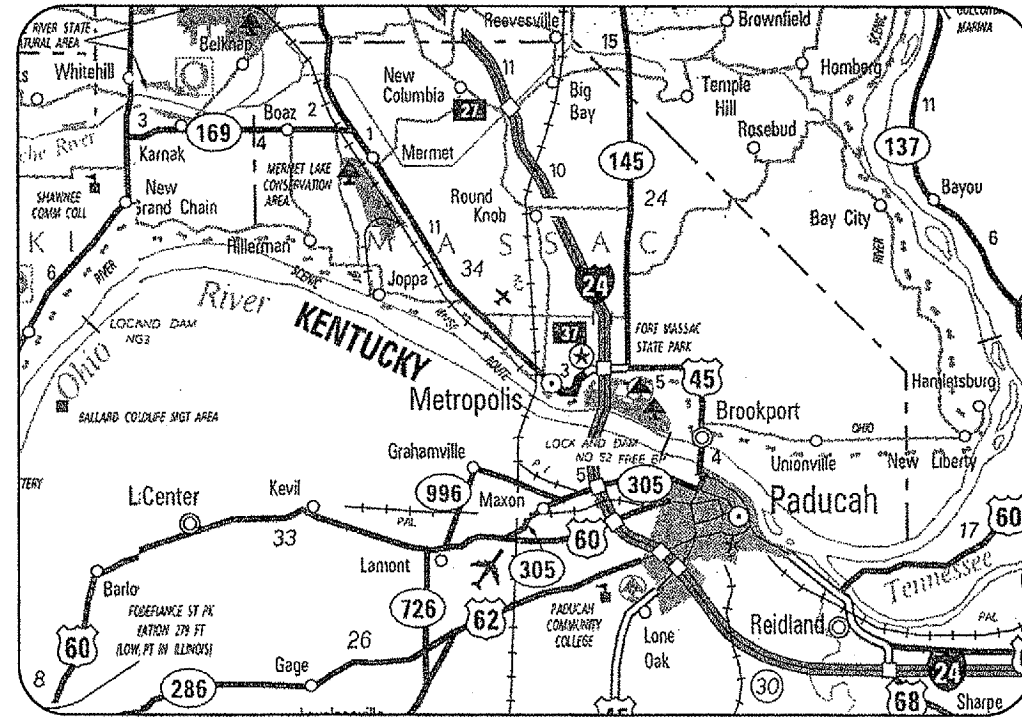


# CONSTRUCTION PLANS FOR METROPOLIS MUNICIPAL AIRPORT METROPOLIS, MASSAC COUNTY, ILLINOIS

## CONSTRUCT NEW ELECTRICAL VAULT

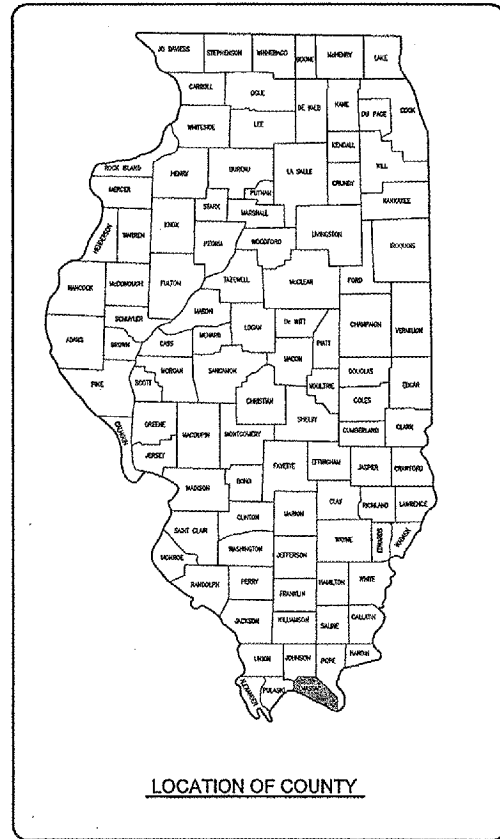
### SCOPE OF WORK

THIS PROJECT CONSISTS OF THE CONSTRUCTION OF A NEW AIRPORT ELECTRICAL VAULT WITH NEW ELECTRICAL & MECHANICAL EQUIPMENT. PROJECT INCLUDES NEW ELECTRIC SERVICE, THE REMOVAL OF THE EXISTING ELECTRICAL VAULT AND ELECTRICAL EQUIPMENT, NEW CABLE TO THE EXISTING WIND CONE, & INTERFACING/REPLACING CABLE TO EXISTING AIRFIELD LIGHTING SYSTEMS.



### LOCATION

ILL. PROJ.: M30-3541  
A.I.P. PROJ.: 3-17-0067-B8  
LATITUDE: 37° 11' 00"  
LONGITUDE: 88° 45' 02"  
ELEVATION: 384.0' M.S.L.  
DATE: DEC. 16, 2005



LOCATION OF COUNTY



**HANSON**  
Hanson Professional Services Inc.  
Submitted by: *Kevin N. Lightfoot* ENG'R  
Date Submitted: *1/20/2006*  
Lic. Exp. Date: NOVEMBER 30, 2007

CITY OF METROPOLIS  
Approved: *Billy M. Donnell* MAYOR  
Date: *12/27/05*  
Approved: *Brenda Westbrooks* CITY CLERK  
Date: *12/27/05*

| DATE | REVISION |
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METROPOLIS MUNICIPAL AIRPORT  
METROPOLIS, ILLINOIS  
A.I.P. PROJ.: 3-17-0067-B8  
ILL. PROJ.: M30-3541

| FILE PROJECT NO. | DATE     |
|------------------|----------|
| 816-08V/LID 0800 | 11/09/05 |
| R-001CVR.DWG     | 11/09/05 |
| NOT TO SCALE     | 11/09/05 |
| 11/09/05         | 12/16/05 |

**HANSON**  
Hanson Professional Services Inc.  
1005 S. Main Street  
Springfield, Illinois 62702-2886  
Offices Nationwide

CONSTRUCT  
NEW VAULT  
COVER SHEET

JAN 12, 2006 1:38 PM CAH  
F:\AIRPORTS\METROPOLIS\816-08V\L\AIRPORT\SHEETS\R-001CVR.DWG - COVER

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| DATE | REVISION | BY |
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SUMMARY OF QUANTITIES

| ITEM NO. | DESCRIPTION                  | UNIT | TOTAL QUANTITIES | AS BUILT QUANTITIES |
|----------|------------------------------|------|------------------|---------------------|
| AR109110 | ERECT PREFABRICATED VAULT    | L.S. | 1                |                     |
| AR109200 | INSTALL ELECTRICAL EQUIPMENT | L.S. | 1                |                     |
| AR109901 | REMOVE ELECTRICAL VAULT      | L.S. | 1                |                     |
| AR110014 | 4" DIRECTIONAL BORE          | L.F. | 120              |                     |
| AR110610 | ELECTRICAL HANDHOLE          | EACH | 2                |                     |
| AR800576 | INSTALL GROUND ROD           | EACH | 3                |                     |
| AR800590 | 4/C #6 600V UG CABLE IN UD   | L.F. | 751              |                     |

INDEX TO SHEETS

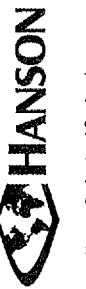
| SHEET NO. | DESCRIPTION                                       |
|-----------|---------------------------------------------------|
| 1         | COVER SHEET                                       |
| 2         | SUMMARY OF QUANTITIES AND INDEX TO SHEETS         |
| 3         | PROPOSED SAFETY PLAN                              |
| 4         | ELECTRICAL LEGEND AND ABBREVIATIONS               |
| 5         | EXISTING AIRPORT VAULT SITE PLAN                  |
| 6         | EXISTING VAULT ELECTRICAL ONE-LINE DIAGRAM        |
| 7         | PROPOSED AIRPORT VAULT SITE PLAN                  |
| 8         | PROPOSED ELECTRICAL SITE PLAN                     |
| 9         | PROPOSED AIRPORT ELECTRICAL VAULT EQUIPMENT PLAN  |
| 10        | PROPOSED VAULT LIGHTING AND RECEPTACLE PLAN       |
| 11        | PROPOSED AIRPORT ELECTRICAL VAULT WALL ELEVATIONS |
| 12        | PROPOSED VAULT ELECTRICAL ONE-LINE DIAGRAM        |
| 13        | PANEL SCHEDULE & DETAILS                          |
| 14        | HIGH VOLTAGE WIRING SCHEMATIC                     |
| 15        | AIRFIELD WIRING LIGHTING SCHEMATIC                |
| 16        | RELAY/CONTACTOR PANEL DETAIL                      |
| 17        | GROUNDING DETAILS                                 |
| 18        | ELECTRICAL DETAILS SHEET 1                        |
| 19        | ELECTRICAL DETAILS SHEET 2                        |
| 20        | ELECTRICAL DETAILS SHEET 3                        |
| 21        | ELECTRICAL NOTES SHEET 1                          |
| 22        | ELECTRICAL NOTES SHEET 2                          |

METROPOLIS MUNICIPAL AIRPORT  
METROPOLIS, ILLINOIS

IL PROJ.: M30-3541 A.I.P. PROJ.: 3-17-0067-B8

IFC Project No. 816-08A/ITD\_0800  
 Filename R-002FLP.DWG  
 Scale NOT TO SCALE  
 Date 11/09/05

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|----------|--------|----------|
| LAYOUT   | B.A.K. | 11/09/05 |
| DRAWN    | B.A.K. | 11/09/05 |
| REVIEWED | C.A.H. | 12/16/05 |



Hanson Professional Services Inc.  
 1525 South Sixth Street  
 Springfield, Illinois 62702-2886  
 Offices Nationwide

CONSTRUCT  
NEW VAULT

SUMMARY OF QUANTITIES  
AND  
INDEX TO SHEETS

**SCOPE OF WORK**

THIS PROJECT CONSISTS OF THE CONSTRUCTION OF A NEW FIELD LIGHTING ELECTRICAL VAULT WITH NEW ELECTRICAL EQUIPMENT. PROJECT INCLUDES THE REMOVAL OF THE EXISTING ELECTRICAL EQUIPMENT.

**AIRPORT SECURITY NOTE**

AIRPORT SECURITY WILL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR WILL CLOSE AND LOCK ALL EXISTING GATES 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 15 FEET. THE TALLEST EQUIPMENT IS EXPECTED TO BE A CONCRETE 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 PARKING AREA AS NEEDED TO RESTORE IT TO ITS' ORIGINAL STATE. RESTORATION OF THE PARKING AREA WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

**CONTRACTOR RESPONSIBILITIES**

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

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 THE RUNWAY 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.

NO TRENCHES OR HOLES ON THE AIRFIELD SIDE WILL REMAIN OPEN OVERNIGHT.

**BARRICADES AND TRAFFIC CONES**

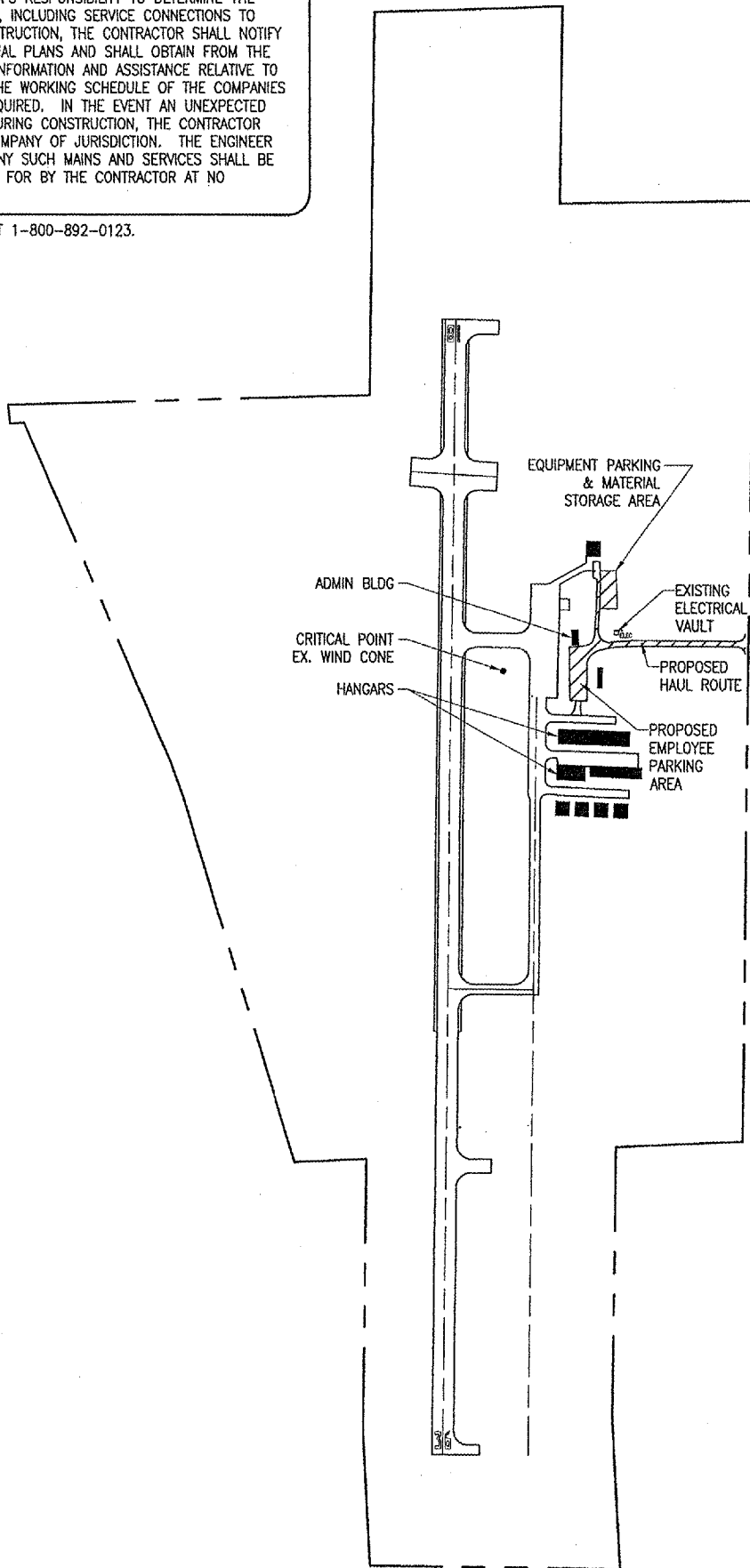
IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PLACE AND MAINTAIN BARRICADES AND TRAFFIC CONES AS DIRECTED BY THE AIRPORT MANAGER. THE BARRICADES WILL BE EQUIPPED WITH RED FLASHING OR STEADY BURN LIGHTS AND 20" SQUARE ORANGE FLAGS. THE BARRICADES, THEIR MAINTENANCE, PLACEMENT AND REMOVAL WILL BE CONSIDERED 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
- ① PROPOSED BENCHMARK
- ▲ PROPOSED BARRICADES OR TRAFFIC CONES

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.



MP002

**J.U.L.I.E. INFORMATION**

COUNTY \_\_\_\_\_ MASSAC  
 CITY \_\_\_\_\_ METROPOLIS  
 TOWNSHIP \_\_\_\_\_ 15S-R4E  
 SECTION NO. \_\_\_\_\_ 27  
 ADDRESS \_\_\_\_\_ METROPOLIS MUNICIPAL AIRPORT  
 751 AIRPORT ROAD  
 METROPOLIS, ILLINOIS 62960

**CRITICAL POINT DATA**

WIND CONE 185' RT. STA. 122+68  
 LATITUDE: 37° 11' 06.16"  
 LONGITUDE: 88° 45' 00.031"  
 ELEVATION: 380.2 M.S.L.

**PROPOSED SAFETY PLAN**

GENERAL - THE METROPOLIS MUNICIPAL AIRPORT IS COMPRISED OF ONE RUNWAY. THE PROPOSED CONSTRUCTION WILL NOT NECESSITATE CLOSING THE RUNWAY. AT THE END OF EACH CONSTRUCTION DAY THE CONTRACTOR WILL SMOOTH GRADE ALL AREAS WITHIN THE WORK AREA TO THE SATISFACTION OF THE RESIDENT ENGINEER.

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

RADIO CONTROL - THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO-WAY RADIO CONTACT (122.80 MHz.) WITH THE AIRPORT UNICOM. THIS WILL KEEP THE CONTRACTOR IN CONSTANT CONTACT WITH THE METROPOLIS 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.

**EROSION CONTROL**

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

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METROPOLIS MUNICIPAL AIRPORT  
 METROPOLIS, ILLINOIS  
 I.L. PROJ.: M30-3541  
 A.I.P. PROJ.: 3-17-0067-88

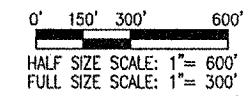
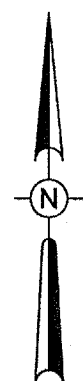
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| I.E. Project No. 816-06V.I.D. 0800<br>Drawings: R-003557.DWG<br>Scale: 1" = 300'<br>Date: 11/09/05 | LAYOUT: B.A.K. 11/09/05<br>DRAWN: B.A.K. 11/09/05<br>REVIEWED: C.A.H. 12/16/05 |
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**HANSON**

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 1425 South Sixth Street, Suite 2086  
 Springfield, Illinois 62703-2886  
 Offices Nationwide

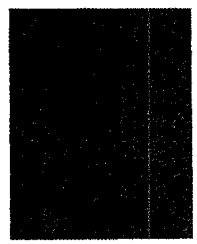
CONSTRUCT  
 NEW VAULT  
 PROPOSED  
 SAFETY  
 PLAN

JAN 12, 2006 1:20 PM CAH  
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#8 AWG, 5 KV HOMERUN  
 CABLES FOR RUNWAY &  
 TAXIWAY LIGHTING

EXISTING 120/240 VAC,  
 1PH, 3W FEEDER TO  
 VAULT TRANSCLOSURE

UTILITY TRANSFORMER  
 POLE WITH SERVICE  
 DISCONNECT FOR VAULT

CAR PORT

ADMIN BLDG

SATELLITE DISH

WATER VALVE

WATER HYDRANT

ELECTRIC UTILITY  
 POLE

AIRPORT ENTRANCE ROAD

CONTROL CABLE TO  
 L-821 PANEL IN  
 ADMIN BLDG

SEPTIC TANK. CONTRACTOR SHALL FIELD  
 VERIFY LATERAL LINES AS APPLICABLE FOR  
 NEW VAULT INSTALLATION.

ABANDONED WIND CONE  
 CIRCUIT CABLES

AIRPORT ROTATING BEACON

FENCE

VAULT TRANSCLOSURE

GUY WIRE TERMINATION  
 (TYP. FOR 3)

ROADWAY POLE LIGHT

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 BUILDINGS
- EXISTING FENCE
- EXISTING TELEPHONE LINE
- EXISTING GAS LINE
- EXISTING AIRFIELD LTG CABLES
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING ELECTRICAL DUCT MARKERS
- EXISTING GUY WIRE
- EXISTING SEPTIC TANK
- EXISTING ROTATING BEACON
- EXISTING ELECTRICAL VAULT
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE

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METROPOLIS MUNICIPAL AIRPORT  
 METROPOLIS, ILLINOIS

IL PROJ.: M30-3541 A.I.P. PROJ.: 3-17-0067-88

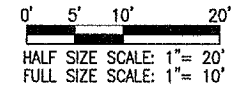
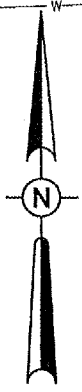
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| REV. PROJECT No. 816-06VLT.D 0800 | DATE 11/15/05 |
| FILENAME: R-101SIT.DWG            | DATE 11/15/05 |
| SCALE: 1"=10'                     | DATE 12/16/05 |
| LAYOUT                            | MDR           |
| DRAWN                             | MDR           |
| REVIEWED                          | CAH           |

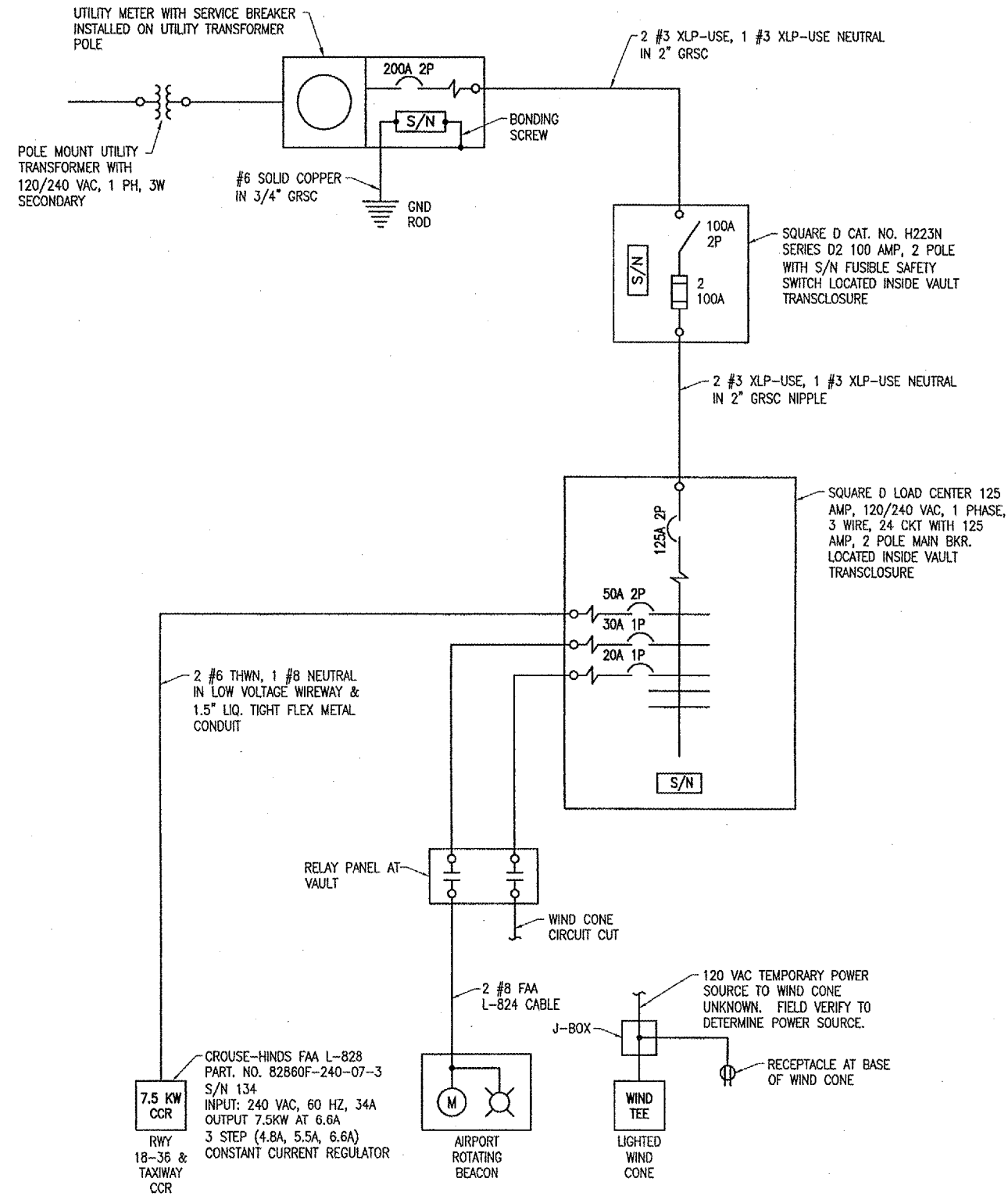


CONSTRUCT  
 NEW VAULT

EXISTING  
 AIRPORT VAULT

SITE PLAN





EXISTING VAULT ELECTRICAL ONE-LINE DIAGRAM

NOTES

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

| DATE | REVISION | BY |
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METROPOLIS MUNICIPAL AIRPORT  
METROPOLIS, ILLINOIS

IL. PROJ.: M30-3541 A.I.P. PROJ.: 3-17-0067-B8

|                  |                 |
|------------------|-----------------|
| REL. Project No. | 816-06VLT0-0800 |
| Element          | E-601.DWG       |
| Scale            | NO SCALE        |
| Date             | 12/02/05        |
| LAYOUT           | KNL 11/17/05    |
| DRAWN            | MY 11/21/05     |
| REVIEWED         | CAH 12/16/05    |



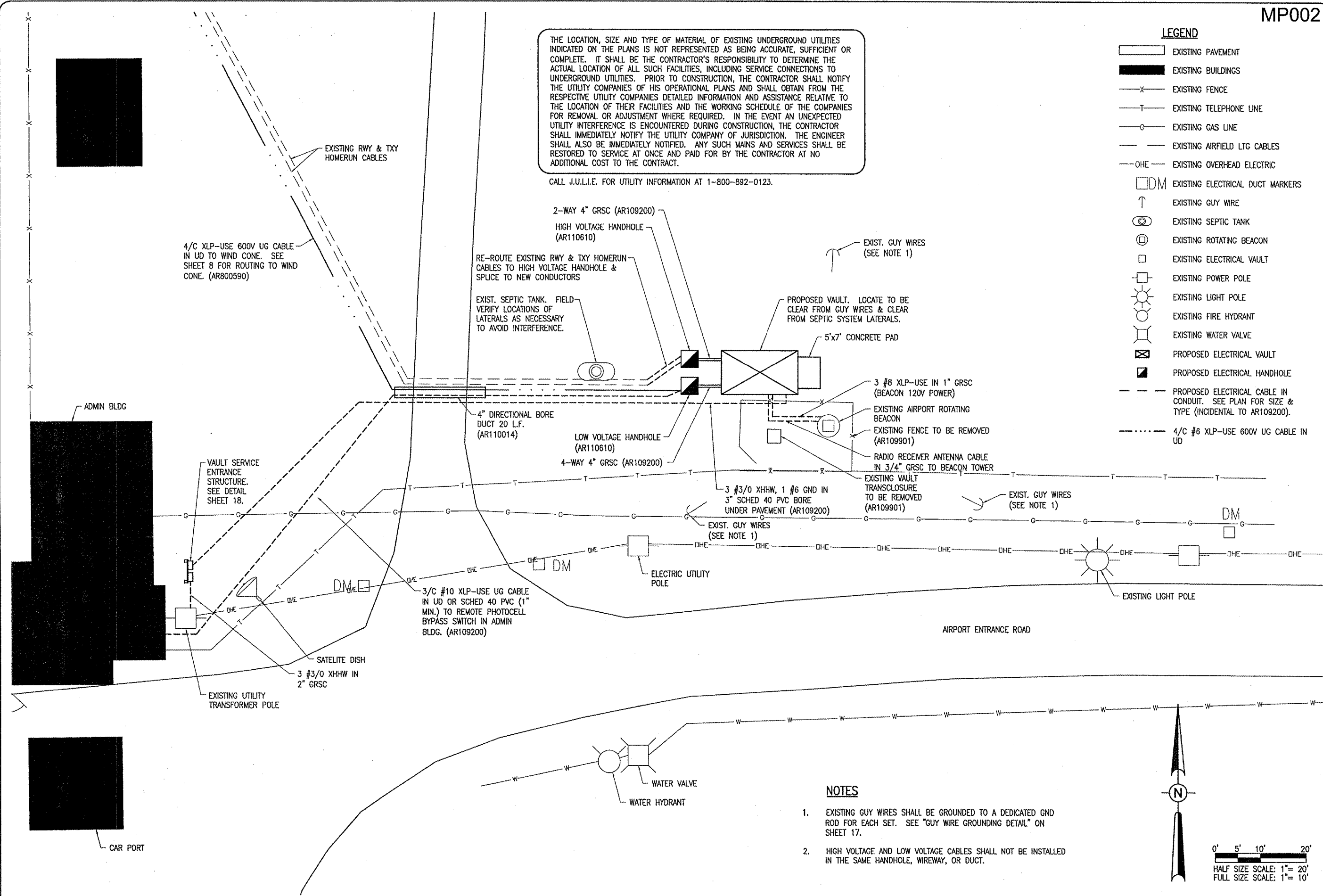
Hanson Professional Services Inc.  
1525 South Sixth Street  
Springfield, Illinois 62703-2898  
Offices Nationwide

CONSTRUCT  
NEW VAULT  
EXISTING VAULT  
ELECTRICAL ONE-LINE  
DIAGRAM

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.

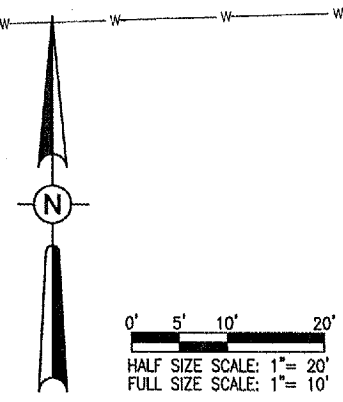
CALL J.U.L.I.E. FOR UTILITY INFORMATION AT 1-800-892-0123.

- LEGEND**
- EXISTING PAVEMENT
  - EXISTING BUILDINGS
  - EXISTING FENCE
  - EXISTING TELEPHONE LINE
  - EXISTING GAS LINE
  - EXISTING AIRFIELD LTG CABLES
  - EXISTING OVERHEAD ELECTRIC
  - EXISTING ELECTRICAL DUCT MARKERS
  - EXISTING GUY WIRE
  - EXISTING SEPTIC TANK
  - EXISTING ROTATING BEACON
  - EXISTING ELECTRICAL VAULT
  - EXISTING POWER POLE
  - EXISTING LIGHT POLE
  - EXISTING FIRE HYDRANT
  - EXISTING WATER VALVE
  - PROPOSED ELECTRICAL VAULT
  - PROPOSED ELECTRICAL HANDHOLE
  - PROPOSED ELECTRICAL CABLE IN CONDUIT. SEE PLAN FOR SIZE & TYPE (INCIDENTAL TO AR109200).
  - 4/C #6 XLP-USE 600V UG CABLE IN UD



**NOTES**

1. EXISTING GUY WIRES SHALL BE GROUNDED TO A DEDICATED GND ROD FOR EACH SET. SEE "GUY WIRE GROUNDED DETAIL" ON SHEET 17.
2. HIGH VOLTAGE AND LOW VOLTAGE CABLES SHALL NOT BE INSTALLED IN THE SAME HANDHOLE, WIREWAY, OR DUCT.

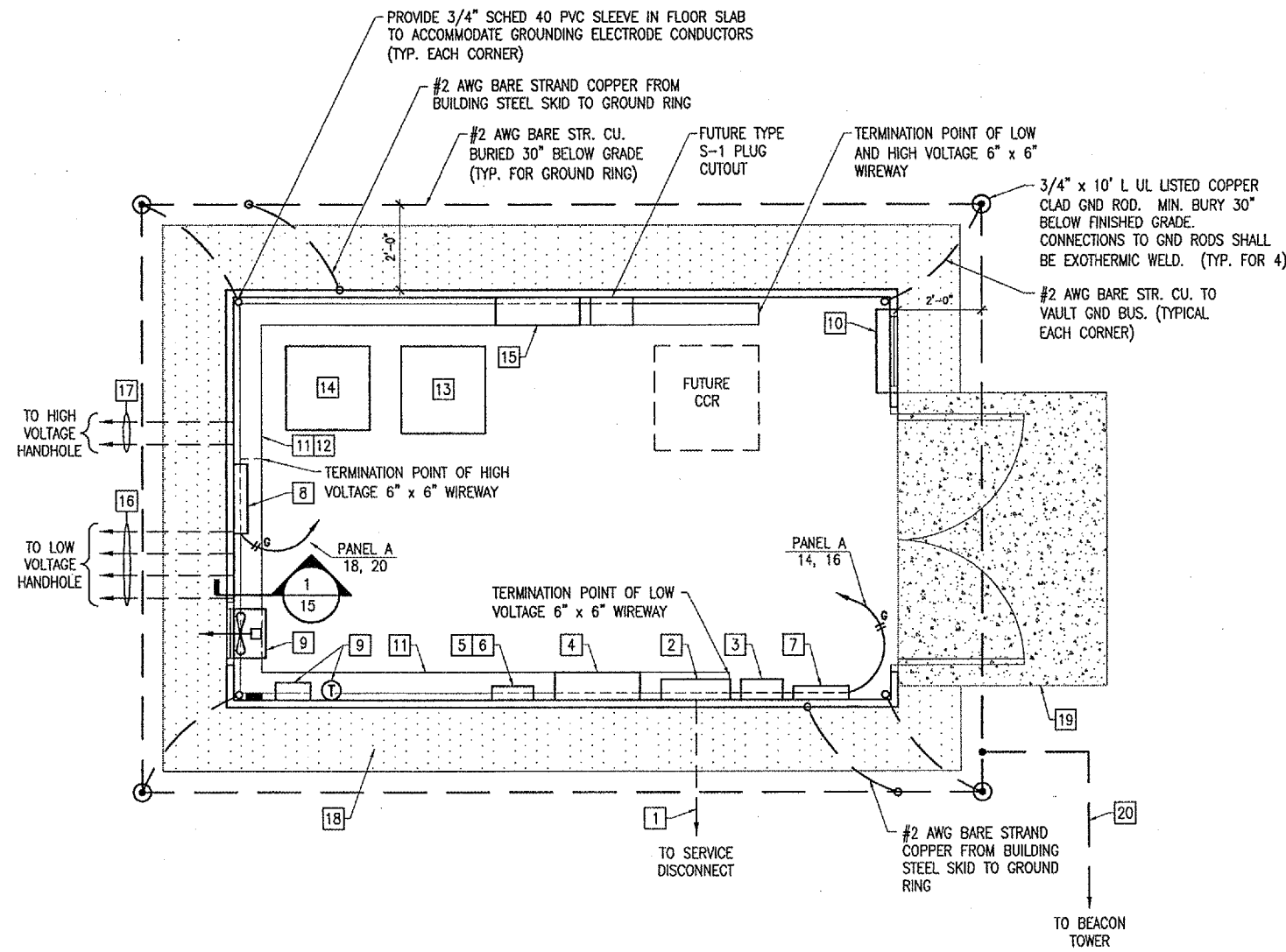


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|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|----------|--|------|--|---------------------------------------------------------------------|------------------------------------------------------------|
| BY                                                                                                                               |                                                        | REVISION |  | DATE |  | <p><b>METROPOLIS MUNICIPAL AIRPORT<br/>METROPOLIS, ILLINOIS</b></p> | <p>A.I.P. PROJ.: 3-17-0067-BB<br/>I.L. PROJ.: M30-3541</p> |
|                                                                                                                                  |                                                        |          |  |      |  |                                                                     |                                                            |
| <p>IEC Project No. 816-06/UTD-0800<br/>File Name: R-102_SIT.DWG<br/>Scale: 1"=10'<br/>Date: 11/15/05</p>                         |                                                        |          |  |      |  |                                                                     |                                                            |
| LAYOUT                                                                                                                           | MDR                                                    | 11/15/05 |  |      |  |                                                                     |                                                            |
| DRAWN                                                                                                                            | MDR                                                    | 11/15/05 |  |      |  |                                                                     |                                                            |
| REVIEWED                                                                                                                         | CAH                                                    | 12/16/05 |  |      |  |                                                                     |                                                            |
| <p>Hanson Professional Services Inc.<br/>1525 South State Street<br/>Springfield, Illinois 62703-2886<br/>Offices Nationwide</p> |                                                        |          |  |      |  |                                                                     |                                                            |
| <p><b>CONSTRUCT<br/>NEW VAULT</b></p>                                                                                            | <p><b>PROPOSED<br/>AIRPORT VAULT<br/>SITE PLAN</b></p> |          |  |      |  |                                                                     |                                                            |
| <p style="font-size: 2em; font-weight: bold;">7</p>                                                                              |                                                        |          |  |      |  |                                                                     | <p>7 of 22 sheets</p>                                      |







**VAULT ELECTRICAL EQUIPMENT PLAN**  
 SCALE 1/2" = 1'-0"  
 1 0 2 4 FEET

**KEYED NOTES**

- 1 2 #4/0 XHHW, 1 #4/0 XHHW NEUTRAL, 1 #2 GND IN 3" SCHED 40 PVC FROM SERVICE BREAKER TO VAULT PANEL CONDUIT TO TRANSITION TO GRSC WHERE EMERGING FROM GRADE.
- 2 VAULT PANEL. SEE VAULT PANEL SCHEDULE.
- 3 AC SURGE PROTECTOR/TVSS, SEE NEW VAULT ELECTRICAL ONE LINE DIAGRAM.
- 4 RELAY/LIGHTING CONTACTOR PANEL. SEE AIRFIELD LIGHTING WIRING SCHEMATIC AND RELAY/CONTACTOR PANEL DETAIL. MOUNT PHOTOCELL ON ROOF. FIELD VERIFY LOCATION FOR PROPER CONTROL AND OPERATION.
- 5 L-854 RADIO CONTROL UNIT WITH RELAY INTERFACE PANEL BELOW. EXTEND RADIO ANTENNA CABLE AND MOUNT ANTENNA ON THE BEACON TOWER AS REQUIRED FOR PROPER OPERATION.
- 6 RELAY INTERFACE PANELS (BELOW L-854 RADIO CONTROL UNIT). SEE AIRFIELD LIGHTING WIRING SCHEMATIC FOR WIRING REQUIREMENTS.
- 7 ELECTRIC WALL HEATER EH-1, 3000 WATT, 240 VAC, 1 PHASE, SUITABLE FOR SURFACE MOUNTING WITH INTEGRAL THERMOSTAT, Q-MARK MODEL CWH3407, OR APPROVED EQUAL. BOTTOM OF HEATER SHALL BE 3" ABOVE THE UPPER ELECTRICAL WIREWAY.
- 8 ELECTRIC WALL HEATER EH-2, 2000 WATT, 240 VAC, 1 PHASE, SUITABLE FOR SURFACE MOUNTING WITH INTEGRAL THERMOSTAT, Q-MARK MODEL CWH3404, OR APPROVED EQUAL. BOTTOM OF HEATER SHALL BE 3" ABOVE THE UPPER ELECTRICAL WIREWAY.
- 9 EXHAUST FAN EF-1, 2000 CFM AT .25" STATIC PRESSURE WITH 1/2 HP, 120 VAC MOTOR, COOK MODEL 20S10D, OR APPROVED EQUAL. INCLUDE WALL HOUSING WITH GUARD, GRAVITY BACK DRAFT DAMPER, ALUMINUM WEATHER-HOOD PAINTED TO MATCH BUILDING EXTERIOR, STAINLESS STEEL INSECT SCREEN, AND FRACTIONAL HP ELECTRICAL DISCONNECT. INSTALL FAN AS HIGH AS POSSIBLE. PROVIDE 120 VAC THERMOSTAT WITH CONTACTOR AND AUTO-OFF-MANUAL CONTROL SWITCH AT 48" AFF. MOUNT THERMOSTAT ON 2" THICK INSULATED BASE. SEE EXHAUST FAN CONTROL SCHEMATIC FOR WIRING REQUIREMENTS.
- 10 INTAKE LOUVER L-1, 24" WIDE BY 48" HIGH INTAKE LOUVER WITH STAINLESS STEEL INSECT SCREEN, 120 VAC MOTORIZED DAMPER WITH LIMIT SWITCH, KYNAR FINISH MATCHING BUILDING EXTERIOR, RUSKIN MODEL ELF375DX, OR APPROVED EQUAL. SEE EXHAUST FAN CONTROL SCHEMATIC FOR WIRING REQUIREMENTS.
- 11 6" BY 6" LOW VOLTAGE WIREWAY. LABEL "LOW VOLTAGE" EVERY 4 FEET. INSTALL ABOVE HIGH VOLTAGE WIREWAY.
- 12 6" BY 6" HIGH VOLTAGE WIREWAY. LABEL "HIGH VOLTAGE" EVERY 4 FEET. INSTALL BELOW LOW VOLTAGE WIREWAY.
- 13 EXISTING RUNWAY 18-36 & TAXIWAY CONSTANT CURRENT REGULATOR RELOCATED FROM EXISTING VAULT, (TO SERVE AS SPARE). SEE GENERAL NOTE 1.
- 14 NEW RUNWAY 18-36 & TAXIWAY CONSTANT CURRENT REGULATOR (TO SERVE AS NORMAL UNIT). SEE GENERAL NOTE 1.
- 15 TWO SERIES PLUG CUTOUTS, TYPE S-1, WIRED FOR MANUAL TRANSFER OPERATION WITH ONLY ONE HANDLE PLUG IN A NEMA 1 OR NEMA 12 ENCLOSURE WITH HINGED COVER.
- 16 4-4" GRSC FROM LOW VOLTAGE WIREWAY TO LOW VOLTAGE HANDHOLE.
- 17 2-4" GRSC FROM HIGH VOLTAGE WIREWAY TO HIGH VOLTAGE HANDHOLE.
- 18 VEGETATION BARRIER CONSISTING OF A MIN. 3" PEA GRAVEL SURFACE OVER FILTER OR LANDSCAPING FABRIC. PROPOSED SURFACE TREATMENT WILL COVER ENTIRE AREA BENEATH VAULT STRUCTURE AS WELL AS 18" AROUND THE PERIMETER OF THE BUILDING EDGE. THE STONE AND FABRIC AS WELL AS ANY EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS TASK WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE PROPOSED ELECTRICAL VAULT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 19 ENTRANCE PAD CONSTRUCTED OF 6" CONCRETE SLAB W/6X6-W5XW5 WELDED WIRE FABRIC ON A COMPACTED SUBGRADE. MINIMUM DIMENSIONS OF PAD WILL BE 7'Wx5'Dx6"H, SLOPED AT A MIN. OF 0.5"/FT AWAY FROM THE VAULT ENTRANCE. PCC USED TO CONSTRUCT THE PAD WILL CONFORM TO ITEM 610. ALL MATERIALS, LABOR AND EQUIPMENT USED TO CONSTRUCT THE PAD INCLUDING ANY GRADING REQUIRED WILL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE PROPOSED ELECTRICAL VAULT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 20 BOND BEACON TOWER TO GND RING WITH #2 AWG BARE STR. CU. PROVIDE UL LISTED PIPE CLAMP TO CONNECT TO TOWER LEG.

**GENERAL NOTES**

1. SEE "NEW VAULT ELECTRICAL ONE LINE DIAGRAM" FOR LOW VOLTAGE INPUT POWER WIRING REQUIREMENTS TO CCR'S (CONSTANT CURRENT REGULATORS). SEE "HIGH VOLTAGE WIRING SCHEMATIC" FOR CCR OUTPUT WIRING REQUIREMENTS. SEE "AIRFIELD LIGHTING WIRING SCHEMATIC" FOR CCR CONTROL WIRING REQUIREMENTS. PROVIDE 5 FEET MINIMUM CLEAR WORKING SPACE IN FRONT OF EACH CCR AND EACH SERIES PLUG CUTOUT.
2. CONSTANT CURRENT REGULATORS AND THEIR RESPECTIVE SERIES PLUG CUTOUTS SHALL BE CLEARLY LABELED TO IDENTIFY THE RESPECTIVE REGULATOR DESIGNATION, RUNWAY OR TAXIWAY SERVED, POWER SOURCE OR CIRCUIT, AND VOLTAGE SYSTEM.
3. SEE ELEVATION VIEWS FOR ADDITIONAL INFORMATION ON PROPOSED EQUIPMENT LAYOUTS.
4. COORDINATE CONDUIT & SLEEVE ENTRANCES THROUGH FLOOR SLAB AND WALLS.

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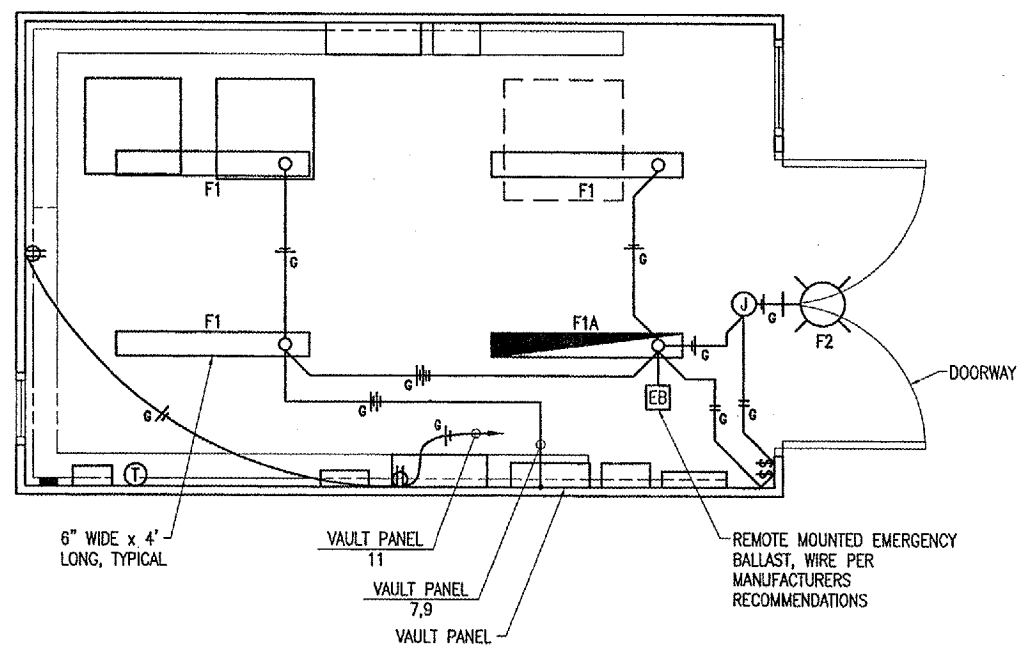
**METROPOLIS MUNICIPAL AIRPORT  
 METROPOLIS, ILLINOIS**  
 I.L. PROJ.: M30-3541 A.I.P. PROJ.: 3-17-0067-88

|                  |                |
|------------------|----------------|
| REL. Project No. | 816-06VLD 0800 |
| Filename         | EP-101.DWG     |
| Scale            | 1/2" = 1'-0"   |
| Date             | 12/02/05       |
| LAYOUT           | KNL 11/17/05   |
| DRAWN            | MW 11/21/05    |
| REVIEWED         | CAH 12/16/05   |



**CONSTRUCT  
 NEW VAULT**  
**PROPOSED  
 AIRPORT ELECTRICAL VAULT  
 EQUIPMENT PLAN**

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**Vault Lighting & Receptacle Plan**  
 SCALE 1/2"=1'-0"  
 1 0 2 4 FEET

| LIGHTING FIXTURE SCHEDULE |                                                                                                                                                                                                                                                                                                                                     |                                          |                                            |       |                                                                                     |                                                               |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------|-------|-------------------------------------------------------------------------------------|---------------------------------------------------------------|
| FIXT. TYPE                | DESCRIPTION                                                                                                                                                                                                                                                                                                                         | MANUFACTURER & CATALOG NO.               | LAMPS/WATTS                                | VOLTS | MOUNTING                                                                            | REMARKS                                                       |
| F1                        | 4 FT. WET LOCATION LISTED ENCLOSED AND GASKETED INDUSTRIAL FLUORESCENT LIGHT FIXTURE, IMPACT RESISTANT, UV RESISTANT REINFORCED POLYESTER FIBERGLASS HOUSING, HIGH IMPACT ACRYLIC DIFFUSER, RAPID START COLD WEATHER 0 DEG. F. ELECTRONIC BALLAST WITH LESS THAN OR EQUAL TO 10% THD.                                               | LITHONIA: DMW-2-32-AR-120-CW-GEB10RS-WLF | 2-32W T8<br>4100K<br>59 TOTAL INPUT WATTS  | 120   | SURFACE TO HARD CEILING                                                             | PROVIDE WET LOCATION FITTINGS INSTALLED IN TOP OF FIXTURE.    |
| F1A                       | SAME AS F1 EXCEPT PROVIDE AN EMERGENCY BALLAST CAPABLE OF OPERATING 2 LAMPS FOR 90 MINUTES AT 1100-1400 TOTAL LUMENS, BODINE #B50ST. NOTE BALLAST WILL HAVE TO BE REMOTE MOUNTED NEAR FIXTURE AS INDICATED ON THE PLANS.                                                                                                            | LITHONIA: DMW-2-32-AR-120-CW-GEB10RS-WLF | 2-32W T8<br>4100K<br>59 TOTAL INPUT WATTS  | 120   | SURFACE TO HARD CEILING                                                             | PROVIDE WET LOCATION FITTINGS INSTALLED IN TOP OF FIXTURE.    |
| F2                        | COMPACT FLUORESCENT WALL-PAK, ONE PIECE INJECTION MOLDED UV STABILIZED POLYCARBONATE HOUSING, HIGH PERFORMANCE SPECULAR ANODIZED SEGMENTED REFLECTOR, ONE PIECE HIGH TEMPERATURE SILICONE GASKET, MEDIUM BRONZE FINISH, HIGH POWERFACTOR ELECTRONIC BALLAST WITH LESS THAN OR EQUAL TO 10% THD, UL LISTED FOR WET LOCATIONS, FUSED. | LITHONIA: TWA-42TRT-120-SF-CR-DMB-LPI    | 1-42W TRT<br>4100K<br>47 TOTAL INPUT WATTS | 120   | SURFACE TO WALL ABOVE EXTERIOR DOOR APPROXIMATELY 4 INCHES ABOVE TOP OF DOOR FRAME. | CONNECT TO WALL SWITCH LOCATED ON THE INSIDE OF THE BUILDING. |

**NOTE**  
 15 AMP & 20 AMP BRANCH CIRCUITS FOR LIGHTING & RECEPTACLES SHALL USE #12 AWG THWN (MIN.).

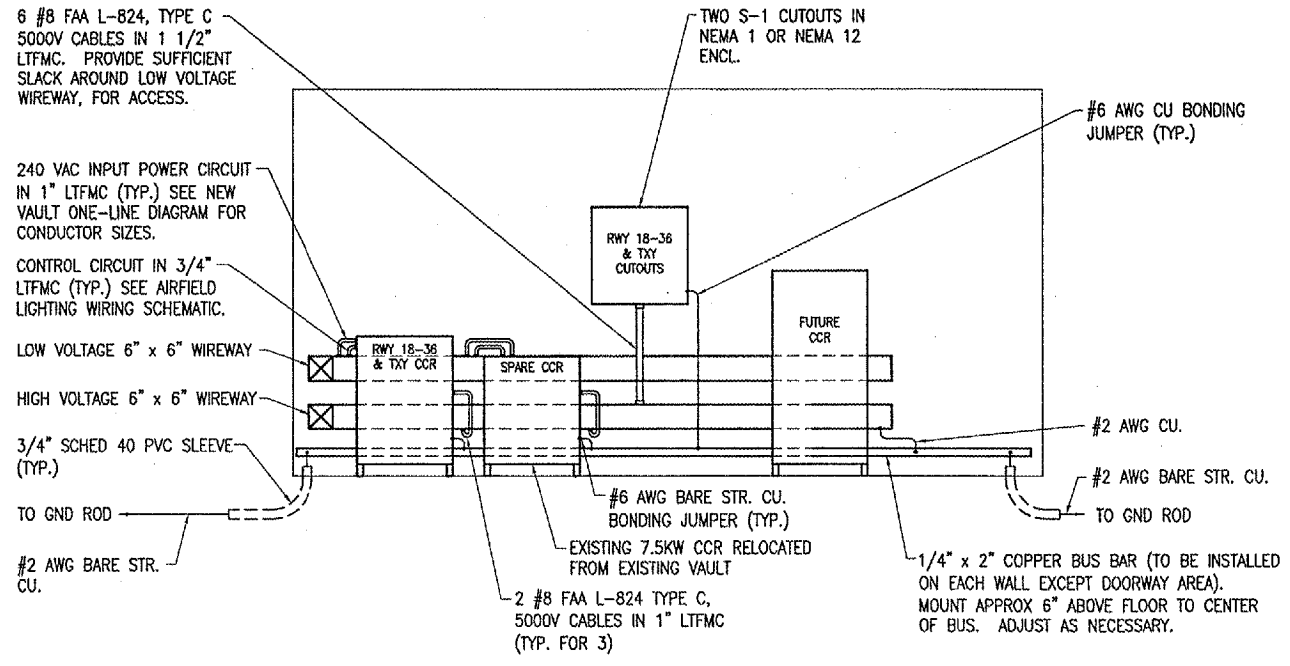
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**METROPOLIS MUNICIPAL AIRPORT  
 METROPOLIS, ILLINOIS**  
 I.L. PROJ.: M30-3541 A.I.P. PROJ.: 3-17-0067-BB

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|----------------------------------|------------|----------|
| HEI Project No. 816-06V.LTD 0800 | EL-101.DWG | 11/17/05 |
| Scale 1/2"=1'-0"                 | 12/02/05   | KNL      |
| Date                             |            | 11/21/05 |
| LAYOUT                           | KNL        | CAH      |
| DRAWN                            | WV         |          |
| REVIEWED                         | CAH        |          |

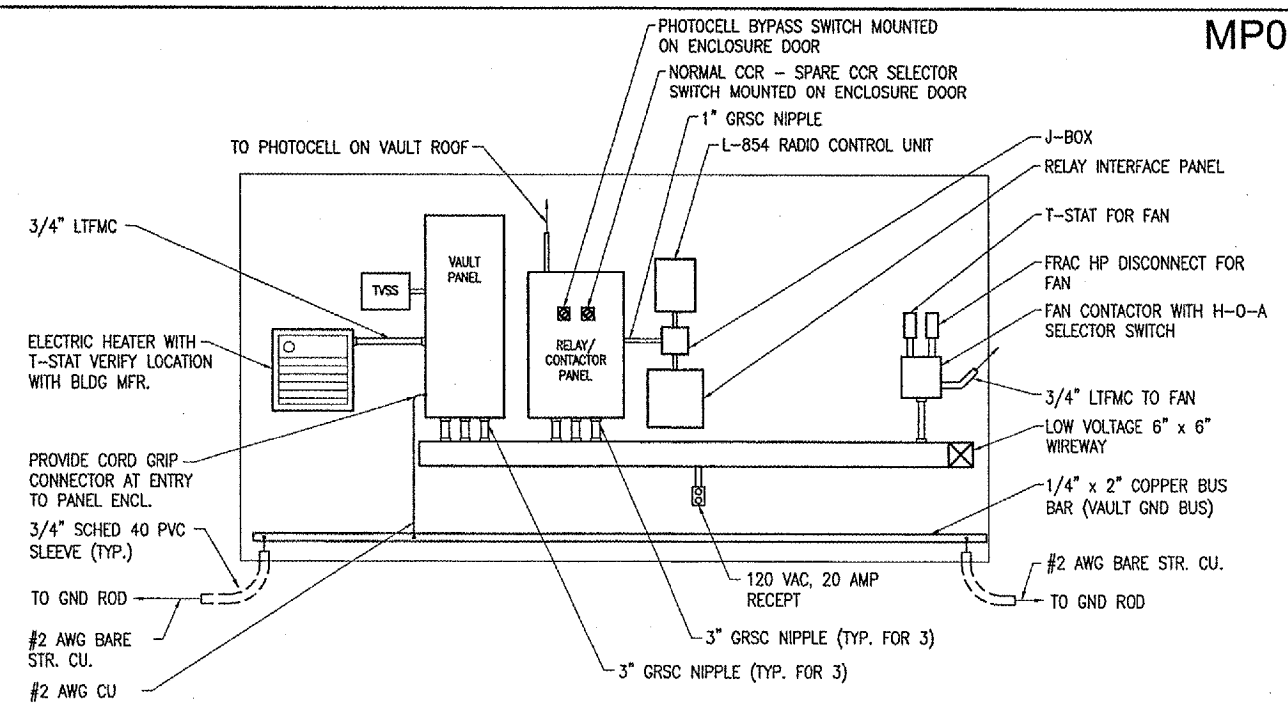
**HANSON**  
 Hanson Professional Services Inc.  
 1525 South Sixth Street  
 Springfield, Illinois 62703-2888  
 Offices Nationwide

**CONSTRUCT  
 NEW VAULT**  
**PROPOSED VAULT LIGHTING  
 AND RECEPTACLE PLAN**



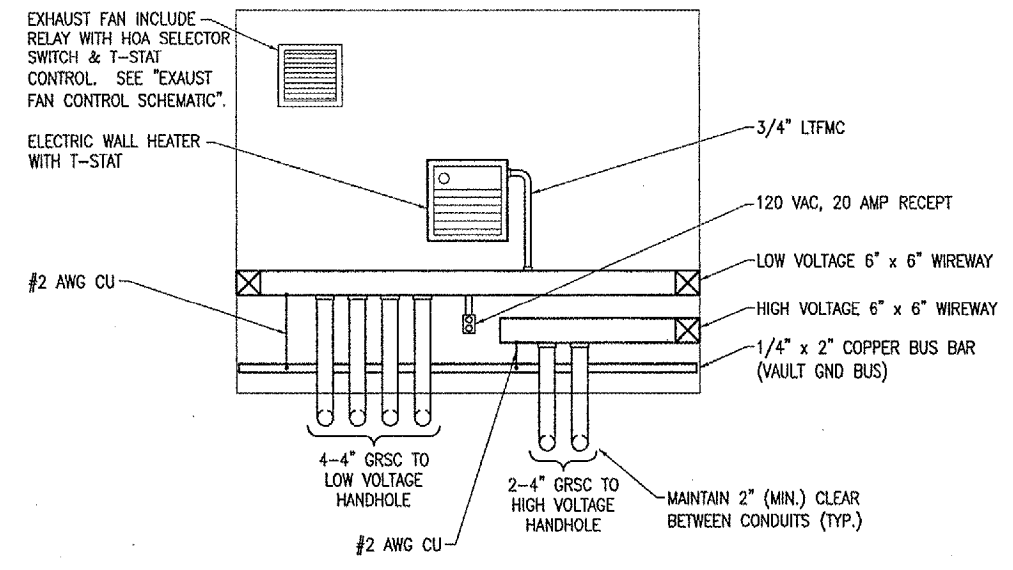
**VAULT NORTH WALL ELEVATION**

SCALE 1/2"=1'-0"  
1 0 2 4 FEET



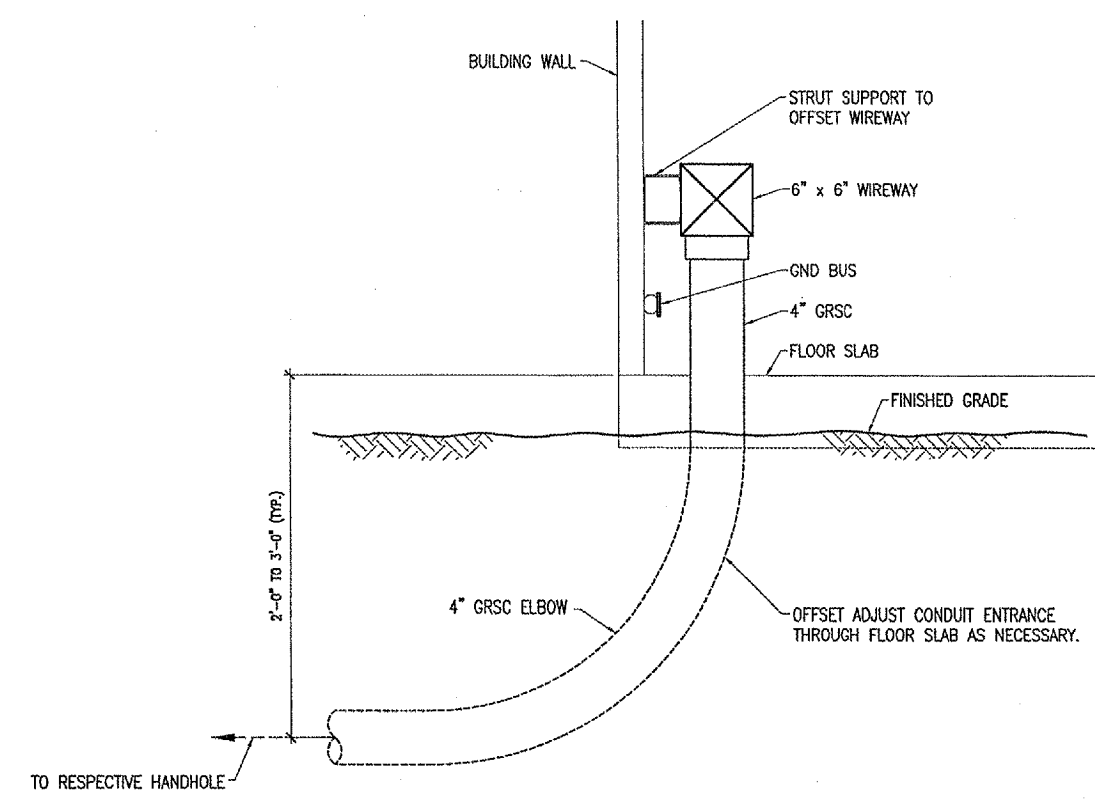
**VAULT SOUTH WALL ELEVATION**

SCALE 1/2"=1'-0"  
1 0 2 4 FEET



**VAULT WEST WALL ELEVATION**

SCALE 1/2"=1'-0"  
1 0 2 4 FEET



**CONDUIT ENTRANCE DETAIL**

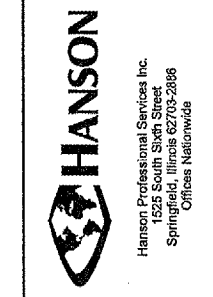
SCALE 1 1/2"=1'-0"  
0.5 0 1 2 FEET

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METROPOLIS MUNICIPAL AIRPORT  
METROPOLIS, ILLINOIS  
A.I.P. PROJ.: 3-17-0067-B8  
IL PROJ.: M30-3541

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|-----------|---------------|
| Proj. No. | 818-06VLT.DWG |
| Drawn     | KNL           |
| Scale     | 1/2"=1'-0"    |
| Date      | 12/02/05      |
| Reviewed  | CAH           |
| Drawn     | MV            |
| Reviewed  | CAH           |
| Drawn     | KNL           |
| Reviewed  | CAH           |

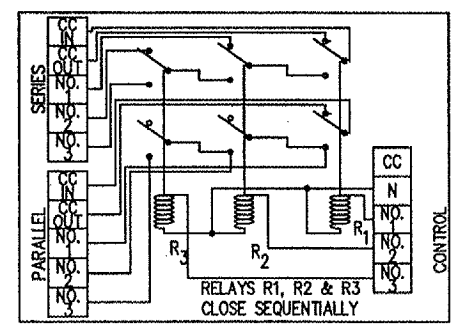
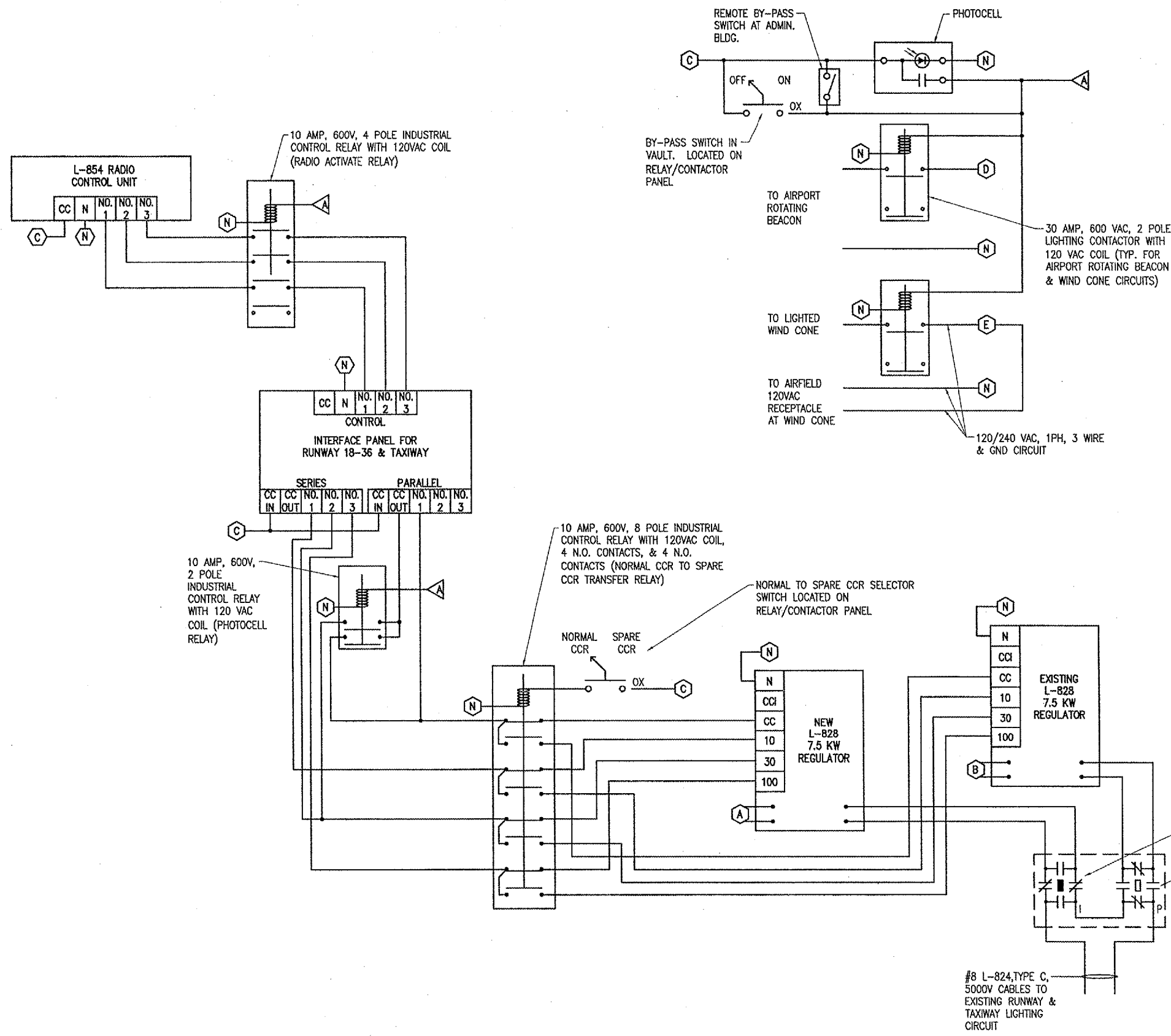


CONSTRUCT  
NEW VAULT  
PROPOSED AIRPORT  
ELECTRICAL VAULT  
WALL ELEVATIONS









TYP. INTERFACE PANEL DETAIL

NOTES

1. ALL ELECTRICAL EQUIPMENT WILL BE WIRED IN ACCORDANCE WITH THE SCHEMATIC WIRING DIAGRAM AND ALL APPLICABLE CODES.
2. ALL CONTROL CABLE WILL BE NO. 12 AWG, 600 VOLT CABLE.
3. ALL ELECTRICAL EQUIPMENT WILL BE PROPERLY LABELED AND ALL ELECTRICAL CABLES WILL BE TAGGED.
4. ALL ELECTRICAL CABLES INSIDE THE VAULT WILL BE IN CONDUIT OR DUCT.
5. THE L-854 RADIO OUTPUT SHALL BE ACTIVATED BY THE PHOTOCELL OR PHOTOCELL BYPASS SWITCH. PHOTOCELL SHALL ACTIVATE 30% BRIGHTNESS. THE RUNWAY/TAXIWAY CIRCUITS WILL BE CONTROLLED BY THE L-854 RADIO CONTROL UNIT IN THE FOLLOWING MANNER:  
 3 CLICKS - 10% BRIGHTNESS  
 5 CLICKS - 30% BRIGHTNESS  
 7 CLICKS - 100% BRIGHTNESS
6. ALL CONTROL RELAYS, INTERFACE PANELS, RADIO CONTROL UNIT, PHOTOCELL, CONTROL WIRING, ETC. SHALL BE NEW UNLESS OTHERWISE NOTED.
7. EQUIPMENT GROUND WIRES SHALL BE INCLUDED WITH EACH BRANCH CIRCUIT & EACH CONTROL CIRCUIT.
8. SEE DETAILS FOR REQUIREMENTS ON RELAY PANEL WITH CONTROL RELAYS & LIGHTING CONTACTORS.
9. THE CONTRACTOR WILL HAVE TO CUT A HOLE IN THE PROPOSED VAULT ROOF TO ALLOW THE INSTALLATION OF ONE CONDUIT FOR THE PROPOSED PHOTO-CELL. AFTER INSTALLING THE CONDUIT THE CONTRACTOR WILL SEAL AROUND THE CONDUIT WITH AN APPROVED SEALANT TO INSURE A WATERPROOF BARRIER.

SHEET LEGEND

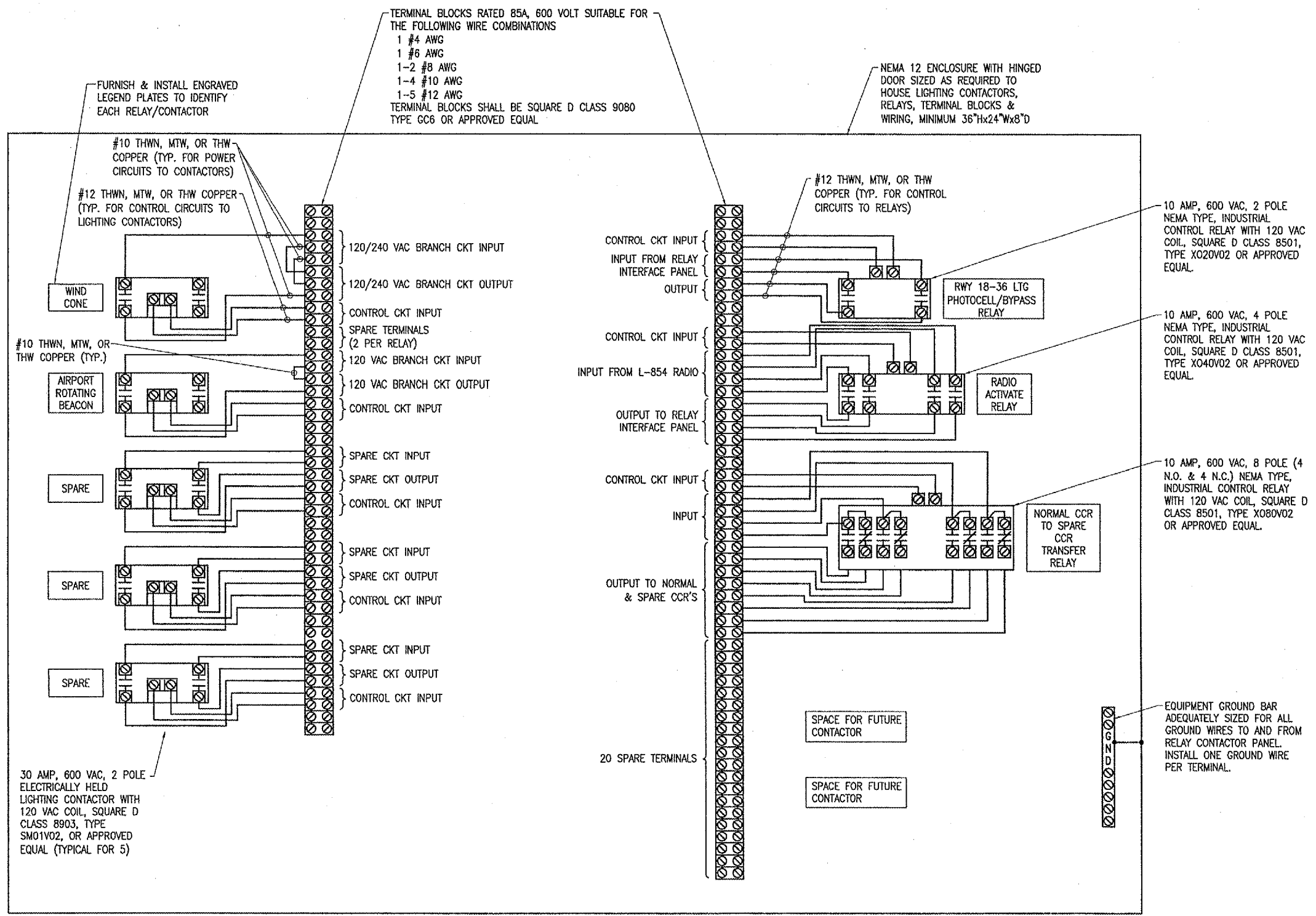
- (A) VAULT PANEL CKT 14, 16 (RWY 18-36 & TXY CCR)
- (B) VAULT PANEL CKT 10, 12 (SPARE CCR FOR RWY 18-36 & TXY)
- (C) VAULT PANEL CKT 13 (RADIO & PHOTOCELL CONTROL)
- (D) VAULT PANEL CKT 18 (AIRPORT ROTATING BEACON)
- (E) VAULT PANEL CKT 20, 22 (WIND CONE & AIRFIELD RECEPT.)
- (N) N DESIGNATES NEUTRAL 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.

AIRFIELD LIGHTING SCHEMATIC WIRING DIAGRAM

|                                                                                                                                         |                |
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| REVISION                                                                                                                                |                |
| DATE                                                                                                                                    |                |
| METROPOLIS MUNICIPAL AIRPORT<br>METROPOLIS, ILLINOIS                                                                                    |                |
| REL. Project No.                                                                                                                        | B16-06VLT/0800 |
| Drawn                                                                                                                                   | E-603.DWG      |
| Scale                                                                                                                                   | NO SCALE       |
| Date                                                                                                                                    | 12/02/05       |
| LAYOUT                                                                                                                                  | KNL 11/17/05   |
| DRAWN                                                                                                                                   | NV 11/21/05    |
| REVIEWED                                                                                                                                | CAH 12/16/05   |
| <b>HANSON</b><br>Hanson Professional Services Inc.<br>1525 South Sixth Street<br>Springfield, Illinois 62703-2686<br>Offices Nationwide |                |
| CONSTRUCT<br>NEW VAULT<br>AIRFIELD LIGHTING<br>WIRING SCHEMATIC                                                                         |                |
| 15                                                                                                                                      |                |
| A.I.P. PROJ.: 3-17-0067-BB<br>IL PROJ.: M30-3541                                                                                        |                |

NOTES

- 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.
- INPUT CONTROL CIRCUITS SHALL BE #12 AWG COPPER THWN.
- FOR 120 VAC BRANCH CIRCUITS THE NEUTRAL CONDUCTOR SHALL NOT BE SWITCHED THROUGH THE RELAY CONTACTS. USE TERMINAL BLOCKS TO TRANSITION FROM VAULT BRANCH CIRCUIT WIRING TO FIELD WIRING.
- THE WIND CONE CIRCUIT SHALL HAVE PHASE "A" SWITCHED THROUGH THE LIGHTING CONTACTOR. PHASE "B" SHALL BE UNSWITCHED FROM THE POWER SOURCE TO THE RECEPTACLES AT THE WIND CONE.
- PROVIDE #10 AWG COPPER BONDING JUMPER FROM PANEL ENCLOSURE FRAME TO ENCLOSURE DOOR.
- PROVIDE 2-POSITION MAINTAINED CONTACT "OFF-ON" SELECTOR SWITCH FOR PHOTOCELL BYPASS CONTROL & MOUNT ON RELAY PANEL ENCLOSURE DOOR. SELECTOR SWITCH SHALL BE SQUARE D CLASS 9001, TYPE KS11FBH13 OR APPROVED EQUAL. INCLUDE LEGEND PLATE LABELED "PHOTOCELL BYPASS".
- PROVIDE 2-POSITION MAINTAINED CONTACT "NORMAL-SPARE" SELECTOR SWITCH FOR CONSTANT CURRENT REGULATOR TRANSFER CONTROL & MOUNT ON RELAY PANEL ENCLOSURE DOOR. SELECTOR SWITCH SHALL BE SQUARE D CLASS 9001, TYPE KS11FBH113 OR APPROVED EQUAL. INCLUDE LEGEND PLATE LABELED "RWY 18-36 CCR TRANSFER" & A LEGEND PLATE TO INDICATE POSITION "NORMAL-SPARE".



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METROPOLIS MUNICIPAL AIRPORT  
 METROPOLIS, ILLINOIS

IL PROJ.: M30-3541 A.I.P. PROJ.: 3-17-0067-88

|                                 |                    |            |               |
|---------------------------------|--------------------|------------|---------------|
| HEI Project No. 816-06V1/D.0800 | Revision E-609.DWG | Scale NONE | Date 12/02/05 |
| LAYOUT                          | KNL                | 11/17/05   |               |
| DRAWN                           | MV                 | 11/18/05   |               |
| REVIEWED                        | CAH                | 12/16/05   |               |



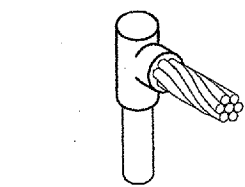
CONSTRUCT  
 NEW VAULT

RELAY/CONTACTOR  
 PANEL DETAIL

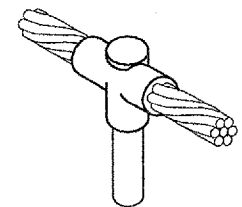




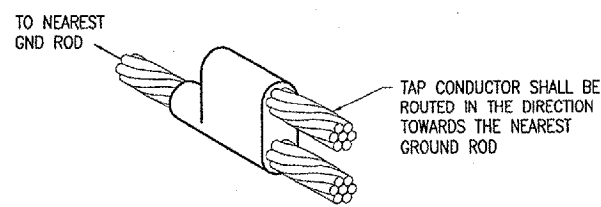
CABLE TO GROUND ROD



CABLE TO GROUND ROD



CABLE TO GROUND ROD

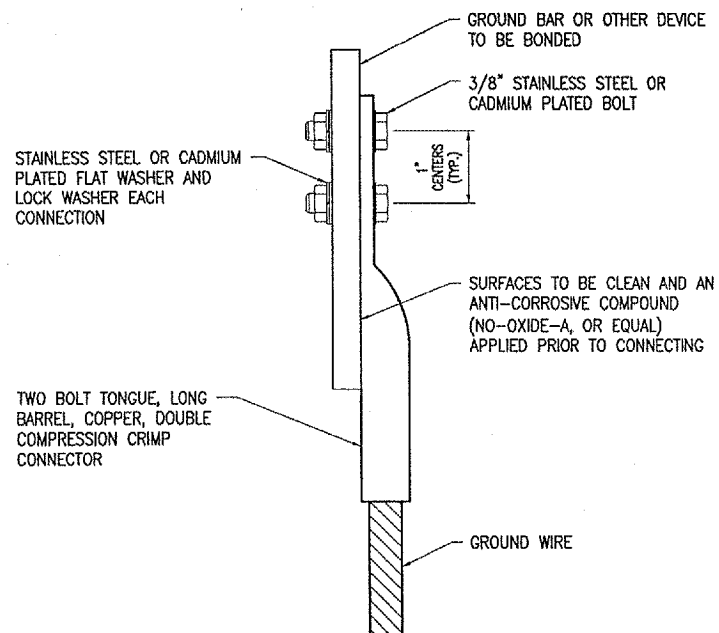


CABLE TO CABLE  
HORIZONTAL PARALLEL TAP

DETAIL NOTES

1. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY ERICO PRODUCTS, SOLON, OHIO OR THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES, TULSA, OKLAHOMA. VERIFY PROPER SIZES, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.
2. FOR APPLICATIONS TO METAL SURFACES THAT ARE LESS THAN 3/16" THICK CONTACT THE EXOTHERMIC WELD MANUFACTURER FOR DIRECTION AND INSTRUCTION ON EXOTHERMIC WELD INSTALLATION TO THE RESPECTIVE SURFACE.
3. FOR APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.
4. INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 40 PVC CONDUIT AS REQUIRED IN FOUNDATIONS, FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC.

EXOTHERMIC WELD DETAILS



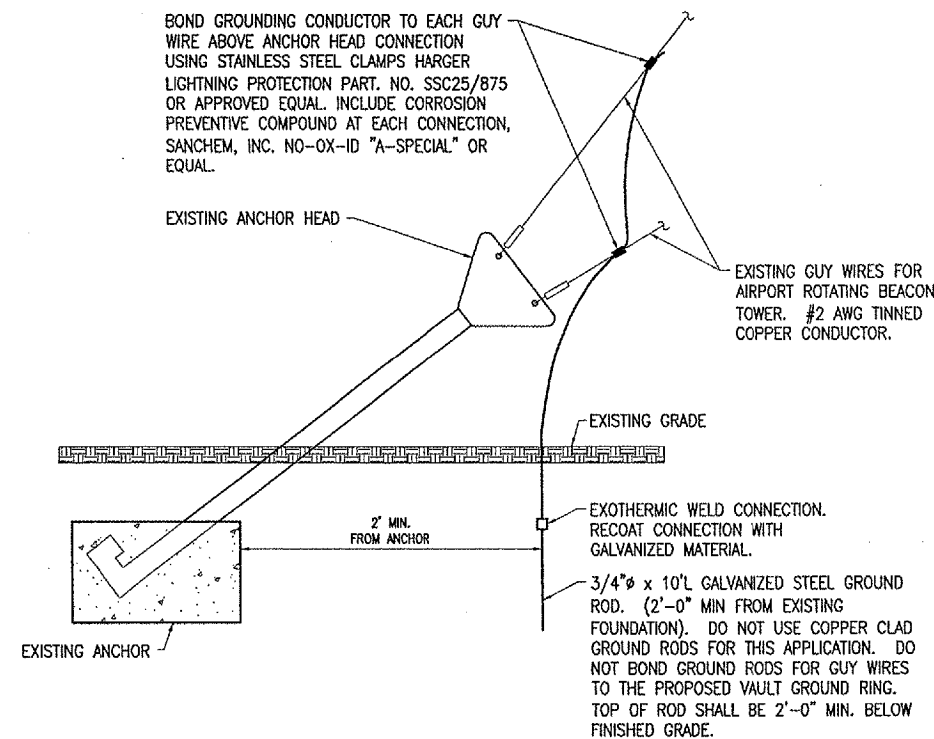
2 HOLE LONG BARREL COMPRESSION LUG TABLE

| WIRE SIZE         | BURNDY CAT. NO. | THOMAS & BETTS CAT. NO. |
|-------------------|-----------------|-------------------------|
| #6 AWG STRANDED   | YA6C-2TC38      | 256-30695-1158          |
| #2 AWG STRANDED   | YA2C-2TC38      | 256-30695-1160          |
| #1/0 AWG STRANDED | YA25-2TC38      | 256-30695-1162          |
| #2/0 AWG STRANDED | YA26-2TC38      | 256-30695-1116          |
| #3/0 AWG STRANDED | YA27-2TC38      | 54816BE                 |

NOTES

1. ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.
2. GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE.
3. GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS, & INDIVIDUAL GROUND WIRES SHALL NOT BE INSTALLED IN METAL CONDUIT.
4. ALL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", OR APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL



GUY WIRE GROUNDING DETAIL

(TYPICAL FOR 3 LOCATIONS)

NOTES:

1. GUY WIRES ARE EXISTING AND ARE USED FOR THE BEACON TOWER. THERE ARE 3 EXISTING SETS OF GUY WIRES WITH 2 WIRES PER SET & ANCHOR.
2. GROUNDING FOR GUY WIRES SHALL BE PAID FOR UNDER ITEM AR800576 INSTALL GROUND ROD - PER EACH

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METROPOLIS MUNICIPAL AIRPORT  
METROPOLIS, ILLINOIS

A.I.P. PROJ.: 3-17-0067-BB  
I.L. PROJ.: M30-3541

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| U.S. Project No. 816-06\ULTD-0800 | NO SCALE | 12/02/05 |
| File Name E-502.DWG               | NO SCALE | 12/02/05 |
| Scale                             | NO SCALE | 12/02/05 |
| Date                              | NO SCALE | 12/02/05 |
| LAYOUT                            | KNL      | 11/17/05 |
| DRAWN                             | MY       | 11/18/05 |
| REVIEWED                          | CAH      | 12/16/05 |



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

CONSTRUCT  
NEW VAULT

GROUNDING DETAILS

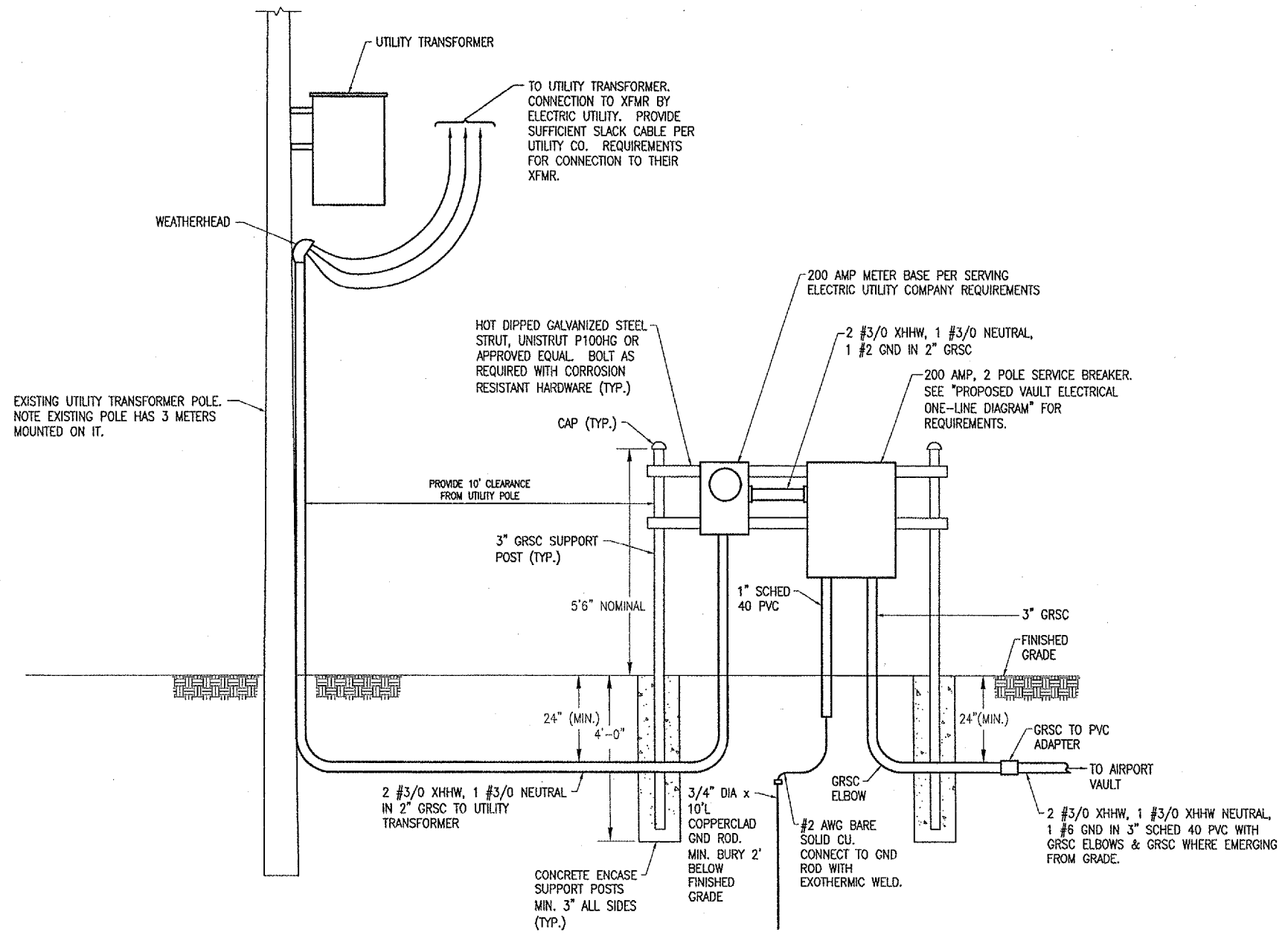
| VAULT LEGEND PLATE SCHEDULE                                                             |                                                                                    |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| DEVICE                                                                                  | LABEL                                                                              |
| SERVICE BREAKER FOR VAULT                                                               | SERVICE DISCONNECT FOR VAULT<br>120/240VAC, 1PH, 3W                                |
| VAULT PANELBOARD                                                                        | VAULT PANEL<br>120/240 VAC, 1 PH, 3W<br>FED FROM SERVICE DISCONNECT AT ADMIN. BLDG |
| MAIN BREAKER IN VAULT PANEL                                                             | MAIN DISCONNECT                                                                    |
| RUNWAY 18-36 & TAXIWAY CCR                                                              | RUNWAY 18-36 & TAXIWAY                                                             |
| SPARE RUNWAY 18-36 & TAXIWAY CCR                                                        | SPARE FOR RUNWAY 18-36 & TAXIWAY                                                   |
| CUTOUT ENCLOSURE FOR RUNWAY 18-36 & TAXIWAY                                             | RUNWAY 18-36 & TAXIWAY CUTOUTS                                                     |
| NORMAL CUTOUT INPUT SIDE CONNECTION                                                     | NORMAL CCR INPUT                                                                   |
| SPARE CUTOUT INPUT SIDE CONNECTION                                                      | SPARE CCR INPUT                                                                    |
| EACH CUTOUT OUTPUT SIDE CONNECTION                                                      | OUTPUT                                                                             |
| RADIO INTERFACE PANEL FOR RUNWAY 18-36 & TAXIWAY                                        | RUNWAY 18-36 & TAXIWAY                                                             |
| RELAY/CONTACTOR PANEL                                                                   | RELAY PANEL FOR AIRFIELD LIGHTING EQUIPMENT                                        |
| CONTACTOR FOR EXHAUST FAN                                                               | EXHAUST FAN CONTACTOR                                                              |
| LOW VOLTAGE WIREWAY (PROVIDE 4 LEGEND PLATES 1/2" HIGH BLACK LETTERS WHITE BACKGROUND)  | LOW VOLTAGE                                                                        |
| HIGH VOLTAGE WIREWAY (PROVIDE 4 LEGEND PLATES 1/2" HIGH BLACK LETTERS WHITE BACKGROUND) | HIGH VOLTAGE                                                                       |
| VAULT GROUND BUS (PROVIDE 4 LEGEND PLATES 1/2" HIGH WHITE LETTERS GREEN BACKGROUND)     | VAULT GROUND BUS                                                                   |

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.

- DIRECTIONS TO TRANSFER RUNWAY 18-36 & TAXIWAY LIGHTING FROM NORMAL CCR TO SPARE CCR.
- SHUT OFF INPUT POWER (CIRCUIT BREAKER) TO BOTH RWY 18-36/TXY CCR'S & TURN CCR SELECTOR SWITCHES TO OFF.
  - PULL CUTOUT HANDLE FROM NORMAL CCR UNIT & INSERT INTO SPARE CCR CUTOUT.
  - TURN ON INPUT POWER (CIRCUIT BREAKER) TO SPARE RWY 18-36/TXY CCR.
  - GO TO RELAY PANEL & TURN "RWY 18-36 CCR TRANSFER" SELECTOR SWITCH FROM "NORMAL" TO "SPARE" POSITION.
  - TURN SELECTOR SWITCH ON SPARE CCR TO "REMOTE" POSITION.

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

PLACARD DETAIL

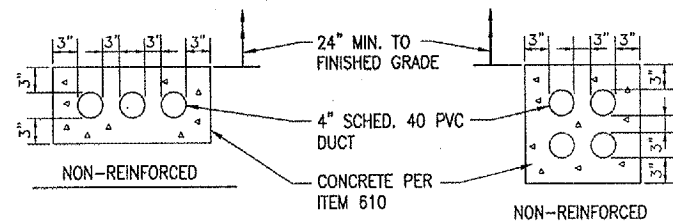
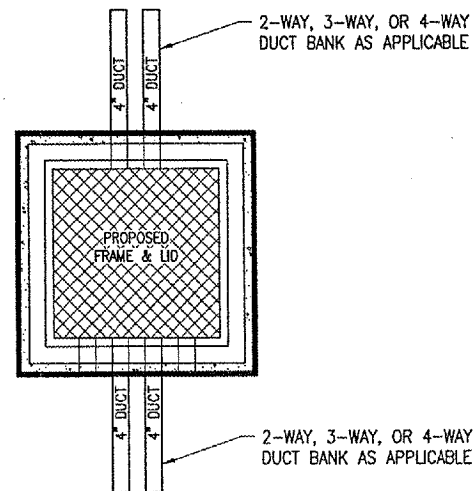


SERVICE ENTRANCE ELEVATION  
N.T.S.

- NOTES FOR ELECTRIC SERVICE
- CONTRACTOR SHALL COORDINATE SERVICE ENTRANCE WORK WITH THE SERVING ELECTRIC UTILITY; (CITY OF METROPOLIS, DEPT. OF PUBLIC WORKS, ATTN. MR. KEITH STOKES, PHONE: 618-645-0204). SERVICE ENTRANCE WORK SHALL BE PAID FOR UNDER AR109200 INSTALL ELECTRICAL EQUIPMENT PER L.S.
  - CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES WITH THE AIRPORT MANAGER.
  - EXISTING VAULT SERVICE METER BASE, DISCONNECT, SERVICE CONDUIT & WIRE, & FEEDER CONDUCTORS SHALL BE REMOVED & DISPOSED OF BY THE CONTRACTOR UPON TRANSFER OF POWER & AIRFIELD LIGHTING CIRCUITS TO THE NEW VAULT. EXISTING METER SHALL BE TURNED OVER TO SERVING ELECTRIC UTILITY. REMOVAL WORK SHALL BE PAID FOR UNDER AR109901 REMOVE ELECTRICAL VAULT PER L.S.

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|                                                                                                                       |                  |
|-----------------------------------------------------------------------------------------------------------------------|------------------|
| BY                                                                                                                    |                  |
| REVISION                                                                                                              |                  |
| DATE                                                                                                                  |                  |
| METROPOLIS MUNICIPAL AIRPORT<br>METROPOLIS, ILLINOIS                                                                  |                  |
| PROJECT NO.                                                                                                           | 816-06VLT.D.0800 |
| DATE                                                                                                                  | 12/02/05         |
| SCALE                                                                                                                 | N.O. SCALE       |
| LAYOUT                                                                                                                | KNL 11/17/05     |
| DRAWN                                                                                                                 | MV 11/18/05      |
| REVIEWED                                                                                                              | CAH 12/16/05     |
| <br>Hanson Professional Services Inc.<br>1624 S. 5th Street<br>Springfield, Illinois 62703-2898<br>Offices Nationwide |                  |
| CONSTRUCT<br>NEW VAULT                                                                                                |                  |
| ELECTRICAL DETAILS<br>SHEET 1                                                                                         |                  |
| 18                                                                                                                    |                  |
| 18 of 22 sheets                                                                                                       |                  |



NOTES:

1.) ALL DIMENSIONS ARE MINIMUM.

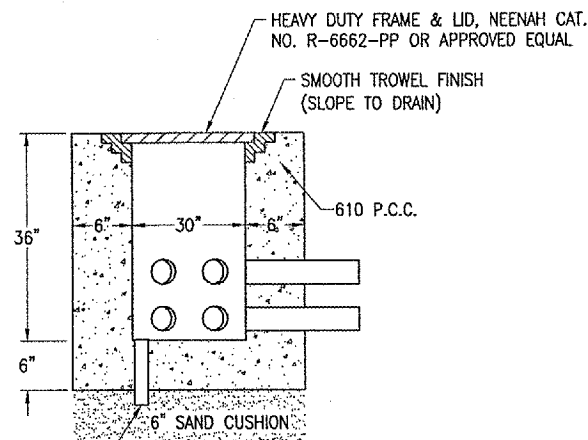
**CONCRETE ENCASED DUCT DETAIL**

(3-WAY & 4-WAY SHOWN)

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.

NOTES:

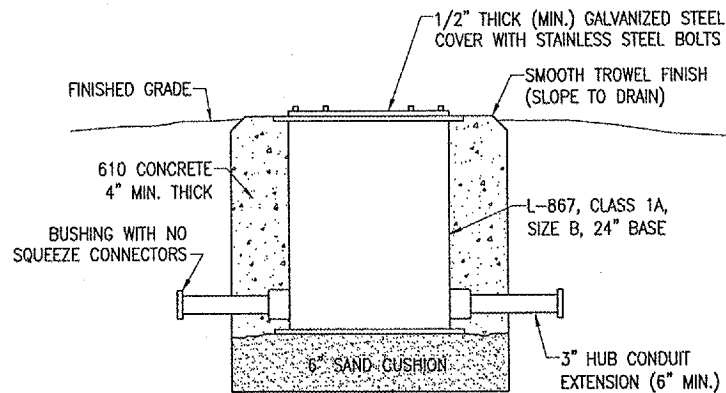
1. THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
2. BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE INFORMED AS DESCRIBED IN NOTE 4.
3. CABLE MARKERS SHALL BE PLACED AT CHANGES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE RUNS.
4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.



2" SCHED 40 PVC DRAIN PIPE. NOTE 6" OF CA-7 GRAVEL MAY BE PROVIDED, INSTEAD OF 6" CONCRETE FLOOR WITH DRAIN PIPE, AT CONTRACTORS OPTION.

NOTE: LIDS FOR LOW VOLTAGE HANDHOLES SHALL BE LABELED "LOW VOLTAGE". LIDS FOR HIGH VOLTAGE HANDHOLES SHALL BE LABELED "HIGH VOLTAGE". COORDINATE LETTERING WITH MFR.

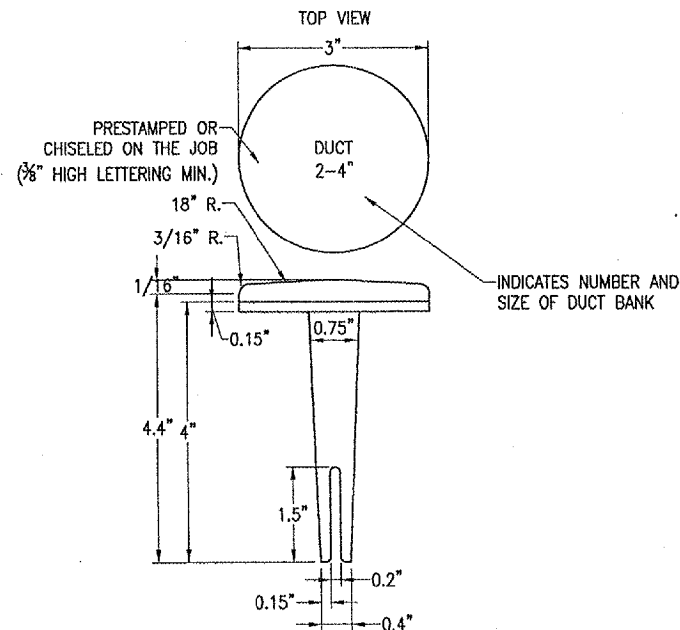
**ELECTRICAL HANDHOLE DETAIL**



**SPLICE CAN DETAIL**

(NOT TO SCALE)

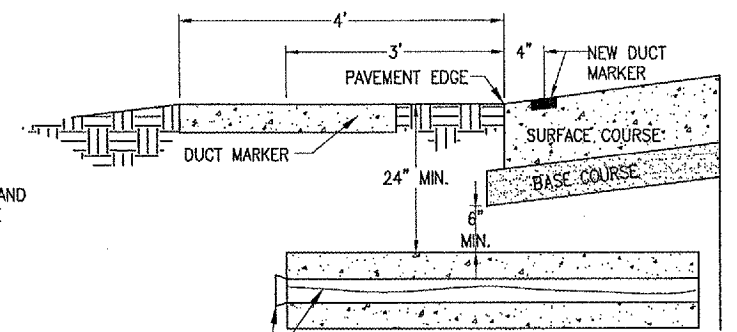
INCLUDE INTERNAL AND EXTERNAL GROUND LUGS



**BITUMINOUS PAVEMENT DUCT MARKERS**

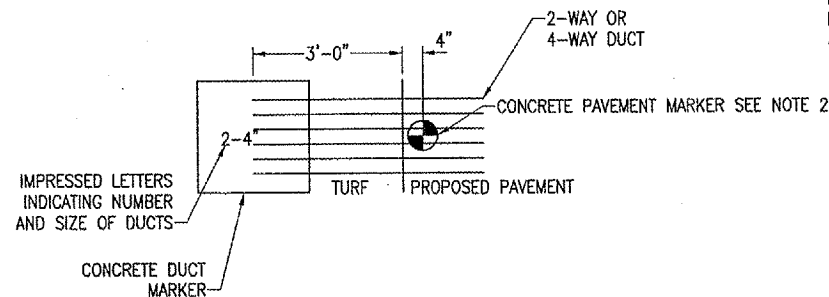
"NOT TO SCALE"

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



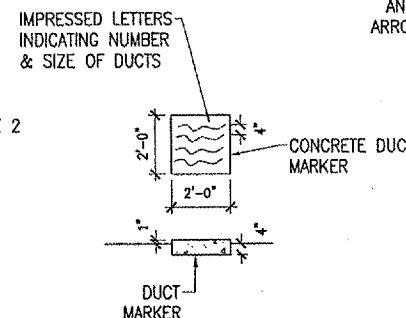
**UNDERGROUND ELECTRICAL DUCT**

(NOT TO SCALE)



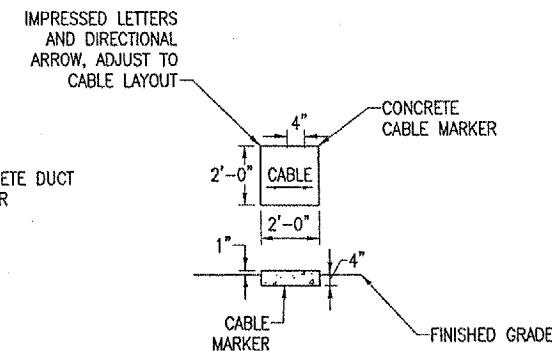
**DUCT MARKER DETAIL**

"NOT TO SCALE"



**TURF DUCT MARKERS**

"NOT TO SCALE"



**TURF CABLE MARKERS**

"NOT TO SCALE"

| DATE | REVISION | BY |
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METROPOLIS MUNICIPAL AIRPORT  
METROPOLIS, ILLINOIS

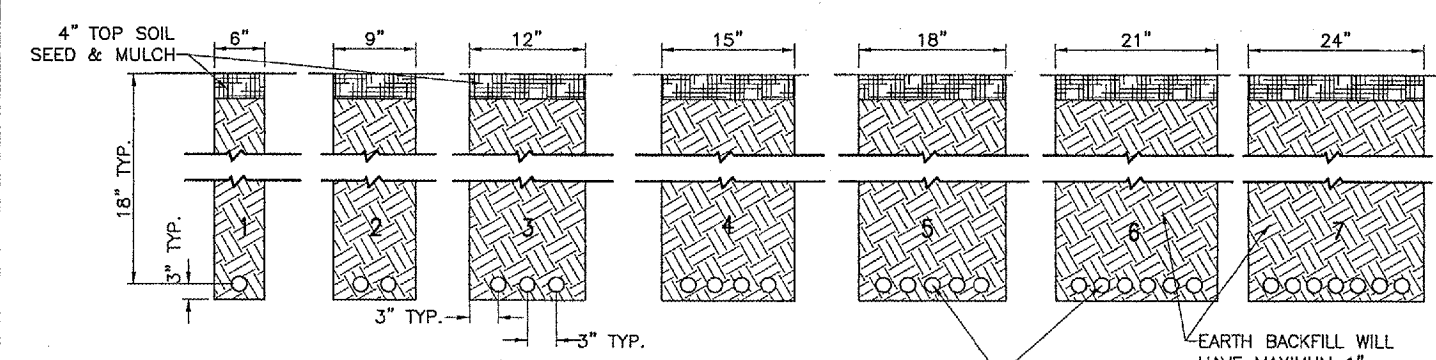
IL. PROJ.: M30-3541 A.I.P. PROJ.: 3-17-0067-BB

|                                |               |          |
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| SE Project No. 816-06V.LD.0800 | FILED         | 11/17/05 |
| Filename: R-549ELE.DWG         | Scale: NONE   | 11/18/05 |
| Date: 12/02/05                 | Drawn: MV     | 12/16/05 |
|                                | Reviewed: CAH |          |

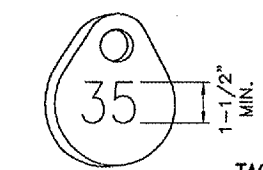
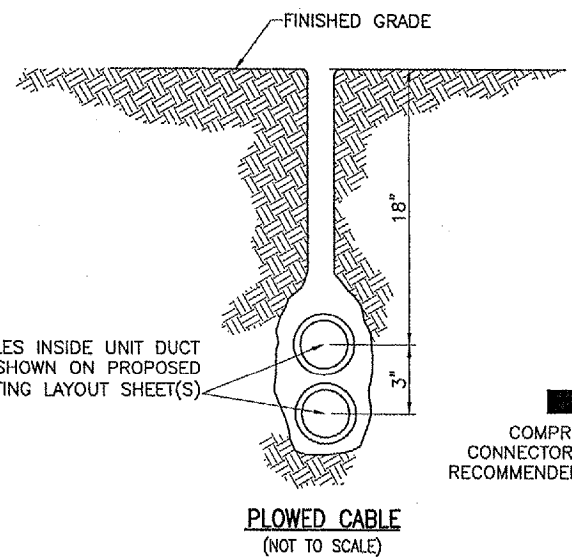


CONSTRUCT  
NEW VAULT  
ELECTRICAL DETAILS  
SHEET 2

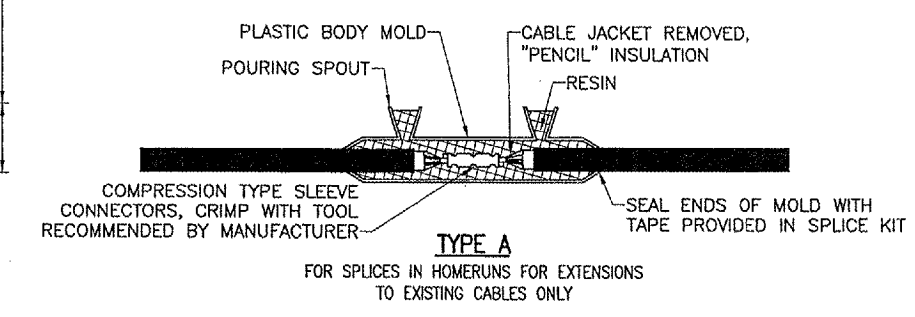
JAN 12, 2006 1:43 PM CAH I:\AIRPORTS\METROPOLIS\816-06V.LD\AIRPORT\SHEETS\R-549ELE.DWG - Layout1



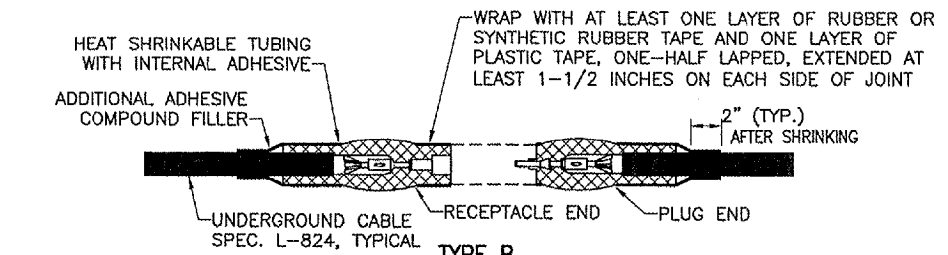
**NOTES:**  
 DETAIL NUMBERS INDICATE NO. OF CABLES, (OR UNIT DUCTS).  
 TRENCHES WITH MORE THAN SEVEN CABLES SHALL BE INCREASED 3" IN WIDTH FOR EACH ADDITIONAL CABLE; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.  
 DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.  
 ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.



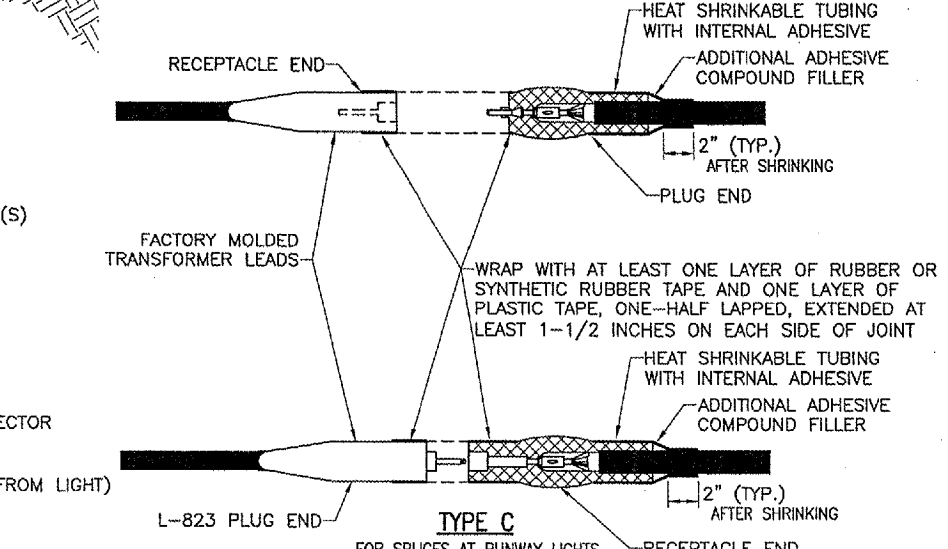
**NOTE:**  
 AFFIX NON-CORROSIVE TAG TO FIXTURE FACING RUNWAY WITH SET SCREW, WIRE TIE, OR METAL BAND. NUMERALS SHALL BE ENGRAVED FOR PERMANENT READABILITY.



**TYPE A**  
 FOR SPLICES IN HOMERUNS FOR EXTENSIONS TO EXISTING CABLES ONLY



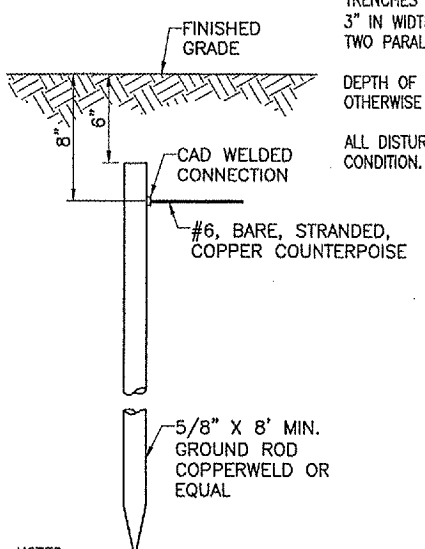
**TYPE B**  
 FOR SPLICES AT JUNCTION OF HOMERUN WITH LOOP CIRCUIT



**TYPE C**  
 FOR SPLICES AT RUNWAY LIGHTS

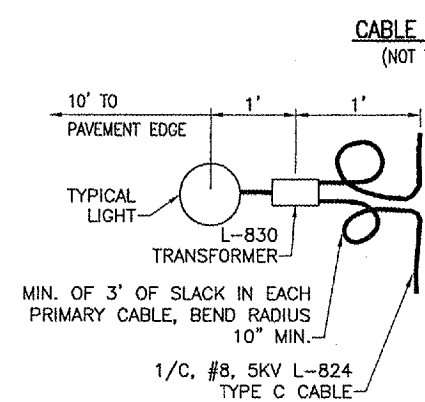
**NOTES:**  
 SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR SPLICE TYPE.  
 INSIDE DIAMETER OF CONNECTOR SHALL PROPERLY MATCH THE OUTSIDE DIAMETER OF CABLE.

**CABLE SPLICES**  
 (NOT TO SCALE)

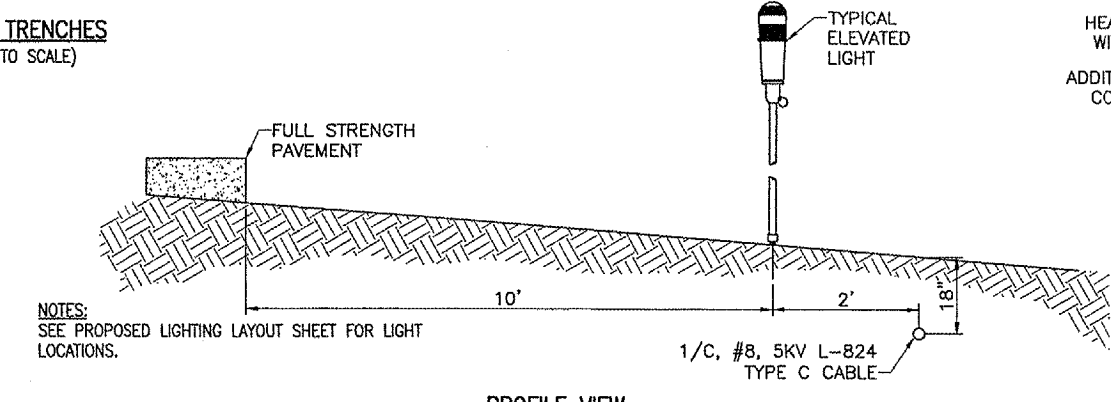


**NOTES:**  
 TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.  
 THE RESISTANCE TO GROUND OF THE COUNTERPOISE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.  
 COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.

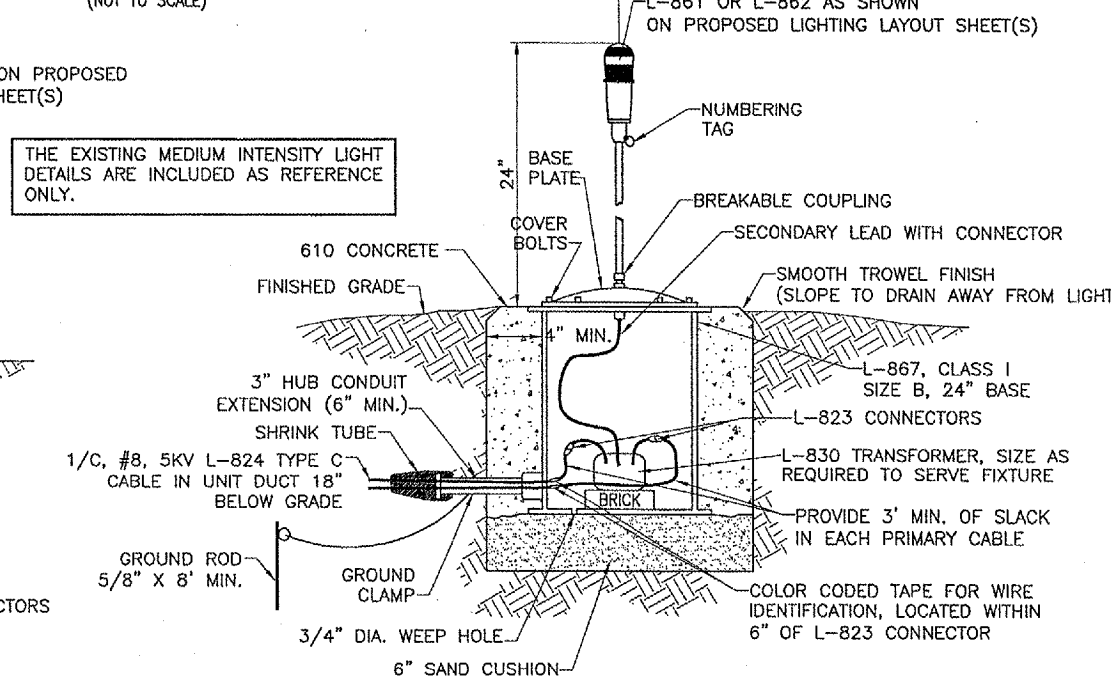
**GROUND ROD**  
 (NOT TO SCALE)



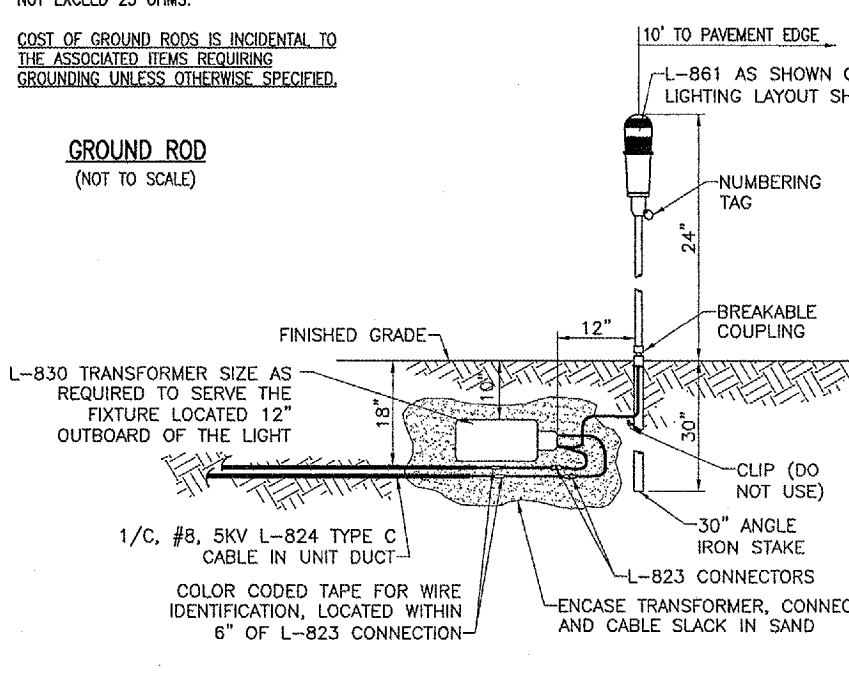
**CABLE TRENCHES**  
 (NOT TO SCALE)



**LIGHT AND CABLE INSTALLATION DETAIL**  
 (NOT TO SCALE)



**EXISTING MEDIUM/HIGH INTENSITY LIGHT - BASE MOUNTED**  
 (NOT TO SCALE)



**EXISTING MEDIUM INTENSITY LIGHT - STAKE MOUNTED**  
 (NOT TO SCALE)

| REVISION | DATE |
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METROPOLIS MUNICIPAL AIRPORT  
 METROPOLIS, ILLINOIS  
 A.I.P. PROJ.: M30-3541  
 I.L. PROJ.: M30-3541

|             |                 |
|-------------|-----------------|
| Project No. | 816-06/17D-0800 |
| Plan No.    | R-542ELE.DWG    |
| Scale       | N/A             |
| Date        | 11/15/05        |
| LAYOUT      | MDR 11/15/05    |
| DRAWN       | MDR 11/15/05    |
| REVIEWED    | CAH 12/16/05    |



CONSTRUCT  
 NEW VAULT  
 ELECTRICAL DETAILS  
 SHEET 3

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**GENERAL NOTES**

1. THE ELECTRICAL INSTALLATION, AS A MINIMUM, SHALL MEET THE NATIONAL ELECTRICAL CODE AND LOCAL REGULATIONS.
2. 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 MANUFACTURE) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.
3. IN CASE THE CONTRACTOR ELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING EQUIPMENT REQUIRING ADDITIONAL WIRING, TRANSFORMERS, ADAPTERS, 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.
4. 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.
5. 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.
6. 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.
7. 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 INSTRUCTIONS.
  - 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 MANUFACTURE AND THE CATALOG NUMBER.
  - I. SAFETY INSTRUCTIONS.

**POWER AND CONTROL NOTES**

1. STENCIL ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, CIRCUIT VOLTAGE AND PHASE. WHERE THE EQUIPMENT CONTAINS FUSES, ALSO STENCIL THE FUSE OR FUSE LINK AMPERE RATING. WHERE THE EQUIPMENT DOES NOT HAVE SUFFICIENT STENCILING AREA, THE STENCILING SHALL BE DONE ON THE WALL NEXT TO THE UNIT. THE LETTERS SHALL BE ONE INCH HIGH AND PAINTED IN WHITE OR BLACK TO PROVIDE THE HIGHEST CONTRAST WITH THE BACKGROUND.
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.
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 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 WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED ON WOODEN MOUNTING BOARDS, AND/OR GALVANIZED STEEL STRUT SUPPORT.
14. WOODEN EQUIPMENT MOUNTING BOARDS SHALL BE PLYWOOD, EXTERIOR TYPE, 3/4 INCH, MINIMUM, THICKNESS, BOTH SIDES PAINTED WITH ONE COAT OF PRIMER AND TWO COATS OF GRAY OIL-BASED PAINT.
15. RIGID STEEL CONDUIT SHALL BE USED THROUGHOUT THE INSTALLATION UNLESS OTHERWISE SPECIFIED. THE MINIMUM TRADE SIZE SHALL BE 3/4 INCH.
16. ALL RIGID CONDUIT SHALL BE TERMINATED AT CONSTANT CURRENT REGULATORS WITH A SECTION (10" MINIMUM) OF FLEXIBLE CONDUIT.
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 AND COVER WITH INSULATING VARNISH FOR FULL VALUE OF CABLE INSULATION VOLTAGE.
22. UNLESS OTHERWISE NOTED, ALL INDOOR SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG.
23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:
  - A. ALL COMPONENTS SHALL BE MOUNTED IN DUST PROOF ENCLOSURE(S) WITH VERTICALLY HINGED COVERS.
  - 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 (SCHEMATIC 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.

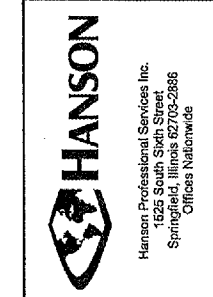
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| DATE | REVISION | BY |
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**METROPOLIS MUNICIPAL AIRPORT  
METROPOLIS, ILLINOIS**

IL. PROJ.: M30-3541 / A.I.P. PROJ.: 3-17-0067-BB

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| Proj. No. B16-06VLT.DWG |          |  |  |
| Revision R-543ELE.DWG   |          |  |  |
| Scale N/A               |          |  |  |
| Date 11/15/05           |          |  |  |
| LAYOUT MDR              | 11/15/05 |  |  |
| DRAWN MDR               | 11/15/05 |  |  |
| REVIEWED CAH            | 12/16/05 |  |  |



**CONSTRUCT  
NEW VAULT**

**ELECTRICAL NOTES  
SHEET 1**

