

5A

RETURN WITH BID

Proposal Submitted By	
Name	
Address	
City/State	9 Digit Zip Code
Telephone No.	Fax No.
Federal Employer Identification No. (FEIN)	
Email Address	

Letting March 9, 2012

BIDDERS NEED NOT RETURN THE ENTIRE PROPOSAL
(see instructions inside front cover)

NOTICE TO PROSPECTIVE BIDDERS

This proposal can be used for bidding purposes by only those companies that request and receive written **AUTHORIZATION TO BID** from IDOT's Central Bureau of Construction.
(SEE INSTRUCTIONS ON THE INSIDE OF COVER)

Notice to Bidders, Specifications, Proposal, Contract and Contract Bond



Illinois Department of Transportation
DIVISION OF AERONAUTICS

Contract No. DU080
DuPage Airport
West Chicago, Illinois
DuPage County
Illinois Project No. DPA-4122
Federal Project No. 3-17-0017-B25

For engineering information, contact Johnny M. Jackson, P.E. of CH2M Hill at (502) 387-8278.

FAA rules prohibit the use of escalation clauses for materials. Therefore, the Division of Aeronautics cannot offer any material cost adjustment provisions for projects that utilize Federal funds.

PLEASE MARK THE APPROPRIATE BOX BELOW:

- A Bid Bond is included.
- A Cashier's Check or a Certified Check is included.

INSTRUCTIONS

ABOUT IDOT PROPOSALS: All proposals are potential bidding proposals. Each proposal contains all certifications and affidavits, a proposal signature sheet and a proposal bid bond.

PREQUALIFICATION

Any contractor who desires to become pre-qualified to bid on work advertised by IDOT must submit the properly completed pre-qualification forms to the Bureau of Construction no later than 4:30 p.m. prevailing time twenty-one days prior to the letting of interest. This pre-qualification requirement applies to first time contractors, contractors renewing expired ratings, contractors maintaining continuous pre-qualification or contractors requesting revised ratings. To be eligible to bid, existing pre-qualification ratings must be effective through the date of the letting.

WHO CAN BID?

Bids will be accepted from only those companies that request and receive written Authorization to Bid from IDOT's Central Bureau of Construction.

REQUESTS FOR AUTHORIZATION TO BID

Contractors wanting to bid on items included in a particular letting must submit the properly completed "Request for Authorization to Bid/or Not For Bid Status" (BDE 124) and the ORIGINAL "Affidavit of Availability: (BC 57) to the proper office no later than 4:30 p.m. prevailing time, three (3) days prior to the letting date.

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?: When a prospective prime bidder submits a "Request for Authorization to Bid or Not for Bid Status" (BDE 124) he/she must indicate at that time which items are being requested For Bidding purposes. Only those items requested For Bidding will be analyzed. After the request has been analyzed, the bidder will be issued an **Authorization to Bid or Not for Bid Report**, approved by the Central Bureau of Construction that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Authorization to Bid or Not for Bid Report** will indicate the reason for denial.

ABOUT AUTHORIZATION TO BID: Firms that have not received an Authorization to Bid or Not For Bid Report within a reasonable time of complete and correct original document submittal should contact the department as to the status. Firms unsure as to authorization status should call the Prequalification Section of the Bureau of Construction at the number listed at the end of these instructions. These documents must be received three days before the letting date.

ADDENDA AND REVISIONS: It is the bidder's responsibility to determine which, if any, addenda or revisions pertain to any project they may be bidding. Failure to incorporate all relevant addenda or revisions may cause the bid to be declared unacceptable.

Each addendum or revision will be included with the Electronic Plans and Proposals. Addenda and revisions will also be placed on the Addendum/Revision Checklist and each subscription service subscriber will be notified by e-mail of each addendum and revision issued.

The Internet is the Department's primary way of doing business. The subscription server e-mails are an added courtesy the Department provides. It is suggested that bidders check IDOT's website at <http://www.dot.il.gov/desenv/delett.html> before submitting final bid information.

IDOT IS NOT RESPONSIBLE FOR ANY E-MAIL FAILURES.

Addenda questions may be directed to the Plans and Contracts Office at (217)782-7806 or D&Econtracts@dot.il.gov

Technical questions about downloading these files may be directed to Tim Garman at (217)524-1624 or Timothy.Garman@illinois.gov.

BID SUBMITTAL GUIDELINES AND CHECKLIST

In an effort to eliminate confusion and standardize the bid submission process the Contracts Office has created the following guidelines and checklist for submitting bids.

This information has been compiled from questions received from contractors and from inconsistencies noted on submitted bids. If you have additional questions please refer to the contact information listed below.

ABOUT SUBMITTING BIDS: It is recommended that bidders deliver bid proposals in person to ensure they arrive at the proper location prior to the time specified for the receipt of bids. Any proposals received at the place of letting after the time specified will not be read.

STANDARD GUIDELINES FOR SUBMITTING BIDS

- All pages should be single sided.
- Use the Cover Page that is provided in the Bid Proposal (posted on the IDOT Web Site) as the first page of your bid. This page has the Item number in the upper left-hand corner and lines provided for your company name and address in the upper right-hand corner.
- Do not use report covers, presentation folders or special bindings and do not staple multiple times on left side like a book. Use only 1 staple in the upper left hand corner. Make sure all elements of your bid are stapled together including the bid bond or guaranty check (if required).
- Do not include any certificates of eligibility, your authorization to bid, Addendum Letters or affidavit of availability.
- Do not include the Subcontractor Documentation with your bid (pages 33-41). This documentation is required only after you are awarded the contract.
- Use the envelope cover sheet (provided with the proposal) as the cover for the proposal envelope.
- Do not rely on overnight services to deliver your proposal prior to 10 AM on letting day. It will not be read if it is delivered after 10 AM.
- Do not submit you Substance Abuse Prevention Plan (SAPP) with your bid. If you are awarded the contract this form is to be submitted to the district engineer at the pre-construction conference.

Use the following checklist to ensure completeness and the correct order in assembling your bid

Cover page followed by the Pay Items. If you are using special software or CBID to generate your schedule of prices, do not include the blank schedule of prices.

Page 5 (Item 10) - Check "YES" if you will use a subcontractor(s). Include the subcontractor(s) name, address and the dollar amount (if over \$25,000). If you will use subcontractor(s) but are uncertain who or the dollar amount; check "YES" but leave the lines blank.

Page 11 (Paragraph J) - Check "YES" or "NO" whether your company has any business in Iran.

Page 12 (Paragraph K) - List the Union Local Name and number or certified training programs that you have in place. Do not include certificates with your bid. Keep the certificates in your office in case they are requested by IDOT.

Page 12 (Paragraph L) - Insert a copy of your State Board of Elections certificate of registration after Page 4 of the bid proposal. Only include the page that has the date stamp on it. Do not include any other certificates or forms showing that you are an Illinois business.

Page 14 (Paragraph C) - This is a work sheet to determine if a completed Form A is required. It is not part of the form and you do not need to make copies for each Form A that is filled out.

Pages 16-18 (Form A) - One Form A (3 pages) is required for each applicable person in your company. Copies of the Forms can be used and only need to be changed when the financial information changes. The certification signature and date must be original for each letting. Do not staple the forms together.

If you answered "NO" to all of the questions in Paragraph C (page 14), complete the first section (page 16) with your company information and then sign and date the Not Applicable statement on page 18.

Page 19 (Form B) - If you check "YES" to having other current or pending contracts it is acceptable to use the phrase, "See Affidavit of Availability on file".

Pages 21-22 (Workforce Projection) - Be sure to include the Duration of the Project. It is acceptable to use the phrase "Per Contract Specifications".

Bid Bond - Submit your bid bond using the current Bid Bond Form provided in the proposal package. The Power of Attorney page should be stapled to the Bid Bond. If you are using an electronic bond, include your bid bond number on the form and attach the Proof of Insurance printed from the Surety 2000 Web Site.

Disadvantaged Business Utilization Plan and/or Good Faith Effort - The last item in your bid should be the DBE Utilization Plan (SBE 2026), DBE Participation Statement (SBE 2025) and supporting paperwork. If you have documentation for a Good Faith Effort, it should follow the SBE Forms.

The Bid Letting is now available in streaming Audio/Video from the IDOT Web Site. A link to the stream will be placed on the main page of the current letting on the day of the Letting. The stream will not begin until 10 AM. The actual reading of the bids does not begin until approximately 10:20 AM.

Following the Letting, the As-Read Tabulation of Bids will be posted by the end of the day. You will find the link on the main page of the current letting.

QUESTIONS: pre-letting up to execution of the contract

Contractor/Subcontractor pre-qualification -----217-782-3413
Small Business, Disadvantaged Business Enterprise (DBE) -----217-785-4611
Contracts, Bids, Letting process or Internet downloads -----217-785-0230
Estimates Unit -----217-785-3483

QUESTIONS: following contract execution

Including Subcontractor documentation, payments -----217-782-3413
Railroad Insurance -----217-785-0275



PROPOSAL

TO THE DEPARTMENT OF TRANSPORTATION

1. Proposal of _____

Taxpayer Identification Number (Mandatory) _____ a

for the improvement identified and advertised for bids in the Invitation for Bids as:

Contract No. DU080
DuPage Airport
West Chicago, Illinois
DuPage County
Illinois Project No. DPA-4122
Federal Project No. 3-17-0017-B25

Runway 10/28 Overlay

2. The undersigned bidder will furnish all labor, material and equipment to complete the above described project in a good workmanlike manner as provided in the contract documents provided by the Department of Transportation. This proposal will become part of the contract and the terms and conditions contained in the contract documents shall govern performance and payments.
3. **COMPLETION TIME/LIQUIDATED DAMAGES.** 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 216 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 below, 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.

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	5,800	8,125

A daily charge shall be made for every day shown on the calendar beyond the specified contract time in calendar days.

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4. **ASSURANCE OF EXAMINATION AND INSPECTION/WAIVER.** The undersigned further declares that he/she has carefully examined the proposal, plans, specifications, supplemental and applicable recurring special provisions, addenda, form of contract and contract bonds, and special provisions, and that he/she has inspected in detail the site of the proposed work, and that he/she has familiarized themselves with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he/she waives all right to plead any misunderstanding regarding the same.

5. **EXECUTION OF CONTRACT AND CONTRACT BONDS.** The undersigned further agrees to execute a contract for this work and present the same to the department within fifteen (15) days after the contract has been mailed to him/her. The undersigned further agrees that he/she and his/her surety will execute and present within fifteen (15) days after the contract has been mailed to him/her contract bond satisfactory to and in the form prescribed by the Department of Transportation, in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract.

6. **PROPOSAL GUARANTY.** Accompanying this proposal is either a bid bond on the department form, executed by a corporate surety company satisfactory to the department, or a proposal guaranty check consisting of a bank cashier's check or a properly certified check for not less than 5 per cent of the amount bid or for the amount specified in the following schedule:

<u>Amount of Bid</u>	<u>Proposal Guaranty</u>	<u>Amount of Bid</u>	<u>Proposal Guaranty</u>
Up to \$5,000	to \$5,000\$150	\$2,000,000	to \$3,000,000\$100,000
\$5,000 to \$10,000	to \$10,000\$300	\$3,000,000	to \$5,000,000\$150,000
\$10,000 to \$50,000	to \$50,000\$1,000	\$5,000,000	to \$7,500,000\$250,000
\$50,000 to \$100,000	to \$100,000\$3,000	\$7,500,000	to \$10,000,000\$400,000
\$100,000 to \$150,000	to \$150,000\$5,000	\$10,000,000	to \$15,000,000\$500,000
\$150,000 to \$250,000	to \$250,000\$7,500	\$15,000,000	to \$20,000,000\$600,000
\$250,000 to \$500,000	to \$500,000\$12,500	\$20,000,000	to \$25,000,000\$700,000
\$500,000 to \$1,000,000	to \$1,000,000\$25,000	\$25,000,000	to \$30,000,000\$800,000
\$1,000,000 to \$1,500,000	to \$1,500,000\$50,000	\$30,000,000	to \$35,000,000\$900,000
\$1,500,000 to \$2,000,000	to \$2,000,000\$75,000	over	\$35,000,000\$1,000,000

Bank cashier's checks or properly certified checks accompanying proposals shall be made payable to the Treasurer, State of Illinois, when the state is awarding authority; the county treasurer, when a county is the awarding authority; or the city, village, or town treasurer, when a city, village, or town is the awarding authority.

If a combination bid is submitted, the proposal guaranties which accompany the individual proposals making up the combination will be considered as also covering the combination bid.

The amount of the proposal guaranty check is _____ \$(_____). If this proposal is accepted and the undersigned shall fail to execute contract bonds as required herein, it is hereby agreed that the amount of the proposal guaranty shall become the property of the State of Illinois, and shall be considered as payment of damages due to delay and other causes suffered by the State because of the failure to execute said contract and contract bonds; otherwise, the bid bond shall become void or the proposal guaranty check shall be returned to the undersigned.

Attach Cashier's Check or Certified Check Here

In the event that one proposal guaranty check is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guaranties which would be required for each individual proposal. If the guaranty check is placed in another proposal, state below where it may be found.

The proposal guaranty check will be found in the proposal for: Item _____

Airport _____

Mark the proposal cover sheet as to the type of proposal guaranty submitted.

STATE JOB # - - - -

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SCHEDULE OF PRICES
 CONTRACT NUMBER - DU080

ECMS002 DTGECM03 ECMR003 PAGE 1
 RUN DATE - 02/14/12
 RUN TIME - 190054

COUNTY NAME	CODE	DIST	AIRPORT NAME	FED PROJECT	ILL PROJECT
DUPAGE	043	01	DUPAGE	3-17-0017-B25	DP-A -4122

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
AR108706	1/C #6 COUNTERPOISE	L.F.	1,050.000 X		=		
AR110202	2" PVC DUCT, DIRECT BURY	L.F.	850.000 X		=		
AR110501	1-WAY CONC. ENCASED DUCT	L.F.	200.000 X		=		
AR110810	JUNCTION BOX	EACH	1.000 X		=		
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1.000 X		=		
AR150520	MOBILIZATION	L.S.	1.000 X		=		
AR150530	TRAFFIC MAINTENANCE	L.S.	1.000 X		=		
AR156500	TEMPORARY EROSION CONTROL	L.S.	1.000 X		=		
AR401610	BITUMINOUS SURFACE COURSE	TON	6,599.000 X		=		
AR401620	BIT. SURFACE COURSE, LEVELING	TON	973.000 X		=		
AR401640	BITUMINOUS PAVEMENT GROOVING	S.Y.	28,783.000 X		=		
AR401650	BITUMINOUS PAVEMENT MILLING	S.Y.	50,598.000 X		=		
AR603510	BITUMINOUS TACK COAT	GAL.	12,200.000 X		=		
AR620520	PAVEMENT MARKING-WATERBORNE	S.F.	99,081.000 X		=		
AR620590	TEMPORARY MARKING	S.F.	99,081.000 X		=		

DUPAGE
DUPAGE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SCHEDULE OF PRICES
CONTRACT NUMBER - DU080

ECMS002 DTGECM03 ECMR003 PAGE 2
RUN DATE - 02/14/12
RUN TIME - 190054

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY	UNIT PRICE		TOTAL PRICE	
				DOLLARS	CENTS	DOLLARS	CTS
AR620900	PAVEMENT MARKING REMOVAL	S.F.	9,908.000 X		=		
AR801750	REM. EX. & IN. PRO. PAVE. SURF SE	EACH	4.000 X		=		
AR801751	INSTALL SUBSURFACE TEMPERATURE PR	EACH	1.000 X		=		
AR801752	PAVE. SURF. SENSOR SYS. COMMISSIO	L.S.	1.000 X		=		
AR801753	REM BL COV PL & REIN IN-P ED LIGH	EACH	4.000 X		=		
AR801754	SAFETY AND SECURITY	L.S.	1.000 X		=		
AR801755	BITUMINOUS PATCHING	TON	186.000 X		=		
AR801756	RE. EX. IN-PAVE. ED. LIG. FIX. IN	EACH	4.000 X		=		
AR801757	REMOVE EXISTING JUNCTION BOX	EACH	1.000 X		=		
AR801758	PAVEMENT SURFACE SENSOR CABLE	L.F.	700.000 X		=		

TOTAL \$

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NOTE:

1. EACH PAY ITEM SHOULD HAVE A UNIT PRICE AND A TOTAL PRICE.
2. THE UNIT PRICE SHALL GOVERN IF NO TOTAL PRICE IS SHOWN OR IF THERE IS A DISCREPANCY BETWEEN THE PRODUCT OF THE UNIT PRICE MULTIPLIED BY THE QUANTITY.
3. IF A UNIT PRICE IS OMITTED, THE TOTAL PRICE WILL BE DIVIDED BY THE QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE.
4. A BID MAY BE DECLARED UNACCEPTABLE IF NEITHER A UNIT PRICE NOR A TOTAL PRICE IS SHOWN.

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- 7. COMBINATION BIDS.** The undersigned further agrees that if awarded the contract for the sections contained in the following combination, he/she will perform the work in accordance with the requirements of each individual proposal comprising the combination bid specified in the schedule below, and that the combination bid shall be prorated against each section in proportion to the bid submitted for the same. If an error is found to exist in the gross sum bid for one or more of the individual sections included in a combination, the combination bid shall be corrected as provided below.

A combination bid is a total bid received on 2 or more proposals. No combination bids other than those specifically set up by the Department will be considered. Separate proposal forms will be issued for each project in the combination so bids may be submitted on the combination as well as on separate units of the combination. The Department reserves the right to make awards on combination bids or separate bids to the best advantage of the Department.

If a combination bid is submitted on 2 or more proposals, separate proposals on each individual contract shall also be submitted, and unless separate proposals are so submitted, the combination bid will not be considered. If the bidder desires to submit a combination bid, the bidder shall state, in the place provided in the proposal form, the amount of the combination bid for the entire combination.

If a combination bid is submitted on any stipulated combination, and errors are found to exist in computing the gross sum bid on any one or more of the individual proposals, corrections shall be made, by the Department and the amount of the combination bid shall be corrected so that it will be in the same proportion to the sum of the corrected gross sum bid as the combination bid submitted was to the sum of the gross sum bid submitted.

The following provisions shall govern combination bidding:

- (a) A combination bid which is submitted for 2 or more proposals and awarded on that basis shall have the bid prorated against each proposal in proportion to the bid submitted for each proposal.
- (b) Separate contracts shall be executed for each individual proposal included in the combination.
- (c) The contract time for all contracts awarded on a combination bid shall be the sum of all calendar days contained within each contract included in the combination, unless otherwise provided in the contracts.
- (d) In the event the Contractor fails to complete any or all of the contracts on the combination bid within the contract time, including any authorized extension, the liquidated damages shall be determined from the schedule of deductions shown above in paragraph 3 for each day of overrun in contract time, based on the combination bid total, and shall be computed on the combination and prorated against the 2 or more individual contracts based on the dollar value of each contract.
- (e) The plans and Special Provisions for each separate contract shall be construed separately for all requirements, except as described in paragraphs (a) through (d) listed above.

RETURN WITH BID

When a combination bid is submitted, the schedule below must be completed in each proposal comprising the combination.

If alternate bids are submitted for one or more of the sections comprising the combination, a combination bid must be submitted for each alternate.

Schedule of Combination Bids

Combination No.	Sections Included in Combination	Combination Bid	
		Dollars	Cents

8. SCHEDULE OF PRICES. The undersigned submits herewith, in accordance with the rules and instructions, a schedule of prices for the items of work for which bids are sought. The unit prices bid are in U.S. dollars and cents, and all extensions and summations have been made. The bidder understands that the quantities appearing in the bid schedule are approximate and are provided for the purpose of obtaining a gross sum for the comparison of bids. If there is an error in the extension of the unit prices, the unit prices shall govern. Payment to the contractor awarded the contract will be made only for actual quantities of work performed and accepted or materials furnished according to the contract. The scheduled quantities of work to be done and materials to be furnished may be increased, decreased or omitted as provided elsewhere in the contract.

9. AUTHORITY TO DO BUSINESS IN ILLINOIS. Section 20-43 of the Illinois Procurement Code (30 ILCS 500/20-43) provides that a person (other than an individual acting as a sole proprietor) must be a legal entity authorized to do business in the State of Illinois prior to submitting the bid.

10. The services of a subcontractor will or may be used.

Check box Yes

Check box No

For known subcontractors with subcontracts with an annual value of more than \$25,000, the contract shall include their name, address, and the dollar allocation for each subcontractor.

11. EXECUTION OF CONTRACT. The Department of Transportation will, in accordance with the rules governing Department procurements, execute the contract and shall be the sole entity having the authority to accept performance and make payments under the contract. Execution of the contract by the Chief Procurement Officer or the State Purchasing Officer is for approval of the procurement process and execution of the contract by the Department. Neither the Chief Procurement Officer nor the State Purchasing Officer shall be responsible for administration of the contract or determinations respecting the performance or payment there under except as otherwise permitted in the Illinois Procurement Code.

RETURN WITH BID

THE PRECEDING SCHEDULE OF PRICES MUST BE

COMPLETED AND RETURNED.

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STATE REQUIRED ETHICAL STANDARDS GOVERNING CONTRACT PROCUREMENT: ASSURANCES, CERTIFICATIONS AND DISCLOSURES

I. GENERAL

A. Article 50 of the Illinois Procurement Code establishes the duty of all State chief procurement officers, State purchasing officers, and their designees to maximize the value of the expenditure of public moneys in procuring goods, services, and contracts for the State of Illinois and to act in a manner that maintains the integrity and public trust of State government. In discharging this duty, they are charged by law to use all available information, reasonable efforts, and reasonable actions to protect, safeguard, and maintain the procurement process of the State of Illinois.

B. In order to comply with the provisions of Article 50 and to carry out the duty established therein, all bidders are to adhere to ethical standards established for the procurement process, and to make such assurances, disclosures and certifications required by law. Except as otherwise required in subsection III, paragraphs J-M, by execution of the Proposal Signature Sheet, the bidder indicates that each of the mandated assurances has been read and understood, that each certification is made and understood, and that each disclosure requirement has been understood and completed.

C. In addition to all other remedies provided by law, failure to comply with any assurance, failure to make any disclosure or the making of a false certification shall be grounds for the chief procurement officer to void the contract, or subcontract, and may result in the suspension or debarment of the bidder or subcontractor.

II. ASSURANCES

The assurances hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder.

A. Conflicts of Interest

1. The Illinois Procurement Code provides in pertinent part:

Section 50-13. Conflicts of Interest.

(a) Prohibition. It is unlawful for any person holding an elective office in this State, holding a seat in the General Assembly, or appointed to or employed in any of the offices or agencies of state government and who receives compensation for such employment in excess of 60% of the salary of the Governor of the State of Illinois, or who is an officer or employee of the Capital Development Board or the Illinois Toll Highway Authority, or who is the spouse or minor child of any such person to have or acquire any contract, or any direct pecuniary interest in any contract therein, whether for stationery, printing, paper, or any services, materials, or supplies, that will be wholly or partially satisfied by the payment of funds appropriated by the General Assembly of the State of Illinois or in any contract of the Capital Development Board or the Illinois Toll Highway authority.

(b) Interests. It is unlawful for any firm, partnership, association or corporation, in which any person listed in subsection (a) is entitled to receive (i) more than 7 1/2% of the total distributable income or (ii) an amount in excess of the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(c) Combined interests. It is unlawful for any firm, partnership, association, or corporation, in which any person listed in subsection (a) together with his or her spouse or minor children is entitled to receive (i) more than 15%, in the aggregate, of the total distributable income or (ii) an amount in excess of 2 times the salary of the Governor, to have or acquire any such contract or direct pecuniary interest therein.

(d) Securities. Nothing in this Section invalidates the provisions of any bond or other security previously offered or to be offered for sale or sold by or for the State of Illinois.

(e) Prior interests. This Section does not affect the validity of any contract made between the State and an officer or employee of the State or member of the General Assembly, his or her spouse, minor child or any combination of those persons if that contract was in existence before his or her election or employment as an officer, member, or employee. The contract is voidable, however, if it cannot be completed within 365 days after the officer, member, or employee takes office or is employed.

The current salary of the Governor is \$177,412.00. Sixty percent of the salary is \$106,447.20.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-13, or that an effective exemption has been issued by the Board of Ethics to any individual subject to the Section 50-13 prohibitions pursuant to the provisions of Section 50-20 of the Code and Executive Order Number 3 (1998). Information concerning the exemption process is available from the Department upon request.

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B. Negotiations

1. The Illinois Procurement Code provides in pertinent part:

Section 50-15. Negotiations.

(a) It is unlawful for any person employed in or on a continual contractual relationship with any of the offices or agencies of State government to participate in contract negotiations on behalf of that office or agency with any firm, partnership, association, or corporation with whom that person has a contract for future employment or is negotiating concerning possible future employment.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-15, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

C. Inducements

1. The Illinois Procurement Code provides:

Section 50-25. Inducement. Any person who offers or pays any money or other valuable thing to any person to induce him or her not to bid for a State contract or as recompense for not having bid on a State contract is guilty of a Class 4 felony. Any person who accepts any money or other valuable thing for not bidding for a State contract or who withholds a bid in consideration of the promise for the payment of money or other valuable thing is guilty of a Class 4 felony.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-25, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

D. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

Section 50-30. Revolving door prohibition. Chief procurement officers, State purchasing officers, procurement compliance monitors, their designees whose principal duties are directly related to State procurement, and executive officers confirmed by the Senate are expressly prohibited for a period of 2 years after terminating an affected position from engaging in any procurement activity relating to the State agency most recently employing them in an affected position for a period of at least 6 months. The prohibition includes, but is not limited to: lobbying the procurement process; specifying; bidding; proposing bid, proposal, or contract documents; on their own behalf or on behalf of any firm, partnership, association, or corporation. This Section applies only to persons who terminate an affected position on or after January 15, 1999.

2. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-30, and that the bidder has no knowledge of any facts relevant to the kinds of acts prohibited therein.

E. Reporting Anticompetitive Practices

1. The Illinois Procurement Code provides:

Section 50-40. Reporting anticompetitive practices. When, for any reason, any vendor, bidder, contractor, chief procurement officer, State purchasing officer, designee, elected official, or State employee suspects collusion or other anticompetitive practice among any bidders, offers, contractors, proposers, or employees of the State, a notice of the relevant facts shall be transmitted to the Attorney General and the chief procurement officer.

2. The bidder assures the Department that it has not failed to report any relevant facts concerning the practices addressed in Section 50-40 which may involve the contract for which the bid is submitted.

F. Confidentiality

1. The Illinois Procurement Code provides:

Section 50-45. Confidentiality. Any chief procurement officer, State purchasing officer, designee, or executive officer who willfully uses or allows the use of specifications, competitive bid documents, proprietary competitive information, proposals, contracts, or selection information to compromise the fairness or integrity of the procurement, bidding, or contract process shall be subject to immediate dismissal, regardless of the Personnel code, any contract, or any collective bargaining agreement, and may in addition be subject to criminal prosecution.

2. The bidder assures the Department that it has no knowledge of any fact relevant to the practices addressed in Section 50-45 which may involve the contract for which the bid is submitted.

G. Insider Information

1. The Illinois Procurement Act provides:

Section 50-50. Insider information. It is unlawful for any current or former elected or appointed State official or State employee to knowingly use confidential information available only by virtue of that office or employment for actual or anticipated gain for themselves or another person.

2. The bidder assures the Department that it has no knowledge of any facts relevant to the practices addressed in Section 50-50 which may involve the contract for which the bid is submitted.

RETURN WITH BID

III. CERTIFICATIONS

The certifications hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. Section 50-2 of the Illinois Procurement Code provides that every person that has entered into a multi-year contract and every subcontractor with a multi-year subcontract shall certify, by July 1 of each fiscal year covered by the contract after the initial fiscal year, to the responsible chief procurement officer whether it continues to satisfy the requirements of Article 50 pertaining to the eligibility for a contract award. If a contractor or subcontractor is not able to truthfully certify that it continues to meet all requirements, it shall provide with its certification a detailed explanation of the circumstances leading to the change in certification status. A contractor or subcontractor that makes a false statement material to any given certification required under Article 50 is, in addition to any other penalties or consequences prescribed by law, subject to liability under the Whistleblower Reward and Protection Act for submission of a false claim.

A. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government, or subcontracting under such a contract, as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

(1) the business has been finally adjudicated not guilty; or

(2) the business demonstrates to the governmental entity with which it seeks to contract, or which is signatory to the contract which the subcontract relates, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 1961.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State, and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

2. The contractor or subcontractor certifies that it is not barred from being awarded a contract under Section 50.5.

B. Felons

1. The Illinois Procurement Code provides:

Section 50-10. Felons. Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any State agency, or enter into a subcontract, from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

2. Certification. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder or contractor or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any of the certifications required by this Section are false.

C. Debt Delinquency

1. The Illinois Procurement Code provides:

Section 50-11 and 50-12. Debt Delinquency. The contractor or bidder or subcontractor, respectively, certifies that it, or any affiliate, is not barred from being awarded a contract or subcontract under the Procurement Code. Section 50-11 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The bidder or contractor or subcontractor, respectively, further acknowledges that the chief procurement officer may declare the related contract void if this certification is false or if the bidder, contractor, or subcontractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

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D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-12 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Procurement Code by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The bidder or contractor or subcontractor, respectively, acknowledges that the chief procurement officer may declare the contract void if this certification is false.

F. Educational Loan

1. Section 3 of the Educational Loan Default Act provides:

§ 3. No State agency shall contract with an individual for goods or services if that individual is in default, as defined in Section 2 of this Act, on an educational loan. Any contract used by any State agency shall include a statement certifying that the individual is not in default on an educational loan as provided in this Section.

2. The bidder, if an individual as opposed to a corporation, partnership or other form of business organization, certifies that the bidder is not in default on an educational loan as provided in Section 3 of the Act.

G. Bid-Rigging/Bid Rotating

1. Section 33E-11 of the Criminal Code of 1961 provides:

§ 33E-11. (a) Every bid submitted to and public contract executed pursuant to such bid by the State or a unit of local government shall contain a certification by the prime contractor that the prime contractor is not barred from contracting with any unit of State or local government as a result of a violation of either Section 33E-3 or 33E-4 of this Article. The State and units of local government shall provide the appropriate forms for such certification.

(b) A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

A violation of Section 33E-3 would be represented by a conviction of the crime of bid-rigging which, in addition to Class 3 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be barred for 5 years from the date of conviction from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

A violation of Section 33E-4 would be represented by a conviction of the crime of bid-rotating which, in addition to Class 2 felony sentencing, provides that any person convicted of this offense or any similar offense of any state or the United States which contains the same elements as this offense shall be permanently barred from contracting with any unit of State or local government. No corporation shall be barred from contracting with any unit of State or local government as a result of a conviction under this Section of any employee or agent of such corporation if the employee so convicted is no longer employed by the corporation and: (1) it has been finally adjudicated not guilty or (2) if it demonstrates to the governmental entity with which it seeks to contract and that entity finds that the commission of the offense was neither authorized, requested, commanded, nor performed by a director, officer or a high managerial agent in behalf of the corporation.

2. The bidder certifies that it is not barred from contracting with the Department by reason of a violation of either Section 33E-3 or Section 33E-4.

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H. International Anti-Boycott

1. Section 5 of the International Anti-Boycott Certification Act provides:

§ 5. State contracts. Every contract entered into by the State of Illinois for the manufacture, furnishing, or purchasing of supplies, material, or equipment or for the furnishing of work, labor, or services, in an amount exceeding the threshold for small purchases according to the purchasing laws of this State or \$10,000.00, whichever is less, shall contain certification, as a material condition of the contract, by which the contractor agrees that neither the contractor nor any substantially-owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the U.S. Export Administration Act of 1979 or the regulations of the U.S. Department of Commerce promulgated under that Act.

2. The bidder makes the certification set forth in Section 5 of the Act.

I. Drug Free Workplace

1. The Illinois "Drug Free Workplace Act" applies to this contract and it is necessary to comply with the provisions of the "Act" if the contractor is a corporation, partnership, or other entity (including a sole proprietorship) which has 25 or more employees.

2. The bidder certifies that if awarded a contract in excess of \$5,000 it will provide a drug free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance, including cannabis, is prohibited in the contractor's workplace; specifying the actions that will be taken against employees for violations of such prohibition; and notifying the employee that, as a condition of employment on such contract, the employee shall abide by the terms of the statement, and notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

(b) Establishing a drug free awareness program to inform employees about the dangers of drug abuse in the workplace; the contractor's policy of maintaining a drug free workplace; any available drug counseling, rehabilitation, and employee assistance programs; and the penalties that may be imposed upon employees for drug violations.

(c) Providing a copy of the statement required by subparagraph (1) to each employee engaged in the performance of the contract and to post the statement in a prominent place in the workplace.

(d) Notifying the Department within ten (10) days after receiving notice from an employee or otherwise receiving actual notice of the conviction of an employee for a violation of any criminal drug statute occurring in the workplace.

(e) Imposing or requiring, within 30 days after receiving notice from an employee of a conviction or actual notice of such a conviction, an appropriate personnel action, up to and including termination, or the satisfactory participation in a drug abuse assistance or rehabilitation program approved by a federal, state or local health, law enforcement or other appropriate agency.

(f) Assisting employees in selecting a course of action in the event drug counseling, treatment, and rehabilitation is required and indicating that a trained referral team is in place.

(g) Making a good faith effort to continue to maintain a drug free workplace through implementation of the actions and efforts stated in this certification.

J. Disclosure of Business Operations in Iran

Section 50-36 of the Illinois Procurement Code, 30ILCS 50/50-36 provides that each bid, offer, or proposal submitted for a State contract shall include a disclosure of whether or not the Company acting as the bidder, offeror, or proposing entity, or any of its corporate parents or subsidiaries, within the 24 months before submission of the bid, offer, or proposal had business operations that involved contracts with or provision of supplies or services to the Government of Iran, companies in which the Government of Iran has any direct or indirect equity share, consortiums or projects commissioned by the Government of Iran, or companies involved in consortiums or projects commissioned by the Government of Iran and either of the following conditions apply:

(1) More than 10% of the Company's revenues produced in or assets located in Iran involve oil-related activities or mineral-extraction activities; less than 75% of the Company's revenues produced in or assets located in Iran involve contracts with or provision of oil-related or mineral-extraction products or services to the Government of Iran or a project or consortium created exclusively by that government; and the Company has failed to take substantial action.

(2) The Company has, on or after August 5, 1996, made an investment of \$20 million or more, or any combination of investments of at least \$10 million each that in the aggregate equals or exceeds \$20 million in any 12-month period, which directly or significantly contributes to the enhancement of Iran's ability to develop petroleum resources of Iran.

The terms "Business operations", "Company", "Mineral-extraction activities", "Oil-related activities", "Petroleum resources", and "Substantial action" are all defined in the Code.

Failure to make the disclosure required by the Code shall cause the bid, offer or proposal to be considered not responsive. The disclosure will be considered when evaluating the bid, offer, or proposal or awarding the contract. The name of each Company disclosed as doing business or having done business in Iran will be provided to the State Comptroller.

Check the appropriate statement:

Company has no business operations in Iran to disclose.

Company has business operations in Iran as disclosed in the attached document.

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K. Apprenticeship and Training Certification (Does not apply to federal aid projects)

In accordance with the provisions of Section 30-22 (6) of the Illinois Procurement Code, the bidder certifies that it is a participant, either as an individual or as part of a group program, in the approved apprenticeship and training programs applicable to each type of work or craft that the bidder will perform with its own forces. The bidder further certifies for work that will be performed by subcontract that each of its subcontractors submitted for approval either (a) is, at the time of such bid, participating in an approved, applicable apprenticeship and training program; or (b) will, prior to commencement of performance of work pursuant to this contract, begin participation in an approved apprenticeship and training program applicable to the work of the subcontract. The Department, at any time before or after award, may require the production of a copy of each applicable Certificate of Registration issued by the United States Department of Labor evidencing such participation by the contractor and any or all of its subcontractors. Applicable apprenticeship and training programs are those that have been approved and registered with the United States Department of Labor. The bidder shall list in the space below, the official name of the program sponsor holding the Certificate of Registration for all of the types of work or crafts in which the bidder is a participant and that will be performed with the bidder's forces. Types of work or craft work that will be subcontracted shall be included and listed as subcontracted work. The list shall also indicate any type of work or craft job category that does not have an applicable apprenticeship or training program. **The bidder is responsible for making a complete report and shall make certain that each type of work or craft job category that will be utilized on the project as reported on the Construction Employee Workforce Projection (Form BC-1256) and returned with the bid is accounted for and listed.**

N/A (Federal)

The requirements of this certification and disclosure are a material part of the contract, and the contractor shall require this certification provision to be included in all approved subcontracts. In order to fulfill this requirement, it shall not be necessary that an applicable program sponsor be currently taking or that it will take applications for apprenticeship, training or employment during the performance of the work of this contract.

L. Political Contributions and Registration with the State Board of Elections.

Sections 20-160 and 50-37 of the Illinois Procurement Code regulate political contributions from business entities and any affiliated entities or affiliated persons bidding on or contracting with the state. Generally under Section 50-37, any business entity, and any affiliated entity or affiliated person of the business entity, whose current year contracts with all state agencies exceed an awarded value of \$50,000, are prohibited from making any contributions to any political committees established to promote the candidacy of the officeholder responsible for the awarding of the contracts or any other declared candidate for that office for the duration of the term of office of the incumbent officeholder or a period 2 years after the termination of the contract, whichever is longer. Any business entity and affiliated entities or affiliated persons whose state contracts in the current year do not exceed an awarded value of \$50,000, either alone or in combination with contracts not exceeding \$50,000, are prohibited from making any political contributions to any political committee established to promote the candidacy of the officeholder responsible for awarding the pending contract during the period beginning on the date the invitation for bids or request for proposals is issued and ending on the day after the date of award or selection if the entity was not awarded or selected. Section 20-160 requires certification of registration of affected business entities in accordance with procedures found in Section 9-35 of The Election Code

By submission of a bid, the contractor business entity acknowledges and agrees that it has read and understands Sections 20-160 and 50-37 of the Illinois Procurement Code, and that it makes the following certification:

The undersigned business entity certifies that it has registered as a business with the State Board of Elections and acknowledges a continuing duty to update the registration in accordance with the above referenced statutes. A copy of the certificate of registration shall be submitted with the bid. The bidder is cautioned that the Department will not award a contract without submission of the certificate of registration.

These requirements and compliance with the above referenced statutory sections are a material part of the contract, and any breach thereof shall be cause to void the contract under Section 50-06 of the Illinois Procurement Code. These provisions do not apply to Federal-aid contracts.

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M. Lobbyist Disclosure

Section 50-38 of the Illinois Procurement Code requires that any bidder or offeror on a State contract that hires a person required to register under the Lobbyist Registration Act to assist in obtaining a contract shall:

- (i) Disclose all costs, fees, compensation, reimbursements, and other remunerations paid or to be paid to the lobbyist related to the contract,
- (ii) Not bill or otherwise cause the State of Illinois to pay for any of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration, and
- (iii) Sign a verification certifying that none of the lobbyist's costs, fees, compensation, reimbursements, or other remuneration were billed to the State.

This information, along with all supporting documents, shall be filed with the agency awarding the contract and with the Secretary of State. The chief procurement officer shall post this information, together with the contract award notice, in the online Procurement Bulletin.

Pursuant to Subsection (c) of this Section, no person or entity shall retain a person or entity to attempt to influence the outcome of a procurement decision made under the Procurement Code for compensation contingent in whole or in part upon the decision or procurement. Any person who violates this subsection is guilty of a business offense and shall be fined not more than \$10,000.

Bidder acknowledges that it is required to disclose the hiring of any person required to register pursuant to the Illinois Lobbyist Registration Act (25 ILCS 170) in connection with this contract.

Bidder has not hired any person required to register pursuant to the Illinois Lobbyist Registration Act in connection with this contract.

Or

Bidder has hired the following persons required to register pursuant to the Illinois Lobbyist Registration Act in connection with the contract:

Name and address of person: _____
All costs, fees, compensation, reimbursements and other remuneration paid to said person: _____

RETURN WITH BID

IV. DISCLOSURES

- A. The disclosures hereinafter made by the bidder are each a material representation of fact upon which reliance is placed should the Department enter into the contract with the bidder. The bidder further certifies that the Department has received the disclosure forms for each bid.

The chief procurement officer may void the bid, contract, or subcontract, respectively, if it is later determined that the bidder or subcontractor rendered a false or erroneous disclosure. A contractor or subcontractor may be suspended or debarred for violations of the Procurement Code. Furthermore, the chief procurement officer may void the contract and the surety providing the performance bond shall be responsible for completion of the contract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Illinois Procurement Code provides that bids of more than \$25,000 shall be accompanied by disclosure of the financial interests of the bidder. This disclosed information for the successful bidder, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act, filed with the Procurement Policy Board, and shall be incorporated as a material term of the contract. Furthermore, pursuant to Section 5-5, the Procurement Policy Board may review a proposal, bid, or contract and issue a recommendation to void a contract or reject a proposal or bid based on any violation of the Procurement Code or the existence of a conflict of interest as provided in subsections (b) and (d) of Section 50-35.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the bidding entity or its parent entity, whichever is less, unless the contractor or bidder is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

The current annual salary of the Governor is \$177,412.00

In addition, all disclosures shall indicate any other current or pending contracts, proposals, leases, or other ongoing procurement relationships the bidding entity has with any other unit of state government and shall clearly identify the unit and the contract, proposal, lease, or other relationship.

2. Disclosure Forms. Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. Subject individuals should be covered each by one form. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies. **The forms must be included with each bid.**

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the bidder is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a bidder is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a bidder is not subject to Federal 10K reporting, the bidder must determine if any individuals are required by law to complete a financial disclosure form. To do this, the bidder should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on Form A must be signed and dated by a person that is authorized to execute contracts for the bidding company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity? YES _____ NO _____
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES _____ NO _____
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the bidding entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES _____ NO _____
4. Does anyone in your organization receive greater than 5% of the bidding entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES _____ NO _____

(Note: Only one set of forms needs to be completed per person per bid even if a specific individual would require a yes answer to more than one question.)

A "YES" answer to any of these questions requires the completion of Form A. The bidder must determine each individual in the bidding entity or the bidding entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by a person that is authorized to execute contracts for your organization. **Photocopied or stamped signatures are not acceptable.** The person signing can be, but does not have to be, the person for which the form is being completed. The bidder is responsible for the accuracy of any information provided.

If the answer to each of the above questions is "NO", then the NOT APPLICABLE STATEMENT of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

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Form B: Instructions for Identifying Other Contracts & Procurement Related Information

Disclosure Form B must be completed for each bid submitted by the bidding entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, checked, and dated or the bidder may be considered nonresponsive and the bid will not be accepted.*

The Bidder shall identify, by checking Yes or No on Form B, whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the bidder only needs to complete the check box on the bottom of Form B. If "Yes" is checked, the bidder must do one of the following:

Option I: If the bidder did not submit an Affidavit of Availability to obtain authorization to bid, the bidder must list all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Do not include IDOT contracts. Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included. Bidders who submit Affidavits of Availability are suggested to use Option II.

Option II: If the bidder is required and has submitted an Affidavit of Availability in order to obtain authorization to bid, the bidder may write or type "See Affidavit of Availability" which indicates that the Affidavit of Availability is incorporated by reference and includes all non-IDOT State of Illinois agency pending contracts, leases, bids, proposals, and other ongoing procurement relationships. For any contracts that are not covered by the Affidavit of Availability, the bidder must identify them on Form B or on an attached sheet(s). These might be such things as leases.

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**Form A
Financial Information &
Potential Conflicts of Interest
Disclosure**

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number	Email Address	Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Code (30 ILCS 500). Vendors desiring to enter into a contract with the State of Illinois must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for bids in excess of \$25,000, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**
The current salary of the Governor is \$177,412.00.

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the BIDDER (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than 60% of the annual salary of the Governor. **(Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)**

FOR INDIVIDUAL (type or print information)
NAME: _____
ADDRESS _____
Type of ownership/distributable income share:
stock _____ sole proprietorship _____ partnership _____ other: (explain on separate sheet)
% or \$ value of ownership/distributable income share: _____

2. Disclosure of Potential Conflicts of Interest. Check "Yes" or "No" to indicate which, if any, of the following potential conflict of interest relationships apply. If the answer to any question is "Yes", please attach additional pages and describe.

(a) State employment, currently or in the previous 3 years, including contractual employment of services.
Yes____ No____ If your answer is yes, please answer each of the following questions.

- Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes____ No____
- Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, provide the name of the State agency for which you are employed and your annual salary.

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- 3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor? Yes _____ No _____
- 4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes _____ No _____

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment for services in the previous 2 years. Yes _____ No _____

If your answer is yes, please answer each of the following questions.

- 1. Is your spouse or any minor children currently an officer or employee of the Capital Development Board or the Illinois State Toll Highway Authority? Yes _____ No _____
- 2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of your spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary.

- 3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor? Yes _____ No _____
- 4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15% in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes _____ No _____

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes _____ No _____

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter Yes _____ No _____

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United States of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years. Yes _____ No _____

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes _____ No _____

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government. Yes _____ No _____

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter. Yes _____ No _____

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections Yes _____ No _____

RETURN WITH BID

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections. Yes____ No____

3. Communication Disclosure.

Disclose the name and address of each lobbyist and other agent of the bidder or offeror who is not identified in Section 2 of this form, who has communicated, is communicating, or may communicate with any State officer or employee concerning the bid or offer. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the process and throughout the term of the contract. If no person is identified, enter "None" on the line below:

Name and address of person(s): _____

4. Debarment Disclosure. For each of the persons identified under Sections 2 and 3 of this form, disclose whether any of the following has occurred within the previous 10 years: debarment from contracting with any governmental entity; professional licensure discipline; bankruptcies; adverse civil judgments and administrative findings; and criminal felony convictions. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the procurement process and term of the contract. If no person is identified, enter "None" on the line below:

Name of person(s): _____

Nature of disclosure: _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page. Under penalty of perjury, I certify the contents of this disclosure to be true and accurate to the best of my knowledge.

Completed by: _____ Date _____
Signature of Individual or Authorized Officer

NOT APPLICABLE STATEMENT

Under penalty of perjury, I have determined that no individuals associated with this organization meet the criteria that would require the completion of this Form A.

This Disclosure Form A is submitted on behalf of the CONTRACTOR listed on the previous page.

_____ Date _____
Signature of Authorized Officer

The bidder has a continuing obligation to supplement these disclosures under Sec. 50-35 of the Procurement Code.

**ILLINOIS DEPARTMENT
OF TRANSPORTATION**

**Form B
Other Contracts &
Procurement Related Information
Disclosure**

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number	Email Address	Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for bids in excess of \$25,000, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The BIDDER shall identify whether it has any pending contracts (including leases), bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency:

Yes _____ No _____

If **“No” is checked**, the bidder only needs to complete the signature box on the bottom of this page.

2. If “Yes” is checked. Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

THE FOLLOWING STATEMENT MUST BE CHECKED

<input type="checkbox"/>	<hr style="width: 80%; margin: 0 auto;"/> Signature of Authorized Representative	<hr style="width: 10%; margin: 0 auto;"/> Date
--------------------------	--	--

RETURN WITH BID

SPECIAL NOTICE TO CONTRACTORS

The following requirements of the Illinois Department of Human Rights' Rules and Regulations are applicable to bidders on all construction contracts advertised by the Illinois Department of Transportation:

CONSTRUCTION EMPLOYEE UTILIZATION PROJECTION

- (a) All bidders on construction contracts shall complete and submit, along with and as part of their bids, a Bidder's Employee Utilization Form (Form BC-1256) setting forth a projection and breakdown of the total workforce intended to be hired and/or allocated to such contract work by the bidder including a projection of minority and female employee utilization in all job classifications on the contract project.
- (b) The Department of Transportation shall review the Employee Utilization Form, and workforce projections contained therein, of the contract awardee to determine if such projections reflect an underutilization of minority persons and/or women in any job classification in accordance with the Equal Employment Opportunity Clause and Section 7.2 of the Illinois Department of Human Rights' Rules and Regulations for Public Contracts adopted as amended on September 17, 1980. If it is determined that the contract awardee's projections reflect an underutilization of minority persons and/or women in any job classification, it shall be advised in writing of the manner in which it is underutilizing and such awardee shall be considered to be in breach of the contract unless, prior to commencement of work on the contract project, it submits revised satisfactory projections or an acceptable written affirmative action plan to correct such underutilization including a specific timetable geared to the completion stages of the contract.
- (c) The Department of Transportation shall provide to the Department of Human Rights a copy of the contract awardee's Employee Utilization Form, a copy of any required written affirmative action plan, and any written correspondence related thereto. The Department of Human Rights may review and revise any action taken by the Department of Transportation with respect to these requirements.



Contract No. DU080
 DuPage Airport
 West Chicago, Illinois
 DuPage County
 Illinois Project No. DPA-4122
 Federal Project No. 3-17-0017-B25

PART I. IDENTIFICATION

Dept. Human Rights # _____ Duration of Project: _____

Name of Bidder: _____

PART II. WORKFORCE PROJECTION

A. The undersigned bidder has analyzed minority group and female populations, unemployment rates and availability of workers for the location in which this contract work is to be performed, and for the locations from which the bidder recruits employees, and hereby submits the following workforce projection including a projection for minority and female employee utilization in all job categories in the workforce to be allocated to this contract:

TABLE A

TOTAL Workforce Projection for Contract												
JOB CATEGORIES	TOTAL EMPLOYEES		MINORITY EMPLOYEES						TRAINEES			
	M	F	BLACK		HISPANIC		*OTHER MINOR.		APPRENTICES		ON THE JOB TRAINEES	
			M	F	M	F	M	F	M	F	M	F
OFFICIALS (MANAGERS)												
SUPERVISORS												
FOREMEN												
CLERICAL												
EQUIPMENT OPERATORS												
MECHANICS												
TRUCK DRIVERS												
IRONWORKERS												
CARPENTERS												
CEMENT MASONS												
ELECTRICIANS												
PIPEFITTERS, PLUMBERS												
PAINTERS												
LABORERS, SEMI-SKILLED												
LABORERS, UNSKILLED												
TOTAL												

TABLE B

CURRENT EMPLOYEES TO BE ASSIGNED TO CONTRACT			
TOTAL EMPLOYEES		MINORITY EMPLOYEES	
M	F	M	F

TABLE C

TOTAL Training Projection for Contract								
EMPLOYEES IN TRAINING	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.	
	M	F	M	F	M	F	M	F
APPRENTICES								
ON THE JOB TRAINEES								

FOR DEPARTMENT USE ONLY

* Other minorities are defined as Asians (A) or Native Americans (N).
 Please specify race of each employee shown in Other Minorities column.

Note: See instructions on page 2

RETURN WITH BID

Contract No. DU080
DuPage Airport
West Chicago, Illinois
DuPage County
Illinois Project No. DPA-4122
Federal Project No. 3-17-0017-B25

PART II. WORKFORCE PROJECTION - continued

B. Included in "Total Employees" under Table A is the total number of new hires that would be employed in the event the undersigned bidder is awarded this contract.

The undersigned bidder projects that: (number) new hires would be recruited from the area in which the contract project is located; and/or (number) new hires would be recruited from the area in which the bidder's principal office or base of operation is located.

C. Included in "Total Employees" under Table A is a projection of numbers of persons to be employed directly by the undersigned bidder as well as a projection of numbers of persons to be employed by subcontractors.

The undersigned bidder estimates that (number) persons will be directly employed by the prime contractor and that (number) persons will be employed by subcontractors.

PART III. AFFIRMATIVE ACTION PLAN

A. The undersigned bidder understands and agrees that in the event the foregoing minority and female employee utilization projection included under PART II is determined to be an underutilization of minority persons or women in any job category, and in the event that the undersigned bidder is awarded this contract, he/she will, prior to commencement of work, develop and submit a written Affirmative Action Plan including a specific timetable (geared to the completion stages of the contract) whereby deficiencies in minority and/or female employee utilization are corrected. Such Affirmative Action Plan will be subject to approval by the contracting agency and the Department of Human Rights.

B. The undersigned bidder understands and agrees that the minority and female employee utilization projection submitted herein, and the goals and timetable included under an Affirmative Action Plan if required, are deemed to be part of the contract specifications.

Company Telephone Number

Address

NOTICE REGARDING SIGNATURE

The Bidder's signature on the Proposal Signature Sheet will constitute the signing of this form. The following signature block needs to be completed only if revisions are required.

Signature: Title: Date:

Instructions: All tables must include subcontractor personnel in addition to prime contractor personnel.

Table A - Include both the number of employees that would be hired to perform the contract work and the total number currently employed (Table B) that will be allocated to contract work, and include all apprentices and on-the-job trainees. The "Total Employees" column should include all employees including all minorities, apprentices and on-the-job trainees to be employed on the contract work.

Table B - Include all employees currently employed that will be allocated to the contract work including any apprentices and on-the-job trainees currently employed.

Table C - Indicate the racial breakdown of the total apprentices and on-the-job trainees shown in Table A.

RETURN WITH BID

CERTIFICATIONS REQUIRED BY STATE AND/OR FEDERAL LAW. The bidder is required by State and/or Federal law to make the below certifications and assurances as a part of the proposal and contract upon award. It is understood by the bidder that the certifications and assurances made herein are a part of the contract.

By signing the Proposal Signature Sheet, the bidder certifies that he/she has read and completed each of the following certifications and assurances, that required responses are true and correct and that the certified signature of the Proposal Signature Sheet constitutes an endorsement and execution of each certification and assurance as though each was individually signed:

- A. By the execution of this proposal, the signing bidder certifies that the bidding entity has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid. This statement made by the undersigned bidder is true and correct under penalty of perjury under the laws of the United States.
- B. CERTIFICATION, EQUAL EMPLOYMENT OPPORTUNITY
- (a) Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause?
Yes_____ No_____
- (b) If your answer is yes, have you filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations? Yes_____ No_____
- C. BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS
- (a) The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program (AIP).
- (b) Any and all steel products used in the performance of this contract by the Contractor, subcontractors, producers, and suppliers are required to adhere to the Illinois Steel Products Procurement Act, which requires that all steel items be of 100 percent domestic origin and manufacture. Any products listed under the Federal Aviation Administration's (FAA) nationwide approved list of "Equipment Meeting Buy American Requirements" shall be deemed as meeting the requirements of the Illinois Steel Products Procurement Act.
- (c) The successful bidder will be required to assure that only domestic steel and domestically manufactured products will be used by the Contractor, subcontractors, producers, and suppliers in the performance of this contract. The North American Free Trade Agreement (NAFTA) specifically excluded federal grant programs such as the AIP. Therefore, NAFTA does not change the requirement to comply with the Buy American requirement in the Act. Exceptions to this are for products, other than steel, that:
- (1) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990, are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality;
 - (2) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest;
 - (3) the FAA has determined that inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent; or
 - (4) the FAA has determined, under the Aviation Safety and Capacity Expansion Act of 1990,
 - (i) the cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components of the facility or equipment, and
 - (ii) final assembly of the facility or equipment has occurred in the United States.

The FAA must grant waivers for any items that are included in these above exceptions. Bidders can review items already approved under the FAA nationwide approved list of "Equipment Meeting Buy American Requirements" on the FAA website, which do not require a specific FAA waiver.

All waivers are the responsibility of the Contractor, must be obtained prior to the Notice to Proceed, and must be submitted to the Division of Aeronautics for review and approval before being forwarded to the FAA. Any products used on the project that cannot meet the domestic requirement, and for which a waiver prior to the Notice to Proceed was not obtained, will be rejected for use and subject to removal and replacement with no additional compensation, and the contractor deemed non-responsive.

RETURN WITH BID

D. 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 undersigned 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).

E. NON-APPROPRIATION CLAUSE

By submitting a bid/proposal under this solicitation the offeror certifies that he/she understands that obligations of the State will cease immediately without penalty or further payment being required in any fiscal year the Illinois General Assembly fails to appropriate or otherwise make available sufficient funds for this contract.

- F. Contractor is not delinquent in the payment of any debt to the State (or if delinquent has entered into a deferred payment plan to pay the debt), and Contractor acknowledges the contracting state agency may declare the contract void if this certification is false (30 ILCS 500/50-11, effective July 1, 2002).

RETURN WITH BID

NOTICE TO BIDDERS

1. **TIME AND PLACE OF OPENING BIDS.** Sealed proposals for the improvement described herein will be received by the Department of Transportation at the Harry R. Hanley Building, 2300 South Dirksen Parkway in Springfield, Illinois until 10:00 o'clock a.m., March 9, 2012. All bids will be gathered, sorted, publicly opened and read in the auditorium at the Department of Transportation's Harry R. Hanley Building shortly after the 10:00 a.m. cut off time.
2. **DESCRIPTION OF WORK.** The proposed improvement, shown in detail on the plans issued by the Department includes, in general, the following described work:

Runway 10/28 Overlay
3. **INSTRUCTIONS TO BIDDERS.**
 - (a) This Notice, the invitation for bids, proposal and award shall, together with all other documents in accordance with Article 10-18 of the Illinois Standard Specifications for Construction of Airports, 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 to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the proposal 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.** There will be a pre-bid conference held at N/A at the DuPage Airport administration building. For engineering information, contact Johnny M. Jackson, P.E. of CH2M Hill at (502) 387-8278.
6. **DISADVANTAGED BUSINESS POLICY.** The DBE goal for this contract is 10.0%.
7. **SPECIFICATIONS AND DRAWINGS.** The work shall be done in accordance with the Illinois Standard Specifications for Construction of Airports, the Illinois Division of Aeronautics Supplemental Specifications and Recurring Special Provisions, the Special Provisions dated February 3, 2011 and the Construction Plans dated February 3, 2011 as approved by the Department of Transportation, Division of Aeronautics.
8. **TERMINATION OF CONTRACT.**
 1. The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services shall be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Sponsor.
 2. If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed services.
 3. If the termination is due to failure to fulfill the Contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the Contractor shall be liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.
 4. If, after notice of termination for failure to fulfill contract obligations, it is determined that the Contractor had not so failed, the termination shall be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price shall be made as provided in paragraph 2 of this clause.
 5. The rights and remedies of the Sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

RETURN WITH BID

9. 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.

10. 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 216 calendar days.

11. 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.

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.

RETURN WITH BID

**Contract No. DU080
DuPage Airport
West Chicago, Illinois
DuPage County
Illinois Project No. DPA-4122
Federal Project No. 3-17-0017-B25**

PROPOSAL SIGNATURE SHEET

The undersigned bidder hereby makes and submits this bid on the subject Proposal, thereby assuring the Department that all requirements of the Invitation for Bids and rules of the Department have been met, that there is no misunderstanding of the requirements of paragraph 4 of this Proposal, and that the contract will be executed in accordance with the rules of the Department if an award is made on this bid.

Firm Name _____

(IF AN INDIVIDUAL) Signature of Owner _____

Business Address _____

Firm Name _____

By _____

(IF A CO-PARTNERSHIP) Business Address _____

Name and Address of All Members of the Firm:

Corporate Name _____

By _____

Signature of Authorized Representative

(IF A CORPORATION) _____

Typed or printed name and title of Authorized Representative

(IF A JOINT VENTURE, USE THIS SECTION FOR THE MANAGING PARTY AND THE SECOND PARTY SHOULD SIGN BELOW)

Attest _____

Signature

Business Address _____

Corporate Name _____

By _____

Signature of Authorized Representative

(IF A JOINT VENTURE) _____

Typed or printed name and title of Authorized Representative

Attest _____

Signature

Business Address _____

If more than two parties are in the joint venture, please attach additional signature sheet



Sponsor _____ Item No. _____

IL Proj. No. _____ AIP Proj. No. _____ Letting Date _____

KNOW ALL MEN BY THESE PRESENTS, That We _____

_____ as PRINCIPAL, and _____

_____ as SURETY, are held jointly, severally and firmly bound unto the SPONSOR identified above, in the penal sum of 5 percent of the total bid price, or for the amount specified in Section 6, Proposal Guarantee of the Proposal Document, whichever is the lesser sum, well and truly to be paid unto said SPONSOR, for the payment of which we bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH, that whereas, the PRINCIPAL has submitted a bid proposal to the SPONSOR through its AGENT, the State of Illinois, Department of Transportation, Division of Aeronautics, for the improvement designated by the Transportation Bulletin Item Number and Letting Date indicated above.

NOW, THEREFORE, if the SPONSOR through its AGENT shall accept the bid proposal of the PRINCIPAL; and if the PRINCIPAL shall, and as specified in the bidding and contract documents, submit a DBE Utilization Plan that is accepted and approved by the AGENT; and if, after the award by AGENT on behalf of SPONSOR, the PRINCIPAL shall enter into a contract in accordance with the terms of the bidding and contract documents, including evidence of the required insurance coverages and providing such bond as specified with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof; or if, in the event of the failure of the PRINCIPAL to make the required DBE submission or to enter into such contract and to give the specified bond, the PRINCIPAL pays to the SPONSOR the difference not to exceed the penalty hereof between the amount specified in the bid proposal and such larger amount for which the SPONSOR may contract with another party to perform the work covered by said bid proposal, then this obligation shall be null and void, otherwise, it shall remain in full force and effect.

IN THE EVENT the SPONSOR acting through its AGENT determines the PRINCIPAL has failed to comply with any requirement as set forth in the preceding paragraph, then SURETY shall pay the penal sum to the SPONSOR within fifteen (15) days of written demand therefor. If SURETY does not make full payment within such period of time, the AGENT may bring an action to collect the amount owed. SURETY is liable to the SPONSOR and to the AGENT for all its expenses, including attorney's fees, incurred in any litigation in which SPONSOR or AGENT prevail either in whole or in part.

In TESTIMONY WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by their respective officers _____ day of _____ A.D., _____ .

PRINCIPAL

SURETY

(Company Name)

(Company Name)

By _____
(Signature & Title)

By: _____
(Signature of Attorney-in-Fact)

Notary Certification for Principal and Surety

STATE OF ILLINOIS,
County of _____

I, _____, a Notary Public in and for said County, do hereby certify that _____ and _____
(Insert names of individuals signing on behalf of PRINCIPAL & SURETY)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of PRINCIPAL and SURETY, appeared before me this day in person and acknowledged respectively, that they signed and delivered said instrument as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____ A.D. _____

My commission expires _____

Notary Public

In lieu of completing the above section of the Proposal Bid Form, the Principal may file an Electronic Bid Bond. By signing the proposal and marking the check box next to the Signature and Title line below, the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the SPONSOR through its AGENT under the conditions of the bid bond as shown above.

Electronic Bid Bond ID# _____ Company / Bidder Name _____ Signature and Title _____



(1) Policy

It is public policy that disadvantageded businesses as defined in 49 CFR Part 26 and the Special Provision shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal or State funds. Consequently the requirements of 49 CFR Part 26 apply to this contract.

(2) Obligation

The contractor agrees to ensure that disadvantageded businesses as defined in 49 CFR Part 26 and the Special Provision have the maximum opportunity to participate in the performance of contracts or subcontracts financed in whole or in part with Federal or State funds. The contractor shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 and the Special Provision to ensure that said businesses have the maximum opportunity to compete for and perform under this contract. The contractor shall not discriminate on the basis of race, color, national origin or sex in the award and performance of contracts.

(3) Project and Bid Identification

Complete the following information concerning the project and bid:

Route DuPage Airport

Section _____

Project DPA-4122

County DuPage County

Letting Date March 9, 2012

Contract No. DU080

Letting Item No. 5A

Total Bid _____

Contract DBE Goal 10.0% _____
(Percent) (Dollar Amount)

(4) Assurance

I, acting in my capacity as an officer of the undersigned bidder (or bidders if a joint venture), hereby assure the Department that on this project my company : (check one)

Meets or exceeds contract award goals and has provided documented participation as follows:
Disadvantaged Business Participation _____ percent

Attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.

Failed to meet contract award goals and has included good faith effort documentation to meet the goals and that my company has provided participation as follows:

Disadvantaged Business Participation _____ percent

The contract goals should be accordingly modified or waived. Attached is all information required by the Special Provision in support of this request including good faith effort. Also attached are the signed participation statements, forms SBE 2025, required by the Special Provision evidencing availability and use of each business participating in this plan and assuring that each business will perform a commercially useful function in the work of the contract.

Company

By _____

Title _____

Date _____

The "as read" Low Bidder is required to comply with the Special Provision.	
Submit only one utilization plan for each project. The utilization plan shall be submitted in accordance with the special provision.	
Bureau of Small Business Enterprises 2300 South Dirksen Parkway Springfield, Illinois 62764	Local Let Projects Submit forms to the Local Agency

The Department of Transportation is requesting disclosure of information that is necessary to accomplish the purpose as outlined under State and Federal law. Disclosure of this information is **REQUIRED**. Failure to provide any information will result in the contract not being awarded. This form has been approved by the State Forms Manager Center.



Subcontractor Registration _____

Letting March 9, 2012

Participation Statement

Item No. 5A

(1) Instructions

Contract DU080

This form must be completed for each disadvantaged business participating in the Utilization Plan. This form shall be submitted in accordance with the special provision and will be attached to the Utilization Plan form. If additional space is needed complete an additional form for the firm.

(2) Work

Pay Item No.	Description	Quantity	Unit Price	Total
Total				

(3) Partial Payment Items

For any of the above items which are partial pay items, specifically describe the work and subcontract dollar amount:

(4) Commitment

The undersigned certify that the information included herein is true and correct, and that the DBE firm listed below has agreed to perform a commercially useful function in the work of the contract item(s) listed above and to execute a contract with the prime contractor. The undersigned further understand that no changes to this statement may be made without prior approval from the Department's Bureau of Small Business Enterprises and that complete and accurate information regarding actual work performed on this project and the payment therefore

Signature for Prime Contractor

Signature for DBE Firm

Title _____

Title _____

Date _____

Date _____

Contact _____

Contact _____

Phone _____

Phone _____

Firm Name _____

Firm Name _____

Address _____

Address _____

City/State/Zip _____

City/State/Zip _____

E _____

WC _____

The Department of Transportation is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under the state and federal law. Disclosure of this information is **REQUIRED**. Failure to provide any information will result in the contract not being awarded. This form has been approved by the State Forms Management Center.



PROPOSALS

for construction work advertised for bids by the
Illinois Department of Transportation

Item No.	Item No.	Item No.

Submitted By:

Name:
Address:
Phone No.

Bidders should use an IDOT proposal envelope or affix this form to the front of a 10" x 13" envelope for the submittal of bids. If proposals are mailed, they should be enclosed in a second or outer envelope addressed to:

Engineer of Design and Environment - Room 326
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

NOTICE

Individual bids, including Bid Bond and/or supplemental information if required, should be securely stapled.

CONTRACTOR OFFICE COPY OF CONTRACT SPECIFICATIONS

NOTICE

None of the following material needs to be returned with the bid package unless the special provisions require documentation and/or other information to be submitted.

**Contract No. DU080
DuPage Airport
West Chicago, Illinois
DuPage County
Illinois Project No. DPA-4122
Federal Project No. 3-17-0017-B25**



Illinois Department of Transportation

SUBCONTRACTOR DOCUMENTATION

Public Acts 96-0795 and 96-0920, enacted substantial changes to the provisions of the Illinois Procurement Code (30 ILCS 500). Among the changes are provisions affecting subcontractors. The Contractor awarded this contract will be required as a material condition of the contract to implement and enforce the contract requirements applicable to subcontractors approved in accordance with Section 60-01 of the Illinois Standard Specifications for Construction of Airports.

If the Contractor seeks approval of subcontractors to perform a portion of the work, and approval is granted by the Department, the Contractor shall provide a copy of the subcontract to the Chief Procurement Officer within 20 calendar days after execution of the subcontract.

The subcontract shall contain the certifications required to be made by subcontractors pursuant to Article 50 of the Illinois Procurement Code. This Notice to Bidders includes a document incorporating all required subcontractor certifications and disclosures for use by the Contractor in compliance with this mandate. The document is entitled State Required Ethical Standards Governing Subcontractors.

RETURN WITH SUBCONTRACT

STATE ETHICAL STANDARDS GOVERNING SUBCONTRACTORS

Article 50 of the Illinois Procurement Code establishes the duty of all State chief procurement officers, State purchasing officers, and their designees to maximize the value of the expenditure of public moneys in procuring goods, services, and contracts for the State of Illinois and to act in a manner that maintains the integrity and public trust of State government. In discharging this duty, they are charged by law to use all available information, reasonable efforts, and reasonable actions to protect, safeguard, and maintain the procurement process of the State of Illinois.

The certifications hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed should the Department approve the subcontractor. The chief procurement officer may terminate or void the subcontract approval if it is later determined that the bidder or subcontractor rendered a false or erroneous certification.

Section 50-2 of the Illinois Procurement Code provides that every person that has entered into a multi-year contract and every subcontractor with a multi-year subcontract shall certify, by July 1 of each fiscal year covered by the contract after the initial fiscal year, to the responsible chief procurement officer whether it continues to satisfy the requirements of Article 50 pertaining to the eligibility for a contract award. If a contractor or subcontractor is not able to truthfully certify that it continues to meet all requirements, it shall provide with its certification a detailed explanation of the circumstances leading to the change in certification status. A contractor or subcontractor that makes a false statement material to any given certification required under Article 50 is, in addition to any other penalties or consequences prescribed by law, subject to liability under the Whistleblower Reward and Protection Act for submission of a false claim.

A. Bribery

1. The Illinois Procurement Code provides:

Section 50-5. Bribery.

(a) Prohibition. No person or business shall be awarded a contract or subcontract under this Code who:

(1) has been convicted under the laws of Illinois or any other state of bribery or attempting to bribe an officer or employee of the State of Illinois or any other state in that officer's or employee's official capacity; or

(2) has made an admission of guilt of that conduct that is a matter of record but has not been prosecuted for that conduct.

(b) Businesses. No business shall be barred from contracting with any unit of State or local government, or subcontracting under such a contract, as a result of a conviction under this Section of any employee or agent of the business if the employee or agent is no longer employed by the business and:

(1) the business has been finally adjudicated not guilty; or

(2) the business demonstrates to the governmental entity with which it seeks to contract, or which is signatory to the contract to which the subcontract relates, and that entity finds that the commission of the offense was not authorized, requested, commanded, or performed by a director, officer, or high managerial agent on behalf of the business as provided in paragraph (2) of subsection (a) of Section 5-4 of the Criminal Code of 1961.

(c) Conduct on behalf of business. For purposes of this Section, when an official, agent, or employee of a business committed the bribery or attempted bribery on behalf of the business and in accordance with the direction or authorization of a responsible official of the business, the business shall be chargeable with the conduct.

(d) Certification. Every bid submitted to and contract executed by the State, and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the contractor or the subcontractor, respectively, that the contractor or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any certifications required by this Section are false. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

2. The contractor or subcontractor certifies that it is not barred from being awarded a contract under Section 50.5.

B. Felons

1. The Illinois Procurement Code provides:

Section 50-10. Felons. Unless otherwise provided, no person or business convicted of a felony shall do business with the State of Illinois or any State agency, or enter into a subcontract, from the date of conviction until 5 years after the date of completion of the sentence for that felony, unless no person held responsible by a prosecutorial office for the facts upon which the conviction was based continues to have any involvement with the business.

2. Certification. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder or contractor or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer may declare the related contract void if any of the certifications required by this Section are false.

RETURN WITH SUBCONTRACT

C. Debt Delinquency

1. The Illinois Procurement Code provides:

Section 50-11 and 50-12. Debt Delinquency.

The contractor or bidder or subcontractor, respectively, certifies that it, or any affiliate, is not barred from being awarded a contract or subcontract under the Procurement Code. Section 50-11 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it knows or should know that it, or any affiliate, is delinquent in the payment of any debt to the State as defined by the Debt Collection Board. Section 50-12 prohibits a person from entering into a contract with a State agency, or entering into a subcontract, if it, or any affiliate, has failed to collect and remit Illinois Use Tax on all sales of tangible personal property into the State of Illinois in accordance with the provisions of the Illinois Use Tax Act. The bidder or contractor or subcontractor, respectively, further acknowledges that the chief procurement officer may declare the related contract void if this certification is false or if the bidder, contractor, or subcontractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

D. Prohibited Bidders, Contractors and Subcontractors

1. The Illinois Procurement Code provides:

Section 50-10.5 and 50-60(c). Prohibited bidders, contractors and subcontractors.

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-10.5 that no officer, director, partner or other managerial agent of the contracting business has been convicted of a felony under the Sarbanes-Oxley Act of 2002 or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953 or if in violation of Subsection (c) for a period of five years from the date of conviction.. Every bid submitted to and contract executed by the State and every subcontract subject to Section 20-120 of the Procurement Code shall contain a certification by the bidder, contractor, or subcontractor, respectively, that the bidder, contractor, or subcontractor is not barred from being awarded a contract or subcontract under this Section and acknowledges that the chief procurement officer shall declare the related contract void if any of the certifications completed pursuant to this Section are false.

E. Section 42 of the Environmental Protection Act

The bidder or contractor or subcontractor, respectively, certifies in accordance with 30 ILCS 500/50-12 that the bidder, contractor, or subcontractor, is not barred from being awarded a contract or entering into a subcontract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency, or entering into any subcontract, that is subject to the Procurement Code by a person or business found by a court or the Pollution Control Board to have committed a willful or knowing violation of Section 42 of the Environmental Protection Act for a period of five years from the date of the order. The bidder or contractor or subcontractor, respectively, acknowledges that the chief procurement officer may declare the contract void if this certification is false.

The undersigned, on behalf of the subcontracting company, has read and understands the above certifications and makes the certifications as required by law.

<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Name of Subcontracting Company		
<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Authorized Officer	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> Date	

RETURN WITH SUBCONTRACT

SUBCONTRACTOR DISCLOSURES

I. DISCLOSURES

- A. The disclosures hereinafter made by the subcontractor are each a material representation of fact upon which reliance is placed. The subcontractor further certifies that the Department has received the disclosure forms for each subcontract.

The chief procurement officer may void the bid, contract, or subcontract, respectively, if it is later determined that the bidder or subcontractor rendered a false or erroneous disclosure. A contractor or subcontractor may be suspended or debarred for violations of the Procurement Code. Furthermore, the chief procurement officer may void the contract or subcontract.

B. Financial Interests and Conflicts of Interest

1. Section 50-35 of the Illinois Procurement Code provides that all subcontracts with a total value of \$25,000 or more from subcontractors identified in Section 20-120 of the Illinois Procurement Code shall be accompanied by disclosure of the financial interests of the subcontractor. This disclosed information for the subcontractor, will be maintained as public information subject to release by request pursuant to the Freedom of Information Act, filed with the Procurement Policy Board, and shall be incorporated as a material term of the Prime Contractor's contract. Furthermore, pursuant to this Section, the Procurement Policy Board may recommend to allow or void a contract or subcontract based on a potential conflict of interest.

The financial interests to be disclosed shall include ownership or distributive income share that is in excess of 5%, or an amount greater than 60% of the annual salary of the Governor, of the subcontracting entity or its parent entity, whichever is less, unless the subcontractor is a publicly traded entity subject to Federal 10K reporting, in which case it may submit its 10K disclosure in place of the prescribed disclosure. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. The disclosure shall include the names, addresses, and dollar or proportionate share of ownership of each person making the disclosure, their instrument of ownership or beneficial relationship, and notice of any potential conflict of interest resulting from the current ownership or beneficial interest of each person making the disclosure having any of the relationships identified in Section 50-35 and on the disclosure form.

The current annual salary of the Governor is \$177,412.00.

In addition, all disclosures shall indicate any other current or pending contracts, subcontracts, proposals, leases, or other ongoing procurement relationships the subcontracting entity has with any other unit of state government and shall clearly identify the unit and the contract, subcontract, proposal, lease, or other relationship.

2. Disclosure Forms. Disclosure Form A is attached for use concerning the individuals meeting the above ownership or distributive share requirements. Subject individuals should be covered each by one form. In addition, a second form (Disclosure Form B) provides for the disclosure of current or pending procurement relationships with other (non-IDOT) state agencies.

C. Disclosure Form Instructions

Form A Instructions for Financial Information & Potential Conflicts of Interest

If the subcontractor is a publicly traded entity subject to Federal 10K reporting, the 10K Report may be submitted to meet the requirements of Form A. If a subcontractor is a privately held entity that is exempt from Federal 10K reporting, but has more than 400 shareholders, it may submit the information that Federal 10K companies are required to report, and list the names of any person or entity holding any ownership share that is in excess of 5%. If a subcontractor is not subject to Federal 10K reporting, the subcontractor must determine if any individuals are required by law to complete a financial disclosure form. To do this, the subcontractor should answer each of the following questions. A "YES" answer indicates Form A must be completed. If the answer to each of the following questions is "NO", then the NOT APPLICABLE STATEMENT on the second page of Form A must be signed and dated by a person that is authorized to execute contracts for the subcontracting company. Note: These questions are for assistance only and are not required to be completed.

1. Does anyone in your organization have a direct or beneficial ownership share of greater than 5% of the bidding entity or parent entity?
YES _____ NO _____
2. Does anyone in your organization have a direct or beneficial ownership share of less than 5%, but which has a value greater than 60% of the annual salary of the Governor? YES _____ NO _____
3. Does anyone in your organization receive more than 60% of the annual salary of the Governor of the subcontracting entity's or parent entity's distributive income? (Note: Distributive income is, for these purposes, any type of distribution of profits. An annual salary is not distributive income.) YES _____ NO _____
4. Does anyone in your organization receive greater than 5% of the subcontracting entity's or parent entity's total distributive income, but which is less than 60% of the annual salary of the Governor? YES _____ NO _____

(Note: Only one set of forms needs to be completed per person per subcontract even if a specific individual would require a yes answer to more than one question.)

A "YES" answer to any of these questions requires the completion of Form A. The subcontractor must determine each individual in the subcontracting entity or the subcontracting entity's parent company that would cause the questions to be answered "Yes". Each form must be signed and dated by a person that is authorized to execute contracts for your organization. **Photocopied or stamped signatures are not acceptable.** The person signing can be, but does not have to be, the person for which the form is being completed. The subcontractor is responsible for the accuracy of any information provided.

If the answer to each of the above questions is "NO", then the NOT APPLICABLE STATEMENT on page 2 of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

RETURN WITH SUBCONTRACT

Form B: Instructions for Identifying Other Contracts & Procurement Related Information

Disclosure Form B must be completed for each subcontract submitted by the subcontracting entity. *Note: Checking the NOT APPLICABLE STATEMENT on Form A does not allow the subcontractor to ignore Form B. Form B must be completed, checked, and dated or the subcontract will not be approved.*

The Subcontractor shall identify, by checking Yes or No on Form B, whether it has any pending contracts, subcontracts, leases, bids, proposals, or other ongoing procurement relationship with any other (non-IDOT) State of Illinois agency. If "No" is checked, the subcontractor only needs to complete the check box on the bottom of Form B. If "Yes" is checked, the subcontractor must list all non-IDOT State of Illinois agency pending contracts, subcontracts, leases, bids, proposals, and other ongoing procurement relationships. These items may be listed on Form B or on an attached sheet(s). Contracts with cities, counties, villages, etc. are not considered State of Illinois agency contracts and are not to be included. Contracts or subcontracts with other State of Illinois agencies such as the Department of Natural Resources or the Capital Development Board must be included.

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A Subcontractor: Financial Information & Potential Conflicts of Interest Disclosure

Subcontractor Name, Legal Address, City, State, Zip, Telephone Number, Email Address, Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Code (30 ILCS 500). Subcontractors desiring to enter into a subcontract of a State of Illinois contract must disclose the financial information and potential conflict of interest information as specified in this Disclosure Form. This information shall become part of the publicly available contract file. This Form A must be completed for subcontracts with a total value of \$25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code, and for all open-ended contracts. A publicly traded company may submit a 10K disclosure (or equivalent if applicable) in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.

The current annual salary of the Governor is \$177,412.00.

DISCLOSURE OF FINANCIAL INFORMATION

1. Disclosure of Financial Information. The individual named below has an interest in the SUBCONTRACTOR (or its parent) in terms of ownership or distributive income share in excess of 5%, or an interest which has a value of more than 60% of the annual salary of the Governor. (Make copies of this form as necessary and attach a separate Disclosure Form A for each individual meeting these requirements)

FOR INDIVIDUAL (type or print information) NAME: ADDRESS Type of ownership/distributable income share: stock sole proprietorship Partnership other: (explain on separate sheet): % or \$ value of ownership/distributable income share:

2. Disclosure of Potential Conflicts of Interest. Check "Yes" or "No" to indicate which, if any, of the following potential conflict of interest relationships apply. If the answer to any question is "Yes", please attach additional pages and describe.

(a) State employment, currently or in the previous 3 years, including contractual employment of services. Yes No

If your answer is yes, please answer each of the following questions.

1. Are you currently an officer or employee of either the Capitol Development Board or the Illinois State Toll Highway Authority? Yes No

RETURN WITH SUBCONTRACT

2. Are you currently appointed to or employed by any agency of the State of Illinois? If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, provide the name the State agency for which you are employed and your annual salary _____

3. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 100% of the annual salary of the Governor? Yes _____ No _____

4. If you are currently appointed to or employed by any agency of the State of Illinois, and your annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of two times the salary of the Governor? Yes _____ No _____

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment services in the previous 2 years. Yes _____ No _____

If your answer is yes, please answer each of the following questions.

1. Is your spouse or any minor children currently an officer or employee of the Capitol Development Board or the Illinois State Toll Highway Authority? Yes _____ No _____

2. Is your spouse or any minor children currently appointed to or employed by any agency of the State of Illinois? If your spouse or minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, provide the name of your spouse and/or minor children, the name of the State agency for which he/she is employed and his/her annual salary. _____

3. If your spouse or any minor children is/are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you entitled to receive (i) more than 7 1/2% of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of the salary of the Governor? Yes _____ No _____

4. If your spouse or any minor children are currently appointed to or employed by any agency of the State of Illinois, and his/her annual salary exceeds 60% of the annual salary of the Governor, are you and your spouse or minor children entitled to receive (i) more than 15 % in the aggregate of the total distributable income of your firm, partnership, association or corporation, or (ii) an amount in excess of 2 times the salary of the Governor? Yes _____ No _____

(c) Elective status; the holding of elective office of the State of Illinois, the government of the United States, any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois currently or in the previous 3 years. Yes _____ No _____

(d) Relationship to anyone holding elective office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes _____ No _____

(e) Appointive office; the holding of any appointive government office of the State of Illinois, the United States of America, or any unit of local government authorized by the Constitution of the State of Illinois or the statutes of the State of Illinois, which office entitles the holder to compensation in excess of the expenses incurred in the discharge of that office currently or in the previous 3 years. Yes _____ No _____

(f) Relationship to anyone holding appointive office currently or in the previous 2 years; spouse, father, mother, son, or daughter. Yes _____ No _____

RETURN WITH SUBCONTRACT

(g) Employment, currently or in the previous 3 years, as or by any registered lobbyist of the State government.
Yes _____ No _____

(h) Relationship to anyone who is or was a registered lobbyist in the previous 2 years; spouse, father, mother, son, or daughter.
Yes _____ No _____

(i) Compensated employment, currently or in the previous 3 years, by any registered election or reelection committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections.
Yes _____ No _____

(j) Relationship to anyone; spouse, father, mother, son, or daughter; who was a compensated employee in the last 2 years by any registered election or re-election committee registered with the Secretary of State or any county clerk of the State of Illinois, or any political action committee registered with either the Secretary of State or the Federal Board of Elections.
Yes _____ No _____

3. Communication Disclosure.

Disclose the name and address of each lobbyist and other agent of the bidder or offeror who is not identified in Section 2 of this form, who has communicated, is communicating, or may communicate with any State officer or employee concerning the bid or offer. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the process and throughout the term of the contract. If no person is identified, enter "None" on the line below:

Name and address of person(s): _____

4. Debarment Disclosure. For each of the persons identified under Sections 2 and 3 of this form, disclose whether any of the following has occurred within the previous 10 years: debarment from contracting with any governmental entity; professional licensure discipline; bankruptcies; adverse civil judgments and administrative findings; and criminal felony convictions. This disclosure is a continuing obligation and must be promptly supplemented for accuracy throughout the procurement process and term of the contract. If no person is identified, enter "None" on the line below:

Name of person(s): _____
Nature of disclosure: _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page. Under penalty of perjury, I certify the contents of this disclosure to be true and accurate to the best of my knowledge.

Completed by: _____
Signature of Individual or Authorized Officer Date

NOT APPLICABLE STATEMENT

Under penalty of perjury, I have determined that no individuals associated with this organization meet the criteria that would require the completion of this Form A.

This Disclosure Form A is submitted on behalf of the SUBCONTRACTOR listed on the previous page.

Signature of Authorized Officer Date

RETURN WITH SUBCONTRACT

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Subcontractor: Other Contracts & Procurement Related Information Disclosure

Form with fields: Subcontractor Name, Legal Address, City, State, Zip, Telephone Number, Email Address, Fax Number (if available)

Disclosure of the information contained in this Form is required by the Section 50-35 of the Illinois Procurement Act (30 ILCS 500). This information shall become part of the publicly available contract file. This Form B must be completed for subcontracts with a total value of \$25,000 or more, from subcontractors identified in Section 20-120 of the Illinois Procurement Code,, and for all open-ended contracts.

DISCLOSURE OF OTHER CONTRACTS, SUBCONTRACTS, AND PROCUREMENT RELATED INFORMATION

1. Identifying Other Contracts & Procurement Related Information. The SUBCONTRACTOR shall identify whether it has any pending contracts, subcontracts, including leases, bids, proposals, or other ongoing procurement relationship with any other State of Illinois agency: Yes _____ No _____
If "No" is checked, the subcontractor only needs to complete the signature box on the bottom of this page.

2. If "Yes" is checked. Identify each such relationship by showing State of Illinois agency name and other descriptive information such as bid or project number (attach additional pages as necessary). SEE DISCLOSURE FORM INSTRUCTIONS:

THE FOLLOWING STATEMENT MUST BE CHECKED

Form with a checkbox and lines for Signature of Authorized Officer and Date

DIVISION OF AERONAUTICS

FEDERAL CONTRACT PROVISIONS

The work in this contract is included in the federal FAA Airport Improvement Program and is being undertaken and accomplished by the Illinois Department of Transportation, Division of Aeronautics and the Municipality, hereinafter called the Co-Sponsors, in accordance with the terms and conditions of a Grant Agreement between the Co-Sponsors and the United States, under the Airport and Airway Improvement Act of 1982 (Public Law 97-248; Title V, Section 501 et seq., September 3, 1982; 96 Stat. 671; codified at 49 U.S.C Section 2201 et seq.) and Part 152 of the Federal Aviation Regulations (14 CFR Part 152), pursuant to which the United States has agreed to pay a certain percentage of the costs of the Project that are determined to be allowable Project costs under the Act. The United States is not a party to this contract and no reference in this contract to FAA or representative thereof, or to any rights granted to the FAA or any representative thereof, or the United States, by the contract, makes the United States a party to this contract.

Consent of Assignment. The Contractor shall obtain the prior written consent of the Co-Sponsors to any proposed assignment of any interest in or part of this contract.

AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, SECTION 520 - GENERAL CIVIL RIGHTS PROVISIONS

The contractor assures that it will comply with pertinent statutes, Executive orders and such rules as are promulgated to assure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance. This provision obligates the tenant/concessionaire/lessee or its transferee for the period during which Federal assistance is extended to the airport a program, except where Federal assistance is to provide, or is in the form of personal property or real property or interest therein or structures or improvements thereon. In these cases the provision obligates the party or any transferee for the longer of the following periods: (a) the period during which the property is used by the airport sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits or (b) the period during which the airport sponsor or any transferee retains ownership or possession of the property. In the case of contractors, this provision binds the contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

The undersigned bidder certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have paid or will be paid, by or behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an Officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

TRADE RESTRICTION CLAUSE

The Contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

- a. is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);
- b. has not knowingly entered into any contract or subcontract for this project with a Contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list.
- c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a Contractor or subcontractor who is unable to certify to the above. If the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract at no cost to the Government.

Further, the Contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The Contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The Contractor shall provide immediate written notice to the sponsor if the Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide immediate written notice to the Contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through this sponsor, cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a Contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

CERTIFICATION OF NONSEGREGATED FACILITIES - 41 CFR PART 60-1.8

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor 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, timeclocks, 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 directives or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally-assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

VETERAN'S PREFERENCE

In the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Veterans of the Vietnam era and disabled veterans as defined in Section 515(c)(1) and (2) of the Airport and Airway Improvement Act of 1982. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

ACCESS TO RECORDS AND REPORTS

The Contractor shall maintain an acceptable cost accounting system. The Sponsor, the FAA, and the Comptroller General of the United States shall have access to any books, documents, paper, and records of the Contractor which are directly pertinent to the specific contract for the purposes of making an audit, examination, excerpts, and transcriptions. The Contractor shall maintain all required records for three years after the Sponsor makes final payment and all other pending matters are closed.

RIGHTS TO INVENTIONS

All rights to inventions and materials generated under this contract are subject to Illinois law and to regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed.

ENERGY CONSERVATION REQUIREMENTS

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163)

CLEAN AIR AND WATER POLLUTION CONTROL

In connection with the administration of the Clean Air Act and the Water Pollution Control Act with respect to Federal Grants, specific requirements have been imposed of any contract which is not exempt under the provisions of 40 CFR 15.5.

(1) Any facility listed on the EPA List of Violating Facilities pursuant to Paragraph 15.20 of 40 CFR as of the date of the contract award will not be utilized in the performance of any non-exempt contract or subcontract.

(2) The Contractor shall comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 USC 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq. relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in Section 114 and Section 308 of the Air Act and Water Act, respectively, and all regulations and guidelines issued thereunder after the award of the contract.

(3) Prompt notification shall be required prior to contract award to the awarding official by the Contractor who will receive the award of the receipt of any communication from the Director, Office of Federal Activities, U.S. Environmental Protection Agency, indicating that a facility to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

(4) The Contractor shall include or cause to be included the criteria and requirements in paragraphs 1 through 4 in any non-exempt subcontract and will take such action as the Government may direct as a means of enforcing such provisions.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION

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 contract 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.

<u>Economic Area</u>	<u>Goal (percent)</u>
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 - IL - Cook, DuPage, Kane, Lake, McHenry, Will	19.6
3740 Kankakee, IL - IL - Kankakee	9.1
Non-SMSA Counties IL - Bureau, DeKalb, Grundy, Iroquois, Kendall, LaSalle, Livingston, Putnam IN - Jasper, Laporte, Newton, Pulaski, Starke	18.4

APPENDIX B (CONTINUED)

<u>Economic Area</u>	<u>Goal (percent)</u>
084 Champaign - Urbana, IL:	
SMSA Counties:	
1400 Champaign - Urbana - Rantoul, IL - IL - Champaign	7.8
Non-SMSA Counties -	4.8
IL - Coles, Cumberland, Douglas, Edgar, Ford, Piatt, Vermilion	
085 Springfield - Decatur, IL:	
SMSA Counties:	
2040 Decatur, IL - IL - Macon	7.6
7880 Springfield, IL -	4.5
IL - Mendard, 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 - IL - McLean	2.5
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 - IL - Boone, Winnebago	6.3
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 - IL - Henry, Rock Island IA - Scott	4.6
Non-SMSA Counties -	3.4
IL - Carroll, Hancock, Henderson, Mercer, Whiteside	
IA - Clinton, DesMoines, Henry, Lee, Louisa, Muscatine	
MO - Clark	

APPENDIX B (CONTINUED)

<u>Economic Area</u>	<u>Goal (percent)</u>
107 St. Louis, MO: SMSA Counties: 7040 St. Louis, MO - IL - IL - Clinton, Madison, Monroe, St. Clair MO - Franklin, Jefferson, St. Charles, St. Louis, St. Louis City	14.7
Non-SMSA Counties - 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	11.4

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 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 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 Division of Aeronautics will provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 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.

DISADVANTAGED BUSINESS POLICY

NOTICE: This proposal contains the special provision entitled "Disadvantaged Business Participation." Inclusion of this Special Provision in this contract satisfies the obligations of the Department of Transportation under federal law as implemented by 49 CFR 23 and under the Illinois "Minority and Female Business Enterprise Act."

POLICY: It is public policy that the businesses defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with State or Federal funds. Consequently, the requirements of 49 CFR Part 23 apply to this contract.

OBLIGATION: The Contractor agrees to ensure that the businesses defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of this contract. In this regard, the Contractor shall take all necessary and reasonable steps, in accordance with 49 CFR Part 23, to ensure that the said businesses have the maximum opportunity to compete for and perform portions of this contract. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

The Contractor shall include the above Policy and Obligation statements of this Special Provision in every subcontract, including procurement of materials and leases of equipment.

DBE/WBE CONTRACTOR FINANCE PROGRAM: On contracts where a loan has been obtained through the DBE/WBE Contractor Finance Program, the Contractor shall cooperate with the Department by making all payments due to the DBE/WBE Contractor by means of a two-payee check payable to the Lender (Bank) and the Borrower (DBE/WBE Contractor).

BREACH OF CONTRACT: Failure to carry out the requirements set forth above and in the Special Provision shall constitute a breach of contract and may result in termination of the contract or liquidated damages as provided in the special provision.

DISADVANTAGED BUSINESS ENTERPRISES

Contract Assurance (§26.13) - The contractor 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 DOT assisted contracts. 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.

CIVIL RIGHTS ACT OF 1964, TITLE VI – CONTRACTOR CONTRACTUAL REQUIREMENTS

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1.1 Compliance with Regulations. The contractor shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

1.2 Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

1.3 Solicitations for Subcontracts, Including Procurements of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

1.4 Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration (FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor or the FAA, as appropriate, and shall set forth what efforts it has made to obtain the information.

1.5 Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the FAA may determine to be appropriate, including, but not limited to:

- a. Withholding of payments to the contractor under the contract until the contractor complies, and/or
- b. Cancellation, termination, or suspension of the contract, in whole or in part.

1.6 Incorporation of Provisions. The contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the sponsor or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

(1) Overtime requirements:

No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen or guards (including apprentices and trainees described in paragraphs 5 and 6 above) shall require or permit any laborer, mechanic, watchman or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman or guard receives compensation at a rate not less than one and one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violations: Liability for Unpaid Wages; Liquidated Damages:

In the event of any violation of the clause set forth in paragraph (1) above, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) above, in the sum of \$10.00 for each calendar day on which such employee was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in paragraph (1) above.

(3) Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) above.

(4) Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

(5) Working Conditions.

No Contractor or subcontractor may require any laborer or mechanic employed in the performance of any contract to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards (29 CFR 1926) issued by Department of Labor.

EQUAL EMPLOYMENT OPPORTUNITY - 41 CFR PART 60-1.4(b)

During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: 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. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

3. The contractor will send to each labor union or representative of workers with which s/he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedure authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
7. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provision, including sanctions for noncompliance: *Provided, however*, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

EQUAL EMPLOYMENT OPPORTUNITY SPECIFICATION

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 or 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).

ANNUAL EEO-1 REPORT TO JOINT REPORTING COMMITTEE AS REQUIRED AT 41 CFR 60-1.7(a)

Any Contractor having a Federal contract of \$50,000 or more and 50 or more employees is required to file annual compliance reports on Standard Form 100 (EEO-1) with the Joint Reporting Committee in accordance with the instructions provided with the form. The Contractor will provide a copy of such a report to the contracting agency within 30 days after the award of a contract.

The Contractor shall require its subcontractors to file an SF 100 within 30 days after award of the subcontract if (1) it is not exempt from the provisions of these regulations in accordance with 60-1.5, (2) has 50 or more employees, (3) first tier subcontractor, and (4) has a subcontract amounting to \$50,000 or more.

Subcontractors below the first tier which perform construction work at the site of construction shall be required to file such a report if (1) it is not exempt from the provisions of these regulations in accordance with 60-1.5, (2) has 50 or more employees and has a subcontract amounting to \$50,000 or more.

The SF 100 is available at the following address:

Joint Reports Committee
EEOC - Survey Division
1801 "L" Street N.W.
Washington, D.C. 20750

Phone (202) 663-4968

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - Title 49 CFR Part 29

Instructions for Certification

1. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.
2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.
3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.
4. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. The terms "covered transaction" "debarred" "suspended" "ineligible" "lower tier covered transaction" "participant" "person" "primary covered transaction" "principal" "proposal" and "voluntarily excluded" as used in this clause have the meaning set out in the Definitions and Coverage sections of the rules implementing Executive Order 12540. You may

contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.

6. The prospective primary participant agrees by submitting this proposal that should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the department or agency entering into this transaction.
7. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Transaction", provided by the department or agency entering into this covered transaction without modification in all lower covered transactions and in all solicitations for lower covered transactions.
8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to check the Nonprocurement List (Tel. #).
9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
10. Except for transactions authorized under paragraph 8 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief that it and its principals:
 - a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by an Federal department or agency;
 - b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, State or Local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction or destruction of records, making false statements, or receiving stolen property;
 - c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - d. Have not within a three-period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

EACH PRIME CONTRACTOR SHALL INSERT IN EACH SUBCONTRACT THE CERTIFICATION IN APPENDIX B, AND FURTHER, SHALL REQUIRE ITS INCLUSION IN ANY LOWER TIER SUBCONTRACT, PURCHASE ORDER, OR TRANSACTION THAT MAY IN TURN BE MADE.

Appendix B of 49 CFR Part 29

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions

This certification applies to subcontractors, material suppliers, vendors and other lower tier participants.

Instructions for Certification

1. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transactions**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

TERMINATION OF CONTRACT

1. The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services shall be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Sponsor.
2. If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed services.
3. If the termination is due to failure to fulfill the Contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the Contractor shall be liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.

4. If, after notice of termination for failure to fulfill contract obligations, it is determined that the Contractor had not so failed, the termination shall be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price shall be made as provided in paragraph 2 of this clause.
5. The rights and remedies of the Sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

DAVIS BACON LABOR PROVISIONS

(1) Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provision of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraph 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1)The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2)The classification is utilized in the area by the construction industry; and
- (3)The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding.

The Federal Aviation Administration shall upon its own action or written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such work, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor, or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under paragraph (3)(i) above and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the (write the name of the agency) or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and Trainees

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ration permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contract will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(5) Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

(6) Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a

clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by a subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

(7) Contract Termination: Debarment.

A breach of these contract clauses paragraphs (1) through (10) of this section may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR Part 5.12.

(8) Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by referenced in this contract.

(9) Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONSTRUCTION CONTRACTS

This project is funded, in part, with Federal-aid funds and, as such, is subject to the provisions of the Davis-Bacon Act of March 3, 1931, as amended (46 Sta. 1494, as amended, 40 U.S.C. 276a) and of other Federal statutes referred to in a 29 CFR Part 1, Appendix A, as well as such additional statutes as may from time to time be enacted containing provisions for the payment of wages determined to be prevailing by the Secretary of Labor in accordance with the Davis-Bacon Act and pursuant to the provisions of 29 CFR Part 1. The prevailing rates and fringe benefits shown in the General Wage Determination Decisions issued by the U.S. Department of Labor shall, in accordance with the provisions of the foregoing statutes, constitute the minimum wages payable on Federal and federally assisted construction projects to laborers and mechanics of the specified classes engaged on contract work of the character and in the localities described therein.

General Wage Determination Decisions, modifications and supersedes decisions thereto are to be used in accordance with the provisions of 29 CFR Parts 1 and 5. Accordingly, the applicable decision, together with any modifications issued, must be made a part of every contract for performance of the described work within the geographic area indicated as required by an applicable DBRA Federal prevailing wage law and 29 CFR Part 5. The wage rates and fringe benefits contained in the General Wage Determination Decision shall be the minimum paid by contractors and subcontractors to laborers and mechanics.

NOTICE

The most current **General Wage Determination Decisions** (wage rates) are available on the IDOT web site. They are located on the Letting and Bidding page at <http://www.dot.state.il.us/desenv/delett.html>.

In addition, ten (10) days prior to the letting, the applicable Federal wage rates will be e-mailed to subscribers. It is recommended that all contractors subscribe to the Federal Wage Rates List or the Contractor's Packet through IDOT's subscription service.

PLEASE NOTE: if you have already subscribed to the Contractor's Packet you will automatically receive the Federal Wage Rates.

The instructions for subscribing are at <http://www.dot.state.il.us/desenv/subsc.html>.

If you have any questions concerning the wage rates, please contact IDOT's Chief Contract Official at 217-782-7806.

ILLINOIS DEPARTMENT OF TRANSPORTATION - DIVISION OF AERONAUTICS

STATE REQUIRED CONTRACT PROVISIONS

The following provisions are in addition to the Federal requirements contained in the FAA Airport Improvement Program.

SPECIAL PROVISION FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION **Revised: August 2, 2011**

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 that 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.

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 that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. This 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 that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform **10.0%** 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 forth in this Special Provision:

- (a) The bidder documents that enough DBE participation has been obtained to meet the goal; or
- (b) The bidder documents that 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 web site at www.dot.il.gov .

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

- (a) The bidder shall submit a Disadvantaged Business Utilization Plan on Department forms SBE 2025 and 2026 with the bid.
- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number and telefax number of a responsible official of the bidder designated for purposes of notification of plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:
 - (1) The name and address of DBE firms that will participate in the contract;
 - (2) A description, including pay item numbers, of the work each DBE will perform;
 - (3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;
 - (4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;
 - (5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,
 - (6) If the contract goal is not met, evidence of good faith efforts.

GOOD FAITH EFFORT PROCEDURE. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that 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 commits sufficient commercially useful DBE work performance 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.

The Utilization Plan will not be approved by the Department if the Utilization Plan does not commit sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that 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 that 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 on 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 prime 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.

- (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 that the apparent successful 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 that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision and 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 shall include a statement of reasons why good faith efforts have not been found.
- (c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217)785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/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 forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of 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 prime 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 it 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 or 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 regular dealer or 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 Participation 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 submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (b) **TERMINATION OR REPLACEMENT.** 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 the Special Provision.
- (c) **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, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, then a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

- (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) That 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) That the DBE is aware that 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) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonably 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 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 prime contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the prime 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 to CFR Parts 180, 215 and 1200 or applicable state law;
- (6) You have determined that the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice 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 contractor 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 prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime 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.

- (f) PAYMENT RECORDS. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. 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 thirty 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 Regional 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 that 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 50-17 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.

SPECIAL PROVISION FOR SUBCONTRACTOR MOBILIZATION PAYMENTS

Revised: April 1, 2011

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 60-01 of the Standard Specifications, the Contractor shall make a mobilization payment to each subcontractor.

This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be equal to 3 percent of the amount of the subcontract reported on form AER 260A submitted for the approval of the subcontractor's work.

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

Revised: January 1, 2006

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.

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.

EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Contractor's noncompliance with any provisions of this Equal Employment Opportunity Clause, the Illinois Fair Employment Practices Act or the Fair Employment Practices Commission's Rules and Regulations for Public Contracts, the Contractor may be declared nonresponsible and therefore ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be canceled or avoided 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, national origin or ancestry; 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 Commission's Rules and Regulations for Public Contracts) 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, national origin or ancestry.
- (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 Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts. If any such 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 Fair Employment Practices Commission and the contracting agency 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 Fair Employment Practices Commission's Rules and Regulations for Public Contracts, furnish all relevant information as may from time to time be requested by the Commission or the contracting agency, and in all respects comply with the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts.
- (6) That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency and the Illinois Fair Employment Practices Commission for purposes of investigation to ascertain compliance with the Illinois Fair Employment Practices Act and the Commission's Rules and Regulations for Public Contracts.
- (7) That it will include verbatim or by reference the provisions of paragraphs 1 through 7 of this clause in every performance subcontract as defined in Section 2.10(b) of the Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every subcontractor; and that it will also so include the provisions or paragraphs 1, 5, 6 and 7 in every supply subcontract as defined in Section 2.10(a) of the Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every such 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 all its subcontractors; and further it will promptly notify the contracting agency and the Illinois Fair Employment Practices Commission in the event any subcontractor fails or refuses to comply therewith. In addition, no Contractor will utilize any subcontractor declared by the Commission to be nonresponsible and therefore ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

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Award and Execution of Contract

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SECTION 1

PROPOSAL REQUIREMENTS AND CONDITIONS

1-01 ADVERTISEMENT (Notice to Bidders). The State of Illinois shall publish the advertisement at such places and at such times as are required by local law or ordinances. The published advertisement shall state the time and place for submitting sealed proposals; a description of the proposed work; instructions to bidders as to obtaining proposal forms, plans, and specifications; proposal guaranty required; and the Owner's right to reject any and all bids.

For Federally assisted contracts the advertisement shall conform to the requirements of local laws and ordinances pertaining to letting of contracts and, in addition, shall conform to the requirements of the appropriate parts of the Federal Aviation Regulations applicable to the particular contract being advertised.

1-02 PREQUALIFICATION OF BIDDERS

- (a) When the awarding authority is the State of Illinois, each prospective bidder, prior to being considered for issuance of any proposal forms will be required to file, on forms furnished by the Department, an experience questionnaire and a confidential financial statement in accordance with the Department's Instructions for Prequalification of Contractors. The Statement shall include a complete report of the prospective bidder's financial resources and liabilities, equipment, past record and personnel, and must be submitted at least thirty (30) days prior to the scheduled opening of bids in which the Contractor is interested.

After the Department has analyzed the submitted "Contractor's Statement of Experience and Financial Condition" and related information and has determined appropriate ratings, the Department will issue to the Contractor a "Certificate of Eligibility". The Certificate will permit the Contractor to obtain proposal forms and plans for any Department of Transportation letting on work which is within the limits of the Contractor's potential as indicated on his "Certificate of Eligibility", subject to any limitations due to present work under contract or pending award as determined from the Contractor's submitted "Affidavit of Availability". Bidders intending to consistently submit proposals shall submit a "Contractor's Statement of Experience and Financial Condition" at least once a year. However, prequalification may be changed during that period upon the submission of additional favorable reports or upon reports of unsatisfactory performance.

Before a proposal is issued, the prospective bidder will be required to furnish an "Affidavit of Availability" indicating the location and amount of all uncompleted work under contract, or pending award, either as principal or subcontractor, as well as a listing of all subcontractors and value of work sublet to others. The prospective bidder may be requested to file a statement showing the amount and condition of equipment which will be available.

Before an award is made, the bidder may be required to furnish an outline of his plans for conducting the work.

- (b) When the awarding authority for contract construction work is the County Board of a county; the Council, the City Council, or the President and Board of Trustees of a city, village or town, each prospective bidder, in evidence of his competence, shall furnish the awarding authority as a prerequisite to the release of proposal forms by the awarding authority, a certified or photostatic copy of a "Certificate of Eligibility" issued by the Department of Transportation, in accordance with Section 1-02(a).

The two low bidders must file within 24 hours after the letting a sworn affidavit, in triplicate, showing all uncompleted contracts awarded to them and all low bids pending award for Federal, State, County, Municipal and private work, using the blank form made available for this affidavit. One copy shall be filed with the awarding authority and two copies with the District Highway Office.

1-03 CONTENTS OF PROPOSAL FORMS. Upon request, the Department will furnish the prequalified bidders a proposal form. This form will state the location and description of the contemplated construction and will show the estimate of the various quantities and kinds of work to be performed or materials to be furnished, and will have a schedule of items for which unit bid prices are invited. The proposal form will state the time in which work must be completed, the amount of the proposal guaranty, labor requirements, and date, time and place of the opening of proposals. The form will also include any special provisions or requirements which vary from or are not contained in these specifications.

All papers bound with or attached to the proposal form are considered a part thereof and must not be detached or altered when the proposal is submitted. Any addenda officially issued by the Department, will be considered a part of the proposal whether attached or not.

For Federally assisted contracts, the proposal shall conform to the requirements of local laws and ordinances pertaining to letting of contracts and, in addition, shall conform to the requirements of the appropriate parts of the Federal Aviation Regulations pertaining to the particular contract being let.

1-04 ISSUANCE OF PROPOSAL FORMS. The Department shall refuse to issue a proposal form for any of the following reasons:

- (a) Lack of competency and adequate machinery, plant and other equipment, as revealed by the financial statement and experience questionnaires required under Section 1-02(a).
- (b) Uncompleted work which, in the judgment of the Department, might hinder or prevent the prompt completion of additional work if awarded.
- (c) False information provided on a bidder's "Affidavit of Availability".
- (d) Failure to pay, or satisfactorily settle, all bills due for labor and material on former contracts in force at the time of issuance of proposal forms.
- (e) Failure to comply with any prequalification regulations of the Department.
- (f) Default under previous contracts.
- (g) Unsatisfactory performance record as shown by past work for the Department, judged from the standpoint of workmanship and progress.
- (h) When the Contractor is suspended from eligibility to bid at a public letting where the contract is awarded by, or require approval of, the Department.
- (i) When any agent, servant, or employee of the prospective bidder currently serves as a member, employee, or agent of a governmental body that is financially involved in the proposed work.
- (j) When any agent, servant, or employee of the prospective bidder has participated in the preparation of plans or specifications for the proposed work.

1-05 INTERPRETATION OF QUANTITIES IN BID SCHEDULE. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly or by implication agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 20 of the Illinois Standard Specifications for Construction of Airports without in any way invalidating the unit bid prices.

1-06 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. He shall satisfy himself as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans, and specifications.

Boring logs, underground utilities and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which he may make or obtain from his examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

1-07 PREPARATION OF THE PROPOSAL. The bidder shall submit his proposal on the form furnished by the Department. The proposal shall be executed properly, and bids shall be made for all items indicated in the proposal form, except that when alternate bids are asked, a bid on more than one alternate for each item is not required, unless otherwise provided. The bidder shall indicate, in figures, a unit price for each of the separate items called for in the proposal; he shall show the products of the respective quantities and unit prices in the column provided for that purpose, and the gross sum shown in the place indicated in the proposal shall be the summation of said products. All writing shall be with ink or typewriter, except the signature of the bidder which shall be written with ink.

If the proposal is made by an individual, his name and business address shall be shown. If made by a firm or partnership, the name and business address of each member of the firm or partnership shall be shown. If made by a corporation, the proposal shall show the names, titles, and business address of the president, secretary, and treasurer, and the seal of the corporation shall be affixed and attested by the secretary.

The proposal shall be issued to a prequalified bidder in the same name and style as the financial statement used for prequalification and shall be submitted in like manner.

1-08 REJECTION OF PROPOSALS. The Department reserves the right to reject proposals for any of the conditions in Article 1-04 or for any of the following reasons:

- (a) More than one proposal for the same work from an individual, firm, partnership, or corporation under the same or different names.
- (b) Evidence of collusion among bidders.

- (c) Unbalanced proposals in which the prices for some items are obviously out of proportion to the prices for other items.
- (d) If the proposal does not contain a unit price for each pay item listed except in the case of authorized alternate pay items or lump sum pay items.
- (e) If the proposal is other than that furnished by the Department; or if the form is altered or any part thereof is detached.
- (f) If there are omissions, erasures, alterations, unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
- (g) If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
- (h) If the proposal is not accompanied by the proper proposal guaranty.
- (i) If the proposal is prepared with other than ink or typewriter.
- (j) If the proposal is submitted in any other name other than that to whom it was issued by the Department.

1-09 PROPOSAL GUARANTY. Each Proposal shall be accompanied by either a bid bond on the Department of Transportation, Division of Aeronautics form contained in the proposal, executed by a corporate surety company satisfactory to the Department or by a bank cashier's check or a properly certified check for not less than 5 percent of the amount bid.

Bank cashier's checks, or properly certified checks accompanying proposals shall be made payable to the Treasurer, State of Illinois.

1-10 DELIVERY OF PROPOSALS. Each proposal should be submitted in a special envelope furnished by the Department. The blank spaces on the envelope shall be filled in correctly to clearly indicate its contents. When an envelope other than the special one furnished by the Department is used, it shall be of the same general size and shape and be similarly marked to clearly indicate its contents. When sent by mail, the sealed proposal shall be addressed to the Department at the address and in care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and place specified in the Notice to Bidders. Proposals received after the time for opening of bids will be returned to the bidder unopened.

1-11 WITHDRAWAL OF PROPOSALS. Permission will be given a bidder to withdraw a proposal if he makes his request in writing or by telegram before the time for opening proposals. If a proposal is withdrawn, the bidder will not be permitted to resubmit this proposal at the same letting. With the approval of the Engineer, a bidder may withdraw a proposal and substitute a new proposal prior to the time of opening bids.

1-12 PUBLIC OPENING OF PROPOSALS. Proposals will be opened and read publicly at the time and place specified in the Notice to Bidders. Bidders, their authorized agents, and other interested parties are invited to be present.

1-13 DISQUALIFICATION OF BIDDERS. A bidder shall be considered disqualified for any of the following reasons:

- (a) Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.
- (b) Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner.
- (c) If the bidder is considered to be in "default" for any reason specified in the Subsection 1-04 titled ISSUANCE OF PROPOSAL FORMS of this section.

1-14 WORKER'S COMPENSATION INSURANCE. Prior to the approval of his contract by the Division, the Contractor shall furnish to the Division certificates of insurance covering Worker's Compensation, or satisfactory evidence that this liability is otherwise taken care of in accordance with Section 4.(a) of the "Worker's Compensation Act of the State of Illinois" as amended.

Such insurance, or other means of protection as herein provided, shall be kept in force until all work to be performed under the terms of the contract has been completed and accepted in accordance with the specifications, and it is hereby understood and agreed that the maintenance of such insurance or other protection, until acceptance of the work by the Division is a part of the contract. Failure to maintain such insurance, cancellation by the Industrial Commission of its approval of such other means of protection as might have been elected, or any other act which results in lack of protection under the said "Workers' Compensation Act" may be considered as a breach of the contract.

SECTION 2

AWARD AND EXECUTION OF CONTRACT

2-01 CONSIDERATION OF PROPOSALS. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. In the event of a discrepancy between unit bid prices and extensions, the unit bid price shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

- (a) If the proposal is irregular as specified in the subsection titled REJECTION OF PROPOSALS of Section 1.
- (b) If the bidder is disqualified for any of the reasons specified in the subsection titled DISQUALIFICATION OF BIDDERS of Section 1.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals; waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable State and Local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise.

2-02 AWARD OF CONTRACT. The award of contract will be made within 60 calendar days after the opening of proposals to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified by letter, that his bid has been accepted, and that he has been awarded the contract.

If a contract is not awarded within 60 days after the opening of proposals, a bidder may file a written request with the Division for the withdrawal of his bid and the Division will permit such withdrawal.

For Federally assisted contracts, unless otherwise specified in this subsection, no award shall be made until the Division has concurred in the Owner's recommendation to make such award and has approved the Owner's proposal contract to the extent that such concurrence and approval are required by Federal Regulations.

2-03 CANCELLATION OF AWARD. The Division reserves the right to cancel the award without liability to the bidder at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the subsection titled APPROVAL OF CONTRACT of this section. The Division at the time of cancellation will return the proposal guaranty.

2-04 RETURN OF PROPOSAL GUARANTY. The proposal guaranties of all except the two lowest bidders will be returned promptly after the proposals have been checked, tabulated, and the relation of the proposals established. Proposal guaranties of the two lowest bidders will be returned as soon as the Construction Contract, Performance Bonds, and Payment Bonds of the successful bidder have been properly executed and approved.

If any other form of proposal guaranty is used, other than a bid bond, a bid bond may be substituted at the Contractor's option.

2-05 REQUIREMENT OF PERFORMANCE AND PAYMENT BONDS. The successful bidder for a contract, at the time of the execution of the contract, shall deposit with the Division separate performance and payment bonds each for the full amount of the contract. The form of the bonds shall be that furnished by the Division, and the sureties shall be acceptable to the Division.

2-06 EXECUTION OF CONTRACT. The successful bidder shall sign (execute) the Contract and shall return the signed Contract to the Owner (Sponsor) for signature (execution) and subsequently return all copies to the Division. The fully executed surety bonds specified in the subsection title REQUIREMENTS OF PERFORMANCE AND PAYMENT BONDS of this section will be forwarded to the Division within 15 days of the date mailed or otherwise delivered to the successful bidder. If the Contract and Bonds are mailed, special handling is recommended.

If the bidder to whom award is to be made is a corporation organized under the laws of a State other than Illinois, the bidder shall furnish the Division a copy of the corporation's certificate of authority to do business in the State of Illinois, or provide evidence of the same, with the return of the executed contract and bond. Failure to furnish such evidence of a certificate of authority within the time required will be considered as just cause for the annulment of the award and the forfeiture of the proposal guaranty to the State, not as a penalty, but in payment of liquidated damages sustained as a result of such failure.

2-07 APPROVAL OF CONTRACT. Upon receipt of the contract and bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the contract to the Division for approval and execution by the Division. Delivery of the fully executed contract to the Contractor shall constitute the Department's approval to be bound by the successful bidder's proposal and the terms of the contract.

2-08 FAILURE TO EXECUTE CONTRACT. If the contract is not executed by the Division within 15 days following receipt from the bidder of the properly executed contracts and bonds, the bidder shall have the right to withdraw his bid without penalty.

Failure of the successful bidder to execute the contract and file acceptable bonds within 15 days after the contract has been mailed to him shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty which shall become the property of the State, not as a penalty, but as liquidation of damages sustained.



Contract Documents
RUNWAY 10-28 OVERLAY
DUPAGE AIRPORT,
WEST CHICAGO ILLINOIS

IL PROJECT: DPA-4122 A.I.P. PROJECT: 3-17-0017-B25

MARCH 9, 2012

Prepared by:



8735 West Higgins Road, Suite 400
Chicago, IL 60631

PART 4

SPECIAL PROVISIONS

DUPAGE AIRPORT AUTHORITY
RUNWAY 10-28 AND ASSOCIATED TAXIWAY CONNECTOR OVERLAY

GENERAL

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 DuPage Airport Authority for the construction of the subject project at the DuPage Airport, West Chicago, Illinois. Wherever the word "Engineer" is used, it shall mean the "Owner's Representative" designated by the DuPage Airport Authority. All references to the "Division" shall be modified to be the "Owner".

GOVERNING SPECIFICATIONS AND RULES AND REGULATIONS

The specifications contained herein are the "Standard Specifications for Construction of Airports (Consolidated Reprint)", dated November 2, 2009, State of Illinois Department of Transportation, Division of Aeronautics. Should there be a conflict between the Plans and Special Provisions, the Plans shall take precedence and shall govern. As noted within the Special Provisions portions of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction dated January 1, 2007 shall apply as referenced.

PART 4

SPECIAL PROVISIONS

TECHNICAL SPECIFICATIONS

The following section contains technical specifications to be utilized on this project. Within these specifications are State of Illinois, Department of Transportation, Division of Aeronautics "Standard Specifications for Construction of Airports (marked with "*")", dated January 1, 2002. The Contractor is to note the modifications made to the State of Illinois Standard Specifications. These modifications appear in two forms:

strikeouts: Language shown in this manner is to be ignored applicable to the work.

Italics: Language shown in this manner is additional language, which is relevant to, and is part of the contract documents, for this specific project.

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PART 4

SPECIAL PROVISIONS

TECHNICAL SPECIFICATIONS

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PART 4

SPECIAL PROVISIONS

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- 87-2 Density acceptance of Bituminous Pavements (dated: April 1, 2010)
- 87-3 Mix Design, Test Batch, Quality Control, and Acceptance Testing of PCC Pavement Mixture (dated: April 1, 2010)
- 87-4 Determination of Bulk Specific Gravity (d) of Compacted Bituminous Mixes (dated: January 1, 2004)
- 90-1 Resampling and retesting of PCC Pavement (dated: January 1, 2004)
- 95-1 Field test procedures for mixer performance and concrete uniformity test (dated: January 1, 2004)
- 96-1 Item 610, Structural Portland Cement Concrete: Job Mix Formula approval & production testing (dated: April 1, 2010)
- 96-2 Requirements for laboratory, testing, quality control, and paving of Bituminous Concrete Mixtures (dated: April 1, 2010)
- 96-3 Requirements for Quality Assurance on projects with Bituminous Concrete Paving (dated: January 1, 2004)
- 97-2 Pavement marking Paint Acceptance (dated: January 1, 2004)
- 2001-1 Requirements for cold weather Concreting (dated: April 1, 2010)
- 2003-1 Requirements for laboratory, testing, quality control, and paving of Superpave HMA Concrete Mixtures for Airports (dated: April 1, 2010)

During the Pre-Construction meeting, the Resident Engineer will confirm/review the use of each Policy Memoranda, as applicable.

* Illinois Department of Aviation Policy Memoranda can be downloaded
<http://www.dot.state.il.us/aero/aviamanual.html>

DIVISION I GENERAL PROVISIONS

SECTION 10

DEFINITION OF TERMS

Whenever the following terms are used in these specifications, in the contract, in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

10-01 ABBREVIATIONS. Wherever the following abbreviations are used in these specifications or on the plans, they are to be construed the same as the respective expressions represented:

AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AC	Federal Aviation Administration Advisory Circulars
ARA	American Railway Association
AREA	American Railway Engineering Association
ASLA	American Society of Landscape Architects
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWWA	American Water Works Association
AWS	American Welding Society
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FSS	Federal Specifications and Standards, General Services Administration
SAE	Society of Automotive Engineers
USASI	United States of America Standards Institute

10-02 ACCESS ROAD. The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public highway.

10-03 ADMINISTRATOR. Administrator of the Federal Aviation Administration of the Department of Transportation, or his/her duly authorized representative.

10-04 ADVISORY CIRCULARS. As referred to in this document, these publications shall be the latest current document listed in the Federal Register Checklist as of the time of advertisement. They may be obtained from the U.S. Department of Transportation Publication Section, TAD 443.1, Washington, D.C., 20590.

10-05 ADVERTISEMENT. The public announcement, as required by law, inviting bids for work to be performed and/or materials to be furnished.

Advertisement for bids will be issued by, and in conformance with, the policies of the Illinois Department of Transportation.

10-06 AWARD. The decision of the Division, FAA, and Owner (Sponsor) to accept the proposal of the lowest responsive bidder for the work, subject to the execution and approval of a satisfactory contract therefore and bonds to secure the performance thereof, and to such other conditions as may be specified or otherwise required by law.

10-07 AIR OPERATIONS AREA. For the purpose of these specifications, the term air operations area shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

10-08 AIRPORT. Airport means an area which is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

10-09 BID BOND. The security to be furnished by the bidder as guaranty of good faith that he/she will enter into a Contract with the Owner and will execute the required Bonds covering the work contemplated, if the same is awarded to him.

10-10 BIDDER. Any individual, partnership, firm, corporation, or a legally stated combination, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-11.1 BRIDGE. A structure, including supports, erected over a depression or an obstruction, as water, highway, or railroad and having a track or passageway for carrying traffic or other moving loads and having a length measured along the center of roadway of more than 20 feet between undercopings of abutments or extreme ends of openings for multiple boxes.

10-11.2 LENGTH. The length of a bridge structure is the overall length measured along the line of survey stationing back to back of backwalls of abutments, if present, otherwise end to end of the bridge floor; but in no case less than the total clear opening of the structure.

10-11.3 ROADWAY WIDTH. The clear width measured at right angles to the longitudinal centerline of the bridge between the bottom of curbs or guard timbers or in the case of multiple height of curbs, between the bottoms of the lower risers.

10-12 BUILDING AREA. An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.

10-13 CALENDAR DAY. Every day shown on the calendar.

10-14 CHANGE ORDER. A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the work affected by such changes. The work, covered by a change order, shall be within the scope of the contract.

10-15 CONTRACT. The written agreement between the Division or Owner (Sponsor) and the Contractor setting forth the obligations of the parties thereunder, including, but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment.

The contract includes the invitation for bids, proposal, letter of award, contract form, payment bond and performance bond, specifications, supplemental specifications, special provisions, general and detailed plans, also any agreements that are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.

10-16 CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the contract.

10-17 CONTRACT TIME. The number of calendar days allowed for completion of the contract, including authorized time extensions.

10-18 CONTRACTOR. The individual, partnership, firm, corporation, or a legally stated combination, that is liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.

10-19 DEPARTMENT. The State of Illinois, Department of Transportation.

10-20 DIRECTOR. The Director of the Division of Aeronautics, Department of Transportation, State of Illinois.

10-21 DIVISION. The State of Illinois, Department of Transportation, Division of Aeronautics, acting as Authorized Agent, for the purposes of the prosecution of this project of the Owner.

10-22 DRAINAGE SYSTEM. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

10-23 ENGINEER.

~~A. The Chief Engineer of the State of Illinois, Department of Transportation, Division of Aeronautics (acting directly or through an assistant or representative) when the Division is the awarding authority and Agent for the Owner.~~

The designated Engineer of the Airport Authority, Port Authority, or other Political Subdivision which is the awarding authority for projects which have no State or Federal involvement.

10-24 EQUIPMENT. All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of the work.

10-25 EXTRA WORK. An item of work not provided for in the contract as awarded but found essential to the satisfactory completion of the contract within its intended scope as determined by the Engineer.

10-26 FAA. The Federal Aviation Administration of the United States Department of Transportation. When used to designate a person, FAA shall mean the Administrator or his/her duly authorized representative.

10-27 FEDERAL SPECIFICATIONS. The Federal Specifications and Standards, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government. They may be obtained from the Specifications Activity, Printed Materials Supply Division, Building 197, Naval Weapons Plant, Washington, D.C. 20407.

10-28 INSPECTOR. The authorized representative of the Engineer assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-29 INTENTION OF TERMS. Whenever, in the specifications or on the plans, the words "directed", "required", "permitted", "ordered", "designated", "prescribed", or words of the like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended; and similarly, the words "approved", "acceptable", "satisfactory", or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer, subject in each case to the final determination of the Owner.

Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.

10-30 INVITATION FOR BIDS. The advertisement for proposals for all work or materials on which bids are required. Such advertisement will indicate with reasonable accuracy the quantity and location of the work to be done or the character and quantity of the material to be furnished and the time and place of the opening of proposals.

10-31 LABORATORY. The testing laboratory of the Department or any other testing laboratory which may be approved by the Engineer.

10-32 LANDING STRIP. A portion of the usable area of an airport, generally in its natural state of which, as the result of construction work, is suitable for the landing and taking off of aircraft under all favorable weather conditions. The runway is the paved central portion of the landing strip.

10-33 LANDSCAPING. The planning, planting, establishing and caring for trees, shrubs, vines and other vegetation to provide shade, reduce dust, control erosion, or improve the general appearance of the airport.

10-34 LIGHTING. A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

10-35 MAJOR AND MINOR CONTRACT ITEMS. A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20 percent of the total amount of the awarded contract. All other items shall be considered minor contract items.

10-36 MATERIALS. Any substances specified for use in the construction of the contract work.

10-37 MEDIAN. The portion of a divided highway or entrance road separating the traveled ways for traffic in opposite directions.

10-38 NOTICE TO BIDDERS. The official notice, included in the proposal form.

10-39 NOTICE TO PROCEED. A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.

10-40 OWNER (SPONSOR). The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. For Federally assisted contracts, the term "sponsor" shall have the same meaning as the term "Owner".

10-41 PAVEMENT. The combined surface course, base course, and subbase course, if any, considered as a single unit.

10-42 PAVEMENT STRUCTURE. The combination of subbase, base course, and surface course placed on a subgrade to support the traffic load.

10-43 PAY ITEM. A specifically described unit of work for which a price is provided in the contract.

All pay items included in the plan Summary of Quantities are shown with an AR designation (Example Item AR151410 -- Clearing) which indicates a base bid pay item and quantity. Additive Alternate pay items shall be designated by AS, AT, and AU corresponding to Additive Alternate 1, 2, and 3, respectively. Example: AS151410 - Clearing is the pay item for Additive Alternate 1 clearing quantities.

10-44 PAYMENT BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that he/she will pay in full all bills and accounts for materials and

labor used in the construction of the work. The amount of the payment bond shall be not less than one hundred percent (100%) of the total contract amount.

10-45 PERFORMANCE BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract. The amount of the performance bond shall be not less than one hundred percent (100%) of the total contract amount.

10-46 PLANS. The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specification.

10-47 PROGRESS SCHEDULE. A schedule provided by the Contractor showing the sequence of work. The schedule shall indicate also the individual rates and the number of calendar days estimated for the completion of each item in order to carry the project to completion within the contract time.

10-48 PROJECT. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

10-49 PROJECT ENGINEER. The representative of the Owner, whether employed directly by the Owner or employed by an engineering firm retained by the Owner, acting as the immediate supervisor of the Resident Engineer.

10-50 PROPOSAL. The written offer of a bidder, on the prescribed form, to perform the contemplated work and furnish the necessary materials at the prices quoted to complete the work within the specified contract time.

10-51 PROPOSAL GUARANTY. The security furnished with a proposal to guarantee that the bidder will enter into the contract within a specified period of time if his/her bid is accepted. The Proposal Guaranty may be in the form of bid bond or in the form of a bank draft drawn on the New York, Chicago, or St. Louis Exchange, a bank cashier's check, or a properly certified check.

10-52 RAILROAD. The Railroad or Railway Company whose property is involved in the work.

10-53 RAILROAD ENGINEER. The Chief Engineer or superintendent of the Railroad, or his/her authorized representative limited by the particular duties entrusted to him.

10-54 RESIDENT ENGINEER. The representative of the Owner, whether employed directly by the Owner or employed by an engineering firm retained by the Owner, immediately in charge of the engineering details of a construction project and acting under the supervision of the Project Engineer. The Resident Engineer resides on the construction site at all times the Contractor is working.

10-55 RIGHT-OF-WAY. A general term denoting land, property, or interest therein, acquired

for or devoted to a highway, airport, or railroad.

10-56 ROADBED. The graded portion of a highway, access road, or entrance road within side slopes, prepared as a foundation for the pavement structure and shoulders.

10-57 ROADSIDE. A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway, access or entrance road may also be considered roadside.

10-58 ROADSIDE DEVELOPMENT. Those items necessary to complete highway, access or entrance road, which provide for the preservation of landscape materials and features; the rehabilitation and protection against erosion of all areas disturbed by construction through seeding, sodding, mulching and the placing of other ground covers; such suitable planting and other improvements as may increase the effectiveness and enhance the appearance of the area.

10-59 ROADWAY. The portion of the right-of-way within limits of construction.

10-60 RUNWAY. The area on the airport prepared for the landing and takeoff of aircraft.

10-61 SHOULDER. The portion of the roadway, taxiway or runway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

10-62 SIDEWALK. That portion of the pavement primarily constructed for use of pedestrians.

10-63 SPECIAL PROVISIONS. Additions and revisions to the standard and supplemental specifications covering conditions peculiar to an individual project.

10-64 SPECIFICATIONS. The body of directions, provisions, and requirements contained herein, or in any supplement adopted by the Division, together with written agreements and all documents of any description made or to be made pertaining to the method or manner of performing the work, the quantities, or the quality of materials or workmanship to be furnished under the contract.

10-65 STANDARDS. The Division Standard Drawings, and supplements, amendments, and indices thereto, as prepared and issued by the Division. These may be procured from the Division, by written or personal request, free of charge.

10-66 STATE. The State of Illinois.

10-67 STRUCTURE. Unless otherwise defined in the specifications, structures shall comprise all objects constructed of materials other than earth, required by the contract to be built or to be removed, but not including surfacing and base courses, gutters, curbs, sidewalks, and driveway pavement.

10-68 SUBCONTRACTOR. An individual, firm, partnership or corporation who, with the

written consent of the Engineer, assumes obligation for performing specified pay items for the Contractor.

10-69 SUBGRADE. The compacted soil which forms the pavement foundation.

10-70 SUBSTRUCTURE. All of that part of the structure below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames, together with the backwalls, wingwalls and wing protection railings.

10-71 SUPERSTRUCTURE. The entire structure except the substructure.

10-72 SUPERINTENDENT. The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions regarding the engineering details from the Resident Engineer, and who shall supervise and direct the construction.

10-73 SUPPLEMENTAL AGREEMENT. A written agreement between the Contractor and the Division covering: 1) work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25 percent, such increased or decreased work being within the scope of the originally awarded contract, or 2) work that is not within the scope of the originally awarded contract.

10-74 SUPPLEMENTAL SPECIFICATIONS. Additions and revisions to the standard specifications that are adopted subsequent to issuance of this book.

10-75 SURETY. The corporation, partnership or individual, other than the Contractor, executing the Performance, Payment or Bid Bond.

10-76 TAXIWAY. For the purpose of this document, the term taxiway means the portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways or aircraft parking areas.

10-77 TRAVELED WAY. The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

10-78 UTILITY. The privately, publicly, or cooperatively owned lines, facilities and systems for producing, transmitting or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with airport drainage, and other similar commodities, including publicly owned fire and police signal systems and street lighting systems, which directly or indirectly serve the public or any part thereof. The term "utility" shall also mean the utility company, inclusive of any wholly owned or controlled subsidiary.

10-79 WARRANTY. The Contractor's assurance that all materials and all workmanship will be provided as represented in the plans and specifications and in accordance with Section 50-25.

10-80 WORK. The furnishing of all labor, materials, equipment and incidentals necessary or

convenient to the successful completion of the project and the carrying out of all the duties and obligations imposed by the contract.

10-81 AIRPORT IMPROVEMENT PROGRAM (AIP). A grant-in-aid program, administered by the Federal Aviation Administration.

10-82 AIRPORT MANAGEMENT. The person and his/her representatives responsible for the daily management and operation of the airport.

END OF SECTION 10

SECTION 20

SCOPE OF WORK

20-01 INTENT OF THE CONTRACT, PLANS AND SPECIFICATIONS. The intent of the plans and the specifications is to prescribe a complete outline of work which the Contractor undertakes to do in full compliance with the contract. The Contractor shall perform all earthwork, construct all base and surface courses, structures, and such additional, extra, and incidental construction as may be necessary to complete the work to the finished lines, grades, and cross sections in a substantial and acceptable manner. He/She shall furnish all required materials, equipment, tools, labor, and incidentals, unless otherwise provided in the contract, and shall include the cost of these items in the unit prices for the several units of work.

20-02 ALTERATION OF WORK AND QUANTITIES. The Owner reserves and shall have the right to make such alterations in the work as may be necessary or desirable to complete the work originally intended in an acceptable manner. Unless otherwise specified herein, the Engineer shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded contract quantities, provided that the aggregate of such alterations does not change the total contract cost or the total cost of any major contract item by more than 25 percent (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations which do not exceed the 25 percent limitation shall not invalidate the contract nor release the surety, and the Contractor agrees to accept payment for such alterations as if the altered work had been a part of the original contract. These alterations which are for work within the general scope of the contract shall be covered by "Change Orders" issued by the Engineer. Change Orders for altered work shall include extensions of contract time where, in the Engineer's opinion, such extensions are commensurate with the amount and difficulty of added work.

Should the total cost of any major contract item change by 25 percent or more, with the aggregate amount of altered work less than the 25 percent limitation hereinbefore specified, the alteration shall be subject to approval, prior to construction, by the Engineer and handled as a supplemental agreement. *Either the Contractor or the Owner may make claims for adjustment of unit prices pursuant to this provision.*

Should the aggregate amount of altered work exceed the 25 percent limitation hereinbefore specified, such excess altered work shall be covered by supplemental agreement. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

For AIP projects, all supplemental agreements shall be approved by the FAA and shall include valid wage determinations of the U.S. Secretary of Labor when the amount of the supplemental agreement exceeds \$2,000.00. However, if the Contractor elects to waive the limitations on work that increases or decreases the originally awarded contract or any major contract item by more than 25 percent, the supplemental agreement shall be subject to the same U.S. Secretary of

Labor wage determinations as was included in the originally awarded contract.

All supplemental agreements shall require consent of the Contractor's Surety and separate performance and payment bonds.

20-03 OMITTED ITEMS. The Engineer may, in the Owner's best interest, omit from the work any contract item, except major contract items. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be nonperformed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with the subsection titled PAYMENT FOR OMITTED ITEMS of Section 70.

20-04 EXTRA WORK. Should acceptable completion of the contract require the Contractor to perform an item of work for which no basis of payment has been provided in the original contract or previously issued change orders or supplemental agreements, and same shall be called Extra Work. Extra work that is within the general scope of the contract shall be covered by written change order. Change orders for such extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the Engineer's opinion, is necessary for completion of such extra work.

When determined by the Engineer to be in the Owner's best interest, he/she may order the Contractor to proceed with extra work by force account as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of Section 70.

Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a Supplemental Agreement as hereinbefore defined in the subsection titled SUPPLEMENTAL AGREEMENT of Section 10.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

20-05 MAINTENANCE OF TRAFFIC. It is the explicit intention of the contract that the safety of aircraft as well as the Contractor's equipment and personnel, is the most important consideration. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas of the airport with respect to his/her own operations and the operations of all his/her subcontractors as specified in the subsection titled LIMITATION OF OPERATIONS of Section 60. It is further understood and agreed that the Contractor *and his/her subcontractors* shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, for, and upon the airport as specified in the subsection titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF

OTHERS in Section 50.

With respect to his/her own operations and the operations of all his/her subcontractors, the Contractor shall provide marking, light, and other acceptable means of identifying personnel; equipment; vehicles; storage areas; and any work area or condition that may be hazardous to the operation of aircraft, fire/rescue equipment, or maintenance vehicles at the airport.

When the contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the Contractor's (*or his subcontractor's*) performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall furnish, erect, and maintain barricades, warning signs, flagmen and other traffic control devices in reasonable conformity with the manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office), unless otherwise specified herein. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets, or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street or highway.

The Contractor shall make his/her own estimate of all labor, materials, equipment and incidentals necessary for providing the maintenance of aircraft and vehicular traffic as specified in this subsection.

When not provided for as a contract item, the cost of *supplying, maintaining and or moving* the aircraft and vehicular traffic *control devices* specified in this subsection shall not be measured or paid for directly, but shall be included in the various contract items.

Air traffic shall be maintained at the airport throughout the construction period as shown in the Safety and Phasing Plan. All construction along a runway, taxiway, or apron edge necessitating its closure shall be expedited to minimize closure time.

The Airport Management will give proper notice to the nearest Flight Service Station and the Airways Facilities Chief of the Federal Aviation Administration prior to beginning construction.

If it will be necessary to close portions of the Runways, Apron and Taxiways during the proposed construction, the Contractor shall notify the Airport Management through the Resident Engineer a minimum of 72 hours prior to the initiation of any work which requires closure of active airfield pavements for the issuance of the appropriate Notice to Airmen (NOTAM) and user coordination.

The Contractor shall consult with the Resident Engineer *and the Director of Airport Field Operations* in arranging his/her construction operations. The Airport Management will at all times have jurisdiction over the safety of air and ground traffic during construction. Wherever the safety of air traffic during construction is concerned, his/her decisions as to methods, procedures and measures used shall be final, and any and all Contractors performing work

must be governed by such decisions.

The Contractor shall not be entitled to any extra compensation due to delays or inconveniences caused by said necessary methods, procedures, and measures to protect air, *pedestrian* and ground traffic.

The Contractor shall be responsible for cleaning and maintaining all haul roads to the work area. The Contractor shall maintain these areas as required or as directed by the Resident Engineer. *The contractor shall provide a power sweeper to maintain all pavements clear of dirt and debris at all times or as requested by the Owner or the Owner's Representatives.* Should the Contractor fail to respond to the Resident Engineer's notification, the Division may suspend work until such time as the unsatisfactory condition is corrected.

A *flagger and a lead vehicle* in contact with the Common Traffic Advisory Frequency (CTAF) shall be furnished by the Contractor at any time the active runways, taxiways, or airfield pavement are crossed or used for a haul road. The flagger shall be located to direct vehicular traffic to and from the construction operation. *Flaggers and lead vehicle driver* shall be experienced in radio operation at an airport. The Contractor shall provide his/her own radio capable of transmitting and receiving on the CTAF *and shall be responsible for payment of municipal fines (\$500 per occurrence) due to airfield incursions by his employees, subcontractors, suppliers, consultants and/or other agents.*

The Contractor shall notify the FAA Airways Facilities Field Office or System Management Office a minimum of 72 hours prior to working in NAVAID critical areas.

The Contractor shall provide his/her own radio capable of transmitting and receiving on the tower's ground frequency.

If the Contractor fails to comply with these Standard Specifications, contract plans or these Special Provisions concerning traffic control, the Owner shall execute such work as may be deemed necessary to correct deficiencies and the cost thereof shall be deducted from compensation due or which may become due the Contractor under the contract. The Contractor shall be responsible for supplying, maintaining and moving all barricades required for construction. The cost thereof shall not be paid for separately but shall be considered incidental to the contract unit prices if a specific pay item is not provided for this work.

20-06 REMOVAL OF EXISTING STRUCTURES. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall be measured or counted and paid for in accordance with the contract specifications.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be

immediately determined by the Engineer in accordance with the provisions of the contract.

Except as provided in the subsection titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this section, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of work) shall be utilized in the work as otherwise provided for in the contract and shall remain the property of the Owner when so utilized in the work.

20-07 RIGHTS IN THE USE OF MATERIALS FOUND IN THE WORK. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be either embankment or waste, he/she may at his/her option either:

- A. Use such material in another contract item, providing such use is approved by the Engineer and is in conformance with the contract specifications application to such use; or
- B. Remove such material from the site, upon written approval of the Engineer; or
- C. Use such material for his/her own temporary construction on site; or
- D. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option A., B., or C., he/she shall request the Engineer's approval in advance of such use.

Should the Engineer approve the Contractor's request to exercise option A., B., or C., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at his/her own expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for his/her use of such material so used in the work or removed from the site.

Should the Engineer approve the Contractor's exercise of option A., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of his/her exercise of option A., B., or C.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the line, grades, or grading sections established for the work, except which such excavation or removal is provided for in the contract, plans, or specifications.

No material found or abandoned during the work shall be taken from the airport without the

approval of the Resident Engineer. The Airport Management reserves the right to any material found or abandoned during the work. Any such material shall be turned over to the Airport Management at a site designated by the Resident Engineer.

20-08 FINAL CLEANING UP. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. He/She shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition *to the satisfaction of the Resident Engineer. All disturbed turf areas will be hand raked as soon as possible after backfilling is complete and is considered part of the clean-up operation. Initial clean-up shall be performed before moving forces to the next jobsite and a final clean-up will be done after all operations are complete and prior to the final payments.* Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property owner.

The Contractor shall clean off all cement streaks or drippings, paint smears or drippings, rust stains, oil, grease, bituminous materials, dirt, and other foreign materials deposited or accumulated on or in any structure or curb and gutter due to his/her operation *to the satisfaction of the Resident Engineer.*

20-09 AIRPORT OPERATIONS DURING CONSTRUCTION

a. Construction Activity and Aircraft Movements

For construction activity to be performed in other areas than active operational areas, the storage and parking of equipment and materials, when not in use or about to be installed, shall not encroach upon active operational areas. In protecting operational areas, the minimum clearances maintained for runways shall be in conformance with Part 77 of the Federal Aviation Regulations.

All construction operations shall conform to the plans and in accordance with AC 150/5370-2 (Latest Edition) Operational Safety on Airports During Construction.

b. Limitations On Construction

- (1) *Open flame welding or torch cutting operations shall be prohibited, unless adequate fire and safety precautions are provided.*
- (2) *Open trenches, excavations and stockpiled material near any pavements shall be prominently marked with red flags and lighted by light units during hours of restricted visibility and/or darkness.*
- (3) *Stockpiled material shall be constrained in a manner to prevent movement resulting from aircraft blast or wind conditions.*
- (4) *The use of explosives shall be prohibited.*

(5) *Burning shall not be allowed.*

c. *Debris*

Waste and loose material capable of causing damage to aircraft landing gears, propellers, being or ingested into jet engines shall not be placed on active aircraft movement areas. Material tracked on these areas shall be removed continuously during the work period. The Contractor shall provide garbage cans in employee parking areas and storage areas for debris. Further, waste capable of creating a wildlife attractant shall be disposed of so that wildlife cannot gain access to the debris.

END OF SECTION 20

SECTION 30

CONTROL OF WORK

30-01 AUTHORITY OF THE ENGINEER. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work. He/She shall decide all questions which may arise as to the interpretation of the specifications or plans relating to the work, the fulfillment of the contract on the part of the Contractor, and the rights of different Contractors on the project. The Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for under the contract.

30-02 CONFORMITY WITH PLANS AND SPECIFICATIONS. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the Engineer finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications but that the portion of the work affected will, in his/her opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable, he/she will order the affected work be accepted and remain in place. In this event, the Engineer will document his/her determination and recommended contract price adjustments will be based on good engineering judgment and such tests or retests of the affected work as are, in his/her opinion, needed. Changes in the contract price shall be covered by contract modifications (change order or supplemental agreement) as applicable.

If the Engineer finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the Engineer's written orders.

For the purpose of this subsection, the term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the Engineer's right to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's prosecution of the work, when, in the Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority to use good engineering judgment in his/her determinations as to acceptance of work that is not in strict conformity but will provide a finished product equal to or better than that intended by the requirements of the contract, plans, and specifications.

30-03 COORDINATION OF CONTRACT, PLANS, AND SPECIFICATIONS. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions govern over scaled dimensions and the following relationships order of precedence shall apply:

Special Provisions	Hold over: Plans
	Recurring Special Provisions
	Supplemental Specifications
	Specifications
 Plans	Hold over: Recurring Special Provisions
	Supplemental Specifications
	Specifications
 Recurring Special Provisions	Hold over: Supplemental Specifications
	Specifications
 Supplemental Specifications	Hold over: Specifications
 Contract Plans	Hold over: Standard Plans

STANDARD SPECIFICATIONS

Technical Specifications	Hold over: General Provisions
	Cited Standards for Materials Or Testing
	Cited Standards for Materials Or Testing
	Cited FAA Advisory Circulars
 General Provisions	Hold over: Cited Standards for Materials Or Testing
	Cited Standards for Materials Or Testing
	Cited FAA Advisory Circulars

1. *Supplemental Agreement (Amendment)*
2. *Change Order*
3. *Addenda*
4. *Contract/Bidding Documents*
5. *Drawings*
6. *Specifications*
7. *General Provisions*

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, he/she

shall immediately call upon the Engineer for his/her interpretation and decision, and such decision shall be final.

30-04 COOPERATION OF CONTRACTOR. The Contractor will be supplied with a minimum of two sets of approved plans and contract assemblies including special provisions, one set of which the Contractor shall keep available on the work at all times.

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the Engineer, his/her inspectors, and other Contractors in every way possible. The Engineer shall allocate the work and designate the sequence of construction in case of controversy between Contractors.

The Contractor shall have on the work at all times, as his/her agent, a competent English-speaking superintendent capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the type of work being performed, who shall receive instructions from the Engineer or his/her authorized representatives. The Superintendent shall have full authority to execute orders or directions of the Engineer without delay, and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work sublet.

A weekly meeting shall be scheduled during construction to discuss work areas, scheduling, etc. The superintendent for the project, the subcontractor's foreman, and the Resident Engineer are required to attend this meeting. The Airport Management and the Division may attend the meeting.

30-05 COOPERATION BETWEEN CONTRACTORS. The Division reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct his/her work so as not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his/her contract and shall protect and save harmless the Division and Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by him because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his/her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. He/She shall join his/her work with that of the others in acceptable manner and shall perform it in proper sequence to that of the others.

Other contracts may be under construction concurrently resulting in more than one Contractor working on the airport at the same time.

The Contractor shall plan and conduct his/her work so as not to interfere or hinder the progress or work being performed by other Contractors. The timely prosecution of the overall project is dependent upon the proper coordination between Contractors. It is to be fully understood by the Contractor that the prosecution of the overall projects and the safety and convenience of the aviation public are the governing criteria for resolving conflicts which may arise between his/her schedule and the schedule of other Contractors. When conflicts arise, resolution of such conflicts will be made by the Airport Management through the Resident Engineer in the best interest of the airport. Delays, changes in scheduling, or expedition of work under this contract to coordinate the timely prosecution of work will be considered incidental to the contract and no additional compensation will be allowed.

30-06 CONSTRUCTION LAYOUT STAKES. The Contractor will be required to furnish and place construction layout stakes for this project. The Resident Engineer will locate and reference the centerline of survey and all intersecting points and will establish bench marks along the line of the improvement outside construction limits. Locating and referencing the centerline of survey shall consist of locating and referencing control points such as point of curvature, points of tangent, and sufficient points on tangent to provide a line of sight. Control points set by the Resident Engineer shall be identified in the field to the Contractor, and the field notes shall be kept in the office of the Resident Engineer.

The Contractor shall provide field surveys directed by a registered surveyor or engineer, and set all additional stakes for this project which are needed to establish offset stakes, reference points, slope stakes, pavement and grade, stakes for culverts, sewers and drainage structures, paved gutters, walls, monuments, fence, right-of-way lines, and any other horizontal or vertical controls, including supplementary bench marks necessary to secure a correct layout of the work. Grading slope stakes shall be set at sufficient intervals (not to exceed 100 feet) to accurately outline the slopes. Stakes for line and grade of pavement shall be set at sufficient station intervals (not to exceed 25 feet) to assure substantial conformance to plan line and grade. Staking of right-of-way lines, if applicable, shall consist of placing tall stakes, properly identified and readily discernible, at points of change in width or direction of the right-of-way and at points along the line so that at least two of the stakes can be seen distinctly from any point of the line. Right-of-way lines shall be staked at locations where construction is to be performed prior to beginning construction. The Contractor will not be required to set additional stakes to locate a utility line which is not included as a pay item in the contract, or to determine the property line between properties.

The Contractor shall be responsible for having the finished work substantially conform to the line, grades, elevations and dimensions called for in the plans. Any inspection or checking of the Contractor's layout by the Resident Engineer and the acceptance of all or any part of it shall not relieve the Contractor of his/her responsibility to secure the proper dimensions, grades, and elevations of the several parts of the work. The Contractor shall exercise care in the preservation of stakes and bench marks, and shall have them reset by a registered land surveyor at his/her expense when any are damaged, lost, displaced or removed. The Contractor shall use a registered surveyor or engineer and competent personnel and suitable equipment for the

layout work required.

RESPONSIBILITY OF THE RESIDENT ENGINEER

A. The Resident Engineer will locate and reference the centerline of all pavements and applicable baselines at 500 ft intervals. Locating and referencing the centerline of survey will consist of locating and referencing the control points of the centerline such as PC's, PT's, and as many POT's as are necessary to provide a line of sight.

B. Bench marks will be established along the project outside of construction lines and not exceeding 1,000 foot intervals horizontally and 20 feet vertically.

C. Stakes set for A. and B. above shall be identified in the field to the Contractor and the field notes kept in the Resident Engineer's office for references by him.

D. The Resident Engineer will check clearances both horizontal and vertical at all grade separations, if applicable.

E. The Resident Engineer will make random checks of the Contractor's staking to determine if the work is in substantial conformance with the plans. Where the Contractor's work will tie into the work that is being or will be done by others, checks will be made to determine if the work is in conformance with the proposed overall grade and horizontal alignment.

F. The Resident Engineer will set all stakes for utility adjustments and for building fences, if necessary, along the right-of-way line by parties other than the Contractor.

G. Immediately after the Contractor has staked the drainage structures, the Resident Engineer will check the staking, either visually or by instrument, to determine if the structures fit the waterways in horizontal alignment and vertical elevation. If it is necessary to redesign the drainage structure, the Resident Engineer will furnish a revised design and re-stake the structure.

H. The Resident Engineer will make all measurements and take all cross sections from which the various pay items are to be measured, such as cross sections for all borrow pits and channel changes, additional measurements needed to determine the amount of earthwork and all measurements on which the depth of subbase, bases or pavements are to be verified.

I. Where the Contractor, in setting construction stakes, discovers discrepancies, the Resident Engineer will check to determine their nature and make whatever revisions are necessary in the plans, including the recross-sectioning of the area involved, and all additional re-staking necessary.

J. The Resident Engineer will accept responsibility for the accuracy of specific stakes that are covered by random instrument checks and recorded, provided no displacement occurs. Any errors that are apparent shall be immediately called to the Contractor's attention, and the Contractor shall be required to make the necessary correction before the stakes are used for

construction purposes.

K. All measurements necessary to determine the final pay quantities must be made by the Resident Engineer independently of the Contractor's station stakes and any bench marks established by the Contractor.

L. If requested, the Resident Engineer will furnish a schedule showing the pavement profile grade elevations at intervals of 25 feet.

Additional duties, responsibilities and authority clarification is provided in Supplementary General Conditions 15.

RESPONSIBILITY OF THE CONTRACTOR

A. The Contractor will set all other stakes necessary to establish limits and elevations of the work and shall define right-of-way for the project, if applicable.

B. The right-of-way shall be considered to be defined when stakes readily discernible, have been placed at points of change in width or direction of the right-of-way line and at points along the line so that at least two such right-of-way stakes can be seen from any point on the line.

C. The Contractor will not be required to set additional stakes to locate a utility line or to determine the property line between properties.

D. Field notes shall be kept in standard survey field notebooks and these books shall become the property of the Division at the completion of the project.

E. It is not considered the responsibility of the Contractor to make a detailed check of the accuracy of the plans; however, it is expected that the Contractor will advise the Resident Engineer promptly of known errors in the plans.

F. The Contractor shall reset the existing control points shown on the plans and establish ties for the reset points.

The ties established shall meet the approval of the Resident Engineer.

The Contractor will be restricted to iron pins or drill holes for monumentation. Nails and iron pins shall not be used in locations where they could be removed by snow plows.

The control points to be reset are all survey monuments, PI's, PC's, PT's, and POT's.

This item shall not be paid for separately, but shall be considered incidental to the pay item for which the layout is required.

G. The Contractor shall be required to establish a grid at the edges of each paving line on 25'

centers and document elevations prior to placing the proposed pavement. These grades shall immediately be provided to the Resident Engineer. The Contractor shall also provide a table showing the existing pavement elevations, proposed pavement elevations and the proposed pavement thickness a minimum of 36 hours prior to paving. If for any reason the pavement thickness is less than the design thickness, the profiles may be adjusted.

30-07 AUTOMATICALLY CONTROLLED EQUIPMENT. Whenever batching or mixing plant equipment is required to be operated automatically under the contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period of 48 hours following the breakdown or malfunction, provided this method of operations will produce results which conform to all other requirements of the contract.

30-08 AUTHORITY AND DUTIES OF THE RESIDENT ENGINEER. As the direct representative of the Project Engineer, the Resident Engineer has immediate charge of the engineering details of each construction project. He/She is responsible for the administration and satisfactory completion of the construction. The Resident Engineer is authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. The Resident Engineer is not authorized to revoke, alter, or waive any provision of the contract. The Resident Engineer is not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

The Resident Engineer is authorized to notify the Contractor or his/her representative of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials and to suspend any work in question until such issues can be referred to the Engineer for his/her decision.

The Resident Engineer is responsible for reviewing and verifying conformance of all shop drawings with the plans and specifications.

30-09 DUTIES OF THE INSPECTOR. Inspectors will be authorized to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The inspector will not be authorized to alter or waiver the provisions of the contract. The inspector will not be authorized to issue instructions contrary to the plans and specifications, or to act as foreman for the Contractor.

30-10 INSPECTION OF THE WORK. All materials and each part or detail of the work shall be subject at all times to inspection by the Engineer. Such inspection may include mill, plant, or shop inspection, and any material furnished under the specifications is subject to such inspection. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Engineer requests, the Contractor, at any time before final inspection of the work, shall

remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the placing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering or removing, and the placing of the covering or making good of the parts removed, will be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized representative of the Engineer may be ordered removed and replaced at the Contractor's expense unless the representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.

When the Federal Government is to pay a portion of the cost of the work covered by the contract, the work shall be subject to the inspection of the representatives of the Federal Government, but such inspections shall in no sense make the Federal Government a party to the contract.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the Owner, authorized representatives of the owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

Work performed by the Contractor outside of daylight hours shall be done under sufficient artificial area lighting to allow for proper construction methods and inspection. *Sufficient light units shall be provided so that work areas are illuminated to a level of five horizontal foot-candles. The lighting levels shall be calculated and measured in accordance with the current standards of the Illumination Engineering Society.*

Lights shall consist of vehicle or moveable pole mounted floodlights and/or spotlights of sufficient number to illuminate the work area. Vehicle headlights will be allowed only in addition to other lights mentioned above. Lighting shall not interfere with air operations. Any work being performed under insufficient artificial lighting, in the Resident Engineer's judgment, shall be stopped until such time as additional lighting is provided. All work performed during that time will not be acceptable until proper inspection and testing can be made.

30-11 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. All work which does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the Engineer as provided in the subsection titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this section.

Unacceptable work and defective pavement, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable

manner in accordance with the provisions of the subsection titled CONTRACTOR'S RESPONSIBILITY FOR WORK of Section 50.

No removal work shall be done without lines and grades having been given by the Resident Engineer. Work done contrary to the instructions of the Resident Engineer, work done beyond the lines shown on the plans or as given, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

30-12 LOAD RESTRICTIONS. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage which may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor shall be responsible for all damage done by his/her hauling equipment and shall correct such damage at his/her own expense.

Prior to the start of construction operations, the Resident Engineer and the Contractor shall document the condition of the local roads and the airport entrance roads to be used for Contractor's access and haul routes. *The Contractor shall acquaint himself/herself with load restrictions of all roadways intended for use as haul roads prior to the start of haul activities.*

Contractor's use of the existing airfield pavement and airport entrance pavements by equipment and loaded trucks shall be minimized. Any damage to existing airport pavement shall be repaired by the Contractor at his/her own expense *to the Resident Engineers satisfaction.*

If the Contractor uses existing airfield pavements, he/she shall sweep all airport pavements as directed by the Resident Engineer or Airport Management. Failure to comply with the Resident Engineer's or Airport Management's directives will be grounds for suspension of work until such time as the unsatisfactory condition is corrected.

The Contractor shall obtain all necessary permits and temporary easements for the public road(s) to be used for construction hauling and construction access with the City, Township, County, Illinois Department of Transportation and/or any agency that maintains the road(s). The Contractor shall be responsible for any damage to the public roadways caused by construction traffic hauling to this project.

The Contractor shall provide, install and maintain any warning signs (trucks entering highway, etc.) as required by the City, Township, County or Illinois Department of Transportation and/or any agency that maintains the roadway.

30-13 MAINTENANCE DURING CONSTRUCTION. The Contractor shall maintain the work during construction and until the work is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

Waste and loose material capable of causing damage to aircraft landing gears, propellers or engines should not be placed on active aircraft movement areas. Material tracked on these areas shall be removed continuously during the work.

30-14 FAILURE TO MAINTAIN THE WORK. Should the Contractor at any time fail to maintain the work as provided in the subsection titled MAINTENANCE DURING CONSTRUCTION of this section, the Engineer shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to any exigency that exists.

Should the Contractor fail to respond to the Engineer's notification, the Engineer may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending of the exigency that exists. Any maintenance cost incurred by the Owner shall be deducted from monies due or to become due the Contractor.

30-15 PARTIAL ACCEPTANCE. If at any time during the prosecution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, he/she may request the Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, he/she may accept it as being completed, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

30-16 FINAL INSPECTION. Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer will make an inspection. If all construction provided for and contemplated by the contract is found to be completed in accordance with the contract, plans, and specifications such inspection shall constitute the final inspection. The Engineer shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions (punch list) for correction of same, and the Contractor shall immediately comply with and execute such punch list. Upon

correction of the work, another inspection will be made to determine that the work has been satisfactorily completed. In such event, the Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

30-17 CLAIMS FOR ADJUSTMENT AND DISPUTES. If for any reason the Contractor deems that additional compensation is due him for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, he/she shall notify the Engineer in writing of his/her intention to claim such additional compensation before he/she begins the work on which he/she bases the claim. If such notification is not given or the Engineer is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the Engineer has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit his/her written claim to the Engineer.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on difference in measurements or computations.

30-18 PLANS AND WORK DRAWINGS. Plans showing such details as are necessary to give a comprehensive idea of the construction contemplated will be furnished by the Engineer. The Contractor shall submit to the Engineer for approval such additional shop, working, or layout drawings pertaining to the construction of the work, as may be required, and prior to the approval of such plans or drawings, any work done or materials ordered shall be at the Contractor's risk.

When the contract includes work adjacent to a highway or roadway and falsework, cofferdams, or sheeting is required, the Contractor shall submit to the Engineer for his/her approval and the Highway District Engineer's approval, plans for the falsework, cofferdams, or sheeting. The plans shall be submitted sufficiently in advance of the time the Contractor intends to start work to permit checking. No such work shall be started prior to receipt by the Contractor of approval of the plans for the falsework, cofferdams, or sheeting. The Contractor shall give the Engineer not less than 10 days notice, in writing, prior to beginning such construction. The cost of furnishing such drawings shall be incidental to the contract and no additional compensation will be allowed the Contractor for any delays resulting there from.

The Contractor shall prepare shop, working, or layout drawings for all parts of the work. Before commencing any work or providing any material, the Contractor shall submit for review by the Project Engineer, all drawings relating to the construction arrangement or disposition of the work including drainage and electrical materials entering into the contract, and show the complete materials with manufacturer's specifications of same. The Contractor shall carefully check all his/her drawings making sure they are complete in all detail.

Shop drawings submitted by the Contractor for materials and/or equipment to be provided as a part of the contract shall be reviewed by the Project Engineer. Shop drawings shall be fully

descriptive, complete and of sufficient detail for ready determination of compliance.

Shop drawings submittals shall contain a letter of certification from the manufacturer stating that all materials furnished for the project conform to the contract documents requirements.

The review of the submittals by the Project Engineer with "no exceptions taken" will indicate only that the general method of construction and detailing is satisfactory. Such review will not relieve the Contractor of the responsibility for any error which may exist as the Contractor is responsible for the dimensions and designs of adequate connections, detail and satisfactory construction of all work. The Project Engineer shall note any "exceptions taken" to date submitted and indicate when resubmittal is required to determine compliance.

To aid the Contractor in his/her preparation of the shop drawing submittal, a list of submittals will be provided by the Division at the pre-construction conference. This list will not be considered by the Contractor as being complete. The Resident Engineer or the Division at his/her option may request additional information if in his/her opinion, the information is necessary to adequately review the work.

Drawings shall be submitted within two weeks after the date of the Notice to Proceed or within six weeks of the Notice of Award whichever occurs first.

The Contractor shall submit at least eight (8) copies of each drawing to be reviewed, of which six (6) copies will be retained by the Project Engineer for his/her use and records. Two (2) copies of each drawing will be returned to the Contractor.

The following information shall be clearly marked on each shop, working, and layout drawing, catalog cut, pamphlet specifications sheet, etc., submitted.

PROJECT LOCATION:	DuPage Airport
PROJECT TITLE:	Runway 10-28 and Associated Taxiway Connector Overlay
PROJECT NUMBERS:	Illinois Project: DPA-4122
CONTRACT ITEM:	(i.e AR401610 Bituminous Surface Course)
SUBMITTED BY:	(Contractor/Subcontractor Name)
DATE:	(Date Submitted)

30-19 MATERIAL DOCUMENTATION RESPONSIBILITIES OF THE CONTRACTOR. The Standard Specifications for Construction of Airports make provisions for inspection of materials and construction and establish that it is the Contractor's responsibility to provide materials that meet specification requirements and to produce work strictly in accordance with the intent of the plans and specifications. It requires the close cooperation and communication between the Contractor, the Resident Engineer and the producer/supplier to assure proper inspection coverage. The Contractor's responsibilities include but aren't limited to:

A. As far in advance as possible, the Contractor shall furnish the Resident Engineer information as to the producers (not the suppliers) of all materials and all components that will be used on

the project.

B. The Contractor shall order materials as early as possible and notify the District Office or the Bureau of Materials and Physical Research so that proper arrangements may be made for inspection if the material is source inspected and approved under IDOT jurisdiction. When contacting IDOT, the Contractor shall reference the MISTIC Contract Number for the contract.

C. The Contractor shall notify the supplier that State inspection is required and inform the supplier not to ship without inspection.

D. When ordering, the Contractor shall give the supplier the correct MISTIC Contract Number (A####-1), kind of material and by specification identification. He/She shall instruct the supplier that this information should appear on the delivery ticket. A copy of the delivery ticket and any evidence of inspection shall be forwarded to the Resident Engineer.

E. The Contractor shall submit to the Resident Engineer a catalog cut/specification sheet for the material and a letter of certification from the producer that the material will meet the project specifications. These submittals should be made as far in advance of installation as possible.

F. The Contractor should instruct the supplier to provide materials that are sufficient to insure that tests made at the job site will fall within the specification limits.

G. IDOT inspectors usually are assigned to the plants, quarries or other supply sources as needed. The Contractor should plan the work so that IDOT has sufficient advance notice to assign an inspector if that material inspection is required.

H. The Resident Engineer reserves the right to request additional evidence of inspection or documentation of questionable materials.

END OF SECTION 30

SECTION 40

CONTROL OF MATERIALS

40-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The materials used on the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish complete statements to the Engineer as to the origin, composition, and manufacture of all materials 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.

As a minimum, the Contractor shall provide, upon delivery, statements (shipment tickets, source, manufacturer's certification, analysis, sample, etc.) as required by the Illinois Department of Transportation, Division of Aeronautics "Manual for Documentation of Airport Materials - Latest Edition" or requested by the Division of Aeronautics Engineer of Construction and Materials.

No materials shall be incorporated into the work nor shall any payment be made on any materials until the proper material documentation in accordance with the Standard Specifications, Supplemental Specifications, applicable Recurring Special Provisions and Contract Special Provisions has been submitted and reviewed with no exceptions taken by the Resident Engineer or the Project Engineer.

All steel products used for or incorporated into Aeronautics" contracts shall be manufactured or produced in the United States, as per the "Steel Products Procurement Act". All steel products shall have proof of domesticity documentation accompanying material.

At the Engineer's option, materials may be approved at the source of supply before delivery is started. If it found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the plans or specifications, the Contractor shall furnish such equipment that is:

- A. Listed in the FAA Advisory Circular (AC) 150/5345-53, Approved Airport Lighting Equipment, that is in effect on the date of advertisement; and,
- B. Produced by a manufacturer qualified (by FAA) to produce such specified and listed equipment.

The Contractor shall certify all materials used in the contract. Certification documentation shall be submitted to the Engineer or Owner's Representative. It shall be the sole responsibility of the Contractor to ensure the delivery of adequate and accurate documentation prior to the delivery of the materials.

As a guide to the certification process and requirements, the Contractor shall use the Illinois Division of Transportation/Division of Aeronautics MANUAL FOR DOCUMENTATION OF AIRPORT MATERIALS (latest edition). Copies of this manual are available from the Illinois Division of Aeronautics. Although the MANUAL OF DOCUMENTATION OF AIRPORT MATERIALS defines the Resident Engineer's/Contractor's responsibilities (Sections 300/400), the Contractor shall have the sole responsibility to provide the Resident Engineer with appropriate documentation to satisfy the contract material certification requirements prior to the delivery of materials.

40-02 SAMPLES, TESTS AND CITED SPECIFICATIONS. All materials used in work shall be subject to inspection, testing and approval by the Engineer before incorporation in the work. Any work in which untested materials are used without approval or written permission of the Engineer shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer, shall be removed at the Contractor's expense. Unless otherwise designated, tests in accordance with the cited standard methods of AASHTO or ASTM which are current on the date of advertisement for bids will be made by and at the expense of the Engineer. Samples will be taken by a qualified representative of the Engineer. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representatives at his/her request.

40-03 CERTIFICATION OF COMPLIANCE. The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the Engineer.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name", the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

A. Conformance to the specified performance, testing, quality or dimensional requirements; and,

B. Suitability of the material or assembly for the use intended in the contract work.

Should the Contractor propose to furnish an "or equal" material or assembly, he/she shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

Additional requirements are specified in Section 40-11 Certification of Materials.

40-04 PLANT INSPECTION. The Engineer or his/her authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for his/her acceptance of the material or assembly.

Should the Engineer conduct plant inspections, the following conditions shall exist:

A. The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom he/she has contracted for materials.

B. The Engineer shall have full entry, within the allowable site specific safety regulations, at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

C. If required by the Engineer, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.

It is understood and agreed that the Engineer shall have the right to re-test any material which has been tested and approved at the source of supply after it has been delivered to the site. The Engineer shall have the right to reject only material which, when re-tested, does not meet the requirements of the contract, plans or specifications.

40-05 RESIDENT ENGINEER'S FIELD OFFICE. The Contractor shall furnish a trailer or building for the exclusive use of the Resident Engineer as a field office and field testing laboratory when and as specified in each project.

The Contractor will be required to furnish and maintain a Resident Engineer's Field Office, when required by the contract.

40-06 STORAGE OF MATERIALS. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be located so as to facilitate their prompt inspection. The Contractor shall coordinate

the storage of all materials with the Engineer. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the Engineer. Private property shall not be used for storage purposes without written permission of the owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the Engineer a copy of the property owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at his/her entire expense, except as otherwise agreed to (in writing) by the owner or lessee of the property.

Topsoil shall be stockpiled at the locations designated by the Resident Engineer and in accordance with the approved Safety and Phasing Plan.

Stockpiled material at the construction site should be prominently marked and lighted in a manner acceptable to the Airport Management, when required by the Airport Management.

Stockpiled material should be constrained in a manner to prevent movement resulting from aircraft blast or wind conditions in excess of 10 knots.

40-07 UNACCEPTABLE MATERIALS. Any material or assembly that does not conform to the requirements of the contract, plans or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the Engineer.

No rejected material or assembly, the defects of which have been corrected by the Contractor, shall be returned to the site of the work until such time as the Engineer has approved its use in the work.

40-08 OWNER-FURNISHED MATERIALS. The Contractor shall furnish all materials required to complete the work, except those specified herein (if any) to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified herein.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies which may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

40-09 SOURCE OF MATERIALS. The Contractor, as soon as possible following the contract award, shall inform the Division of the sources of all materials contained in the contract. If the Contractor decides to investigate new sources of supply, he/she shall furnish without charge such preliminary samples and reports rendered, but it is understood that such tests are for informational purposes only and that they shall not be construed as a guarantee of acceptance of any material which may be delivered later for incorporation in the work. Only materials actually delivered for use will be considered, and their acceptance will be based solely upon the results of the tests made on these materials.

If the Contractor installs equipment or apparatus to produce materials from new sources of supply, he/she does so at his/her own risk, and he/she shall assume full responsibility for the production of uniform and satisfactory materials. In case of failure of a source of supply to produce materials satisfactory to the Division, the Contractor shall indemnify and save harmless the Division from any and all claims for loss or damage of whatever nature which he/she may have suffered by reason of the installation of equipment and the operation of such sources of supply.

40-10 HANDLING MATERIALS. All materials shall be handled in such manner as to preserve their quality and fitness for the work. Aggregates shall be transported from the storage sites to the work in tight vehicles so constructed as to prevent loss or segregation of materials after loading and measuring in order that there may be no inconsistencies in the quantities of materials intended for incorporation in the work as loaded, and the quantities as actually received at the place of operations.

40-11 REQUIRED CONTRACTOR TESTING. The Contractor shall be required to provide all material testing and associated certification of materials as outlined in accordance with the Section 400.02 of the latest edition of the Illinois Department of Transportation, Division of Aeronautics MANUAL FOR DOCUMENTATION OF AIRPORT MATERIALS, or as specified herein. Note any reference to testing and/or documentation being the responsibility of the Resident Engineer, Professional Engineer or Consultant shall be changed to the Contractor.

END OF SECTION 40

SECTION 50

LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

50-01 LAWS TO BE OBSERVED. The Contractor shall at all times observe and comply with all Federal and State laws, local laws, ordinances, and regulations which in any manner affect the conduct of the work, and all such orders or decrees as exist at the present and which may be enacted later, of legislative bodies or tribunals having legal jurisdiction or authority over the work, and no plea of misunderstanding or ignorance thereof will be considered. He/She shall indemnify and save harmless the Sponsor and the State and all of its officers, agents, employees, and servants against any claim or liability arising from or based on the violation of such law, ordinance, regulation, order, or decree, whether by himself or his/her employees.

50-02 WORKER'S COMPENSATION INSURANCE. Such insurance required by "Worker's Compensation Act of the State of Illinois", or other means of protection as herein provided, shall be kept in force until all work to be performed under the terms of the contract has been completed and accepted in accordance with the specifications, and it is hereby understood and agreed that the maintenance of such insurance or other protection, until acceptance of the work by the Division, is a part of the contract. Failure to maintain such insurance, cancellation by the Industrial Commission of its approval of such other means of protection as might have been elected, or any other act which results in lack of protection under the said "Worker's Compensation Act" may be considered as a breach of the contract.

50-03 EMPLOYMENT PREFERENCE. The Contractor shall comply with "AN ACT to give preference to the veterans of the United States military and naval service in appointments and employment upon public works, by , or for the use of, the State or its political subdivisions," passed by the 59th General Assembly and approved on June 12, 1935. (Chapter 126 1/2, Paragraph 23 of the Illinois Revised Statutes 1981.) The foregoing requirements do not apply to any airport improvement, or part thereof, financed in whole or in part with Federal funds.

50-04 PERMITS, LICENSES, AND FEES. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

It will be the Contractor's responsibility to obtain permission and any applicable permits to use the roads (federal, state, county, township) leading to the airport construction site. The Contractor will be responsible for road maintenance, cleanup and any other requirements agreed upon for the right to use the roads. This requirement will be considered an incidental cost to the contract and no additional compensation will be allowed.

50-05 PATENTED DEVICES, MATERIALS, AND PROCESSES. If any design, device, material, or process covered by letters, patent or copyright is used by the Contractor, whether required or not, he/she shall provide for such use by suitable legal agreement with the patentee or owner, guaranteeing the Division indemnity from and against all claims for infringement, and shall include the cost of such agreement in the price bid for the work. It shall be the duty of the

Contractor, if so demanded by the Division, to furnish said Division with a copy of the legal agreement with the patentee or owner, and if such copy is not furnished when demanded, then the Division may, if it so elects, withhold any and all payments to said Contractor until said legal agreement is furnished. If a suitable legal agreement with the patentee or owner is not made as required herein, the Contractor and surety shall indemnify and save harmless the Division from any and all claims for infringement by reason of the use of any such patented design, device, material, or process, or any trademark or copyright in connection with the work agreed to be performed under the contract, and shall indemnify the Division for any cost, expense, and damages which it may be obliged to pay by reason of any such infringement at any time during the prosecution or after the completion of the work.

50-06 RESTORATION OF SURFACES DISTURBED BY OTHERS. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work.

The Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the Engineer.

Should the owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such owners by arranging and performing the work in this contract so as to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the Engineer, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others.

50-07 FEDERAL AID PARTICIPATION. For Federally assisted contracts, the United States Government has agreed to reimburse the Owner for some portion of the contract costs. Such reimbursement is made from time to time upon the Owner's (Sponsor's) request to the FAA. In consideration of the United States Government's (FAA) agreement with the Owner, the Owner has included provisions in this contract pursuant to the requirements of the Rules and Regulations of the Federal Aviation Administration that pertain to the work.

The contract work is subject to the inspection and approval of duly authorized representatives of the Administrator, Federal Aviation Administration and is further subject to those provisions of the rules and regulations that are cited in the contract, plans, or specifications.

No Federal requirement, rules and regulation, nor this contract shall be construed as making the Federal Government a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

50-08 SANITARY, HEALTH AND SAFETY PROVISIONS. The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his/her employees as may be necessary to comply with the requirements of the State and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, State, and local laws, rules and regulations concerning construction safety, and health standards. The Contractor shall not require any worker to work in surroundings or under conditions which are unsanitary, hazardous, or dangerous to his/her health or safety.

50-09 PUBLIC CONVENIENCE AND SAFETY. The Contractor shall control his/her operations and those of his/her subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to his/her own operations and those of his/her subcontractors and all suppliers in accordance with the subsection titled MAINTENANCE OF TRAFFIC of Section 20 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in the subsection titled LIMITATIONS OF OPERATIONS of Section 60 hereinafter.

50-10 BARRICADES, WARNING SIGNS AND HAZARD MARKINGS. The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs and hazard markings shall be suitably illuminated.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office).

Type I barricades shall be provided and conform to IDOT Division of Highways Specifications and Standards for Type I Barricades. The barricades shall be lighted with a flashing or steady-burning red light. The barricades shall be sufficiently weighted with sandbags or other appropriate method to withstand high winds or jet blast without dislocation.

Barricades shall be placed as shown in the plans or as directed by the Resident Engineer or Airport Management. The Contractor shall be responsible for supplying, maintaining and any moving of all barricades. Lights shall be maintained in proper working order. No separate payment will be made for supplying, maintaining and moving barricades but shall be considered incidental to the contract. Any cost of labor and equipment necessary to insure safety at the airport for the duration of the project will be considered incidental to the contract and no additional reimbursement for these items of work will be allowed.

When the work requires closing an air operations area of the airport or portion of such area, the

Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of FAA Advisory Circular 150/5340-1 (latest revision), Standards for Airport Markings.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and his/her parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to FAA Advisory Circular 150/5370-2 (latest revision), Safety on Airports During Construction Activity.

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to FAA Advisory Circular 150/5370-2 (latest revision).

When any vehicle is required to travel over any portion of the aircraft movement area and runway approach area, the vehicle shall be properly identified to operate in the area or provided with a flag on a staff so attached to the vehicle so that the flag will be readily visible. The flag should be not less than 3-feet square consisting of a checkered pattern of international orange and white squares of not less than one foot on each side and displayed in full view above the vehicle. A flag or escort vehicle is not required for vehicles which have been painted, marked and lighted for routine use on aircraft movement areas. Contractor vehicles that are engaged in continuous hauling operations are not required to display a flag. Any vehicle operating on the movement area during the hours of darkness should be equipped with an amber flashing dome-type light, in accordance with local and/or state codes.

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work which requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Engineer.

Open-flame type lights shall not be permitted within the air operations areas of the airport.

~~50-11 USE OF EXPLOSIVES. Explosives will not be permitted on this project. When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.~~

~~All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the Engineer and, in general, not closer than 1,000 feet from the work or from any building, road or other place of human occupancy.~~

~~The Contractor shall notify each property owner and public utility company having structures or facilities in proximity to the site of the work of his/her intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury. The use of electrical blasting caps shall not be permitted on or within 1,000 feet of the airport property.~~

50-12 PROTECTION AND RESTORATION OF PROPERTY. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property marks until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his/her manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, he/she shall restore, at his/her own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or he/she shall make good such damage or injury in an acceptable manner.

The Contractor shall take special precautions during construction to protect existing pavement, graded ground, landscaping, areas with turf or sod, buildings, lights, guidance signs, NAV-AIDS, and other existing features of the airport and surrounding area from damage or disturbance. Any such areas disturbed, damaged, or destroyed by the Contractor, except those areas within the limits of construction, shall be returned to their pre-construction condition to the satisfaction of the Engineer. The cost of work necessary to accomplish these requirements shall be considered incidental to the contract and no additional compensation will be allowed.

The Contractor shall take every precaution against fire.

50-13 RESPONSIBILITY FOR DAMAGE CLAIMS. *To the fullest extent permitted by law, ¶*the Contractor shall indemnify and save harmless the Division, the Owner and the FAA and their officers and employees from all suits, actions or claims of any character brought because of any injuries or damage received or sustained by any person or persons, or property on account of the operations of the Contractor; on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act of omission, neglect, or misconduct of said Contractor; or because of any claims or amounts arising or recovered under the "Worker's Compensation Act" or any other law, ordinance, order, or decree. The Contractor shall also indemnify and save harmless the engineering firm retained by the Owner to provide construction inspection. Money due the Contractor under and by virtue of his/her contract retained as may be considered necessary by the Division for such purpose may be retained for the use of the Division or, in case no money is due, his/her claims for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the Division, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he/she is adequately protected by public liability and property damage insurance.

This contract is not intended by any of the Provisions of any part of the contract to create the public or any member thereof a third party beneficiary, or to authorize any one not a party to

this contract to maintain a suit for personal injuries or property damage pursuant to the terms or Provisions of this contract. The duties, obligations and responsibilities of the parties to this contract with respect to third parties shall remain as imposed by law.

The Contractor, prior to execution of the contract, shall file with the Division copies of completed certificates of insurance, satisfactory to the Division, to afford protection against all claims for damages to public or private property, and injuries to persons, arising out of and during the progress of the work to its completion, ~~as defined by Section 80-12.~~ The policy of insurance shall include the owner and the participating agencies as an additional insured or provide separate coverage with an Owner's Protective policy. The minimum amounts of insurance shall be as *specified in Article 9 of the AGREEMENT.* ~~follows, except no restrictions or occurrence limits will be permitted:~~

~~Bodily Injury Liability~~
~~Each Occurrence~~
~~\$2,000,000~~

~~Property Damage Liability~~
~~Each Occurrence~~ ~~Aggregate~~
~~\$1,000,000~~ ~~\$2,000,000~~

All such insurance must include an endorsement whereby the insurer agrees to notify the Division at least 30 days prior to nonrenewal, reduction or cancellation. The Contractor shall cease operations on the project if the insurance is cancelled or reduced below the required amount of coverage. All costs for insurance as specified herein will not be paid for separately, but shall be considered as incidental to the contract. The engineering firm retained by the Owner to provide construction inspection shall be included as an additional named insured on the certificate of insurance.

50-14 THIRD PARTY BENEFICIARY CLAUSE. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

50-15 OPENING SECTIONS OF THE WORK TO TRAFFIC. No portion of the work may be opened by the Contractor for public use until ordered by the Engineer in writing. Should it become necessary to open a portion of the work to public traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the Engineer, such portion of work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provisions of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at his/her expense.

The Contractor shall make his/her own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

It is necessary for the Contractor to complete the contract work in such a way as to maintain airfield access for all aircraft. The Contractor shall submit a progress schedule to the Project Engineer in conformance with Section 60-02 showing the estimated beginning and completion dates of each sequence of work. It is vitally important to plan and conduct the work in such a manner that the length and amount of interruption to air traffic at the airport is minimized. If necessary to complete the work within the time limitations for the contract and the schedule approved by the Division, the Contractor shall work longer than regular hours or use multiple crews and equipment, or a combination of such techniques. Any premium costs of overtime or multiple crew and equipment operations shall be at the Contractor's expense.

50-16 CONTRACTOR'S RESPONSIBILITY FOR WORK. The work shall be under the charge and care of the Contractor until final acceptance by the Division. The Contractor shall assume all responsibility for injury or damage to the work by action of the elements or from any other cause whatsoever, and shall rebuild, repair, restore, and make good, at his/her expense, all injuries or damages to the work, except that when the work is opened to traffic by written order of the Engineer, the provisions of this article shall not apply to damage caused by such traffic and not due to the Contractor's fault or negligence.

When materials are furnished to the Contractor by the Division or Owner, for inclusion in the work, the Contractor's responsibility for all such materials shall be the same as for materials furnished by him.

In case of suspension of work from any cause whatsoever, the Contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, provide for normal drainage and shall erect any necessary temporary structures, signs, or other facilities at his/her expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings, and soddings furnished under his/her contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

50-17 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS. As provided in the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section, the Contractor shall cooperate with the owner of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA), or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct, or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control his/her operations or prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and the owners are indicated as follows:

Person to Contact

<u>Utility Service or Facility</u>	<u>(Name, Title, Address & Phone)</u>	<u>Owner's Emergency Contact (Phone)</u>
Ameritech	Joint Utility Locating Information for Excavators (JULIE.)	1-800-892-0123
Commonwealth Edison Electric Cables	JULIE	1-800-892-0123
Northern Illinois Gas	JULIE	1-800-892-0123
Natural Gas Pipeline Company of America	Construction Department 701 East 22 nd Street P.O. Box 1208 Lombard, IL 60148	1-630-691-3613
FAA Control and Communication Cables	FAA Sector Field Office 2710 International Drive West Chicago, Illinois 60185	1-630-584-0444
City of West Chicago (Water and Sewer Services)	Scott Marquardt	1-630-293-2242

It is understood and agreed that the Owner does not guarantee the accuracy of the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of his/her responsibility to protect such existing features from damage or unscheduled interruption of service.

The location of the underground utilities as indicated on the plans has been obtained from existing records. Neither the Owner, Division or the Project Engineers assume any responsibility whatever 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 company of his/her operational plans. The Contractor shall make arrangements for detailed information and assistance in locating utilities. In the event an unexpected utility interference is encountered during construction, the Contractor shall immediately notify the utility company, the Owner and the Resident Engineer. Any such mains

and/or services disturbed by the Contractor's operations shall be restored immediately at his/her expense to the satisfaction of the utility company, Owner and the Engineer. *Prior to backfilling, the Engineer shall be allowed to document the restoration.* Should any utilities or cables require location, the following people shall be contacted:

Utility Service or Facility	Person to Contact
FAA Control & Communications Cable	Airways Facility Unit
Airfield Lighting Cables and Airport Owned Navigational Aids	Airport Management
Electric Cables (ComEd)	JULIE 1-800-892-0123
Telephone Cables (SBC and AT&T)	JULIE 1-800-892-0123
Water and Sewer Lines (City of West Chicago)	JULIE 1-800-892-0123
Gas Lines (NICOR)	JULIE 1-800-892-0123

The Contractor shall be responsible for contacting any utility companies which are not members of JULIE and may have utilities in the area.

At points where the Contractor's operations are adjacent to properties of railroad, telegraph, telephone and power companies, or are adjacent to other property, damage to which might result in considerable expense, loss or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the owners of all utility services or other facilities of his/her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided hereinbefore in this subsection and the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section. A copy of each notification shall be given to the Engineer.

In addition to the general written notification hereinbefore provided, it shall be the responsibility of the Contractor to keep such individual owners advised of changes in his/her plan of operations that would affect such owners. The Contractor shall cooperate with the owners of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

Prior to commencing the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such owner of his/her plan of operation. If, in the Contractor's opinion, the owner's assistance is needed to locate the utility service or facility or the presence of a representative of the owner is desirable to observe the work, such advice

should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's PERSON TO CONTACT no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the Engineer.

The Contractor's failure to give the two days notice hereinabove provided shall be cause for the Engineer to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use excavation methods acceptable to the Engineer within 3 feet of such outside limits at such points as may be required to insure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise (*utility not shown to be impacted by construction documents*), he/she shall immediately notify the proper authority and the Engineer and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the Engineer continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to his/her operation whether or not due to negligence or accident. The Division reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his/her surety.

Within the State of Illinois, a Joint Utility Locating Information for Excavators (JULIE) System has been established. All utility companies and municipalities which have gas mains and a number of others are a part of this system.

Instead of the Contractor notifying each individual utility owner that he/she will be working in the area, it will only be necessary to call the JULIE number which is (800) 892-0123 and they will notify all member utility companies involved that their respective utility should be located. A minimum of forty-eight hours advance notice is required and the political name of the township where the work is located, as shown on the location map, along with other location information such as land section and quarter section will have to be given.

For utilities which are not members of the JULIE system, it will still be necessary to contact the owners directly. The plan general notes will indicate which agencies are members of JULIE.

The type of utility and color used for marking are shown in the following table:

<u>UTILITY SERVICE</u>	<u>COLOR</u>
Gas, Oil or Petroleum	Yellow
Electric	Red
Communication, Telephone	Orange
Potable Water	Blue
Sewer	Green

Special care shall be taken on all operations and particularly near pavement edges to avoid damage to edge lights, signs, NAVAID's and all underground electrical cable and ducts on the airport. The approximate location of existing underground cable and ducts are shown on the drawings. Any airfield lights, signs, NAVAID's, cables or ducts that are broken and require replacement because of the Contractor's operations shall be replaced by the contractor at his own expense.

Any airfield cable or duct repair or replacement, to any part of the electrical system, made necessary by the Contractor's operations, will be made by him in the manner specified in appropriate electrical sections in the Special Provisions at no cost to the airport. Cost of replacement to be borne by the Contractor shall include any expense incurred in locating as well as repairing or replacing damaged parts of the system by the owning agency.

It shall be the Contractor's responsibility to locate and protect all airport-owned utilities within the construction limits. This includes all electrical cables, storm sewer, drain tile, sanitary sewer and water main. The contractor shall coordinate with Airport personnel prior to locating any Airport owned facilities.

It shall be the Contractor's responsibility to locate and protect all FAA owned facilities within the construction limits. The contractor shall coordinate with the FAA personnel listed in the tables above prior to locating any FAA owned facilities. Special attention is necessary when working near FAA power and control cables. Any FAA utility that is damaged or cut during construction shall be repaired immediately. FAA requires that any damaged cable be replaced in its entirety, no splices will be permitted. No additional compensation will be made for replacement or repair of FAA facilities or cables but, shall be incidental to the contract.

50-18 FURNISHING RIGHTS-OF-WAY. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

50-19 PERSONAL LIABILITY OF PUBLIC OFFICIALS. In carrying out any of the contract provisions or in exercising any power or authority granted to him by this contract, there shall be no liability upon the Engineer, his/her authorized representatives, or any official of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

50-20 NO WAIVER OF LEGAL RIGHTS. The Division shall not be precluded or stopped by any measurement, estimate, or certificate made either before or after completion and acceptance of the work and payment therefore, from showing the true amount and character of the work

performed and materials furnished by the Contractor, nor from showing that any such measurement, estimate or certificate is untrue or is incorrectly made, nor that the work or materials do not in fact conform to the contract. The Division shall not be precluded or stopped, notwithstanding any such measurement, estimate, or certificate and payment in accordance therewith, from recovering from the Contractor or his/her sureties, or both, such damage as it may sustain by reason of his/her failure to comply with the terms of the contract. Neither the acceptance by the Division, or any representative of the Division, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, nor any possession taken by the Division, shall operate as a waiver of any portion of the contract or of any power herein reserved, or of any right to damages. A waiver of any breach of the contract shall not be held to be a waiver of any other subsequent breach.

50-21 ENVIRONMENTAL PROTECTION. The Contractor shall comply with all Federal, State and local laws and regulations controlling pollution of the environment. The Contractor shall take sufficient precautions to prevent pollution of streams, lakes, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter. The Contractor shall conduct and schedule his/her operations so as to avoid or minimize siltation of streams, lakes and reservoirs. Where, in the opinion of the Engineer, the land has a high potential for erosion the areas that can be exposed by construction operations at any one time will be subject to approval by the Engineer and the duration of the exposure of the uncompleted construction to the elements shall be as short as practicable. Erosion control features shall be constructed concurrently with other work as directed by the Engineer.

The Contractor shall conduct his construction operations in accordance with the latest revision of the Illinois Environmental Protection Agency publication "Illinois Urban Manual."

*Copies of this manual can be obtained from:
Illinois Environmental Protection Agency
2200 Churchill Road, P.O. Box 19276
Springfield, Illinois 62794-927*

*Kane-DuPage Soil & Water Conservation District
2315 Dean Street, Suite 100
St. Charles, Illinois 60175
(630) 584-7961*

50-22 ARCHAEOLOGICAL AND HISTORICAL FINDINGS. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during his/her operations, any building, part of a building, structure, or object which is incongruous with its surroundings, he/she shall immediately cease operations in that location and notify the Engineer. The Engineer will immediately investigate

the Contractor's findings and will direct the Contractor to either resume his/her operations or to suspend operations as directed.

Should the Engineer order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract modification (change order or supplemental agreement) as provided in the subsection titled EXTRA WORK of Section 20 and the subsection titled PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT WORK of Section 70. If appropriate, the contract modification shall include an extension of contract time in accordance with the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Section 60.

50-23 CONTRACTOR'S PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE. The Contractor, with respect to the work that he/she performs, will be required to carry regular Contractors' Public Liability Insurance, including automobile coverage, in limits of not less than \$500,000 for all damages arising out of bodily injuries to or death of one person and subject to that limit for each person, a total amount of \$1,000,000 for all damages arising out of bodily injuries to or death of two or more persons in any one accident, and regular Contractors' Property Damage Liability Insurance, including automobile coverage, in limits of not less than \$500,000 for all damages arising out of injury to or destruction of property in any one accident and, subject to that limit per accident, a total (or aggregate) limit of \$1,000,000 for all damages arising out of injury to or destruction of property during the policy period.

He/She shall furnish a certified copy of the policy to the Division. The policy shall provide that in the event the insurance should be changed or cancelled, such change or cancellation shall not be effective until 30 days after the Division has received notice of such change or cancellation from the insurance company.

50-24 CONTRACTOR'S PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE. At the time of filing his/her contract and bonds, the Contractor shall notify the Division, in writing, as to whether or not he/she proposes to sublet any of the work under the terms of his/her contract. The Contractor, with respect to the operations performed for him by subcontractors, will be required to carry Contractors' Protective Public Liability and Property Damage Liability Insurance, including automobile coverage, in the same limits as prescribed in the subsection titled CONTRACTORS' PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE of this section, and shall furnish copies of policies of such insurance and certificates as above required. If no part of the work is to be sublet, this article will not apply.

Insurance coverage as required above shall be kept in force until all work to be performed under the terms of the contract has been accepted by the Division and it is clearly understood that the upkeep of these insurance policies until acceptance of the work by the Division is a part of the contract. The Contractor shall include the cost of all such insurance in his/her unit bid prices and no extra compensation will be granted to him, nor will any deduction be made by the Division due to extra work and/or decreased quantities of work and/or elimination of items.

Such insurance or other means of protection as herein provided shall be kept in force until all work to be performed under the terms of the contract has been completed and accepted in accordance with the specifications and it is hereby understood and agreed that the maintenance of such insurance or other protection, until acceptance of the work by the Division, is a part of the contract. Failure to maintain such insurance, cancellation by the Industrial Commission of its approval of such other means of protection as might have been elected, or any other act which results in lack of protection under the said "Worker's Compensation Act" may be considered as a breach of the contract.

50-25 CONTRACTOR'S WARRANTY. All materials and equipment furnished under this contract will be new unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformance with the contract documents. All work not so conforming to these standards may be considered defective. If required by the Division, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

Except where otherwise required by the Specifications, the Contractor shall provide written guarantee of all of the work performed under the contract, certifying the work to be free from defects in materials and workmanship for a period of one (1) year from the date of final acceptance of his/her completed contract work. Final completion and acceptance of the work shall be deemed to have occurred on the date of acceptance by the Owner, the Division, and the FAA, if applicable, and shall be the date of the final inspection providing no defects are observed.

In specific instances where longer guarantees are stipulated for a particular portion of the work, such longer periods shall govern and be subject to the terms of this paragraph. If the Owner has exercised his/her privilege of partial occupancy or use, the guarantee period for that occupied or used portion, and that portion only, shall commence on the date of such partial occupancy or use, provided, however, that if such equipment or portion of work is found defective or otherwise not to comply with the requirements of the contract documents, the guarantee period shall not commence until the work is corrected to comply with the contract requirements.

If the Contractor, after such notice, fails to promptly comply with the terms of the guarantee, the Owner may have the defects corrected and the Contractor and his/her surety shall be liable for all expenses thus incurred.

50-26 CONTRACTOR'S RESPONSIBILITY FOR SAFETY DURING CONSTRUCTION. As a minimum, the Contractor shall be responsible for safety during construction as follows:

- A. Possess a copy of the project construction activity plans.
- B. Comply with the construction activity plans associated with the construction project and ensure that construction personnel are familiar with safety procedures and regulations on the Airport.

C. Provide a point of contact that will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the Airport.

END OF SECTION 50

SECTION 60

PROSECUTION AND PROGRESS

60-01 SUBLETTING OF CONTRACT. 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 his/her 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. No subcontracts, or transfer of contract, shall in any case release the Contractor of his/her liability under the contract and bonds. *All Work performed for Contractor by a Subcontractor will be pursuant to an appropriate agreement between Contractor and the Subcontractor which specifically binds the Subcontractor or Supplier to the same terms and conditions of the Contract Documents for-the benefit of Owner and Engineer and contains waiver provisions as required by paragraph 5.07 A of the General Conditions (or as amended by the Supplementary General Conditions).* All transactions of the Engineer shall be with the Contractor; subcontractors shall be recognized only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competence.

The Contractor shall have his/her own representative on the job at all times when either contract or subcontract work is being performed.

In addition, the Contractor shall pay each Subcontractor a just share of any insurance moneys received by Contractor on account of losses under policies issued pursuant to paragraph 5.06 of the General Conditions (or as amended by the Supplementary General Conditions).

60-02 PROGRESS SCHEDULE. Promptly after the award of the contract and the Notice to Proceed, the Contractor shall submit to the Engineer a satisfactory progress schedule or critical path schedule which shall show the proposed sequence of work, and how the Contractor proposes to complete the various items of work within the number of calendar days set up in the contract. *The schedule shall be submitted no later than at the Pre-Construction Meeting.*

This schedule shall be used for checking the progress of the work.

The Contractor shall confer with the Engineer at regular intervals in regard to the prosecution of the work in accordance with the progress schedule or critical path schedule.

The completion of this project on or prior to the contract completion date is of extreme importance to the Airport. The Contractor shall update his progress schedule weekly for the scheduled progress meetings. Failure to provide updated progress schedules shall result in proactive liquidated damages being withheld from future pay estimates. The decision to levy liquidated damages shall be at the sole discretion of the Resident Engineer.

A materials/pre-paving meeting shall be scheduled prior to the start of paving to discuss acquisition, mixing, placing, testing, etc. The Superintendent, Paving Foreman, Batching Foreman/Material Supplier, Quality Control Officer, and the Resident Engineer are required to attend this meeting.

60-03 NOTICE TO PROCEED. *The Notice to Proceed will not be given until all materials are certified by the Contractor to be available and on hand. The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and from which date contract time will be charged. At this time, Notice to Proceed is anticipated to be issued on or about April 15, 2011 subject to favorable weather conditions. The Contractor shall begin the work to be performed under the contract within 10 days of the date set by the Engineer in the written notice to proceed, but in any event, the Contractor shall notify the Project Engineer at least 24 hours in advance of the time actual construction operations will begin. ~~If no date is specified, the Contract Time will begin on the date the Contractor actually begins construction or ten (10) days from the date of the Notice to Proceed, whichever is earlier.~~*

60-04 PROSECUTION AND PROGRESS. Unless otherwise specified, the Contractor shall submit his/her progress schedule for the Engineer as stated in subsection 60-02 PROGRESS SCHEDULE above. The Contractor's progress schedule, when approved by the Engineer, may be used to establish major construction operations and to check on the progress of the work. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the Engineer's request, submit a revised schedule for completion of the work within the contract time and modify his/her operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule *without any additional compensation*. Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.

For Federal Aid contracts, the Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Engineer. Payment for work accomplished prior to the Notice to Proceed will be disallowed.

The Contractor shall notify the Resident Engineer in writing of any possible delays in delivery or availability of materials or equipment associated with this project.

Where required, the Contractor shall comply with Federal Aviation Regulations Part 107 (Airport Security), Aviation Transportation Security Act Regulation 1542, Federal Air Regulation 139 (Airport Certification), and with all rules and regulations of the Airport, including, but not limited to, control and access to the airfield by Contractor's employees and agents. In the event the Owner is assessed a fine by a governing agency for breach of security resulting from actions of Contractor's employees and agents, the Contractor shall fully reimburse the Authority for the amount of such fine.

60-05 LIMITATIONS OF OPERATIONS. The Contractor shall control his/her operations and the operations of his/her subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft in the AIR OPERATIONS AREAS of the airport.

When the work requires the Contractor to conduct his/her operations within an AIR OPERATIONS AREA of the airport, the work shall be coordinated with airport management (through the Resident Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AIR OPERATIONS AREA until so authorized by the Engineer and until the necessary temporary marking and associated lighting are in place as provided in the subsection titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 50.

When the contract work requires the Contractor to work within an AIR OPERATIONS AREA (AOA) of the airport on an intermittent basis (intermittent opening and closing of the AIR OPERATIONS AREA), the Contractor shall maintain constant communications as hereinafter specified; immediately obey all instructions to vacate the AIR OPERATIONS AREA; immediately obey all instruction to resume work in such AIR OPERATIONS AREA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AIR OPERATIONS AREA until the satisfactory conditions are provided. The Contractor shall not commence new work that would be prejudicial to work already started.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction.

The Contractor shall not have access to any part of the active airfield (runways or taxiways) for any equipment or personnel without approval of the Director of Operations and Maintenance. All operations shall conform to the approved Phasing Plan and all General, Safety and Security Notes.

60-06 CHARACTER OF WORKERS, METHODS, AND EQUIPMENT. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by a subcontractor who, in the opinion of the Resident Engineer, does not perform his/her work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Resident Engineer, be removed forthwith by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without the approval of the Resident Engineer.

Should the Contractor fail to remove such person or persons or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Resident Engineer may suspend the work by written notice until compliance with such orders.

All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall be such that no injury to previously completed work, adjacent property, or existing airport facilities will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than that specified in the contract, he/she may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If the approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the contract items involved nor in the contract time as a result of authorizing a change in methods or equipment under this subsection.

60-07 TEMPORARY SUSPENSION OF THE WORK. The Resident Engineer *or Owner's Representative* shall have the obligation and authority to recommend suspension of the work wholly, or in part, for such period or periods as he/she may deem necessary, due to ~~unsuitable weather, or such other~~ conditions *as that* are considered unfavorable for the prosecution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Resident Engineer *or Owner's Representative*, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Resident Engineer *or Owner's Representative* within the time period stated in the Resident Engineer's *or Owner's Representative's* order to resume work. The Contractor shall submit with his/her claim information substantiating the amount shown on the claim. The Resident Engineer *or Owner's Representative* will forward the Contractor's claim to the Division for the consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to ~~inclement weather, for a~~ suspension made at the request of the *Resident Engineer or Owner's Representative*, or for any other delay provided for in

the contract, plans, or specifications.

If it should become necessary to suspend work for an indefinite period, the Contractor shall store all materials in such a manner that they will not become an obstruction nor become damaged in any way. He/She shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

No additional time will be granted for weather days associated with this Contract. All work must be completed within the allocated contract calendar days from the Notice-to-Proceed for each phase and milestone. However, exceptional irregular weather events (hereinafter "Exceptional Irregular Weather Events"), defined as an event that prevents work on one or more Critical Path activities for three or more consecutive planned workdays are excluded from this limitation. Planned workdays shall be indicated on the two-week look-ahead. The fourth consecutive workday of weather delay impacting the Critical Path resulting from an Exceptional Irregular Weather Event shall be grounds for requesting a time extension beginning on that fourth day.

For each Weather Day the Contractor encounters that prevents work on critical path activities on Work Days in the latest accepted Monthly Update Schedule, the Contractor must provide written notice to the Resident Engineer or Owner's Representative within two work days. The notice to the Resident Engineer or Owner's Representative will be entitled Notice of Weather Day and must state: 1) the date the weather occurred; 2) the type of weather (including the NOAA weather data); and 3) the critical path activity of the latest accepted Monthly Update Schedule that could not be worked on because of the weather.

The Resident Engineer or Owner's Representative will review each Request for each Weather Day as submitted by the Contractor. The Resident Engineer or Owner's Representative will notify the Contractor of its decision in writing. If the Resident Engineer or Owner's Representative denies the Weather Day Request, the Contractor may appeal the decision to the Owner within ten (10) days of receipt of the denial from the Resident Engineer or Owner's Representative.

The Owner will grant or deny the request for each Weather Day based upon the facts stated in the request and the actual weather conditions that day as they affected the Contractor's scheduled activities. The Owner will notify the Contractor of that final decision in writing. If the Owner denies the request, the Contractor will not be entitled to a Weather Day for the date requested. Requests for time extensions based on weather days will not be considered if the Contractor has a concurrent delay on the project arising from a separate circumstance.

The Contractor's failure to follow the requirements of this section constitutes a waiver of the right to file a dispute to the Owner and the right to seek any extension for a Weather Day.

60-08 DETERMINATION AND EXTENSION OF CONTRACT TIME. The number of calendar days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in

transportation, temporary suspension of the principal item of work under construction or temporary suspension of the entire work which have been ordered by the Engineer or Owner's Representative for reasons not the fault of the Contractor, shall not be charged against the contract time.

The Engineer or Owner's Representative will not make charges against the contract time prior to the effective date of the notice to proceed.

The Engineer or Owner's Representative will begin charges against the contract time on the first working day after the effective date of the notice to proceed, as stated in Subsection 10-39.

The Engineer or Owner's Representative will not make charges against the contract time after the date of final acceptance as defined in the Subsection 30-16 titled FINAL INSPECTION of Section 30.

The Contractor will be allowed one week in which to file a written protest setting forth his/her objections to the Engineer's or Owner's Representative's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

The contract time (stated in the proposal) is based on the originally estimated quantities as described in the Subsection titled INTERPRETATION OF QUANTITIES IN BID SCHEDULE in the PROCUREMENT POLICIES Section of the proposal. Should the satisfactory completion of the contract require performance of work in greater quantities than those estimated in the proposal, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in contract time shall not consider either the cost of work or the extension of contract time that has been covered by change order or supplemental agreement and shall be made at the time of final payment.

CONTRACT TIME based on CALENDAR DAYS shall consist of the number of calendar days stated in the contract counting from the effective date of the notice to proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Engineer's or Owner's Representative's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either the cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

If the Contractor finds it impossible for reasons beyond his/her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, he/she may, at any time prior to the expiration of the contract time as extended, make a written request to the Engineer or Owner's Representative for an extension of time setting

forth the reasons which he/she believes will justify the granting of his/her request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer or *Owner's Representative* finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he/she may extend the time for completion in such amount as the conditions justify. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

60-09 FAILURE TO COMPLETE ON TIME. For each calendar day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this section) the sum specified in the contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his/her surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages that will be incurred by the Division should the Contractor fail to complete the work in the time provided in his/her contract. Should the Contractor fail to complete the work within the final contract time, he/she shall be liable to the Division in the amount shown in the following schedule of deductions, not as a penalty but as liquidated damages, for each day of overrun in the final contract time.

~~See contract documents for current schedule of deductions.~~

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver of any requirement under the contract.

The amount of liquidated damages for the project is contained in ARTICLE 7 of the AGREEMENT.

60-10 DEFAULT AND TERMINATION OF CONTRACT. If the Contractor fails to begin the work under contract within the time specified, or fails to perform the work with sufficient workmen and equipment or with sufficient materials to insure the completion of said work within the specified time, or shall perform the work unsuitably, as determined by the Project Engineer or *Owner's Representative*, or shall neglect or refuse to remove materials or perform anew such work as shall be rejected as defective and unsuitable, or shall discontinue the prosecution of the work, or if the Contractor shall become insolvent or be declared bankrupt, or shall commit any act of bankruptcy, or insolvency, or shall make an assignment for the benefit of creditors, or from any other cause whatsoever shall not carry on the work in a manner approved by the Project Engineer or *Owner's Representative*, the Project Engineer or *Owner's Representative* shall give notice in writing to the Contractor and his/her surety of such delinquency, said notice to specify the corrective measures required. If the Contractor, within a period of 10 days after said notice, shall not proceed in accordance therewith, the Division shall, upon written certificate from the Project Engineer or *Owner's Representative* of the fact of such delinquency and the Contractor's failure to comply with said notice, have full power and authority to forfeit the rights of the Contractor and at its option to call upon the surety to complete the work in accordance with the terms of the contract, or it may take over the work, including any or all materials and equipment on the ground as may be suitable and acceptable, and may complete the work with its own forces, or use such other methods as, in its opinion,

shall be required for the completion of said contract in an acceptable manner. All costs and charges incurred by the Division, together with the cost of completing the work under contract, shall be deducted from any monies due or which become due on such contract. In case the expense so incurred by the Division shall be less than the sum which would have been payable under the contract if it had been completed by the Contractor, the Contractor shall be entitled to receive the difference subject to any claims or liens thereon which may be filed with the Division or any prior assignment filed with it, and in case such expense shall exceed the sum which would have been payable under the contract, the Contractor and the surety shall be liable and shall pay to the Division the amount of such excess.

60-11 TERMINATION FOR NATIONAL EMERGENCIES. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that is not incorporated in the work, shall at the option of the Contractor be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Engineer.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his/her responsibilities for the completed work nor shall it relieve his/her surety of its obligation for and concerning any just claim arising out of the work performed.

60-12 TERMINATION OF THE CONTRACTOR'S RESPONSIBILITY. Whenever the improvement called for by the contract shall have been completely performed on the part of the Contractor and all parts of the work have been approved by the Engineer and accepted by the participating agencies according to the contract, and the final estimate paid, the Contractor's obligations shall then be considered fulfilled, except as set forth in his/her bond and in Sections 50-13 and 50-20.

60-13 CONTRACTOR'S ACCESS TO AIRFIELD. The Contractor shall not have access to any part of the active airfield facilities (runways, aprons, or taxiways, and associated safety areas) for any equipment or personnel without the approval of the Airport Management.

The Contractor's access shall be at the locations shown in the Plans. The Contractor shall be

responsible for maintaining these roads in a condition satisfactory to the Resident Engineer, Airport Management and his/her own access needs.

The Contractor shall provide haul road structure of his/her own design to suit his/her needs. Lack of adequate access to the site will not be an allowable consideration for an extension of time.

The Contractor shall be required to maintain security on the airport as specified or as directed by the Airport Management.

The Contractor shall be responsible for keeping all access gates closed and locked during work hours. If the Contractor chooses to leave a gate open, then he/she shall post a competent, properly trained security guard to prevent unauthorized entries. The Contractor shall replace any unsatisfactory security guards if so directed by the Division or Airport Management.

The Contractor shall install and maintain a heavy-duty padlock on all access gates. He/She shall provide keys for this padlock to the Resident Engineer, Maintenance Supervisor (where applicable), Security Chief (where applicable), and Airport Management. No additional keys are to be distributed unless authorized by the Airport Management.

The Contractor shall provide a sign at all access gates saying "Authorized Personnel Only".

All cost relating to Contractor's access and security shall be the responsibility of the Contractor.

Upon completion of construction, all areas shall be regraded, cleaned of all debris and restored to the satisfaction of the Resident Engineer and the Airport Management.

No concrete waste or wash-out shall be buried on airport property. In the event that a concrete waste or wash-out pit is constructed, inspection of the pit shall take place by the Resident Engineer after clean-out is completed and before backfilling begins.

If required by the Airport Management, the Contractor shall obtain Airport Security forms from the designated Airport Security representative. These forms shall be completed by all personnel expected to work on the Project, and submitted to Airport Management 48 hours in advance of the time the individual is scheduled to be at the work site.

The Contractor shall not have access to any part of the active airfield pavements (runways, aprons, or taxiways) for any equipment or personnel without the approval of the Airport. All access to active runway and taxiway pavements shall be coordinated with the Air Traffic Control Tower (ATCT). Access to the referenced pavements without ATCT approval may result in a determination of an airfield incursion with associated fines.

Unattended construction access and unauthorized access to the airfield shall be fined in accordance with the fines noted in the plans in the construction phasing notes or the appropriate sections of the specifications. Gate guards shall have mobile telephone communications at all times, and may be required to provide a daily visitor log to the airport at the weekly coordination meetings.

The Contractor shall coordinate gate locks and keys with Airport Management.

END OF SECTION 60

SECTION 70

MEASUREMENT AND PAYMENT

70-01 MEASUREMENT OF QUANTITIES. All work completed under the contract will be measured by the Resident Engineer, or his/her duly authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the Resident Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains and similar items shall be measured parallel to the base or foundation upon which such items are placed.

In computing volumes of excavation, the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe, culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inches.

The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designated by the Project Engineer or Owners' Representative. If material is shipped by rail, the car weight may be accepted provided that payment will be made only for the actual weight of material. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Resident Engineer directs, and each truck shall bear a plainly legible identification mark.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water

level capacity and all loads shall be leveled when the vehicles arrive at the point of delivery.

When requested by the Contractor and approved by the Engineer in writing, material specified to be measured by the cubic yard may be weighed and such weights will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60 degrees F. or will be corrected to the volume at 60 degrees F. using ASTM D 1250 for asphalts or ASTM D 633 for tars.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

Cement will be measured by the ton or hundred weight unless otherwise specified.

Timber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered by the Engineer in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of this section.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. *All scales shall be certified by the Illinois Department of*

Agriculture for all Items paid for on a tonnage basis and this certification shall be in effect for the length of the project.

Scales shall be accurate within one-half of one percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam of dial and shall not exceed one-tenth of one percent of the nominal rated capacity of the scale, but not less than one pound. The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and inspector can safely and conveniently view them.

Scale installations shall have available, ten standard fifty-pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales "overweighing" (indicating more than correct weight) will not be permitted to operate and all materials received subsequent to the last previous correct weighing-accuracy-test will be reduced by the percentage of error in excess of one-half of one percent.

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight) they shall be adjusted and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the Engineer. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized (approved by Change Order) changes in the dimensions.

A monthly progress payment meeting will be held to reconcile quantities. In the event of a dispute the Resident Engineers quantities shall be used. The Contractor and Engineer shall meet and take all measures required to resolve the dispute prior to the next pay application.

70-02 SCOPE OF PAYMENT. The Contractor shall receive and accept the compensation as herein provided, in full payment for furnishing all materials, labor, tools, and equipment; for performing all work contemplated and embraced under the contract; for all loss or damage

arising out of the nature of the work or from the action of the elements; for any unforeseen difficulties or obstructions which may arise or be encountered during the prosecution of the work until its final acceptance by the Division; for all risks of every description connected with the prosecution of the work; also, for all expenses incurred by or in consequence of suspension or discontinuance of such prosecution of the work as herein specified, or for any infringement of patents, trademarks, or copyrights, and for completing the work in an acceptable manner according to the plans and specifications.

The payment of any current estimate prior to final acceptance of the work by the Division shall in no way constitute an acknowledgement of the acceptance of the work, nor in any way prejudice or affect the obligation of the Contractor, at his/her expense, to repair, correct, renew, or replace any defects or imperfections in the construction of the work under contract and its appurtenances, nor any damage due or attributable to such defects, which defects, imperfections, or damage shall have been discovered on or before the final inspection and acceptance of the work. The Engineer shall be the sole judge of such defects, imperfections, or damage, and the Contractor shall be liable to the Division or Owner (Sponsor) for failure to correct the same as provided herein.

70-03 COMPENSATION FOR ALTERED QUANTITIES. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 20 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his/her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

70-04 PAYMENT FOR OMITTED ITEMS. As specified in the subsection titled OMITTED ITEMS of Section 20, the Engineer shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the Engineer omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the Engineer's order to omit or nonperform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the Engineer's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the Engineer's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the

Contractor as to the nature and amount of such costs.

70-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK. Extra work which results from any of the changes as specified in Section 20 shall not be started until authorization from the Engineer is received which authorization shall state the items of work to be performed, *the agreed budget, schedule, extension of contract time if applicable* and the methods of payment for each item. Work performed without such order will not be paid for.

Extra work will be paid for:

A. Either as a lump sum price or at unit prices agreed upon by the Contractor and Engineer.

B. On the following force account basis:

1. Labor. For all labor (skilled and unskilled) and foreman in direct charge of a specific force account item, the Contractor shall receive the rate of wage (or scale) for every hour that such labor or foreman is actually engaged in the specified force account work to which cost (sum) an amount not to exceed 40% shall be added. Such wage (or scale) shall be agreed upon in writing before beginning the work.

2. *Bond*, Insurance and Taxes. For property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions and social security taxes on the force account work, the Contractor shall receive the actual cost, to which cost (sum) an amount not to exceed 10% will be added. The Contractor shall furnish satisfactory evidence of the rate or rates paid for such *bond*, insurance and taxes.

3. Materials. For materials accepted by the Engineer and used, the Contractor shall receive the actual cost of such materials delivered on the work, including transportation charges paid by him (exclusive of machinery rentals as hereinafter set forth), to which cost (sum) an amount not to exceed 15 percent will be added.

4. Equipment. For any machinery or special equipment (other than small tools) the use of which has been authorized by the Engineer, the Contractor will be paid in accordance with the latest revision of ~~"EQUIPMENT WATCH RENTAL RATE BLUE BOOK"~~ *SCHEDULE OF AVERAGE ANNUAL EQUIPMENT OWNERSHIP EXPENSE*" as issued by the Department. The equipment should be of a type and size reasonably required to complete the extra work.

5. Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

6. Comparison of Records. The Contractor and the Resident Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and Resident Engineer or their duly authorized representatives.

7. Statements. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such

force account work detailed as follows:

- a. Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman. *Certified payrolls shall be submitted to substantiate actual wages paid if so requested by the Engineer.*
- b. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
- c. Quantities of materials, prices, and extensions.
- d. Transportation of materials.
- e. Cost of property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions, and social security tax.

8. Work Performed by an Approved Subcontractor. *Contractor and subcontractor invoices and proposals for Change Order work shall clearly list material, labor and equipment costs; in addition to overhead and profit. When extra work is performed by an approved Subcontractor, the overhead and profit on material installed by the subcontractor shall not exceed 15%. In addition, the Contractor shall receive as administrative costs an amount equal to five (5) percent of the first \$10,000 and one (1) percent of any amount over \$10,000 of the total approved costs of such work.*

Statements shall be accompanied and supported by receipted invoice for all materials used and transportation charges. However, if materials used on force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

The additional payment, based on the percentages specified above, shall constitute full compensation for all items of expense not specifically provided for the force account work. The total payment made as provided above shall constitute full compensation for such work.

All statements of the cost of force account work shall be furnished to the Engineer not later than 60 days after receipt of the Central Bureau of Construction form "Extra Work Daily Report". If the statement is not received within the specified time frame, all demands for payment for the extra work are waived and the Department is released from any and all such demands. It is the responsibility of the Contractor to ensure that all statements are received within the specified time regardless of the manner or method of delivery.

70-06 INCREASED QUANTITIES. Payment will not be made for quantities in excess of the maximum payment percentages found in the Airport Construction Documentation Manual, latest edition.

70-07 PARTIAL PAYMENTS. At least twice a month, and/or when construction progress warrants, the Division shall prepare a Construction Progress Payment (CPP) based upon the weekly construction reports prepared in the field by the Resident Engineer. This CPP will be computed for the amount of the value of the work completed since the previous CPP.

Retainage for each CPP to the Contractor shall be calculated as follows:

A. For the first 50 percent of the total contract value, an amount of 10 percent of the value of the completed work shall be retained from the Contractor until after completion of the entire final contract and to the satisfaction of the Division.

B. After more than 50 percent of the total contract value is completed, the Division may, at its discretion, certify the remaining partial payments be made to the Contractor without further retainage, provided that satisfactory progress is being made, and provided that the total retained amount is not less than 5 percent of the total adjusted contract value.

C. At the discretion of the Division and with the consent of the surety, a semi-final Construction Progress Payment may be made when the principal contract payment items have been satisfactorily completed. In no event shall the amount retained from the Contractor after making the semi-final payment be less than 1 percent of the adjusted contract value, nor less than \$500.00. (This provision of making a semi-final construction progress payment is not applicable when the Contractor chooses the Trust Agreement Option of Article 70-10 ~~09~~.)

If, upon delivery of any of the materials, the Contractor fails to supply documentation meeting the requirements of the Illinois Department of Transportation, Division of Aeronautics "MANUAL FOR DOCUMENTATION OF AIRPORT MATERIALS," (latest edition), the Division shall not include payment for that material on a Contractor Progress Payment report until such statements have been furnished. Copies of the Division of Aeronautics "MANUAL FOR DOCUMENTATION OF AIRPORT MATERIALS" may be obtained by contacting the Division. Copies are also available on the internet at the Illinois Department of Transportation's website.

70-08 PAYMENT FOR MATERIALS ON HAND. A payment may, at the discretion of the Division and upon presentation of receipted bills and freight bills, be made for the value of acceptable reinforcing steel, structural steel, stone, gravel, sand, or other nonperishable materials delivered on the work or in acceptable storage places and not used at the time of such payment. Such materials, when so paid for by the Division, shall become the property of the Division, and in the event of default on the part of the Contractor, the Division may use or cause to be used such materials in the construction of the work provided for in the contract. The value of stored or stockpiled items shall be reduced on progress payments as the stockpiled items are used in the work.

Such delivered costs of stored or stock-piled materials may be included in a separate progress

payment or be included in the next partial payment after the following conditions are met:

- A. The material has been stored or stockpiled in a manner acceptable to Resident Engineer at or on an approved site.
- B. The Division has been furnished with acceptable evidence of the quantity and quality of such stored or stockpiled materials.
- C. The Contractor has furnished the Division with satisfactory evidence that the material and transportation costs have been paid.

It is understood and agreed that the Contractor is solely responsible for all materials stored or stockpiled.

It is understood and agreed that the Division's payment for such stored or stockpiled materials shall in no way relieve the Contractor of his/her responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of the partial payments for materials on hand exceed the delivered purchase price for such materials, or the total value of the contract payment item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the storage of stockpiled materials in accordance with the provisions of this subsection.

70-09 ACCEPTANCE AND FINAL PAYMENT. Whenever the improvement provided for by the contract shall have been completely performed on the part of the Contractor, and all parts of the work have been approved by the Division, a final construction payment showing the value of the work, will be prepared by the Division as soon as the necessary measurements and computations can be made, all prior CPP's upon which payments have been made being approximate only and subject to conditions in the final payment. The amount of the final payment will be the final adjusted contract value, less all previous payments and less any sums that have been deducted or retained by virtue of liquidated damages or otherwise under the provisions of the contract. The final payment will be paid to the Contractor as soon as practicable after the final approval of work, provided the Contractor has furnished to the Division satisfactory evidence that all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished for the purpose of the contract have been paid or that the person or persons to whom the same may be due have consented to such final payment.

If the Contractor has filed a claim for additional compensation under the provisions of the subsection titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Section 30 or under the provisions of this subsection, such claims will be considered by the Owner in accordance to

local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final payment.

70-10 TRUST AGREEMENT OPTION. When the awarding authority is the State of Illinois and at the request of a Contractor the amounts to be paid to the Contractor, including the amounts to be retained from the Contractor as set forth in this Article and Articles 70-06 and 70-07, may be deposited under the Division of Aeronautics Trust Agreement with an Illinois financial institution of the Contractor's choice. The Contractor shall receive any interest thereon. The Trust Agreement contains, as a minimum, the following provisions:

- A. The terms and conditions for depositing the retainage, holding the retainage in trust and the final disbursement of the retainage;
- B. The return or repayment of retainage upon demand made by the Division;
- C. The types of investments the financial institution may make with the retainage;
- D. The terms and conditions of the return or repayment of retainage in case of default of the Contractor;
- E. The Division's right to withhold progress payments on account of lien claims, liquidated damages, or as otherwise provided by the contract.
- F. The Contractor's responsibilities for obtaining the written consent of the financial institution, and any costs or service fees for administering the Trust Agreement shall be borne by the Contractor;
- G. The termination of the Trust Agreement upon completion of the contract.

END OF SECTION 70

DIVISION II CONSTRUCTION DETAILS

ITEM 100 QUALITY CONTROL PROGRAM

GENERAL

DESCRIPTION

- A. The Contractor must establish, provide, and maintain an effective Quality Control (QC) Program that details the methods and procedures that will be taken to assure that all materials and completed construction for all work items included under this project, as described in the Contract Documents, conform to the contract requirements, whether manufactured by the Contractor or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical specifications, the Contractor must assume full responsibility for accomplishing the stated purpose. This purpose will be included in a mission statement for the program.
- B. The intent of this section is to enable the Contractor to establish a necessary level of control prior to performing work that will:
 - 1. Adequately provide for the production of acceptable quality materials.
 - 2. Provide sufficient information to assure both the Contractor and the Resident Engineer that the specification requirements must be met.
 - 3. Allow the Contractor as much latitude as possible to develop its own standard of quality control.
- C. The Contractor is to discuss and present, in an oral presentation at the preconstruction conference, its understanding of the quality control requirements. The Quality Control Program will be submitted to the Resident Engineer at the preconstruction conference. The Contractor must not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed and accepted by the Resident Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been accepted by the Resident Engineer.
- D. The requirements for the Contractor's Quality Control Program contained in this section are in addition to and separate from the acceptance testing requirements stated in the technical specifications. Acceptance testing requirements will be as specified in the individual technical specifications.

DESCRIPTION OF PROGRAM

- A. General Description. This Quality Control Program will ensure conformance to applicable specifications and plans with respect to materials,

workmanship, construction, finish, and functional performance. The Quality Control Program will be effective for control of all construction work performed under this Contract and will specifically include full-time surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

- B. Quality Control Program. The Contractor must describe the Quality Control Program in a written document which will be reviewed by the Resident Engineer prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program will be submitted to the Resident Engineer for review at the preconstruction conference.

The Quality Control Program will be organized to address, as a minimum, the following items:

1. Quality control organization;
2. Project progress schedule;
3. Submittals schedule;
4. Inspection requirements;
5. Quality control testing plan;
6. Documentation of quality control activities; and
7. Requirements for corrective action when quality control and/or acceptance criteria are not met.

- C. The Contractor is encouraged to add any additional elements to the Quality Control Program that it deems necessary to adequately control all production and/or construction processes required by this contract.

QUALITY CONTROL ORGANIZATION

- A. The Contractor's Quality Control Program must be implemented by the establishment of a separate quality control organization. An organizational chart must be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel. In addition, a letter from the President of the company certifying the authority given to the Program Administrator and the QC organization, in accordance with the requirements of the Contract Documents, must be included as part of the plan.
- B. The organizational chart must identify all quality control staff by name and function, and must indicate the total staff required to implement all elements of the Quality Control Program, including full-time inspection, testing and full time surveillance for each item of work. Different technicians must be utilized for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used

for implementation of all or part of the Quality Control Program, the personnel assigned must be subject to the qualification requirements of Paragraphs D.1 and D.2 in this section. The organizational chart must indicate which personnel are Contractor employees and which are provided by an outside organization. The Program Administrator will be required to conduct a documented training session, detailing the aspects of the Quality Control Program. All project foremen, superintendents, project managers and QC technicians, whether employed by the Contractor, subcontractor or outside testing organization must attend. The Resident Engineer will have the opportunity to have his designees attend this training. In addition, the Program Administrator will conduct a pre-activity meeting at least 2 workdays in advance of any activity of work. This meeting must be attended by the Superintendent and Foreman responsible for the work, with notification to the CM Quality Assurance (QA) Manager and Resident Engineer. QC and QA Technicians are encouraged to attend.

- C. Payment will not be made for any materials installed without Quality Control inspection by the Contractor. In addition, the Resident Engineer may withhold, or deny payment for an inspected item, if in the Resident Engineer's opinion; the Contractor's Quality Control Program is not functioning as required by the project specifications.
- D. The quality control organization will consist of the following minimum personnel:
 - 1. Program Administrator. The Program Administrator will be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The Program Administrator will be acceptable to the Resident Engineer and will have had prior quality control experience on a project of comparable size and scope as this contract.
 - a. Additional qualifications for the Program Administrator will include at least one (1) of the following requirements:
 - (1) Professional engineer with 1 year of airport paving experience acceptable to the Resident Engineer.
 - (2) Engineer-in-training with 2 years of airport paving experience acceptable to the Resident Engineer.
 - (3) An individual with 3 years of highway and/or airport paving experience acceptable to the Resident Engineer, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.
 - (4) Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).
 - (5) Highway materials technician certified at Level III by NICET.
 - (6) Highway construction technician certified at Level III

- by NICET.
- (7) A NICET certified engineering technician in Civil Engineering Technology with 5 years of highway and/or airport paving experience acceptable to the Resident Engineer.
 - (8) Certification of technicians at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.
- b. The Program Administrator will have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract plans and technical specifications. The Program Administrator will report directly to a responsible officer of the construction firm and will be independent from the field operation.
2. Quality Control Technicians. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program will be provided. These personnel will be engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II or higher construction materials technician or highway construction technician and will have a minimum of 2 years of experience in their area of expertise, and have the necessary certifications appropriate for the testing and inspection performed.
- c. The quality control technicians will report directly to the Program Administrator and will perform the following functions:
 - (1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Paragraph INSPECTION REQUIREMENTS.
 - (2) Performance of all quality control tests as required by the technical specifications and Paragraph QUALITY CONTROL TESTING PLAN.
 - d. Certification of technicians at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.
3. Staffing Levels. The Contractor must provide qualified quality control staff to monitor each work activity on a full time basis. The Resident Engineer will make the final determination as to the adequacy of quality control staffing levels and personnel. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians will be provided at each plant and

field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program will state where different technicians will be required for different work elements.

PROJECT PROGRESS SCHEDULE

- A. The Contractor must submit a coordinated construction schedule for all work activities. The schedule must be prepared as a network diagram.

SUBMITTALS SCHEDULE

- A. The Contractor must submit a detailed listing of all submittals (e.g., mix designs, material certifications) and Shop Drawings prior to the start of work required by the technical specifications. The listing can be developed in a spreadsheet format and must include:
 - 1. Specification item number;
 - 2. Item description;
 - 3. Description of submittal;
 - 4. Specification paragraph requiring submittal;
 - 5. Scheduled date of submittal;
 - 6. Submittal approval level; and
 - 7. Contractor/subcontractor responsible.
- B. This spreadsheet must be produced and maintained by the Contractor's Project Manager on a bi-weekly basis and will be reviewed by the Program Administrator prior to submission to the Resident Engineer.

INSPECTION REQUIREMENTS

- A. Quality control inspection functions included in the Contractor's Quality Control Program will be organized to provide full-time inspections by the Contractor's personnel or by an outside organization provided by the Contractor, as detailed below. All such inspections must be documented by the Contractor as specified in Paragraph DOCUMENTATION.
- B. Inspections will be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work. These will include the following minimum requirements:
 - 1. During plant operation for material production, quality control test results and full time inspections will be utilized to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment utilized in proportioning and mixing will be inspected to ensure its proper operating condition. The Quality Control Program will detail how

these and other quality control functions will be accomplished and utilized.

2. During field operations, quality control test results and full time inspections will be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting will be inspected and calibrated as necessary to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The Program will document how these and other quality control functions will be accomplished and utilized.

QUALITY CONTROL TESTING PLAN

- A. As a part of the overall Quality Control Program, the Contractor must implement a quality control testing plan, as required by the technical specifications. The testing plan will include the minimum tests and test frequencies required by each technical specification Item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.
- B. The testing plan can be developed in a spreadsheet fashion and will, as a minimum, include the following:
 1. Specification item number (e.g., Item 401);
 2. Item description (e.g., Bituminous Surface Course);
 3. Test type (e.g., gradation, grade, asphalt content);
 4. Test standard (e.g., ASTM or AASHTO test number, as applicable);
 5. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated; where no minimum test frequency is specified for aggregate gradations, one gradation test must be run per 5000 tons per aggregate type delivered or a minimum of one test per week, and one modified proctor ASTM D 1557 test must be run at a minimum of double the frequency above, or when materials substantially change as determined by the Resident Engineer);
 6. Responsibility (e.g., plant technician); and
 7. Control requirements (e.g., target, permissible deviations).
- C. The testing plan will contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D 3665. The Resident Engineer will be given access to witness all quality control sampling and testing.
- D. All quality control test results must be documented by the Contractor as specified in Paragraph DOCUMENTATION.

DOCUMENTATION

- A. The Contractor must maintain current quality control records of all inspections and tests performed under the Quality Control Program. These records must include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.
- B. These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the Contract Documents. Legible copies of these records must be furnished to the Resident Engineer daily, at a time established by the Resident Engineer at the pre-construction conference. The records must cover all work placed subsequent to the previously furnished records and must be verified and signed by the Contractor's Program Administrator and the inspector.
- C. Specific Contractor quality control records required for the contract must include, but are not necessarily limited to, the following records:
 - 1. Daily Inspection Reports. Each Contractor quality control technician must maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Resident Engineer. These technician's daily reports must provide factual evidence that continuous quality control inspections have been performed and will, as a minimum, include the following:
 - a. Technical specification item number and description;
 - b. Compliance with approved submittals;
 - c. Proper storage of materials and equipment;
 - d. Proper operation of all equipment;
 - e. Adherence to plans and technical specifications;
 - f. Review of quality control tests; and
 - g. Safety inspection.
- D. The daily inspection reports must identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.
- E. The daily inspection reports will be signed by the responsible quality control technician and the Program Administrator. The Resident Engineer will be provided at least one legible original copy of each daily inspection reports, by 10:00 am on the work day following the day of record.
 - 1. Daily Test Reports. The Contractor must be responsible for establishing a system which will record all quality control test results. Daily test reports must document the following information:
 - a. Technical specification item number and description;

- b. Test designation;
 - c. Location;
 - d. Date and time of test;
 - e. Control requirements;
 - f. Test results;
 - g. Causes for rejection;
 - h. Recommended remedial actions; and
 - i. Retests.
2. Checklists. The Quality Control Program Administrator must develop Checklists for each specification section in the Contract Documents. The Checklist must summarize the major items contained in the technical specifications and include a check box signifying compliance designated "Yes", "No" or "N/A". Each Quality Control Technician must fill out a Checklist for each specification section worked on that day. The form must also include:
- a. Date
 - b. Shift
 - c. Specification Section
 - d. QC Conformance - Yes/No
 - e. Non-Conformance Report (NCR) Number
 - f. Contractor
 - g. Pay Item Number and Description
 - h. Location
 - i. Comments
 - j. Signatures of Technicians and Program Administrator
- F. Test results from each day's work period must be submitted to the Resident Engineer prior to the start of the next day's work period. When required by the technical specifications, the Contractor must maintain statistical quality control charts. The daily test reports will be signed by the responsible quality control technician and the Program Administrator.

CORRECTIVE ACTION REQUIREMENTS

- A. The Quality Control Program will indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action will include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications.
- B. The Quality Control Program will detail how the results of quality control inspections and tests will be used for determining the need for corrective action and will contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

- C. When applicable or required by the technical specifications, the Contractor must establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action will be linked to the control charts.

SURVEILLANCE BY THE RESIDENT ENGINEER

- A. All items of material and equipment will be subject to surveillance by the Resident Engineer at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place will be subject to surveillance by the Resident Engineer at the site for the same purpose.
- B. Surveillance by the Resident Engineer does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.
- C. Any testing performed by the Resident Engineer and deemed by the Contractor to be improperly performed will be noted on the Daily Inspection Report. In addition, a written document by the Program Administrator will be submitted indicating the deviation noted. Testing procedures will be considered accurate and correct unless this procedure is followed. The Contractor must not seek additional compensation for any testing irregularities not reported.
- D. Any testing performed by the Contractor and deemed by the Contractor to be improperly performed or not meeting the requirements of the project specifications must be noted by the Contractor on their daily inspection reports.
- E. No videotaping or recording of QA or QC personnel will be permitted unless written permission is given by both parties.

NONCOMPLIANCE

- A. The Owner will implement a QA program to monitor the Contractors QC efforts. Illinois Department of Transportation Supplemental Specifications and Recurring Special Provisions Adopted 2009, check sheet #31, schedule B will be used to determine allowable differences between the Contractors QC and the Owners QA.
- B. The Resident Engineer will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor must, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Resident Engineer or its authorized representative to the Contractor or its authorized representative at the site of the work, must be considered sufficient notice.

- C. In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Resident Engineer, the Resident Engineer may:
1. Order the Contractor in writing to replace ineffective or unqualified quality control personnel or subcontractors within 24 hours after receipt of such order.
 2. Order the Contractor to stop operations until appropriate corrective actions are taken.
 3. Withhold progress payments in the event of Contractor failure to take corrective actions within the specified time.

PRODUCTS

NOT APPLICABLE

EXECUTION

NOT APPLICABLE

METHOD OF MEASUREMENT

Contractor quality control program will not be measured for payment and will be considered incidental to the total contract price.

BASIS OF PAYMENT

The preparation of a Quality Control Program and its implementation, including any corrective measures that may be required to be carried out by the Contractor to bring items of work into compliance with the requirements of the Quality Control Program and the technical specifications will not be paid for separately but will be included in the total Contract price.

END OF ITEM 100

ITEM 132 CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Division I to VII Specification Sections, apply to this Section.

1.2 SUMMARY

This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Preliminary Construction Schedule.
2. Contractor's Construction Schedule.
3. Submittal Schedule.
4. Daily construction reports.
5. Field condition reports.
6. Special reports.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 2. Predecessor Activity: An activity that precedes another activity in the network.
 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Airport Project Representative.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- H. Major Area: A story of construction, a separate building, or a similar significant construction element.
- I. Milestone: A key or critical point in time for reference or measurement.
- J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.
- 1.4 SUBMITTALS
- A. Qualification Data: For scheduling consultant.
- B. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
1. Scheduled date for first submittal.
 2. Specification Section number and title.
 3. Submittal category (action or informational).
 4. Name of subcontractor.
 5. Description of the Work covered.
 6. Scheduled date for Airport Project Representative's final release or approval.
- C. Preliminary Construction Schedule: Submit two opaque copies.
1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.
- D. Preliminary Network Diagram: Submit two opaque copies, large enough to show entire network for entire construction period. Show logic ties for activities.
- E. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
- F. CPM Reports: Concurrent with CPM schedule, submit 3 copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 3. Total Float Report: List of all activities sorted in ascending order of total float.
 4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.
- G. Daily Construction Reports: Submit 2 copies at monthly intervals.
- H. Material Location Reports: Submit 2 copies at weekly intervals.
- I. Field Condition Reports: Submit 2 copies at time of discovery of differing conditions.
- J. Special Reports: Submit 2 copies at time of unusual event.
- 1.5 QUALITY ASSURANCE
- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Airport Project Representative's request.
- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 1. Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
1. Review software limitations and content and format for reports.
 2. Verify availability of qualified personnel needed to develop and update schedule.
 3. Discuss constraints, including phasing, area separations, interim milestones and partial Owner occupancy.
 4. Review delivery dates for Owner-furnished products.
 5. Review schedule for work of Owner's separate contracts.
 6. Review time required for review of submittals and resubmittals.
 7. Review requirements for tests and inspections by independent testing and inspecting agencies.

8. Review time required for completion and startup procedures.
9. Review and finalize list of construction activities to be included in schedule.
10. Review submittal requirements and procedures.
11. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from parties involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GENERAL)

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Airport Project Representative.
 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 4. Startup and Testing Time: Include not less than 14 days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Airport Project Representative's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.

- e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Startup and placement into final use and operation.
8. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
- a. Structural completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion.
9. Other Constraints: Relocation and installation of MUFIDS system integration.
- E. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
1. Refer to Division 1 for cost reporting and payment procedures.
 2. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Airport Project Representative's approval, be assigned to fabrication and delivery activities. Costs shall be under required principal subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
 3. Each activity cost shall reflect an accurate value subject to approval by Airport Project Representative.
- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.
- G. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.
1. Microsoft for Windows 2000 professional operating system.
- 2.3 PRELIMINARY CONSTRUCTION SCHEDULE
- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule at the pre-construction conference.

- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.5 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. Preliminary Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's Construction Schedule using a computerized, cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.
 - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Airport Project Representative's approval of the schedule.
 - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 - 4. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule.

- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Work by Owner that may affect or be affected by Contractor's activities.
 - i. Testing and commissioning.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
- E. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Principal events of activity.
 4. Immediate preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the Schedule of Values).
- F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
 2. Changes in early and late start dates.

3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.6 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial Completions and occupancies.
19. Substantial Completions authorized.

B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative,

showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.7 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
 - 1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
 - 2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- B. Contractor's Construction Schedule Updating: At monthly intervals with each application for payment, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Airport Project Representative, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

No separate measurement will be made under this section for work described or specified herein.

4.2 PAYMENT

No separate payment will be made under this section for work described or specified herein.

END OF ITEM 132

ITEM 133 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Special Provisions and other Division I to VII Specification Sections, apply to this Section.

1.2 SUMMARY

This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Airport Project Representative and Contractors responsive action.
- B. Informational Submittals: Written information that does not require Airport Project Representative and Contractors responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Airport Project Representative and Contractor reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's Representative's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner's Representative will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 17 calendar days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Owner's Representative's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Airport Project Representative and to Airport Project Representative's consultants, allow 21 calendar days for review of each submittal. Submittal will be returned to Contractor through Owner's Representative.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Owner's Representative.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Owner's Representative
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.

1. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Owner's Representative or Contractor observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Owner's Representative and Contractor.
 2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner's Representative will return, without review (and may discard) submittals received from sources other than Contractor.
 1. Transmittal Form: Use sample of form provided by Owner's Representative.
 2. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references, as appropriate.
 - j. Transmittal number, numbered consecutively.
 - k. Submittal and transmittal distribution record.
 - l. Remarks.
 - m. Signature of transmitter.
 3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner's Representative on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- H. Resubmittals: The Owner's Representative will review the first submittal and one required resubmittal from the Contractor. The Contractor shall compensate the Owner's Representative for additional reviews required for resubmittals, including meetings and travel time. The Contractor shall be responsible for any additional review expenses beyond the two originally included in this Contract. The Owner's Representative shall be compensated by the Contractor as follows:

1. Cost: \$150.00 per hour for each additional resubmittal. The Contractor will be invoiced directly by the Owner's Representative. The Contractor agrees to pay the Owner's Representative within thirty (30) days of post office dated invoice for above described additional shop drawing review services.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked as meeting the design intent.
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, and authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating as meeting the design intent.

1.5 CONTRACTOR'S USE OF AIRPORT PROJECT REPRESENTATIVE'S CAD FILES

General: At Contractor's written request, selected copies of Owner's Representative's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. By accepting the requested files, the user agrees that data provided by the electronic file is for information purposes only and should be used at one's own risk. CH2M HILL makes no representation, written or verbal, that the information contained in these CAD files are complete or accurate or should be relied upon for construction except to the extent labeled, dimensioned or otherwise noted and reflect exactly what is on the approved and sealed final drawings. Any conflict between the information reflected on the sealed plan sheets and that provided via this electronic data file shall be resolved in favor of the sealed plan sheets. Any reproduction of these sheets without the appropriate preliminary stamp, or professional engineering seal and signature, and the express written approval of CH2M HILL, is in violation of the Professional Engineering Practice Act.
2. Owner's Representative at its sole discretion may decline to provide requested information.
3. Contractor and Owner's Representative shall agree in advance as to the cost to be paid to the Owner's Representative by the Contractor for providing requested CAD files. In Addition, the Contractor and / or Subcontractor must sign and submit a 'CAD file disclaimer' form included in Appendix 'A'.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
1. Submit electronic submittals directly to extranet specifically established for Project.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operation and maintenance manuals.
 - k. Compliance with specified referenced standards.
 - l. Testing by recognized testing agency.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
 4. Submit Product Data before or concurrent with Samples.
 5. Number of Copies: Submit 3 copies of Product Data, unless otherwise indicated. Owner's Representative will return two copies. Mark up and retain one returned copy as a Project Record Document.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of Owner's Representative's CAD Drawings are otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.

- e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
 - m. Relationship to adjoining construction clearly indicated.
 - n. Seal and signature of professional engineer if specified.
 - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 22 by 34 inches.
 3. Number of Copies: Submit 5 bond copies of each submittal, unless copies are required for operation and maintenance manuals. Submit 6 bond copies where copies are required for operation and maintenance manuals. Owner's Representative will return 4 copies. Mark up and retain one returned copy as a Project Record Drawing.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

- a. Number of Samples: Submit 2 full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner's Representative will return 1 submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit 3 sets of Samples. Owner's Representative will retain 1 Sample sets; 2 samples will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least 3 sets of paired units that show approximate limits of variations.
- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product.
 2. Number and name of room or space.
 3. Location within room or space.
 4. Number of Copies: Submit 3 copies of product schedule or list, unless otherwise indicated. Owner's Representative will return 2 copies.
 - a. Mark up and retain one returned copy as a Project Record Document.
- F. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation" for Contractor's action.
- G. Submittals Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- H. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."
- I. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or

equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Number of Copies: Submit 3 copies of subcontractor list, unless otherwise indicated. Airport Project Representative will return 2 copies.
 - a. Mark up and retain one returned copy as a Project Record Document.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 1. Number of Copies: Submit 2 copies of each submittal, unless otherwise indicated. Owner's Representative will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- M. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."
- N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- P. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

- Q. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."
- R. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- S. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
 2. Required substrate tolerances.
 3. Sequence of installation or erection.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- U. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- V. Construction Photographs: Comply with requirements specified in Division 1 Section "Photographic Documentation."

2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Owner's Representative.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit 3 copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner's Representative.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 AIRPORT PROJECT REPRESENTATIVE'S ACTION

- A. General: Owner's Representative will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Owner's Representative will review each submittal, make marks to indicate corrections or modifications required, and return it. Owner's Representative will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Owner's Representative will review each submittal and will not return it, or will return it if it does not comply with requirements. Owner's Representative and Contractor will forward each submittal to appropriate party.

- D. Partial submittals are not acceptable, will be considered non responsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

3.3 APPENDICES

- A. Appendix A: Electronic Media Release.

END OF ITEM 133

APPENDIX A

CH2M HILL
ELECTRONIC MEDIA RELEASE

CH2M HILL, Project No. 424278.DE

This release for electronic media is dated the _____ day of _____, 20____, between Contractor (RECIPIENT) and CH2M HILL, for the exchange of electronic media (disks, tape, optical disk, etc.) containing information on the Runway 10-28 and Associated Taxiway Connector Overlay Project (hereinafter referred to as the PROJECT) for use by the RECIPIENT.

Therefore, RECIPIENT and CH2M HILL agrees as follows:

1. The electronic files provided to RECIPIENT by CH2M HILL for the PROJECT may be used by RECIPIENT without restriction. If RECIPIENT chooses to alter in any way, in whole or in part, the electronic files provided for the PROJECT or any future project(s), RECIPIENT agrees that the unrestricted use shall be without liability or legal exposure to CH2M HILL.
2. Because information and data provided electronically may be altered, whether inadvertently or otherwise, CH2M HILL reserves the right to retain copies of the electronic file(s) and to remove from the electronic files provided to RECIPIENT all identification (such as logo, surveyor’s seal, etc.), reflecting the involvement of CH2M HILL in their preparation.
3. The electronic files are provided solely as a convenience to RECIPIENT by CH2M HILL and shall NOT be considered “Drawings of Record” or as “Construction Documents”. All documents considered “Drawings of Record” or “Construction Documents” shall be accompanied by a professional’s stamp and signature. The HARD COPY shall be referred to and shall govern in the event of any inconsistency between the hard copy and the information provided electronically.
4. RECIPIENT is advised to check all electronic media for viruses before loading the files. RECIPIENT is fully responsible for intercepting and disabling viruses, if any, that may be inadvertently transmitted with the electronic files and hereby agrees to indemnify and hold CH2M HILL harmless from and against all claims of any type or nature asserted by RECIPIENT or any party as a result of viruses inadvertently transmitted with the electronic files.
5. Files distributed electronically are subject to data erosion, erasure, and/or alteration, and computer systems and software become obsolete in time. By accepting these electronic files, RECIPIENT acknowledges these risks and agrees to waive all claims against CH2M HILL should data erosion, erasure, and/or alteration of these electronic files occur.
6. RECIPIENT agrees to defend, indemnify, and hold CH2M HILL harmless from all claims, injuries, damages, losses, expenses, and costs, including attorneys’ fees, arising out of breach of this agreement, the modification or reuse of these materials.

ACCEPTED FOR RECIPIENT:

 By: _____
 Title: _____
 Date: _____

ACCEPTED FOR CH2M HILL

 By: _____
 Title: _____
 Date: _____

ITEM 140 CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 REQUIREMENTS:

- A. Comply with requirements stated in conditions of the contract and in specifications for administrative procedures in closing out the work.
- B. Related requirements in other parts of the Project Manual including fiscal provisions, legal submittals and additional administrative requirements: Conditions of the contract.

1.02 **SUBSTANTIAL COMPLETION:** The conditions and procedures for inspection and Contractor's, Engineer's and Owner's responsibilities pertaining to substantial completion are as specified in the General Conditions.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.01 **FINAL INSPECTION:** Shall be in accordance with conditions and procedures outlined in the Contract Documents. When Engineer finds that the work is acceptable under the Contract Documents, he will request required Contractor's Closeout Submittals.

3.02 **REINSPECTION FEES:** Should Engineer perform re-inspections or testing due to failure of the work to comply with the claims of status of completion made by the Contractor, the Owner will compensate Engineer for such additional services. The Owner will deduct the amount of such compensation from the final payment due the Contractor.

3.03 **CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER:**

- A. Evidence of compliance with requirements of governing authorities: Certificates of Inspection.
- B. Project Record Documents: Conform to requirements of Special Condition Section 9.
- C. Warranties and Bonds: Conform to requirements of Item 144.
- D. Evidence of payment and release of liens: To requirements of General Conditions.
- E. Certificates of Insurance for products and completed operations.
- F. Once the Engineer has determined the work is acceptable under the Contract Documents, he will furnish the Contractor appropriate number of copies of the following forms, copies of which are attached:

1. Contractor Warranty Form
2. Affidavit of Payment
3. Affidavit of Release of Liens
4. Final Waiver of Lien
5. Consent of Surety for Final Payment
6. Final SBE Participation Report

3.04 **PAYMENT:** No separate payment will be made under this section for work described or specified herein.

END OF ITEM 140

AFFIDAVIT

Contractor's Name _____

Address _____

To: DuPage Airport Authority _____ (Owner)

Project: Runway 10-28 and Associated Taxiway Connector Overlay

Contract No. DPA-4122

This is to certify that the above named Contractor has paid all payrolls, bills for labor, materials, equipment, service, subcontractors and incidentals, and other indebtedness connected with the work for which the above named Owner might in any way be responsible for, and that there are no suits or claims pending in connection with the work done or labor and materials furnished under this project.

Dated this ___ day of _____ 20__.

By _____

(SEAL)

Title _____

Consent of Surety: _____

We the Surety for: _____

Contractor: _____

Project No.: _____

Contract No.: _____

Do by appending our signature and seal to this document agree to the release of final payment in accordance with the Contract Documents and this affidavit.

Surety: _____

By: _____

Title: _____

(SEAL)

DISBURSEMENT OF PREVIOUS PERIODIC PAYMENTS TO SUBCONTRACTORS

DATE: _____

Project: Runway 10-28 and Associated Taxiway Connector Overlay

Contract No. DPA-4122

TO APPLY TO MONTHLY ESTIMATE FOR _____ 20__.
(Month)

_____, prime contractor for the above referenced contract, hereby certifies that all subcontractors having interest in this contract have received their pro rata share of all previous periodic payments made by the Department for all work completed and materials and equipment furnished under the Contract. The term "subcontractor" as used herein shall also include persons or firms furnishing materials, or equipment incorporated into the work or stockpiled in the vicinity of the project for which partial payment has been made by the Department, and work done under equipment-rental agreements.

Contractor

By

Title

STATE OF ILLINOIS
COUNTY OF DUPAGE

The foregoing instrument was acknowledged before me this _____ day of _____, 20__ by _____, who is personally known to me or who has produced _____ as identification and who did (did not) take an oath.

(type name)
Notary Public, State of Illinois
My commission expires: _____

Commission number: _____

**SCHEDULE 3
SBE ACTIVITY FORM**

SBE ACTIVITY FOR MONTH ENDING: _____

PROJECT NUMBER: DPA-4122

PROJECT NAME: Runway 10-28 and Associated Taxiway
Connector Overlay

PRIME CONTRACTOR NAME: _____

PERCENT OF PROJECT COMPLETION: _____

SBE Subcontracting Information					SBE Category (Check all applicable)						
Name of SBE Subcontractor	SBE Subcontract Amount	Amount Drawn for SBE Subcontractor	Amount Paid to Date	Actual Starting Date	Minority Business	Small Business	Black	Hispanic	Caucasian	Women	(Please Specify)

I hereby certify that the above information is true to the best of my knowledge _____
(Signature and Title)

Return to:

DuPage Airport Authority
2700 International Drive, Suite 200
West Chicago, Illinois 60185

Additional Sheets May be Used as Necessary

**SCHEDULE 4
SBE PAYMENT CERTIFICATION**

This is to certify that _____
SBE Subcontractor
received (Monthly) or (Final) payment of \$ _____ on _____
from _____ for labor and/or materials used on
(Prime Contractor)

PROJECT NAME: Runway 10-28 and Associated PROJECT DPA-4122
Taxiway Connector Overlay NO: _____

PRIME CONTRACTOR:

SBE SUBCONTRACTOR:

(Company Name)

(Company Name)

BY: _____
(Signature)

BY: _____
(Signature)

(Print Name and Title of Person Executing
on behalf of Contractor)

(Print Name and Title of Person Executing on
behalf of Subcontractor)

STATE OF ILLINOIS
COUNTY OF _____

STATE OF ILLINOIS
COUNTY OF _____

Sworn to and subscribed before me this _____

Sworn to and subscribed before me this _____

Notary Public, State of Illinois

Notary Public, State of Illinois

Print, Type or Stamp Commissioned Name
of Notary

Print, Type or Stamp Commissioned Name of
Notary

Personally Know _____ or
Produced Identification _____
Type of Identification Produced _____

Personally Know _____ or
Produced Identification _____
Type of Identification Produced _____

DUE: To be submitted with Pay Request, immediately following any payment to the SBE from the
Prime Contractor.

FORM OF GUARANTEE

GUARANTEE FOR _____.

We hereby, the undersigned, guarantee that the **Runway 10-28 and Associated Taxiway Connector Overlay** project at DuPage Airport, DuPage County, Illinois, which we have constructed and bonded, has been done in accordance with the plans and specifications; that the work constructed will fulfill the requirements of the guaranties included in the Contract Documents. We agree to repair or replace any or all of the work, together with any other adjacent work which may be damaged in so doing, that may prove to be defective in the workmanship or materials within a period of **one year** from the date of issuance to us of the Notice of Substantial Completion of the above named work by the County of DuPage, State of Illinois, without any expense whatsoever to said County of DuPage, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the above-mentioned conditions within five (5) calendar days after being notified in writing by the DuPage Airport Authority, DuPage County, Illinois, we, collectively or separately, do hereby authorize DuPage County to proceed to have said defects repaired and made good at our expense and we will honor and pay the costs and charges therefore upon demand. When correction work is started, it shall be carried through to completion.

DATED _____
(Notice of Substantial Completion Date)

SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY

(Seal) _____ CONTRACTOR
COUNTERSIGNED RESIDENT By: _____
AGENT IN ILLINOIS: (Signature)

(Seal) Agent SURETY

By: _____ By: _____

STATE OF ILLINOIS
COUNTY OF DUPAGE

The foregoing instrument was acknowledged before me this ____ day of _____, 20__
by _____ who is personally known to me or who has produced
_____ as identification and who did (did not) take an oath.

Notary Public, State of Illinois

My Commission Expires: _____ Commission Number: _____

ITEM 144 WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS:

- A. Contractor shall:
 - 1. Compile specified warranties and bonds.
 - 2. Compile specified service and maintenance contracts.
 - 3. Co-execute submittals to verify compliance with Contract Documents.
 - 4. Review submittals to verify compliance with Contract Documents.
 - 5. Submit to Engineer for review and transmittal to Owner.
- B. Related requirements in other parts of the Project Manual:
 - 1. Bid Bonds: Instructions to bidders.
 - 2. Performance Bond and Payment Bond: Conditions of the contract.
 - 3. General warranty of construction: Conditions of the contract.
- C. Related requirements specified in other sections:
 - 1. Warranties and Bonds required for specific products: Each respective section of specifications.
 - 2. Provisions and duration of Warranties and Bonds: The respective section of specifications, which specifies the product.
 - 3. Contract closeout: Item 140

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SUBMITTAL REQUIREMENTS:

- A. Assemble warranties, bonds, and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Number of original signed copies required: Two (2) each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 - 1. Product or work item.
 - 2. Firm, with name of principal, address and telephone number.
 - 3. Scope.
 - 4. Date of beginning of warranty, bond, or service and maintenance contract.
 - 5. Duration of warranty, bond, or service and maintenance contract.
 - 6. Provide information for Owner's personnel:
 - a. Proper procedure in case of failure.

- b. Instances, which might affect the validity of warranty or bond.
- 7. Contractor, name of responsible principal, address and telephone number.

3.2 FORM OF SUBMITTALS:

- A. Prepare in duplicate packets.
- B. Format:
 - 1. Size 8 1/2 inches x 11 inches. Punch sheets for 3-ring binder. Fold larger sheets to fit into binders.
 - 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Project title and number.
 - b. Owner's name.
 - c. Contractor's name and address.
- C. Binders: Commercial quality, 3-ring, with durable and cleanable plastic covers.

3.3 TIME OF SUBMITTALS:

- A. Submit within ten (10) days after date of substantial completion, and prior to final request for payment.
- B. For items of work where acceptance is delayed materially beyond the date of substantial completion, provide updated submittal within ten (10) days after acceptance, listing the date of acceptance as the start of the warranty period.

3.4 SUBMITTALS REQUIRED: Submit warranties, bonds, and service and maintenance contracts as specified in the respective sections of specifications.

3.5 PAYMENT: No separate payment will be made under this section for work described or specified herein.

END OF ITEM 144

ITEM 150510 ENGINEER'S FIELD OFFICE

DESCRIPTION

150-1.1. This item shall consist of furnishing and maintaining in good condition, for the exclusive use of the Resident Engineer, a weather-proof building hereinafter described, at locations approved by the Engineer. Unless otherwise approved, the buildings shall be independent of any buildings used by the Contractor, and all keys to the buildings shall be turned over to the Resident Engineer. The Engineer will designate the location of the building, and it shall remain on the jobsite until released by the Engineer. (Mobile units may be substituted with the approval of the Engineer.)

CONSTRUCTION METHODS

150-2.1. Field offices shall have a ceiling height of not less than seven feet (7'), and a floor space of not less than two hundred forty (240) square feet. The contractor shall provide electrical power, heat, water, natural and artificial light, sewer (connection to approved system permits if necessary) and telephone service for the duration of the contract. All monthly utility and other expenses necessary to maintain a fully operational facility, including waste disposal, are to be paid by the Contractor. Doors and windows shall be equipped with locks approved by the Resident Engineer. Windows shall be equipped with interior shades, curtains or blinds. Suitable sanitary facilities separate from those for the Contractor's personnel, meeting Federal, state and local health department requirements shall be provided and maintained clean and in good working condition, and shall be stocked with lavatory and sanitary supplies at all times during the period of the contact. Contractor must maintain approach walks free of mud and water and assumes full responsibility for all the costs associated with the equipment services provided for the Field representative's office (including costs for equipment and/or services). At final completion of work or earlier if agreed by Owner and Resident Engineer, the Contractor shall remove the buildings, foundations, utility services and debris and restore the area to its original condition.

In addition, the following equipment and furniture meeting the approval of the Resident Engineer shall be furnished:

- A. 2 desks and 2 non-folding chairs with upholstered seat and back
- B. 1 drafting table, min. top size of 37 1/2" x 48" and adjustable, upholstered drafting stool
- C. 2 free-standing file cabinets, legal size, 4 drawers. One file cabinet shall have a lock and an Underwriter Laboratories insulated file device with a 350 degree F one hour rating.
- D. 4 folding chairs

E. 1 equipment cabinet of minimum inside dimension of 44" high x 24" wide x 30" deep with lock. The walls shall be of steel with a 3/32" minimum thickness with concealed hinges and enclosed lock constructed in such a manner as to prevent entry by force. **The cabinet assembly shall be permanently attached to a structural element of the field office in a manner to prevent theft of the entire cabinet.**

F. 1 carbon dioxide fire extinguisher (10 lb. rated capacity)

G. 1 water cooler with water supply as needed

H. 1 telephone, with touch tone, where available, and telephone answering machine or a cellular telephone with voicemail, *paid for by the Contractor but provided for the exclusive use by the Resident Engineer. In addition, one ~~Two~~ additional dedicated telephone lines, ~~one~~ for fax, and one internet connection for computer shall also be provided by the Contractor for the exclusive use of the Resident Engineer.*

I. 1 dry process copy machine (including maintenance and operating supplies) capable of both collating and reproducing prints up to a legal size (8.5" x 14") and capable of copying field books

J. 1 standard facsimile machine (FAX) (including maintenance and operating supplies), with dedicated phone line

K. Beam tank(s)*

L. 1 office style refrigerator (min. 8 c.f. w/freezer unit)

M. 1 electric desk tape calculator and adding machine with tape or 1 tape printing calculator

* For projects requiring PCC flexural strength testing, the Contractor shall provide a beam tank shed as part of this item. This shed shall be large enough to hold all the necessary beam tanks. The Contractor shall make provisions in this shed to heat/cool as necessary to keep beam tank water temperature between 70° - 76° F. The Contractor shall be required to provide water to the beam shed as required to protect the beams. If the beam tank is not located at the Engineer's Field Office, the shed shall be large enough to store the beam breaker. The shed shall be locked and the Resident Engineer given all keys.

BASIS OF PAYMENT

150-3.1 The building will include all utility costs and shall be released to the Contractor in good condition at the end of the project.

Payment for providing the field office fully equipped as specified shall be made at the contract lump sum price. The Contractor shall be entitled to *payment based on the following schedule:*

1. 50% Payment upon delivery and satisfactory occupancy condition determination by the Resident Engineer;
2. 75% payment upon 50% contract completion as determined by the Resident Engineer;
3. 95% payment upon 85% contract completion as determined by the Resident Engineer; and
4. 100% payment upon completion of the project, disconnection of all utilities from the field office, restoration of field office site to Resident Engineers satisfaction and removal of the field office from the site.

The Resident Engineer shall make payment for all long distance phone calls made by his/her representatives or himself.

Payment will be made under:

Item AR150510

Engineer's Field Office – per Lump Sum (LS)

END OF ITEM 150510

ITEM 150520 MOBILIZATION

DESCRIPTION

150-1.1 This work shall include all activities and associated costs related to transportation of contractor's personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary general facilities for the contractor's operations at the site; premiums paid for performance and payment bonds including coinsurance and reinsurance agreements as applicable.

This work includes mobilization required by the contract at the time of notice to proceed. If additional mobilization activities and costs are required during the performance of the contract as a result of added items of work, such costs shall be included in the unit price for the item or items of work added. This does not apply to any approved "time and materials work."

This work also includes all efforts related to restoration of the project site, staging area and haul road as directed in the bidding documents at the conclusion of the job. This activity includes, but is not limited to, incidental grading, seeding and clean-up, as required to restore the project site to original condition.

METHOD OF MEASUREMENT

150-2.1 This item shall consist of the mobilization of the contractor's forces and equipment necessary for performing the work required under the contract. It does not include mobilization for specific items of work for which payment is provided elsewhere in the contract.

Transportation of any materials incorporated into the permanent works shall not be considered a mobilization item.

All roads, parking lots, fences, structures, etc., shall be protected from damage by equipment during the contract period.

Access shall be as shown on the drawings. Alternate access routes must be approved by the Engineer prior to use. All access routes shall be restored by the contractor to a condition equal to or better than the condition prior to the commencement of work under this contract.

BASIS OF PAYMENT

150-3.1 This work shall be paid for at the lump sum price for Mobilization/*Demobilization*. The amount which a Contractor will receive payment for, according to the following schedule, will be limited to six percent of the original contract amount. Should the bid for mobilization/*demobilization* exceed six percent, the amount over six percent will not be paid until 90 percent of the adjusted contract value is earned.

A. Upon issuance of the Notice to Proceed *and the submission of the base line schedule and first deliverables (Construction operations plan, QC plan, and Safety plan)*, 50 percent of the pay item will be paid.

B. When ten percent of the original contract amount is earned, an additional 10 percent of the pay item will be paid.

C. The remaining 40 percent of the pay item will be paid along with any amount bid in excess of six percent of the original contract amount upon final acceptance of the project by the engineer. Final acceptance includes satisfactory completion of all punch list items in accordance with written instruction from the engineer as well as acceptance of all final documentation.

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 Lump Sum (LS)

END OF ITEM 150520

ITEM 150530 TRAFFIC MAINTENANCE

DESCRIPTION

150-1.1 The work under this Section consists of furnishing all measures required to maintain the safe and orderly movement of Air Operations Area (AOA) traffic in and around the construction areas as shown on the Plans and as described in these Technical Specifications.

GENERAL

150-2.1 This Article covers the Contractor's responsibilities for maintaining the optimum level of safety and the operating efficiency of the airport during construction. These responsibilities are based on the criteria contained in the current edition of Federal Aviation Administration AC 150/5370-2E (Operational Safety on Airports During Construction). The Contractor shall be responsible for all activities, under his control, as specified in the above referenced Advisory Circulars. In certain cases where the obstacles clearance criteria utilized for this project may differ that described herein, these variances will be depicted on the Plans.

OBSTACLE CLEARANCE DURING CONSTRUCTION - RUNWAYS

150-3.1 Two sets of criteria shall apply to construction activities within the proximity of active runways; one for use in daytime in visual approach conditions, and the other for use at all other times.

VISUAL APPROACH CONDITIONS DURING DAYTIME

150-4.1 During the period from 30 minutes after sunrise until 30 minutes before sunset, when DuPage Airport's (DPA) reported ceiling is at least 3,000 feet and visibility is at least 3 statute miles, the more restrictive dimensional and obstruction clearance criteria of AC 150/5370-2E (current edition) shall be utilized except as otherwise shown on the Plans and Specified herein. The imaginary surfaces for runway approach/departure protection shall be relocated from the landing thresholds to the ends of the full strength pavement (runway ends), unless the work requires threshold displacement or work is required in proximity of existing displaced thresholds.

No Construction activity, personnel, equipment or materials shall be permitted within 200 feet of the centerline of any active runway or above the height restrictions described herein and as shown on the Plans at any time. Part 77 contours describing allowable heights and distances when construction activities are in proximity to precision and non-precision runways during daytime visual approach conditions are shown on the Plans.

INSTRUMENT APPROACH CONDITIONS AT TIMES OTHER THAN DAYTIME

150-5.1 At all times other than daytime, when the reported ceiling is less than 3,000 feet and/or the visibility is less than 3 statute miles and during the period between 30 minutes before sunset through 30 minutes after sunrise, the dimensional and height restriction criteria of DPA shall apply. No construction activity, personal, equipment or materials shall penetrate these imaginary surfaces. Contours describing allowable heights and distances when construction activities are in proximity to runways during instrument approach conditions and at nighttime. Instrument approach contours are shown on the Plans.

OBSTACLES CLEARINGS DURING CONSTRUCTION - TAXIWAYS, TAXILANES AND APRONS.

150-6.1 Construction activity, personnel, equipment or materials shall not be permitted within 59 feet of the centerline of an active taxiway, taxilane or apron unless otherwise shown on the Plans.

TRENCHES, EXCAVATIONS AND STOCKPILED MATERIAL.

150-7.1 Open trenches or excavations exceeding 3 inches in depth and 3 inches in width shall not be permitted within 200 feet of the centerline of an active runway. Excavation and open trenches may be permitted up to the edge of structural taxiway and apron pavements (full-strength pavement) provided the drop-off is adequately signed, lighted and marked with the use of low profile barricades or otherwise approved by the Resident Engineer and Airport Operations. Coverings for open trenches or excavations may be utilized by the Contractor to restore operations in these areas. Covering shall be sufficient strength to support the weight of the heaviest aircraft operating on the runway or taxiway. Each covering shall be installed only as approved by the Resident Engineer and Airport Operations. Barricades and/or flagging shall be installed to identify the limits of construction near open trenches or excavations. Stockpiled material shall be secured against displacement by aircraft engine and propeller blast and ambient winds exceeding ten knots. Stockpiled materials, equipment and personnel shall not be allowed within the runway, taxiway and taxilane obstacle clearance areas as described in this Article.

MARKING AND LIGHTING OF CONSTRUCTION AREAS.

150-8.1 The Contractor shall install lighting, marking, barrel and/or Illinois Department of Transportation (IDOT) Type II barricades, lighted commercial barricades, lighted runway closure X equipment, concrete barricades, signs and other measures to delineate closed and hazardous areas during construction. The guidance and procedures provided by FAA Advisory Circular 150/5340-1K (current edition), Standards for Airport Markings, shall be utilized as depicted on the Plans. Steady burning red obstruction lights may be required in certain instances to supplement lighted barricades or highlight hazardous or potentially dangerous objects. The location of these lights shall be as shown on Plans or as directed by the Resident Engineer and Airport Operations. Obstruction lights and barrel and/or IDOT Type II barricades, lighted commercial barricades and signs shall not be located within runway, taxiway and taxilane obstacle clearance areas.

When Lighted Runway Closure X's are required, the Contractor shall procure them for use on project based on the information shown on the Phasing/Safety Plans. Runway Lighted X's shall be maintained in good working condition per the manufacturers recommendations, fueled for continuous operation throughout the duration of the closures, and relocated as necessary at no additional cost. The Lighted Runway Closure X's shall become the property of the Airport at the end of the contract unless stated otherwise in the drawings. They shall be turned over to the Airport in like new condition. Like new condition shall be determined by the Resident Engineer. The cost for providing and maintaining two units of Runway Lighted X closure equipment shall be included in the lump sum bid price for maintenance of AOA traffic.

LOOSE MATERIALS AND DEBRIS.

150-9.1 Loose materials shall be removed from the active portion of the Air Operations Area (AOA), placed in protected areas or otherwise secured to prevent dispersal into active portions of AOA. The AOA is defined as all areas used or intended to be used for aircraft operations including active runways, aprons, taxiways, taxilanes, etc. Debris shall be promptly removed from AOA whether generated from the Contractor's operations or not. The Contractor shall exercise care in the transportation of materials within the AOA. Materials tracked or spilled in the AOA shall be removed immediately. When hauling, loading, grading, or when any of the Contractor's activities are likely to cause the deposit of loose materials in the AOA, it shall be immediately removed using powered vacuum, powered sweeps, by hand sweepers, loaders, trucks, etc., as necessary.

VEHICLES AND MOBILE EQUIPMENT.

150-10.1 All Contractor vehicles and mobile equipment operating in the AOA shall be identified by a 3 foot x 3 foot or larger, orange and white checkerboard flag whenever such vehicle and equipment is operating on or about AOA. Each checkerboard color shall be 1 foot square. In addition, such vehicles and equipment shall have a sign with a 6-inch minimum letter size bearing the Contractor's name clearly affixed on each side of such vehicles and equipment, all in accordance with current DuPage Airport Authority (DAA) requirements. During the hours between 30 minutes before sunset and 30 minutes after sunrise and at all times when visibility is impaired, vehicles and mobile equipment shall also be equipped with a revolving yellow beacon light mounted on the top of the vehicle or equipment. Beacon lights shall provide:

- Three hundred and sixty degree azimuth coverage.
- Effective intensity in the horizontal plane not less than 40 or more than 400 candelas.
- Beam spread measured to 1/10 peak intensity extending from 10 degrees to 15 degrees above the horizontal.

- Sixty to ninety flashes per minute.

All Contractor vehicles and mobile equipment not individually authorized by the DAA for independent operation in the AOA shall be operated under escort while in the AOA. The escort vehicle and its driver must be authorized by the DAA for escort duty and for operation within the AOA. If access to the construction, staging or storage sites requires the crossing of an active runway or taxiway, all vehicles shall be escorted across said runway or taxiway by either a DAA escort vehicle or a vehicle equipped with a VHF-AM Transceiver Radios specifically authorized by DAA to cross these operational pavements. Radio communications are required between the Contractor's on-site representative and/or escort and the Air Traffic Control Tower (ATCT). Radio contract is required at all times while the Contractor has personnel and equipment in the active AOA. Radios shall be furnished by the Contractor and shall be capable of transmitting and receiving at a ground control frequency of 121.8 MHz and at a tower control frequency of 120.9 MHz. This frequency shall be utilized when crossing active runways and taxiways. Sufficient radios shall be on site and operating at all times so that instructions or communications may be dispatched to all crews and/or supervisors working in the active AOA within one minute after receipt from the ATCT. No crossing of active taxiways or runways by vehicles so equipped shall be made without first obtaining specific clearance from ATCT.

No crane shall be allowed on the work site until the equipment and its intended operation is approved by Airport Operations. The Contractor shall provide the Resident Engineer and Airport Operations with not less than 48-hour advance written notice requesting crane access to the AOA.

When access is approved by DAA, the tip of the crane boom shall be identified by the checkered orange and white flag mentioned above and, if requested or required by AC 150/5370-2E (current edition), by red obstruction lights. Flagged cranes shall not be left unattended while erect and shall be lowered when not in operation.

CLOSURES.

150-11.1 Prior to the commencement of any demolition or other work, which will cause an interruption, or modification to existing aircraft operations, the Contractor shall confer with, and obtain written authorization from the Resident Engineer and Airport Operations.

When the Contractor's operations require the closure of any runway, taxiway, apron, roadway, service gate, walkway, etc., the Contractor shall notify the Resident Engineer and Airport Operations not less than 48 hours prior to need. No runway, taxiway, apron, roadway, service gate, walkway, etc., shall be closed without prior permission from the Resident Engineer and Airport Operations.

If the Contractor requires access to operational areas not delineated on the Construction Safety Plan Drawing(s), the Contractor shall participate in negotiations leading to the imposition of restrictions on airport operations in the affected areas, he shall strictly abide by all conditions imposed by DAA relating to his entry and use of such areas and he shall strictly abide by all conditions imposed by DAA relating to his entry and use of such areas

and he shall not enter these areas until granted temporary, conditional entry clearance by DAA.

Trenching, excavations and other work requiring temporary runway or taxiway closure shall be limited by the Contractor to the amount of work that can be completed within the hours of minimal operation. All ditches, excavations, etc., shall be restored prior to the end of the work of period and affected pavements returned to service. This work shall be scheduled during hours of minimal operation and shall be defined as the hours as shown on the plans. All other hours shall be hours of normal operation, unless otherwise specified.

The Contractor may be required to pursue affected portions of the work on a continuous 24 hour per day basis during construction of the various phases and subphases shown on the Plans and described in the Contract Documents (such as when runways or taxiways, aprons, service or access roadways, service gates are closed for operations or when hazards of any kind arise).

LIGHTS, LIGHT LINES, SIGN AND PAVEMENT MARKINGS.

150-12.1 Red and blue lens, ground-mounted, taxiway marker lights, pavement markings, signs, lighted barricades and other measures shall be installed and maintained on a 24-hour basis by the Contractor to delineate construction areas available to the Contractor and limits of aircraft operational areas. At the conclusion of each working day, the Contractor shall verify that the temporary lighting systems are in proper operation and good working condition. Any necessary maintenance repairs shall be performed by the Contractor prior to leaving the site. The detailed layout of marking, lights, signs, barricades and other measures and attendant operational procedures shall be inspected by the Resident Engineer and Airport Operations and any necessary changes or modifications will be promptly implemented by the Contractor as directed. The revised installation will be reinspected and approved by Airport Operations before the Contractor may commence any construction or any other work which revises operational procedures in each affected area.

Connections to power supply for all temporary lighting systems shall be performed by the Contractor under the direction of the Resident Engineer and DAA Maintenance Division.

Maintenance of all temporary lighting systems shall be performed by the Contractor including nighttime trouble shooting of temporary lighting connected to any airfield system.

OPERATIONS SAFETY INSPECTION.

150-13.1 The entire work site shall be inspected daily and more frequently if construction activities are of a nature that debris may be expected to accumulate on AOA pavements. Special inspections shall be conducted for each work area prior to return to service for aircraft operation. The purpose of these inspections is to ascertain that areas returned to aircraft service are in satisfactory condition and that the overall work site and its activities are within the safety criteria set forth in these Contract Documents. Inspections shall be conducted jointly by representatives of the Contractor, the Airport Operations Division and

the Resident Engineer. These inspections shall cover the several items noted in and referred by this Article. The report of such inspections shall be filed utilizing the Preparation and Preconstruction checklist forms provided by the DAA.

Any violations of the Safety Criteria found during these inspections shall be rectified immediately by the Contractor. If a violation cannot be corrected on an immediate basis by the Contractor he shall immediately notify the Resident Engineer and Airport Operations. No area shall be approved for aircraft operations while it is in violation unless specifically authorized by Airport Operations and the Resident Engineer.

When Lighted Runway Closure X's are required, the Contractor shall procure them for use on project based on the information shown on the Phasing Plans. Runway Lighted X's shall be maintained in good working condition per the manufacturers recommendations, fueled for continuous operation throughout the duration of the closures, and relocated as necessary at no additional cost. The Lighted Runway Closure X's shall become the property of the Airport at the end of the contract unless stated otherwise in the drawings. They shall be turned over to the Airport in like new condition. Like new condition shall determined by the Resident Engineer. The Contractor shall be due no additional compensation.

OPERATIONAL EMERGENCIES.

150-14.1 During periods of severe weather conditions or other operational emergencies, the DAA may direct the Contractor to relinquish areas under construction and to prepare the areas for aircraft operations. In this event the Resident Engineer will so direct the Contractor to evacuate the area and the Resident Engineer will specify the limits of the area to be evacuated, the term of evacuation and the conditions governing the restoration work necessary to prepare the area for aircraft operation. The Contractor shall promptly and fully comply with the Resident Engineer 's directive. Should the directive entail extra work under the Contract, as determined by the Resident Engineer , the Contractor will be reimbursed for such extra work. Should the directive entail a delay in the completion of the Contract or any defined subdivision of the contract, as determined by the Resident Engineer , the Contractor may be granted an extension of time.

FINAL CLEANUP.

150-15.1 After work in any work area has been completed and before opening it to traffic, the Contractor shall remove all temporary traffic control devices, complete installation of temporary pavements, and other temporary work and devices installed for traffic control. The Contractor shall restore the site to its original condition or to the revised condition shown on the Plans or otherwise directed by the Resident Engineer and Airport Operations.

MATERIALS AND CONSTRUCTION METHODS

TEMPORARY MARKER LIGHTS.

150-16.1 The Contractor shall install, operate and maintain temporary marker lights in the locations shown on the Plans. The Contractor shall furnish portable base mounted light fixtures, red and blue lenses, 30/45 watt 6.6/6.2 ampere transformers, and 30 watt 6.6

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ampere lamps. The Contractor shall furnish 5000 volt, #8AWG, Type 'C', FAA Specification L824 stranded copper cable; compatible connector kits; FAA Specification sleeves and any other materials necessary to install, operate and maintain the temporary marker lights.

The Contractor shall install the temporary marker lights in the locations shown on the Plans or as directed by the Resident Engineer and Airport Operations; provide cable connections to existing circuits and decommission or mask existing lights as shown on the Plans. If no existing circuits are available, the Contractor shall provide and install a constant current transformer including connections and cable runs as necessary to power the temporary light units. All cable runs installed across pavements shall be placed within saw kerfs in the pavement. Saw kerfs shall be sealed, using approved suitable sealant meeting ASTM D 6690 standards, after cable installation. The Contractor shall demonstrate the functional integrity of the temporary marker light system by field test before the system will be approved by the Resident Engineer and Airport Operations for operational use.

The Contractor shall maintain the temporary marker light system in full operational capability during the term of use. Each day at the close of the work shift, the Contractor shall test and repair the system as necessary to restore full operational capability. The Contractor shall provide 24-hour, 7 day per week maintenance service. Trained maintenance technicians shall be available and "On Call" at all times, 24 hours per day seven days per week. The Contractor shall provide the Resident Engineer with address and telephone numbers of the technicians so that they may be contacted at any time.

The Contractor shall relocate and modify the temporary lighting systems as required to accommodate the progress of the construction.

Upon completion of the work, within an aircraft movement area, and when the temporary marker lights are no longer needed, the Contractor shall remove all such temporary installation and restore the site prior to opening it to aircraft traffic.

BARREL AND/OR IDOT TYPE II BARRICADES.

150-17.1 The Contractor shall install and maintain barrel and/or IDOT Type II barricades in the locations shown on the Plans, in accordance with the approved layout for each construction area, and as directed by the Resident Engineer . Barrel and/or IDOT Type II barricades shall be in accordance with the details shown on the Plans including barrels, lights, ropes, flags, sand bags and all incidentals necessary for a complete working system. Barricades shall be weighted immediately upon installation, as necessary to prevent displacement by aircraft engine blast by ambient wind. Barricade lines shall be inspected each day and repaired or replaced as necessary to meet the requirements of the approved Safety and Maintenance of Traffic Plans.

CONCRETE BARRIERS.

150-18.1 Temporary concrete barriers for traffic control and protection shall be New Jersey type precast concrete barriers conforming to the requirements of ASTM C 825.

The temporary concrete barrier sections shall be capable of being interlocked and shall be provided with warning flags, steady burning lights and/or flashing lights as required and shall be provided with grooves to allow flow of surface drainage.

The temporary concrete barriers need not be new, but shall be structurally sound, of a quality and type meeting the requirements of these specifications and shall be subject to the Resident Engineer 's approval.

Temporary concrete barriers shall, at the conclusion or when no longer needed, be relocated or removed and disposed in accordance with local, state, and federal laws.

LOW PROFILE BARRICADES.

150-20.1 The Contractor shall provide, install and maintain Low Profile Barricades as shown on the Plans. Barricades shall be placed along the limits of the phases of work, as shown on the Plans, to delineate the Contractor's work areas and closed taxiways/taxilanes.

Barricade sections shall be all white with reflective orange media as shown on the Plans. All incidental connectors, spacers, splice plates, etc. shall be painted white.

All barricades shall be checked visually for signs of wear and tear on a daily basis and shall be repainted when deemed appropriate by the Resident Engineer . The conditions of the lighting units shall be checked daily. All light fixtures shall be verified in operation condition and good working order by the Contractor on a daily basis and before the Contractor ceases operations for the day.

All barricades shall be moved at least once each week and the Contractor shall sweep the accumulated debris and remove and dispose of the Debris offsite at an approved disposal facility in accordance with local, state and federal laws. The barricades shall then be replaced at the appropriate location.

Caution lights shall be red in color and flashing during hours of darkness or low visibility. There will be no separate measurement or direct payment for furnishing, maintaining, relocating or removal of barricades.

All low profile barricades shall be placed at a maximum interval of twenty feet (20') on center.

The Contractor may substitute an approved equal low profile barricade generally conforming to the Plans and these specifications for approval by the Resident Engineer .

PLASTIC BARRICADES.

150-21.1 Plastic barricades shall consist of an I-beam section manufactured of molded plastic barricade panel suspended by means of toggle system, from a molded plastic cone.

The plastic barricade (I-beam section and cones) shall be manufactured from Polyethylene high density, compounded with Ultra Violet Stabilizer to protect it against ultra violet exposure and outdoor weathering.

The assembly shall be designed to remain usable following vehicular impact.

The cone shall consist of a stem and a base. The base shall be hollow and so manufactured as to allow for external and internal ballasting (using water, sand or other suitable material), to provide a ballast weight of approximately 20 lbs.

The I-beam section shall be capable of being mounted (using a flexible toggle system) on the plastic cones. The cones shall be designed to support the I-beam sections and also to support traffic lights.

The plastic barricade assembly shall be impregnated with traffic orange color. White reflective sheeting shall be applied to the I-beam section to form a series of alternating 6 - inch wide stripes, traffic orange and reflective white, at 45° angle.

The plastic barricade assembly shall be equal to MAXICADE System as manufactured by Glasdon - Traffic Services Incorporated or approved equal.

The dimensions of the various elements of the plastic barricade system shall be as follows:

Cones

Overall Height	45"
Base Dimension	18" x 18" x 4"
Weight (Unballasted)	7 3/4 lbs.
Outside diameter stem	
Top	3 1/4"
Bottom	6"
Wall Thickness	1/8" ±1/32"

I-Beam Section

Depth (reflective areas)	8"
Lengths (as approved by the Resident Engineer)	36" or 48"
Wall Thickness	1.2 lbs. per foot

Plastic barricades shall only be used when specifically shown on the Plans or approved by the Resident Engineer.

MEASUREMENT AND PAYMENT.

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150-22.1 No separate measurement for payment shall be made for Maintenance of AOA Traffic. The lump sum bid price shall be full compensation for furnishing all labor, equipment, and materials including, but not limited to; signage, lighting and marking of open trenches, excavations and stockpiled material; coverings for open trenches or excavations; installation, maintenance and removal of temporary lighting, cables, and connections; marking, painting, barrel, low-profile, IDOT Type II barricades and concrete barricades including daily inspections and cleaning of debris on a weekly basis; cones, I-beam sections, plastic barricades; Non-Lighted Runway Closure Xs constructed of double-layered painted snow fence, colored plastic, or similar materials including proper securing to prevent movement by jet blast or wind currents; two Lighted Runway Closure X equipment including furnishing all fuel and/or temporary power, maintenance, transporting, replacement bulbs, delivery of Lighted Runway Closure X equipment to Owner upon completion and final acceptance of the project including transfer of owner warranty, flashing red barricade lights including all connections to barricades, steady burning red obstruction lights, marking of contractor vehicles and equipment bearing contractor name at minimum 6-inch letter size, 3-foot square checkered orange and white flags, revolving yellow beacon lights, escorts, flagmen, VHF-AM Transceiver Radios capable of transmitting and receiving frequencies of 121.8 MHz and 120.9 MHz, removal of loose materials and debris, compliance with Airport Operations safety inspections and directives; provide, install, maintain and removal of red and blue lens, ground-mounted, taxiway marker lights, pavement markings, signs, lighted barricades, and other measures, on-call technicians 24 hours per day, seven days per week; installation, maintenance and removal of temporary marker lights including cable connections to existing circuits and decommission or masking of existing lights and guidance signs; provide and install constant current transformers including connections and cable runs as necessary to power temporary light units, saw kerfs and pavement sealant; construction, maintenance, removal and restoration of haul roads; relocate and modify temporary lighting systems, barricade lights, ropes, flags, sand bags and all incidentals necessary for a complete working Maintenance of Traffic system and compliance with all federal, state, and local laws including Owner and Airport Operational requirements and regulations. Partial payments for Maintenance of AOA Traffic shall be made in accordance with the following schedule:

Percent of Original Contract Amount Earned	Cumulative Percent of Lump Sum Price Payable*
5	25
25	50
50	75
75	90
100	100

* Partial payments in accordance with the schedule will be limited to 10% of the original Contract amount for the project. The 10% limit and payment schedule noted above apply individually to the base bid and each bid alternate. Any remaining amount(s) will be paid upon completion of all work under the project.

Payment shall be made under:

Item AR150530 Traffic Maintenance – per Lump Sum (LS)

END OF ITEM 150530

ITEM 801754 SAFETY AND SECURITY

EMPLOYEE IDENTIFICATION

150-1.1 Contractor employees requiring access onto the Air Operations Area (AOA) shall be required to obtain photo-type Contractor identification badges from the DuPage Airport Authority (DAA). The Contractor shall be responsible for the cost of the identification badges. These badges are controlled by and remain the property of DAA. Photo-type ID badges will require, at a minimum, a ten (10) year background check and Federal Bureau of Investigation (FBI) finger printing on the employee. Contractor employees wearing non-photo type badges must be accompanied onto the AOA by an employee wearing a photo-type Contractor badge approved as an escort with ramp driving privileges. Badges must be displayed on the outer garment at all times when on the AOA.

SAFETY AND SECURITY

150-2.1 Airport safety is an extremely important element of managing and operating today's airport. Specific rules, regulations, advisory circulars and guidelines are placed upon the airport owner/operator to improve safety on airports and to protect its users, tenants, and neighbors.

In the interest of safety, the Contractor is directed to acquaint his employees with the provisions of the following Federal Aviation Administration Advisory Circulars:

150/5370-2E "Operational Safety on Airports During Construction"

150/5200-18C "Airport Safety Self-Inspections"

- 1 Entry into the Air Operations Area. Entry shall be by gate(s) designated by DAA representative as indicated on the plans. The contractor shall be responsible for gate security. No personal vehicles owned by contractor's employees or subcontractors shall be allowed on the airfield at any time.
- 2 Two-way Radio Communications. The Contractor shall maintain two-way radio contact with the DuPage Airport ground control when coordinating vehicles and personnel on any aircraft movement area on the airfield. The Contractor shall minimize the number of vehicles and or personnel contacting ground control by having lead escort vehicles and or flagmen with radios at appropriate locations to communicate with ground control.

Lead escort vehicles and or flagmen with radios must contact the DuPage Airport ground control and receive approval to proceed prior to doing so for vehicles or personnel entering or leaving active taxiways, or apron areas where aircraft are moving or are subject to move. If Contractor personnel are working within five hundred (500) feet of the centerline of any active runway or two hundred (200) feet of the centerline of any (active) taxiway, the Contractor employee with two-way radios shall maintain radio contact with the DuPage Airport ground control at all times. The Contractor shall ensure that his vehicles or personnel that do not have two-way radios are under the control of those that do. Vehicles and personnel shall form a convoy and follow the vehicle or person having two-way radio contact with the ATCT.

- 3 Flags. All vehicles, upon entering the Air Operations Area shall display an orange and white checkered flag, staff mounted, of not less than three (3) feet square displayed on the vehicle. Cranes, backhoes, and similar equipment working within 500 feet of the centerline of the runways and 200 feet of taxiways and in clear zones, shall display the same size and type of flag specified for vehicles attached to the boom. Crane booms shall be lowered when not in use.
- 4 Airport Rules and Regulations. The contractor(s) shall be responsible for informing all employees concerning pertinent airport and Federal Aviation Administration rules and regulations. Contractor(s) shall conform with all rules and regulations and directives issued either orally or in writing by the Executive Director or his representative. All pertinent local, state and federal safety requirements shall be observed by the contractor(s) and contractor(s) personnel.
- 5 Storage Area.
 - a. Material or personal vehicular storage area shall be assigned by DAA.
 - b. Materials to be stored on airport property shall not create an obstruction to air navigation shall they interfere with the free unobstructed movement of aircraft.
 - c. Loose materials capable of causing damage to aircraft landing gears, propellers, or being ingested in jet engines, shall not be stored on or around active aircraft movement areas.
 - d. Stockpiled material will be constrained in a manner to prevent movement resulting from aircraft blast or wind conditions in excess of ten knots. Stockpiled material shall be prominently marked with orange flags and lighted with flashing red lights during hours of restricted visibility.
- 6 Safety.
 - a. Construction equipment or material shall not be stored within the Air Operations Area during hours of restricted visibility or darkness without the approval of DAA.
 - b. Open flame welding or torch cutting operation are prohibited unless fire and safety precautions are provided in accordance with NFPA codes and approved by DAA.
- 7 Open Trenches.
 - a. All open trenches, excavations within the Air Operations Area, shall be marked by lighted and flagged barricades. Barricades shall be alternate orange and white markings with flashing red lights and a minimum of 18 inches in height. Flags shall be orange, staff mounted, and not less than 20" x 20". All barricades shall be subject to approval by DAA. The Contractor shall provide the name and phone number of three individuals to be on call 24 hours per day for emergency maintenance of barricade lighting.

- b. All construction work within 200 feet of a runway centerline or 59 feet from a taxiway centerline will require temporary closing of the runway or taxiway, unless approved by Owner beforehand. Temporarily closed taxiways shall be marked by lighted and flagged barricades as stated in Paragraph 6a. Temporally closed runways shall be marked with a cross placed on the runway numbers. Minimum dimensions of the areas of the cross shall be a length of 60 feet and a width of 10 feet. Crosses are to be painted yellow and secured in such a manner to prevent damage from high winds. Frames may be constructed of fabric or plywood. Material used for the construction is subject to approval by DAA.
- c. Construction equipment or material shall not be stored within the Air Operations Area during hours of restricted visibility or darkness without the approval of DAA.
- d. Open flame welding or torch cutting operation are prohibited unless fire and safety precautions are provided in accordance with NFPA codes and approved by DAA.

8 Motorized Vehicles.

- a. Vehicular traffic shall not cross active aircraft movement areas (runways, taxiways or aircraft parking aprons). The Contractor shall be responsible for the actions of employees and subcontractors. Personnel who do not abide by Airport rules and regulations are subject to prosecution.
- b. All vehicular traffic shall come to a complete stop at all active aircraft movement areas and shall not proceed into an active aircraft movement area without authorization from the control tower.
- c. If it is desirable to clearly identify the vehicles for control purposes by either assigned initials or numbers, then the identifying symbol shall be of six (6) inch minimum, block-style character of a color easily read. Symbols may be applied by use of tape or water soluble paint.
- d. Motorized vehicles and equipment operating in the AOA shall not exceed the posted speed limit or 15 mph, which ever is less.
- e. Aircraft shall have priority over all motorized vehicles and equipment.

9 Debris.

- a. Waste and loose material capable of causing damage to aircraft shall not be placed on active aircraft movement areas. Material tracked on these areas shall be removed immediately and continuously during the work project at the Contractors expense.
- b. Debris shall be disposed of in a manner in accordance with local, state, and federal regulations. Debris disposed of on airport property shall in addition be disposed of as designated by DAA with adherence to all applicable code.

10 NOTAMS. Construction NOTAMS shall be issued by DAA. Construction causing runway or taxiway closures shall be kept to a minimum. Scheduled closures shall be discussed with

DAA representatives as far in advance as possible, but not less than Forty-eight (48) hours in advance.

- 11 Burning. No burning is permitted on airport property.
- 12 Explosives. Use of explosives is not permitted on airport property.
- 13 Erosion. Contractor(s) shall furnish and use a permanent means of control or prevention of soil erosion not only to preserve and protect the slope, pavement and other facilities, but also to reduce potential sources of water pollution.
- 14 Accidents. All accidents causing personal injury or property damage shall be reported to DAA immediately. The Contractor(s) shall provide, at the site, such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the performance of the work, whether on or adjacent to the site, which causes death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone to 911 dispatch and DAA.
- 15 Security. Contractor shall be responsible for the security of his equipment and materials. He shall be responsible for the security of all gates utilized by him. As directed by DAA, locks shall be placed on each gate used by the Contractor. The locks must be marked in a manner showing company ownership and a key or combination provided to DAA. The gates shall be locked at all times or guards posted at the gates to control access through them. For joint use gates, if a lock is found unsecured, the company owning the lock is in violation of Airport Rules and Regulations. In addition, unauthorized entry to the Air Operations Area through the gates may result in the responsible party being cited for violating Airport Regulations.
 - a. The Federal Aviation Act of 1958, Section 901, 49 USC 1371, gives the FAA authority to place a fine on any airport found to be in breach of a security requirement.
 - b. The Contractor shall reimburse the DAA for the full amount of any fines placed on them due to negligence on the part of the Contractor or their Subcontractors. Fines may be placed on the airport for such things as security gates being unlocked, fences torn down, and AOA not being properly secured. These are only examples of items causing fines and not limitations. There could be other related items.
 - c. It is the Contractor's responsibility to prevent any breach of security within his area of construction or any route of entry to area of construction.

In addition, where the Contractor must remove existing security fencing to perform his work, Temporary Security Fencing shall be erected to secure the AOA at all times; or a security guard shall be posted to prevent unauthorized access to the AOA. Temporary fencing or full time security guard shall be incidental to this item.

- 16 Security Clearances. All personnel having unescorted access to any security restricted area shall wear valid airport and contractor identification badges on their outer garments in such areas at all times to permit ready recognition by Airport Security. The Contractor's

employees, whether issued airport security badges or not, must have a valid governmental identification on their person at all times. Failure to comply with these requirements will result in the employee being escorted off the AOA and fines may be imposed at the Contractor's expense.

- a. Contractor employees requiring access onto AOA shall be required to obtain photo-type Contractor identification badges from DAA. The Contractor shall be responsible for the cost of the identification badges. These badges are controlled by and remain the property of DAA. Photo-type ID badges will require a ten (10) year background check on the employee. Anyone wearing non-photo type badges must be accompanied onto the AOA by an employee wearing a photo-type Contractor badge. Badges must be displayed on the outer garment at all times when on the AOA.
- b. Identification badges must be controlled at all times. When personnel are terminated, upon completion of the construction project, and/or when badges expire, the Contractor is responsible for returning identification badges to Airport Security. Before a new badge is issued to any person, their expired or invalid badge must be returned to the Security Department. Failure to return badges to airport security will result in forfeit of deposit or other fines as determined by DAA security policy.
- c. The Contractor will be required to comply with the Federal Aviation Administration Amendment to FAR Part 107 prior to commencing work. All personnel hired after November 1, 1985, who have unescorted access to any area on the airport controlled for security reasons shall have background checks to the extent allowable by law, including at a minimum, referenced prior employment histories to the extent necessary to verify representations made by the employee/applicant relative to employment in the preceding ten years. The Contractor shall certify to DAA that such checks were conducted and are on file in the Contractor's office for inspection by the Federal Aviation Administration.
- d. The Contractor will provide to the Authority a list of employees having access to the AOA. The Contractor is responsible for the direct supervision of their employees at all times while in such restricted areas.
- e. Any person found within any security restricted area without proper identification shall be in violation of Federal law and the Airport Rules and Regulations. All such persons shall be escorted off the AOA and may be cited by DAA in addition, the person may have their identification badge revoked.
- f. Any delay in construction of project due to violation of Federal or Airport Regulations shall be absorbed by the Contractor and not the DAA.
- g. All fines are responsibility of Contractor.

MEASUREMENT AND PAYMENT.

150-3.1 Measurement and payment will be based on the contract lump sum price for Safety and Security. This price shall be full compensation for furnishing only safety and security related items such as airport ID badging and associated costs, safety training, SIDA and ramp driving classes, entry gate locks and monitoring.

Partial payments for Safety and Security shall be made in accordance with the following schedule:

Percent of Original Contract Amount Earned	Cumulative Percent of Lump Sum Price Payable*
5	25
25	50
50	75
75	90
100	100

* Partial payments in accordance with the schedule will be limited to 10% of the original Contract amount for the project. The 10% limit and payment schedule noted above apply individually to the base bid and each bid alternate. Any remaining amount(s) will be paid upon completion of all work under the project.

Payment shall be made under:

Item AR801754 Safety and Security- per Lump Sum (LS)

END OF ITEM 801754

ITEM 151 CLEARING AND GRUBBING

DESCRIPTION

151-1.1 This item shall consist of clearing or clearing and grubbing, including the disposal of materials, for all areas within the limits designated on the plans or as required by the Resident Engineer.

Clearing shall consist of the cutting and removal of all trees, stumps, brush, logs, hedges, the removal of fences and other loose or projecting material from the designated areas. The grubbing of stumps and roots will not be required.

Clearing, when so designated, shall consist of the cutting and removal of isolated single trees or isolated groups of trees. The cutting of all the trees of this classification shall be in accordance with the requirements for the particular area being cleared, areas disturbed by the contractor's activities and those areas requiring compliance with addressing drop-offs greater than 3-inches along pavement edges resulting from mill and overlay operations, or as directed by the Engineer. The trees shall be considered isolated when they are 40 feet or more apart, with the exception of a small clump of approximately five trees or less.

Clearing and grubbing shall consist of clearing the surface of the ground of the areas disturbed by the contractor's activities and those areas requiring compliance with addressing drop-offs greater than 3-inches along pavement edges resulting from mill and overlay operations of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the Resident Engineer is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal *in manner approved by the DAA and the Resident Engineer* from the project site of all spoil materials resulting from clearing and grubbing activities ~~by burning or otherwise~~.

This item shall also consist of removal of all incidental items within the limits shown on the plans.

CONSTRUCTION METHODS

151-2.1 GENERAL. The areas denoted on the plans to be cleared or cleared and grubbed under this item shall be staked on the ground by the Resident Engineer. The clearing and grubbing shall be done at a satisfactory distance in advance of the grading operations. Unless otherwise specified, no cutting or trimming of trees shall occur between April 1 and September 30, both days inclusive, due to potential impact to the Indiana Bat, which is protected by the Endangered Species Act of 1973. If otherwise specified, the Contractor shall verify that the required permits have been obtained prior to the commencement of tree cutting or trimming operations.

All spoil materials removed by clearing or by clearing and grubbing shall be disposed of ~~by~~

~~burning (approval required by Airport Management for burning on-site) or by removal to approved disposal areas. Piles for burning shall be placed either in the cleared area near the center or in adjacent open spaces where no damage to trees, other vegetation, or other property will occur. The Contractor will be responsible for controlling fires in compliance with all Federal and State laws and regulations relative to building fires at the site. Ashes resulting from burning shall be removed and disposed of when directed by the Resident Engineer. Burning of removed vegetative material may be allowed provided such burning is in compliance with all Federal, State and Local guidelines and the Airport Management requirements. Permission to burn shall be coordinated with the Airport Management daily and when changes in weather conditions may affect the airport.~~

~~The Contractor shall procure an EPA Clean Air Permit for burning. The permit shall require an air curtain destructor at each burn pit.~~

~~Under no circumstances shall burning be allowed if it has been deemed that burning may cause interference to airport operations. In no case shall burning be allowed within 750 feet of the centerline of any runway.~~

~~The Contractor is responsible for clean up of burn areas.~~

As far as practicable, waste concrete and masonry shall be placed on slopes of embankments or channels; *but only when material gradation requirements are shown in the plans.* When embankments are constructed of such material, this material shall be placed in accordance with requirements for formation of embankments *including gradation requirement and details shown in the plans.* Any broken concrete or masonry *not meeting the gradation requirements shown in the plans* which cannot be used in construction, and all other materials not considered suitable for use elsewhere, shall be disposed of by the Contractor. In no case shall any discarded materials be left in windrows or piles adjacent to or within the airport limits. The manner and location of disposal of materials shall be subject to the approval of the Engineer and shall not create an unsightly or objectionable view. When the Contractor is required to locate a disposal area outside the airport property limits at his/her own expense, he/she shall obtain and file with the Engineer, permission in writing from the property owner for the use of private property for this purpose. All waste materials which are not used ~~or burned~~ at the site shall be removed and disposed of legally off airport property.

If the plans or the specifications require the saving of merchantable timber, the Contractor shall trim the limbs and tops from designated trees, saw them into suitable lengths, and make the material available for removal by other agencies.

The removal of existing structures and utilities required to permit orderly progress of work shall be accomplished by local agencies, unless otherwise shown on the plans. Whenever a telephone or telegraph pole, pipeline, conduit, sewer, roadway, or other utility is encountered and must be removed or relocated the Contractor shall advise the Resident Engineer who will notify the proper local authority or owner and attempt to secure prompt action.

151-2.2 CLEARING. The Contractor shall clear the staked or indicated area of all objectionable materials. Trees unavoidably falling outside the specified limits must be cut up, removed, and disposed of in satisfactory manner. In order to minimize damage to trees that are to be left standing, trees shall be felled toward the center of area being cleared. The Contractor shall preserve and protect from injury all trees not to be removed. The trees, stumps, and brush shall be cut to a height of not more than 12 inches above the ground. The grubbing of stumps and roots will not be required.

When isolated trees are designated for clearing, the trees shall be classed in accordance with the butt diameter size as measured at a point of 4.5 feet above the ground level or at a designated height specified in the proposal.

Fences shall be removed and disposed of when directed by the Resident Engineer. Fence wire shall be neatly rolled and the wire and posts stored on the airport if they are to be used again, or stored at a designated location if the fence is to remain the property of a local owner or of the Airport Owner.

151-2.3 CLEARING AND GRUBBING. In areas shown in the plans or as designated by the Resident Engineer to be cleared and grubbed, all stumps, roots, buried logs, brush and other unsatisfactory materials shall be removed.

Any buildings and miscellaneous structures that are shown on the plans to be removed shall be demolished or removed, and all materials there from shall be disposed of ~~either by burning or otherwise removed~~ removal from the site. The remaining or existing foundations, wells, cesspools, and all like structures shall be destroyed by breaking out or breaking down the materials of which the foundations, wells, cesspools, etc., are built to a depth at least 2 feet below the existing surrounding ground. Any broken concrete, blocks, or other objectionable material which cannot be used in backfill shall be removed and disposed of. The holes or openings shall be backfilled with acceptable material and properly compacted.

All holes remaining after the grubbing operation in embankment areas shall have the sides broken down to flatten out the slopes, and shall be filled with acceptable material, moistened and properly compacted in layers to the density required in Item 152. The same construction procedure shall be applied to all holes remaining after grubbing in excavation areas where the depth of holes exceeds the depth of the proposed excavation.

~~151-2.4 METAL GUARDRAIL REMOVAL. This work shall consist of the removal and disposal of existing metal guardrail at the locations designated. The guardrail shall be removed completely. The guardrail posts shall be pulled not cut off. All holes shall be filled and compacted. The removed material shall be disposed of off airport property.~~

~~151-2.5 PIPE REMOVAL. The work shall consist of the removal of existing concrete or corrugated metal pipe including any anchor walls. Pipes shall be disposed of by the Contractor off of airport property.~~

~~Trenches resulting from the removal shall be backfilled in accordance with Item 152.~~

~~151-2.6 HEADWALL REMOVAL. This work shall consist of the removal and disposal of existing concrete headwalls and other cast in place concrete outlet structures at the locations designated in the plans.~~

~~The headwalls shall be removed completely and disposed of off airport property. Care shall be taken by the Contractor to prevent damage to the existing pipe.~~

~~Trenches resulting from the removal shall be backfilled in accordance with Item 152.~~

~~151-2.7 END SECTION REMOVAL. This work shall consist of the removal and disposal of existing precast concrete or metal end sections. The end sections shall be removed completely and disposed of off of airport property. Care shall be taken by the Contractor to prevent damage to the existing pipe.~~

~~Trenches resulting from the removal shall be backfilled in accordance with Item 152.~~

~~151-2.8 INLET REMOVAL. This work shall consist of the removal of existing drainage structures from the locations shown in the plans. These structures shall be removed completely and the resulting waste materials shall be disposed of off of airport property~~

~~Excavations resulting from the removals shall be backfilled in accordance with Item 152.~~

~~151-2.9 CLEANOUT REMOVAL. This work shall consist of removal of existing cleanouts and the capping of the adjacent underdrain which will remain in place. The Contractor shall be required to carefully remove the existing cleanout using methods which will minimize damage to the underdrain and cap the underdrain with concrete or a plastic cap. These structures shall be removed completely and the resulting waste materials shall be disposed of off of airport property.~~

~~The excavation shall be backfilled with a material which meets the requirements of IDOT FA-02 as specified in Item 705.~~

~~151-2.10 FENCE REMOVAL. This work shall consist of the removal and disposal of existing wire fence. The fence shall be removed completely including posts and foundations. The fence posts shall be pulled not cut off. All holes shall be filled and compacted. The removed material shall be disposed of off airport property.~~

~~151-2.11 BUILDING REMOVAL. This work shall consist of building and foundation removal. The Contractor will be allowed to burn any portion of the building in accordance with Section 151-2.1. The remainder of the building and foundation shall be disposed of by the Contractor off of airport property.~~

151-2.4 STRIPPING. Stripping shall include the removal and disposal of all organic sod, topsoil, grass and grass roots, and other objectionable material remaining after clearing and grubbing in areas as shown on the drawings or directed by the Engineer. In airside areas, where no clearing and grubbing is required, stripping shall be as described above, where shown on the drawings or directed by the Engineer.

METHOD OF MEASUREMENT

~~151-3.1 There shall be no measurement for payment for Clearing and Grubbing. This work shall be incidental to items of work where they are required and shall include all removal, preparation, delivering and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete the item. The quantities of clearing or clearing and grubbing as shown by the limits on the plans or as ordered by the Resident Engineer shall be cited in terms of the number of acres or fractions thereof, of land specifically cleared or cleared and grubbed, unless lump sum bid is specified in the proposal.~~

When isolated trees are designated for clearing, the quantities of trees, as determined in accordance with ranges of butt diameter size, measured at a point 4.5 feet above the ground level at the tree, shall be paid for according to the schedule of sizes as follows:

~~The number of trees:~~

~~From 0 to 2 1/2 feet, butt diameter~~

~~From 2 1/2 to 5 feet, butt diameter~~

~~For 5 feet or more, butt diameter~~

~~When the project is constructed essentially to the lines, grades, or dimensions shown on the Plans and the Contractor and the Resident Engineer have agreed in writing by the use of form AER-981 that the plan quantities are accurate, no further measurement will be required and payment will be made for the quantities shown in the contract for the various items involved except that if errors are discovered after work has been started, appropriate adjustments will be made.~~

~~When the Plans have been altered or when disagreement exists between the Contractor and the Engineer as to the accuracy of the plan quantities, either party shall, before any work is started which would affect the measurement, have the right to request in writing and thereby cause the quantities involved to be measured as herein specified.~~

~~The quantities of clearing or clearing and grubbing will be measured by the acre. The entire area will be used in computing the acres. No deductions will be made for bare areas and existing roads occurring within these limits unless otherwise specified or shown on the plans.~~

BASIS OF PAYMENT

~~151-4.1. There shall be no payment for Clearing and Grubbing. This work shall be incidental to items of work where they are required. Payment shall be made at the contract unit price per acre for clearing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

~~151-4.2. Payment shall be made at the contract unit price for clearing isolated trees. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

~~151 4.3. Payment shall be made at the contract unit price per acre for clearing and grubbing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

~~151 4.1. Payment shall be made at the contract unit price per acre for clearing, grubbing and turf stripping. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

~~The removal of items within the clearing or clearing and grubbing or clearing, grubbing and turf stripping limits shall be considered incidental to this item, unless shown or specified as otherwise.~~

~~;~~

~~Payment will be made under:~~

~~Item AR151460 — Clearing, Grubbing and Turf Stripping. — per Acre (AC)~~

END OF ITEM 151

ITEM 152 EXCAVATION AND EMBANKMENT

DESCRIPTION

152-1.1 This item shall consist of excavating, removing, and satisfactorily disposing of all materials within the limits of the work required to construct the landing strips, runways, taxiways, aprons, intermediate, and other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity with the dimensions and typical section shown on the plans and with the lines and grades established by the Resident Engineer.

All suitable material taken from excavation shall be used in the formation of embankment, subgrade, and for backfilling as indicated on the plans or as directed by the Resident Engineer.

When the volume of the *suitable excavation material* exceeds that required to construct the embankments to the grades indicated, the excess shall be used to grade the areas of ultimate development or wasted as directed. When the volume of *suitable excavation material* is not sufficient for constructing the fill to the grades indicated, the deficiency shall be supplied from borrow sources at locations within the airport *if available* or other *off-site* authorized areas *approved by the Resident Engineer*.

This item shall consist of all topsoil stripping, excavation and undercutting, embankment, final shaping, topsoiling, pavement shoulder construction, grading and compacting necessary to construct the proposed embankments in conformance with the lines and grades shown in the plans and in conformance with the specifications.

The Contractor is required to test the existing soils and provide the Resident Engineer with the maximum dry density and optimum moisture. All associated labor, equipment, materials and incidentals associated with obtaining the Proctor information is considered incidental to ~~Item 152410~~. If in the opinion of the Resident Engineer the Proctor information is determined to be non-representative of the material being placed, he/she may require the Contractor to provide an additional Proctor that is representative of the materials used.

Upon completion of the embankments, the Contractor shall grade all areas to drain.

152-1.2 CLASSIFICATION. All material excavation, regardless of source, including vegetation stripping and shoulder construction shall be defined as "Unclassified Excavation" unless designated otherwise.

~~When provided for in the proposal, Borrow Excavation shall consist of all excavation made outside of the normal grading limits but on airport property.~~

~~All material hauled to the construction site from an offsite source for embankment other than shoulder adjustment shall be classified as "Offsite Borrow Excavation".~~

~~All excavation associated with shoulder adjustment adjacent to the pavement improvements regardless of source and including vegetation stripping, shall be classified as "Shoulder Adjustment" and shall be measured as such.~~

All stockpiles left in place as directed by the Resident Engineer shall be shaped to non-uniform, smooth, site-complimentary lines prior to topsoil placement and seeding. The cost of topsoil placement and seeding stockpiles shall be incidental to Unclassified Excavation.

Debris or other materials not suitable for use in earth embankment, as determined by the Resident Engineer, shall be disposed of off the airport property.

Excavation shall be paid for only once. Stockpiling of embankment for later reuse and redistribution shall be done at the Contractor's expense. Stockpiling necessary for respreading on shoulders, embankments, cut or borrow areas shall be considered incidental to the unit price bid for excavation.

CONSTRUCTION METHODS

152-2.1 GENERAL. The rough excavation shall be carried to the necessary depth to obtain the specified depth of subgrade densification shown on the plans. Likewise, on embankments, the depth of subgrade densification shall be as shown on the plans. Should the Contractor, through negligence or other fault, excavate below the designated lines, he/she shall replace the excavation with approved materials, in an approved manner and condition, at his/her own expense. The Resident Engineer shall have complete control over the excavation, moving, placing, and disposition of all material and shall determine the suitability of material to be placed in embankments. All material determined unsuitable shall be disposed of in waste areas or as directed. Topsoil shall not be used in fills or in subgrades but shall be handled and placed as directed.

The Contractor shall inform and satisfy himself as to the character, quantity, and distribution of all material to be excavated. No payment will be made for any excavated material which is used for purposes other than those designated. All spoil areas shall be leveled to a uniform line and section and shall present a neat appearance before project acceptance. The surface elevation of spoil areas shall not extend above the surface elevation of adjacent or contiguous usable areas of the airport.

Those areas outside of the pavement areas in which the top layer of soil material becomes compacted, due to hauling or to any other activity of the Contractor, shall be scarified and disced to a depth of 4 inches, as directed, to loosen and pulverize the soil.

If it is necessary to interrupt existing surface drainage, sewers or underdrainage, conduits, utilities, or similar underground structures, or parts thereof, the Contractor shall be responsible for and shall take all necessary precautions to protect and preserve or provide temporary services. When such facilities are encountered, the Contractor shall notify the Resident Engineer, who shall arrange for their removal, if necessary. The Contractor shall, at his/her own expense, satisfactorily repair all damage to such facilities or structures which may result from any of his/her operations during the period of the contract.

152-2.2 EXCAVATION. Excavation shall be performed as indicated on the contract plans to the lines, grades, and elevation shown or as directed by the Resident Engineer, and shall be made so that the requirements for formation of embankments can be followed. No excavation or stripping shall be started until the Resident Engineer has taken cross-sectional elevations and measurements of the existing ground surface. All material encountered within the limits indicated shall be removed and disposed of as directed. During the process of excavation, the grade shall be maintained so that it will be well drained at all times. When directed, temporary drains and drainage ditches shall be installed to intercept or divert surface water which may affect the work.

When selective grading is specified or required as indicated on the plans, the excavated material shall be handled to allow the selected material to be properly placed in the embankment and in the capping of pavement subgrades as determined from the soil profile and soil characteristics. This material shall be deposited within the designated areas of the airport as shown on the plans or as directed by the Resident Engineer.

If, at the time of excavation, it is not possible to place any material in its proper section of the permanent construction, it shall be stockpiled in approved areas for later use.

Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for landing strips, subgrades, roads, shoulders, intermediate areas, or any areas intended for turfing shall be excavated to a minimum depth of 12 inches, or to the depth specified by the Resident Engineer, below the contemplated surface of the subgrade or the designated grades. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified, to provide a satisfactory foundation. Unsatisfactory materials shall be disposed of at locations designated by the Resident Engineer. All material so excavated shall be paid for at the contract unit price per cubic yard for "Unclassified Excavation". The portion so excavated shall be refilled with suitable selected material as specified, obtained from the grading operations or borrow area and thoroughly compacted by rolling. The necessary refilling will constitute a part of the embankment. Where rock cuts are made and refilled with selected material, or where trenching out is done to provide for a course of pavement, the depths thus created shall be ditched at frequent intervals to provide adequate drainage.

The Contractor shall make the distribution as indicated on the plans. Widening or narrowing of the section and raising or lowering of the grade to avoid haul will not be permitted. The right is reserved to make minor adjustments or revisions in lines or grades, if found necessary, as the work progresses due to discrepancies in the plans or to obtain satisfactory construction.

Overbreak, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the Resident Engineer. The Resident Engineer shall determine if the displacement of such material was unavoidable and his/her decision shall be final. All overbreak shall be removed by the Contractor and disposed of as directed; however, payment will not be made for the removal and disposal of overbreak

which the Resident Engineer determines as avoidable. Unavoidable overbreak will be classified as "Unclassified Excavation".

The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by local agencies, unless otherwise shown on the plans. All existing foundations shall be excavated for at least 2 feet below the top of the subgrade and the material disposed of as directed. All foundations thus excavated shall be backfilled with suitable material and compacted.

Excavation and embankment shall be compacted to a density of not less than the percentage of the maximum density, at optimum moisture, shown in TABLE 1 as determined by the compaction control tests cited in Division VII for ~~ASTM D 698 (Standard Proctor) for Aircraft weights of less than 60,000 pounds and for ASTM D 1557 (Modified Proctor) for aircraft weights of 60,000 pounds or more.~~

In cut areas the top 6" of subgrade shall be compacted to a density of not less than the percentage of the maximum density shown in TABLE 1, at optimum moisture, as determined by the compaction control tests cited in Division VII.

TABLE 1: COMPACTION REQUIREMENTS

LOCATION	CUT (TOP 8" OF SUBGRADE)	FILL
Below Proposed Airfield Pavements	95%	95%
Below Proposed Vehicle Roadways & Paved Shoulders ASTM D 698 - Standard	95%	95%
Embankments Outside Pavement Limits ASTM D 698 - Standard	N/A	90%
Shoulder Adjustments less than 6" compacted thickness	3 Passes of a Sheepsfoot Roller	3 Passes of a Sheepsfoot Roller

In cut sections, if necessary *as deemed by the Resident Engineer*, the Contractor shall take the following steps in an effort to obtain not less than 95% of the standard laboratory density in the subgrade.

A. Step 1. Cut plan ditches which drain the area at least to grade. This shall be done at least two weeks prior to Step 2.

B. Step 2. Air dry the top 200 mm (8-inches) of subgrade. This procedure shall include at least two 200 mm (8-inch) depth processing utilizing discs or tillers each day for 3 consecutive good drying days.

C. Step 3. Recompact the layer processed in Step 2 to achieve not less than 95% density, or until at least 9 passes of a roller which has demonstrated ability to obtain the density on adjacent earthwork have been made.

Stockpiling of unclassified excavated material including topsoil for later use shall be done at the Contractor's expense.

No payment or measurement for payment will be made for suitable materials removed, manipulated, and replaced in order to obtain density. Any removal, manipulation, aeration, replacement, and recompaction of suitable materials necessary to obtain the required density shall be considered as incidental to the excavation and embankment operations, and shall be performed by the Contractor at no additional cost to the project.

Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade. The finished grading operations conforming to the typical cross section shall be completed and maintained at least 1,000 feet ahead of the paving operations.

In cuts, all loose or protruding rocks on the back slopes shall be barred loose or otherwise removed to the line or finished grade of the slope. All cut-and-fill slopes shall be uniformly dressed to the slope, cross section, and alignment shown on the plans or as directed by the Resident Engineer.

Blasting, when necessary, will be permitted only when proper precautions are taken for the protection and safety of all persons, the work, and the property. All damage done to the work or property shall be repaired at the Contractor's expense. All operations of the Contractor in connection with the transportation, storage, and use of explosives shall be approved by the Engineer. Any approval given will not relieve the Contractor of his/her responsibility in blasting operations.

~~152.2.3 BORROW EXCAVATION. When provided for in the proposal, borrow excavation shall consist of excavation made from borrow areas within the limits of the airport property outside the normal grading limits, or from areas outside the airport when specified. Borrow area(s) within the airport property from which borrow may be obtained will be designated. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed. On completion of borrow operations, the borrow area shall be finished to a neat and uniform grade acceptable to the Resident Engineer.~~

~~When borrow sources are outside the boundaries of the airport property, it shall be the Contractor's responsibility to locate and obtain the supply, subject to the approval of the Project Engineer. The Contractor shall notify the Resident Engineer, sufficiently in advance of the beginning of excavation, so necessary measurements and tests can be made. All objectionable material shall be disposed of as directed. All borrow pits shall be opened up immediately to expose the vertical face of various strata of acceptable material to enable obtaining a uniform product. Borrow pits shall be excavated to regular lines to permit~~

accurate measurements and shall be drained and left in a neat and presentable condition with all slopes dressed uniformly.

The borrow excavation shall be handled and placed as specified in these specifications for excavation and embankment.

~~152-2.4 DRAINAGE EXCAVATION. Drainage excavation shall consist of excavating for drainage ditches such as intercepting, inlet or outlet, temporary levee construction, or any other type as designed or as shown on the plans. The work shall be performed in the proper sequence with the other construction. The location of all ditches or levees shall be established on the ground. All satisfactory material shall be placed in fills; unsatisfactory material shall be placed in spoil areas or as directed. Waste or surplus material shall be disposed of as shown on plans or as directed. Intercepting ditches shall be constructed prior to the starting of adjacent excavation operations. All necessary handwork shall be performed to secure a finish true to line, elevation, and cross section, as designated.~~

~~Ditches constructed on the project shall be maintained to the required cross section and shall be kept free from debris or obstructions until the project is accepted. Where necessary, sufficient openings shall be provided through spoil banks to permit drainage from adjacent lands.~~

~~The Contractor shall construct temporary channel relocations to divert storm water from the locations of proposed drainage structures. These channel relocations shall be at the location and of a cross section designed by the Contractor. Excavation for the temporary channel relocations shall not be measured for payment.~~

152-2.5 PREPARATION OF EMBANKMENT AREA. Embankment areas shall be cleared and grubbed in accordance with the requirements in Item 151. All depressions or holes below the ground surface, whether caused by grubbing or otherwise, shall be backfilled with suitable material and compacted to ground surface before the construction of the embankment will be permitted to start.

Immediately prior to the placing of the fill materials, the entire area upon which the embankment is to be placed, except where limited by rock, shall be scarified and broken by means of a disc harrow or plow, or other approved equipment, to a depth of 6 inches. Scarifying shall be done approximately parallel to the axis of the fill. All roots, debris, large stones, or objectionable material that would cause interference with the compaction of the foundation or fill shall be removed from the area and disposed of as directed. A thin layer (approximately 3 inches) of the fill material shall be spread over the scarified foundation and the whole area compacted as required in the specifications.

Where embankments are to be constructed against existing slopes which are 2:1 3:1 or steeper, steps or benches, a minimum of 5' 4:1 wide shall be cut into the existing slope as each layer of new embankment material is being placed and spread. Material excavated by the benching process shall be incorporated into the embankment and shall not be measured for payment.

For overlays, prior to paving, the existing one (1) foot width of turf adjacent to the pavement edges shall be peeled back away from the pavement edge to facilitate paving and milling operations. No additional compensation for this work shall be made, but shall be considered incidental to shoulder adjustment. Prior to construction of shoulder adjustment, the existing turf shall be thoroughly disced or tilled. No additional compensation for this work shall be made, but shall be considered incidental to shoulder adjustment.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the yardage removed or used will be paid for under the respective item of work.

152-2.6 FORMATION OF EMBANKMENTS. Embankments shall be formed of satisfactory materials placed in successive horizontal layers of not more than 8 inches in loose depth for the full width of the cross section.

The grading operations shall be conducted, and the various soil strata shall be placed, to produce a soil structure as shown on the typical cross section or as directed. All materials entering the embankment shall be reasonably free of organic matter such as leaves, grass, roots, and other objectionable material. Soil, granular material, shale, and any other material permitted for use in embankment shall be spread in successive layers as specified.

Operations on earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions of the field. The Contractor shall drag, blade, or slope the embankment to provide proper surface drainage.

The material in the layers shall be of the proper moisture content before rolling to obtain the prescribed compaction. Wetting or drying of the material and manipulation when necessary to secure a uniform moisture content throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work on all portions of the embankment thus affected shall be delayed until the material has dried to the required moisture content. Sprinkling shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken at frequent intervals. From these tests, corrections, adjustments, and modifications of methods, materials, and moisture content will be made to construct the embankment.

Rolling operations shall be continued until the embankment is compacted to not less than the percentage of the maximum density, at optimum moisture, shown in TABLE 1. The Contractor shall have a nuclear density gauge and qualified operator onsite for purposes of quality control (QC) testing. When the Contractor is satisfied that a lift has been compacted in accordance with the percentage of the maximum density as specified herein, the Resident Engineer shall be informed that the lift is ready for acceptance testing. The Contractor shall not proceed to construct another lift of embankment until the previous lift has been

accepted by the Resident Engineer. Any areas deemed unacceptable to the Resident Engineer shall be reworked and re-compacted at no additional cost to the contract.

Below proposed and future pavements: Embankment placed shall not contain more than 120 percent nor less than 90 percent of optimum moisture determined in accordance with ASTM D 2216.

All soft and yielding materials or materials which displace or "pump" under construction traffic shall be re-worked or replaced as directed by the Engineer. The cost of re-working shall be considered incidental to this item.

All shoulder embankment shall be constructed using topsoil or other acceptable excavated material. Moisture and density control will not be required for shoulder embankment less than six inches in compacted thickness or for topsoil, but such embankment shall be compacted by a minimum of three passes of a sheepsfoot roller to the satisfaction of the Engineer.

During construction of the embankment, the Contractor shall route his/her equipment at all times, both when loaded and when empty, over the layers as they are placed and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of embankments, starting layers shall be placed in the deepest portion of the fill; as placement progresses, layers shall be constructed approximately parallel to the finished pavement grade line.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the embankment and the other material shall be incorporated under the future paved areas. Stones or fragmentary rock larger than 4 inches in their greatest dimension will not be allowed in the top 6 inches of the subgrade. Rockfill shall be brought up in layers as specified or as directed and every effort shall be exerted to fill the voids with the finer material to form a dense, compact mass. Rock or boulders shall not be disposed of outside of the excavation or embankment areas, except at places and in the manner designated by the Resident Engineer.

Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material.

The Contractor shall be responsible for the stability of all embankments made under the contract and shall replace any portion which, in the opinion of the Resident Engineer, has become displaced due to carelessness or negligence on the part of the Contractor.

There will be no separate measurement or payment for compacted embankment, and all costs incidental to placing in layers, compacting, discing, watering, mixing, sloping, and

other necessary operations of the embankments will be included in the contract price for excavation, borrow, or other items.

152-2.7 PREPARATION AND PROTECTION OF THE TOP OF THE SUBGRADE. On areas to be paved, the specified depth in cut areas and the top of embankment shall be compacted to the density specified. When completed, the surface shall be true to the lines, grades, and cross section shown on the plans or as directed by the Resident Engineer. After all drains, structures, ducts, and other underground appurtenances under the pavement have been completed, the subgrade shall be compacted to the density specified. Any irregularities or depressions that develop under rolling shall be corrected by loosening the material at these places and adding, removing, or replacing material until the surface is smooth and uniform. Any portion of the area which is not accessible to a roller shall be compacted to the required density by approved mechanical tampers. The material shall be sprinkled with water during rolling or tamping, when directed by the Resident Engineer.

All soft and yielding material and material which will not compact readily when rolled or tamped shall be removed as directed by the Resident Engineer and replaced with suitable material. After grading operations are complete, all loose stones larger than 2 inches in their greatest dimension shall be removed from the surface of all proposed graded paving areas and disposed of as directed by the Resident Engineer.

At all times, the top of the subgrade shall be kept in such condition that it will drain readily and effectively. In handling materials, tools, and equipment, the Contractor shall protect the subgrade from damage by laying planks when directed and shall take other precautions as needed. In no case will vehicles be allowed to travel in a single track. If ruts are formed, the subgrade shall be reshaped and rolled. Storage or stockpiling of materials on the top of the subgrade will not be permitted. Until the subgrade has been checked and approved, no subbase, base, surface course, or pavement shall be laid thereon.

152-2.8 HAUL. No payment will be made separately or directly for haul on any part of the work. All hauling will be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract unit price for the pay items of work involved.

The Contractor shall take special precautions when hauling excavated material so as not to create deep ruts in the hauling areas designated by the Project Engineer. All existing graded, turfed, sodded and/or farmed areas which are disturbed or rutted by the Contractor, during all of his/her hauling operations, shall be regraded, returfed and refinished at his/her own expense and to the satisfaction of the Engineer. No claim for haul will be allowed the Contractor.

The Contractor will not be allowed to haul any materials across areas which are currently in crops and are designated by the Airport Management to be used for agriculture or which have been recently seeded under this or a previous contract.

152-2.9 TOLERANCES. In those areas upon which a subbase or base course is to be placed,

the top of the subgrade shall be of such smoothness that, when tested with a 16-foot straightedge applied parallel and at right angles to the centerline, it shall not show any deviation in excess of 1/2 inch, or shall not be more than 0.05 foot from the true grade as established by grade hubs or pins. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials, reshaping, and recompacting by sprinkling and rolling.

On safety areas, turf landing strips, intermediate and other designated areas, the surface shall be of such smoothness that it will not vary more than 0.10 of a foot from true grade as established by grade hubs. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.10 TOPSOIL. When topsoil is specified or required, as shown on the plans or under Item 905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item 905 or shall be approved by the Resident Engineer. If, at the time of excavation or stripping, the topsoil cannot be placed in its proper and final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall not be placed within 50 feet of pavement areas and shall not be placed on areas which subsequently will require any excavation or embankment.

Upon completion of grading operations as specified, topsoil shall be handled and placed as directed, or as required in Item 905. The Contractor shall set grade stakes for grading operations in both cut and fill so that the topsoil will be placed at the finished plan elevation.

No direct payment will be made for topsoil as such under Item 152. The quantity removed and placed or stockpiled shall be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

~~When topsoil is paid for under Item 152, as excavation, no payment shall be made for the same work under Item 905.~~

Any excess topsoil material shall be hauled to an onsite stockpile location determined by the Airport Management at no additional cost to the contract.

All stockpiles left in place as directed by the Resident Engineer shall be shaped to non-uniform, smooth, site-complimentary lines prior to seeding. The cost of seeding stockpiles shall be incidental to Unclassified Excavation.

Debris or other materials not suitable for use in earth embankment, as determined by the Resident Engineer, shall be disposed of off the airport property.

Excavation shall be paid for only once. Stockpiling of topsoil for later reuse and redistribution shall be done at the Contractor's expense. Stockpiling necessary for respreading on shoulders, embankments, cut or borrow areas shall be considered incidental to the unit price bid for excavation.

152-2.11 STRIPPING. All vegetation such as brush, heavy sods, heavy growth of grass, decayed vegetable matter, rubbish, and any other unsuitable material within the area upon which embankment is to be placed shall be stripped or otherwise removed before the embankment is started, and in no case shall such objectionable material be allowed in or under the embankment.

Obviously compressible and/or organic materials shall be removed down to dense material as directed by the Resident Engineer, and replaced with suitable embankment material. The cost of this work, should it occur, will be measured and be paid for as Unclassified Excavation.

Stripping of vegetation and crop root structures shall not be measured separately for payment, but shall be considered incidental to UNCLASSIFIED EXCAVATION unless shown to be paid for under Item 151. Portions of the excavation acceptable to the Engineer may be reused as shoulder fill outside of the proposed pavement limits, as shown on the typical sections in the plans. Material accepted as shoulder fill shall be free of heavy sods, crop root structures, decayed vegetative matter, rubbish and other unsuitable material. All other excavated material shall be used in earth berms or disposed of as directed by the Resident Engineer.

152-2.12 EQUIPMENT. The Contractor may use any type of earth-moving compaction, and watering equipment he/she may desire or has at his/her disposal, provided the equipment is in a satisfactory condition and is of such capacity that the construction schedule can be maintained as planned by the Contractor and as approved by the Project Engineer in accordance with the total calendar days or working days bid for the construction. The Contractor shall furnish, operate, and maintain such equipment as is necessary to control uniform density, layers, section, and smoothness of grade.

152-2.13 FIELD TILE. Any farm drain tile or other underground construction encountered in the work shall be located and staked and reported to the Resident Engineer in writing. Any drainage lines which are cut or damaged by grading, trenching, excavation or other construction activities shall be repaired and connected to the proposed storm sewer system, where practical, by the Contractor at his/her expense in such manner as to render the lines usable for the purpose intended.

152-2.14 WORK AREA CONDITIONS. If work area conditions become such that the health and safety of the Contractor's workers, the engineers, or the public are affected, the Contractor shall rectify the condition through watering, discing or blading of the work area or other suitable method, as approved by the Resident Engineer. This maintenance cost shall be considered incidental to the contract. As a minimum, Federal, State and Local laws, rules and regulations concerning construction safety and health standards shall be enforced.

This work shall consist exclusively of the control resulting from construction operations and is not intended for use in the compaction of earth embankment.

Dust shall be controlled by the uniform application of sprinkled water and shall be applied as directed by the Engineer, in a manner meeting his approval.

Dust control watering shall not be paid for separately, but shall be considered incidental to this item.

METHOD OF MEASUREMENT

~~152-3.1 There shall be no measurement for payment for Excavation and Embankment. Excavation and Embankment shall be incidental to items of work where they are required. The yardage paid for shall be the number of cubic yards measured in its original position. Pay quantities shall be computed to the neat lines staked, by the method of average end areas of materials acceptably excavated and stripped as specified.~~

~~Measurement shall not include the yardage of material excavated without authorization beyond normal slope lines, or the yardage of material used for purposes other than those directed.~~

~~Before any work is started which would affect the measurements, the earthwork Contractor shall verify all earthwork quantities shown in the plans are in agreement with earthwork quantities from his/her own calculations. The Contractor shall notify the Engineer of any discrepancies in quantities.~~

~~When the project is constructed essentially to the lines, grades, or dimensions shown on the Plans and the Contractor and the Resident Engineer have agreed in writing by the use of form AER-981 that the plan quantities are accurate, no further measurement will be required and payment will be made for the quantities shown in the contract for the various items involved except that if errors are discovered after work has been started, appropriate adjustments will be made.~~

~~When the Plans have been altered or when disagreement exists between the Contractor and the Resident Engineer as to the accuracy of the plan quantities, either party shall, before any work is started which would affect the measurement, have the right to request in writing and thereby cause the quantities involved to be measured as herein specified.~~

~~152-3.2 All borrow excavation to be paid for, with the exception of borrow excavation required for shoulder adjustment, shall be the number of cubic yards measured in its final compacted position and pay quantities shall be computed by the method of average end areas.~~

~~When the project is constructed essentially to the lines, grades, or dimensions shown on the Plans and the Contractor and the Resident Engineer have agreed in writing by the use of form AER-981 that the plan quantities are accurate, no further measurement will be required and payment will be made for the quantities shown in the contract for the various items involved except that if errors are discovered after work has been started, appropriate adjustments will be made.~~

~~When the Plans have been altered or when disagreement exists between the Contractor and~~
RUNWAY 10-28 AND ASSOCIATED TAXIWAY CONNECTOR OVERLAY EXCAVATION AND EMBANKMENT
DUPAGE AIRPORT

the Resident Engineer as to the accuracy of the plan quantities, either party shall, before any work is started which would affect the measurement, have the right to perform surveys and average end area calculations in order to verify actual quantities.

~~152-3.3 Shoulder adjustment measured for payment shall be the number of square yards measured in its final position at the locations shown in the plans or as directed by the Engineer. No measurement for payment shall be made for topsoil stripping, spreading and excavation associated with the shoulder adjustment.~~

BASIS OF PAYMENT

~~152-4.1 There shall be no payment for Excavation and Embankment. Excavation and Embankment shall be incidental to items of work where they are required. Payment shall be made at the contract unit price per cubic yard for "Unclassified Excavation." This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.~~

~~Payment for "Unclassified Excavation" shall also include removal of unsuitable materials, if any, at the discretion of the Engineer and required excavation of onsite stockpiles for shoulder fill.~~

~~152-4.2 Payment will be made at the contract unit price per cubic yard measured in initial position for "Unclassified Excavation". This price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to satisfactorily complete the item.~~

~~152-4.3 Payment will be made at the contract unit price per cubic yard measured in its final position for suitable embankment in place "Borrow Excavation" and "Offsite Borrow Excavation". This price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to satisfactorily complete the item.~~

~~152-4.4 Payment shall be made at the contract unit price per square yard for "Shoulder Adjustment". This price shall be full compensation for topsoil stripping, stockpiling and spreading, excavation and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.~~

Payment will be made under:

~~Item AR152410 ————— Unclassified Excavation — per Cubic Yard (CY)~~

~~Item AR152415 ————— Embankment — per Cubic Yard (CY)~~

END OF ITEM 152

ITEM 156500 TEMPORARY EROSION CONTROL

DESCRIPTION

156-1.1. This work shall consist of constructing temporary and permanent erosion control systems as shown on the plans or as ordered by the Resident Engineer during the life of the contract to control erosion and sediment damage to the adjacent properties and water resources through the use of ditch checks, inlet sedimentation control, erosion control silt filter fence and temporary seeding.

As part of this item, the Contractor shall be required to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) Storm Water Permit for construction site activities.

Information on the above-referenced permits may be obtained from:

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62702

MATERIALS

156-2.1 SILT FENCE. This fence shall either be a prefabricated silt fence meeting the dimensional requirements and details shown in the plans or shall be a silt fence fabricated on site conforming to the requirements contained in Item 161 for 7-bar, 26 inch woven wire fence with metal "T" posts except that no special corner posts, bracing or P.C.C. will be required and a 36" width of filter fabric shall be secured to the bottom of the fence on its upstream side as shown in the plans.

Geotextile fabric for silt fence shall consist of woven or nonwoven filaments of polypropylene, polyester or polyethylene. Nonwoven fabric may be needle punched heat-bonded, resin-bonded or combination thereof. The filaments in the Silt Filter Fence Fabric must be dimensionally stable (i.e., to each other), resistant to delamination, and must be free from any chemical treatment or coating that might significantly reduce porosity and permeability. Both fabrics shall be resistant to ultraviolet radiation. If stored on the jobsite prior to its use, it shall be protected from exposure to direct sunlight. The fabrics shall comply with the physical properties.

Physical Properties (English)	Requirements
Grab Tensile Strength (lbs), ASTM D 4632 ^{1/}	200 (min.)
Grab Elongation @ Break (%), ASTM D 4632 ^{1/}	12 (min.)
Burst Strength (psi) - ASTM D 3786 ^{2/}	250 (min.)
Trapezoidal Tear Strength (lbs) , ASTM D 4533 ^{2/}	--
Width (ft.)	3.5 (min.)
Weight (oz/sq yd.) - ASTM D 3776	4.0 (min.)
Apparent Opening Size (AOS) Sieve No. - ASTM D 4751 ^{2/}	30 max. (nonwoven) 50 max. (woven)

^{1/} The fabric shall be tested wet in both warp and fill directions in accordance with ASTM D 1682, Grab Test, G using a 100 mm (4-inch) by 200-mm (8 inch) sample, 75-mm (3 inch) gauge length, 300-mm (12 inch) per minute in a CRE testing machine. The average of 5 tests in each direction shall meet the minimum value given above.

^{2/} Manufacturer's certification that the fabric meets the minimum value.

Physical Properties (English)	Requirements
Grab Tensile Strength (N), ASTM D 4632 ^{1/}	900 (min.)
Grab Elongation @ Break (%), ASTM D 4632 ^{1/}	12 (min.)
Burst Strength (kPa) - ASTM D 3786 ^{2/}	1720 (min.)
Trapezoidal Tear Strength (N) , ASTM D 4533 ^{2/}	--
Width (m.)	1 (min.)
Weight (g/m ²) - ASTM D 3776	135 (min.)
Apparent Opening Size (AOS) Sieve No. - ASTM D 4751 ^{2/}	600 µm max. (nonwoven) 300 µm max. (woven)

^{1/} The fabric shall be tested wet in both warp and fill directions in accordance with ASTM D 1682, Grab Test, G using a 100 mm (4-inch) by 200-mm (8 inch) sample, 75-mm (3 inch) gauge length, 300-mm (12 inch) per minute in a CRE testing machine. The average of 5 tests in each direction shall meet the minimum value given above.

^{2/} Manufacturer's certification that the fabric meets the minimum value.

156-2.2 BALE STAKES. Shall be four feet minimum length each and be either of sound wood 1" square (minimum) or #4 rebar.

156-2.3 HAY OR STRAW BALES. Bales shall be either hay or straw, approved by the Resident Engineer, compacted and adequately bound by wire to the approximate size of 12 x 18 x 36 in. (300 x 400 x 900 mm). The Contractor is responsible for following current Environmental Protection Agency standards to obtain acceptance for a National Pollutant Discharge Elimination System (NPDES) permit. The Contractor is responsible for any changes to the materials in order to approve the permit.

156-2.4 TEMPORARY MULCH. Temporary mulch shall meet the requirements of Item 908.

156-2.5 TEMPORARY SEED. Temporary grass seed shall be a quick growing species (such as cereal grain of wheat, rye or oats) suitable to the area to provide a temporary cover.

CONSTRUCTION METHODS

156-3.1 GENERAL. The Contractor shall conduct his/her construction operations in accordance with the latest revision of the Illinois Environmental Protection Agency publication "Standards and Specifications for Soil Erosion and Sediment Control".

Erosion control must be considered by the Contractor prior to exposing any erodible material. Erosion protection for Contractor-furnished borrow pits, equipment storage sites, plant sites and haul roads shall be provided by the Contractor.

The Contractor has the responsibility to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and embankment operations and to provide immediate permanent or temporary pollution control measures. Cut slopes shall be permanently seeded and mulched as the excavation proceeds to the extent considered desirable and practical.

Slopes that erode easily shall be temporarily seeded as the work progresses with a cereal grain of wheat, rye or oats obtained from a local supplier or seed store. The cereal grains may be planted by a hand seeder or other acceptable method and covered by a drag or harrow to provide a quick cover crop. Inspection of the cereal grain seed will not be required. The intent of using cereal grains as temporary erosion control is to permit the Contractor to quickly seed potential areas as the need arises with on-site personnel and equipment.

156-3.2 TEMPORARY EROSION CONTROL. The installation and maintenance of silt fence or bales shall be at the locations shown on the plans, or as directed by the Resident Engineer.

156-3.3 TEMPORARY DITCH CHECKS. Temporary Ditch Checks shall be constructed by placing silt fence and bales at intervals of not greater than 200 feet along ditch lines, or as directed by the Resident Engineer.

156-3.4 SILT FENCE. The installation and maintenance of silt fence shall be at the locations shown on the plans, or as directed by the Resident Engineer.

The Contractor shall maintain the alignment and condition of the silt fence, as necessary, throughout its use on the project. Upon completion and/or as directed, the Contractor shall remove the silt fence from the project.

156-3.5 STRAW BALE BARRIER. The installation and control of straw bale barriers shall be at the location shown in the plans, or as directed by the Resident Engineer.

156-3.6 DUST CONTROL. The Contractor shall employ construction methods and means that will keep flying dust to the minimum as directed by the Resident Engineer. The Contractor shall provide for the laying of water on the project, and on roads, streets, aprons and other areas immediately adjacent to the project limits, wherever traffic, or buildings that are occupied or in use, are affected by such dust caused by hauling or other operations. The cost of carrying out the foregoing provisions shall be incidental to the contract.

156-3.7 MAINTENANCE AND REMOVAL OF TEMPORARY EROSION CONTROL SYSTEM. The temporary erosion control systems installed by the Contractor shall be properly maintained as directed by the Resident Engineer to control siltation at all times during the life of the contract. Any additional material and work required by the Resident Engineer will be measured and paid as herein specified. If the Contractor fails to maintain the temporary erosion control systems as directed by the Resident Engineer, the Resident Engineer may at the expiration of a period of 48 hours, after having given the Contractor written notice, proceed to maintain the systems as deemed necessary, and the cost thereof shall be deducted from any compensation due, or which may become due the Contractor under this contract.

156-3.8 REMOVAL OF EROSION CONTROL. The Contractor shall remove temporary erosion control structures when ordered to do so by the Resident Engineer. The costs associated with the removals shall be incidental to this item. In the event that temporary erosion and pollution control measures are ordered by the Resident Engineer due to the Contractor's negligence or carelessness, the work shall be performed by the Contractor at his/her own expense.

METHOD OF MEASUREMENT

156-4.1. The footage of Silt Fence to be paid per lump sum for satisfactory installation, maintenance throughout the duration of the contract and removal at the end of contract.

156-4.2. The number of hay or straw Bales to be paid per lump sum for satisfactory installation, maintenance throughout the duration of the contract and removal at the end of contract..

156-4.3. Temporary Seeding and mulching to be paid per lump sum for satisfactory installation, maintenance throughout the duration of the contract.

BASIS OF PAYMENT

156-5.1. Payment will be made lump sum price and not measurement based. This price shall be full compensation for furnishing all materials for all preparation and installation of these materials, including excavation, placement, tie-down stakes, staples, maintenance and removal and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item AR156500

Temporary Erosion Control – per Lump Sum (LS)

END OF ITEM 156500

FLEXIBLE SURFACE COURSES

ITEM 401 BITUMINOUS COURSES-SUPERPAVE (Central Plant Hot Mix)

DESCRIPTION

401-1.1. This item shall consist of pavement courses composed of mineral aggregate and bituminous material mixed in a central mixing plant and placed on a prepared course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross sections shown on the plans. Each course shall be constructed to the depth, typical section, or elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course.

The Contractor shall be responsible for the Quality Control in the production and construction of the HMA (Hot Mix Asphalt) surface and leveling courses. The HMA courses shall be laid in a maximum of two (2) inch lifts. The HMA surface course shall be 2-inches and the leveling course lifts shall not be less than 1-inch. ~~Thicker lifts not to exceed three (3) inches may be authorized by the Resident Engineer provided a continuous paving operation is maintained.~~

MATERIALS

401-2.1 AGGREGATE. Aggregates shall consist of crushed stone or crushed gravel, blended with crushed or natural sand(s) and/or mineral filler.

Crushed Stone: Crushed stone shall be defined as the angular fragments resulting from crushing, by mechanical means, the following types of rocks quarried from undisturbed consolidated deposits: granite and similar phanerocrystalline igneous rocks; limestone; dolomite; or massive metamorphic quartzite, or similar rocks.

Crushed Gravel: Crushed gravel shall be the product resulting from crushing, by mechanical means, and shall consist entirely of particles obtained by crushing gravel, all of which before crushing will be retained on a screen with openings equal to or larger than the maximum nominal size of the resulting crushed material. If approved by the Engineer, final product gradations may be obtained by screening or blending various sizes of crushed gravel material.

Mineral Filler: Mineral filler shall consist of dry limestone dust, or other material approved by the Engineer and shall meet the requirements of ASTM D 242.

The portion of the materials retained on the No. 8 sieve shall be known as coarse aggregate, the portion passing the No. 8 sieve and retained on the No. 200 sieve as fine aggregate, and the portion passing the No. 200 sieve as mineral filler.

A. Coarse Aggregate. Coarse aggregate shall consist of sound, tough, durable particles conforming to the following quality requirements:

QUALITY TEST(IDOT B Quality)	PERCENT
Na ₂ SO ₄ Soundness, 5 Cycle, ASTM C 88 (Illinois Modified AASHTO T 104) Max. % Loss	15
Los Angeles Abrasion, ASTM C 131 Max. % Loss	40

DELETERIOUS TEST	PERCENT
Materials (Max. % allowed)	
Shale %	2.0
Clay Lumps %	0.5
Soft & Unsound Frag. %	6.0
Other Deleterious %	2.0
Total Deleterious Allowed %	6.0

The aggregate particles shall be free from coatings of clay, silt, or other objectionable matter and shall contain no clay balls.

Aggregate shall contain at least 70 percent by weight of individual pieces having two or more fractured faces and 85 percent by weight having at least one fractured face. The area of each face shall be equal to at least 75 percent of the smallest midsectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces. Fractured faces shall be obtained by crushing.

The aggregate shall not contain more than a total of 8 percent, by weight, of flat particles, elongated particles, and flat and elongated particles, when tested in accordance with ASTM D 4791 with a value of 5:1.

B. Fine Aggregate. Fine aggregate shall be defined as follows:

1. Sand: Sand shall be the fine granular material resulting from the natural disintegration of rock. Sand produced from deposits simultaneously with and by the same operations as gravel coarse aggregate may contain crushed particles in the quantity resulting normally from the crushing and screening of oversize particles.
2. Stone Sand: Stone sand shall be produced by washing or processing by air separation the fine material resulting from crushing rock quarried from undisturbed consolidated deposits.
3. Slag Sand: Slag sand shall be the graded product resulting from the screening of air cooled blast furnace slag. Air cooled blast furnace slag shall be the nonmetallic product, consisting essentially of silicates and alumino-silicates of lime and other bases, which is developed in a molten condition simultaneously with iron in a blast furnace.
4. Steel Slag Sand: Steel slag sand shall be the graded product resulting from the screening of crushed steel slag. Crushed steel slag shall be the nonmetallic product which is developed

in a molten condition simultaneously with steel in an open hearth, basic oxygen or electric furnace.

The fine aggregate shall also conform to the following quality requirements:

QUALITY TEST(IDOT B Quality)	PERCENT
Na ₂ SO ₄ Soundness, 5 Cycle, ASTM C 88 (Illinois Modified AASHTO T 104) Max. % Loss	15
Minus No. 200 Sieve Material, ASTM C 136 Max. % Loss ¹	6.0 ²

- 1/ *Fine aggregate shall not contain more than 3 percent clay (2 micron or smaller) particles.*
2/ *Does not apply to Stone Sand.*

DELETERIOUS TEST	PERCENT
	Materials (Max. % allowed)
Shale %	3.0
Clay Lumps %	3.0
Coal, Lignite & Shells %	3.0
Conglomerate %	3.0
Other Deleterious %	3.0
<i>Total Deleterious Allowed %</i>	<i>5.0</i>

The aggregate particles shall be free from coatings of clay, silt, or other objectionable matter and shall contain no clay balls. The fine aggregate, including any blended material for the fine aggregate, shall have a plasticity index of not more than 6 and a liquid limit of not more than 25 when tested in accordance with ASTM D 4318.

Natural (non-manufactured) sand may be used to obtain the gradation of the aggregate blend or to improve the workability of the mix. The amount of sand to be added will be adjusted to produce mixtures conforming to requirements of this specification. The fine aggregate shall not contain more than 15 percent natural sand by weight of total aggregates. If used, the natural sand shall meet the requirements of ASTM D 1073 and shall have a plasticity index of not more than 6 and a liquid limit of not more than 25 when tested in accordance with ASTM D 4318.

The aggregate shall have sand equivalent values of 45 or greater when tested in accordance with ASTM D 2419.

If necessary to obtain the gradation of aggregate blend or workability, natural sand may be used. The amount of sand to be added will be adjusted to produce mixtures conforming to requirements of this specification.

C. Sampling and Testing. All aggregates proposed in the manufacture of the mix will be sampled and tested by the Contractor. ASTM D 75 shall be used in sampling coarse aggregate and fine aggregate, and ASTM C 183 shall be used in sampling mineral filler. The Contractor shall provide the Engineer with aggregate producer (quarry) and Contractor

(plant) quality control gradations. No aggregate shall be used in the production of mixture without prior approval.

D. Sources of Aggregates. All aggregate sources that are approved by the Illinois Department of Transportation, Division of Highways, conforming to the description, gradation and quality specified herein, shall be permitted for use in the manufacture of the HMA surface course. The supplier of aggregates must participate and meet the requirements of the Illinois Department of Transportation Division of Highways source certification program (AGCS). The Engineer reserves the right to inspect the source(s) and manufacturing of all aggregates. If satisfactory quality control and production procedures are not being implemented, the Engineer may remove approval of the source(s). Approval of the source(s) of aggregate(s) does not relieve the Contractor in any way of the responsibility for delivery of aggregates to the job site that meet the requirements specified herein.

E. Samples of Aggregates. All the source(s) of the proposed aggregates for use by the Contractor in the Contractor's proposed HMA mix design must be approved in writing by the Illinois Division of Aeronautics' Engineer of Construction & Materials prior to use in any design or production of bituminous material.

401-2.2 FILLER. If filler, in addition to that naturally present in the aggregate, is necessary, it shall meet the requirements of ASTM D 242.

401-2.3 BITUMINOUS MATERIAL. Performance Graded asphalt PG 64-22 shall be used for all HMA produced unless otherwise specified. When requested, producers shall provide the Engineer with viscosity/temperature relationships for the performance graded asphalt binders delivered and incorporated in the work.

The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 "Standard Specification for Performance Graded Asphalt Binder" for the grade shown on the plans. Elastomers shall be added to the base asphalt binder to achieve the specified performance grade and shall be either a styrene-butadiene diblock or triblock copolymer without oil extension, or a styrene-butadiene rubber. Air blown asphalts, acid modification, and other modifiers will not be allowed. Asphalt modification at hot-mix asphalt plants will not be allowed.

The Contractor shall furnish vendor's certified test reports for each carload or equivalent of bitumen shipped to the project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall be the basis for final acceptance.

COMPOSITION

401-3.1 COMPOSITION OF MIXTURE. The HMA plant mix shall be composed of a mixture of aggregate, filler if required, and bituminous material. The several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula.

401-3.2 JOB MIX FORMULA. The Contractor is responsible for the job mix formula (JMF) and no HMA mixture for payment shall be produced until a letter from the Illinois Division of Aeronautics' Engineer of Construction & Materials approving the Contractor's proposed JMF has been issued to the Contractor. The approved JMF shall indicate the definite percentage on each sieve for each aggregate, the percent of bitumen, and the number of gyrations specified for the individual project. The Contractor shall provide all laboratory sampling and testing to the Engineer, upon the completion of the proposed JMF. The exact tests and procedures are outlined in the Illinois Division of Aeronautics (IDOA) latest *Policy Memorandum 2003-1: "Requirements for Laboratory, Testing, Quality Control and Paving of Superpave Bituminous Concrete Mixtures for Airports,"* located at the IDOT internet site.

The JMF for each mixture shall be in effect until modified in writing by the Project Engineer. Should a change in sources of materials be made, a new JMF shall be established before the new material is used.

The HMA mixture shall be tested according to the Asphalt Institute's most current Superpave Series No. 2 (SP-2) manual entitled, "Superpave Mix Design" and shall meet the criteria set forth in TABLES 1 and 2 herein.

TABLE 1 SUPERPAVE DESIGN CRITERIA

TRAFFIC MIX					
Design Parameter	Aircraft over 60,000 lbs. ¹		Aircraft under 60,000 lbs.		Automobile
	Runway or Taxiway	Parking Apron	Runway or Taxiway	Parking Apron	Entrance roads and Parking Lots
N _{ini} ²	5	7	5	5	5
N _{des} ³	40	50	30	30	30
N _{max}	58	74	42	42	42
% Air Voids V _a	2-4	2-4	2-4	2-4	2-4
VFA (min %)	75-90	75-90	75-90	75-90	75-90

1/ Stone sand (IDOT Gradation FA20 or FA21) shall be required as part of the fine aggregate portion of the JMF. The exact amount of stone sand will be determined by the Contractor based on preparation of the Mix Design. The percentage of stone sand will be verified as acceptable by the Division of Aeronautics based upon the Contractor's final proposed JMF. The Division reserves the right to request a change in the amount of stone sand at any point in the mix design process, as well as during production, based upon performance of the mix during placement.

2/ Where N= number of gyrations on an IDOT approved superpave gyratory compactor.

3/ The N_{des} value may be changed in order to obtain an acceptable mix design when approved by the Engineer.

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory screens, will conform to the gradation or gradations specified in TABLE 2, when tested in accordance with ASTM Standard C 136 (dry sieve only). The

percentage by weight for the bituminous material shall be within the limits specified.

TABLE 2. AGGREGATE HMA SURFACE COURSE
Percentage by Weight Passing Sieves
Job Mix Formula (JMF)

Sieve Size	Gradation B Range 3/4" Maximum	Ideal Target
1 in.	100	100
3/4 in.	100	100
1/2 in.	99 - 100	100
3/8 in.	91 - 97	94
No. 4	56 - 62	59
No. 8	36 - 42	39
No. 16	20 - 43	30
No. 30	14 - 32	22
No. 100	5 - 16	8
No. 200	5 - 7	6
Bitumen %:	5.0 - 7.0	6.0

The gradations in TABLE 2 represent the limits which shall determine the suitability of aggregate for use from the sources of supply. The gradation shown in TABLE 2 is such that the maximum size aggregate used shall not be more than one-half of the thickness of the layer of the course being constructed. The aggregate shall have a gradation within the limits designated in TABLE 4 and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa, but shall be uniformly graded from coarse to fine.

The coarse and fine aggregate gradations specified in the Illinois Division of Highways Specifications for Road and Bridge Construction, current edition, may be blended to meet the JMF.

The job mix tolerances shown in TABLE 3 shall be applied to the JMF to establish a job control grading band. The tolerances listed in TABLE 3 will only apply when they cause a grading band within the band listed in TABLE 2. Otherwise, the grading bands listed in TABLE 2 shall apply.

TABLE 3. JOB MIX FORMULA TOLERANCES
(Based on a Single Test)

Material	Tolerances Plus or Minus
Aggregate passing No. 4 sieve or larger	7 percent
Aggregate passing Nos. 8 and 16 sieves	5 percent
Aggregate passing Nos. 30 sieve	4 percent
Aggregate passing Nos. 100 and 200 sieves	2 percent
Bitumen	0.45 percent
Temperature of mixing and placing	20 degrees F.

The aggregate gradation may be adjusted within the limits of TABLE 2, as directed, without adjustments in the contract unit prices.

Should a change in sources of materials be made, a new JMF shall be established *and accepted by the Engineer* before the new material is used. Deviation from the approved JMF for bitumen content and gradation of aggregates shall not be greater than the tolerances permitted and shall be based on extraction or calibrated ignition oven test for aggregate gradations and asphalt content. Results falling outside the set tolerances shall be cause for rejection of all the material placed from the time of testing until a passing test is obtained. The applicable ASTM and IDOT tests are outlined in the current IDOA *Policy Memorandum 2003-1: "Requirements for Laboratory, Testing, Quality Control and Paving of Superpave Bituminous Concrete Mixtures for Airports,"* located at the IDOT internet site. These tests shall be performed by Contractor quality control personnel. Split mix samples shall be maintained by the Contractor for random testing by the Engineer.

401-3.3 BITUMINOUS AND AGGREGATE MATERIAL CONTRACTOR'S RESPONSIBILITY. Samples of the bituminous and aggregate materials that the Contractor proposes to use, together with a statement of their source and character, shall be submitted to the Engineer; approval must be obtained before the use of such material begins. The Contractor shall require the manufacturer or producer of the bituminous and aggregate materials to furnish material subject to this and all other pertinent requirements of the contract. Only those materials that have demonstrated performance under the proposed design requirements will be accepted.

The Engineer or his/her authorized representative shall have access, at all times, to all parts of the paving plant for the purpose of inspecting equipment, conditions and operation of the plant, for verification of weights or proportions and character of materials, and to determine temperatures maintained in the preparation of the mixtures.

The Contractor shall furnish vendor's certified test reports for each carload or equivalent of bitumen shipped to the project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing samples of materials received for use on the project.

401-3.4 TEST SECTION. (For Method II only: Over 2,500 tons/pay item) Prior to the manufacture of mix for the test section, Contractor quality control personnel shall have completed all proportioning and testing in accordance with Policy Memorandum 2003-1, to assure that the mix produced will meet the JMF. The Contractor shall then prepare a quantity of HMA surface course mixture in order to construct the test section.

The test sections will be on Taxiway C and area is identified within the plan set. The sections shall have a combined length of approximately 200 to 300 lineal feet and shall be of the same depth specified for the construction of the course which it represents. The Contractor may place up to 50 tons of mix prior to construction of the test section in order to line-out the plant, the mix, and the paving operation. The underlying grade or pavement structure upon

which the test section is to be constructed shall be the same as the remainder of the course represented. The equipment used in the construction of the test section shall be of the same type and weight to be used on the remainder of the course represented by the test section.

A. Construction of the Test Section:

The test section shall consist of two (2) parts: Development of a Growth Curve and establishing a Rolling Pattern.

1. Growth Curve

To construct the Growth Curve a self-propelled vibratory roller meeting the following minimum requirements shall be required:

Drum diameter 48 inches, length of drum 66 inches, vibrators 1600 vibrations per minute (VPM) minimum, unit static force on vibrating drum(s) 125 pounds per lineal inch (PLI), total applied force 325 pounds per inch (PLI), adjustable eccentrics, reversible eccentrics on nondriven drum(s). The total applied force for various combinations of VPM and eccentric positions shall be shown on decals on the vibrating roller or on a chart maintained with the roller. The vibratory roller shall be equipped with water tanks and sprinkling devices, or other approved methods, which shall be used when necessary to wet the drum to prevent the HMA mixture from sticking.

The Contractor shall have a vibrating reed tachometer (hand type) at the job site for checking roller vibrations. The reed tachometer shall have a range of 1000 to 4000 vibrations per minute (vpm). The vibrating reed tachometer shall have two (2) rows of reeds. One row shall range from 1000 to 2000 vpm and the other row shall range from 2000 to 4000 vpm.

The Growth Curve shall be constructed by successive passes of the vibratory roller, in a given area, in order to determine the maximum compactibility of the mix. The Growth Curve shall be construed under the supervision of the Engineer, or his/her designated representative, who must validate the Growth Curve results before continuing with the remainder of the Test Section. More than one Growth Curve may be required as part of the test section if adjustments to the mix, plant operation, laydown, etc., are necessary to reach optimum compactibility.

2. Rolling Pattern

The Contractor shall then proceed to establish the Rolling Pattern using the equipment that he/she intends to use for compacting the rest of the HMA course.

B. Test Section Acceptance

The Test Section shall be evaluated and approved based on the following:

1. The completed Test Section (Rolling Pattern area) shall be divided into four (4) subsections with one (1) sample, consisting of two (2) cores, obtained from each

- subsection for determination of density. One additional core sample shall be obtained from the Growth Curve.
2. The Contractor shall correlate a nuclear density gauge to the Test Section for Quality Control testing. The nuclear density gauge shall not be used for acceptance testing.
 3. The completed Test Section (rolling pattern area) shall have a minimum density of 94.0 percent (6.0 percent air voids) of the maximum theoretical specific gravity of the mix (ASTM D 2041). Individual test (average of two cores) results below 94.0% shall constitute a failing test section.
 4. If the test section fails to meet these requirements, the Contractor shall construct a new Test Section meeting these requirements at his/her own expense.
 5. Full production shall not be allowed until all tests, Reflux extraction or Ignition Oven, Gradation, Gravities of mix, and Core Densities are completed in order to determine compliance with these specifications.
 6. The completed Test Section(s) shall be part of the proposed work. When recommended by the Resident Engineer and approved by the Engineer, test sections that do not conform to the specifications shall be removed and replaced at the Contractor's expense.
 7. When a Test Section passes, the Test Section tonnage shall be paid 100%.

The mix used in construction of the Test Section shall be paid under Section 401-6.1. Construction of the Test Section shall be paid for under Section 401-6.1. Payment will be made for only one (1) Test Section.

CONSTRUCTION METHODS

401-4.1 WEATHER LIMITATIONS. The HMA mixture shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in TABLE 4. The temperature requirements may be waived, but only when so directed by the Engineer.

TABLE 4. BASE TEMPERATURE LIMITATIONS

Mat Thickness	Base Temperature (Minimum)	
	F	C
Greater than 1 in. but less than <i>or equal to</i> 2 3/4-in.	45	7
1 in. or less	50	10

No paving shall commence unless the ambient air temperature is 40° F. and rising. Paving shall halt when the ambient air temperature is 45° F. and falling.

401-4.2 HMA MIXING PLANT. The HMA mixing plant(s) shall conform to the following requirements, or the Engineer may accept the use of a hot-mix plant approved by the IDOT Division of Highways for the manufacture of Class I HMA mixtures in accordance with the current IDOT *Standard Specifications for Road and Bridge Construction*. ~~When Recycled asphalt pavement (RAP) is used, the hot-mix plant shall also conform to the additional IDOT plant~~

~~requirements for hot mix recycling, although recycled asphalt pavement (RAP) is not allowed in any surface course mix without written permission from the Division of Aeronautics.~~

If the supplier is equipped with an automated plant the automation feature shall be used in the production of bituminous material for the project. If the supplier is equipped with a recordation feature, it also shall be used. Sufficient storage space shall be provided for each size of aggregate. The different aggregate sizes shall be kept separated until they have been delivered to the cold elevator feeding the drier. The storage yard shall be neat and orderly, and the separate stockpiles shall be readily accessible for sampling.

Plants used for the preparation of HMA mixtures shall conform to all requirements under A., except that scale requirements shall apply only where weight proportioning is used. In addition, batch mixing plants shall conform to the requirements under B., continuous mixing plants shall conform to the requirements under C., and drum mixers shall conform to the requirements under D.

A. Requirements for All Plants. Mixing plants shall be of sufficient capacity to adequately handle the proposed HMA construction.

1. Plant scales. Scales shall be accurate to 0.5 percent of the required load. Poises shall be designed to be locked in any position to prevent unauthorized change of position. In lieu of plant and truck scales, the Contractor may provide an approved automatic printer system to print the weights of the material delivered, provided the system is used in conjunction with an approved automatic batching and mixing control system. Such weights shall be evidenced by a weigh ticket for each load. Scales shall be inspected for accuracy and sealed as often as the Resident Engineer may deem necessary. The Contractor shall have on hand not less than ten 50-pound weights for testing the scales.
2. Equipment for preparation of bituminous material. Tanks for the storage of bituminous material shall be equipped to heat and hold the material at the required temperatures. Heating shall be accomplished by approved means so that flames will not contact the tank. The circulating system for the bituminous material shall be designed to assure proper and continuous circulation during the operating period. Provision shall be made for measuring quantities and for sampling the material in the storage tanks.
3. Cold feeders. The plant shall be provided with accurate mechanical or electrical means for uniformly feeding the aggregates into the drier to obtain uniform production and temperature. When added mineral filler is specified, a separate bin and feeder shall be furnished with its drive interlocked with the aggregate feeders.
4. Drier. The plant shall include a drier(s) which continuously agitates the aggregate during the heating and drying process.

5. Screens. Plant screens, capable of screening all aggregates to the specified sizes and proportions and having normal capacities in excess of the full capacity of the mixer, shall be provided.
6. Bins. The plant shall include storage bins of sufficient capacity to supply a mixer operating at full capacity. Bins shall be arranged to assure separate and adequate storage of appropriate fractions of the mineral aggregates. When used, separate dry storage shall be provided for filler of hydrated lime, and the plant shall be equipped to feed such material into the mixer. Each bin shall be provided with overflow pipes of such size and at such location to prevent backup of material into the compartments or bins. Each compartment shall be provided with its individual outlet gate to prevent leakage. The gates shall cut off quickly and completely. Bins shall be constructed so that samples may be obtained readily. Bins shall be equipped with adequate tell-tale devices which indicate the position of the aggregates in the bins at the lower quarter points.
7. Bituminous control unit. Satisfactory means, either by weighing or metering, shall be provided to obtain the specified amount of liquid asphalt material in the mix. Means shall be provided for checking the quantity or rate of flow of bituminous material into the mixer.
8. Thermometric equipment. An armored thermometer of adequate range shall be placed in the bituminous feed line at a suitable location near the charging valve of the mixer unit. The plant shall also be equipped with an approved thermometric instrument placed at the discharge chute of the drier to indicate the temperature of the heated aggregates.

The Engineer may require replacement of any thermometer by an approved temperature-recording apparatus for better regulation of the temperature of aggregates.

9. Dust collector. The plant shall be equipped with a dust collector to waste any material collected or to return all or any part of the material uniformly to the mixture as directed.
10. Truck scales. Unless an automatic batching plant with automatic printers is used, the HMA mixture shall be weighed on approved scales furnished by the Contractor or on public scales at the Contractor's expense. Scales shall be inspected for accuracy and sealed as often as the Resident Engineer deems necessary.
11. Safety requirements. Adequate and safe stairways to the mixer platform and sampling points shall be provided, and guarded ladders to other plant units shall be placed at all points where accessibility to plant operations is required. Accessibility to the top of truck bodies shall be provided by suitable device to enable the Resident Engineer to obtain sampling and mixture temperature data. Means shall be provided to raise and lower scale calibration equipment, sampling equipment, and other similar equipment between the ground and the mixer platform. All gears, pulleys,

chains, sprockets, and other dangerous moving parts shall be thoroughly guarded. Ample and unobstructed passage shall be maintained at all times in and around the truck loading area. This area shall be kept free of drippings from the mixing platform.

12. Testing laboratory. The Contractor or producer shall provide a testing laboratory, meeting the requirements of Illinois Division of Aeronautics' latest *Policy Memorandum 2003-1: "Requirements for Laboratory, Testing, Quality Control and Paving of Superpave Bituminous Concrete Mixtures for Airports,"* located at the IDOT internet site, for Quality Control and acceptance testing during periods of mix production, sampling, and testing, and whenever materials subject to the provision of these specifications are being supplied or tested. The laboratory shall provide adequate equipment, space, and utilities as required for the performance of the specified tests. All labs must be certified to do Marshall Mix design and testing, having AMRL and AASHTO accreditation for all equipment.

B. Requirements for Batching Plants.

1. Weigh box or hopper. The equipment shall include a means for accurately weighing each size of aggregate in a weigh box or hopper of ample size to hold a full batch without hand raking or running over. The gate shall close tightly so that no material is allowed to leak into the mixer while a batch is being weighed.
2. Bituminous control. The equipment used to measure the bituminous material shall be accurate to within ± 0.5 percent. The bituminous material bucket shall be of a nontilting type with a loose sheet metal cover. The length of the discharge opening or spray bar shall be not less than three-fourths the length of the mixer and it shall discharge directly into the mixer. The bituminous material bucket, its discharge valve(s), and spray bar shall be adequately heated. Steam jackets, if used, shall be efficiently drained, and all connections shall be so constructed that they will not interfere with the efficient operation of the bituminous scales. The capacity of the bituminous material bucket shall be at least 15 percent in excess of the weight of bituminous material required in any batch. The plant shall have an adequately heated, quick-acting nondrip charging valve located directly over the bituminous material bucket.

The indicator dial shall have a capacity of at least 15 percent in excess of the quantity of bituminous material used per batch. The controls shall be constructed to lock at any dial setting and automatically reset to that reading after each additional batch of bituminous material. The dial shall be in full view of the mixer operator. The flow of bituminous material shall be automatically controlled to begin when the dry mixing period is over. All of the bituminous material required for one batch shall be discharged in not more than 15 seconds after the flow has begun. The size and spacing of the spray-bar openings shall provide a uniform application of bituminous material the full length of the mixer. The section of the bituminous line between the charging valve and the spray bar shall have a valve and outlet for checking the meter when a metering device is substituted for a bituminous material bucket.

3. Mixer. The batch mixer shall be an approved type capable of producing a uniform mixture within the job mix tolerances. If not enclosed, the mixer box shall be equipped with a dust hood to prevent loss of dust. The clearance of blades from all fixed and moving parts shall not exceed 1 inch.
4. Control of mixing time. The mixer shall be equipped with an accurate time lock to control the operations of a complete mixing cycle. It shall lock the weigh-box gate after the charging of the mixer and keep it locked until the closing of the mixer gate at the completion of the cycle. It shall lock the bituminous material bucket throughout the dry mixing period and shall lock the mixer gate throughout the dry and wet mixing periods. The dry mixing period is defined as the interval of time between the opening of the weigh-box gate and the introduction of bituminous material. The wet mixing period is the interval of time between the introduction of bituminous material and the opening of the mixer gate.

The timing control shall be flexible and shall be capable of settings of 5-second intervals or less throughout a 3-minute cycle. A mechanical batch counter shall be installed as a part of the timing device and shall be designed to register only completely mixed batches.

The setting of time intervals shall be at the direction of the Engineer who shall then lock the case covering the timing device until a change is made in the timing periods.

C. Requirements for Continuous Mix Plants.

1. Aggregate proportioning. The plant shall include means for accurately proportioning each size of aggregate.

The plant shall have a feeder mounted under each compartment bin. Each compartment bin shall have an accurately controlled individual gate to form an orifice for the volumetric measuring of material drawn from each compartment. The feeding orifice shall be rectangular with one dimension adjustable by positive mechanical means and provided with a lock.

Indicators shall be provided for each gate to show the respective gate opening in inches.

2. Weight calibration of aggregate feed. The plant shall include a means for calibration of gate openings by weighing test samples. Provision shall be made so that materials fed out of individual orifices may be bypassed to individual test boxes. The plant shall be equipped to conveniently handle individual test samples of not less than 200 pounds. Accurate scales shall be provided by the Contractor to weigh such test samples.
3. Synchronization of aggregate feed and bituminous material feed. A satisfactory means shall be provided to afford positive interlocking control between the flow of

aggregate from the bins and the flow of bituminous material from the meter or other proportioning device. This control shall be by interlocking mechanical means or by any other positive method satisfactory to the Engineer.

4. Mixer. The plant shall include an approved continuous mixer adequately heated and capable of producing a uniform mixture within the job mix tolerances. It shall be equipped with a discharge hopper with dump gates to permit rapid and complete discharge of the mixture. The paddles shall be adjustable for angular position on the shafts and shall be reversible to retard the flow of the mix. The mixer shall have a manufacturer's plate giving the net volumetric contents of the mixer at the several heights inscribed on a permanent gauge. Charts shall be provided showing the rate of feed per minute for each aggregate used.

D. Requirements for Drum Mixers.

1. Exclusions. Paragraphs 401-4.2 A. 4. through 401-4.2 A. 9. do not apply to drum mixers.
2. Aggregate delivery system. An automatic plant shutoff shall be provided to operate when any aggregate bin becomes empty. Provisions shall be provided for conveniently sampling the full flow of materials from each cold feed and the total cold feed. Total cold feed shall be weighed continuously. The weighing system shall have an accuracy of 0.5 percent when tested for accuracy. The plant shall provide positive weight control of the cold aggregate feed by use of a belt scale, or other appropriate device, which will automatically regulate the feed gate and permit instant correction of variations in load. The cold feed flow shall be automatically coupled with the asphalt flow to maintain the required proportions of each material. Provisions shall be made for introducing the moisture content of the cold feed aggregates into the belt weighing signal and correcting wet aggregate weight to dry aggregate weight. Screens or other suitable devices which will reject oversize particles or lumps of aggregate that have been cemented together shall be installed in the feeder mechanism between the bins and the dryer drum.

Dry weight of the aggregate flow shall be displayed digitally in appropriate units of weight and time and totalized.

3. Bituminous material and additive delivery systems. Satisfactory means of metering shall be provided to introduce the proper amount of bituminous material and additives into the mix. Delivery systems shall prove accurate to plus or minus 1 percent when tested for accuracy. The bituminous material and additive delivery shall be interlocked with the aggregate weight. The bituminous material and additive flow shall be displayed digitally in appropriate units of volume (or weight) and time shall be totalized.
4. Thermometric equipment. A recording thermometer of adequate range shall be located to indicate the temperature of the bituminous material in storage. The plant shall also be equipped with approved recording thermometers, pyrometers, or other

- approved recording thermometric instruments at the discharge chute of the drum mixer.
5. Drum mixer. A drum mixer of satisfactory design shall be provided. It shall be capable of drying and heating the aggregate to the moisture and temperature requirements set forth in the paving mixture requirements and capable of producing a uniform mixture. If the quality requirements of Section 401-3.2 cannot be met, the Contractor will be required to utilize either batch or continuous mix plants.
 6. Temporary storage of HMA mixture. Use of surge bins or storage bins for temporary storage of HMA mixtures will be permitted as follows:
 - a. The HMA mixture may be stored in surge bins for a period of time not to exceed 3 hours.
 - b. The HMA mixture may be stored in insulated and heated storage bins for a period of time not to exceed 12 hours, provided an inert gas atmosphere is maintained in the bin during the storage period.

If the Engineer determines that there is an excessive amount of heat loss, segregation and/or oxidation of the mixture due to temporary storage, use of surge bins or storage bins will be discontinued.

E. Inspection of Plant. The Engineer or his/her authorized representative shall have access, at all times, to all parts of the paving plant for checking adequacy of equipment; inspecting operation of the plant; verifying weights, proportions, and character of materials; and checking the temperatures maintained in the preparation of the mixtures.

401-4.3 HAULING EQUIPMENT. Trucks used for hauling HMA mixtures shall have tight, clean, smooth metal beds. To prevent the mixture from adhering to them, the beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, so that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated and covers shall be securely fastened.

All trucks used for hauling HMA mixtures shall have a tightly closing tailgate to prevent spilling of material on airfield pavements or entrance roads used for haul roads. Prior to leaving the placing site, the end of the truck beds shall be cleaned of all loose material which may spill onto the pavements and the tail gate shall be secured.

401-4.4 HMA PAVERS. HMA pavers shall be self-contained, power-propelled units with an activated screed capable of vibrating at approximately 3000 VPM or strike-off assembly, heated if necessary, and shall be capable of spreading and finishing courses of HMA plant mix material which will meet the specified thickness, smoothness, and grade. Pavers used for shoulders and similar construction shall be capable of spreading and finishing courses of HMA plant mix material in widths shown on the plans. All width extensions required to place material shall have the same placement features and equipment functions as provided

on the main body of the paver. Augers shall be extended as additional sections of screed are bolted on or automatically adjustable screeds are extended. The augers need not be extended when the screed extensions on either side of the machine are one foot or less and the finished surface of the mat is uniform. The use of any machine obsolete in design or in poor mechanical condition will not be permitted.

The paver shall have a receiving hopper of sufficient capacity to permit a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed. The screed or strike-off assembly shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

The paver shall be capable of operating at forward speeds consistent with satisfactory laying of the mixture.

An automatic grade control system shall be used to automatically maintain the screed elevation as specified herein. The control system shall be automatically actuated from either a reference line or surface through a system of mechanical sensors or sensor-directed mechanisms or devices which will maintain the paver screed at a predetermined transverse slope and at the proper elevation to obtain the required surface.

The controls shall be capable of working in conjunction with any of the following attachments, as specified by the Project Engineer:

- A. Ski-type device of not less than 30 feet in length or as directed by the Engineer.
- B. Taut stringline (wire) set to grade.
- C. Short ski or shoe.

401-4.5 ROLLERS. Rollers may be of the vibratory, steel wheel, or pneumatic-tired type. They shall be in good condition, capable of reversing without backlash, and operating at slow speeds to avoid displacement of the HMA mixture. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density without detrimentally affecting the compacted material.

All rollers shall be specifically designed and suitable for compacting hot mix bituminous concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used. Depressions in pavement surfaces caused by rollers shall be repaired by the Contractor at its own expense.

A. Nuclear Densometer. The Contractor shall have on site a nuclear densometer during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall also supply a qualified technician during all paving operations to calibrate the nuclear densometer and obtain accurate density readings for all new bituminous concrete. These densities shall be supplied to the Engineer upon

request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.6 PREPARATION OF BITUMINOUS MATERIAL. The bituminous material shall be heated to the *manufacturer* specified temperature in a manner that will avoid local overheating and provide a continuous supply of the bituminous material to the mixer at a uniform temperature. The temperature of the bituminous material delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325 degrees F (160 degrees C), *unless otherwise required by the manufacturer* ~~the applicable maximum temperature set forth in AASHTO M 320~~ and not be more than 25° F above the temperature of the aggregate as specified in Section 401-4.7.

401-4.7 PREPARATION OF MINERAL AGGREGATE. The aggregate for the mixture shall be dried and heated *prior to introduction into the mixer. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350 degrees F (175 degrees C) when the asphalt is added to the* ~~temperature designated by the job formula within the job tolerance specified.~~ Immediately after heating, the surface course aggregate(s) shall be screened into at least three sizes. This requirement does not apply to drum mixer plants. The maximum temperature and rate of heating shall be such that no permanent damage occurs to the aggregates. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

401-4.8 PREPARATION OF HMA MIXTURE. The aggregates and the bituminous material shall be measured or gauged and introduced into the mixer in the amount specified by the JMF.

The combined materials shall be mixed until a complete and uniform coating of the particles and a thorough distribution of the bituminous material throughout the aggregate are secured. Wet mixing time shall be approved by the Engineer for each plant and for each type aggregate used. Normally, the mixing time after introduction of bituminous material should not be less than 30 seconds. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer.

$$\text{Mixing time (seconds)} = \frac{\text{Pugmill dead capacity in pounds}}{\text{Pugmill output in pounds per second}}$$

401-4.9 TRANSPORTING, SPREADING, AND FINISHING. The mixture shall be transported from the mixing plant to the point of use in vehicles conforming to the requirements of Section 401-4.3. Deliveries shall be scheduled so that spreading and rolling of all mixture prepared for one day's run can be completed during daylight, unless adequate artificial lighting is provided. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to atmospheric temperature.

Immediately before placing the HMA mixture, the underlying course shall be cleared of all loose or deleterious material with power blowers, power brooms, or hand brooms as directed. A bituminous tack coat shall be applied on all underlying courses, as well as between any subsequent lifts of HMA.

The mix shall be placed at a temperature of not less than 275° F. Moisture content of the mix shall not exceed 0.5 percent. The Engineer may increase the asphalt content of the first leveling course lift by up to 0.3 percent when the HMA mixture is placed directly on a prepared subgrade.

Upon arrival, the mixture shall be spread to the full width by an approved HMA paver. It shall be struck off in a uniform layer of such depth that, when the work is completed, it shall have the required thickness and shall conform to the grade and contour indicated. The speed of the paver shall be regulated to eliminate pulling and tearing of the HMA mat. The maximum allowed paver speed is 50 ft/min. Unless otherwise directed, placing shall begin along the centerline of areas to be paved on a crowned section or on the high side of areas with a one-way slope. The mixture shall be placed in consecutive adjacent strips having a minimum width of 10 feet, except where edge lanes require strips less than 10 feet to complete the area. The longitudinal joint in one layer shall offset that in the layer immediately below by at least 1 foot; however, the joint in the top layer shall be at the centerline of the pavement. Transverse joints in one layer shall be offset by at least 2 feet from transverse joints in the previous layer. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet.

The first lane of the first lift of the HMA surface course shall be started at the center of the pavement with a taut stringline (guide wire) set to grade at both sides of the paver. The automatic grade control system of the paver shall be used to control grade of both sides of the paver from these reference stringlines. The grade control for the adjacent lanes of pavement shall be maintained by using a matching shoe with the previous laid pavement and a stringline on the outer edge of the next lane. A stringline and matching shoe shall be used to pave all remaining lanes of the first lift of surface course. If grade is established on the first lift, succeeding lifts shall be laid with a traveling ski on both sides of the paver for the center lane with matching shoe and traveling ski on adjacent lanes. If grade is not established on the first lift, the Resident Engineer shall require taut stringline references until satisfactory grade is established.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the mixture may be spread, raked, and luted by hand tools.

401-4.10 COMPACTION OF MIXTURE. After spreading, the mixture shall be thoroughly and uniformly compacted with power rollers as directed by the Resident Engineer. Rolling of the mixture shall begin as soon after spreading as it will bear the roller without undue displacement ~~or hair checking~~, *cracking or shoving*. On the first strip spread, rolling shall start at the low edge and progress toward the high edge. When adjoining lanes are placed, the same rolling procedure should be followed, but only after compaction of fresh mix at the

longitudinal joint with 6 to 8 inches of the vibrating roller width overlapping on the previously compacted lane. Vibratory rollers will be operated so as to obtain a minimum of 10 impacts per foot. If a static roller is being used, 6 to 8 inches should be on the fresh mix at the longitudinal joint with the remainder of the roller width on the previously compacted lane. Rollers operated in static mode shall not exceed 3 mph(264 ft/min).

Initial rolling shall be done longitudinally. The rollers shall overlap on successive trips. Alternate trips of the roller shall be of slightly different lengths, and cross rolling shall not exceed more than one half the width of the pavement on crowned sections. The speed of the roller shall, at all times, be slow to avoid displacement of the hot mixture. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once by rakes and fresh mixture.

A self-propelled pneumatic-tire roller meeting the following requirements shall be required on the top lift of surface course mixture:

The roller shall be of the oscillating wheel type consisting of not less than 7 pneumatic-tired wheels revolving on 2 axles, and capable of being ballasted to the mass (weight) required. The front and rear wheels shall be staggered so that the tire sidewalls will have a minimum overlap of ½ inch. The roller shall provide for a smooth operation when starting, stopping or reversing direction. The tires shall withstand inflation pressures between 60 and 120 psi. The roller shall be equipped with an adequate scraping or cleaning device on each tire to prevent the accumulation of material on the tires. When used for the compaction of HMA mixtures, the roller shall be equipped with a water system which will keep all tires uniformly wet to prevent material pickup. The Contractor shall provide means for determining the mass (weight) of the roller as distributed on each wheel. Ballast shall be included in determining the mass (weight). The maximum speed for pneumatic-tired rollers is 3.5 mph(308 ft/min).

Sufficient rollers shall be used to handle the output of the plant. Rolling shall continue until all roller marks are eliminated producing a surface of uniform texture true to grade and cross section.

The Contractor shall provide, at all times, an approved ~~Troxler (or equal) nuclear density gauge~~ *nuclear densometer* with a qualified operator to maintain quality control of the density as specified herein. *The nuclear densometer shall be capable of accurately measuring the density for the layer thicknesses specified in the project documents.*

To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened, but excessive water will not be permitted. In areas not accessible to the roller, the mixture shall be thoroughly compacted with hot hand tampers.

Any mixture which becomes loose and broken, mixed with dirt, or in any way defective prior to the application of the finish coat shall be removed and replaced with fresh hot mixture and immediately compacted to conform with the surrounding area. This shall be done at the Contractor's expense.

401-4.11 JOINTS. The formation of all joints shall be made in such a manner as to ensure a continuous bond between old and new sections of the course. All joints shall present the same texture, density, and smoothness as other sections of the course.

The roller shall not pass over the unprotected end of the freshly laid mixture except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course, in which case the edge shall be cut back to its full depth and width on a straight line to expose a vertical face. In both methods all contact surfaces shall be given a tack coat of bituminous material before placing any fresh mixture against the joint.

Longitudinal and transverse joints which are irregular, damaged, or otherwise defective shall be cut back to expose a clean, sound surface for the full depth of the course. All contact surfaces shall be given a tack coat of bituminous material prior to placing any fresh mixture against the joint.

All longitudinal joints constructed are to be compacted in such a manner that they are "pinched" to provide adequate density at the joint. When laying the HMA adjacent to a previously placed lane, the first pass of the roller shall be along the longitudinal joint on the fresh mixture with the compression wheel not more than 6 in. from the joint. The second pass of the roller shall overlap the longitudinal joint not more than 12 in. on the previously placed lane, after which the rolling shall proceed uniformly. Each stop shall be regulated to prevent trapping of water on the rolled surface. The steel wheeled rollers shall be operated with the compression wheels toward the direction of paving. The Contractor shall cut two cores per 2,500 tons at a random location over the longitudinal construction joint. The cores shall be delivered to the Resident Engineer for density testing and the two results will be used to obtain an average density. This average density at the joint shall be ~~a minimum of~~ *within a range of 90% to 97% with no single result less than 90%.*

Density results below ~~an average of~~ 90% shall result in an immediate suspension of paving operations until a sufficient investigation and solution to the density problem is agreed to by the Engineer. The result of this deficiency will be a 5% penalty on all production done on the day the core was taken or represents.

401-4.12 SHAPING EDGES. While the surface is being compacted and finished, the Contractor shall carefully trim the outside edges of the pavement to the proper alignment. Edges so formed shall be beveled while still hot with the back of a rake or a smoothing iron and thoroughly compacted by tampers or by other satisfactory methods.

401-4.13 ACCEPTANCE TESTING OF HMA MIXES FOR DENSITY. (For Method I only: Under 2,500 tons/pay item): After the completion of compaction for HMA surface course, the pavement will be tested for acceptance by the resident Engineer and payment made on the basis of percent air voids in the final compacted mat.

After the completion of compaction for the HMA leveling course, the pavement will be tested for acceptance by the Resident Engineer and payment made on the basis of satisfactory lines and grades.

The HMA Surface Course shall be compacted to a minimum density of 93 percent (7 percent air voids) and a maximum of 99 percent (1 percent air voids) of the Maximum Theoretical Specific Gravity (ASTM D 2041). If, during construction, the density test falls below 93 percent, additional approved rollers shall be required. Failure to achieve density within these limits shall be cause for rejection of the material, as determined by the Division of Aeronautics.

Two random nuclear density tests shall be taken for each 500 tons of mix placed. Each nuclear density test shall be the average of five (5) nuclear tests taken as a cross-section of the pavement. One random mix sample shall be taken from each 1,000 tons of mix laid, for Extraction or Ignition Oven, Maximum Specific Gravity and Air Void tests. The Resident Engineer shall have a nuclear gauge and qualified operator on the project when constructing this item.

(For Method II only: Over 2,500 tons/pay item): After the compaction is completed on the HMA surface course, the pavement will be tested and payment made on the basis of percent air voids in the final compacted mat. The HMA surface course shall be compacted to a minimum density of 93 percent (7 percent air voids) and a maximum of 99 percent (1 percent air voids) of the maximum theoretical specific gravity (ASTM D 2041) and accepted by the following statistical procedure. When more than one surface course mix design is used on the same project, each mix will be evaluated separately under the statistical acceptance procedure specified herein.

After the compaction is completed on the HMA leveling course, the pavement will be tested and payment made on the basis of satisfactory lines and grades.

A. Lot Size. The plant-produced mixture shall be tested on a lot basis. A lot shall consist of 4 sublots. End or final lots may contain between 3 and 6 sublots.

A subplot shall consist of 500 tons for each type of mix.

One density sample shall be taken randomly from each subplot. Each density sample shall be the average of two cores extracted from the sample location.

The Contractor shall take one random mix sample from each 1,000 tons of mix placed. This sample shall be split into two samples with one half tested by the Contractor for Extraction or Ignition oven, Maximum Specific Gravity, Gradation, and Air Void tests. The other sample half shall be appropriately marked and retained by the Contractor until the Engineer requests the mix for testing or directs the Contractor in writing to dispose of the mix.

All tests shall be completed and reported to the Engineer no later than the morning of the day following production.

B. Lot Early Termination. When less than 3 sublots are produced, such as at the end of construction of the surface course or at the end of the construction season, the final subplot

data shall be included with the previous lot for payment. The final lot may thus contain up to six (6) sublots.

C. Acceptance Criteria. The acceptance of each lot of HMA surface course shall be based on the **Percentage of material Within specification Limits (PWL)**. The PWL is determined using standard statistical techniques and involves the number of tests in each lot (n) and the quality indexes (Q_L is the Quality Index for the lower limit; Q_U is the Quality Index for the upper limit). The quality indexes are calculated using the following formulae:

$$Q_L = \frac{X - 1}{S} \qquad Q_U = \frac{7 - X}{S}$$

Where Q = Quality Index (lower or upper)
X = Mean (average) value of air voids in percent
% Air Voids = (100-% density)
S = Standard Deviation of test results

For mat in-place air voids, estimate the **Percentage Within Tolerance (PWT)** for the lower and upper tolerance limits by entering TABLE 6 with Q_L and Q_U using the column appropriate to the total number (n) of core samples. The total percent of material between the lower and upper limits is defined as the **Percent Within Limits** and is calculated by the following formula:

$$PWL = [PWT(\text{lower}) + PWT(\text{upper})] - 100$$

Each lot of bituminous material shall be accepted for 100 percent payment when the PWL equals or exceeds 90 percent. When the PWL is below 90 percent for a given lot, the lot tonnage shall be adjusted in accordance with TABLE 5.

TABLE 5 -- PAY ADJUSTMENT SCHEDULE ¹

PWL	% ADJUSTMENT IN LOT QUANTITY
90 - 100	100
80 - 89.9	0.5 PWL + 55.0
65 - 79.9	2.0 PWL - 65.0
Below 65	²

1/ All preliminary calculations used in determining the Percent Within Limits should be rounded to a minimum of four digits right of the decimal point. The PWL that is used for TABLE 5 purposes should then be rounded to one digit right of the decimal point to determine the percent of contract quantity to be paid. The final percent pay figure should be rounded to one digit right of the decimal point. The Resident Engineer shall notify the Contractor, in writing, of the final percent pay for each lot as soon as all lot tests are completed.

2 The lot shall be removed and replaced. However, the Engineer may decide to accept the deficient lot. In that case, it will be paid for at 50% adjustment.

D. Mix Sampling. All mix sampling shall be done on a random basis as determined by the Resident Engineer. Samples that are obviously defective or become defective prior to testing shall be discarded and retaken. New samples shall be considered as if they were initial samples.

401-4.14 SURFACE TESTS. Tests for conformity with the specified crown and grade shall be made by the Contractor immediately after initial compression. Any variation shall be corrected by the removal or addition of materials and by continuous rolling.

The finished surface shall not vary more than $\frac{1}{4}$ inch for the surface course when tested with a 16-foot straightedge applied parallel with, or at right angles to, the centerline.

After the completion of final rolling, the smoothness of the course shall again be tested; humps or depressions exceeding the specified tolerances shall be immediately corrected by removing the defective work and replacing with new material, as directed by the Resident Engineer. This shall be done at the Contractor's expense.

The finished surfaces of HMA courses shall not vary from the gradeline, elevations, and cross sections shown on the contract drawings by more than $\frac{1}{2}$ inch. The Contractor shall correct pavement areas varying in excess of this amount by removing and replacing the defective work. Skin patching will not be permitted.

401-4.15 SAMPLING PAVEMENT. The completed pavement shall be cleaned so that no debris or dirt from coring operations is left on the surface of the pavement. Three (3) cores per lot shall be tested for thickness for any methods used.

(For Method II only: Over 2,500 tons/pay item): Cores from each subplot shall be taken at random locations as outlined by the Resident Engineer. No core samples shall be taken within two feet of the edge of pavement. Any core less than $1\frac{1}{2}$ inch thickness shall not be used and a new location and sample shall be selected.

Core samples of approximately 4 inches in diameter, for determination of in-place air voids of the completed pavement, shall be obtained by the Contractor at no extra expense. The number and locations of the samples shall be as determined by the Resident Engineer. The Contractor shall furnish all tools, labor, and materials for sampling and replacing pavement. All core tests necessary to determine initial conformance with specification requirements will be performed by the Resident Engineer at no cost to the Contractor.

Resampling and Retesting Resampling of a lot may be allowed only under the following conditions:

A. The Contractor must request, in writing, the resampling and retesting of a complete lot within 48 hours after receiving the written test results of the lot from the Resident Engineer. Only one retest per lot will be permitted.

B. If the retested lot should result in a higher "Percent Within Limits" figure than the original, based on all lot samples (original and new) the following will apply:

1. The cost of resampling and retesting will be borne by the Engineer.
2. The new "Percent Within Limits" figure shall be calculated using all LOT samples, (original and new) for calculating the lot payment.

C. If the retested lot should result in a "Percent Within Limits" figure equal to or less than the original, based on all the lot samples (original and new), the following will apply:

1. The cost of resampling and retesting will be borne by the Contractor.
2. The new "Percent Within Limits" figure shall be calculated using all lot samples, (original and new) for calculating the lot payment.

D. Procedures in ASTM E-178 shall be used to determine outliers based on all samples taken and a 5% significance level.

E. Results of the retesting and resampling shall be final.

METHOD OF MEASUREMENT

401-5.1 Plant mix HMA courses will be measured by the ton. The tonnage shall be the weight used in the accepted pavement. No deduction will be made for the weight of bituminous material in the mixture. Plant batch weights will be accepted. Loads shall be checked periodically by weighing full truckloads of the HMA mixture on an approved platform scale at the plant or on a commercial scale.

The Contractor shall furnish approved duplicate load tickets upon which is recorded the net weight of the HMA mixture in each truck. The load ticket shall have sufficient space for signatures, identification of the HMA mixture, date of delivery, and any other data which the Project Engineer may require. The Contractor shall submit one load ticket to the Project Engineer, or his/her duly authorized representative, at the plant after the truck is loaded and another load ticket to the Project Engineer, or his/her duly authorized representative, at the construction site when the truck load is incorporated into the pavement.

Measurement for payment will not be made for any HMA courses in excess of 103 percent of plan quantity plus (or minus) theoretical quantities authorized by the Engineer. (Maximum payment percentages apply only to those pay items paid for on the basis of volume or weight.)

401-5.2 LEVELING COURSE. Any course used for truing and leveling shall meet the requirements of the JMF for air voids, stability and flow, but shall not be subject to the density requirements. The leveling course shall be compacted with the same effort used to achieve density of the test section. The truing leveling course shall not be less than a nominal thickness of 1 inch. The leveling course is the first variable thickness lift of an overlay placed prior to subsequent courses.

BASIS OF PAYMENT

401-6.1 The quantity of HMA surface and leveling course mixtures measured as outlined in Section 401-5.1 shall be adjusted in accordance with Section 401-4.13 herein. Final payment shall be compensation for furnishing all materials, for all preparation, mixing, testing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

(For Method I only: Under 2,500 tons/pay item). Payment shall be based upon the acceptance of the finished lines and grades and acceptance test results for density. Acceptance test results that do not meet the limits set forth in Section 401-4.13 shall be cause for a payment adjustment, or removal and replacement, of the material placed in the failed subplot(s), as determined by the Division.

(For Method II only: Over 2,500 tons/pay item). Payment shall be calculated by multiplying the contract unit price per ton of HMA surface course and the adjusted tons per lot, as determined using TABLE 5.

The test section shall be paid for at the contract unit price per each, which price shall include the additional specified equipment, labor, Engineering, and testing time necessary to construct this item.

Payment will be made under:

<i>Item AR401610</i>	<i>Bituminous Surface Course – per Ton (TN)</i>
<i>Item AR801755</i>	<i>Bituminous Patching – per Ton (TN)</i>
<i>Item AR401620</i>	<i>Bituminous Surface Course, Leveling – per Ton (TN)</i>

TABLE 6
TABLE FOR ESTIMATING PERCENTAGE OF LOT WITHIN LIMITS (PWL)
(STANDARD DEVIATION METHOD)
QUALITY INDEX (Q_L or Q_u)

PERCENT WITHIN TOLERANCE	N=3	N=4	N=5	N=6	N=7	N=8	N=9	N=10	N=11	N=12
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362	2.0656	2.0897
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630	1.8828	1.8989
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420	1.7566	1.7684
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454	1.6566	1.6655
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635	1.5721	1.5790
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4716	1.4829	1.4914	1.4981	1.5035
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265	1.4316	1.4358
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670	1.3709	1.3741
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118	1.3148	1.3172
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602	1.2623	1.2640
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115	1.2129	1.2141
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653	1.1661	1.1660
87	1.0597	1.1100	1.1173	1.1191	1.1199	1.1204	1.1208	1.1212	1.1215	1.1218
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789	1.0788	1.0787
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382	1.0377	1.0374
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990	0.9982	0.9976
83	0.9939	0.9900	0.9785	0.9715	0.9672	0.9643	0.9624	0.9610	0.9599	0.9591
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241	0.9228	0.9219
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882	0.8868	0.8857
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533	0.8517	0.8505
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192	0.8175	0.8161
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858	0.7840	0.7826
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531	0.7513	0.7498
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211	0.7192	0.7177
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896	0.6877	0.6861
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587	0.6567	0.6551
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282	0.6262	0.6247
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982	0.5962	0.5947
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686	0.5667	0.5651

RUNWAY 10-28 AND ASSOCIATED TAXIWAY CONNECTOR OVERLAY
DUPAGE AIRPORT

BITUMINOUS SURFACE COURSE

PERCENT WITHIN TOLERANCE	N=3	N=4	N=5	N=6	N=7	N=8	N=9	N=10	N=11	N=12
70	0.6787	0.6000	0.5719	0.5583	0.5504	0.5454	0.5419	0.5394	0.5375	0.5360
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105	0.5086	0.5072
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820	0.4802	0.4787
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537	0.4520	0.4506
66	0.5563	0.4800	0.4545	0.4424	0.4354	0.4310	0.4280	0.4257	0.4241	0.4227
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4031	0.4001	0.3980	0.3964	0.3951
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705	0.3690	0.3678
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432	0.3418	0.3407
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161	0.3148	0.3137
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892	0.2880	0.2870
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624	0.2613	0.2604
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358	0.2348	0.2339
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2083	0.2084	0.2076
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829	0.1821	0.1814
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566	0.1559	0.1553
55	0.1806	0.1500	0.1406	0.1353	0.1338	0.1322	0.1312	0.1304	0.1298	0.1293
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1048	0.1042	0.1038	0.1034
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0792	0.0786	0.0781	0.0778	0.0775
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521	0.0518	0.0516
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260	0.0259	0.0258
50	0	0	0	0	0	0	0	0	0	0
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260	-0.0259	-0.0258
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521	-0.0518	-0.0516
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781	-0.0778	-0.0775
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042	-0.1037	-0.1034
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304	-0.1298	-0.1293
44	-0.2164	-0.1800	-0.1688	-0.1637	-0.1607	-0.1588	-0.1575	-0.1566	-0.1559	-0.1553
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829	-0.1821	-0.1814
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093	-0.2084	-0.2076
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358	-0.2348	-0.2339
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624	-0.2613	-0.2604
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892	-0.2880	-0.2870
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161	-0.3148	-0.3137

PERCENT WITHIN TOLERANCE	N=3	N=4	N=5	N=6	N=7	N=8	N=9	N=10	N=11	N=12
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432	-0.3418	-0.3407
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705	-0.3690	-0.3678
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980	-0.3964	-0.3951
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4354	-0.4310	-0.4280	-0.4257	-0.4241	-0.4227
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537	-0.4520	-0.4506
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820	-0.4802	-0.4787
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105	-0.5087	-0.5072
30	-0.6787	-0.6000	-0.5719	-0.5583	-0.5504	-0.5454	-0.5419	-0.5394	-0.5375	-0.5360
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686	-0.5667	-0.5651
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982	-0.5962	-0.5947
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282	-0.6262	-0.6217
26	-0.7904	-0.7200	-0.6920	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587	-0.6567	-0.6551
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896	-0.6876	-0.6861
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211	-0.7192	-0.7177
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531	-0.7513	-0.7498
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858	-0.7840	-0.7826
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8246	-0.8214	-0.8192	-0.8174	-0.8161
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533	-0.8517	-0.8565
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882	-0.8868	-0.8057
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241	-0.9228	-0.9219
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610	-0.9599	-0.9591
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990	-0.9982	-0.9976
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382	-1.0377	-1.0374
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789	-1.0788	-1.0787
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212	-1.1215	-1.1217
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653	-1.1661	-1.1668
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115	-1.2129	-1.2141
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602	-1.2623	-1.2640
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118	-1.3148	-1.3172
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670	-1.3709	-1.3741
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265	-1.4316	-1.4358
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4716	-1.4829	-1.4914	-1.4981	-1.5035
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635	-1.5721	-1.5790

PERCENT WITHIN TOLERANCE	N=3	N=4	N=5	N=6	N=7	N=8	N=9	N=10	N=11	N=12
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5872	-1.6127	-1.6313	-1.6454	-1.6566	-1.6655
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6992	-1.7235	-1.7420	-1.7566	-1.7684
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8054	-1.8379	-1.8630	-1.8828	-1.8989
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362	-2.0657	-2.0897

END OF ITEM 401

ITEM 401640 BITUMINOUS PAVEMENT GROOVING

DESCRIPTION

401-1.1 GENERAL This item shall consist of constructing a skid resistant surface by providing sawcut grooves in the new HMA surface.

EQUIPMENT

401-2.1 GROOVING EQUIPMENT The equipment used for grooving shall be power saw cutting equipment, equipped with diamond blades mounted on a multi-blade arbor spaced to groove the runway to the dimensions specified herein, and as shown on the plans.

A cutting head width capable of grooving the runway to the specified tolerances shall be maintained.

The grooving equipment shall be equipped with automatic groove depth control which shall automatically adjust the cutting head and maintain groove depth within the specified tolerances. Sensors for depth control shall be located immediately adjacent to the axis of the cutting head.

The grooving equipment shall be equipped to meet the requirements of this item.

The Contractor shall submit a complete list of grooving equipment to be used on the job for approval by the Resident Engineer before start of the work.

CONSTRUCTION METHODS

401-3.1 CURE TIME Grooving operations shall not be initiated until after the *30 day* specified bituminous surface course cure period, coordinated with the drawings.

401-3.2 GROOVE DIMENSIONS Transverse grooves shall be saw-cut in the pavement forming a $\frac{1}{4}$ inch wide by $\frac{1}{4}$ inch deep by 1- $\frac{1}{2}$ inches center to center configuration. The grooves shall be continuous for the entire length of the pavement. They shall be saw-cut transversely in the pavement to within 10 feet of the pavement edge to allow adequate space for equipment operation. The tolerances for saw-cut grooves shall meet the following:

- A. Alignment tolerance - Plus or minus 1- $\frac{1}{2}$ inches in alignment for 75 feet.
- B. Groove tolerance - Minimum depth $\frac{3}{16}$ inch, except that not more than 60 percent of the grooves shall be less than $\frac{1}{4}$ inch. Maximum depth $\frac{5}{16}$ inch. Minimum width $\frac{1}{4}$ inch. Maximum width $\frac{5}{16}$ inch.
- C. Center-to-center spacing - Minimum spacing 1- $\frac{3}{8}$ inches. Maximum spacing 1- $\frac{5}{8}$

- D. Grooves shall not vary more than 3 inches in alignment for 75 feet along the runway length, allowing for realignment every 500 feet along the runway length.

Grooves shall not be less than 12 inches and not more than 18 inches from in-pavement light fixtures.

Pavement for 12 inches on all sides of pavement surface sensors shall not be grooved.

401-3.3 TEST SECTION Before initiating grooving operations on the runway, the Contractor shall demonstrate the performance of his/her operations and machines on a section of pavement designated by the Resident Engineer of similar construction to the runway. The Contractor shall have on hand each machine and each operator he/she proposes to use for runway grooving, and each combination groove a test section approximately 30 feet in width and 60 feet in length. The requirements of these specifications must be met before beginning of grooving of the runway. No payment will be made for this test strip.

401-3.4 REMOVAL OF SLURRY The removal of slurry shall be continuous throughout the grooving operations. The grooving equipment shall be equipped with vacuum slurry pick-up equipment which shall continuously pick up water and sawing dust, and pump the slurry to a collection tank.

Clean-up is extremely important and should be continuous throughout the grooving operation. All grooved areas of the runway shall be flushed with clear water as soon as possible to remove any slurry material not collected by the vacuum pickup. Flushing shall be continued until all pavement surfaces are clean to the satisfaction of the Resident Engineer.

The Contractor shall dispose of the slurry at off of airport property. Waste material must not be allowed to enter the airport storm or sanitary sewer, or any natural or constructed waterways.

METHOD OF MEASUREMENT

401-4.1 When the project is constructed essentially to the lines, grades, or dimensions shown on the Plans and the Contractor and the Resident Engineer have agreed in writing by the use of form AER 981 that the plan quantities are accurate, no further measurement will be required and payment will be made for the quantities shown in the contract for the various items involved except that if errors are discovered after work has been started, appropriate adjustments will be made.

When the Plans have been altered or when disagreement exists between the Contractor and the Engineer as to the accuracy of the plan quantities, either party shall, before any work is started which would affect the measurement, have the right to request in writing and thereby cause the quantities involved to be measured as herein specified.

The quantity of HMA pavement grooving to be paid for shall be the number of square yards of grooving, as specified, completed and accepted.

BASIS OF PAYMENT

401-5.1 Payment will be made at the contract unit price per square yard for HMA Pavement Grooving, which shall be full compensation for all materials, including water, labor, equipment, tools, runway cleaning, slurry removal, restoration and incidentals necessary to complete the work.

Payment will be made under:

Item AR401640

Bituminous Pavement Grooving – per Square Yard (SY)

END OF ITEM 401640

ITEM 401650 BITUMINOUS PAVEMENT MILLING

DESCRIPTION

401-1.1 This item of work shall consist of removing variable depths of existing HMA surface, as shown in the plans and as directed by the Resident Engineer.

EQUIPMENT

401-2.1 Equipment used shall be subject to approval by the Engineer and shall comply with the following:

Surface removal equipment shall be a power operated mechanical scarifiers, roto-mill, planing machine, grinder or other device capable of removing the surface to the depth indicated leaving a sound, bondable surface.

The equipment shall be in good working condition free from oil or fuel leaks. Power brooms and sweepers, vacuum sweepers and air compressors shall be in good working condition and shall be used in sufficient numbers or combinations to remove dust and debris from the milled surface.

CONSTRUCTION METHODS

401-3.1 The Contractor shall remove the pavement surface to the limits shown in the plans and as directed by the Resident Engineer. The material removed shall be disposed of off Airport property. The roughened surface shall be free of dirt and loose material prior to subsequent paving. If power brooms or sweepers are used, the surface shall be cleaned with high pressure air to remove dust and debris.

The temperature at which the work is performed, the nature and condition of the equipment and the manner of performing the work shall be such that the milled surface is not torn, gouged, shoved or otherwise injured by the milling operation. Sufficient cutting passes shall be made so that all irregularities or high spots are eliminated to the satisfaction of the Engineer.

Millings shall be disposed of off airport property unless the Airport identifies a location on airport property for stockpiling of millings. The Contractor shall dispose of the millings at no cost to the Airport either on airport property if directed or off airport property. If the Contractor is directed to dispose of the millings on airport property, the millings shall be deposited to heights as approved by the Resident Engineer. The Contractor shall reshape milling stockpiles as directed by the Resident Engineer as necessary. Reshaping of stockpiles shall be incidental.

METHOD OF MEASUREMENT

401-4.1 ~~There shall be no measurement or payment for HMA Pavement Milling. HMA Pavement Milling shall be incidental to Item 401.~~ The yardage to be paid for shall be the number of

square yards of *variable depth* HMA pavement milling *shown on the typical section details and grading plans in the drawings and as measured in the field, completed and accepted by the Resident Engineer.* Additional milling may be required for addressing distressed milled areas, such as signs of delamination. Pavement milling required for butt joint construction will not be measured for payment under this item.

BASIS OF PAYMENT

~~401-5.1 No direct payment will be made for HMA Pavement Milling. The cost of HMA Pavement Milling shall be considered incidental to the contract unit prices for the respective pay items utilizing the HMA Pavement Milling. These prices shall be full compensation for furnishing all materials, equipment, preparation and disposal of these materials; and for all labor, equipment, tools and incidentals necessary to complete the item.~~ The accepted quantities of HMA pavement milling will be paid for at the contract unit price per square yard which price and payment shall be full compensation for furnishing all materials, equipment, labor, hauling, and all other incidental items necessary to complete the work to the satisfaction of the Engineer. .

Payment will be made under:

Item AR401650

Bituminous Pavement Milling – per Square Yard (SY)

END OF ITEM 401650

ITEM 603 BITUMINOUS TACK COAT

DESCRIPTION

603-1.1 This item shall consist of supplying and applying bituminous material to a previously prepared, bonded and/or bituminized binder, leveling, or base course or existing pavement in accordance with these specifications and to the width shown on the typical cross section on the plans.

603-1.2 QUANTITY OF MATERIAL. The approximate amount of diluted (unless cutback asphalt is used) bituminous material per square yard for the tack coat application shall be as shown in TABLE 1. The exact application rate shall be determined in the field and approved by the Resident Engineer based on a visual inspection and existing conditions. The ratio of emulsified asphalt to water shall be as specified in 603-2.1 Bituminous Material.

MATERIALS

603-2.1 BITUMINOUS MATERIAL. The Contractor shall use any one of the applicable bituminous materials for the tack coat shown in TABLE 1. The Contractor shall dilute the emulsified asphalt at the ratio shown in TABLE 1. HFE-90 shall be diluted by the manufacturer. No additional diluting at the jobsite is allowed for HFE-90. The diluted material shall be thoroughly agitated within 24 hours of application and show no separation of water and emulsion. The diluted material shall not be returned to an approved emulsion storage tank.

CONSTRUCTION METHODS

603-3.1 WEATHER LIMITATIONS. The tack coat shall be applied only when the existing surface is dry, when the atmospheric temperature is above 60° F., and when the weather is not foggy or rainy. The temperature requirements may be waived, but only when so directed by the Engineer in writing.

Weather Limitations shall be as shown in TABLE 1.

603-3.2 EQUIPMENT.

A. Pressure Distributor. The pressure distributor used for applying liquid bituminous materials shall be a self-propelled motor vehicle and shall meet the requirements given hereinafter:

B. Truck. The truck shall be capable of operating smoothly at speeds as low as 0.8 mph when used on heavy penetration construction, and at normal road speeds when used for transporting bituminous materials. In order to develop these speeds satisfactorily, the truck shall have at least 4 speeds forward.

C. Tank. The tank on the distributor shall have a capacity of not less than 600 gallons. Approval shall be obtained from the Engineer for the use of a distributor having a capacity greater than 2500 gallons. The tank shall be covered with at least 1 inch of approved insulation. It shall be equipped with a removable manhole cover, and overflow pipe and a suitable strainer located at the intake or outlet to the pump to prevent the passage of any material which might clog the nozzles. A dial gauge plainly visible to the spray bar operator shall be conveniently placed to indicate the contents of the tank at various levels.

D. Heating System. The distributor shall be equipped with an approved heating system to heat the bituminous material. The heating system shall consist of heat flues having sufficient radiation to ensure the rapid circulation of hot gases of combustion from one or more efficient smokeless burners of the torch type, a circulating device to ensure uniform heating of the material, and a suitable fuel supply tank.

E. Pump. The distributor pump shall be of the rotary positive pressure type of sufficient size and discharge capacity to apply uniformly the specified amount of bituminous material per square yard in widths up to 24 ft. It shall be driven in the most direct method obtainable by a gasoline motor other than the vehicle propelling motor or by other methods approved by the Engineer. The pump motor shall have sufficient power to operate the distributor pump at the required volume and pressure. If the motor pump is equipped with a transmission, it shall have a governor. Suitable housing or heating jackets shall be provided to enclose the distributor pump and piping in order to retain the heat and to ensure a constant, even flow of material.

F. Spray Bars. Spray bars of various lengths shall be used to spray bituminous material over widths varying from 4 to 24 ft. The spray bars shall be arranged so that they may be swung from side to side over a distance of not less than 9 inches to match joints and to clear obstructions. They shall be equipped with spray nozzles of such design and size of orifice as to ensure uniform distribution of the bituminous material in the specified quantities. Means shall be provided to stop the flow of bituminous material quickly and to prevent it from dripping when the flow is shut off.

Means shall be provided for obtaining samples of the materials from the tank or from the piping leading from the tank to the spray bars.

A hand spray bar and nozzle having a suitable length of flexible hose with packed couplings shall be provided for applying material at fillets or similar locations.

G. Thermometer. A calibrated thermometer having the stem extending into the material or into an approved well shall be placed in a suitable position in the tank to give a true average temperature of the contents of the tank.

H. Operator's Platform. A substantial platform for the operator shall be provided at the rear of the distributor. It shall be so located that it will provide a clear view of the operation of the spray bars.

I. Tachometer or Synchronizer. A tachometer shall be attached to the truck in such a manner as to be visible to the truck operator and to enable him/her to maintain the constant speed necessary for the correct application of the specified quantity of bitumen. Suitable charts shall be furnished by the Contractor showing the truck speeds necessary to obtain the desired results.

When a synchronizer is used, the tachometer may be omitted. The synchronizer shall deliver a specified quantity of bituminous material on the pavement surface regardless of the speed of the truck.

J. Calibration. The distributor will be calibrated by the Contractor and verified by the Resident Engineer before the work is started. The Contractor shall furnish all equipment, tools, materials and assistance necessary to verify the calibration.

603-3.3 APPLICATION OF BITUMINOUS MATERIAL. Immediately before applying the tack coat, the full width of surface to be treated shall be swept with a power broom to remove all loose dirt and other objectionable material.

The application of the bituminous material shall be made by means of a pressure distributor at the pressure, temperature, and in the amounts directed by the Resident Engineer. The bituminous material for the tack coat shall be applied in such a manner as to yield the coverage shown in TABLE 1. *The Contractor shall re-tack at no additional cost to the contract, areas previously sprayed but bituminous tack material is worn away due to construction equipment operations. The Resident Engineer shall determine affected areas.*

Following the application, the surface shall be allowed to cure without being disturbed for such period of time as may be necessary to permit drying out and setting of the tack coat. The cure period for the bituminous tack coat shall be as shown in TABLE 1. The surface shall then be maintained by the Contractor until the next course has been placed. Suitable precautions shall be taken by the Contractor to protect the surface against damage during this interval, including any sand necessary to blot up excess bituminous material.

603-3.4 BITUMINOUS MATERIAL CONTRACTOR'S RESPONSIBILITY. Samples of the bituminous material that the Contractor proposes to use, together with a statement as to its source and character, must be submitted and approved before use of such material begins. The Contractor shall require the manufacturer or producer of the bituminous material to furnish material subject to this and all other pertinent requirements of the contract. Only satisfactory materials so demonstrated by service tests, shall be acceptable.

The Contractor shall furnish vendor's certified test reports for each carload, or equivalent, of bituminous material shipped to the project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing samples of material received for use on the project.

The bituminous material shall be supplied from an IDOT certified source indicated on the

latest IDOT Certified Source List for Emulsified Asphalt and/or the certified source list for Asphalt Cement, Cutback Asphalt, and Road Oil, as applicable.

603-3.5 FREIGHT AND WEIGH BILLS. Before the final estimate is allowed, the Contractor shall file with the Engineer receipted bills when railroad shipments are made, and certified weigh bills when materials are received in any other manner, of the bituminous materials actually used in the construction covered by the contract. The Contractor shall not remove bituminous material from the tank car or storage tank until the initial outage and temperature measurements have been taken by the Resident Engineer, nor shall the car or tank be released until the final outage has been taken by the Resident Engineer.

Copies of freight bills and weigh bills shall be furnished to the Resident Engineer during the progress of the work.

METHOD OF MEASUREMENT

603-4.1 The bituminous tack coat to be paid for shall be the number of gallons of the material used as ordered for accepted work, corrected to 60° F., in accordance with the temperature-volume correction tables for asphalt, and asphaltic emulsion materials, contained in ASTM D-1250.

Measurement for payment will not be made for any bituminous tack coat in excess of 105 percent of plan quantity plus (or minus) theoretical quantities authorized by the Engineer. (Maximum payment percentages apply only to those pay items paid for on the basis of volume or weight.) Plan quantities were calculated using the maximum application rates shown in the specifications unless shown otherwise in the plans.

BASIS OF PAYMENT

603-5.1 Payment shall be made at the contract unit price per gallon of bituminous tack coat. This price shall be full compensation for furnishing all materials and for all preparation, delivering, and application of these materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item AR603510

Bituminous Tack Coat – per Gallon (GAL)

TABLE 1

Proposed layer	Existing base to be tacked	Allowable tack material	Dilution rate	Application rate of diluted tack coat	Visual inspection guide	Cure time	Weather limitations
(401/403) Bituminous base/surface course	(401/403) Bituminous base/surface course	SS-1, SS-1h, CSS- 1, CSS- 1h, HFE 90, RC-70	Equal volume of water for all emulsions (50% emulsion/ 50% water). Does not apply for cutback asphalt	.05-.15 gal/s.y. for emulsions. .03-.08 gal/s.y. for cutback asphalt. To be determined by the Engineer based on visual inspection.	Uniform coverage of a light coating between layers and on the heavier side for existing surfaces. Avoid streaking. Areas worn from hauling operations shall be re-tacked.	When the tack coat dries (“breaks”) to the satisfaction of the R.E.	In accordance with 603-3.1 Weather Limitations.
(401/403) Bituminous base/surface course	Grooved Bituminous surface course (401)	SS-1, SS-1h, CSS- 1, CSS- 1h, HFE 90	80% Emulsion/ 20% Water	0.1 - 0.2 gal/s.y. to be determined by the Engineer based on visual inspection.	At least 2/3 of the groove depth has been filled with residual asphalt and a light film exists on the top of the groove. May require multiple applications	Minimum 24 hours. The tack coat must be dry (cured) to the satisfaction of the R.E.	In accordance with 603-3.1 Weather Limitations.
(401/403) Bituminous base/surface course	Porous Friction Course (402)	SS-1, SS-1h, CSS- 1, CSS- 1h, HFE 90	80% Emulsion/ 20% Water	0.1 - 0.25 gal/s.y. to be determined by the Engineer based on visual inspection.	Uniform coverage of a light coating between layers and on the heavier side for existing surfaces. Avoid streaking. Areas worn from hauling operations shall be re-tacked.	Minimum 24 hours. The tack coat must be dry (cured) to the satisfaction of the R.E.	In accordance with 603-3.1 Weather Limitations.
Porous Friction Course (402)	Porous Friction Course (402)	SS-1, SS-1h, CSS- 1, CSS- 1h, HFE 90	90% Emulsion/ 10% Water	0.15 - 0.30 gal/s.y. to be determined by the Engineer based on visual inspection.	Uniform coverage of tack with a thickness of .06 inches (about the thickness of a penny) on the aggregate particles. The surface voids should be filled and the surface should show some texture from the tips of the larger size stone showing through the tack material. May require multiple applications.	Minimum 48 hours. The tack coat must be dry (cured) to the satisfaction of the R.E.	In accordance with 603-3.1 Weather Limitations, except raise temperature to 60° F and rising.

Note: Multiple applications may be required for rates greater than .25 gal/s.y. When multiple applications are required, cure time per application shall be a minimum of 24 hours.

Table 1, Continued

Proposed layer	Existing base to be tacked	Allowable tack material	Dilution rate	Application rate of diluted tack coat	Visual inspection guide	Cure time	Weather limitations
Porous Friction Course (402)	Grooved Bituminous surface course (401)	SS-1, SS-1h, CSS- 1, CSS- 1h, HFE 90	90% Emulsion/ 10% Water	0.15 - 0.30 gal/s.y. to be determined by the Engineer based on visual inspection.	At least 2/3 of the groove depth has been filled with residual asphalt and a residual asphalt of .06inches (about the thickness of a penny) on the top of the grooves. May require multiple applications.	Minimum 48 hours. The tack coat must be dry (cured) to the satisfaction of the R.E.	In accordance with 603-3.1 Weather Limitations, except raise temperature to 60° F and rising.
Porous Friction Course (402)	(401/403) Bituminous base/surface course	SS-1, SS-1h, CSS- 1, CSS- 1h, HFE 90	80% Emulsion/ 20% Water	0.1 - 0.25 gal/s.y. to be determined by the Engineer based on visual inspection.	Uniform coverage .06 inches thick (about the thickness of a penny). May require two (2) applications. Avoid streaking. Areas worn from hauling operations shall be retacked.	Minimum 48 hours. The tack coat must be dry (cured) to the satisfaction of the R.E.	In accordance with 603-3.1 Weather Limitations, except raise temperature to 60° F and rising.
(401/403) Bituminous base/surface course	(501) P.C. Concrete	SS-1, SS-1h, CSS- 1, CSS- 1h, HFE 90, RC-70	Equal volume of water for all emulsions (50% emulsion/ 50% water). Does not apply for cutback asphalt	.05-.15 gal/s.y. for emulsions. .03-.08 gal/s.y. for cutback asphalt. To be determined by the Engineer based on visual inspection.	Uniform coverage of a light coating on the heavier side for existing surfaces. Avoid streaking. Areas worn from hauling operations shall be retacked.	When the tack coat dries ("breaks") to the satisfaction of the R.E.	In accordance with 603-3.1 Weather Limitations.
(401/403) Bituminous base/surface course	(501) P.C. Concrete	SS-1, SS-1h, CSS- 1, CSS- 1h, HFE 90	80% Emulsion/ 20% Water	0.15 - 0.30 gal/s.y. to be determined by the Engineer based on visual inspection.	At least 2/3 of the groove depth has been filled with residual asphalt and a light fog on the top of the grooves.	Minimum 24 hours. The tack coat must be dry (cured) to the satisfaction of the R.E.	In accordance with 603-3.1 Weather Limitations, except raise temperature to 60° F and rising.

Note: Multiple applications may be required for rates greater than .25 gal/s.y. When multiple applications are required, cure time per application shall be a minimum of 24 hours.

END OF ITEM 603

ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE

DESCRIPTION

610-1.1 This item shall consist of either plain or reinforced structural Portland cement concrete, prepared and constructed in accordance with these specifications, at the locations and of the form and dimensions shown on the plans. The concrete shall be composed of coarse aggregate, fine aggregate, Portland cement, and water.

This item shall include all formwork, furnishing and placing of reinforcement and concrete used in the construction of all fencing, drainage, lighting installation, and other miscellaneous concrete construction.

MATERIALS

610-2.1 GENERAL. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. They may be subjected to inspection and tests at any time during the progress of their preparation or use. The source of supply of each of the materials shall be approved by the Engineer before delivery or use is started.

Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to insure the preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed therein.

In no case shall the use of pit-run or naturally mixed aggregates be permitted. Naturally mixed aggregate shall be screened and washed, and all fine and coarse aggregates shall be stored separately and kept clean. The mixing of different kinds of aggregates from different sources in one storage pile or alternating batches of different aggregates will not be permitted.

An Item 501 PCC mix design is acceptable for use if no IDOT Class SI mix is available.

610-2.2 COARSE AGGREGATE. The coarse aggregate for concrete shall be a crushed stone and meet the requirements of Class A quality in accordance with the IDOT quality specifications and shall be freeze-thaw rated in accordance with IDOT specifications.

The coarse aggregate shall meet the IDOT 022CA07 or 022CA11 Gradation.

610-2.3 FINE AGGREGATE. The fine aggregate for concrete shall meet the requirements of Class A quality in accordance with the IDOT quality specifications and shall be Gradation FA 1 or FA 2.

The fine aggregate shall consist of washed sand. Washed stone sand, or a blend of stone and natural sand, will only be permitted with the written approval of the Engineer.

610-2.4 CEMENT. The cement used shall be Portland cement conforming to the requirements of the type specified:

- A. Portland cement ----- ASTM C 150
- B. Air-entraining Portland cement ----- ASTM C 150

The Contractor shall furnish vendor's certified test reports for each carload, or equivalent, of cement shipped to the project, if requested by the Engineer, and shall be delivered to the Engineer before permission to use the cement is granted.

The cement used shall be IDOT-approved Portland cement type (I) conforming to the requirements of ASTM C 150 and be from an approved manufacturer listed on the current IDOT "Approved List of Qualified Cement Plants". Other cement types may only be used when approved in writing by the Division.

610-2.5 WATER. The water used in concrete shall be free from sewage, oil, acid, sugar, strong alkalis, vegetable matter, and clay and loam. If the water is of questionable quality, it shall be tested in accordance with the requirements of AASHTO T 26, ASTM D 516, ASTM D 512, ASTM C 151, ASTM C 266 and ASTM C 109 tests as deemed necessary by the Engineer. Water known to be of potable quality may be used without testing.

610-2.6 ADMIXTURES. The use of any material added to the concrete mix shall be approved by the Engineer and must be IDOT-approved admixtures listed on the current IDOT Bureau of Materials and Physical Research's "Approved List of Concrete Admixtures". This list contains the recommended dosage rates of each admixture, but the Contractor shall determine final dosage rate for the mix as part of the Quality Control on the material. The dosage determined shall not delay the initial set of concrete by more than one hour.

All concrete shall be air-entrained by the use of an admixture.

A retarding admixture is required to be added to the concrete mixture when the concrete temperature is 85 degrees F or above.

610-2.7 PREMOLDED JOINT MATERIAL. Premolded joint material for expansion joints shall meet the requirements of one of the following: ASTM D 994, D 1751, or D 1752.

610-2.8 JOINT FILLER. The filler for joints shall meet the requirements of Item 605, unless otherwise specified in the proposal.

610-2.9 STEEL REINFORCEMENT. Reinforcement bars shall conform to the requirements of ASTM A 706, Grade 60 deformed bars. Welded wire fabric shall conform to the requirements of AASHTO M 55, ASTM A 82, or ASTM A 185, plain type, flat stock only.

610-2.10 COVER MATERIALS FOR CURING. Curing materials shall conform to one of the following specifications:

RUNWAY 10-28 AND ASSOCIATED TAXIWAY CONNECTOR OVERLAY STRUCTURAL PORTLAND CEMENT
DUPAGE AIRPORT CONCRETE

- A. Waterproof Paper for Curing Concrete ASTM C 171
- B. Polyethylene Sheeting for Curing Concrete ASTM C 171
- C. Burlap Cloth ASTM C 171
- D. Liquid Membrane-Forming Compounds for Curing Concrete ASTM C 309 (Type 2)

610-2.11 CALCIUM CHLORIDE. When calcium chloride is permitted by the Engineer in the concrete as an accelerator, it shall meet the requirements of ASTM D 98.

CONSTRUCTION METHODS

610-3.1 GENERAL. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified herein. All machinery and equipment owned or controlled by the Contractor, which he/she proposes to use on the work, shall be of sufficient size to meet the requirements of the work, and shall be such as to produce satisfactory work; all work shall be subject to the inspection and approval of the Engineer. The Contractor shall employ, at all times a sufficient force of workmen of such experience and ability that the work can be prosecuted in a satisfactory and workmanlike manner.

610-3.2 CONCRETE PROPORTIONS. The concrete shall consist of a mixture of coarse aggregate, fine aggregate, Portland cement, and water. All aggregates and bulk cement shall be measured by weight. In proportioning aggregates and mixing water, compensation shall be made for the weight of moisture in the aggregates, and this shall be determined periodically.

The air content by volume shall be between 5% and 8%, by volume, based on measurements made on concrete immediately after discharge from the mixer in accordance with ASTM C 138 or C 231.

Concrete provided under this item shall be IDOT approved Class SI concrete, air entrained with crushed stone coarse aggregate and shall be pre-approved by the Division prior to use. An Item 501 PCC Pavement mix can be used in lieu of a Class SI mix, with the approval of the Division.

The Contractor shall be responsible for obtaining the job mix formula meeting the requirements of this item. The Contractor shall refer to the Illinois Division of Aeronautics latest edition of Policy Memorandum 96-1, "Item 610, Structural Portland Cement Concrete: Job Mix Formula Approval and Production Testing", located on the internet on the IDOT website.

The Contractor shall provide actual batch weight tickets for every batch of Item 610 concrete used on the project to be collected by the Resident Engineer upon delivery of each batch of concrete. The actual batch weight tickets shall be kept with the project records by the Resident Engineer and shall be available upon request of the Department of transportation.

Concrete provided under this item shall be a workable plastic concrete having a

compressive strength of not less than 3,500 pounds per square inch at the age of 14 days when tested in accordance with ASTM C 39.

The concrete shall have a maximum slump of three inches (3") when tested in accordance with ASTM C 143.

610-3.3 CONTROL TESTS. When directed by the Resident Engineer, the Contractor shall make test cylinders from the concrete as mixed for the work as herein specified.

Concrete cylindrical test specimens shall be made in accordance with ASTM C 31. The Contractor shall cure and store the test specimens under such conditions as directed. The Engineer will make the actual tests on the specimens at no expense to the Contractor.

610-3.4 PROPORTIONING AND MEASURING DEVICES. When package cement is used, the quantity for each batch shall be equal to one or more whole sacks of cement. The aggregates shall be measured separately by weight. If aggregates are delivered to the mixer in batch trucks, the exact amount for each mixer charge shall be contained in each batch compartment. Weighing boxes or hoppers shall be approved by the Engineer and shall provide means of regulating the flow of aggregates into the batch box so that the required and exact weight of aggregates can be readily obtained.

610-3.5 CONSISTENCY. The consistency of the concrete shall be checked by the slump test specified in ASTM C 143 and have a range of 1" - 3"

610-3.6 MIXING. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. Whichever mixing process is used, concrete of the specified proportions and consistency shall be produced.

610-3.7 MIXING CONDITIONS. The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40° F. without permission of the Engineer. If permission is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50° F or more than 100° F. The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his/her expense.

Retempering of concrete by adding water or any other material shall not be permitted.

The delivery of concrete to the job shall be in such a manner that the batches of concrete will be deposited at uninterrupted intervals.

610-3.8 FORMS. The design and engineering of formwork, as well as its construction shall be the responsibility of the Contractor. Forms shall be of wood, metal, or other material approved by the Engineer and shall be designed, fabricated, braced, and maintained such that the finished concrete conforms to the true lines and dimensions specified in the plans. Forms shall be tight and of sufficient rigidity to prevent distortion due to the pressure of the concrete and other construction loadings, including vibration.

The maximum deflection of facing materials reflected in concrete surfaces exposed to view shall not be greater than 1/240 of the span between structural members. 3/4" chamfer strips shall be placed in the corners of the column, beam, and wall forms where the concrete will be exposed to view.

Where necessary to maintain the specified tolerances, the formwork shall be cambered to compensate for anticipated deflections in the formwork due to the weight and pressure of the fresh concrete and due to construction loads.

Temporary openings shall be provided at the base of wall forms and at other points where necessary to facilitate cleaning and inspection immediately before concrete is deposited.

Form accessories to be partially or wholly embedded in the concrete, such as ties and hangars, shall be a commercially manufactured type. The portion remaining within the concrete shall leave no metal within one inch of the surface when the concrete is exposed to view. Spreader cones on ties shall not exceed one inch in diameter.

Plywood or other wood surfaces shall be sealed against absorption of moisture from the concrete by either (1) a field applied, approved, form oil or sealer, or (2) a factory applied non-absorptive liner.

When forms are coated to prevent bond with concrete, it shall be done PRIOR to placing of the reinforcing steel. Excess coating material shall not be allowed to stand in puddles in the forms nor allowed to come in contact with concrete against which fresh concrete will be placed.

Forms shall be wetted with water or with a non-staining mineral oil which shall be applied shortly before the concrete is placed.

If forms are to be reused, the Contractor shall maintain the shape, strength, rigidity and surface smoothness of all reused sections. Any formwork which is warped or contains bulges shall be repaired or discarded. All reused formwork shall be subject to approval of the Engineer.

Formwork for walls, sides of beams, and other parts not supporting the weight of the concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from removal operations, particularly when form ties will be bent by the removal operations.

Formwork for beam soffits and slabs and other parts that support the weight of concrete, shall remain in place until the concrete has reached its specified 28-day strength, unless otherwise specified or permitted.

610-3.9 PLACING REINFORCEMENT. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concreting. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal

chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.10 EMBEDDED ITEMS. Before placing concrete, any items that are to be embedded shall be firmly and securely fastened in place as indicated. All such items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The embedding of wood shall be avoided. The concrete shall be spaded and consolidated around and against embedded items.

610-3.11 PLACING CONCRETE. All concrete shall be placed during daylight, unless otherwise approved. The concrete shall not be placed until the depth and character of foundation, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved. Concrete shall be placed as soon as practical after mixing and in no case later than 45 minutes after water has been added to the mix. The method and manner of placing shall be such to avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. Dropping the concrete a distance of more than 5 feet, or depositing a large quantity at one point, will not be permitted. Concrete shall be placed upon clean, damp surfaces, free from running water, or upon properly consolidated soil.

The concrete shall be consolidated with suitable mechanical vibrators operating within the concrete. When necessary, vibrating shall be supplemented by hand spading with suitable tools to assure proper and adequate compaction. Vibrators shall be manipulated so as to work the concrete thoroughly around the reinforcement and embedded fixtures and into corners and angles of the forms. The vibration at any joint shall be of sufficient duration to accomplish compaction but shall not be prolonged to the point where segregation occurs. Concrete deposited under water shall be carefully placed in a compact mass in its final position by means of a tremie, a closed bottom dump bucket, or other approved method and shall not be disturbed after being deposited.

Concrete shall be placed in conformance with ACI 304. The method and manner of placing concrete shall be such as to avoid segregation or separation of the aggregates or the displacement of reinforcing steel.

Chutes shall extend as nearly as practicable to the point of deposit. For wall placement in excess of six feet vertical height, a tremie shall be used in placing the concrete. If reinforcing steel or formwork is such that a tremie cannot be used, the method of placement shall be approved by the Engineer.

Placement of concrete shall be regulated so that the pressures caused by the wet concrete will not exceed those used in the design of the forms. Concrete placed in vertical forms shall be placed in lifts of not more than two feet which shall be kept practically level.

610-3.12 CONSTRUCTION JOINTS. When the placing of concrete is suspended, necessary provisions shall be made for joining future work before the placed concrete takes its initial set. For the proper bonding of old and new concrete, such provisions shall be made for grooves, steps, keys, dovetails, reinforcing bars or other devices as may be prescribed. The

work shall be arranged so that a section begun on any day shall be finished during daylight of the same day. Before depositing new concrete on or against concrete which has hardened, the surface of the hardened concrete shall be cleaned by a heavy steel broom, roughened slightly, wetted, and covered with a neat coating of cement paste or grout.

610-3.13 EXPANSION JOINTS. Expansion joints shall be constructed at such points and of such dimensions as may be indicated on the drawings. The premolded filler shall be cut to the same shape as that of the surfaces being joined. The filler shall be fixed firmly against the surface of the concrete already in place in such manner that it will not be displaced when concrete is deposited against it.

610-3.14 DEFECTIVE WORK. Any defective work disclosed after the forms have been removed shall be immediately removed and replaced. If any dimensions are deficient, or if the surface of the concrete is bulged, uneven, or shows honeycomb, which in the opinion of the Engineer cannot be repaired satisfactorily, the entire section shall be removed and replaced at the expense of the Contractor.

610-3.15 SURFACE FINISH. All exposed concrete surfaces shall be true, smooth, free from open or rough spaces, depressions, or projections. The concrete in horizontal plan surfaces shall be brought flush with the finished top surface at the proper elevation and shall be struck-off with a straightedge and floated. Mortar finishing shall not be permitted, nor shall dry cement or sand-cement mortar be spread over the concrete during the finishing of horizontal plane surfaces.

When directed, the surface finish of exposed concrete shall be a rubbed finish. If forms can be removed while the concrete is still green, the surface shall be pointed and wetted and then rubbed with a wooden float until all irregularities are removed. If the concrete has hardened before being rubbed, a carborundum stone shall be used to finish the surface. When approved, the finishing can be done with a rubbing machine.

610-3.16 CURING AND PROTECTION. Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures, and shall be maintained with a minimal moisture loss at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete.

Initial curing shall immediately follow the finishing operation, and shall continue for a minimum of 24 hours after placement. Concrete shall be kept continuously moist by one of the following methods listed below:

A. Polyethylene Sheeting. The unformed surfaces shall be covered with polyethylene sheeting as soon as the concrete has hardened sufficiently to prevent marring the surface. The surface of the concrete shall be wetted immediately before sheeting is placed. Use of a layer of wetted burlap beneath the sheeting may be required at the option of the Engineer. The edges of the sheeting shall have sufficient lap and shall be fastened securely by any means satisfactory to the Engineer to provide an airtight cover. Tears or holes in the sheeting will not be permitted.

B. Membrane Curing. After the concrete has been finished and immediately after the water sheen is no longer visible on the surface of the concrete, the surface shall be cured with membrane curing compound. Curing compounds may be used to cover all exposed surfaces. Membrane curing will not be permitted at construction joints or on vertical wall surfaces. Application shall be such to completely cover all exposed surfaces and rate of coverage shall be in accordance with the manufacturers' recommendations.

C. Waterproof Paper Method. The surface of the concrete shall be covered with waterproof paper as soon as the concrete has hardened sufficiently to prevent marring the surface. Any waterproof paper used shall meet the approval of the Engineer. The surface of the concrete shall be wetted immediately before the paper is placed. The paper shall be lapped a minimum of 12 inches end to end and such laps and ends shall be securely held in place to form a closed joint. Tears or holes in the paper will not be permitted. The edges shall be weighted securely by a means that is satisfactory to the Engineer to provide an air-tight cover.

D. Wetted Burlap. The surface of the concrete shall be covered with wetted burlap blankets as soon as the concrete has hardened sufficiently to prevent marring the surface. The blankets shall overlap 6 inches and shall be kept saturated by means of a mechanically operated sprinkling system. At least two layers of wetted burlap shall be placed on the finished surface. In place of the sprinkling system, at the Contractor's option, two layers of burlap covered with impermeable covering may be used. The burlap shall be kept saturated with water. Plastic-coated burlap may be substituted for one layer of burlap and impermeable covering. The blankets shall be placed so that they are in contact with the edges of the concrete, and that portion of the material in contact with the edges shall be kept saturated with water.

Immediately following the initial curing and before the concrete has dried, additional curing shall be accomplished by one of the following methods:

1. Continuing the method used in initial curing.
2. Waterproof Paper.
3. Other moisture-retaining coverage materials which are practical and meet the approval of the Engineer.

The final curing shall continue until the cumulative number of days of initial and final curing totals not less than seven (7) days. Rapid drying at the end of the curing period shall be prevented.

Steel forms heated by the sun and all wood forms in contact with the concrete during the final curing period shall be kept wet. If forms are to be removed during the curing period, one of the above curing methods shall be employed immediately. Such curing shall be continued for the remainder of the curing period.

610-3.17 DRAINS OR DUCTS. Drainage pipes, conduits, and ducts that are to be encased in concrete shall be installed by the Contractor before the concrete is placed. The pipe shall be held rigidly so that it will not be displaced or moved during the placing of the concrete.

610-3.18 COLD WEATHER PROTECTION. When concrete is placed at temperatures below 40° F., the Contractor shall provide satisfactory methods and means to protect the mix from injury by freezing. Protection shall be in accordance with Division of Aeronautics" Policy Memo 2001-1.

610-3.19 FILLING JOINTS. All joints which require filling shall be thoroughly cleaned, and any excess concrete shall be cut out with proper tools. Joint filling shall not be started until after final curing and shall be done only when the concrete is completely dry. The cleaning and filling shall be carefully done with proper equipment and in a manner to obtain a neat looking joint free from excess filler.

METHOD OF MEASUREMENT

610-4.1 No separate measurement for PCC shall be made.

BASIS OF PAYMENT

610-5.1 No direct payment will be made for structural Portland cement concrete. The cost of furnishing and installing structural concrete shall be considered incidental to the contract unit prices for the respective pay items utilizing the concrete. These prices shall be full compensation for furnishing all materials and for all preparation, delivering and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete the item.

END OF ITEM 610

ITEM 620 PAVEMENT MARKING

DESCRIPTION

620-1.1 This item shall consist of the painting of numbers, markings, and stripes on the surface of runways and taxiways applied in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Engineer.

MATERIALS

620-2.1 MATERIAL ACCEPTANCE The Contractor shall furnish manufacturer's certified test reports for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. The reports can be used for material acceptance or the Engineer may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the Engineer upon arrival of a shipment of materials to the site.

620-2.2 PAINT. Paint shall be Waterborne, in accordance with the requirements of paragraph 620-2.2 a. Paint shall be furnished in accordance with Federal Standard No 595.

- a. WATERBORNE. Paint shall meet the requirements of Federal Specification TT-P-1952E, Type I. Type I - Standard drying time for no pick-up when tested in accordance with ASTM D 711.
- b. Paint shall be furnished in:

Yellow	33538 or 33655
Black	37038
Pink	1 part Red 31136 to 2 parts White 37925
Red	31136
White	37925

620-2.3 REFLECTIVE MEDIA. Glass beads shall meet the requirements of federal specifications TT-B-1325, Type III. Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

CONSTRUCTION METHODS

620-3.1 WEATHER LIMITATIONS. The painting shall be performed only when the surface is dry, the wind is light, the surface temperature is at least 45 degrees F and rising and the pavement surface temperature is at least 5 degrees F above the dew point. Markings shall not be applied when the pavement temperature is greater than 120 degrees F.

620-3.2 EQUIPMENT. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine suitable for application of traffic paint. It shall produce an even and uniform film thickness at the required coverage and shall apply markings of uniform cross sections and clear-cut edges without running or spattering and without over spray.

620-3.3 PREPARATION OF SURFACE. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other foreign material that would reduce the bond between the paint and the pavement. The area to be painted shall be cleaned by sweeping and blowing or by other methods as required to remove all dirt, laitance, and loose materials without damage to the pavement surface. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the Engineer. Paint shall not be applied to Portland cement concrete pavement until the areas to be painted are clean of curing material. Sandblasting or high-pressure water shall be used to remove curing materials.

620-3.4 LAYOUT OF MARKINGS. The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans.

620-3.5 APPLICATION. Paint shall be applied at the locations and to the dimensions and spacing shown on the plans. Paint shall not be applied until the layout and condition of the surface has been approved by the Engineer. Whenever possible, new asphalt pavement shall be allowed to cure before application of paint. In general, a 24 to 30 day waiting period is recommended by the FAA. The actual minimum curing time shall be as recommended by the paint manufacturer or otherwise directed by the Engineer. If airport operations require pavement marking at an earlier time, the paint may be applied in a temporary light coat at approximately 50% of the normal application rate specified in Table 1. Glass beads are not required for temporary markings. The final pavement marking should occur after the waiting period for pavement curing has passed. The final marking must be at the full strength application rate to adequately set the glass beads. Painting of black borders is required for final pavement markings.

The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet and marking dimensions and spacings shall be within the following tolerances:

Dimension and Spacing	Tolerance
36 inches or less	±1/2 inch
greater than 36 inches to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inches

Dimension and Spacing	Tolerance
greater than 60 feet	±3 inches

The paint shall be mixed in accordance with the manufacturer’s instructions and applied to the pavement with a marking machine at the rate(s) shown in Table 1. The addition of thinner will not be permitted. A period of 24 hours shall elapse between placement of a bituminous surface course or seal coat and application of the paint.

Table 1 Application Rates for Paint and Glass Beads				
Paint Type	Paint Square Feet Per Gallon, ft²/gal	Glass Beads, Type I, Gradation A Pounds Per Gallon of Paint – lb./gal.	Glass Beads, Type III Pounds Per Gallon of Paint – lb./gal.	Glass Beads, Type IV Pounds Per Gallon of Paint – lb./gal.
Waterborne	115 ft ² /gal. maximum	7 lb./gal. minimum	10 lb./gal. minimum	-

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished which is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate(s) shown in Table 1. Glass beads shall not be applied to black paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made.

All emptied containers shall be returned to the paint storage area for checking by the Engineer. The containers shall not be removed from the airport or destroyed until authorized by the Engineer.

620-3.6 PROTECTION AND CLEANUP. After application of the paint, all markings shall be protected from damage until the paint is dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings of paint. The Contractor shall remove from the site all debris, waste, loose or un-adhered reflective media, and by-products generated by the surface preparation and application operations, to the satisfaction of the Engineer. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and Federal environmental statutes and regulations.

620-3.7 MARKING REMOVAL. Existing marking and temporary marking applied during the project shall be removed by water blasting, unless obliteration by painting over with black paint is directed, or the subject area is to be overlaid and the marking can be left in place, or the temporary marking is repainted with permanent marking. The Contractor’s

water blasting equipment shall be capable of producing a minimum water pressure of 55,000 psi.

METHOD OF MEASUREMENT

620-4.1 The quantity of runway and taxiway markings measured for payment shall be the number of square feet based on as-built conditions. Temporary marking will be measured and shall include layout of markings without glass beads and black paint. Final markings will also be measured and include glass beads and black paint performed in accordance with the specifications and accepted by the Engineer. No separate measurement for payment shall be made for marking removal. Paint and reflective media applied in addition to the initial application of temporary and final marking, when necessary to produce acceptable marking, will not be measured for payment.

BASIS OF PAYMENT

620-5.1 Payment shall be made at the contract price per square yard for runway and taxiway painting. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, marking removal, initial 50% and final applications, and incidentals necessary to complete the item. No separate payment shall be made for applications applied necessary to produce acceptable markings in addition to the initial 50% and final applications. No separate payment shall be made for marking removal.

Payment will be made under:

<i>Item AR620520</i>	<i>Pavement Marking-Waterborne – per Square Feet (SF)</i>
<i>Item AR620590</i>	<i>Temporary Marking – per Square Feet (SF)</i>
<i>Item AR620900</i>	<i>Pavement Marking Removal– per Square Feet (SF)</i>

TESTING REQUIREMENT

ASTM C 146	Chemical Analysis of Glass Sand
ASTM C 371	Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders
ASTM D 92	Test Method for Flash and Fire Points by Cleveland Open Cup
ASTM D 711	No-Pick-Up Time of Traffic Paint
ASTM D 968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D 1213-54	(1975) Test Method for Crushing Resistance of Glass Spheres

ASTM D 1652	Test Method for Epoxy Content of Epoxy Resins
ASTM D 2074	Test Method for Total Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D 2240	Test Method for Rubber Products-Durometer Hardness
ASTM G 15453	Operating Light and Water-Exposure Apparatus (Fluorescent Light Apparatus UV-Condensation Type) for Exposure of Nonmetallic Materials.
Federal Test Method Standard No. 141D/GEN	Paint, Varnish, Lacquer and Related Materials; Methods of Inspection, Sampling and Testing

MATERIAL REQUIREMENTS

ASTM D 476	Specifications for Dry Pigmentary Titanium Dioxide Pigments Products
Code of Federal Regulations	40 CFR Part 60, Appendix A - Definition of Traverse Point Number and Location
Code of Federal Regulations	29 CFR Part 1910.1200 - Hazard Communications
FED SPEC TT-B-1325D	Beads (Glass Spheres) Retroreflective
AASHTO M 247	Glass Beads Used in Traffic Paints
FED SPEC TT-P-1952E	Paint, Traffic and Airfield Marking, Waterborne
Commercial Item	Paint, Traffic, Solvent Based Description (CID) A-A-2886B
FED STD 595	Colors used in Government Procurement

END OF ITEM 620

DIVISION V

TURFING

ITEM 904 SODDING

DESCRIPTION

904-1.1 This item shall consist of furnishing, hauling, and placing approved live sod on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the Resident Engineer.

904-1.2 SUMMARY OF INSTANCES. Sodding will be required for restoration including, but not limited to, grass areas disturbed as a result of milling and paving operations, trenching, haul routes, etc.

MATERIALS

904-2.1 SOD. Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials which might be detrimental to the development of the sod or to future maintenance. At least 70% of the plants in the cut sod shall be composed of the species stated in the special provisions, and any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the plant growth showing above, shall be cut uniformly to a thickness not less than that stated in the special provisions.

904-2.2 LIME. ~~Lime, if specified, shall conform to the requirements of 901-2.2.~~ *Agricultural ground limestone shall contain particles ground sufficiently fine so that essentially all material pass a No. 4 sieve and is graded relatively uniform through the Nos. 8, 30, and 60 sieves. Approved sources of agricultural ground limestone shall be tested by the Department of Agriculture and rated with a source correction factor.*

All agricultural lime sources must be listed on the Illinois Department of Agriculture's "Limestone Program Producer Information" booklet listed on the IDOT website.

Agricultural lime shall be applied at 2 ton per acre. The Contractor has the option to perform a soil test, at their expense, to determine if lime is not necessary, based upon the existing pH level of the soil. The pH level of the soil must be between 5.5 and 7.6 for the application of lime to be eliminated. The soil test results must be reviewed and approved by the Engineer before the application of lime can be waived.

904-2.3 FERTILIZER. ~~Fertilizer, if specified, shall conform to the requirements of 901-2.3.~~

RUNWAY 10-28 AND ASSOCIATED TAXIWAY CONNECTOR OVERLAY
DUPAGE AIRPORT

SODDING

Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate specified herein, and shall meet the specified requirements of the applicable State and Federal laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

- A. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;*
- B. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or*
- C. A granular or pellet form suitable for application by blower equipment.*

Fertilizer shall be incorporated to a minimum depth of 3 inches.

The 270 lb of fertilizer nutrients per acre (hectare) shall be applied at 3:1:2 ratio as follows:

<i>Nitrogen Fertilizer Nutrients 135 lb/acre</i>
<i>Phosphorus Fertilizer Nutrients 45 lb/acre</i>
<i>Potassium Fertilizer Nutrients 90 lb/acre</i>

904-2.4 WATER. The water shall be sufficiently free from oil, acid, alkali, salt, or other harmful materials that would inhibit the growth of grass. It shall be subject to the approval of the Resident Engineer prior to use.

904-2.5 SOIL FOR REPAIRS. ~~The soil for fill and topsoiling of areas to be repaired shall conform to the requirements of 901-2.4.~~ The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the Resident Engineer before being placed.

CONSTRUCTION METHODS

904-3.1 GENERAL. Areas to be solid, strip, or spot sodded shall be shown on the plans. Areas requiring special ground surface preparation such as tilling and those areas in a satisfactory condition which are to remain undisturbed shall also be shown on the plans.

Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the Resident Engineer before the various operations are started. The Contractor shall demonstrate to the Resident Engineer before starting the various operations that the application of required materials will be made at the specified rates.

904-3.2 PREPARING THE GROUND SURFACE. After grading of areas has been

completed and before applying fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

904-3.3 APPLYING FERTILIZER AND GROUND LIMESTONE. Following ground surface preparation, fertilizer shall be uniformly spread at a rate which will provide not less than the minimum quantity of each fertilizer ingredient, as stated in the special provisions. If use of ground limestone is required, it shall then be spread at a rate which will provide not less than the minimum quantity stated in the special provisions. These materials shall be incorporated into the soil to a depth of not less than 2 inches by discing, raking, or other methods acceptable to the Resident Engineer. Any stones larger than 2 inches in any diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

904-3.4 OBTAINING AND DELIVERING SOD. After inspection and approval of the source of sod by the Resident Engineer, the sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted, it shall have a uniform thickness of not less than 2 inches. Sod sections or strips shall be cut in uniform widths, not less than 10 inches, and in lengths of not less than 18 inches, but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside. The Contractor may be required to mow high grass before cutting sod.

The sod shall be transplanted within 24 hours from the time it is stripped, unless circumstances beyond the Contractor's control make storing necessary. In such cases, sod shall be stacked, kept moist, and protected from exposure to the air and sun and shall be kept from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, permission to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

904-3.5 LAYING SOD. Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the Resident Engineer, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitch forks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and insure knitting without

displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen when replacing it shall work from ladders or treaded planks to prevent further displacement. Screened soil of good quality shall be used to fill all cracks between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately 1 inch below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than 1 vertical to 2 1/2 horizontal and in V-shaped or flat-bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches in length and have a cross-sectional area of not less than 3/4 square inch. The pegs shall be driven flush with the surface of the sod.

904-3.6 WATERING. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner which will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

904-3.7 ESTABLISHING TURF.

A. General. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work.

B. Protection. All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the Resident Engineer.

C. Mowing. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. In the event that weeds or other undesirable vegetation are permitted to grow to such an extent that, either cut or uncut, they threaten to smother the sodded species, they shall be mowed and the clippings raked and removed from the area.

904-3.8 REPAIRING. When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil, as directed by the Resident Engineer, and shall then be resodded as specified in 904-3.5.

METHOD OF MEASUREMENT

904-4.1 ~~There shall be no measurement for payment for Sodding. This work shall be incidental to items of work where they are required and shall include all removal, preparation, delivering and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete the item. This item shall be measured on the basis of the area in square yards of the surface covered with sod and accepted.~~

~~When the project is constructed essentially to the lines, grades, or dimensions shown on the Plans and the Contractor and the Resident Engineer have agreed in writing by the use of form AER 981 that the plan quantities are accurate, no further measurement will be required and payment will be made for the quantities shown in the contract for the various items involved except that if errors are discovered after work has been started, appropriate adjustments will be made.~~

~~When the Plans have been altered or when disagreement exists between the Contractor and the Engineer as to the accuracy of the plan quantities, either party shall, before any work is started which would affect the measurement, have the right to request in writing and thereby cause the quantities involved to be measured as herein specified.~~

~~Only those areas designated in the plans shall be sodded, unless directed otherwise by the Engineer. All other areas requiring repair due to the Contractor's operations shall be sodded with the cost to be borne by the Contractor.~~

~~The quantity of water utilized for sod bed preparation and maintenance of the sodded areas shall be considered incidental to sodding and will not be measured for payment.~~

~~If necessary, Areas of sodding not showing a uniform stand of grass in density and color shall not be approved for payment. Such areas shall be resodded to the Owner's satisfaction at the Contractor's cost.~~

BASIS OF PAYMENT

904-5.1 ~~There shall be no payment for Sodding. Sodding shall be incidental to items of work where they are required. This item will be paid for on the basis of the contract unit price per square yard for sodding, which price shall be full compensation for all labor, equipment, material, staking, and incidentals necessary to satisfactorily complete the items as specified.~~

~~Payment will be made under:~~

~~Item AR904510 ————— Sodding per Square Yard (SY)~~

END OF ITEM 904

ITEM 905 TOPSOILING

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the Resident Engineer.

905-1.2 SUMMARY OF INSTANCES. Topsoiling will be required for restoration including, but not limited to, grass areas disturbed as a result of milling and paving operations, trenching, haul routes, etc.

Topsoil shall be stripped from cut areas and below proposed pavements and stockpiled outside of the grading limits. Topsoil shall be utilized in shoulders adjacent to the proposed pavements. In addition, the surface of all disturbed areas shall be covered with a layer of topsoil, as needed, to facilitate drainage and the growth of turf.

No separate payment shall be made for stockpiling or excavation from the stockpile. Costs associated with stockpiling and/or excavation from the stockpile shall be considered incidental to Item 152.

MATERIALS

905-2.1 TOPSOIL. Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches or more in diameter), clay lumps or similar objects. Brush and other vegetation which will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sods and herbaceous growth such as grass and weeds are not to be removed but shall be thoroughly broken up and intermixed with the soil during handling operations. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh sieve as determined by the wash test in accordance with ASTM C 117.

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 INSPECTION AND TESTS. The Resident Engineer shall be notified of the source of topsoil to be furnished by the Contractor 21 days prior to use. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth

to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in 905-2.1.

CONSTRUCTION METHODS

905-3.1 GENERAL. Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the Resident Engineer before the various operations are started.

905-3.2 PREPARING THE GROUND SURFACE. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the Resident Engineer, to a minimum depth of 2 inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and properly compacted condition to prevent, insofar as practical, the formation of low places or pockets where water will stand.

905-3.3 OBTAINING TOPSOIL. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the Resident Engineer. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the Resident Engineer. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the Resident Engineer. Unless otherwise specified, any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoiling purposes, shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the Resident Engineer. The Contractor shall notify the Resident Engineer sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

905-3.4 PLACING TOPSOIL. The topsoil shall be evenly spread on the prepared areas to a uniform depth of 2 inches after compaction, unless otherwise shown on the plans or stated in the special provisions. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. After spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the Resident Engineer. The compacted topsoil surface shall conform to the required lines, grades, and cross sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

Rutted or damaged areas due to construction and other areas graded as a part of this contract shall have topsoil spread as required to facilitate drainage and turfing.

METHOD OF MEASUREMENT

905-4.1 *There shall be no measurement for payment for Topsoiling. This work shall be incidental to items of work where they are required and shall include all removal, preparation, delivering and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete the item. ~~Topsoil obtained on the site shall be measured by the number of square cubic yards of topsoil measured in its final compacted position. Topsoil shall be measured by volume in square cubic yards computed by the method of average end areas using 4 inch depth.~~*

905-4.2 ~~Topsoil obtained off the site shall be measured by the number of square cubic yards of topsoil measured in its final compacted position. Topsoil shall be measured by volume in square cubic yards computed by the method of average end areas using 4 inch depth.~~

BASIS OF PAYMENT

905-5.1 *There shall be no payment for Topsoiling. Topsoiling shall be incidental to items of work where they are required. ~~No individual payment for topsoil material shall be made. Payment~~*

~~for topsoil will be made at the contract unit price per cubic yard for Item AR152410–
Unclassified Excavation or at the contract unit price per square yard for Item AR152480–
Shoulder Adjustment. . This item will be paid for on the basis of the contract unit price per square
yards for topsoil in place, which price shall be full compensation for all labor, equipment, material,
and incidentals necessary to satisfactorily complete the items as specified.~~

Payment will be made under: _____

~~Item AR905510 _____ Topsoiling (4") per Square Yard (SY)~~

END OF ITEM 905

DIVISION VI

LIGHTING INSTALLATION

ITEM 100 GENERAL PROVISIONS AND REQUIREMENTS FOR ELECTRICAL WORK

DESCRIPTION

100-1.1 SPECIAL REQUIREMENTS FOR ELECTRICAL WORK. These special requirements shall apply for the electrical work. Where the contract special conditions or general provisions also apply, the stricter of the documents shall apply.

100-1.2 AUXILIARIES AND ACCESSORIES. Include all auxiliaries and accessories for a complete and properly operating system, to the satisfaction of the Owner and Engineer.

Provide and install all electrical systems and any necessary appurtenances as per FAA Advisory Circulars, NEC and local codes whether specified or shown on drawings or not. The content of these specifications and contract documents in general only refers to work required above and beyond the requirements of the NEC and applicable local codes.

100-1.3 PROJECT PAY ITEMS. The project pay items are provided to be inclusive of all work to be performed as shown in the contract documents. All work not identified with a specific pay item is to be considered work to complete the project and is to be subsidiary to the cost of project pay items provided.

100-1.4 REFERENCES

- a. ANSI/NFPA 70 - National Electrical Code
- b. NECA - National Electrical Contractors' Association
- c. NEMA - National Electrical Manufacturers' Association
- d. UL - Underwriters' Laboratories, Inc.
- e. FS - Federal Specifications.
- f. NESC - National Electrical Safety Code.
- g. ANSI - American National Standards Institute.
- h. IES - Illuminating Engineering Society.
- i. IEEE - The Institute of Electrical and Electronic Engineers
- j. ICEA - Insulated Cable Engineers Association

- k. National Bureau of Standards
- l. NFPA - National Fire Protection Association
- m. OSHA - Occupational Safety and Health Administration
- n. EPA - U.S. Environmental Protection Agency
- o. International Electrical Testing Association.
- p. AWS - American Welding Society
- q. Other standards as referenced in individual sections

SUMMARY OF WORK

100-2.1 SUPERVISION AND ATTENDANCE. The Contractor shall provide a resident field superintendent who has had a minimum of four years previous successful experience on projects of comparable sizes and complexity. The Superintendent shall be present at all times that work under this division is being installed or affected.

100-2.2 QUALITY ASSURANCE. The contractor shall have at least seven (7) years direct experience with devices, equipment, and systems of the type and scope specified herein. The contractor shall be a business entity that is substantially engaged in the work type specified and has successfully done so for the past three consecutive years at a minimum. The contractor shall as part of the foregoing business have a fully staffed, parts stocked, and equipped maintenance and repair facility.

The supervisor of the work of this section shall have at least five (5) years direct professional experience with devices, equipment, system installations specified.

The subcontractor shall submit the following:

- a. A list of at least five (5) successful installations comparable in scope and complexity to that specified.
- b. Proof that the firm is regularly engaged in the business of designing, installing, and servicing systems of the type specified.
- c. Verification (names and biographies) of the firm's design, installation, service, and maintenance personnel and facilities with a maintained stock of service parts showing competence.
- d. A list of all test equipment as specified below showing manufacturer, model number, all installed options, and dates of last calibration.

100-2.3 RECORD DOCUMENTS. The Contractor shall maintain the contract documents,

shop drawings and samples at the site, in good order and annotated daily to show all changes made during the construction process, per Item 106, Submittals, Record Documents and Maintenance Manuals. These shall be available to the Engineer for examination.

100-2.4 SAFETY AND PROTECTION. The Contractor shall be solely and completely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

a. All employees on the work and other persons (including but not limited to the general public) who may be affected thereby,

b. All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and

c. Other property at the site, adjacent thereto, or utilized by the Contractor including but not limited to trees, shrubs, lawns, walks, pavements, structures, underground facilities, and other utilities not designated for removal, relocation or replacement in the course of construction regardless of whether or not such other property is indicated in the Contract Documents.

d. Existing underground utilities and systems both shown on the plans and those not shown. The Contractor shall have all utilities and systems field located by the FAA or appropriate authorities having jurisdiction and shall take whatever measures necessary to protect the utilities and systems from damage.

The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss.

All hoisting machinery shall be inspected by a competent person or by a government or private agency recognized by the U.S. Department of Labor. A copy of the written inspection report shall be submitted to the Engineer prior to the start of work requiring the use of this equipment.

The installation and/or removal of lighting equipment may be critical to airport operations; therefore, the Contractor shall follow work schedules established in the plans and specifications or as directed by the Engineer. The system shall be installed in accordance with the National Electrical Code and/or local code requirements.

The Contractor shall provide temporary wiring as required to reconnect existing circuits to provide guidance for aircraft to pass through the construction areas on those taxiways/runways, which must remain open. The Contractor shall check all temporary circuits before dark each day to assure that they are operational. In the event of failure, the Contractor shall immediately take steps to restore operation.

~~The Contractor shall provide all safety rails as required in the performance of the work at~~

~~building perimeters, at perimeters of floor and/or roof openings and on scaffold systems or platforms in accordance with the above regulations. Maintain safety rails during the duration of the work for this Contract. This Contractor shall be responsible for the removal and replacement of any safety rail necessary for the installation of equipment or materials provided in this work.~~

Powder-actuated fasteners will not be allowed without express written approval of the Engineer. No fasteners shall pierce the structure until approved by the Engineer.

Clean up of scrap materials and waste of the Contractor to be completed daily or more frequently as needed.

100-2.5 ENGINEERING INSPECTIONS. Items noted by the Engineer, Owner, or their authorized representative during construction and before final acceptance, which do not comply with the contract, documents will be listed in accordance with the specifications. These items will be sent to the Contractor for action. The Contractor shall have these items corrected.

Items noted after acceptance during the warranty period shall be checked and corrected by the Contractor in a timely manner acceptable to the Owner.

100-2.6 EXISTING CONDITIONS. Investigate the construction site thoroughly and reroute all conduit and wiring in area of new construction in order to maintain continuity of existing circuitry. Existing conduit shown on plans show approximate locations only. The Contractor must verify and coordinate existing site utilities, conduits and piping. The specifications include hand digging within five (5) feet of all existing utilities and all required rerouting in areas of existing utilities, conduits and/or pipes.

The Contractor shall check the construction site and existing conditions thoroughly before bidding. The Contractor shall advise the Engineer of discrepancies or questions noted.

Special attention is called to the fact that work involved in this project is in connection with existing systems/facilities, which must remain in operation while work is being performed. Work must be done in accordance with the schedule specified in the contract documents. Schedule work for a minimum outage to the Owner. Request written permission and receive written approval from the Owner a minimum of 72 hours in advance of any shut-down of existing systems. Perform work required at other than standard working hours where outages cannot be approved during regular working hours. Protect existing buildings and equipment during construction as required.

Special attention is called to the fact that there may be piping, fixtures or other items in the existing systems, which must be removed or relocated in order to perform the alteration work. All conduit, wiring, boxes, etc. that do not comply with these specifications shall be removed or corrected to comply with these specifications. All unused conduit not removed shall be identified and a pull line shall be installed. Bid shall include all removal and relocation required for completion of the alterations and the new construction.

If any difference is discovered between the existing conditions and the drawings or specifications, the Engineer shall be notified in writing immediately.

100-2.7 SPECIAL PROVISIONS FOR PROTECTION OF CABLES, CONTROLS, NAVAIDS AND WEATHER BUREAU FACILITIES. This provision for the protection of cables, controls, navigational aids and weather bureau facilities has been taken from Appendix 3 of FAA Advisory Circular 150/5370-4. Although the Advisory Circular has been cancelled, the requirements of Appendix 3 are included herein and made a part of this specification.

The Contractor is hereby informed that there are installed on the Airport FAA NAVAIDS; including, without limitation, ASR, UHF and VHF Receivers and Transmitters; U.S. Weather Bureau facilities; electric cables and controls relating to such NAVAIDS and facilities, and other electric power cables serving other facilities. Such NAVAIDS, Weather Bureau and other facilities, and electric cables must be fully protected during the entire construction time. Work under this contract can be accomplished in the vicinity of these facilities and cables only at approved periods of time. Approval is subject to withdrawal at any time because of changes in the weather, emergency conditions on the existing airfield areas, anticipation of emergency conditions, and for any other reason determined by the Engineer acting under the orders and instructions of the airport management and/or the designated FAA representatives. Any instructions to the Contractor to clear any given area, at any time, by the Engineer, the Owner or the FAA Air Traffic Control Tower (by radio or other means) shall be immediately executed. Construction work will be commenced in the cleared area only when additional instructions are issued by the proper authorities.

Power and control cables leading to and from any FAA NAVAIDS, Weather Bureau and other facilities, will be marked in the field by the authority having jurisdiction or the utility locating authority for the information of the Contractor, before any work in their general vicinity is started. Thereafter, through the entire time of this construction they shall be protected from any possible damage, including crossing with unauthorized equipment, etc.

These provisions intend to make perfectly clear the need for protection of FAA NAVAIDS, Weather Bureau and other facilities, and cables by the Contractor at all times.

The Contractor shall immediately repair, with identical or higher quality material by skilled workmen, any underground cables serving FAA NAVAIDS, Weather Bureau and other airport facilities, which are damaged by the Contractor's workmen, equipment or work. Prior approval of the FAA must be obtained for the materials, workmen, time of day or night, method of repairs, and for any temporary or permanent repairs the Contractor proposes to make to any FAA NAVAIDS and facilities damaged by the Contractor. Prior approval of the Engineer or the Owner must be obtained for the materials, workmen, time of day or night, and for the method of repairs for any temporary or permanent repairs the Contractor proposes to make to any other airport facilities and cables damaged by the Contractor.

It is recognized that the Owner will incur costs for employees' salaries, engineering fees, and otherwise in connection with the damage, inspection and repair of any such damage, caused by the Contractor; and consequently that the Owner may incur loss of income by reason of the

diversion of aircraft traffic from the airport resulting from interruption of the use of airport facilities; and that such expenses and loss of income are not measurable now and may not be reasonably ascertainable at the time of any incident caused by the Contractor. The Owner and the Contractor hereby agree to the assessment of liquidated damages in lieu of such expenses of other damages incurred by the Owner. In addition to the obligation of the Contractor to immediately repair any cables or facilities damaged by the Contractor, the sum of \$1,000.00 per hour shall be deducted daily from the money due the Contractor, or if no money is due the Contractor, the Owner shall have the right to recover said sum or sums from the Contractor, from the surety, or from both. The amount of these deductions are to cover liquidated damages to the Owner incurred by additional and other expenses and damages arising from the incident or incidents caused by the Contractor, and such deductions are not considered penalties.

100-2.8 WORK SEQUENCE

a. Install Work to accommodate Airport's present occupancy requirements during the construction period. Coordinate electrical schedule and operations with Owner, Contractors working on site and other requirements of the specifications. The Airport will remain in operation during construction.

b. Shutdown of existing electrical facilities shall be kept to an absolute minimum and coordinated with the Engineer. Shutdown shall be made at hours convenient to the Airport. This includes evening and weekend hours.

c. The cost of any anticipated overtime work shall be included in the Contractor's base bid. Requests for additional compensation for this work after award of contract will be refused.

d. Coordinate all work with all other contractors and subcontractors.

100-2.9 SYSTEMS GUARANTEE. The work required under this specification shall include a one (1) year warranty unless required otherwise by these specifications. This warranty shall be by the Contractor to the Owner for any defective workmanship or material, which has been furnished under this contract for a period of one year (1) from the date of final acceptance of the system. This warranty shall not include light bulbs in service after one (1) month from date of final acceptance of the system. Explain the provisions of the warranty to the Owner at the "Demonstration of Completed System."

100-2.10 SUBSTANTIAL COMPLETION. All specified work shall be complete prior to final inspection of the work, and all forms and other information requested, including maintenance manuals, shall be submitted to the Engineer for approval one (1) week before the request for substantial completion of the work.

The Contractor shall demonstrate the function of any equipment and system as requested. In the event that any equipment or system does not function correctly, the Contractor shall perform any tests and provide test equipment required to ascertain the cause.

100-2.11 FINAL ACCEPTANCE. All work specified shall be complete after the substantial

completion observation, all repairs made, and all required information approved at which time the Owner shall formally accept the project and take possession of all work on a permanent basis.

100-2.12 CONTRACTORS RESPONSIBILITIES. Provide necessary layout, labor, material, equipment, tools, transportation, full time supervision and services required for the satisfactory and timely completion of the work in accordance with the drawings and specifications and contract documents.

Unload, store, protect and re-handle the materials required for this contract until such time that material is in place. Provide protection of materials required of this contract after installation.

Provide all required transportation, erection, maintenance, dismantling and removal of temporary facilities and equipment required by this contract.

Provide all transportation, unloading, distribution, hoisting, rigging, and material handling ~~and scaffolding~~ required to install the work of this contract.

Provide all engineering and layout required to perform the work.

Provide temporary electrical power and temporary water and sanitary sewer for the Contractor's field office, Engineer's field office and on-site testing laboratory. Pay all utility company charges. Provide temporary power required for the Contractor's work.

Prior to start of his work the Contractor is to inspect work performed by others on which this work is to be placed on or adjacent to, and report in writing to the Engineer, any condition found to be unacceptable. Failure to make said report shall constitute acceptance of the conditions found and any claims made thereafter due to the unacceptable conditions will not be considered by the Engineer.

Provide all required coordination and supervision where work connects to or is affected by work of others, and comply with all requirements affecting this work. Work required under other sections, specifications or drawings to be performed by this section shall be coordinated with the respective contractor, and such work performed at no additional cost to the Owner including but not limited to electrical work in support of the mechanical division of the specifications and drawings.

It is the responsibility of the Contractor to coordinate the exact required location of any electrical or electronic equipment, system, or cabinets to be installed in or relocated inside an existing electrical or electronic equipment space. No existing equipment may be relocated in any existing electrical or electronic equipment room without prior coordination and with written approval of the Owner.

Provide and pay for all permits, licenses, fees and inspections required for the performance of the work. The Contractor shall pay all sales, consumer, use and other taxes required to be paid in accordance with the laws of the place of the project.

Provide all tests as required, per the drawings and specifications and submit all test reports to the Engineer.

Provide all excavation, backfill, compaction, shoring and dewatering required for performance of the work.

Provide sleeves for all conduit required as specified.

Protect all work of this contract from damage and intrusion of dirt and foreign objects. Close off open ends of conduit and sleeves on work, which is to be completed at a later date. Remove closure material prior to continuance of work.

Prior to Final Inspection, submit to the Engineer, all Record Drawings and Operation and Maintenance Manuals as specified. Instruct Owner's maintenance personnel in the operation and maintenance of the systems as required by the Specifications.

The above is not all inclusive of the work described by the drawings and Specifications, which form the basis for this contract, but is presented for the Contractor's convenience.

100-2.13 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS. Should anything necessary for the clear understanding of the electrical work be omitted from the contract documents, or should the requirements appear to be in conflict, the Contractor shall secure written instructions from the Engineer before proceeding with the work affected thereby; otherwise the Contractor will be deemed to be proceeding at his own risk and expense. It is understood and agreed that the work shall be performed according to the true intent of the contract documents. ~~Refer to Appendix A Figure 1 for a "Request For Information" (RFI) form.~~

BASIC MATERIAL & METHODS

100-3.1 REQUIREMENTS OF BASIC MATERIALS AND METHODS. The work shall include the furnishing of the systems, equipment and material specified in these specifications and as called for on the drawings, to include: supervision, operations, methods and labor for the fabrication, installation, start-up and tests for the complete electrical installation. Provide the necessary intertrade/Contractor coordination for the installation to be in a neat and workman like manner.

Drawings for the work are diagrammatic, intended to convey the scope of the work and to indicate the general arrangement and locations of the work. The drawings shall not be scaled for exact sizes or locations. Because of the scale of the drawings, certain basic items such as: conduit fittings, access panels, sleeves, pull and junction boxes may not be shown. Where such items are required by Code or by other sections or where they are required for proper installation of the work, such items shall be included. ~~Coordinate final equipment locations with governing architectural and structural drawings.~~ Layout equipment before installation so that all trades may install equipment in the space available.

Equipment Specifications may not deal with minute items such as components, parts, controls and devices, which may be required to produce the equipment performance specified, or as required to meet the equipment warranties. Where such items are required, they shall be included by the Contractor or the supplier of the equipment, whether or not specifically called for.

Conduit routed through any buildings that interferes with other equipment and construction shall not constitute a reason for an extra charge. Equipment, conduit, and fixtures shall fit into available spaces in the building; do not introduce these into the building at such times or in such manner as to cause damage to the structure. Equipment that requires servicing shall be readily accessible.

Locate all openings required for work performed under this section. Provide sleeves, guards or other approved methods to allow passage of items installed under this section.

Keep cutting and patching to a minimum. Insofar as possible, determine in advance the proper chase size and openings necessary for the work.

Where cutting and patching are required due to an error of the Contractor, or where the Contractor has not given enough advance notice of the need for holes, recesses, and chases, patching shall be performed by those trades skilled in the use of the materials involved and shall be done at the Contractor's expense.

Any cutting of work in place shall be patched and decorated by such mechanics and in such a manner that the quality of workmanship and finish shall be compatible with that of adjacent construction.

~~The approximate location of building fixtures, wall switches, etc., is indicated on the drawings. Exact locations shall be determined by the Engineer as building work progresses. The indicated locations may be changed by ten (10) feet in any direction without additional cost before the items are installed.~~

~~The drawings and specifications describe specific sizes of switches, breakers, fuses, conduits, conductors, motor starters and other items of wiring equipment. These sizes are based on specific items of power consuming equipment (heaters), lights, motors for fans, compressors, pumps, etc.) Wherever the Contractor provides power consuming equipment, which differs from drawings and specifications, the wiring and associated circuit components for such equipment shall be changed to proper sizes to match at no additional expense to the Owner.~~

~~The basis for new design requires that electrical services, switchgear, panelboard and transformers total calculated connected load not be more than 60% of the service size. The total calculated load requirements for alterations shall not be more than 80%.~~

~~Furnish to roofer all pitch pans required for electrical items, which pierce roof whether or not shown on drawings. Roof penetrations are to be waterproofed in such a manner that roofing guarantees are fully in force. Floor penetrations shall be sealed with fire proof sealant to~~

~~prevent water from leaking to floor below and to provide a 3 hour fire and smoke barrier. Wall penetrations shall be sealed to provide a 3 hour rated fire seal.~~

~~Surface mounted fixtures, outlets, cabinets, conduit, panels, etc., shall have finish or shall be painted as directed by the Engineer. Paint shall be in accordance with other applicable sections of these specifications.~~

All materials utilized shall be suitable for the environment encountered. No combination of materials shall be used that forms an electrolytic coupling of such nature that in the presence of moisture corrosion is accelerated.

~~In general, all relays, contactors, starters, motor control centers, switchboards, panelboards, dry type transformers, disconnect switches, circuit breakers, and manual motor starter switches are to be supplied and manufactured by the same manufacturer and shall be submitted and approved as equal to that specified.~~

Make electrical connections to constant current regulators, transformers, ~~motors~~, instruments, ~~mechanical equipment~~, controls and at other locations as required with approximately 3 feet (12" minimum) of Sealtight flexible conduit. The sealtight electrical conduit shall utilize strain relief type connectors by adding a T&B wire mesh grip, WMG-LT series, or approval equal to each sealtight connector. Determine the requirements from drawings, these specifications, and the approved manufacturer drawings.

Provide inserts, hangers, supports, braces, and anchor bolts as necessary for all work called for under these specifications.

All conduits shall contain one copper grounding conductor, in accordance with NFPA 70, NEC Article 250. #6 AWG and smaller shall have green insulation. #4 AWG and larger shall be bare. The only exception is the 5KV airfield lighting and runway weather information system conduits and ductbanks.

All galvanized materials shall be hot-dip galvanized after fabrication, conforming to ASTM A 123 and/or A 153, unless noted otherwise.

~~Unless noted otherwise, all panelboards, motor starters, junction boxes, wireways, etc., shall be spaced off the concrete structure by using a Unistrut P-1060 series square washer or approved equivalent between the mounting surface and the equipment at each mounting point. Equipment as listed above, mounted on Unistrut or approved equivalent shall have Unistrut P-1060 series square washer or approved equivalent installed between the Unistrut channel or approved equivalent and the equipment at each mounting point. All bolted connections and equipment mountings shall utilize a flat washer, lock washer and hex head A-325 bolting hardware.~~

Unless noted otherwise, all wire sizes are based on a 135 degrees F (75 degrees C), XHHW THWN-2 600 volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit sizes are based on the use of XHHW THWN-2

600 volt insulated conductors. The Contractor shall make the necessary increase in conduit sizes for other types of wire insulation. In no case shall the conduit size be reduced. The minimum wire size shall be #12 AWG.

All electrical conductors, ~~windings, busbars,~~ etc. shall be high conductivity (98% conductivity) copper.

~~The Contractor shall furnish and install all required motor overcurrent protection required by the NEC and these drawings and specifications. The overcurrent protection shall be sized according to the motor nameplate data.~~

100-3.2 ELECTRICAL REFERENCE SYMBOLS. Symbols used on the plans are defined in the Electrical Legend on the Drawings. Not necessarily will all symbols scheduled be applicable to the project.

100-3.3 ACTIVE SERVICES. Existing active services i.e., water, gas, sewer, electric, communications, etc. when encountered, shall be protected against damage. Do not prevent or disturb operation of active services, which are to remain. If active services are encountered which require relocation, the Contractor shall make a written request to the Owner for determination of procedures. Where existing services are to be abandoned, they shall be terminated in conformance with requirements of the Utility or Municipality or Authority having jurisdiction.

100-3.4 ELECTRIC SERVICE INTERRUPTIONS

a. Electrical service is defined as any electrical, communication, data, fire alarm and any other electrical transmission system. Other services include but are not limited to water, sanitary, gas, HVAC and storm water systems.

b. The Contractor shall notify the Owner and the Engineer of the intent to perform any Work requiring service interruptions and shall proceed with such work only after receiving a time schedule approved by the Owner and the Engineer. The Owner and the Engineer shall have the right to cancel or delay the time of any service interruption. The Contractor shall provide personnel and equipment to assist in the proper coordination of service interruptions. The Contractor shall not leave the job site until resumption of normal service is satisfactory to the Engineer.

c. Coordinate required facility shutdowns through the Engineer.

d. When service interruptions are required to perform the contract work on transformers, circuit breakers or feeder cables, the Contractor shall arrange the distribution system from dual service to single service. In the event that service interruptions cannot be accomplished by supplying single line utility service, the Contractor shall provide reliable and adequate capacity generators including all temporary connections, secondary distribution equipment, disconnections, cables, safety devices and fuel unless otherwise noted. The use of temporary transformers and substation equipment will be considered by the Engineer.

e. Shutdown times must be minimized where entire building or sections of buildings are to be shut down. Shut down periods shall occur between 0100 and 0500 hours. On site generators will be necessary in areas where facilities are out of service for more than ½ hour. All switching and change-overs will be performed by the Contractor and witnessed by the Engineer. Coordination of all service interruptions will be performed by the Engineer.

f. Contractor shall perform all work involving service interruptions at times designated by the Engineer or at night and/or Saturday or Sunday. No allowances will be made by the Owner for overtime labor costs.

g. Where Contractor interrupts any electrical or other service due to damaging equipment or cable through their negligence, they shall be required to repair or replace the equipment or cable immediately, working continuously to restore service until satisfactory to the Engineer. Repair, replacement or both shall be at the discretion of the Engineer and at the expense of the Contractor.

h. Contractor shall note that the Airport shall be occupied and in use during the construction period. Contractor shall not disturb continuity of service to any area without the written approval and agreement as to time and duration of such interruption. Contractor shall perform any of this work at any time without extra cost to owner.

i. Contractor shall fully examine all areas of demolition in this contract. Contractor shall identify all services related to its trades. Contractor shall provide protection of such service to prevent disruption of service. Contractor shall reroute all services to remain as required to approved locations without extra cost to the Owner.

100-3.5 TEMPORARY SERVICES. Contractor shall provide temporary electrical services throughout the entire work area where required whether indicated or not. Existing roadway lighting circuit integrity shall remain until new traffic patterns are established. Coordinate with all Contractors and Subcontractors. Contractor shall revise temporary services as many times as necessary for all Contractors and Subcontractors work to occur through the completion of the project.

100-3.6 CODES AND FEES. Install in accordance with latest edition of FAA Advisory Circulars, the National Electrical Code and the regulations of governing Federal, State, County, local and other applicable codes, including the Utilities Company. Where a conflict in code requirements occurs the most stringent requirement shall govern. The Contractor shall be responsible and pay all required permits, licenses, services, fees and inspections including meter installation fee. The cost for such shall be included in the bid price.

Deliver to the Owner and Engineer, prior to the start of construction, a copy of all permits and licenses required for the work. At the completion of the work, secure and deliver to the Owner and Engineer all certificates of compliance of local authorities.

The work shall meet the requirements and recommendations of applicable portions of the latest

editions of these standards:

- a. National Electrical Code (NFPA 70)
- b. Life Safety Code (NFPA 101)
- c. National Electrical Safety Code (ANSI C2)
- d. NEMA Standards (NEMA)
- e. Underwriter's Laboratories (UL)
- f. Institute of Electrical and Electronics Engineers (IEEE)
- g. Lightning Protection Code (NFPA) 780 and UL 96A)
- h. AWS D1.1
- i. ANSI
- j. NFPA
- k. Federal Aviation Administration Advisory Circulars (AC)
- l. Applicable Local Building Code
- m. Certified Ballast Manufacturers (CBM)

The above is not all inclusive of applicable codes and standards, but is presented for the Contractors convenience.

100-3.7 STANDARDS. All materials shall be new and free of defects and shall be U.L. listed, bear the U.L. label or be labeled or listed with an approved, nationally recognized Electrical Testing Agency. Where no labeling or listing service is available for certain types of equipment, test data shall be submitted to prove to the Engineer that equipment meets or exceeds available standards. All listed, labeled or approved material shall be used only for the intended purpose.

100-3.8 UTILITY COMPANY FEES, CHARGES, COSTS. It is the Contractor's responsibility to contact the applicable Utility Company(s) to determine if any fees, charges or costs will be due the Utility Company(s) as required by the Utility Company(s) for temporary power, installations, hook-ups, etc. The associated fee, charge or cost for each utility shall be included in the Contractor's bid price.

100-3.9 TESTS. Systems shall be tested by the Contractor and placed in proper working order prior to demonstrating systems to the Owner. Refer to the requirements in each section for other applicable standards.

~~After work is completed a load balance test shall be made, as required, to demonstrate that with full lighting and mechanical load the balance between phases is within 5%. Unbalance beyond this limit shall be corrected. Perform such tests as required by any Authorities having jurisdiction over the site. Refer to specification 131, Demonstrations, Tests and Performance Verification.~~

Testing methods shall be acceptable to the Engineer and shall be submitted to the Engineer for review, a minimum of thirty (30) days prior to the scheduled test.

The Contractor shall supply all labor, materials, instruments and miscellaneous equipment for any examination of work or tests as required. All test results shall be recorded and submitted to the Engineer.

100-3.10 LAMINATED PHENOLIC PLASTIC NAMEPLATES. The Contractor shall provide nameplates for wiring systems and equipment as called for herein. All nameplates shall have beveled edges and one-half inch (1/2") lettering. If equipment is smaller than ten inches by six inches (10"x 6"), one-quarter inch (1/4") lettering may be used. Smaller lettering may be used with permission of the Engineer.

Nameplates shall be laminated phenolic plastic, black front and back with white core, with lettering etched through the outer covering. White engraved letters on black background. Emergency systems shall use red front and back with white core for nameplates. Attach nameplates with 4-40 stainless steel self tapping screws. Where conditions do not warrant piercing the enclosure "LOCTITE" brand adhesive or approved equivalent may be used with permission of the Engineer.

The following items shall be equipped with nameplates: ~~all constant current regulators, pushbutton stations,~~ control panels, system cabinets, terminal cabinets, ~~disconnect switches, panelboards, circuit breakers, contactors or relays in separate enclosures, high voltage boxes~~ and cabinets whether existing or planned by these specifications. Special electrical systems shall be identified at junction and pull boxes, terminal cabinets and equipment racks. ~~Junction boxes shall comply with paragraph 100-3.10, Junction/Pull Box Color Code.~~

~~Nameplates shall adequately describe the function of the particular equipment involved. Where nameplates are detailed on the drawings, inscription and size of letters shall be as shown and shop drawing submitted for approval. Nameplates for panelboards and switchboards shall include the panel designation, panel name, circuit designation source of power and voltage and phase of the supply. For example, "Equip YY, Panel A, CKT XX fed from Panel XYZ, 480/277V, 3 phase, 4 wire." The name of the machine on the nameplates for a particular machine shall be the same as the one used on all motor starters, disconnects and pull box station nameplates for that machine. Nameplates shall include as a minimum the following:~~

~~a. Equipment Number~~

~~——— b. Equipment Name~~

~~_____c. Power Source with Circuit Designation~~

~~_____d. Voltage Level and number of phases~~

~~All major pull and junction boxes in service areas, tunnels, above accessible ceilings and in accessible chases shall have nameplates identifying the feeder or system.~~

~~Systems with conductors exceeding 100 volts to ground shall have voltage identification nameplates with one half inch (1/2") high letters on all panels, switches, pull boxes and junction boxes.~~

~~**100-3.11 ADHESIVE BACKED CLOTH MARKERS.** All raceways containing conductors exceeding 150 volts to ground shall have adhesive backed cloth/vinyl markers installed at each end and every thirty feet (30') in between identifying the voltage level (Example: "480 VOLTS"). If the conduit is less than ten feet (10') in length one marker is acceptable. The markers shall be installed so they are visible from floors and walkways. Normal power system shall use black letters, emergency systems shall use red letters.~~

~~The markers shall be "Brady" brand or approved equivalent with one half inch (1/2") letters.~~

~~The markers shall be suitable for the environmental conditions encountered.~~

100-3.12 JUNCTION/PULL BOX COLOR CODE. Circuit numbers and circuit identification shall be printed on junction box and pull box covers using ink markers and shall be plainly visible after paint is applied. The entire box and cover shall be color coded as listed below:

<u>Color Code for Junction Boxes</u>	<u>Krylon Color & Paint # Or Approved</u>	
<u>equivalent</u>		
Normal Power 480/277 Volt	Brown	2501-6
Normal Power 208/120 Volt	Black	1601-6

100-3.13 CONCRETE WORK. Concrete bases and pads for all equipment furnished by the Contractor shall be the responsibility of the Contractor unless noted otherwise.

~~The Contractor shall furnish all equipment anchor bolts and shall be responsible for their proper installation and accurate location.~~

100-3.14 EXCAVATING, TRENCHING AND BACKFILLING. The Contractor shall do excavating necessary for light bases, underground wiring, conduit and ductbanks and shall backfill trenches and excavations after work has been inspected. Care shall be taken in excavating that walls and footings and adjacent load bearing soils are not disturbed in any way, except where lines must cross under a wall footing. ~~Where a line must pass under a footing, the crossing shall be made by the smallest possible trench to accommodate the conduit.~~ Excavations shall be kept free from water. No greater length of trench shall be left open in

advance of conduit laying than that, which is authorized or directed by the Engineer.

Roots shall be removed to a level of eighteen (18") below furnished grades and deeper as required for duct runs, manholes and light pole bases. No roots shall be allowed to remain under the work.

Backfill about the structures shall be placed, where practical, as the work of construction progresses. Backfilling on or against concrete work shall be done only when directed. Backfilling of duct lines shall progress as rapidly as the testing and acceptance of the finished sections of the work will permit and shall be carried to a crown approximately six inches (6") above the existing grades. In backfilling around duct lines, selected material shall be compacted firmly around the duct. Fill and backfill shall be clean and free from vegetable matter and refuse.

All trenches and other excavation left open by necessity shall be barricaded and guarded as required by OSHA or applicable codes and regulations.

100-3.15 WELDING. All welding and weld procedures shall be in accordance with AWS D1.1, Latest Edition. Qualifications of welders and welding operators shall be in accordance with AWS D1.1, Latest Edition. The welder qualification test shall be performed on a 1" A-36 Test Coupon in the 3G and 4G positions. The welder qualification shall be current within 12 months of the work being performed. Weld inspections shall be per the criteria set forth in AWS D1.1 for visual weld inspection.

DESIGNATION OF MATERIALS

100-4.1 CRITERION DESIGNATION OF MATERIALS AND EQUIPMENT. Where a criterion specification is designated for any material or equipment to be installed by the name or catalog number of one specific manufacturer, such designation is intended only for the purpose of establishing the style, quality, performance characteristics, etc., and is not intended to limit acceptability of competitive products. Products of other manufacturers which are approved by the Engineer as similar and equal will be equally acceptable unless specifically otherwise stated.

Where equipment or materials are specified by the use of the name and catalog number of more than one manufacturer, that equipment or material shall be one of those specified. No alternative will be acceptable.

Where no brand name is specified, the source and quality shall be subject to the Engineer's review and acceptance.

When a product is specified to be in accordance with a trade association or government standard, at the request of the Engineer, the Contractor shall furnish a certificate that the product complies with the referenced standard. Upon request of the Engineer, the Contractor shall submit supporting test data to substantiate compliance.

The Engineer shall be the sole judge of whether the proposed "or equal" is suitable for use in the work.

Each Bidder represents their bid is based upon the materials and equipment described in these specifications. Substitutions will not be considered unless a written request has been submitted to the Engineer in accordance with Item 106, Submittals, Record Documents and Maintenance Manuals.

If the Contractor desires to use a method or type of equipment other than specified in the contract documents, a written request therefore shall be made to the Engineer. If approval is given, the Contractor will not be excused from producing work in conformity with contract requirements. If a trial use establishes that work does not meet the contract requirements, the Contractor shall take such action as the Engineer determines necessary to correct any deficiency in the work. No change in contract time will be made as a result of changes made under this Subparagraph. By making a request for substitution, the Contractor:

- a. Represents that it has personally investigated the proposed substitution and determined the proposed substitution equal or superior in all respects to the specified method or equipment;
- b. Represents that it will provide a warranty for the substitution identical in all respects to the warranty for the specified method or equipment;
- c. Represents that it will coordinate the installation of the accepted substitute, making changes as may be required for the work to be complete in all respects at no additional cost to the Owner.

PROTECTION OF MATERIALS, EQUIPMENT AND WORK

100-5.1 REQUIREMENT FOR THE PROTECTION OF MATERIALS, EQUIPMENT AND WORK. Materials shall be stored so as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, shall be subject to reinspection prior to their use in the work. The Contractor shall coordinate the storage of all materials with the Owner and the Engineer.

Owner-furnished materials, if any, shall be made available to the Contractor at the location specified herein. All costs of handling, transportation from the specified location to the site of the work, storage and installation of Owner-furnished materials shall be included in the Total Contract Price. All risk of loss or damage to Owner-furnished materials shall pass to the Contractor after delivery of said material to the site of the work. The Owner shall be entitled to deduct from any monies due or to become due to the Contractor any cost incurred by the Owner resulting directly or indirectly from a loss caused in whole or in part by the Contractor's handling, storage or use of Owner-furnished materials.

The Contractor shall protect electrical raceway, cables of any sort, lighting fixtures and associated support systems against damage from movement of equipment and material, welding, flame cutting, and other construction damage. Raceways and supporting structures for raceway and lighting fixtures shall not be used as access scaffolding at any time. Whenever welding or flame cutting operations occur above or near raceways, cables or lighting fixtures not shielded from such operations by concrete floor or other protective covers, the Contractor shall protect the raceways, cables, and lighting fixtures from damage by means of fireproof boards or blankets. Damaged materials shall be repaired or replaced, by and at the Contractor's expense, subject to the Engineer's direction and acceptance.

Surfaces of most equipment, such as panels, switchgear, transformers, constant current regulators and circuit breakers, are finished at the factory. Great care shall be exercised to prevent damage to this original finish during installation of the equipment and during construction work.

If the factory finish is damaged during the course of construction, the entire surface of the damaged component shall be refinished or replaced by and at the expense of the Contractor.

The refinished surface shall be equivalent in every respect to the original surface, including color, texture and smoothness. Refinishing paint, if furnished with the equipment, may be used; otherwise, the paint shall be obtained from the equipment manufacturer.

All cut edges of galvanized materials and marred or scratched galvanized surfaces shall be repaired using LPS-1G cold galvanizing compound or approved equivalent.

All threaded conduit joints shall use T&B Kopr-shield or Aluma-Shield or approved equivalent for galvanized and aluminum conduits respectively, as joint compound.

GENERAL CONSTRUCTION REQUIREMENTS

100-6.1 ADDITIONAL REQUIREMENTS. Provide the bracing, shoring, rails, guards, and covers necessary to prevent damage or injury. Do not leave energized electrical items unnecessarily exposed or unprotected. Protect personnel from exposure to contact with electricity. Deliver equipment and materials to the job site in their original, unopened, labeled containers. Store ferrous materials so as to prevent rusting. Store finished materials and equipment so as to prevent staining and discoloring.

All materials stored prior to installation, shall be stored in a bonded and secured facility.

All sheeting, shoring, dewatering and cleaning necessary to keep trenches and their grades in proper condition for the work to be carried on, including the removal of water by mechanical means, shall be the Contractor's responsibility.

METHOD OF MEASUREMENT

100-7.1 The items described in this section are incidental to other sections and shall not be measured for payment.

BASIS OF PAYMENT

100-8.1 No direct payment shall be made for the work described in this specification. The work described in this specification is incidental to other items and shall be paid for in the respective bid item of which it is a component part.

END OF ITEM 100

ITEM 104 GENERAL ELECTRICAL SAFETY REQUIREMENTS AND TEMPORARY AIRFIELD LIGHTING

104-1.1 PURPOSE. The purpose of this item is to establish the proper safety guidelines necessary to protect aircraft, passengers, crews, the general public, all workers and vehicles involved in their daily tasks. The Contractor is solely responsible for all issues related to the safety program and guidelines and implementation of such programs and guidelines necessary to protect aircraft, passengers, crews, the general public, all workers and vehicles involved in their daily tasks.

104-1.2 FAA ADVISORY CIRCULARS. All applicable requirements of the below listed Advisory Circulars, latest edition, standards and related reading shall be complied with:

150/5200-18	Airport Safety Self-Inspection (Latest Edition)
150/5210-5	Painting, Marking and Lighting of Vehicles used on an Airport (Latest Edition)
150/5340-18	Standards for Airport Sign Systems (Latest Edition)
150/5340-26	Maintenance of Airport Visual Aid Facilities. (Latest Edition)
150/5340-30	Design and Installation Details for Airport Visual Aids (Latest Edition)
150/5370-2	Operational Safety on Airports during construction (Latest Edition)
Occupational Safety and Health Standards for the construction industry 29 CFR Part 1926/1910	
ANSI C2	National Electrical Safety Code (Latest Edition)
NFPA 70	National Electrical Code (Latest Edition)
NFPA 70E	Standard for Electrical Safety Requirements for Employee Work Places (Latest Edition)

The Contractor is responsible for obtaining and using the latest edition of the referenced FAA Advisory Circulars and related standards. This list is not all inclusive but is offered as a convenience to the Contractor.

104-1.3 GENERAL SAFETY PROVISIONS. The Contractor shall take safety and health measures in performing work under this contract. The Contractor shall meet with the Engineer to develop a mutual understanding relative to administration of the safety requirements. The Contractor is subject to applicable federal, state and local laws, regulations, ordinances, codes and orders relating to safety and health in effect on the date of this contract. Attention is invited to the regulations issued by the Secretary of Labor pursuant to the Contract Work Hours and Safety Standards Act and the Safety and Health Regulations for construction. The Contractor

shall comply with the Secretary's Regulations as applicable and shall comply with specific requirements stated.

As a minimum, work place safety shall comply with NFPA 70E Standard for Electrical Safety Requirements for Employee Work Places, OSHA, federal, state and local requirements. Where a conflict in code requirements occurs the most stringent requirement shall govern.

During the performance of work under this contract, the Contractor shall comply with procedures prescribed for control and safety of persons visiting the project site.

The Contractor is responsible for his personnel and for familiarizing each of his subcontractors with safety requirements.

The Contractor shall advise the Engineer of any special safety restrictions he has established so that the Owner personnel can be notified of these restrictions.

104-1.4 FIRE PREVENTION AND PROTECTION. All tools producing sparks or heat, open-flame heating devices, or operations utilizing such devices, etc., shall be in accordance with the local Fire Department and the Owner's Burn Permit procedures. Work shall not start until all requirements of the Burn Permit procedures are met.

Open-flame heating devices will not be permitted except by approval in writing. Such permission will not be granted unless the Contractor has taken reasonable precautions to make such devices safe. Burning trash, brush or wood on the project site will not be permitted. Approval for use of open fires and open-flame heating devices will in no way relieve the Contractor from the responsibility for any damage incurred because of fires.

Flammable liquids shall be stored and handled in accordance with the Flammable and Combustible Liquids Code, NFPA 30.

Open fires and salamanders will not be permitted in construction areas.

Smoking will not be permitted within the Air Operations Area (AOA) and in areas such as paint storage, fuel storage, and posted no smoking areas.

Welding, flame cutting, melting and other such operations in all operating areas, shall not be permitted until approved at the beginning of each workday by the Engineer. The Engineer may approve longer periods of time for welding and burning in some operating areas if the detailed safety procedures are established beforehand. Operating open flame devices shall not be left unattended in any area.

The Contractor shall provide the necessary fire fighting equipment and fire prevention methods and, before operations begin, clear all welding and cutting operations with the Engineer.

A Contractor's employee shall be assigned as fire watch for every welding and burning operation. He shall be equipped with 2 full 15 pound carbon dioxide fire extinguishers and shall check all areas around and below the welding or burning operation for fires. He shall continue this check for at least 60 minutes after the completion of the welding or burning operation.

The Contractor shall discontinue all burning, welding, or cutting operations, one hour prior to the end of the normal work day. The Contractor shall provide a workman to remain at the site for one hour after discontinuing these operations. This workman shall make a thorough

inspection of the area for possible sources of latent combustion. Any unsafe conditions shall be corrected.

During operations involving possible fire hazard, the Contractor shall notify the Engineer and not proceed until clearance is obtained in writing. The Engineer may request a standby from the Aircraft Rescue and Firefighting (ARFF). However, this does not relieve the Contractor of his responsibility for welding and cutting safety.

104-1.5 TEMPORARY EXITS AND ENTRANCES. Such passageways shall provide adequate fire protection and safety of Owner personnel and representatives.

104-1.6 SWITCHING. Electrical switching required for clearance to work on equipment operating from electrical circuits will be performed only by Owner personnel authorized as safety operators for the specific equipment unless otherwise authorized in writing by the Engineer.

104-1.7 REMOVAL OF EQUIPMENT. When permanently removing equipment, the electrical wiring, conduit and control boxes shall be removed to the source of feed, unless otherwise specified or indicated.

After equipment has been removed, the electrical wiring diagrams, schematics, etc., shall be marked to show the change.

Conduit not removed shall have a pull string installed.

104-1.8 OTHER SAFETY REQUIREMENTS. Temporary wiring shall comply with NEC. Indiscriminate use of extension cords, portable cable or junction boxes creating tripping hazards as well as overloaded circuits will not be permitted.

Unplug portable electrical hand tools when not in use. Inadvertent operation of equipment can take place if it is left plugged into an energized receptacle.

Before maintaining or repairing any electrical equipment, it shall be disconnected from the power source.

Do not use any equipment that has frayed cords or three-wire plugs that have had the grounding prongs removed. Faulty equipment and tools shall be repaired by qualified electrical personnel.

Do not use metal ladders when working on electrical equipment.

EXCAVATION

104-2.1 EXCAVATION OPERATIONS. Methods of excavation, means of earth support, and manner of backfill shall be conducted with consideration for the safety of persons and work, and prevention of damage to adjacent pavement, utilities, structures and other facilities, due to settlement, lateral movement, undermining and washout. Excavation shall be performed in a manner to prevent surface water and subsurface or ground water from flowing into excavations, and to prevent water from flooding conduit trench and adjacent or surrounding area.

The Contractor and all his subcontractors performing trench excavation on this contract shall comply with the State Trench Safety Act in which the project is occurring and the Occupational

Safety and Health Administration's (OSHA) trench excavation safety standards, 29 C.F.R., subpart P, s.1926.650, including all subsequent revisions or updates to these standards as adopted by the Department of Labor and Employment Security (DLES). The Contractor shall consider all available geotechnical information in his design of the trench excavation safety system. Inspections required by OSHA trench excavation safety standards shall be provided by the Contractor.

PROTECTION OF WORK

104-3.1 PROTECTION OF WORK. Provide adequate stand-by mechanical equipment for emergency use.

Excavations shall have substantial barricades and be posted with warning signs for the safety of persons. Warning lights shall be provided during hours of darkness.

Barricades shall be erected immediately around manhole openings when covers are removed or opened. For personnel safety and to prevent possible interruption of major utility services encountered during excavation, the following procedures shall be followed:

- a. Prior to performing any excavation work or any surface penetrations 6-inches or deeper (such as driving stakes more than 6-inches in the ground) on any ground surface, the Contractor shall obtain from the Engineer, local utilities, etc., the current up-to-date subsurface utility drawing of the particular area to be worked on.
- b. All Agencies/Utilities, etc. that may be affected by the excavating shall be contacted by the Contractor so that all lines, pipes, etc., can be marked/staked.
- c. The Contractor shall stake out all subsurface utilities i.e., high voltage cables, communication cables, pipe lines, etc., indicated within the scope of the work contemplated. All subsurface utilities shall be located by hand digging; hand digging shall extend for 5-feet on both sides of the subsurface utility.
- d. After hand exposure of cable or pipelines, the Contractor shall obtain agreement from the Engineer, Agency/Utility on how much closer to cable or pipe the excavations can be permitted.
- e. Detectable marker tape, with metalized foil core, printed with the words "CAUTION ELECTRIC LINE BELOW," "CAUTION WATER LINE BELOW," "CAUTION SEWER LINE BELOW," etc., as applicable, shall be installed 8-inches below grade over the underground utility. Tape shall be in accordance with Item 108, Installation of Underground Cable for Airports.
- f. The Contractor shall notify the Engineer, 72 hours prior to the start of excavation work or surface penetration, to enable the Engineer to review measures being taken to prevent hazard to employees and to prevent possible damage to subsurface utilities. Where emergency conditions preclude the 72 hours advance notification, the Contractor shall nevertheless inform the Engineer of his intention to initiate work.
- g. After all existing utilities have been located and marked or staked, the Contractor shall proceed with excavating work, or other surface penetration work. The Contractor however, shall temporarily halt any machine excavation work or

other surface penetration when approaching within 5-feet of the staked out subsurface utility until the Contractor has hand excavated down to expose the utility to exactly fix its location.

- h.** No digging, dirt moving or other heavy equipment shall enter physically any approved construction area before all utilities have been located and properly staked out. It is the Contractor's responsibility to locate all utilities before digging, sawing, coring, boring, etc.. Any damage caused by digging, sawing, boring, coring, etc., is the Contractor's responsibility for repair. Any damage must be reported immediately to the Engineer. No repair shall be attempted without approval.
- i.** All high voltage cables shall be disconnected before excavation is attempted.
- j.** To protect subsurface utilities, provide as a minimum, a 1-inch thick steel plate cover over electrical duct, cables and other subsurface utilities when heavy equipment is being used in the area.
- k.** The requirements listed above shall be considered incidental to the item for which the excavation is required.

SAFETY TAGGING AND LOCKOUT

104-4.1 SAFETY WITH ELECTRICAL CIRCUITS AND EQUIPMENT. No one may work on an energized circuit without written permission from the Contractor's project manager. The Contractor's project manager shall review the circumstances and the necessary safety precautions with the Engineer prior to giving permission for the "hot" work. The Contractor assumes all liability in connection with any work on energized circuits.

No one may disconnect or cause to be disconnected any electrical circuit before permission is requested from and granted by Airport Operations or their authorized representative through the Engineer.

Identification markings on building light and power distribution circuits shall not be relied on for established safe work conditions. Always verify the proper safe "deenergized" conditions with properly operating test equipment.

Before any circuit supplying radar, ILS, weather, VORTAC, airport beacon, runway/taxiway lighting equipment or any other equipment is disconnected, permission must first be granted by Airport Operations or their authorized representative, and, if applicable, FAA Airways Facilities Office.

Work shall not commence on any circuit until:

- a.** The circuit is correctly identified in the presence of the electrical contractor's superintendent or foreman, the Engineer, Airport Operations, or their authorized representative.
- b.** After identity of the circuit is established, and the circuit disconnected, the time and date shall be recorded by the Engineer.

- c. The switch shall be locked in the open position or opened in a manner, which will prevent accidental restoration.
- d. The circuit shall be tagged with an approved warning tag by the electrical contractor's superintendent. The tag shall state, the company's name, the electrician's name responsible for the disconnection, date and time and the project name and project number.

Restoration shall be accomplished and tags removed only by the electrical contractor's superintendent in the presence of Airport Operations, or their authorized representative.

The Engineer shall record time, date and operational status of circuit after restoration.

No circuit shall be disconnected or unplugged before color code identification by taping.

No circuit shall be disconnected at power source before proper safety precautions are taken to prevent accidental restoration.

When possible, circuits shall be restored by the same person who disconnected the circuit. When not possible, Airport Operations or their authorized representative shall perform restoration.

- e. As a minimum, the Lock/Tag/Try procedure shall comply with NFPA 70E and the Owner's requirements.

TEMPORARY AIRFIELD LIGHTING

104-4.2 TEMPORARY AIRFIELD LIGHTING. Temporary electrical fixtures and conductors are allowable when necessary, but shall be installed as follows:

- a. Where temporary lights are to be installed on a paved surface, temporary lights shall be bolted to the pavement in a manner rendering the light stationery and allowing space for conductors to enter or exit and to be spliced.
- b. When the above is not practical, lights shall be fastened to a weighted object adaptable for the purpose and of sufficient weight to inhibit movement by jet engine blast.
- c. Temporary conductors supplying temporary lights shall be installed in a rigid galvanized steel conduit system and secured every five feet to prevent movement by jet engine blast.
- d. All joints or splices in temporary conductors shall have heat shrink tubing with integral sealant applied to secure mechanical and electrical connection and prevent water entry.
- e. All plug-in connections shall have heat shrink tubing with integral sealant applied to prevent accidental disconnection and shall be color code taped to expedite quick, efficient disconnection and restoration.

- f. Temporary airfield lighting and signage shall conform as closely as possible to permanent locations normally on the taxiway or runway and that shall guide aircraft in a safe path away from all possible accident prone areas.

The Contractor shall provide four sets of marked-up, 'As-Built' temporary lighting plans to the Engineer prior to final temporary lighting and signage connections.

Closed taxiways and runways shall be so marked in a manner acceptable to FAA and the Owner and said marking shall be kept in acceptable condition. This item shall include, at the Engineer's discretion the temporary removal or covering of airfield signage.

CAUTION: The series lighting circuit must always be complete before a regulator is energized. Normal circuit voltage is less than 5,000 volts, open circuit voltage can be more than 10,000 volts. All personnel shall be instructed to protect the integrity of the lighting circuit. Turn off, lock out and tag the constant current regulator at the vault before opening the circuit. Continuity of the circuit shall be checked before the regulator is reconnected and reenergized.

The installation and/or removal of lighting equipment may be critical to airport operations; therefore, the Contractor shall follow work schedules established in the plans and specifications or as directed by the Engineer. The temporary system shall be installed in accordance with the contract documents, FAA Advisory Circulars and if applicable the National Electrical Code and/or local code requirements.

The Contractor shall provide temporary wiring as required to reconnect existing airfield lighting and signage to provide guidance for aircraft to pass through the construction areas on those taxiways/runways, which must remain open.

It shall be the Contractor's responsibility to determine that all airfield lighting circuits, except those that are serving closed taxiways or runways, are completely operational, using tower controls (if applicable), at the end of each work shift and shall so certify to the Engineer before leaving the work site. Day shift report of system operation shall be at 4 p.m. Second shift report shall be 1 hour before dark. Any other shift shall report 1 hour prior to the need for airfield lighting or as determined by the Engineer. Should bad weather cause poor visibility, the Engineer may require additional status reports of system operability and may call for the operation of the lighting system at any time. In the event of lighting system failure, the Contractor shall immediately take the necessary steps to restore proper operation.

Whenever the scope of work requires connection to an existing circuit, the circuit's insulation resistance shall be tested, in the presence of the Engineer. This test shall be performed prior to any activity affecting the respective circuit. The Contractor shall record the results on the forms included in Item 131 Demonstrations, Tests and Performance Verification. When the circuit is returned to its final condition, the circuit's insulation resistance shall be checked again in the presence of the Engineer. The Contractor shall record the results on the forms included in Item 131. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs, to the circuit, to bring the second reading above the first reading. All repair costs including a complete replacement of the 823 connectors, L-830 transformers and 824 cable, etc. if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance Manuals, see Item 106, Submittals, Record Documents and Maintenance Manuals.

TEMPORARY AREA/BUILDING LIGHTING

~~104-4.3 TEMPORARY ELECTRICAL AND LIGHTING INSTALLATION. Temporary electrical and/or lighting fixtures shall be provided in operational areas of buildings, where required, to maintain public safety and continued airport operations.~~

~~Temporary lighting must be installed to ANSI/OSHA standards for impacted area.~~

~~Temporary installations shall be approved by Airport Operations or their authorized representative.~~

~~The cost of temporary area/building lighting shall be absorbed in and considered incidental to the various work items.~~

~~104-4.4 MISCELLANEOUS REGULATIONS. Draw-out type breakers, regardless of operating voltage must be drawn completely out to open position and tagged and locked out per 104-4.1.~~

~~In hazardous locations, regardless of class, all electrical tools and extension cords shall be of a type approved for use in such areas.~~

~~No counterpoise conductors (or any other conductors) may be joined, connected, or affixed to any terminal, grounding electrode, or other point or attachment by any method except those approved by the Engineer.~~

~~All counterpoise or grounding systems, when severed or damaged, shall be immediately repaired by the Contractor in accordance with Item 108, Installation of Underground Cable for Airports and inspected by the Engineer.~~

~~No high voltage switch shall be engaged or disengaged under load.~~

~~All backhoes, cranes, etc., shall be enclosed by safety pylons or other approved markers and rope festooned between the pylons, where applicable.~~

~~All security gates in use by contractors are the responsibility of the Contractor, and must be used in a fully secure manner. Any damage to a security gate shall be reported immediately to the Engineer.~~

METHOD OF MEASUREMENT

~~104-5.1 The items described in this section are incidental to other sections and shall not be measured for payment.~~

BASIS OF PAYMENT

~~104-6.1 No direct payment shall be made for the work described in this specification. The work described in this specification is incidental to other items and shall be paid for in the respective bid item of which it is a component part.~~

END OF ITEM 104

ITEM 105 ALTERATIONS, REMOVAL AND DEMOLITION

GENERAL

105-1.1 DEFINITIONS. Alterations shall mean any change or rearrangement in the component parts, including structural, mechanical, electrical systems, or internal or external arrangements of an existing structure.

Removal shall mean the dismantling of existing materials, components, equipment, and utilities. Removed items shall be handled, prepared for storage, transported to storage areas as specified.

Demolition shall mean the dismantling and disposal of existing materials, components, equipment, and utilities which cannot or will not be reused or which will have no salvage value, or which cannot be reused due to unrepairable damage caused by age, non-demolition related reasons, etc. All demolished items not designated to be turned over to the Owner shall be disposed of in a safe manner and at a location acceptable to the Owner.

All items to be turned over to the Owner shall be properly enclosed or boxed to protect the items from damage and transported by the Contractor to a location on the Owner's property, designated by the Engineer and/or the Owner.

The installation and/or removal of lighting equipment may be critical to airport operations; therefore, the Contractor shall follow the work schedule established in the plans and specifications or as directed by the Engineer. The system shall be installed in accordance with the National Electrical Code and/or local code requirements.

The Contractor shall provide temporary wiring as required to reconnect existing circuits to provide guidance for aircraft to pass through the construction areas on those taxiways/runways which must remain open. The Contractor shall check all temporary circuits before dark each day to assure that they are operational. In the event of failure, the Contractor shall immediately take steps to restore operation. The cost of temporary and reconnected lighting shall be absorbed in the various work items.

105-1.2 CONDITION OF EXISTING FACILITIES. The Contractor shall verify the areas, conditions, and features necessary to tie into existing construction. This verification shall be done prior to submittal of shop drawings, fabrication or erection, construction or installation. The Contractor shall be responsible for the accurate tie-in of the new work to existing facilities.

Special attention is called to the fact that there may be piping, fixtures or other items in the existing systems which must be removed or relocated in order to perform the alteration work. All conduit, wiring, boxes, etc., that do not comply with these specifications shall be removed or corrected to comply with these specifications. All unused conduit not removed shall be identified and a pull line shall be installed. The work shall include all removal and relocation required for completion of the alterations

and the new construction.

Whenever the scope of work requires connection to an existing circuit, the circuit's insulation resistance shall be tested, in the presence of the Owner and Engineer. The Contractor shall record the results on the forms included in these specifications. When the circuit is returned to its final condition, the circuit's insulation resistance shall be checked again in the presence of the Owner and Engineer. The Contractor shall record the results on the forms included in these specifications. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance Manuals as described in Item 106, Submittals, Record Documents and Maintenance Manuals.

105-1.3 OCCUPANCY AND USE OF EXISTING FACILITIES. The Owner will occupy and use the facilities within the areas of work during the entire construction period. The Contractor shall be required to plan and coordinate his activities in order to provide all necessary controls for the abatement of dust, noise, and inconvenience to the Owner personnel during all phases of the work.

~~**105-1.4 VACATING OCCUPIED AREAS.** The Owner will remove all portable items of furniture, equipment, and fixtures prior to the start of work.~~

105-1.5 SAFETY REQUIREMENTS. The Contractor shall conduct alterations and removal operations in a manner that will ensure the safety of persons in accordance with the requirements of CFR 29 PART 1926 and 1910.

105-1.6 CLASSIFICATION OF REMOVED/DEMOLISHED ITEMS. Existing materials and equipment indicated to be removed will be classified as "salvageable" and shall remain the property of the Owner or will be classified as "debris" and shall be disposed of legally off the airport.

Reusable salvaged items:

Salvaged materials and equipment shall be reused in the work as described on the contract drawings, unless noted otherwise.

Items classified as debris shall be legally disposed of off the airport property. The cost of such disposal shall be included in the cost of other items of work.

Retained salvaged items:

Salvaged materials and equipment to be retained by the Owner but not reused in the work shall be turned over to the Owner at a site at the facility to be determined by the Owner. Retained salvaged items shall be stored on Owner property where indicated by the Owner.

105-1.7 TEMPORARY PROTECTION. The Contractor shall provide and maintain the following requirements.

Protection of persons and property shall be provided throughout the progress of the work in accordance with these specifications.

Provide temporary enclosures and partitions prior to starting alterations and removal of work. Such items shall protect existing materials, equipment, and other remaining building or system components from damage by weather and construction operations.

Provide temporary enclosures to isolate space utilized by equipment during construction, from dirt, dust, noise, and unauthorized entry.

~~Provide temporary exits, entrances, and protected passages where work prevents the use of existing facilities.~~

Provide weathertight temporary enclosures over and around openings to be made in existing exterior construction prior to the start of work. The Contractor shall maintain such temporary enclosures until new construction will protect the interior of existing facilities from the elements.

~~Provide temporary exterior wall construction which will be designed and fabricated to resist an applied horizontal wind pressure of not less than 130 mph.~~

~~Provide temporary exterior roof construction which will be capable of supporting an applied vertical live load of not less than 200 psf, uniformly distributed over the entire roof area.~~

~~Design and fabricate temporary enclosures to maintain temperatures inside the existing facilities within a range of plus or minus 5 degrees F of normal operating conditions.~~

~~Provide temporary jet blast structures which will withstand the jet blast with a safety factor of 2.~~

EXECUTION

105-2.1 DISCONNECTING UTILITIES. Prior to the start of work, the necessary utilities serving each area of alteration or removal will be shut off by the Owner and shall be disconnected and sealed by the Contractor, as required. Lockout/Tag/Try procedures shall be utilized in accordance with Item 104, General Electrical Safety Requirements and Temporary Airfield Lighting.

105-2.2 TEMPORARY UTILITY SERVICES. The Contractor shall install temporary utility services in satisfactory operating condition before disconnecting existing utilities. Such temporary services shall be maintained during the period of construction and removed only after new permanent services have been tested and are in operation.

105-2.3 REMOVAL WORK. The Contractor shall not disturb the existing construction beyond that indicated or necessary for installation of new work. Temporary shoring and bracing for support of building components to prevent settlement or other movement shall be as indicated and as required to protect the work.

The Contractor shall provide protective measures to control accumulation and migration of dust and dirt in all areas of work, particularly those adjacent to occupied areas. The Contractor shall remove dust, dirt, and debris from the areas of work daily.

105-2.4 SALVAGEABLE MATERIALS AND EQUIPMENT. The Contractor shall remove all salvageable materials and equipment in a manner that will cause the least possible damage thereto. Removed items which are to be retained by the Owner shall be carefully handled, stored, and protected.

The Contractor shall provide identification tags on all items boxed or placed in containers, indicating the type, size, and quantity of materials.

~~**105-2.5 BUILDINGS AND STRUCTURES.** The Contractor shall perform removal operations in existing buildings as indicated and as otherwise required to complete the work.~~

~~Existing concrete shall be demolished, removed, and disposed of. Square, straight edges shall be provided where existing concrete adjoins new work and at other locations where indicated. Existing steel reinforcement shall be protected where indicated; otherwise, it shall be cut off flush with face of concrete.~~

~~The Contractor shall dismantle steel components at field connections and in a manner that will prevent bending or damage.~~

~~The use of flame cutting torches will be permitted only when other methods of dismantling are not practical, and when approved in writing by the Owner and/or Engineer.~~

105-2.6 ELECTRICAL EQUIPMENT AND FIXTURES. Wiring systems and components shall be salvaged. Loose items shall be boxed and tagged for identification.

All unused conduit not removed shall have a pull string installed and shall be noted on the record drawings.

Primary, secondary, control, communication, and signal circuits shall be disconnected at the point of attachment to their distribution system.

The Contractor shall remove and salvage electrical fixtures. Incandescent lamps, mercury-vapor lamps, and fluorescent lamps shall be salvaged, boxed and tagged for identification, and protected from breakage.

~~The Contractor shall remove and salvage switches, receptacles, fixtures, transformers, constant current regulators, meters, instruments, plates, circuit breakers, panelboards, outlet boxes, and similar items. These items shall be boxed, and tagged for identification according to type and size.~~

The Contractor shall remove and dispose of conductors and conduits not used in the finished work and shown to be demolished on the plans.

DEMOLITION

~~**105-3.1 DEMOLITION OPERATIONS.** Demolition operations shall be conducted to ensure the safe passage of persons to and from facilities occupied and used by the Owner and to prevent damage by falling debris or other cause to adjacent buildings, structures, and other facilities.~~

~~The sequence of operations shall be such that maximum protection from inclement weather will be provided for materials and equipment located in partially dismantled structures.~~

105-3.2 MAINTAINING TRAFFIC. Demolition operations and removal of debris to disposal areas shall be conducted to ensure minimum interference with runways, taxiways, aprons, roads, streets, walks, and other facilities occupied and used by the Owner.

Streets, walks, runways, taxiways and other facilities occupied and used by the Owner shall not be closed or obstructed without written permission from the Owner.

105-3.3 REFERENCE STANDARDS REQUIREMENTS. Demolition operations shall be conducted to ensure the safety of persons in accordance with ANSI A 10.6 Safety Requirements for Demolition.

Demolition shall be conducted in accordance with OSHA, State and local requirements.

DISPOSAL OF DEMOLISHED MATERIALS

105-4.1 GENERAL. The Contractor shall dispose of debris, rubbish, scrap, and other non-salvageable materials resulting from demolition operations. Demolished materials shall not be stored or disposed of on Airport property.

105-4.2 REMOVAL FROM OWNER PROPERTY. Materials classified as debris shall be transported from Owner property and legally disposed of at no additional cost to the Owner. Permits and fees for disposal shall be paid by the Contractor.

ALTERATION WORK

~~**105-5.1 GENERAL.** Cutting, patching, repairing, and other alteration work shall be done by tradesman skilled in the particular trade or work required.~~

~~Where required to patch or extend existing construction, or both, such alteration work shall match existing exposed surface materials in finish, color, texture, and pattern.~~

~~Salvaged items for reuse shall be as approved by the Engineer and Owner.~~

METHOD OF MEASUREMENT

~~105-6.1 This item includes all materials, labor, transportation incidentals and services required for the building demolition as shown on the plans. It is the intent of the demolition pay item that all equipment, devices, fixtures, wiring, materials, systems and appurtenances, etc. which are no longer required as a result of the project to be removed shall be measured by the lump sum.~~

105-6.2 This item includes all materials, labor, transportation incidentals and services required for the airfield electrical demolition as shown on the plans. It is the intent of the demolition pay item that all equipment, devices, fixtures, wiring, materials, systems and appurtenances, etc. which are no longer required as a result of the project to be removed shall be measured by the lump sum.

BASIS OF PAYMENT

~~105-7.1 Payment will be made at the contract price for the required building demolition. This price shall be full compensation for furnishing all material, equipment and for all preparation, removal of the salvageable materials or debris and equipment and for all labor, equipment, tools and incidentals necessary to complete this item.~~

105-7.2 Payment will be made at the contract price for required airfield electrical demolition. This item includes all materials, labor, transportation, incidentals and services required for the demolition as shown on the plans. This item includes any temporary wiring, fixtures, etc. required to maintain the existing airfield lighting systems to the satisfaction of the Owner and Engineer. It is the intent of the demolition pay item that all equipment, devices, fixtures, wiring, materials, systems and appurtenances, etc. which are no longer required as a result of the project be removed.

Payment will be made under:

<i>Item AR801756</i>	<i>Remove Existing In-Pavement Edge Light Fixture and Install Blank Coverplate - Per Each (EA)</i>
<i>Item AR801757</i>	<i>Remove Existing Junction Box - Per Each (EA)</i>
<i>Item AR801753</i>	<i>Remove Blank Coverplate and Re-Install In-Pavement Edge Light on Existing Light Base - Per Each (EA)</i>

END OF ITEM 105

ITEM 106 SUBMITTALS, RECORD DOCUMENTS AND MAINTENANCE MANUALS

DESCRIPTION

106-1.1 GENERAL. The items described in this section are applicable to all electrical work by the Contractor. Where the contract special conditions or general provisions also apply, the stricter of the documents shall apply.

106-1.2 SCOPE. This section includes the requirements for submittals, record documents operation and maintenance (O&M) manuals. All submittals and O & M Manuals shall be submitted in book form as described in this item.

SHOW DRAWINGS AND SAMPLES

106-2.1 REQUIREMENTS FOR SHOP DRAWINGS AND SAMPLES. Shop drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or any subcontractor, manufacturer, supplier or distributor, and which illustrate some portion of the work.

Submittal data for electrical materials and equipment shall consist of shop drawings and/or catalog cuts showing technical data as necessary to evaluate the material or equipment, to include dimensions, wiring diagrams, performance curves, ratings, control sequence and other descriptive data necessary to describe fully the item proposed and its operating characteristics.

Samples are physical examples furnished by the Contractor to illustrate materials, equipment or workmanship, and to establish standards by which the work will be judged. Each sample shall be accompanied by the manufacturer's instructions regarding installation, operation and maintenance and shall be identified by item number, and specification.

The Contractor shall review, stamp with his approval and submit to the Engineer, one (1) reproducible and seven (7) prints of shop drawings, seven (7) copies of submittal books and three (3) sets of samples where required, as described in this item, within fifteen (15) days of notice to proceed.

If the Contractor desires to deviate from the requirements of the contract documents, the Contractor shall separately submit all deviations from the requirements of the contract documents in shop drawings or samples. The submission shall direct in writing the specific attention of the Engineer to the deviations, and shall contain all required data and supporting documentation necessary for an evaluation of the proposed deviation. Any submission or deviation not identified as heretofore mentioned shall be rejected and require resubmission. Separate written approval of all deviations by the Engineer for all design related deviations and by the Owner for all other deviations is required before the Contractor may perform the work covered by such deviation. By requesting a deviation, the Contractor makes the representations contained in this section.

If approval is given, the Contractor will not be excused from producing work in conformity with contract requirements. If a trial use establishes the work does not meet the contract requirements, the Contractor shall take such action as the Engineer determines necessary to meet the contract requirements. No change in contract time will be made as a result of changes made under this subparagraph. By requesting a deviation, the Contractor makes the representations contained in this section.

106-2.1.1 Substitutions will only be considered after bid date only if the following conditions are met and allowed by other sections of these specifications.

- a. Request for substitution is submitted no later than 15 days after notice to proceed for construction is awarded to the Contractor.
- b. Request for substitution includes appropriate credit to the project cost. This credit must be submitted with request for substitution in order for substitution to receive any consideration.
- c. Samples are to be submitted for all substituted light fixtures, wiring devices and other items deemed necessary by the Engineer to determine that the substituted item meets all specifications and requirements before approval of substitutions can be made.
- d. Samples shall be submitted within 15 days after the award of the contract.
- e. Request for substitution shall include the name of the material or equipment for which it is to be substituted, drawings, cuts, performance and that data or any other data or information necessary for the Engineer to determine that the equipment meets all specifications and requirements.
- f. Where permitted and approved, the substitution must conform to space requirements. Substitutions that cannot meet space requirements, which is the substitution Installer's responsibility whether approved or not, shall be replaced at the Contractor's expense. Any substitution modifications of related systems, as a result of the substitution, shall be made at the Contractor's expense.
- g. The Contractor represents that it has personally investigated the proposed substitution and determined that the proposed substitution is equal or superior in all respects to the specified method or equipment.
- h. The Contractor represents that it will provide a warranty for the substitution identical in all respects to the warranty for the specified method or equipment.
- i. The Contractor represents that it will coordinate the installation of the accepted substitute, making changes as may be required for the work to be complete in all respects at no additional costs to the Owner.

The Engineer shall be the sole judge of whether the proposed "or equal" is suitable for use in the work.

106-2.1.2 Substitutions will be considered prior to bid date only if all the following conditions are met:

- a. A written request has been submitted to the Engineer for approval at least 10 days prior to the bid date.
- b. Samples are to be submitted for all substituted light fixtures, wiring devices and other items deemed necessary by the Engineer to determine that the substituted item meets all specifications and requirements before approval of substitutions can be made.
- c. Samples shall be submitted within 15 days after the award of the contract.
- d. Request for substitution shall include the name of the material or equipment for which it is to be substituted, drawings, cuts, performance and that data or any other data or information necessary for the Engineer to determine that the equipment meets all specifications and requirements.
- e. Substitution is approved and included in an addendum.

By approving and submitting shop drawings and samples, the Contractor thereby represents that he/she has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data and that the Contractor, has checked and coordinated each shop drawing and sample with the requirements of the work of the contract documents.

Unless otherwise stated in the contract documents, the Engineer will review and approve shop drawings and samples within fifteen (15) days after receipt, but only for conformance with the design concept of the project and with the information given in the contract documents. The Engineer's approval of a separate item shall not indicate approval of an assembly in which the item functions.

The Contractor shall make any corrections required by the Engineer and shall resubmit the required number of corrected shop drawings or new samples until approved. The Contractor shall direct specific attention in writing on resubmitted shop drawings to revisions other than the corrections requested by the Engineer on previous submissions.

The Engineer's approval of shop drawings or samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the contract documents unless the Contractor has informed the Engineer in writing of such deviation at the time of submission and the Engineer has given written approval to the specific deviation. **The Engineer's approval shall not relieve the Contractor from responsibility for errors or omissions in the shop drawings or samples.**

The submittals will be reviewed for design intent and general compliance with the information contained in the drawings and specifications. The Contractor is responsible for dimensions, quantities, fabrication processes and methods of construction, coordination of the Contractor's work with that of all trades. The Contractor shall be responsible for satisfactory performance of his work and supplying a complete and operational system.

No portion of the work requiring a shop drawing or sample submission shall be commenced until the submission has been approved by the Engineer. All such portions of the work shall be in accordance with approved shop drawings and samples.

Samples, upon request, shall be submitted after written notice of acceptance and approval has been made of each substitution. The Engineer reserves the right to reject the sample should the sample not meet the requirement of the contract documents.

106-2.2 SUBMITTAL BOOKS. Submittal books shall consist of a hard cover, view type, 3-ring binder sized to hold 8 1/2" x 11" sheets.

Each binder is to be adequately sized to comfortably hold required submittals. Minimum spline size to be 1", maximum spline size to be 3" (provide additional binders if 3" size is not sufficient to properly hold submittals). Each binder shall be adequately sized to hold the submittal information plus an additional 25% of the submittal sheet count.

Binder covers to have outer clear vinyl pocket on front and back cover (to hold 8 1/2" x 11" sheet) and on spline (to hold spline width x 11" sheet). Binders shall be Wilson Jones Standard Locking D-Ring View Binders or approved equivalent. Provide correct designation of project in each pocket; see "EXAMPLES" Appendix A Figures 1 and 2 included at the end of this section. Description sheet is to be white with black letters, maximum sheet height of 11" high and full width of pocket. Description is to describe project and match project drawing/specification description. Description is to include submittal type. One (1) for the Airfield Lighting System materials (black) and one (1) for the Airfield Lighting Control System (blue).

106-2.3 SUBMITTAL BOOK CONTENTS. Submittal books to include:

- a. First sheet(s) in book shall be a photocopy of the cover sheet see Appendix A Figure 1.
- b. The second sheet shall be a table of contents.
- c. Third sheet shall be prepared and filled out by the Contractor and shall list project addresses, see Appendix A Figure 3.
- d. Fourth sheet shall also be filled out by Contractor and list project information for project, Appendix A Figure 4.

- e. Provide Wilson Jones, reinforced clear, ring binder indexes, 5 tab No. WJ-54125 or approved equivalent with the appropriate specification section number, and a typed index for each section.
- f. Submittals consisting of marked catalog sheets or shop drawings shall be inserted in the binder in proper order. Submittal data shall be presented in a clear and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable).
- g. Shop Drawings: Drawings to include identification of project and name of Engineer, Contractor, subcontractors and suppliers, data, number sequentially and indicate the following:
 - (1) Fabrication and erection dimensions.
 - (2) Arrangements and sectional views.
 - (3) Necessary details, including complete information for making connections with other work.
 - (4) Kinds of materials and finishes.
 - (5) Descriptive names of equipment.
 - (6) Modifications and options to standard equipment required by the work.
 - (7) Leave blank area, size approximately 4 x 2 ½ inches, near title block (Engineer's stamp imprint).
 - (8) Point-to-point wiring diagrams.
 - (9) Conduit/raceway rough-in drawings.
 - (10) See specific sections of specifications for further requirements.

106-2.4 SUBMITTAL BOOKS PRODUCT DATA. Technical data is required for all items as called for in the specifications regardless if item furnished is as specified.

- a. Submit technical data verifying that the item submitted complies with the requirements of the specifications. Technical data shall include manufacturer's

name and model number, dimensions, weights, electrical characteristics, and clearances required. Indicate all optional equipment and changes from the standard item as called for in the specifications. Furnish drawings, or diagrams, dimensioned and in correct scale, covering equipment, showing arrangement of components and overall coordination.

- b. In order to facilitate review of product data, insofar as practicable, they shall be noted, indicating by cross reference the contract drawings, note, and/or specification paragraph numbers where item(s) occur in the contract documents. At the end of each section insert a copy of the applicable specification.
- c. When specified in individual specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data. Identify conflicts between manufacturers' instructions and contract documents. The Engineer shall make the decision on which procedure will be followed.
- d. When specified in individual specification sections, submit manufacturers' certificate to the Engineer for review in quantities specified for product data. Indicate that material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits and certifications as appropriate. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.
- e. See specific sections of specifications for further requirements.

106-2.5 PROCESSING SUBMITTALS. Submit a minimum of seven (7) submittal books with separate tag marking on each copy for the Owner (1), Engineer (4), Contractor and Subcontractor (See other sections of these specifications for additional quantity requirements.)

The Contractor shall review the submittal books before submitting to the Engineer. No request for payment will be considered until the submittal book has been reviewed and submitted for approval.

Submit under provisions Section 1. of the Special Conditions and this section of the specifications, whichever is the most strict.

Product Data: For standard manufactured materials, products and items, submit one (1) copy or sets of data (per book). If submittal is rejected, resubmittal shall contain same quantity of new data.

Shop Drawings: For custom fabricated items and systems shop drawings, initially submit a transparency (suitable for reproduction) together with two (2) prints made therefrom. When submittal is acceptable, furnish one (1) print per book made from the accepted transparency.

Acceptance: When returned to Contractor, the front of each submittal section will be marked with the Engineers stamp. If box marked "Submit Specified Item", or "Rejected" or "Revise and

Resubmit" is checked, submittal is not accepted and Contractor is to correct and resubmit as noted. Contractor is to comply with notation making necessary corrections on submittal and resubmit for final record. If submittal is marked "Make Correction Noted" Contractor may begin construction utilizing the submitted item with corrections made. However, the corrected submittal must be resubmitted for record keeping purposes. Contractor is to comply with notation making necessary corrections on submittal and resubmit for final record.

If the submittal is marked "No Exception Taken" the Engineer took no exceptions to the submitted.

If the submittal is marked "See Transmittal Letter Comments", the Contractor shall make or note any corrections or requirements identified in the comments. Corrections or comments made on the shop drawings during this review do not relieve the Contractor from compliance with requirements of the drawings and specifications. This check is only for review of the general conformance with the design concept of the project and general compliance with the information given in the contract documents. The Contractor is responsible for; confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his or her work with that of all other trades and performing all work in a safe and satisfactory manner.

Note that the approval of shop drawings or other information submitted in accordance with the requirements herein before specified, does not assure that the Engineer, or any other Owner's authorized representative, attests to the dimensional accuracy or dimensional suitability of the material or equipment involved, the ability of the material or equipment involved or the mechanical/electrical performance of equipment. Approval of shop drawings does not invalidate the plans and specifications if in conflict, unless a letter requesting such a change is submitted and approved on the Engineer's letterhead.

106-2.8 DELAYS. The Contractor is responsible for delays in project time accruing directly or indirectly from late submissions or resubmissions of shop drawings, or product data.

106-2.9 RE-SUBMITTALS. The Engineer shall be reimbursed the cost to review resubmittals subsequent to the second submittal.

RECORD DOCUMENTS

106-3.1 PROGRESS AND RECORD DRAWINGS. Keep one set of blue line prints on the job and neatly mark up design drawings each day as components are installed. Different colored pencils shall be used to differentiate each system of electrical work. All items on progress drawings shall be shown in actual location installed. Drawings shall be inspected weekly for compliance and accuracy. Progress payments shall be withheld if the marked-up drawings are not current.

All underground ducts, conduits, drains, ground grids, force mains, etc., (all underground utilities) installed by the Contractor or located by the Contractor during the construction of this project shall be surveyed. The data shall be sufficient to accurately relocate the utility at a later

date. The data shall include North-South and East-West coordinates and an elevation. This data shall be recorded on the as-built drawings.

All manholes and other structures installed by the Contractor shall be surveyed. The center of the structure shall be located by a North-South and East-West coordinate and an elevation. This data shall be recorded on the as-built drawings.

Change the equipment schedules to agree with items actually furnished. At the end of the project, all changes shall be transferred to a set of reproducible transparencies of the design drawings marked "As Built" and dated and stamped by the Contractor.

Prior to request for final payment, furnish a set of "As Built" sepia originals and four sets of prints along with the marked set defined above to the Engineer for approval. The final sepia originals shall be professionally drafted to indicate "As Built" conditions to the Engineer. The prints shall be stamped "As-Built", signed and dated by the electrical contractor.

The Contractor's failure to produce representative "As Built" drawings in accordance with requirements specified herein, shall be cause for the Engineer to produce such "As-built" drawings and the Contractor shall reimburse the Engineer for all costs to produce a set of "Record" drawings to the Owner's satisfaction.

Complete and sign the Progress and Record Document Certification Form in Appendix A Figure 5 and submit with the Operation and Maintenance Manuals. Submit one form for each Contractor/Subcontractor providing as-built information, include a copy of each form in the O & M Manuals.

106-3.2 REQUIREMENTS FOR DISPLAY DRAWINGS. An "as built" control and field wiring diagram shall be displayed in the vault. Size D minimum framed and installed. In addition to the wiring diagram (showing actual connections between the system components), a "schematic" diagram shall be provided; a schematic diagram to show the electrical interrelation among the different systems components in the simplest way possible without being cluttered with actual wiring. It should show the path of the signal flow or the power flow. These drawings shall be submitted to the Engineer for approval. The Contractor shall coordinate the requirements with the Owner or his authorized representative and provide the above at no additional cost to the Owner.

OPERATION AND MAINTENANCE MANUALS

106-4.1 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS. Within each major division of work, each specification section in the contract documents which require submission of O & M information shall be individually identified by a typed index tab. The Contractor shall provide four (4) copies of manufacturer's manuals for all installed equipment. As a minimum, it shall contain the following:

- a. Safety precautions used while maintaining the equipment.
- b. Theory of circuit and system operation.

- c. Complete schematic and interconnecting wiring diagrams
- d. Complete parts list with each circuit component keyed to designations assigned on schematics and wiring diagrams. Complete information shall be given for each part to permit ordering for replacement purposes. This information shall include the components rating, name of manufacturer and the manufacturer's part number in addition to the following:
- e. Recommended preventive maintenance, including care, cleaning, lubrication, service schedules, etc.
- f. Troubleshooting procedures.
- g. Physical characteristics (weight, size, mounting dimensions, etc.).
- h. Installation instructions.
- i. Operating instructions.
- j. Recommended spare parts and usage for a 1 year period.
- k. Submit for checking purposes a specific set of written operating instructions on each item which requires instructions to operate. After approval, provide one copy for insertion in each Operation and Maintenance Manual.
- l. Submit for approval maintenance information consisting of manufacturer's printed instructions and parts list for each major item of equipment. After approval, insert information in each Operations and Maintenance Manual. Detailed schematic diagrams shall be furnished for all electrical/electronic equipment.
- m. Bill of materials.
- n. Physical layout plans.
- o. Equipment supplier list.
- ~~p. Panel schedules shall be submitted with the respective panel data.~~
- q. Special instructions.
- r. Service maintenance contracts including the name, address and 24 hour phone number and contact of manufacturers authorized repair company.

There shall be no "Black Boxes" for which there are no schematic/wiring diagrams.

106-4.2 OPERATION AND MAINTENANCE MANUALS. O & M Manuals shall consist of hard cover, view type, 3-ring binders sized to hold 8 ½" x 11" sheets.

Each binder is to be adequately sized to comfortably hold required submittals. Minimum spline size to be 1", maximum spline size to be 3" (provide additional binders if 3" size is not sufficient to properly hold submittals). Each binder shall be adequately sized to hold the submittal information plus an additional 25% of the submittal sheet count.

Binder covers to have outer clear vinyl pocket on front and back cover (to hold 8 ½" x 11" sheet) and on spline (to hold spline width x 11" sheet). Binders shall be Wilson Jones Standard Locking D-Ring View Binders or approved equivalent. Provide correct designation of project in each pocket, see "EXAMPLES" Appendix A Figures 6 and 7 included at the end of this section. Description sheet is to be white with black letters, maximum sheet height of 11" high and full width of pocket. Description is to describe project and match pocket drawing/specification description. Description is to include submittal type. One (1) for Airfield Lighting System Materials (black) and one (1) for the Airfield Lighting Control System (blue).

106-4.3 OPERATION AND MAINTENANCE MANUAL CONTENTS. O & M Manuals to include:

- a. First sheet in binder shall be a photocopy of the cover sheet see Appendix A Figure 6.
- b. The second sheet shall be a table of contents.
- c. The third sheet shall be filled out by the Contractor and shall list project addresses, see Appendix A Figure 3.
- d. The fourth sheet shall also be filled out by the Contractor and list project information for project, see Appendix A Figure 4.
- e. Provide Wilson Jones, reinforced, clear, ring binder indexes, 5 tab No. WJ-54125 or approved equivalent with the appropriate specification section number, and typed index for each section.
- f. Shop Drawings: Shop drawings shall be a copy of the final and approved shop drawings submitted as required in Item 106-2, Shop Drawings and Samples. These shall be inserted in the binder in proper order. Each catalog sheet shall clearly identify where the product is used and the drawing identification for equipment. Clear vinyl pockets shall be provided for insertion of shop drawings.
- g. Product data and/or catalog sheets shall be a copy of the final and approved submittal submitted as required in Item 106-2, Shop Drawings and Samples. These shall be inserted in the binder proper order. Each catalog sheet shall clearly identify where the product is used and the drawing identification for equipment.

- h.** Warranty/Guarantee: Provide a copy of the warranty/guarantee and letters of certification, in respective locations in the O & M Manual binder. Original warranty/guarantee is to be incorporated into a separate project warranty book with warranty/guarantees provided for other sections and divisions of the specifications and submitted for Engineer approval.
- i.** Performance Verification and Demonstration to Owner (See Appendix A Figure 2 form in Item 131, Demonstrations, Tests and Performance Verification).
- j.** Tabulated Data (as required in Item 131, Demonstrations, Tests and Performance Verification).
- k.** Required Check-Out Memos (see Appendix A Figure 1 form in Item 131, Demonstrations, Tests and Performance Verification).
- l.** Progress and Record Drawing Certification (Appendix A Figure 5)
- m.** Ground Test Information (See Appendix A Figure 3 form in Item 131, Demonstrations, Tests and Performance Verification).

106-4.4 PROCESSING O & M MANUALS. Submit four (4) sets of O & M Manuals. The Contractor shall review the manuals before submitting them to the Engineer.

106-4.5 DELAYS. The Contractor is responsible for delays in project time accruing directly or indirectly from late submissions or resubmissions of the Operation and Maintenance Manuals.

106-4.6 RE-SUBMITTALS. The Engineer shall be reimbursed the cost to review Operation and Maintenance Manuals, re-submittals subsequent to the second submittal.

METHOD OF MEASUREMENT

106-5.1 The items described in this section are incidental to other sections and not shall be measured for payment.

BASIS OF PAYMENT

106-6.1 No direct payment shall be made for the work described in this section. The work described in this section is incidental to other items and shall be paid for in the respective bid item of which it is a component part.

APPENDIX A - FIGURE 1

"EXAMPLE"

**AIRPORT OWNER
AIRPORT LOCATION**

AIRPORT NAME

PROJECT NAME

AIRFIELD LIGHTING SUBMITTAL BOOK

APPENDIX A - FIGURE 2

"EXAMPLE"

**AIRPORT OWNER
AIRPORT LOCATION**

**PROJECT NAME
AIRPORT NAME**

**AIRFIELD
LIGHTING
SUBMITTAL
BOOK**

APPENDIX A - FIGURE 3

PROJECT ADDRESSES

OWNER:

PHONES:

CONSULTING ENGINEERS:

GENERAL CONTRACTOR:

SUBCONTRACTORS:

SUPPLIERS:

APPENDIX A - FIGURE 4

PROJECT INFORMATION

Contractor shall fill in the blanks below and insert in the Submittal Books and the Operating and Maintenance Manuals. Submit one (1) sheet for each major division of Work.

Project Name: _____

Specification Division Number & Name: _____

Subcontractor: _____

Contact: _____ Phone Number: _____

Date Project Bid: _____

Project Start Date: _____

Days Allowed for Construction: _____

Target Completion: _____

Substantial Completion: _____

Certification Date: _____

	DATE SUBMITTED	DATE SUBMITTED
Closeout Documentation Manual:	_____	_____
Operating & Maintenance Manual:	_____	_____
Owner Performance Verification and Demonstrations:	_____	_____
Manufacturer's Performance Verification Memos:	_____	_____
Manufacturer's Test Data:	_____	_____
Record Documents:	_____	_____

APPENDIX A FIGURE 5

PROGRESS AND RECORD DRAWING CERTIFICATION

This form shall be completed and submitted with the Record Documents. Submit one form for each Contractor/Subcontractor providing as-built information. Include a copy of this form in the Closeout Documentation Manual.

Project Name: _____

Specification Division Number & Name: _____

The Contractor's and Subcontractor's signatures below certify that the attached drawings and specifications were marked and revised as items were installed/changed, during the course of construction, and that these documents represent an accurate "Record-As Built" condition of the work as actually installed.

(Name of General Contractor)

(Signature, Title, Date)

(Name of Subcontractor)

(Signature, Title, Date)

APPENDIX A - FIGURE 6

"EXAMPLE"

**AIRPORT OWNER
AIRPORT LOCATION**

AIRPORT NAME

PROJECT NAME

**AIRFIELD LIGHTING OPERATION AND
MAINTENANCE MANUALS**

APPENDIX A - FIGURE 7

"EXAMPLE"

**AIRPORT OWNER
AIRPORT LOCATION**

AIRPORT NAME

PROJECT NAME

**OPERATION
AND
MAINTENANCE
MANUAL**

APPENDIX A - FIGURE 8

ELECTRICAL MATERIALS SUBMITTAL LIST

Spec. Section Number	Submittal Description	Date Received	Date Returned	Status
100	<p>Certification of Electrical Contractor's Experience Copy of Electrical Contractor's applicable State Electrical License</p> <p>Certification of Electrical Superintendent's Experience Electrical Superintendent's resume' and copy of Journeyman Electrician License Electrical Superintendent's References, Airport Name, Contact and phone number</p> <p>Copy of each Journeyman Electrician's License</p> <p>Existing Facilities Investigation Memorandum</p> <p>Phenolic nameplates - 1 to 1 scale detail of each nameplate SS pop rivets and silicone caulk Adhesive backed cloth markers Color code paint Permanent black marker Self-adhesive clear printed labels w/ black typed letters</p> <p>Welder qualifications Welding procedures</p> <p>Written verification providing proof of correspondence with representatives of all utilities/agencies to locate all existing utilities/systems within the project limits</p>			
104	<p>Temporary Airfield Lighting Plan and Procedures</p> <p>Temporary Airfield Lighting, Signage and Cabling</p>			
105	<p>Existing equipment and cable protection plans and procedures</p> <p>Protective equipment Existing cable protection plan</p>			

<p>108</p>	<p>Each component shall be identified with the specific pay item of which it is a component part.</p> <p>List of proposed Airfield Lighting Cable Splicers Airfield Lighting Cable Splicer Qualifications</p> <p>Cable Installation Plan Cable Installation Reports</p> <p>All wire, conductors and cable assemblies including manufacturer's minimum cold weather installation temperature, minimum bend radius, maximum pull tension</p> <p>L-824 5kV cable L-824 5kV cable Production Test Reports L-823 Connector Kits Counterpoise Wire Ground Wire</p> <p>Compression butt splices Compression lugs C-Taps Compression tooling, calibration certificate, procedures and manufacturer's recommended practices Pencil tool</p> <p>Mechanical lugs and torquing requirements Torque wrench, calibration certificate and manufacturer's recommended practices Wire nuts Terminal blocks</p> <p>Insulation replacement systems, i.e. tapes, heat shrink tubing, etc. Electrical coatings Joint compound Pull ropes Cable pulling lubricant</p> <p>Color coding materials and/or methods Detectable marker tape with message and color Wire/cable markers Brass ID Tags and cable ties Brass ID Tag stamped samples - 3 samples for each circuit impacted</p>			
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	<p>Stainless steel wire mesh strain relief baskets for 5 kV cables</p> <p>Copper-clad steel ground rods Ground rod couplings Ground rod driving studs Exothermic connections Electrical coatings Electrical joint compound Grounding conductors Copper bus bar by size, type and use Ground rod inspection pit</p>			
110	<p>Rigid galvanized steel (RGS) conduit Weatherproof conduit hubs Locknuts Grounding bushings w/ insulated throat Bushings w/ insulated throat Condulets, covers and gaskets Expansion fittings Conduit thread compound Long radius RGS bends Cold galvanizing compound Asphaltum paint</p> <p>Schedule 40 PVC conduit Schedule 40 PVC end bells, fittings, terminations, cleaner and solvent cement Schedule 40 PVC duct spacers and duct plugs Expansion fittings</p> <p>Split duct and fittings Inner duct and fittings</p> <p>E-LOC Couplings</p> <p>P-610 concrete mix</p> <p>Cable racks, supports, ties and straps detectable marker tape Drain sumps Each item submitted shall include the contractors proposed installation detail</p>			
L-112	<p>Directional Bore Duct</p> <p>Directional Bore work plan, schedule, procedure,</p>			

	<p>methods and equipment</p> <p>Directional Bore drilling fluid mixing and delivery system</p> <p>Directional Bore guidance system</p> <p>Maintenance of Traffic Plan</p>			
131	<p>Submit all materials, test equipment, written procedures, forms, and equipment calibration certificates for performing the following tests:</p> <p>Calibration Lab Qualifications</p> <p>Equipment dielectric testing</p> <p>Cable/conductor dielectric testing</p> <p>Qualifications of firm performing dielectric testing</p> <p>Insulation resistance (megger) testing</p> <p>Fixture wiring sequence testing procedure</p> <p>Lighting system burn in</p> <p>Airfield lighting photometric testing procedure and equipment</p> <p>Qualifications of firm performing airfield lighting photometric testing</p> <p>Constant current regulator test procedures, test equipment, calibration procedures</p> <p>Airfield Lighting Control System and associated equipment Acceptance Testing</p> <p>Emergency generator, load bank, and automatic transfer switch test</p> <p>Torquing of electrical terminations</p> <p>Torquing of anchor bolts</p> <p>Earth resistance testing</p> <p>Ground continuity/resistance testing</p> <p>Exothermic weld tests</p> <p>Equipment and support welding</p> <p>Transformer tests</p> <p>Testing required by equipment manuf.</p> <p>Welding procedures</p>			

	<p>Welder qualifications</p> <p>Pavement sensor testing procedure, commissioning procedure and results</p> <p>All other components not previously listed or as requested by the RPR.</p>			
L-120	<p>Each component shall be identified with the specific pay item of which it is a component part. Complete assemblies shall be submitted for each pay item.</p> <p>Shop drawings of each airfield lighting component, indicating FAA approval, shall be submitted to the RPR for review and approval and be approved prior to ordering any materials for this item. This submittal shall include the proposed method of installation for all airfield lighting components. The submittal shall include data on all component parts of the item or system, and shall include the manufacturers list of recommended spare parts for one years use.</p> <p>The manufacturer of the lighting fixtures proposed shall provide data, certification, and five (5) airport references that each type of proposed fixture, as currently designed unless a new design that has not been required in the United States heretofore, has been in operation under normal airfield conditions a minimum of 3 years with a certified repair requirement rate of no more than three (3) percent.</p> <p>Spare parts guarantee</p> <p>Lamp prices and price guarantee</p> <p>Survey of existing fixtures, base cans, etc per L-125</p> <p>Airfield lighting fixture manufacturer qualifications</p> <p>Identification/number markers 24 each samples of ID markers</p> <p>Reinforcing steel SS bolting hardware including anti-rotational devices</p>			

	<p>Anti-seize compound</p> <p>L-850A Runway Centerline Light – including as applicable: light fixture, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti rotational fins, spacer rings, flange rings, adapter rings, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-850B Touchdown Zone Light – including as applicable: light fixture, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti rotational fins, spacer rings, flange rings, adapter rings, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-850C Runway Edge Light - including as applicable: light fixture, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti-rotational fins, spacer rings, flange rings, adapter rings, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-862 Runway Edge Light – including as applicable: light fixture, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti rotational fins, spacer rings, flange rings, adapter rings, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-862E Runway Threshold Light – including as applicable: light fixture, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti rotational fins, spacer rings, flange rings, adapter rings, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p>			
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	<p>L-804 Runway Guard Light – including as applicable: light fixture, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti rotational fins, spacer rings, flange rings, adapter rings, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-867B Base Can L-867D Base Can L-868B Base Can</p> <p>Spare Parts</p> <p>Non-reflective cracking fabric Epoxy bonding compound including pavement compatibility statement Rebar P-610</p> <p>All bolting hardware not previously submitted</p> <p>Each item submitted shall include the contractors proposed installation detail.</p> <p>All other components not previously listed or as requested by the RPR.</p>			
<p>L-121</p>	<p>Each component shall be identified with the specific pay item of which it is a component part. Complete assemblies shall be submitted for each pay item.</p> <p>Shop drawings of each airfield lighting component, indicating FAA approval, shall be submitted to the RPR for review and approval and be approved prior to ordering any materials for this item. This submittal shall include the proposed method of installation for all airfield lighting components. The submittal shall include data on all component parts of the item or system, and shall include the manufacturers list of recommended spare parts for one years use.</p> <p>The manufacturer of the lighting fixtures</p>			

	<p>proposed shall provide data, certification, and five (5) airport references that each type of proposed fixture, as currently designed unless a new design that has not been required in the United States heretofore, has been in operation under normal airfield conditions a minimum of 3 years with a certified repair requirement rate of no more than three (3) percent.</p> <p>Spare parts guarantee</p> <p>Lamp prices and price guarantee</p> <p>Survey of existing fixtures, base cans, etc per L-125 Airfield lighting fixture manufacturer qualifications</p> <p>Identification/number markers 24 each samples of ID markers</p> <p>Reinforcing steel SS bolting hardware including anti-rotational devices Anti-seize compound</p> <p>L-861T Taxiway Edge Light including as applicable: light fixture, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti-rotational fins, spacer rings, flange rings, adapter rings, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-867B Base Can L-867D Base Can L-868B Base Can</p> <p>Spare Parts</p> <p>Non-reflective cracking fabric Epoxy bonding compound including pavement compatibility statement Rebar P-610</p> <p>All bolting hardware not previously submitted</p>			
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	<p>Each item submitted shall include the contractors proposed installation detail.</p> <p>All other components not previously listed or as requested by the RPR.</p>			
L-122	<p>Each component shall be identified with the specific pay item of which it is a component part. Complete assemblies shall be submitted for each pay item.</p> <p>Constant current regulators Spare Parts</p> <p>Plug Cutouts Disconnect switches Circuit breakers Panels Transformers Switchgear Conduit/duct Power and control wiring/cabling Connectors, terminations, etc. Mounting hardware Labels and identification marking</p>			
L-123	<p>Each component shall be identified with the specific pay item of which it is a component part. Complete assemblies shall be submitted for each pay item.</p> <p>Shop drawings of each airfield lighting component, indicating FAA approval, shall be submitted to the RPR for review and approval and be approved prior to ordering any materials for this item. This submittal shall include the proposed method of installation for all airfield lighting components. The submittal shall include data on all component parts of the item or system, and shall include the manufacturers list of recommended spare parts for one years use.</p> <p>The manufacturer of the signs proposed shall provide data, certification, and five (5) airport references that each type of proposed fixture, as currently designed unless a new design that has not been required in the United States heretofore,</p>			

	<p>has been in operation under normal airfield conditions a minimum of 3 years with a certified repair requirement rate of no more than three (3) percent.</p> <p>Spare parts guarantee</p> <p>Lamp prices and price guarantee</p> <p>Survey of existing fixtures, base cans, etc per L-125 Airfield lighting fixture manufacturer qualifications</p> <p>Identification/number markers 24 each samples of ID markers stamped "17L 35R"</p> <p>Reinforcing steel SS bolting hardware including anti-rotational devices Anti-seize compound</p> <p>L-858B Runway Distance Remaining Sign— including as applicable: signs, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti-rotational fins, spacer rings, flange rings, sign tethers, SS anchor bolts, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-858Y, R, L Sign 1 Module Sign— including as applicable: signs, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti-rotational fins, spacer rings, flange rings, sign tethers, SS anchor bolts, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-858Y, R, L Sign 2 Module Sign— including as applicable: signs, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti-rotational fins, spacer rings, flange rings, sign tethers, SS anchor bolts, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p>			
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<p>L-858Y, R, L Sign 3 Module Sign including as applicable: signs, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti-rotational fins, spacer rings, flange rings, sign tethers, SS anchor bolts, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>L-858Y, R, L Sign 4 Module Sign including as applicable: signs, light bases (base cans), extensions and top sections, covers, gaskets, ground lugs, load rings, anti-rotational fins, spacer rings, flange rings, sign tethers, SS anchor bolts, SS bolting hardware, L-830 isolation transformers, frangible couplings, lamps, installation detail, all components, accessories and incidentals.</p> <p>Sign Conversion Kits Sign Panels</p> <p>Misc Sign Items L-858 sign message schedule Sign load calculation or test results supporting 200mph requirement per AC 150/5345-44F Vinyl die cut labels and sample</p> <p>L-867B Base Can L-867D Base Can L-858Y, R, L, B sign panels</p> <p>Spare Parts</p> <p>Non-reflective cracking fabric Epoxy bonding compound including pavement compatibility statement Rebar P-610</p> <p>All bolting hardware not previously submitted</p> <p>Each item submitted shall include the contractors proposed installation detail.</p> <p>All other components not previously listed or as requested by the RPR.</p>			
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<p>L-115</p>	<p>Each component shall be identified with the specific pay item of which it is a component part. Complete assemblies shall be submitted for each pay item.</p> <p>Manholes Handholes Junction Boxes</p> <p>Each item's submittal shall include the following as required: Signed and sealed shop drawings by a registered structural P.E. in the applicable state Grounding attachments Covers, frames, rings, etc. Spring assist mechanisms Pulling irons Cable racks Section sealant/mastic Reinforcement bars and wire mesh All accessories</p> <p>Each item submitted shall include the contractors proposed installation detail.</p> <p>All other components not previously listed or as requested by the RPR.</p>			
<p>135</p>	<p>Each component shall be identified with the specific pay item of which it is a component part. Complete assemblies shall be submitted for each pay item.</p> <p>L-867 Size B Base Cans Junction Boxes In-Pavement Surface Sensor Sub-surface Temperature Probe</p> <p>Each item submitted shall include the contractors proposed installation detail.</p> <p>All other components not previously listed or as requested by the RPR.</p>			

END OF ITEM 106

ITEM 108 INSTALLATION OF UNDERGROUND CABLE FOR AIRPORTS

DESCRIPTION

108-1.1 This item shall consist of underground cable furnished and installed in accordance with this specification at the locations and in accordance with the design, dimensions, and details shown in the plans. This item shall include the excavation and backfill of the trench, the installation of cable and counterpoise wire in trench, duct or conduit, splicing, cable marking, and testing of the installation, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the Engineer. ~~This item shall not include the installation of the duct or conduit or installation or furnishing of any cable for FAA facilities.~~

Installation of direct buried cable and cable in unit duct and conduit as shown on the plans. The Contractor has the option to either trench or plow the proposed cable in unit-duct into place. All direct buried cable not in unit duct will be trenched into place.

All installations shall be done at the locations shown on the plans and in accordance with these specifications. In areas where there is a congestion of buried cable, the Contractor will be required to trench the proposed cable into place. When crossing existing circuits, the Contractor will be required to hand dig the trenches for the proposed cable.

The hand digging and trenching or plowing of this cable will be considered incidental to the contract unit price of the proposed cable and no additional compensation will be allowed.

The Contractor shall label all airfield lighting cables in ducts, manholes and the vault as directed by the Resident Engineer. All costs of labeling shall be considered incidental to the contract unit price for the associated item.

EQUIPMENT AND MATERIALS

108-2.1 GENERAL.

A. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be approved under the Airport Lighting Equipment Certification Program described in Advisory Circular (AC) 150/5345-53, current version.

B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the Engineer.

C. Except as specified otherwise, all new equipment shall be provided by the Contractor and shall be tested for specification conformance as part of the Aviation Lighting

Equipment Certification Program. Currently, these tests are performed by ETL Testing Laboratories. Certification of conformance as tested by ETL Testing Laboratories shall be provided by the manufacturer for all items submitted for approval. Equipment that has not been tested by ETL Testing Laboratories but is listed in Advisory Circular 150/5345-53 (latest edition) may be submitted for approval, provided that the manufacturer provides certification that the submitted equipment continues to meet FAA standards on which approval was originally made and that FAA standards for the equipment have not changed since the release of 150/5345-53 (latest Edition).

D. FAA/ETL approval of airport lighting equipment only means that the test data satisfied the applicable specification requirements. This does not insure that the approved equipment will satisfactorily operate when connected either power and/or control, to other approved airport lighting equipment or "off the shelf" equipment not requiring FAA approval.

E. The Contractor shall ascertain that all lighting system components furnished by him (including FAA approved equipment) are compatible in all respects with each other and the remainder of the new/existing system. Any non-compatible components furnished by the Contractor shall be replaced by him at no additional cost to the airport sponsor with a similar unit, approved by the Engineer (different model or different manufacturer) that is compatible with the remainder of the airport lighting system.

108-2.2 CABLE. Underground cable shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cables for Airport Lighting Circuits. The following types are covered in Specification L-824:

Type C -- Single and multiple conductor cable with 600 volt or 5,000 volt, cross-linked polyethylene insulation. Multiple conductor cables will have a jacket applied overall.

~~All series circuit cable shall be L-824, 1/C, No. 8, 5000 V, Type C in unit duct of the size shown on the plans.~~

~~Low voltage power cable shall be L-824, 1/C, 600V, Type C in unit duct of the size shown on the plans.~~

~~Proposed cable and unit duct shall be factory assembled and delivered to the site on reels.~~

~~All cable for airport lighting service shall be stranded via: 600 volt 7 strand; 5,000 volt 19 strand. For power cable, conductor size shall not be smaller than No. 8 AWG. Control cable, conductor size shall not be less than No. 12 AWG. These limits on conductor sizes shall not apply to leads furnished by manufacturers of transformers and fixtures.~~

If telephone control cable is specified, copper shielded, polyethylene insulated and jacketed, No. 19 AWG telephone cable conforming to the United States Department of Agriculture, Rural Electrification Administration (REA) Bulletin 345-14, REA

Specification for Fully Color-Coded, Polyethylene Insulated, Double Polyethylene-Jacketed Telephone Cables for Direct Burial, shall be used.

Where counterpoise conductors are to be installed and where soil conditions would adversely affect bare copper wire, thermoplastic wire conforming to Federal Specification J-C-30, Type TW, 600-volt, may be used.

Cable type, size, number of conductors, strand and service voltage shall be specified in the plans and/or proposal.

108-2.3 BARE COPPER WIRE (COUNTERPOISE OR GROUND) AND GROUND RODS. Wire for counterpoise or ground installations for airfield lighting systems shall be No. 6 AWG solid for counterpoise and No. 6 AWG stranded for ground wire conforming to ASTM B 3 and ASTM B 8, and shall be bare copper wire conforming to the requirements of ASTM D 33.

108-2.4 CABLE CONNECTIONS. In-line connections of underground primary cables shall be of the type called for in the plans or in the proposal, and shall be one of the types listed below. When the plans or the proposal permit a choice of connection, the Contractor shall indicate in the bid the type of connection he/she proposes to furnish. ~~Only L-823 connectors shall be used for all L-824 cable airfield lighting circuit connections.~~

~~The Contractor will use a cable stripper/penciller whenever cable connections are made. All breaks in the unit duct will be sealed by shrink kits.~~

A. The Cast Splice. A cast splice, employing a plastic mold and using epoxy resin equal to that manufactured by Minnesota Mining and Manufacturing Company, "Scotchcast" Kit No. 82-A, or as manufactured by Hysol Corporation, "Hyseal Epoxy Splice" Kit No. E1135, for potting the splice is approved. This means of splicing is the only type approved for telephone control cable.

B. The Field-attached Plug-in Splice. Shall conform to Specification for L-823 Plug and Receptacle, Cable Connectors, employing connector kits, is approved for field attachment to single conductor cable.

C. The Factory-molded Plug-in Splice. Specification for L-823 Connectors, Factory-Molded to Individual Conductors, are approved.

~~D. The Taped or Heat Shrinked Splice. Taped splices employing field applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D 4388 and the plastic tape should comply with Mil Spec. MIL-I-24391 or Fed. Spec. A-A-55809. Heat shrinkable tubing shall be heavy wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct buried installations. The tubing shall be factory coated with a thermoplastic adhesive sealant that will adhere to the insulation of the wire being spliced forming a moisture- and dirt proof seal. Additionally, heat shrinkable tubing for multi-conductor cables,~~

~~shielded cables, and armored cables shall be factory kits designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.~~

E. In all the above cases, connections of cable conductors shall be made using crimp connectors utilizing a crimping tool designed to make a complete crimp before the tool can be removed. ~~All L-823/L-824 splices and terminations shall be made in accordance with the manufacturer's recommendations and listings.~~

F. All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except the base can ground clamp connector shall be used for attachment to the base can. All exothermic connections shall be made in accordance with the manufacture's recommendations and listings.

108-2.5 RESERVED

~~108-2.6 CONCRETE. Concrete for cable markers shall conform to Specification Item 610, "Structural Portland Cement Concrete."~~

108-2.7 RESERVED

108-2.8 CABLE IDENTIFICATION TAGS. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

108-2.7 HEAT SHRINK TUBING. Heat shrink tubing for FAA Type L-823 plug and receptacle cable connections shall be Raychem APL 1300/400-16, Sigmaform Corp. Series APL-823A or equivalent. Complete kit shall be used and shall be capable of being stripped off easily for re-entry.

~~Heat shrink tubing for 5KV, L-824 Airfield in-line splices shall be Raychem HVS 501 or equivalent.~~

Heat shrink tubing for 600V, general power distribution in-line splice shall be Raychem WCSM or equivalent.

Heat shrink tubing for cables other than as specified above shall be as required by Engineer.

108-2.8 RESERVED

108-2.9 TAPE. Electrical tapes shall be Scotch Electrical Tapes - number Scotch 88 (1-1/2" wide) and Scotch 130C linerless rubber splicing tape (2" wide), as manufactured by the Minnesota Mining and Manufacturing Company, or approved equivalent.

108-2.10 RESERVED

108-2.11 RESERVED

108-2.12 LINE MARKING TAPE. The line marking tape shall be approximately 5 mils thick constructed of aluminum foil encased in an impervious mylar plastic coating. The minimum tensile strength determined in accordance with ASTM D 882 is 1600 per square inch. The tape shall contain sufficient metal mass to provide detectability at depths up to 3 feet with a radio type metal locator. Tape shall be acid, alkali and corrosion resistant. Color shall be "RED" corresponding to the standard color for electric lines.

The tape shall be "Type III Super Tuff" detectable underground utility line marking tape as manufactured by LINEGUARD, Inc. of Wheaton, Illinois or an approved equal.

108-2.13 RESERVED

CONSTRUCTION METHODS

108-3.1 GENERAL. The Contractor shall install the specified cable at the approximate locations indicated in the airport lighting layout plans. The Resident Engineer shall indicate specific locations.

Cable connections between fixtures will be permitted only at the fixture locations for connecting the underground cable to the individual fixtures. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections, unless otherwise authorized in writing by the Engineer or shown in the plans.

Cable shall be continuous between lights. Any repairs necessary after backfilling shall be done at the Contractor's expense and shall consist of replacing the entire length of damaged cable between lights. All cable shall be in unit-duct unless shown as otherwise in the plans

All lighting circuits are considered critical. It is, therefore, imperative that the Contractor carefully review the plans showing electrical layout.

If the Contractor desires to lay cable on a line other than that shown on the plans, he/she shall obtain the approval of the Engineer before doing so, and any additional cable required to do so will not be paid for unless being completely necessary to make a more proper connection or more convenient location.

~~The Contractor may be allowed to provide a single unit duct with 2 each 1/C #8 5KV cable for the lighting series circuit homerun.~~

The location of existing cables are taken from available record maps and it will be necessary for the Contractor to make field investigations to determine the exact locations of underground cable and conduits at critical points. ANY EXISTING CABLES CUT AS

A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IN ACCORDANCE WITH PARAGRAPHS 108-2.4 and 108-3.5, COST TO BE BORNE BY THE CONTRACTOR.

108-3.2 INSTALLATION IN DUCT OR CONDUIT. This item includes the installation of the cable in duct or conduit as described below. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be in accordance with the latest National Electric Code, or the code of the local agency having jurisdiction.

The Contractor shall make no connections or joints of any kind in cables installed in conduits or ducts.

The duct or conduit shall be installed as a separate item in accordance with Item 110, Installation of Airport Underground Electrical Duct. The Contractor shall make sure that the duct is open, continuous, and clear of debris before installing cable. The cable shall be installed in a manner to prevent harmful stretching of the conductor, injury to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a duct under the same contract, all cable shall be pulled in the duct at the same time. The pulling of a cable through ducts or conduits may be accomplished by handwinch or power winch with the use of cable grips or pulling eyes. Pulling tensions should be governed by recommended standard practices for straight pulls or bends. A lubricant recommended for the type of cable being installed shall be used where pulling lubricant is required. Duct or conduit markers temporarily removed for excavations shall be replaced as required.

~~The cable in unit duct shall be delivered to the jobsite pre-assembled on reels.~~

108-3.3 TRENCHING. Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for cables may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Road patrols or graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable trenches shall be excavated to a minimum depth of 24 inches below finished grade, except as follows:

~~A. When off the airport or crossing under a roadway or driveway, the minimum depth shall be 36 inches unless otherwise specified.~~

~~B. Minimum cable depth when crossing under a railroad track, shall be 42 inches unless otherwise specified.~~

The Contractor shall excavate all cable trenches to a width not less than 6 inches. The

trench shall be widened where more than two cables are to be installed parallel in the same trench. Unless otherwise specified in the plans, all cables in the same location and running in the same general direction shall be installed in the same trench.

When rock excavation is encountered, the rock shall be removed to a depth of at least 3 inches below the required cable depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All excavation shall be unclassified.

~~All cable in unit duct may be installed using the plowing-in method or direct burial in trench, (Refer to Item 108 3.9) except at critical locations where required to protect existing cables or to facilitate construction. Cable plowing shall be done at a minimum depth of 18" below finished grade.~~

Trenching shall be at no additional cost to the Contract.

~~C. Except for installation of cable (or cables) in unit duct, The Contractor shall not use a cable plow for installing cable. Mechanical cable laying equipment may be used in conjunction with a trenching machine if specified on project plans and specifications; and it should provide for physical inspection of cable prior to backfilling. Sharp bends or kinks in the cable shall not be permitted.~~

Cables shall be unreeled in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable shall not be unreeled and pulled into the trench from one end.

Where two or more cables are laid parallel in the same trench, they shall be placed laterally a minimum distance of 3 inches apart, and the trench shall be widened sufficiently to accomplish this.

Cables crossing over each other shall have a minimum of 3-inch vertical displacement with the topmost cable depth at or below the minimum required depth below finished grade.

~~Not less than 1 foot of cable slack shall be left on each side of all connections, isolation transformers, light units, and at all other points where cable is connected to field equipment. The slack cable shall be placed in the trench in a series of S curves. Additional slack cable shall be left in runway light bases, handholes, manholes, etc., where it is required to bring the cable above ground level to make connections. The amount of slack cable shall be stipulated by the Resident Engineer, or as shown in the plans and specifications.~~

~~At locations, such as in an existing duct or wireway, or near an existing light location, where existing cable to be replaced might obstruct or interfere with efficient operation of the electrical systems, it shall be removed and disposed of by the Contractor. The cost of removing and disposing of this existing cable shall be considered as incidental to the~~

~~contract unit price per linear foot for underground cable installed in trench or duct, and no additional compensation will be allowed.~~

D. After the cable has been installed, the trench shall be filled 3 inches in depth, loose measurement, and shall be either earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. This layer shall not be compacted. The second layer shall be 5 inches deep, loose measurement, and shall contain no particles that would be retained on a 1-inch sieve. The remainder of the backfill shall be excavated or imported mineral and shall not contain stone or aggregate larger than 4 inches maximum diameter. The third and subsequent layers of the backfill shall not exceed 8 inches in maximum depth, loose measurement.

The second, and subsequent layers shall be thoroughly tamped and compacted to at least the density of the adjacent undisturbed soil, and to the satisfaction of the Resident Engineer. If necessary to obtain the desired compaction, the backfill material shall be moistened or aerated as required.

Trenches shall not be excessively wet and shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except when sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement. Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Resident Engineer.

Line marking tape shall be installed during the backfill process at a minimum depth of 4" and a maximum depth of 8". Installation methods shall be to the satisfaction of the Engineer.

E. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the trenching, storing of dirt, cable laying, pad construction, and other work shall be restored to its original condition. The restoration shall include any necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging or mulching. All such work shall be performed in accordance with the FAA Standard Turfing Specifications. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance.

~~108 3.4 CABLE MARKERS. The location of runway light circuits shall be marked by a concrete slab marker, 2 feet square and 4 inches thick, extending approximately 1 inch above the surface. Each cable run from the line of runway lights to the equipment vault shall also be marked at approximately every 200 feet along the cable run, with an additional marker at each change of direction of cable run. All other cable buried directly in the earth shall be marked in the same manner. The Contractor shall not install slab markers where cable lies in straight lines between obstruction light poles which are spaced 300 feet apart, or less. Cable markers shall be installed immediately above the cable. The Contractor shall impress the word "CABLE" and directional arrows on each cable marking slab. The letters shall be approximately 4 inches high and 3 inches wide, with width of stroke 1/2 inch and 1/4 inch deep.~~

~~The location of each underground cable connection, except at lighting units or insulating transformers, shall be marked by a concrete marker slab placed above the connection. The Contractor shall impress the work "SPlice" on each slab. He/She also shall impress additional circuit identification symbols on each slab if so desired by the Resident Engineer.~~

108-3.5 SPLICING. Connections of the type shown in the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

A. Cast Splices. These shall be made by using crimp connectors for joining conductors. Molds shall be assembled, and the compound shall be mixed and poured in accordance with manufacturer's instructions and to the satisfaction of the Resident Engineer.

~~B. Field attached Plug-in Splices. These shall be assembled in accordance with manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. In all cases the joint where the connectors come together shall be wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1 1/2 inches on each side of the joint.~~

C. Factory-molded Plug-in Splices. These shall be made by plugging directly into mating connectors. In all cases, the joint where the connectors come together shall be wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1 1/2 inches on each side of the joint.

~~D. Taped or Heat Shrinked Splices. A taped splice shall be made in the following manner:~~

~~Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch (6 mm) of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inches (75 mm) on each end) is clean. After scraping wipe the entire area with a clean lint free cloth. Do not use solvents.~~

~~Apply high voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. Throughout the rest of the splice less tension should be used. Always attempt to exactly half lap to produce a uniform buildup. Continue buildup to 1 1/2 times cable diameter~~

~~over the body of the splice with ends tapered a distance of approximately 1 inch (25 mm) over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.~~

~~Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat shrink application shall be clean and free of contaminants prior to application.~~

Splices will be allowed in new circuits only at ~~fixtures~~, handholes and splice cans as detailed on plans. No direct burial of splices will be allowed.

108-3.6 BARE COUNTERPOISE WIRE INSTALLATION FOR LIGHTNING PROTECTION AND GROUNDING. If shown on the plans or included in the job specifications, bare counterpoise copper wire shall be installed for lightning protection of the underground cables. Counterpoise wire shall be installed in the same trench for the entire length of buried cable, conduits and duct banks that are installed to contain airfield cables. Where the ~~cable or duct/conduit~~ trench runs parallel to the edge of pavement, the counterpoise shall be installed in a separate trench located half the distance between the pavement edge and the ~~cable or duct/conduit~~ trench. In trenches not parallel to pavement edges, counterpoise wire shall be installed continuously a minimum of 4 inches above the ~~cable, conduit or duct bank~~, or as shown on the plans if greater. Additionally, counterpoise wire shall be installed at least 8 inches below the top of subgrade in paved areas or 10 inches below finished grade in un-paved areas. This dimension may be less than 4 inches where conduit is to be embedded in existing pavement. Counterpoise wire shall not be installed in conduit.

The counterpoise wire shall be routed around each ~~light fixture base, mounting stake, or junction/access~~ structures. The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500feet apart around the entire circuit.

The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode grounding system. The connections shall be made as shown on the plans and in the specifications.

If shown on the plans or in the specifications, a separate equipment (safety) ground system shall be provided in addition to the counterpoise wire using one of the following methods:

A. A ground rod installed at and securely attached to each light fixture base, mounting stake if painted, and to all metal surfaces at junction/access structures.

~~B. Install an insulated equipment ground conductor internal to the conduit system and securely attached it to each light fixture base and to all metal surfaces at junction/access~~

~~structures. This equipment ground conductor shall also be exothermically welded to ground rods installed not more than 500 feet (150 m) apart around the circuit.~~

C. Counterpoise Installation Above Multiple Conduits and Duct Banks. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete cone of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete cone of protection measured 22 ½ degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

D. Counterpoise Installation at Existing Duct Banks. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.7 EXOTHERMIC BONDING. Bonding of counterpoise wire shall be by the exothermic welding process. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the Engineer, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

- All slag shall be removed from welds.
- For welds at light fixture base cans, all galvanized coated surface areas and "melt" areas, both inside and outside of base cans, damaged by exothermic bond process shall be restored by coating with a liquid cold-galvanizing compound conforming to U.S. Navy galvanized repair coating meeting Mil. Spec. MIL-P-21035. Surfaces to be coated shall be prepared and compound applied in accordance with manufacturer's recommendations.
- All buried copper and weld material at weld connections shall be thoroughly coated 6 mil of 3M "Scotchkote," or approved equivalent, or coated with coal tar bitumastic material to prevent surface exposure to corrosive soil or moisture."

108-3.8 TESTING. The Contractor shall furnish all necessary equipment and appliances for testing the underground cable circuits after installation. The Contractor shall test and demonstrate to the satisfaction of the Engineer the following:

- A. That all lighting power and control circuits are continuous and free from short circuits.
- B. That all circuits are free from unspecified grounds.
- C. That the insulation resistance to ground of all nongrounded series circuits is not less than 50 megohms.
- D. That the insulation resistance to ground of all nongrounded conductors of multiple circuits is not less than 50 megohms.
- E. That all circuits are properly connected in accordance with applicable wiring diagrams.
- F. That all circuits are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

All testing shall be documented and the results should be provided to the Resident Engineer.

All testing shall be performed in the presence of the Resident Engineer. All cables found to be defective due to installation methods shall be replaced by the Contractor at his/her expense.

All existing circuits to which additions or deletions are to be made shall be meggered BEFORE any work is performed. Megger readings taken after completion of the work shall be, as a minimum, equal to the previous reading. Should the reading be deficient, the Contractor shall locate within his/her work area, the source of the deficiency and correct it at his/her expense.

The remaining existing field circuits within the working limits of this contract which are not scheduled to be added or deleted from shall also be meggered BEFORE any work is performed in the presence of the Resident Engineer. Any subsequent damage to these existing circuits shall be immediately repaired at no cost to the contract such that megger readings taken after completion of the repair shall be, as a minimum, equal to the reading taken before the work began.

The new cable, after installation and after connection of all series circuit isolation transformers, but before connection to power source (constant current regulators, power transformers, disconnect switches, etc.) and/or connections to load other than isolation transformers (PAPI, etc.), shall be tested in the following manner:

- G. The conductor resistance shall be measured by an ohmmeter and shall be within + 20% of the calculated value for the size and length of the conductor.
- H. Each test shall last for a minimum of one minute after instrument readings have been

stabilized. The minimum acceptable insulation resistance value shall be 50 megohms.

I. When unacceptable readings are obtained, the Contractor shall locate the fault(s) and correct them.

J. The test equipment and power to operate it shall be furnished and operated by the Contractor at no additional cost. The equipment shall be approved by the Engineer before testing is commenced. All tests shall be witnessed by the Engineer.

~~108 3.9 PLOWING IN OF CABLE IN UNIT DUCT.~~

~~NOTICE: Plowing in of unit duct does not relieve the Contractor of responsibility for repairing damage to existing cables cut as a result of the Contractor's operations, as described in Paragraph 108 3.1. Extreme care must be taken to locate all existing circuits in the working limits of the plowing operations before commencing the operation. The Contractor shall have the option of trenching in cables as described in section 108 3.3 in lieu of plowing in any sections so noted on the plans—at no additional cost or time to the contract.~~

~~If the Contractor elects to plow the cable in unit duct into place, his/her plowing operation must conform to the following requirements:~~

~~The forward moving speed of the plow shall be between 15 and 40 feet per minute. The plow shall be wide enough to freely allow the unit duct to pass through it but not exceed the overall width of two inches.~~

~~The unit duct shall be inserted into the plow in a manner that will not cause the unit duct to bind, pull or break. The unit duct shall be installed so that it is possible to withdraw a cable and pull in a new one. Sweeping long radius bends shall be used. Any run with a kink or short radius bend will be rejected. The holes for the transformer bases or at locations of cable termination shall be dug before the plowing operation is commenced. A method approved by the Engineer shall be used to prevent the walls of the holes from collapsing due to tractor and plow wheels.~~

~~The unit duct may be unreeled along the proposed cable route before plowing or the unit duct reels may be mounted on the tractor. In the latter case unreeling of the unit duct shall not cause excessive tension on the cable.~~

~~After the tractor and the plow are positioned at the beginning of the run, sufficient unit duct slack shall be pulled through the throats. Then the plow shall be lowered into the hole and the unit duct shall be hand held for the start of plowing.~~

~~At each equipment hole the plow shall be stopped (movement and vibration), raised and the required amount of slack shall be hand pulled. Care shall be taken during the operation that the unit duct, at the entrance into the equipment hole, shall not be pulled from the specified depth. Plowing shall be continued by lowering the plow, starting it and holding the unit duct by hand until it is firmly held by the ground.~~

~~The plow shall not be backed onto the unit duct.~~

~~When an underground obstruction is encountered, the plow shall be lifted out of the ground. The obstruction shall be removed by hand digging. An opening shall be hand dug around the unit duct down to the depth of the unit duct and large enough to lower the plow. Then the plow shall be lowered into the opening. While this is being done the unit duct shall be pulled back into the throat by hand to prevent kinks or sharp bends. In no case shall the unit duct be bent sharper than 3 inch radius, or be subjected to excessive tension.~~

~~After installation of unit duct by plowing, the disturbed earth at the surface shall be leveled and, if necessary, compacted by a device approved by the Engineer.~~

~~Ends of cable shall be taped immediately after cutting to prevent moisture from entering the cable. Where the cable is not expected to be connected for at least 72 hours, the tape shall also be varnished.~~

~~To identify routing of the unit duct, immediately after plowing, stakes shall be installed every 500 feet along straight runs and at each curve. Later these stakes shall be replaced by regular concrete cable markers.~~

~~Before cable plowing is commenced, equipment to be used shall be inspected by the Engineer and approved. Before approving, the Engineer may require demonstration of the equipment at the installation site and location selected by the Engineer and by using actual unit duct. The test run shall consist of at least one starting hole, one intermediate hole (equipment location) and one terminating hole and shall be 100 feet long as minimum. The test cable shall not be reused. The cost for the test run shall be included into the item for underground cable.~~

~~Plow operators shall be experienced and qualified by schooling and/or by sufficient on-the-job training under an experienced operator. Proof of such qualification shall be required from the Contractor.~~

108-3.10 LOCATING OF EXISTING CABLES. Contractor shall locate and mark all existing cables within ten (10) feet of proposed excavating, ~~plowing/~~trenching area. Any cables found interfering with proposed excavation or ~~cable plowing/~~trenching shall be hand dug and exposed. Any damaged cables shall be immediately repaired to the satisfaction of the Engineer at the Contractor's expense. The Resident Engineer and Owner shall be notified immediately if any cables are damaged.

It should be noted that all FAA control and communications cables shall be located by the FAA. All utility cables shall be located by the utility. The contact person shall be JULIE (Joint Utility Locating Information for Excavators).

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

108-3.11 TERMINATIONS AND CONNECTIONS. ~~Unit duct shall be terminated on the inside of light bases and shall be sealed in a manner which will prevent dirt or water from entering the duct.~~

~~All L 823 connections at light fixtures shall be taped with one layer of rubber tape and one layer of plastic one half, lapped, extending at least 1-1/2" each side of the joint. Heat shrinkable tubing with interior adhesive shall be applied at all cable connections in conformance with the plans. The heat shrinkable tubing will be as manufactured by 3M, Scotch, or equal and applied as recommended by the manufacturer.~~

In line connections for existing cables cut during construction shall be repaired with the cast splice kit. The Contractor shall have a minimum of two (2) splice kits on the jobsite at all times for emergency repairs. ~~Splice markers shall be installed over each splice in cables not to be abandoned.~~ Cast splice kits shall be as specified in Paragraph A. of Item 108-2.4.

No splices will be allowed in the new cable. ~~Cable shall be continuous from light to light.~~ Any repairs necessary after backfilling the trenches shall be done at the Contractor's expense and shall consist of replacing the entire length of damaged cable from splice to sensor ~~between fixtures.~~

METHOD OF MEASUREMENT

108-4.1 The footage of cable ~~and cable in unit duct~~ to be paid for shall be the number of linear feet installed ~~by the plowing in method (for cable in unit duct only), in common trench, or~~ installed in existing or proposed duct banks, measured in place, completed, ready for operation, and accepted as satisfactory. No additional measurement will be made for multiple conductors in a common unit-duct. No extra quantity will be allotted for any vertical distances or the required cable slack, as stated under Item 108-3.3.

No measurement for payment will be made for the ~~plowing in, trenching, or~~ installing in existing or proposed duct banks for cable ~~or cable in unit duct~~. The cost of ~~plowing in or~~ installation in ~~trenches or~~ duct banks, and all connections and splices shall be included in the unit price bid for the measured cable ~~or cable in unit duct~~ in place.

The costs associated with the above cables which are not measured for payment, including cable slack, shall be considered incidental to the unit prices for the light unit they are associated with.

108-4.2 The footage of ~~cable or~~ counterpoise wire installed to be paid for shall be the number of linear feet of ~~cable or~~ counterpoise wire installed in trenches, ~~duct or conduit,~~ measured in place, completed, ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed.

The footage of line marking tape installed shall be considered incidental to the work and

shall not be measured separately.

BASIS OF PAYMENT

108-5.1 The cable and cable in unit duct measured under Item 108-4.1 shall be paid for under this item.

A. These prices shall be full compensation for furnishing all materials and for all preparation and installation of these materials, plowing, backfilling and compacting trenches, all connections, line marking tape and installation, and for all labor, equipment, tools, and incidentals necessary to complete these items.

B. The line marking tape installed shall be considered incidental to the work and shall not be paid for separately.

Payment will be made under:

<i>Item AR801758</i>	<i>Pavement Surface Sensor Cable – per Linear Foot (LF)</i>
<i>Item AR108706</i>	<i>1/C #6 Counterpoise – per Linear Foot (LF)</i>

END OF ITEM 108

ITEM 110 AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete) installed in accordance with this specification at the locations and in accordance with the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits. It shall also include all turfing trenching, backfilling, removal, and restoration of any paved or turfed areas; counterpoise wire, concrete encasement, mandrelling, pulling lines, detectable tape, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables in accordance with the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS

110-2.1 GENERAL.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the Engineer.

b. Manufacturer's certifications shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used to construct this item shall be submitted to the Engineer for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals. The Contractor's submittals shall be in accordance with Item 106, Submittals, Record Documents and Maintenance Manuals.

d. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The Contractor's submittals shall be submitted to the Engineer within fifteen (15) days of the notice to proceed. Submittals shall comply with Item 106. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

110-2.2 STEEL CONDUIT. Rigid galvanized steel conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standard 6, 514B, and 1242.

110-2.3 PLASTIC CONDUIT. Plastic conduit and fittings shall conform to the requirements of Fed. Spec. WC-1094, Underwriters Laboratories Standards UL-651 and Article 347 of the current National Electrical Code shall be one of the following, as shown on the plans:

a. Type I-Schedule 40 and 80 PVC suitable for underground use either direct-buried or encased in concrete.

b. Type II-Schedule 40 and 80 PVC suitable for either above ground or underground use.

The type of adhesive shall be as recommended by the conduit/fitting manufacturer.

~~**110-2.4 SPLIT CONDUIT.** Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic. Split conduit shall be of the interlocking design as manufactured by Carlon or approved equal.~~

110-2.5 CONDUIT SPACERS. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads, They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 CONCRETE. Concrete shall conform to Item 610, Structural Portland Cement Concrete, using 1-inch maximum size coarse aggregate with a minimum 28 day compressive strength of 4,000 psi. Where reinforced duct banks are specified, reinforcing steel shall conform to ASTM A 615 Grade 60. Concrete and reinforcing steel are incidental to the respective pay item of which they are a component part.

~~**110-2.7 FLOWABLE BACKFILL.** Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item 153 Controlled Low Strength Material. Vibrate material to ensure full encasement.~~

110-2.8 DETECTABLE WARNING TAPE. Plastic, detectable, color as noted magnetic tape shall be polyethylene film with a metallized foil core and shall be 4-inches to 6-inches (75-150 MM) wide. The tape shall be as manufactured by Reef Industries, Inc., or approved equal. Detectable tape is incidental to the respective bid item.

110-2.9 COUNTERPOISE WIRE. Counterpoise wire shall be as specified in Item 108 Airport Underground Electrical Duct Banks and Conduits.

CONSTRUCTION METHODS

110-3.1 GENERAL. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The Engineer shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2-inches (50 mm) inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3-inches (75 mm) per 100-feet (30 m). On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. No duct bank or underground conduit shall be less than 18-inches below finished grade. Where under pavement, the top of the duct bank shall not be less than 18-inches below the subgrade unless otherwise noted.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. A flexible mandrel, not more than 1/4-inch (6 mm) smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc. interiors IMMEDIATELY prior to pulling cable. Once cleaned and swabbed the base cans, manhole, pull boxes, etc. and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc. is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the Engineer of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200 pound test polypropylene pull rope. Pull ropes shall be installed in all conduits and ducts, whether cables will be installed or not during this project. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminate from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5-feet.

Unless otherwise shown on the plans, concrete encased duct banks shall be utilized when crossing under pavements expected to carry aircraft loads.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3-inches below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. ~~Flowable backfill may alternatively be used.~~ The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be performed and paid for under Item 152 Excavation and Embankment.

Underground electrical warning (caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the Engineer. If not shown on the plans, the warning tape shall be located 6-inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared in accordance with the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2-feet.

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the Engineer, the unsuitable material shall be removed in accordance with Item 152 and replaced with suitable material. Alternatively, additional duct bank supports that are adequate and stable shall be installed, as approved by the Engineer.

All excavation shall be unclassified and shall be considered incidental to the respective Item 110 pay item of which it is a component part. Dewatering necessary for duct installation, erosion and turbidity control, in accordance with Federal, State, and Local requirements is incidental to its respective pay item as a part of Item 110. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the 110 item.

Unless otherwise specified, excavated materials that are deemed by the Engineer to be unsuitable for use in backfill or embankments shall be removed and disposed of off site.

Any excess excavation shall be filled with suitable material approved by the Engineer and compacted in accordance with Item 152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cable(s) cross proposed installations, the Contractor shall insure that these cable(s) are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

(1) Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

(2) Trenching, etc., in cable areas shall then proceed with approval of the Engineer, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form vertical face. All excavation shall be included in the contract unit price for the duct.

~~When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the Engineer shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as directed by the engineer.~~

110-3.2 DUCTBANKS. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18-inches (45 cm) below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18-inches (45 cm) below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 5 3-feet (90 cm) beyond the edges of the pavement or 5 3-feet (90 cm) beyond any underdrains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, proper provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3-inches (75 mm) thick prior to its initial set. Where two or more conduits in the duct bank are intended to carry conductors of equivalent voltage insulation rating, the Contractor shall space the conduits not less than 1-1/2-inches (37 mm) apart (measured from outside wall to outside wall). Where two or more conduits in the duct bank are intended to carry conductors of differing voltage insulation rating, the Contractor shall space the conduits not less than 3-inches apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3-inches (75 mm) thick unless otherwise shown on the plans. End bells or couplings shall be installed flush with the concrete encasement at access points.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6-inches to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot (150 cm) intervals. All construction joints in concrete-encased ducts shall have a minimum of four steel dowels evenly spaced and installed at the joint. The dowels shall be deformed steel reinforcing bars, one-inch diameter and twenty-four inches long, with 1/2" of the length embedded in the concrete that is constructed initially.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract unit ~~with~~ price for the duct.

Install a plastic, detectable, color as noted, 4-inches to 6-inches (75-150mm) wide tape 8-inches (200mm) minimum below grade above all underground conduit or duct lines not installed under pavement.

~~When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the Engineer shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the Engineer.~~

110-3.3 CONDUITS WITHOUT CONCRETE ENCASEMENT. Trenches for single-conduit lines shall be not less than 6-inches (150 mm) nor more than 12-inches (300 mm) wide, and the trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4-inches (100 mm) thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch (6 mm) sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits are at least 18-inches (45 cm) below the finished grade.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 2-inches (50 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6-inches (150 mm) apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3-inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6-inches (150 mm) apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6-inches to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer for review prior to use.

110-3.4 MARKERS. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2-feet (60 cm) square and 4-inches to 6-inches (100-150 mm) thick extending approximately 1-inch (25 mm) above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building.

The Contractor shall impress the word "DUCT" or "CONDUIT" on each marker slab. The Contractor shall also impress on the slab the number and size of conduits beneath the marker along with all other necessary information as determined by the Engineer. The letters shall be 4-inches (100 mm) high and 3-inches (75 mm) wide with width of stroke 1/2-inch (12 mm) and 1/4-inch (6 mm) deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

110-3.5 BACKFILLING FOR CONDUITS. For conduits, 8-inches (200 cm) of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted in accordance with Item 152 Excavation and Embankment except that material used for backfill shall be select material not larger than 4-inches in diameter.

~~Flowable backfill may alternatively be used.~~

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface, except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Engineer.

110-3.6 BACKFILLING FOR DUCT BANKS. After the concrete has cured, the remaining trench shall be backfilled and compacted in accordance with Item 152 Excavation and Embankment except that the material used for backfill shall be select material not larger than 4-inches in diameter. In addition to the requirements of 152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250-linear feet of duct bank or one work period's construction, whichever is less.

~~Flowable backfill may alternatively be used.~~

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface: except that, where sod is to be placed over the trench, the backfilling shall be stopped at

a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Engineer.

110-3.7 RESTORATION. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include sodding as shown on the plans. Refer to specification 904 Sodding. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective 110 pay item.

110-3.8 COUNTERPOISE WIRE. Counterpoise wire shall be installed as specified in Item 108.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet (meter) of conduits and duct banks installed, including encasement, counterpoise wire, locator tape, trenching and backfill with designated resolution, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with the provisions and intent of the plans and specifications.

Payment will be made under:

<i>Item AR110202</i>	<i>2" PVC Duct, Direct Bury – per Linear Foot (LF)</i>
<i>Item AR110501</i>	<i>1-Way Concrete Encased Duct – per Linear Foot (LF)</i>

MATERIAL REQUIREMENTS

Fed.Spec.W-C-1094	Conduit and Conduit Fittings; Plastic, Rigid (cancelled; replaced by UL 514 Boxes, Nonmetallic Outlet, Flush Device Boxes, & Covers, and UL 651 Standard for Conduit & Hope Conduit, Type EB & A Rigid PVC)
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Underwriters Laboratories Standard 6	Rigid Metal Conduit
Underwriters Laboratories Standard 514B	Fittings for Cable and Conduit
Underwriters Laboratories Standard 1242	Intermediate Metal Conduit
Underwriters Laboratories Standard 651	Schedule 40 and 80 Rigid PVC Conduit (for Direct Burial)
Underwriters Laboratories Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit (for concrete encasement)

END OF ITEM 110

ITEM 131 DEMONSTRATIONS, TESTS AND PERFORMANCE VERIFICATION

DESCRIPTION

131-1.1 GENERAL. This item includes the furnishing of all labor, materials, equipment and services necessary to provide demonstrations, testing and performance verification necessary to show electrical system compliance to these specifications.

DEMONSTRATIONS

131-2.1 CHECK-OUT MEMO. Where required by the plans and specifications, provide manufacturer assistance during the testing, start-up, performance verification, demonstrations and Owner training. Complete the Check-Out Memo contained in Appendix A, Figure 1.

131-2.2 Demonstrate the essential features of the following electrical systems:

~~Alarms and bells~~
~~Circuit breakers~~
~~Fuses and fuseholders~~
~~Metering/Monitoring~~
Electrical systems controls and equipment
Electrical power equipment
~~Relays~~
~~Special transformers~~
~~Panelboards~~
~~Distribution panels~~
~~Main panels, power panels~~
~~Circuit Breakers~~
~~Wiring devices~~
~~Wiring systems~~
Grounding systems
~~Face plates~~
Low-voltage controls
~~Outlets: convenience, special purpose~~
~~Switches: regular, time~~
~~Voltage stabilizers~~
~~Airfield lighting fixtures~~
~~Constant Current Regulators~~
~~Local Control Panel~~
~~Airfield Lighting Control System~~
~~ATCT Control Panel~~
~~L-854 Radio Controller~~
~~Runway End Identifier Lights (REILS)~~
~~Precision Approach Path Indicator (PAPI)~~
Pavement Surface Sensors

131-2.3 The demonstration shall be held upon completion of all systems, including testing, at a

date to be agreed upon in writing by the Owner or his designated representative. The demonstration shall be held by the Contractor in the presence of the Owner and the Manufacturer's Representative.

131-2.4 Prior to acceptance of the work, the Contractor shall demonstrate to the Owner, or his designated representative, all features and functions of all systems and shall instruct the Owner in the proper operation of the systems. After testing is completed satisfactorily, each system shall be demonstrated once.

The demonstration shall consist of not less than the following:

- a. Point out the actual location of each component of the system and demonstrate its function and its relationship to other components within the system.
- b. Demonstrate the electrical systems by actual "start-stop" operation showing how to work controls, how to reset protective devices, how to replace fuses, and what to do in an emergency. Indicate each items relationship to the riser diagrams and drawings.
- c. Demonstrate communication, signal, alarm and detection systems by actual operation of the systems and show how to reset signal, alarm and detection devices.

The Contractor shall furnish the necessary trained personnel to perform the demonstration and instructions, and shall arrange to have the manufacturer's representatives present to assist with the demonstrations.

All functional and operational testing of protective interlocking, automatic controls, instrumentation, alarm systems, and all other field testing of the main systems will be completed before the systems are demonstrated.

131-2.5 Submit six (6) copies of the Performance Verification and Demonstration to Owner Form (Appendix A, Figure 1), signed by the Contractor, subcontractor and Owner and insert one copy in each Operation and Maintenance Manual and the original shall be inserted in the Project Closeout Documentation Manual.

TESTS AND PERFORMANCE

131-3.1 TESTS AND PERFORMANCE VERIFICATION. Operate system for a 3 day period. Do performance verification work as required to show that the system is operating correctly in accordance with design. Supply instruments required to read data. Adjust system to operate at the required performance levels. Tabulate data for submission. Submit data on 8-1/2-inch x 11-inch sheets with time and name of checker. Where specific performance verification information is called for in the specifications, use copies of the sheets provided for recording readings. Data shall be submitted and approved before Check-Out Memos are signed or a request for final inspection is made. Submit data in Operation and Maintenance Manuals.

At completion of construction after all performance verification and testing information has been gathered, submitted, and approved, provide one copy of this information to the

Manufacturer's representative of the equipment. Work required under this section shall include having the representative examine the performance verification information, check the equipment in the field while it is operating, and sign a Check-Out Memo for a record. Submit six (6) copies of the Check-Out Memo on each major item of equipment. Approved memos shall be inserted in each Operation and Maintenance Manual with the performance verification information. Memos shall be submitted and approved before instruction to Owner or a request for final inspection.

131-3.2 TESTS. After cables are in place, but before being connected to devices and equipment, the system shall be tested for shorts, opens, intentional and unintentional grounds by means of an approved type of "megger." Airfield lighting cables shall be tested in accordance with Item 108 Installation of Underground Cable for Airports.

The tests shall be performed and recorded in the presence of the Engineer and the Owner and the test results shall be placed in the Operation and Maintenance Manuals. All wires in conduit that are shorted or unintentionally grounded shall be replaced.

~~Take readings of voltage and amperage at building main disconnect switch and at main for each panel, at primary side of each lighting transformer and at the end of the longest branch circuit at each panel. The above readings shall be taken (1) "no load" conditions and (2) at "full load" conditions with all equipment using electricity. Tabulate readings, complete "Voltage and Amperage Readings/Tabulated Data" form (see Appendix A, Figure 3) and submit in the O&M Manuals.~~

The resistance between ground and absolute earth shall be measured by the Contractor before equipment is placed in operation. Record data on the Ground Test Information form contained in Appendix A, Figure 3. All ground rods shall be tested.

Perform such tests as required by authorities having jurisdiction over the site, or other tests/inspections as required by other sections of this specification.

There are no approved "repair" procedures for items that have failed testing other than complete replacement. Any other corrective measures shall be approved by the Engineer. The addition of ground rod sections to the ground rods shall be considered replacement for this item.

131-3.3 CORRECTION OF ERRORS. The Contractor shall immediately correct any errors or omissions in his work which are discovered during testing. This shall include but not be limited to, improper phasing resulting in reverse rotation, misinterpretations, incomplete grounding, damaged equipment or materials, or incomplete work the Contractor has already verified as being complete. The Contractor shall immediately replace, repair, or complete these errors and omissions as soon as they are brought to his attention, even if this requires disruption of his scheduled construction activities or work on an overtime basis. Failure to take immediate action or an excessive number of errors or omissions shall make the Contractor liable for the time lost by the Owner's operating forces, and any other personnel.

METHOD OF MEASUREMENT

131-4.1 The items described in this section are incidental to other sections and shall not be measured for payment.

BASIS OF PAYMENT

131-5.1 No direct payment shall be made for the work described in this section. The work described in this section is incidental to other items and shall be paid for in the respective bid item of which it is a component part.

CHECK-OUT MEMO

This form shall be completed and a copy provided to the Owner at the Owner's Performance Verification and Demonstration meeting. A copy shall also be included in the specification section of the O & M Manual for the equipment checked.

Project Name: _____
Type of Equipment Checked: _____
Equipment Number: _____
Name of Manufacturer: _____

Signature below by the manufacturer's authorized representative signifies that the equipment has been satisfactorily tested and checked out on the job by the manufacturer.

1. The attached Test Data and Performance Verification information was used to evaluate the equipment installation and operation.
2. The equipment is properly installed, has been tested by the manufacturer's authorized representative, and is operating satisfactorily in accordance with all requirements, except for items noted below.*
3. Written operating and maintenance information has been presented to the Contractor, and gone over with him in detail.
4. Sufficient copies of all applicable operating and maintenance information, parts lists, lubrication checklists, and warranties have been furnished to the Contractor for insertion in the Operating and Maintenance Manuals.

Checked By: _____
(Print or Type Name of Manufacturer's Representative)

(Address and Phone No. of Representative)

(Signature and Title of Representative)

(Date Checked)

Witnessed By: _____
(Signature and Title of Contractor Representative)

* Exceptions noted at time of check-out (use additional page if necessary):

APPENDIX A, FIGURE 1

PERFORMANCE VERIFICATION AND DEMONSTRATION TO OWNER

This form verifies that the Owner has been given a demonstration of the proper operation on the equipment or systems noted below:

Project Name: _____
Specification Division Number & Name: _____
Equipment/System Demonstrated: _____

Along with a complete demonstration of the equipment/system, these items have been reviewed at this demonstration and shall be included in the Operating and Maintenance Manuals, under the appropriate specification section:

- 1) Written operating instructions.
- 2) Test data and performance verification information as required by the installer and/or manufacturer.
- 3) Maintenance information published by manufacturer or equipment.
- 4) Check-out Memo signed by manufacturer's representative.
- 5) Printed warranties by manufacturer of equipment.
- 6) Explanation of the warranty/guarantee on the system.
- 7) Prints showing actual "As Built" conditions.

(Name of Contractor)

(Signature, Title, Date)

(Name of Subcontractor)

(Signature, Title, Date)

Demonstration of the system/equipment in operation and of the maintenance procedures has been successfully completed.

OWNER

(Signature, Date)

(Owner's Department)

APPENDIX A, FIGURE 2

VOLTAGE AND AMPERAGE READINGS/TABULATED DATA

This form may be used to record voltage and amperage readings (within the panel and from the farthest point, please check the appropriate item below). Copy of this completed form shall be included in the specification section of the O & M Manual for the equipment from which readings are taken.

Project Name: _____
Specification Division Number & Name: _____
Switchgear/Panel Number: _____
Readings taken within panel: _____ from farthest point: _____

Full Load Amperage Readings:

_____ Date: _____ Time: _____
_____ Phase: A _____ B _____
_____ C _____ N _____

Full Load Voltage Readings:

_____ Date: _____ Time: _____
_____ Phase: A to N _____ A to B _____
_____ B to N _____ A to C _____
_____ C to N _____ B to C _____

No Load Voltage Readings:

_____ Date: _____ Time: _____
_____ Phase: A to N _____ A to B _____
_____ B to N _____ A to C _____
_____ C to N _____ B to C _____

Contractor's Representative: _____

Engineer's Representative: _____

Owner's Representative: _____

APPENDIX A, FIGURE 3
GROUND TEST INFORMATION

GROUND LOCATION: _____

PRIOR TO CONNECTION TO SYSTEM:

GROUND: _____ (OHMS)

WEATHER CONDITIONS FOR PREVIOUS WEEK: _____

AFTER CONNECTION TO SYSTEM:

GROUND: _____ (OHMS)

CONTRACTOR'S REPRESENTATIVE: _____

DATE: _____

APPENDIX A, FIGURE 4
MOTOR TEST INFORMATION
NOT USED

Project Name: _____
Description of Motor: _____
Checked By: _____
Date Checked: _____

a) Name and Identifying Mark of Motor	_____
b) Manufacturer	_____
c) Model Number	_____
d) Serial Number	_____
e) RPM	_____
f) Frame Size	_____
g) Code Letter	_____
h) Horsepower	_____
i) Nameplate Voltage and Phase	_____
j) Nameplate Amps	_____
k) Actual Voltage	_____
l) Actual Amps	_____
m) Starter Manufacturer	_____
n) Starter Size	_____
o) Heater Size, Catalog No. and AMP Rating	_____
p) Manufacturer of Dual Element Fuse	_____
q) Amp Rating of Fuse	_____
r) Power Factor	_____

(Signature of Checker)

(Print or Type Name of Checker)

(Company Name of Checker)

(Signature of Contractor Representative)

(Print or Type Name of Contractor Representative)

(Company Name of Contractor Representative)

APPENDIX A, FIGURE 5

CABLE INSULATION RESISTANCE TEST RECORD

Circuit Description: _____

Date: _____ Time: _____

Phase A to Ground _____ Megohms

Phase B to Ground _____ Megohms

Phase C to Ground _____ Megohms

Neutral to Ground _____ Megohms

Phase A to B _____ Megohms Phase A to Neutral _____ Megohms

Phase A to C _____ Megohms Phase B to Neutral _____ Megohms

Phase B to C _____ Megohms Phase C to Neutral _____ Megohms

Weather Conditions: _____

Temperature: _____

Circuit Condition Prior to Test: _____

Tested By: _____ Date: _____

Witnessed By: _____

Owner's Authorized Representative: _____

Date: _____

APPENDIX A, FIGURE 6

CABLE CONTINUITY TEST RECORD

Circuit Description: _____

Date: _____	Time: _____
Telephone Cable Pair 1 Continuity	Yes _____ No _____
Telephone Cable Pair 2 Continuity	Yes _____ No _____
Telephone Cable Pair 3 Continuity	Yes _____ No _____
Telephone Cable Pair 4 Continuity	Yes _____ No _____
Telephone Cable Pair 5 Continuity	Yes _____ No _____
Telephone Cable Pair 6 Continuity	Yes _____ No _____

Weather Conditions: _____

Temperature: _____

Circuit Condition Prior to Test: _____

Tested By: _____ Date: _____

Witnessed By: _____

Owner's Authorized Representative: _____

Date: _____

END OF ITEM 131

ITEM 135 AIRFIELD LIGHTING SYSTEMS

DESCRIPTION

135-1.1 GENERAL. This item shall consist of airport lighting systems furnished and installed in accordance with this specification, any referenced specifications, and the applicable Federal Aviation Administration Advisory Circulars. The systems shall be installed at the location and in accordance with the dimensions, layout, design, and details shown in the plans. This item shall include furnishing and installing all lights, signs, transformers, light bases, mounting assemblies, base plates, adapter rings, concrete work, taxiway ending markers, cable connections, all lamps, testing of the installation and all incidentals and appurtenances necessary to place the systems in operation as completed units to the satisfaction of the Engineer.

135-1.2 REFERENCED MATERIALS. Additional details pertaining to specific systems covered in this section are contained in the Federal Aviation Administration (FAA) Advisory Circulars (AC's), latest edition, listed below:

150/5340-30	Design and Installation Details for Airport Visual Aids
150/5345-1	Approved Airport Equipment
150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
150/5345-26	FAA Specification for L-823 Plug and Receptacle, Cable Connectors
150/5345-42	Specification for Airport Light Bases, Transformer Houses, Junction Boxes and Accessories
150/5345-53	Airport Lighting Equipment Certification Program
150/5370-2	Operational Safety on Airports During Construction
150/5370-10	Standards for Specifying Construction of Airports

The Contractor is responsible for obtaining and using the latest edition of the referenced FAA Advisory Circulars. This is not all inclusive but is offered as a convenience to the Contractor.

135-1.3 SUBMITTALS. Shop drawings of each airfield lighting component, indicating FAA approval, shall be submitted to the Engineer for review and approval and be approved prior to ordering any materials for this item. This submittal shall include the proposed method of installation for all airfield lighting components. The submittal shall include data on all component parts of the item or system, and shall include the manufacturers list of recommended spare parts for one years use. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the contract documents. The Contractor's submittals shall be in accordance with Item 106, Submittals, Record Documents and Maintenance Manuals.

135-1.4 QUALIFICATIONS. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

135-1.5 SPARE PARTS. The Manufacturer/Contractor by submitting a bid assures the Owner that it will sell to the Owner or any of the Owner's designated representatives any and all parts for materials furnished under this contract at the lowest price the Contractor or its subcontractors, or suppliers furnish them to any second party. This pricing requirement shall apply for five (5) years from the date of final acceptance of the contract. In furnishing parts at this price, the Contractor shall provide the parts within one week of an approved purchase agreement. The Owner shall have the right to verify that the prices the Owner pays for the parts are the lowest and if they are determined not to be, then the Owner shall receive a payment from the Manufacturer/Contractor in the amount of one and one-half (1.5) times the difference. The Contractor is responsible to coordinate and obtain this agreement, in writing, from the manufacturer.

MATERIALS

135-2.1 GENERAL.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, latest edition.

All other equipment and materials covered by other referenced specification shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification. The Contractor shall submit the manufacturer's certificate of compliance and the applicable specification sections to the Engineer for approval before the equipment and material are ordered.

Manufacturers certifications shall not relieve the Contractor of his responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

~~All items required per this section are for use on a 6.6 amp primary series circuit unless specifically noted otherwise.~~

135-2.2 GUARANTEES.

a. Except as modified below, all equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of twelve (12) months or the manufacturer's standard guarantee period whichever is greater, from final acceptance by the Owner. The

defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

~~b. The lamp life, as rated by the manufacturer (not the supplier), shall be warranted for the specified number of hours. Should ten percent (10%) of the lamps fail prior to the rated life of the lamp, then the entire system using the failing lamp type shall be relamped, at the Contractor's expense, and the warranty time shall start over. At the Owner's option, with written permission of the Engineer, the Contractor may elect to supply 100% spare lamps at the time of Owner's acceptance of the lighting system.~~

~~c. The lamp prices shall be furnished to the Owner in the bid and the prices shall be guaranteed for a period of five (5) years.~~

135-2.3 LIGHT BASES. All light bases (light bases) shall meet the requirements of FAA AC 150/5345-42C, latest edition. The light bases shall be L-867 type for the non-load bearing units and L-868 for the load bearing units. The sizes of the units shall be as shown in the Plans and in this specification. Telescoping light bases may be used for the L-867 non-load bearing light bases. Two piece light bases, may be used, where paving interferences require their use. All light bases, transformer houses and junction boxes shall be Class 1A, galvanized steel for asphalt installations. All light bases, transformer houses and junction boxes shall be Class 1B, for concrete installations. All conduit connections to lights bases shall be made with threaded couplings.

135-2.4 CABLES. Cables shall comply with specification 108, Installation of Underground Cable for Airports

~~**135-2.5 FRANGIBLE COUPLINGS.** All elevated items shall be installed on frangible couplings in accordance with the respective Federal Aviation Administration Advisory Circular. Frangible couplings shall be metallic and provide an electrical grounding path between the fixture/sign and the light base.~~

135-2.6 TAPE. Plastic electrical tapes shall be Scotch Electrical Tape number 88 as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equivalent. Electrical coating shall be Scotchkote as manufactured by the Minnesota Mining and Manufacturing Company, or approved equivalent.

135-2.7 CONCRETE. Concrete for backfill shall comply with Specification 610, Structural Portland Cement Concrete and have a maximum size coarse aggregate of 1-inch and shall have a 28-day comprehensive strength of not less than 3,500 psi and increasing with age.

135-2.8 CONDUIT. Conduit shall comply with specification 110, Installation of Airport Underground Electrical Duct.

135-2.9 HEAT SHRINK KIT. Heat shrinkable tubing with integral sealant for waterproofing L-823 connectors shall be Sigmaform Corporation Type APL, or Raychem

Corporation Type ADL, or Crouse Hinds Type HSK or approved equivalent.

135-2.10 IDENTIFICATION/NUMBER PLATES. The identification/number plates shall be 2-inch diameter brass tags/monuments as shown in the plans and details. The identification shall be permanently stamped. Text height shall be 3/8-inch.

135-2.11 REINFORCING STEEL. All reinforcing steel shall be ASTM A 615, Grade 60.

135-2.12 BOLTING HARDWARE. All airfield bolting hardware shall be stainless steel and shall meet FAA requirements. All bolts 1/4-inch and larger shall be hex head type. All bolts smaller than 1/4-inch trade size shall be recessed Allen type. All bolted connections shall utilize an anti-rotational locking type device. The light base cover and fixture mounting bolts shall extend through the light base mounting flange into the light base a minimum of 0.5-inches. The bolts shall have enough thread length so they do not shoulder out before the fixture is securely tightened.

135-2.13 ANTI-SEIZE COMPOUND. The anti-seize compound shall be Ideal "Noalox" or approved equivalent. Use GE-RTV-118 non-curing sealant to seal between sections of light bases, spacer rings, adaptor rings or fixtures.

135-2.14 FILLERS AND ADHESIVES. Joint sealing filler shall comply with Specification 605, Joint Sealing Filler ~~and adhesive compounds shall comply with Specification 606, Adhesive Compounds, Two Component, For Sealing Wire and Lights and Pavement.~~ The 605 ~~and 606~~ compounds shall be formulated so they are compatible with the pavement type with which they are to be used.

135-2.15 STRAIN RELIEF CONNECTORS. Strain relief connectors shall be Liquid Tight Thomas & Betts 2500 series with WMG-PG wire mesh cable grip or approved equivalent.

135-2.16 IDENTIFICATION MARKERS. Fixture, manhole and sign identification markers shall be brass bench markers by Surv-Kap of Tucson, Arizona model number M/M-B2 with flat top or approved equivalent.

~~a. Equipment Grounding Conductor~~

~~(1) All metallic non-current carrying parts of electrical equipment shall be grounded with an equipment grounding conductor whether or not shown on the drawings. The equipment grounding conductor shall be a green insulated copper conductor unless otherwise indicated. When this conductor is not sized, or shown on the drawings, it shall be sized in accordance with the applicable sections of the National Electrical Code and in no case shall it be smaller than #10 AWG.~~

~~(2) The equipment grounding conductor shall be connected to the grounded conductor (neutral) only at the main service disconnect means. The equipment grounding conductor shall be installed in the same conduit as its related branch and feeder~~

~~conductors and shall be connected to the ground bus in the branch or distribution panelboard.~~

~~(3) Where there are parallel feeders installed in more than one raceway, a full sized equipment grounding conductor shall be installed in each raceway. The metallic conduit housing the equipment grounding conductor shall also be electrically continuous forming a parallel path to the equipment grounding conductor. Under no circumstances shall this conductor be omitted from the electrical system, nor shall any separate grounding system such as the signal ground, be used for an alternate grounding system or an alternate path to the grounding electrode. All connections to the equipment to be grounded shall be made with a ground connector specifically intended for that purpose. Connecting screws or mounting bolts and screws are not suitable for use as grounding connections. All ground lugs shall be of a non-corrosive material suitable for use as a grounding connection, and must be compatible with the type of metal being grounded.~~

~~(4) A minimum size #12 AWG equipment grounding conductor shall be run in raceways enclosing control wiring.~~

b. Grounding Bushings. Terminate each end of all exterior steel conduits and ducts containing a #6 BSDC grounding conductor and/or entering electrical panels, boxes, etc., with grounding bushings and #6 BSDC wire. Connections shall be made to the grounding conductor which, in turn, shall be connected to a ground rod and the appropriate electrical panel box, etc.

c. Other Grounding System. Any additional grounding system used for electronic equipment shall be connected directly to the exterior earth electrode system unless otherwise indicated on the drawings. Other grounding systems shall not be used in place of the equipment grounding conductor system. The conductors used for other grounding systems shall be color-coded green with a yellow stripe.

d. Lightning Protection

(1) General. Lightning protection system, where shown on the contract drawings, shall be in accordance with the applicable parts of NFPA No. 780, Lightning Protection Code and shall be installed in a manner so that they will be eligible for the Master Label by meeting the installation requirements of UL 96A, Master Labeled Lightning Protection Systems. Conductors used in lightning protection systems shall be copper and of a type specifically manufactured for such use.

e. Wiring Methods

(1) General. Unless otherwise indicated, wiring shall consist of insulated copper conductors installed in ~~heavy wall zinc coated rigid galvanized steel~~ conduit. ~~All neutral conductors shall extend from the neutral bus in the device where the active conductors originate. Device terminals for connection of more than one conductor shall be specifically designed for that purpose.~~

(2) Raceway System. Minimum conduit or size shall be 3/4-inch. Each run shall be complete, and shall be finished and swabbed before conductors are installed. Ends of conduit systems not terminated in boxes or cabinets shall be capped. Existing conduits shall be cleaned and swabbed before cables are pulled.

(a) Field Cutting. Where conduit has to be cut in the field, it shall be cut square using a hand or power hacksaw or approved pipe cutter using cutting knives. The cut ends of the field-cut conduit shall be reamed to remove burrs and sharp edges. Where threads have to be cut on conduit, the threads shall have the same effective length and shall have the same thread dimensions and taper as specified for factory cut threads on conduit. If field threaded conduits are to be installed underground, oil shall be cleaned from threads before applying a cold galvanizing compound as required in Section 5-1.5. Conduits installed with threads not complying with these requirements shall be removed and replaced with conduits that comply.

(b) Conduit Installation. Conduit shall be installed parallel to or at right angles with the lines of the structures unless shown otherwise on the drawings. Field bends shall be avoided where possible, but, where necessary, shall be made with approved hickey or conduit-bending device. Radius of field bends shall be not less than 10 times the inside diameter of the conduit. Underground conduits, except where otherwise indicated, shall terminate a minimum of 2-feet below finished grade with RGS sweep conduit elbows.

Conduit shall be plugged during construction to prevent entrance of foreign material. Both ends of all conduits entering a junction box from below grade shall be sealed with 3M "Ductseal" or approved equivalent. All connections of conduits to boxes shall be made with weatherproof hub fittings. When two or more conduits are installed in the same trench, they shall have a minimum separation of 2-inches.

(c) Heavywall Zinc Coated Rigid Steel Conduit. Heavy zinc coated rigid galvanized steel conduit shall be used in all locations. All fittings for use with rigid galvanized steel conduit shall be of the threaded type of the same material as the conduit. Where conduits enter boxes or cabinets without threaded hubs, double locknuts shall be used plus an insulated metallic bushing on the open end. In exterior locations, exposed threads of metal conduit shall be cleaned and then painted (see Section 5-1.4). Rigid conduit taping or coating is required for underground installations. The conduit shall be field wrapped with 0.010-inch pipe wrapping plastic tape applied with 50 percent overlap, or shall have a factory-applied coating with minimum thickness as follows:

Low-Density or Medium Density Plastic	0.020-inch
Epoxy Resin	0.008-inch
Coal-Tar Enamel	0.063-inch

(d) Flexible Steel Conduit. Flexible steel conduit may be used in short lengths for applications as permitted by the NEC. Liquid tight flexible conduit shall be used outdoors or in wet locations. A separate ground conductor shall be provided across all flexible connections in addition to the green wire ground.

(3) Preparation. Trench excavation and bedding material used in preparation for placing PVC or rigid conduit shall be in accordance with Item 110, Installation of Airport Underground Electrical Duct. Trenches shall be free of debris and water prior to cable laying operations.

(4) Cable and Conduit Depths. Cables in conduits for underground installation shall be placed at the depths specified herein. All cable ducts on airport property shall be a minimum of 18 ~~36~~-inches below the finished grade or as required to comply with local authority requirements.

~~(5) Direct Earth Burial Cable. Cables for the PAPIs shall only be installed in the cable duct system with handhole cans as specified on the drawings. The counterpoise shall be #6 AWG bare copper (solid) wire running about 12 inches above and parallel to the cable duct system with handhole cans, as applicable.~~

(a) Splices. Whenever possible, cable shall be continuous run between connections. ~~Splices on multiple cables in a trench shall be staggered. Taped or cast splice kits designed for the cable are also acceptable. Connections of cable conductors shall be made using crimp connectors utilizing a crimping tool designed to make a complete crimp before the tool can be removed. Cable ends to be spliced shall be kept free from moisture by using tape or caps. All cable runs shall be given continuity and insulation resistance tests per Section 16-5 at the completion of each splice.~~ Splices are not permitted inside of rigid or PVC conduit, but only in the handhole cans. Metallic armored or shielded cables shall be bonded across the splice by cleaning and soldering to provide a continuous electrical path. Armor and shielding shall be completely insulated from each other except as ground connection at each end of the cable runs.

(b) Loops. A cable loop shall be made at all splices, and cable entrances into underground conduits. The cable loop shall be installed at the time of the cable run. The loop shall be approximately 3-feet with bends whose inner radius is not less than 12 times the outside diameter of the cable.

k. Conductors

(1) Uninsulated Conductors. Uninsulated conductors shall be copper.

(2) Insulated Conductors. Unless otherwise indicated, insulated conductors shall be copper with thermoplastic or thermosetting insulation, type THW, THWN, and XHHW for general use, or type THHN for use in dry locations only, all insulated for 600 V. Conductors #10 AWG and smaller shall be solid, and conductors #8 AWG and larger shall be stranded. Minimum branch circuit conductor size shall be #12 AWG.

~~(3) Underground Feeders. Conductors in contact with the earth shall be type UF, XHHW USE, RHW USE, XLP USE, or of a multiconductor armored construction with equivalent outer insulation.~~

~~(4) Color Coding. All branch circuit and feeder conductors shall be color coded as specified hereinafter. The color coding shall be continuous throughout the facility on each phase conductor to its point of utilization so that the conductor phase connection is readily identifiable in any part of the installation. The equipment grounding conductor shall be covered with green insulation or shall be bare copper as specified herein. Neutral conductors shall be continuous white unless more than one system is run in the same raceway, box, or other type enclosure. Where color coding is not available in the larger size conductors (larger than #6 AWG), the conductors shall be color coded by use of color-coded tape, half lapped for a minimum length of 3 inches. Where conductors are color-coded in this manner, they shall be color-coded in all junction boxes, outlets, and switches, as well as at all terminations.~~

Phase conductors shall be color-coded as follows:

~~_____ Single Phase
_____ 120/240 Volts
_____ Line A Black
_____ Line B Red~~

~~(5) Conductor Identification. In addition to color coding, all line, phase, and neutral conductors shall be identified by plastic coated, self-sticking printed markers, permanently attached stamped metal foil markers, or equivalent means as approved by the Resident Engineer. Panel and circuit numbers shall be identified. Conductor identification shall be provided at all terminations, and in all junction boxes through which these conductors pass. In addition to color coding, control circuit conductor identification shall be made by plastic coated self-sticking printed markers, permanently attached stamped metal foil markers, or equivalent means as approved by the Resident Engineer. Conductor identification shall be provided within each enclosure where a tap, splice, or termination is made. Control circuit terminals of equipment shall be properly identified. Terminal and conductor identification shall match that shown on approved shop drawings. Hand lettering or marking is not acceptable.~~

1. Cable Duct Markers. Locations of cable duct runs shall be indicated with a 2-foot square by 6-inch thick concrete marker at 200-foot spacing, at each change of direction of the cable, at each end of conduits under roadways and/or taxiways, and beside each cable splice at the handhole cans. Markers shall not be poured in place. The markers shall be installed flat in the ground immediately above the cable and with approximately 1-inch projecting above the surface. Existing cable markers displaced or new markers shall be placed within 24 hours of the trench backfill operation. Cable markers shall be painted "Alert Orange" with paint specifically intended for use on uncured concrete. Exterior house paint is not acceptable.

(1) Letters and Identification. All lettering on cable duct markers shall be made with stencils approved by the Engineer. No "hand lettering" or similar shall be used. Letters identifying the cable shall be impressed or cast into the concrete. The letters shall be 4-inches high, 3-inches wide, and 1/2-inch deep. The top line shall read "PAPI" ~~or~~

~~“MAISR”~~ “SENSOR” to identify the facility served. The second line shall be marked with “DUCT”. The next line shall be an arrow indicating the direction of the cable duct run. This line is not necessary if there will be a splice. The arrow point shall be about 3 inches on a side and the shaft about 1-1/2-inches wide by 12-inches long. The bottom line of the marker shall be marked, for example, “1 W 2” (one-way 2-inch) or “SPLICE”.

m. Quality Control Provisions

(1) Cable Tests. All cable testing shall be done by the Contractor in the presence of the FAA Resident Engineer and the Airport Owner’s Representative. The Contractor shall provide all test equipment and power. Equipment shall have been calibrated within 2 years. Cables shall be tested in the following order: upon delivery to the site; again prior to installation; after each splice during installation; and again upon completion of backfill operations. The Contractor shall immediately report any physical defects detected by cable testing to the FAA Resident Engineer and the Airport Owner’s Representative. ~~The control cabinet and PAPI units shall be disconnected during cable testing.~~

~~(a) 600 Volt Cable Test. Conductors, splices, and insulation shall be tested at not less than 500 volts. The minimum resistive value shall be 30 megohms between conductors and between conductors and ground.~~

(b) Control Cable Tests. Control cables shall be tested at not less than 500 volts. The minimum resistive value between conductors and from each conductor to grounded shield shall be 50 megohms. All conductors in cable with 11 pair or less shall meet test requirements. With the approval of the Engineer, all but two conductors are required to pass tests for cable with between 12 pair and 25 pair.

(2) Failure of Cable Under Test. Cable failing tests prior to installation shall not be installed. The Engineer will take action to replace government-furnished cable, if applicable, that failed the upon-delivery testing. GFM cables which pass the initial, upon delivery testing, but, which fail after Contractor takes possession shall be repaired or replaced by the Contractor at no additional cost to the Government.

(3) Ground Resistance Test. Ground resistance of the ground rod system shall not exceed 10 ohms. Ground resistance measurements shall be made in normally dry weather and not less than 72 hours after rainfall. If the desired resistance value is not obtained, additional rods shall be driven at least 10-feet apart until resistance values are obtained. Testing shall be by "fall of potential" method using Biddle Earth Tester, or approved equivalent.

(4) Quality Assurance. All electrical equipment and materials provided by the Contractor shall be in accordance with this specification and be approved by Underwriters' Laboratories (UL), Inc. Original and two copies of tabulated results of all cable tests and ground resistance test performed under this section shall be forwarded to the Engineer for approval.

135-2.17 DELIVERY, STORAGE AND HANDLING. Ship materials and equipment disassembled only to the extent necessary for reasons of shipping limitations, handling facilities, and to avoid damage during shipment. Maintain materials and equipment in new condition. This shall include the use of heat lamps, suitable coverings, indoor storage, etc. to properly protect the equipment and materials. Any equipment or materials, in the opinion of the Owner or Engineer, damaged during construction or storage periods shall be replaced by and at the expense of the Contractor.

135-2.18 SPARE PARTS. The following table lists the electrical spare parts required to be furnished by the Contractor. All spare parts shall be identical to the same parts approved and installed in the project. The cost of all defined spare parts to be furnished to the Owner shall be included in the various unit bid items for which the spare parts are provided.

135-2.19 RUNWAY SURFACE CONDITION SENSOR SYSTEM. This item shall consist of furnishing and installing airport pavement surface condition sensors ~~system~~ in accordance with these specifications and in accordance with the dimensions, design and details shown in the Plans as well as the recommendations of the equipment manufacturer. This item shall include the furnishing of all equipment, materials, services and incidentals necessary to place the system in operation as completed units to the satisfaction of the Engineer.

System supplier is responsible for coordinating installation requirements with the Contractor. Shop drawings shall show any deviation made necessary during the installation.

Submit customized wiring diagrams and installation instructions. Wiring diagrams shall show color coding of connections and mounting dimensions of equipment. A complete equipment list shall be supplied with the submittal.

All new sensor equipment, sensor heads, ~~RPU's~~, etc., shall be fully compatible and interchangeable with the current existing system and manufactured by Vaisala, Inc.

The runway surface condition sensor system, as shown in the Plans, shall conform to the requirements of AC 150/5220-13B and specifically designed for monitoring and displaying pavement surface and conditions including dry, wet, frost, snow or ice and relative amount of de-icing chemical present, as well as atmospheric conditions including air temperature, relative humidity, precipitation, dew point and wind speed/direction. The system shall also include all hardware and software licenses. The surface condition sensor system shall include, but not limited to, the following components:

a. Surface Sensors: The surface sensor shall be solid state, with a temperature range of -22 degrees F to 176 degrees F and be constructed of materials which have thermal characteristics similar to common pavement materials. The sensor shall be supplied with 150-feet of attached cable that is waterproofed and sealed as an integral part of the assembly. The sensor shall electronically sample the following pavement

surface conditions:

- (1) Pavement surface temperature at the sensor head.
- (2) Dry pavement condition.
- (3) Wet pavement condition above 32 deg F.
- (4) Wet but not frozen pavement condition at or below 32 deg F.
- (5) Snowy or icy pavement condition at or below 32 deg F.
- (6) Dew pavement condition.
- (7) Frost pavement condition.
- (8) Relative amount of de-icing chemical present on pavement.

Sensors shall be Vaisala SSI Passive Pavement Sensor FP2000 or approved equal.

b. Subsurface Temperature Probe. The probe shall measure the ground temperature below the roadway pavement surface. The temperature sensing element of the probe shall operate over a temperature range of minus 40°F to 176°F.

The probe shall be supplied with 150 feet of attached cable, which is waterproofed and sealed as an integral part of the assembly. Each sensor shall be capable of operating at extended cable lengths up to 5,000 feet from the RPU.

Probe shall be Vaisala Subsurface Temperature Probe or approved equal.

c. Communication. Communication between the existing RPU and the existing pavement sensor system shall match the existing system parameters.

Installation of the runway surface condition sensor system shall be as shown in the Plans or approved shop drawings and in accordance with the applicable FAA Advisory Circulars. Tolerances given in the FAA Advisory Circulars, these specifications, and the Plans shall not be exceeded unless authorized by the Engineer.

The Contractor shall furnish all labor and materials and shall make complete electrical connections in accordance with the information furnished with the project drawings. ~~The Contractor shall supply lightning arrestors as required by the equipment manufacturer.~~

The Contractor shall furnish and install ground rods, grounding cable, and ground clamps for grounding the frame of the assembly near the base.

The Contractor shall fully test the installation by continuous operation for a period of

not less than 4 hours as a completed unit prior to acceptance by the Owner.

~~135-2.20 NAVAIDS CONTROL CABLE CABINET. Control cable cabinets shall conform to the details and dimensions shown in the plans.~~

~~Provide control cable cabinet structures where shown on the plans. Cabinets shall be single door, NEMA Type 4 enclosures with a continuous hinge. Door shall be securable in the open position. Size of cabinet shall be coordinated with cable sizes as shown in details and plans. All cabinets shall be minimum 16-gauge steel and designed for outdoor use in protecting all internal components from dust, dirt, oil, and hose directed water. Seams shall be continuously welded and ground smooth with no holes or knockouts throughout the entirety of the structure. Door shall have stainless steel door clamps with stainless steel screws on three sides of the door, with a minimum of four total clamps. Hasp and staple shall be provided for padlocking.~~

~~Data pocket on the inside of the door shall be high impact thermoplastic. Contractor shall include laminated wiring diagram of the internal of each cabinet in the data pocket of each cabinet. Contractor to provide minimum one non-laminated record copy of each wiring diagram to the DPA. Contractor to coordinate wiring diagram(s) standards, accuracy, delivery and storage with DPA and the Engineer.~~

~~A nameplate shall be attached to the front of the door on each control cable cabinet. Nameplate(s) shall identify the functional name of the unit, control cable(s) circuit names inside of the applicable cabinet, and any additional information requested by DPA and the Engineer. Name plate shall be non-ferrous metal or rigid plastic, stamped, embossed or engraved with 3/8 inch minimum height letters and numerals. Nameplate(s) to be secured with at least two stainless steel screws.~~

~~Contractor shall provide conduit openings into the bottom of the control cable cabinet. No control cable cabinets will be accepted which have any unused open hole(s), except weep hole(s) or vent hole(s). Holes in cabinets where conduits, bolts, or other objects were removed and not reinstalled shall be closed and panels of the same material, thickness, color and shade as the cabinet installed. All penetrations into the control cable cabinet, which include but are not limited to conduit stubs, plates which cover openings, screws and bolts, shall be sealed to permanently prevent infiltrations of any kind into the control cable cabinet. Number and size of conduits and openings shall be coordinated with its corresponding location as shown in the details and the plans.~~

~~All terminal blocks and panels shall be included as part of the control cable cabinet. Terminal block(s), panel sizes, and number of terminal blocks shall be provided as specified on the detail sheets. Terminal blocks shall be channel mounted. The assembled strip of block(s) shall be comprised of a marking strip, individual blocks, and end barriers, manufactured by Square-D or approved equal. Terminal blocks shall be 600 volts maximum, 175 amperes maximum rated. Each terminal strip shall have 25 terminal blocks. Contractor shall coordinate terminal strip size with control cable size.~~

CONSTRUCTION METHODS

135-3.1 TESTING. This section describes the testing and demonstrations furnished by the Contractor. All items furnished and/or installed by the Contractor shall be tested and demonstrated in accordance with these specifications. All equipment and labor required for testing and demonstrations shall be furnished by the Contractor.

a. Fully test the installation by continuous operation for a period of not less than seventy-two (72) hours as a completed unit, prior to acceptance by the Owner.

b. Up to two (2) walk-throughs may be initiated by the Owner or the Engineer during which the units would be required to be in operation. Additional walk-throughs may be necessary depending upon the number of discrepancies found on the previous walk-throughs.

~~c. The Contractor is responsible for lamp replacements and necessary maintenance of airfield items during the testing, construction and walk-through periods.~~

d. Test cabling per specification 108, Installation of Underground Cable for Airports.

e. Demonstrate all features and functions of all systems and instruct the Owner's personnel in the proper and safe operation of the systems.

f. The Contractor shall perform the necessary inspection and tests for some items concurrently with the installation because of subsequent inaccessibility of some components. The Engineer shall be notified by the Contractor forty-eight (48) hours in advance of any testing.

There are no approved "repair" procedures for items that have failed testing other than complete replacement. Any other corrective measures shall be approved in writing by the Engineer.

135-3.2 OPERATION AND MAINTENANCE MANUALS. The Contractor shall provide data for all equipment, material and components supplied or furnished under this section in the Operation and Maintenance Manuals. This data shall include cut sheets from the manufacturer and the manufacturer's installation, operation and maintenance manuals, recommended spare parts lists, any required test results, and other data as required by Item 106, Submittals, Record Documents and Maintenance Manuals. The manuals shall be in accordance with Item 106. Final payment for any contract amounts shall not be processed without proper submittal of these manuals and review and approval by the Engineer.

135-3.3 CONTRACT DRAWINGS. Where the electrical drawings indicate (diagrammatically or otherwise) the work intended and the functions to be performed, even though some minor details are not shown, the Contractor shall furnish all equipment,

material, and labor to complete the installation work, and accomplish all the indicated functions of the electrical installation. Further, the Contractor shall be responsible for taking the necessary actions to ensure that all electrical work is coordinated and compatible with the civil plans.

135-3.4 MINOR DEPARTURES. Minor departures from exact dimensions shown in the electrical plans may be permitted where required to avoid conflict or unnecessary difficulty in placement of a dimensional item, provided contract requirements are met. The Contractor shall promptly obtain approval from the Owner and/or the FAA Resident Engineer prior to undertaking any such proposed departure.

~~**135-3.5 NAVAIDS CONTROL CABLE CABINET.** The placement and construction of the control cable cabinets shall be in accordance with the recommended phasing as set in the drawings. All work done in relation to the control cable cabinets shall be coordinated and scheduled with DPA and the RPR.~~

~~Foundation installation shall be coordinated with construction of adjacent, corresponding handhole for control cable connections. Contractor shall locate foundation centerline as shown on details and plans. For all control cable cabinets, the concrete foundation shall extend to not less than twelve inches from the edge of each face of the control cable cabinet. The concrete pad shall be poured in place and rest on undisturbed soil. The pad and foundation shall be reinforced with steel bars formed and placed as indicated in the plans and details. Exposed concrete surface shall be finished smooth with a steel trowel or rubbed to a smooth finish. All horizontal edges to be chamfered one inch at 45 degrees with respect to the foundation surface.~~

METHOD OF MEASUREMENT

135-4.1 GENERAL. The quantity of airfield lighting units to be paid for under this item shall be the number of each type installed, complete and in place, ready for operation, and accepted by the Engineer. Each airfield lighting unit shall include the installation of an identification plate or tag as detailed in the plans.

BASIS OF PAYMENT

135-5.1 GENERAL. Payment will be made at the contract unit price for each item completed in accordance with the plans and specifications that is installed by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly and installation of these materials, and for all labor, equipment, tools, incidentals, and appurtenances necessary to complete these items.

