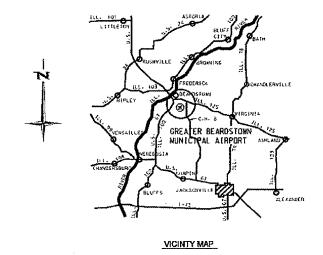
BE001 **TOTAL SHEETS-10** 

# **CONSTRUCTION PLANS** FOR GREATER BEARDSTOWN MUNICIPAL AIRPORT

BEARDSTOWN, CASS COUNTY, ILLINOIS

CONSTRUCT ELECTRICAL VAULT, INSTALL ELECTRICAL VAULT EQUIPMENT, INSTALL SUPPLEMENTAL WIND CONE, SRE SITE WORK

SUMMARY OF QUANTITIES					
ITEM NO. DESCRIPTION			AS BID QUANTITY	AS BUILT OUANTITY	
AR107408	L-806 WIND CONE-8' LIGHTED	EACH	1		
AR108158	1/C #8 5 KV UG CABLE IN UD	LIN. FT.	500		
AR108258	2/C #8 5 KV UG CABLE IN UD	LIN. FT.	110		
AR108556	2/C *6 600 V UG CABLE IN UD	LIN. FT.	90		
AR109100	RIO9100 CONSTRUCT ELECTRICAL VAULT		1		
AR109200	09200 INSTALL ELECTRICAL EQUIPMENT		1		
AR109311	1 7.5 KW REGULATOR, STYLE 1		i		
AR109962	RELOCATE ELECTRICAL EQUIPMENT		Ł		
AR109963	3 RELOCATE REGULATOR		l		
AR110504	R110504 4-WAY CONCRETE ENCASED DUCT		18		
AR110610	510 ELECTRICAL HANDHOLE		3		
AR501506	501506 6" PCC PAVEMENT		87		



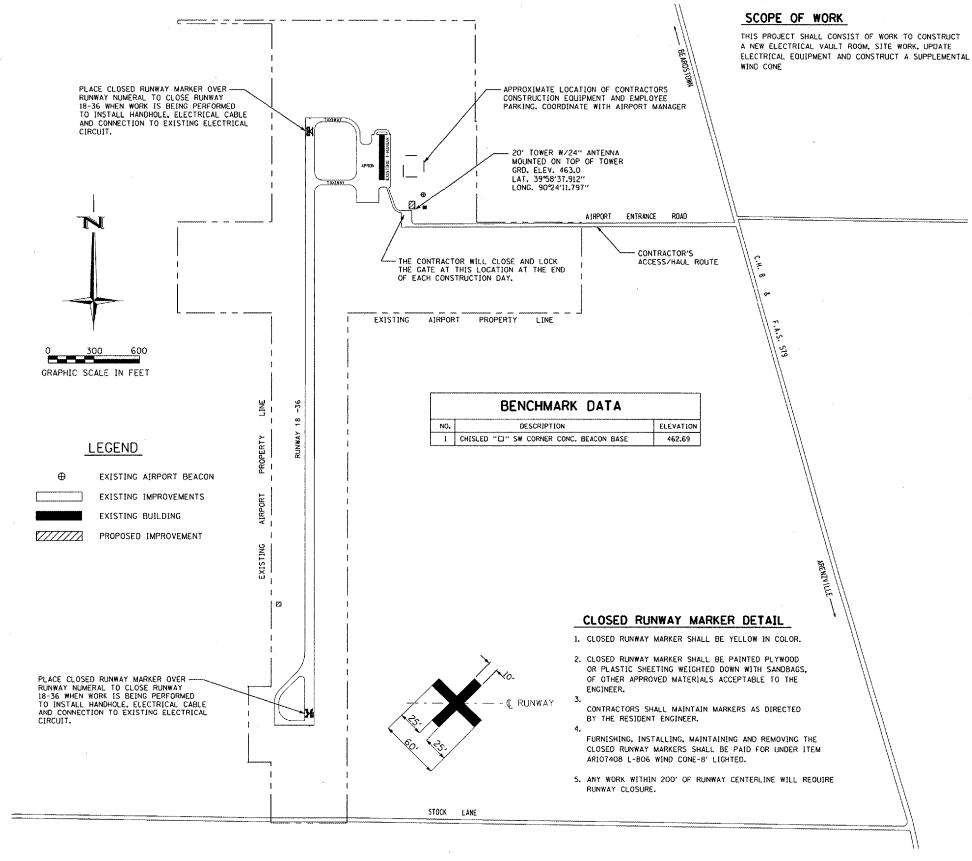
ILLINOIS PROJECT NO. K06-3439 A.I.P. PROJECT NO. 3-17-0004-B8 LATITUDE 39°58′24" LONGITUDE 90°24'21" ELEVATION 466' M.S.L. MARCH 20, 2006

#### INDEX OF SHEETS

1	
NO.	DESCRIPTION
1	COVER SHEET
2	IMPROVEMENT AND SAFETY PLAN
3	ELECTRICAL PLAN (SRE BUILDING)
4	ELECTRICAL PLAN (WIND CONE)
5	ELECTRICAL POWER AND GENERAL NOTES
6	FIELD LIGHTING AND GROUNDING NOTES
7	ELECTRICAL VAULT DETAILS
8	ELECTRICAL AND BUILDING DETAILS
9	ELECTRICAL DETAILS
10	PAVEMENT SITE WORK DETAILS

ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF AERONAUTICS

CITY OF BEARDSTOWN



#### PROPOSED SAFETY PLAN

GENERAL - RUNWAY 18/36 WILL NOT BE CLOSED. THE AIRPORT MANAGER WILL BE NOTIFIED SEVEN DAYS IN ADVANCE OF ANY CLOSURE.

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),

PERSONAL VEHICLES SHALL NOT BE ALLOWED BEYOND THE PARKING AREAS.

THE TALLEST CONSTRUCTION EQUIPMENT UTILIZED ON THE AIRPORT FOR THIS PROJECT IS ANTICIPATED TO BE  $12^{\prime}\pm$ .

#### HAUL ROUTE AND VEHICLE PARKING

THE CONTRACTOR WILL USE THE DESIGNATED HAUL ROUTE, EQUIPMENT AND EMPLOYEE PARKING AREA AS SHOWN ON THIS SHEET. NO CONTRACTOR EMPLOYEE'S PERSONAL VEHICLES WILL BE ALLOWED BEYOND THE PARKING AREA SHOWN ON THIS SHEET. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN AND MARK WITH FLAGGED LATH THE DESIGNATED HAUL ROUTE, EQUIPMENT AND EMPLOYEE PARKING AREA FOR THE DURATION OF THE PROJECT. THE CONTRACTOR WILL RESTORE THE HAUL ROUTE, EQUIPMENT AND EMPLOYEE PARKING AREA TO ITS ORIGINAL STATE. ANY DAMAGE TO EXISTING PAVEMENTS USED TO HAUL MATERIAL TO THE CONSTRUCTION SITE WILL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE TO THE SATISFACTION OF THE AIRPORT MANAGER AND THE RESIDENT ENGINEER. THIS WORK WILL BE CONSIDERED AS AN INCIDENTAL ITEM TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

#### UTILITY NOTE

THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND AGENCIES WHICH HAVE LINES AND 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 JULLILE. (1-800-892-0123) TO ACCOMPLISH THE ABOVE.

#### EXISTING CABLE NOTE

THE LOCATIONS OF THE EXISTING CABLES ARE ONLY APPROXIMATE AND FOR THE CONTRACTOR'S INFORMATION ONLY. BEFORE FOOTING PLACEMENT BEGINS, THE CONTRACTOR MUST FIRST LOCATE ALL EXISTING UTILITIES AND CABLES (SHOWN OR NOT). ANY DAMAGE TO ANY EXISTING UTILITIES OR CABLES WILL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S OWN EXPENSE.

THE PROPOSED CABLES WILL BE HAND DUG IN HEAVILY CONGESTED AREAS AND CROSSING WITH EXISTING UTILITIES OR CABLES.

THE APPROXIMATE LOCATION OF UNDERGROUND UTILITIES AS INDICATED ON THE PLANS HAVE 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. IT WILL BE NECESSARY FOR THE CONTRACTOR TO MAKE HIS OWN FIELD INVESTIGATIONS TO DETERMINE THE EXACT LOCATION OF THE UNDERGROUND UTILITIES AT CRITICAL POINTS SO AS TO AVOID ANY DAMAGE, ANY UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY HIM AT HIS OWN EXPENSE IN A MANNER WHICH IS SATISFACTORY TO THE ENGINEER AND TO THE OWNER OF THE UTILITIES. ANY REPAIRS THAT MUST BE MADE BY THE OWNER OF THE UTILITY SHALL HAVE THE COST REIMBURSED TO THE UTILITY BY THE CONTRACTOR.

#### CONTRACTOR RESPONSIBILITIES

NO OPEN HOLES OR TRENCHES WILL BE ALLOWED WITHIN 200' OF THE RUNWAY CENTERLINE OR WITHIN 60' OF TAXIWAYS. THESE HOLES AND TRENCHES WILL BE FILLED IN AFTER EACH WORKDAY, WASTE AND LOOSE MATERIAL WITHIN 200' OF THE RUNWAY AND 60' OF THE TAXIWAY CENTERLINES WILL BE REMOVED AFTER EACH WORKING DAY.

IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PLACE AND MAINTAIN BARRICADES AND TRAFFIC CONES AS DIRECTED BY THE RESIDENT ENGINEER. THE BARRICADES WILL BE EQUIPPED WITH YELLOW FLASHING 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.

#### EROSION CONTROL

THIS PROJECT WILL NOT DISTURB MORE THAN 5 ACRES OF LAND.

UNIT 1	NE TISION		
		GREATER BEARDSTOWN MUNICIPAL AIRPO	)RT
		CITY OF BEARDSTOWN, BEARDSTOWN, ILL:	INOI

٦	FILENAME	Improv-Safe	ty Plan don			
İ	SCALE	Indi ov 3019	1" = 300'			
ı	DATE MARCH 20, 2006					
	SHEET 2 OF 10 SHEETS					
1	LAYOUT	MÇM	03/07/06			
1	DRAWN	MGM	03/07/06			
	REVIEWED	RH8	03/07/06			



BENTON & ASSOCIATES, INC.
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(217) 245-4146 (217) 245-4149 FAX

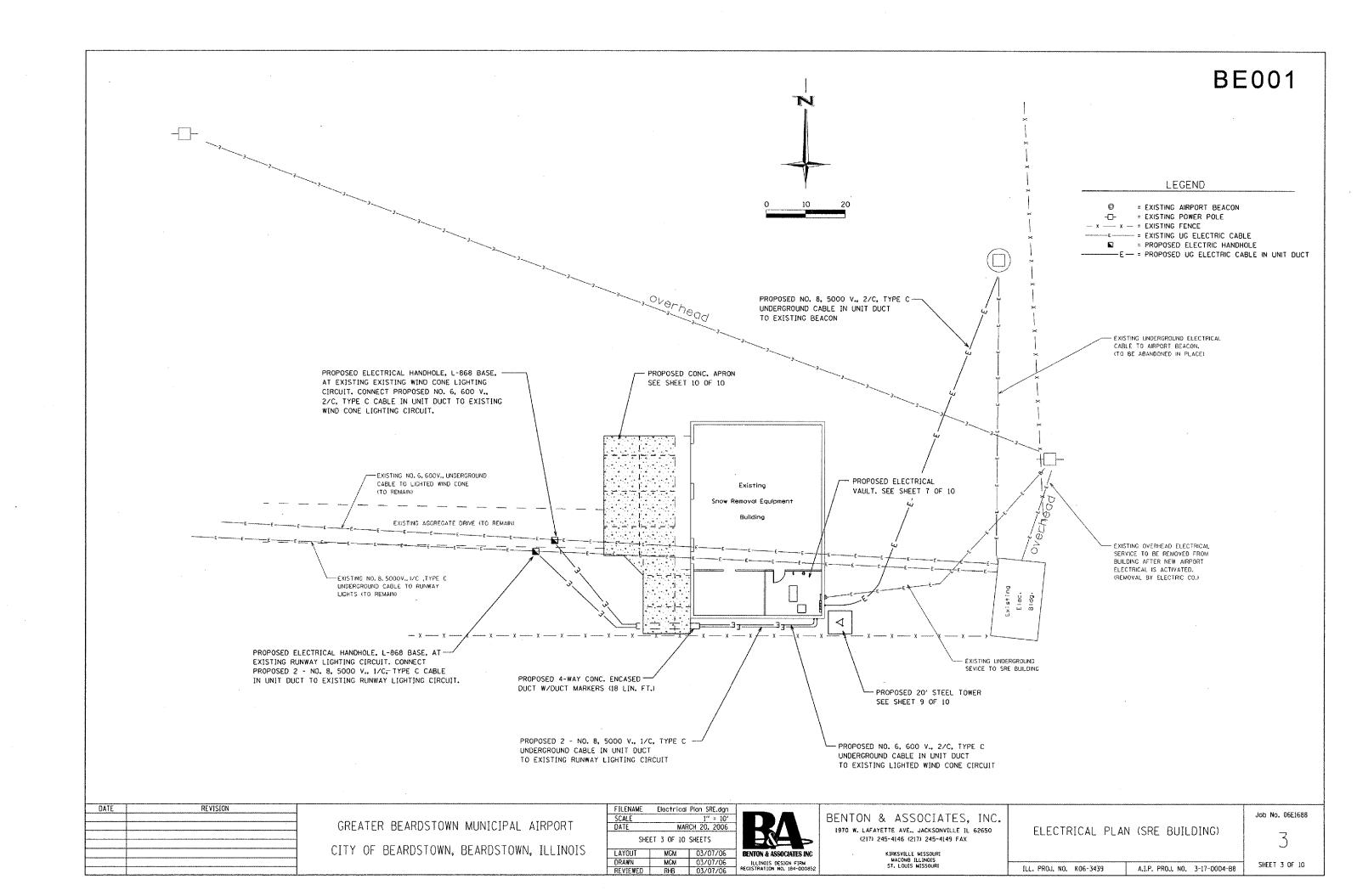
KIRKSVILLE MISSOURI MACONB ILLINOIS ST. LOUIS MISSOURI IMPROVEMENT AND SAFETY PLAN

Job No. 06E1688

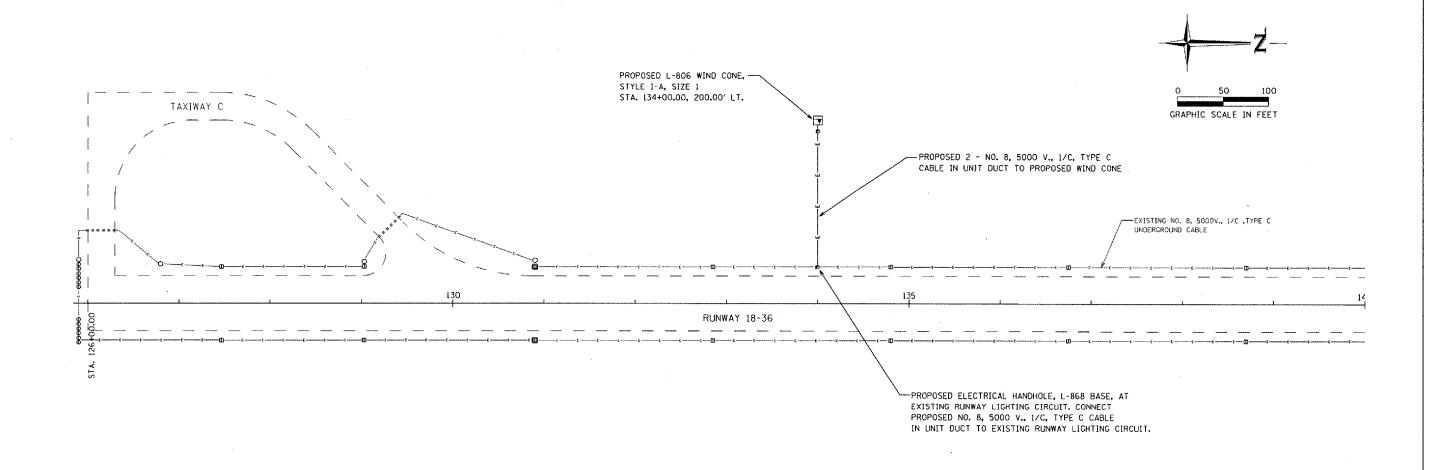
BE001

ILL. PROJ. NO. K06-3439 A.J.P. PROJ. NO. 3-17-0004-88

SHEET 2 OF 10



## BE001



#### LEGEND

	= EXISTING AIRPORT BEACON
	= EXISTING POWER POLE
— x — x —	= EXISTING FENCE
	≈ EXISTING UG ELECTRIC CABLE
0	= EXISTING STK. MOUNTED TAXIWAY LIGHT
	= EXISTING STK. MOUNTED RUNWAY LIGHT
	= EXISTING BASE MOUNTED RUNWAY LIGHT
P	= EXISTING LIGHTED WIND CONE
1111111111	= EXISTING UNDERGROUND DUCT
E	= PROPOSED UG ELECTRIC CABLE IN UD
	= PROPOSED LIGHTED WIND CONE

REVISION
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GREATER BEARDSTOWN MUNICIPAL AIRPORT
CITY OF BEARDSTOWN, BEARDSTOWN, ILLINOIS

FILENAME	Electrical Pla	n Wind Cone.dgn
SCALE		1" = 50'
DATE	MA	RCH 20, 2006
S	HEET 4 OF 10	SHEETS
LAYOUT	MGM	03/07/06
DRAWN	MGM	03/07/06
CENTERCE	n nun	02/07/06

BENTON & ASSOCIATES INC
RECISION FIRM
RECISION NO. 184-000052

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(217) 245-4146 (217) 245-4149 FAX

KIRKSVILLE MISSOURI MACONB ILLINOIS ST. LOUIS MISSOURI

ELECTRICAL PLAN (WIND CONE
----------------------------

Job No. 06E1688

ILL. PROJ. NO. K06-3439 A.I.P. PROJ. NO. 3-17-0004-B8

SHEET 4 OF 10

#### POWER AND CONTROL

- 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. 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.
- 3. IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL, ETC.
- 4. LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE INSTALLED IN SEPARATE WIREWAYS OR CONDUITS.
- 5. NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND JUNCTION/ PULL BOXES.
- 6. EQUIPMENT CABINETS SHALL NOT BE USED AS JUNCTION/PULL BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT SHALL BE BROUGHT INTO THESE ENCLOSURES.
- 7. SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS, AND AT EASILY ACCESSIBLE LOCATIONS.
- 8. CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL(S) SHALL BE THERMAL-MAGNETIC MOLDED COSE, PERMANENT TRIP 10,000 AIC.
- 9. DUAL LUGS SHALL BE USED WHERE TWO WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMINAL.
- 10. 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 BE SHALL 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.
- 11. THE MINIMUM SIZE OF JUNCTION/PULL 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 6 TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT. THIS DISTANCE SHALL BE INCREASED FOR ADDITIONAL ENTRIES BY THE AMOUNT OF THE SUM OF THE DIAMETERS OF ALL OTHER CONDUIT ENTRIES ON THE SAME WALL AS THE BOX. THE DISTANCE BETWEEN CONDUIT ENTRIES ENCLOSING THE SAME CONDUCTOR SHALL NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT.
- 12. A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, SQUARE DUCTS AND JUNCTION/PULL 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 JUNCTION/BOXES.
- 13. RIGID SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR BELOW GRADE THROUGHOUT THE INSTALLATION UNLESS OTHERWISE SPECIFIED. THE MINIMUM TRADE SIZE SHALL BE 1/4 INCH.
- 14. RIGID STEEL CONDUIT SHALL BE USED FOR ABOVE GRADE THROUGHOUT THE INSTALLATION UNLESS OTHERWISE SPECIFIED. THE MINIMUM TRADE SIZE SHALL BE 1/4 INCH.

- 15. USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG OR LARGER UNDERGROUND WIRE IS INSTALLED, USE INSULATED BUSHINGS.
- 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, FITTING, NUTS, BOLTS, ETC., SHALL BE GALVANIZED.
- 19. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.
- 20. DIRECT BURIED CABLES SHALL BE ENCLOSED IN RIGID GALVANIZED STEEL WHERE CROSSING ROADWAYS, RUNWAYS, TAXIWAYS AND OTHER LOCATIONS AS NOTED.
- 21. ALL CONNECTION & SPLICES SHALL BE WRAPPED WITH AT LEAST ONE LAYER OF RUBBER AND ONE LAYER OF PLASTIC TAPE 1/2 LAPPED EXTENDED AT LEAST 11/2" ON EACH SIDE
- 22. UNLESS OTHERWISE NOTED, ALL INDOOR SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 STRANDED AWG.
- 23. TRENCHES SHALL BE BACKFILLED WITH SAND 3" IN DEPTH AND SHALL NOT BE TAMPED, SUBSEQUENT LAYERS SHALL BE TAMPED TO AT LEAST THE DENSITY OF ADJACENT UNDISTURBED EARTH.
- 25. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:
  - A. ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN-EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED-EYE TERMINATIONS. OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.
  - B. 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.
  - C. A COMPLETE WIRING DIAGRAM (NOT A SCHEMATIC DIAGRAM) SHALL BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE.
  - D. ALL COMPONENTS SHALL BE MOUNTED IN DUST PROOF ENCLOSURE(S) WITH VERTICALLY HINGED COVERS.
  - F. THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AND NUMBERING AND COLOR OF EACH INTERNAL CONDUCTOR AND TERMINAL.
  - F. THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS. TERMINAL BLOCK AND INCOMING AND INTERNAL WIRING
  - G. ACCESS TO, OR REMOVAL OF A CIRCUIT COMPONENT OR TERMINAL BLOCK WILL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR TERMINAL BLOCK.
  - H. EACH CIRCUIT COMPONENT SHALL BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWINGS AND ITS FUNCTION.
  - I. ALL WIRING SHALL BE NEATLY TRAINED AND LACED.
  - J. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG
- 26. ALL CIRCUITS. NEW AND EXISTING. TO BE TIED AND TAGGED EVERY 3' MIN. IN WIREWAYS. PANEL BOARDS AND JUNCTION BOXES.
- 27. INSTALL NEW CIRCUIT (3/C #6 600V. THWN CU., 40 A., 2 POLE BREAKERS) TO NEW 7.5 KW CONSTANT CURRENT REGULATOR. CONTROL POWER TO OPERATE CONTACTOR CONTROLLED BY PHOTOCELL FOR BASIC LOW POWER SETTING OF RUNWAY/TAXIWAY LIGHTS, CONTROL CIRCUIT FROM RADIO CONTROL PANEL TO SET REGULATOR POWER TO FULL POWER
- 28. ALL REMOVED ELECTRICAL EQUIPMENT SHALL REMAIN THE PROPERTY OF THE OWNER.

### GENERAL NOTES

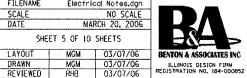
1. THE ELECTRICAL INSTALLATION, AS A MINIMUM, SHALL MEET THE NATIONAL ELECTRICAL CODE AND LOCAL REGULATIONS.

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- 2. THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS FURNISHED (INCLUDING FAA APPROVED EQUIPMENT) ARE COMPATIBLE IN ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NONCOMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR SHALL BE REPLACED BY HIM AT NO ADDITIONAL COST TO THE AIRPORT SPONSOR WITH A SIMILAR UNIT, APPROVED BY THE ENGINEER (DIFFERENT MODEL OR DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.
- 3. 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.
- 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 FAA APPROVED.
- 6. ANY AND ALL INSTRUCTIONS FROM THE ENGINEER TO THE CONTRACTOR RECARDING CHANGES IN, OR DEVIATIONS FROM THE PLANS AND SPECIFICATIONS SHALL BE IN WRITING WITH COPIES SENT TO THE AIRPORT SPONSOR.
- 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, ETC. AS A MINIMUM SHALL CONTAIN THE FOLLOWING:
  - A. 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/ CURRENT/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.
  - B. A DETAILED DESCRIPTION OF THE OVERALL EQUIPMENT AND ITS INDIVIDUAL COMPONENTS.
  - C. THEORY OF OPERATIONS INCLUDING THE FUNCTION OF EACH COMPONENT.
  - D. INSTALLATION INSTRUCTIONS.
  - E. START-UP INSTRUCTIONS.
  - F. PREVENTATIVE MAINTENANCE REQUIREMENTS.
  - G. CHART FOR TROUBLE-SHOOTING
  - H. PARTS LIST WHICH WILL INCLUDE ALL MAJOR AND MINOR COMPONENTS SUCH AS RESISTORS, DIODES, ETC. IT SHALL INCLUDE A COMPLETE NOMENCLATURE OF EACH COMPONENT AND, IF APPLICABLE, THE NAME OF ITS MANUFACTURER AND THE CATALOG NUMBER.
  - I. SAFETY INSTRUCTIONS.

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		CITY	OF	BEARDSTOWN,	BEARDSTOW	N, ILLINOIS

FILENAME	Electrical Notes.dgn	Τ	
SCALE	NO SCALE		
DATE	DATE MARCH 20, 2006		
SHE	ET 5 OF 10 SHEETS		
LAYOUT	MGM 03/07/06		
DRAWN	MCM 03/07/06	٦	



BENTON & ASSOCIATES. INC. 1970 W. LAFAYETTE AVE., JACKSONVILLE IL 62650 (217) 245-4146 (217) 245-4149 FAX

KIRKSVILLE MISSOURI MACOMB ILLINOIS ST. LOUIS MISSOURI

ELECTRICAL POWER CONTROL AND GENERAL NOTES

Job No. 06E1688

ILL. PROJ. NO. K06-3439 A.I.P. PROJ. NO. 3-17-0004-B8 SHEET 5 OF 10

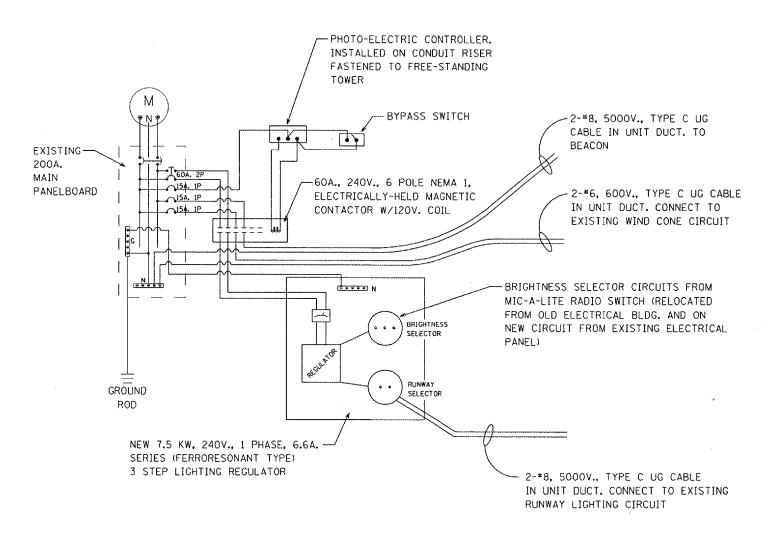
#### FIELD LIGHTING NOTES

- 1. NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND TRANSFORMERS SHALL BE BROUGHT ABOVE GROUND.
- 2. UNLESS OTHERWISE NOTED, ALL UNDERGROUND FIELD POWER MULTIPLE AND SERIES CIRCUIT CONDUCTORS SHALL BE FAA APPROVED L-824 TYPE. INSULATION VOLTAGE AND SIZE SHALL BE
- 3. THERE SHALL BE NO EXPOSED POWER/CONTROL CABLES BETWEEN THE POINT WHERE THEY LEAVE THE ELECTRICAL VAULT AND WHERE THEY ENTER THE EQUIPMENT ENCLOSURES. THESE CABLES SHALL BE ENCLOSED IN RIGID CONDUIT OR IN FLEXIBLE, WATER-TIGHT CONDUIT WITH BREAKABLE COUPLING(S) AT THE GRADE OF THE HOUSING COVER, AS SHOWN IN APPLICABLE DETAILS.
- 4. L-867 BASES SHALL BE SIZE E, 24 INCHES DEEP, CLASS IA, UNLESS OTHERWISE NOTED. L-868 BASES SHALL BE SIZE C, 24 INCHES DEEP, CLASS IA, UNLESS OTHERWISE NOTED.
- 5. ENTRANCES INTO L-867 AND L-868 BASES SHALL BE PLUGGED FROM THE INSIDE WITH DUCT SEAL.
- 6. DUCT MARKERS SHALL BE PRECAST CONCRETE OF THE SIZE SHOWN, LETTERS/NUMBERS/ ARROWS FOR THE LEGEND TO BE IMPRESSED INTO THE TOPS OF THE MARKERS SHALL BE PRE-ASSEMBLED AND SECURED IN THE MOLD BEFORE THE CONCRETE IS POURED, LEGEND INSCRIBED BY HAND IN WET CONCRETE SHALL NOT BE ACCEPTABLE.
- 7. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT MARKERS.
- 8. GALVANIZED/PAINTED EQUIPMENT/COMPONENT SURFACES SHALL NOT BE DAMAGED BY DRILLING, FILLING, ETC. DRAIN HOLES IN METAL TRANSFORMER HOUSINGS SHALL BE MADE BEFORE GALVANIZING.
- 9. ALL POWER AND CONTROL CABLES IN HAND HOLES SHALL BE TAGGED. USE EMBOSSED COPPER STRIPS TO BE ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A HAND HOLE. ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT.
- 10. CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND BASE CANS, ETC. SHALL BE 3500 PSI IN 14 DAYS, AIR-ENTRAINED.
- 11. APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS
- 12. THE PROPOSED RUNWAY/TAXIWAY LIGHTING CABLE WILL BE NO. 8, 5000 V., 1/C, TYPE C UNDERGROUND CABLE IN LINIT DUCT.
- 13. THE PROPOSED AIRPORT BEACON CABLE WILL BE NO. 8, 5000 V., 2/C TYPE C UNDERGROUND CABLE IN UNIT DUCT.
- 14. THE PROPOSED WIND CONE LIGHTING CABLE TO THE EXISTING CIRCUIT WILL BE NO. 6, 600 V.. 2/C, TYPE C UNDERGROUND CABLE IN UNIT DUCT. THE WIND CONE LIGHTING CABLE TO THE PROPOSED WIND CONE WILL BE NO. 8, 5000 V., 1/C, TYPE C UNDERGROUND CABLE IN UNIT DUCT.
- 15. IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE, THE PROPOSED CABLE WILL BE TRENCHED INTO PLACE. ALL OTHER LOCATIONS THE PROPOSED CABLE MAY BE EITHER TRENCHED OR PLOWED INTO PLACE. TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED. CABLE AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 16. CABLE QUANTITIES WERE DETERMINED UTILIZING LINEAR DISTANCES BETWEEN CONSECUTIVE POINTS.
- 17. THE APPROXIMATE LOCATION OF VARIOUS AIRFIELD LIGHTING SYSTEM CABLES SHOWN ON THE PLANS IS FOR THE CONTRACTOR'S INFORMATION, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE THE EXISTING CABLES IN THE WORK AREAS AND MAKE HIS OWN DETERMINATION AS TO THE NUMBER OF CABLES EXISTING IN SAID AREAS AND AS TO THE CIRCUIT THAT THE CABLES ARE ASSOCIATED WITH, CAUTION SHALL BE EXERCISED WHEN TRENCHING, EXCAVATING DUCT ENDS, ETC. TO AVOID CUTTING THE EXISTING CIRCUIT CABLES. ANY EXISTING CABLE DAMAGED SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- 18. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCK OUT THE FIELD LIGHTING CIRCUIT WHILE PERFORMING WORK ON OR NEAR THE SAID CIRCUIT. THE CIRCUIT SHALL BE LOCKED OUT TO INSURE THAT THE CIRCUIT CANNOT BE ENERGIZED MANUALLY OR BY THE RADIO CONTROL SYSTEM WHILE WORK IS BEING DONE. IN ADDITION TO THE FIELD LIGHTING CIRCUIT, THE AIRPORT BEACON SHALL ALSO BE LOCKED OUT SO THAT CIRCUIT CANNOT BE ENERGIZED WHILE WORK IS BEING DONE ON THE FIELD LIGHTING CIRCUIT. PRIOR PERMISSION OF THE AIRPORT MANAGER WILL BE REQUIRED.

GROUNDING NOTES

BE001

- 1. TOP OF GROUND RODS SHALL BE 10 INCHES BELOW GRADE.
- 2. THE RESISTANCE TO GROUND OF THE VALLET GROUNDING SYSTEM WITH THE COMMERCIAL POWER LINE NEUTRAL DISCONNECTED SHALL NOT EXCEED 10 OHMS.
- 3. ALL GROUND CONNECTIONS TO GROUND RODS, BUSSES, PANELS, ETC, SHALL BE MADE WITH PRESSURE TYPE SOLDERLESS LUGS, GROUND CLAMPS SOLDERED OR BOLT AND WASHER TYPE CONNECTIONS ARE NOT ACCEPTABLE. CLEAN ALL METAL SURFACES BEFORE MAKING GROUND CONNECTIONS.

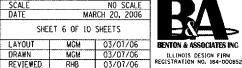


#### ELECTRICAL DIAGRAM FOR AIRPORT LIGHTING EQUIPMENT NOT TO SCALE

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GREATER BEARDSTOWN MUNICIPAL AIRPORT CITY OF BEARDSTOWN. BEARDSTOWN. ILLINOIS

FILENAME	Lighting-Gro	ounding Not	es.dgn
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BENTON & ASSOCIATES, INC. 1970 W. LAFAYETTE AVE., JACKSONVILLE IL 62650 (217) 245-4146 (217) 245-4149 FAX

KIRKSVILLE MISSOURI MACOMB ILLINOIS ST. LOUIS MISSOURI

FIELD LIGHTING AND GROUNDING NOTES

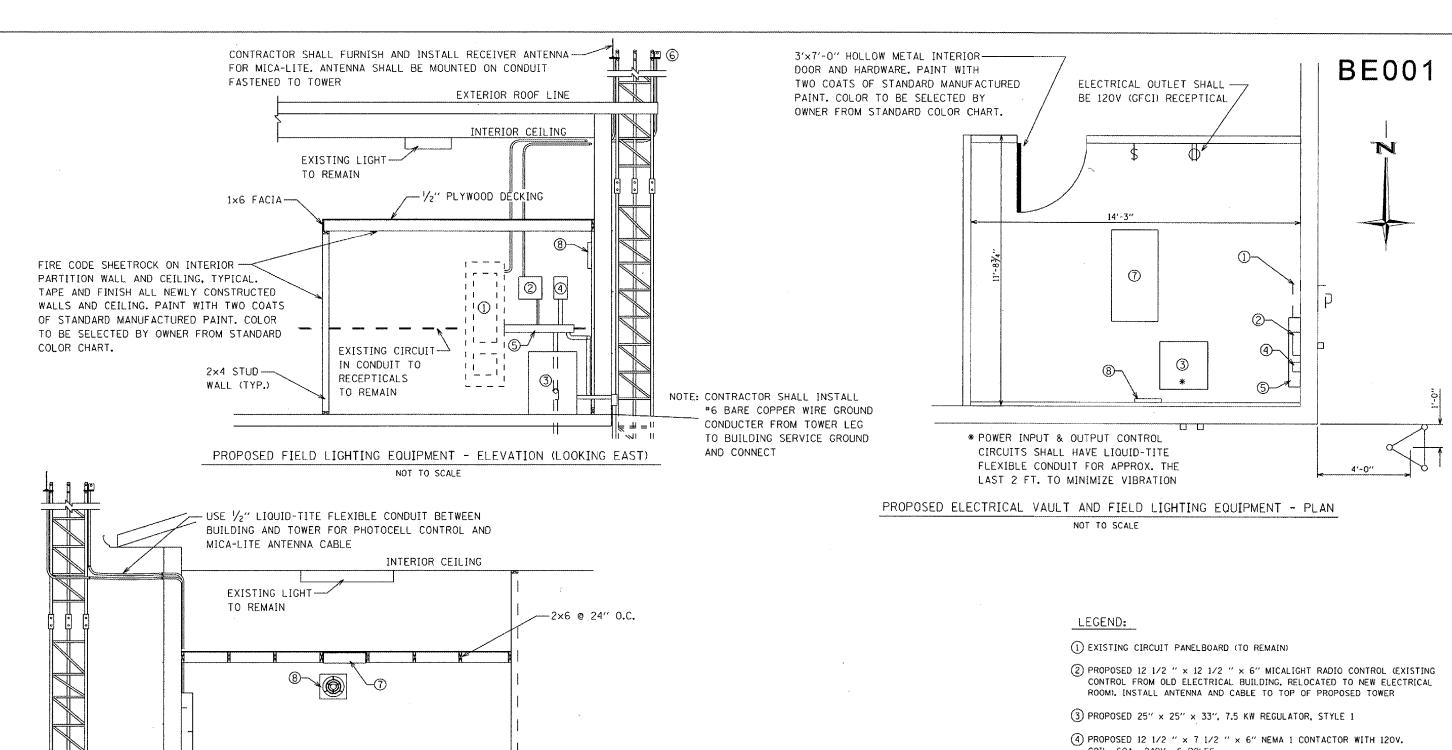
A.I.P. PROJ. NO. 3-17-0004-88

ILL. PROJ. NO. KO6~3439

Job No. 06E1688

6

SHEET 6 OF 10



#### EQUIPMENT SCHEDULE:

#### QUANTITY

- ELECTRICALLY-HELD LIGHTING CONTACTOR: NEMA SIZE 2, 240 VOLT NON-REVERSING NEMA 1 ENCLOSURE, 120 VOLT CONTROL COIL. CUTLER HAMMER #ECLO401A6A OR APPROVED EQUIVALENT.
- CONSTANT CURRENT REGULATOR: SINGLE PHASE, 7.5 KW, 240 VOLT PRIMARY, 6.6 AMP. SECONDARY, 3 STEP BRIGHTNESS 120 VOLT CONTROL, L-828, SIEMENS #CCF66074260 OR APPROVED EQUIVALENT.
- COIL. 60A.. 240V.. 6 POLES
- (5) PROPOSED 4" x 4" x 36" WIREWAY
- (6) PROPOSED PHOTOCELL CONTROL FOR FIELD LIGHTING. TO BE MOUNTED TO PROPOSED TOWER
- (7) PROPOSED 4 FOOT, 4 LAMP (T8/32) RECESSED FIXTURE, ELECTRONIC
- (8) PROPOSED 120V, 60 HZ, 180 CFM WALL FAN. BROAN MODEL 509 MG W/SPST COOLING ONLY, LINE VOLTAGE 13A. INDUCTIVE CAPACITY OR APPROVED EQUIVALENT

DATE	REVISION

GREATER BEARDSTOWN MUNICIPAL AIRPORT CITY OF BEARDSTOWN, BEARDSTOWN, ILLINOIS

PROPOSED FIELD LIGHTING EQUIPMENT - ELEVATION (LOOKING SOUTH)

NOT TO SCALE

-EXISTING CONDUIT AND RECEPTICALS TO

BE RUN TO END OF PROPOSED WIREWAY.

BE RELOCATED TO VAULT WALL, CIRCUIT TO

FILENAME Electrical Vault Details.dgn NO SCALE SHEET 7 OF 10 SHEETS

LAYOUT MCM 03/07/06
DRAWN MCM 03/07/06
REVIEWED RHB 03/07/06

ILLINOIS DESIGN FIRM REGISTRATION NO. 184-000853

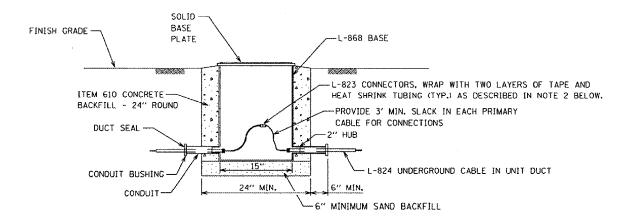
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ELECTRICAL VAULT DETAILS

Job No. 06E1688

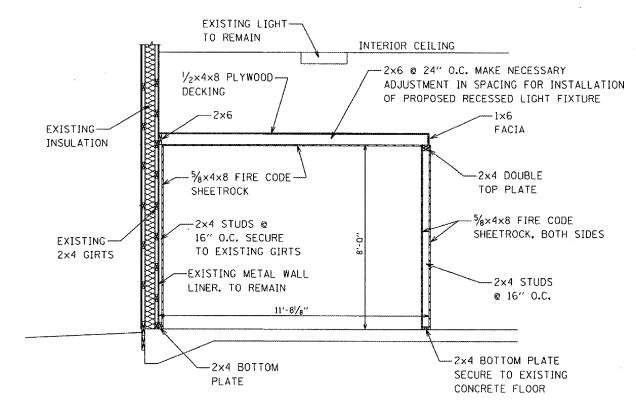
ILL. PROJ. NO. K06-3439 A.I.P. PROJ. NO. 3-17-0004-B8 SHEET 7 OF 10

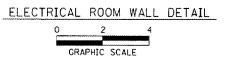


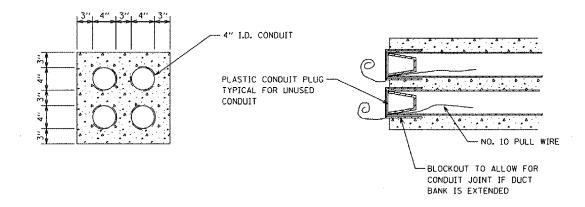
#### NOTES

- 1. THE CONCRETE BACKFILL FOR BASE CAN SHALL BE TROWEL FINISHED WITH A 45° BEVELED EDGE WITH THE SURFACE TO DRAIN.
- 2. THE PRIMARY CABLE CONNECTOR JOINTS SHALL BE WRAPPED WITH ONE LAYER OF RUBBER TAPE (SCOTCH NO. 63) AND ONE LAYER OF PLASTIC TAPE (SCOTCH NO. 88), ONE-HALF LAPPED, EXTENDING \( \frac{1}{2} \)" EACH SIDE OF JOINT AND COVERED WITH HEAT SHRINK TUBING
- 3. A MINIMUM OF THREE FOOT OF CABLE SLACK SHALL BE LEFT AT EACH BASE CAN HANDHOLE. THIS REQUIRED SLACK WILL BE LEFT ON THE CABLE SIDE OF ALL PRIMARY CONNECTORS AND SPLICES. THIS REQUIRED SLACK WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
- 4. ALL MOUNTING BOLTS SHALL BE COATED WITH AN ANTI-SIEZING LUBRICANT.
- 5. CONTRACTOR SHALL INSTALL HEAT SHRINK TUBING AT ALL TERMINATION OF UNIT DUCT (TYPICAL).

L-868 BASE CAN/HANDHOLE
NOT TO SCALE







### UNDERGROUND DUCT DETAIL NOT TO SCALE

#### NOTES

- 1. DIMENSIONS SHOWN ARE MINIMUM.
- 2. TOP OF CONCRETE ENCASEMENT TO BE NOT LESS THAN 18" BELOW FINISHED SUBGRADE.
- 3. DUCT CONCRETE SHALL BE STRUCTURAL P.C. CONCRETE.
- 4. DUCT SHALL BE RIGID SCHEDULE 40 PVC CONDUIT.
- 5. ALL DUCT TO BE 4" UNLESS OTHERWISE SPECIFIED.
- 6. INSTALL CONCRETE DUCT MARKER TWO FEET SQUARE AND 4" THICK. AT ALL ENDS OF DUCTS.
- ALLOWANCES SHALL BE MADE FOR ADDING A JOINT OF PVC CONDUIT FOR FUTURE EXTENSION OF THE DUCT BANK ON BOTH ENDS.

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		GREATER BEARDSTOWN MUNICIPAL AIRPORT
		CITY OF BEARDSTOWN, BEARDSTOWN, ILLINOIS

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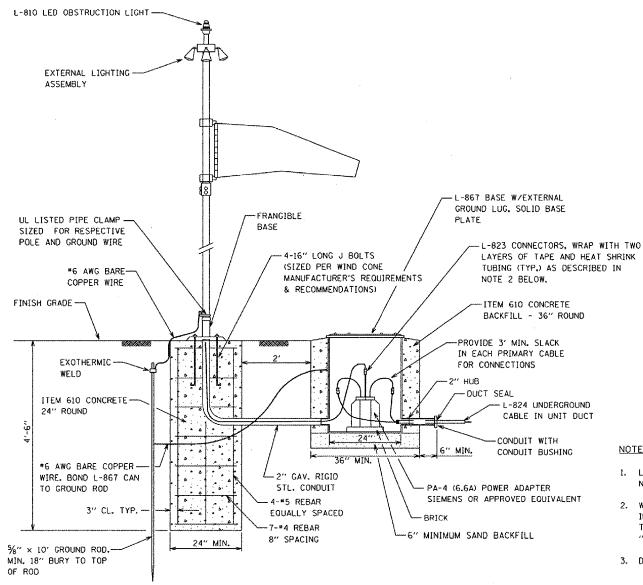
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(217) 245-4146 (217) 245-4149 FAX

KIRKSVILLE MISSOURI MACOMB ILLINOIS ST. LOUIS MISSOURI ELECTRICAL AND BUILDING DETAILS

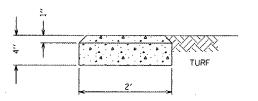
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SHEET 8 OF 10

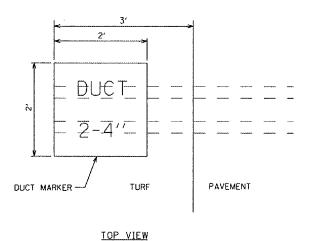
ILL, PROJ. NO. K06-3439 A.I.P. PROJ. NO. 3-17-0004-B8



- 1. THE CONCRETE FOUNDATION SHALL BE TROWEL FINISHED WITH A 45° BEVELED EDGE WITH THE SURFACE
- 2. THE PRIMARY CABLE CONNECTOR JOINTS SHALL BE WRAPPED WITH ONE LAYER OF RUBBER TAPE (SCOTCH NO. 63) AND ONE LAYER OF PLASTIC TAPE (SCOTCH NO. 88), ONE-HALF LAPPED, EXTENDING  $\frac{1}{2}$ " EACH SIDE OF JOINT AND COVERED WITH HEAT SHRINK TUBING
- 3. A MINIMUM OF THREE FOOT OF CABLE SLACK SHALL BE LEFT AT THE BASE CAN. THIS REQUIRED SLACK WILL BE LEFT ON THE CABLE SIDE OF ALL PRIMARY CONNECTORS AND SPLICES. THIS REQUIRED SLACK WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
- 4. ALL MOUNTING BOLTS SHALL BE COATED WITH AN ANTI-SIEZING LUBRICANT.
- 5. CONTRACTOR SHALL INSTALL HEAT SHRINK TUBING AT ALL TERMINATION OF UNIT DUCT (TYPICAL).



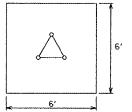
#### END VIEW



#### NOTES

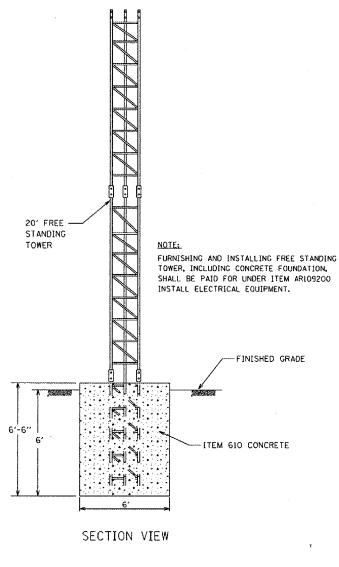
- 1. LETTERS 4" HIGH , 3" WIDE WITH WIDTH OF STROKE 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED. SCRATCHED FIGURES WILL NOT BE ACCEPTABLE.
- 2. WHEN THE PAVEMENT IS CONSTRUCTED OF CONCRETE, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT 4' FROM EACH EDGE OF PAVEMENT DIRECTLY ABOVE THE CENTER LINE OF THE DUCT BANK. THE LETTER SHALL BE FORMED AS DESCRIBED IN NOTE 1. THE IMPRESSED "D" SHALL BE REQUIRED IN ADDITION TO THE CONCRETE DUCT MARKER.
- 3. DUCT MARKERS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

CONCRETE DUCT MARKER DETAIL NOT TO SCALE



**BE001** 

PLAN VIEW



FREE STANDING TOWER DETAIL (20' HEIGHT) NOT TO SCALE

#### L-806 WIND CONE AND FOUNDATION DETAIL NOT TO SCALE

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		GREATER BEARDSTOWN MUNICIPAL AIRPORT
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BENTON & ASSOCIATES, INC. 1970 W. LAFAYETTE AVE., JACKSONVILLE IL 62650 (217) 245-4146 (217) 245-4149 FAX

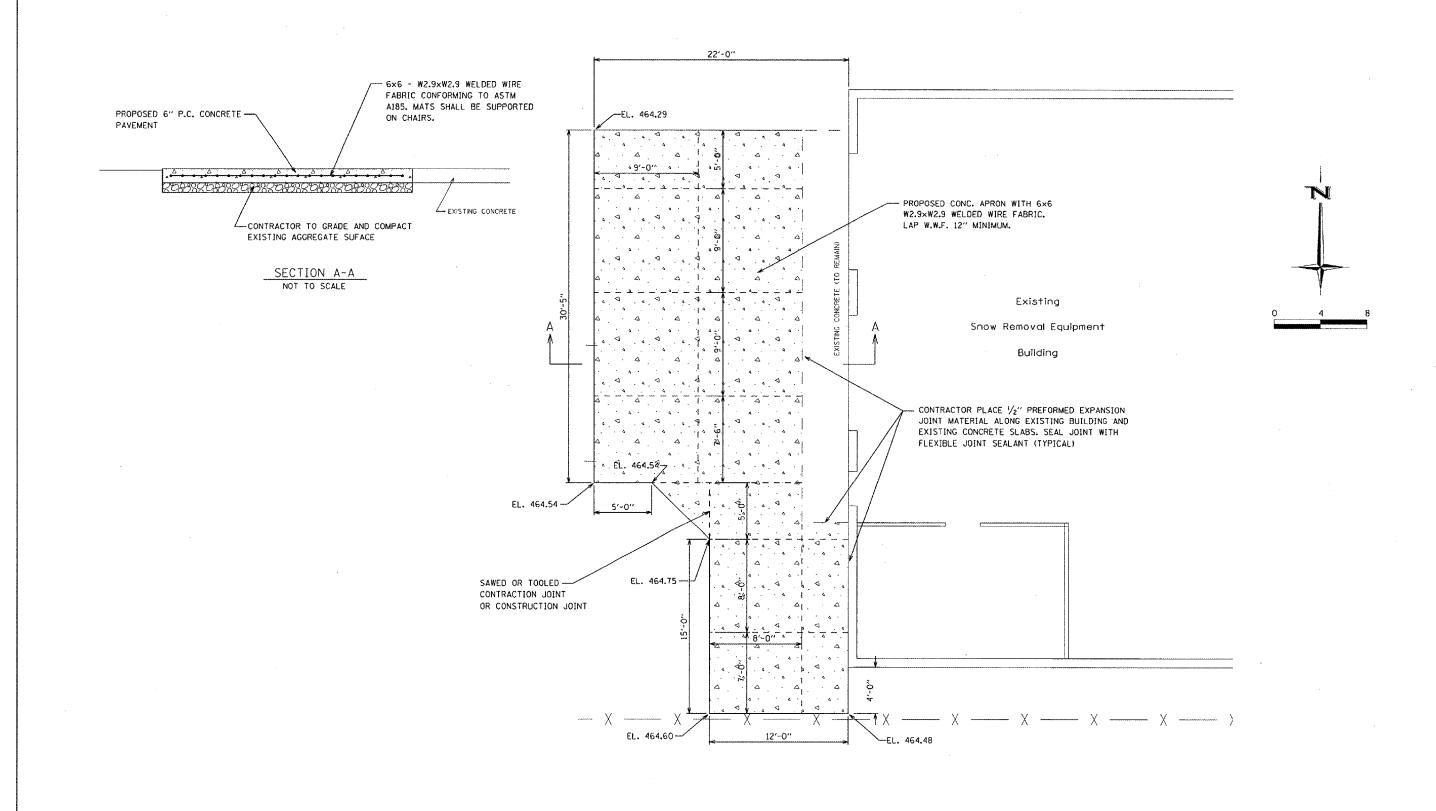
ELECTRICAL DETAILS

Job No. 06E1688

SHEET 9 OF 10

ILL. PROJ. NO. K06-3439 A.I.P. PROJ. NO. 3-17-0004-B8

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DATE	REVISION	
		GREATER BEARDSTOWN MUNICIPAL AIRPORT
		CITY OF BEARDSTOWN, BEARDSTOWN, ILLINOIS

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BENTON & ASSOCIATES, INC.
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KIRKSVILLE MISSOURI

MACOMB ILLINOIS

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PAVEMENT SITE WORK DETAILS

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Job No. 06E1688

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