY LIGHT
- EXISTING ELECTRICAL DUCT
- EXISTING HANDHOLE
- PROPOSED 3/C #6 600V UG CABLE IN UNIT DUCT (PAPI POWER CABLES)
- EXISTING VASI UNIT TO BE REMOVED

N

0' 15' 30' 60'

FULL SIZE SCALE: 1"= 30'
HALF SIZE SCALE: 1"= 60'

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.

DATE | REVISION | BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HEI Project No. 814-08RWY9.0800
Filename R-142ELE.DWG
Scale SCALE: 1"=30'
Date 01/29/08

LAYOUT	MDR	01/15/08
DRAWN	MDR	01/15/08
REVIEWED	CAH/KNL	01/29/08

HANSON

Hanson Professional Services Inc.
1525 S. Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

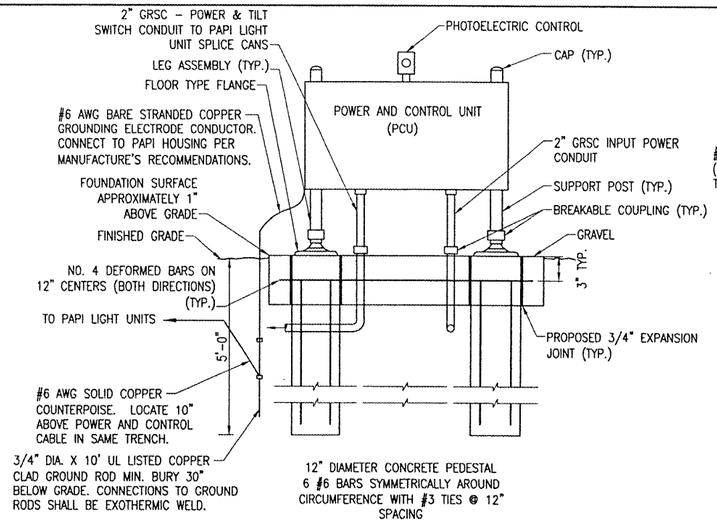
PROPOSED P.F.C. ON RUNWAY 9-27

PROPOSED ELECTRICAL PLAN FOR RUNWAY END 27

12

12 of 23 sheets

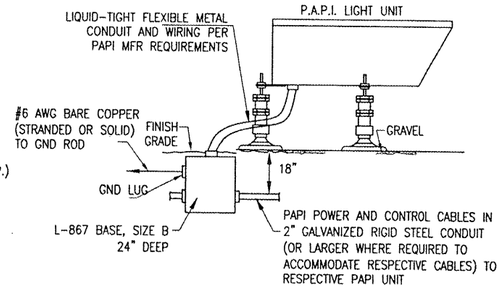
Apr 11, 2008 10:30 AM HAGLUND382
J:\HANOVER\LITCHFIELD\814-08RWY\AIRPORT\SHEETS\R-142ELE.DWG - RWY 27 END



12" DIAMETER CONCRETE PEDESTAL 6 #6 BARS SYMMETRICALLY AROUND CIRCUMFERENCE WITH #3 TIES @ 12" SPACING

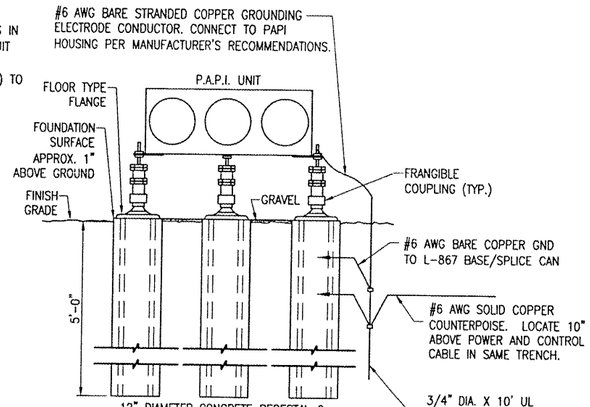
FRONT ELEVATION POWER AND CONTROL UNIT

"NOT TO SCALE"



SIDE ELEVATION P.A.P.I. LIGHT UNIT

"NOT TO SCALE"



12" DIAMETER CONCRETE PEDESTAL 6 #6 BARS SYMMETRICALLY AROUND CIRCUMFERENCE WITH #3 TIES @ 12" SPACING

FRONT ELEVATION P.A.P.I. LIGHT UNIT

"NOT TO SCALE"

P.A.P.I. NOTES

THE PROPOSED PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEM WILL BE PLACED AT THE LOCATION SHOWN ON SHEET NO.11.

THE PROPOSED CONCRETE PEDESTALS WILL BE AS DETAILED ON THIS SHEET. THE NUMBER OF PEDESTALS CONSTRUCTED FOR EACH PAPI UNIT WILL DEPEND ON THE UNIT SELECTED BY THE CONTRACTOR FOR INSTALLATION.

SIX (6") INCHES OF GRAVEL ON TOP OF BLACK PLASTIC WILL BE PLACED UNDER EACH PAPI UNIT TO HALT VEGETATION GROWTH.

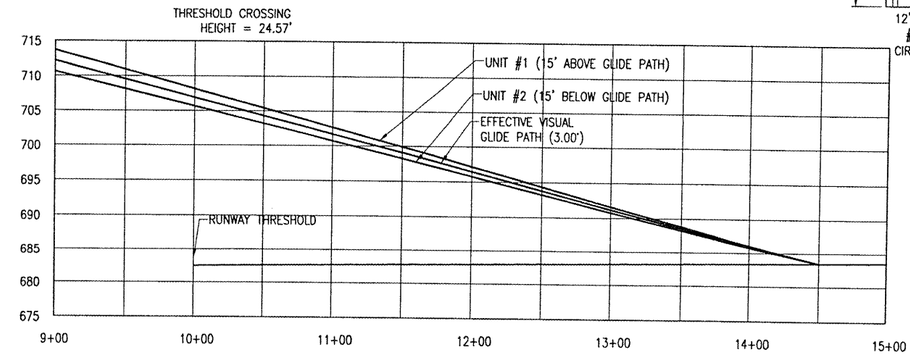
EACH PAPI UNIT WILL BE CONSTRUCTED SUCH THAT THE BEAM CENTERS WILL BE WITHIN ±1" OF ELEVATION 683.34.

THE PROPOSED POWER CABLE TO THE PAPI SYSTEM WILL BE 3-1/C NO. 6, 600V., TYPE XLP-USE UNDERGROUND CABLE IN 1-1/4" UNIT DUCT. THIS CABLE WILL BE PLOWED OR TRENCHED IN PLACE AT A MINIMUM DEPTH OF 18" BELOW FINISH GRADE.

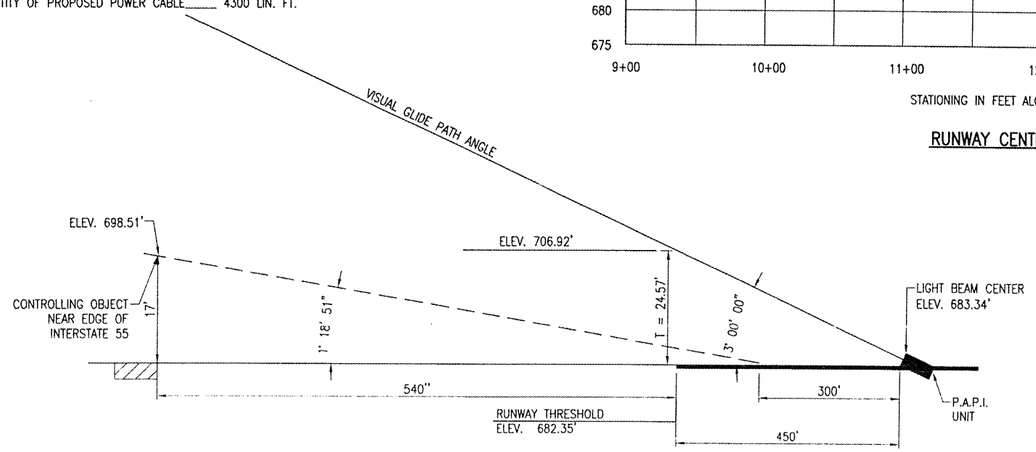
THE PAPI INSTALLATION WILL BE PAID FOR UNDER ITEM: AR125620 ABBREVIATED PAPI (L-881 SYSTEM) PER LUMP SUM.

THE POWER CABLE WILL BE PAID FOR UNDER ITEM: AR108656 3/C #6 600V UG. CABLE IN UD PER LIN. FT.

QUANTITY OF PROPOSED POWER CABLE_____ 4300 LIN. FT.



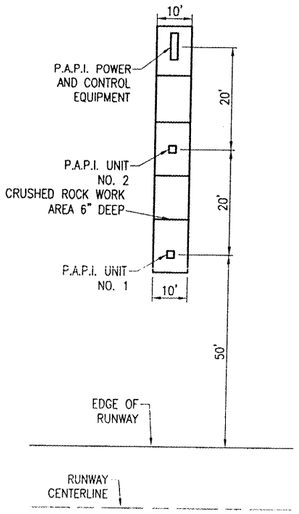
RUNWAY CENTERLINE PROFILE



P.A.P.I. AIMING DIAGRAM 9 END

"NOT TO SCALE"

PAPI DATA-RUNWAY END 9			
	P.A.P.I. UNIT #1	P.A.P.I. UNIT #2	P AND C UNIT
DISTANCE FROM RUNWAY C	87.5'	107.5'	127.5'
AIMING ANGLE	3°15'	2°45'	N/A
APPROXIMATE GROUND ELEVATION	680.8'	679.4'	679.0'
P.A.P.I. UNIT APERTURE ELEVATION	683.34'	683.34'	N/A



P.A.P.I. LAYOUT DETAIL

"NOT TO SCALE"

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HS Project No. 814-06ERWYD 0800
Filename R-541ELE.DWG
Scale N/A
Date 01/29/08

LAYOUT	MDR	01/15/08
DRAWN	MDR	01/15/08
REVIEWED	CAH/KNL	01/29/08

HANSON

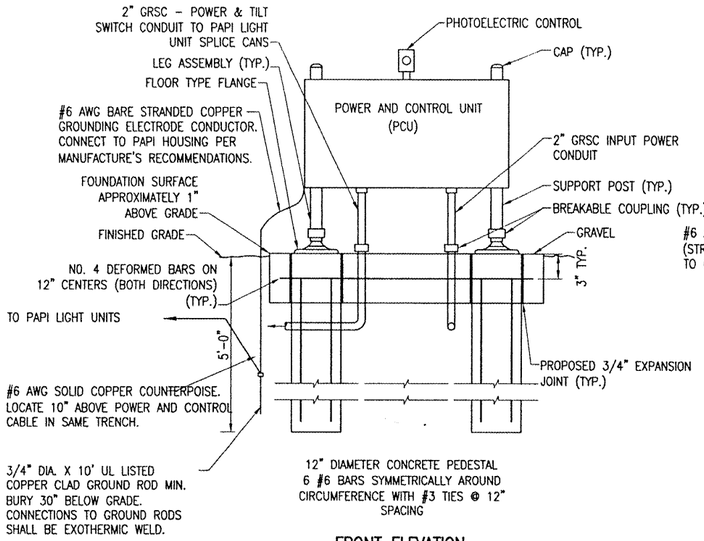
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

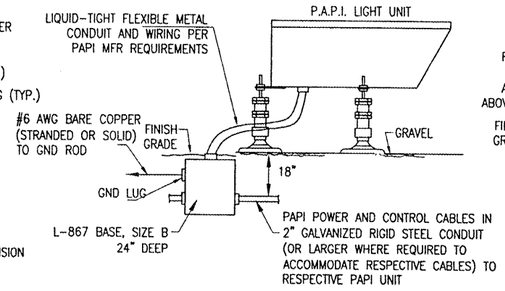
PROPOSED PAPI DETAILS AND NOTES RUNWAY 9 END

13

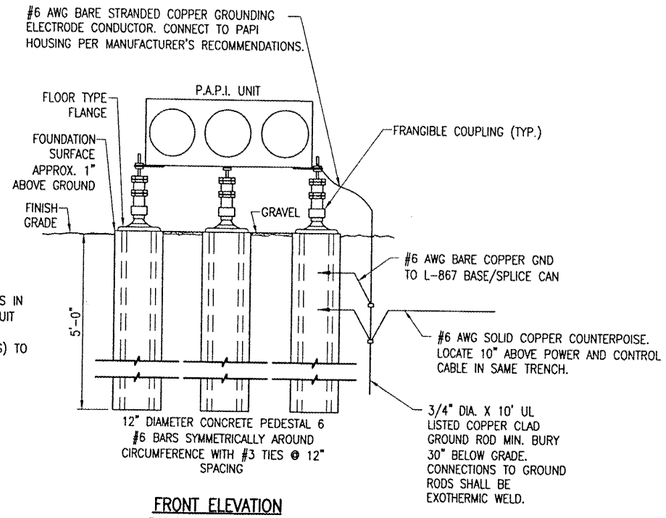
13 of 23 sheets



FRONT ELEVATION
POWER AND CONTROL UNIT
"NOT TO SCALE"



SIDE ELEVATION
P.A.P.I. LIGHT UNIT
"NOT TO SCALE"



FRONT ELEVATION
P.A.P.I. LIGHT UNIT
"NOT TO SCALE"

P.A.P.I. NOTES

THE PROPOSED PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEM WILL BE PLACED AT THE LOCATION SHOWN ON SHEET NO.12.

THE PROPOSED CONCRETE PEDESTALS WILL BE AS DETAILED ON THIS SHEET. THE NUMBER OF PEDESTALS CONSTRUCTED FOR EACH PAPI UNIT WILL DEPEND ON THE UNIT SELECTED BY THE CONTRACTOR FOR INSTALLATION.

SIX (6") INCHES OF GRAVEL ON TOP OF BLACK PLASTIC WILL BE PLACED UNDER EACH PAPI UNIT TO HALT VEGETATION GROWTH.

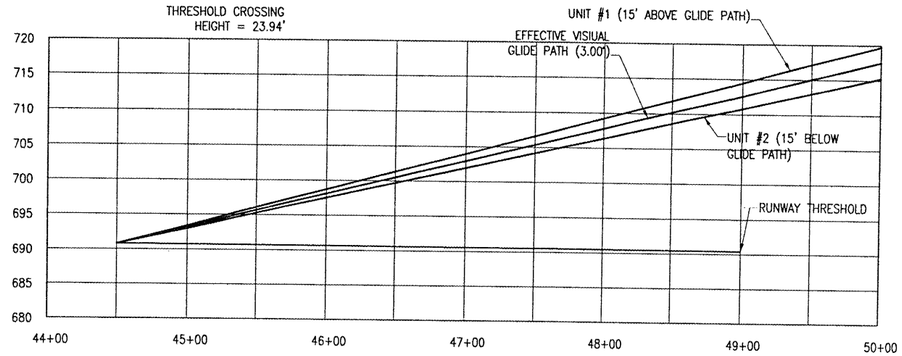
EACH PAPI UNIT WILL BE CONSTRUCTED SUCH THAT THE BEAM CENTERS WILL BE WITHIN ±1" OF ELEVATION 690.80.

THE PROPOSED POWER CABLE TO THE PAPI SYSTEM WILL BE 3-1/C NO. 6, 600V., TYPE XLP-USE UNDERGROUND CABLE IN 1-1/4" UNIT DUCT. THIS CABLE WILL BE TRENCHED IN PLACE AT A MINIMUM DEPTH OF 18" BELOW FINISH GRADE.

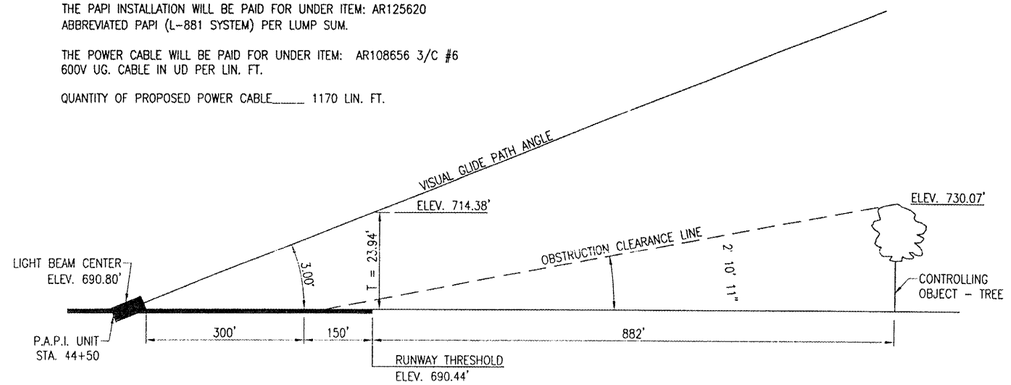
THE PAPI INSTALLATION WILL BE PAID FOR UNDER ITEM: AR125620 ABBREVIATED PAPI (L-881 SYSTEM) PER LUMP SUM.

THE POWER CABLE WILL BE PAID FOR UNDER ITEM: AR108656 3/C #6 600V UG. CABLE IN UD PER LIN. FT.

QUANTITY OF PROPOSED POWER CABLE_____ 1170 LIN. FT.

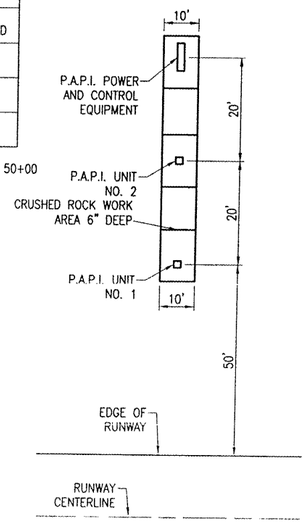


RUNWAY CENTERLINE PROFILE



P.A.P.I. AIMING DIAGRAM 27 END
"NOT TO SCALE"

PAPI DATS-RUNWAY END 27			
	P.A.P.I. UNIT #1	P.A.P.I. UNIT #2	P AND C UNIT
DISTANCE FROM RUNWAY C	87.5'	107.5'	127.5'
AIMING ANGLE	3°15'	2°45'	N/A
APPROXIMATE GROUND ELEVATION	686.3'	685.7'	685.3'
P.A.P.I. UNIT APERTURE ELEVATION	690.80'	690.80'	N/A



P.A.P.I. LAYOUT DETAIL
"NOT TO SCALE"

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HEI Project No. 814-06RWY0 0800
Filename R-542ELE.DWG
Scale N/A
Date 01/29/08

LAYOUT	MDR	01/15/08
DRAWN	MDR	01/15/08
REVIEWED	CAH/KNL	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2866
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

PROPOSED PAPI DETAILS AND NOTES RUNWAY 27 END

14

ELECTRICAL LEGEND – ONE-LINE DIAGRAM

	CABLE TERMINATOR/LUG
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	FUSE
	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE
	GROUND – GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL
	INDICATING LIGHT
M	MOTOR
#	LOAD, MOTOR, # = HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE
XXX	EQUIPMENT, XXX = DEVICE DESCRIPTION
GND	GROUND BUS OR TERMINAL
S/N	NEUTRAL BUS
	PANELBOARD WITH MAIN LUGS
	PANELBOARD WITH MAIN BREAKER
	FUSE PANEL WITH MAIN FUSE PULLOUT
	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE
	CONTROL STATION
N EM L	TRANSFER SWITCH
G	ENGINE GENERATOR SET

ELECTRICAL LEGEND – SCHEMATIC

	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
S*	STARTER COIL, * = STARTER NUMBER
OL	OVERLOAD RELAY CONTACT
CR*	CONTROL RELAY, * = CONTROL RELAY NUMBER
R*	RELAY, * = RELAY NUMBER
	TOGGLE SWITCH / 2 POSITION SWITCH
OFF AUTO OX	2-POSITION SELECTOR SWITCH
OFF HAND AUTO XOO OOX	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
GND	GROUND BUS OR TERMINAL
S/N	NEUTRAL BUS
	GROUND, GROUND ROD, GROUND BUS
	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
P	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 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
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
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:

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 COORDINATE WORK AND ANY POWER OUTAGES WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER.
3. 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

4. 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 NEMA 4, 4X RATING.
5. SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.

LI031

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HSI Project No. 814-06RWYD.0800
Filename E-001.DWG
Scale NONE
Date 01/29/08

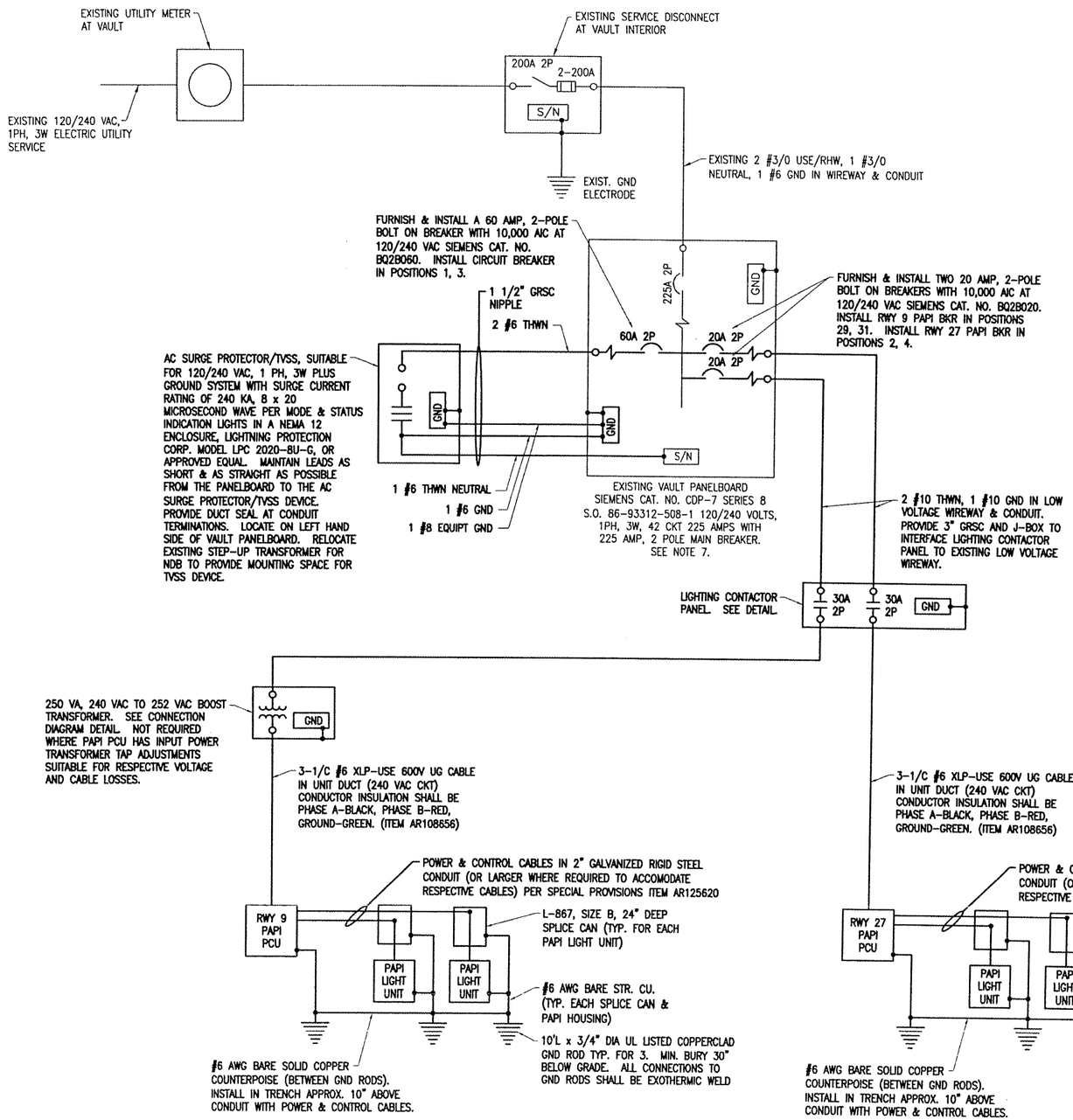
LAYOUT	KNL	01/22/08
DRAWN	MV	01/22/08
REVIEWED	CAH	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2888
Offices Nationwide

PROPOSED P.F.C.
ON RUNWAY 9-27

ELECTRICAL LEGEND
AND ABBREVIATIONS

15



ONE LINE DIAGRAM FOR RUNWAY 9-27 PAPI UNITS

LI031

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 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 SHALL NOT BE PERMITTED.
3. ALL EQUIPMENT SHOWN NOT LABELED AS EXISTING IS NEW.
4. HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY.
5. 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.
6. VAULT WORK SHALL BE PAID FOR UNDER ITEM AR109200.
7. REPLACE THE EXISTING 20 AMP, 1 POLE BREAKER FOR THE L-854 RADIO (CKT 17) WITH A 10 AMP, 1 POLE BOLT ON BREAKER WITH 10,000 AIC AT 120 VAC, SIEMENS CAT. NO. BQ1B010. REPLACE THE EXISTING 20 AMP, 1 POLE BREAKER FOR THE INTERFACE POWER (CKT 27) WITH A 10 AMP, 1 POLE BOLT ON BREAKER WITH 10,000 AIC AT 120 VAC, SIEMENS CAT. NO. BQ1B010. ALL EXISTING CIRCUIT BREAKERS REMOVED FROM THE PANELBOARD SHALL REMAIN AIRPORT PROPERTY.

VAULT LEGEND PLATE SCHEDULE	
DEVICE	LABEL
PAPI CONTROL PANEL/LIGHTING CONTACTORS	RUNWAY 9-27 NAVAID CONTROL PANEL
RUNWAY 9 PAPI PCU	RWY 9 PAPI PCU FED FROM VAULT
RUNWAY 27 PAPI PCU	RWY 27 PAPI PCU FED FROM VAULT

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.

DANGER

HIGH VOLTAGE
KEEP OUT

PROVIDE WARNING SIGN ON VAULT EXTERIOR DOOR LABELED "DANGER – HIGH VOLTAGE – KEEP OUT" PER THE REQUIREMENTS OF NEC 110.34 (C).

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HS Project No. 814-06RWY9 0800
Filename E-601.DWG
Scale N/A
Date 01/29/08

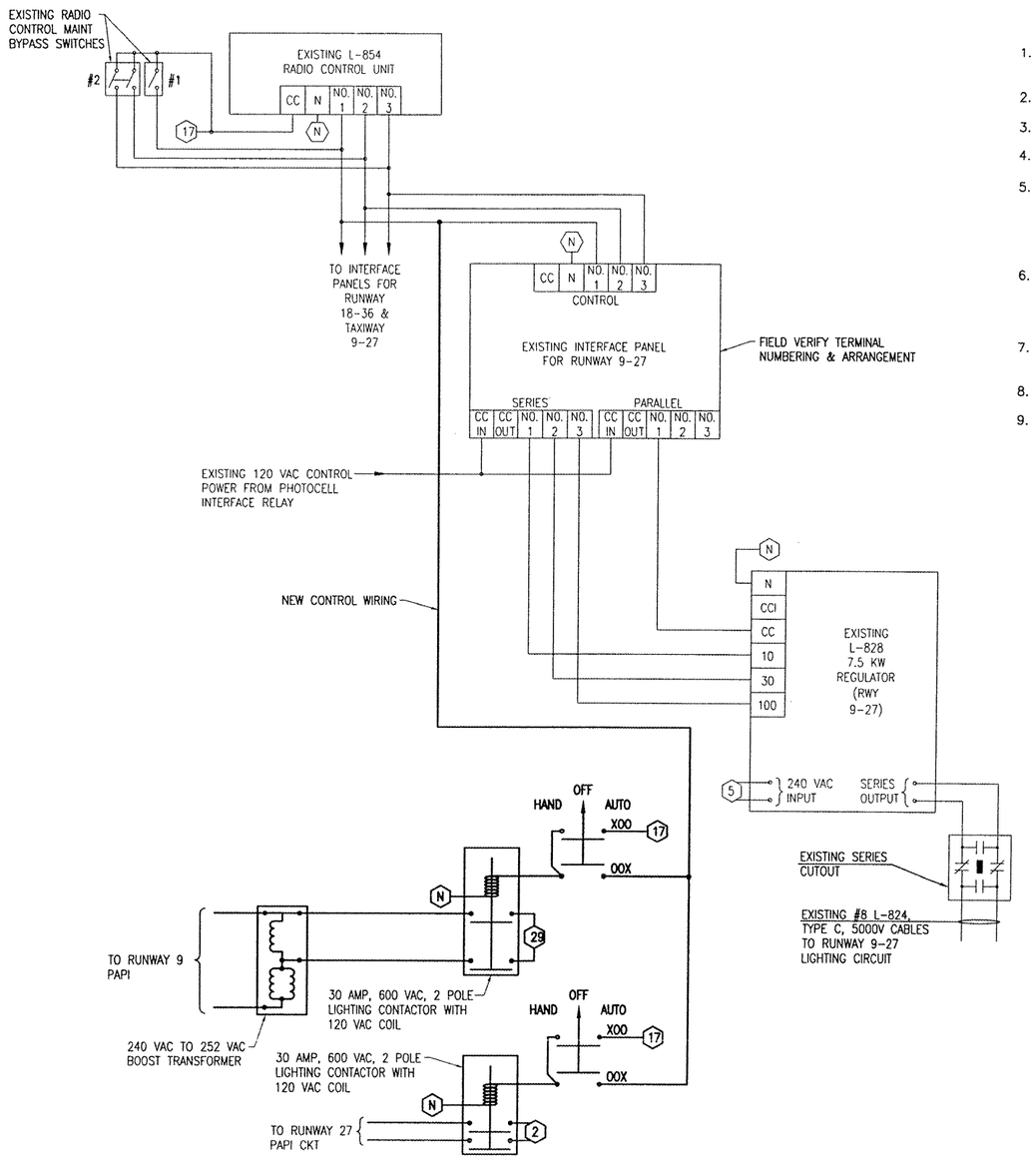
LAYOUT	KNL	01/22/08
DRAWN	MV	01/22/08
REVIEWED	CAH	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

ONE-LINE DIAGRAM FOR RWY 9-27 PAPI UNITS

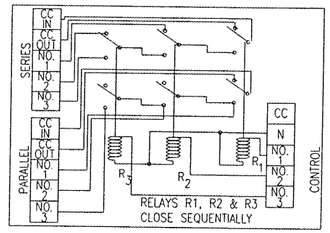
16



RUNWAY 9-27 PAPI UNITS WIRING SCHEMATIC

NOTES

1. ALL ELECTRICAL EQUIPMENT WILL BE WIRED IN ACCORDANCE WITH THE SCHEMATIC WIRING DIAGRAM, ALL APPLICABLE CODES, AND AS SPECIFIED HEREIN.
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 RUNWAY 9-27 PAPI CIRCUITS WILL BE CONTROLLED BY THE L-854 RADIO CONTROL UNIT IN THE FOLLOWING MANNER:
   3 CLICKS - ON
   5 CLICKS - REMAIN ON
   7 CLICKS - REMAIN ON
6. L-854 RADIO CONTROL UNIT, INTERFACE PANEL FOR RUNWAY 9-27, & CCR FOR RWY 9-27 ARE EXISTING. LIGHTING CONTACTORS, HAND-OFF-AUTO SELECTOR SWITCHES, AND BOOST TRANSFORMER FOR RUNWAY 9-27 PAPI UNITS SHALL BE NEW. INTERFACE NEW CONTROL WIRING TO EXISTING CONTROL SYSTEM. FIELD VERIFY EXISTING CONTROL CIRCUITS.
7. EQUIPMENT GROUND WIRES SHALL BE INCLUDED WITH EACH BRANCH/FEEDER CIRCUIT & EACH CONTROL CIRCUIT.
8. SEE LIGHTING CONTACTOR PANEL DETAILS FOR REQUIREMENTS ON PANEL LAYOUT & WIRING.
9. NEW CONDUCTORS FOR PAPI CIRCUITS SHALL BE AS DETAILED HEREIN & IN THE SPECIAL PROVISIONS.



TYP. INTERFACE PANEL DETAIL

SHEET LEGEND

(2) NEW 240 VAC FEEDER CIRCUIT FOR RUNWAY 27 PAPI FROM VAULT PANEL CKT 2, 4.

(5) EXISTING 240 VAC POWER CIRCUIT FOR RWY 9-27 CCR FROM VAULT PANELBOARD CKT 5, 7.

(17) EXISTING 120 VAC CONTROL POWER CIRCUIT FOR L-854 RADIO FROM VAULT PANELBOARD CKT 17. INTERFACE TO NEW LIGHTING CONTACTOR PANEL FOR RWY 9-27 PAPI UNITS.

(29) NEW 240 VAC FEEDER CIRCUIT FOR RUNWAY 9 PAPI'S FROM VAULT PANEL CKT 29, 31.

(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.

LI031

BY	REVISION	DATE

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

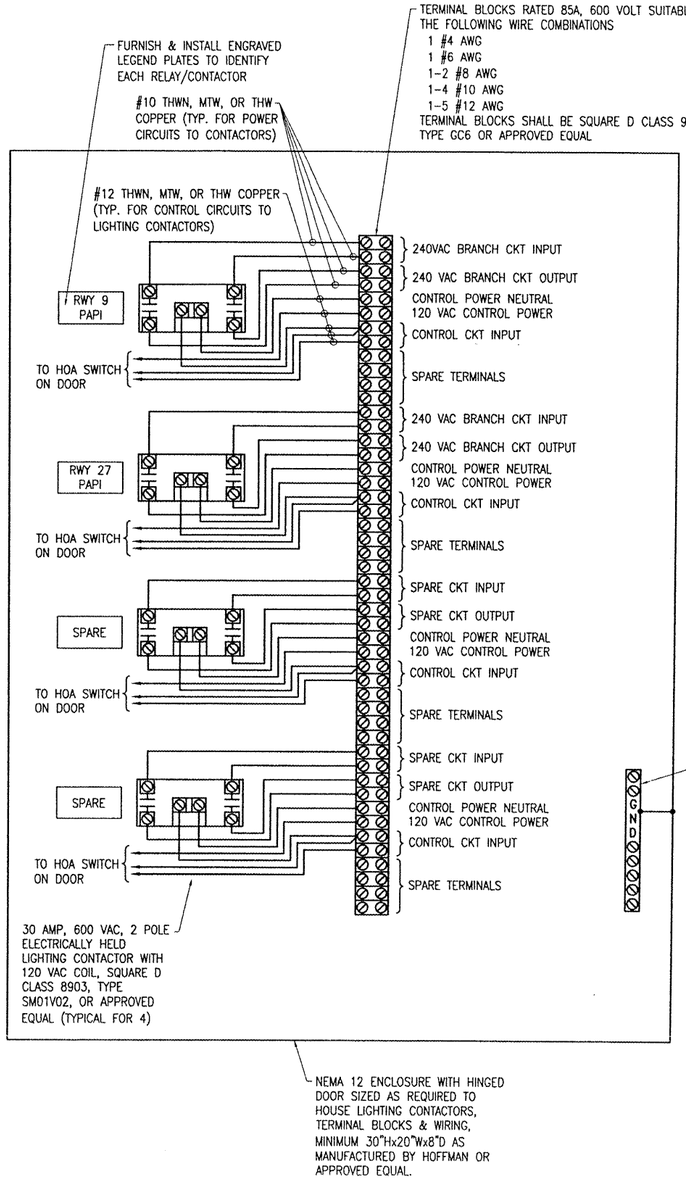
IDOT Project No.	814-06RWYD 0800	
Filename	E-604.DWG	
Scale	NONE	
Date	01/29/08	
LAYOUT	KNL	01/22/08
DRAWN	MV	01/22/08
REVIEWED	CAH	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

AIRFIELD LIGHTING WIRING SCHEMATIC

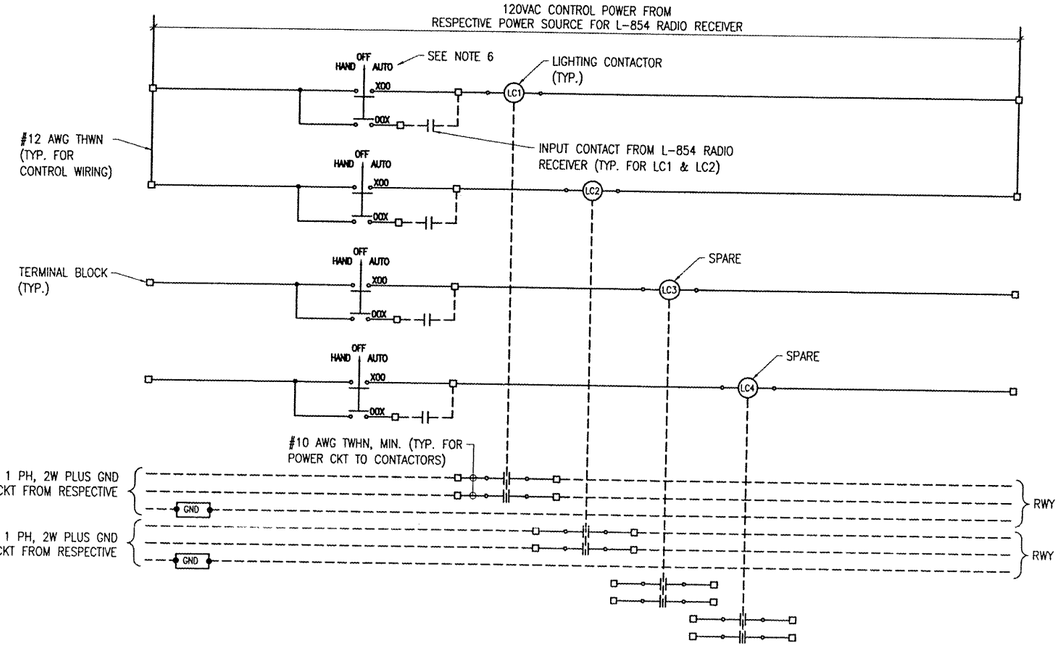
17



CONTROL PANEL FOR PAPI UNITS

NOTES

1. 15 AMP & 20 AMP INPUT POWER/BRANCH CIRCUITS SHALL BE #10 AWG COPPER THWN FROM THE RESPECTIVE POWER SOURCE TO THE LIGHTING CONTACTOR/RELAY PANEL. 30 AMP INPUT POWER/BRANCH CIRCUITS SHALL BE #8 AWG COPPER THWN (MIN.) FROM THE RESPECTIVE POWER SOURCE TO THE LIGHTING CONTACTOR/RELAY PANEL.
2. INPUT CONTROL CIRCUITS SHALL BE #12 AWG COPPER THWN.
3. PROVIDE #10 AWG COPPER BONDING JUMPER FROM PANEL ENCLOSURE FRAME TO ENCLOSURE DOOR.
4. PROVIDE 3-POSITION MAINTAINED CONTACT "HAND-OFF-AUTO" SELECTOR SWITCH FOR EACH LIGHTING CONTACTOR & MOUNT ON LIGHTING CONTACTOR PANEL ENCLOSURE DOOR. SELECTOR SWITCH SHALL BE SQUARE D CLASS 9001, TYPE KS43FBH13, OR APPROVED EQUAL. INCLUDE LEGEND PLATE TO IDENTIFY THE DEVICE CONTROLLED (EX: "RWY 9 PAPI" OR "RWY 27 PAPI").
5. INSTALL CONTROL PANEL FOR PAPI UNITS ON WALL 12" ABOVE VAULT HEATER. FIELD VERIFY LOCATION WITH ADEQUATE CLEAR WORKING SPACE PER NEC 110.26. INTERFACE CONTROL PANEL TO LOW VOLTAGE WIREWAY WITH 3" GRSC AND JUNCTION BOXES.



SCHEMATIC

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

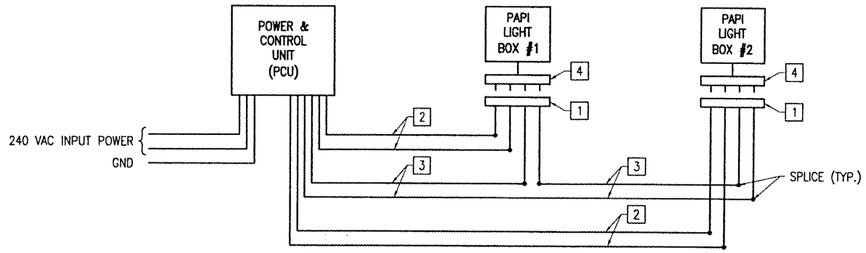
HSI Project No.	814-06RWY9_0800
Filename	E-602.DWG
Scale	NONE
Date	01/29/08

LAYOUT	KNL	01/22/08
DRAWN	MV	01/22/08
REVIEWED	CAH	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

LIGHTING CONTACTOR PANEL DETAIL



PAPI FIELD WIRING CONNECTIONS (FOR CROUSE-HINDS 881A3A-1 PAPI)

NOTES

1. PAPI FIELD WIRING CONNECTION DIAGRAM IS BASED ON A CROUSE-HINDS PART NO 881A3A-1, L-881 STYLE A (VOLTAGE POWERED) PAPI WITH 3 LAMPS PER LIGHT BOX, & INFORMATION PROVIDED BY CROUSE-HINDS FIELD SERVICE SUPPORT CENTER. WIRING REQUIREMENTS VARY FOR DIFFERENT PAPI MANUFACTURERS AND DIFFERENT PAPI MODEL NUMBERS BY THE SAME MANUFACTURER. CONTRACTOR SHALL CONFIRM WIRING REQUIREMENTS WITH THE RESPECTIVE PAPI MANUFACTURER AND ADJUST TO MEET MANUFACTURER INSTRUCTIONS AND RECOMMENDATIONS. POWER WIRING REQUIREMENTS SHOWN ARE MINIMUM, FOR THE RESPECTIVE PAPI SYSTEM.
2. INCLUDE #8 AWG COPPER (MINIMUM) EQUIPMENT GROUND WIRE IN CONDUIT WITH POWER & CONTROL WIRING BETWEEN THE POWER & CONTROL UNIT & THE PAPI LIGHT BOXES.
3. CONDUIT BETWEEN PAPI PCU AND SPLICE CANS AT PAPI LIGHT UNITS SHALL BE GALVANIZED RIGID STEEL CONDUIT.

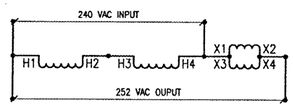
KEYED NOTES

[1] CONSOLIDATING HARNESS, 4 #14 AWG LEADS AS FURNISHED OR REQUIRED BY PAPI MFR.

[2] OUTGOING POWER FEED FROM POWER & CONTROL UNIT TO THE TWO PAPI LIGHT BOXES (#1 & #2), #8 AWG XLP-USE OR THWN (MIN.)

[3] TILT SWITCH WIRING #14 AWG XLP-USE OR THWN (MIN.) CONFIRM WIRING WITH PAPI MFR & ADJUST AS APPLICABLE.

[4] PLUG WITH CABLE ASSEMBLY AS FURNISHED OR REQUIRED BY PAPI MFR.



NOTES:

1. CONFIRM WIRING WITH RESPECTIVE TRANSFORMER MFR.
2. PROVIDE BOOST TRANSFORMER AT VAULT WHERE VOLTAGE DROP FROM VAULT TO RESPECTIVE PAPI POWER AND CONTROL UNIT EXCEEDS 5% (12 VOLTS FOR 240 VAC NOMINAL SUPPLY). BOOST TRANSFORMER IS NOT REQUIRED WHERE PAPI PCU HAS INPUT POWER TRANSFORMER TAP ADJUSTMENTS SUITABLE FOR RESPECTIVE INPUT VOLTAGE AND CABLE LOSSES.

240 VAC TO 252 VAC BOOST TRANSFORMER CONNECTION DIAGRAM FOR SQUARE D CAT. NO. 250SV43B TRANSFORMER

BY	REVISION	DATE

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

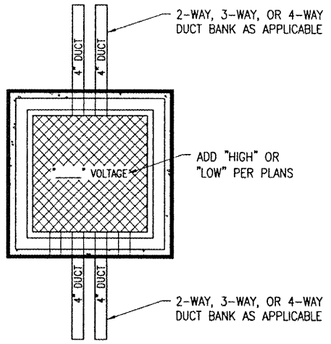
LAYOUT	KNL	01/22/08
DRAWN	MV	01/22/08
REVIEWED	CAH	01/29/08

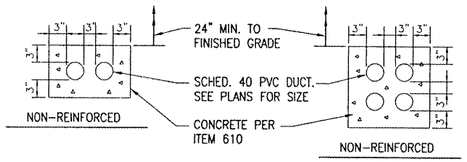
IEI Project No. 814-06RWYD 0800
Filename E-605.DWG
Scale N/A
Date 01/29/08

HANSON
Hanson Professional Services Inc.
1525 S. Sixth St., Suite 300
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

PAPI FIELD WIRING CONNECTIONS





NOTES:

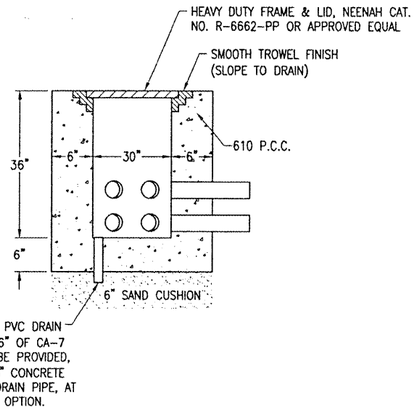
1. ALL DIMENSIONS ARE MINIMUM.
2. INCLUDE DUCT SPACERS AS MANUFACTURED BY UNDERGROUND DEVICES INC., TO MAINTAIN PROPER SEPARATION OF CONDUITS.

CONCRETE ENCASED DUCT DETAIL

(2-WAY & 4-WAY SHOWN)

NOTES:

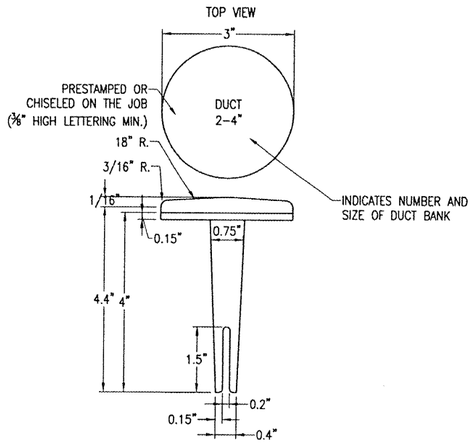
1. THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
2. BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE IMFORMED 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 ½" AND ¼" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.



NOTE:

1. LIDS FOR LOW VOLTAGE HANDHOLES SHALL BE LABELED "LOW VOLTAGE". LIDS FOR HIGH VOLTAGE HANDHOLES SHALL BE LABELED "HIGH VOLTAGE". COORDINATE LETTERING WITH MFR.
2. HANDHOLE MAY BE CAST IN PLACE OR PRECAST.
3. SEE SPECIAL PROVISIONS.

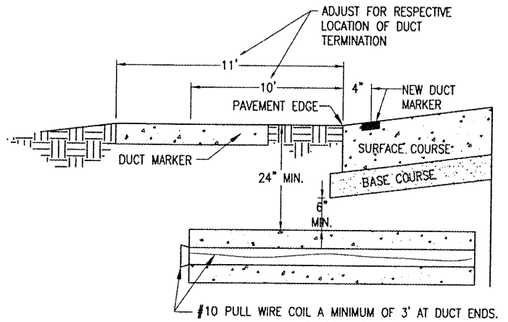
THE LOCATION OF UNDERGROUND UTILITIES AS INDICATED ON THE PLANS HAS BEEN OBTAINED FROM EXISTING RECORDS. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER, IN RESPECT TO THE ACCURACY OR SUFFICIENCY OF THE INFORMATION AND THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE CONDITIONS ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION.



BITUMINOUS PAVEMENT DUCT MARKERS

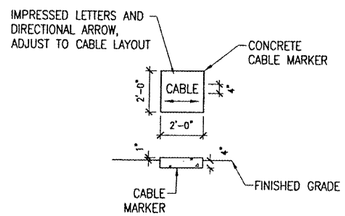
"NOT TO SCALE"

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



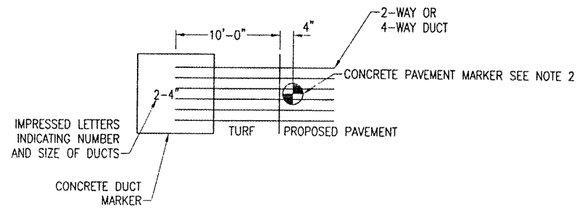
UNDERGROUND ELECTRICAL DUCT

(NOT TO SCALE)



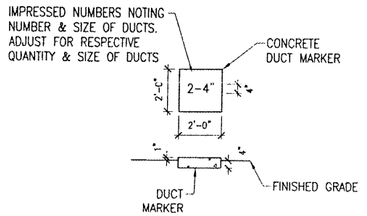
TURF CABLE MARKERS

"NOT TO SCALE"



DUCT MARKER DETAIL

"NOT TO SCALE"



TURF DUCT MARKERS

"NOT TO SCALE"

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

A.I.P. PROJ.: 3-17-0063-B13
IL. PROJ.: 3LF-3559

DATE	REVISION	BY

HEI Project No. 814-06RWYD_0800
Filename R-543ELE.DWG
Scale N/A
Date 01/29/08

LAYOUT	MDR	01/17/08
DRAWN	MDR	01/17/08
REVIEWED	CAH/KNL	01/29/08

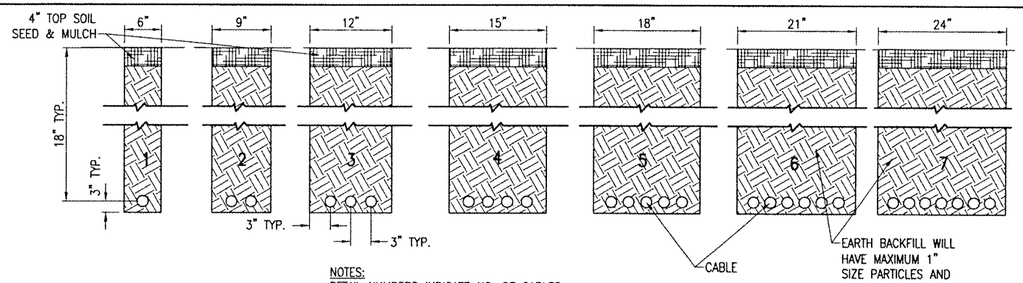
HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

ELECTRICAL DETAILS SHEET 1

20
20 of 23 Sheets

APR 11, 2008 10:34 AM HAGLO0382
J:\AIRPORTS\LITCHFIELD\814-06RWY\AIRPORT SHEETS\R-543ELE.DWG - Layout1



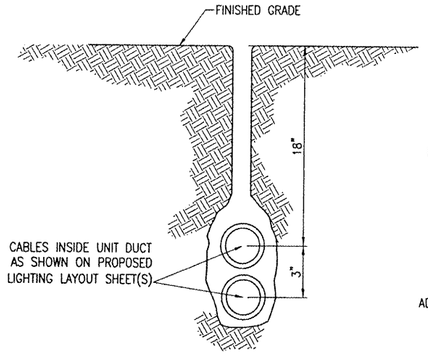
NOTES:
DETAIL NUMBERS INDICATE NO. OF CABLES.

TRENCHES WITH MORE THAN SEVEN CABLES SHALL BE INCREASED 3" IN WIDTH FOR EACH ADDITIONAL CABLE; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.

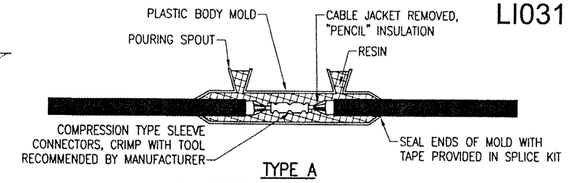
DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.

ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.

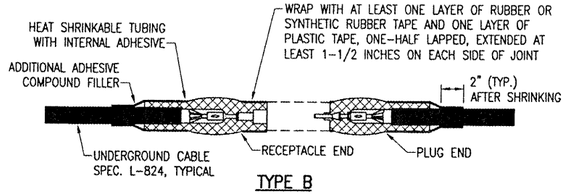
CABLE TRENCHES
(NOT TO SCALE)



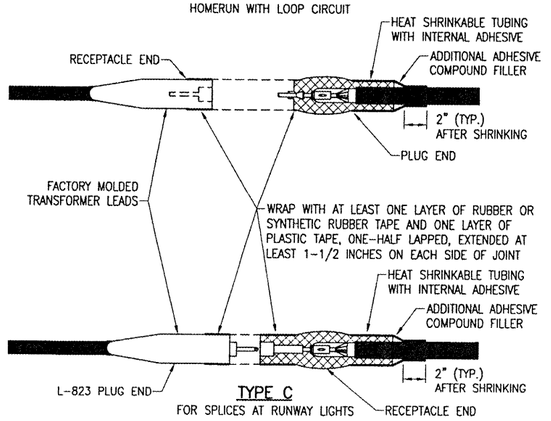
PLOWED CABLE
(NOT TO SCALE)



TYPE A
FOR SPLICES IN HOMERUNS. TYPE A SPLICES SHALL BE MADE IN SPLICE CANS, HANDHOLES, MANHOLES, OR JUNCTION BOXES.



TYPE B
FOR SPLICES AT JUNCTION OF HOMERUN WITH LOOP CIRCUIT

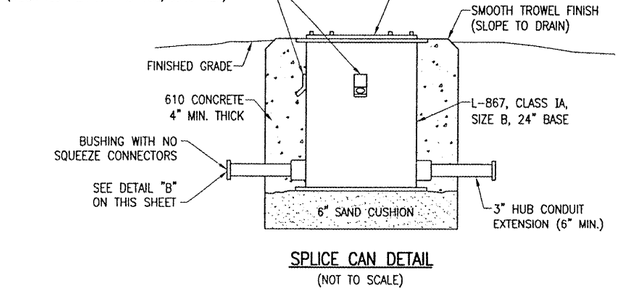


TYPE C
FOR SPLICES AT RUNWAY LIGHTS

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

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

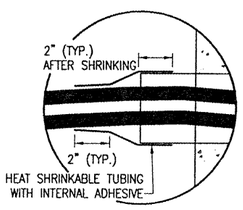
CABLE SPLICES
(NOT TO SCALE)



SPLICE CAN DETAIL
(NOT TO SCALE)

NOTES

1. SPLICE CANS SHALL BE LOCATED AS DETAILED ON THE PLANS.
2. ADDITIONAL SPLICE CANS REQUIRED FOR EXISTING CABLES CUT AND REPAIRED OR TO ACCOMMODATE CABLE RESPECTIVE INSTALLATION SHALL BE INCIDENTAL TO THAT RESPECTIVE PAY ITEM OR REPAIR WORK.



DETAIL "B"
(NOT TO SCALE)

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. CONTACT AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING AIRPORT CABLES. CONTACT FAA FOR ASSISTANCE IN LOCATING FAA CABLES

LI031

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HEI Project No. 814-06RWYD 0800
Filename R-544ELE.DWG
Scale N/A
Date 01/29/08

LAYOUT	MDR	01/17/08
DRAWN	MDR	01/17/08
REVIEWED	CAH/KNL	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2866
Offices Nationwide

PROPOSED P.F.C. ON RUNWAY 9-27

ELECTRICAL DETAILS SHEET 2

21

21 of 23 sheets

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 WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER.

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 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".

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HSI Project No. 814-06RWY9 0800
Filename R-545ELE.DWG
Scale N/A
Date 01/29/08

LAYOUT	MDR	01/17/08
DRAWN	MDR	01/17/08
REVIEWED	CAH/KNL	01/29/08

HANSON
Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C.
ON RUNWAY 9-27

ELECTRICAL NOTES
SHEET 1

22
22 of 23 sheets

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. 20.

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. 20.

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.

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. 20.

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 400 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.

GROUNDING NOTES FOR AIRFIELD LIGHTING

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 150/5340-30C DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A SAFETY GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. THE PURPOSE OF THE SAFETY GROUND IS TO PROTECT PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE AS THE RESULT OF A SHORTED CABLE OR ISOLATION TRANSFORMER. A SAFETY GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A SAFETY GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. THE SAFETY 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 5/8-INCH DIAMETER BY 8-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONNECTIONS TO 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). 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 150/5340-30C THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.

4. GROUNDING FOR PAPI'S. GROUNDING FOR PAPI'S SHALL CONFORM TO THE RESPECTIVE PAPI MANUFACTURER'S INSTALLATION INSTRUCTIONS, AS DETAILED ON THE PLANS, AND AS SPECIFIED HEREIN. THE POWER CIRCUIT TO EACH PAPI UNIT, INCLUDING THE PAPI PCU (POWER AND CONTROL UNIT), SHALL INCLUDE AN EQUIPMENT GROUND WIRE OF THE SAME SIZE AND TYPE AS THE PHASE CONDUCTORS. FURNISH AND INSTALL A 3/4-INCH DIAMETER BY 10-FOOT LONG COPPER CLAD GROUND ROD AT THE PAPI PCU AND AT EACH PAPI LIGHTING UNIT. BOND EACH PAPI UNIT (PCU AND LIGHTING UNITS) AND THE RESPECTIVE L-867 SPLICE CAN TO THE RESPECTIVE GROUND ROD WITH A #6 AWG STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR. TOP OF GROUND RODS SHALL BE BURIED APPROXIMATELY 24 INCHES BELOW GRADE. ALL 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 LIGHTNING PROTECTION GROUNDING EQUIPMENT, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437). CONNECTIONS TO L-867 SPLICE CANS SHALL BE WITH UL LISTED GROUNDING CONNECTORS SUITABLE FOR USE IN DIRECT BURIAL OR CONCRETE ENCASEMENT APPLICATIONS. CONNECTIONS TO PAPI UNIT FRAME SHALL BE AS RECOMMENDED BY THE MANUFACTURER OR WITH A UL LISTED GROUNDING CONNECTOR. ALL GROUND RODS ASSOCIATED WITH THE COMPLETE PAPI INSTALLATION SHALL BE BONDED TOGETHER WITH A #6 AWG SOLID COPPER COUNTERPOISE CONDUCTOR. THIS COUNTERPOISE CONDUCTOR SHALL BE INSTALLED IN THE SAME TRENCH LOCATED 10 INCHES ABOVE THE POWER AND CONTROL CONDUCTORS, BETWEEN EACH RESPECTIVE PAPI UNIT (PCU AND/OR LIGHTING UNIT).

DATE	REVISION	BY

LITCHFIELD MUNICIPAL AIRPORT
LITCHFIELD, ILLINOIS

IL. PROJ.: 3LF-3559 A.I.P. PROJ.: 3-17-0063-B13

HS Project No. 814-06RWYD 0800
Filename R-546ELE.DWG
Scale N/A
Date 01/29/08

LAYOUT	MDR	01/17/08
DRAWN	MDR	01/17/08
REVIEWED	CAH/KNL	01/29/08

HANSON

Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Offices Nationwide

PROPOSED P.F.C.
ON RUNWAY 9-27

ELECTRICAL NOTES
SHEET 2

23

23 of 23 sheets

APR 11, 2008 10:36 AM HAGLOOO382
J:\PROJECTS\LITCHFIELD\814-06RWY\AIRPORT\SHEETS\R-546ELE.DWG - Work