04A

Letting June 14, 2024

Notice to Bidders, Specifications and Proposal

Illinois Department of Transportation

Springfield, Illinois 62764

Contract No. MC029
Mount Carmel Municipal Airport
St. Francisville, Illinois
Lawrence County
Illinois Project No. AJG-5013
SBG Project No. N/A

(Printed by authority of the State of Illinois)

Illinois Department of Transportation

NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 12:00 p.m. on June 14, 2024, at which time the bids will be publicly opened from the iCX SecureVault.

2. **DESCRIPTION OF WORK**. The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

   Contract No. MC029
   Mount Carmel Municipal Airport
   St. Francisville, Illinois
   Lawrence County
   Illinois Project No. AJG-5013
   SBG Project No. N/A

   Replace Runway End Identifier Lights (REILs) on Runway 4/22

   For engineering information, please contact Barry S. Stolz, P.E. of Hanson Professional Services, Inc. at 314.942.5288.

3. **INSTRUCTIONS TO BIDDERS**.

   (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 10-18 of the Illinois Standard Specifications for Construction of Airports (Adopted April 1, 2012), become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

   (b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.

4. **AWARD CRITERIA AND REJECTION OF BIDS**. This contract will be awarded within 90 calendar days to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

5. **PRE-BID CONFERENCE.** N/A

6. **DISADVANTAGED BUSINESS POLICY.** The DBE goal for this contract is 0.0%.

7. **SPECIFICATIONS AND DRAWINGS.** The work shall be done in accordance with the Illinois Standard Specifications for Construction of Airports (Adopted April 1, 2012), the Special Provisions dated April 19, 2024, and the Construction Plans dated April 19, 2024 as approved by the Illinois Department of Transportation, Division of Aeronautics.

8. **BIDDING REQUIREMENTS AND BASIS OF AWARD.** When alternates are included in the proposal, the following shall apply:

   a. Additive Alternates

      (1) Bidders must submit a bid for the Base Bid and for all Additive Alternates.

      (2) Award of this contract will be made to the lowest responsible qualified bidder computed as follows:

      The lowest aggregate amount of (i) the Base Bid plus (ii) any Additive Alternate(s) which the Department elects to award.

      The Department may elect not to award any Additive Alternates. In that case, award will be to the lowest responsible qualified bidder of the Base Bid.

   b. Optional Alternates

      (1) Bidders must submit a bid for the Base Bid and for either Alternate A or Alternate B or for both Alternate A and Alternate B.

      (2) Award of this contract will be made to the lowest responsible qualified bidder computed as follows:

      The lower of the aggregate of either (i) the Base Bid plus Alternate A or (ii) the Base Bid plus Alternate B.

9. **CONTRACT TIME.** The Contractor shall complete all work within the specified contract time. Any calendar day extension beyond the specified contract time must be fully justified, requested by the Contractor in writing, and approved by the Engineer, or be subject to liquidated damages.

   The contract time for this contract is Base Bid: 20 calendar days; Additive Alternate #1: 0 additional calendar days.

10. **INDEPENDENT WEIGHT CHECKS.** The Department reserves the right to conduct random unannounced independent weight checks on any delivery for bituminous, aggregate or other pay item for which the method of measurement for payment is based on weight. The weight checks will be accomplished by selecting, at random, a loaded truck and obtaining a loaded and empty weight on an independent scale. In addition, the department may perform random weight checks by obtaining loaded and empty truck weights on portable scales operated by department personnel.

11. **MATERIAL COST ADJUSTMENTS.** The Illinois Department of Transportation, Division of Aeronautics does not offer any material cost adjustment provisions.

12. **GOOD FAITH COMPLIANCE.** The Illinois Department of Transportation has made a good faith effort to include all statements, requirements, and other language required by federal and state law and by various offices within federal and state governments whether that language is required by law or not. If anything of this nature has been left out or if additional language etc. is later required, the bidder/contractor shall cooperate fully with the Department to modify the contract or bid documents to correct the deficiency. If the change results in increased operational costs, the Department shall reimburse the contractor for such costs as it may find to be reasonable.

By Order of the
Illinois Department of Transportation

Omer Osman,
Secretary

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
EEO

Effective: July 21, 1978
Revised: November 18, 1980

The requirements of the following provisions written for federally-assisted construction contracts, including all goals and timetables and affirmative action steps, shall also apply to all State-funded construction contracts awarded by the Illinois Department of Transportation.

Notice of Requirement for Affirmative Action to Ensure
Equal Employment Opportunity (Executive Order 11246)

1. The offeror's or bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

APPENDIX A

The following goal for female utilization in each construction craft and trade shall apply to all Contractors holding Federal and federally assisted construction contracts and subcontracts in excess of $10,000. The goal is applicable to the Contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a federal, federally assisted or nonfederally related construction contact or subcontract.

Area Covered (Statewide)

Goals for Women apply nationwide.

GOAL	Goal (percent)
Female Utilization	6.9

APPENDIX B

Until further notice, the following goals for minority utilization in each construction craft and trade shall apply to all Contractors holding federal and federally-assisted construction contracts and subcontracts in excess of $10,000 to be performed in the respective geographical areas. The goals are applicable to the Contractor's total on-site construction workforce, regardless of whether or not part of that workforce is performing work on a federal, federally-assisted or nonfederally related construction contract or subcontract.

Economic Area	Goal (percent)
056 Paducah, KY: Non-SMSA Counties - IL - Hardin, Massac, Pope KY - Ballard, Caldwell, Calloway, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, McCracken, Marshall	5.2
080 Evansville, IN: Non-SMSA Counties - IL - Edwards, Gallatin, Hamilton, Lawrence, Saline, Wabash, White IN - Dubois, Knox, Perry, Pike, Spencer KY - Hancock, Hopkins, McLean, Mublenberg, Ohio, Union, Webster	3.5
081 Terre Haute, IN: Non-SMSA Counties - IL - Clark, Crawford IN - Parke	2.5

083 Chicago, IL:
SMSA Counties:
1600 Chicago, IL - 19.6
IL - Cook, DuPage, Kane,
Lake, McHenry, Will
3740 Kankakee, IL - 9.1
IL - Kankakee
Non-SMSA Counties 18.4
IL - Bureau, DeKalb, Grundy, Iroquois,
Kendall, LaSalle, Livingston, Putnam
IN - Jasper, Laporte, Newton,
Pulaski, Starke

084 Champaign - Urbana, IL:
SMSA Counties:
1400 Champaign - Urbana - Rantoul, IL - 7.8
IL - Champaign
Non-SMSA Counties - 4.8
IL - Coles, Cumberland, Douglas,
Edgar, Ford, Piatt, Vermilion

085 Springfield - Decatur, IL:
SMSA Counties:
2040 Decatur, IL - 7.6
IL - Macon
7880 Springfield, IL - 4.5
IL - Menard, Sangamon
Non-SMSA Counties 4.0
IL - Cass, Christian, Dewitt, Logan,
Morgan, Moultrie, Scott, Shelby

086 Quincy, IL:
Non-SMSA Counties 3.1
IL - Adams, Brown, Pike
MO - Lewis, Marion, Pike, Ralls

087 Peoria, IL:
SMSA Counties:
1040 Bloomington - Normal, IL - 2.5
IL - McLean
6120 Peoria, IL - 4.4
IL - Peoria, Tazewell, Woodford
Non-SMSA Counties - 3.3
IL - Fulton, Knox, McDonough, Marshall,
Mason, Schuyler, Stark, Warren

088 Rockford, IL:
SMSA Counties:
6880 Rockford, IL - 6.3
IL - Boone, Winnebago
Non-SMSA Counties - 4.6
IL - Lee, Ogle, Stephenson

098 Dubuque, IA:
Non-SMSA Counties - 0.5
IL - JoDaviess
IA - Atlamakee, Clayton, Delaware,
Jackson, Winnesheik
WI - Crawford, Grant, Lafayette

099 Davenport, Rock Island, Moline, IA - IL:
SMSA Counties:
1960 Davenport, Rock Island, Moline, IA - IL - 4.6
IL - Henry, Rock Island
IA - Scott
Non-SMSA Counties - 3.4
IL - Carroll, Hancock, Henderson, Mercer, Whiteside
IA - Clinton, DesMoines, Henry, Lee, Louisa, Muscatine
MO - Clark

107	St. Louis, MO:	
	SMSA Counties:	
	7040 St. Louis, MO - IL -	14.7
	IL - Clinton, Madison, Monroe, St. Clair	
	MO - Franklin, Jefferson, St. Charles,	
	St. Louis, St. Louis City	
	Non-SMSA Counties -	11.4
	IL - Alexander, Bond, Calhoun, Clay,	
	Effingham, Fayette, Franklin, Greene,	
	Jackson, Jasper, Jefferson, Jersey,	
	Johnson, Macoupin, Marion, Montgomery,	
	Perry, Pulaski, Randolph, Richland,	
	Union, Washington, Wayne, Williamson	
	MO - Bollinger, Butler, Cape Girardeau,	
	Carter, Crawford, Dent, Gasconade,	
	Iron, Lincoln, Madison, Maries,	
	Mississippi, Montgomery, Perry,	
	Phelps, Reynolds, Ripley, St. Francois,	
	St. Genevieve, Scott, Stoddard, Warren,	
	Washington, Wayne	

These goals are applicable to all the Contractor's construction work (whether or not it is federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with Executive Order 11246 and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the provisions and specifications set forth in its federally assisted contracts, and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order 11246 and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Illinois Department of Transportation will provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten working days of award of any construction contract and/or subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. This notification will list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is the entire State of Illinois for the goal set forth in APPENDIX A and the county or counties in which the work is located for the goals set forth in APPENDIX B.

STANDARD FEDERAL EQUAL EMPLOYMENT
OPPORTUNITY CONSTRUCTION CONTRACT
SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

   (a) "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   (b) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
   (c) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
   (d) "Minority" includes:
      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000. the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction Contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   (a) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working as such sites or in such facilities.

   (b) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

   (c) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractors may have taken.

   (d) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

   (e) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

   (f) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreements; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

   (g) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

   (h) Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

   (i) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship of other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

   (j) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

   (k) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

(l) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(m) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

(n) Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(o) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractors and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

(p) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a Contractor association, joint Contractor-union, Contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specified minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy his requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES
NONFEDERAL-AID CONTRACTS

Effective: March 20, 1969
Revised: January 1, 1994

1. General

a. The requirements set forth herein shall constitute the specific affirmative action requirements under this contract and supplement the non- discrimination requirements contained elsewhere in this proposal.

b. The Contractor shall work with the Illinois Department of Transportation (IDOT) in carrying out Equal Employment Opportunity (EEO) obligations and in reviews of activities under the contract.

c. The Contractor, and all subcontractors holding subcontracts (not including material suppliers) of $10,000 or more, shall comply with the following minimum specific requirement activities of EEO. The Contractor shall include these requirements in every subcontract of $10,000 or more with such modification of language as is necessary to make them binding on the subcontractor.

2. Equal Employment Opportunity Policy

The Contractor shall accept as operating policy the following statement which is designed to further the provision of EEO to all persons, and to promote the full realization of equal employment opportunity through a positive continuing program: "It is the policy of this Company to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age, or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

3. Equal Employment Opportunity Officer

The Contractor shall designate and make known to IDOT contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active Contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

4. Dissemination of Policy

a. All members of the Contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

(1) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the Contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

(2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the Contractor's EEO obligations within thirty days following their reporting for duty with the Contractor.

(3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the Contractor's procedures for locating and hiring minority and female employees.

b. In order to make the Contractor's EEO policy known to all employees, prospective employees, and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the Contractor shall take the following actions:

(1) Notices and posters setting forth the Contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

(2) The Contractor's EEO policy and the procedures to implement such policy shall be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5. Recruitment

a. When advertising for employees, the Contractor shall include in all advertisements for employees the notation: "An Equal Opportunity Employer". All such advertisements shall be published in newspapers, or other publications, having a large circulation among minority groups in the area from which the project work force would normally be derived.

b. The Contractor shall, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants, including, but not limited to, State employment

agencies, schools, colleges and minority and female organizations. To meet this requirement, the Contractor shall, identify sources of potential minority and female employees, and establish with such identified sources procedures whereby minority and female applicants may be referred to the Contractor for employment consideration. In the event the Contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he/she is expected to observe the provisions of that agreement to the extent that the system permits the Contractor's compliance with EEO contract provisions.

c. The Contractor shall encourage present employees to refer minority and female applicants for employment by posting appropriate notices or bulletins in areas accessible to all such employees. In addition, information and procedures with regard to referring minority and female applicants shall be discussed with employees.

6. Personnel Actions

Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, will be taken without regard to race, color, religion, sex, national origin, age, or disability. The following procedures shall be followed:

a. The Contractor shall conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The Contractor shall periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The Contractor shall periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the Contractor shall promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The Contractor shall promptly investigate all complaints of alleged discrimination made to the Contractor in connection with the obligations under this contract, shall attempt to resolve such complaints, and shall take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Contractor shall inform every complainant of all of the avenues of appeal.

7. Training and Promotion

a. The Contractor shall assist in locating, qualifying and increasing the skills of minority and female employees and applicants for employment.

b. Consistent with the Contractor's work force requirements and as permissible under Federal and State regulations, the Contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance.

c. The Contractor shall advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The Contractor shall periodically review the training and promotion potential of minority and female employees and shall encourage eligible employees to apply for such training and promotion.

8. Unions

If the Contractor relies in whole or in part upon unions as a source of employees, the Contractor shall use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minorities and females within the unions, and to effect referrals by such unions of minority and female employees. Actions by the Contractor, either directly or through a Contractor's association acting as agent, shall include the procedures set forth below:

a. The Contractor shall use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority and female employees for membership in the unions and increasing the skills of minority and female and employees so that they may qualify for higher paying employment.

b. The Contractor shall use best efforts to incorporate an EEO clause into each union agreement to the end that such union shall be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age, or disability.

c. The Contractor is to obtain information as to the referral practices and policies of the labor union, except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the Contractor, the Contractor shall so certify to IDOT and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the Contractor with a reasonable flow of minority and female referrals within the time limit set forth in the collective bargaining agreement, the Contractor shall, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and females. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minorities or female employees). In the event the union referral practice prevents the Contractor from meeting the obligations pursuant to these Special Provisions, such Contractor shall immediately notify IDOT.

9. Selection of Subcontractors, Procurement of Materials, and Leasing of Equipment

The Contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The Contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR Part 23, shall have equal opportunity to compete for and perform subcontracts which the Contractor enters into pursuant to this contract. The Contractor shall use best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority and female representation among their employees. Contractors shall obtain lists of DBE construction firms from IDOT personnel.

c. The Contractor shall use his/her best efforts to ensure subcontractor compliance with their EEO obligations.

10. Records and Reports

The Contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of IDOT.

a. The records kept by the Contractor shall document the following:

(1) the number of minorities, non-minorities and females employed in each work classification on the project;

(2) the progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and females;

(3) the progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) the progress and efforts being made in securing the services of DBE subcontractors, or subcontractors with meaningful minority and female representation among their employees.

b. The Contractor shall submit to IDOT a monthly report every month for the duration of the project, indicating the number of minority, non-minority and female employees currently engaged in each work classification required by contract work and the number of hours worked. This information is to be reported on Form SBE-956. If on-the-job training is being required by special provision, the Contractor will be required to collect and report training data.

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
REQUIRED PROVISIONS – STATE CONTRACTS

Effective: April 1 1965
Revised: January 1, 2017

I. SELECTION OF LABOR

The Contractor shall comply with all Illinois statutes pertaining to the selection of labor.

EMPLOYMENT OF ILLINOIS WORKERS DURING PERIODS OF
EXCESSIVE UNEMPLOYMENT

Whenever there is a period of excessive unemployment in Illinois, which is defined herein as any month immediately following two consecutive calendar months during which the level of unemployment in the State of Illinois has exceeded five percent as measured by the United States Bureau of Labor Statistics in its monthly publication of employment and unemployment figures, the Contractor shall employ at least 90 percent Illinois laborers. "Illinois laborer" means any person who has resided in Illinois for at least 30 days and intends to become or remain an Illinois resident.

Other laborers may be used when Illinois laborers as defined herein are not available, or are incapable of performing the particular type of work involved, if so certified by the Contractor and approved by the Engineer. The Contractor may place no more than three of his/her regularly employed non-resident executive and technical experts, who do not qualify as Illinois laborers, to do work encompassed by this Contract during period of excessive unemployment.

This provision applies to all labor, whether skilled, semi-skilled, or unskilled, whether manual or non-manual.

II. EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Contractor's noncompliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act or the Illinois Department of Human Rights Rules and Regulations, the Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political sub-divisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

During the performance of this Contract, the Contractor agrees as follows:

1. That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.

2. That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability (in accordance with the Illinois Department of Human Rights Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

3. That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service.

4. That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Department of Human Rights and IDOT and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

5. That it will submit reports as required by the Illinois Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Illinois Department of Human Rights or IDOT, and in all respects comply with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.

6. That it will permit access to all relevant books, records, accounts and work sites by personnel of IDOT and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.

7. That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by subcontractors; and further it will promptly notify IDOT and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply with these provisions. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

III. SUBLETTING OR ASSIGNING THE CONTRACT

1. The Contractor shall perform with his/her own organization contract work amounting to not less than 51 percent of the original total contract price, except that any items designated by the State as "Specialty Items" may be performed by subcontract and the amount of any such "Specialty Items" so performed may be deducted from the original total contract price before computing the amount of work required to be performed by the Contractor with his/her own organization.

   a. "His/her own organization" shall be construed to include only worker employed and paid directly by the Contractor and equipment owned or rented by him/her, with or without operators.

   b. "Specialty Items" shall be construed to be limited to work that requires specialized knowledge, craftsmanship or equipment not ordinarily available in contracting organizations qualified to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. In addition to the 51 percent requirement set forth in paragraph 1 above, the Contractor shall furnish (a) a competent superintendent or foreman who is employed by him/her, who has full authority to direct performance of the work in accordance with the contract requirements, and who is in charge of all construction operations (regardless of who performs the work), and (b) such other of his/her own organizational capability and responsibility (supervision, management, and engineering services) as the State highway department contracting officer determines is necessary to assure the performance of the contract.

3. The Contractor shall not sublet, sell, transfer, assign or otherwise dispose of the contract or contracts or any portion thereof, or of his/her right, title or interest therein, without written consent of the Engineer. In case such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with the Contractor's own organization, work amounting to not less than 51 percent of the total contract cost, except that any items designated in the contract as "specialty items" may be performed by subcontract and the cost of any such specialty items so performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the Contractor with his/her own organization. Materials purchased or produced by the Contractor must be incorporated into the project by the Contractor's own organization if their cost is to be applied to the 50 percent requirement.

   No subcontracts, or transfer of contract, shall in any case release the Contractor of his/her liability under the contract and bonds. All transactions of the Engineer shall be with the Contractor. The Contractor shall have representative on the job at all times when either contract or subcontract work is being performed.

   All requests to subcontract shall contain a certification that the subcontract agreement exists in writing and physically contains the required Federal and State Equal Employment Opportunity provisions and Labor compliance provisions, including the contract minimum wage requirements. The Contractor shall permit Department or Federal representatives to examine the subcontract agreements upon notice.

4. Any items that have been selected as "Specialty Items" for the contract are listed as such in the Special Provisions, bid schedule, or elsewhere in the contract documents.

5. No portion of the contract shall be sublet, assigned or otherwise disposed of, except with the written consent of the State highway department contracting officer, or his/her authorized representative, and such consent when given shall not be construed to relieve the Contractor of any responsibility for the fulfillment of the contract. Request for permission to sublet, assign or otherwise dispose of any portion of the contract shall be in writing and accompanied by (a) a showing that the organization which will perform the work is particularly experienced and equipped for such work, and (b) an assurance by the Contractor that the labor standards provisions set forth in this contract shall apply to labor performed on all work encompassed by the request.

IV. COMPLIANCE WITH THE PREVAILING WAGE ACT

1. Prevailing Wages. All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. If the Department of Labor revises the wage rates, the Contractor will not be allowed additional compensation on account of said revisions. Current wage rate information shall be obtained by visiting the Department of Labor website at http://www.illinois.gov/idol/Pages/default.aspx. It is the responsibility of the Contractor to review the rates applicable to the work of this contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the Contractor by means of the Department of Labor website satisfies the notification of revisions by the Department to the Contractor pursuant to the Act, and the Contractor agrees that no additional notice is required.

2. Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of three years from the later of the date of final payment under the contract or completion of the contract, records of the wages paid to his/her workers. The payroll records shall include each worker's name, address, telephone number, social security number, classification, rate of pay, number of hours worked each day, starting and ending times of work each day, total hours worked each week, itemized deductions made, and actual wages paid. Upon seven business days' notice, these records shall be available at a location within the State, during reasonable hours, for inspection by the Department or the Department of Labor; and Federal, State, or local law enforcement agencies and prosecutors.

3. **SUBMISSION OF PAYROLL RECORDS (BDE)**

   Effective: April 1, 2021
   Revised: November 2, 2023

   Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15th day of each calendar month, file a certified payroll for the immediately preceding month to the Illinois Department of Labor (IDOL) through the Illinois Prevailing Wage Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Prevailing-Wage-Portal.aspx. Payrolls shall be submitted in the format prescribed by the IDOL.

In addition to filing certified payroll(s) with the IDOL, the Contractor and each subcontractor shall certify and submit payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers shall not be included on weekly submittals. Instead, the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). In addition, starting and ending times of work each day may be omitted from the payroll records submitted. The submittals shall be made using LCPtracker Pro software. The software is web-based and can be accessed at https://lcptracker.com/. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option ("No Work", "Suspended", or "Complete") selected."

4. Employee Interviews. The Contractor and each subcontractor shall permit his/her employees to be interviewed on the job, during working hours, by compliance investigators of the Department or the Department of Labor.

V. NONSEGREGATED FACILITIES

(Applicable to State Financed Construction Contracts and related subcontracts exceeding $10,000 which are not exempt from the Equal Opportunity clause).

By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement, as appropriate, the bidder, construction Contractor, subcontractor, or material supplier, as appropriate, certifies that (s)he does not maintain or provide for his/her employees any segregated facilities at any of his/her establishments, and that (s)he does not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. (S)He certifies further that (s)he will not maintain or provide for his/her employees any segregated facilities at any of his/her establishments, and that (s)he will not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. (S)He agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. (S)He agrees that (except where he/she has obtained identical certifications from proposed subcontractors and material suppliers for specific time periods), he/she will obtain identical certifications from proposed subcontractors or material suppliers prior to the award of subcontracts or the consummation of material supply agreements, exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that (s)he will retain such certifications in his/her files.

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SECTION 80 PROSECUTION AND PROGRESS

This Special Provision amends the provisions of the Standard Specifications for Construction of Airports, adopted April 1, 2012 and shall be construed to be a part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

80-09 FAILURE TO COMPLETE ON TIME.

DELETE: “See contract documents for current schedule of deductions.”

ADD:

Schedule of Deductions for Each Day of Overrun in Contract Time			
Original Contract Amount		Daily Charges	
From More Than	To and Including	Calendar Day	Work Day
$ 0	$ 100,000	$ 475	$ 675
100,000	500,000	750	1,050
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,275	1,725
3,000,000	6,000,000	1,425	2,000
6,000,000	12,000,000	2,300	3,450
12,000,000	And over	6,775	9,525

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
SECTION 90 MEASUREMENT AND PAYMENT

This Special Provision amends the provisions of the Standard Specifications for Construction of Airports, adopted April 1, 2012 and shall be construed to be a part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

90-07 PARTIAL PAYMENTS.

DELETE: The entire section.

ADD: Partial payments will be made to the Contractor at least once each month as the work progresses. The payments will be based upon estimates, prepared by the Resident Engineer, of the value of the work performed and materials complete and in place in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the Section 90-08 PAYMENT FOR MATERIALS ON HAND. From the amount of partial payment so determined on Federal-Aid projects, there shall be deducted an amount up to ten percent of the cost of the completed work which shall be retained until all conditions necessary for financial closeout of the project are satisfied. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than $1,000.00 will be approved for payment other than the final payment. A final voucher for under $5.00 shall not be paid except through electronic funds transfer. (15 ILCS 405/9(b-1))

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Department to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in Section 90-09 ACCEPTANCE AND FINAL PAYMENT.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610) progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

In accordance with 49 USC § 47111, the Department will not make payments totaling more than 90 percent of the contract until all conditions necessary for financial closeout of the project are satisfied.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved.

90-10 TRUST AGREEMENT OPTION.

DELETE: The entire section.

STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Construction of Airports," adopted April 1, 2012, and the Special Provisions included herein which apply to and govern the airport improvement of: Replace Runway End Identifier Lights (REILs) on Runway 4/22 at Mount Carmel Municipal, Contract MC029, and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

SPECIAL PROVISION FOR COMPLETION TIME VIA CALENDAR DAYS

It being understood and agreed that the completion within the time limit is an essential part of the contract, the bidder agrees to complete the work within **Base Bid: 20 calendar days; Additive Alternate #1: 0 additional calendar days**, unless additional time is granted by the Engineer in accordance with the provisions of the specifications. In case of failure to complete the work on or before the time named herein, or within such extra time as may have been allowed by extensions, the bidder agrees that the Department of Transportation shall withhold from such sum as may be due him/her under the terms of this contract, the costs, as set forth in Section 80-09 Failure to Complete on Time of the Standard Specifications, which costs shall be considered and treated not as a penalty but as damages due to the State from the bidder by reason of the failure of the bidder to complete the work within the time specified in the contract.

CONSTRUCTION AIR QUALITY – DIESEL VEHICLE EMISSIONS CONTROL (BDE)
Effective: April 1, 2009
Revised: January 2, 2012

Diesel Vehicle Emissions Control. The reduction of construction air emissions shall be accomplished by using cleaner burning diesel fuel. The term "equipment" refers to any and all diesel fuel powered devices rated at 50 hp and above, to be used on the project site in excess of seven calendar days over the course of the construction period on the project site (including any "rental" equipment).

All equipment on the jobsite, with engine ratings of 50 hp and above, shall be required to: use Ultra Low Sulfur Diesel fuel (ULSD) exclusively (15 ppm sulfur content or less).

Diesel powered equipment in non-compliance will not be allowed to be used on the project site, and is also subject to a notice of non-compliance as outlined below.

The Contractor shall certify that only ULSD will be used in all jobsite equipment. The certification shall be presented to the Department prior to the commencement of the work.

If any diesel powered equipment is found to be in non-compliance with any portion of this specification, the Engineer will issue the Contractor a notice of non-compliance and identify an appropriate period of time, as outlined below under environmental deficiency deduction, in which to bring the equipment into compliance or remove it from the project site.

Any costs associated with bringing any diesel powered equipment into compliance with these diesel vehicle emissions controls shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall also not be grounds for a claim.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists, he/she will notify the Contractor in writing, and direct the Contractor to correct the deficiency within a specified time period. The specified time-period, which begins upon Contractor notification, will be from 1/2 hour to 24 hours long, based on the urgency of the situation and the nature of the deficiency. The Engineer shall be the sole judge regarding the time period.

The deficiency will be based on lack of repair, maintenance and diesel vehicle emissions control.

If the Contractor fails to correct the deficiency within the specified time frame, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be $1,000.00 for each deficiency identified.

If a Contractor or subcontractor accumulates three environmental deficiency deductions in a contract period, the Contractor will be shutdown until the deficiency is corrected. Such a shutdown will not be grounds for any extension of contract time, waiver of penalties, or be grounds for any claim.

CONSTRUCTION AIR QUALITY – IDLING RESTRICTION (BDE)
Effective: April 1, 2009

Idling Restrictions. The Contractor shall establish truck-staging areas for all diesel powered vehicles that are waiting to load or unload material at the jobsite. Staging areas shall be located where the diesel emissions from the equipment will have a minimum impact on adjacent sensitive receptors. The

Department will review the selection of staging areas, whether within or outside the existing highway right-of-way, to avoid locations near sensitive areas or populations to the extent possible. Sensitive receptors include, but are not limited to, hospitals, schools, residences, motels, hotels, daycare facilities, elderly housing and convalescent facilities. Diesel powered engines shall also be located as far away as possible from fresh air intakes, air conditioners, and windows. The Engineer will approve staging areas before implementation.

Diesel powered vehicle operators may not cause or allow the motor vehicle, when it is not in motion, to idle for more than a total of 10 minutes within any 60 minute period, except under any of the following circumstances:

1) The motor vehicle has a gross vehicle weight rating of less than 8000 lb (3630 kg).
2) The motor vehicle idles while forced to remain motionless because of on-highway traffic, an official traffic control device or signal, or at the direction of a law enforcement official.
3) The motor vehicle idles when operating defrosters, heaters, air conditioners, or other equipment solely to prevent a safety or health emergency.
4) A police, fire, ambulance, public safety, other emergency or law enforcement motor vehicle, or any motor vehicle used in an emergency capacity, idles while in an emergency or training mode and not for the convenience of the vehicle operator.
5) The primary propulsion engine idles for maintenance, servicing, repairing, or diagnostic purposes if idling is necessary for such activity.
6) A motor vehicle idles as part of a government inspection to verify that all equipment is in good working order, provided idling is required as part of the inspection.
7) When idling of the motor vehicle is required to operate auxiliary equipment to accomplish the intended use of the vehicle (such as loading, unloading, mixing, or processing cargo; controlling cargo temperature; construction operations, lumbering operations; oil or gas well servicing; or farming operations), provided that this exemption does not apply when the vehicle is idling solely for cabin comfort or to operate non-essential equipment such as air conditioning, heating, microwave ovens, or televisions.
8) When the motor vehicle idles due to mechanical difficulties over which the operator has no control.
9) The outdoor temperature is less than 32 °F (0 °C) or greater than 80 °F (26 °C).

When the outdoor temperature is greater than or equal to 32 °F (0 °C) or less than or equal to 80 °F (26 °C), a person who operates a motor vehicle operating on diesel fuel shall not cause or allow the motor vehicle to idle for a period greater than 30 minutes in any 60 minute period while waiting to weigh, load, or unload cargo or freight, unless the vehicle is in a line of vehicles that regularly and periodically moves forward.

The above requirements do not prohibit the operation of an auxiliary power unit or generator set as an alternative to idling the main engine of a motor vehicle operating on diesel fuel.

Environmental Deficiency Deduction. When the Engineer is notified, or determines that an environmental control deficiency exists based on non-compliance with the idling restrictions, he/she will notify the Contractor, and direct the Contractor to correct the deficiency.

If the Contractor fails to correct the deficiency a monetary deduction will be imposed. The monetary deduction will be $1,000.00 for each deficiency identified.

SPECIAL PROVISION FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
Effective: September 1, 2000
Revised: March 2, 2019

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract the Contractor signs with a subcontractor.

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

(a) Withholding progress payments;

(b) Assessing sanctions;

(c) Liquidated damages; and/or

(d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform 0.0% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

(a) The bidder documents enough DBE participation has been obtained to meet the goal or,

(b) The bidder documents a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at: http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index.

BIDDING PROCEDURES. Compliance with this Special Provision is a material bidding requirement and failure of the bidder to comply will render the bid not responsive.

The bidder shall submit a DBE Utilization Plan (form SBE 2026), and a DBE Participation Statement (form SBE 2025) for each DBE company proposed for the performance of work to achieve the contract goal, with the bid. If the Utilization Plan indicates the contract goal will not be met, documentation of good faith efforts shall also be submitted. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract. The required forms and documentation must be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a Utilization Plan if it does not meet the bidding procedures set forth herein and the bid will be declared not responsive. In the event the bid is declared not responsive, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty and may deny authorization to bid the project if re-advertised for bids.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan is approved. All information submitted by the bidder must be complete, accurate and adequately document enough DBE participation has been obtained or document the good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. This means the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts the bidder has made. Mere *pro forma* efforts, in other words efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable. In accordance with the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines the bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided it is otherwise eligible for award. If the Department determines the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification will also include a statement of reasons for the adverse determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period to cure the deficiency.

(c) The bidder may request administrative reconsideration of an adverse determination by emailing the Department at "DOT.DBE.UP@illinois.gov" within the five calendar days after the receipt of the notification of the determination. The determination shall become final if a request is not made on or before the fifth calendar day. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be reviewed by the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:

(1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

(1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.

(3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

(a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be emailed to the Department at DOT.DBE.UP@illinois.gov.

(b) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, a new Request for Approval of Subcontractor will not be required. However, the Contractor must document efforts to assure the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(c) SUBCONTRACT. The Contractor must provide copies of DBE subcontracts to the Department upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.

(d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

(1) The replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or

(2) The DBE is aware its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or

(3) The DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

(1) The listed DBE subcontractor fails or refuses to execute a written contract;

(2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor;

(3) The listed DBE subcontractor fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements;

(4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

(5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.

(6) The Contractor has determined the listed DBE subcontractor is not a responsible contractor;

(7) The listed DBE subcontractor voluntarily withdraws from the projects and provides written notice to the Contractor of its withdrawal;

(8) The listed DBE is ineligible to receive DBE credit for the type of work required;

(9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;

(10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the Contractor can self-perform the work for which the DBE contractor was engaged or so that the Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated or fails to complete its work on the Contract for any reason, the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

(f) FINAL PAYMENT. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

(g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

(h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

SPECIAL PROVISION FOR WEEKLY DBE TRUCKING REPORTS (BDE)
Effective: June 2, 2012
Revised: November 1, 2021

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Resident Engineer on Division of Aeronautics Form "AER 723" within ten business days following the reporting period. The reporting period shall be Sunday through Saturday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

SPECIAL PROVISION FOR SUBCONTRACTOR MOBILIZATION PAYMENTS
Effective: November 2, 2017
Revised: April 1, 2019

To account for the preparatory work and the operations necessary for the movement of subcontractor personnel, equipment, supplies, and incidentals to the project site and for all other work or operations that must be performed or costs incurred when beginning work approved for subcontracting according to Section 80-01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least seven days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form AER 260A submitted for the approval of the subcontractor's work.

Value of Subcontract Reported on Form AER 260A	Mobilization Percentage
Less than $10,000	25%
$10,000 to less than $20,000	20%
$20,000 to less than $40,000	18%
$40,000 to less than $60,000	16%
$60,000 to less than $80,000	14%
$80,000 to less than $100,000	12%
$100,000 to less than $250,000	10%
$250,000 to less than $500,000	9%
$500,000 to $750,000	8%
Over $750,000	7%

The mobilization payment to the subcontractor is an advance payment of the reported amount of the subcontract and is not a payment in addition to the amount of the subcontract; therefore, the amount of the advance payment will be deducted from future progress payments.

This provision shall be incorporated directly or by reference into each subcontract approved by the Department.

SPECIAL PROVISION FOR PAYMENTS TO SUBCONTRACTORS
Effective: November 2, 2017

Federal regulations found at 49 CFR §26.29 mandate the Department to establish a contract clause to require Contractors to pay subcontractors for satisfactory performance of their subcontracts and to set the time for such payments.

State law also addresses the timing of payments to be made to subcontractors and material suppliers. Section 7 of the Prompt Payment Act, 30 ILCS 540/7, requires that when a Contractor receives any payment from the Department, the Contractor shall make corresponding, proportional payments to each subcontractor and material supplier performing work or supplying material within 15 calendar days after receipt of the Department payment. Section 7 of the Act further provides that interest in the amount of two percent per month, in addition to the payment due, shall be paid to any subcontractor or material supplier by the Contractor if the payment required by the Act is withheld or delayed without reasonable cause. The Act also

provides that the time for payment required and the calculation of any interest due applies to transactions between subcontractors and lower-tier subcontractors and material suppliers throughout the contracting chain.

This Special Provision establishes the required federal contract clause, and adopts the 15 calendar day requirement of the State Prompt Payment Act for purposes of compliance with the federal regulation regarding payments to subcontractors. This contract is subject to the following payment obligations.

When progress payments are made to the Contractor according to Article 90-07 of the Standard Specifications, the Contractor shall make a corresponding payment to each subcontractor and material supplier in proportion to the work satisfactorily completed by each subcontractor and for the material supplied to perform any work of the contract. The proportionate amount of partial payment due to each subcontractor and material supplier throughout the contracting chain shall be determined by the quantities measured or otherwise determined as eligible for payment by the Department and included in the progress payment to the Contractor. Subcontractors and material suppliers shall be paid by the Contractor within 15 calendar days after the receipt of payment from the Department. The Contractor shall not hold retainage from the subcontractors. These obligations shall also apply to any payments made by subcontractors and material suppliers to their subcontractors and material suppliers; and to all payments made to lower tier subcontractors and material suppliers throughout the contracting chain. Any payment or portion of a payment subject to this provision may only be withheld from the subcontractor or material supplier to whom it is due for reasonable cause. If reasonable cause is asserted, written notice shall be provided to the applicable subcontractor and/or material supplier and the Engineer within five days of the Contractor receiving payment. The written notice shall identify the contract number, the subcontract or material purchase agreement, a detailed reason for refusal, the value of payment being withheld, and the specific remedial actions required of the subcontractor and/or material supplier so that payment can be made.

This Special Provision does not create any rights in favor of any subcontractor or material supplier against the State or authorize any cause of action against the State on account of any payment, nonpayment, delayed payment, or interest claimed by application of the State Prompt Payment Act. The Department will not approve any delay or postponement of the 15 day requirement except for reasonable cause shown after notice and hearing pursuant to Section 7(b) of the State Prompt Payment Act. State law creates other and additional remedies available to any subcontractor or material supplier, regardless of tier, who has not been paid for work properly performed or material furnished. These remedies are a lien against public funds set forth in Section 23(c) of the Mechanics Lien Act, 770 ILCS 60/23(c), and a recovery on the Contractor's payment bond according to the Public Construction Bond Act, 30 ILCS 550.

SPECIAL PROVISION FOR SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)
Effective: April 2, 2018

Subcontractor and Disadvantaged Business Enterprise Payment Reporting

The Contractor shall report all payments made to the following parties:

(a) first tier subcontractors;

(b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;

(c) material suppliers or trucking firms that are part of the Contractor's submitted DBE utilization plan.

The report shall be made through the Department's on-line subcontractor payment reporting system within 21 days of making the payment.

SPECIAL PROVISION FOR NPDES CERTIFICATION

In accordance with the provisions of the Illinois Environmental Protection Act, the Illinois Pollution Control Board Rules and Regulations (35 Ill. Adm. Code, Subtitle C, Chapter I), and the Clean Water Act, and the regulations thereunder, this certification is required for all construction contracts that will result in the disturbance of one or more acres total land area.

The bidder certifies under penalty of law that he/she understands the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR100000) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

The Airport Owner or its Agent will:

1) prepare, sign and submit the Notice of Intent (NOI)

2) conduct site inspections and complete and file the inspection reports

3) submit Incidence of Non-Compliance (ION) forms

4) submit Notice of Termination (NOT) form

Prior to the issuance of the Notice-to-Proceed, for each erosion control measure identified in the Storm Water Pollution Prevention Plan, the contractor or subcontractor responsible for the control measure(s) must sign the above certification (forms to be provided by the Department).

ILLINOIS WORKS APPRENTICESHIP INITIATIVE – STATE FUNDED CONTRACTS (BDE)
Effective: June 2, 2021
Revised: April 2, 2024

Illinois Works Jobs Program Act (30 ILCS 559/20-1 et seq.). For contracts having an awarded contract value of $500,000 or more, the Contractor shall comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules. The goal of the Illinois Apprenticeship Works Initiative is that apprentices will perform either 10% of the total labor hours actually worked in each prevailing wage classification or 10% of the estimated labor hours in each prevailing wage classification, whichever is less. Of this goal, at least 50% of the labor hours of each

prevailing wage classification performed by apprentices shall be performed by graduates of the Illinois Works Pre-Apprenticeship Program, the Illinois Climate Works Pre-Apprenticeship Program, or the Highway Construction Careers Training Program.

The Contractor may seek from the Department of Commerce and Economic Opportunity (DCEO) a waiver or reduction of this goal in certain circumstances pursuant to 30 ILCS 559/20-20(b). The Contractor shall ensure compliance during the term of the contract and will be required to report on and certify its compliance. An apprentice use plan, apprentice hours, and a compliance certification shall be submitted to the Engineer on forms provided by the Department and/or DCEO.

REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES

The Prevailing rates of wages are included in this Contract proposal. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and this Proposal, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Rates.aspx or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.

SECTION III

Mt. Carmel Municipal Airport
St. Francisville, Illinois

Replace Runway End Identifier Lights (REILs) on Runway 4/22

Illinois Project No.: AJG-5013

Prepared By:

4/19/2024
Expires: 11/30/25

HANSON
Engineering | Planning | Allied Services

Hanson Professional Services Inc.
1525 S. Sixth St.
Springfield, IL 62703

Kevin N. Lightfoot
4/15/2024
EXPIRES: 11/30/2025
COVERING ELECTRICAL DESIGN

Issued for Bid: April 19, 2024
IDOT Letting: June 14, 2024

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Refer to IDOT Division of Aeronautics Policy Memorandums (as applicable):

96-1, “Item 610, Structural Portland Cement Concrete: Job Mix Formula Approval & Production Testing.

FOREWORD

These Special Provisions, together with applicable Standard Specifications, Rules and Regulations, Contract Requirements for Airport Improvement Projects, Payroll Requirements and Minimum Wage Rates, which are hereto attached or which by reference are herein incorporated, cover the requirements of the State of Illinois, Department of Transportation (IDOT), Division of Aeronautics (IDA) for the following improvement project at the **Mt. Carmel Municipal Airport, St. Francisville, Illinois**, including the following:

SCOPE OF WORK

This project will include removal and replacement of the existing Runway End Identifier Lights (REILs) on Runway 4-22 with the associated cabling, duct work and vault work.

GOVERNING SPECIFICATIONS AND RULES AND REGULATIONS

The State of Illinois Department of Transportation, Division of Aeronautics, Standard Specifications for Construction of Airports, **adopted April 1, 2012**, shall govern the project, except as otherwise revised or noted in these Special Provisions. All references to IDOT Specifications refer to Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, adopted January 1, 2022, as revised. In the event of inconsistencies between the Standard Specifications and the Special Provisions, the Special Provisions shall govern. The Contractor shall maintain a minimum of one printed copy of the relevant sections of the Standard Specifications for Construction of Airports on the project site at all times. The Standard Specifications for Construction of Airports is available on line at the following address link:

https://idot.illinois.gov/doing-business/procurements/engineering-architectural-professional-services/consultant-resources/standard-specifications.html

REFERENCES

The following Federal Aviation Administration Advisory Circulars are referenced on the Plans and/or Special Provision Specifications in regard to safety on airports. These Advisory Circulars are available on the FAA web site at http://www.faa.gov/regulations_policies/advisory_circulars

A. FAA AC No. 70/7460-1L (or most current issue) “Obstruction Marking and Lighting.”

B. FAA AC No. 150/5210-5D (or most current issue) “Painting, Marking, and Lighting of Vehicles Used on an Airport.”

C. FAA AC No. 150/5300-13B “AIRPORT DESIGN.”

D. FAA AC No. 150/5370-2G (or most current issue) “Operational Safety on Airports During Construction.”

DIVISION I – GENERAL PROVISIONS

SECTION 50. CONTROL OF WORK

50–06 CONSTRUCTION LAYOUT STAKES

Revise the first paragraph to read:

> "The Contractor shall be responsible for all construction layout and any extension of the control network provided in the plans necessary to properly complete the work."

Under the heading RESPONSIBILITY OF THE RESIDENT ENGINEER, delete paragraphs A, B, and C.

50–16 FINAL INSPECTION

Revise the first sentence of the first paragraph to read:

> "Upon due notice to the Resident Engineer/Technician by the Contractor of presumptive completion of the entire project, the charging of Contract Time shall be suspended and the Engineer will make an inspection."

Add after the first sentence of the second paragraph:

> "The charging of Contract Time shall resume upon receipt of the punchlist from the Engineer and continue until the remaining work, including work as required in Section 40–08 Final Clean Up, is completed to the satisfaction of the Engineer."

END OF SECTION 50

SECTION 70. LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-10 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS. Add the following paragraphs to this section:

"The Mt. Carmel Municipal Airport has two paved runways, This project will require the temporary closure of Runway 4/22. The project will also require the temporary closure of taxiways. Refer to the Construction Safety Plan Sheets for additional information regarding the temporary closures during construction.

A runway will be closed any time the Contractor is working within the existing runway obstacle free zone (125 feet from the runway centerline) as depicted on the Proposed Safety Plan. Runway closures shall be completed in accordance with the details shown in the Construction Plans. Prior to opening the Runway a Representative of the Airport, the Contractor, and the Resident Engineer/Technician will inspect the runway to be sure the pavement is clean, all holes and trenches have been backfilled, and all equipment and materials are at least 250 feet from the Runway centerline. Any deficiencies noticed will be corrected before the Contractor will be allowed to re-open the runway.

The Contractor shall coordinate with the Airport and the Resident Engineer/Technician to turn off the runway and taxiway lighting circuits as well as the Navaids. When the runway is re-opened these circuits must be re-activated. All existing lighting and Navaids associated with the respective runway that is closed, will be inactive during runway closures.

Except where shown otherwise on the plans, work within 58 feet of an active taxi-lane centerline shall require closure of that taxi-lane using barricades in accordance with the Construction Safety and Phasing Plan.

Except where shown otherwise on the plans, work within 66 feet of an active taxiway centerline shall require closure of that taxiway using barricades in accordance with the Construction Safety and Phasing Plan.

All work included in opening and closing the runways, taxiways, and taxi-lanes will be considered incidental to the Project and no additional compensation will be allowed.

The Airport Manager shall be notified a minimum of **72 hours** in advance of any work that would require the closure of the runway, and a minimum of **48 hours** notice before the closure of any taxiway. It will be the responsibility of the Contractor to properly mark the closed runway, and when the runway is re-opened, to remove the marking. The appropriate marking for a closed runway is a cross at both ends of the runway. When a taxiway is to be closed for more than 72 hours, if that taxiway exits from an open runway, a taxiway closure cross shall be placed on the taxiway as shown on the plans.

The legs of the runway cross will be 60 ft in length and 10 ft in width, while the legs of the taxiway cross will be 30 ft in length and 5 ft in width. The crosses will be constructed of any suitable, locally available materials, such as fabric, plywood, or other similar material. They will be held in place in a manner locally determined to be suitable. The Contractor will be responsible for placing and removing the crosses as the runways are closed and opened. The Contractor will provide the Engineer with a proposed schedule of when and length of time for all closures. The Project Engineer must review and approve this schedule before any construction

begins. The placement, maintenance and removal of the crosses will be considered as an incidental item to the contract and no additional compensation will be allowed.

Extreme care will be taken not to impose on the operations of any open runway or taxiway. The proposed Safety and Phasing Plan Sheets, as outlined on the Construction Plans and in the Special Provisions, will maximize safety and attempt to minimize disruption to Airport daily operations.

When the Contractor's vehicles are on Airport property, they shall be properly marked. The markings shall consist of a 3-ft sq. flag consisting of a checkered pattern of international orange and white squares of not less than 1 ft on each side displayed in full view above the vehicle. Contractor vehicles engaged in continuous hauling operations will not be required to display a flag.

The Contractor will be responsible for placing barricades and/or traffic cones at the locations shown on the Construction Plans, or as directed by the Airport Manager. It will be the Contractor's responsibility to furnish and maintain the barricades equipped with red flashing or red, steady-burn lights and 20-in. sq. orange flags throughout the duration of this project.

The barricades and their maintenance will be considered as an incidental item to the contract, and no additional compensation will be allowed. Any cost of labor and equipment, which is necessary to insure safety at the Airport during the duration of the project, will be considered incidental to the contract, and no additional reimbursement for these items of work will be received.

All runway closures will be coordinated with the Airport Manager. The runway will be closed in accordance with the procedures set forth on the Proposed Safety and Phasing Plan Sheets. Prior to re-opening the runway the Contractor will insure the following:

1. All holes/trenches have been backfilled.
2. All equipment has been moved outside the Runway Safety Area.
3. All trucks have their beds lowered and all cranes have their booms lowered.
4. There is no material stockpiled within the Runway Object Free Area.
5. All active pavements have been swept of foreign material.
6. All lighting circuits associated with the pavement being re-opened are active and functioning correctly.
7. Representatives of the Contractor, Airport Manager and Resident Engineer/Technician shall inspect the pavement prior to re-opening. Anything noted will be corrected prior to re-opening."

Add the following:

70-27 AIRPORT SECURITY NOTES. Airport security will be maintained at all times. The Contractor will monitor the site access to the proposed job site to insure no one will enter the access gate that is not authorized to be on the construction site or on the air side of the airport.

70-28 MAINTAINING OPERATION OF AIRFIELD LIGHTING AND NAVAIDS. Shut down of airfield lighting and/or Navaids shall only be permitted during day light hours and must be coordinated with and approved by the Airport Manager. All airfield lighting and Navaid circuits shall be operational at night fall. The Contractor shall not leave the runway lighting, taxiway lighting, or any other airfield lighting circuit inoperable overnight. The Contractor shall provide

temporary cable connections (in unit duct) and any manual operations of airfield lighting to keep them in operation overnight. The Contractor shall secure, identify, and place temporary exposed wiring in conduit, duct, or unit duct to prevent electrocution and fire ignition sources in conformance with the requirements of FAA AC 150/5370-2 (current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".

70-29 SITE INSPECTION. The Contractor shall be responsible for an on-site inspection prior to submitting a bid on this project. Upon receipt of a bid, it shall be assumed that the Contractor is fully familiar with the construction site.

70-30 SAFETY PLAN COMPLIANCE DOCUMENT. Prior to the issuance of a construction Notice-to-Proceed (NTP), the Contractor shall be responsible for preparing and submitting a Safety Plan Compliance Document in accordance with FAA Advisory Circular 150/5370-2G, paragraph 2.4.2, or equivalent section in subsequent/current issue. The Airport Director shall approve this document and submit to the Division of Aeronautics for approval prior to the NTP issuance.

END OF SECTION 70

SECTION 80. PROSECUTION AND PROGRESS

80-02 PROGRESS SCHEDULE. Add the following to this section:

"In the event that other construction projects are in progress at the Airport at the same time as this project, the Contractor will be required to cooperate with all other Contractors and the Airport Manager in the coordination of the work."

80-13 CONTRACTOR'S ACCESS TO AIRFIELD. Add the following to this section:

The Contractor's personnel and equipment shall not traverse outside the designated work areas to other locations on the Airport. The designated haul route will be the only vehicular access to the construction site. It will be the responsibility of the Contractor to maintain the proposed haul route and equipment parking area for the duration of the project.

The Contractor shall access the proposed work site using the haul route as detailed on the Plans. The Contractor will be expected to maintain this access throughout this project. At the end of the project the Contractor will return the haul route and equipment parking area to its original condition, unless otherwise noted on the Plans. An equipment parking area will be located in close proximity to the haul route.

The Contractor will be responsible for obtaining any permits necessary to use the State/County/Township/City roads. All work required in complying with the above requirement will be considered incidental to the Contract, and no additional compensation will be allowed.

Failure to use the prescribed haul routes and equipment parking area or adhere to the safety requirements will result in the suspension of work.

The Contractor is required to be in 2-way radio contact with the Airport UNICOM Channel (122.70 MHz) any time his construction activities are on the Airport property. This will keep the Contractor in constant contact with the Mt. Carmel Municipal Airport personnel and provide immediate communication in the event of an aeronautical emergency.

Add the following:

80-14 EMPLOYEE PARKING. The Contractor's employees shall park their personal vehicles in the designated Equipment Parking Area as shown on the Proposed Safety and Phasing Plan Sheets. The Contractor will transport the workers from the parking area to the work area. Only Contractor vehicles needed for construction will be allowed outside of the proposed equipment parking area. No employee vehicle will be allowed onto the proposed construction site.

80-15 EQUIPMENT PARKING AND MATERIAL STORAGE. The Contractor will be allowed to park equipment and store material in the Proposed Equipment Parking Area shown on the Safety and Phasing Plan Sheets. The Contractor will maintain this area throughout the duration of the project and restore it to its original condition upon completion of the project. This work will be considered incidental to the Contract and no additional compensation will be allowed.

END OF SECTION 80

DIVISION II PAVING CONSTRUCTION DETAILS

ITEM 150520 MOBILIZATION

BASIS OF PAYMENT

150-3.1 Revise this section to read as follows:

"Mobilization shall be limited to 10% of the original contract amount. Should the bid for mobilization exceed 10%, the amount over 10% will not be paid until final acceptance of the project by the Engineer.

Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. With first pay request, 25%.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 40%.

d. The remaining 10% of the pay item will be paid along with any amount bid in excess of 10% of the original contract amount upon final acceptance of the project by the Engineer.

Nothing herein shall be construed to limit or preclude partial payment for other items as provided for by the contract.

Payment will be made under:

Item AR150520 Mobilization - per L. SUM.

END OF ITEM 150520

DIVISION VI – LIGHTING INSTALLATION

ITEM 108 INSTALLATION OF UNDERGROUND CABLE FOR AIRPORTS

DESCRIPTION

108-1.1. Add the following to this section:

"This Item of work shall consist of the installation (plowing, trenching, directional-boring, or installing in ducts or raceways) of cable for airfield lighting circuits and/or Navaid circuits on the runways, taxiways, aprons, and the associated homeruns at the locations shown on the Plans and in accordance with these Specifications. This Item shall include cable in unit duct where noted on the Plans and specified herein.

In areas where there is a congestion of buried cable or where the proposed cable crosses an existing cable, the Contractor will be required to trench the proposed cable into place. In all other areas, the Contractor has the option to either trench or plow the proposed cable in unit duct into place.

When crossing existing circuits, the Contractor will be required to hand dig the trenches for the proposed cable.

Furnishing and installing lockout/tagout kits and following lockout/tagout procedures for safety of personnel."

Add the following:

108-1.2 REFERENCES. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

A. ASTM Specification B3 – Standard Specification for Soft or Annealed Copper Wire.

B. ASTM Specification B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.

C. FAA Advisory Circular 150/5340-30 (current issue in effect) DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS

D. FAA Advisory Circular 150/5345-7 (current issue in effect) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS.

E. FAA Advisory Circular 150/5345-26 (current issue in effect) "FAA SPECIFCATIONS FOR L-823 PLUG AND RECEPTACLE CABLE CONNECTORS".

F. FAA AC No. 150/5345-53 "AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM" (current issue in effect) and AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum (current issue in effect).

G. FAA AC No. 150/5370-2 (current issue in effect) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.

H. Federal Specification A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation).

I. NFPA 70 – National Electrical Code (most current issue in force).

J. NFPA 70E – Standard for Electrical Safety in the Workplace.

K. NFPA 2638645-1 National Fire Protection Association.

L. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

M. UL Standard 44 – Thermoset-Insulated Wires and Cables.

N. UL Standard 83 – Thermoplastic-Insulated Wires and Cables.

O. UL Standard 854 – Service Entrance Cables.

108-1.3 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for each wire, conductor, and/or cable type to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** Contractor shall submit sufficient copies of shop drawings to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus 4 copies to be retained by the Project Engineer. Shop drawings shall include the following information:

A. In order to expedite the shop drawing review, inspection and/or testing of materials, the Contractor shall furnish complete statements to the Project Engineer as to the origin, composition, and manufacturer of all material to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

B. Indicate the pay item number for each respective cable and/or cable in unit duct.

C. Shop drawings shall include wire/conductor/cable cut sheets with type, size, specifications, Intertek Testing Services verification/ETL listing or UL listing, manufacturer, and catalog or part number.

D. Shop drawings for cable in unit duct items shall include cut sheets with type, size, specifications, Intertek Testing Services verification/ETL listing or UL listing, manufacturer, and catalog or part number for the respective unit duct.

E. Where cable is required to have colored coded insulation, provide information on the color coding for the respective conductors.

EQUIPMENT AND MATERIALS

108-2.1 GENERAL. Add the following:

> "All cable shall be FAA approved or UL-listed as suitable for installed application. Cable furnished on this project shall comply with the requirements of the "Airport Improvement Program Buy American Preference requirements. All conductors shall be Copper."

108-2.2 CABLE. Revise this section to read as follows:

""L-824 Cable – L-824 cable shall be FAA L-824, Type C and shall conform to the requirements of FAA Advisory Circular 150/5345-7 (current edition in effect) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS". L-824 cable shall be FAA approved and listed in the current AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum. Circuits for use with constant current regulator outputs (runway or taxiway lighting circuits) shall use 5000-Volt rated cable. Circuits for use with low voltage applications (600 Volts or below) shall use either 5000-Volt rated cable or 600-Volt rated cable and shall have colored insulation corresponding to the respective voltage system. Cable shall be manufactured in the United States of America to comply with the Airport Improvement Program Buy American Requirement or be on the Federal Aviation Administration list of Nationwide Buy American Waivers.

Cable for use with airfield lighting series circuits (including runway lighting, taxiway lighting, taxi guidance signs, and series circuit powered REILS) shall be one conductor No. 8, 5,000-Volt, FAA L-824, Type C, stranded.

XLP-USE Wire. Cable shall comply with UL Standard 44, UL Standard 854, and Federal Specification A-A-59544. Conductor shall be concentric-strand, soft Copper, conforming to ASTM B8 and Underwriters' Laboratories Standard UL44 for Rubber Insulated Wires. Insulation shall be rated for 600-Volt. Insulation shall be cross-linked polyethylene conforming to Underwriters Laboratories Requirements for Type USE-2 insulation. Cable shall be UL-listed and marked USE-2. Cable shall be manufactured in the United States of America to comply with the Airport Improvement Program Buy American Requirement.

Color-coding: Color-code phase and neutral conductor insulation for No. 6 AWG or smaller. Provide colored marking tape or colored insulation for phase and neutral conductors for No. 4 AWG and larger. Insulated ground conductors shall have green colored insulation for all conductor sizes (AWG and/or KCMIL) to comply with NEC 250.119. Neutral conductors shall have white colored insulation for No. 6 AWG and smaller to meet the requirements of NEC 200.6. Standard colors for power wiring and branch circuits for 120/240 VAC, 1-Phase, 3-Wire system shall be Phase A – Black, Phase B – Red, Neutral – White, and Ground – Green."

108-2.4 CABLE CONNECTIONS. Add the following to this section:

"All below grade splices shall be installed in splice cans, handholes, or manholes. Splice cans shall be L-867, Class IA, Size B (12 in. diameter), 24 in. deep, with ½ in. thick, galvanized steel cover and stainless steel bolts. Larger size splice cans shall be provided, as applicable, for specific equipment applications or manufacturer's recommendations, and/or where detailed on the Plans. Splice cans located in areas subject to heavy aircraft or vehicle loading shall be L-868 type. The Engineer shall approve all splice locations before work commences. The furnishing and installing of splice cans for new homerun cables shall be incidental to the respective cable pay item, and no additional compensation will be allowed."

108-2.5 RESERVED. Revise 108-2.5 as follows to comply with the requirements of FAA Advisory Circular Number 150/5370-10G Standards for Specifying Construction of Airports, Item L-108 Underground Power Cable for Airports:

"108-2.5 SPLICER QUALIFICATIONS. Every airfield lighting cable splicer shall be qualified in making cable splices and terminations on cables rated at and/or above 5000 Volts AC. The Contractor shall submit to the Project Engineer proof of the qualifications of each proposed cable splicer for the cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable."

108-2.13 UNIT DUCT. Add the following:

"Standard sizes of smooth wall polyethylene duct shall conform to the dimensional requirements specified below:

Nominal Duct Size	Nominal Inside Diameter	Nominal Standard Wall	Nominal Outside Diameter*
¾"	0.910"	0.070"	1.050"
1"	1.145"	0.085"	1.315"
1-1/4"	1.440"	0.110"	1.660"
1-1/2"	1.650"	0.125"	1.900"
2"	2.065"	0.155"	2.375"
2-1/2"	2.449"	0.213"	2.875"
3"	3.048"	0.226"	3.500"
4"	4.000"	0.250"	4.500"

* Dimensions include allowance for duct eccentricity."

CONSTRUCTION METHODS

108-3.1 GENERAL. Add the following to this section:

"Keep all work, power outages, and/or shut down of existing systems coordinated with the Airport Manager and the Resident Engineer/Resident Technician. Any shutdown of existing systems shall be scheduled with and approved by the Airport Manager prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout). Where the facility is not equipped with lockout/tagout equipment the respective personnel will be responsible for providing the appropriate lockout/tagout equipment. Failure to shut down and lockout the circuit presents a dangerous hazard for personnel working on the respective system.

Examine the site to determine the extent of the work. Contractor shall field verify existing site conditions.

Verify respective circuits and power sources prior to removing, disconnecting, relocating, installing, connecting, or working on the respective airfield lighting, taxi sign, NAVAID, or other device. Identify each respective circuit prior to performing work on that circuit.

If the Contractor wishes to lay cable on a line other than that shown on the Plans, he shall obtain approval of the Project Engineer of record before doing so and coordinate with the Resident Engineer/Technician. Any additional cable needed because of such change will be at the Contractor's expense.

New airfield lighting series circuit cables shall be installed a minimum of 18 inches below grade to comply with NEC 300.5 Underground Installations. Deeper depths might be required to avoid obstructions or where detailed herein.

Locate and identify all existing underground utilities located within the area where the proposed cables are being installed, and will take all precautions to protect these utilities from damage. Care shall be taken so as not to damage any existing circuits. Any existing circuits damaged shall be immediately repaired to the satisfaction of the Engineer and/or the respective utility or owner where applicable. Any underground utility damaged will be repaired or replaced at the Contractor’s own expense. Any repairs of existing cables will be considered incidental to the contract, and no additional compensation will be allowed.

In areas where there is a congestion of buried cables or where the proposed cable crosses an existing cable, the Contractor will be required to hand dig and/or carefully excavate the trench necessary for the proposed cable. At other locations the proposed cable may be trenched or plowed into place. Hand digging, trenching, and/or plowing will be considered incidental to the proposed cables and no additional compensation will be allowed.

Grounding work and modifications shall not be performed during a thunderstorm or when a thunderstorm is predicted in the area. Grounding for airfield lights and taxi signs shall be as detailed on the Plans and as specified herein.

Homerun cables for a respective circuit that are installed in conduit or duct shall be run together in the same raceway or duct.

The respective personnel performing airfield lighting work, vault work, and/or test shall be familiar with, and qualified to work on 5000 volt airfield lighting series circuits, constant current regulators and associated airport electrical vault equipment.

FAA requires that every airfield lighting cable splicer shall be qualified in making cable splices and terminations on cables rated at and/or above 5000 Volts AC and shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

Only cable in unit duct may be plowed or directional-bored.

Obey and comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

The Contractor shall comply with the requirements of FAA AC No. 150/5370-2 (current issue in effect) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION”.

In the event a conflict is determined with respect to manufacturer installation instructions, National Electrical Code, and/or the Contract Documents, contact the Project Engineer for further direction.

Secure, identify and place any above ground temporary wiring in conduit to prevent electrocution and fire ignition sources in conformance with the requirements of FAA AC 150/5370-2G, Part 2.18.3 “Lighting and Visual NAVAIDs”. All temporary installations shall comply with National Electrical Code Article 590 – “Temporary Installations.”

Existing ducts and cables associated with removal work shall be abandoned in place unless it conflicts with the installation of the airfield light, sign, duct, cable, handhole, manhole, site work, pavement or other work, then it shall be disconnected, removed, and disposed of off the site at no additional cost to the Contract. Contractor may remove abandoned cables at no additional cost to the Contract and shall have the salvage rights to abandoned cables.

Other construction projects might be in progress on the Airport at the same time as this project. The Contractor will be required to cooperate with all other contractors and the Airport Manager in the coordination of the work.

Relocation of existing cables and/or cable in unit duct will require careful excavation of the cables to prevent damage to them. The cables and/or cable in unit duct shall be excavated and exposed and then relocated to a different depth and/or route to accommodate the respective site work.

The cable quantities as shown on the Construction plans are based on straight-line measurement. All other cable lengths, such as slack or waste, will not be measured for payment.

All cables installed by the Contractor shall be properly labeled and tagged at all points of access (handholes, manholes, terminal panels, control panels, and the respective wireway in the vault).

All changes to the airfield lighting system shall be documented by the Contractor and provided to the Resident Engineer/Technician.”

108-3.2 INSTALLATION IN DUCT OR CONDUIT. Add the following to this section:

“The unit duct will be run continuous through all ducts and conduits.

Where cable in unit duct enters a handhole or manhole with a continuous duct bank system to the termination point (such as from a handhole to the vault or between handholes and/or manholes) the unit duct will not be required for the respective cable.”

108-3.3 TRENCHING. Add the following to this section:

“F. Cable installed in cultivated fields shall be installed a minimum of 42 in. below grade.

G. Any and all trenches will be backfilled to a smooth grade to the satisfaction of the Engineer. All trench settlement shall be corrected for a period of one year. Restoration, grading, and seeding of areas disturbed during the installation of the proposed cable will be incidental to the respective 108 Pay Item."

108-3.5 SPLICING. Add the following:

"In-line connections for existing cables cut during construction shall be repaired with a cast splice kit. The Contractor shall have a minimum of two splice kits on the job site at all times for emergency repairs. Cast splice kits shall be specified in paragraph (a) of Item 108-2.4. **Splice cans shall be provided for existing cables cut and repaired for each splice in cables not to be abandoned. Where a splice can is not readily available at the time of the cable damage, splice markers shall be temporarily installed over each splice in cables not to be abandoned, then these splices shall later be replaced with new splices in an L-867 splice can**. **Costs associated with splice cans for accidental cable cuts caused by the Contractor, repairs and/or shortages of cables will be the responsibility of the Contractor and no additional compensation will be allowed.**

There shall be no splices between series lighting circuit isolation transformers. In the event that a series lighting circuit cable is cut between isolation transformers, the entire length of cable between these isolation transformers shall be replaced, at the Contractor's own expense.

The Contractor shall use a cable stripper/penciller whenever cable connections are made.

All splices and connections will be considered incidental to the respective cable."

108-3.8 TESTING. Add the following.

"K. Follow safety procedures for all tests. Prior to operating each CCR (Constant Current Regulator), confirm each CCR frame is grounded to the Vault grounding electrode system/ground bus with a minimum #6 AWG copper conductor and UL listed grounding connector with secure and tight connections. Correct where missing, for safety of personnel. Furnish and install #8 green insulated equipment ground wire with output series circuit conductors from each CCR frame to the respective cutout/disconnect enclosure frame. Cutout enclosures are required to be grounded and bonded per NEC Article 250.4 "*General Requirements for Grounding and Bonding*".

L. Prior to beginning excavations, airfield lighting modifications, cable installation, and/or any other work that might possibly affect airfield lighting circuits, all existing series circuit lighting cables in the areas of work shall be Megger tested with an insulation resistance tester and recorded at the respective airport electrical vault. The respective series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. The Contractor is responsible to employ the services of personnel qualified, familiar with, and trained to perform the respective tests, and qualified to work on 5000 Volt airfield

lighting series circuits, constant current regulators, and associated airport electrical vault equipment. Please understand that airfield lighting series circuits are dangerous and only qualified personnel should be permitted to work on them and safety procedures need to be followed. National Electrical Code defines a Qualified Person as ***"One who has the skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved."*** Safety of personnel is the top priority. Follow safety procedures for all work. Only qualified and experienced personnel are permitted to work on airfield lighting series circuits. Contractor shall provide a True RMS Ammeter for current measurements. Copies of test results shall be provided to the Resident Engineer and the respective Project Engineer of Record within five business days of conducting the respective set of tests. See the testing forms included in the Appendix. **These tests are required to protect the Owner and the Contractor and to identify existing conditions and any defective cables, circuits, and/or constant current regulators. Failure to comply with this requirement might result in the Contractor being responsible for defective cable and circuit conditions (where previously not identified) and the associated corrective work at no additional cost to the Contract. The Contractor is responsible to perform the tests, record the test results and submit the test results to the Engineer of Record.**

M. Personnel shall coordinate work and any power outages with the Owner's Designated Representative(s). Any shutdown of existing systems should be scheduled with and approved by the Owner's Designated Representative(s) prior to shut down. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout). Where the facility is not equipped with lockout/tagout equipment the respective personnel will be responsible for providing the appropriate lockout/tagout equipment. Failure to shut down and lockout the circuit presents a dangerous hazard for personnel working on this system.

N. Personnel are recommended to comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

O. Provide personnel protective equipment for all personnel working on or testing electrical systems suitable for the respective application. Provide protective equipment for personnel to keep them safe in the event of an arc flash or other electrical accident. Refer to NFPA 70E "Standard for Electrical Safety in the Workplace", Article 250 "Personal Safety and Protective Equipment" and "Informative Annex H Guidance on Selection of Protective Clothing and Other Personal Protective Equipment (PPE)" for additional information on personal protective equipment.

P. Insulation resistance testing equipment for use with 5,000 Volt series circuit cables shall use an insulation resistance tester capable of testing the cables at 5,000 Volts. Older series circuit cables and/or cables in poor condition may

require the test voltage to be performed at a voltage lower than 5,000 Volts (Example 1,000 Volts, 500 Volts, or less than 500 Volts). The respective test voltage shall be recorded for each cable insulation resistance test result.

Q. Insulation resistance testing equipment for use with 600 Volt rated cables shall use a 500 Volt insulation resistance tester. The respective test voltage shall be recorded for each cable insulation resistance test result.

R. It is recommended to use the same insulation resistance test equipment throughout the project to ensure reliable comparative readings at the beginning of the project and at the completion of the project.

S. Disconnect the airfield lighting series circuit cables from the constant current regulator when performing cable insulation resistance tests (Megger Tests). Test the cables that go to the airfield for the respective airfield lighting series circuit. Connect the cable insulation resistance tester to one of the airfield lighting series circuit cables and to a good ground in the airport electrical vault such as the airport vault ground bus. Conduct the cable insulation resistance test on each respective cable for not less than 90 seconds. Record the test results at the end of the time duration for the test.

T. FAA Advisory Circular 150/5340-26C Maintenance of Airport Visual Aid Facilities provides guidance on Insulation Resistance Tests. Also refer to the user manual for the respective cable insulation resistance tester. Reasonably new series circuit cables and transformers with good connections should read 500 Mega-Ohms to 1,000 Mega-Ohms or higher. The readings should decrease with age. The resistance value declines over the service life of the circuit; a 10-20 percent decline per year may be considered normal. A yearly decline of 50 percent (4 percent monthly) or greater indicates the existence of a problem, such as a high resistance ground, serious deterioration of the circuit insulation, lightning damage, bad connections, bad splices, cable insulation damage, or other failure. FAA Advisory Circular 150/5340-26C notes *"Generally speaking, any circuit that measures less than 1 megohm is certainly destined for rapid failure."* Airfield lighting series circuits with cable insulation readings of less than 1 megohm are not uncommon for older circuits that are 20 years or more of age.

U. Based on information in FAA AC No. 150/5340-26C Maintenance of Airport Visual Aid Facilities, the cable insulation resistance value inevitably declines of the service life of the circuit; a 10-20 percent decline per year may be considered normal. In the event that the cable insulation resistance readings have declined more than 2 percent per month it might indicate cable damage due to lightning or damage as a result of Contractor operations. Where the cable insulation resistance readings have declined more than 2 percent per month over the project construction duration as a result of Contractor operations, Contractor will need to investigate, address, and repair the respective cable circuits.

V. All existing series circuit cable loops shall also have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. The resistance of the series circuit loop with connections using #8 AWG copper conductor should be approximately 0.8 to 1 Ohm per thousand feet of cable length. The resistance of the series circuit loop with connections using #6 AWG copper conductor

should be approximately 0.5 to 0.7 Ohm per thousand feet of cable length. The number of series circuit transformers and connections will affect the overall resistance of the series circuit loop and therefore the measurements might be slightly higher than the calculated resistance for the respective length of cable.

W. After airfield lighting modifications, additions, and/or upgrades have been completed, series circuit cables shall be Megger tested and recorded at the vault. All series circuit cable loops shall have the resistance tested and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. Copies of test results shall be provided to the Resident Engineer/Resident Technician and the respective Project Engineer within 5 business days of conducting the respective set of tests. See the testing forms in Appendix A. **The Contractor is responsible to perform the tests, record the test results and submit the test results to the Engineer of Record.**

X. The Contractor is responsible to employ qualified personnel that are capable of properly conducting the required tests to the satisfaction of the Project Engineer. Tests that provide unsatisfactory results shall be reviewed to determine the possible cause of unsatisfactory results, corrections shall be made, and the tests shall be conducted again.

Y. See Appendix A – "Constant Current Regulator and Cable Testing Forms" for additional information on testing requirements for airfield lighting systems. All testing will be considered incidental to the respective work items for which they ae required and no additional compensation will be allowed."

Add the following:

108-3.12 LOCATING OF EXISTING UNDERGROUND UTILITIES AND CABLES. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. Neither the Owner nor the Engineer assumes any responsibility whatsoever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size, and type of material of existing underground utilities indicated are representative of those to be encountered in the construction. It shall be the Contractor's responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans, and shall obtain, from the respective utility companies, detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment, where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Owner's Representative and/or the Resident Engineer/Technician shall also be immediately notified. Any damage to such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract.

All utility cables and lines shall be located by the respective utility. **Contact JULIE (Joint Utility Location Information for Excavators) for utility information, phone: 1-800-892-0123.** Contact the FAA (Federal Aviation Administration) for assistance in locating FAA cables and utilities. Location of FAA power, control, and communication cables shall be coordinated with and/or located by the FAA. Also contact Airport Director/Manager and Airport Personnel for

assistance in locating underground Airport cables and/or utilities. Also coordinate work with all aboveground utilities.

Payment for locating and marking underground utilities and cables will not be paid for separately, but shall be considered incidental to the plowing/trenching/boring of cable and cable in unit duct.

108-3.13 SEPARATION OF HIGH-VOLTAGE AND LOW-VOLTAGE WIRING. High-voltage circuit wiring (airfield lighting 5000 Volt series circuits and/or other circuits rated above 600 Volts) and low-voltage circuit wiring (rated 600 Volts and below) shall maintain separation from each other. High-voltage wiring and low-voltage wiring shall not be installed in the same wireway, conduit, duct, raceway, handhole, or junction box. Where necessary provide split flexible duct around low voltage cables located in a handhole with high voltage cables, to isolate the cables from possible contact with each other.

108-3.14 IDENTIFICATION OF CABLES. At electrical handholes and manholes, identify and label each cable originating in the vault with respect to the system or device served. Provide identification tags rated suitable for the respective locations with permanent markings.

METHOD OF MEASUREMENT

108-4.1. Add the following:

> "The footage of cable and/or cable in unit duct installed in duct, conduit, or raceway to be paid for shall be the number of linear feet of cable installed in duct, conduit, or raceway measured in place by direct measurement, completed, ready for operation and accepted as satisfactory with no allowance being made for overrun due to slack, turns, splices, etc. Slack cable required to perform cable splices outside of the respective splice cans, handholes, or manholes, shall be incidental to the respective cable pay item and no additional measurement for payment will be made. Coring and interface to handholes, manholes, or junction structures shall be incidental to the respective cable pay item and no additional measurement for payment will be made. The relocation, interface, and/or adjustment of existing cable and/or cable in unit duct will be considered incidental to the work for which it is required, and no additional compensation will be allowed. Cable will be measured for payment from the respective termination or splice point in the field up to the vault or respective termination point.
>
> Trenching including the excavation, backfill, dewatering and restoration shall not be measured for payment, but shall be considered incidental to the respective cable pay item for which it is required.
>
> This shall include all cable and conductor removals.
>
> All lockout/tagout procedures to ensure and maintain safety of personnel will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed.
>
> Testing the airfield lighting systems and the associated constant current regulator tests and cable tests will be considered incidental to the respective item of work for which it is required and no additional compensation will be allowed."

BASIS OF PAYMENT

108-5.1. Add the following:

"Payment for power cable, control cable, communication cable, and/or other cables and conductors installed in conduit, duct, raceway, installed as direct bury, and/or other installations associated with the REILS will not be measured for payment and shall be incidental to the respective item for which it is installed, and no additional compensation will be made.

END OF ITEM 108

ITEM 109 INSTALLATION OF AIRPORT TRANSFORMER VAULT AND VAULT EQUIPMENT

DESCRIPTION

Add the following:

109-1.2. Item AR800564 “Cable and CCR (Constant Current Regulator) Testing and Calibration” shall consist of testing the airfield lighting systems and the associated cable tests, constant current regulator tests and calibration. This item shall include lockout/tagout procedures and lockout/tagout kits. This item shall also include furnishing and installing UL listed fire stop material at each series plug cutout enclosure conduit entry and exit and fire extinguishers in the Vault. This item shall also include all labeling of equipment and miscellaneous work in the Vault.

109-1.3 REFERENCES. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

A. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.

B. ANSI C80.4 – Fittings Rigid Metal Conduit and EMT.

C. ANSI Z535.4-2002 - American National Standard for Product Safety Signs and Labels.

D. ASTM Specification B3 – Standard Specification for Soft or Annealed Copper Wire.

E. ASTM Specification B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.

F. Federal Specification A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation).

G. Federal Specification A-A-55809 Insulation Tape, Electrical, Pressure Sensitive Adhesive, Plastic.

H. FAA AC No. 150/5340-26C (current issue in effect) “MAINTENANCE OF AIRPORT VISUAL AID FACILITIES”.

I. FAA AC No. 150/5340-30 (current issue in effect) “DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS”.

J. FAA AC No. 150/5345-7 (current issue in effect) "SPECIFICATIONS FOR L-824 UNDERGROUND ELECTRICAL CABLE FOR AIRPORT LIGHTING CIRCUITS.

K. FAA AC No. 150/5345-10 (current issue in effect) “Specification for Constant Current Regulators and Regulator Monitors”.

L. FAA AC No. 150/5345-53 “AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM” (current issue in effect) and AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum (current issue in effect).

M. FAA AC No. 150/5370-2 (current issue in effect) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.

N. FAA-STD-019f, October 18, 2017, Department of Transportation, Federal Aviation Administration Standard, LIGHTNING AND SURGE PROTECTION, GROUNDING, BONDING AND SHIELDING REQUIREMENTS FOR FACILITIES AND ELECTRONIC EQUIPMENT.

O. NFPA 70 – National Electrical Code (most current issue in force).

P. NFPA 70E – Standard for Electrical Safety in the Workplace.

Q. NFPA 2638645-1 = National Fire Protection Association.

R. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

S. UL Standard 6 – Rigid Metal Conduit.

T. UL Standard 44 – Thermoset-Insulated Wires and Cables.

U. UL Standard 83 – Thermoplastic-Insulated Wires and Cables.

V. UL Standard 467 – Grounding and Bonding Equipment.

W. UL Standard 486A-486B Wire Connectors.

X. UL Standard 514B – Conduit, Tubing and Cable Fittings.

Y. UL Standard 854 - Service Entrance Cables.

EQUIPMENT AND MATERIALS

109-2.19 OTHER ELECTRICAL EQUIPMENT**. Add the following:**

”Proposed electrical equipment and materials for the vault shall be as follows:

A. Lockout/Tagout Kit. Provide a Lockout Station suitable for wall mounting, with 5 lockout padlocks each with a different key, 5 lockout hasps to accommodate multiple padlocks, and 50 lockout tags. Lockout station and components shall comply with OSHA Standard 1910.147. Include hardware to mount on the vault interior wall.

B. Fire Barrier Moldable Material. Provide UL listed fire barrier moldable putty suitable for use with electrical box protection at electrical conduit penetrations. The fire stop material shall be designed to prevent the spread of fire, smoke and noxious gases. The fire stop material shall be pliable, conformable, and shapeable to accommodate the respective coverage and application. Fire stop material shall be manufactured by 3M, Hilti, or approved equal.

C. Fire Extinguishers. Furnish and install a UL rated, 10-pound Carbon Dioxide fire extinguisher suitable for use on Class C Fires and a 10-pound Class 4A:80B:C dry chemical ABC fire extinguisher suitable for use on Class A, B, C Fires, in the vault. Per NFPA 10 “Portable Fire Extinguishers” Class C are for fires that involve energized

electrical equipment. Fire extinguishers shall be made in the United States of America to comply with the Buy American Preference Requirements. Fire extinguisher type CO2 shall be Amerex Model 330, Buckeye Model 10CD, or approved equal. Fire extinguisher dry chemical type ABC shall be Amerex Model B456, Buckeye Model 10-TALL-ABC, or approved equal. Provide wall mounting brackets for each fire extinguisher. Confirm model numbers with the respective fire extinguisher manufacturer.

CONSTRUCTION METHODS

INSTALLATION OF EQUIPMENT IN VAULT OR PREFABRICATED METAL HOUSING

Add the following:

109-3.19 TESTING AIRFIELD LIGHTING SYSTEMS. Cable and constant current regulator testing and calibration shall include the following:

A. Follow safety procedures for all tests. Prior to operating each CCR (Constant Current Regulator), confirm each CCR frame is grounded to the Vault grounding electrode system/ground bus with a minimum #6 AWG copper conductor and UL listed grounding connector with secure and tight connections. Correct where missing, for safety of personnel. Furnish and install #8 green insulated equipment ground wire with output series circuit conductors from each CCR frame to the respective cutout/disconnect enclosure frame. Cutout enclosures are required to be grounded and bonded per NEC Article 250.4 "*General Requirements for Grounding and Bonding*".

B. Prior to beginning excavations, airfield lighting modifications, cable installation, and/or any other work that might possibly affect airfield lighting circuits, all existing series circuit lighting cables in the areas of work shall be Megger tested with an insulation resistance tester and recorded at the respective airport electrical vault. The respective series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. The Contractor is responsible to employ the services of personnel qualified, familiar with, and trained to perform the respective tests, and qualified to work on 5000 Volt airfield lighting series circuits, constant current regulators, and associated airport electrical vault equipment. Please understand that airfield lighting series circuits are dangerous and only qualified personnel should be permitted to work on them and safety procedures need to be followed. National Electrical Code defines a Qualified Person as ***"One who has the skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved."*** Safety of personnel is the top priority. Follow safety procedures for all work. Only qualified and experienced personnel are permitted to work on airfield lighting series circuits. Contractor shall provide a True RMS Ammeter for current measurements. Copies of test results shall be provided to the Resident Engineer and the respective Project Engineer of Record within five business days of conducting the respective set of tests. See the testing forms included in the Appendix. **These tests are required to protect the Owner and the Contractor and to identify existing conditions and any defective cables, circuits, and/or constant**

current regulators. Failure to comply with this requirement might result in the Contractor being responsible for defective cable and circuit conditions (where previously not identified) and the associated corrective work at no additional cost to the Contract. The Contractor is responsible to perform the tests, record the test results and submit the test results to the Engineer of Record.

C. Personnel shall coordinate work and any power outages with the Owner's Designated Representative(s). Any shutdown of existing systems should be scheduled with and approved by the Owner's Designated Representative(s) prior to shut down. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout). Where the facility is not equipped with lockout/tagout equipment the respective personnel will be responsible for providing the appropriate lockout/tagout equipment. Failure to shut down and lockout the circuit presents a dangerous hazard for personnel working on this system.

D. Personnel are recommended to comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

E. Provide personnel protective equipment for all personnel working on or testing electrical systems suitable for the respective application. Provide protective equipment for personnel to keep them safe in the event of an arc flash or other electrical accident. Refer to NFPA 70E "Standard for Electrical Safety in the Workplace", Article 250 "Personal Safety and Protective Equipment" and "Informative Annex H Guidance on Selection of Protective Clothing and Other Personal Protective Equipment (PPE)" for additional information on personal protective equipment.

F. Insulation resistance testing equipment for use with 5,000 Volt series circuit cables shall use an insulation resistance tester capable of testing the cables at 5,000 Volts. Older series circuit cables and/or cables in poor condition may require the test voltage to be performed at a voltage lower than 5,000 Volts (Example 1,000 Volts, 500 Volts, or less than 500 Volts). The respective test voltage shall be recorded for each cable insulation resistance test result.

G. Insulation resistance testing equipment for use with 600 Volt rated cables shall use a 500 Volt insulation resistance tester. The respective test voltage shall be recorded for each cable insulation resistance test result.

H. It is recommended to use the same insulation resistance test equipment throughout the project to ensure reliable comparative readings at the beginning of the project and at the completion of the project.

I. Disconnect the airfield lighting series circuit cables from the constant current regulator when performing cable insulation resistance tests (Megger Tests). Test the cables that go to the airfield for the respective airfield lighting series circuit. Connect the cable

insulation resistance tester to one of the airfield lighting series circuit cables and to a good ground in the airport electrical vault such as the airport vault ground bus. Conduct the cable insulation resistance test on each respective cable for not less than 90 seconds. Record the test results at the end of the time duration for the test.

J. FAA Advisory Circular 150/5340-26C Maintenance of Airport Visual Aid Facilities provides guidance on Insulation Resistance Tests. Also refer to the user manual for the respective cable insulation resistance tester. Reasonably new series circuit cables and transformers with good connections should read 500 Mega-Ohms to 1,000 Mega-Ohms or higher. The readings should decrease with age. The resistance value declines over the service life of the circuit; a 10-20 percent decline per year may be considered normal. A yearly decline of 50 percent (4 percent monthly) or greater indicates the existence of a problem, such as a high resistance ground, serious deterioration of the circuit insulation, lightning damage, bad connections, bad splices, cable insulation damage, or other failure. FAA Advisory Circular 150/5340-26C notes "*Generally speaking, any circuit that measures less than 1 megohm is certainly destined for rapid failure."* Airfield lighting series circuits with cable insulation readings of less than 1 megohm are not uncommon for older circuits that are 20 years or more of age.

K. Based on information in FAA AC No. 150/5340-26C MAINTENANCE OF AIRPORT VISUAL AID FACILITIES, the cable insulation resistance value inevitably declines over the service life of the circuit; a 10-20 percent decline per year may be considered normal. In the event that the cable insulation resistance readings have declined more than 2 percent per month it might indicate cable damage due to lightning or damage as a result of Contractor operations. Where the cable insulation resistance readings have declined more than 2 percent per month over the project construction duration as a result of Contractor operations, Contractor will need to investigate, address, and repair the respective cable circuits.

L. All existing series circuit cable loops shall also have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. The resistance of the series circuit loop with connections using #8 AWG copper conductor should be approximately 0.8 to 1 Ohm per thousand feet of cable length. The resistance of the series circuit loop with connections using #6 AWG copper conductor should be approximately 0.5 to 0.7 Ohm per thousand feet of cable length. The number of series circuit transformers and connections will affect the overall resistance of the series circuit loop and therefore the measurements might be slightly higher than the calculated resistance for the respective length of cable.

M. When test results for constant current regulators indicate readings that are outside the acceptable tolerances calibrate and adjust the regulator to be within acceptable output current levels. Adjustments and calibrations shall be in accordance with the respective regulator manufacturer recommendations and instructions. Provide a true RMS Ammeter for measuring input and output currents on constant current regulators.

N. After airfield lighting modifications, additions, and/or upgrades have been completed, series circuit cables shall be Megger tested with an insulation resistance tester and recorded at the respective vault. All series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the respective vault. Each

constant current regulator shall be tested with results recorded. Contractor shall provide a True RMS Ammeter for current measurements. Copies of test results shall be provided to the Resident Engineer and the respective Project Engineer. See the testing forms included in Appendix A. The Contractor is responsible to perform the tests, record the test results and submit the test results to the Engineer of Record.

O. The respective personnel performing tests shall be familiar with the respective test equipment and the use and operation of the test equipment. The Contractor is responsible to employ the services of personnel qualified to perform the respective tests and qualified to work on 5000 Volt airfield lighting series circuits, constant current regulators, and associated airport electrical vault equipment. The Contractor is required to employ qualified personnel that are familiar with and capable of properly conducting the required tests and calibrations for the respective cables and equipment.

P. See Appendix A – "Constant Current Regulator and Cable Testing Forms" for additional information on testing requirements for airfield lighting systems. All testing will be considered incidental to the respective work items and no additional compensation will be allowed.

109-3.20 LOCKOUT/TAGOUT PROCEDURES. Lockout/Tagout Procedures shall include the following:

a. The Contractor shall provide a copy of their electrical energy source Lockout/Tagout Procedures document to the Airport Director/Manager, Resident Engineer and the Engineer. The Lockout/Tagout Procedures document shall include the contact information with 24-hour phone numbers for the Contractor and the Electrical Contractor Superintendent and/or the respective licensed Journeyman Electricians on the project site.

b. Contractor shall coordinate work and any power outages with the Airport Director/Manager and the Resident Engineer. Any shutdown of existing systems shall be scheduled with and approved by the Airport Director/Manager prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout). Where the facility is not equipped with lockout/tagout equipment the respective personnel will be responsible for providing the appropriate lockout/tagout equipment. Failure to shut down and lockout the circuit presents a dangerous hazard for personnel working on the respective system.

c. Where existing electrical equipment does not have features for lockout/tagout the Contractor will be responsible to provide the appropriate lockout/tagout equipment and measures to ensure the safety of personnel.

d. Contractor shall provide a Lockout Stations suitable for wall mounting, each with 5 lockout padlocks each with a different key, 5 lockout hasps to accommodate multiple padlocks, and 25 lockout tags. Lockout station and components shall comply with OSHA Standard 1910.147. Include hardware to mount on each vault interior wall.

e. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

f. Compliance with Lockout/Tagout Procedures and all other safety procedures and requirements are the responsibility of the Contractor.

METHOD OF MEASUREMENT

Add the following

109-4.4 Testing the airfield lighting systems and the associated cable tests, constant current regulator tests and calibration will be paid for on a per lump sum basis and shall include all testing prior to beginning excavations, airfield lighting modifications, cable installation, and/or any other work that might possibly affect airfield lighting circuits and all testing after airfield lighting modifications, additions, and/or upgrades have been completed. Testing of the airfield lighting systems and the associated cable tests and constant current regulator tests and calibration shall include all labor, transportation, equipment, tools, and measuring devices; all coordination with the Airport Manager, Airport Staff, FAA personnel, Contractor staff, and the Resident Engineer; all recording of the test results and submission of the test results to the Resident Engineer and the Project Engineer; all calibration and adjusting of constant current regulators where test results indicate regulator output currents that are not within accepted tolerances; all retesting where test results indicate unsatisfactory conditions or incorrect testing procedures; and all other incidentals necessary to complete this item. This item shall include lockout/tagout procedures and lockout/tagout kits. Based on the contract lump sum price for Cable and Constant Current Regulator Testing, partial payments will be allowed as follows:

A. Upon furnishing and installing lockout/tagout kits and fire extinguishers and upon completion of all testing prior to beginning excavations, airfield lighting modifications, cable installation, and/or any other work that might possibly affect airfield lighting circuits, submission of testing results to the Resident Engineer and the Project Engineer, and acceptance of the testing results by the Project Engineer, 50 percent of the lump sum payment will be allowed.

B. Upon completion of all testing after airfield lighting modifications, additions, and/or upgrades have been completed, submission of testing results to the Resident Engineer and the Project Engineer, and acceptance of the testing results by the Project Engineer, the remaining 50 percent of the lump sum payment will be allowed.

All lockout/tagout procedures and lockout/tagout kits to ensure and maintain safety of personnel will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed.

Removals, relocations, rewiring, and/or adjustments to existing equipment in the vault will be considered incidental to this item, and no additional compensation will be allowed.

Furnishing and installing labeling for equipment will be considered incidental to this item, and no additional compensation will be allowed.

Furnishing and installing UL listed fire stop material at each series plug cutout enclosure conduit entry and exit will be considered incidental to this item, and no additional compensation will be allowed.

Furnishing and installing fire extinguishers in the Vault will be considered incidental to this item, and no additional compensation will be allowed.

BASIS OF PAYMENT

Add the following:

"109-5.2 Payment for Cable and Constant Current Regulator Testing and Calibration will be made at the contract unit price per lump sum and shall include all labor, transportation, equipment, tools, and measuring devices; all coordination with the Airport Manager, Airport Staff, FAA personnel, Contractor staff, and the Resident Engineer; calibration and adjusting constant current regulators; all recording of the test results and submission of the test results to the Resident Engineer and the Project Engineer; all retesting where test results indicate unsatisfactory conditions or incorrect testing procedures; and all other incidentals necessary to complete this item.

Payment will be made under:

Item AR800564 Cable and CCR Testing and Calibration - per L. SUM"

END OF ITEM 109

ITEM 110 AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

DESCRIPTION

110-1.1 Add the following:

> "This item of work shall consist of the installation of all proposed conduits and ducts as shown on the Construction Plans."

110-1.2 REFERENCES. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

A. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.

B. ANSI C80.4 – Fittings Rigid Metal Conduit and EMT.

C. ASTM A706 – Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement

D. ASTM D3350 – Specification of Polyethylene Plastics Pipe and Fittings Materials.

E. ASTM F2160 – Standard Specification for Solid Wall, High-Density Polyethylene Conduit Based on Controlled Outside Diameter.

F. FAA AC 150/5340-30, "DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS".

G. FAA AC 150/5345-53, "AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM".

H. FAA STD-019f, Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment.

I. NEMA TC-2 – Electrical Plastic Tubing and Conduit.

J. NEMA TC-3 – Fittings Rigid PVC Conduit and Tubing.

K. NEMA TC-7 – Smooth-Wall Coilable Polyethylene Electrical Plastic Conduit.

L. NFPA 70 – National Electrical Code (NEC), most current issue in force.

M. NFPA 2638645-1, National Fire Protection Association.

N. OSHA 29 CFR Part 1910, Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.

O. UL Standard 6 – Electrical Rigid Metal Conduit – Steel.

P. UL Standard 514B – Conduit, Tubing and Cable Fittings.

Q. UL Standard 514C – Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers.

R. UL Standard 1242 – Electrical Intermediate Metal Conduit Steel.

S. UL Standard 651 – Schedule 40 and 80 Rigid PVC Conduit.

T. UL Standard 651A – Type EB and A Rigid PVC Conduit and HDPE Conduit.

U. UL Standard 651B – Standard for Continuous Length High-Density Polyethylene (HDPE) Conduit.

110-1.3 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for each type of conduit or duct to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** Shop drawings shall include the following information:

A. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.

B. Indicate the pay item number for each respective conduit or duct.

C. Shop drawings shall include conduit and/or duct cut sheets with type, size, specifications, UL listing, manufacturer, and catalog or part number.

D. Provide manufacturer's literature confirming the respective duct to be bored is suitable for directional boring with the respective Shop Drawing submittal.

E. Provide certification that the respective steel conduits used on this project are manufactured from 100 percent domestic steel.

EQUIPMENT AND MATERIALS

110-2.1 GENERAL. Add the following:

"All materials for these items shall be in accordance with the FAA Standard Specification 110 Equipment and Materials, as detailed on the Plans, and as specified herein.

A. The duct to be directional-bored shall be Schedule 40 PVC Conduit, Schedule 80 PVC Conduit or High-Density Polyethylene (HDPE) duct, (Schedule 40, Schedule 80, SDR 9, or SDR 11), and suitable for directional boring installation."

110-2.2 STEEL CONDUIT. Replace this section with the following:

"Rigid Steel Conduit and fittings shall be hot-dipped, galvanized, UL-listed, and produced in accordance with UL Standard 6 – Rigid Metal Conduit and ANSI C80.1 – Rigid Steel Conduit, Zinc Coated. Couplings, connectors, and fittings for rigid steel conduit shall be

threaded, galvanized steel or galvanized, malleable iron, specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4 – Fittings Rigid Metal Conduit and EMT and UL 514B – Conduit, Tubing, and Cable Fittings. Set screw type fittings are not acceptable. Steel used to manufacture conduits shall be 100 percent domestic steel to comply with the Airport Improvement Program Buy American Preference Requirements and the Steel Products Procurement Act. Contractor shall provide certification that the respective steel conduits used on this project are manufactured from 100 percent domestic steel.

Miscellaneous Fittings. Fittings shall be suitable for use with conduits and ducts supplied. All fittings for use with rigid metal conduit shall be threaded. Set screw-type fittings are not acceptable. All conduit bodies, fittings, and boxes installed in classified hazardous locations (Class I, Division 1 or 2, Group D) shall be suitable for use in Class I, Division 1, and Group D locations. Fittings shall be as manufactured by Appleton, Crouse-Hinds, Hubbell-Killark, O-Z/Gedney, or approved equal.

Provide NEMA 4, 4X hubs for all conduit entries into NEMA 4, 4X equipment enclosures to maintain the NEMA 4, 4X rating of the respective enclosure. Hubs for use with NEMA 4X stainless steel enclosures shall be NEMA 4X stainless steel hubs."

110-2.3 PLASTIC CONDUIT. Add the following to the end of this section:

"Conduits shall be suitable for underground applications encased in concrete or direct burial, and suitable for exposed applications aboveground.

C. Conduits for concrete encasement shall be Schedule 40 PVC, UL-listed, rated for 90°C cable, conforming to NEMA Standard TC-2 and UL 651, listed suitable for concrete encasement or Schedule 40 (minimum) HDPE conduit, UL-listed or ETL listed, conforming to NEMA Standard TC-7 and UL 651B and listed suitable for concrete encasement. Conduits shall be suitable for underground applications encased in concrete or direct burial, and suitable for exposed applications aboveground.

D. Conduits for directional boring shall be Schedule 40 PVC or Schedule 80 PVC conduit, UL-listed or ETL listed, rated for 90°C cable-conforming to NEMA Standard TC-2 and UL 651 and suitable for directional boring installation, Schedule 40 HDPE or Schedule 80 HDPE conduit, UL-listed, conforming to NEMA Standard TC-7 and UL 651B and suitable for directional boring installation, or Wall Type SDR 11 (minimum) HDPE conduit manufactured in accordance with ASTM D-3350 (Specification of Polyethylene Plastics Pipe and Fittings Materials) and ASTM F2160 (Standard Specification for Solid Wall, High-Density Polyethylene Conduit Based on Controlled Outside Diameter), and suitable for directional boring installation. **Per NEC 300.5 (K), raceways installed using directional boring equipment shall be approved for the purpose. Provide manufacturer's literature confirming the respective duct is suitable for directional boring with the respective Shop Drawing submittal.**

E. Conduits for direct burial in earth shall be PVC Schedule 40 (minimum wall thickness), UL-listed, rated for 90°C cable-conforming to NEMA Standard TC-2 and UL 651, listed suitable for direct burial in earth, or HDPE Schedule 40 (minimum wall thickness), conforming to NEMA Standard TC-7 and UL 651B, or HDPE SDR 13.5 (minimum wall thickness) manufactured in accordance with ASTM D-3350 (Specification of Polyethylene Plastics Pipe and Fittings Materials) and ASTM F2160 (Standard

Specification for Solid Wall, High-Density Polyethylene Conduit Based on Controlled Outside Diameter). Conduits shall be suitable for direct burial in earth and/or concrete encasement."

CONSTRUCTION METHODS

110-3.1 GENERAL. Add to this section:

"The proposed conduits and ducts shall be constructed at the locations and in accordance with the details shown on the Construction Plans. Ducts shall be installed 18 in. minimum below grade. Ducts located in area subject to farming shall be 42 in minimum below grade. Where detailed on the Plans or where required to avoid obstructions, ducts shall be buried deeper. Where concrete-encased duct interfaces to directional-bored duct at a pavement crossing, the concrete encasement shall be installed up to the respective pavement edge. Where concrete-encased duct interfaces to an electrical handhole or manhole, the concrete encasement shall be installed up to the respective handhole or manhole. Provide bushings or bells at conduit terminations in electrical handholes or manholes.

Underground ducts installed by directional-boring method shall be installed in a manner that will not damage any existing underground utilities, and shall not disturb or damage the respective pavement or roadway surface. Ducts shall be directional bored at the locations shown on the Construction Plans. The ducts will be bored at a minimum depth of 24 in. below the bottom of the pavement it is being bored under. Ducts installed under paved areas and roadways shall extend a minimum of 10 feet beyond the respective pavement or roadway surface, unless detailed otherwise on the Plans. A pull wire will be left in the conduit if it is to be left vacant. The ends of the conduit will be sealed with approved plugs.

The Contractor will determine if there is a conflict between the installation of the proposed electrical ducts and any existing/proposed utilities. He will make all necessary adjustments in depth of installation to avoid any and all existing/proposed underground improvements.

Provide conduit bushings or bells at duct terminations in handholes and manholes."

110-3.7 RESTORATION. Add to this section:

"Any and all trenches and disturbed areas will be backfilled and restored to a smooth grade and seeded to the satisfaction of the Resident Engineer/Resident Technician. All trench settlement shall be corrected for a period of one year. Restoration, grading, and seeding of areas disturbed during the installation of the proposed ducts will be incidental to the respective pay item for which the duct is installed and shall be in accordance with Item 901 Seeding and Item 908 Mulching.

Any and all disturbed pavement areas will be restored to original or better condition. Restoration of pavement areas disturbed during the installation of the proposed ducts will be incidental to the respective pay item for which the duct is installed. The restoration of concrete pavement will be completed in accordance with Item 610 for

sidewalks and concrete pavement but will be incidental to the respective pay item for which the duct is installed."

Add the following:

110-3.8 LOCATING OF EXISTING UNDERGROUND UTILITIES AND CABLES. The location, size, and type of material of existing underground and/or aboveground utilities indicated on the Plans are not represented as being accurate, sufficient, or complete. Neither the Owner nor the Engineer assumes any responsibility whatsoever in respect to the accuracy, completeness, or sufficiency of the information. There is no guarantee, either expressed or implied, that the locations, size, and type of material of existing underground utilities indicated are representative of those to be encountered in the construction. It shall be the Contractor's responsibility to determine the actual location of all such facilities, including service connections to underground utilities. Prior to construction, the Contractor shall notify the utility companies of his operational plans, and shall obtain from the respective utility companies detailed information and assistance relative to the location of their facilities and the working schedule of the companies for removal or adjustment, where required. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company of jurisdiction. The Owner's Representative and/or the Resident Engineer shall also be immediately notified. Any damage to such mains and services shall be restored to service at once and paid for by the Contractor at no additional cost to the Contract.

All utility cables and lines shall be located by the respective utility. **Contact JULIE (Joint Utility Location Information for Excavators) for utility information, phone: 1-800-892-0123.** Contact the FAA (Federal Aviation Administration) for assistance in locating FAA cables and utilities. Location of FAA power, control, and communication cables shall be coordinated with and/or located by the FAA. Also contact Airport Director/Manager and Airport Personnel for assistance in locating underground Airport cables and/or utilities. Also coordinate work with all aboveground utilities.

Contractor shall locate and mark all existing cables within ten (10) feet of proposed excavating/trenching area. Any cables found interfering with proposed excavation or cable/trenching shall be hand dug and exposed. Any damaged cables shall be immediately repaired to the satisfaction of the Resident Engineer at the Contractor's expense. The Resident Engineer and Owner shall be notified immediately if any cables are damaged.

Due to the quantities of existing utilities and lines in the proposed areas of work, the Contractor will need to carefully excavate to expose and protect these utilities and lines prior to installing manholes, handholes, and/or junction structures and the associated trenches for the proposed conduits, ducts, and raceway system.

Payment for locating and marking underground utilities and cables will not be paid for separately but shall be considered incidental to the respective duct installation.

110-3.9 SEPARATION OF HIGH-VOLTAGE AND LOW-VOLTAGE WIRING. High-voltage circuit wiring (airfield lighting 5000 Volt series circuits and/or other circuits rated above 600 Volts) and low-voltage circuit wiring (rated 600 Volts and below) shall maintain separation from each other. High-voltage wiring and low-voltage wiring shall not be installed in the same wireway, conduit, duct, raceway, handhole, or junction box.

METHOD OF MEASUREMENT

110-4.1 Add the following:

"The quantity of conduit and/or duct for the REILS (Runway End Identifier Lights will not be measured for payment. This shall be incidental to the respective REIL installation and shall include furnishing all materials and for all preparation, assembly, and installation of these materials; for all sawing and pavement removal; and for all excavation and backfilling with aggregate backfill, earth backfill and concrete; for all duct interface work to handholes, manholes, junction structures, pull boxes, and/or junction boxes including coring of handholes, manholes junction structures, pull boxes, and/or junction boxes; and for all labor, equipment, tools, and incidentals necessary to complete the installation. All restoration work associated with installation of ducts and conduits will be considered incidental to the respective item for which they are installed, and no additional measurement will be made. All duct and conduit interface to manholes, handholes, junction structures, or pull boxes including coring of manholes, handholes, junction structures, or pull boxes will be considered incidental to the respective item for which they are installed, and no additional measurement will be made. Conduits, conduit nipples, conduit couplings, and other conduit fittings included with splice cans, junction structures, Navaid installations, base mounted airfield light fixtures, airfield signs, and/or taxi signs, will be considered incidental to the respective item for which they are installed, and no additional measurement will be made.

All lockout/tagout procedures to ensure and maintain safety of personnel will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed."

110-4.2 Delete this section.

BASIS OF PAYMENT

110-5.1. Add the following:

"Payment for the furnishing and installation of conduit and/or duct for the REILS will not be measured for payment and shall be incidental to the respective REIL installation and no additional compensation will be made. For each respective electric gate installation, all costs for furnishing all materials and for all preparation, assembly, and installation of these materials; for all sawing and pavement removal; for all duct interface work to handholes/manholes including coring of handholes/manholes; for all boring and equipment; for all excavation and backfilling with aggregate backfill, earth backfill, and concrete; and for all labor, equipment, tools, and incidentals necessary to complete this item is considered incidental to the item of work for which the duct is being installed."

END OF ITEM 110

ITEM AR125610 REILS

DESCRIPTION

125610-1.1 This item of work shall consist of furnishing and installing Runway End Identification Lights (REILS) at the locations shown on the Construction Plans. Each installation will be in accordance with the details on the Plans and these Special Provisions. Also included in this item will be the testing of the installation and all incidentals necessary to complete and place the lighting system into proper operation to the satisfaction of the Engineer.

125610-1.2 REFERENCES. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

A. ANSI C80.1 – Rigid Steel Conduit, Zinc Coated.

B. ANSI C80.4 – Fittings Rigid Metal Conduit and EMT.

C. ANSI/IEEE STD 81, IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

D. FAA AC No. 150/5340-30 (current issue in effect) “DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS

E. FAA AC No. 150/5345-42 (current issues in effect) “Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories”.

F. FAA AC No. 150/5345-47 (current issue in effect) “SPECIFICATION FOR SERIES TO SERIES ISOLATION TRANSFORMERS FOR AIRPORT LIGHTING SYSTEMS”.

G. FAA AC No. 150/5345-51 (current issue in effect) “SPECIFICATION FOR DISCHARGE TYPE FLASHING LIGHT EQUIPMENT”.

H. FAA AC No. 150/5345-53 “AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM” (current issue in effect) and AC 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum (current issue in effect).

I. FAA AC No. 150/5370-2 (current issue in effect) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.

J. FAA Engineering Brief No. 67D Light Sources Other Than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures.

K. NFPA 70 – National Electrical Code (most current issue in force).

L. NFPA 70E – Standard for Electrical Safety in the Workplace

M. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures

N. UL Standard 6 – Rigid Metal Conduit.

O. UL Standard 467 – Grounding and Bonding Equipment.

P. UL Standard 486A-486B Wire Connectors.

Q. UL Standard 514B – Conduit, Tubing and Cable Fittings.

125610-1.3 SHOP DRAWINGS. The Contractor shall furnish shop drawings for approval before ordering equipment and/or materials. Shop drawings are required for REIL units and materials to be used on the project. **Shop drawings shall be clear and legible. Copies that are illegible will be rejected.** The preferred shop drawing submittal format shall be electronic (PDF) copies. Contractor may submit hard copies of shop drawings instead of electronic copies where applicable. Where hard copies are provided, the Contractor shall submit sufficient copies of shop drawings to meet the needs of his personnel, sub-contractor personnel, and equipment suppliers plus 4 copies to be retained by the Project Engineer. Shop drawings shall include the following information:

A. **Certification of compliance with the AIP (Airport Improvement Program) Buy American Preferences for all materials and equipment. Do not submit ARRA (American Recovery and Reinvestment Act) certification as a substitute for certification of compliance with the AIP Buy American Preferences. Shop drawings submitted without certification of compliance with the Airport Improvement Program Buy American Preferences or without certification of manufacture in the United States of America in accordance with the AIP Buy American Requirements will be rejected. See the FAA website at: http://www.faa.gov/airports/aip/buy_american/ for more information on the AIP Buy American Preferences requirements. FAA approved equipment that is on the FAA Buy American Conformance List or the list of Nationwide Buy American Waivers Issued by the FAA complies with the AIP Buy American Preferences and will not require additional waiver paperwork for AIP projects.**

B. In order to expedite the shop drawing review, inspection and/or testing of materials and equipment, the Contractor shall furnish complete statements to the Project Engineer as to the origin and manufacturer of all materials and equipment to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials and equipment.

C. Cut sheets with part number and specifications for REIL system.

D. Concrete mix design.

E. Provide cut sheets for L-867 light bases.

F. Provide cut sheets for series isolation transformers.

G. Provide cut sheets with manufacturer's name, catalog number, dimensions, material and UL listing for each type and size ground rod. Include certification of 100% domestic steel for ground rods. Include cut sheets for exothermic weld connections, ground lugs, and ground wire.

H. Provide cut sheets for all types of conduit used with the REIL installation (for example galvanized rigid steel conduit). Include certification that steel conduits are made with 100 percent domestic steel.

EQUIPMENT AND MATERIALS

125610-2.1 REILS.

The proposed REILS shall be Type L-849I(L) (powered by a constant current 6.6 Amp power supply with Light Emitting Diode type strobes), Style A (unidirectional, high intensity, one brightness step), base mounted, consisting of two lighting units (a primary unit with controller and a secondary unit), with transient suppression, and all accessories as per FAA AC 150/5345-51B (or latest edition in force), FAA approved, and in compliance with the Airport Improvement Program Buy American Preference Requirements. Include breakable couplings for mounting REILS to the respective base. REILS shall conform to the applicable requirements of FAA Engineering Brief No. 67D Light Sources Other Than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures.

Confirm part number with the respective REIL manufacturer. Include the following spare parts:

A. One (1) L-849(L) LED REIL Control “Current” Circuit Board Assembly.
B. Two (2) LED Flasher Power Supply Assemblies.
C. One (1) Power Supply Assembly.
D. Four (4) Lightning Arrestors-275VAC.
E. Two (2) frangible couplings (compatible with the respective REILS).

125610-2.2 POWER AND CONTROL CABLE.

A. The REILS for Runway 4-22 will be powered by the Runway 4-22 lighting series circuit. Series circuit power cables to the REILS shall be one conductor No. 8, 5,000-Volt, FAA L-824, Type C, stranded, in unit duct in conformance with Item 108. Series circuit power cables to the REILS shall be paid for under Item AR108158, 1/C #8 5 KV UG Cable in UD.

B. Control cables between the REIL units shall be as recommended by the respective REIL manufacturer’s instructions, per FAA AC 150/5345-51 (current issue in effect), and as detailed on the Plans.

125610-2.3 CONDUIT AND DUCTS. Conduit and ducts for the REIL systems shall conform to Item 110, per manufacturer’s recommendations, as detailed on the Plans, and as specified herein. Conduits for airfield lighting series circuit power cables from the respective runway lighting system to each REIL unit shall be a separate 2-inch Schedule 40 minimum PVC or HDPE Conduit or 2-inch Galvanized Rigid Steel Conduit. Conduits for control cables from the REIL Primary Control Unit to the REIL Secondary unit shall be a separate 2-inch Galvanized Rigid Steel Conduit. Galvanized Rigid Steel Conduit is required for lightning protection of the REILS. Galvanized Rigid Steel Conduit shall be heavy wall, hot-dipped, galvanized steel pipe bearing the UL label and conforming to UL-6 and ANSI Specification C80.1. Couplings, connectors, and fittings for rigid steel conduit shall be threaded galvanized steel or galvanized malleable iron specifically designed and manufactured for the purpose. Fittings shall conform to ANSI C80.4 and UL-514B. Galvanized rigid steel conduit shall be produced from 100 percent domestic steel.

125610-2.4 REIL BASE/SPLICE/TRANSFORMER CANS. REIL Base/Splice/Transformer cans shall conform to the requirements of FAA AC 150/5345-42 (current issue(s) in effect) for Type L-867, Class IA, Size D (16-inch nominal diameter), 24-inch deep, and/or as detailed on the Plans. Base cans shall include internal and external ground lugs. Base cans shall have 3/8" minimum thick galvanized steel covers, or aviation yellow powder coat painted steel covers with stainless steel bolts. Covers for splice cans containing high voltage airfield lighting cables shall include minimum 1/2-inch-high lettering labeled "**DANGER HIGH VOLTAGE KEEP OUT**" to comply with National Electrical Code Article 300.45 "Warning Signs" and National Electrical Code Article 314.71(E) "Suitable Covers". This will need to be coordinated with the splice can manufacturer. Lids for splice cans containing low voltage cables (rated 600 Volts and below) will be acceptable to use blank covers.

125610-2.5 SERIES CIRCUIT TRANSFORMERS. Series circuit isolation transformers for the Type L-849I(L) REIL units shall be manufactured to FAA Specification AC 150/5345-47 (current issue in effect) and shall be FAA-approved (ETL-Certified). Series circuit transformer shall be properly sized for the respective REIL units in accordance with the manufacturer's instructions.

125610-2.6 ANTI-SEIZE COMPOUND. Prior to installing the proposed base cans, splice cans, and/or other junction structures, the Contractor will apply an oxide-inhibiting, anti-seizing compound to all screws, bolts, nuts, breakable couplings, and all places where metal comes into contact with metal.

125610-2.7 STAINLESS STEEL BOLTS. All base plate mounting bolts shall be stainless steel.

125610-2.8 GROUND RODS. Ground rods shall be 3/4-inch diameter by 10-feet long UL listed Copper clad, with 10-mil minimum Copper coating. Steel used to manufacture ground rods shall be 100% domestic steel.

125610-2.9 CONCRETE. Concrete associated with the each REIL foundation pads and/or splice cans shall conform to Item 610 Portland Cement Concrete of the Standard Specifications for Construction of Airports.

CONSTRUCTION METHODS

125610-3.1 INSTALLATION OF REILS. The REILS shall be installed at the locations shown on the Plans. Installation of REILS systems shall conform to FAA AC No. 150/5345-51 (current issue in effect) titled "SPECIFICATION FOR DISCHARGE-TYPE FLASHING LIGHT EQUIPMENT", the respective manufacturer's instructions, as detailed on the Plans, and as specified herein. The Contractor shall install L-867 base/splice cans and construct concrete bases for the REIL units in accordance with the respective REIL manufacturer's recommendation. Because of the difference in manufacturers' installations, all required trenching, cable, and ducts between the primary and secondary units, associated hardware, mounting requirements, etc. shall be installed per the respective REIL manufacturer's recommendation and shall be considered part of the installation with no additional compensation.

REILS shall be aimed as detailed on the Plans and in accordance with the respective manufacturer's instructions.

Contractor shall coordinate work and any power outages with the Airport Manager, the respective Airport personnel, and the Resident Engineer/Resident Technician. Any shutdown of

existing systems shall be scheduled with and approved by the Airport Manager prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures, including, but not limited to, 29 CFR Section 1910.147 The Control of Hazardous Energy (lockout/tagout). Where the facility is not equipped with lockout/tagout equipment the respective personnel will be responsible for providing the appropriate lockout/tagout equipment. Failure to shut down and lockout the circuit presents a dangerous hazard for personnel working on the respective system.

Contractor shall comply with the requirements of FAA AC No. 150/5370-2 (current issue in effect) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION”.

Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

Secure, identify, and place any temporary exposed wiring in conduit to prevent electrocution and fire ignition sources.

125610-3.2 ELECTRICAL. The Contractor shall furnish and install all electrical materials necessary for the complete and operational installation of the REIL systems as shown on the Plans and detailed herein. The complete installation and wiring shall be done in a neat, workmanlike manner. All electrical work shall comply with the requirements of the NFPA 70 - National Electrical Code (NEC) most current issue in force and the applicable Federal Aviation Administration standards, orders, and advisory circulars. Equipment shall be installed in conformance with the respective manufacturer’s directions and recommendations for the respective application. Any installations which void the UL listing, Intertek Testing Services verification/ETL listing, (or other third-party listing), and/or the manufacturer’s warranty of a device will not be permitted.

125610-3.3 CABLE INSTALLATION FOR REILS. Installation of cables shall conform to Item 108, the applicable sections of FAA AC 150/5345-51 (current issue in effect), per the respective equipment manufacturer’s recommendations, as detailed on the Plans, and as specified herein. Where cable splices are required, they shall conform to Item 108 and the details on the Plans. Power and control cables in conduit or duct between the REIL Primary unit and the REIL Secondary unit shall be installed as detailed on the Plans and in conformance with the respective REIL manufacturer’s recommendations and instructions. Cables and conduits between the REIL units will be considered incidental to the REIL installation and no additional compensation will be allowed.

125610-3.4 CONDUIT INSTALLATION FOR REILS. Installation of conduit shall conform to Item 110, the respective REIL manufacturer’s installation instructions and/or recommendations, as detailed on the Plans and as specified herein. Control cables between REIL units shall be installed in a separate dedicated conduit. Power cables between the REIL units shall be installed in a conduit separate from the control cables.

125610-3.5 GROUNDING FOR REILS. Grounding for REILS shall conform to the respective REIL manufacturer’s installation instructions, as detailed on the Plans, and as specified herein. Furnish and install two 3/4-inch diameter by 10-feet long Copper-clad ground rods spaced not less than one rod length apart, at each REIL unit. Bond each REIL unit housing and the REIL base can to the respective ground rod in accordance with the manufacturer’s instructions with a

#6 AWG bare solid or stranded (per REIL manufacturer requirements) Copper grounding electrode conductor. Top of ground rods shall be buried 30 inches below grade. All connections to ground rods shall be exothermic weld as manufactured by Cadweld, Thermoweld, Ultraweld, or approved equal. Connections to REIL unit frames shall be as recommended by the manufacturer or with a UL listed grounding connector. Provide multi-terminal ground bar or individual ground lugs to terminate each ground wire in each REIL unit.

125610-3.6 REIL OPERATION

A. In the automatic mode of operation the REILS shall be activated by L-854 radio receiver control with the runway lighting series circuit corresponding to the 100% brightness level of the respective runway lights as follows:

REIL Operation
3 clicks – Off
5 clicks – Off
7 clicks – 100% Brightness/On

B. In the manual mode of operation the Type L-849I REILS shall be activated by the constant current regulator for the runway lighting series circuit corresponding to the 100% brightness level of the respective runway lights as follows:

REIL Operation
10% Brightness Level – Off
30% Brightness Level – Off
100% Brightness Level – On

C. The Contractor shall test and demonstrate proper operation for the Resident Engineer/Resident Technician, the Project Engineer of Record, and the Airport Manager or respective maintenance staff.

125610-3.7 GROUND CHECK. Prior to final acceptance and activation, each completed REIL system will be ground checked by the Illinois Division of Aeronautics and/or the Resident Engineer/Resident Technician, and it shall be the Contractor's responsibility to have a representative present to make any necessary adjustments and/or corrections of the respective REIL system installation. The Contractor shall be responsible for providing REIL systems that are installed properly and operate properly.

125610-3.8 FLIGHT CHECK. Prior to final acceptance and activation, each completed REIL system will be flight checked by Federal Aviation Administration and/or Illinois Division of Aeronautics, and it shall be the Contractor's responsibility to have a representative present to make any necessary adjustments in the aiming of the respective REIL units. The Contractor shall be responsible for providing REIL systems that pass the flight check by Federal Aviation Administration and/or Illinois Division of Aeronautics. **Note: the FAA will pay the costs for one flight check. In the event that additional flight checks are required, the costs associated with the additional flight checks will be the responsibility of and paid for by the Contractor. FAA has noted the estimated cost for an additional flight check for the REILS will be approximately $5,000.00.**

METHOD OF MEASUREMENT

125610-4.1 The REIL systems to be furnished and installed shall be measured for payment as a unit price per pair (primary unit and secondary unit) and shall include all concrete and materials as required for foundations, all cable and conduit from the respective runway lighting series circuit to the REIL units and all cable and conduit at and between the primary and secondary REIL units, base/splice/transformer/junction cans, equipment, grounding, excavating, restoration, labor, tools, labeling, testing, and incidentals necessary to furnish a complete and operational REIL system as approved by the Engineer.

Testing the airfield lighting systems and REILs will be considered incidental to the Contract and no additional compensation will be allowed.

Conduits, conduit nipples, conduit couplings, and other conduit fittings included with transformer base cans, junction structures, base mounted REILs, and/or splice cans will be considered incidental to the respective item for which they are installed, and no additional compensation will be made.

Ground rods, grounding electrode conductors, connections, and associated grounding work included with REILs will be considered incidental to the respective item for which they are installed, and no additional compensation will be made.

Ground resistance tests for the made electrode ground system at each REIL will be considered incidental to the to the respective item for which they are required and no additional compensation will be allowed.

All lockout/tagout procedures to ensure and maintain safety of personnel will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed.

BASIS OF PAYMENT

125610-5.1 Payment shall be made at the contract unit price per pair. This price and payment shall be full compensation for installation of the REIL units and bases; for furnishing and installing all equipment and materials; for all grounding, coordination, excavating, labor, tools, labeling, testing, restoration, and incidentals necessary to complete this item of work.

Payment will be made under:

Item AR125610 REILS - per PAIR
Item AS125610 REILS - per PAIR

END OF ITEM AR125610

ITEM AR125907 REMOVE REILS

DESCRIPTION

125907-1.1. This item of work shall consist of the removal of the existing REIL (Runway End Identifier Light) units in accordance with the details in the Construction Plans and in accordance with these Special Provisions.

125907-1.2 REFERENCES. Note: where FAA Advisory Circulars are referenced they shall be the current issue or issues in effect.

A. FAA AC No. 150/5370-2 (current issue in effect) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION.

B. NFPA 70E – Standard for Electrical Safety in the Workplace

C. OSHA 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures

CONSTRUCTION

125907-2.1 REMOVAL OF REIL.

A. Contractor shall examine the site to determine the extent of the work. Contractor shall field verify existing site conditions. Contractor shall field verify the respective circuits and power sources prior to removing, disconnecting, relocating, working on, or connecting the respective REIL unit, NAVAID, circuit, Vault equipment, or other device.

B. Contractor shall coordinate work and any power outages with the Airport Manager, the respective Airport personnel, and the Resident Engineer/Resident Technician. Any shutdown of existing systems shall be scheduled with and approved by the Airport Manager prior to shutdown. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures, including, but not limited to, 29 CFR Section 1910.147 The Control of Hazardous Energy (lockout/tagout). Where the facility is not equipped with lockout/tagout equipment the respective personnel will be responsible for providing the appropriate lockout/tagout equipment. Failure to shut down and lockout the circuit presents a dangerous hazard for personnel working on the respective system.

C. Contractor shall comply with the requirements of FAA AC No. 150/5370-2 (current issue in effect) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION”.

D. Contractor shall comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

E. Removal of a REIL unit shall include the removal of the REIL, foundation, associated safety switch, conduits, wiring, associated step-up transformers, step-down transformers and/or boost transformers, circuit breakers, and associated equipment and materials in the Airport Electrical Vault.

F. Power for each respective REIL system shall be disconnected at the respective power source prior to removing the respective REIL system. **Power for the existing REIL systems located on Runway 4-22 are understood to be powered from the Airport Electrical Vault.** Contractor shall field verify to confirm the respective power source for each REIL system.

G. The Contractor shall remove the REIL units when the runway is closed. The Contractor shall remove the REIL units and turn them over to the Airport. In the event that the Airport does not want the REIL units, the Contractor shall dispose of the REIL units off the Airport site in a legal manner. The Contractor shall coordinate with and notify the Airport Manager and the Resident Engineer/Resident Technician and provide a schedule for REIL removals and the new REIL installations. The Contractor shall remove the existing REIL bases and dispose of them off the airport site in a legal manner. The existing electrical cables from the vault shall be disconnected, removed where accessible or in conflict with new work and abandoned in place elsewhere. The holes left from the removal of the concrete bases will be filled with earth material. The earth material will be compacted to prevent any future settlement. The earth material will be obtained from off the Airport site. The disturbed area will be restored, graded, and seeded to the satisfaction of the Engineer, and will be considered as an incidental item to the removal of the REIL units.

H. Existing airfield lighting cables associated with airfield lighting to be removed shall be removed where accessible and abandoned in place elsewhere unless it conflicts with new work and then it shall be removed at no additional cost to the Contract. If the Contractor elects to salvage the cable within the circuit to be removed, shown in the Construction Plans as cable to be abandoned, any cost associated with removal of the cable shall be considered incidental to the Contract and no additional compensation will be allowed.

I. Remove existing ground rods associated with the REIL systems to be removed.

J. All turf areas disturbed by the removal of REIL systems and associated work shall be restored, graded, and seeded to establish a stand of grass to the satisfaction of the Engineer. All areas disturbed by work shall be restored to its original condition. The hole left from the removal of each base/foundation shall be filled with earth material. The earth material shall be compacted to prevent any future settlement. The earth material shall be obtained from off the Airport site. The restoration shall include any necessary topsoiling, fertilizing, liming, seeding, or mulching, as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. Restoration shall be considered incidental to the pay item of which it is a component part.

BASIS OF PAYMENT

125907-3.1. This work will be paid for at the contract unit bid price per each for REIL Removal. This price and payment shall constitute full compensation for field verification of existing site conditions and power sources, disconnecting the respective power sources, removing the existing REIL units; removal of bases, foundations, mounting hardware, cables, ducts, conduits, transformers and associated vault equipment and materials; for all excavating and backfilling; for furnishing all earth material; for all restoration work; and for furnishing all coordination, labor, tools, equipment, and incidentals necessary to complete this item of work. Salvageable

materials shall be turned over to the Airport. Any materials not salvaged by the Airport shall be legally disposed of off the Airport site by the Contractor at no additional cost to the Contract.

All lockout/tagout procedures to ensure and maintain safety of personnel will be considered incidental to the respective item of work for which it applies, and no additional compensation will be allowed.

Payment will be made under:

Item AR125907 Remove REILS - per PAIR
Item AS125907 Remove REILS - per PAIR

END OF ITEM AR125907

END OF SPECIAL PROVISIONS

APPENDIX A

Mt. Carmel Municipal Airport
St. Francisville, Illinois

Replace Runway End Identifier Lights (REILs)
on Runway 4/22

Cable and Constant Current Regulator
Testing Forms

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

Prior to beginning excavations, airfield lighting modifications, cable installation, and/or any other work that might possibly affect airfield lighting circuits, all existing series circuit lighting cables in the areas of work shall be Megger tested with an insulation resistance tester and recorded at the respective airport electrical vault. The respective series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. The Contractor is responsible to employ the services of personnel qualified, familiar with, and trained to perform the respective tests, and qualified to work on 5000 Volt airfield lighting series circuits, constant current regulators, and associated airport electrical vault equipment. Please understand that airfield lighting series circuits are dangerous and only qualified personnel should be permitted to work on them and safety procedures need to be followed. National Electrical Code defines a Qualified Person as "***One who has the skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved."*** Safety of personnel is the top priority. Follow safety procedures for all work. Only qualified and experienced personnel are permitted to work on airfield lighting series circuits.

Personnel shall coordinate work and any power outages with the Owner's Designated Representative(s). Any shutdown of existing systems should be scheduled with and approved by the Owner's Designated Representative(s) prior to shut down. Once shut down, the circuits shall be labeled as such to prevent accidental energizing of the respective circuits. All personnel shall follow U.S. Department of Labor Occupational Safety & Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures including, but not limited to, 29 CFR section 1910.147 The Control of Hazardous Energy (lockout/tagout). Where the facility is not equipped with lockout/tagout equipment the respective personnel will be responsible for providing the appropriate lockout/tagout equipment. Failure to shut down and lockout the circuit presents a dangerous hazard for personnel working on this system.

Personnel are recommended to comply with the applicable requirements of NFPA 70E – Standard for Electrical Safety in the Workplace.

Provide personnel protective equipment for all personnel working on or testing electrical systems suitable for the respective application. Provide protective equipment for personnel to keep them safe in the event of an arc flash or other electrical accident. Refer to NFPA 70E "Standard for Electrical Safety in the Workplace", Article 250 "Personal Safety and Protective Equipment" and "Informative Annex H Guidance on Selection of Protective Clothing and Other Personal Protective Equipment (PPE)" for additional information on personal protective equipment.

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

Insulation resistance testing equipment for use with 5,000 Volt series circuit cables shall use an insulation resistance tester capable of testing the cables at 5,000 Volts. Older series circuit cables and/or cables in poor condition may require the test voltage to be performed at a voltage lower than 5,000 Volts (Example 1,000 Volts, 500 Volts, or less than 500 Volts). The respective test voltage shall be recorded for each cable insulation resistance test result.

Insulation resistance testing equipment for use with 600 Volt rated cables shall use a 500 Volt insulation resistance tester. The respective test voltage shall be recorded for each cable insulation resistance test result.

It is recommended to use the same insulation resistance test equipment throughout the project to ensure reliable comparative readings at the beginning of the project and at the completion of the project.

Disconnect the airfield lighting series circuit cables from the constant current regulator when performing cable insulation resistance tests (Megger Tests). Test the cables that go to the airfield for the respective airfield lighting series circuit. Connect the cable insulation resistance tester to one of the airfield lighting series circuit cables and to a good ground in the airport electrical vault such as the airport vault ground bus. Conduct the cable insulation resistance test on each respective cable for not less than 90 seconds. Record the test results at the end of the time duration for the test.

FAA Advisory Circular 150/5340-26C Maintenance of Airport Visual Aid Facilities provides guidance on Insulation Resistance Tests. Also refer to the user manual for the respective cable insulation resistance tester. Reasonably new series circuit cables and transformers with good connections should read 500 Mega-Ohms to 1,000 Mega-Ohms or higher. The readings should decrease with age. The resistance value declines over the service life of the circuit; a 10-20 percent decline per year may be considered normal. A yearly decline of 50 percent (4 percent monthly) or greater indicates the existence of a problem, such as a high resistance ground, serious deterioration of the circuit insulation, lightning damage, bad connections, bad splices, cable insulation damage, or other failure. FAA Advisory Circular 150/5340-26C notes “Generally speaking, any circuit that measures less than 1 megohm is certainly destined for rapid failure.” Airfield lighting series circuits with cable insulation readings of less than 1 megohm are not uncommon for older circuits that are 20 years or more of age.

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
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Date	

TESTING FORMS

Based on information in FAA AC No. 150/5340-26C Maintenance of Airport Visual Aid Facilities, the cable insulation resistance value inevitably declines of the service life of the circuit; a 10-20 percent decline per year may be considered normal. In the event that the cable insulation resistance readings have declined more than 2 percent per month it might indicate cable damage due to lightning or damage as a result of Contractor operations. Where the cable insulation resistance readings have declined more than 2 percent per month over the project construction duration as a result of Contractor operations, Contractor will need to investigate, address, and repair the respective cable circuits.

All existing series circuit cable loops shall also have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. The resistance of the series circuit loop with connections using #8 AWG copper conductor should be approximately 0.8 to 1 Ohm per thousand feet of cable length. The resistance of the series circuit loop with connections using #6 AWG copper conductor should be approximately 0.5 to 0.7 Ohm per thousand feet of cable length. The number of series circuit transformers and connections will affect the overall resistance of the series circuit loop and therefore the measurements might be slightly higher than the calculated resistance for the respective length of cable.

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

__Record the date for the respective tests.

__ Record the manufacture and model number of the insulation resistance tester used for the Megger tests. Note: it is recommended to use the same insulation resistance tester again after airfield lighting modifications, additions, and/or upgrades have been completed.

__ Record the manufacture and model number of the Ohmmeter used to measure resistance of each series circuit cable loop. Note: it is recommended to use the same Ohmmeter again after airfield lighting modifications, additions, and/or upgrades have been completed.

__ Record the manufacture and model number of the Ammeter used to measure current. Note: it is recommended to use the same Ammeter again after airfield lighting modifications, additions, and/or upgrades have been completed.

__Record personnel conducting tests.

__Record personnel observing tests.

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

__ For each respective series circuit in the areas of work, conduct cable insulation resistance test (Megger test) at the vault and record test results. Time duration of test should not be less than 90 seconds.

Cable Under Test	Cable Insulation Resistance	Test Voltage	Time Duration
Taxiway lighting series circuit cable			
Runway 4-22 lighting series circuit cable			
Runway 13-31 lighting series circuit cable			

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

__ Each respective lighting series circuit cable loop shall have the resistance tested and recorded at the vault. Use an Ohmmeter and measure the resistance of the series circuit loop at the Vault.

Cable Under Test	**Series Circuit Loop Resistance in Ohms**
Taxiway lighting series circuit cable	
Runway 4-22 lighting series circuit cable	
Runway 13-31 lighting series circuit cable	

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

Tests for constant current regulators shall include the following.

1. The respective personnel performing airfield lighting work, vault work, and/or tests shall be familiar with and qualified to work on 5000 Volt airfield lighting series circuits, constant current regulators, and associated airport electrical vault equipment.

2. Prior to conducting tests confirm each constant current regulator has a good and secure frame ground connection to the vault grounding electrode system. The constant current regulator frame ground shall be a minimum #6 AWG copper conductor and UL listed grounding connectors with secure and tight connections. Correct where missing. Failure to properly ground this equipment presents a dangerous hazard for personnel working on this system.

3. Prior to conducting tests confirm each series circuit cutout enclosure is grounded properly. Each cutout enclosure shall have a #8 AWG (minimum) equipment ground wire with the 6.6 Amp output series circuit conductors from the respective constant current regulator to the respective cutout enclosure. Each cutout enclosure shall have a #6 AWG (minimum) equipment ground wire with the 20 Amp output series circuit conductors from the respective constant current regulator to the respective cutout enclosure. Bond the equipment ground wire to the constant current regulator frame and the cutout enclosure frame. Cutout enclosures are required to be grounded and bonded per National Electrical Code Article 250.4 “General Requirements for Grounding and Bonding”. Failure to properly ground this equipment presents a dangerous hazard for personnel working on this system. Correct where missing.

4. The respective personnel performing tests shall be familiar with the respective test equipment and the use and operation of the test equipment. The Contractor is responsible to employ the services of personnel qualified to perform the respective tests and qualified to work on 5000 Volt airfield lighting series circuits, constant current regulators, and associated airport electrical vault equipment.

5. Test each brightness step and measure and record the input current on Phase A and Phase B for the 240 VAC branch circuit to each CCR. Note: Provide a True RMS Ammeter for current measurements.

6. Test each brightness step and record the CCR output current to the series circuit lighting. Each CCR should be equipped with an output current meter. In the event the output current meter is not working properly or is out of calibration use a True RMS Ammeter for output current measurements and measure the current in the output series circuit conductor.

7. Test each brightness step and record the CCR output voltage for the series circuit lighting. Each CCR should be equipped with an output voltage meter. Where the CCR does not include an output voltage meter, the output voltage measurements are not required. Do not use a 0 to 600 Volt voltmeter to measure voltage across the CCR output terminals due to safety concerns and high voltages at the CCR output.

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

Note: Provide a True RMS Ammeter for current measurements. Note Output voltage measurements are not required for constant current regulators that do not include an output voltage meter.

__ Test Taxiway CCR by Manual Control and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

__ Test Taxiway CCR in remote mode by airfield lighting control system and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

Note: Provide a True RMS Ammeter for current measurements. Note Output voltage measurements are not required for constant current regulators that do not include an output voltage meter.

__ Test Runway 4-22 CCR by Manual Control and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

__ Test Runway 4-22 CCR in remote mode by airfield lighting control system and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

Note: Provide a True RMS Ammeter for current measurements. Note Output voltage measurements are not required for constant current regulators that do not include an output voltage meter.

__ Test Runway 13-31 CCR by Manual Control and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

__ Test Runway 13-31 CCR n remote mode by airfield lighting control system and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

After airfield lighting modifications, additions, and/or upgrades have been completed, series circuit cables shall be Megger tested with an insulation resistance tester and recorded at the vault. All series circuit cable loops shall have the resistance measured with an Ohmmeter and recorded for each circuit at the vault. Each constant current regulator shall be tested with results recorded. Record the date for the respective tests.

__ Record the manufacture and model number of the insulation resistance tester used for the Megger tests.

__ Record the manufacture and model number of the Ohmmeter used to measure resistance of each series circuit cable loop.

__ Record the manufacture and model number of the Ammeter used to measure current. Note: it is recommended to use the same Ammeter again after airfield lighting modifications, additions, and/or upgrades have been completed.

__Record personnel conducting tests.

__Record personnel observing tests.

Engineering Firm Hanson Professional Services Inc.
Airport Name Mt. Carmel Municipal Airport (AJG)
Project Replace Runway Airfield Lighting
IL Project No. AJG-5013
Hanson Project 23A0037C
Date

TESTING FORMS

__ After airfield lighting modifications, additions, and/or upgrades have been completed, conduct cable insulation resistance test (Megger test) at the vault and record test results for each respective series circuit in the areas of work. Time duration of test should not be less than 90 seconds.

Cable Under Test	Cable Insulation Resistance	Test Voltage	Time Duration
Taxiway lighting series circuit cable			
Runway 4-22 lighting series circuit cable			
Runway 13-31 lighting series circuit cable			

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

__ After airfield lighting modifications, additions, and/or upgrades have been completed, each respective lighting series circuit cable loop shall have the resistance tested and recorded at the vault. Use an Ohmmeter and measure the resistance of the series circuit loop at the Vault.

Cable Under Test	**Series Circuit Loop Resistance in Ohms**
Taxiway lighting series circuit cable	
Runway 4-22 lighting series circuit cable	
Runway 13-31 lighting series circuit cable	

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

Tests for constant current regulators shall include the following.

1. The respective personnel performing airfield lighting work, vault work, and/or tests shall be familiar with and qualified to work on 5000 Volt airfield lighting series circuits, constant current regulators, and associated airport electrical vault equipment.

2. Prior to conducting tests confirm each constant current regulator has a good and secure frame ground connection to the vault grounding electrode system. The constant current regulator frame ground shall be a minimum #6 AWG copper conductor and UL listed grounding connectors with secure and tight connections. Correct where missing. Failure to properly ground this equipment presents a dangerous hazard for personnel working on this system.

3. Prior to conducting tests confirm each series circuit cutout enclosure is grounded properly. Each cutout enclosure shall have a #8 AWG (minimum) equipment ground wire with the 6.6 Amp output series circuit conductors from the respective constant current regulator to the respective cutout enclosure. Each cutout enclosure shall have a #6 AWG (minimum) equipment ground wire with the 20 Amp output series circuit conductors from the respective constant current regulator to the respective cutout enclosure. Bond the equipment ground wire to the constant current regulator frame and the cutout enclosure frame. Cutout enclosures are required to be grounded and bonded per National Electrical Code Article 250.4 “General Requirements for Grounding and Bonding”. Failure to properly ground this equipment presents a dangerous hazard for personnel working on this system. Correct where missing.

4. The respective personnel performing tests shall be familiar with the respective test equipment and the use and operation of the test equipment. The Contractor is responsible to employ the services of personnel qualified to perform the respective tests and qualified to work on 5000 Volt airfield lighting series circuits, constant current regulators, and associated airport electrical vault equipment.

5. Test each brightness step and measure and record the input current on Phase A and Phase B for the 240 VAC branch circuit to each CCR. Note: Provide a True RMS Ammeter for current measurements.

6. Test each brightness step and record the CCR output current to the series circuit lighting circuit. Each CCR should be equipped with an output current meter. In the event the output current meter is not working properly or is out of calibration use a True RMS Ammeter for output current measurements and measure the current in the output series circuit conductor.

7. Test each brightness step and record the CCR output voltage for the series circuit lighting circuit. Each CCR should be equipped with an output voltage meter. Where the CCR does not include an output voltage meter, the output voltage measurements are not required. Do not use a 0 to 600 Volt voltmeter to measure voltage across the CCR output terminals due to safety concerns and high voltages at the CCR output.

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

Note: Provide a True RMS Ammeter for current measurements. Note Output voltage measurements are not required for constant current regulators that do not include an output voltage meter.

__ After airfield lighting modifications, additions, and/or upgrades have been completed, Test Taxiway CCR by Manual Control and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

__ Test Taxiway CCR in remote mode by airfield lighting control system and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

Note: Provide a True RMS Ammeter for current measurements. Note Output voltage measurements are not required for constant current regulators that do not include an output voltage meter.

__ After airfield lighting modifications, additions, and/or upgrades have been completed, Test Runway 4-22 CCR by Manual Control and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

__ Test Runway 4-22 CCR in remote mode by airfield lighting control system and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

Note: Provide a True RMS Ammeter for current measurements. Note Output voltage measurements are not required for constant current regulators that do not include an output voltage meter.

__ After airfield lighting modifications, additions, and/or upgrades have been completed, Test Runway 13-31 CCR by Manual Control and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

__ Test Runway 13-31 CCR in remote mode by airfield lighting control system and record input current and output current at each step.

STEP	INPUT CURRENT	OUTPUT CURRENT
B10	Phase A:	
	Phase B:	
B30	Phase A:	
	Phase B:	
B100	Phase A:	
	Phase B:	

Engineering Firm	Hanson Professional Services Inc.
Airport Name	Mt. Carmel Municipal Airport (AJG)
Project	Replace Runway Airfield Lighting
IL Project No.	AJG-5013
Hanson Project	23A0037C
Date	

TESTING FORMS

Record additional notes.

APPENDIX B

Mt. Carmel Municipal Airport
St. Francisville, Illinois

Replace Runway End Identifier Lights (REILs)
on Runway 4/22

REIL
GROUND CHECK LIST

Airport Identifier:	**AJG**
Airport Name:	**Mt. Carmel Municipal Airport**
Location:	**Mt. Carmel Municipal Airport, 10188 Mount Carmel Airport Ln, St. Francisville, IL 62460**
SBG No.:	**N/A**
IDA No.:	**AJG-5013**
Hanson Project No.:	**23A0037C**
Date:	
Site Conditions:	

a. Inspect REIL to determine that it is installed correctly, at the proper height, at the correct location, level, and properly oriented.

b. Check all fixture securing screws or bolts to ensure that they have been tightened per manufacturer recommendations. Use an anti-seize compound on bolts made of stainless steel.

c. Check REIL to determine that the lenses are clean and unscratched.

d. Test REIL feeder circuits/series circuits for continuity and insulation resistance to ground. Observe and record megger test for REIL feeder circuit/series circuit conductors.

Cable Under Test	Cable Insulation Resistance	Test Voltage	Time Duration
Respective Runway Lighting Series Circuit Conductor			
Phase A Conductor (For Voltage Powered REIL)			
Phase B Conductor (For Voltage Powered REIL)			

e. Check fuses and circuit breakers to determine if they are of the proper rating.

f. Check REIL to determine that it is properly oriented with respect to the runway longitudinal sides and the threshold. Check REIL for proper location.

g. Check equipment covered by FAA specifications to determine if the manufacturers have supplied certified equipment. Also check the equipment for general conformance with requirements of the Plans, Specifications, and Special Provisions.

h. Inspect all cables, wiring, and splices to obtain assurance that the installation is per the Standard Specifications for Construction of Airports, the Special Provision Specifications, the Plans, the National Electrical Code, and local codes. Inspect and test insulation resistance of underground cables before backfilling.

i. Check all ducts and duct markers to determine that the installation is per the Standard Specifications for Construction of Airports, the Special Provision Specifications, and the Plans. Inspect underground ducts before backfill is made.

j. Check the input voltage at the power and control circuits to determine that the voltage is within limits required for proper equipment operation. Select the proper voltage tap on equipment where taps are provided. Circuitry should also be checked per the manufacturer's requirements.

k. Check base plates for damage during installation and refinish according to manufacturer's instructions and as acceptable to the Engineer.

l. Check the size and type of feeder conductor from the vault or power source to the REIL.

m. Record nameplate data for REIL.

n. Test REIL by respective control system and confirm proper operation. Check to see if Runway REIL's activate at Step 1 (Off), Step 2 (Off) and Step 3 (100% brightness) of L-854 Radio Receiver Output.

o. Check to see if the Primary REIL unit has a ground wire connection from its frame to the ground rod.

p. Check to see if the Secondary REIL unit has a ground wire connection from its frame to the ground rod.

q. Make sure each REIL has good ground. Test and record ground resistance of ground rod installation at each REIL Unit.

REIL LIGHT HOUSING UNIT	**Measured Ground Resistance in Ohms**
REIL Primary Light Unit	
REIL Secondary Light Unit	

r. Confirm Operation and Maintenance Manuals are provided for REIL.

s. Ground Check test results submitted by:

Name:	
Company:	
Date:	