

12A

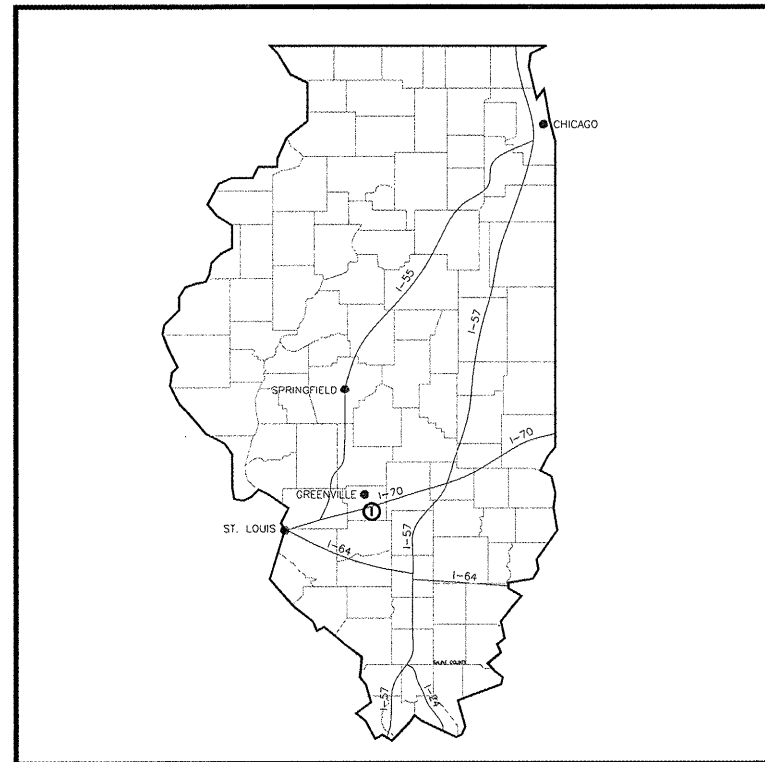
# CONSTRUCTION PLANS FOR GREENVILLE AIRPORT REIL & WINDCONE INSTALLATION

GR003  
TOTAL SHEETS: 12

ILLINOIS PROJECT NUMBER: GRE-3823  
AIP PROJECT NUMBER: 3-17-0049-B6

GREENVILLE, ILLINOIS  
BOND COUNTY

DATE: JANUARY 16, 2009



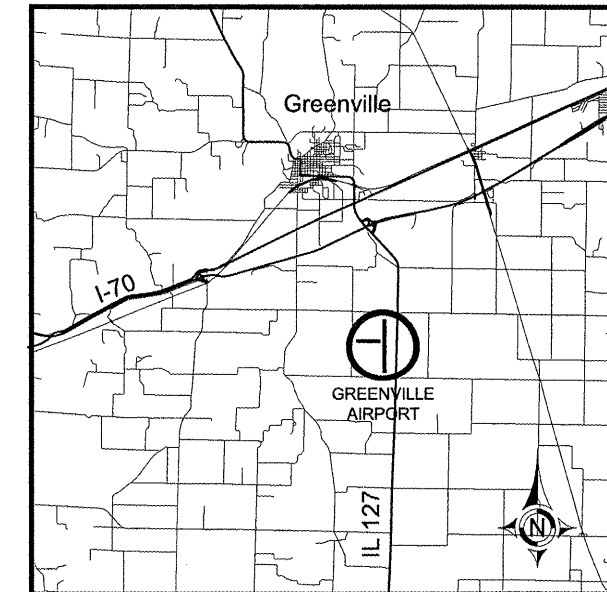
LOCATION MAP



BROWN AND ROBERTS, INC.  
CONSULTING ENGINEER  
PRESIDENT  
SUBMITTED BY: *J.W. Brown*  
DATE SUBMITTED: *1/16/2009*  
LICENSE NUMBER: 184-002518  
LICENSE EXPIRATION DATE: APRIL 2009

PLANS PREPARED BY:  
  
BROWN AND ROBERTS, INC.  
1 WESTRIDGE ROAD  
HARRISBURG, IL. 62946  
(618) 252-8111

GREENVILLE AIRPORT AUTHORITY  
CHAIRMAN  
APPROVED BY: *[Signature]* *1/19/09*  
REX CATRON DATE  
SECRETARY  
ATTESTED BY: *[Signature]*  
DENNY WILLMAN DATE  
*1-12-09*



VICINITY MAP

## SUMMARY OF QUANTITIES

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QUANTITY</u>
AR107712	L-807 WIND CONE - 12' LIGHTED	EA.	2
AR107901	REMOVE WIND TEE	L.S.	1
AR108652	3/C #2 600 V UG CABLE IN UD	L.F.	2,450
AR108654	3/C #4 600 V UG CABLE IN UD	L.F.	1,750
AR109410	VAULT WIRING	L.S.	1
AR109600	L-821 CONTROL PANEL	L.S.	1
AR110314	4" STEEL DUCT, JACKED	L.F.	157
AR125610	REILS	PAIR	2
AR801254	4/C #6 600 V UG CABLE IN UD	L.F.	2,650
AR801255	4/C #2 600 V UG CABLE IN UD	L.F.	3,350
AR901525	SEEDING	L.S.	1

## INDEX TO SHEETS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	INDEX AND SUMMARY OF QUANTITIES
3	RUNWAY SAFETY PLAN
4	EXISTING SITE & CONSTRUCTION PLAN
5	PLAN SHEET (36 END)
6	PLAN SHEET (145+00)
7	PLAN SHEET (TERMINAL)
8	PLAN SHEET (18 END)
9	SINGLE LINE DIAGRAM
10	VAULT DETAILS
11	ELECTRICAL DETAILS
12	ELECTRICAL NOTES

**GREENVILLE AIRPORT**

**IL PROJECT NO. GRE-3823**

**AIP NO. 3-17-0049-B6**

**RUNWAY SAFETY PLAN**

**SHEET 3 OF 12**

**GR003**

**SCOPE OF WORK**

THE PROJECT SCOPE CONSISTS OF THE CONSTRUCTION OF TWO REIL SYSTEMS, TWO LIGHTED CONES, REMOVAL OF AN EXISTING WIND TEE AND ASSOCIATED WIRING.

**PROPOSED SAFETY PLAN**

GENERAL- THE GREENVILLE AIRPORT CURRENTLY HAS A PAVED RUNWAY 18-36 WHICH IS 4,002 FT. X 75 FT. AND A TURF RUNWAY 9-27 WHICH IS 2,822 FT. X 250 FT.

**CONTRACTOR'S RESPONSIBILITIES**

IDENTIFICATION- THE CONTRACTOR'S VEHICLES AND EQUIPMENT SHALL BE PROPERLY MARKED WITH 3-FOOT SQUARE INTERNATIONAL ORANGE AND WHITE CHECKERED FLAGS ANYTIME THEY ARE ON AIRPORT PROPERTY.

THE CONTRACTOR AND HIS EMPLOYEES SHALL BE RESTRICTED TO THE WORK AREA.

EQUIPMENT PARKING AND STORAGE- THE CONTRACTOR'S EQUIPMENT PARKING, STORAGE, AND EMPLOYEE PARKING WILL BE AT THE LOCATION SHOWN ON THIS SHEET. ONLY CONTRACTOR VEHICLES AND EQUIPMENT REQUIRED FOR CONSTRUCTION WILL BE ALLOWED OUTSIDE THIS AREA.

BARRICADES AND TRAFFIC CONES- IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PLACE AND MAINTAIN BARRICADES AND TRAFFIC CONES AS REQUIRED AND AS DIRECTED BY THE RESIDENT ENGINEER. BARRICADES, THEIR MAINTENANCE, PLACEMENT, AND REMOVAL WILL BE CONSIDERED AS AN INCIDENTAL ITEM TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING PAVEMENTS CAUSED BY HIS PERSONNEL OR EQUIPMENT.

**HAUL ROUTE AND EQUIPMENT PARKING**

THE CONTRACTOR WILL USE THE DESIGNATED HAUL ROUTE AND EQUIPMENT PARKING AREA SHOWN ON THIS SAFETY PLAN. THE PROPOSED EQUIPMENT PARKING AREA WILL BE APPROXIMATELY 100-FT BY 50-FT. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THE PROPOSED HAUL ROUTE AND PARKING AREA THROUGHOUT THE COURSE OF THE PROJECT. AT THE CONCLUSION OF THE PROJECT, ALL AREAS DISTURBED WILL BE RESTORED AS NEEDED TO ITS ORIGINAL STATE. RESTORATION OF THE HAUL ROUTE AND EQUIPMENT PARKING AREA WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

**UTILITY NOTE**

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES AND ORGANIZATIONS THAT 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 SHALL CALL JULIE (1-800-892-0123) TO ACCOMPLISH THESE REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING ALL NON-JULIE UTILITIES LOCATED WITHIN THE PROPOSED CONSTRUCTION LIMITS. THESE UTILITIES ARE TO BE LOCATED PRIOR TO THE START OF CONSTRUCTION.

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

COUNTY.....BOND  
CITY.....GREENVILLE (4 MI SOUTHEAST)  
TOWNSHIP.....CENTRAL  
SECTION NO.....36  
NEAREST MAJOR ROAD INTERSECTION.....ILLINOIS RT. 127 & SKY LANE  
AIRPORT ADDRESS.....GREENVILLE AIRPORT  
1374 SKY LANE  
GREENVILLE, IL 62246

**NOTE:**

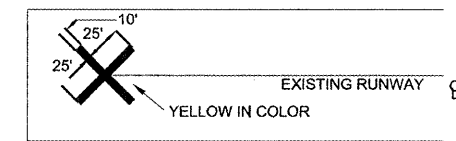
THE COST OF CONSTRUCTING, PLACING, MAINTAINING, AND REMOVING CROSSES WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. THE CROSSES WILL BE YELLOW IN COLOR AND SHALL BE MADE OF A SUITABLE MATERIAL AS APPROVED BY THE RESIDENT ENGINEER. THE CROSSES WILL BE PLACED AT THE ENDS OF THE RUNWAY AND SECURED IN A MANNER APPROVED BY THE RESIDENT ENGINEER. THE PROPOSED CROSSES WILL BE PLACED WHEN 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 AT NO ADDITIONAL COST TO THE CONTRACT.

**HEIGHT OF CONSTRUCTION EQUIPMENT**

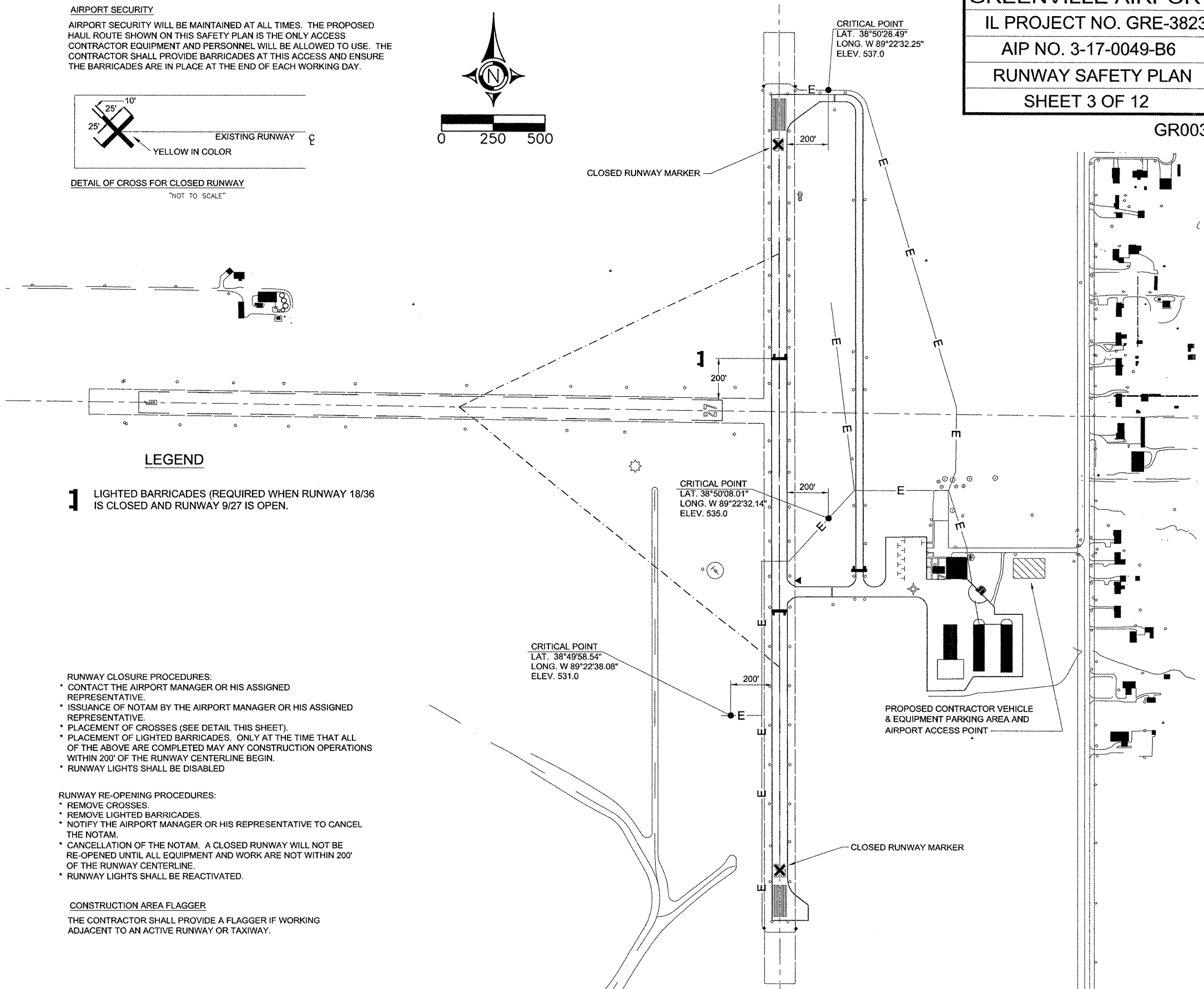
THE MAXIMUM ANTICIPATED HEIGHT OF THE CONSTRUCTION EQUIPMENT IS 20 FEET. THE TALLEST EQUIPMENT IS EXPECTED TO BE A CONCRETE MIXING TRUCK.

**AIRPORT SECURITY**

AIRPORT SECURITY WILL BE MAINTAINED AT ALL TIMES. THE PROPOSED HAUL ROUTE SHOWN ON THIS SAFETY PLAN IS THE ONLY ACCESS. CONTRACTOR EQUIPMENT AND PERSONNEL WILL BE ALLOWED TO USE. THE CONTRACTOR SHALL PROVIDE BARRICADES AT THIS ACCESS AND ENSURE THE BARRICADES ARE IN PLACE AT THE END OF EACH WORKING DAY.



**DETAIL OF CROSS FOR CLOSED RUNWAY**  
"NOT TO SCALE"



**LEGEND**

1 LIGHTED BARRICADES (REQUIRED WHEN RUNWAY 18/36 IS CLOSED AND RUNWAY 9/27 IS OPEN.)

**RUNWAY CLOSURE PROCEDURES:**

- CONTACT THE AIRPORT MANAGER OR HIS ASSIGNED REPRESENTATIVE.
- ISSUANCE OF NOTAM BY THE AIRPORT MANAGER OR HIS ASSIGNED REPRESENTATIVE.
- PLACEMENT OF CROSSES (SEE DETAIL THIS SHEET).
- PLACEMENT OF LIGHTED BARRICADES. ONLY AT THE TIME THAT ALL OF THE ABOVE ARE COMPLETED MAY ANY CONSTRUCTION OPERATIONS WITHIN 200' OF THE RUNWAY CENTERLINE BEGIN.
- RUNWAY LIGHTS SHALL BE DISABLED

**RUNWAY RE-OPENING PROCEDURES:**

- REMOVE CROSSES.
- REMOVE LIGHTED BARRICADES.
- NOTIFY THE AIRPORT MANAGER OR HIS REPRESENTATIVE TO CANCEL THE NOTAM.
- CANCELLATION OF THE NOTAM. A CLOSED RUNWAY WILL NOT BE RE-OPENED UNTIL ALL EQUIPMENT AND WORK ARE NOT WITHIN 200' OF THE RUNWAY CENTERLINE.
- RUNWAY LIGHTS SHALL BE REACTIVATED.

**CONSTRUCTION AREA FLAGGER**

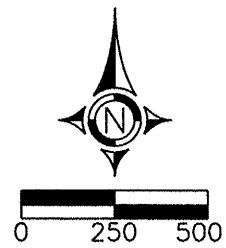
THE CONTRACTOR SHALL PROVIDE A FLAGGER IF WORKING ADJACENT TO AN ACTIVE RUNWAY OR TAXIWAY.

SCOPE OF WORK

THE PROJECT SCOPE CONSISTS OF THE CONSTRUCTION OF TWO REIL SYSTEMS, TWO LIGHTED CONES, REMOVAL OF AN EXISTING WIND TEE AND ASSOCIATED WIRING.

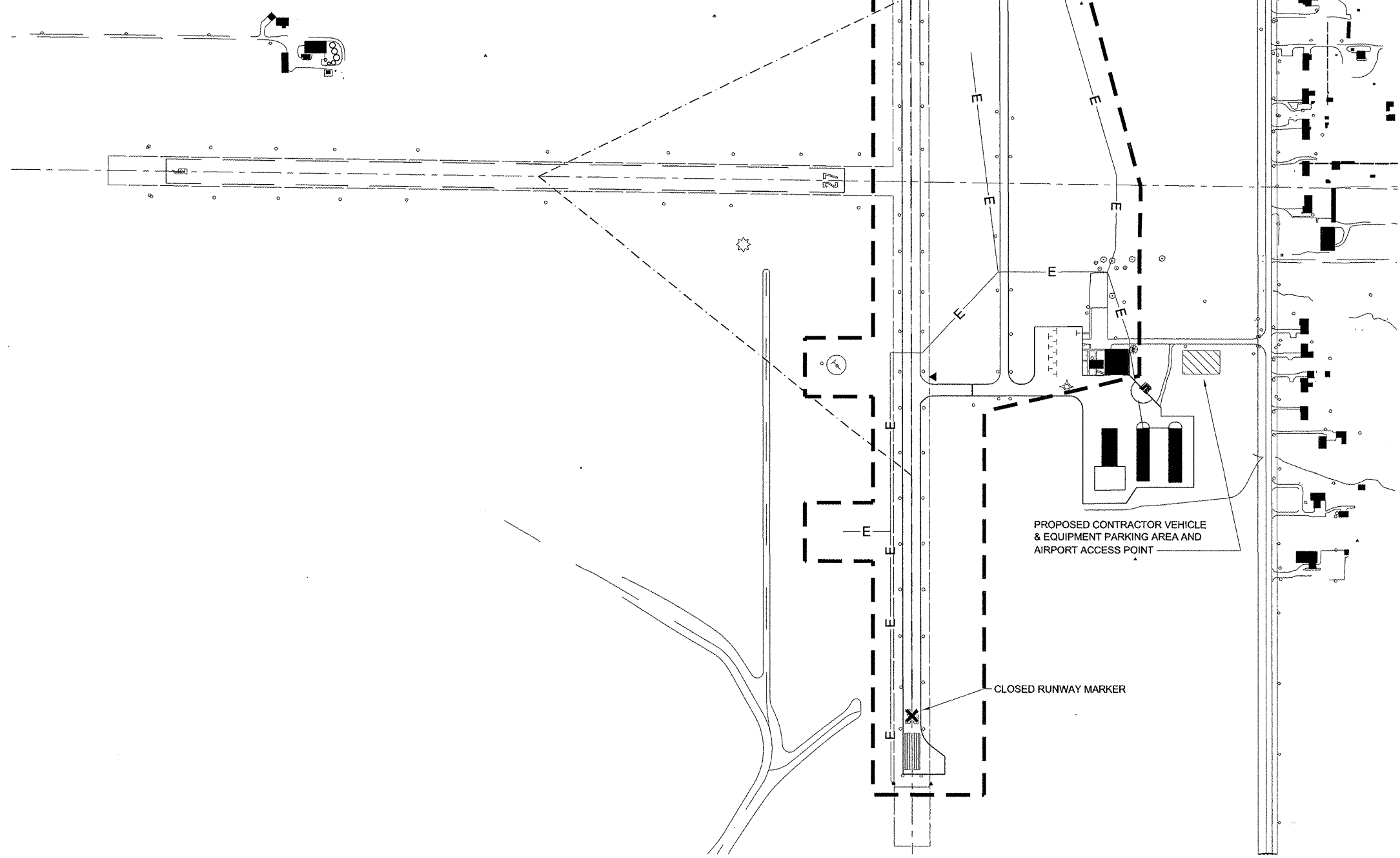
LEGEND

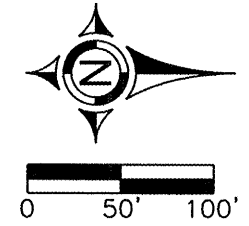
- LIMITS OF CONSTRUCTION
- E—E— PROPOSED UNDERGROUND ELECTRICAL



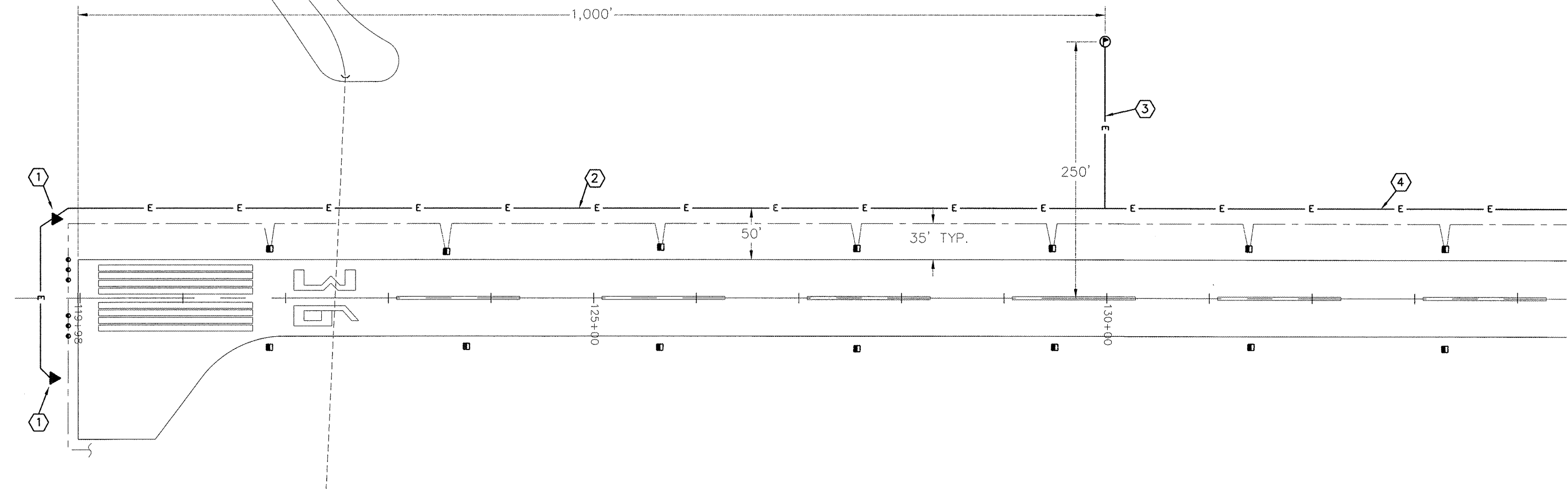
GREENVILLE AIRPORT  
IL PROJECT NO. GRE-3823  
AIP NO. 3-17-0049-B6  
EXISTING SITE AND CONSTRUCTION PLAN  
SHEET 4 OF 12

GR003





GR003



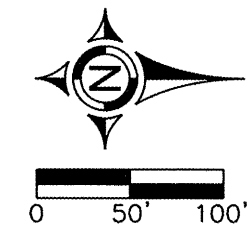
**GENERAL NOTE**

EXISTING UNDERGROUND AIRFIELD LIGHTING CIRCUITS ARE SHOWN WHERE LOCATIONS ARE RELEVANT TO NEW CONSTRUCTION. LOCATIONS SHOWN ARE APPROXIMATE. THESE AREAS SHALL BE HAND-EXCAVATED TO AVOID DAMAGE. ANY DAMAGE TO SAME SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.

**PLAN NOTES**

- ① REIL system for Runway 36; see details Sheet 11.
- ② 4/C #2 600 V Type C in unit duct for 120/240 volt feed to Runway 36 REIL system.
- ③ 3/C, #2, 600 V, Type C in unit duct for 120 volt feed to Runway 36 supplemental wind cone.
- ④ 4/C #2 and 3/C #2 Type C unit duct.

GR003



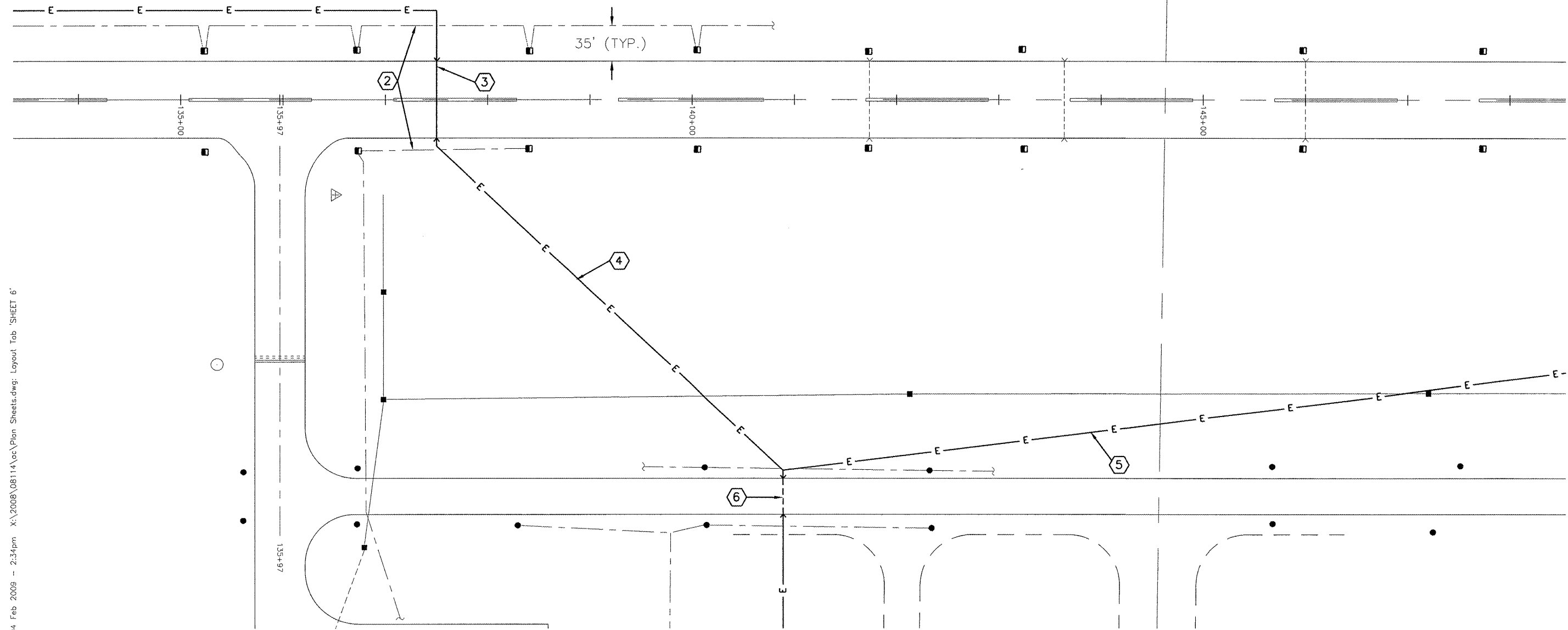
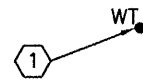
27

**GENERAL NOTE**

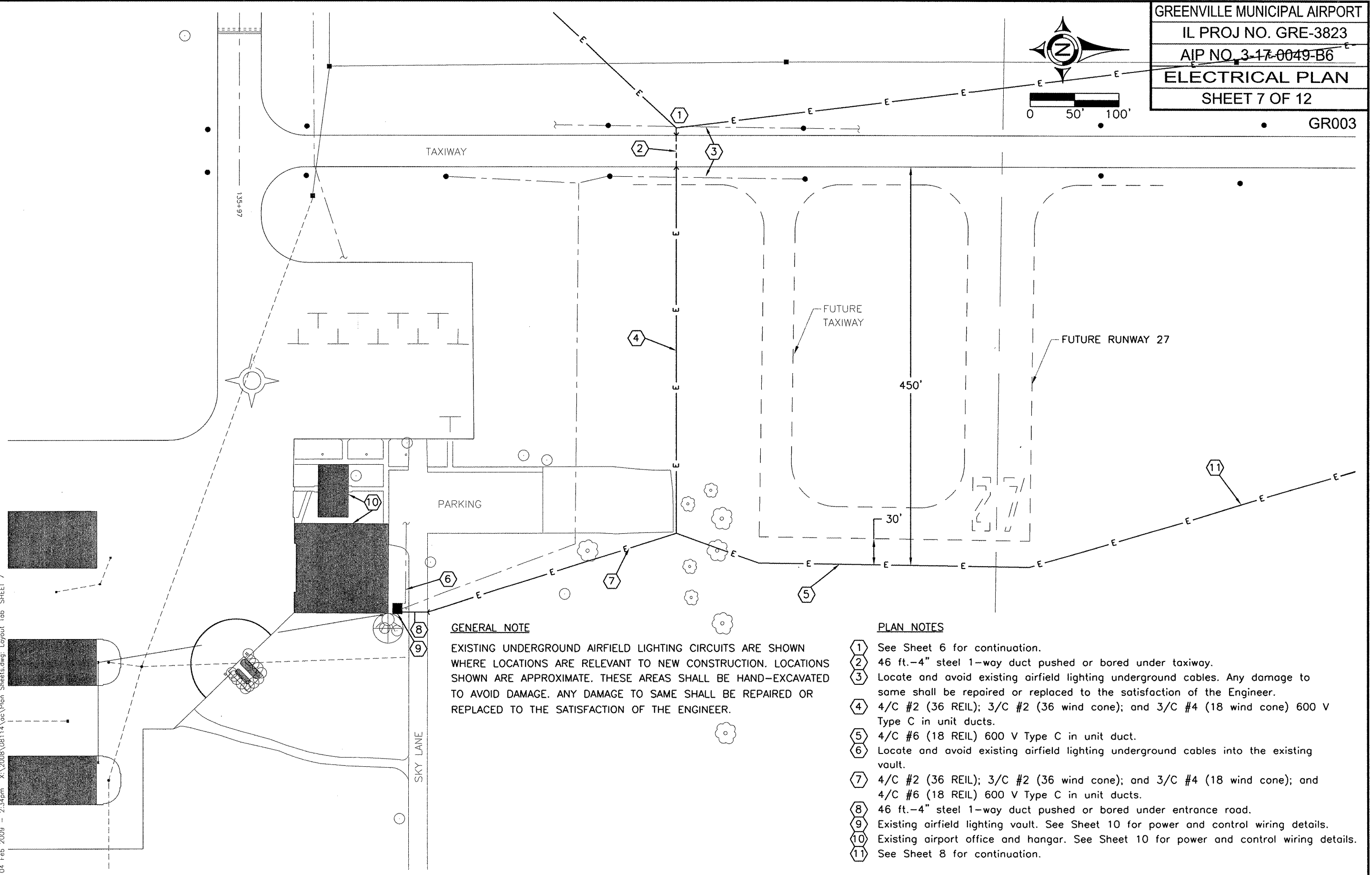
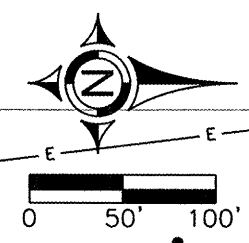
EXISTING UNDERGROUND AIRFIELD LIGHTING CIRCUITS ARE SHOWN WHERE LOCATIONS ARE RELEVANT TO NEW CONSTRUCTION. LOCATIONS SHOWN ARE APPROXIMATE. THESE AREAS SHALL BE HAND-EXCAVATED TO AVOID DAMAGE. ANY DAMAGE TO SAME SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.

**PLAN NOTES**

- ① Disconnect and remove wind tee, and all above-grade wiring. Wiring below grade shall be abandoned in place.
- ② Locate and avoid existing airfield lighting underground cables. Any damage to same shall be repaired or replaced to the satisfaction of the Engineer.
- ③ 81'-4" steel 1-way duct pushed or bored under taxiway.
- ④ 4/C #2 (36 REIL), and 3/C #2 (36 wind cone) Type C unit ducts.
- ⑤ 3/C #4 600 V Type C in unit duct for 120 volt feed to supplemental wind cone (Runway 18).
- ⑥ See Sheet 7 for continuation.



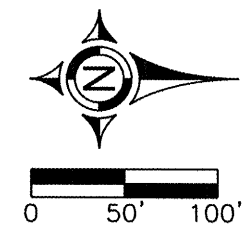
GR003



**GENERAL NOTE**  
 EXISTING UNDERGROUND AIRFIELD LIGHTING CIRCUITS ARE SHOWN WHERE LOCATIONS ARE RELEVANT TO NEW CONSTRUCTION. LOCATIONS SHOWN ARE APPROXIMATE. THESE AREAS SHALL BE HAND-EXCAVATED TO AVOID DAMAGE. ANY DAMAGE TO SAME SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.

- PLAN NOTES**
- ① See Sheet 6 for continuation.
  - ② 46 ft.-4" steel 1-way duct pushed or bored under taxiway.
  - ③ Locate and avoid existing airfield lighting underground cables. Any damage to same shall be repaired or replaced to the satisfaction of the Engineer.
  - ④ 4/C #2 (36 REIL); 3/C #2 (36 wind cone); and 3/C #4 (18 wind cone) 600 V Type C in unit ducts.
  - ⑤ 4/C #6 (18 REIL) 600 V Type C in unit duct.
  - ⑥ Locate and avoid existing airfield lighting underground cables into the existing vault.
  - ⑦ 4/C #2 (36 REIL); 3/C #2 (36 wind cone); and 3/C #4 (18 wind cone); and 4/C #6 (18 REIL) 600 V Type C in unit ducts.
  - ⑧ 46 ft.-4" steel 1-way duct pushed or bored under entrance road.
  - ⑨ Existing airfield lighting vault. See Sheet 10 for power and control wiring details.
  - ⑩ Existing airport office and hangar. See Sheet 10 for power and control wiring details.
  - ⑪ See Sheet 8 for continuation.

04 Feb 2009 - 2:34pm X:\2008\08114\ac\Plan Sheets.dwg: Layout Tab SHEET 7



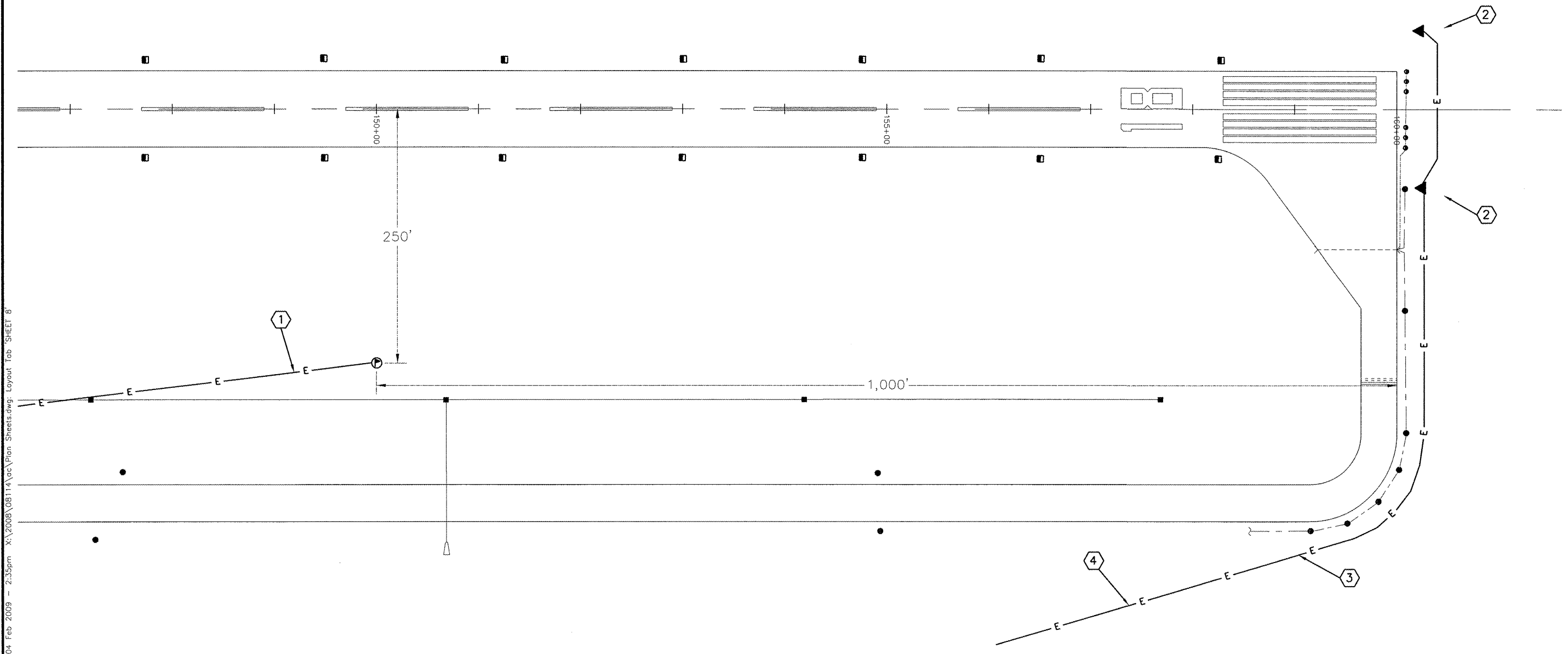
GR003

GENERAL NOTE

EXISTING UNDERGROUND AIRFIELD LIGHTING CIRCUITS ARE SHOWN WHERE LOCATIONS ARE RELEVANT TO NEW CONSTRUCTION. LOCATIONS SHOWN ARE APPROXIMATE. THESE AREAS SHALL BE HAND-EXCAVATED TO AVOID DAMAGE. ANY DAMAGE TO SAME SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.

PLAN NOTES

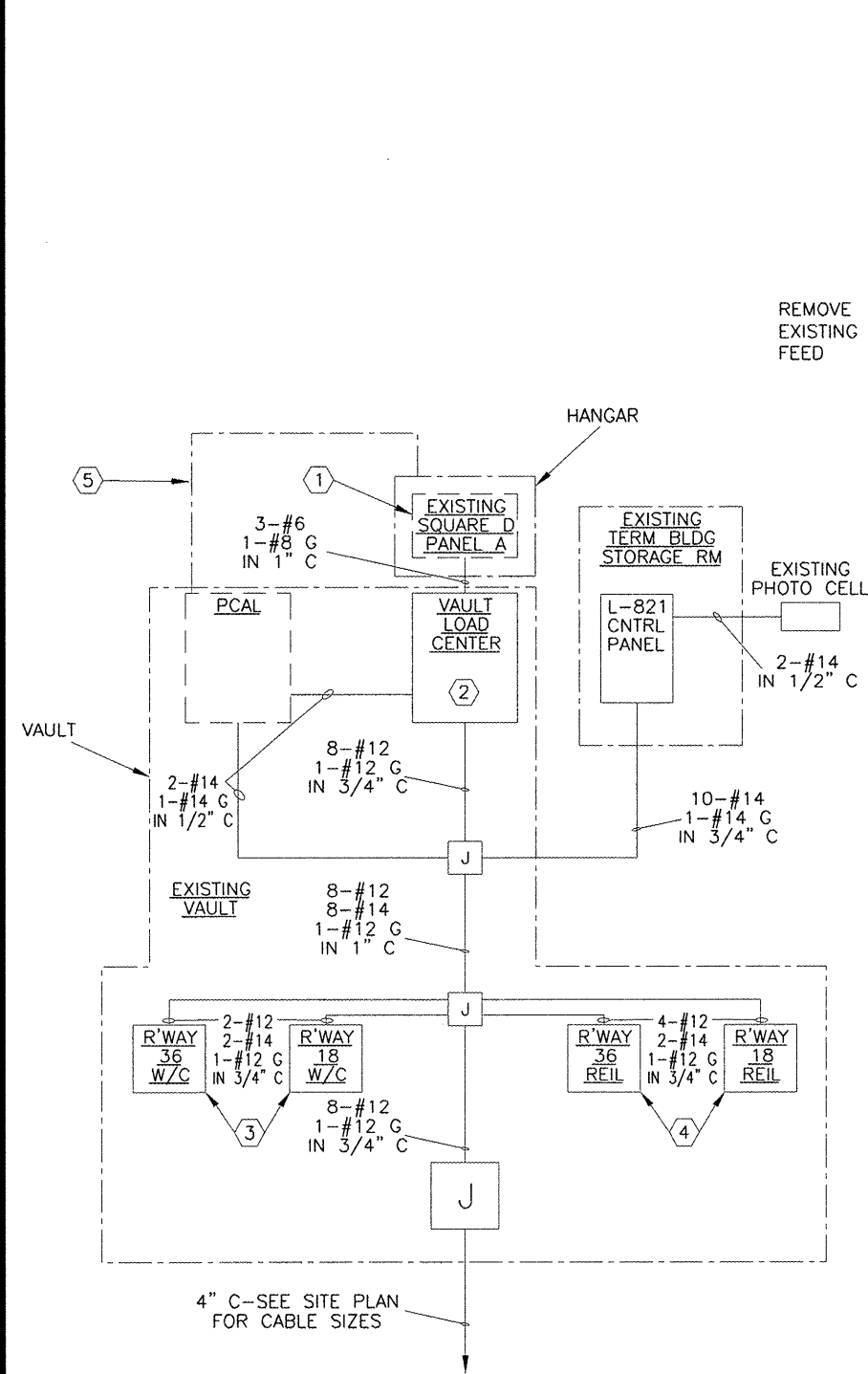
- ① 3/C #4 600 V Type C in unit duct for 120 volt feed to supplemental wind cone (Runway 18).
- ② REIL system for Runway 18; see details Sheet 11.
- ③ 4/C #6 600 V Type C in unit duct for 120/240 volt feed to runway 18 REIL system.
- ④ See Sheet 7 for continuation.



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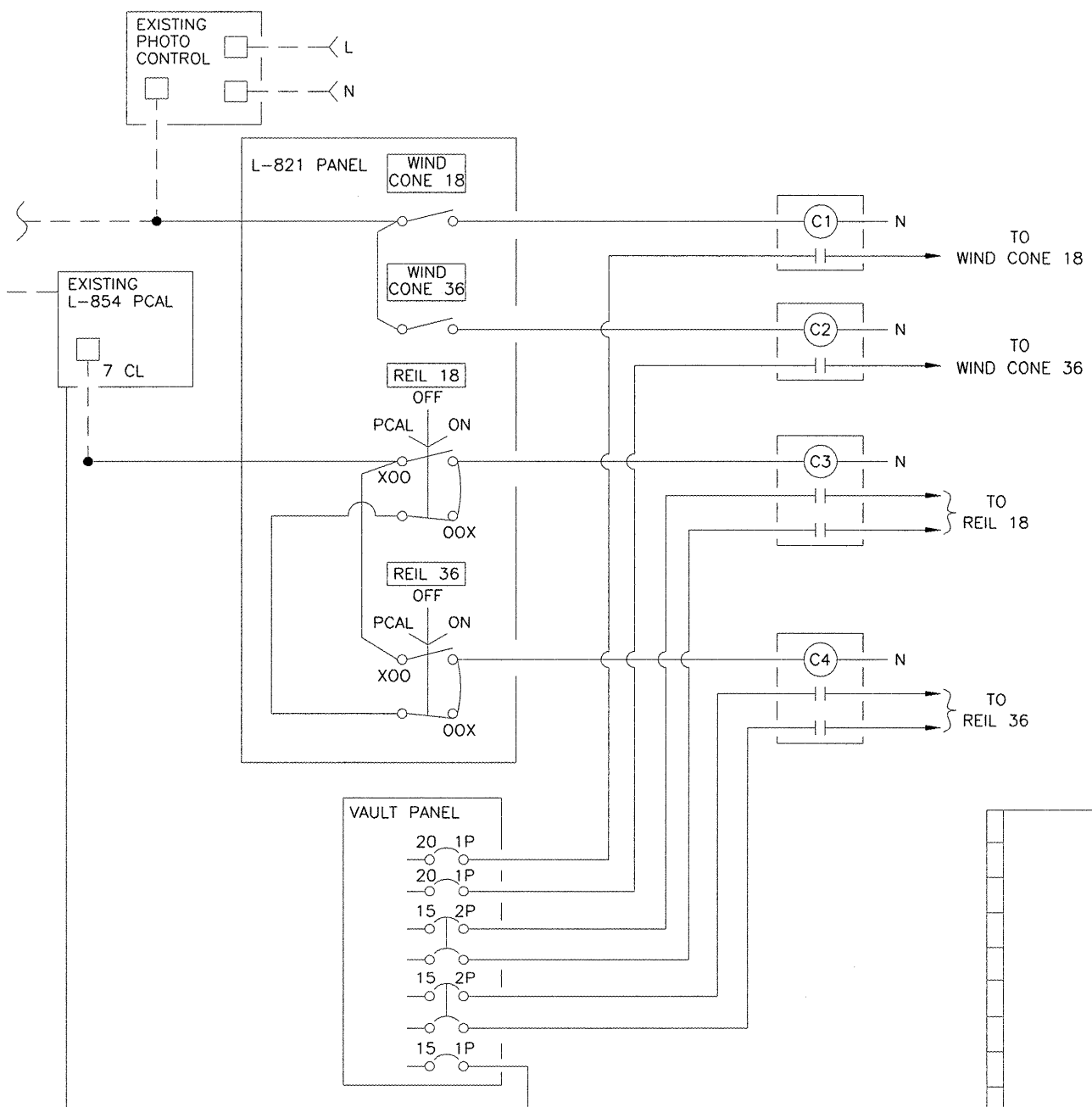


GR003

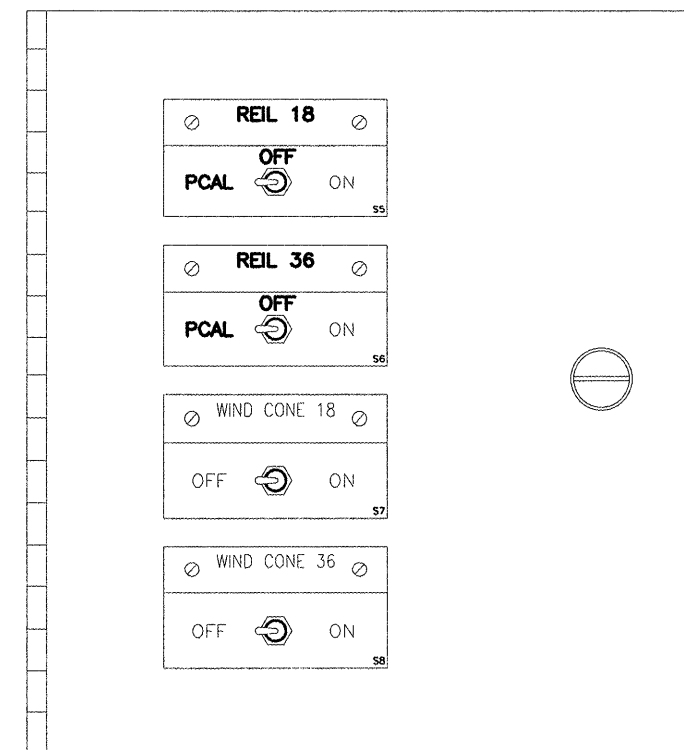


SYSTEM 1-LINE DIAGRAM

- ① Remove one existing 2-pole, 20 amp breaker at circuits 2 and 4. Replace with a 2-pole, 60 amp breaker to feed proposed vault load center.
- ② 125 amp, main lug only, 120/240 volt, 1 ph, 3-W, 12 circuit load center - Square D, #Q0112L125GRB, or equal.
- ③ 30 amp, 2-pole, NEMA 1, electrically held lighting contactor with 120 VAC coil - Square D, Class 8903, SMG1V02, or equal. Only one pole shall be connected for wind cones.
- ④ Lighting contactor same as Note 3, except both poles shall be connected.
- ⑤ Remove existing 120V feed to PCAL and replace as shown from vault load center.



REILS/WIND CONES CONTROL SCHEMATIC



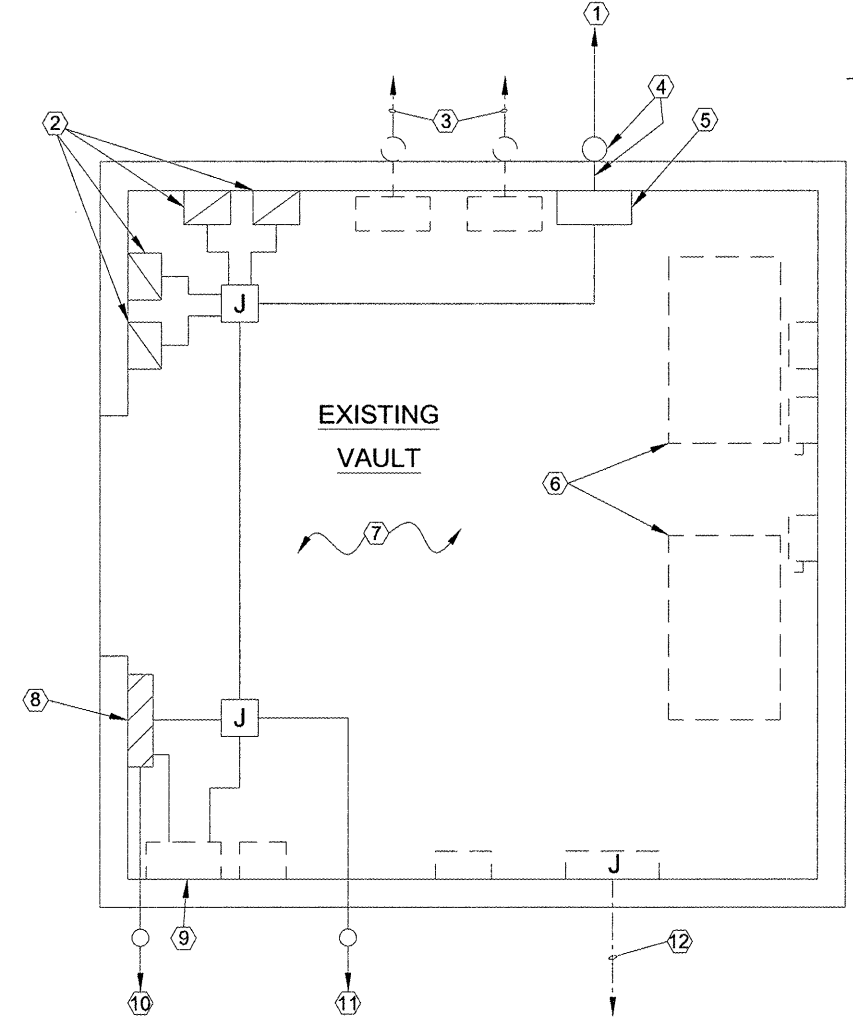
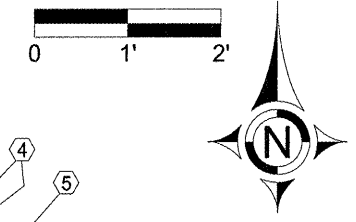
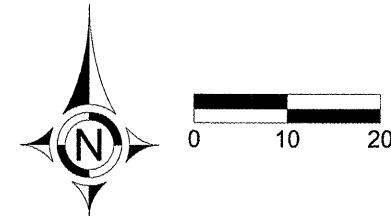
L-821 AIRFIELD LIGHTING  
 CONTROL PANEL  
 NO SCALE

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GR003

GENERAL NOTE:

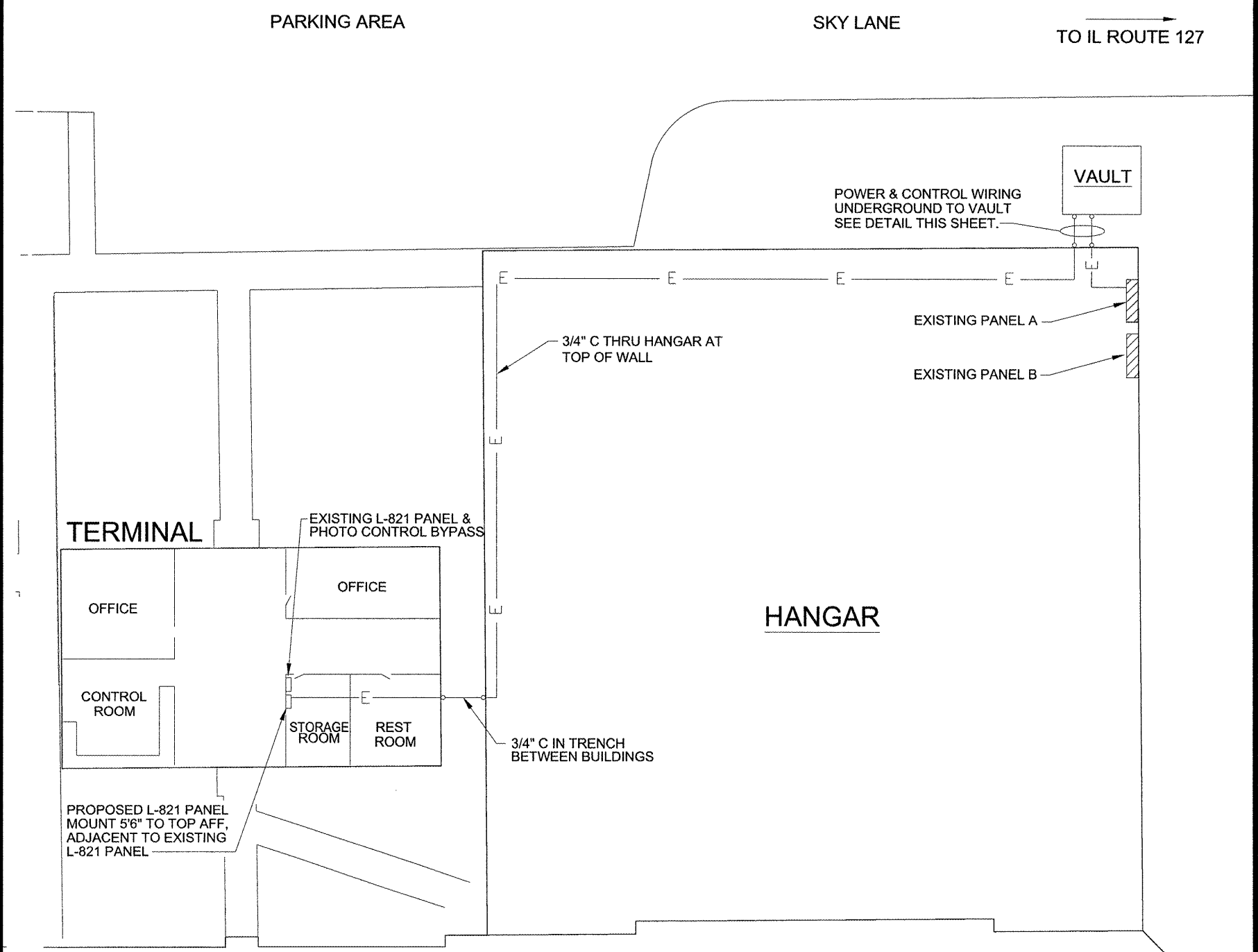
CONDUIT INSTALLED WITHIN THE DRY CONFINES OF BUILDINGS MAY BE THINWALL, TYPE EMT. ALL FITTINGS SHALL BE RAINTIGHT COMPRESSION TYPE ONLY.



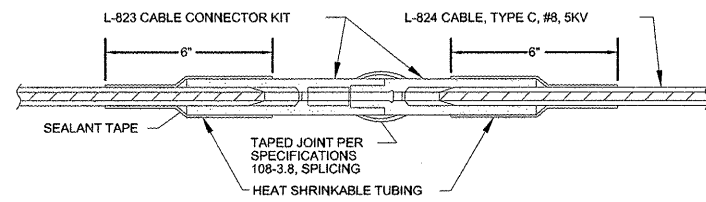
VAULT PLAN

DETAIL NOTES:

- ① Proposed underground feeds in 4" C to REIL systems and wind cones. See Site Plans for continuation.
- ② REIL system and wind cone lighting contactors. Mount 6' to top AFF.
- ③ Existing underground airfield lighting circuits. Locate as necessary to avoid damaging.
- ④ 4" LB conduit and nipple through wall.
- ⑤ 18"x18"x6", NEMA 1 screw-cover junction box. Mount 2' to bottom AFF.
- ⑥ Existing airfield lighting regulators - no work.
- ⑦ See Control Schematic and 1-Line Diagram for conduit/wire requirements.
- ⑧ Proposed vault airfield lighting load center.
- ⑨ Existing Pilot Controller Airfield Lighting (PCAL) system. Connect REIL contactors to operate from step 3.
- ⑩ Proposed power feeds from existing hangar panel.
- ⑪ Proposed control wiring to terminal building proposed L-821 control panel.
- ⑫ Existing power and control underground wiring to hangar. Locate as necessary to avoid damaging.



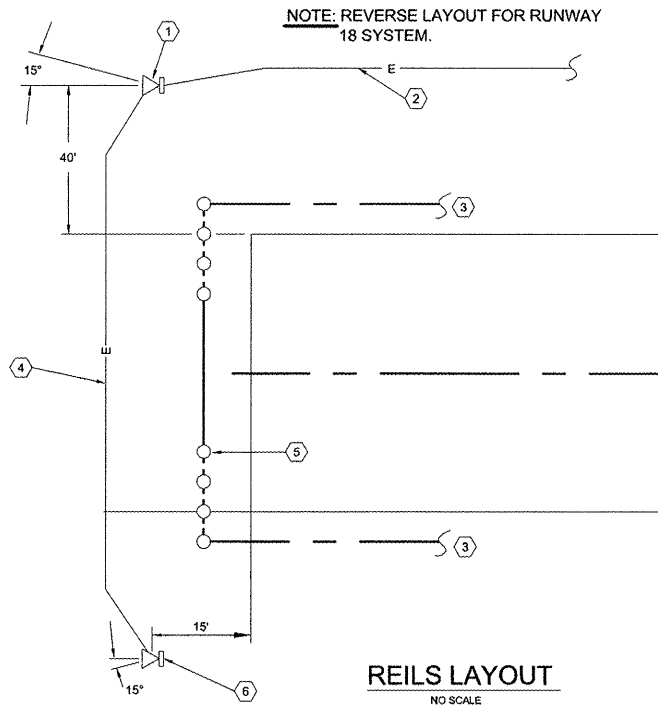
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**DETAIL - CABLE SPLICING**  
NO SCALE

**CABLE SPLICING NOTES:**

- HEAT-SHRINKABLE TUBING WILL NOT BE REQUIRED FOR ISOLATION TRANSFORMER PRIMARY CONNECTORS WHICH ARE MOLDED ON TO THE CABLE LEADS AT THE FACTORY.
- THE SEALANT TAPE AROUND THE CONNECTOR SHALL BE WATER INSOLUBLE, MAINTAINING ELASTICITY OVER A WIDE RANGE OF TEMPERATURE, AND SHALL BE RAYCHEM NO. S-1011 OR APPROVED EQUAL.
- HEAT-SHRINKABLE TUBING SHALL HAVE MINIMUM EXPANDED ID. OF 1.200", MAXIMUM RECOVERED ID. OF .300", MINIMUM EXPANDED WALL THICKNESS OF .04", NOMINAL RECOVERY WALL THICKNESS OF 0.17". A MASTIC WATER SEALANT COATING APPLIED ON THE INSIDE, AND SHALL BE RAYCHEM NO. WCS-300-6-S OR APPROVED EQUAL.
- MINIMUM LENGTH OF THE HEAT-SHRINKABLE TUBING SHALL BE 6".
- CLEAN THE CABLE INSULATION BEFORE APPLYING THE TUBING WITH A SOLVENT SPECIFIED BY THE TUBING MANUFACTURER.
- TO HEAT THE TUBING, USE PROPANE TORCH, OR ELECTRIC HEATER RECOMMENDED BY THE TUBING MANUFACTURER.
- BEGIN HEATING THE TUBING AT THE CENTER, GO COMPLETELY AROUND, THEN MOVE TOWARD THE ENDS.
- CONTINUE HEATING THE TUBING UNTIL IT SHRINKS COMPLETELY AND THE SEALANT IS BEING SQUEEZED OUT AT BOTH ENDS.
- IF THERE IS ANY NOTICEABLE HEAT DAMAGE TO THE CABLE OR THE TUBING, THE CONNECTION, INCLUDING THE DAMAGED PORTION, WILL BE REMOVED AND ANOTHER CONNECTION MADE.
- ALLOW THE CONNECTION TO COOL BEFORE HANDLING.
- INSTALL THE CONNECTIONS WITHOUT BENDING THEM.
- THE CONTRACTOR SHALL TRAIN THE AIRPORT MAINTENANCE PERSONNEL IN THE EMPLOYMENT OF CABLE CONNECTION WITH HEAT-SHRINKABLE TUBING. THE INSTRUCTION SHALL INCLUDE AT LEAST TWO ASSEMBLIES AND DISASSEMBLIES FOR SUCH CONNECTIONS.
- AFTER COMPLETION OF THE CONSTRUCTION, THE CONTRACTOR SHALL TRANSFER ONE OF THE HEATER UNITS TO THE AIRPORT MANAGER. IT SHALL BECOME THE PROPERTY OF THE AIRPORT.



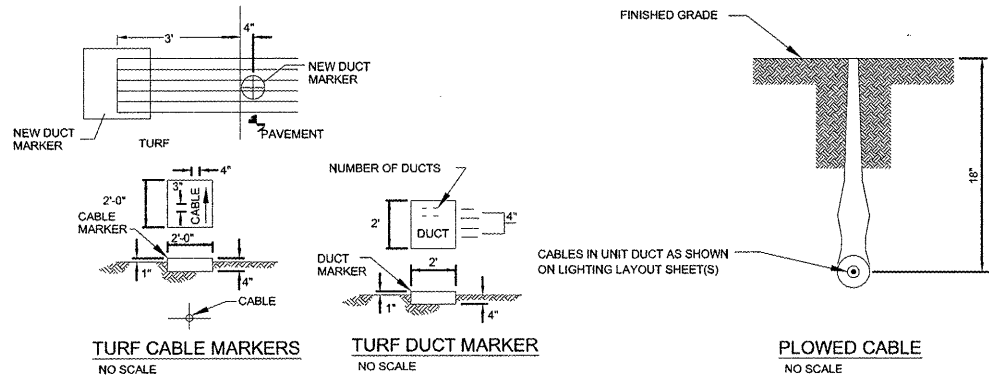
**REILS LAYOUT**  
NO SCALE

**DETAIL NOTES**

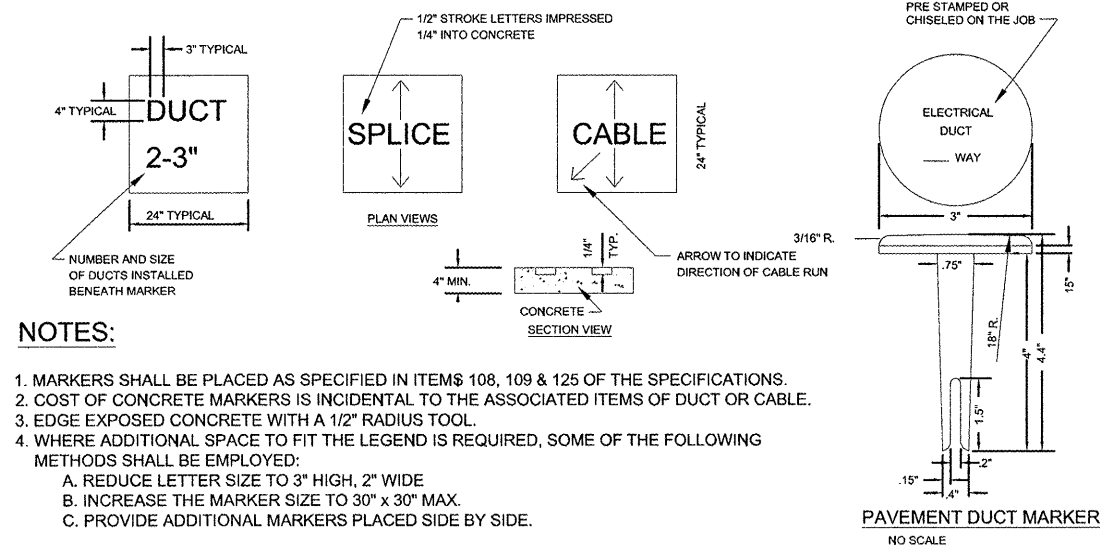
- REIL master unit. For master and slave units, the vertical aiming angle shall be 10 degrees above horizontal, and angled away from the runway centerline as shown.
- See Site Plans for wire feeds.
- Existing runway lighting circuit. Locate and avoid damaging.
- Interconnect wiring between master and slave units shall be per system manufacturer's requirements, and shall be considered incidental to this item. All power wiring shall be 600 volt rated, Type C for direct burial installations. Provide a minimum of two spare conductors between units.
- Existing threshold lights. Locate and avoid underground wiring.
- REIL slave unit.

**ELECTRICAL PLAN LEGEND**

	PROPOSED REIL MASTER OR SLAVE UNIT
	PROPOSED UNDERGROUND ELECTRICAL
	EXISTING UNDERGROUND ELECTRICAL
	EXISTING WIND TEE
	RIGID METAL CONDUIT, SCHEDULE 40 STEEL
	PROPOSED RMC PUSHED OR BORED UNDER PAVEMENT
	EXISTING DUCT BANK
	EXISTING MITL
	EXISTING MITH
	EXISTING MIRL
	PROPOSED WIND CONE



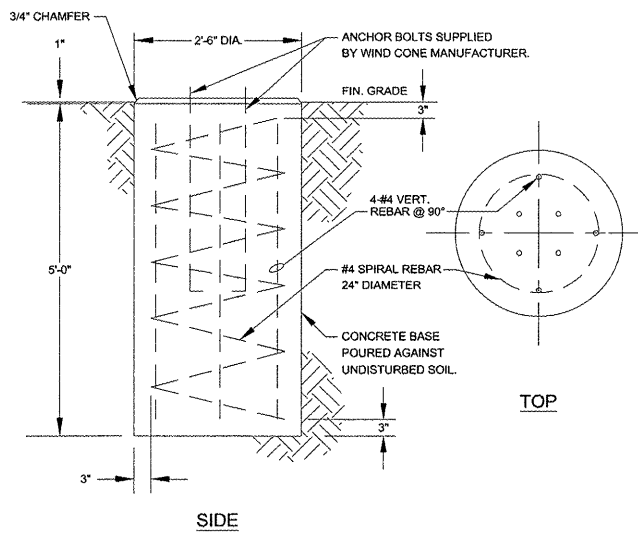
**PLOWED CABLE**  
NO SCALE



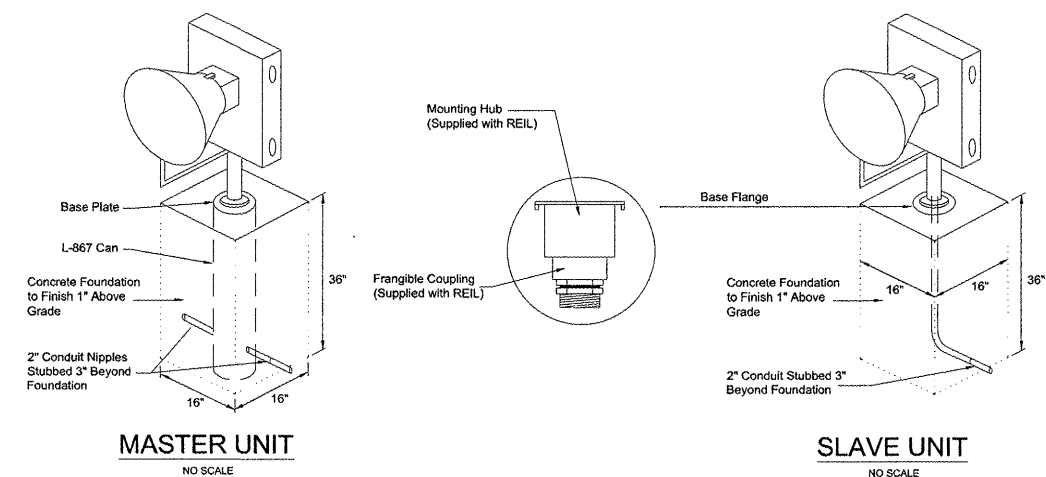
**CABLE AND DUCT MARKERS**  
NO SCALE

**NOTES:**

- MARKERS SHALL BE PLACED AS SPECIFIED IN ITEMS 108, 109 & 125 OF THE SPECIFICATIONS.
- COST OF CONCRETE MARKERS IS INCIDENTAL TO THE ASSOCIATED ITEMS OF DUCT OR CABLE.
- EDGE EXPOSED CONCRETE WITH A 1/2" RADIUS TOOL.
- WHERE ADDITIONAL SPACE TO FIT THE LEGEND IS REQUIRED, SOME OF THE FOLLOWING METHODS SHALL BE EMPLOYED:
  - REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE
  - INCREASE THE MARKER SIZE TO 30" x 30" MAX.
  - PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE.



**WIND CONE CONCRETE BASE**  
(TYPICAL FOR TWO)  
NO SCALE



**TYPICAL FOR REIL MASTER & SLAVE UNITS**  
NO SCALE

GENERAL ELECTRICAL NOTES:

1. THE ELECTRICAL INSTALLATION, AS A MINIMUM, SHALL MEET THE NATIONAL ELECTRICAL CODE AND LOCAL REGULATIONS.
2. IN LIEU OF STENCILING, CONTRACTOR SHALL FURNISH AND INSTALL PLASTIC LAMINATED ENGRAVED LEGEND PLATES SECURELY FASTENED TO EQUIPMENT WITH TAPPING OR MACHINE SCREWS. LEGEND PLATES SHALL BE 1/2" HIGH BLACK LETTERS ON WHITE BACKGROUND.
3. 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 CONDUCTOR SIZE NO. 6 AWG OR SMALLER SHALL BE IDENTIFIED BY A CONTINUOUS WHITE OR NATURAL GRAY OUTER FINISH ALONG ITS ENTIRE LENGTH. NEUTRAL CONDUCTORS SIZE LARGER THAN NO. 6 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.
4. 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.
5. NEATLY LACE WIRING IN DISTRIBUTION PANELS, SWITCHES AND JUNCTION/PULL BOXES.
6. GROUND ALL NONCURRENT-CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT BY USING INSULATED COPPER WIRE TO BE RUN INSIDE CABINETS AND IN CONDUITS TOGETHER WITH OTHER WIRES.
7. ALL GROUND CONNECTIONS TO BUSES, PANEL, ETC., SHALL BE MADE WITH PRESSURE TYPE SOLDERLESS LUG CLAMPS. SOLDERED OR BOLT & WASHER TYPE CONNECTIONS ARE NOT ACCEPTABLE. CLEAN ALL METAL SURFACES BEFORE MAKING GROUND CONNECTIONS. CONNECTIONS TO GROUND RODS & GROUND RING SHALL BE MADE WITH EXOTHERMIC WELDING PROCESS.
8. RIGID STEEL CONDUIT SHALL BE USED THROUGHOUT THE INSTALLATION UNLESS OTHERWISE SPECIFIED. ALL STEEL CONDUITS, & FITTINGS SHALL BE GALVANIZED.
9. FOR INDOOR LOCATIONS EQUIPMENT SUPPORT STRUCTURES, CHANNEL OR STRUT, INCLUDING FASTENING HARDWARE, SHALL BE GALVANIZED. FOR OUTDOOR LOCATIONS EQUIPMENT SUPPORT STRUCTURES, CHANNEL OR STRUT, INCLUDING FASTENING HARDWARE, SHALL BE 316 STAINLESS STEEL.
10. USE DUAL LUGS WHERE TWO WIRES SIZE NO. 6 OR LARGER ARE TO BE CONNECTED TO THE SAME TERMINAL.
11. USE INSULATED CONDUIT BUSHING AT EACH CONDUIT TERMINATION.
12. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
13. UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.
14. LABEL BOTH ENDS OF ALL CONTROL CONDUCTORS TO IDENTIFY TERMINAL NUMBER AND CIRCUIT, SUCH LABELING SHALL BE DONE AT ALL TERMINALS AND SPLICES.
15. UNLESS OTHERWISE NOTED, ALL SINGLE CONTROL CONDUCTORS SHALL BE NO. 12 AWG, THHN, STRANDED COPPER, EXTENSIONS TO EXISTING CONTROL CONDUCTORS SHALL BE THE SAME COLOR AS EXISTING.
16. BOTH ENDS OF EACH CONTROL CONDUCTOR SHALL BE TERMINATED AT A TERMINAL BLOCK. THE TERMINAL BLOCKS SHALL BE OF PROPER RATING AND SIZE AND THEY SHALL BE LOCATED IN EQUIPMENT ENCLOSURES OR SPECIAL TERMINAL CABINETS.
17. BOTH ENDS OF ALL CONTROL CONDUCTORS SHALL BE IDENTIFIED AS TO THE CIRCUIT TERMINAL BLOCK, AND TERMINAL NUMBER. ONLY SHRINKABLE PERMANENT LABELS SHALL BE USED.
18. A SEPARATE AND CONTINUOUS NEUTRAL CONDUCTOR SHALL BE INSTALLED AND CONNECTED FOR EACH CIRCUIT IN THE POWER PANEL(S) FROM THE NEUTRAL BAR TO EACH POWER/CONTROL CIRCUIT.
19. SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS AND AT EASILY ACCESSIBLE LOCATIONS.
20. UNLESS OTHERWISE NOTED, ALL UNDERGROUND FIELD POWER MULTIPLE AND SERIES CIRCUIT CONDUCTORS SHALL BE FAA APPROVED L-824, TYPE C INSULATION. VOLTAGE AND SIZE SHALL BE AS SPECIFIED.
21. THE JOINT OF THE PRIMARY 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 INCH ON EACH SIDE OF THE JOINT. HEAT-SHRINK TUBING SHALL BE APPLIED WHERE CABLE ENTERS BACK OF CONNECTOR. SEE DETAIL DRAWING.
22. THE ID OF THE PRIMARY L-823 FIELD ATTACHED CONNECTORS SHALL MATCH THE CABLE OD TO PROVIDE A WATERTIGHT CABLE ENTRANCE.
23. ALL POWER AND CONTROL CIRCUIT CONDUCTORS SHALL BE COPPER. ALUMINUM SHALL NOT BE ACCEPTED. THIS INCLUDES WIRE, CABLE, BUSES, TERMINALS, SWITCH/PANEL COMPONENTS, ETC.
24. CABLE/SPLICE/DUCT MARKERS SHALL BE PRECAST CONCRETE OF SIZE SHOWN. LETTER/NUMBERS FOR THE LEGEND TO BE IMPRESSED INTO TOPS OF THE MARKERS SHALL BE PREASSEMBLED AND SECURED IN MOLD BEFORE CONCRETE IS POURED. LEGEND INSCRIBED BY HAND IN WET CONCRETE SHALL NOT BE ACCEPTABLE.
25. 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 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 OF DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.
26. IN CASE THE CONTRACTOR SELECTS 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 SPECIFICATIONS, ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE EQUIPMENT COST.
27. THE CONTRACTOR INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) SHALL NOT GENERATE ANY ELECTROMAGNETIC INTERFERENCE IN THE EXISTING AND/OR NEW COMMUNICATIONS, WEATHER, AND AIR TRAFFIC CONTROL EQUIPMENT. ANY EQUIPMENT GENERATING SUCH INTERFERENCE SHALL BE REPLACED BY THE CONTRACTOR, AT NO ADDITIONAL COST, BY EQUIPMENT MEETING THE APPLICABLE SPECIFICATIONS AND NOT GENERATING ANY INTERFERENCE.
28. ALL EXISTING LIGHTS REMOVED UNDER THIS CONTRACT SHALL BE CONTRACTOR SALVAGE.
29. WHERE EXISTING SIGNS AND FOUNDATIONS ARE TO BE REMOVED, THE AREA SHALL BE BACKFILLED WITH EARTH TO THE ORIGINAL GRADE, COMPACTED AND SEEDED. SUCH REMOVAL SHALL BECOME CONTRACTOR SALVAGE UNLESS NOTED OTHERWISE.
30. CONTRACTOR SHALL LOCATE EXISTING UNDERGROUND CIRCUITS, GAS OR WATER LINES WITH A PORTABLE CABLE OR PIPE LOCATOR WHERE POSSIBLE TO AVOID DAMAGE TO EXISTING UTILITIES TO BE RETAINED. EXCAVATING REQUIRED IN CONGESTED AREAS CONTAINING OTHER UTILITIES SHALL BE DONE BY HAND. ANY SUCH WIRING DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED IMMEDIATELY AFTER DISCOVERY AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. ALL UNDERGROUND SPLICES SHALL BE INSPECTED BY THE RESIDENT ENGINEER PRIOR TO BACKFILLING TRENCHES.
31. SHOP DRAWINGS SHALL BE REQUIRED FOR ALL PROPOSED LIGHTING EQUIPMENT INCLUDING CABLE, CABLE CONNECTIONS, TRANSFORMERS, L-867 BASES, WIND CONE & REIL SYSTEMS, & ALL EQUIPMENT ITEMS DESCRIBED UNDER SPECIFICATIONS ITEM 109, OR SHOWN ON THE PLANS.