QU003

RETURN WITH BID

LETTING DATE June 15, 2007

ITEM NUMBER **9A**

Proposal Submitted By

Name

Address

City/State

Zip Code Telephone Number

FEIN Number FAX Number

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)

PROPOSAL COVER SHEET

Illinois Department of Transportation
DIVISION OF AERONAUTICS

AIRPORT **Quad-City International**

MUNICIPAL DESIGNATION Moline

COUNTY DESIGNATION Rock Island

ILLINOIS PROJECT NO. MLI-3623

FEDERAL PROJECT NO. 3-17-0068-XX

Is the Option for Bituminous Materials Cost Adjustments Selected?

Please See Pages 69 and 70 and Mark the Appropriate Box Below:

☐ Yes ☐ No

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 issued by IDOT are potential bidding proposals. Each proposal contains all Certifications and Affidavits, a Proposal Signature Sheet and a Proposal Bid Bond required for Prime Contractors to submit a bid after written **Authorization to Bid** has been issued by IDOT's Central Bureau of Construction.

HOW MANY PROPOSALS SHOULD PROSPECTIVE BIDDERS REQUEST?: Prospective bidders should, prior to submitting their initial request for plans and proposals, determine their needs and request the total number of plans and proposals needed for each item requested. There will be a nonrefundable charge of $15 for each set of plans and specifications issued.

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.

WHAT CONSTITUTES WRITTEN AUTHORIZATION TO BID?: When a prospective prime bidder submits a "Request for Proposal Forms and Plans" 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 a **Proposal Denial and/or Authorization Form**, approved by the Central Bureau of Construction, that indicates which items have been approved For Bidding. If **Authorization to Bid** cannot be approved, the **Proposal Denial and/or Authorization Form** will indicate the reason for denial. If a contractor has requested to bid but has not received a **Proposal Denial and/or Authorization Form**, they should contact the Central Bureau of Construction in advance of the letting date.

WHAT MUST BE INCLUDED WHEN BIDS ARE SUBMITTED?: Bidders need not return the entire proposal when bids are submitted. That portion of the proposal that must be returned includes the following:

1. All documents from the Proposal Cover Sheet through the Proposal Bid Bond

2. Other special documentation and/or information that may be required by the contract special provisions

All proposal documents, including Proposal Guaranty Checks or Proposal Bid Bonds, should be stapled together to prevent loss when bids are processed by IDOT personnel.

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

WHO SHOULD BE CALLED IF ASSISTANCE IS NEEDED?

Questions Regarding	**Call**
Prequalification and/or Authorization to Bid	217/782-3413
Preparation and submittal of bids	217/782-7806
Mailing of plans and proposals	217/782-7806

Illinois Department of Transportation

PROPOSAL

1. Proposal of _____

   _____

   for the improvement officially known as:

   (a) Quad-City International Airport

   (b) The proposed improvement shown in detail on the plans issued by the Department schedule and detail sheets included herein, includes, in general, the following described work:

   Runway 5 Extension - Paving

TO THE DEPARTMENT OF TRANSPORTATION

2. The plans for the proposed work are those issued by the Department of Transportation to cover the work described above.

The specifications are those prepared by the Department of Transportation, Division of Aeronautics and designated as "Standard Specifications for Construction of Airports," adopted January, 1985, the "Supplemental Specifications and Recurring Special Provisions," adopted July 1, 2004 and the "Special Provisions" thereto, adopted and in effect on the date of invitation for bids.

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 198 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. The following Schedule of Deductions supersedes the table given in Section 60-09 of the Division's Standard Specifications for Construction of Airports.

Schedule of Deductions for Each
Day of Overrun in Contract Time

Original Contract Amount		Daily Charge
From More Than	To and Including	Calendar Day
$ 0	$ 25,000	$ 300
25,000	100,000	375
100,000	500,000	550
500,000	1,000,000	725
1,000,000	2,000,000	900
2,000,000	3,000,000	1,100
3,000,000	5,000,000	1,300
5,000,000	7,500,000	1,450
7,500,000	10,000,000	1,650

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

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, 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 bonds 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 and guaranteeing payment in full all bills and accounts for materials and labor used in the construction of the work.

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:

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

RETURN WITH BID

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.

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.

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 his/her schedule of prices covering the work to be performed under this contract; he/she understands that he/she must show in the schedule the unit prices (with no more than two decimal places, i.e. $25.35, not $25.348) for which he/she proposes to perform each item of work, that the extensions must be made by him/her, and that if not so done his/her proposal may be rejected as irregular.

   The undersigned further agrees that the unit prices submitted herewith are for the purpose of obtaining a gross sum, and for use in computing the value of additions and deductions; that if there is a discrepancy between the gross sum bid and that resulting from the summation of the quantities multiplied by their respective unit prices, the latter shall govern.

COUNTY NAME	CODE	DIST	AIRPORT NAME	FED PROJECT	ILL PROJECT
ROCK ISLAND	161	02	QUAD-CITY INTERNATIONAL	3-17-0068-XX	ML-I -3623

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AR108158	1/C #8 5 KV UG CABLE IN UD	L.F.	4,780.000	X			=		
AR108258	2/C #8 5 KV UG CABLE IN UD	L.F.	315.000	X			=		
AR108825	25 PAIR CONTROL CABLE	L.F.	7,600.000	X			=		
AR110216	5" STEEL DUCT, DIRECT BURY	L.F.	115.000	X			=		
AR110501	1-WAY CONC. ENCASED DUCT	L.F.	30.000	X			=		
AR110502	2-WAY CONCRETE ENCASED DUCT	L.F.	145.000	X			=		
AR110503	3-WAY CONCRETE ENCASED DUCT	L.F.	95.000	X			=		
AR125415	MITL-BASE MOUNTED	EACH	25.000	X			=		
AR125442	TAXI GUIDANCE SIGN, 2 CHARACTER	EACH	5.000	X			=		
AR125446	TAXI GUIDANCE SIGN, 6 CHARACTER	EACH	1.000	X			=		
AR125510	MIRL, BASE MOUNTED	EACH	6.000	X			=		
AR125565	SPLICE CAN	EACH	1.000	X			=		
AR125904	REMOVE TAXI GUIDANCE SIGN	EACH	1.000	X			=		
AR125924	REPLACE TAXI GUIDANCE SIGN	EACH	4.000	X			=		
AR125931	REPLACE LIGHT LENSE	EACH	12.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AR125962	RELOCATE BASE MOUNTED LIGHT	EACH	26.000	X			=		
AR150510	ENGINEER'S FIELD OFFICE	L.S.	1.000	X			=		
AR150530	TRAFFIC MAINTENANCE	L.S.	1.000	X			=		
AR152410	UNCLASSIFIED EXCAVATION	C.Y.	5,115.000	X			=		
AR152440	BORROW EXCAVATION	C.Y.	43,640.000	X			=		
AR156500	TEMPORARY EROSION CONTROL	L.S.	1.000	X			=		
AR209510	CRUSHED AGGREGATE BASE COURSE	TON	7,920.000	X			=		
AR209511	CRUSHED AGGREGATE BASE, (CA-1)	TON	100.000	X			=		
AR209600	GEOTEXTILE FABRIC	S.Y.	16,500.000	X			=		
AR401610	BITUMINOUS SURFACE COURSE	TON	140.000	X			=		
AR401650	BITUMINOUS PAVEMENT MILLING	S.Y.	23.000	X			=		
AR401900	REMOVE BITUMINOUS PAVEMENT	S.Y.	22.000	X			=		
AR501509	9" PCC PAVEMENT	S.Y.	15,450.000	X			=		
AR501530	PCC TEST BATCH	EACH	1.000	X			=		
AR501540	PCC PAVEMENT GROOVING	S.Y.	7,300.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AR501900	REMOVE PCC PAVEMENT	S.Y.	275.000	X			=		
AR602510	BITUMINOUS PRIME COAT	GAL.	260.000	X			=		
AR603510	BITUMINOUS TACK COAT	GAL.	4.000	X			=		
AR620510	PAVEMENT MARKING	S.F.	18,020.000	X			=		
AR620595	TEMPORARY MARKING & REMOVAL	S.F.	300.000	X			=		
AR620900	PAVEMENT MARKING REMOVAL	S.F.	4,425.000	X			=		
AR701512	12" RCP, CLASS IV	L.F.	400.000	X			=		
AR701518	18" RCP, CLASS IV	L.F.	23.000	X			=		
AR701731	RCEP SPAN 68 RISE 43	L.F.	36.000	X			=		
AR701734	RCEP SPAN 76 RISE 48	L.F.	15.000	X			=		
AR705506	6" PERFORATED UNDERDRAIN	L.F.	2,940.000	X			=		
AR705508	8" PERFORATED UNDERDRAIN	L.F.	640.000	X			=		
AR751415	INLET-SPECIAL	EACH	3.000	X			=		
AR751550	MANHOLE 5'	EACH	2.000	X			=		
AR751568	MANHOLE 8'	EACH	1.000	X			=		

ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY		UNIT PRICE DOLLARS	UNIT PRICE CENTS		TOTAL PRICE DOLLARS	TOTAL PRICE CTS
AR751570	MANHOLE-SPECIAL	EACH	9.000	X			=		
AR751904	REMOVE MANHOLE	EACH	5.000	X			=		
AR751944	ADJUST MANHOLE - PAVEMENT	EACH	1.000	X			=		
AR752760	P R CONC. FES EQ. ROUND SIZE 60"	EACH	1.000	X			=		
AR752900	REMOVE END SECTION	EACH	2.000	X			=		
AR801605	REPLACE TAXI GUIDANCE SIGN PANEL	EACH	22.000	X			=		
AR801614	SUPPLY TAXI GUIDANCE SIGN PANEL	EACH	20.000	X			=		
AR801622	REPLACE VASI WITH PAPI	L.S.	1.000	X			=		
AR801623	LOW PROFILE BARRICADE	EACH	40.000	X			=		
AR801625	ANALYZE SCAN SYSTEM	L.S.	1.000	X			=		
AR901510	SEEDING	ACRE	25.000	X			=		
AR908513	MULCHING-METHOD 3	ACRE	25.000	X			=		
AR908520	EXCELSIOR BLANKET	S.Y.	1,585.000	X			=		

TOTAL $

NOTE:
*** PLEASE TURN PAGE FOR IMPORTANT NOTES ***

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.

RETURN WITH BID

THE PRECEDING SCHEDULE OF PRICES MUST BE

COMPLETED AND RETURNED.

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. 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 termination of the contract and the suspension or debarment of the bidder.

II. ASSURANCES

A. 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. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous assurance, and the surety providing the performance bond shall be responsible for the completion of the contract.

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 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. The bidder assures the Department that the award and execution of the contract would not cause a violation of Section 50-10.

C. 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 $145,877.00. Sixty percent of the salary is $87,526.20.

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.

D. 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.

E. 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.

F. Revolving Door Prohibition

1. The Illinois Procurement Code provides:

Section 50-30. Revolving door prohibition. Chief procurement officers, associate procurement officers, State purchasing officers, 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.

G. 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.

H. 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.

I. 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.

III. CERTIFICATIONS

A. 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. The Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous certification, and the surety providing the performance bond shall be responsible for completion of the contract.

B. 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 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, 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 shall contain a certification by the contractor that the contractor is not barred from being awarded a contract or subcontract under this Section. A contractor who makes a false statement, material to the certification, commits a Class 3 felony.

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

C. 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.

D. 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.

E. 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.

F. 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.

G. Debt Delinquency

1. The Illinois Procurement Code provides:

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

The contractor or bidder certifies that it, or any affiliate, is not barred from being awarded a contract under 30 ILCS 500. Section 50-11 prohibits a person from entering into a contract with a State agency 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 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 contractor further acknowledges that the contracting State agency may declare the contract void if this certification is false or if the contractor, or any affiliate, is determined to be delinquent in the payment of any debt to the State during the term of the contract.

H. Sarbanes-Oxley Act of 2002

1. The Illinois Procurement Code provides:

Section 50-60(c).

The contractor 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 for a period of five years prior to the date of the bid or contract. The contractor acknowledges that the contracting agency shall declare the contract void if this certification is false.

I. Section 42 of the Environmental Protection Act

The contractor certifies in accordance with 30 ILCS 500/50-12 that the bidder or contractor is not barred from being awarded a contract under this Section which prohibits the bidding on or entering into contracts with the State of Illinois or a State agency 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 contractor acknowledges that the contracting agency may declare the contract void if this certification is false.

J. Executive Order Number 1 (2007) Regarding Lobbying on Government Procurements

The bidder hereby warrants and certifies that they have complied and will comply with the requirements set forth in this Order. The requirements of this warrant and certification are a material part of the contract, and the contractor shall require this warrant and certification provision to be included in all approved subcontracts.

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 Department may terminate the contract if it is later determined that the bidder rendered a false or erroneous disclosure, 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 all bids of more than $10,000 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.

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. 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.

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 or incorporated by reference.**

C. Disclosure Form Instructions

Form A: For bidders that have previously submitted the information requested in Form A

The Department has retained the Form A disclosures submitted by all bidders responding to these requirements for the April 24, 1998 or any subsequent letting conducted by the Department. The bidder has the option of submitting the information again or the bidder may sign the following certification statement indicating that the information previously submitted by the bidder is, as of the date of signature, current and accurate. The Certification must be signed and dated by a person who is authorized to execute contracts for the bidding company. Before signing this certification, the bidder should carefully review its prior submissions to ensure the Certification is correct. If the Bidder signs the Certification, the Bidder should proceed to Form B instructions.

CERTIFICATION STATEMENT

I have determined that the Form A disclosure information previously submitted is current and accurate, and all forms are hereby incorporated by reference in this bid. Any necessary additional forms or amendments to previously submitted forms are attached to this bid.

_____
(Bidding Company)

_____ _____
Name of Authorized Representative (type or print) Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

Form A: For bidders who have NOT previously submitted the information requested in Form A

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 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 the second page of 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 $87,526.20? YES _____ NO_____
3. Does anyone in your organization receive more than $87,526.20 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 $87,526.20? 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 on page 2 of Form A must be signed and dated by a person that is authorized to execute contracts for your company.

Form B: **Identifying Other Contracts & Procurement Related Information** Disclosure Form B must be completed for each bid submitted by the bidding entity. It must be signed by an individual who is authorized to execute contracts for the bidding entity. *Note: Signing the NOT APPLICABLE STATEMENT on Form A does not allow the bidder to ignore Form B. Form B must be completed, signed 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 signature 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.

D. Bidders Submitting More Than One Bid

Bidders submitting multiple bids may submit one set of forms consisting of all required Form A disclosures and one Form B for use with all bids. Please indicate in the space provided below the bid item that contains the original disclosure forms and the bid items which incorporate the forms by reference.

- The bid submitted for letting item _____ contains the Form A disclosures or Certification Statement and the Form B disclosures. The following letting items incorporate the said forms by reference:

  _____

  _____

RETURN WITH BID/OFFER

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form A
Financial Information & Potential Conflicts of Interest Disclosure

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number		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 $10,000, and for all open-ended contracts. **A publicly traded company may submit a 10K disclosure in satisfaction of the requirements set forth in Form A. See Disclosure Form Instructions.**

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 $87,526.20 (60% of the Governor's salary as of 10/1/2000). **(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 _____

(b) State employment of spouse, father, mother, son, or daughter, including contractual employment for services in the previous 2 years.

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 _____

(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 _____

APPLICABLE STATEMENT

This Disclosure Form A is submitted on behalf of the INDIVIDUAL named on previous page.

Completed by: _____
Name of Authorized Representative (type or print)

Completed by: _____
Title of Authorized Representative (type or print)

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

NOT APPLICABLE STATEMENT

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.

_____
Name of Authorized Representative (type or print)

_____
Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

RETURN WITH BID/OFFER

ILLINOIS DEPARTMENT OF TRANSPORTATION

Form B
Other Contracts & Procurement Related Information Disclosure

Contractor Name		
Legal Address		
City, State, Zip		
Telephone Number		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 $10,000, 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 SIGNED

_____
Name of Authorized Representative (type or print)

_____
Title of Authorized Representative (type or print)

_____ _____
Signature of Authorized Representative Date

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.

RETURN WITH BID

Illinois Department of Transportation

PART I. IDENTIFICATION

Human Rights

Bid Number: _____ 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													TABLE B: CURRENT EMPLOYEES TO BE ASSIGNED TO CONTRACT			
			MINORITY EMPLOYEES						TRAINEES							
JOB CATEGORIES	TOTAL EMPLOYEES		BLACK		HISPANIC		*OTHER MINOR.		APPREN-TICES		ON THE JOB TRAINEES		TOTAL EMPLOYEES		MINORITY EMPLOYEES	
	M	F	M	F	M	F	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 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								

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

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Note: See instructions on page 2

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:

1. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause. YES _____ NO _____

2. If answer to #1 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 (JAN 1991)

(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. The following terms apply:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1) steel produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States. Components of foreign origin of the same class or kind as the products referred to in subparagraphs (b)(1) or (2) shall be treated as domestic.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of Components. This means the costs for production of the components, exclusive of final assembly labor costs.

(b) The successful bidder will be required to assure that only domestic steel and manufactured products will be used by the Contractor, subcontractors, materialmen, and suppliers in the performance of this contract, except those-

(1) that the U.S. Department of Transportation 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 of a satisfactory quality;

(2) that the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest; or

(3) that inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent.

(End of Clause)

D. BUY AMERICAN CERTIFICATE (JAN 1991)

By submitting a bid/proposal under this solicitation, except for those items listed by the offeror below or on a separate and clearly identified attachment to this bid/proposal, the offeror certifies that steel and each manufactured product, is produced in the United States (as defined in the clause Buy American - Steel and Manufactured Products or Buy American - Steel and Manufactured Products For Construction Contracts) and that components of unknown origin are considered to have been produced or manufactured outside the United States.

Offerors may obtain from (IDOT, Division of Aeronautics) lists of articles, materials, and supplies excepted from this provision.

PRODUCT	COUNTRY OF ORIGIN

E. 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 five 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 <u>each</u> 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).

F. 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.

G. 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., June 15, 2007. 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 5 Extension - Paving

3. **INSTRUCTIONS TO BIDDERS**. (a) This Notice, the invitation for bids, proposal and award shall, together with all other documents in accordance with Article 10-15 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 Quad-City International Airport administration building. For engineering information, contact Jeff McKay of Missman, Stanley and Associates, P.C. at (309) 788-7644.

6. **DISADVANTAGED BUSINESS POLICY.** The DBE goal for this contract is 9.5%.

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 May 10, 2007 and the Construction Plans dated May 10, 2007 as approved by the Department of Transportation, Division of Aeronautics.

8. INSPECTION OF RECORDS. 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.

9. 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. Information regarding these rights is available from the FAA and the Sponsor.

10. TERMINATION OF CONTRACT.

1. The Sponsor may, be 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.

11. 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.

12. 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 198 calendar days and is based on anticipated notice-to-proceed date of July 30, 2007.

13. 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.

14. 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

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.

(IF AN INDIVIDUAL)

Firm Name _____

Signature of Owner _____

Business Address _____

(IF A CO-PARTNERSHIP)

Firm Name _____

By _____

Business Address _____

Name and Address of All Members of the Firm:

_____ _____

_____ _____

(IF A CORPORATION)

Corporate Name _____
Corporate Seal

By _____
President

Attest _____
Corporate Secretary

Business Address _____

Name of Corporate Officers:

_____	_____	_____
President	Corporate Secretary	Treasurer

NOTARY CERTIFICATION

STATE OF ILLINOIS,

ALL SIGNATURES MUST BE NOTARIZED

COUNTY OF _____

I, _____, a Notary Public in and for said county, do hereby certify that _____

_____ AND _____
(Insert names of individual(s) signing on behalf of bidder)

who are each personally known to me to be the same persons whose names are subscribed to the foregoing instrument on behalf of the bidder, appeared before me this day in person and acknowledged that they signed, sealed, 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 _____ _____(Seal)
Notary Public

Illinois Department of Transportation

Return with Bid

Division of Aeronautics
Proposal Bid Bond
(Effective January 1, 2002)

Item No. **9A**
Letting Date: **June 15, 2007**

Airport: Quad-City International Airport
Ill. Proj. No. MLI-3623
Fed. Proj. No. 3-17-0068-XX

KNOW ALL MEN BY THESE PRESENTS. that we, _____, as PRINCIPAL, and _____, as SURETY are held and firmly bound unto the, hereinafter called the SPONSOR, in the penal sum of 5 percent of the total bid price or of the amount specified in Section 6, PROPOSAL GUARANTEE of the Proposal Document, whichever is the lesser sum, well and truly to be paid unto the said SPONSOR, for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THIS 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 PRINCIPAL shall within the time and as specified in the Bidding and Contract Documents, submit the DBE Utilization Plan that is acceptable and approved by the AGENT, and if after the award, the PRINCIPAL shall enter into a contract in accordance with the terms of the Bidding and Contract Documents including evidence of insurance coverage's and providing such bond as specified with good and sufficient surety for the faithful performance of such contract and for 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 in the Bid Proposal and such larger amount for which the SPONSOR may contract with another party to perform the work covered by said Proposal Document, then, this obligation to be void; otherwise to 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 the SURETY shall pay the penal sum to the SPONSOR within fifteen (15) days of written demand therefor. If the SURETY does not make full payment within such period of time, the AGENT may bring an action to collect the amount owed. The 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 WITNESS WHEREOF, the said PRINCIPAL and the said SURETY have caused this instrument to be signed by

their respective officers this _____ day of _____A.D., 20 ___.

PRINCIPAL	**SURETY**
_____	_____
(Company Name)	(Company Name)
By: _____	By: _____
(Signature & Title)	(Signature of Attorney-in-Fact)

Notary Certification for Principal and Surety

State of Illinois)
) ss:
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 uses and purposes therein set forth.

Given under my hand and notary seal this _____day of _____A.D., 20___

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 below, the PRINCIPAL is ensuring the identified electronic bid bond has been executed and the PRINCIPAL and SURETY are firmly bound to 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

Form D.E. (Rev. 12-2001)

Illinois Department of Transportation

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 affix this form to the front of a 10” x 13” envelope and use that 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 323
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

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.

Illinois Department of Transportation

(1) Airport Improvement Program projects. The work in this contract is included in the federal 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.

(2) 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.

(3) Convict Labor. No convict labor may be employed under this contract.

(4) Veterans 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) 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.

(5) Withholding: Sponsor from Contractor. Whether or not payments or advances to the Co-Sponsors are withheld or suspended by the FAA, the Co-Sponsors may withhold or cause to be withheld from the Contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the Contractor or any subcontractor on the work the full amount of wages required by this contract.

(6) Nonpayment of Wages. If the Contractor or subcontractor fails to pay any laborer or mechanic employed or working on the site of the work any of the wages required by this contract the Co-Sponsors may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment or advance of funds until the violations cease.

(7) FAA Inspection and Review. The Contractor shall allow any authorized representative of the FAA to inspect and review any work or materials used in the performance of this contract.

(8) Subcontracts. The Contractor shall insert in each of his subcontracts the provisions contained in Paragraphs (1), (3), (4), (5), (6), and (7) above and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

(9) Contract Termination. A breach of Paragraph (6), (7), and (8) above may be grounds for termination of the contract.

PROVISIONS REQUIRED BY THE REGULATIONS
OF THE SECRETARY OF LABOR
29 CFR 5.5

(a) Contract Provisions and Related Matters.

(1) Minimum Wages.

Revised 1/92

(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 which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. 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 therefor 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.

(ii)(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. (Approved by the Office of Management and Budget under OMB control number 1215-0140).

(ii)(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. (Approved by the Office of Management and Budget under OMB control number 1215-0140).

(ii)(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(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. (Approved by the Office of Management and Budget under OMB control number 1215-0140).

(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. (Approved by the Office Management and Budget under OMB control numbers 1215-0140 and 1215-0017).

(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. (Approved by the Office of Management and Budget under OMB control number 1215-0149).

(ii)(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 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 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.

(ii)(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 (a)(3)(ii)(B) of this section.

(ii)(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 (a)(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 a 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 paragraph (a)(1) through (10) of this contract 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 an subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract determination: debarment. A breach of these contract clauses paragraphs (a)(1) through (10) and the 2nd clause (b)(1) through (5) below may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 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.

(b) Contract Work Hours and Safety Standards Act. The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), (4) and (5) of this section in full in AIP construction contracts in excess of $2,000. These clauses shall be inserted in addition to the clauses required by paragraph 5.5(a) or paragraph 4.6 of Part 4 of this title. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(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 subparagraph (1) of this paragraph, the Contractor and any subcontractor responsible therefore shall be liable to any affected employee for his/her 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, watchman or guard employed in violation of the clause set forth in subparagraph (1) of this paragraph, 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 subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. The (write in the name of the Federal agency or the loan or grant recipient) 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 subparagraph (2) of this paragraph.

(4) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph 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 subparagraphs (1) through (4) of this paragraph.

(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.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in paragraph 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that the Contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the Contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the Contractor or subcontractor will permit such representatives to interview employees during working hours on the job. (Approved by the Office of Management and Budget under OMB control numbers 1215-0140 and 1215-0017).

FEDERAL REGULATIONS VOL. 40, #74,
WEDNESDAY, APRIL 16, 1975, PAGE 17124,
ADMINISTRATION OF THE CLEAR AIR ACT
& WATER POLLUTION CONTROL ACT
(with respect to Federal Grants)

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.

Attachment No. 1

During the performance of the 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 the behalf of the Contractor, state that all qualified applicants will receive consideration 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 he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or worker's 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, 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 procedures authorized in Executive Order 11246 of 24 September 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of 24 September 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 24 September 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 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 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.

ATTACHMENT NO. 2

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 -

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

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

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.

STATE REQUIRED CONTRACT PROVISIONS

ALL FEDERAL-AID CONSTRUCTION CONTRACTS

Effective February 1, 1969
Revised January 2, 1973

The following provisions are State of Illinois requirements and are in addition to the Federal requirements.

"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 Contractors 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.

CONSTRUCTION CONTRACT PROCUREMENT POLICIES

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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 property, 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.

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 FAA 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 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.

ILLINOIS DEPARTMENT OF TRANSPORTATION

DIVISION OF AERONAUTICS

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

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

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

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

APPENDIX A

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

AREA COVERED (STATEWIDE)

Goals for Women apply nationwide.

GOAL

	Goal (percent)
Female Utilization..... ...	6.9

APPENDIX B

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

Economic Area	Goal (percent)
056 Paducah, KY: Non-SMSA Counties - IL - Hardin, Massac, Pope KY - Ballard, Caldwell, Calloway, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, McCracken, Marshall	5.2

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Economic Area	Goal (percent)
080 Evansville, IN:	
Non-SMSA Counties -	3.5
IL - Edwards, Gallatin, Hamilton, Lawrence, Saline, Wabash, White	
IN - Dubois, Knox, Perry, Pike, Spencer	
KY - Hancock, Hopkins, McLean, Mublenberg, Ohio, Union, Webster	
081 Terre Haute, IN:	
Non-SMSA Counties -	2.5
IL - Clark, Crawford	
IN - Parke	
083 Chicago, IL:	
SMSA Counties:	19.6
1600 Chicago, IL -	
IL - Cook, DuPage, Kane, Lake, McHenry, Will	
3740 Kankakee, IL -	9.1
IL - Kankakee	
Non-SMSA Counties	18.4
IL - Bureau, DeKalb, Grundy, Iroquois, Kendall, LaSalle, Livingston, Putnam	
IN - Jasper, Laporte, Newton, Pulaski, Starke	
084 Champaign - Urbana, IL:	
SMSA Counties:	
1400 Champaign - Urbana - Rantoul, IL -	7.8
IL - Champaign	
Non-SMSA Counties -	4.8
IL - Coles, Cumberland, Douglas, Edgar, Ford, Piatt, Vermilion	
085 Springfield - Decatur, IL:	
SMSA Counties:	
2040 Decatur, IL -	7.6
IL - Macon	
7880 Springfield, IL -	4.5
IL - 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 -	2.5
IL - McLean	

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Economic Area	Goal (percent)
6120 Peoria, IL -	4.4
IL - Peoria, Tazewell, Woodford	
Non-SMSA Counties -	3.3
IL - Fulton, Knox, McDonough, Marshall, Mason, Schuyler, Stark, Warren	
088 Rockford, IL:	
SMSA Counties:	
6880 Rockford, IL -	6.3
IL - Boone, Winnebago	
Non-SMSA Counties -	4.6
IL - Lee, Ogle, Stephenson	
098 Dubuque, IA:	
Non-SMSA Counties -	0.5
IL - JoDaviess	
IA - Atlamakee, Clayton, Delaware, Jackson, Winnesheik	
WI - Crawford, Grant, Lafayette	
099 Davenport, Rock Island, Moline, IA - IL:	
SMSA Counties:	
1960 Davenport, Rock Island, Moline, IA - IL -	4.6
IL - Henry, Rock Island	
IA - Scott	
Non-SMSA Counties -	3.4
IL - Carroll, Hancock, Henderson, Mercer, Whiteside	
IA - Clinton, DesMoines, Henry, Lee, Louisa, Muscatine	
MO - Clark	
107 St. Louis, MO:	
SMSA Counties:	
7040 St. Louis, MO - IL -	14.7
IL - Clinton, Madison, Monroe, St. Clair	
MO - Franklin, Jefferson, St. Charles, St. Louis, St. Louis City	
Non-SMSA Counties -	11.4
IL - Alexander, Bond, Calhoun, Clay, Effingham, Fayette, Franklin, Greene, Jackson, Jasper, Jefferson, Jersey, Johnson, Macoupin, Marion, Montgomery, Perry, Pulaski, Randolph, Richland, Union, Washington, Wayne, Williamson	
MO - Bollinger, Butler, Cape Girardeau, Carter, Crawford, Dent, Gasconade, Iron, Lincoln, Madison, Maries, Mississippi, Montgomery, Perry, Phelps, Reynolds, Ripley, St. Francois, St. Genevieve, Scott, Stoddard, Warren, Washington, Wayne	

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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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

o) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractors and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations. Revised 08-31-83

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).

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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

DISADVANTAGED BUSINESS POLICY

I. NOTICE

This proposal contains the special provision entitled "Required 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."

II. 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.

III. 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.

IV. 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).

V. 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.

(Rev. 9/21/92)

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION

I. 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. 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. 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 DBE Directory or most recent addendum.

II. 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 federally-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.

III. 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 is 22.77% of 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 this goal. The dollar amount paid to all approved DBE firms performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

IV. 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 **9.5%** 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 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 firmly committed 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.

V. DBE LOCATOR REFERENCES: Bidders may consult the DBE Directory as a reference source for DBE companies certified by the Department. 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.state.il.us.

VI. BIDDING PROCEDURES: Compliance with the bidding procedures of this Special Provision is required prior to the award of the contract and the failure of the as-read low bidder to comply will render the bid nonresponsive.

A. In order to assure the timely award of the contract, the as-read low bidder must submit a Disadvantaged Business Utilization Plan on Department form SBE 2026 within seven (7) working days after the date of letting. To meet the seven (7) day requirement , the bidder may send the Plan by certified mail or delivery service within the seven (7) working day period. If a question arises concerning the mailing date of a Plan, the mailing date will be established by the U.S. Postal Service postmark on the original certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service. It is the responsibility of the as-read low bidder to ensure that the postmark or receipt date is affixed within the seven (7) working days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Plan is to be submitted 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). It is the responsibility of the bidder to obtain confirmation of telefax delivery. The Department will not accept a Utilization Plan if it does not meet the seven (7) day submittal requirement, and the bid will be declared nonresponsive. In the event the bid is declared nonresponsive due to a failure to submit a Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration or to extend the time for award.

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. The signatures on these forms must be original signatures. 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 each DBE to be used;

2. A description, including pay item numbers, of the commercially useful work to be done by each DBE;

3. The price to be paid to each DBE for the identified work specifically stating 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. A commitment statement signed by the bidder and each DBE evidencing availability and intent to perform commercially useful work on the project; and

5. If the bidder is a joint venture comprised of DBE firms and non-DBE firms, the plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s).

D. The contract will not be awarded until the Utilization Plan submitted by the bidder is approved. The Utilization Plan will be approved by the Department if the Plan commits sufficient commercially useful DBE work performance to meet the contract goal. The Utilization Plan will not be approved by the Department if the Plan does not commit sufficient DBE performance to meet the contract goal unless the bidder documents that it made a good faith effort to meet the goal. The good faith procedures of Section VIII of this special provision apply. If the Utilization Plan is not approved because it is deficient in a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no less than a five (5) working day period in order to cure the deficiency.

VII. 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% 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 firm does not count toward the DBE goals.

B. DBE as a joint venture Contractor: 100% 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% goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontractor in turn subcontracts to a non-DBE firm does not count toward the DBE goal.

D. DBE as a trucker: 100% 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 contact. Credit will be given for the full value of all such DBE trucks operated using DBE employed drivers. Goal credit will be limited to the value of the reasonable fee or commission received by the DBE if trucks are leased from a non-DBE company.

E. DBE as a material supplier:

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

2. 100% goal credit for the cost of materials or supplies obtained from a DBE manufacturer.

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

VIII. GOOD FAITH EFFORT PROCEDURES: If the bidder cannot obtain sufficient DBE commitments to meet the contract goal, the bidder must document in the Utilization Plan the good faith efforts made in the attempt 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 could reasonably be expected to obtain sufficient DBE participation. The Department will consider the quality, quantity and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts are not good faith efforts; rather, the bidder is expected to have taken those efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

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

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

2. Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the 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 prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors 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 contractor'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 contractor'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 Contractor 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 a good faith effort has not been made, the Department will notify the bidder of that preliminary determination by contacting the responsible company official designated in the Utilization Plan. The preliminary determination shall include a statement of reasons why good faith efforts have not been found, and may include additional good faith efforts that the bidder could take. The notification will

designate a five (5) working day period during which the bidder shall take additional efforts. The bidder is not limited by a statement of additional efforts, but may take other action beyond any stated additional efforts in order to obtain additional DBE commitments. The bidder shall submit an amended Utilization Plan if additional DBE commitments to meet the contract goal are secured. If additional DBE commitments sufficient to meet the contract goal are not secured, the bidder shall report the final good faith efforts made in the time allotted. All additional efforts taken by the bidder will be considered as part of the bidder's good faith efforts. If the bidder is not able to meet the goal after taking additional efforts, the Department will make a pre-final determination of the good faith efforts of the bidder and will notify the designated responsible company official of the reasons for an adverse determination.

C. The bidder may request administrative reconsideration of a pre-final determination adverse to the bidder within the five (5) working days after the notification date of the determination by delivering the request to the Department of Transportation, Division of Aeronautics, 1 Langhorne Bond Drive, Capital Airport, Springfield, IL 62707-8415 (Telefax: 217-785-4533). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The pre-final determination shall become final if a request is not made and delivered. A request may provide additional written documentation and/or argument concerning the issue of whether an adequate good faith effort was made to meet the contract goal. In addition, the request shall be considered a consent by the bidder to extend the time for award. 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 (10) 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 nonresponsive.

IX. 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 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.

A. No amendment to the Utilization Plan may be made without prior written approval from the Division of Aeronautics. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Division of Aeronautics, 1 Langhorne Bond Drive, Capital Airport, Springfield, IL 62707-8415. Telephone number (217) 785-8514. Telefax number (217) 785-4533.

B. All work indicated for performance by an approved DBE shall be performed, managed and supervised by the DBE executing the Participation Statement. The Contractor shall not terminate for convenience a DBE listed in the Utilization Plan and then perform the work of the terminated DBE with its own forces, those of an affiliate or those of another subcontractor, whether DBE or not, without first obtaining the written consent of the Bureau of Small Business Enterprises to amend the Utilization Plan. If a DBE listed in the Utilization Plan is terminated for reasons other than convenience, or fails to complete its work on the contract for any reason, the Contractor shall make good faith efforts to find another DBE to substitute for the terminated DBE. The good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, but only to the extent needed to meet the contract goal or the amended contract goal. The Contractor shall notify the Division of Aeronautics of any termination for reasons other than convenience, and shall obtain approval for inclusion of the substitute DBE in the Utilization Plan. If good faith efforts following a termination of a DBE for cause are not successful, the Contractor shall contact the Division and provide a full accounting of the efforts undertaken to obtain substitute DBE participation. The Division will evaluate the good faith efforts in light of all circumstances surrounding the performance status of the contract, and determine whether the contract goal should be amended.

C. 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 therefor to the DBE by the Contractor, but not later than thirty (30) calendar days after payment has been made by the Department to the Contractor for such work or material without regard to any retainage withheld by the Department, the Contractor shall submit a DBE Payment Report on Department form SBE 2115 to the Division's Chief Engineer. If full and final payment has not been made to the DBE, the Report 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 Plan, the Department will deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages.

D. 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.

Certification of Nonsegregated Facilities - as Required by 41 CFR 60-1.8

(Applicable to (1) contracts, (2) subcontracts, and (3) agreements with applicants who are themselves performing federally assisted construction contracts, exceeding $10,000.00 which are not exempt from the provisions of the Equal Opportunity clause).

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments and that that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of his 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, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000.00 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NONSEGREGATED FACILITIES

A certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding $10,000.00 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C 1001.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

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, and
Other Responsibility Matters - 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.

CERTIFICATION REGARDING LOBBYING (Applicable to contracts in excess of $100,000):

Certification for Contracts, Grants, Loans and Cooperative Agreements.

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.

WORKERS' COMPENSATION INSURANCE

Prior to the execution of his construction contract by the Illinois Department of Transportation, Division of Aeronautics, hereinafter referred to as "Division", the Contractor shall furnish to the Division certificates of insurance covering Workers' Compensation, or satisfactory evidence that this liability is otherwise taken care of in accordance with Section 4.(a) of the "Workers' 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.

SPECIAL PROVISION FOR DOMESTIC SOURCE FOR STEEL

Control of Materials: All steel products, as defined by the Illinois Steel Products Procurement Act, incorporated into this project shall be manufactured or produced in the United States and, in addition, shall be domestically fabricated. The Contractor shall obtain from the steel producer and/or fabricator, in addition to the mill analysis, a certification that all steel products meet these domestic source requirements.

CLAUSE TO BE INCLUDED IN ALL SOLICITATIONS,
CONTRACTS, AND SUBCONTRACTS RESULTING FROM PROJECTS FUNDED UNDER THE AIP

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.

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.

BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)

Effective: December 1, 2006

Description. For projects with at least 1200 tons of work involving applicable bituminous materials, cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and pavement preservation type surface treatments. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, or joint filling/sealing.

The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$CA = (BPI_p – BPI_L \times (\%AC_v /100) \times Q$

Where:
- CA = Cost Adjustment, $.
- BPI_p = Bituminous Price Index, as published by the Department @ http://www.dot.il.gov/desenv/asphaltpi.html for the month the work is performed, $/ton.
- BPI_L = Bituminous Price Index, as published by the Department @ http://www.dot.il.gov/desenv/asphaltpi.html for the month prior to the letting, $/ton.
- $\%AC_v$ = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % AC_v will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% AC_v and undiluted emulsified asphalt will be considered to be 65% AC_v.
- Q = Authorized construction Quantity, tons (see below).

For HMA mixtures measured in square yards: Q, tons = A x D x (G_{mb} x 46.8) / 2000. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the base, leveling and surface courses to account for their different G_{mb} and % AC_v.

For bituminous materials measured in gallons: Q, tons = V x 8.33 Ib/gal x SG / 2000

Where:
- A = Area of the HMA mixture, sq yd.
- D = Depth of the HMA mixture, in.
- G_{mb} = Average bulk specific gravity of the mixture, from the approved mix design.
- V = Volume of the bituminous material, gal.
- SG = Specific Gravity of bituminous material as shown on the bill of lading.

Basis of Payment. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the BPI_L and BPlp in excess of five percent, as calculated by:

Percent Difference = $\{(BPI_L - BPlp) \div BPI_L\} \times 100$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Added 12/01/2006

Return With Bid

ILLINOIS DEPARTMENT OF TRANSPORTATION

OPTION FOR
BITUMINOUS MATERIALS COST ADJUSTMENTS

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. After award, this form, when submitted, shall become part of the contract.

Contract No.: _____

Company Name: _____

Contractor's Option:

Is your company opting to include this special provision as part of the contract?

Yes ☐ No ☐

Signature: _____ **Date:** _____

Added 12/01/2006

9A
QU003

SECTION III
SPECIAL PROVISIONS
FOR

RUNWAY 5 EXTENSION - PAVING

RUNWAY 5 (500'X150') AND TAXIWAY K (805'X50')
PAVEMENT, LIGHTING, UNDERDRAIN, AND MARKING
EXTENSIONS ALONG WITH ASSOCIATED RUNWAY
GROOVING, FINISH EARTHWORK, UTILITY
ADJUSTMENTS AND TURFING.

AT

QUAD CITY INTERNATIONAL AIRPORT
MOLINE, ILLINOIS

ILLINOIS PROJECT: MLI-3623
A.I.P. PROJECT: 3-17-0068-XX

PREPARED BY:

Missman
STANLEY & ASSOCIATES, P.C.
CONSULTING ENGINEERS
P.O. BOX 6040
ROCK ISLAND, ILLINOIS 61204-6040

MAY 10, 2007

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are Applicable to this contract and are included by reference:

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS
POLICY MEMORANDUM

The following IDOT-DOA Policy Memorandum are applicable to this contract and are included in this contract by reference. The latest version of these documents may be viewed and downloaded off the Division of Aeronautics internet web site at http://www.dot.state.il.us/aero/iindex.html.

IDOT-DOA Policy Memorandum Numbers:

87-2	96-1
87-3	96-2
87-4	96-3
90-1	97-2
95-1	2001-1

INDEX TO SPECIAL PROVISIONS

GENERAL

The following Section III Special Provisions supplement the "Standard Specifications for Construction of Airports", adopted January 1985 by IDOT-DOA, the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007 by IDOT, the "Supplemental Specifications and Recurring Special Provisions", adopted July 1, 2004, FAA Standard "Specification for Construction of Terminal Navigational Facilities" (FAA-GL-918C), and IDOT-DOA's Policy Memorandum Numbers 87-2, 87-3, 87-4, 90-1, 95-1, 96-1, 96-2, 96-3, 97-2, and 2001-1, all of which shall govern the construction of Illinois Project No. MLI-3623, A.I.P. Project No. 3-17-0068-XX. In case of conflict with any part or parts of said specifications, the said Section III Special Provisions shall take precedence and shall govern.

DESCRIPTION OF WORK:

The proposed improvement at the Quad City International Airport in Moline, Illinois shall include, but not be limited to, the following major work items:

1. Removal of the existing six foot (6') soil surcharge embankment from the proposed Runway 5, Taxiway D, and Taxiway K alignments.

2. Installation of the proposed 9" thick portland cement concrete pavement on top of the proposed 8" thick crushed aggregate base course along the proposed Runway 5 and Taxiway K alignments.

3. Installation of the proposed pavement underdrains, edge lights, and guidance signs for the extensions.

4. Relocate the existing ditch located just west of the Runway 5 approach.

5. Replace the existing Runway 5 VASI System with a proposed L-880 PAPI System.

6. Replace the existing Runway 9 ILS control cable.

7. Adjust and/or relocate existing utilities as required.

8. Final shoulder grading, turfing, and erosion control as required.

9. Traffic maintenance for the duration of the project.

DIVISION I - GENERAL PROVISIONS

20-02 ALTERATION OF WORK AND QUANTITIES

ADD the following paragraphs to this Section:

The MAA reserves and shall have the right to delete all or part of the 209511-Crushed Aggregate Base, CA1 and 620510 pavement marking pay items and/or contract quantities from the contract work. The Contractor shall not be entitled to any extra compensation, beyond the contract unit prices, due to change in contract quantities. The Contractor agrees to accept payment for the remaining work based upon the original contract unit rate prices without negotiating new contract unit rate prices if only partial quantities are completed.

20-05 MAINTENANCE OF TRAFFIC

ADD the following paragraphs to this Section:

20-05.1.1 This item shall include all work necessary to control and maintain aircraft, vehicle, equipment, and personnel traffic on the airfield during the duration of this project. The Contractor shall operate his construction activities in a manner that complies with the requirements of FAA Advisory Circular No. 150/5370-2, "Operational Safety On Airport During Construction," latest edition at the time of bidding; and Subsection 20-05 and Subsection 50-09 of the Standard Specifications for Construction of Airports.

20-05.1.2 The proposed haul route between the proposed construction staging/batch plant area and the proposed soil waste area shall follow 47th Street to Indian Bluff Road to the existing gravel access road to the contractor temporary haul route. Construction traffic shall not cross the airfield.

20-05.1.3 It is the desire of the owner to complete this project in a timely and safe manner with the least possible disruption to airport operations. The following sequence of construction operations and construction limitations, as well as the safety plan included in the construction plans, shall be followed to achieve the above goals:

STAGE 1, RUNWAY 5, STATION 10+40 TO STATION 15+60 AND TAXIWAY K, STATION 207+90 TO STATION 211+30:

1. When the Contractor is working in the Runway 5-23 safety area (Station 14+55 to Station 66+55.91, left 150' to right 150'); Runway 5-23, Taxiway D (south of Taxiway E), and Taxiway K (between Runway 5 and Taxiway L) will be closed to aircraft traffic. All other pavements shall be open to aircraft traffic.

2. During Stage 1 when the Contractor is working outside the safety areas, the above pavements will be open to aircraft traffic. The Contractor shall keep Runway 5 open as much as possible (as determined by the Resident Engineer) during construction.

3. Contractor shall enter and exit the airfield at the existing locked security gate located north of the intersection of 47th Street and 73rd Avenue (just north of the airfield industrial park). While on the airfield, the contractor shall stay on the existing service road (between the construction entrance gate and the job site) or within the Stage 1 area limits of construction as shown on sheet 4 of the construction plans.

4. The Contractor shall install the Stage 1 barricades and lath lines prior to the commencement of any work. The barricades and lath lines shall be removed and reinstalled by the Contractor as required by the MAA and/or the Resident Engineer.

STAGE 2, TAXIWAY K, STATION 216+15 TO STATION 217+10 RIGHT, TEMPORARY TAXIWAY L BY-PASS:

1. During Stage 2, Taxiway L will be closed only when the Contractor is in the Taxiway L safety area.

2. During Stage 2, Taxiway K will be closed only when the Contractor is in the Taxiway K safety area.

3. The Contractor shall keep Taxiway K/L open as much as possible (as determined by the Resident Engineer) during construction. The MAA will select a day when Taxiway K/L is not required for aircraft operations. Earthwork, base rock installation, and bituminous surface course installation shall be accomplished in one single continuous work period.

4. The Contractor shall complete all work in the Stage 2 area. The Contractor shall clean-up the Stage 2 area and re-open Taxiway K and Taxiway L to aircraft traffic prior to starting any work in the Stage 3 area.

STAGE 3, TAXIWAY K, STATION 211+30 TO STATION 216+10:

1. During Stage 3, Taxiway K (between Runway 5 and Taxiway L) is closed. Taxiway K (north of Station 216+05) and Taxiway L will be open to aircraft traffic.

2. The Contractor shall complete all project work. After all work has been completed, the Contractor shall clean up the project site and open the pavement extensions to aircraft traffic.

20-05.1.4 The Contractor shall not stockpile materials above the FAA Part 77 Civil Airport Imaginary Surface for Runway 5-23. The elevation of this surface shall be determined by the Resident Engineer.

20-05.1.5 This item shall also include the furnishing, installing, moving, maintaining and removal of all equipment, material, miscellaneous items, and incidentals necessary to control traffic to the satisfaction of the Metropolitan Airport Authority and the Resident Engineer.

EQUIPMENT AND MATERIALS

20-05.2.1 This item shall include, but not be limited to, the following work and supplies:

(a) Barricades, cones, warning signs, hazard markings: Provide, placement and maintenance.
(b) Material for providing temporary runway closure markings.
(c) Traffic control devices for construction and airport vehicular traffic.
(d) Temporary traffic connections necessary for ingress to and egress from the airfield.
(e) Temporary security measures at the point(s) of ingress/egress to the airfield (guard, fencing, gates, chain, locks, etc.)
(f) Cleaning and maintaining airfield pavements used during construction.
(g) Constructing, cleaning and maintaining haul roads and/or service roads.

(h) Radio equipment for communication with the FAA control tower.
(i) Identification and marking devices for construction personnel and equipment.
(j) All measures necessary to comply with the safety plan included in the Construction Plans.
(k) All measures necessary to comply with the special provisions to Section 20-05 "Maintenance of Traffic" included in this Special Provision.
(l) Restoration of staging areas, storage areas, haul roads, construction access roads, service drives, borrow areas, and any other areas damaged during construction.
(m) Demobilization and mobilization of manpower and equipment to open and/or close runways as required by the Metropolitan Airport Authority.
(n) Installation and removal of any temporary electrical power and/or telephone facilities required by the Contractor and/or contract during construction to the satisfaction of the MAA and Resident Engineer.
(o) Installation and maintenance of safety area lath lines as shown on the Safety Plan in the Construction Plans. Lath lines shall consist of 2"x2" wood posts spaced at 15' intervals and driven into the ground with rope or heavy twine tied between the posts. Six inch wide yellow plastic warning ribbon shall be wrapped around the rope or heavy twine between the posts. Where the lath line crosses pavements, the Contractor shall substitute barricades for the wood posts.
(p) All other items as necessary to maintain control of the project as outlined in the Construction Plans and specification or as directed by the Resident Engineer.

CONSTRUCTION METHODS

20-05.3.1 The traffic maintenance equipment and materials shall be provided, placed, and maintained during the construction as indicated in the plans or as directed by the Resident Engineer.

20-05.3.2 The traffic maintenance equipment and materials shall be removed, and reinstalled by the Contractor during the construction of the project as directed by the Resident Engineer and/or as dictated by the current construction activity location.

20-05.3.3 After the construction has been completed and accepted by the Resident Engineer the traffic maintenance equipment and materials shall be removed by the Contractor. The removal of traffic maintenance equipment and materials shall not commence until approval by the Resident Engineer has been received. The Contractor shall clean up all debris resulting from maintaining traffic.

20-05.3.4 Work included in this item shall conform to applicable FAA Regulations and shall be approved in advance by the Resident Engineer and the MAA.

METHOD OF MEASUREMENT

20-05.4.1. The quantity of traffic maintenance to be paid for under this item shall be measured per lump sum for furnishing all materials, equipment, and labor required for this construction including, but not limited to maintenance of traffic, compliance with safety plan, compliance with Section 20-05 "Maintenance of Traffic" items, restoration, and all other necessary items required to complete the construction operations for this project.

BASIS FOR PAYMENT

20-05.5.1 Payment will be made at the contract unit price per lump sum for Traffic Maintenance. This price shall be full compensation for furnishing all materials and for all preparation, assembly, installation, removal, reinstallation as required of these materials and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

ITEM AR150530 TRAFFIC MAINTENANCE – per lump sum.

20-06 REMOVAL OF EXISTING STRUCTURES

REVISE the first paragraphs to read as follows:

All existing structures encountered within the established lines, grades, grading sections, or as indicated in the Construction Plans 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 and disposing of such existing structures shall not be measured or counted for separately as a contract pay item. The cost for removing and disposing of such existing structures shall be included in the pavement contract unit price.

30.06 CONSTRUCTION LAYOUT
CONSTRUCTION LAYOUT STAKES

DELETE Entire Section.

ADD: The Resident Engineer shall furnish all construction layout for this project.

30-12 LOAD RESTRICTIONS

ADD the following to this Section:

The Contractor shall coordinate construction access with the County Superintendent of Highways and/or the Township Road Commissioner. The Contractor shall be responsible for damage to any public road caused by his construction operations. The Contractor shall repair any damage caused by his construction traffic to the satisfaction of the Owner. The Contractor shall provide and install any warning signs (trucks entering highway, etc.) as required by the County Superintendent of Highways.

30-18 PLANS AND WORK DRAWINGS

REVISE references to "approval" in first paragraph to "review".

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

PROJECT LOCATION:	Quad City International Airport
PROJECT NUMBERS:	Illinois Project MLI-3623 AIP Project 3-17-0068-XX
CONTRACT ITEM:	(E.G. 751-5.20)
SUBMITTED BY:	(Contractor/Subcontractor Name)
DATE:	(current date)

50-10 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS

ADD the following paragraphs to this Section:

It will be the responsibility of the Contractor to properly mark the closed runway; and, when the runway is reopened, to remove the marking. A detail drawing of the closed runway marking is included on the proposed safety plan. The Contractor will be responsible for placing and removing the crosses as the runway is closed and opened.

Any cost of labor and equipment which is necessary to insure safety at the airport during the duration of the project will be included in the Traffic Maintenance contract unit price. No additional reimbursement beyond the contract unit price shall occur.

50-12 PROTECTION AND RESTORATION OF PROPERTY

ADD the following paragraphs to this Section:

The Contractor shall take special precautions during construction so as not to damage the existing roads, parking lots, runways, aprons, taxiways, building and other existing improvements.

Any such existing improvements damaged by the Contractor during construction shall be repaired or replaced by him at his own expense.

The Contractor shall take special care when working in the vicinity of existing airport lighting systems so as not to damage them. Should the Contractor damage any of the lighting systems and/or underground cables, he shall immediately repair or replace them, and make any necessary repairs to place them in working order. The cost of equipment and making the repairs will be the responsibility of the Contractor. If during the course of construction it is necessary to interrupt any lighting circuits, temporary cables shall be installed as needed to make the circuit operational.

The Contractor shall maintain the premises in reasonably clean condition and shall not allow any sizable accumulation of rubbish on the premises.

He shall leave the premises in broom-clean condition upon completion of the project.

50-13 RESPONSIBILITY FOR DAMAGE CLAIMS

REVISE the second line of the first paragraph to read as follows:

"...indemnify and save harmless the Division, the Owner, the Consultant Engineers, Subconsulting Engineer, and the F.A.A....."

ADD the following three paragraphs between the first and second paragraphs of this Section:

To the fullest extent permitted by law, CONTRACTOR shall indemnify and hold harmless the OWNER, PARTICIPATING AGENCIES (the Division and the FAA), SUBCONSULTANTS, CONSULTANT ENGINEERS, and their respective agents and employees (indemnities) from and against any and all claims, damages, losses, economic losses and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Work (including specifically claims arising under the Illinois Structural Work Act), provided that such claim, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury or destruction of tangible property (other than the Work itself), including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omission of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, excluding any proportionate amount of any claim, damage, loss or expense which is caused by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph.

In claims against any person or entity indemnified under this Paragraph by an employee of the Contractor, a Subcontractor, anyone directly employed by them or anyone for whose acts they be liable, the indemnification obligation under this Paragraph shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

This indemnification shall also include, but not be limited to, any penalties, fines or other actions imposed by the U. S. Department of Labor or the State of Illinois under the Occupational Safety and Health Act (O.S.H.A.) as a result of the Contractor's acts or omissions on this project.

REVISE the last paragraph of this Section to read as follows:

"The Contractor, prior to execution of the contract, shall file with the Division and the Consultant Engineer, copies of completed certificates of insurance, satisfactory to the Division and the Consultant Engineer, 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 60-12. The policy of insurance shall include the Owner, the participating agencies (the Division and the FAA), Subconsultant Engineers, and Consultant Engineers, as additional insured or provide separate coverages with individual protective policies for all of the above named parties. The minimum amounts of insurance shall be as follows, except no restrictions or occurrence limits will be permitted:

General Public Liability Insurance: $1,000,000/Person
$2,000,000/Occurrence

Property Damage Insurance: $1,000,000/Occurrence

In addition to the above policies, Contractor shall provide an "Umbrella" policy covering his entire operation in the amount of $3,000,000.

All such insurance must include an endorsement whereby the insurer agrees to notify the Division and the Consultant Engineer at least 30 days prior to nonrenewal, reduction or cancellation. Contractor shall furnish to the Division and the Consultant Engineer a copy of the endorsement in addition to any other insurance certificate required. The Contractor shall cease operations on the project if the insurance is canceled 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."

50-17 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS

ADD the following to this Section:

Utility Service or Facility	Person to Contact	Telephone Number
Airport Facilities	Metropolitan Airport Authority	757-1743
Airport Lighting	Metropolitan Airport Authority	757-1752
FAA Control and Communications Cable	Airways Facility Unit	799-7303
Water Mains	Metropolitan Airport Authority	764-9621
Electric Cables Mid-American Energy Company	JULIE (Joint Utility Locating Information for Excavators)	1-800-892-0123
Telephone Cables Illinois Bell Telephone Company	JULIE	1-800-892-0123
Gas Mains Mid-American Energy Company	JULIE	1-800-892-0123

50-25 CONTRACTOR'S WARRANTY

ADD the following paragraphs to this Section:

Airport lighting equipment and materials covered by F.A.A. Specifications to be supplied to this project, shall have the prior manufacturer's approval by the F.A.A. and listed in the most current Advisory Circular for Approved Airport Lighting Equipment.

All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specifications.

60-07 TEMPORARY SUSPENSION OF THE WORK

DELETE the first two paragraphs and INSERT the following:

The Contracting Agent (IDOT-DOA and/or the MAA) reserves the right to temporarily suspend the work wholly, or in part, for such periods as they may deem necessary, due to unsuitable weather, airport operation considerations, or other such conditions as 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.

All measures necessary to comply with the temporary suspension of the work, as required by the Contracting Agent (IDOT-DOA and/or the MAA), shall be included in the traffic maintenance contract unit price. The Contractor shall not be entitled to any additional compensation (beyond this pay item) due to delays or inconveniences caused by the temporary suspension of the work.

ADD the following special Sections:

HAUL ROUTE

The Contractor will use only the designated haul route as shown on Sheets 3 and 4 of the Construction Plans. The Contractor's men and equipment shall not traverse outside the designated work areas to other locations on the airport or off of airport property. The designated haul route will be the only vehicular access to the construction site.

It will be the Contractor's responsibility to clear and build the haul routes and construction staging area as required to complete the contract work. The Contractor shall restore the haul routes and construction staging area upon completion of the project. All costs for clearing, maintaining, and restoring the haul routes and construction staging area shall be included in contract unit prices.

Failure to use the prescribed haul route or adhere to the safety requirements will result in the suspension of work.

EQUIPMENT PARKING

The Contractor shall park equipment in the areas designated for construction staging. This area is shown on Sheet 3 of the Construction Plans.

SCHEDULING OF OPERATIONS

The Contractor shall coordinate all work on this project with the Resident Engineer and the Metropolitan Airport Authority to insure that the construction will cause the least amount of inconvenience possible to normal airport activity.

The Contractor will be required to submit a work schedule to the State of Illinois, Division of Aeronautics, and to the Resident Engineer showing proposed sequence of work.

In the event that other construction projects are in progress at the airport at the same time as this project, the Contractor will be required to cooperate with all other Contractors and the Metropolitan Airport Authority in the coordination of the work. The paving Contractor shall cooperate and coordinate his paving activities with the other Contractors activities in order to provide an orderly and properly sequenced progression of construction. Any disagreement between Contractors will be settled by the Contracting Agent (IDOT-DOA). No extra compensation will be due to the paving Contractor for delays caused by sequencing of construction events. Cooperation and coordination shall occur between the Contractors' during the construction of these projects.

The Metropolitan Airport Authority will at all times have jurisdiction over the safety of air traffic during construction. Whenever the safety of air traffic during construction is concerned, his decision 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 inconvenience caused by said necessary methods, procedures, and measures to protect air traffic, delays caused by sequencing of construction events, and/or delays caused by coordination with others.

SITE INSPECTION

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

MODIFICATIONS TO RECURRING
SPECIAL PROVISION FOR ITEM AR150510
(CHECK SHEET 35)

ENGINEER'S FIELD OFFICE

EFFECTIVE: JULY 1, 2004

ADD the following Section:

METHOD OF MEASUREMENT

3.1 The quantity of Engineer's Field Office to be paid for under this item shall be measured per lump sum for furnishing all materials, equipment, labor, and all other necessary items required to complete this item in accordance with this special provision.

BASIS OF PAYMENT

DELETE Section 3.1 and insert the following:

4.1 This item will be paid for at the contract price per lump sum for a field office, which price shall include all utility costs (including long distance telephone service for the Resident Engineer and his representatives) and shall reflect the salvage value of the building or mobile unit, equipment, and furniture which becomes the property of the Contractor after release by the Resident Engineer.

Payment will be made under:

ITEM AR150510 -- ENGINEER'S FIELD OFFICE -- per lump sum.

MODIFICATIONS TO SUPPLEMENTAL SPECIFICATION FOR ITEM 152-EXCAVATION AND EMBANKMENT

DESCRIPTION

152.1.1 ADD the following to this Section:

This item shall include, but not be limited to, all work necessary to remove existing soils from the proposed cut areas, stockpile soils as required, haul soils from the proposed cut areas or stockpile areas to the proposed embankment areas, installation of soils/topsoils, and backfill, compaction of soils where required, final grading, disposal of waste soils and other miscellaneous grading and backfilling as shown on the Construction Plans or as required by the Resident Engineer.

The Contractor shall keep the Runway 9 ILS control cable operational at all times during the construction of this project. To accomplish this, the earthwork contractor shall be required to cut a path that is along the route of the proposed relocated R9 ILS control cable. This cut path shall be shaped to the final grade elevation. Once the path has been shaped to the final grade, the electrical contractor shall install the new cable that will replace the existing active cable. After the new cable is installed, the electrical contractor shall make final tie-ins and connections to the existing equipment and/or cables that will remain in place. The earthwork contractor shall protect the existing and/or proposed cable to the R9 ILS unit at all times.

The Contractor shall remove existing topsoil materials, complete earthwork and then reinstall topsoil materials as required to guarantee the final 4" of soil materials will support vegetation growth. If Contractor installs soil that will not support vegetation growth, the Contractor shall remove the top 4" of the soil materials and haul in topsoil materials at his own expense without additional compensation beyond the contract unit prices.

The Contractor will be paid for hauling the soil materials one time only. The cost of moving, stockpiling, removing, reinstalling, etc. of the soil materials as required to complete the contract work shall be included in the single UNCLASSIFIED EXCAVATION / BORROW EXCAVATION cubic yard prices as defined in this Special Provision.

152-1.2 CLASSIFICATION

ADD the following to this Section:

All materials excavated, regardless of the source and type, including vegetation strippings, concrete materials and solid rock materials shall be defined as "UNCLASSIFIED EXCAVATION" or "BORROW EXCAVATION". Unclassified excavation/borrow excavation shall include the removal and off site disposal of existing concrete slabs, broken concrete, concrete footings, concrete drainage structures, and solid rock materials from the proposed excavation areas.

Unclassified excavation shall include all materials which are moved within the local areas. The two local areas are the Runway 5/Taxiway D/Taxiway K/relocated ditch area and the soil waste area. These areas are defined by stationing in the earthwork summary chart found on the next page.

Borrow excavation shall include all materials moved between the two local areas named above. Materials to be transferred to the soil waste area must be hauled around the outside of the airfield.

CONSTRUCTION METHODS

152-2.1 GENERAL

ADD the following to this Section:

The payment under ITEM AR152410-UNCLASSIFIED EXCAVATION and ITEM AR152440-BORROW EXCAVATION shall be based upon measuring the volume of cubic feet of soils removed as shown in the Construction Plans. The following information is approximate and included for informational purposes only to help educate the Contractor on the scope of the work to be included in the contract unit prices. A twenty-five (25) percent shrinkage factor is included in the calculations for necessary compacted embankment materials. Separate measurement for payments and/or payments shall not be made for the individual functions or steps required to complete the earthwork activities. The Contractor shall include all costs in the single UNCLASSIFIED EXCAVATION / BORROW EXCAVATION cubic yard price. The below figures are approximate and no adjustments to the contract unit price shall be made for minor variations.

QCIA, RUNWAY 5 EXTENSION-PAVING
EARTHWORK SUMMARY

ITEM NUMBER	ITEM/LOCATION	RAW CUT (C.Y.)	RAW FILL (C.Y.)	FILL WITH SHRINKAGE (C.Y.)	PAYMENT MADE UNDER (C.Y.)		REMARK
					AR152410 (UNCLASSIFIED)	AR152440 (BORROW)	
1	Runway 5, Sta. 8+00 to Sta. 15+59.50	19,202	1,039	1,301	1,301	17,901	Waste = 19,202 C.Y. - 1,301 C.Y. = 17,901 C.Y. to Area 5.
2	Taxiway D, Sta. 108+50 to Sta. 118+50	14,380	13	16	2,321	12,059	Waste = 14,380 C.Y. – 16 C.Y. = 14,364 C.Y. to Areas 4 & 5.
3	Taxiway K, Sta. 208+50 to Sta. 216+52.48	12,533	100	125	125	12,408	Waste = 12,533 C.Y. – 125 C.Y. = 12,408 C.Y. to Area 5.
4	Relocated Ditch, Sta. 1206+75 to Sta. 1214+86.60	755	2,444	3,060	755		Borrow = 3,060 C.Y. – 755 C.Y. = 2,305 C.Y. from Area 2.
5	Soil Waste Area, Sta. 1399+80 to Sta. 1413+25	461	34,206	42,829	461		Borrow = 42,829 C.Y. – 461 C.Y. = 42,368 C.Y. from Areas 1, 2 & 3.
	TOTALS	47,331	37,802	47,331	4,963	42,368	Project Shrinkage Provided = 25.21%

NOTE: 1. AR152440 Borrow Excavation Material will be hauled from the Runway 5 Extension area to the soil waste area. All other cut materials shall be classified as AR152410 Unclassified Excavation.

2. Above earthwork summary table does not include volumes or earthwork for items not measured and/or paid for. No measurements or payments shall be made for stripping, stockpiling, topsoils, and/or minor erosion control ditches.

152-2.2 EXCAVATION

ADD the following to this Section:

Compaction control testing shall be accomplished for aircraft weights of 60,000 pounds or more.

152-2.4 DITCH EXCAVATION

ADD the following to this Section:

The Contractor shall transport materials along the haul roads only. The locations of all haul roads shall be approved by the Resident Engineer prior to beginning any work on this item. The Contractor shall also be responsible for placing, maintaining, and removing any necessary drainage structures to allow crossing the various drainage ditches located on airport property. The Contractor shall take special precautions when hauling excavated materials so as not to create deep ruts. All existing graded, turfed, sodded and/or formed areas which are disturbed or rutted by the Contractor, during his hauling operations, shall be regraded, returfed and refinished at his own expense and to the satisfaction of the Resident Engineer. No additional payment for haul will be allowed the Contractor.

152-2.6 STRIPPING

DELETE this Section and Insert the following:

All vegetation such as brush, heavy sods, heavy growth of grass, decayed vegetable matter, rubbish, and any other unsuitable material within 10' of the future paved areas shall be stripped or otherwise removed before embankment operations are started. Strippings from under the future paved areas may be stockpiled and used for topsoil and/or may be placed in the shoulder embankment area outside the limits of future pavement (as directed by the Resident Engineer), scarified, and broken by means of a disc harrow, plow or other approved equipment to the satisfaction of the Resident Engineer.

All vegetation such a brush, heavy sods, heavy growth of grass, decayed vegetable matter, rubbish, and any other unsuitable material 10' or more outside the future paved areas shall be stripped or otherwise removed before earthwork operations are started. Strippings from outside the future paved areas shall be stockpiled and used for topsoil upon the completion of the earthwork activities. These materials shall be scarified, and broken by means of a disc harrow, plow or other approved equipment to the satisfaction of the Resident Engineer.

No direct payment and/or measurements shall be made for the work performed under this section. The costs for all strippings, stockpiling, topsoil placement, and minor erosion control measures shall be included in the contract unit price for unclassified excavation.

152-2.9 PREPARATION AND PROTECTION OF THE TOP OF THE SUBGRADE

ADD the following to this Section:

At all times during construction, the ground surface shall be properly graded to promote rapid clearing of rainwater. The Contractor shall install temporary drainage ditches as requested by the Resident Engineer. Any water that accumulates on the ground surface shall be immediately removed by the Contractor. Excessively wet or disturbed soils at the base of any excavation or fill areas shall be removed prior to the placement of any additional fill. Any ground surface which will be exposed to weather and not immediately worked shall be bladed off with a motor grader and compacted with a smooth roller to seal the ground surface and prevent infiltration of moisture as approved by the Resident Engineer. When requested by the Resident Engineer and/or when it is predicted that inclement weather may develop, the Contractor shall cease embankment construction and seal the embankment ground surface.

152-2.12 TOPSOIL

ADD the following to this Section:

Topsoil shall be salvaged from strippings or other grading operations. Strippings shall be stockpiled during excavation operations so that soils can be removed. The strippings shall be reinstalled after excavation operations are complete. Grade stakes for topsoil placement shall not be set. No direct payment or measurements will be made for topsoil.

No direct payment or measurements shall be made for the work performed under this section. The costs for all stripping, stockpiling, topsoil placement, and minor erosion control ditches shall be included in the contract unit price for UNCLASSIFIED EXCAVATION / BORROW EXCAVATION.

METHOD OF MEASUREMENT

152-3.1 DELETE:

The phrase "and stripped" from the last sentence of the first paragraph.

Add to this Section:

Excavation or handling of soils shall be paid for only once. Stockpiling of soils for later reuse and redistribution shall be done at the Contractor's expense. Redistribution or spreading of stockpiled soils shall be done at the Contractor's expense.

No direct measurements shall be made for stripping, stockpiling, topsoil placement, minor fill-in of abandoned structures and ditches, minor erosion control ditches, and the removal and disposal of existing concrete slabs, footings, drainage structures, and storm sewers. These items shall be considered incidental to the contract unit price for UNCLASSIFIED EXCAVATION / BORROW EXCAVATION.

152-3.2 DELETE the entire article.

152-3.3 ADD to this Section:

Only materials excavated from the Runway 5/Taxiway D/Taxiway K/relocated ditch area to the soil waste area shall be measured for borrow excavation.

BASIS OF PAYMENT

152-4.2 DELETE the entire article.

152-4.3 DELETE the entire article.

Payment will be made under:

Item AR152410 -- UNCLASSIFIED EXCAVATION -- per cubic yard.
Item AR152440 -- BORROW EXCAVATION -- per cubic yard.

MODIFICATIONS TO RECURRING
SPECIAL PROVISION FOR ITEM AR156000
(CHECK SHEET #8)

EROSION CONTROL

EFFECTIVE: JULY 1, 2004

METHOD OF MEASUREMENT

DELETE Sections 4.1 and 4.2 and INSERT the following:

4.1 The quantity of Temporary Erosion Control to be paid for under this item shall be measured per lump sum for furnishing all materials, equipment, overhead, and labor required for this construction and administration including, but not limited to, compliance with the storm water pollution prevention plan, IEPA construction site activities NPDES Permit No. ILR100000, IEPA regulations, and all other necessary items to complete this item.

BASIS OF PAYMENT

DELETE Section 5.1 and INSERT the following:

5.1 Payment will be made at the contract unit price per lump sum for Temporary Erosion Control. This price shall be full compensation for furnishing all materials and for all preparation, assembly, installation, removal, reinstallation as required of these materials 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.

MODIFICATIONS TO SUPPLEMENTAL SPECIFICATION FOR ITEM 209 – CRUSHED AGGREGATE BASE COURSE

DESCRIPTION

209-1-1 ADD:

The item AR209510 Crushed Aggregate Base Course Material will be used to construct a 8" base for the proposed Runway 5 and Taxiway K 9" PCC pavement. Maximum pay width for the base material shall be 12 inches beyond the edge of the proposed pavement. If the Contractor requires additional width for pavement installation, the additional materials shall meet the same specifications, but will be considered incidental.

This item shall also include furnishing and installing geotextile fabric under the Runway 5 and Taxiway K proposed aggregate base course areas, as indicated on the Construction Plans or as otherwise required by the Resident Engineer.

Item 209511 Crushed Aggregate Base, CA 1 gradation materials will be used to repair soft subgrade areas found under the proposed pavements. The MAA reserves and shall have the right to delete part or all of the 209511 pay item from the proposed contract work. The Contractor shall not be entitled to any extra compensation for the deletion of this pay item or quantities.

MATERIALS

209-2.3 ADD:

Sieve designation B, 1-1/2 inch maximum, TABLE 1, shall be used in the locations as indicated on the Construction Plans for the crushed aggregate base course.

IDOT coarse aggregate gradation number CA-1 shall be used in the locations as directed by the Resident Engineer for the crushed aggregate base, CA-1 materials.

ADD the following Section:

209-2.4 GEOTEXTILE FABRIC

The geotextile fabric shall consist of woven or nonwoven filaments of polypropylene, polyester, nylon or polyethylene. Nonwoven fabric may be needle punched, heat-bonded, resin-bonded or combinations thereof. The fabric shall be inert to commonly encountered chemicals, rot proof, dimensionally stable (i.e. fibers must maintain their relative position with respect to each other), resistant to delamination, and conform to the following physical properties.

Weight (oz./sq. yd.)	6.0	- ASTM D1910
Grab tensile strength (lbs.)	300 min.*	- ASTM D1682
Grab Elongation at break (%)	15 min.*	- ASTM D1682
Burst strength (psi)	250 min.*	- ASTM D751
Trapezoidal tear strength (lbs.)	75 min.**	- ASTM D2263
Equivalent opening size (EOS) Sieve No.	50 min.**	- CW 02215-77

* For woven fabric, test results shall be referenced to orientation with warp or fill, whichever case may be. Both woven and nonwoven fabrics shall be tested wet.

** Manufacturer's certification of fabric to meet requirement.

Handling and Storage: Fabric shall be delivered to the job site in such a manner as to facilitate handling and incorporation into the work without damage. In no case shall the fabric be stored or exposed to direct sunlight that might significantly diminish its strength or toughness.

CONSTRUCTION METHODS

209-3.2 EQUIPMENT

ADD the following paragraphs to this Section:

Provisions shall be made by the Contractor for furnishing water at the plant and at the site of the work by equipment of ample capacity and of such design as to assure uniform mixing and application.

209-3.6 FINISHING AND COMPACTING

DELETE the fifth sentence in the first paragraph and insert the following sentence in its place:

Rolling shall continue until the base material has been compacted to not less than 95% density, as determined by the compaction control tests specified in Division VII.

Compaction control testing shall be accomplished for aircraft weights of 60,000 pounds or more.

ADD the following Section:

209-3.11 GEOTEXTILE FABRIC

Prior to installation of the fabric, surface shall be cleared of debris, sharp objects and trees. Tree stumps shall be either removed or cut to the level of the ground surface. In the case of subgrades, all wheel tracks or ruts in excess of 2 inches in depth shall be graded smooth or otherwise filled with soil to provide a reasonably smooth surface.

Fabric sections shall be joined by overlapping the upper strip over the next lower strip, and also overlapping longitudinal edge joints by at least 2 feet. The fabric shall be held firmly in place by pinning the overlapped joints with wire staples made from No. 11 gage or heavier wire, width 1 or 2 inches at the throat and 6 inches from top to bottom after bending. The staples shall be packaged in cartons.

Torn fabric shall be repaired in place by cutting and placing a piece of the same fabric over the tear. The dimensions of the patch shall be at least two (2) feet larger than the largest dimension of the tear, and it shall be pinned securely to prevent the stone from causing lap separation.

METHOD OF MEASUREMENT

209-4.1 ADD the following to this Section:

The quantity of Crushed Aggregate Base Course to be paid for shall be the number of tons of material placed, bonded and accepted by the Resident Engineer in the completed base course. Aggregate in excess of 12" beyond the pavement edge will not be measured for payment but shall be considered incidental to this pay item.

ADD the following Sections:

209-4.2 The quantity of Crushed Aggregate Base, CA 1 to be paid for shall be the number of tons of material placed, bonded and accepted by the Resident Engineer in the completed repair area. Aggregate in excess of 12" beyond the repair area will not be measured for payment but shall be considered incidental to this pay item.

209-4.3 The quantity of geotextile fabric to be paid for shall be the number of square yards as specified, in place, completed, and accepted. The overlapped areas will not be measured for payment, but shall be included in the contract unit price.

BASIS OF PAYMENT

209-5.1 ADD the following to this Section:

Payment will not be made for aggregate in excess of 105 percent of the amount specified by the Resident Engineer nor for aggregate placed outside the design width.

The tonnage of each type of aggregate base measured as provided above shall be paid for at the contract unit price per ton for each type of aggregate base course, which price and payment shall constitute full compensation for removal and disposal of existing materials as required to install proposed materials, preparing subgrade; furnishing, hauling and placing the materials; for spreading, sprinkling (if required), compacting and rolling, for refilling test holes (when necessary); and for furnishing all labor, equipment, tools, water and incidentals necessary to complete the work. This item shall not include aggregate materials required for paving operations (form setting and/or slip form machinery).

ADD this Section:

209-5.2 The number of square yards of geotextile fabric measured as provided above shall be paid for at the contract unit price per square yard for furnishing, storing, and installing the geotextile fabric. This price shall be full compensation for all labor, materials, and equipment necessary to complete this item.

Payment will be made under:

ITEM AR209510 -- CRUSHED AGGREGATE BASE COURSE -- per ton.

ITEM AR209511 -- CRUSHED AGGREGATE BASE, (CA-1) -- per ton.

ITEM AR209600 -- GEOTEXTILE FABRIC -- per square yard.

MODIFICATIONS TO RECURRING
SPECIAL PROVISIONS FOR ITEM AR401001
(CHECK SHEET #19)

BITUMINOUS SURFACE COURSE-METHOD I

EFFECTIVE: JULY 1, 2004

401-1.1 ADD the following to this Section:

Item AR401610 Bituminous Surface Course shall include all work necessary to supply and install the bituminous surface course material for Runway 5-23 and Taxiway K.

401-3.2 JOB MIX FORMULA (JMF)

ADD the following:

Marshall Design Criteria for aircraft over 60,000 pounds shall be used for this project.

Mix gradation B (3/4" maximum), TABLE 4, shall be used unless otherwise specified by the Resident Engineer.

401-4.9 TRANSPORTING, SPREADING, AND FINISHING

ADD the following paragraph after the fourth paragraph:

No bituminous pavement shall be installed until the underlying surface has been cleaned, prepared, tack coated and accepted by the Engineer.

Prior to the application of the tack coat materials, the pavement to be overlaid shall be cleared of all dirt, dust, and loose materials. Power brooms, sweepers and high pressure air shall be used to remove dust and debris to the satisfaction of the Engineer. Placement of bituminous paving materials must be delayed until the tack coat is properly cured as determined by the Engineer.

The first lane of all lifts of the bituminous 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 at 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 all lifts of surface course. The maximum lift thickness shall be two (2) inches compacted unless otherwise authorized by the Resident Engineer.

401-4.12 SHAPING EDGES

ADD the following as the second paragraph to this Section:

All pavement edges including the pavement ends must be left in proper alignment as shown on the plans. This may be accomplished by a trimming method or, at the Contractor's option, by sawing after the paving has been completed. No additional compensation will be made if the sawing method is used.

BASIS OF PAYMENT

Payment will be made under:

Item AR401610 -- BITUMINOUS SURFACE COURSE -- per ton.

MODIFICATIONS TO RECURRING
SPECIAL PROVISIONS FOR ITEM AR401650

BITUMINOUS PAVEMENT MILLING
(CHECK SHEET #24)

EFFECTIVE: JULY 1, 2004

CONSTRUCTION METHODS

ADD the following paragraphs:

3.1.1 The Contractor shall be required to make saw cuts to the depths required by the Resident Engineer where the existing pavements to be removed abuts the existing pavement to remain-in-place. The saw cut lines shall be not more than ±1" from the line marked by the Resident Engineer. All sawing shall be accomplished to provide a smooth vertical face on a straight horizontal line. After the saw cutting is complete, the pavement surface shall be milled to a depth as indicated on the Construction Plans. The milling equipment must be capable of milling the surface to the elevation and grade shown on the Cross Sections. Disposal of the milling material shall be at a location off airport property and shall be accomplished by the Contractor. Prior to the placement of the proposed materials, all milled areas shall be broomed and blown clean to the satisfaction of the Resident Engineer.

It shall be the responsibility of the Contractor to determine the type and thickness of the existing pavement to be milled. No additional compensation will be allowed because of variations from the assumed thickness or from the thickness shown on the plans.

METHOD OF MEASUREMENT

ADD the following paragraphs:

4.1.1 The quantity of pavement milling to be paid for shall be the number of square yards completed and accepted by the Resident Engineer based upon the widths and lengths of the milled areas as measured in place. Double payments for the same surface area shall not be made for overlapping passes of the milling planer.

Measurements shall not include any areas of pavement milled by the Contractor outside the limits set by the Resident Engineer. If the Contractor mills pavement outside the limits set by the Resident Engineer, the Contractor shall clean, tack coat, and fill the unauthorized milled out area with 401 Bituminous Surface Course at his own expense and no additional compensation of measurements will be allowed for this extra work.

MODIFICATIONS TO RECURRING
SPECIAL PROVISIONS FOR ITEM AR401900

REMOVE BITUMINOUS PAVEMENT
(CHECK SHEET # 26)

EFFECTIVE: JULY 1, 2004

CONSTRUCTION METHODS

3.1.1 The Contractor shall remove the existing pavement full depth as shown on the plans or as directed by the Resident Engineer. The removal shall include any PCC Concrete or Aggregate Base Course beneath the Bituminous Concrete Surface. No additional compensation will be made for removing the base and/or subbase materials. Where removal areas are adjacent to areas which are to remain in service, a full depth saw cut shall be made before breaking and removing the pavement.

It shall be the responsibility of the Contractor to determine the type and thickness of the existing pavement to be removed, and the extent to which it is reinforced. No additional compensation will be allowed because of variations from the assumed thickness or from the thickness shown on the plans, or for variations in the amount of reinforcement.

The Contractor shall dispose of the material removed to a suitable location off airport property. The Contractor is responsible for finding a suitable disposal area.

MODIFICATIONS TO RECURRING
SPECIAL PROVISIONS FOR ITEM 501002

PORTLAND CEMENT CONCRETE PAVEMENT - METHOD II
(CHECK SHEET # 28)

EFFECTIVE: JULY 1, 2004

501-1.1 ADD the following to this Section:

The Item AR501509 Portland Cement Concrete Pavement for this project shall be used to construct the Runway 5 and Taxiway K 9" depth P.C. concrete pavement. The 9" depth pavement shall be constructed on a crushed aggregate base surface in accordance with these specifications and shall conform to the lines, grades, thicknesses, and cross sections found in the construction plans.

501-2.5 JOINT SEALER

REWRITE this item as follows:

The joint sealing material shall be a neoprene compression seal meeting the requirements of ASTM D-2628, as manufactured by D. S. Brown Corporation or an approved equal. The sealing material shall be installed per manufacturer's instructions by mechanical methods approved by the Resident Engineer. The lubricant/adhesive for installation of the compression seal shall be a one component compound conforming to the requirements of ASTM D-2835. Where a hot poured joint sealer is specified, the materials shall meet the requirements of ASTM D3405 - Joint Sealants, hot poured for concrete and asphalt pavements on "Taxiways and Runways Only." The Contractor shall comply with these special provisions and Item 605 of the Standard Specifications for Construction of Airports.

The Contractor shall submit the following samples for approval at least two weeks prior to beginning work.

1. Joint sealant, 3 foot length for each size.

2. Lubricant/adhesive, 1 U.S. quart.

3. Two copies of certified test results demonstrating conformance to the applicable material specifications.

4. Two copies of the manufacturers recommendations for installation procedures.

The Contractor will not be allowed to begin installation until the above items are furnished in full. Failure to furnish these items can be cause for rejection of the material.

The Contractor shall store the lubricant/adhesive at a temperature between 40° F and 85° F and shall be used within 270 days of its manufacture.

Atmospheric and pavement temperatures shall be between 40° F and 85° F at the time of joint seal installation.

501-2.6 STEEL REINFORCEMENT

ADD the following to this Section:

Steel reinforcement shall be installed in the odd shape concrete panels as indicated on the Construction Plans. Reinforcing shall consist of welded wire fabric conforming to the requirements of ASTM A185.

501-2.7 DOWEL AND TIE BARS

ADD the following to this Section:

Tie Bars shall not be bent and restraightened on this project. Tie bars and dowels shall be drilled and installed into the newly poured slabs using a polyester resin based adhevsive that is on the IDOT approved materials list and/or the use of threaded couplings shall occur on this project.

501-2.9 COVER MATERIAL FOR CURING

ADD to this Section the following:

Curing materials conforming to Section (a) shall be used on this project.

CONSTRUCTION METHODS

501-3.2 FORM SETTING

ADD to this Section:

If formed construction is utilized, the built-up forms shall be provided with adequate devices for setting so that when in placed they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. If, in the opinion of the Resident Engineer, the forms are inadequately braced or bedded, the Contractor shall, at his expense, cease all paving operations and provide additional bracing and/or bedding to the satisfaction of the Resident Engineer prior to commencing and/or continuing any paving operations. If built-up forms are used, the form with the greatest vertical dimension shall be placed at the bottom.

501-3.6(A) PROPORTIONS

DELETE: Entire Section.

501-3.7 FIELD TEST SPECIMENS

REWRITE the first and second paragraphs as follows:

"Concrete samples shall be taken in the field by the Contractor to determine consistency (slump), air content, and strength of the concrete as directed by the Resident Engineer and outlined in this Special Provision. A slump test per ASTM C143 and air test per ASTM C231 shall be taken by the Contractor, under the direction and supervision of the Resident Engineer, for each test beam and at a minimum of one test per 300 cubic yards of concrete. A minimum of one random flexural strength sample or one random compressive strength sample shall be taken by the Contractor for every 300 cubic yards for acceptance testing. A sample shall consist of two (2) beam breaks for flexural strength testing and/or two (2) cylinders for compression strength testing. If cylinders are used, the Contractor shall deliver the cylinders to a testing facility as designated by the Resident and Chief Engineer. The Contractor shall be responsible for all costs incurred to accomplish this testing. At the start of paving operations and when the aggregate source, aggregate characteristics, or mix design is changed, additional samples may be required by the Chief and/or Resident Engineer until he is satisfied that the concrete mixture being manufactured complies with the strength requirements of these specifications and that the concrete allowable water-cementitious ratio is not exceeded. The additional test samples shall be taken by the Contractor for 3, 7, and 14 day testing. All samples shall be prepared in accordance with ASTM C31. Ten (10) steel beam molds (Rainhart Cat. No. 421 beam mold or equivalent) and two (2) beam mold strippers (Rainhart Cat. No. 425

beam mold strippers or equivalent) meeting the approval of the Resident Engineer shall be supplied by the Contractor. Following completion of the project, these items shall become the property of the MAA. The remainder of the beam molds needed for the project will be supplied by the MAA. After completion of the proposed project, the Contractor shall return all beam molds to the MAA in a clean, straight, and good condition. The Contractor shall be responsible for molding, removing from the molds, curing and placing properly cured beams according to ASTM C31 in the field trailer at the time and place specified by the Resident Engineer. The Contractor shall furnish and maintain a beam tank or tanks of adequate size and maintain its condition in accordance with ASTM C31. All samples shall be tested by the Resident Engineer in accordance with ASTM C78. Flexural strength testing under ASTM C78 will require a Rainhart Series 416 Recording Beam Tester or equivalent.

501-3.10 PLACING CONCRETE

ADD:

The Contractor shall place the concrete in a manner such that no concrete trucks will drive over the aggregate base course material in the paving lane. The Contractor shall utilize a belt loader (or other method as approved by the Engineer) to side load the concrete into the paving lane.

501-3.14 SURFACE TEXTURE

ADD:

The surface texture shall meet the requirements for Burlap Drag Finish.

501-3.15 SKID RESISTANT SURFACES

ADD to this Section:

Saw cut grooves shall be required on the runway P.C.C. pavements. Saw cut grooves are not required on the taxiway pavements.

501-3.17 CURING

ADD:

Curing shall meet the requirements for Impervious Membrane Method except during cold weather, when the requirements of Curing in Cold Weather shall apply.

BASIS OF PAYMENT

Payment will be made under:

ITEM AR501509 -- 9" PCC PAVEMENT -- per square yard.
ITEM AR501530 -- PCC TEST BATCH -- per each.
ITEM AR501540 -- PCC PAVEMENT GROOVING -- per square yard.

MODIFICATIONS TO RECURRING
SPECIAL PROVISIONS FOR ITEM AR501900

REMOVE PCC PAVEMENT
(CHECK SHEET # 33)

EFFECTIVE: JULY 1, 2004

CONSTRUCTION METHODS

ADD the following Section:

3.1.1 The Contractor shall remove the existing pavement full depth as shown on the plans or as directed by the Resident Engineer. The removal shall include any Bituminous Concrete or Crushed Aggregate Base Course required to be removed that lies beneath the PCC Pavement. No additional compensation will be made for removing the base and/or subbase materials. Where removal areas are adjacent to areas which are to remain in service, a full depth saw cut shall be made before breaking and removing the pavement.

It shall be the responsibility of the Contractor to determine the type and thickness of the existing pavement to be removed, and the extent to which it is reinforced. No additional compensation will be allowed because of variations from the assumed thickness or from the thickness shown on the plans, or for variations in the amount of reinforcement.

The Contractor shall dispose of the material removed to a suitable location off airport property. The Contractor is responsible for finding a suitable disposal area.

MODIFICATIONS TO SUPPLEMENTAL SPECIFICATIONS FOR ITEM 620 – PAVEMENT MARKING

DESCRIPTION

620-1.1 ADD the following to this Section:

The MAA reserves and shall have the right to delete the pavement marking pay item from the proposed contract work. The sponsor may opt to complete this work with their own work force. Prior to ordering any materials or starting any work, the Contractor shall confirm the status of this work with the MAA. The Contractor shall not be entitled to any extra compensation for the deletion of these pay items.

This item shall also include the removal of existing pavement markings as shown and detailed on the Construction Plans. The removal of the existing markings shall be accomplished with a high pressure/high capacity waterblasting system. The cleanup of waste materials shall be included in this item.

This item shall also include the installation and removal of temporary markings as detailed on the Construction Plans. The single contract unit price shall include the costs for both installation and removal of the temporary markings.

The proposed permanent pavement markings shown on the Construction Plans shall be applied as approved by the Resident Engineer.

MATERIALS

620-2.2 PAINT

ADD:

The paint for this project shall be Waterborne.

DELETE the entire paragraphs:

2. EPOXY

CONSTRUCTION METHODS

620-3.4 LAYOUT OF MARKINGS

ADD the following to this Section:

The Contractor or painting subcontractor shall be responsible for the layout of the proposed paint markings. Paint shall not be applied until the condition of the surface has been reviewed by the Resident Engineer. If, in the opinion of the Resident Engineer, the markings applied do not conform with these special provisions or the Construction Plans the Contractor shall remove and correct the markings at his own expense.

620-3.5 APPLICATION

ADD the following to this Section:

The permanent paint shall be applied to the pavement with a marking machine in two separate applications, each application at the rate shown in Table 1 of the supplemental specification.

The Contractor may submit for approval and use a different water based manufacturer material for the temporary pavement markings which will enhance the removal of the temporary markings. The Contractor shall be required to reinstall the temporary markings at any time that the markings are not visible to an aircraft pilot as determined by the Resident Engineer. Reinstallation of temporary markings shall not be measured for payment.

620-3.7 PAVEMENT MARKIN REMOVAL

REVISE this Section to read as follows:

The Contractor shall remove existing and temporary markings as shown and detailed on the plans or as directed by the Resident Engineer using wasterblasting or other methods approved by the Resident Engineer. The Contractor shall be responsible for cleaning and drying the pavement surface.

METHOD OF MEASUREMENT

620-4.1 ADD the following to this Section:

A. Pavement Marking:

The quantity of pavement marking to be paid for shall be the square footage of the final surface area of the pavement marking installed and accepted by the Resident Engineer in accordance with these Special Provisions.

Measurements for payment shall be made for the pavement marking surface area only once. The contract unit price shall include costs for all applications of paint on the pavement marking surface area.

B. Temporary Marking & Removal:

The quantity of temporary marking & removal to be paid for shall be the number of square feet of temporary markings installed & removed in accordance with these special provisions and accepted by the Resident Engineer. Separate measurements for payment shall not be made for the installation and removal of the temporary markings. The cost for installing and removing the markings shall be included in the contract unit price.

Measurements for payment shall be made for the pavement marking surface area only once. The contract unit price shall include costs for all applications of temporary paint on the pavement marking surface area.

C. Pavement Marking Removal:

The quantity of marking removal to be paid for shall be the number of square feet of existing markings removed in accordance with these special provisions and accepted by the Engineer.

Measurements for payment shall be made for the pavement marking surface area only once. The contract unit price shall included costs for all applications of paint on the pavement marking surface area.

BASIS OF PAYMENT

620-5.1 ADD the following to this Section:

Payment shall be made at the contract unit price per square foot for pavement marking, temporary marking & removal, and pavement marking removal. These prices shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete this item. Traffic control shall also be included in these prices. Drying and cleaning of pavements shall also be included in these prices. The application of reflecting media shall also be included in these prices.

Payment will be made under:

ITEM AR620510 -- PAVEMENT MARKING -- per square foot.
ITEM AR620595 – TEMPORARY MARKING & REMOVAL -- per square foot.
ITEM AR620900 -- PAVEMENT MARKING REMOVAL -- per square foot.

DIVISION IV – DRAINAGE PIPE

MODIFICATIONS TO SUPPLEMENTAL SPECIFICATIONS FOR ITEM 701 – PIPE FOR STORM SEWERS AND CULVERTS

DESCRIPTION

701-1.1 ADD:

Bedding material consisting of IDOT Gradation number CA-11 (as described in Section 1004 of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007), IDOT Gradation RR-3, Quality Designation "A" (as described in Section 1005 of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007) as well as geotechnical fabric and porous backfill as shown on the plan details shall be included in this item.

This item shall also include the installation, maintenance, and removal of all dewatering items required to insure the bedding and pipes are installed in a dry excavation. Ground water flows into the pipe trenches shall not be allowed. The Contractor shall not install bedding materials or lay pipes in a wet excavation. The costs for dewatering shall be included in the "701 – Pipe for Storm Sewers and Culverts" contract unit prices.

MATERIALS

701-2.1 GENERAL

ADD:

Reinforced concrete pipe shall conform to ASTM C76. Pipe joints shall be rubber gasket conforming to ASTM C443.

The geotechnical fabric for pipe bedding shall consist of nonwoven filaments formed from a plastic yarn of a long-chain synthetic polymer composed of at least 85 percent by weight of polyolefins, or polyesters, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultraviolet and heat exposure. After forming, the fabric shall be a processed so that the filaments retain their relative positions with respect to each other. The fabric shall be free of defects or flaws which significantly affect its physical and/or filtering properties.

The filter fabric shall be formed in widths of not less than 6 feet. Sheets of fabric may be sewn together with thread of a material meeting the chemical requirements given for the plastic yard to form fabric widths as required. The sheets of filter fabric shall be sewn together at the point of manufacturer or another approved location.

Requirements: The texture of the fabric shall be such that the bedding and riprap will remain in an equilibrium state and not slip or slide. The filter fabric shall be rot proof, insect resistant and have a high dimensional stability when wet, good soil filtration characteristics and a high resistance to tear propagation in all directs, and meet the following minimum conditions and ASTM Tests for the gradation of riprap specified:

Weight of Fabric (oz/yd) ASTM D 3776 (Mod.) (Note 2)	6.0
Burst Strength (psi) ASTM D 3786 (Note 1)	250
Trapezoidal Tear Strength (lbs) ASTM D 1117 (Note 2)	60
Grab Tensile Strength (lbs) ASTM D 4632 (Note 2)	160
Grab Tensile Elongation (%) ASTM D 4632 (Note 2)	20

Note 1. Manufacturer's certification of fabric to meet requirements.
Note 2. Test sample shall be tested wet.

The vendor shall furnish certified test reports with each shipment of material attesting that the fabric meets the requirements of this specification.

CONSTRUCTION METHODS

701-3.3 CRADLES

DELETE:

Entire Section.

701-3.7 BACKFILLING

ADD:

All proposed pipes shall be backfilled with compacted materials meeting the requirements for Porous Material No. 1 in Item 705-2.15 as shown in the plan details. Local soil materials excavated on this site shall not be used for Trench Backfill or Porous Material No. 1 backfill. Porous Material No. 1 shall not be measured or paid for separately, but shall be included in the 701 contract unit prices.

METHOD OF MEASUREMENT

701-4.1 ADD:

Geotextile fabric, aggregate bedding, porous backfill, and dewatering items installed to construct the storm sewer and culvert pipes will not be measured for payment under this item or any other contract item. These necessary items shall be considered incidental to the contract unit price for the specified type, class, and size of pipe being installed.

BASIS OF PAYMENT

701-5.1 ADD to this Section:

The costs for geotextile fabric, aggregate bedding, porous backfill and dewatering items installed to construct the storm sewer and culvert pipes shall be included in the contract unit price for the specified type, class, and size of pipe being installed.

Payment will be made under:

ITEM AR701512 -- 12" RCP, CLASS IV -- per lineal foot.
ITEM AR701518 -- 18" RCP, CLASS IV -- per lineal foot.
ITEM AR701731 -- RCEP SPAN 68 RISE 43 -- per lineal foot.
ITEM AR701734 -- RCEP SPAN 76 RISE 48 -- per lineal foot.

ITEM 705 - PIPE UNDERDRAINS FOR AIRPORT

DESCRIPTION

705-1.1 DELETE the third paragraph from this Section and ADD the following:

The perforated underdrain pipe on this project shall be 6" dia. and/or 8" dia. Corrugated polyethylene (PE) tubing and IGS fittings (perforated and non-perforated) meeting the requirements of Section 705-2.12. The perforated polyethylene (PE) tubing shall be wrapped or covered with a filter fabric envelope that meets the requirements of Section 705-2.13.

The bid price per linear foot of pipe shall include fittings, pipe bedding and backfilling of the pipe trench as detailed in the Construction Plans. Porous Material No. 2 as described in Section "705-2.15 Porous Backfill" shall be supplied and installed by the Contractor. No separate measurement or payment shall be made for the Porous Material No. 2 Backfill and/or bedding. The cost of the Porous Material No. 2 Backfill shall be included in the 705 Pipe Underdrain contract unit price per lineal foot.

CONSTRUCTION METHODS

705-3.3 LAYING AND INSTALLING PIPE

(C) ALL TYPES OF PIPE

ADD to this Section:

All pipe underdrains to be placed parallel to the runway and/or taxiway shall be placed below the minimum depth as shown on the detail drawings in the Plans, except those area that are noted as "Variable Depth" on the Plans. The 705 Pipe Underdrain contract unit prices shall include the variable depth excavation required.

705-3.6 BACKFILLING

DELETE the second sentence in the first paragraph and ADD:

The material supplied and installed by the Contractor for backfill shall meet the requirements of Porous Material No. 2. The Contractor shall not substitute or allow the original materials excavated to be returned into the trench.

METHOD OF MEASUREMENT

705-4.2 DELETE this Section and ADD the following:

Pipe fittings, porous bedding and backfill materials as indicated on the Construction Plans installed to construct the pipe underdrains will not be measured for payment under this item or any other contract item. The costs for these items shall be included in the 705 Pipe Underdrain contract unit price for the specified type, class, and size of pipe being installed.

BASIS OF PAYMENT

ADD the following:

Payment will be made under:

ITEM AR705506 -- 6" PERFORATED UNDERDRAIN -- per lineal foot.
ITEM AR705508 -- 8" PERFORATED UNDERDRAIN -- per lineal foot.

MODIFICATIONS TO SUPPLEMENTAL SPECIFICATION FOR ITEM 751 - MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES

DESCRIPTION

751-1.1 ADD the following to this Item:

This item shall consist of the adjustment and/or removal of existing manholes, inlets and special structures in accordance with Section 602 Catch Basin, Manhole, Inlet, Drainage Structures, and Valve Vault Construction, Adjustment and Reconstruction and Section 605 Removing or Filling Existing Manholes, Catch Basins, and Inlets of the "Standard Specifications for Road and Bridge Construction" adopted January 1, 2007 including all addendum at the time of bidding. The Contractor shall be required to replace any frame and lid damaged during the adjustment with a similar frame and lid at his expense.

This item shall also include supplying and installing proposed manholes and inlets as shown on the plans, complete with castings. The cone section and/or flat slab tops for the proposed manholes shall be precasted with a frame lip notch as detailed in the Construction Plans.

MATERIALS

DELETE Sections 751-2.1 and 751-2.5 and ADD the following:

No brick construction will be allowed on this project.

Materials for manhole, inlet and special structure adjustments, reconstructions and removals shall conform to the provisions of Section 602.02 and/or 605.02-Materials of the "Standard Specification for Road and Bridge Construction," as adopted January 1, 2007, including all addendum at the time of bidding.

751-2.6 FRAMES, COVERS AND GRATES

ADD the following to this Section:

Under Item 751415, Inlet, Special, the Contractor shall supply a Neenah R 3475 or equal frame and grate.

Under Item 751550, Manhole, 5' Diameter, the Contractor shall supply a Neenah R-3493-A or equal frame and lid.

Under Item 751568, Manhole, 8' Diameter, the Contractor shall supply a Neenah R-3493-A or equal frame and lid.

Under Item 751570, Manhole-Special, the Contractor shall supply a Neenah R-3493-A or equal frame and lid.

The cost of installing the above described items shall be included in the 751 Inlet and Manhole contract unit price.

CONSTRUCTION METHODS

751-3 ADD to this Section as follows:

The method of construction for manhole, inlet and special structure adjustments shall conform to Section 602 - CATCH BASIN, MANHOLE, INLET, DRAINAGE STRUCTURES, AND VALVE VAULT CONSTRUCTION ADJUSTMENT AND RECONSTRUCTION of the "Standard Specifications for Road and Bridge Construction," as adopted January 1, 2007, including all addendum at the time of bidding.

DELETE Section 602.05 - BRICK MASONRY; Section 602.06 - CONCRETE MASONRY UNITS; Section 602.11 - EXCAVATION AND BACKFILLING; and Section 602.15 - BASIS OF PAYMENT.

DELETE all references to brick construction. No brick construction will be allowed. Adjustments shall be made using precast adjustment rings laid out in full mortar beds.

The method of construction for removing manholes shall conform to Section 605 Removing or Filling Existing Manholes, Catch Basins, and Inlets of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007, including all addendum at the time of bidding.

METHOD OF MEASUREMENT

751-4.1 ADD to this Section as follows:

The number of manhole, inlet and special structure adjustments and removals to be paid for shall be the number of each size and type, as classified, counted in place, and accepted by the Resident Engineer.

Separate measurements for payment shall not be made for removing and replacing existing castings, installation of porous backfill #1, excavation around and removal of manhole sections, and any concrete adjusting rings necessary to bring manholes to the specified grade. The cost of these items shall be included in the Item 751 contract unit prices.

BASIS OF PAYMENT

751-5.1 ADD to this Section as follows:

The number of manhole, inlet and special structure adjustments and removals shall be paid for at the contract unit price per each type, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation saw cutting, existing concrete backfill removal, disposal of waste material, excavating, replacement of frame and lid (if required), soil backfilling (in turf), concrete backfilling (in pavement), porous granular backfill (under pavement), and placing of materials as may be required to complete the items as shown on the plans, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

ITEM AR751415 -- INLET-SPECIAL -- per each.
ITEM AR751550 -- MANHOLE 5' -- per each.
ITEM AR751568 -- MANHOLE 8' -- per each.
ITEM AR751570 -- MANHOLE –SPECIAL -- per each.
ITEM AR751904 -- REMOVE MANHOLE -- per each.
ITEM AR751944 -- ADJUST MANHOLE-PAVEMENT -- per each.

MODIFICATIONS TO SUPPLEMENTAL SPECIFICATIONS FOR ITEM 752 – CONCRETE CULVERTS, HEADWALLS, AND MISCELLANEOUS DRAINAGE STRUCTURES

DESCRIPTION

752-1.1 ADD to this Section:

The precast concrete pipe end section shall conform to IDOT Highway Standard 542306 as modified by these Special Provisions and the Construction Plans. Bedding materials, granular backfill and geotechnical fabric as described in Item 701 and shown on the plan details shall be included in this item.

This item shall include the removal of existing PRC flared end sections in accordance with Section 605-Removing or Filling Existing Manholes, Catch Basins, and Inlets of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007, including all addendum at the time of bidding. Compacted granular backfill shall be included in this item.

MATERIALS

752-2.1 CONCRETE

Precast concrete pipe end sections and elbows shall conform to ASTM C 76, Wall B Reinforced Concrete Pipe. The pipe joints shall be rubber gasket conforming to ASTM C443.

Material for remove end section shall conform to the provisions of Section 605.02-Materials of the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007, including all addendum at the time of bidding.

METHOD OF MEASUREMENT

752-4.1 ADD the following to this Section:

Geotextile fabric, aggregate bedding, and granular backfill installed to construct the pipe end section will not be measured for payment under this item or any other contract item. These items shall be considered incidental to the contract unit price for the specified size of pipe end section being installed.

Separate measurement for payment shall not be made for the installation of compacted porous backfill #1 as required to fill the void left by removing the existing end sections. This item shall be considered incidental to the contract unit price for "Remove End Section".

BASIS OF PAYMENT

752-5.1 Payment will be made under:

ITEM AR752760 -- PR CONC. FES EQ. ROUND SIZE 60" -- per each.
ITEM AR752900 -- REMOVE END SECTION -- per each.

DIVISION V - TURFING

MODIFICATIONS TO SUPPLEMENTAL SPECIFICATION FOR ITEM 901-SEEDING

DESCRIPTION

901-1.1 ADD to this Section as follows:

This item shall include, but not be limited to, all work necessary to seed all areas disturbed by the construction of this project. Areas disturbed which are outside the limits of construction/seeding shall be seeded according to this Special Provision by the Contractor, but shall not be measured for payment or paid for.

MATERIALS

901-2.1 SEED

ADD to this Section as follows:

The seeds shall be planted at a depth between 1/4 inch and 1/2 inch below the final ground surface. All sowing of seed shall not begin prior to March 15 and shall be completed by May 15, or shall not begin prior to August 15 and shall be completed by October 15.

The seeding operation for any area shall be completed within forty-eight (48) hours following the application of fertilizer to that area.

CONSTRUCTION METHODS

901-3.4 MAINTENANCE OF SEEDED AREAS:

ADD the following to this Section:

It will be the responsibility of the Contractor to establish a good stand of grass of uniform color and density to the satisfaction of the Resident Engineer. In areas where the seeds sown fail to grow, in the opinion of the Resident Engineer, the Contractor shall reseed the areas as required and as many times as required until the Resident Engineer is satisfied with the results. No measurements for payment or payments will be made for areas requiring reseeding.

METHOD OF MEASUREMENT

901-4.1 ADD to this Section as follows:

The areas to be seeded will consist of the areas designated on the plans. Areas disturbed due to Contractor carelessness or for the convenience of the Contractor, such as haul roads, parking areas, storage areas, soil waste areas, etc., shall be seeded but will not be measured for payment. Areas requiring more than one application of seeding shall be measured for payment only once.

MODIFICATIONS TO SUPPLEMENTAL SPECIFICATION FOR ITEM 908-MULCHING

DESCRIPTION

908-1.1 ADD to this Section as follows:

This item shall include, but not be limited to, all work necessary to hydraulic mulch all areas disturbed by the construction of this project. Areas disturbed which are outside the limits of construction/seeding shall be hydraulic mulched according to this Special Provision by the Contractor, but shall not be measured for payment or paid for.

This item shall also include, but not be limited to, all work necessary to supply and install excelsior blanket in accordance with Section 251 Mulch of the "Standard Specifications for Road and Bridge Construction" adopted January 1, 2007, including all addendum at the time of bidding. The location of the excelsior blanket shall be determined by the Resident Engineer in the field at the time of construction. The MAA reserves and shall have the right to delete part or all of the AR908520 pay item from the proposed contract work. The Contractor shall not be entitled to any extra compensation for the deletion of this pay item or quantities.

MATERIALS

ADD the following Section:

908-2.2 Excelsior Blanket Materials

Materials for excelsior blanket shall conform to the provisions of Section 251 of the "Standard Specifications for Road and Bridge Construction" adopted January 1, 2007, including all addendum at the time of bidding.

CONSTRUCTION METHODS

ADD the following Sections:

908-3.3 CARE AND REPAIR

It will be the responsibility of the Contractor to establish a good stand of grass of uniform color and density to the satisfaction of the Resident Engineer. In areas where the seeds sown fail to grow, in the opinion of the Resident Engineer, the Contractor shall re-mulch the areas as required and as many times as required until the Resident Engineer is satisfied with the results. No measurements for payment or payments will be made for areas requiring remulching. Hydraulic mulch will be required in all areas where additional applications area necessary.

908-3.4 EXCELSIOR BLANKET

The method of construction for excelsior blanket shall conform to Section 251-Mulch of the "Standard Specifications for Road and Bridge Construction" adopted January 1, 2007, including all addendum at the time of bidding..

METHOD OF MEASUREMENT

908-4.1 ADD to this Section as follows:

The areas to be hydraulic mulched will consist of the areas designated on the plans. Areas disturbed due to Contractor carelessness or for the convenience of the Contractor, such as haul roads, parking areas, storage areas, stockpile areas, etc., shall be hydraulic mulched, but will not be measured for payment. Areas requiring more than one application of mulch shall be measured for payment only once.

ADD the following Section:

908-4.2 EXCELSIOR BLANKET

The quantity of excelsior blanket to be paid for shall be the number of square yards of actual surface area covered as specified, in place, completed, and accepted by the Resident Engineer. The overlapped areas will not be measured for payment, but shall be included in the contract unit price.

BASIS OF PAYMENT

908-5.1 DELETE the entire Article and insert the following:

Payment will be made at the contract unit price per acre for MULCHING-METHOD 3. This price shall be full compensation for furnishing all materials and for placing and anchoring the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

ADD the following Section:

908-5.2 EXCELSIOR BLANKET

The number of square yards of excelsior blanket measured as provided above shall be paid for at the contract unit price per square yard for furnishing, storing, and installing the excelsior blanket. This price shall be full compensation for all labor, materials, and equipment necessary to complete this item.

Payment will be made under:

ITEM AR908513 -- MULCHING-METHOD 3 -- per acre.
ITEM AR908520 -- EXCELSIOR BLANKET -- per square yard.

DIVISION VI - LIGHTING INSTALLATION

ITEM 108 - INSTALLATION OF UNDERGROUND CABLE FOR AIRPORTS

DESCRIPTION

108-1.1 ADD the following to this Section:

This item of work shall consist of the installation of cable at the locations shown on the plans and in accordance with these specifications. The R-9 ILS control cable replacement work shall be included and paid for under this special provision.

Cable required for the replacement of the existing VASI-4 System shall meet the requirements of this specification, but shall not be measure or paid for under these items. The cost of cable required for the installation of the proposed PAPI System shall be included in the contract AR801622-Replace VASI with PAPI contract unit price.

If the Contractor wishes to lay cable on a line other than that shown on the plans, he shall obtain approval of the Resident Engineer before doing so. Any additional cable or wire needed because of such change will be at the Contractor's expense.

At locations where the existing cable to be replaced might obstruct or interfere with the efficient operation of the electrical system and in locations indicated on the Construction Plans, the existing cable shall be removed and disposed of by the Contractor. The Contractor shall install pull cords and plugs in the existing conduits where existing cables are removed and no new cable is proposed. The costs of removing and disposing of any existing cable, new pull cords, and new plugs shall be considered as incidental to the contract unit price and no additional compensation will be allowed.

When required, the Contractor shall pull out and reinstall existing cables in the existing facilities as indicated on the Construction Plans. The costs of pulling and reinstalling the existing cables and proposed cables shall be included in the 108 Underground Cable contract unit price.

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

Prior to excavating any area, the Contractor shall be required to megger all existing light circuit cables at the regulators in the transformer. All readings shall be submitted to the Resident Engineer.

Upon completion of the project, similar megger readings shall be made on both new and existing light circuit cables to insure that existing cable has not been damaged due to construction. All readings shall be submitted to the Resident Engineer.

New FAA cables shall be tested in accordance to FAA-GL-918C (including supplementals). Electrode grounds shall be tested for resistance per FAA-GL-918C (including supplementals). The Contractor shall not backfill until a representative of the FAA has witnessed and approved the installation.

The Contractor shall be required to provide a 24-hour answering service with a one hour response to enact repairs to existing lighting cable damaged due to construction as authorized by the Owner. All costs borne to repair such damaged cable shall be the responsibility of the Contractor.

In order to avoid existing underground cable, the Contractor shall connect a thumper to all existing circuits after which the cables shall be staked in all areas requiring trenching or excavation. Contractor shall also note that low voltage, FAA, cables also run underground throughout these areas.

EQUIPMENT AND MATERIALS

108-2.2 CABLE

REVISE this Section to read as follows:

Underground cable shall conform to the requirements of F.A.A. Advisory Circular 150/5345-7D, "Specifications for L-824 Underground Electrical Cable for Airport Lighting Circuits." Cable used for the runway and taxiway lighting circuits shall be (Tamaqua Cable Products Corporation or approved equal) No. 8, 5000 Volt, EPR, MV 90, L-824 Type B, one or two conductors, stranded, cable with PVC jacket meeting ICEA S-68-516, in unit duct. The proposed cable and unit duct shall be factory assembled and delivered to the site on reels. The unit duct shall be manufactured from yellow polyethylene complying with NEMA standard for high density, smooth wall, and coilable polyethylene electrical plastic duct Pub. No. TC7-1978. The unit duct surface shall have four integral black stripes with a separation angle of 90 degrees. Airfield series circuit cables shall be unit assembly with one inch (1") diameter unit duct. Homerun cables and cables to guidance signs shall be two of the above cables in one unit duct, 1-1/2" assembly. Field terminate homeruns in manholes or splice cans with a minimum of three each 2" diameter conduit openings.

It is the desire of the Owner to have interchangeable lighting cable throughout the airport, therefore the Metropolitan Airport Authority reserves the right to select and/or approve electrical cable and materials to be supplied for this project.

15 KV rated cable shall be shielded power cable Type MV-90 compact copper conductor Class B strand. Insulation type shall be ethylene propylene rubber (EPR) with polyvinyl chloride (PVC) outer jacket.

Cable shall meet or exceed requirements of ICEA S-68-516 and AEIC CS6 standard for EPR insulated wire and cable.

Cable gauge and number of conductors shall be as detailed on the plans.

ADD the following Section:

108-2.2.1 ITEM AR108825 25 PAIR CONTROL CABLE

This item shall include all work that is required to replace the existing Runway 9 ILS control cable. (This work includes, but is not limited to, trenching, cables, 1/C #1/0 guard wire, ground rods, warning tape, backfilling, cable markers, testing, fertilizing, seeding, mulching, and all other items necessary to construct an operational system accepted by the FAA and Resident Engineer). The new 25 pair #19 shielded control cable shall be subject to acceptance through the manufacturer's certification of compliance with the applicable specifications. The new control cable shall be furnished and installed in accordance with these specifications and the FAA standard "Specification for Construction of Terminal Navigational Aid Facilities" (FAA-GL-918C) including supplementals. A copy of FAA-GL-918C is included in the appendix to this document. Section 16E of FAA-GL-918C includes material requirements for this item.

CONSTRUCTION METHODS

108-3.1 GENERAL

ADD the following to this Section:

The cable quantities as shown on the Construction Plans are based on straight line measurement and do not consider any vertical distances or the required cable slack as stated under Item 108-3.4 in Illinois Standard Specifications for Construction of Airports, January 1985.

All cable shall be installed direct buried or plowed as indicated on the drawings, using new and existing cable ducts under runways, roads, home runs to transformer vaults, etc.

Each day, prior to leaving the job site, the Contractor, in the presence of the Owner's representative, shall activate all airport lighting circuits to insure operation.

At base mounted lights and splice cans the unit duct shall be attached to the base can rigid steel conduits with fittings as indicated on the Construction Plans.

108-3.2 INSTALLATION IN DUCT OR CONDUIT

ADD the following to this Section:

The unit duct will be run continuous through all ducts.

108-3.4 INSTALLATION IN TRENCHES

CHANGE the first sentence to read as follows:

Except for installation of cable (or cables) in unit duct, the Contractor will not use a cable plow for installing the cable.

ADD the following to this Section:

At locations, such as in an existing duct or wireway, in the existing electrical vault area, existing electrical manhole, utility tunnel, duct bank or near a proposed light location, where the existing cable to be replaced might obstruct or interfere with the efficient operation of the electrical system, 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.

Any and all trenches will be backfilled to a smooth grade to the satisfaction of the Resident Engineer. The disturbed areas will be either sodded or seeded, limed and fertilized. Lime will be applied at the rate of two (2) tons per acre. Any combination of the following nutrient materials is acceptable providing the minimum requirements are met: complete fertilizer, sulphate of ammonia, ammonium nitrate, ammonium phosphate or muriate of potash.

FERTILIZER APPLICATION RATES

Minimum Pounds of Available Nutrient		Plant Food Per Acre
N		90
P_2O_5		350
K_2O		240
	Total	680

The sodding, seeding and fertilizing of trench areas as described will be incidental to Item 108 and no additional compensation will be allowed. Seed used shall be Alta Fescue, applied at the rate of 100 lbs. of pure live seed per acre.

ADD the following to this Section:

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 cable in unit duct will be installed continuous between lights without any splices in cable or unit duct. Splices in homeruns shall be made inside an approved splice box as directed by the Resident Engineer.

Where two or more cables are laid parallel in the trench, they shall be placed laterally a minimum distance of three (3) inches apart, and the trench will be widened sufficiently to accomplish this.

Color code all phase wiring by use of colored wire insulation and/or colored tape. Where tape is used, the wire insulation shall be black. Black and red shall be used for single-phase, three wire systems and black, red and blue shall be used for three-phase systems. Neutral conductors, size No. 6 AWG or smaller, shall be identified by a continuous white or natural gray outer finish along its entire length. Neutral conductors larger than No. 6 AWG shall be identified either by a continuous white or natural gray outer finish along its entire length or by the use of white tape at its terminations and inside accessible wireways.

Circuit	MIMIC Panel Colors
R5-23 Circuit	White
T-D Circuit	Orange
T-E Circuit	Yellow
T-F-2 Circuit	Lime
T-K-1 Circuit	Red
Sign Circuit	White

All branch circuit conductors connected to a particular phase shall be identified with the same color. The color coding shall be extended to the point of utilization.

Direction of primary cables shall be identified by color coding as follows: When facing light with back to pavement, cable to the left is coded red and cable to right is coded blue. This applies to stake mounted lights and base mounted lights where the base has only one entrance.

In control wiring the same color shall be used throughout the system for the same function, such as 10%, 30%, 100% brightness control, etc.

All power and control circuit conductors shall be copper, aluminum shall not be accepted. This includes wire, cable, busses, terminals, switch/panel components, etc.

Low voltage (600 V.) and high voltage (5000 V.) conductors shall be installed in separate wireways.

108-3.7 CABLE MARKERS

ADD to this Section the following:

Cable markers will not be required on the runway and taxiway edge light circuits.

Cable markers will be required on the VASI-4 and ILS cables. Remove and dispose of the existing cable markers on the existing cables that are to be abandoned in place.

108-3.9 ADD to this Section the following:

Bare copper counterpoise wire will not be required on the proposed edge light circuits.

ADD the following Section:

108-3.14 ITEM AR108825 25 PAIR CONTROL CABLE

This item shall include all work necessary to completely replace the existing Runway 9 ILS control cable as shown on Sheet 41 of the Construction Plans and as detailed in this special provision and in FAA-GL-918C including supplementals. The existing Runway 9 ILS control cable is owned and operated by the FAA Airways Facilities Unit. The Contractor shall coordinate installation of this cable with the FAA Airways Facilities Unit. The new 25 pair #19 shielded control cable shall be supplied and installed in accordance with this special provision and the FAA standard "Specification for Construction and Terminal Navigational Aid Facilities" (FAA-GL-918C) including supplementals. A copy of FAA-GL-918C is included in the appendix to this document. Section 16E and 16F of FAA-GL-918C covers FAA control cables.

The work under ITEM AR108825 shall include, but not be limited to, furnishing and installing all R9 ILS cable, 1/C #1/0 guard wire, ground rods, warning tape, cable trenching, new cable markers, removal and disposal of old cable markers, fittings, tie-ins, terminations, excavating, backfilling, compacting, cable splice kit installations, removal of existing abandoned cables, testing, fertilizing, seeding, mulching and all other incidentals as required for a complete and operational system, to the satisfaction of the FAA, MAA and the Resident Engineer. The new cable shall be continuous without any underground splices between the existing FAA control tower and the existing Runway 9 glide slope building. The Contractor shall leave ample cable (5' min.) coiled up at each end or as directed by the FAA.

The Contractor shall install the proposed replacement control cable adjacent to the existing control cable except in the runway/taxiway extension area. The proposed cable will be installed around the south end of the proposed/future pavements. The electrical contractor shall coordinate the proposed cable installation with the earthwork contractor so that the proposed cable is at least three feet between the proposed finish ground surface in the proposed pavement extension area. During the installation of the proposed cable, the existing cable will remain active. Once the proposed cable has been installed and tested, the Contractor shall notify the Resident Engineer, the MAA and the FAA to schedule a date and time to complete final connections to the existing equipment and/or cables. It is anticipated that the final tie-ins will take place during the night between the hours of 11:00 PM and 5:00 AM as allowed by airline schedules. The Contractor must notify the MAA at least four days in advance so a NOTAM can be posted. All tie-in work shall be accomplished during a single scheduled time slot including backfilling of all excavations. After the proposed cable has been completely installed and activated, the Contractor shall remove all existing control cable from the existing electrical ducts.

METHOD OF MEASUREMENT

108-4.1 REVISE the first paragraph in this Section to read as follows:

The footage of cable installed or relocated in trench, duct, or conduit to be paid for shall be the number of linear foot of cable installed or relocated in trench, duct, or conduit measured in place by direct measurement, completed, ready for operation and accepted as satisfactory with no allowance being made for overrun due to required slack, turns, splices, etc. The Contractor shall take this into consideration in preparing his bid for the items concerned. Existing cables moved, replaced, and/or relocated as part of removing and replacing concrete duct banks shall not be measured for payment and/or paid for under this item.

Cable trenching shall not be measured for payment or paid for separately. The costs of cable trenching shall be included in the "Underground Cable in Unit Duct" and/or "25 Pair Control Cable" contract unit prices.

Guard wire, grounding rods, warning tape, cable markers, fertilizer, seeding, and mulching required for the new 25 pair FAA control cable shall not be measured for payment. Include the costs of these items in the AR108825 contract unit price.

Cabling required for the installation of the proposed PAPI system shall not be measured for payment or paid for under this item. The cost of cabling required for the proposed PAPI system shall be included in the contract AR801622 contract unit price.

108-5.1 REVISE this section to read as follows:

Payment will be made at the contract unit price per each type or kind of cable (excluding grounding / guard wires) in trench, duct or conduit installed in placed by the Contractor and accepted by the Resident Engineer. This price shall be full compensation for furnishing all materials and all preparation and installation of these materials, grounding, backfilling and compacting the trenches, landscaping the trenches, and for all labor, equipment, tool, testing, and incidentals necessary to complete these items.

Separate payments will not be made for grounding wire, guard wire, grounding rods, warning tape, trenching, backfilling, cable markers, testing, fertilizing, seeding, or mulching.

BASIS OF PAYMENT

Payment will be made under:

ITEM AR108158 -- 1/C #8 5 KV UG CABLE IN UD -- per lineal foot.
ITEM AR108258 -- 2/C #8 5 KV UG CABLE IN UD -- per lineal foot.
ITEM AR108825 -- 25 PAIR CONTROL CABLE -- per lineal foot.

ITEM 110 - INSTALLATION OF AIRPORT UNDERGROUND ELECTRICAL DUCT

DESCRIPTION

110-1.1 ADD the following to this Section:

This item of work shall include, but not be limited to, all work necessary to install, direct bury and concrete encased ducts as detailed in the Construction Plans and in accordance with the standard specifications and these Special Provisions. All materials for these items shall be in accordance with FAA Standard Specification Item 110 "EQUIPMENT AND MATERIALS".

Unless otherwise noted on the plans, underground electrical duct and conduit for the replacement of the existing VASI-4 system shall meet the requirements of this specification, but shall not be measured or paid for under these items. The cost of underground ducts and conduits required for the installation of the proposed PAPI system shall be included in the contract AR801622-Replace VASI with PAPI system contract unit price.

In locations where existing active cables are to be encased in duct banks or where existing active cables are present in existing duct banks to be removed and replaced, the contractor shall use split duct in the proposed duct bank. Cost of split duct to be included in the unit price for the DUCT BANK.

All waste materials resulting from the removal of the existing ducts and duct banks shall be disposed of by the Contractor at an approved location off of airport property.

Existing in-turf concrete cable markers damaged by the Contractor during construction, shall be replaced by the Contractor at his expense. New in-turf concrete cable markers are required on the L-880 PAPI and R-9 ILS systems. New in-turf concrete cable markers are not required on the runway/taxiway edge light systems. New in-pavement brass duct markers are required on all systems for this project. The costs per brass duct markers shall be included in the 401 and/or 501 pavement contract unit prices.

CONSTRUCTION METHODS

110-3.1 GENERAL

ADD to this Section the following:

All electrical ducts and conduits shall be installed as indicated on the plans. All excavation required to install new duct and conduit shall be incidental to the cost of the duct. Spacers for separation of individual ducts meeting the approval of the Resident Engineer shall be required and installed in place prior to pouring concrete. The installation of pull cords, plugs, reinforcement bars, duct markers, and concrete encasement, as shown on the plans, shall be included in the 110 contract unit prices.

110-3.3 DUCT WITHOUT CONCRETE ENCASEMENT

ADD the following to this Item:

All rigid steel duct, under pavement shall be installed to a minimum depth of 36 inches below the proposed finished grade at the locations shown on the Construction Plans.

110-3.4 DUCT MARKERS

ADD the following to this Section:

All existing ducts within the limits of this project under existing asphalt surfaces shall be marked with a 3" diameter brass marker located 2' in from the edge of pavement, of a type approved by the Resident Engineer. The brass markers shall be pre-stamped or chiseled on the job with the words "Electrical Duct * - way" on the cap. (* = 1, 2, or 4 as appropriate for duct bank). Existing ducts within the limits of this project under existing concrete surfaces shall be marked with a "D" chiseled into the existing concrete two feet in from each edge of pavement directly over the duct. New or existing ducts located under new asphalt or concrete pavements shall be marked with a 3" diameter brass marker located 2' in from the edge of pavement, of a type approved by the Resident Engineer, marked on the cap as indicated above. The costs for duct markers shall be included in the 401 and/or 501 pavement contract unit prices.

METHOD OF MEASUREMENT

ADD the following to this Section:

110-4.3 The quantity of underground duct removed and underground concrete duct bank removed to be paid for under these items shall be the number of lineal foot of duct and concrete duct bank removed, measured in place prior to removal, completed, and accepted by the Resident Engineer. Separate measurements shall not be made for the various types and sizes and number of ducts in each concrete duct bank.

Unless noted otherwise on the plans, underground ducts and conduits required for the installation of the proposed PAPI system shall not be measured for payment or paid for under this item. Unless noted otherwise on the plans, the cost of ducts and conduits required for the proposed PAPI system shall be included in the contract AR801622 contract unit price.

BASIS FOR PAYMENT

ADD the following to this Section:

110-5.2 Payment will be made at the contract unit price per lineal foot for duct and concrete duct bank removed completed and accepted. This price shall be full compensation for furnishing all materials and for all preparation, excavating, cable protection, jumper cables, saw cutting, removals, disposal of waste, replacement cables (if required), cable splices (if required), compacted sand backfill, and placing of materials as may be required to complete these items as detailed on the plans, and for all labor, equipment, tools, and incidentals necessary to complete these items.

Cables installed to replace damaged cables shall not be paid for under any contract pay item. The Contractor shall be responsible for all costs associated with repairing and/or replacing existing cables.

Payment will be made under:

ITEM AR110216 -- 5" STEEL DUCT, DIRECT BURY -- per lineal foot.
ITEM AR110501 -- 1-WAY CONC. ENCASED DUCT -- per lineal foot.
ITEM AR110502 -- 2-WAY CONCRETE ENCASED DUCT -- per lineal foot.
ITEM AR110503 -- 3-WAY CONCRETE ENCASED DUCT -- per lineal foot.

ITEM 125 - INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.2 ADD to this Section the following:

This item shall consist of base mounted MITL units, taxi guidance signs, base mounted MIRL units, splice cans, remove guidance signs, replace guidance signs, replace light lense, relocate base mounted lights, replace guidance sign panels, analyze scan system, supply guidance sign panels, and replace existing VASI system with PAPI system as indicated on and at the locations shown on the Construction Plans in accordance with these special provisions. Also included in this item will be the testing of the installed, relocated, refurbished items and all other incidentals necessary to place and/or replace the lighting, L-880 PAPI, and scan systems back into operation complete to the satisfaction of the Resident Engineer.

The existing equipment and materials scheduled to be removed, refurbished, and/or relocated shall be removed by the Contractor with care so that all materials considered suitable for future use by the Resident Engineer may be salvaged. Equipment and materials having salvage value shall be removed without damage and those having no salvage value shall be removed and disposed of by the Contractor in a suitable location off of airport property. The Contractor shall clean the salvageable materials and equipment to the satisfaction of the Resident Engineer. Any components damaged by the Contractor during removal, refurbished, and/or relocation shall be replaced or repaired by him at no additional cost with a similar unit (approved by the Resident Engineer) that is compatible with the remainder of the system. All salvageable equipment and materials removed and not reused shall remain the property of and be delivered to the Metropolitan Airport Authority. The Contractor shall deliver the salvaged items to a location designated by the Airport Maintenance Manager. All excavating required to remove existing equipment and materials shall be backfilled with compacted sand.

The Contractor shall field inspect the existing runway/taxiway lighting system, guidance signs, VASI-4 system, surface sensor system and scan system, prior to purchasing the proposed equipment and cables, to ensure the new equipment and cables are compatible to the existing system. Any noncompatible components furnished by the Contractor shall be replaced by him at no additional costs with a similar unit (approved by the Resident Engineer) that is compatible with the remainder of the system.

Wiring, cables, guard wire, ground wire, ground rods, cable trenching, conduit, duct, duct markers, cable markers, fittings, rebar, concrete, crushed aggregate rock, unistrut, switches, meter sockets, transformers, grounding, removal and disposal of existing foundations and equipment, backfilling, testing, and all other incidentals required to complete the replacement of the VASI-4 system shall be supplied and constructed in accordance with the applicable portions of Items 108, 110, 209 and 610 of the "Standard Specifications for Construction of Airports", these special provisions, FAA-GL-918C, and the details in the plans. However, these items shall not be measured for payment or paid for separately. The cost of all work items required to replace the existing VASI-4 system shall be included in the contract Item AR801622 lump sum unit price.

All new equipment supplied by the Contractor shall appear on the current approved Equipment List found in AC 150/5345-53A and -2 (Airport Lighting Equipment Certification Program and/or Airport Electronic Bulletin Board Number 14).

EQUIPMENT AND MATERIALS

125-2.1 GENERAL

ADD the following to this Section:

(d) The existing L-862 high intensity runway edge/threshold lights on Runway 9-27 and Runway 13-31 are supplied with quartz light fixtures. All new lights shall have an overall height of 20 inches.

Existing light fixtures:

A. Runway Edge Lights:
R9-27 and R13-31 = L-862/120 watt, quartz.
R5-23 = L-861/30W.

B. Runway Threshold Lights:
R9-27 and R13-31 = L-862/200 watt, quartz.
R5-23 = L-861E/45W.

C. Taxiway edge lights = L-861T/30 watt, 6.6 AMP.

Existing isolation transformers:

A. Runway Edge Lights:
R9-27 and R13-31 = L-830-4, 100 watt.
R5-23 = L-830-1, 30W/45W.

B. Runway Threshold Lights:
R9-27 and R13-31 = L-836-6, 200 watt.
R5-23 = L-830-1, 30W/45W.

C. Taxiway edge lights = L-830-1, 30/45 watt, 6.6/6.6 AMP.

(e) The new PAPI system shall be subject to acceptance through the manufacturer's certification of compliance with the applicable specifications. The new PAPI cables and equipment shall be furnished and installed in accordance with these specifications and the FAA standard "Specification for Construction of Terminal Navigational Aid Facilities" (FAA-GL-918C) including the current supplementals. A copy of FAA-GL-918C (including the current supplementals) are included in the appendix to this document.

(f) It is the desire of the Owner to have interchangeable lighting equipment throughout the airport, therefore the Metropolitan Airport Authority reserves the right to select and/or approve electrical equipment and materials to be supplied for this project.

ADD the following paragraphs to this Section:

125-2.14 ANTI-SEIZE COMPOUND

Prior to reinstallling the existing light fixtures, the Contractor will apply an oxide inhibiting, anti-seizing compound to all screws, nuts, breakable coupling and all places where metal comes into contact with metal. The anti-seize compound will be as manufactured by I.T.T. brand "Contax" or an approved equal.

125-2.15 STAINLESS STEEL BOLTS

All base plate and stake mounting bolts shall be stainless steel. The Contractor shall supply and install new stainless steel bolts, washers, and nuts as required.

125-2.16 SIGNS

Signs shall be double faced; Type L-858Y, L-858R, L-858L, or L-858B as indicated on the Construction Plans; and in accordance with the requirements of the latest revision of FAA Advisory Circular 15/5345-44, Specifications for Taxiway and Runway Signs.

Each sign shall be supplied with sign panels as indicated in the Construction Plans. The Contractor may reuse existing sign panels as indicated on the Construction Plans, if the panels are in acceptable condition, as determined by the Resident Engineer.

Per FAA AC 150/5345-44G, Item 3.2.5.9e.; all replacement sign panels must be supplied by the original equipment manufacturer (OEM) or fabricated using a process approved by the OEM unless no longer in business or manufacturing the sign.

Signs shall be compatible in all respects with each other and with signs currently in place at the airport. Signs shall be Lumacurve or approved equal. Each sign installation shall include a sign splice can with it. The cost of the sign splice can shall be included in the sign contract unit price.

CONSTRUCTION METHODS

125-3.1 GENERAL

ADD the following to this Section:

Upon completion of the signage work, all frames, legend panels, and associated parts shall be sealed watertight with a durable silicone caulking compound approved by the Resident Engineer.

ADD the following to this Section:

125-3.4 IDENTIFICATION NUMBERS

Per instructions from the MAA, identification numbers will not be required on this project.

125-3.5 ITEM AR125415 MITL - BASE MOUNTED

This item shall include all work necessary to furnish and install a new base mounted L-861T MITL unit at the proposed locations as indicated on and detailed in the construction plans.

125-3.6 ITEM AR125442 TAXI GUIDANCE SIGN, 2-CHARACTER AND AR125446 TAXI GUIDANCE SIGN, 6-CHARACTER

This item shall include all work necessary to furnish and install new taxiway guidance signs as detailed in the Construction Plans. Proposed sign bases for proposed signs being installed adjacent to another existing or proposed signs shall be continuous with the base of the adjacent sign. Separate payments for individual items required to construct the sign shall not be counted or paid for. Proposed 2-character and 3-character signs shall be paid for under Item AR125442. The cost to furnish and install all items shown on the sign detail that is found in the Construction Plans (including splice cans) shall be included in the contract unit price.

125-3.7 ITEM AR125510 MIRL, BASE MOUNTED

This item shall include all work necessary to furnish and install new base mounted L-861 MIRL units at the proposed locations as indicated on and detailed in the Construction Plans.

125-3.8 ITEM AR125565 SPLICE CAN

This item or work shall consist of furnishing and installing electrical splice cans with lids complete, in accordance with this specification and as detailed on the Construction Plans. The concrete backfill around the can shall conform to Item 610 Structural Concrete, but will not be measured for payment or paid for separately. A solid metal lid shall be provided (L-867, size B, 12" steel cover). Splice cans installed or relocated as part of installing or relocating taxiway guidance signs shall not be counted for payment under this item, but shall be included in the unit price costs for sign installation or relocation.

125-3.9 ITEM AR125904 REMOVE TAXI GUIDANCE SIGN

This item shall include all work necessary to remove existing taxi guidance signs as detailed in this special provision. The work to be included in this item includes, but is not limited to, disconnecting sign, disassemble sign, excavating sign base, removal and disposal of sign base, transporting sign equipment, backfilling excavation with topsoil, seeding area, supplying and replacing damaged equipment, and all other incidentals necessary to remove the existing equipment and return the remaining lighting system back into operation, complete to the satisfaction of the Resident Engineer. The Contractor shall either reuse the equipment removed at a new location or deliver the salvaged items to a location designated by the airport maintenance manager.

125-3.10 ITEM AR125924 REPLACE TAXI GUIDANCE SIGN

This item shall include all work necessary to remove existing taxi guidance signs and to furnish and install new taxiway guidance signs as detailed in the Construction Plans. The work to be included in this item includes, but is not limited to, disconnecting sign, disassemble sign, excavating sign base, removal and disposal of sign base, transporting sign equipment, backfilling excavation with topsoil, seeding area, supplying and replacing damaged equipment, furnish and install new sign, new sign base, new conduit, new sign splice can, new grounding rod, base rock, concrete, testing, and all other incidentals necessary to remove the existing, install the new and return the lighting system back into operation, complete to the satisfaction of the Resident Engineer. The Contractor shall deliver the salvaged items to a location designated by the airport maintenance manager.

125-3.11 ITEM AR125931 REPLACE LIGHT LENSE

This item shall include all work necessary to furnish and install new light lenses for existing L-861 light units at the proposed location as indicated on and detailed in the Construction Plans. Existing light lenses removed shall be delivered to the airport maintenance manager.

125-3.12 ITEM AR125962 RELOCATE BASE MOUNTED LIGHT

This item shall include all work items that are necessary to remove and reinstall existing base mounted edge lights as detailed in the Construction Plans. The work to be included in this item includes, but is not limited to, disconnecting light fixtures, excavating base can, disconnecting unit duct, removing base can, transporting base can, relocating short sections of existing edge light cable in unit duct, backfilling excavation with compacted sand, excavating new can location, installation and compaction of sand leveling cushion, reconnecting unit duct, new grounding rod, concrete backfill, backfilling with compacted sand, reinstalling equipment, testing, supplying and replacing damaged equipment, and all other incidentals necessary to relocate the existing equipment and return the system back into operation, completed to the satisfaction of the Resident Engineer. Separate payments for these items shall not be made.

The cost to complete these items shall be included in the contract unit prices. The Contractor shall replace any item damaged during the relocation of the edge lights with a similar unit (approved by the Resident Engineer). The Contractor shall ascertain that the equipment and cables furnished by him are compatible in all respects with the existing equipment and cables. Any noncompatible components shall be replaced by the Contractor at no additional costs with a similar compatible unit.

125-3.13 ITEM AR801605 REPLACE TAXI GUIDANCE SIGN PANEL

This item shall include all work items that are necessary to remove existing and supply/install new taxiway guidance sign panels as directed by the Resident Engineer. The work to be included in this item includes, but is not limited to, supplying new lumacurve sign panels, removing existing sign panels, disposal of removed sign panels, installing new lumacurve sign panels, resealing sign, and all other incidentals necessary to replace the existing sign panels and return the system back into operation, completed to the satisfaction of the Resident Engineer and the MAA.

The costs to complete the above items shall be included in the contract unit price. The Contractor shall replace any item damaged during the sign panel replacement with a similar unit (approved by the Engineer). The Contractor shall ascertain that the equipment furnished by him is compatible in all respects with the existing equipment. Any noncompatible components shall be replaced by the Contractor at no additional costs with a similar compatible unit.

125-3.14 ITEM AR801614 SUPPLY TAXI GUIDANCE SIGN PANEL

This item shall include all work items that are necessary to supply and deliver new taxiway guidance sign panels to be installed by the MAA in existing signs as directed by the Resident Engineer. The work to be included in this item includes, but is not limited to, supplying and delivering new lumacurve sign panels to the MAA maintenance building at the airport. The proposed sign panel legends shall be identified in the field at the time of construction.

125-3.15 ITEM AR801622 REPLACE VASI WITH PAPI

This item shall include all work that is necessary to remove the existing VASI system and furnish and install new equipment and cables for the proposed R5 PAPI system as detailed in the Construction Plans, FAA-GL-918C including supplementals (appendix to this document), and these specifications. The work to be included in this lump sum item includes, but is not limited to, wiring, cables, guard wire, ground wire, ground rods, cable trenching, cable markers, conduit, duct, fittings, grounding, rebar, concrete, foundations, footings, crushed aggregate rock, removal and disposal of existing foundations/posts, aiming, testing, sand backfilling, new equipment, and all other incidentals necessary to remove the existing VASI system and furnish and install the proposed PAPI system, completed and operational to the satisfaction of the FAA, MAA, and the Resident Engineer. Separate payment for these items shall not be made.

All electrical work shall be in accordance with the power company and FAA-GL-239 specifications. Installation shall conform to the applicable sections of the National Electrical Codes and local codes. The Contractor shall pay special attention to the following paragraphs: 3.1.1, 3.1.3, 3.2, 3.5, 3.6, 4.1, 4.4, and 4.7 of the specification FAA-C-1391a.

The Contractor shall install grounding bushings on all conduits and the ground wire shall be attached to them by Cadweld connections. The Contractor shall install the underground PAPI power cables with a minimum of 36" of cover over them. A #1/0 bare copper conductor shall be installed 10" above the power cables. When trenching between the PAPI boxes, the Contractor shall trench on the North side of the boxes.

The FAA shall supply four LHA units to the Contractor. The Contractor shall install the four LHA units supplied by the FAA. The Contractor shall supply and install all other necessary electrical equipment, conduits and cables, as detailed in the Construction Plans, to produce a complete and operational system. The Contractor shall run all cables into the LHA units and leave 3' of slack without making final connections. The FAA shall make the final connections in the LHA units. All other electrical connections shall be accomplished by the Contractor.

New FAA cables shall be tested in accordance to FAA-GL-918C (including supplementals). Electrode grounds shall be tested for resistance per FAA-GL-918C (including supplementals). The Contractor shall not backfill until a representative of the FAA has witnessed and approved the installation. The Contractor shall be responsible to coordinate these inspections with the FAA.

Underground cables shall conform to the requirements of FAA-GL-918C (including supplementals). Where unit duct is called for, the proposed cables and unit duct shall be factory assembled and delivered to the site on reels. The unit duct shall conform to the requirements of contract item 108 and be two inches (2") in diameter.

The Contractor shall provide a written warranty to the FAA that work performed and materials supplied under this contract conforms to the FAA requirements and is free of any defects in equipment, materials, or design furnished, or workmanship performed by the contractor, subcontractors and suppliers. This warranty shall continue for a period of one year from the date of final FAA acceptance of the work. If the FAA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the FAA takes possession. Under this warranty, the Contractor shall replace any item found to be defective by the FAA with a new item at no additional costs.

125-3.16 ITEM AR801625 ANALYZE SCAN SYSTEM

This item shall include all work that is necessary to completely analyze the existing scan runway weather information system (at the Quad City International Airport) to determine all incorrect conditions and readings, identify solutions to correct the conditions, and identify costs associated with each correction work item. The existing system shall be analyzed by the original equipment manufacturer (OEM). The OEM of the scan system is Surface Systems, Inc. (SSI); St. Louis, MO. The analysis shall include items to update the scan web 5.0 user interface data and map of the location of the major airfield scan components.

The major airfield scan components and location of those components are as follows:

QCIA SCAN SYSTEM

ITEM	SURFACE SENSOR	SUB-SURFACE TEMPERATURE PROBE	LOCATION
West RPU:			
R9 Touchdown	X	X	950' E. of R9
R13 Touchdown	X		850' SE of R13
R9 Between T-D and T-E	X		4,290' E of R9
R5 Between T-D and T-E	X		1,315' NE of Future R5
East RPU:			
R9-27 Mid-Field	X		6,100' E of R9
R31 Touchdown	X		850' NW of End of R31 Pvmnt.
R27 Touchdown	X		950' W of R27
R27 at T-N		X	2,060' W of R27

The Contractor shall field inspect and test the existing scan system to determine the condition of each component within the system. The Contractor shall have on-site interviews and meetings with MAA officials to insure all incorrect conditions are identified. The Contractor shall include costs in this item to correct all minor deficiencies which are identified in the scan system. The Contractor shall submit a written report which identifies and itemizes all incorrect conditions that exist in the QCIA scan system. The following list identifies some of the known problems with the QCIA scan system.

A. No reading shown on computer screen from surface sensor between T-D and T-E on R9-27.

B. No reading shown on computer screen from surface sensor at R27 approach.

C. No reading shown on computer screen from surface sensor at R31 approach.

D. Wind reading shown on computer screen from west RPU is incorrect.

E. Reading shown on computer screen for sub-surface temperature probe on R9-27 at T-N is labeled "Surface Sensor".

F. R9 approach surface sensor/sub-surface probe shown at old location in black-top on computer screen. This equipment should be shown 950' east of the end of the pavement.

METHOD OF MEASUREMENT

ADD the following to this Section:

125-4.2 The quantity of new light units, existing light units, splice cans, inpavement lights, and guidance signs to be installed, removed, adjusted and/or relocated, and existing taxi guidance sign panels to be replaced to be paid for under this item shall be the number, counted in place as indicated in this special provision, of each type and style installed, removed, adjusted, relocated and/or replaced as complete and accepted by the Resident Engineer.

125-4.3 The quantity of replace VASI with PAPI to be paid for under this item shall be on a lump sum basis for a complete and operational system as accepted by the FAA, MAA and the Resident Engineer. Separate measurements for payments for individual items in the completed system shall not be made.

125-4.4 The quantity of analyze scan system to be paid for under this item shall be measured per lump sum for furnishing all materials, equipment, meetings and reports required for this work including all necessary items installed in place, operational and accepted as a complete installation.

BASIS OF PAYMENT

125-5.1 REVISE the first sentence of this Section to read as follows:

Payment will be made at the contract unit price per each complete light, splice can, guidance sign, and/or guidance sign panel installed in place, removed, adjusted, relocated, and/or replaced by the Contractor and accepted by the Resident Engineer.

ADD the following to this Section:

125-5.2 Payment will be made at the contract unit price per lump sum for the completed, put into operation, and accepted replace VASI with PAPI system. 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, testing, aiming, and incidental necessary including cables, conduits, guard wires, grounding, equipment, and duct as required to complete this item.

125-5.3 Payment will be made at the contract unit price per lump sum for the completed and accepted analyze scan system. 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, testing, reports and incidentals necessary to complete this item.

Payment will be made under:

ITEM AR125415 – MITL - BASE MOUNTED -- per each.
ITEM AR125442 -- TAXI GUIDANCE SIGN, 2 CHARACTER -- per each.
ITEM AR125446 -- TAXI GUIDANCE SIGN, 6 CHARACTER -- per each.
ITEM AR125510 -- MIRL, BASE MOUNTED -- per each.
ITEM AR125565 -- SPLICE CAN -- per each.
ITEM AR125904 -- REMOVE TAXI GUIDANCE SIGN -- per each.
ITEM AR125924 -- REPLACE TAXI GUIDANCE SIGN -- per each.
ITEM AR125931 -- REPLACE LIGHT LENSE -- per each.
ITEM AR125962 -- RELOCATE BASE MOUNTED LIGHT -- per each.
ITEM AR801605 -- REPLACE TAXI GUIDANCE SIGN PANEL -- per each.
ITEM AR801614 -- SUPPLY TAXI GUIDANCE SIGN PANEL -- per each.
ITEM AR801622 -- REPLACE VASI WITH PAPI -- per lump sum.
ITEM AR801625 -- ANALYZE SCAN SYSTEM -- per lump sum.

DIVISION VIII MISCELLANEOUS
ITEM AR801623 LOW PROFILE BARRICADES

DESCRIPTION

801-1.1 This item shall include all work necessary to supply and maintain new airport low-profile barricades in accordance with these special provisions to the satisfaction of the Resident Engineer. The Contractor shall install, remove, and reinstall the low-profile barricades as required by working conditions and as approved by the Resident Engineer. Following the completion of this project, the low-profile barricades shall become the property of the MAA. The Contractor shall make all necessary repairs and supply new components to the low-profile barricades (as determined by the Resident Engineer) to provide the MAA with completely operational and like new low-profile barricades. The Contractor shall replace any items on the low-profile barricades that are damaged during the construction of this project.

The Contractor shall maintain the low-profile barricades in good condition during this project. The Contractor shall supply flags, lights, and batteries to keep the units operational at all times.

MATERIALS

801-2.1 All materials supplied by the Contractor shall meet the requirements of FAA AC 150/5370-2E "Operational Safety on Airports During Construction". Each barricade shall be equipped with a 12"x12" orange flag and red standard 3-way flashing light. The low-profile airport barricade shall be NAC (Neubert Aero Corp) Model PC 2410 or equal. The minimum length of the low-profile barricades shall be six feet (6'). A detail drawing of the low-profile barricade is attached to this document.

CONSTRUCTION METHODS

801-3.1 Low-profile barricades shall be installed and maintained for the temporary Taxiway L by-pass as shown and detailed in the safety plan located in the Construction Plans for this project. See Sheet 27 of the Construction Plans for the layout of the proposed low-profile barricades. The Contractor shall install, remove, and reinstall the low-profile barricades as directed by the Resident Engineer.

Following the completion of this project, the Contractor shall clean, repair and deliver the low-profile barricades to a location on airport property as directed by the airfield maintenance manager.

METHOD OF MEASUREMENT

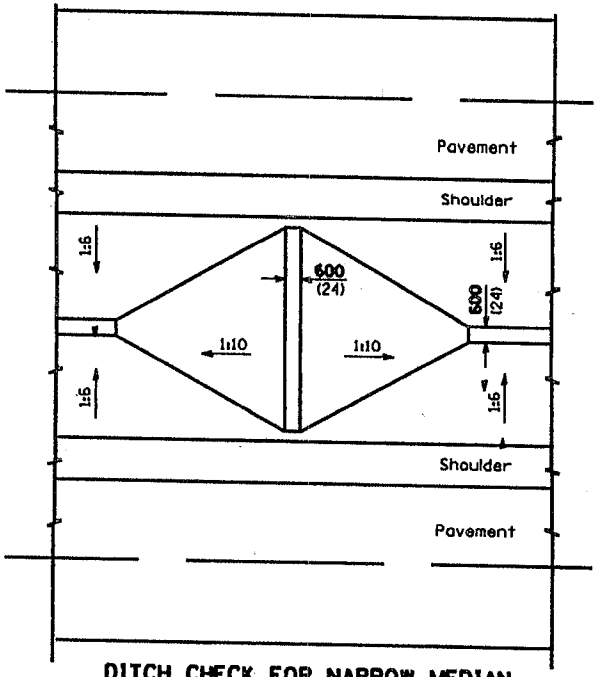
801-4.1 The quantity of low-profile barricades to be paid for under this item shall be the number, counted in place (as indicated in the special provision / construction plans) as complete units and accepted by the Resident Engineer.

BASIS OF PAYMENT

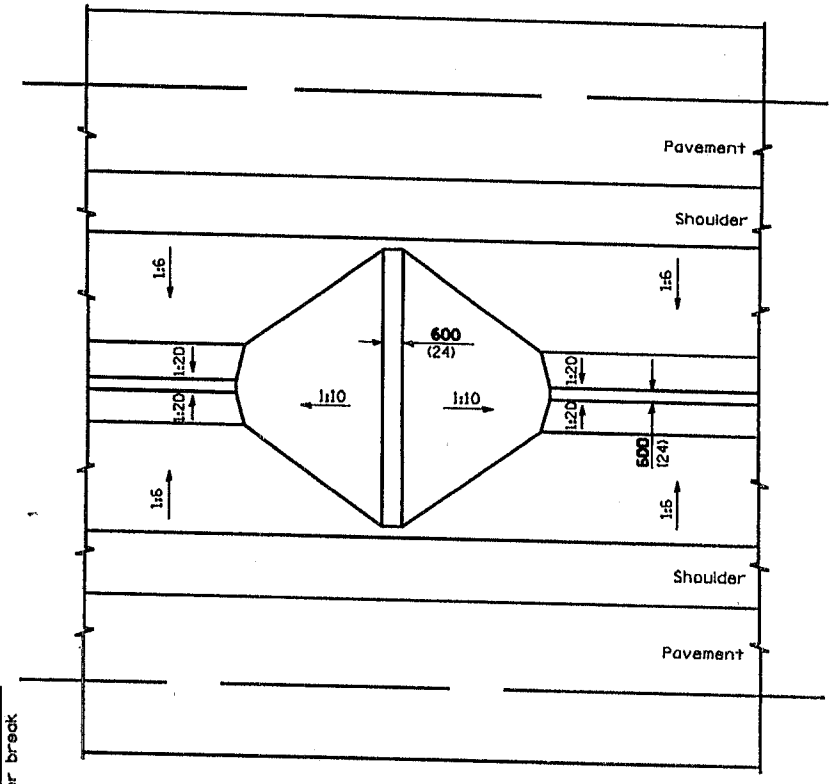
801-5.1 Payment will be made at the contract unit price per each complete low-profile barricade supplied and installed by the Contractor and accepted by the Resident Engineer. This price shall be full compensation for furnishing all materials, and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, maintenance, repair, part replacement, and incidentals necessary to complete this item. Following the completion of this project, the low-profile barricades shall become the property of the MAA.

Payment will be made under:

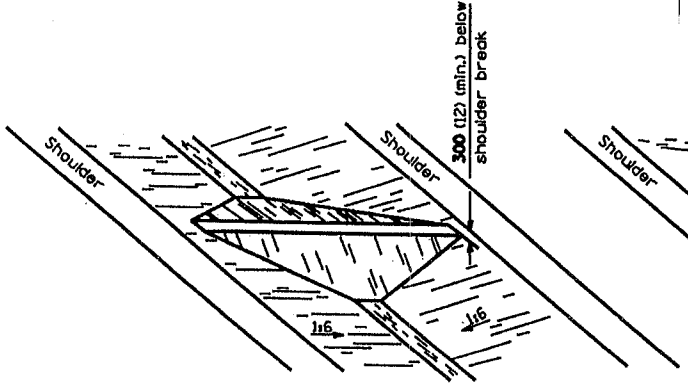
ITEM AR801623 – LOW PROFILE BARRICADE -- per each.



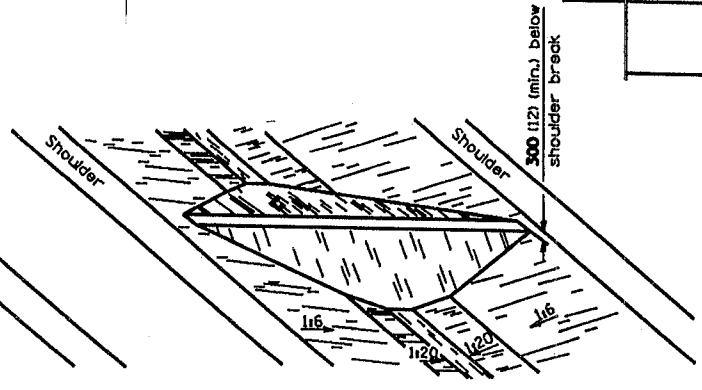
DITCH CHECK FOR NARROW MEDIAN



DITCH CHECK FOR WIDE MEDIAN



VIEW OF NARROW MEDIAN



VIEW OF WIDE MEDIAN

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 1997
ENGINEER OF POLICY AND PROCEDURES

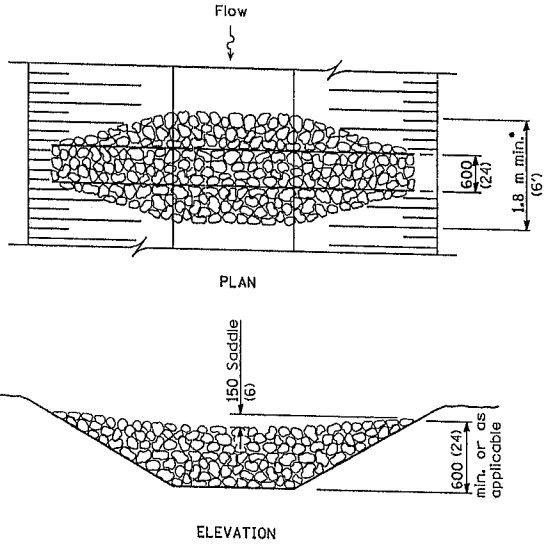
APPROVED January 1, 1997
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-97	Renum. Standard 2355-1.
6-15-94	G.N. were deleted.
	Added Metric.
	Rev. slope notes

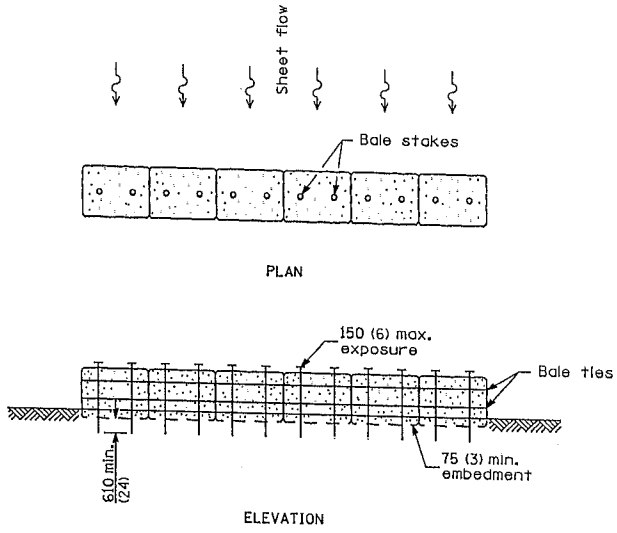
EARTH MEDIAN DITCH CHECK

STANDARD 202001

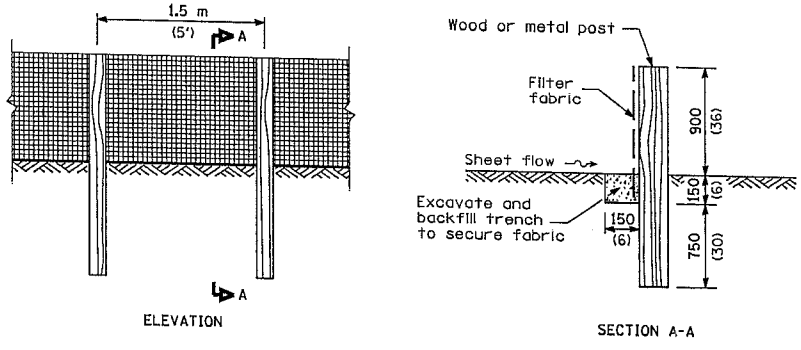


* When the ditch check is within the clear zone and the road is open to traffic, the traffic approach slope of the aggregate shall be 1:4 (V:H).

AGGREGATE DITCH CHECK



HAY OR STRAW BALES AS A PERIMETER EROSION BARRIER



SILT FILTER FENCE AS A PERIMETER EROSION BARRIER

GENERAL NOTES

The installation details and dimensions shown for perimeter erosion barriers shall also apply for inlet and pipe protection.

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

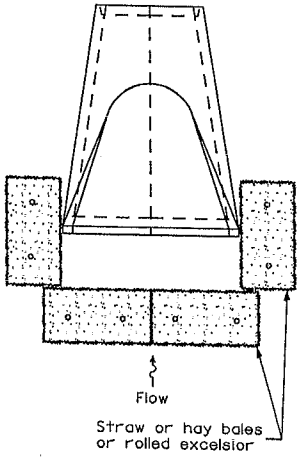
PASSED January 1, 2007
ENGINEER OF POLICY AND PROCEDURES
APPROVED January 1, 2007
ENGINEER OF DESIGN AND ENVIRONMENT
ISSUED 1-1-07

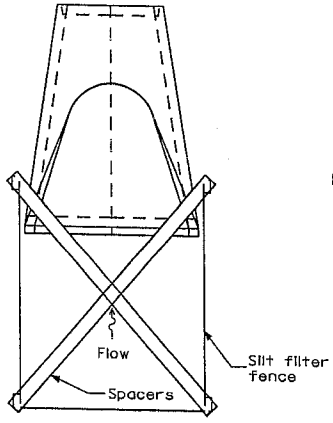
DATE	REVISIONS
1-1-07	Removed 2 ditch check details and added 1 for perim. erosion barrier.
1-1-02	Rev. ditch ck details & added perimeter erosion barrier detail.

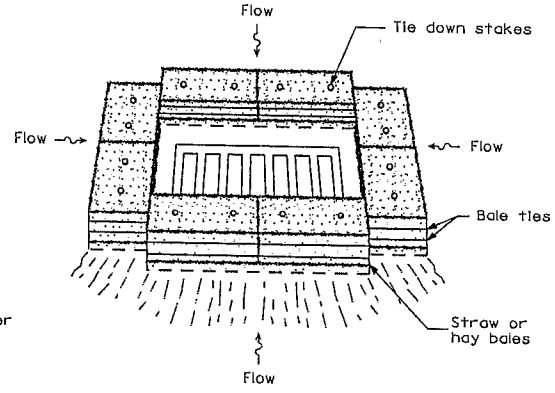
TEMPORARY EROSION CONTROL SYSTEMS

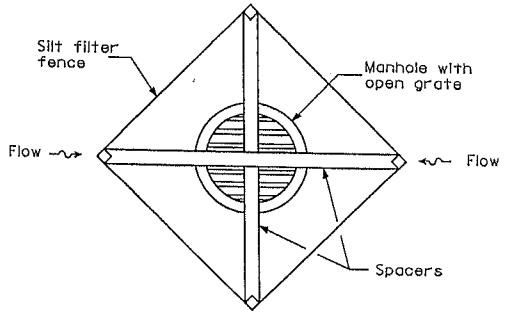
(Sheet 1 of 2)

STANDARD 280001-03

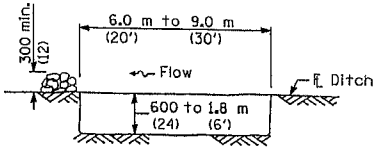






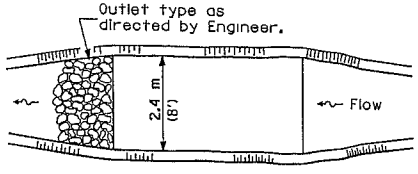


INLET AND PIPE PROTECTION



The performance of the basin will improve if put into a series.

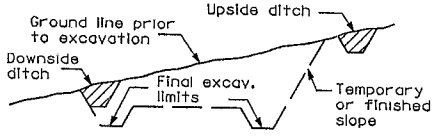
ELEVATION



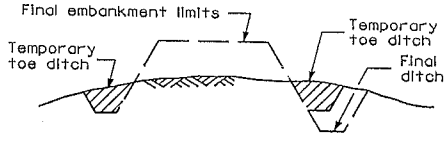
The long dimension should be parallel with the direction of the flow. Accumulated silt shall be removed anytime the basins become 75% filled.

PLAN

SEDIMENT BASIN



TYPICAL CUT CROSS SECTION



TYPICAL FILL CROSS SECTION

TEMPORARY DITCHES FOR CUT & FILL SECTIONS

Illinois Department of Transportation

PASSED January 1, 2007
ENGINEER OF POLICY AND PROCEDURES

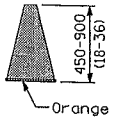
APPROVED January 1, 2007
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-07

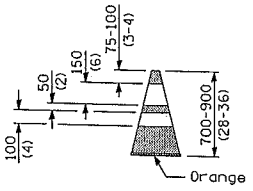
TEMPORARY EROSION CONTROL SYSTEMS

(Sheet 2 of 2)

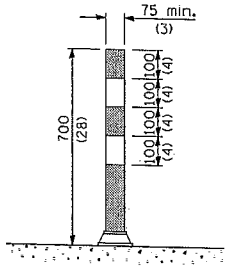
STANDARD 280001-03



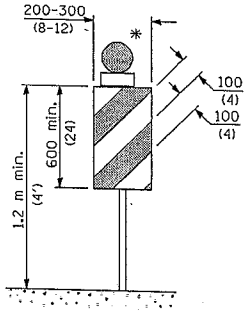
CONE



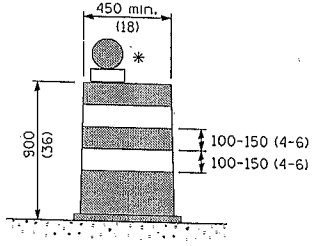
REFLECTORIZED CONE



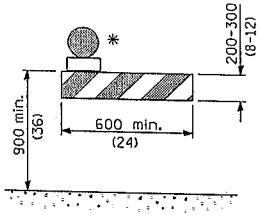
FLEXIBLE DELINEATOR



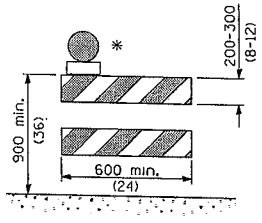
VERTICAL PANEL
POST MOUNTED



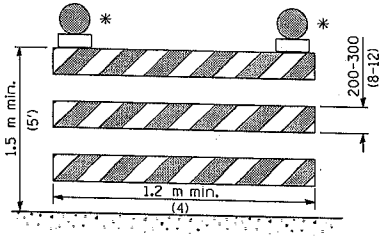
DRUM



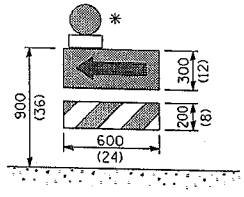
TYPE I BARRICADE



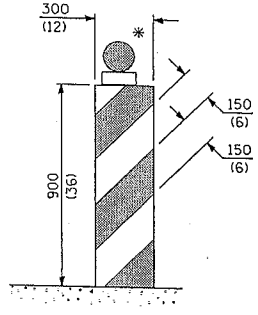
TYPE II BARRICADE



TYPE III BARRICADE



DIRECTION INDICATOR
BARRICADE



VERTICAL BARRICADE

* Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2006
ENGINEER OF OPERATIONS

APPROVED April 1, 2006
ENGINEER OF DESIGN AND ENVIRONMENT

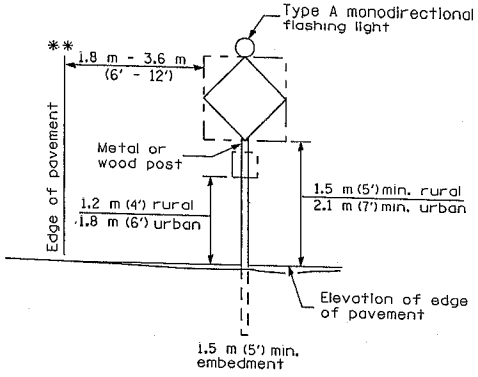
ISSUED 1-1-97

DATE	REVISIONS
4-1-06	Revised vert. barricade,
	post mounted signs, and
	signs on temp. supports.
1-1-05	Added note to work limit
	signing and re-added
	Type I barricade.

TRAFFIC CONTROL DEVICES

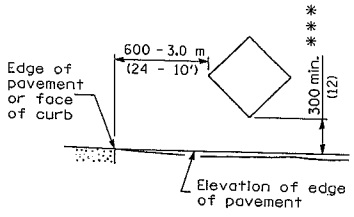
(Sheet 1 of 3)

STANDARD 702001-06



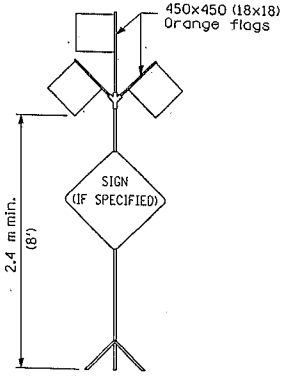
POST MOUNTED SIGNS

** When curb or paved shoulder are present this dimension shall be 600 (24) to the face of curb or 1.8 m (6') to the outside edge of the paved shoulder.

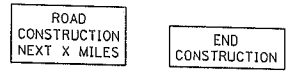


SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 1.5 m (5') min.



HIGH LEVEL WARNING DEVICE



G20-1(0)-6036 G20-2a(0)-6024

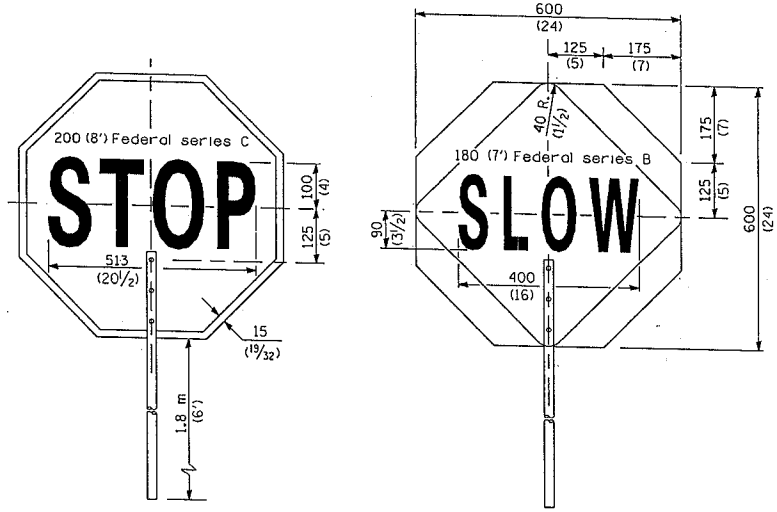
This signing is required for all projects 3200 m (2 miles) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 150 m (500') in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 3200 m (2 miles).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING



FRONT SIDE REVERSE SIDE

FLAGGER TRAFFIC CONTROL SIGN

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2006
ENGINEER OF OPERATIONS

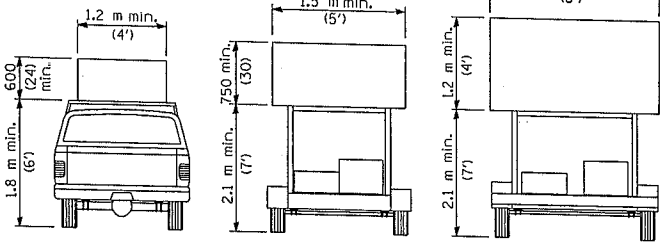
APPROVED April 1, 2006
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

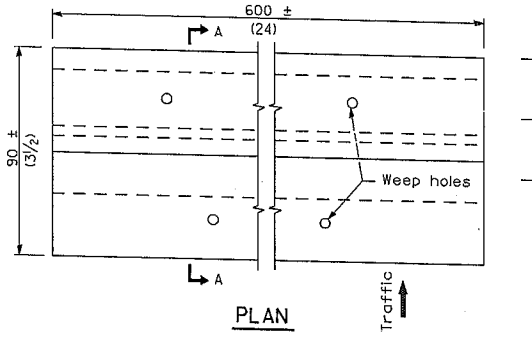
TRAFFIC CONTROL DEVICES

(Sheet 2 of 3)

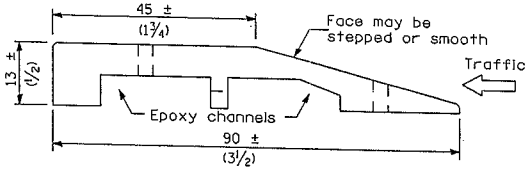
STANDARD 702001-06



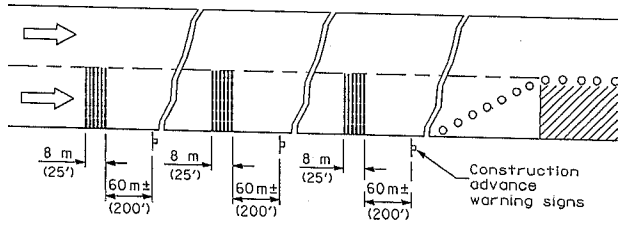
ARROW BOARDS

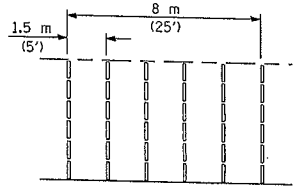


PLAN



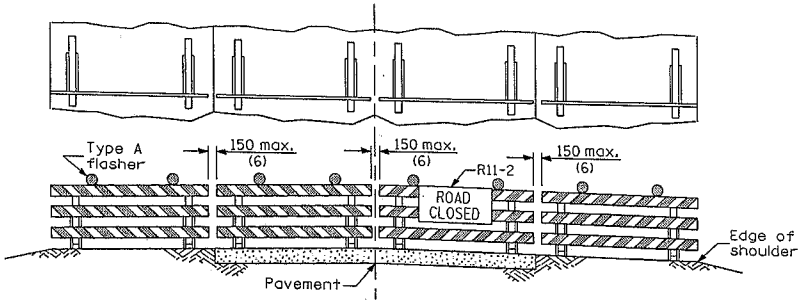
SECTION A-A





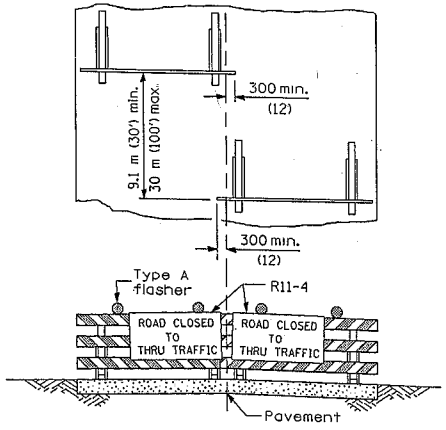
TYPICAL INSTALLATION

TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.



ROAD CLOSED TO THRU TRAFFIC

Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

TYPICAL APPLICATIONS OF
TYPE III BARRICADES CLOSING A ROAD

All dimensions are in millimeters (inches) unless otherwise shown.

Illinois Department of Transportation

APPROVED April 1, 2006
ENGINEER OF OPERATIONS

APPROVED April 1, 2006
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-97

TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

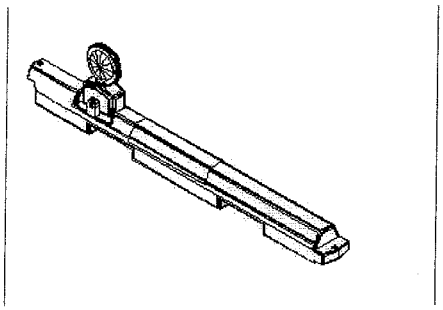
STANDARD 702001-06

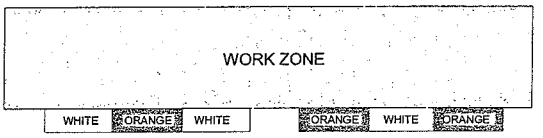
FACT SHEET

Airport Low-Profile Barricade

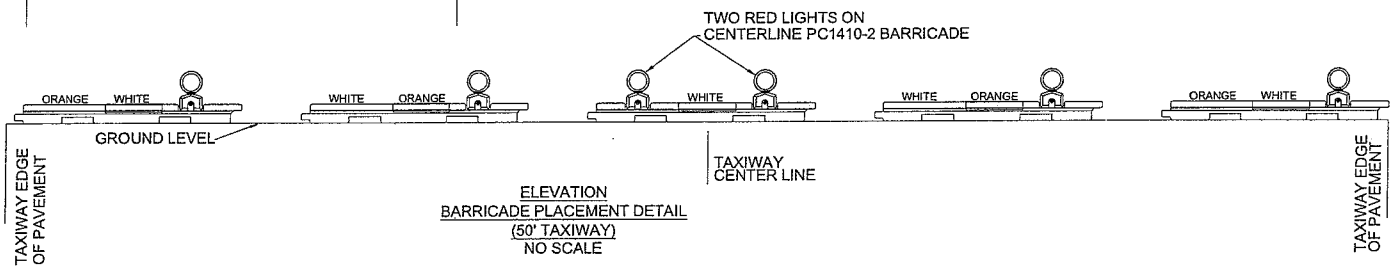
EXHIBIT A

NAC PC 2410 Airport Low-Profile Barricade-Reusable Runway and Taxiway Configuration





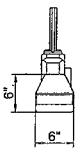
PLAN
BARRICADE PLACEMENT DETAIL
NO SCALE



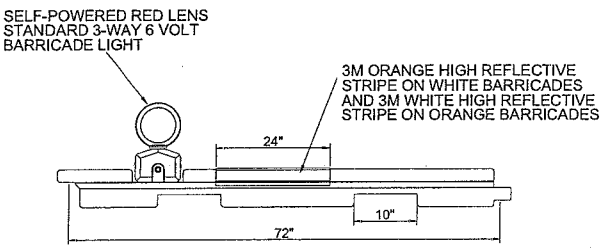
ELEVATION
BARRICADE PLACEMENT DETAIL
(50' TAXIWAY)
NO SCALE

NOTES:

1. BARRICADE CONSTRUCTED OF HIGH IMPACT, UV-RESISTANT POLYETHYLENE AS MANUFACTURED BY NEUBERT AERO CORP. (1-877-NAC-ARPT) OR SIMILAR APPROVED EQUAL.
2. EACH UNIT SHALL INCLUDE RED STANDARD 3-WAY LIGHT, 12" ORANGE FLAG AND 3M HIGH REFLECTIVE ORANGE TAPE.
3. BARRICADES SHALL BE PLACED AS SHOWN UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER.
4. BARRICADES ARE TO BE PROPERTY OF THE AIRPORT UPON COMPLETION OF THE PROJECT.



PROFILE
NO SCALE



ELEVATION
NO SCALE

ITEM AR 801623 DETAILS

SPECIAL PROVISION FOR PROTECTION OF CABLES, CONTROLS, NAVAIDS AND WEATHER BUREAU FACILITIES

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 control 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 Engineers acting under the orders and instructions of the airport management and/or the designated FAA representative. Any instructions to this Contractor to clear any given area, at any time, by the Engineers, the airport management, or the FAA 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.

The Contractor shall be responsible for contacting the appropriate agencies for locations. Power and control cables leading to and from any FAA NAVAIDS, Weather Bureau, and other facilities will then be marked in the field by those agencies 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 special provisions intend to make perfectly clear the need for protection of FAA NAVAIDS, Weather Bureau, and other facilities and cables by this Contractor at all times.

The Contractor shall immediately repair, with identical material by skilled workmen, any underground cables serving FAA NAVAIDS, Weather Bureau and other airport facilities, which are damaged by his 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 of the representative designated by the airport management 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 this Contractor. COSTS INCIDENTAL TO 108 CONTRACT UNIT PRICES.

PLEASE RECYCLE.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GREAT LAKES REGION
CHICAGO, ILLINOIS

FAA-GL-918C
November 30, 1994

SPECIFICATION FOR CONSTRUCTION OF TERMINAL NAVIGATIONAL AID FACILITIES

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DIVISION 1 - GENERAL REQUIREMENTS
SECTION 1A
SPECIAL CONDITIONS

1A.1 SCOPE.

a. This specification covers general requirements for construction of an Instrument Landing System (ILS) and Visual Guidance Lighting Systems. The complete ILS consists of several component facilities. The term visual guidance lighting systems covers lighting facilities. Refer to the solicitation package for types of facilities to be constructed. This specification includes requirements common to all facilities and requirements specific to individual facility types. In general, all parts of this specification covering construction required on project drawings and in other contract documents, are applicable to this contract.

b. The contractor shall furnish all plant, labor, materials (except Government-furnished property), equipment, energy, transportation, and other services necessary to construct all elements of the systems required in the specifications, drawings, and other contract documents. Construction shall include all miscellaneous and incidental work necessary for a complete and operational system, whether or not such work is specifically shown or specified.

1A.2 GOVERNMENT-FURNISHED PROPERTY. Government-furnished property (GFP) is also known as Government-furnished material (GFM). Government-furnished property for this contract is shown on the Government-Furnished Property List. The Government-Furnished Property List is the sole contract document which validly identifies Government-furnished property under this contract. The contract drawings give little or no indication of which items are Government-furnished. To determine whether an item of equipment or other material is Government-furnished, see the Government-Furnished Property List. For Government-furnished property, the contractor shall provide for and pay for loading of this property at the storage location (location indicated on the Government-Furnished Property List) and transportation to, and unloading at, the job site.

1A.3 CONTRACTOR-FURNISHED MATERIAL. The contractor shall furnish all material under this contract per Paragraph 1A.1b, except the Government-furnished property identified on the Government-Furnished Property List. The instruction install on the drawings means furnish and install unless the item(s) to which the instruction applies is Government-furnished property included in the Government-Furnished Property List. The contractor shall be aware that certain materials to be furnished by the contractor, may be long-lead-time items. Therefore, the successful bidder should determine the availability of all material immediately after contract award, and initiate procurement action on long-lead-time items at the earliest possible date. To facilitate the use of this specification in procuring material and equipment, see the Material and Equipment Specification Index at the end of this section. Where the specifications mention material or equipment by brand, it is regarded as a known acceptable source, as it meets specifications.

1A.4 SUBMITTALS AND BRAND NAME USAGE.

a. Introduction. Each product required for use in the contract drawings and specifications must meet the actual minimum needs of the Government as demonstrated in the salient (prominent, important) characteristics for that product. If a brand name product is used in the drawings or specifications, it should be regarded as a "known acceptable source" (i.e., a product that meets the actual minimum needs, and demonstrates the appropriate salient characteristics). The product used can be identical or equal to the brand name product or known acceptable source in meeting the salient characteristics, but it need not exceed the actual minimum requirements. Any brand name product or known acceptable source mentioned will, however, not be required for use in order to comply with the specification or drawing unless those documents make it clear that the brand name product is required, and substitution is prohibited. The following submittal procedure shall be followed in order to:

(1) Insure adherence to functional and quality standards in substitute contractor-furnished material.

(2) Inform the FAA of the contractor's plans to use certain material and equipment, e.g., splicing materials and tools, even if they are a known acceptable source.

b. Definition. A submittal is a collection of information required by specifications, or by the Contracting Officer, presenting detailed information on:

(1) Material or equipment items the contractor proposes to use.

(2) Methods or plans of action which the contractor intends to employ in specific situations.

c. Requirements. Submittal requirements are formally defined in a paragraph of the contract Special Specifications. Submittal guidance of varying extent is presented in this specification (FAA-GL-918C), as indicated in the Material and Equipment Specification Index at the end of this section. Each product that a contractor wishes to use that is not a known acceptable source, must be approved before use, by the Contracting Officer or the Contracting Officer's designee. To gain approval, the contractor must submit documents and/or samples that will demonstrate that that product clearly will meet the Government's minimum needs, and demonstrates appropriate salient characteri-stics. All submittals must be in writing. The Contracting Officer shall have the right to require submittals from the contractor where the contractor makes an unsolicited change proposal. The information presented in a submittal shall be sufficient to demonstrate that all specification requirements for the subject material, equipment, methods,

or plans, are met by the contractor's proposal. The informational materials may include documents such as shop drawings, sketches, calculations, data sheets, written plans of action, manufacturers' catalog cuts, brochures, and/or specification sheets. If the specifications or Contracting Officer requires actual samples of material or equipment, the contractor shall provide them. For any documentary submittal, the contractor shall submit four identical sets of documents.

d. Submittal Review. When submitting before the Notice to Proceed date, the contractor shall send the submittal package(s) directly to the Contracting Officer. When submitting after contract work has begun, the contractor shall give submittal packages to the Resident Engineer, who will forward them promptly to the Contracting Officer. The Contracting Officer may personally evaluate the submittal, or request FAA engineers to evaluate it. In either case, the submittal will return directly from the Contracting Officer to the contractor, with the Contracting Officer's approval, approval with comments, or disapproval.

e. Submittal Time Frame. To provide adequate time for document transmission and submittal review, the FAA reserves the right to take two weeks to complete a review, transmission date to transmission date. Terminal navi-gational aid contracts are brief contracts. The review process can therefore span a substantial portion of the contract period. For this reason:

(1) The contractor is urged to initiate submittals as soon as feasible after contract award, and to expedite document transmission.

(2) The Contracting Officer and other reviewers (if any) will expedite reviews and document transmission insofar as feasible.

Maximum use of fast document transmission modes (e.g., fax, couriers, and overnight freight forwarders) is encouraged.

f. Procurement Before Approval. The contractor is advised not to procure any item for which submittal approval is required but not yet granted. If approval is denied, the contractor will be prevented from installing the disapproved item(s). The contractor must transmit a new submittal package for the new items replacing the disapproved items, and must procure only approved items. The contractor shall take responsibility for the delivery and installation of any items installed before submittal approval is granted. The FAA reserves the right to discontinue field work on any item furnished without submittal approval. Procuring and/or installing material which is later disapproved could result in substantial losses of money and time for the contractor.

1A.5 PRE-CONSTRUCTION CONFERENCE. The contractor shall attend a pre-construction conference when required by the contracting officer or airport management. The contractor shall abide by all agreements reached at the conference regarding safety practices, ingress and egress routes to the site, maintenance of airport security (locking gates, etc.), deference to air traffic, and other operational procedures.

1A.6 COORDINATION. All coordination between the contractor and the airport management and local FAA personnel, shall be accomplished through the Resident Engineer.

1A.7 PROJECT DRAWINGS.

a. Conflict Between Site Drawings and Standard Drawings. If any conflict should exist between site drawings (location-specific drawings) and standard drawings (drawings not referring to a particular location), the site drawings shall govern.

b. Drawings Referenced But Not Provided. Unless otherwise specified, drawings which are referenced on contract drawings, but which are not listed in the list of specifications and drawings, do not apply to the contract.

1A.8 TEMPORARY ELECTRICAL POWER. Unless otherwise specified, the contractor shall make all arrangements and pay all costs for temporary electrical power needed for construction of the facility.

1A.9 COMPLIANCE WITH LOCAL AND OTHER CODES. The contractor shall comply with standards (e.g., National Electrical Code) adopted by the contract documents, and with local and other codes. Where the requirements of the specifications and drawings exceed those of the adopted and local codes, the contractor shall comply with the requirements of the specifications and drawings.

1A.10 SANITARY FACILITIES. Sanitary facilities are not available at the work sites. The contractor shall provide temporary toilet facilities as required for his employees. The locations of the toilet facilities shall be where directed by the Resident Engineer.

MATERIAL AND EQUIPMENT SPECIFICATION INDEX

Material or Equipment Specified	Relevant Paragraph(s)	Does the paragraph include: Product(s) listed?	Submittal guidance?
air conditioner	16A.17e	N	N
anti-seize compound	13A.2d(1)	Y	N
	13C.2b	Y	N
cable			
600V power cable, DEB	Section 16B	N	N
600V armored power cable, DEB	Section 16C	N	Y
5,000V power cable, DEB	Section 16D	N	Y
clamp	13A.2d(2)	Y	N
control cable	Section 16E	N	Y
connector protection	16A.24	Y	N
end caps	16A.8	Y	N
splicing connectors			
power	13A.6c	Y	Y
power and control	16F.6	Y	Y
splicing kits			
MALS power	13A.6b	Y	Y
power and control	16F.6	Y	Y
circuit breakers	16A.14b&e	Y	N
conduit	16A.1	N	N
	16A.3	N	N
door hardware for shelters	13E.4	Y	N
electrical coating	16A.25	Y	N
electrical enclosures and wireways	16A.15	N	N
electrical tape	16A.21	Y	N

MATERIAL AND EQUIPMENT SPECIFICATION INDEX (CONTINUED)

Material or Equipment Specified	Relevant Paragraph(s)	Does the paragraph include: Product(s) listed?	Submittal guidance?
environmental equipment for shelters	16A.17	Y	N
exothermic welding kits	16A.4f	Y	Y
expansion couplings	16A.27	Y	N
fiber forms for concrete piers	3B.7b	Y	N
fire and arc proofing	16A.23	Y	N
framing, commercial metal	16A.26	Y	N
frangible couplings	16A.20	Y	N
fuses for switches	16A.13f	Y	N
geotextile	2B.3a	Y	Y
grounding electrode			
material	16A.4c	N	N
crimped connectors for	16A.4g	Y	Y
grounding conductor	16A.4d	N	N
heater	16A.17c	Y	N
heater timer unit (components)	16A.17d	Y	N
landscape fabric	2B.3b	Y	Y
lamp, MALS 120-watt	13A.5	Y	Y
lighting equipment for shelters	16A.17f	Y	N
	16A.17g	Y	N
lightning protection equipment	16A.18	Y	N
paint	9A	N	N
	13E.7	Y	N
panelboard	16A.14	Y	N
pre-stretched rubber tubing	16A.22	Y	N

MATERIAL AND EQUIPMENT SPECIFICATION INDEX (CONTINUED)

Material or Equipment Specified	Relevant Paragraph(s)	Does the paragraph include: Product(s) listed?	Submittal guidance?
safety disconnect switches	16A.13	Y	N
screw anchor foundations	Section 13D	Y	Y
shelter steel siding	13E.8	Y	N
splicing connectors and kits	see under cable		
surge arrester	13F.7	Y	N
	16A.16	Y	Y
switches, safety	16A.13	Y	N
fuses for	16A.13	Y	N
tape	see electrical tape		
terminal strips for control cable	16A.19	Y	N
vent fan	16A.17a	Y	N
thermostat for	16A.17b	Y	N

DIVISION 1 - GENERAL REQUIREMENTS
SECTION 1B
SAFETY ON AIRPORTS

1B.1 DEFINITIONS.

a. Classified Area. A classified area is a graded and compacted safety area consisting of all land within 200 feet of runway centerline, for the full length of the runway and to 1,000 feet outbound of each end of the runway, or within 125 feet of taxiway centerline, or within 75 feet of edges of ramps.

b. Unclassified Area. An unclassified area is an area not located within a classified area.

1B.2 GENERAL PRECAUTIONS. The contractor shall abide by all requirements as specified herein, in the contract clauses, on the construction safety plan, and as established by airport authorities in thc pre-construction conference. The contractor shall be responsible for thoroughly explaining all safety and security precautions required on the airport to all workmen, both under his direct employment and under his subcontractors.

1B.3 CONSTRUCTION WITHIN CLASSIFIED AREAS.

a. Restrictions.

(1) Construction within or access through classified areas will not be permitted whenever runways or taxiways defining the classified areas are being used for aircraft operations.

(2) If runways and taxiways within classified areas are required to remain open, construction within the classified areas will be interrupted as necessary to permit normal aircraft operations.

(3) The portions of VASI, REIL, and PAPI construction in classified areas, involving the use of hand tools only, will generally not require runway or taxiway closure, unless otherwise specified or directed. Such work may include the assembly, installation, wiring and adjustments of equipment units, but will preclude the use or parking of construction equipment, or vehicles, in the applicable classified area.

b. Time Frame. All construction within classified areas shall be completed within the shortest possible time. Construction shall be performed continuously during normal working hours, excepting as otherwise specified, until all work within the classified areas is completed.

1B.4 CONSTRUCTION WITHIN UNCLASSIFIED AREAS. Construction will be permitted within unclassified areas while aircraft are using adjacent runways and taxiways, excepting as specified elsewhere or established during the pre-construction conference.

1B.5 MAINTENANCE OF AIRCRAFT OPERATING SURFACES. Soil, debris, or loose materials dropped or tracked onto airport roads, runways, taxiways, and ramps shall be immediately swept up and removed. Likewise, all loose material at the job site or dropped enroute to the job site which can be blown onto the above aircraft surfaces, shall be immediately placed in closed containers to prevent damage to aircraft.

1B.6 EQUIPMENT PARKING. All equipment not in use at the close of each day shall be parked as directed by the Resident Engineer or removed to a pre-designated area.

1B.7 RADIO COMMUNICATIONS. At airports served by airport traffic control towers or airport owner/operator radio communications facilities, (if so directed by the airport management), the contractor shall furnish and operate two-way radio communications with these facilities when personnel, vehicles, and equipment are required to enter the aircraft operations area, to obtain proper clearance for construction hazards to aircraft, and at all other times established during the pre-construction conference.

1B.8 TEMPORARY AIRCRAFT PAVEMENT TEMPORARY MARKING AND LIGHTING.

a. Installation. If runway and/or taxiway closure or runway threshold relocation or displacement is required, the contractor shall install temporary marking or temporary marking and lighting, as shown on the construction safety plan drawing(s), if any. All temporary marking shall be constructed of plywood, durable fabric, or other approved material, placed and secured so as to pose no threat of damage to aircraft, and which can be easily removed after construction completion.

b. Maintenance. It will be the contractor's responsibility to maintain the temporary marking and lighting in a condition acceptable to the Resident Engineer. If marking or lighting is damaged or becomes inoperative, the contractor shall immediately repair the affected items.

c. Removal. Upon acceptable completion of the work that necessitated runway threshold displacement or runway and/or taxiway closure, the contractor shall remove all temporary marking and lighting, and shall return the runway and taxiway and lighting configuration to the original condition.

DIVISION 2 - SITE WORK
SECTION 2A
EARTHWORK AND SITE IMPROVEMENTS

2A.1 DESCRIPTION OF WORK. The extent of earthwork is indicated on the drawings and by the provisions of this section. Require-ments for access road and site surfacing and paving are covered in Sections 2B and 2C.

2A.2 QUALITY ASSURANCE.

a. Codes and Standards. Perform all earthwork in compliance with applicable requirements of governing authorities having jurisdiction.

b. Testing and Inspection.

(1) Soil materials and degree of compaction shall conform to ASTM specifications referenced herein. Professional soil testing methods associated with this specification will generally not be required, but the FAA reserves the right to engage a state-licensed soil testing service to resolve disputes regarding adequacy of all earthwork performed.

(2) Visual inspection and qualitative testing shall be performed by the contractor in the presence of, and wherever directed by, the Resident Engineer.

2A.3 SAFETY REQUIREMENTS.

a. Refer to Division 1 for construction within classified and unclassified areas.

b. To protect life, property, and work, all earthwork operations shall be performed in compliance with local and OSHA (Occupational Safety and Health Administration) requirements. The contractor shall provide all sheeting, shoring, and other bracing as necessary.

c. All trenches in classified areas, excavated in one day, shall be backfilled during the same day. An effort shall be made to backfill other excavations in classified areas, during the same day.

2A.4 JOB CONDITIONS.

a. Existing Utilities.

(1) Locate all underground cables, utility lines, and other underground construction before beginning excavation work. Any damage to such lines or construction belonging to the FAA, utility companies, or others, shall be promptly repaired, at contractor's expense, to the complete satisfaction of the owner.

(2) Project drawings generally indicate locations of cables maintained by the Federal Aviation Administration only. The FAA will field establish approximate locations of its own cables.

b. Weather Conditions.

(1) Excavating and backfilling for foundations, trenches, and jacking or boring pits, shall not proceed when excessively wet or freezing weather conditions could adversely affect the load-bearing characteristics of the soil, or prevent proper compaction.

(2) When freezing weather is expected, excavations shall not be made to full depth unless concrete or conduits can be placed immediately. If an excavation is already at full depth, the excavation shall be protected from frost.

c. Drainage.

(1) All excavations shall be continually drained by natural means or pumping to prevent any decrease in soil bearing capacity or damage to poured foundations or to trenches.

(2) Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

(3) Establish and maintain temporary drainage ditches and other diversions outside excavations limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

2A.5 MATERIALS.

a. Structure and Foundation Materials. In-place undisturbed inorganic soils will be adequate to support all project structures, unless otherwise indicated. Highly organic soils (topsoil, peat, and swamp location soils) shall be removed entirely from areas to be occupied by structures.

b. Backfill and Fill. Material shall be inorganic soil excavated from site, or borrow comprised of inorganic soil approved by the Resident Engineer. All such soils shall be free of rock, gravel, and cohesive lumps greater than two inches in any direction, and debris, waste, vegetation, frozen material, and other deleterious materials.

c. Base Course for Concrete Slabs. Material shall be a graded mixture of washed crushed stone or crushed or uncrushed gravel with 100% passing a 1 1/2 inch sieve, and not more than 5% passing a number 4 sieve.

2A.6 SITE PREPARATION.

a. Clearing and Grubbing. The contractor shall scalp areas where excavation or embankment will be made. Scalping shall include the removal of materials such as trees, brush, roots, sod, grass, residue of agriculture crops, sawdust, and decayed vegetable matter, from the surface of the ground. These materials shall be removed from the site and disposed of off airport property.

b. Topsoil Removal.

(1) Topsoil shall be considered soil containing visible vegetable matter and black loam that will not compact with the usual compacting methods.

(2) Unless otherwise specified, topsoil shall be removed from all areas to receive fill, granular surfacing, pavement, and structures, and from all areas where subsoil excavating is required, such as for roadway cuts and ditches. Dispose of excess topsoil on or off airport property, as directed by the Resident Engineer, at no additional cost to the Government.

2A.7 EXCAVATION.

a. Excavation Classification. Excavation is unclassified and includes excavation to subgrade elevation indicated, regardless of character of materials and obstructions encountered excepting as qualified herein.

b. Rock Excavation. If rock is encountered above the design footing elevations of any facility structure, such foundation shall bear entirely on clean solid rock or on soil, but not on both. If the soil-and-rock bearing condition is encountered, the Resident Engineer will determine which material shall support the structure. If rock surface is used, it shall be reasonably level or shall be stepped to make level segments.

c. Unauthorized Excavation. Removal of materials beyond design subgrade elevations or dimensions without specific direction from the Resident Engineer constitutes unauthorized excavation. Remedial work for such excess excavation shall be as directed by the Resident Engineer at the contractor's expense.

d. Additional Excavation. When any excavation has reached required subgrade elevation, notify the Resident Engineer, who will inspect soil conditions. If the Resident Engineer determines that the soil possesses inadequate bearing capacity, carry such excavation deeper as directed by the Resident Engineer.

e. Excavation for Structures.

(1) Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services and other construction, and for inspection.

(2) In excavating for footings and foundations, take care not to disturb the bottom of the excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave a solid base.

f. Excavation for Cable and Conduit Trenches.

(1) Excavate in compliance with lines and depths shown on drawings. Minimum trench depth shall be 24 inches and 30 inches, on and off airport lands, respectively, unless otherwise specified. Slope trenches to same elevations as conduits where cables will be routed to a building interior. Minimum trench width shall be that required to accept power-operated mechanical tampers.

(2) Grade bottom surfaces of trenches to provide uniform bearing and continuous support for cable and conduit.

(3) Material excavated in excess by error, or due to unsuitable bearing, shall be replaced with mechanically compacted inorganic soil.

(4) If solid rock is encountered, the Resident Engineer will decide if such rock need be removed or if an alternate trench route or lesser depth conduit installation will be acceptable.

(5) If a trench must cross a concrete or asphalt paved surface, all cuts shall be saw cuts, unless otherwise specified.

2A.8 COMPACTION.

a. General.

(1) All compaction shall be accomplished by using power-operated mechanical equipment except for limited use of manual tampers in constricted areas. Operate all power equipment as herein specified to achieve the minimum degree of compaction subject to acceptance by testing.

(2) Cohesive soils are defined herein as those containing less than 60 percent sand, gravel, or stone. Percentages greater than 60 percent are herein termed non-cohesive soils.

b. Cohesive Soil Compaction.

(1) Use sheepsfoot roller of such minimum weight that at least 200 psi will be transmitted to surface area of studs or feet. Operate at speeds not exceeding 4 mph on each layer of fill until roller walks itself to top of grade.

(2) Use motor-operated soil tamper (stomper) in confined areas, including trenches, on each layer of fill until no further visible consolidation is evident.

(3) Use a heavy blunt tamping rod on each layer of fill in the most constricted locations where power equipment cannot be used.

c. Non-Cohesive Soil Compaction.

(1) Use pneumatic tire roller fully loaded and weighing not less than 275 pounds per inch of tire tread width. Operate at speeds not exceeding 4 mph. A minimum of ten passes of the roller is required on each layer of fill.

(2) Use motor-operated vibratory tamper in confined areas, including trenches, on each layer of fill until no further visible consolidation is evident.

(3) Use heavy blunt tamping rods on each fill layer in constricted locations where power equipment cannot be used.

d. Moisture Control.

(1) Where soil material must be moisture-conditioned before compaction, uniformly apply water to a layer of soil material in such quantity that free water will not appear on the surface during or subsequent to compaction operations.

(2) Scarify and air-dry soil material that is too wet to permit compaction to specified density.

e. Percentage of Maximum Density Requirements.

(1) General Requirements. The required densities for cohesive and non-cohesive soils are determined by quantitative testing procedures defined by ASTM Standards D 1557 and D 4253/4254, respectively. To assure compliance, the contractor may arrange for such professional soil testing services, at no additional cost to the Government. The FAA, at its expense, may also make such arrangements if qualitative testing procedures appear inadequate.

(2) Structures, Slabs, and Access Roads/Parking Areas. Compact top surfaces of subgrade and each layer of backfill or fill material to 90% of maximum density for cohesive soils, or to 95% relative density for non-cohesive material.

(3) Turf and Non-Vehicular Surfaced Areas. Compact top surfaces of subgrade and each layer of backfill or fill material to 90 percent of maximum density for cohesive soils, or to 90 percent relative density for non-cohesive material.

f. Qualitative Testing and Inspection Procedures.

(1) General. The contractor shall perform qualitative soil compaction testing and inspection procedures for each type of backfill or fill material used wherever directed by, and in the presence of, the Resident Engineer. Special attention shall be given to the backfilling of structures and trenches.

(2) Qualitative Testing.

(a) Qualitative soil testing will consist of comparing the resistance to penetration of undisturbed soil to that of compacted backfill of the same composition. For borrow material the penetration comparison shall be made between maximum test sample density and in-place fill density.

(b) A soil penetration device (penetrometer) indicating depth and force exerted shall be utilized. Compaction will be adequate if backfill or fill possesses at least 95% of the resistance to penetration of undisturbed soil or test sample, respectively.

(c) Borrow test sample shall be a four inch deep (compacted measurement) layer of soil, aerated or moistened as directed by the Resident engineer, and compacted by power equipment until no further consolidation occurs, as approved by the Resident Engineer.

(3) Concrete Slab Base Course. Compact with vibratory tamper until no further visible consolidation is evident.

2A.9 BACKFILL AND FILL.

a. Structure Foundations. Backfill or fill as promptly as work permits, but not until completion of the following:

(1) Acceptance of construction below grade.

(2) Recording locations of underground conduit.

(3) Removal of concrete formwork, bracing, trash, and debris.

b. Ground Surface Preparation. Remove vegetation, debris, topsoil, and unsatisfactory subsoil from ground surface, and compact the subgrade, prior to placement of fill layers.

c. Placement and Compaction.

(1) Place acceptable backfill and fill materials in layers not more than eight inches in loose depth for material to be compacted by heavy equipment, and not more than four inches in loose depth for material to be compacted by hand-operated tampers.

(2) Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Do not place backfill or fill on water, ice, snow, frozen soil, or excessively wet soil.

d. Cable Trench Backfill.

(1) Before laying cables, inspect the bottom of the cable trench. If it is not smooth, or if any rock or stone that would be retained on a 1/4-inch sieve is present, place a two-inch layer of bedding material, according to Paragraph (2) below, in the trench. Do not compact this layer. Lay cables on top of this layer.

(2) The first layer of backfill material over cables shall be three inches deep, loose measurement, and shall be sand or other homogeneous inorganic soil containing no mineral aggregate particles that would be retained on a 1/4-inch sieve. This layer shall not be mechanically compacted.

(3) The second layer, in turf and crushed rock surface areas, shall be four inches deep, loose measurement, and shall contain no mineral aggregate particles that would be retained on a one-inch sieve. Subsequent layers shall be clean soil containing no rock particles larger than two inches in their largest dimension.

(4) Except for surfacing material, all layers of trench backfill, for areas to be paved or surfaced with crushed rock, shall be sand, placed and compacted as required for access roads.

(a) If a trench crosses an area surfaced with crushed rock, the top 12 inches of trench backfill shall be crushed rock, placed and compacted as required for access roads. The finished grade elevation of the crushed rock backfill shall equal the grade elevation of existing adjacent crushed rock.

2A.9d(4)(b)

(b) If a trench crosses an area surfaced with concrete or asphalt pavement, the pavement shall be replaced with materials of the same composition, thickness, and degree of compaction as the adjacent pavement structure, except that the crushed rock base shall be a minimum of 12 inches deep. Replacement concrete shall have a 28-day compressive strength of 3,000 psi. Finished grade of the pavement patch shall be flush with the adjacent pavement surfaces.

e. Backfill and Fill Surface Elevations. Finished grade, shown on the drawings, is the top surface of turf and crushed rock or crushed stone surfaced areas. Therefore, make allowances for six inches of topsoil and depths as detailed or specified for surfaced areas when establishing top surface of fill or backfill.

2A.10 GRADING.

a. General. Uniformly grade areas within limits of grading, including adjacent transition area. Smooth the finished surfaces within specified tolerances, and compact with uniform slopes between points where elevations are indicated, or between such points and existing grades.

b. Grading Outside Building Lines. Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish areas to receive topsoil and surfacing within 0.10 feet above or below required subgrade elevations.

c. Grading Surface of Fill Under Building Slabs. Grade smooth and level and to proper elevation to within a tolerance of 1/2 inch when tested with a 10-foot straightedge.

2A.11 MAINTENANCE.

a. Protection of Graded Areas. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

b. Reconditioning. Where compacted areas are disturbed by construction operations, adverse weather, or where any settlement has occurred, scarify surface, add acceptable fill, reshape, grade, and compact as necessary.

2A.12 DISPOSAL OF EXCESS AND WASTE MATERIALS. Remove and dispose of all excess soil and waste material from the project site and adjacent lands. All costs associated with disposal shall be at contractor's expense.

DIVISION 2 - SITEWORK
SECTION 2B
CRUSHED AGGREGATE ROAD AND SITE SURFACING

2B.1 DESCRIPTION OF WORK. The extent of work is indicated on the drawings and by the provisions of this section.

2B.2 STATE SPECIFICATIONS. State highway construction specifications, latest edition, form a part of this specification and are applicable for all work unless otherwise specified. This referenced specification will be hereinafter referred to as "State Specifications." Disregard all references in the State Specifications to layout of work by others, and to measurements and payments. All layout work will be accomplished by the contractor, and payment for all work under this section will be a part of the lump-sum contract.

2B.3 MATERIALS.

a. Geotextile.

(1) Application. The most common application of geotextiles in FAA navaids construction is as a separator. In this application, the geotextile is placed over prepared roadway subgrade soil, and crushed aggregate is placed and compacted on top of the geotextile. The geotextile permits water to permeate into the subgrade, while preventing the aggregate from mixing with the subgrade soil. The geotextile specified below is for application as a separator.

(2) Separator Geotextile Selection Criteria. The geotextile fibers, and the threads used in joining the geotextile by sewing, shall consist of long chain polymeric fibers composed of polypropylene, polyester, polyolefins, or polyamide. Both the geotextile and threads shall be resistant to chemical attack, mildew, and rot. The geotextile shall conform to the physical property requirements listed in the following table. All values shall represent certifiable minimum values in the weakest principle direction of the fabric.

Property	Test Method	Requirement
Thickness	ASTM D-1777	75 mils, min
Grab tensile strength	ASTM D-4632	160 lbs, min
Grab elongation	ASTM D-4632	60%, min
Puncture resistance	ASTM D-4833	80 lbs, min
Mullen burst strength	ASTM D-3786	275 psi, min
Water flow rate	ASTM D-4491	130 gpm/ft^2, min
Permittivity	ASTM D-4491	1.74 sec^{-1}, min
Permeability	ASTM D-4491	33 cm/sec, min
Apparent opening size	ASTM D-4751	U.S. Sieve #70, max

Trevira Spunbond 1120 fabric manufactured by Hoechst Celanese Corporation is one of the products which meets these specifications. For any substitution, provide the Contracting Officer with complete product literature, including values of the properties tabulated above, and a sample of fabric. Do not procure any substitute before receiving the Contracting Officer's approval. See Paragraph 1A.4 above.

(3) Geotextile Fabric Width. Fabric width shall be at least 12.5 feet for the normal 13-foot-wide access road. Fabric in other vehicular areas shall be cut to fit, and overlapped per Paragraph 2B.4c(2)(b), below, to fully cover such areas.

b. Landscape Fabric.

(1) Application. Landscape fabric shall be applied under all non-roadway crushed rock surfacing, such as walkways around navaid shelters, at RVR sites, and between light bars of a MALSR. In these applications, landscape fabric is placed over prepared walkway subgrade soil, and crushed aggregate is placed and compacted on top of the landscape fabric. The landscape fabric acts as a separator, as does geotextile, and blocks weed growth. The contractor shall have the option of substituting geotextile per Paragraph 2B.3a, for landscape fabric.

(2) Landscape Fabric Selection Criteria. The landscape fabric fibers shall consist of long chain polymeric fibers composed of polypropylene, polyester, polyolefins, or polyamide. The fabric shall be resistant to chemical attack, mildew, and rot. The fabric shall conform to the physical property requirements listed in the following table. All values shall represent certifiable minimum values in the weakest principle direction of the fabric.

Property	Test Method	Requirement
Grab tensile strength	ASTM D-4632	100 lbs, min
Grab elongation	ASTM D-4632	60%, min
Trapezoidal tear	ASTM D-4533	30 lbs
Puncture resistance	ASTM D-751	25 lbs, min
Water flow rate	ASTM D-4491 modified)	30 gpm/ft^2, min
Permittivity	ASTM D-4491	.25 sec^{-1}, min
Apparent opening size	ASTM D-4751	U.S. Sieve #50, max

Typar 3301 landscape fabric manufactured by Reemay is one of the products which meets these specifications. For any substitution, provide the Contracting Officer with complete product literature, including values of the properties tabulated above, and a sample of fabric.

Do not procure any substitute before receiving the Contracting Officer's approval. See Paragraph 1A.4 above.

(3) Landscape Fabric Width. Fabric width shall be 3 feet wide for a 3-foot-wide crushed rock walkway. Fabric in other walkway areas shall be cut to fit, and overlapped per Paragraph 2B.4c(2)(a), below, to fully cover such areas.

c. Crushed Aggregate Surfacing.

(1) Crushed rock or crushed stone aggregate shall comply with State Specification quality requirements for crushed rock or crushed stone used for road surface course, and shall be of the State gradation most closely conforming with the following gradation:

Sieve Size	Total Passing, Percent
1-inch	100
3/4-inch	80-100
3/8"-inch	30-60
No. 4	48-65
No. 8	35-50
No. 30	19-30
No. 50	13-23
No. 100	7-15
No. 200	0-8

(2) A certified sieve analysis, referenced to State Specification gradation, shall be submitted to the Resident Engineer for approval.

2B.4 CONSTRUCTION.

a. General Requirements. All earthwork requirements in Section 2A for areas to receive surfacing are applicable, excepting as qualified herein. Where the additional work or more stringent requirements in this section conflict with Section 2A, requirements herein shall prevail.

b. Foundation Preparation.

(1) Foundation Material. All topsoil shall be removed from areas to receive paving and surfacing or fill under such surfaces. Only inorganic soil shall exist under surfaced or paved areas.

(2) Compaction. Compact as required in Section 2A.

(3) Grading. Shape with motor grader to achieve such surface trueness that when tested with a 10-foot straightedge, no deviation greater than 1/2-inch shall exist.

(4) Corrective Work. Any ruts or soft-yielding spots that may appear in the subgrade, any areas having inadequate compaction, and deviations of the surface from the requirements specified shall be corrected by loosening, removing, and adding approved material and reshaping and recompacting the affected areas to line and grade, and to the specified density.

c. Geotextile or Landscape Fabric.

(1) General. Geotextile or landscape fabric, if required on the drawings, shall be installed on prepared subgrade for all areas that will experience vehicular traffic or pedestrian traffic, respectively.

(2) Construction Requirements.

(a) Prepared subgrade and foundations shall be compacted smooth and level as specified elsewhere and as shown on the drawings.

(b) The fabric shall be rolled out directly upon the prepared surface, and shall not be dragged over any surface. Fabric in place shall have a smooth surface and shall be free of folds, wrinkles, cuts, or other imperfections. Individual panels of fabric shall be overlapped at least 24 inches, with the preceding layer overlapping the following layer in the direction that surfacing material will be spread. No vehicular traffic will be permitted directly upon the fabric.

d. Crushed Aggregate Surfaced Areas and Crushed Aggregate Base Course for Bituminous Pavement.

(1) Spreading. Crushed aggregate surfaced areas and base course shall be constructed in one or more layers of maximum 6-inch compacted thickness each. Crushed aggregate shall be deposited directly and uniformly on the prepared subgrade, if no geotextile or landscape fabric is used. If geotextile fabric is required, the aggregate shall be back-dumped on the fabric, and machine spread in the direction of overlap. Dumping in windrows, which requires excessive rehandling, will not be permitted. When deposited, the aggregate shall be free from segregation, and shall require minimum blading or manipulation.

(2) Compaction and Grading.

(a) Each layer of aggregate shall be compacted using equipment required in the State Specifications. For compacting aggregate on a geotextile or landscape fabric, use a smooth-drum roller. Compaction shall closely follow the spreading operation to prevent loss of contained moisture or displacement of materials.

(b) When the surface stability of the crushed aggregate cannot be obtained due to lack of fines, additional fines shall be added to the upper portion of the course in an amount sufficient to secure stability, at no additional cost to the Government. In no case, however, shall the quantity of fines added increase the percent passing the Number 200 sieve by more than 15 percent in the upper portion.

(c) Any irregularities or depressions that develop in the layers under rolling operations shall be corrected by loosening the material and removing or adding aggregate and rerolling. The rolling shall be continued until the surface is shown to be smooth and uniform, and to such trueness that when tested with a 10-foot straightedge it shall not show any deviation in excess of 1/4-inch. At all places not accessible to the roller, the aggregate of each layer shall be tamped separately and compacted to grade and line with mechanical tampers.

(d) If any subgrade material is worked into the aggregate material during the compacting or finishing operations, all granular material within the affected areas shall be removed and replaced with new aggregate. The Resident Engineer may restrict hauling or traffic over the completed or partially completed base after inclement weather or at any time when the subgrade is soft, and there is a tendency for the subgrade material to work into the base material.

(e) If considered necessary by the Resident Engineer, water shall be applied to each layer to aid in compaction and prevent segregation of the material. Disc or harrow surfacing material during moistening operations to secure uniform moisture distribution. Add water in a manner that will not soften the subgrade. All work associated with the additional water shall be accomplished at no additional cost to the Government.

(f) The aggregate shall be compacted to 95 percent maximum density as determined by AASHO-T99. Compaction shall continue until no further discernible compaction is evidenced under action of the compaction equipment. If in the opinion of the Resident Engineer, the required degree of compaction has not been achieved, testing in accordance with the standard will be conducted and paid for by the Government. If testing confirms unacceptable compaction, reconstruction or other remedial work may be required by the contractor at no additional cost to the Government.

DIVISION 2 - SITEWORK
SECTION 2C
ASPHALT CONCRETE PAVEMENT

2C.1 DESCRIPTION OF WORK. The extent of asphalt concrete pavement construction is indicated on the drawings and by the provisions of this section. Pavement construction will include placing prime and tack coats and asphalt concrete base and surface courses on prepared subgrade and aggregate base course.

2C.2 CERTIFICATION. Provide certification signed by material producer and contractor that all materials and mix compositions comply with the specified requirements.

2C.3 APPLICABLE SPECIFICATIONS.

a. American Association of State Highway and Transportation Officials (AASHTO) material referenced herein.

b. State Highway Construction Specifications.

(1) State highway construction specifications, latest edition, form a part of this specification and are applicable for all work, unless otherwise specified. This referenced specification will hereinafter be referred to as "State Specifications."

(2) Disregard all references in the State Specifications to layout of work by others, and to measurements and payments. All layout work will be accomplished by the contractor, and payment for all work under this section will be a part of the lump-sum contract.

(3) Prime and tack coats, as specified herein, are a requirement under this contract even if such coats are not required under the State Specifications.

2C.4 WEATHER LIMITATIONS.

a. Surface Conditions. Apply all coats and asphalt layers to dry surfaces only. Do not commence work when wet weather threatens.

b. Temperatures.

(1) Apply prime and tack coats when air temperature is above $50^{\circ}F$ and when temperature has not been below $35^{\circ}F$ for 12 hours immediately prior to application.

(2) Construct asphalt concrete base and surface courses when air temperatures are above $30^{\circ}F$ and rising, and above $40^{\circ}F$, respectively.

2C.5 MATERIALS.

a. General Requirements. Provide locally available materials that comply with the State Specifications for asphalt concrete pavements and all requirements herein.

b. Base (Binder) and Surface Course Aggregates. Provide sound angular crushed rock or crushed stone, sand, and stone screenings.

c. Asphalt Cement. AASHTO M 226 (ASTM D 3381) for viscosity-graded material and AASHTO M 20 (ASTM D 946) for penetration-graded material.

d. Prime Coat. Cut-back asphalt type; AASHTO M 82 (ASTM D 2027) MC-30, MC-70, or MC-250.

e. Tack Coat. Emulsified asphalt; AASHTO M 140 (ASTM D 977) or MC-208 (D 2397); SS-1, SS-1h, CSS-1 or CSS-1h, diluted with one part water to one part emulsified asphalt.

2C.6 ASPHALT-AGGREGATE MIXTURE. Provide plant-mixed, hot-laid asphalt-aggregate mixture complying with ASTM D 3515 and the State Specifications.

2C.7 CONSTRUCTION.

a. Surface Preparation.

(1) Prepare subgrade and provide road stabilization/ reinforcement fabric and aggregate base course as required in Sections 2A and 2B herein.

(2) Inspect aggregate base for unstable areas and areas requiring additional compaction before proceeding with pavement work and correct all unsatisfactory conditions.

b. Prime Coat. Apply at a rate of 0.20 to 0.50 gallons per square yard, over compacted aggregate base course. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile.

c. Tack Coat. Apply to surface of asphalt concrete base (binder) course and abutting surfaces of existing pavement, at the rate of 0.05 to 0.15 gallons per square yard of surface. Allow to dry before placing surface coat.

d. Placement of Mix.

(1) General. Place asphalt concrete mixture on prepared surface, spread, and strike off. Spread mixture at a minimum temperature of 225°F (107°C). Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness.

(2) Course Thickness. Unless indicated otherwise on the drawings, asphalt concrete base and surface courses shall be 3 inches and 1 1/2 inches thick, respectively.

(3) Paver Placing. Place in strips not less than 10 feet wide, unless otherwise acceptable to the Resident Engineer. After the first strip has been placed and rolled, place succeeding strips, and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

(4) Joints. Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have the same texture, density, and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat.

e. Rolling.

(1) General.

(a) Begin rolling when mixture will bear roller weight without excessive displacement.

(b) Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

(2) Breakdown Rolling. Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.

(3) Second Rolling. Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.

(4) Finish Rolling. Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.

f. Patching. Remove and replace paving areas mixed with foreign materials, and defective areas. Cut out such areas, and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.

g. Protection. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

2C.8 FIELD QUALITY CONTROL.

a. General. Test in-place asphalt concrete courses, at intervals as directed by the Resident Engineer, for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by the Resident Engineer.

b. Thickness. In-place compacted thickness will not be acceptable if they exceed the following allowable variation from required thickness:

(1) Base Course. 1/2-inch

(2) Surface Course. 1/4-inch

c. Surface Smoothness. Test finished surface of each asphalt concrete course for smoothness, using 10-foot straightedge applied parallel with, and at right angles to, centerline of paved area. Surfaces will not be acceptable if they exceed the following tolerances for smoothness.

(1) Base Course Surface. 1/4-inch

(2) Wearing Course Surface. 3/16-inch

(3) Crowned Surfaces. Test with crowned template centered and at right angle to crown. Maximum allowable variance from template: 1/4-inch.

DIVISION - SITEWORK
SECTION 2D
TOPSOIL AND GRASS COVER

2D.1 DESCRIPTION OF WORK. The extent of topsoil placement and establishment of grass cover is indicated on the drawings and the provisions of this section.

2D.2 GENERAL REQUIREMENTS. All areas of the project site, access road right-of-way, and cable trench routes, which will not be occupied by pavement, crushed rock/stone surfacing, or other construction, shall receive preparation and grass seed planting and maintenance. Included in this work will be off-site turf reconditioning and replacement for those areas damaged by construction operations.

2D.3 MATERIALS.

a. Topsoil. Material shall be that removed from project site location preparatory to trenching and site construction. Reuse only that part of stockpiled topsoil reasonably free of subsoil, trash, roots, stumps, weeds, debris, litter, and stones larger than 2 inches.

b. Fertilizer. Provide complete fertilizer of 5-10-5 composition (percentages of nitrogen, phosphorous, and potash, respectively).

c. Grass Seed. Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide the following seed mixture composed of grass species and proportions:

Proportion by Weight	Common Name
45%	Kentucky Bluegrass
5%	Perennial Ryegrass
35%	Redtop
15%	White Clover

d. Anti-Erosion Mulch. Provide clear, seed-free salt hay or threshed straw of wheat, rye, oats, or barley. Anchor the mulch sufficiently to prevent it from being blown away.

2D.4 PREPARATION FOR PLANTING.

a. Subsurface Preparation. After completion of all construction operations that could disturb topsoil areas, subgrades shall be cleared free of waste and stones larger than 2 inches, then tilled to a depth of 3 inches, and graded to remove surface irregularities.

b. Topsoil and Surface Preparation. Spread topsoil uniformly to provide a 6-inch layer, after compaction, on all fill and backfilled areas to receive grass seed. Compact with a roller weighing 85 to 100 pounds per foot of width. Subgrade and topsoil shall be damp when work is performed, but not wet, dusty, or frozen.

c. Preparation of Unchanged Grades. Where seed will be planted in areas that have not been altered by grading, prepare soil for planting as follows: till to a depth of 6 inches, apply fertilizer, remove high areas and fill depressions, till soil to a homogenous mixture of fine texture, free of lumps, stones, roots, and trash, and compact as above.

d. Fertilizer. Apply fertilizer at the rate of 30 pounds per 1000 square feet of area. Mix fertilizer into top 2 inches of topsoil.

e. Surface Preparation. Fine grade to a smooth, even surface and to a loose, uniformly fine texture. Roll, rake, and drag seeded areas, remove ridges, and fill depressions as necessary to meet finish grades. Limit work to areas that can be planted immediately. Moisten prepared areas before planting if soil is dry. Allow surface mixture to dry and proceed with seeding.

2D.5 SEEDING.

a. Seed Condition. Do not use old, wet, or moldy seed. The seed shall be dated with the year in which it is being applied.

b. Sowing. Use spreader or sowing machine. Do not seed when wind velocity exceeds 5 mph. Distribute seed evenly over entire area by sowing equal quantities in two directions at right angles to each other. Seed at rate of 5 pounds of seed per 1000 square feet of area. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with a fine spray.

c. Protection. Spread mulch uniformly to form a continuous loose blanket after completion of seeding operations. Anchor the mulch sufficiently to prevent it from being blown away.

2D.6 MAINTENANCE. Maintain for a period of 60 days after seeding. If maintenance for a 60-day period is not feasible, the contractor shall use a commercially available mix of seed, fertilizer, and long-lasting mulch, or a preseeded anchored mat that can be maintained less frequently with the same results. Water, fertilize, regrade, and replant as required to establish smooth, acceptable turf.

DIVISION 2 - SITE WORK
SECTION 2E
MISCELLANEOUS SITE IMPROVEMENTS

2E.1 DESCRIPTION OF WORK. The extent of miscellaneous site work is indicated on the drawings and by the provisions of this section.

2E.2 CONDUIT INSTALLATION BY JACKING OR BORING.

a. Materials. Conduit shall be 4-inch diameter, rigid, galvanized steel unless otherwise specified on the drawings. The leading end of the conduit to be jacked shall be equipped with an approved cap or point designed specifically for pipe jacking.

b. Excavation and Backfill of Jacking or Boring Pits. Excavation and backfill of all pits used for the installation of conduit shall conform to Section 2A.

c. Jacking Equipment. Pipe jacking equipment shall be an approved design for the purpose of jacking pipe and shall be capable of developing sufficient force to overcome frictional and/or other resisting forces built up over the distance involved.

d. Location. Conduit shall be located where shown on the drawings and/or as staked out by the Resident Engineer. Conduit shall be started into place at a minimum of 36 inches below finished grade, if not otherwise specified in the proposal or on drawings. The transverse alignment shall be considered satisfactory only when the terminating or leading end of the conduit exits within 5 feet of its intended location for a conduit length of less than 50 feet. For lengths greater than 50 feet, the transverse location must not be outside of 15 feet of the intended location. The vertical limits of the point of exit of the leading end of the conduit shall be between 24 inches and 50 inches below finished grade for conduits up to 50 feet in length and between 24 inches and 84 inches for conduits of greater length.

e. Conduit Length. Unless otherwise specified, conduit, no matter how installed, shall extend a minimum of 5 feet beyond each side of the pavement or structure.

f. Conduit Sealant. After completion of conduit and cable installation, both ends of the conduit shall be sealed with Permagum or other approved compound to prevent entrance of moisture.

2E.3 REMOVAL OF EXISTING FOUNDATIONS. All foundations of removed buildings, trailers, antenna supports, or other structures shall be removed to a minimum depth of two feet below final grade and backfilled with compacted earth in accordance with Section 2A, unless noted otherwise on the site drawings. The site areas shall be graded smooth and topsoil added to match the original terrain, unless otherwise specified.

2E.4 FACILITY RELOCATION.

a. General. Where relocation of a building, trailer, or other structure is required, the structure shall be moved intact to its new location. Interior circuits and equipment shall remain undisturbed and unchanged. Existing cables and conduits from the building to exterior shall be disconnected at convenient junction boxes, panels, or couplings. After a building is relocated, the new incoming cables and conduits shall be installed to the points where disconnections were made, unless otherwise specified.

b. Deviation From Standard. When standard drawings are provided for the installation and relocation of existing structures, relocate existing equipment in accordance with these drawings as much as possible. Deviations from the standards are permitted where provided for on the site drawings, or to accommodate nonstandard features of existing structures. The contractor shall check the dimensions of the existing structures and foundations against the standard drawings, note any discrepancies, and report them to the Resident Engineer. He shall construct the new foundation to accommodate these discrepancies.

c. Reference Drawings. The standard drawings often refer to other drawings not included in the list of specifications and drawings. Drawings referred to but not included pertain to original construction, and are unnecessary for relocation.

2E.5 FENCES.

a. Materials and Installation. All materials and installations shall be in accordance with project drawing requirements.

b. Fence Grounding. Grounding materials and procedures shall be in accordance with project drawing requirements. Fence grounding conductors may be attached to the grounding electrodes of a shelter perimeter grounding system if such electrodes are located 20 feet or less from the fences to be grounded.

2E.6 CULVERTS.

a. Material. When shown on the drawings, corrugated galvanized sheet metal pipe shall conform to the requirements of AASHTO standard specification M-36.

b. Installation. Excavation for culverts shall provide a firm uniform foundation. Backfill around culverts shall be the same materials used in the road embankment and shall be well compacted in layers of not more than eight inches. Unless otherwise specified, there shall be a minimum of one foot of cover over all culverts. Bed the bottom quadrant of culverts in undisturbed soil.

2E.7 REPLACEMENT OF SURFACING AGGREGATE AND PAVEMENT. For replacement of surfacing aggregate and pavement removed for trenching operations, see Paragraph 2A.9d(4) above.

2E.8 SPECIAL SURFACING.

a. General. If required on the drawings, surfacing for VASI, PAPI, and REIL light units, and all other small surfacing areas within 300 feet of runway and taxiway edges, shall be the material placed as required below. Special surfacing requirements will preclude displacement onto aircraft operating surfaces.

b. Material and Installation. Crushed rock or crushed stone surfacing at light unit locations shall be 4 inches deep and centered on the units. Material shall be 1 1/2 to 2 inches nominal size washed crushed rock. No substitutions will be accepted. Rock shall be tamped as tightly as material permits. Finished surface shall be flush with existing surrounding grade.

DIVISION 3 - CONCRETE
SECTION 3A
CONCRETE FORMWORK AND REINFORCEMENT

3A.1 DESCRIPTION OF WORK. Extent of work is indicated on the drawings and by the requirements of this section.

3A.2 CONCRETE FORMWORK.

a. Design of Forms. Forms shall conform to shapes, lines, and dimensions of the members shown on the plans, and shall be sufficiently tight to prevent leakage of mortar. They shall be properly tied together so as to maintain position and shape.

b. Form Removal. Forms shall not be loosened or removed until the concrete members have acquired strength sufficient to support their own weight. No additional loads shall be placed on the concrete for at least 48 hours after placing.

c. Form Ties. Form ties for concrete shall be of a type that will break back 1 1/2 inches from the concrete surface. Ties shall be removed to a minimum depth of 1 1/2 inches, and the surface patched.

3A.3 CONCRETE REINFORCEMENT.

a. Materials. Reinforcement bars shall conform to "Specifications for Billet - Steel Bars for Concrete Reinforcement", ASTM A-615. All bars shall be intermediate grade deformed bars.

b. Cleaning and Bending Reinforcement. At the time concrete is placed, metal reinforcement shall be free from rust scale or other coatings that will destroy or reduce the bond. All bent bars shall be bent cold. No bars partially embedded in concrete shall be field bent except as shown on plans.

c. Placing Reinforcement. Metal reinforcement shall be accurately placed according to the plans, and adequately secured in position by concrete, metal, or other approved chairs, spacers, or ties.

d. Splices in Reinforcement. No splices or reinforcement shall be made except as shown on the plans or as authorized by the Resident Engineer. All welding shall conform to the American Welding Society's recommended practices for welding reinforcing steel, metal inserts and connections in reinforced concrete construction (AWSD12.1).

e. Concrete Protection for Reinforcement. The reinforcement shall be protected by the thickness of concrete shown on the drawings. Where not shown, the thickness of concrete over the reinforcement shall be as follows:

(1) Where concrete is deposited against the ground without the use of forms, not less than 3 inches.

(2) Where concrete is exposed to the weather or to the ground but placed in forms, not less than 2 inches for bars larger than number 5, and 1 1/2 inches for number 5 bars or smaller.

DIVISION 3 - CONCRETE
SECTION 3B
CAST-IN-PLACE CONCRETE

3B.1 DESCRIPTION OF WORK. The extent of work is indicated on the drawings and by the provisions of this section.

3B.2 MATERIALS. Cement shall conform to Specification for Portland Cement ASTM C-150, Type I, or Specification for Air-Entraining Portland Cement ASTM C-175, Type 1A, unless otherwise specified. The concrete shall have a minimum 28-day compressive strength of 3,000 PSI, a maximum slump of 4 inches, and a maximum aggregate size of 1-inch. The concrete mix shall contain an air-entraining admixture. Air content shall be 5 to 7 percent. The contractor shall give the Resident Engineer a certificate from the concrete supplier, bearing the intended job mix and certifying that the concrete delivered will meet the above requirements. The contractor shall obtain approval of the job mix from the Resident Engineer prior to placing concrete.

3B.3 PREPARATION OF EQUIPMENT AND PLACE OF DEPOSIT.

a. Before placement, all equipment for mixing and transporting the concrete shall be cleaned. All debris and ice shall be removed from the places to be occupied by the concrete. Forms shall be thoroughly wetted (except in freezing weather) and oiled prior to placing reinforcing steel. The reinforcement shall be thoroughly cleaned of ice, dirt, rust scale, or other coatings.

b. Water shall be removed from place of deposit before concrete is placed. All laitance and other unsound material shall be removed from hardened concrete before additional concrete is added.

3B.4 CONVEYANCE. Concrete shall be conveyed from the mixer to the place of final deposit by methods that will prevent segregation or loss of materials. Equipment for chuting concrete shall be of such size and design so as to ensure a continuous flow of concrete at the delivery end without segregation of materials.

3B.5 PLACEMENT.

a. Concrete shall be placed within 1 1/2 hours after mixing begins. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. The placing of concrete shall be carried on at such rate that concrete is at all times plastic, and flows readily into the spaces between the bars. No concrete that has been contaminated by foreign material shall be used, nor shall retempered concrete be used.

b. When placing is started, it shall be carried on as a continuous operation until placement is completed.

3B.5c

c. Concrete shall be placed in layers not exceeding 18 inches deep, and vibrated in place. During and immediately after depositing, the concrete shall be consolidated by vibrators. The concrete shall be thoroughly worked around reinforcement, around embedded fixtures, and into corners. Accumulations of water on the surface of the concrete due to water gain, segregation, or other causes, shall be prevented as much as possible by employing proper placement, consolidation, and finishing practices. Provisions shall be made to remove such water as may accumulate, so that under no conditions will concrete be placed in such accumulations.

d. Vibrators shall be the internal immersion type, operating at speeds of not less than 7,000 RPM. Vibrators shall be kept constantly moving in the concrete and shall be applied at points uniformly spaced not further apart than the radius over which the vibrator is visibly effective. The entire depth of a new layer of concrete shall be vibrated. The vibrators shall penetrate several inches into the layer below to insure thorough union of the layers. The vibrator shall not be held in one location long enough to draw a pool of grout from the surrounding concrete. Vibration shall be such that the concrete becomes uniformly plastic.

3B.6 FOOTINGS. All footings and foundations without footings shall bear on firm, undisturbed soil.

3B.7 CYLINDRICAL CONCRETE PIERS.

a. All cylindrical concrete piers if required, shall be formed to full depth in fiber forms. Tops of piers shall be finished flat within the confines of the fiber forms. No spillage (mushrooming) over the tops of forms will be permitted. Where conduit emerges from vertical surfaces of concrete piers, no appreciable amount of concrete shall be permitted to spill through forms adjacent to such conduit.

b. Fiber forms for cylindrical concrete piers shall be spirally constructed of laminated plies of fiber. The total wall thickness shall be as published by the manufacturer. The width of each ply shall not be less than 6 inches. Plies shall be laminated with an adhesive of a non-water-sensitive type, with a proven record of satisfactory service in concrete forms. The exterior surface shall be uniformly wax impregnated for weather and moisture protection. The interior surface shall be coated with pure polyethylene uncontaminated by paraffin or other additives. A-Coated Sonotube forms by Sonoco Products Company of Hartsville, South Carolina, are among the products that meet these specifications.

3B.7c

c. Remove all loose soil from bore holes so that concrete will bear on undisturbed soil. Support forms rigidly and in proper horizontal and vertical alignment. After pouring, remove only that part of each form that will be exposed above grade. Backfill excess space between bore holes and forms with thoroughly compacted inorganic soil. Do not use sand backfill unless adjacent undisturbed soil is sand.

3B.8 ANCHOR BOLT INSERTS. No drilling for or placing of anchor bolt inserts or anchors will be permitted in concrete for a period of three days after placement, unless noted otherwise on the drawings.

3B.9 CURING.

a. Provision shall be made for maintaining concrete in a moist condition for a period of at least 5 days after placement.

b. In lieu of wet curing, one coat of a concrete coring sealer which forms a film over the concrete surface, may be used for curing the concrete. The sealer shall meet the ASTM C-309 and AASHTO M-14 specification for moisture retention as tested per ASTM C-156 and AASHTO M-155. The compound shall not be a type that permanently discolors the concrete. Symons Cure and Seal is one of the products which meet this specification. On exposed surfaces, application shall be made immediately after the concrete has been finished. If there is any delay, the concrete shall be kept moist until the application is made. After the forms are removed, the concrete shall be sprayed lightly with water, and then the coat of curing compound applied. If the forms (wood only) cannot be removed within 48 hours, they shall be wetted down and kept wet until their removal, and then the compound applied as above.

3B.10 COLD-WEATHER REQUIREMENTS.

a. Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather. No frozen materials or materials containing snow or ice shall be used. Concrete shall not be placed on frozen soil.

b. All reinforcement, forms, fillers, and ground which will make contact with concrete shall be free from snow and ice. Whenever the temperature of the surrounding air is below $40^{o}F$, all concrete placed in forms shall have a temperature of $45^{o}F$ or higher, after placement. Adequate means shall be provided for maintaining this temperature for 4 days. Any additional time necessary to ensure proper curing of the concrete shall be provided as directed by the Resident Engineer. The housing, covering, or other protection used in connection with curing, shall remain in place and intact at least 24 hours after the artificial heating is disconnected. Do not use salt or other chemicals to prevent freezing.

3B.11 HOT-WEATHER REQUIREMENTS.

a. In hot weather, suitable precautions shall be taken to avoid drying of the concrete prior to finishing operations. Use of windbreaks, sunshades, fog sprays, or other devices shall be provided as directed by the Resident Engineer.

b. Concrete deposited in hot weather shall not have a placing temperature that will cause difficulty from loss of slump, flash set, or cold joints. Concrete temperature shall be less than 90°F.

3B.12 SLUMP. Concrete shall be tested for consistency at the mixer or at the place of deposit if delivered ready-mixed. The sample shall be taken immediately from the batch and tested by the contractor in the presence of the Resident Engineer in accordance with ASTM standard C143. Concrete with slump in excess of four inches shall be rejected.

3B.13 DELIVERY TICKETS. At the time of concrete delivery, the contractor shall give the Resident Engineer a copy of the delivery ticket bearing the quantity, strength, and air entrainment of the concrete delivered.

3B.14 CONCRETE TESTS. If the Resident Engineer determines that concrete strength and air entrainment tests are needed, the Federal Aviation Administration will make arrangements for and bear costs of such tests.

DIVISION 5 - METALS
SECTION 5A
MISCELLANEOUS METALS

5A.1 DESCRIPTION OF WORK. Extent of metal work is indicated on the drawings and by the provisions of this section.

5A.2 MATERIALS.

a. Structural Steel Shapes and Plates. ASTM A 36 steel.

b. Steel Pipe. ASTM A53, Type E or S, Grade B steel or ASTM 501. Weight schedules shall be as specified in the special specifications or on the drawings.

c. Anchor Bolts. ASTM A 307 without heads.

d. Unfinished Threaded Fasteners. Where not otherwise indicated, ASTM A 307, Grade A, regular low-carbon steel bolts and nuts of hexagonal design, hot-dipped galvanized.

e. Finished Threaded Fasteners. Stainless steel cap screws and heavy semi-finished nuts of hexagonal design for exterior connections, unless otherwise indicated.

5A.3 FABRICATION.

a. General.

(1) After performing all fabrication and welding operations, remove all sharp edges and burrs that could cause injury. Properly finish surfaces of exposed items so as to be free of visible defects.

(2) Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes.

b. Welding. Comply with AWS Code for procedures, appearance, and quality of welds. Weld all work to produce assemblies free of warpage.

c. Galvanizing.

(1) All steel members, plates, and assemblies shall be hot-dipped galvanized in accordance with ASTM A 123 and A 385, unless otherwise specified.

(2) Prepare all structural steel items for galvanizing by solvent cleaning, hand and power tool cleaning, and/or sandblasting as required for permanent adhesion of galvanizing.

5A.4 INSTALLATION.

a. Install all work plumb, level, and square in accordance with the drawings.

b. Apply high zinc-dust-content paint for repair of galvanized surfaces damaged by welding. Paint shall conform to M.I. Specification MIL-P-21035.

DIVISION 6 - CARPENTRY
SECTION 6A
ROUGH CARPENTRY

6A.1 DESCRIPTION OF WORK. The extent of exterior carpentry work is indicated on the drawings and by the provisions of this section. Refer to Section 13E for MALSR and ILS shelter carpentry.

6A.2 MATERIALS.

a. Service Pole.

(1) Electrical service pole, if required, shall be Western Red Cedar, Douglas Fir, or Southern Pine complying with American Standard Specifications and Dimensions for Wood Poles, ASA 05.1, American Standards Association.

(2) Poles shall be ASA 05.1 class 6 or better as dictated by height requirements.

(3) Poles shall be pressure preservative treated with pentachlorophenol or creosote in accordance with American Wood Preservers Association (AWPA) Standard C4.

b. Lumber. Lumber shall be stress-rated and marked #2 structural grade, any species. Sizes indicated are nominal. All lumber shall be dressed S4S. All lumber shall be seasoned and have 19 percent moisture content. Hand select all lumber pieces for straightness and freedom from defects.

c. Plywood. Plywood shall be all-veneer construction of sizes indicated on the drawings, and complying with American Plywood Association (APA) grade designation: APA BC, Exterior, or better.

d. Lumber and Plywood Preservative Treatment.

(1) All exterior lumber and plywood shall be preservative treated and shall comply with applicable requirements of the American Wood Preservers Association (AWPA) Standards C2 (lumber), and C9 (plywood), and with American Wood Preservers Bureau (AWPB) Standards below. Mark each treated item with the AWPB quality mark requirements.

(2) Pressure treat above-grade and below-grade items with water-borne preservatives complying with AWPB LP-2 and AWPB LP-22, respectively.

(3) Treat all cut surfaces with heavy brush coat of same chemicals used for treatment and complying with AWPA M4.

6A.2e

e. Fasteners. Provide type, size, and finish of fasteners indicated on the drawings. All exterior fasteners shall be galvanized or stainless steel. If not otherwise specified, exterior lumber joints shall be secured with carriage bolts, flat washers and nuts, minimum two each per joint.

6A.3 CONSTRUCTION.

a. Discard units of material with defects that could impair quality of work. Set carpentry work to required lines and levels with members plumb, level, and square. Accurately cut and fit all work.

b. Secure all carpentry work by anchoring or fastening as required by recognized standards. Make tight connections between members. Install all fasteners without splitting wood. Pre-drill as required.

c. Coat all exterior exposed cut edges and ends of lumber and plywood pieces with wood preservatives as required above.

DIVISION 9 - FINISHES
SECTION 9A
PAINTING

9A.1 DESCRIPTION OF WORK. Extent of work is indicated on the drawings, in the special specifications and by the provisions of this section. Refer to Section 13E for MALSR and ILS shelter painting.

9A.2 GENERAL REQUIREMENTS.

a. Unless otherwise specified all surfaces to be painted shall receive one coat of primer and two finish coats of paint. Primer shall be compatible with the surface being painted as recommended by the paint manufacturer.

b. At completion of painting or work of other trades, painted surfaces shall be touched-up and restored where damaged or defaced, to the satisfaction of the Resident Engineer.

c. A completely finished job is required, regardless of whether every individual item is specified or not. Work requiring paint, which is not specifically mentioned, shall be finished in the same manner specified for other similar work.

d. Work shall be accomplished by skilled tradesmen, and resulting work shall be uniform in appearance.

9A.3 APPLICABLE FEDERAL SPECIFICATIONS.

TT-E-489	"Enamel, Alkyd, Gloss (for Exterior and Interior Surfaces)"
TT-P-641	"Primer, Paint; Zinc Dust - Zinc Oxide (for Galvanized Surfaces)"
TT-P-645	"Primer, Paint; Zinc-Chromate, Alkyd Type"

9A.4 MATERIALS.

a. All painting materials shall be the first quality products of a name brand paint company, which meet or exceed the requirements of the applicable federal specifications.

b. Deliver all painting and finishing materials in original containers with seals unbroken and labels intact. No materials other than those specified or approved shall be stored on site.

c. Basic painting materials such as linseed oil, shellac, turpentine, thinner, driers, etc., shall be of the highest quality and have identifying labels on containers.

9A.5 PREPARATION OF METAL SURFACES.

a. Unpainted or shop painted ferrous metal shall first be washed free of grease, dirt, and oil with mineral spirits, and primed or spot primed if the metal is exposed. Prime with rust prohibitive primer after removing any existing rust.

b. Previously painted existing ferrous metal shall be cleansed of grease, dirt, oil, and all other foreign substances. Existing paint which shows signs of deterioration, loosening, or chalking shall be removed. Further surface preparation shall be made as recommended by the paint manufacturer for the particular surface and type of paint being used.

c. Exposed galvanized surfaces shall be solvent cleaned as necessary to remove all oil, grease, and other foreign substances. Nonferrous metal surfaces to be painted shall be treated with vinyl type wash coat. The vinyl type wash coat shall have a dry film thickness of 3 to 5 mils. The wash coat shall be permitted to dry for at least 30 minutes or as recommended by the manufacturer.

9A.6 APPLICATION.

a. Do not apply exterior paint in damp, rainy weather, or until the surface has dried thoroughly from the effects of such weather.

b. The temperature of the surface to be painted and the surrounding air temperature shall be maintained between 45°F and 95° during the application and drying period.

c. The surface to be painted shall be clean, dry, smooth, and adequately protected from dampness. Each coat of paint shall be applied smoothly, worked out evenly, and allowed to dry completely before the subsequent coat is applied.

d. Finished work shall be uniform and of the approved color. It shall be completely covered and shall be smooth and free from runs and sags. Make edges of paint adjoining other materials or colors sharp and clean without overlapping. Where high gloss enamel is used, lightly sand undercoat to obtain a smooth finish coat.

e. All painting shall be completed according to the manufacturer's printed instructions.

9A.7 PAINT SYSTEM SCHEDULE.

a. Ferrous Metals (Unpainted).

(1) Primer - Federal Specification TT-P-645

(2) Intermediate and Finish Coats - Exterior Oil Paint

9A.7b

b. Galvanized Metal.

(1) Primer - Federal Specification TT-P-641

(2) Intermediate and Finish Coats - Exterior Oil Paint

c. Aluminum.

(1) Pretreatment - Vinyl Wash Coat

(2) Primer - Federal Specification TT-P-645

(3) Intermediate and Finish Coats - Federal Specifications TT-E-489.

DIVISION 13 - SPECIAL CONSTRUCTION
SECTION 13A
APPROACH LIGHT SYSTEMS

13A.1 DESCRIPTION OF WORK. This section is applicable for construction required for a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) and other approach lighting systems utilizing similar construction.

13A.2 INSTALLATION OF MALSR LIGHTS.

a. Screw Anchor Foundations. Comply with Section 13D and project drawings if screw anchor foundations are required on the drawings.

b. Installation Tolerances. Installation tolerances for the various types of light bars and flasher units shall be as follows:

(1) Longitudinal (along the runway centerline) deviation from design station. + 6 inches

(2) Lateral (perpendicular to the runway centerline). ± 3 inches

(3) Horizontal distance between individual frangible lights. ± 1 inch

(4) Mounting height.

(a) Up to 6 feet. ± 1 inch

(b) 6 to 40 feet. ± 2 inches

(c) Over 40 feet. ± 3 inches

(5) All lights in a frangible bar shall be installed within ± 1 inch of a line perpendicular to the runway centerline.

c. Assembly of PAR-56 Lights. If installation of PAR-56 lights is included in the contract, the contractor shall assemble the PAR-56 lampholders, lamps, and, if included, filter-holding clips, colored glass filters, and (for ALSF-2 facilties) shorting devices, into complete units, from unassembled condition. Use the spring-loaded lamp-retaining hardware supplied with the lampholders.

d. Frangible EMT Mountings.

(1) Frangible Coupling Installation. Each frangible coupling has a hexagonal throat with a break-off groove in the middle, designed to break at low impact, thereby minimizing damage to colliding aircraft. When installing the frangible coupling, take care to use a

wrench which will grip only the lower portion of the hexagonal throat of the coupling, i.e., that portion immediately below the break-off groove. If the wrench grips the upper portion of the hexagonal throat, the coupling may break when torque is applied. See Paragraph 16A.20 for thread remediation. Whether thread remediation is performed or not, the contractor shall apply anti-seize compound to the threads of the frangible coupling, and to the internal threads of the receiving coupling or hole, to facilitate removal. The compound shall be an anti-seize assembly lubricant formulated to provide protection for stainless steel and dissimilar metal threaded fasteners against galling, seizure, and heat-freeze. Do not use plumber's pipe-joint compound. The frangible coupling shall be screwed down tightly into the conduit coupling or light base cover plate threaded hole, to prevent the EMT mounting from turning.

(2) Cable Connectors. Where cable connectors are required within the frangible couplings, the connectors shall have the capability of separating easily upon breakage of the frangible couplings. Therefore, apply silicone grease of high dielectric strength to the mating surfaces of the plug and receptacle connectors. Do not allow the silicone grease to make contact with the plug and receptacle terminals, and do not place electrical tape over the connector joints. A cable clamp or cable connector clamp shall firmly grip the receptacle connector of the lower cable assembly (never the plug connector of the upper cable assembly). The connectors shall be vertically positioned such that the joint between the two connectors is as close as feasible to the breakoff groove. If the receptacle cable connector is the 1"-diameter style (e.g., 90R-B6), the connector shall be gripped by an aluminum split-ring cable clamp. The Multi Electric Part No. 961-X cable clamp is among the clamps which meet this specification. If the receptacle cable connector of the style having a 1.75-inch-diameter donut for use in a light base (such as on the secondary lead of isolation transformers), the connector shall be gripped by the cable connector clamp which comes with the base plate.

(3) Upper Cable Assembly. Sufficient slack shall be left in the upper cable assembly at the point of entering the lampholder to permit:

(a) Removal of the lampholder.

(b) Disconnection of the cable connectors in the frangible coupling without disturbing connections to the lampholder.

13A.2e

e. Plumbness Tolerance for EMT Frangible Light Masts. EMT frangible light masts shall be installed to a plumbness tolerance of 1/16-inch per foot of mast height. This requirement is in addition to all other placement tolerances. If the mast foundation is concrete, the plumbness tolerance shall be met by proper placement of the concrete-embedded section of conduit, not by bending the mast. To insure plumbness, temporary rigid conduit masts shall be threaded into the conduit couplings, and clamped in place in a rigid brace during concrete placement, finishing, and setting. If the masts are to rise from a steel channel attached to a screw anchor foundation, the plumbness tolerance shall be met by proper attachment of the conduit couplings to the channel, not by bending the masts. In this case, temporary rigid conduit masts shall be threaded into the conduit couplings, and clamped in place in a rigid brace during the welding of the couplings to the channel.

f. Fiberglass LIR Approach Lighting Towers. LIR means Low Impact Resistance. An LIR tower is a tower designed to disintegrate when struck by an aircraft, offering low impact resistance to the aircraft, thus minimizing aircraft damage. The fiberglass LIR towers, if required by the drawings, shall be assembled from knocked-down (unassembled) condition according to the manufacturer's assembly instructions. Install the towers on foundations constructed in accordance with the drawings. On drawings, for brevity, fiberglass LIR towers are sometimes also called masts and poles.

g. Aiming and Alignment of Lights. Each light shall be adjusted so that its optical axis is parallel to the runway centerline, directed outward from the runway threshold, and aimed upward to the required vertical angle. An aiming device is furnished for vertical aiming of the PAR-56 and the PAR-38 lampholders and flashing light units.

13A.3 MALSR BRIGHTNESS. The contractor shall adjust the MALSR to operate as follows:

Step	% Relative Intensity MALS	RAIL
High Intensity	100	100
Medium Intensity	20	8
Low Intensity	4	1

13A.4 OPERATIONAL TESTS. The contractor shall demonstrate, by operational tests, that the entire system will operate satisfactorily. If the contract requires the establishment of remote control, satisfactory system operation shall be demonstrated on remote and local control. If the contract does not require the establishment of remote control, satisfactory system operation shall be demonstrated on local control

only. The test shall demonstrate that the system meets all requirements of this specification and of the manufacturer's instruction manual.

13A.5 MALS LAMPS. If MALS lamps are not shown on the Government-Furnished Property List, the contractor shall furnish ninety (90) PAR-38, 120-watt spot lamps. The photometric performance of these lamps shall equal or exceed the vertical and horizontal brightness beam spread candela values shown on Figure L at the end of this section. The Figure L beam spread curves were approximately reproduced from the July 1983 FAA Technical Center data report on photometric tests of MALS PAR-38 spotlights. The lamps must also be physically shaped to fit the PAR-38 lamp aiming device supplied as part of the MALSR equipment from the MALSR manufacturer. The General Electric PAR-38 120V, 120W, Wattmiser spot lamp (GE Designation 150 PAR/SP/120/WM) is one of the products which meet these specifications. If the contractor intends to furnish a substitute lamp, the contractor shall submit to the Contracting Officer, complete manufacturer's information, including vertical and horizontal brightness beam spread candela values, and a sample lamp, to demonstrate that the lamp will fit the MALSR manufacturer's PAR-38 lamp aiming device. See Paragraph 1A.4 above. The contractor shall install the required number of these lamps on the MALS structures. The remaining lamps shall be delivered to the Resident Engineer as spares.

13A.6 MALSR CABLE SPLICES.

a. Restrictions. The only underground MALSR cable splices which will be permitted under this contract will be the splices shown on the drawings. The contractor shall inventory the reels of Government-furnished cable and contractor-furnished cable, to verify that sufficient continuous lengths are available to preclude any other splices. If the contractor discovers that insufficient continuous lengths are furnished, he shall report this condition to the Resident Engineer immediately.

b. Mold and Compound. Every 600-volt power cable splice shall be made with a flexible film plastic mold with a built-in spacer web to provide cable and connector centering, and proper coverage by the insulating and sealing compound. The applied mold shall be filled with a flexible polyurethane electrical insulating and sealing compound capable of continuous operation at 90°C, with an emergency overload temperature rating of 130°C. The splices shall be rated for direct burial applications. The splicing kits shall be sized properly to the application. Splicing kits of the 3M Scotchcast 85 series are among products which meet these specifications. If kits of this series are selected, splices at the threshold bar, at EMT light bars, and at

5-tower bars, shall be made with 85-16 kits, unless specified otherwise. Splices at the MALS T-bar towers shall be made with kits no smaller than 85-12, unless specified otherwise. Substitute splicing kits require submittals per Paragraph 1A.4 above.

c. Connectors. Connectors used in the splices shall be compact compression tap connectors properly sized to the application. The connectors shall be copper, except aluminum connectors are permitted if they are designed for use with copper conductors. The contractor shall furnish and use the proper crimping tools and dies for the connectors, and shall execute the number of crimps required by the manufacturer. Mechanical (bolted) tap connectors shall not be used in splices below grade. The following connectors, primarily for underground splices at MALS bars, are approved, as they are among the products which meet these specifications (substitutes require submittals per Paragraph 1A.4 above):

(1) The following Burndy Crimpit Type YC-C compression connectors:

Cat. No.	Run	Tap
YC10C10	#10 AWG	#10 AWG
YC8C8	#8 AWG	#10 AWG
YC26C2	#2/0 AWG	#2 AWG
YPC26R8U	#2/0 AWG	#10 AWG

(2) For #2, #4, or #6 run cable to #10 tap cable, Burndy street lighting tap, Catalog Number YPC2A8U.

13A.7 MALS POWER DISTRIBUTION PANEL CIRCUIT DIRECTORY. The contractor shall mark the MALS power distribution panel circuit directory, identifying each branch circuit breaker by the MALS bar station(s), each breaker serves. Spare breakers shall be so identified.

DIVISION 13 - SPECIAL CONSTRUCTION
SECTION 13B
INSTRUMENT LANDING SYSTEM

13B.1 DESCRIPTION OF WORK. This section applies to special construction required for an Instrument Landing System (ILS).

13B.2 SCREW ANCHOR FOUNDATIONS. Comply with Section 13D and project drawings if screw anchor foundations are required on the drawings.

13B.3 CABLE SPLICES. No splices will be permitted in radio frequency cables (cables with an RG designation, e.g. RG333/U).

13B.4 OBSTRUCTION LIGHTS. The obstruction lights on the glide slope antenna mast shall be installed and lighted continuously when the tower is 20 feet high or higher.

DIVISION 13 - SPECIAL CONSTRUCTION
SECTION 13C
VASI, REIL, PAPI, AND RVR SYSTEMS

13C.1 DESCRIPTION OF WORK. This section applies to special construction required for a Visual Approach Slope Indicator (VASI), Runway End Identifier Lights (REIL), Precision Approach Path Indicator (PAPI), and New Generation Runway Visual Range (RVR).

13C.2 FRANGIBLE SUPPORTS FOR VASI, REIL, PAPI, AND RVR EQUIPMENT.

a. Description. Frangible couplings will be used to support VASI, REIL, PAPI, and RVR equipment installed near runways. Each frangible coupling has a hexagonal throat with a break-off groove in the middle, designed to break at low impact, thereby minimizing damage to colliding aircraft.

b. Coupling Installation. When installing the frangible coupling, take care to use a wrench which will grip only the lower portion of the hexagonal throat of the coupling, i.e., that portion immediately below the break-off groove. If the wrench grips the upper portion of the hexagonal throat, the coupling may break when torque is applied. See Paragraph 16A.20 for thread remediation. Whether thread remediation is performed or not, apply anti-seize compound to the threads of the frangible coupling, to facilitate removal. The compound shall be an anti-seize assembly lubricant formulated to provide protection for stainless steel and dissimilar metal threaded fasteners against galling, seizure, and heat-freeze. Do not use plumber's pipe-joint compound. The frangible coupling shall be screwed down tightly into the conduit coupling.

c. Cable Connectors. Where cable connectors are required within the frangible couplings, the connectors shall have the capability of separating easily upon breakage of the frangible couplings. Therefore, apply silicone grease of high dielectric strength to the mating surfaces of the connector plug and receptacle housings in the frangible couplings. Do not allow the silicone grease to make contact with the plug and receptacle terminals, and do not place electrical tape over the connector joints. A cable clamp shall firmly grip the receptacle connector of the lower cable assembly (never the plug connector of the upper cable assembly). The connectors shall be vertically positioned such that the joint between the two connectors is as close as feasible to the breakoff groove.

13C.3 EQUIPMENT ELEVATIONS.

a. Elevations of Record. After the contractor has installed the VASI, REIL, PAPI, or RVR lighting unit foundations (concrete or screw anchor), he shall survey and record all such independent foundation top elevations to the nearest

0.01 foot and deliver this information to the Resident Engineer for as-built drawing record. Elevations should be clearly referenced to locations where measured, such as a specific corner of a screw anchor or anchor plate. It is emphasized that all foundations of every lighting unit shall be measured such as the four legs of an individual VASI box.

b. Elevation Verification. Runway elevations indicated on the drawings were established on the date indicated. Prior to using these elevations for construction survey proposes, the contractor shall verify, through the Resident Engineer, that such runways have not been resurfaced after the date of the engineering survey. If resurfacing has occurred, new benchmarks will be established by the Resident Engineer. The VASI unit light slot elevations shall not be altered from those indicated on the drawings.

13C.4 ALIGNMENT AND AIMING ANGLE TOLERANCES.

a. Aiming Angles. Refer to site drawings for locations and aiming angles for individual VASI, REIL, PAPI, or RVR lighting units.

b. VASI and PAPI Lamp Housing Assembly (LHA) Unit Tolerances.

(1) Longitudinal Alignment Tolerances. Front face of each LHA unit shall be located within ± 6 inches of single line perpendicular to the runway centerline.

(2) Azimuthal Alignment Tolerance. Longitudinal axis of each LHA unit shall be parallel to the runway centerline within ± 1/2 degree.

(3) Mounting Height Tolerance. Light beam centerline of each LHA unit (within a bar for VASI) shall be located on a single horizontal plane within ± one inch.

(4) Aiming Angle Tolerance. Aiming angle of each LHA unit shall be within ± 2 minutes of angle specified.

13C.5 SYSTEM CONTROL. Unless otherwise indicated, VASI, REIL, or PAPI system construction shall include a method of on/off control shown on the drawings or specified herein. REIL control will also include provision for varying the lighting intensity.

13C.6 OPERATIONAL TESTS. The contractor shall demonstrate that the VASI, REIL, or PAPI system will operate satisfactorily by a series of operational test cycles and a continuous test run of 24 hours minimum. The tests shall clearly indicate that the system meets all the requirements of the drawings, specifications, and the manufacturer's instruction manuals.

DIVISION 13 - SPECIAL CONSTRUCTION
SECTION 13D
SCREW ANCHOR FOUNDATIONS

13D.1 DESCRIPTION OF WORK. This section is applicable if screw anchor foundations are required on the drawings.

13D.2 SCREW ANCHOR FOUNDATION DESIGN AND USAGE. On drawings, screw anchor foundations are also called screw-in foundations and screw-in-anchor foundations. The two most frequently used screw anchor foundations, and the PAPI plate, are shown on Figures 1, 2, and 3 at the end of this section. The Figure 1 foundation is commonly used for ILS, RVR, MALSR, and PAPI facilities. The Figure 2 foundation is commonly used for VASI and REIL facilities. A. B. Chance foundations, Cat. Nos. T112-0262 and T112-0676, and PAPI plate T112-0337, are among the products that meet the requirements of Figures 1, 2, and 3, respectively, and the specifications below. These items are also known by Cat. Nos. CT112-0262, CT112-0676, and CT112-0337. The Chance Figure 1 foundation is known as an "Instant" foundation (formerly known as a streetlight foundation).

13D.3 PLATES. The following specifications apply to the square top plate (base plate) which is an integral part of the Figure 1 screw anchor foundation, and to the Figure 3 PAPI plate. The flat, smooth, plate top surface shall not have any curvature or other deformity induced by the manufacturing process. The plate shall be flame cut, deburred, and machined smooth both on the external edges and on the inner holes and slots. During fabrication of the Figure 1 foundation, the base plate edge shall be permanently and plainly marked in a highly visible manner, indicating the shaft cableway slot location, manufacturer, and Julian date. All tapped holes are to be center tapped within 1 degree of perpendicular to the plate. The threads shall be fully cleaned after hot dip galvanizing, such that a bolt may be hand run in the threads.

13D.4 SHAFT. Foundation shafts shall be machine flame cut to the length specified on the figure. The shaft shall be 90° square-cut on the top end, and to the true helical shape on the bottom end. The cableway slot (Figure 1 only) shall be machine smoothcut on one side of the shaft. The sides of the cableway openings shall be within 1/2 degree of parallel, as measured along their full length. The round shaft material shall be new, unused, and mill traceable.

13D.5 ASSEMBLY. Weld the component parts as Figures 1 and 2 specify. The completed assemblies (Figures 1, 2, and 3) must be hot dip galvanized after fabrication. Each Figure 1 foundation shall be supplied with four sets of carriage bolts, hex nuts, and lock washers. When bolts, nuts, and lock washers are shipped assembled, the nuts shall be tightened securely to prevent loss in shipment. Otherwise, the hardware shall be supplied in a burlap bag securely taped to the foundation.

13D.6 QUALITY ASSURANCE. No screw anchor foundations will be accepted from a manufacturer, unless the manufacturer has in place and in operation, a quality assurance department as a separate and distinct element of the manufacturer's organization. The quality assurance department must:

a. Employ quality assurance engineers who execute quality assurance by industry-accepted methods such as Statistical Process Control (SPC).

b. Maintain, and operate under, a quality assurance manual defining quality control functions and operations such as:

(1) Controlling the quality of incoming raw materials.

(2) In-process inspection, assembly inspection, and final inspection and tests, including specific actions to be taken when defects are found.

(3) Integration of quality assurance practices into the manufacturing process at the level of individual production operators.

(4) Welder certification. The qualification of personnel must be accomplished in accordance with the American Welding Society, Structural Welding Code (D1.1-83).

(5) Tool and gauge control, including calibration test schedules.

(6) Record keeping for all of the above quality assurance actions.

13D.7 INSTALLATION EQUIPMENT. If screw anchor foundations are shown on the drawings, the contractor shall furnish the installation equipment. The digger derrick or other driving equipment shall have sufficient clearance between the driving head and the ground to accommodate the screw anchor foundations specified. Pre-drilling (see Paragraph 13D.8c, below) or any other excavation at the anchor installation site for the purpose of gaining clearance under the driving head to accommodate the length of the anchor foundations, is expressly prohibited.

a. Figure 1 Foundation. The Figure 1 foundation requires the following items of installation equipment:

(1) Kelly bar adapter selected to fit directly to the kelly bar (rotating shaft) of the driving equipment.

(2) A tool to transmit the driving torque from the kelly bar adapter to the Figure 1 foundation. This driving tool must fit the kelly bar adapter and the Figure 1 foundation. Universal Driving Tools A. B. Chance Catalog No. C303-0139 and C303-0684, are two of the products that meet this requirement.

These tools are used to drive Figure 1 foundations. The moderate-strength (C303-0139) tool connects to the kelly bar adapter with six 1/2"-dia bolts. The high-strength (C303-0684) connects to the kelly bar adapter with up to twelve 5/8"-dia bolts. Both tools have various bolt holes for attachment to the anchor foundation.

A range of moderate-strength kelly bar adapters for various kelly bar dimensions is presented in Figure 4, with an illustration of Universal Driving Tool C303-0139. A range of high-strength kelly bar adapters for various kelly bar dimensions is presented in Figure 5, with an illustration of Universal Driving Tool C303-0684. The A. B. Chance items listed and illustrated are among the products which meet requirements. The contractor may substitute other drive tooling without submittals if the substitute tooling is dimensionally and dynamically compatible with the kelly bar and foundation.

b. Figure 2 Foundation. The Figure 2 foundation requires the following items of installation equipment:

(1) Kelly bar adapter selected to fit directly to the shaft of the driving equipment.

(2) A tool to transmit the driving torque from the kelly bar adapter to the Figure 2 foundation. This driving tool must fit the kelly bar adapter and the Figure 2 foundation. The Wrench Driving Tool, Chance Cat. No. 639000, is one of the products which meet this requirement. This tool is used to drive Figure 2 foundations. It has a square 2-inch socket and two set screws which serve to connect the tool to the screw anchor foundation.

A range of kelly bar adapters for various kelly bar dimensions is presented on Figure 6, with an illustration of the Wrench Driving Tool. The A. B. Chance items listed and illustrated are among the products which meet requirements. The contractor may substitute other drive tooling without submittals if the substitute tooling is dimensionally and dynamically compatible with the kelly bar and foundation.

13D.8 SCREW ANCHOR FOUNDATION INSTALLATION REQUIREMENTS.

a. Plumbness. The foundations shall be installed plumb, within a tolerance of 1/8" horizontal per foot vertical.

b. Foundation Top Elevation and Cableway Orientation. The foundation shall not be backed out to meet a specific foundation top elevation. Therefore, the top elevation must be checked as the foundation is driven. Foundations shall be turned down an additional fraction of a revolution in order to properly align the bolt holes. If a specific orientation of the cableway slot in the shaft is required (e.g., facing the RVR power and control stand), the contractor shall so orient the shaft.

13D.8c

c. Pre-drilling.

(1) Pre-drilling is defined as augering a hole centered on the design location of a foundation. Pre-drilling is sometimes necessary in very stiff soils, to permit driving the foundation to design depth without exceeding a torque which would damage the foundation.

(2) Pre-drilling, if authorized by the Resident Engineer, shall be accomplished using an auger not larger in diameter than the foundation shaft diameter (not helix diameter).

(3) The need for, and depth of, pre-drilling shall be determined solely by the Resident Engineer, with information from the contractor. The contractor shall do no pre-drilling until the Resident Engineer authorizes him to do so. The contractor shall not pre-drill to a depth greater than the depth authorized by the Resident Engineer.

13D.9 Procurement. Unless specified otherwise, screw anchor foundations shall be furnished by the contractor. If the contractor intends to furnish foundations other than the A. B. Chance foundations accepted in Paragraph 13D.2, the contractor shall submit complete manufacturer's information, including the quality assurance manual, and shop drawings, to the Contracting Officer. The contractor shall not procure the substitute screw anchor foundations before receiving the Contracting Officer's approval. See Paragraph 1A.4 above.

DIVISION 13 - SPECIAL CONSTRUCTION
SECTION 13E
MALSR AND ILS EQUIPMENT SHELTERS

13E.1 DESCRIPTION OF WORK. This section is applicable if equipment shelter construction is required for a MALSR or ILS. Extent of work is indicated on the drawings. All wood-frame shelters shall be constructed on their foundations, unless specified otherwise.

13E.2 SHELTER CARPENTRY.

a. Lumber and Plywood Materials.

(1) General Requirements.

(a) Factory mark each piece of lumber and plywood identifying grading agency, grade, and species.

(b) All lumber sizes are nominal, dressed S4S and seasoned to 19 percent moisture content.

(2) Dimension Lumber.

(a) Studs. "Stud" grade, any species.

(b) Joists, Rafters and Plates. "Structural Joists and Planks" Number 2 grade or better, any species. Plates in contact with concrete shall be pressure treated.

(3) Plywood Sheathing. All veneer plywood complying with following:

(a) Exterior sheathing. APA Structural 1 Rated Sheathing, Exterior, Exposure 1, or APA CC Plugged Exterior of sizes indicated.

(b) Interior Sheathing. APA AC Exterior.

b. Installation.

(1) Securely attach carpentry work by anchoring and fastening as shown or as required by recognized standards. Set work to required lines and levels with members plumb and accurately cut and fitted.

(2) Use common nails except as indicated. Select fastener sizes that will not conflict with other work.

13E.3 SHELTER DOOR AND FRAME.

a. Quality Assurance. Provide doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100) and as herein specified.

b. Fabrication.

(1) General. Fabricate steel door and frame units to be rigid, neat in appearance, and free from defects, warpage, and buckle. Wherever possible, fit and assemble units in the manufacturer's plant.

(2) Door Type/Grade. Doors shall be SDI-100, Grade III, extra heavy duty, Model 1, full flush, minimum 16 gage faces, 1 3/4 inch thick.

(3) Construction.

(a) Fabricate exposed faces of door and panels from cold-rolled steel only. Fabricate concealed stiffeners, reinforcement, and edge channels from either cold or hot rolled steel at fabricator's option. All door and frame materials shall be galvanized.

(b) Close top and bottom edges of exterior doors flush as an integral part of construction or by the addition of 16-gage channels.

(4) Thermal Insulation. Door and frame shall be thermal-rated (insulated) assemblies tested in accordance with ASTM C 236. Provide thermal insulation with maximum U factor of 0.1 BTU/(hr ft^2 ^oF).

(5) Finish Hardware Preparation.

(a) Prepare doors and frames to receive mortised and concealed finish hardware in accordance with Subsection 13E.4, and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware.

(b) Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site.

(c) Locate finish hardware in accordance with "Recommended Locations for Builder's Hardware", published by the Door and Hardware Institute.

(6) Door Frames. Fabricate door frames of style shown on the drawings. Conceal fastenings and fabricate frames from minimum 16-gage galvanized cold rolled furniture-quality steel. Fabricate frames with mitered and welded corners.

(7) Shop Painting. Apply shop coat of primer paint to provide a uniformly finished surface ready to receive finish coats.

c. Installation.

(1) Placing Frame.

(a) Comply with provisions of SDI-105 "Recommended Erection Instructions for Steel Frames".

(b) Install at least 3 wall anchors per jamb at hinge and strike levels. Anchor to wood stud framing using fasteners and devices for rigid attachment.

(2) Doors. Fit hollow metal doors accurately in frames, within clearances specified in SDI-100.

(3) Adjust and Clean.

(a) Immediately after erection, sand smooth any corroded or damaged areas of prime coat and touch-up paint with compatible primer.

(b) Apply finish paint coats per Division 9.

(c) Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

13E.4 DOOR HARDWARE.

a. General Requirements.

(1) Templates. Furnish hardware templates to fabricator of doors and frames to be factory-prepared for installation of hardware.

(2) Finish. BHMA #612 (Federal Specification US 10) satin bronze plated for hinges and lock set.

(3) Fasteners. Provide Phillips flat-head machine screws, matching finish and of proper design size for hardware item furnished.

b. Materials.

(1) Hinges. Provide 1 1/2 pair 4 1/2 x 4 1/2 hinges, full mortise type, heavyweight, ball bearing, five knuckle, square corner, swaged, steel with steel pin, non-removable and non-rising pin, flat button and matching plug tips. Stanley #FBB-168 is one of the products meeting these specifications.

(2) Lockset. Provide mortise lockset, Best Lock Corporation Catalog Number 35H-7-F-3-J-626-RHRB having a 7-pin cylinder and furnished without core. The FAA Resident Engineer will supply the construction core which the Resident Engineer receives from FAA sector personnel. The contractor shall install the construction core. No substitution for the above lockset will be permitted.

(3) Doorholder. Provide a door holder, overhead surface type, exterior door use, with safety release, combination door stop, shock-absorbing cushion, and holder complying with FS 1161 and BHMA C012511. Glynn-Johnson #GJ90M is one of the products meeting these specifications.

(4) Threshold. Provide an aluminum threshold not less than 3 1/2 inches wide, and of such height that weather-stripping insert will contact inner face of door. Threshold shall include rabbeted design with replaceable neoprene insert in step. Zero #563 Rabbeted Saddle is one of the products that meets these specifications.

(5) Weatherstripping at Door Jambs and Head. Provide continuous weatherstripping at all edges of doors. Provide only those units where resilient seal strips are easily replaceable and readily available from the manufacturer. Construction shall include flexible neoprene bulb insert in extruded aluminum channel with snap-on cover, hidden fasteners, surface-mounted design. Zero #475 is one of the products that meet these specifications.

c. Installation.

(1) Hardware Mounting Heights. Mount units of hardware at heights indicated in "Recommended Locations for Building Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.

(2) Procedures.

(a) Install each item per manufacturer's instructions.

13E.4c(2)(b)

(b) Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

(c) Drill and countersink units which are not factory prepared for anchor fasteners. Space fasteners in accordance with industry standards.

(d) Set thresholds in full bed of butyl-rubber or polyisobutylene mastic sealant.

13E.5 INSULATION.

a. Material. Wall and ceiling installation shall be fiberglass batt insulation faced with coated Kraft paper. Insulation batts shall have staple flanges. The batts shall be nominally 6 inches thick, with R-19 insulation value. Batt width shall be compatible with stud spacing.

b. Installation. Install insulation batts between all studs and joists such that batts will retain full thickness. Stuff loose fiberglass insulation into cracks impossible to fill with batts. Compress loose insulation no tighter than 50 percent of normal volume when needed to hold it in place.

13E.6 RESILIENT FLOORING.

a. General.

(1) Manufacturer. Provide resilient flooring and accessories as produced by a single manufacturer including recommended primers, adhesives, and leveling compounds.

(2) Temperatures. Maintain 65° minimum temperature in space to receive flooring for at least 48 hours before installation, during installation, and for at least 48 hours thereafter. Store flooring materials in space where they will be installed for 48 hours prior to installation.

(3) Order of Work. Install resilient flooring and accessories after completion of painting and other finishing work. Do not install over concrete slab until the concrete is cured to the satisfaction of the Resident Engineer.

b. Materials.

(1) Floor Tile. Material shall be vinyl composition tile complying with FS SS-T-312, Type IV, 12" x 12", 1/8-inch gage, composition 1 (asbestos free). The following products are among products that meet the specifications:

Armstrong: Standard Excelon, Imperial Texture - #51890 Desert Tan.

Azrock: Custom Cortina - V846 Thyme.

Kentile: Architectural Criterion - #1458 Wheat.

(2) Vinyl Wall (Cove) Base. Material shall be vinyl base complying with FS SS-W-40, Type II, with matching end stops and preformed or molded corner units. Height shall be 4 inches, thickness 0.080 inch. Style shall be standard top-set cove with toe. The following products are among products that meet these specifications:

Armstrong: #124 Pecan.

Azrock: #YCB-5 Beige.

Kentile: #KC-22 Taupe.

(3) Adhesive (Cements). Waterproof, stabilized type as recommended by flooring manufacturer for material and substrate conditions.

(4) Concrete Slab Primer. Non-staining type as recommended by flooring manufacture.

(5) Leveling and Patching Compounds. Latex types as recommended by flooring manufacturer.

(6) Floor Wax. Product recommended by floor tile manufacturer.

c. Installation.

(1) Preparation.

(a) Use leveling and patching compounds as recommended by flooring manufacturer for filling small cracks, holes, and depressions in slabs.

(b) Remove coatings from slab surfaces that would prevent adhesive bond, including curing compounds if incompatible with flooring adhesive.

(c) Broom clean or vacuum surfaces.

(d) Apply concrete slab primer, if recommended by flooring manufacturer.

13E.6c(2)

(2) Floor Tile.

(a) Install in strict compliance with manufacturer's printed instructions. Extend floor tile into door reveals and similar openings.

(b) Scribe, cut, and fit floor tile to permanent fixtures, columns, walls, conduit and similar construction.

(c) Tightly cement floor tile to slab without open cracks, voids, raising, and puckering at joints, telegraphing of adhesive spread marks or other imperfections. Hand roll at perimeter of each covered area to assure adhesion.

(d) Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room area are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters.

(e) Cut tile neatly around all obstructions. Broken, cracked, chipped or deformed tiles are not acceptable.

(f) Lay tile in "checkerboard" fashion with grain reversed in adjacent tiles.

(g) Adhere tile flooring to slab using full spread of adhesive applied in compliance with flooring manufacturer's directions.

(3) Wall Base. Install base in lengths as long as practical with preformed corner units or fabricated from base material with mitered or coped inside corners. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.

d. Cleaning and Protection. Perform the following operations immediately upon completion of tile installation work. Sweep or vacuum floor thoroughly, but do not wash until tile adhesive has cured as recommended by manufacturer. Damp mop and remove any excess adhesive and other blemishes using cleaners recommended by manufacturer. Apply wax as recommended by manufacturer.

13E.7 PAINTING.

a. General Requirements. Comply with all requirements of Section 9A, excepting paint system schedule, and the requirements of this subsection.

b. Surfaces to be Painted.

(1) Interior.

(a) Plywood ceiling and wall surfaces.

(b) Wood trim and all other exposed finish carpentry work.

(c) Steel door and frame.

(d) All exposed conduit, outlet and switch boxes, but not pre-finished large electrical wall-mounted equipment enclosures.

(2) Exterior.

(a) Steel door and frame.

(b) Air intake hood.

(c) Air conditioner sleeve surfaces and supports.

(3) Ancillary Items. Major surfaces to be painted are those listed above. Paint minor items affixed or adjacent to such surfaces the same color as primary items.

(4) Exclusions. The following equipment shall not be painted:

(a) Pre-finished safety switch, power panelboard, electrical equipment enclosures and other large similar electrical items.

(b) Exhaust fan.

(c) Air conditioner.

(d) Ventilation dampers and motor operators.

c. Materials.

(1) Single Source Responsibility. Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

(2) Colors.

(a) Interior and exterior surfaces of door and frame shall be a medium gray color approved by the Resident Engineer.

(b) Interior wall and ceiling surfaces shall be white.

(3) Federal Specifications. Federal specification references establish minimum acceptable quality of paint materials. Provide written certification from manufacturer that materials provided meet or exceed the minimum if not so indicated on product labels.

d. Paint Schedule. In the paint schedule below, the following manufacturer codes in parentheses are used:

Benjamin Moore and Co. (Moore).

PPG Industries, Pittsburgh Paints (PPG).

Pratt and Lambert (P&L).

The Sherwin-Williams Company (S-W).

(1) Ferrous Metal. Provide two finish coats over primer. Omit primer for items delivered shop primed.

(a) Prime Coat. Red Lead Pigmented Primer (FS TT-P-86). The following products are among products which meet FS TT-P-86.

Moore: Ironclad Retardo Rust Inhibitive Paint.

PPG: UC 10424 Red Lead Primer.

P & L: P & L Red Lead Primer.

S-W: S-W Kromik Metal Primer.

(b) First and Second Finish Coats. High Gloss Alkyd Enamel (FS TT-E-489). The following products are among products that meet FS TT-E-489:

Moore: Impervo High Gloss Enamel Exterior/Interior.

PPG: 6-252 Speedhide Quick-Dry Alkyd Enamel.

P & L: Effecto Enamel.

S-W: S-W Metalistic II Enamel.

(2) Zinc-Coated Metal (New Unpainted Galvanized). Provide two finish coats over primer.

(a) Prime Coat. Zinc Dust - Zinc Oxide Primer (FS TT-P-641). The following products are among products that meet FS TT-P-641:

Moore: Ironclad Galvanized Metal Primer.

PPG: 6-215 Speedhide Galvanized Steel Primer.

S-W: S-W Galvanized Iron Primer.

(b) First and Second Finish Coats. High-Gloss Alkyd Enamel (FS TT-E-489), same as for ferrous metal.

(3) Interior Plywood.

(a) Lusterless (Flat) Emulsion Finish. Provide two coats.

(b) First Coat. Interior Latex Base Primer Coat (FS TT-P-650). The following products are among products that meet FS TT-P-650:

Moore: Moore's Latex Quick-Dry Prime Seal.

PPG: 6-2 PPG Quick-Drying Interior Latex Primer Sealer.

P & L: Pro-Hide Plus Latex Primer.

S-W: S-W Pro-Mar Latex Wall Primer.

(c) Second Coat. Interior Flat Latex Base Paint (FS TT-P-29). The following products are among products that meet FS TT-P-29.

Moore: Moore's Regal Wall Satin.

PPG: 6-70 Speedhide Latex Flat Wall Paint.

P & L: Pro-Hide Plus Latex Flat.

S-W: S-W Pro-Mar 400 Latex Flat Wall Paint

e. Application.

(1) Remove hardware, hardware accessories, plates, and similar in-place items not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Following completion of painting, reinstall removed items.

(2) Finish exterior door on top, bottom and side edges, the same as exterior face. Sand lightly between each succeeding enamel coat. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted.

f. Clean-Up and Protection.

(1) Upon completion of painting work, clean any paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

(2) Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing, or replacing, and repainting, as acceptable to the Resident Engineer.

13E.8 STEEL SIDING. Furnish and install steel siding panels and accessories in accordance with manufacturer's instructions and the following material specifications.

a. Steel Sheet and Forming. The steel sheet of the siding panels shall be .15 maximum carbon steel. The sheet shall have a G90 galvanized finish applied by the continuous hot-dipped galvanized method per ASTM Specifications A-525-81 and A-526-80. The nominal thickness of the sheet after galvanizing shall be 0.0165-inch. The siding shall be formed by a continuous roll forming process.

b. Painting. Factory painting shall be done such that:

The surface of the steel sheet is processed in line through a chromate pretreatment consisting of an alkaline chemical cleaning bath, followed by a chromate conversion coating. Primer is applied immediately after chemical treatment by roller coating, and baked under controlled oven temperature. The reverse side of the sheet is concurrently coated with R-21 epoxy enamel, and baked. A PVC plastisol coating is applied at a minimum dry film thickness of 3.5 mils, and baked in a controlled environment oven. Unless otherwise specified on the drawings, the outside finish color is white.

c. Siding Meeting Specifications. Super Steel Siding by Alside of Akron, Ohio is among products meeting these specifications. Substitutes require submittals per Paragraph 1A.4 above.

DIVISION 13 - SPECIAL CONSTRUCTION
SECTION 13F
NEW GENERATION RVR SYSTEMS

13F.1 SCOPE. This section applies to special construction of New Generation Runway Visual Range (RVR) systems. The work includes all non-electronics facility construction, such as the installation of Visibility Sensor sites (VS), Runway Light Intensity Monitors (RLIM), and Ambient Light Sensors (ALS). RVR electronics installation will be performed by others.

13F.2 VISIBILITY SENSOR SITE (VS).

a. General. Fiberglass LIR tilt-down poles will support the electronic sensors used to measure runway visibility. The contractor shall fabricate and furnish the VS foundation adapter base plate. All of these parts shall be assembled and mounted on screw anchor foundations furnished by the contractor. For screw anchor foundations, see 13D above. Install all items per drawings and manufacturers' instructions. See the site plan for anchor location.

b. Fabricated Base Plates. In accordance with the drawings, the contractor shall fabricate base plates for both the visibility pole anchor and the tilt-down device anchor.

c. LIR Pole Cutting and Assembly. The contractor shall calculate the pole length required to put the RVR lamp centerline 14'-0" above the adjacent runway centerline elevation. The top of the fiberglass pole must be cut 1'-6" below the required RVR lamp centerline elevation. Do not cut the pole before the Resident Engineer verifies the required length. The contractor shall cut the fiberglass pole to proper length, according to the instructions shown on the project drawings. The pole shall be cut only in the presence of the Resident Engineer. See standard drawing GL-D-200-5A for pole cutting and assembly details.

d. Vertical Tolerance. After the assembled tube and preassembled mounting frame have been installed on the screw anchor foundation, adjust the leveling nuts on the base plate of the LIR structure such that the mast centerline is vertical within a tolerance of 1/2-inch between top and bottom of tube.

e. Test. The contractor shall demonstrate to the satisfaction of the Resident Engineer that the installed LIR structure will tilt down smoothly without evidence of binding or use of undue force. The pole must also rest squarely between the pole maintenance stand supports when in the down position. Adjust as necessary and repeat testing until accepted by the Resident Engineer.

13F.2f

f. Power and Control Stand.

(1) Structure. A frangible power and control stand shall be constructed not more than 4 feet away from the visibility sensor pole. The stand shall be located to prevent interference with tilting down the sensor pole, as indicated on the drawings. The base channel shall be shimmed, if necessary, to level it.

(2) Electrical Components. SIE boxes will be installed later by others. The power disconnects and control junction boxes shall be contractor-furnished and installed. See Division 16 for specific details about the junction boxes, wires, conduits, and power disconnect switches to be used. Power and control wiring that is above grade shall be run thru 3/4" UV resistant liquid-tight conduits to the SIE box location. If more than one SIE box is shown on the drawings, separate sets of power and control cables shall be run in 3/4" liquid-tight conduits to each SIE box location. Install 3/4" female end connectors on the ends of all conduits that will attach to the future SIE boxes.

13F.3 AMBIENT LIGHT SENSOR (ALS). One Ambient Light Sensor (ALS) will be required per airport to check lighting conditions on the field. This ALS shall be collocated with one of the visibility sensor sites where shown on the drawings. The 1 1/2" ALS mounting pipe position shall be such that the sensor unit will have an unobstructed view of the north horizon sky 6° above the horizon combined with a 6° field of view. To prevent false readings, the ALS sensor unit shall not be pointed parallel to the runway, towards brightly lighted areas, or toward the VS pole. Also ensure that the obstruction light is positioned to the side of or behind the ALS sensor. Take these criteria into account when positioning the 1 1/2" ALS mounting pipe on the power and control stand.

13F.4 OBSTRUCTION LIGHTS.

a. General. A double (L-810) steady-burning aviation red obstruction light fixture shall be installed 6'-6" above grade on the power and control stand as shown on the drawings. The lights shall be made to operate from the first night and thereafter following the installation of the LIR structure. The lights shall operate continuously, and be operational before the VS pole is raised. Do not install the obstruction light where the illumination will interfere with the operation of the Ambient Light Sensor.

b. Obstruction Light Fixtures. Fixtures shall be FAA Type L-810 (116W)double-lamp steady-burning units with cast aluminum fittings, aviation red fresnel lens globes, and a 1" inch threaded conduit bottom fitting. Hughey & Phillips, Inc., Model OB22, is among the products that meet

13F.4b

this specification. These dual light fixtures shall be mounted on a 1" rigid galvanized conduit.

c. Photo Cell. All obstruction lights shall be controlled by a photo cell installed on the obstruction light rigid conduit. The photo cell shall be 120V,3000W rated, 1 pole, single throw double break type and shall be installed in a weatherproof housing. The cell shall be pointed north, and shall turn on when the northern sky illuminance reaching a vertical surface falls below a level of approximately 35 foot candles (376.7 LUX). The control device should turn off the lights when the northern sky illuminance rises to a level of not more than 60 foot candles (645.8 LUX).

13F.5 RLIM INSTALLATION. Runway Light Intensity Monitoring (RLIM) equipment shall be installed in the appropriate power vault(s) to sense the appropriate runway edge and/or centerline cable current. All conduits shall be routed around or over existing conduits, and shall avoid all "live" or exposed wires. Extreme care shall be exercised while working in the vaults, due to the numerous high voltage cables.

13F.6 GROUNDING CONDUCTORS.

a. Grounding Conductors with Tracer. A tracer is a factory-applied stripe spiraling around the insulation of a cable, of a color contrasting with that of the insulation. The equipment ground wire (cable) for the RVR control junction box shall be a #4 stranded green insulated wire with a red tracer. The VS and ALS sensor units shall each be grounded with a #6 stranded green insulated wire with an orange tracer. The RLIM current sensor location shall be grounded with a #12 stranded green insulated wire with an orange tracer wire.

b. SIE Box Grounding Conductor. Five feet of a #6 green SIE box ground wire connected to the ground rod shall be coiled above grade for connection to the future VS SIE box ground. Two such wires will be required if two SIE boxes are to be installed. The wire shall be routed into the ground through 3/4" PVC conduit to a depth of 18" below grade, then connected to one of the VS pole's ground rods. The top of all open conduits shall be sealed to make them waterproof.

c. For Power and Control Cables from Source. Ground wires (#6 bare) shall be run inside the entire length of both the RVR power and control cable conduits from their sources. Both ends shall be terminated at ground lugs. These wires are in addition to the buried guard wire required by Paragraph 16A.4e.

13F.7 AC SURGE ARRESTER. An AC surge arrester, 120V, single phase, with a weather-proof enclosure, shall be attached and wired to the line side of the safety disconnect switch. The Lightning Protection Corporation Model No. LPC 11755 AC surge arrester is one of the products that meet this specification.

13F.8 CONTROL JUNCTION BOX. The exterior control junction box mounted on the power and control stand shall be a padlockable 12" x 12" x 6", 16-gauge galvanized steel NEMA 3R hinged cover enclosure, meeting the requirements of Paragraph 16A.15 below. Hoffman Cat. No. A-12R126HCR hinged cover enclosure with a A-12N12P panel is one of the products that meets this specification.

13F.9 TERMINAL BLOCKS. The terminal blocks in the control junction box on the power and control stand, shall be fastened in a vertical array to the left side of the interior panel. This arrangement reserves space on the right side for later installation, by others, of lightning protection equipment. The terminal blocks shall be of the miniature style specified in Paragraph 16A.19.

13F.10 DRAWINGS. Standard New Generation RVR details are shown on drawings GL-D-200A thru GL-D-200-5A. See individual site plans for local details.

DIVISION 16 - ELECTRICAL
SECTION 16A
BASIC METHODS AND MATERIALS

16A.1 APPLICABLE DOCUMENTS.

a. Federal Documents. The following Federal Specifications in effect on the date of the invitation for bids or request for proposals, form a part of this specification.

(1)	WW-C-581	Conduit, Metal, Rigid; and Coupling, Elbow, and Nipple, Electrical Conduit: Zinc-Coated
(2)	WW-C-563	Conduit, Metal Rigid; Electrical, Thinwall Steel Type (Electrical Metallic Tubing); Straight Lengths, Elbows, and Bends
(3)	W-F-408	Fittings for Conduit, Metal, Rigid (Thickwall) and Thin-Wall (EMT)

b. Electrical Codes. The following publications and regulations, in effect on date of the invitation for bids or request for proposals, form a part of this specification and are applicable to the extent specified herein.

(1) NFPA Number 70 National Electrical Code.

(2) The rules and regulations of local utility companies providing service.

(3) Local governing body rules and regulations.

16A.2 REQUIREMENTS.

a. General. The contractor shall install all electrical work in accordance with the applicable drawings and specifications. All electrical work shall be installed to meet the provisions of the current issue of the National Electrical Code, NFPA-70, and all state and local regulations.

16A.2b

b. Contract Drawings.

(1) Where the electrical drawings indicate or (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 (other than Government-furnished items) and labor to complete the installation work, and accomplish all the indicated functions of the electrical installation.

(2) Minor departures from exact dimensions shown on the drawings may be permitted where required to avoid conflict or unnecessary difficulty in placement of the dimensioned item, provided all other contract requirements are met. The contractor shall promptly obtain approval from the FAA Resident Engineer for any such proposed departure.

c. Materials. Materials and equipment, to be acceptable, must comply with all contract requirements. Materials to be furnished by the contractor under this specification shall be new and, unless specified otherwise, the standard products of a manufacturer's latest designs. Wherever standards have been established by Underwriters' Laboratories, Inc., the materials shall bear the UL label.

16A.3 CONDUIT.

a. Where electrical metallic tubing is shown on the drawings, at exterior or interior locations, it shall be used without substitution.

b. Except where specified otherwise, conduit exposed to the weather, in concrete, or below grade shall be galvanized rigid steel with threaded joints. All conduit and conduit fittings in contact with earth shall be field coated with asphaltum or have a factory PVC coating.

c. Except where otherwise specified, conduit used entirely indoors shall be rigid or electrical metallic tubing. Compression type fittings shall be used with metallic tubing.

d. Minimum size of conduit shall be 3/4-inch unless otherwise noted on the drawings. Each conduit run shall be installed complete before cable is pulled through.

e. All outdoor connections of conduit to enclosures shall be made with weatherproof hub fittings unless otherwise specified. Indoor connections of rigid conduit to enclosures shall be made with double locknuts and bushings. Refer to grounding section for disconnect switch conduit terminations.

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f. Ends of conduits installed but not used, shall be closed with bushings and pennies. All underground conduit shall be temporarily plugged during construction to prevent entrance of foreign material.

g. Wherever conduit from outdoors or underground enters an enclosure or junction box, either indoors or outdoors, seal space between conduit and cables with conduit seal.

h. Exposed conduit shall be installed parallel to or at right angles with equipment and building wall surfaces unless shown otherwise. Field bends shall be avoided where possible, and where necessary shall be made with a hickey or conduit-bending device. Radius of field bends shall not be less than ten times the inside diameter of the conduit. Conduit shall be fastened securely to adjacent members or surfaces with galvanized clamps, straps.

i. The contractor shall install one #6 copper pull wire in underground duct or conduit which is installed or utilized under this contract. This is in addition to all power or control cables installed under this contract. The pull wire shall be continuous through the duct or conduit, and shall extend five feet beyond each end of the duct or conduit.

j. Flexible conduit shall be installed where specified on the drawings.

16A.4 GROUNDING.

a. Equipment, Structures, and Raceways.

(1) All metallic non-current carrying parts of electrical equipment (including enclosures) and supporting structures installed under this contract, whether used either for power or control, shall be grounded with an equipment grounding conductor, whether or not shown on the drawings. The grounding conductor shall be sized in accordance with the National Electrical Code, but shall be of larger gauge if so shown on the drawings. In no case shall the grounding conductor be smaller than #12 AWG, unless shown otherwise on the drawings.

(2) A service entrance conduit or any other power feeder conduit emerging from below grade and supplying power to another facility or system component shall terminate with grounding bushings at both ends. These requirements apply unless shown otherwise on the drawings.

(3) The equipment grounding conductor shall be connected to the grounded conductor (neutral) only at the service entrance disconnecting 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. The equipment grounding conductor shall be connected to all grounding bushings on conduits through which the conductor passes. The equipment grounding conductor shall be connected to all other grounding conductors in enclosures and bodies through which the conductor passes.

(4) Where there are parallel feeders installed in more than one raceway, a properly sized equipment grounding conductor shall be installed in each raceway. The metallic conduit carrying the equipment grounding conductor shall be electrically continuous, forming a path parallel to the equipment grounding conductor. Under no circumstances shall the equipment grounding 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 and alternate path to the grounding electrode, unless so shown on the drawings.

(5) All connections to the equipment to be grounded shall be made with a grounding 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-corroding material suitable for use as a grounding connection, and must be compatible with the type of metal being grounded. **REMOVE PAINT AND OTHER NON-CONDUCTING MATERIALS FROM SURFACES OF GROUNDING CONNECTIONS.**

(6) Unless otherwise specified, control equipment enclosures, pull boxes, and raceways, shall be grounded as above for power wiring.

(7) Where surface-mounted square duct, other wireways, or cable tray systems are installed, a separate copper conductor shall be installed in the raceway, and shall be properly bonded to each section. Unless otherwise specified, the minimum size ground conductor shall be #6 green insulated copper.

b. Service Entrance Disconnect Switches and Breakers. All facility service entrance disconnect switches and breakers shall be grounded as follows:

(1) The neutral bar or lug shall be grounded with a green insulated copper grounding electrode conductor, running directly to the grounding electrode. The grounding

electrode conductor size shall be in accordance with the NEC, but in no case shall the wire size be smaller than No. 4 AWG.

(2) The switch box or panelboard enclosure shall be grounded to the grounded neutral bar or lug with a green insulated conductor, or other service grounding means.

c. Grounding Electrode. Grounding electrodes (rods) shall be copper clad steel, 3/4-inch by 10 feet, except where otherwise specified. The top of the grounding electrode shall be a minimum of 12 inches below finished grade. Lightning down conductors shall be attached to electrodes with exothermic welds only. Shelter perimeter grounding conductors shall be attached to electrodes with exothermic welds only, except in grounding access wells. In a grounding access well, grounding conductors shall be attached with bolted mechanical connectors. Other grounding conductor(s) shall be attached to the electrode with an exothermic weld or by hydraulically crimped compression connectors, as specified below.

d. Grounding Conductor. All grounding conductors shall be copper. All grounding conductors which are totally above grade shall be green-insulated conductors. All grounding conductors which are either entirely or partially direct-earth buried, shall be #6 AWG bare conductors, unless noted otherwise on the drawings.

e. Buried Guard Wire. Underground cables which are not completely enclosed in ferrous metal conduit, shall be protected by a #6 AWG bare solid copper guard wire. The guard wire shall be embedded in the soil 10 inches directly above, and parallel to, the highest of the cables in the trench or duct system. The guard wire shall be bonded to the grounding electrode system at each end of the cable run, and to grounding electrodes along the cable run at intervals not exceeding 300 feet. The guard wire shall be connected to the electrodes with exothermic welds, or by hydraulic crimping, as specified below.

f. Exothermic Process for Connecting Grounding Conductors to Metal Objects. Where the drawings and/or specifications require connection of a grounding conductor to a metal object by exothermic process, the contractor shall supply the correct exothermic welding kit for the application. The mold and cartridge used shall be selected on the basis of size, number, and type of conductors to be connected, composition and surface shape of object, and position in which the weld will be made. Two sources of exothermic welding kits are Thermoweld (Continental Industries) and Cadweld (Erico Products, Inc.). Some of the kits are listed on the tabulation at the end of this section. Regardless of the source of the kits he selects, the contractor shall

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submit catalog cuts or other manufacturer information, demonstrating that the kits fit their intended applications on the above described basis. See Paragraph 1A.4 above. The contractor shall provide and use the proper preparation tools in applying the exothermic process to insure an adequate weld. Torch welds and/or brazing will not be permitted. No single-use exothermic weld molds, such as Thermoweld "Single Shot" and Cadweld "One Shot", will be permitted.

g. Hydraulically Crimped Connections. Grounding conductors (except lightning down conductors, shelter perimeter grounding conductors, and conductors inside a grounding access well) may be connected to grounding electrodes with compression connectors crimped with a force of at least 24,000 pounds. All grounding conductors (except shelter lightning protection system conductors) may be connected to each other with compression connectors crimped with a force of at least 24,000 pounds. Connectors, tools, dies, and crimping procedures shall be compatible to the application and to each other, and shall conform to the manufacturer's catalog and instructions. Each connector shall be clearly marked with catalog number, conductor size, and installation die information. The tooling shall be of the type that embosses or engraves the die index number on the connector in the crimping process. All connectors shall be listed in conformance with Underwriters Laboratories Standard UL467 and the National Electrical Code. Burndy Hyground Compression System connectors, matching tools, and crimping procedures, are one system of products which meet these specifications. Regardless of the source of the connectors, tools, and dies selected, the contractor shall submit catalog cuts or other manufacturer information, demonstrating that these items fit their intended applications as described above. See Paragraph 1A.4 above.

h. Testing. Electrode grounds shall be tested for resistance intended applications as described above. See Paragraph 1A.4 above.at each location. Resistance to ground for each grounding location shall be 10 ohms or less. If this value is not achieved with the grounding electrodes, as shown on the drawings, additional grounding electrodes, spaced at least 6 feet apart, or electrode extensions of the same construction and diameter, shall be installed until the resistance value does not exceed the maximum of 10 ohms.A tabulated report of the final resistance value at each location shall be provided to the Resident Engineer.

16A.5 SPARE FUSES. Unless specified otherwise, for every fused switch the contractor installs, he shall furnish the Resident Engineer one full set of spare fuses in addition to the fuses installed in the switch. If the drawings require more than one full set, the contractor shall comply with the drawings.

16A.6 GROUND FAULT INTERRUPTING RECEPTACLE. All outdoor receptacles provided by the contractor shall be ground fault interrupting duplex receptacles in properly sized weatherproof boxes.

16A.7 CABLE ABANDONMENT. Ends of cables to be abandoned shall be buried two feet below grade unless otherwise specified.

16A.8 WATERPROOFING CABLE ENDS. All cable ends which will be exposed to weather, water, ground, or corrosive environment prior to termination, shall be sealed against these elements while awaiting termination. This also applies to all cable ends in manholes or handholes. The sealing material shall be properly sized, easily removable heat shrinkable end caps (3M ICEC are acceptable), or electrical tape (see Paragraph 16A.21 below), with an application of brushed-on protective electrical coating.

16A.9 CONDUIT AND CABLING FOR ENGINE GENERATOR. Where engine generator standby power will be extended to a facility, conduit shall run continuously, without intermediate manholes or handholes, from the engine generator to the facility. In the continuous conduit, power cables shall be installed without splices from the engine generator bypass switch to the facility service entrance switch.

16A.10 ELECTRICAL EQUIPMENT NAME PLATES.

a. Each of the following types of equipment shall be identified with a name plate showing the functional name of the unit, voltage utilized, one or three phase as applicable, and additional information if specified or requested by the Resident Engineer:

    Switches (Except Local Lighting)
    Panelboards
    Main Circuit Breakers
    Motor Controllers

b. Name plates shall be non-ferrous metal or rigid plastic, stamped, embossed, or engraved with 3/8-inch minimum height letters and numerals. Name plates shall be secured to the equipment with at least two screws, except main breaker plates may be epoxy glued.

16A.11 PANELBOARD CIRCUIT DIRECTORIES. The contractor shall clearly and neatly mark panelboard circuit directories, identifying each circuit he establishes, re-establishes, or changes, as to the circuit's function.

16A.12 COVERING HOLES IN ENCLOSURES. No electrical enclosure will be accepted which has an unused open hole, except weep holes or vent holes. Holes in enclosures where conduits, bolts, or other objects were removed and not reinstalled, shall be closed with panels of the same material, thickness, color, and shade as the enclosure.

16A.13 SAFETY DISCONNECT SWITCHES AND FUSES. Safety disconnect switches and fuses shall meet the following specifications.

a. General. Unless specified otherwise, all switches for circuit voltages of 600VAC or less, shall be heavy duty (Type HD), UL listed, and shall bear the UL label. The switches shall be NEMA 1 or NEMA 3R, as required by the drawings or special specifications.

b. Switch Interiors. All switches shall have switch blades which are fully visible in the OFF position when the switch door is open. All current-carrying parts shall be of high-conductivity copper, designed to carry the rated load without excessive heating. Switches shall have removable arc suppressors where necessary to permit easy access to line side lugs. Lugs shall be front removable and UL listed for 60°C or 75°C, aluminum or copper wires.

c. Switch Mechanism. Switches shall quick-make, quick-break, such that during normal operation of the switch, the operation of the contacts will not be capable of being restrained by the operating handle after the closing or opening action of the contacts has started. The operating handle shall be an integral part of the box, not of the cover. Switches shall have provisions for padlocking the switches in the OFF position with at least three locks. Switches shall have a dual cover interlock to prevent unauthorized opening of the switch door when the handle is in the ON position, and to prevent closing of the switch mechanism with the door open. The handle position shall indicate whether the switch is ON or OFF.

d. Enclosures. Covers on NEMA 1 enclosures shall be attached with pin type hinges. NEMA 3R enclosures shall be securable in the open position. NEMA 3R enclosures for switches through 200 amperes shall have provisions for interchangeable bolt-on hubs. Hubs shall accommodate the conduits of the diameters indicated on the drawings. NEMA 3R enclosures shall be manufactured from galvanized steel. All enclosures shall have a gray baked enamel finish, electrodeposited on cleaned, phosphatized steel.

e. Ratings. All fusible switches rated 100 through 600 amperes at 240 volts, and 30 through 600 amperes at 600 volts, shall have a UL-approved method of field conversion from standard Class H fuse spacing to Class J fuse spacing. The switch also must accept Class R fuses, and have provisions for field installation of a UL-listed rejection feature to reject all fuses except Class R. The UL-listed short circuit rating of the switches shall be 200,000 rms symmetrical amperes when Class R or Class J fuses are used with the appropriate rejection scheme. The UL-listed short circuit rating of the switch, when equipped with Class H fuses, shall be 10,000 rms symmetrical amperes.

f. Fuses. All fused switches meeting the above specifications shall be fused with dual element, time-delay, UL Class RK5 fuses, of the continuous current rating specified on the drawings. The fuses' interrupting rating shall be at least 10,000 rms symmetrical amperes. Bussmann Fusetron switch fuses are among the products that meet these specifications.

g. Switches Meeting Specifications. The following eight Square D 240V, single phase, 3-wire switches, are among switches meeting the above specifications:

(1) 30-amp-rated, for indoor use, Cat. No. H221A, with field-installable solid neutral assembly Cat. No. H60SNC.

(2) 30-amp-rated, for outdoor use,Cat. No. H221AWK, with field-installable solid neutral assembly Cat. No. H60SNC.

(3) 60-amp-rated, for indoor use, Cat. No. H222A, with field-installable solid neutral assembly Cat. No. H60SNC.

(4) 60-amp-rated, for outdoor use,Cat. No. H222AWK, with field-installable solid neutral assembly Cat. No. H60SNC.

(5) 100-amp-rated, for indoor use,Cat. No. H223A, with field-installable solid neutral assembly Cat. No. H100SNC.

(6) 100-amp-rated, for outdoor use, Cat. No. H223AWK, with field-installable solid neutral assembly Cat. No. H100SNC.

(7) 200-amp-rated, for indoor use,Cat. No. H224A, with field-installable solid neutral assembly Cat. No. H200SNC.

(8) 200-amp-rated, for outdoor use, Cat. No. H224AWK, with field-installable solid neutral assembly Cat. No. H200SNC.

16A.14 PANELBOARDS AND CIRCUIT BREAKERS. Panelboards and circuit breakers shall meet the following specifications.

a. General. Unless otherwise specified, all panelboards for circuits of 240VAC or less, shall be surface mounted, and equipped with bolt-on circuit breakers with frame and trip ratings. Panelboards and circuit breakers shall be UL rated, and shall bear the UL label. When installed as service equipment, panelboards shall be suitable for use as service equipment.

b. Circuit Breakers. Circuit breakers shall be one-pole or two-pole thermal-magnetic molded-case circuit breakers. The two-pole breakers shall have an integral crossbar to assure simultaneous opening of both poles. Breakers shall have an overcenter, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Handles shall have ON, OFF, and TRIPPED positions. In addition, trip indication shall include a visible trip indicator appearing in the window of the

breaker case. The circuit breakers shall be able to be installed in the panelboard without requiring additional mounting hardware. Circuit breakers shall be UL-listed in accordance with UL Standard 489 and shall be rated 240 VAC maximum with continuous current ratings as noted on the drawings. Circuit breakers up to but not including an ampere rating of 70 amperes, shall have an interrupting rating of 10,000 rms symmetrical amperes for a 120/240VAC circuit. Circuit Breakers with ampere ratings of 70 amperes or more, shall have an interrupting rating of 22,000 rms symmetrical amperes for a 120/240 VAC circuit. Single-pole 15 and 20-ampere circuit breakers for routine switching of fluorescent lighting loads, shall carry the SWD marking.

c. Bussing Assembly and Temperature Rise. Panelboard bus structure and main lugs or main circuit breaker shall have current ratings as shown on the drawings. Such ratings shall be established by heat rise tests, conducted in accordance with UL Standard 67. Bus structures shall be insulated. All current-carrying parts shall be of high-conductivity copper, designed to carry the rated load without excessive heating.

d. Cabinets and Fronts. The panelboard bus assembly shall be enclosed in a steel cabinet. The rigidity and gauge of the steel shall be as specified in UL Standard 50 for cabinets. Wiring gutter space shall be in accordance with UL Standard 67 for panelboards. The box shall be fabricated from galvanized steel or equivalent rust-resistant steel. Each front shall include a door, and shall have a flush, cylinder tumbler-type lock with catch and spring-loaded stainless steel door pull. All panelboard locks shall be keyed alike. Fronts shall have adjustable indicating trim clamps which shall be completely concealed when the doors are closed. Doors shall be mounted with completely concealed steel hinges. Fronts shall not be removable with the door in the locked position. A circuit directory frame and card with a clear plastic covering shall be provided on the inside of the door.

e. Panelboards Meeting Specifications. The following panelboards are among panelboards which meet the above specifications.

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(1) 12-Space Panelboards. Panelboards assembled from the following Square D components, including 100-amp main lug or 100-amp main circuit breaker (CB) interiors with 12 single-pole branch breaker spaces:

	Indoor (NEMA 1)	Outdoor (NEMA 3R)
Interior	NQOD12L100CU (main lugs) NQOD12M100CU (main CB's)	NQOD12L100CU (main lugs) NQOD12M100CU (main CB's)
Enclosure	MH20 (main lugs) MH23 (main CB's)	MH20WP (main lugs) MH23WP(main CB's)
Interior Trim Kit	None	MH20TK (main lugs) MH23TK (main CB's)
Circuit Breakers	QOB style	QOB style

(2) 20-Space Panelboards. Panelboards assembled from the following Square D components, including 100-amp main lug or 100-amp main circuit breaker (CB) interiors with 20 single-pole breaker spaces):

	Indoor (NEMA 1)	Outdoor (NEMA 3R)
Interior	NQOD20L100CU (main lugs) NQOD20M100CU (main CB's)	NQOD20L100CU (main lugs) NQOD20M100CU (main CB's)
Enclosure	MH23 (main lugs) MH26 (main CB's)	MH23WP (main lugs) MH26WP (main CB's)
Interior Trim Kit	None	MH23TK (main lugs) MH26TK (main CB's)
Circuit Breakers	QOB style	QOB style

16A.15 ELECTRICAL ENCLOSURES AND WIREWAYS. Unless specified otherwise, electrical enclosures and wireways shall meet the following specifications.

a. Material. Electrical enclosures and wireways shall be constructed of code gauge sheet steel.

b. Corrosion-Resistant Coating. Enclosure and wireway sheet steel shall be coated by ASTM 525 G90 (galvanneal) galvanizing or corrosion-resistant phosphate primer, or both.

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c. Finish. Finish shall be dark gray enamel inside and out, or ANSI 61 gray polyester coating inside and out, or ASA-49 gray epoxy paint inside and out.

d. Industry Standards.

(1) Enclosures. NEMA 1 enclosures shall meet NEMA Type 1 and UL 50 Type 1 standards. NEMA 3R enclosures shall meet NEMA Type 3R and UL 50 Type 3R standards.

(2) Wireway. NEMA 1 wireway (including troughs) shall meet NEMA 1 and UL 870 standards. NEMA 3R wireway (including troughs) shall meet NEMA 3R and UL 870 standards.

e. Hardware. All hardware shall be plated to prevent corrosion.

16A.16 FACILITY AC SURGE ARRESTER. The contractor shall furnish and install an AC surge arrester (power arrester) on the line side of the facility shelter service disconnecting means, as shown on the drawings. The arrester shall meet the following specifications.

a. Operating Lifetime. The arrester shall safely dissipate the number and amplitude of surges listed in Table 1, below. In this table, the 8x20us waveform defines a transient with a rise time of 8 microseconds (us) from inception to peak value that exponentially decays to 50 percent of peak value 20us after inception.

TABLE 1: LINE-TO-GROUND SURGE LEVELS FOR 120/208V, 120/240V, AND 277/480V AC SERVICES LINES
(Tabulated values are from Table I of FAA-STD-019b, dated August 28, 1990.)

Surge Current Amplitude 8x20 Microsecond Waveform	Number of Surges (Lifetime)	
	Normal Phase Current	
	100A or Less	Greater than 100A
10,000 amperes	1,000 surges	1,500 surges
20,000 amperes	500 surges	700 surges
30,000 amperes	250 surges	375 surges
40,000 amperes	25 surges	50 surges
50,000 amperes	1 surge	5 surges
60,000 amperes	0 surge	2 surges
70,000 amperes	0 surge	1 surge

Clamp (discharge) voltage shall not change more than ten percent over the operating life of the arrester.

b. Operational Characteristics. The arrester shall have the following operational characteristics.

(1) Reverse Standoff (Maximum Operating) Voltage. Reverse standoff voltage is the maximum voltage that can be applied across arrester terminals with the arrester remaining in an OFF (non-conducting) state. The reverse standoff voltage shall be 125 ± 5 percent of normal line voltage.

(2) Leakage Current. Leakage current shall not exceed 1 milliamp at reverse standoff voltage.

(3) Turnon Voltage. Turnon voltage is the minimum voltage across arrester terminals that will cause the arrester to turn on and conduct. Turnon voltage shall not exceed 150 percent of reverse standoff voltage.

(4) Clamp (Discharge) Voltage. Clamp voltage (discharge voltage) is the maximum sustained voltage that appears across an arrester output terminal while conducting surge currents. For 120/240V and 120/208V arresters, clamp voltage, each phase to ground, either polarity, shall not exceed those shown in the following tabulation:

Surge Current	Clamp Voltage	Surge Current	Clamp Voltage
5,000 amps	400 volts	40,000 amps	900 volts
10,000 amps	480 volts	60,000 amps	1,100 volts
20,000 amps	650 volts	80,000 amps	1,350 volts

(5) Overshoot Voltage. Overshoot voltage is the surge voltage that appears across the arrester terminals before the arrester turns on and clamps the surge to the clamp voltage. The overshoot voltage shall not exceed two times the arrester clamp voltage for more than 10 nanoseconds.

(6) Self-Restoring Capability. The surge arrester shall automatically return to the OFF state after surge dissipation when line voltage returns to normal.

(7) Fusing and Lamps.

(a) The input to each arrester phase component shall be internally fused to protect the AC power supply equipment against overload should an arrester device short. This fusing shall not increase the clamp voltage of the arrester. The fusing shall pass the surge current levels given in Table 1 without opening. The arrester internal fusing shall open on application of a steady state current at a level low enough to prevent damage to

the AC power supply. The multiple arrester phase components shall be individually fused. A failed component shall blow its own fuse, and be automatically removed from the circuit, with the remaining components providing continued protection.

(b) Lamps. Each phase shall have two indicator lamps in parallel, to continuously monitor the arrester condition. The lamps shall be coordinated with the fuses such that the lamps dim or go out when the last arrester component remains. The arrester elements shall be connected line-to-neutral.

c. Composition and Construction. All components of the arrester shall be assembled and mounted in a single NEMA 4 waterproof enclosure. Heavy duty, screw-type studs shall be provided for all input and output connections. The arrester elements shall be connected line-to-neutral. The arrester shall have an internal means of easily disconnecting incoming power, so the arrester may be maintained without disconnecting facility power. The arrester elements shall be electrically isolated from the enclosure to a minimum of 10 megohms resistance. The enclosure door shall be hinged and electrically bonded to the enclosure when shut. The hinges shall not be used to provide electrical bonding. Indicator lamps shall be mounted on the front door. Fuses, lights, fuse wires, and arrester components shall be readily accessible for inspection and replacement.

d. Arrester Meeting Specifications. For 120/240V, single phase, 60Hz applications, the Lightning Protection Corporation (Goleta, California) Model No. LPC 20206-7 AC surge arrester is one of the products that meet the above specifications. If the contractor intends to furnish a substitute, or if a different power configuration must be accommodated, the contractor shall submit to the Contracting Officer, full manufacturer's literature on the substitute arrester, and shall not procure the substitute before receiving the Contracting Officer's approval. See Paragraph 1A.4 above.

e. Installation. The arrester shall be installed as close as practical to the facility service disconnecting means, but not more than 12 inches away from the disconnecting means. Wiring connections shall be on the line side of the service disconnecting means.

(1) Phase Cables. Surge arrester phase lugs shall be connected to corresponding phase terminals of the service disconnecting means with insulated #4 AWG (minimum gauge) stranded copper cable. These cables shall be as short and shall run as directly as feasible, without loops, sharp bends or kinks.

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(2) Surge Grounding Cable. The surge grounding cable shall be routed as directly as feasible, without loops, sharp bends or kinks, from the surge grounding terminal:

(a) To the nearest grounding electrode, or

(b) To the neutral bus in the service disconnecting means, if so shown on the drawings.

The surge grounding cable shall be insulated #4 AWG (minimum gauge) stranded copper cable. This cable shall be color coded white when connected from the arrester to the service disconnecting means.

(3) Equipment Grounding Conductor. The surge arrester enclosure shall be connected to the ground bus in the service disconnecting means enclosure with a #6 AWG green insulated copper cable.

16A.17 SHELTER ENVIRONMENTAL AND LIGHTING EQUIPMENT. If required on the drawings, equipment for an equipment shelter (building) nominally sized 10'x12', shall meet the following specifications.

a. Vent Fan. For a MALSR shelter, the vent fan shall be at least 1/25 HP, and shall move at least 424 CFM at zero gauge pressure. Greenheck Model GW-75-D is one of the products that meet these specifications. For an ILS shelter, the vent fan installation shall be supplemented with a power damper and two-position damper motor. The Honeywell D640 power damper with two-position damper motor Honeywell M436A116, is one of the products that meet these specifications. The intake damper for the ILS shelter shall be a power damper with two-position damper motor identical to the vent fan power damper.

b. Vent Fan Thermostat. The vent fan thermostat shall be a 120VAC wall-mounted airswitch controller operating in a temperature range from at least 35° to 95°F. Honeywell Part No. T651A is one of the products that meet these specifications. This item applies to buildings without environmental control panels, e.g., MALSR and ILS marker shelters.

c. Heater. The heater shall be a 240V, 4,000-watt wall-mounted electric heater with surface mounting box. The QMark Cat. No. AWH-4404 heater is one of the products that meet these specifications.

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d. Heater Timer Unit. The heater timer unit shall consist of a 1-hour 240-volt manual timer, and contactor with 208/240-volt coil and 30-amp rated contacts, mounted on and in a minimum 12"x12"x4" NEMA 1 hinged cover box with matching mounting panel. The following components are among components that meet these specifications: Timer, Dayton Stock No. 6X546; contactor, Honeywell Part No. R4243B1046; enclosure, Hoffman Cat. No. A-12N124, with A-12N12P mounting panel. The heater timer unit is applied to buildings without environmental control panels, e.g., MALSR and ILS marker shelters.

e. Air Conditioner. The air conditioner shall be nominally 240V (unless specified otherwise on the drawings), front air discharge model, with EER of at least 9.0, and shall have either a through-wall sleeve or a slide-out chassis. Air conditioners are applied to buildings with environmental control panels, e.g., ILS localizer and glide slope shelters.

f. Interior Light Fixture and Lamps. Each interior light fixture shall be surface mounted, 120-volt, having a white-painted steel chassis and a light-controlling plastic lens enclosure. The lens enclosure shall be of a wraparound style which illuminates the ceiling as well as the room. The fixture shall be nominally four feet long, and shall accommodate two 48"-long T-8 fluorescent lamp tubes. The ballast shall have a radio frequency suppressor. The ballast shall operate normally at temperatures above 20°F. The lamp tubes shall be 32-watt 48"-long T-8 fluorescent lamp tubes, each with an initial rating of 2,850 lumens. The Holophane Prismawrap Cat. No. M7100-4-1-A-6 light fixture is among fixtures which meet these specifications. The following 32-watt lamp tubes are among lamps which meet these specifications: General Electric Trimline, Philips TL70, and Sylvania Octron.

g. Exterior Light Fixture. The exterior light fixture shall be a 50-watt high pressure sodium unit, rated for 24,000-hour lamp life, having a cast aluminum housing, and a photocontrol installed inside the housing. Holophane Wallpackette luminaire, Cat. No. WP-2-A-050HP-12-GR-P, is among products which meet these specifications.

16A.18 SHELTER LIGHTNING PROTECTION EQUIPMENT. All shelters (buildings) shall have a lightning protection system installed per the requirements of the Lightning Protection Code, National Fire Protection Association (NFPA 78), and Underwriters Laboratories Master Labeled System (UL96A). Specific lightning protection equipment items shall meet the following specifications. Catalog numbers given in a through k below, are of Thompson Lightning Protection, Inc. of St. Paul, Minnesota.

a. Air Terminal Point. Air terminal points shall be nickel-tipped copper, 1/2" diameter x 36" long. Cat. No. 660 meets these specifications.

b. Point Bracket. For a roof ridge, the point bracket shall be made of pressed copper, shall bend to fit any roof slope, and shall hold the point and cable slightly above the center of the roof ridge. The bracket shall have a pressure cable clamp, and a stud to engage the point. Cat. No. 532 meets these specifications.

c. Air Terminal Brace. The air terminal brace shall be a 36"-long galvanized tripod assembly, with legs adjustable to accommodate any roof slope. Cat. No. 83 meets these specifications.

d. Roof and Down Conductors. Roof and down conductors shall each have 32 strands of #17 copper wire, 7/16" overall diameter, braided smooth twist, 65,500 circular mils, and a net weight of 215 pounds per 1000 feet. Cat. No. 32 meets these specifications.

e. Ridge Cable Support. Ridge cable supports shall be pressed copper cable supports at least 2" wide, to hold the roof cable above the top of the roof. The ridge cable supports shall be sized to accommodate the roof conductor. Cat. No. 533 meets these specifications.

f. Cable Holder. Cable holders shall be 1"-wide copper bent-strap type loops with 1/4" mounting holes. The cable holders shall be sized to accommodate the roof conductor. Cat. No. 166XX meets these specifications.

g. Parallel Clamp. Parallel clamps shall be bronze 2"-long clamps for connecting two conductors together, one conductor of maximum diameter 1/2", and the other conductor from 1/6" dia to 5/16" dia. Cat. No. 565 meets these specifications.

h. Flexible Bonding Strap. Flexible bonding straps, for connecting steel doors to steel door frames, shall be braids each composed of 480 #30 copper wires, with flat bronze or copper connectors crimped on at each end. The connectors shall have holes to take either 5/16" or 3/8" machine screws.

i. Pipe Clamp. Pipe clamps shall be adjustable tinned bronze clamps for bonding cables to pipes, and fitting pipes up to and including 1 1/4" O.D., and cables up to and including 1/2" diameter. Cat. No. 240 meets these specifications.

j. Bonding Equipment. Bond the steel siding, vent fan, hood, door frame, junction boxes, and any miscellaneous exterior metal objects to down conductors. If included, air conditioners, junction boxes, and flight check antenna masts shall be likewise bonded. Use the following equipment to perform the bonding:

16A.18j(1)

(1) Bonding Plate. Bonding plates shall be 8-sq. inch tinned bronze plates with 2"-long pressure type cable connectors, designed to bond a continuous run of cable to metallic objects along their path. Each plate shall have two holes fitting sheet metal screws or 1/4" machine screws. Cat. No. 702 meets these specifications.

(2) Bonding Conductor. Bonding conductor shall be minimum #6 bare soft drawn copper, 1/6" dia, 26,250 circular mils, net weight 80 pounds per 1000 feet. Cat. No. 14X (#6 bare solid) and Cat. No. 509X (#4 bare solid) meet these specifications.

k. Ground Rod Clamps. In the grounding access well, the #6 grounding lectrode conductor shall be connected to the 3/4"-diameter grounding electrode with a bronze 2-bolt ground rod clamp. Cat. No. 519 meets these specifications. In the grounding access well, the 4/0 counterpoise cable (perimeter ground) shall be connected to the 3/4"-diameter grounding electrode with a bronze clamp which will accept one vertical cable and one horizontal cable. Cat. No. 693 meets these specifications.

l. Grounding Access Well Frame and Lid. If shown on the drawings, the frame and lid of the grounding access well shall fit snugly into the opening of a 15"-diameter corrugated pipe. The frame and lid shall be ASTM A48 Class 35B gray cast iron. The lid shall be solid, not of an open construction. Neenah Foundry Co. (Neenah, Wisconsin) Cat. No. R-5900-B is one of the products that meet these specifications.

16A.19 CONTROL CABLE TERMINAL STRIPS. Unless specified otherwise, contractor-furnished control (telephone) cable terminal strips shall be units assembled from compatible components all from the same manufacturer. The individual blocks of the strips shall be miniature style (1/4" O.C.) nylon blocks with screw-activated tubular conductor clamps. The blocks shall be rated for a maximum voltage of at least 300 volts and a maximum current of at least 30 amperes. The conductor clamps shall accept wire sizes at least from #14 to #22. Stab-in wire connection blocks shall not be used. The blocks shall be mounted in a mounting channel. The assembled strip of blocks shall have a marking strip and holding plugs or end barriers. For terminating control cables on these strips, see Paragraph 16F.7 below. The following terminal strip components are among components which meet these specifications:

16A.19a

a. Buchanan: Blocks No. 125 mounted in channel No. 12 with clamps No. 11. Marking strip No. 15. Holding plug No. 16.

b. Square D: Blocks No. GM-3, with mounting channel and marking strip of the GH series, with end barrier No. GM3B.

16A.20 FRANGIBLE COUPLINGS.

a. Material Specification. Unless specified otherwise, contractor-furnished frangible couplings shall be 2" diameter cast aluminum couplings having a hexagonal clamping ring. The couplings shall accommodate 2"-diameter EMT conduit, and shall meet Military Specification MS-17814-1. Frangible coupling Cat. No. 961A by Multi Electric Mfg., Inc. of Chicago, Illinois, is one of the products that meet these specifications.

b. Thread Remediation. Often, the conduit threads of frangible couplings (both contractor-furnished and Government-furnished) are cast with mismatched halves. Often, this imperfection causes the threads to bind in the rigid coupling threads conduit threads of the required mating object), before the required engagement is reached, even when anti-seize compound is used. When this binding occurs, the contractor shall rework the frangible coupling threads to achieve the required thread engagement. This remediation may consist of rethreading with a straight conduit thread die, and/or of grinding off the threads on the two diametrically opposite sides of the thread helix where the cast thread discontinuity is found. This remediation must continue until the required thread engagement is achieved. All burrs and galls must be removed from the reworked threads.

c. Installation. For approach lighting systems, see Paragraph 13A.2c. For VASI, REIL, PAPI, and RVR, see Paragraph 13C.2b.

16A.21 ELECTRICAL TAPE. Unless specified otherwise, electrical tape shall meet the following specifications. The tape material shall be based on PVC polyvinyl and/or PVC copolymers. The tape shall have a rubber-based, pressure-sensitive adhesive. The tape shall be 8.5 mils thick, and be UL listed and marked per UL Standard 510 as "Flame Retardant, Cold and Weather Resistant." The tape must be applicable at temperatures ranging from 0°F through 100°F (-18°C through 38°C). The tape shall be classified for both indoor and outdoor use. The tape shall be compatible with synthetic cable insulations, jackets, and splicing compounds. Scotch Super 88 Vinyl Electrical Tape by 3M is one of the products that meet these specifications.

16A.22 PRE-STRETCHED RUBBER TUBING. Pre-stretched rubber tubing shall be open-ended tubular rubber sleeve, factory expanded and assembled onto a removable core. The tubing is supplied for field installation in this pre-stretched condition. The tube is positioned for installation over an inline connection, terminal lug, sleeve splice, or other cable insulation discontinuity requiring protection. Then the core is removed, allowing the tube to shrink to produce a waterproof seal.

The tubing shall be made of EPDM (ethylene propylene diene methylene) rubber containing no chlorides or sulfurs. The tubing must be capable of operation at emergency overload cable temperatures of 130°C. It must be usable without additional covering or adhesive, both indoors and outdoors, in overhead, direct buried or submerged applications, on cables rated up to 1,000 volts. The tubing must be applied without additional heat or flame and, when applied per the manufacturer's instructions, be immediately energizable. It must not be adversely affected by moisture, mild acids or alkalies, ozone or ultraviolet light. It must conform to the requirements of ANSI C119.1 1974, appropriate sections of Western Underground Guide 2.14 and UL 486D. The tubing must have been accepted by the U.S. Department of Agriculture, Rural Electrification Administration (REA), for both submersible and aerial application. PST Cold Shrink Connector Insulators 8420 Series by 3M are among products which meet these specifications. All applications must be performed per the manufacturer's instructions.

16A.23 FIRE AND ARC PROOFING. Fire and arc proofing shall consist of a flexible conformable unsupported (having no adhesive) intumescent elastomer. The intumescent property causes the tape to expand in fire, thus providing an insulating firewall between the flame and cable. The tape shall be not less than .030 inches thick. The tape shall be capable of over 100% elongation. The tape shall be non-corrosive to metallic cable sheaths. It shall be compatible with synthetic cable jackets such as semi-conducting URD type, polyethylene, and PVC. The tape shall be self-extinguishing, i.e., shall not support combustion. The tape shall not deteriorate when subjected to water, salt water, gases, and sewage. The wrapped tape shall be secured by a band consisting of two layers (the second wrapped directly over the first) of glass cloth electrical tape at both ends of the fire and arc proofing wrap. The completed installation of a single half-lapped layer of fire and arc proofing shall be capable of withstanding a high 60 Hz current fault arc temperature of 13,000°K for 70 cycles. Scotch 77 Fire and Arc Proofing tape secured with Scotch 69 Glass Cloth Electrical Tape are among products that meet these specifications, when applied per the manufacturer's instructions. All applications must be performed per the manufacturer's instructions.

16A.24 CABLE CONNECTOR PROTECTION.

a. Primary Connections. Where single-conductor plug and receptacle cable connectors are joined in light bases or other underground enclosures, the joint shall be sealed with heat-shrinkable tubing specifically designed for this purpose. Each tubing unit shall consist of a polyolephin heat-shrinkable sleeve with sealant at each end. The tubing shall meet the performance specifications of ANSI C-119.1 and Western Underground Guide (2.5, 2.4), and shall be REA listed under "secondary" tap or splice cover, submersible.

The sleeve is placed over the cable connectors, their joint, and a short length of cable at the ends of the connectors. The sleeve is shrunk with a torch or heat gun, with heat applied from the center of the sleeve toward the ends, to avoid trapping air. The sleeve shrinks under the heat, to conform to the shape of the connectors and the cables. The sealant at the ends of the sleeve forms a watertight seal around the cables. These sleeves shall be applied to cable connector joints between two isolation transformer primary leads, a primary lead and a cable, or two cables, wherever these joints are specified in a light base or other underground enclosure. The sleeves must be of a type designed for easy removal by applying a small amount of heat, slitting the sleeve with a knife, and peeling away the sleeve. Airport Lighting Connector Protection tubing, Series APL-823A, by Sigmaform Corporation of Vicksburg, Mississippi, is one of the products that meet these specifications. Substitutes require submittals per Paragraph 1A.4 above.

b. Secondary Connections. Where two-conductor plug and receptacle cable connectors are joined in light bases or other underground enclosures, the joint between the two connectors shall be sealed with at least two layers of electrical tape and an application of protective electrical coating. Where two-conductor plug and receptacle connectors are joined in a frangible coupling, apply no tape or any other protection.

16A.25 ELECTRICAL COATING. Cable connections, splices, or other joints wrapped with plastic electrical tape, shall be sealed with an electrical coating meeting Military Specification MIL-P-18623. Scotchkote electrical coating is among the products meeting this specification.

16A.26 COMMERCIAL METAL FRAMING. Where specified for mounting of electrical equipment or other purpose, the contractor shall furnish and install commercial metal framing. The channel framing members shall be formed from strip steel, with one side of the channel having a continuous slot with inturned lips. The principle of attachment is application of nuts which engage the inturned lips of the channel. For outdoor applications, framing members shall be hot-dip galvanized per ASTM Specification A-123 or A-153. For indoor applications, 16A.26 framing members shall be factory coated with enamel or epoxy coatings, or electro-galvanized per ASTM Specification B633, or pre-galvanized with a G90 zinc coating per ASTM Specification A-525. Uncoated framing members, or framing members coated only with oil, are not acceptable. Properly sized and matched channel framing members, fittings, and hardware from Unistrut Corporation of Wayne, Michigan, and from B-Line Systems, Inc. of Highland, Illinois are among products meeting the above specifications. Installation shall be in accordance with manufacturer's instructions.

16A.27 EXPANSION COUPLING. Where shown on the drawings, rigid metal conduits which emerge vertically from below grade to make a direct connection to an above-grade junction box or structure, shall be fitted with an expansion coupling. The purpose of the expansion coupling is to accommodate relative vertical movement, such as the movement due to frost heave. The coupling shall be rigid metal, and shall be threaded onto the rigid conduits at both ends of the coupling. The coupling must accommodate 8 inches of movement, unless space limitations prohibit installing such a coupling. If there are such space limitations, a coupling allowing only 4 inches of movement may be substituted. For expansion couplings accommodating 8 inches of movement, couplings of the Appleton XJ-8 series are among couplings meeting these specifications. For expansion couplings accommodating 4 inches of movement, couplings of the Appleton XJ-4 series are among couplings meeting these specifications. Electrical continuity across the expansion coupling must be maintained by installing a bonding jumper. Bonding jumpers of the Appleton XJB-4 series meet these specifications for 4"-movement expansion couplings. Bonding jumpers of the Appleton XJB-8 series meet these specifications for 8"-movement expansion couplings.

CADWELD EXOTHERMIC WELDING KITS

GROUNDING ELECTRODE	CABLE SIZE (RUN WIRE)	CABLE SIZE (TAP WIRE)	CONNECTION TYPE DESIGNATION AND MOLD NUMBER		WELD METAL	CONNECTION DESCRIPTION
Copperclad		#6 Solid	GR	GRT-181G	32	These are connections in which a horizontal copper cable terminates at the top of a vertical 3/4" grounding electrode.
		#6 Stranded	GR	GRT-181H	32	
		#2 Stranded[1]	GR	GRC-188D[2]	115	
Stainless Steel		#6 Solid	GR	GRT-331G	32	
		#6 Stranded	GR	GRT-331H	32	
		#2 Stranded[1]	GR	GRC-338D[2]	115	
Copperclad	#6 Solid		GT	GTP-181G	45	These are connections in which a through run cable connects to the top of a vertical 3/4" grounding electrode.
	#6 Stranded		GT	GTP-181H	45	
Stainless Steel	#6 Solid		GT	GTP-331G	45	
	#6 Stranded		GT	GTP-331H	45	
Copperclad	#4/0 Stranded		GY	GYE-182Q	150	These are connections in which a through run cable connects to the side of a vertical 3/4" grounding electrode.
Stainless Steel	#4/0 Stranded		GY	GYE-332Q	150	
	#6 Solid	#6 Solid	PC	PCC-1G1G	25	PC designates parallel connections of horizontal cables, with the tap on top.
	#6 Stranded	#6 Stranded	PC	PCC-1H1H	25	
	#2 Stranded	#6 Solid	PC	PCC-1V1G	32	
	#2 Stranded	#2 Stranded	PC	PCC-1V1V	65	
	4/0 Stranded	4/0 Stranded	TA	TAC-2Q2Q	150	TA designates tee connections of horizontal run and tap cables.
	4/0 Stranded	#32 Thompson	TA	TAC-2Q8C	115	
	4/0 Stranded	#506 Thompson	TA	TAC-2Q8F	150	

NOTE: 1. Lightning conductor, #2 copper stranded 17 AWG, 59500 CM, 187.5 lb/1000 ft., IPC #32S, approximately 15/32" diameter.

2. Use Cadweld E-Z Change Handle, Catalog Number L-160, when using this mold.

DIVISION 16 - ELECTRICAL
SECTION 16B
600-VOLT POWER CABLE FOR UNDERGROUND INSTALLATION

16B.1 SCOPE. This section covers the material requirements for all contractor-furnished single-conductor 600-volt power cable required for direct earth burial installation. Installation of power cable is covered in Section 16F.

16B.2 GENERAL REQUIREMENTS. Cable construction shall include copper single conductor and XLP (thermosetting crosslinked polyethylene) insulation. Cable shall be UL listed as Type USE or RHW or RHH for use in circuits not exceeding 600 volts at conductor temperatures of 90°C for continuous normal operation, 130°C for emergency overload conditions, and 250°C for short circuit conditions. Cables shall be suitable for direct burial and above-grade installation in wet or dry locations.

16B.3 APPLICABLE SPECIFICATIONS.

a. Underwriters Laboratories Standard 854 for Service Entrance Cables.

b. Underwriters Laboratories Standard 44 for Rubber-Insulated Wires and Cables.

c. ICEA Publication Number S-66-524, NEMA Publication Number WC7 for Crosslinked Polyethylene-Insulated Wire and Cable.

d. Federal Specification J-C-30A.

16B.4 CABLE CONSTRUCTION. Cable characteristics shall include the following materials and construction:

a. Conductors. Conductors shall be solid or Class B stranded annealed uncoated copper, per UL Standards 854 and 44.

b. Separator. A suitable separator over the conductor may be used at the option of the manufacturer.

c. Insulation. Each conductor shall be insulated with XLP (crosslinked polyethylene) complying with the physical and electrical requirements of UL Standard 854 for Type USE and UL Standard 44 for Types RHW and RHH and Paragraph 3-6 of ICEA Publication Number S-66-524. The insulation shall be applied lightly to the conductor and shall be free-stripping.

16B.5 IDENTIFICATION. The cable shall be identified by surface marking indicating manufacturer's conductor size and metal, voltage rating, UL Symbol and type designation, and year of manufacture.

16B.6 TESTS. Cable shall be tested in accordance with requirements of UL Standard 854 for Type USE, UL Standard 44 for Types RHW and RHH, and ICEA Publication Number S-66-524, Paragraph 3.6.

16B.7 DATE OF MANUFACTURE. Year of manufacture of all cable shall be no earlier than one calendar year immediately preceding contract award date.

16B.8 PACKAGING. All cable shall be provided on wooden or steel reels, and ends of all cable shall be sealed to prevent entry of moisture. All reels shall identify type, length, and year of manufacture of cable packaged on such reels. All such identification shall be clearly provided by the manufacturer.

DIVISION 16 - ELECTRICAL
SECTION 16C
600-VOLT ARMORED POWER CABLE

16C.1 DESCRIPTION. This section covers the material requirements for all contractor-furnished 600-volt 3-conductor armored power cable required for direct earth burial installation. Installation of power cable is covered in Section 16F.

16C.2 GENERAL REQUIREMENTS. Cable construction shall include three copper conductors with XLP (thermosetting crosslinked polyethylene) insulation, galvanized steel interlocking armor, and PVC jackets under and over armor. Cable shall be UL listed as type MC for use in circuits not exceeding 600 volts phase to phase at conductor temperatures of 90°C in dry locations, or 75°C in wet locations, 130°C for emergency overload conditions, and 250°C for short circuit conditions in wet or dry locations. Cables shall be designed and labeled for direct burial use.

16C.3 APPLICABLE SPECIFICATIONS. The following specifications form a part of this specification to the extent specified herein:

a. UL Standard 1569 for Metal-Clad Cables.

b. UL Standard 44 for Rubber Insulated Wires and Cables.

c. ICEA Publication Number S-66-524, NEMA Publication Number WC7 for Crosslinked-polyethylene insulated Wire and Cable.

d. IEEE 383 Type Tests of Class 1E Electric Cables, Field Splices and Connections for Nuclear Power Generating Stations.

CABLE CONSTRUCTION. Cable construction shall include the following materials end construction:

a. Conductors. Class B stranded annealed uncoated copper per Part 2 of ICEA.

b. Separator. A suitable separator over the conductor may be used at the option of the manufacturer.

c. Insulation. XLP crosslinked polyethylene meeting the requirements of ICEA Part 3, Paragraph 3.6 and Type XHHW requirements of UL 44. Average thickness of insulation shall be as specified in UL 44 for Type XHHW conductors and in the Table 3-1 of ICEA. Minimum thickness at any point shall be not less than 90% of the specified average thickness.

16C.4d

d. Phase Identification. Insulated phase conductors shall be printed with the numeral "1", "2", and "3" on the surface of the insulation.

e. Assembly. Three phase conductors shall be cabled together with a Class B stranded, uncoated copper grounding conductor and suitable nonhygroscopic fillers to make round. Length of lay shall not exceed 35 times the phase conductor diameter. The grounding conductor shall comply with the requirements of UL Standard 1569. A suitable nonhygroscopic cable tape shall be applied over the assembly.

f. Inner PVC Jacket. PVC meeting the requirements of ICEA, Part 4 and the Sunlight Resistant requirements of UL 1569. Average jacket thickness shall be in accordance with UL 1569. Minimum thickness at any point shall be not less than 70 percent of the specified average thickness.

g. Armor. Galvanized steel interlocked armor shall be applied over the inner PVC jacket. Armor shall be in accordance with UL requirements for Type MC cable and Part 4 of ICEA.

h. Outer PVC Jacket. PVC meeting the requirements of ICEA, Part 4 and the Sunlight Resistant requirements of UL 1569. Average jacket thickness shall be in accordance with UL 1569. Minimum thickness at any point shall be not less than 70 percent of specified average thickness.

16C.5 TESTS. Conductors and completed cables shall be tested in accordance with UL requirements for Type MC cables having XHHW conductors.

16C.6 IDENTIFICATION. Cable shall be identified by surface marking indicating manufacturer's identification, conductor size and metal, voltage rating, UL symbol and type designation, year of manufacture, and "direct burial" designation.

16C.7 DATE OF MANUFACTURE. Year of manufacture of all cable shall be no earlier than one calendar year immediately preceding contract award date.

16C.8 PACKAGING. All cable shall be provided on wooden or steel reels, and ends of all cable shall be sealed to prevent entry of moisture. All reels shall identify type, length, and year of manufacture of cable packaged on such reels. All such identification shall be clearly provided by the manufacturer.

16C.9 SUBMITTALS. For the specific cable that the contractor proposes to use, the contractor shall submit the manufacturer's complete cable specifications, including compliance with all cable requirements, codes, and standards referenced herein, and a drawing showing cable construction details. Submit these items, and receive the Contracting Officer's approval before installing any cable specified herein. See Paragraph 1A.4 above.

DIVISION 16 - ELECTRICAL
SECTION 16D
5000-VOLT POWER CABLE

16D.1 SCOPE. This section covers the material requirements for all contractor-furnished single-conductor, 5000-volt power distribution cable required for direct earth burial installation. Cable manufactured per FAA Specification L-824 shall not be used for power distribution. Installation of power cable is covered in Section 16F.

16D.2 GENERAL REQUIREMENTS.

a. Cables shall be XLP-insulated, 5000-volt, single copper conductor, shielded power cable UL listed as Type MV-90. Cable shall be rated at 100 percent insulation level for use in grounded neutral circuits in wet or dry locations below grade at conductor temperatures of 90°C for continuous normal operations, 130°C for emergency overload conditions, and 250°C for short circuit conditions.

b. Cable construction shall include copper single conductor, conductor shield, XLP (thermosetting crosslinked polyethylene) insulation, metallic tape or wire shield over tape bedding, separator tape, and PVC (polyvinyl chloride) jacket.

16D.3 APPLICABLE SPECIFICATIONS. The following specifications shall form a part of this specification to the extent specified herein.

a. Underwriters Laboratories Standard 1072 for Medium-Voltage Solid-Dielectric Cable.

b. ICEA Publication Number S-66-524 and NEMA Publication Number WC7 for Crosslinked-Thermosetting-Polyethylene-Insulated Wire and Cable.

16D.4 CABLE CONSTRUCTION. Cable characteristics shall include the following materials and construction:

a. Conductors. Class B stranded annealed copper per Paragraphs 2.1 and 2.3 of ICEA.

b. Conductor Shielding. The conductor shall be covered with a layer of semiconducting tape or extruded conducting compound. The extruded conducting compound or tape layer shall be firmly bonded to the cable insulation, and shall meet the requirements of Paragraph 2.4 of ICEA.

16D.4c

c. Insulation. Directly over the conductor shielding shall be applied a homogeneous wall of XLP insulation. The average thickness of insulation shall be as specified in Table 3-1 of ICEA. Minimum thickness at any point shall be not less than 90 percent of the specified thickness. Physical and electrical properties of the insulation shall be in accordance with Paragraph 3.7 of ICEA.

d. Shielding.

(1) A thin uniform layer of black conducting polymeric coating shall be applied directly over the insulation. A semiconducting non-metallic tape shall be wrapped over this coating to act as a conductive bedding between coating layer and the metallic shielding. A special marker tape applied over the semiconducting tape shall identify the tape and coating layers as conducting.

(2) A metal shield shall be applied over the semiconducting tape. Shield shall be helically applied copper tape or concentrically and evenly spaced #22 AWG solid uncoated copper wires meeting requirements of ICEA paragraph 4.1.1.2.

e. Separator Tape. A suitable separator shall be applied over the cable shielding system.

f. Jacket. A polyvinyl chloride jacket shall be applied overall. This jacket shall meet the requirements of Paragraph 4.3.1 of ICEA and the Sunlight Resistant requirements of UL Standard 1072. The average thickness of the jacket shall be as specified in Table 4-6 of ICEA. The minimum thickness at any point shall be not less than 80 percent of that specified.

16D.5 IDENTIFICATION. Cable shall be identified by means of surface ink printing indicating manufacture, conductor size, insulation type, voltage rating, UL designations, and year of manufacture.

16D.6 TESTS. Cables shall be tested in accordance with ICEA S-66-524 and UL Standard 1072.

16D.7 DATE OF MANUFACTURE. Year of manufacture of all cable shall be no earlier than one calendar year immediately preceding contract award date.

16D.8 PACKAGING. All cable shall be provided on wooden or steel reels, and ends of all cable shall be sealed to prevent entry of moisture. All reels shall identify type, length, and year of manufacture of cable packaged on such reels. All such identification shall be clearly provided by the manufacturer.

16D.9 SUBMITTALS. Prior to installing any cable specified herein, the contractor shall submit the following documents, for the specific cable that the contractor proposes to use, to the Contracting Officer, and receive approval therefrom for its use (see Paragraph 1A.4 above):

a. Manufacturer's complete cable specifications, including compliance to all cable requirements, codes, and standards referenced herein and drawing showing cable construction details.

b. Manufacturer's recommended practices for maximum cable pulling tensions and minimum bending radii.

DIVISION 16 - ELECTRICAL
SECTION 16E
CONTROL CABLE

16E.1 SCOPE. This section covers the material requirements for all contractor-furnished exterior standard and gopher-resistant filled control (telephone) cable to be installed as shown on the drawings. Installation of control cables is covered in Section 16F.

16E.2 APPLICABLE SPECIFICATIONS.

a. United States Department of Agriculture, Rural Electrification Administration (REA), Specification PE-39 for "Filled Telephone Cable" (Bulletin 345-67) latest edition, including all addendums and attachments thereto, forms a part of these specifications and is applicable in its entirety.

b. Certain requirements, specified herein, supplement the requirements of Specification PE-39, and shall receive special attention by the cable manufacturer and contractor.

16E.3 GENERAL REQUIREMENTS.

a. Definition. The term "control cable" used throughout these specifications and on the project drawings is a general FAA term for cable used to transmit voice and control functions. The required cable is termed "telephone" or "telephone exchange" cable by the cable manufacturing industry.

b. Quality. All control (telephone) cables shall be the standard products of a single major cable manufacturer and shall be designed and manufactured according to the highest industry standards. All cables shall be free of any imperfection which could affect serviceability and design life.

16E.4 STANDARD CABLE CONSTRUCTION. Cable requirements, complying with these specifications and Specification PE-39, include the following materials and construction.

a. Conductors. #19 AWG solid annealed copper.

b. Conductor Insulation. Solid polypropylene or polyethylene color coded in accordance with telephone industry "standard" coding.

c. Twisted Pairs. Individual conductors twisted into pairs with varying lays to minimize crosstalk.

d. Forming of Cable Core. Cables having 25 pairs or less are assembled into a single cylindrical group. Cables having more than 25 pairs are assembled in units, each individually identified by color coded unit binders.

e. Filling Compound. Water resistant non-hardening compound to fill and seal all interstices between the conductor pairs.

f. Core Covering. Non-hygroscopic dielectric tape.

g. Flooding Compound. Water resistant and bonding compound to fill all voids between the core wrap and shield and between the shield and jacket.

h. Shield. Corrugated electrically continuous and longitudinally applied 0.008 inch coated aluminum or 0.005 inch copper.

i. Jacket. High molecular weight polyethylene or high-molecular weight ethylene copolymer.

16E.5 GOPHER-RESISTANT CABLE CONSTRUCTION.

a. General. If gopher-resistant cable is required by drawings or special specifications, cable construction shall comply with all construction requirements for standard cable in Subsection 16E.4 above (including conformance with REA Specification PE-39) excepting for item h, "Shield", which shall comply with the following:

b. Gopher-Resistant Shield. Corrugated electrically continuous and longitudinally applied overlapping metal shield consisting of one of the following materials:

(1) 0.010 inch copper.

(2) 0.006 inch copper/stainless steel/copper bimetallic alloy.

(3) 0.007 inch Alloy 194 for 6 pr #19 cable.

(4) 0.006 inch Alloy 194 for cables larger than 6 pr #19.

(5) 0.008 inch coated aluminum with 0.006 inch coated steel.

16E.6 CABLE IDENTIFICATION. In accordance with Specification PE-39, all cable shall have jacket printed at periodic intervals with the name of the manufacturer, manufacturer's standard designation, year of manufacture, number of pairs, conductor gauge, sequential length marks, and notation signifying compliance with Specification PE-39 (if not clearly referenced in the manufacturer's submittals). In addition, the gopher-resistant shield shall be clearly identified.

16E.7 DATE OF MANUFACTURE. Year of manufacture of all cable shall be no earlier than one calendar year immediately preceding contract award date.

16E.8 PACKAGING. In accordance with Specification PE-39, all cable shall be stored and shipped on reels affording the required protection. Thermal wrapping shall be provided and ends of all cables shall be capped against exposure to moisture. All reels shall be labeled by the manufacturer and shall bear the manufacturer's name, year of manufacture, REA cable designation, description of cable, actual shipping length, and identification referenced to tests of record as required herein.

16E.9 TESTS.

a. All project cable furnished shall satisfy all test requirements of Specification PE-39. Records of all such tests shall be retained by the manufacturer, according to Paragraph 29 of Specification PE-39, and shall be promptly made available to the Federal Aviation Administration upon request. All tests shall be specifically and clearly referenced to all reels of cable furnished.

b. Basic cable design, for all project cable furnished, shall have proven acceptable to REA through "qualification testing" according to Paragraph 27 of Specification PE-39.

c. Electrical tests, according to paragraph 28.1 of Specification
PE-39, shall be performed on 100 percent of all project cable furnished.

d. Quality assurance (capability) tests, according to Paragraph 28.2 of Specification PE-39, shall be performed on such periodic production basis so as to represent quality of all project cable furnished.

16E.10 SUBMITTALS. Prior to procuring any cable specified herein, the contractor shall submit the following documents for the specific cable that the contractor proposes to use, to the Contracting Officer, and receive written approval therefrom (see Paragraph 1A.4 above):

a. Manufacturer's complete cable specifications, including manufacturer's statement of compliance with REA Specification PE-39.

b. Drawing showing cable construction details.

DIVISION 16 - ELECTRICAL
SECTION 16F
CABLE INSTALLATION

16F.1 DESCRIPTION OF WORK. The extent of work is indicated on the drawings and by the provisions of this section. Included in this section are installation, splicing, and testing of power and control cables.

16F.2 GENERAL REQUIREMENTS.

a. Service Interruptions. Existing sources of power and control are indicated on the drawings. For circuits actively in use, the contractor shall coordinate temporary interruptions of service with users and suppliers, the Resident Engineer, and the airport management.

b. Cable Protection.

(1) All cable ends which will be exposed to weather, water, ground, or corrosive environment prior to termination, shall be sealed against these elements while awaiting termination or splicing. This requirement also applies to all cable ends in manholes or handholes. The sealing material shall be properly sized, easily removable heat shrinkable end caps (3M ICEC are acceptable), or electrical tape (see Paragraph 16A.19 above), with an application of brushed-on electrical coating.

(2) Cables shall not be bent at radii less than radii recommended by the manufacturer, or 10 times cable diameter (12 times diameter for armored cable), whichever is greater. Any cables damaged in any way by sharp bending shall be replaced.

(3) Special care should be taken when working with filled cables, especially when the temperature is below 35°F. This type of cable becomes more difficult to bend and work as the temperature decreases, and there is a possibility of cable damage at temperatures near 0°F.

c. 600-Volt Wire and Cable Color Coding.

(1) All single conductor 600 volt wire and cable for 120/240 volt power circuits shall be color coded black for line 1, red for line 2, and white for the neutral.

(2) For conductor sizes smaller than #8 AWG, conductor insulation shall be color coded. For sizes #8 AWG and larger, and for armored power cable, colored tape shall be used to identify the conductors if insulation is not color identified.

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(3) Conductors shall be color-coded in junction boxes, square duct, terminal boxes, or any other place accessible to view. In no case shall green be used for other than grounding, nor white for other than the system grounded (neutral) conductor.

d. Designation of Armored Cable. On drawings and other contract documents, the letter A immediately following the AWG number of a cable, indicates that the cable is armored (e.g., 3/C #8A, 600V).

16F.3 DIRECT-EARTH BURIAL CABLE INSTALLATION.

a. Installation Method. Unless otherwise specified, outdoor cables running from one structure or item of equipment to another, shall be direct earth buried. Direct-earth burial cables shall be installed either by the trench and backfill method or by the cable plowing method in accordance with all the requirements specified herein.

b. General Requirements.

(1) Underground cables shall be installed in straight lines between terminating locations or points of directional change.

(2) Unless otherwise specified, cables shall be installed a minimum of 24 inches and 30 inches below finished grade on airport property and off airport lands, respectively.

(3) Wherever possible, cable shall be installed in one continuous length without splices from connection to connection. The number of splices shall be kept to a minimum. Cable ends shall be effectively sealed against moisture immediately after cutting any type of cable. See the MALSR splice restrictions of Paragraph 13A.6.

(4) The contractor shall prepare a schedule for installing each reel of underground cable and shall submit it to the Resident Engineer for approval before installing any cable. The plan shall be predicated on use of the longest practical lengths of cable, in order to minimize splicing.

(5) A cable loop of at least three feet shall be left on each end of every cable run, on at least one side of every splice, and at all points where cable is brought above ground. A 3-foot minimum surplus cable length shall be left on both sides of splices in handholes and light bases. The slack loop shall be installed with the same minimum depth requirements as the cable run. Where cable is brought above ground, enough additional slack cable shall be left to make the required connections.

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c. Trench and Backfill Installation Method.

(1) Comply with all trenching, backfilling, compaction, and restoration requirements in Division 2.

(2) The contractor shall unreel the cable adjacent to or over the trench and manually place it in the trench. Do not pull the cable into the trench or drag it along the trench.

(3) Where more than one cable is installed in the same trench, maintain separation as hereinafter specified. Multiple cables shall be installed in the same relative positions throughout the cable trench. Cables shall not be stacked, crossed or intertwined in any manner.

d. Cable Plowing Method.

(1) Vibratory cable plowing equipment, adequate for installation of the types of cables to be installed and for the depth required, may be used, provided that soil conditions are suitable, equipment is in good working order, and proper installation procedures are utilized.

(2) While cable is being plowed into place, one person in addition to the operator of the plowing vehicle shall be present to assure that the cables do not kink or bind tightly while entering the plow.

(3) If, during plowing operations, it appears that the soil contains sharp objects, rocks over 2 inches in diameter, or any other hazard to the cable, plowing shall be discontinued, and the Resident Engineer notified. The Resident Engineer shall determine whether plowing will be allowed to continue, or whether another cable placement method shall be used.

(4) The slice left by the plow shall be closed by tamping or other approved method, after cable placement, to minimize the disturbance of the surface by the slice.

e. Cable Separation - Direct Burial.

(1) Where new buried power cables cross over or under control or telephone cables, power cables shall be installed in a length of PVC duct extending two feet each side of the crossing. Minimum separation shall be twelve inches.

(2) Power cables of the same circuit may be laid together in the trench without separation, except as noted below. Series lighting cables may be considered being of the same circuit.

(3) Power cables, of the same or different circuits of less than 600 volts, may be laid together in the same trench without separation.

(4) All power cables, 5,000 volts and below, shall be separated from all control, telephone and coaxial type cables by a minimum of 6 inches.

(5) Power cable, of more than 5,000 volts, shall be separated from all other cables by a minimum of 12 inches.

(6) Control, telephone, and coaxial cables may be laid in the trench without separation from each other.

f. Buried Ground Wire (Counterpoise). Unless specified otherwise, all direct-earth burial power, control and coaxial cables shall include the installation of #6 bare copper ground wire (counterpoise) per Paragraph 16A.4e above.

g. Cable Markers.

(1) Cable runs shall be marked by concrete cable markers according to project drawings. Cable markers for underground cable shall be installed at all changes of direction in cable runs, at 300 feet intervals in straight-line cable run segments, and at all splice locations.

(2) Markers shall not be poured in place. The markers shall be installed flat in the ground immediately above the cable and with approximately one inch projecting above the surface. Impress additional circuit identification symbols on markers if so directed by the Resident Engineer. Existing cable markers removed or displaced shall be replaced after installation of new cable.

16F.4 CABLE INSTALLATION IN UNDERGROUND DUCTS AND CONDUIT.

a. Precautions.

(1) Because almost all cable failures are caused by mechanical damage occurring during installation, the contractor should employ workmen experienced in underground cable installation, and utilize all the proper and unique equipment necessary for successful cable installation. Excessive direct tension, excessive sidewall pressure, sidewall impact, abrasion, sharp bending, and moisture intrusion will either destroy or shorten the useful life of cables installed.

(2) The following conditions and installation procedures, capable of damaging cable, shall be avoided:

(a) Sediment in ducts.

(b) Scoring of duct bends by pulling ropes.

(c) Inadequate support of guiding pulleys and pull tubes, resulting in binding of mechanisms and misalignment.

(d) Inadequate cable and duct lubrication, especially at bends.

(e) Dragging cables over manhole frame edges, duct entrances, and ground or pavement surfaces.

(f) Exposure to pedestrian or vehicular traffic.

(g) Looping in and out of manholes to avoid splicing.

(h) Power pulling at locations other than at ends of cable.

(i) "Jerking" of cables caused by too weak rope that elongates under tension, exerts momentary sharp pull on cable, recovers, and elongates for another like cycle.

(j) Sheaves and pulleys that stop rolling during pull, due to inadequate support or lubrication.

(k) Inadequate sealing and mechanical protection of cable ends.

(l) Reel surface and edge damage from poor hoisting techniques.

(m) Pulling distances too great.

b. Installation Equipment. Major equipment items, required for installing cable in underground ducts, shall include the following:

(1) Power winch.

(2) Cable feed-in tubing guide capable of producing a uniform and rigid 3 and 4-foot and greater radius bend, and having a nominal diameter equal to that of the ducts.

(3) Single pulleys or sheaves providing a minimum cable bending radius (not overall sheave radius) of 10 times the largest cable diameter. Such sheaves shall be

used for minor cable bends within "through cable" manholes and at feed-in manhole rims (if necessary). Sheaves shall have ball or roller bearings.

(4) Adjustable gang pulleys with three or more pulleys capable of producing up to a 4-foot smooth cable bending radius. Each pulley shall have minimum cable bending radius of 10 times the largest cable diameter.

(5) Lubrication equipment to pre-lubricate ducts, cables at guide-in tubing, and cables at intermediate pull-through manholes.

(6) Cable reel support equipment including stands, arbor, and braking mechanism.

(7) Dynamometer for measuring pulling tensions.

(8) Communications equipment.

(9) Pulling ropes or cords having the following characteristics:

(a) A working strength at least equal to the maximum allowable cable tensions as specified herein. "Working strength" is normally 10 to 14 percent of published rope "breaking strength".

(b) Rope or cord shall be a twisted or braided synthetic fiber unaffected by water and having a low level of elongation under load. Material shall have a texture non-injurious to plastic duct when pulled against bends. Wire rope, if proposed, shall have a smooth and rigidly adhering synthetic material covering.

(c) All pulling ropes or cords shall have swivel devices at cable attachment ends.

(10) Cable lubricant specifically manufactured for electrical and control (telephone) cables. Do not use soap lubricants or those containing soap which are harmful to polyethylene- sheathed cables.

(11) Cable pulling devices (secured to ends of cable as specified below).

c. Cable Pulling Devices.

(1) Pulling devices for securing cable to pulling rope shall be factory-installed pulling eyes, field-installed pulling eyes, or basket weave cable grips. All shall be provided with integral or separate swivels.

(2) Factory-installed pulling eyes necessitate that each cable pulling segment be cut to length by the cable manufacturer. Greater tensions and longer pulling lengths can be used with factory pulling eyes for straight duct bank segments.

(3) Field-installed pulling eyes for control cable shall be a 4-crimp series, sized to the cable. Power cable pulling eyes shall be a type secured to conductors and approved by the Resident Engineer.

(4) Basket weave cable pulling grips shall be carefully sized to the specific diameters of the cables to be installed. Use grips with a rotating eye feature for power and control (telephone) cables.

d. Duct Cleanout and Pre-Lubrication.

(1) If any new or existing underground duct or conduit displays any evidence of contamination by soil or other foreign matter, such ducts or conduit shall be cleaned with a stiff bristle brush, swabbed, and flushed clean with water under pressure, before proceeding with cable pulling operations. Even a minor amount of soil or sediment in the bottom area of a duct will greatly increase the coefficient of friction and pulling tension required. With soil contamination, cable lubricant is of little value. Therefore, it is of utmost importance that conduit be cleaned prior to installation of cable.

(2) It is the contractor's responsibility to determine whether ducts designated for occupancy should be cleaned. The contractor shall assume complete responsibility for any difficulties or damage to the cable in placing cable in ducts.

(3) In addition to cable lubrication as specified elsewhere, all ducts to receive cables under this contract, shall be pre-lubricated using the same lubricant as for cables. Lubrication shall be thoroughly applied with applicators designed for this purpose. Lubrication on cable only, will rub off to a large degree, especially at duct bank offsets at manholes.

16F.4e

e. Setting Up Cable Reels and Apparatus.

(1) The contractor shall inspect cable reels for flange protrusions which could damage the cable sheath. Also, the contractor shall inspect for any obstructions that could interfere with proper unwinding of the cable.

(2) Careful control shall be exercised in the movement of cable reels. Where it is necessary to roll a reel to a desired location, it shall be rolled in the direction indicated by the arrows painted on the reel flanges. The reel shall not be allowed to tilt. A substantial runway of heavy planks should be employed where uneven ground conditions exist that may cause the reel to tilt. Where it is necessary to move a reel of cable with heavy equipment, a cable reel sling or equivalent should be used.

(3) In conduit sections containing curves, the cable reel shall be set up at the manhole near the curve unless other conditions do not permit.

(4) Cable reels shall be set up on the same side of the manhole as the conduit section in which the cable is to be placed. The reel shall be made level and brought into proper alignment with the conduit section so that the cable may be passed from the top of the reel in a long smooth bend at maximum radius into the duct without twisting and making more than a 90-degree bend. This is of utmost importance in handling filled type cable in temperature ranges of 35^{o}F and lower. Under no circumstances shall the cable be pulled from the bottom of a reel.

(5) It is essential that the cable reel be in proper alignment and level during the placing operation. Incorrect location of the reel will cause unnecessary binding which will result in uneven cable feed.

(6) Do not permit adjacent turns of cable on the reel to stick together and cause binding as the cable is payed off the reel. Feed the cable by rotating the reel manually.

(7) Other cable support equipment, such as pulleys, sheaves, and gang-pulley equipment shall be set up rigidly within intermediate manholes to smoothly guide cables to exiting ducts.

f. Attaching Pulling Grips. All pulling grips shall be stretched onto the cables such that the entire lengths of the grip woven material will exert tension on the cable, thereby distributing stress. If the end of any cable grip

(furthest from the cable end) does not grip as tightly as the lead end, secure same to cable with a steel banding. Inspect cable grips frequently, and the first pull of control (telephone) cable in particular (in the first intermediate manhole), to ascertain that this requirement is fulfilled. If any uneven gripping is evident, banding will be required for all remaining cable installation of the applicable cable type and size.

g. Feeding and Pulling Cable.

(1) All cable shall be installed using methods that will prevent excessive and harmful stretching, twisting, and flexing of the cable. Such damaging treatment will mechanically weaken the cable and destroy the electrical properties immediately or in a short time.

(2) Cable may be pulled by hand or power winch. Pull rope shall be attached to cables with pulling eye or basket weave pulling grips (all equipped with swivels) for each cable pulled. Do not exceed maximum allowable pulling tension as hereinafter specified. Do not use cable manufacturer's maximum pulling tensions except for cable factory-installed pulling eyes.

(3) All splices shall occur in manholes only. Splices shall not be pulled into ducts or manholes.

(4) Cable feed-in tubing guide, same size as conduit, of suitable length shall be secured in the manhole between the cable reel and the face of the duct to protect the cable and guide it at the maximum possible smooth radius into the duct as it is payed off the reel.

(5) A cable lubricator (funnel) shall be placed around the cable just ahead of the cable feed-in guide to facilitate lubrication of the cable. The quantity of lubricant shall conform to the lubricant manufacturer's recommendations.

(6) Before starting to pull, check the equipment carefully to make sure that it is properly set up in order to minimize the chance of interruption once pulling has started. Tension shall be kept on both the cable reel and the pulling line at the start of the pull. Excessive slack and the twist of the pulling line may cause the connecting links to turn and catch in the duct. As far as possible, the cable shall be pulled in without stopping. A pulling speed of 80 to 100 feet per minute is recommended to minimize friction forces.

(7) A person experienced with cable handling shall be posted continuously at the cable reel while pulling cable. In addition to braking the reels and observing cable lubrication, he shall carefully inspect cable paying off the reel for cable sheath and other defects. If defects are noticed, the pulling operation shall be stopped immediately and the Resident Engineer promptly notified of the defect. Kinks and/or irregularities in the cable sheath shall be removed or corrected as directed by the Resident Engineer.

(8) Careful attention shall be paid to signals from the installation crew as the cable is being pulled so that pulling may be stopped instantly whenever necessary to avoid damage to the cable.

(9) If for any reason the pulling operation is halted between manholes, the winch operator shall not release the tension on the winch unless directed to do so. In restarting the pulling operation, the inertia of the cable shall be overcome by gradually increasing the tension in steps a few seconds apart until the cable once again is in motion.

(10) The leading end of the cable at intermediate manholes shall be guided into the duct and a feeder tube nozzle placed around the cable to prevent the cable from rubbing on the edge of the duct.

(11) All pulled ends shall be examined for evidence of damage due to the pulling operation. The cable sheath shall not be pulled beyond the cable core. Notify the Resident Engineer for inspection, and for repair or replacement action that must be taken where cracks or openings are found in the cable sheath following the pulling operations.

(12) Cable ends shall be kept sealed at all times using REA-approved cable end caps and electrical tape. After the cable has been placed, the exposed cable in the manholes should be wiped clean of cable lubricant with a cloth before leaving the manhole.

(13) All individual cable segments shall be pulled in one direction only. Both ends of a cut cable segment shall not be introduced into an intermediate manhole and pulled in two different directions. Also, no cable segments shall be pulled out of any manhole and introduced into the same manhole for a continuation of a cable segment pull. These unacceptable pulling practices, used to avoid splicing, result in abrasion from dragging over ground surfaces and manhole frame, exposure to pedestrian and vehicular traffic,

damage to cable layers from twisting and small bending radii when pulling cable loops through manhole frame. Shields of cables so pulled are almost always damaged.

(14) Sidewall cable pressure from duct bends, feed-in tubes, and pulleys, frequently govern the length of cable that can be pulled. The greater the radii, the less the sidewall pressure. Therefore, the contractor shall use the maximum radius at every manhole where a 90-degree pull is permitted. Adjustable gang pulleys with three or more pulleys shall be used for horizontal bends in manholes. Individual pulleys within the gang pulley device shall have a cable bending radius of minimum 10 times outside diameter of largest cable to be pulled. Width of pulleys shall be adequate to support the cable group to be pulled. Adjust gang pulleys to produce a smooth 90 degree curvature bend where such changes in direction occur.

(15) If cables will be spliced in a manhole where duct banks enter and leave 90 degrees apart, separate cable segments shall be introduced into the manhole and pulled in different directions unless pulling is permitted around a horizontal gang pulley within the manhole.

(16) Where more than one cable will be installed in a single duct, all shall be pulled into the duct concurrently.

h. Cable Spoil. All cable pulling ends shall be trimmed back to remove cable material always damaged by pulling eyes or basket weave pulling grips. To remove such spoil, cut each cable off a distance from the end equal to three times the length of pulling eye or twice the length of the basket weave pulling grip as a minimum. These amounts shall be cut off for all cables including those to be spliced or terminated by others.

i. Use of Dynamometer.

(1) The dynamometer shall be accurately calibrated and secured to properly indicate tension exerted on the cable. The dynamo-meter reading will usually give the resultant force exerted on the anchoring device, which shall be converted to the horizontal component to give correct value of pulling tension.

(2) Dynamometer readings shall be made only in the presence of the Resident Engineer. If any pulling tension is approaching the maximum allowable, and if in the judgment of the Resident Engineer, the allowable will be appreciably exceeded for the proposed run, pulling

operations shall be immediately stopped, and the cable run spliced in the preceding manhole.

j. Maximum Cable Pulling Tensions. Maximum allowable cable pulling tensions, as measured by dynamometer, shall not exceed the following values for single cables. For multiple cables, add the tension values for the number of cables being pulled. Use a pulling rope having a working strength [not breaking strength -- reference subsection 16F.4b(9)] at least equal to the "maximum allowable pulling tension" values below.

Cable	Maximum Allowable Pulling Tension (lbs)
1-1/C #8	125
1-1/C #6	200
1-1/C #4	325
1/1-C #2	500
1-6 PR #19	125
1-12 PR #19	250
1-25 PR #19	500

k. Separation of Cables Installed in Conduit or Duct.

(1) Power cables of the same voltage may be installed in the same duct.

(2) Power cables of less than 600 volts may be installed in the same duct.

(3) Power cables of less than 600 volts shall not be installed in the same duct with control, telephone, or coaxial type cables.

(4) Power cables of more than 600 volts shall not be installed in the same duct with control, telephone, coaxial, or power cables of less than 600 volts.

(5) Control, telephone, and coaxial cables may be installed in the same duct.

l. Cable Installation in Manholes or Handholes.

(1) Power and control cables shall be installed in separate manholes or handholes unless otherwise specified. If installed in same manhole, install power and control cables on opposite sides. At splice locations, use cable racks at different elevations to separate power and control cables.

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(2) Cable racking surplus shall be pulled back by hand into intermediate manholes. Pull surplus one manhole at a time beginning near both ends of cable segment. Do not use power winch unless permitted by the Resident Engineer.

(3) Cables shall be carefully routed around manhole interiors, taking all necessary precautions to prevent sharp bending. Cable racks shall be plastic or galvanized steel with properly sized porcelain insulators for the latter. Fasten all cables to plastic racks with nylon ties and to steel racks by means of the insulators.

(4) Where a splice occurs, cable shall make one loop around the manhole, and the splice located near the center of the loop.

(5) Where power and control cables are installed in the same manhole, the entire exposed length of all power and control (telephone) cables shall be fireproofed by applying fire and arc proofing tape per Paragraph 16A.23 above.

16F.5 CABLE TAGGING.

a. All cables shall be tagged in each manhole and in each terminal cabinet with not less than two tags per cable, one near each duct entrance hole. Tags shall be attached to cables immediately after installation of each cable.

b. Tags shall be circular in shape and 2 inches in diameter. Material shall be minimum 0.020-inch thick copper or brass or 0.0625-inch thick lead. 1/4-inch high steel lettering dies or equivalent size engraving equipment shall be used to make the tags. Tags shall be secured firmly to cables with Number 14 AWG copper wire.

c. Tag markings shall consist of an abbreviation of the facility served by the cable and the letter "P" or "C" denoting power or control. The facility shall include the applicable runway. Where like multiple control cables are routed between the same facilities, further identify such cables throughout the run with a single-digit number following the letter "C". All individual-conductor power circuits shall be bundled under the same tag as opposed to separate tags for each conductor.

16F.6 SPLICING.

a. General Requirements.

(1) Splices shall be performed only by experienced and qualified cable splicers regularly engaged in this type of work.

(2) Cable armor and/or shielding shall be bonded together across splices to provide continuous electrical paths.

(3) Where a cable is cut preparatory to splicing, the work shall proceed without delay. When an unavoidable delay is encountered in completing a splice, the opened cable shall be protected to prevent the entrance of moisture and foreign matter.

(4) Any splicing material (such as resin) older than the do-not-use-after date on the package, shall be replaced with new material at the contractor's expense.

(5) Unless otherwise specified, where multiple runs of single-conductor underground power cables are spliced, each single-conductor cable shall be spliced in a separate envelope.

(6) Approved stress reduction methods shall be used in splicing all shielded high voltage power cables (5KV and higher voltage).

b. Underground Power Cable Splices (600 Volts or Less). All low voltage splices shall be encapsulated in pressure resin in clear plastic envelopes, except as otherwise specified in Paragraph 13A.6 above, on drawings, or in special specifications. All low voltage splices shall be made with compression connectors specified in Paragraph 13A.6 above, except as otherwise specified on drawings and in special specifications.

c. Underground Control (Telephone Cable) Splices.

(1) Kit and Resin. The splices shall consist of a rigid polypropylene mold body with a built-in spacer web to provide cable centering and proper compound coverage. The mold body shall be filled with a flexible polyurethane electrical compound capable of continuous operation at 90°C, with an emergency overload temperature rating of 130°C. Splices must have provisions for inline splicing of shielded or non-shielded plastic or rubber-jacketed control (telephone) cables. The splices shall be rated for direct burial applications. For control cables with outside diameters between 0.25 inches and 3.25 inches, 3M Scotchcast Signal and Control Cable Inline Splicing kits of the 72N series are approved, as they are among kits which meet specifications.

(2) Connectors. Control cable splice connectors shall be in-line type, in which two conductors are spliced by laying one conductor in each end of the connector, and crimping the connector with a special tool selected to match the connector type and size. Before crimping,

the connector is open on one side of its length. After crimping, the connector is closed all around its length. The connector bodies shall be made with a tin-plated phosphor bronze piece on the inside, to contact the cable conductors, and bonded polyester insulation on the outside, to insulate the connection. The insulation shall be color coded to denote wire size range. The cable splice connectors and tools shall incorporate the insulation displacement termination technique which uses a slotted, tin-plated contact to displace the conductor insulation, thus providing four redundant electrical contact points. Connectors which require prestripping the conductor shall not be used. AMP, Inc. (Harrisburg, PA) Picabond connectors sized for conductor size, and matching AMP tooling, are among products meeting the above specifications, and are approved.

d. Submittals. See Paragraph 1A.4 above. If the contractor --

(1) Intends to splice using materials different from those specified in Paragraphs b and c above, or

(2) Intends to splice a 5KV or higher voltage power cable,

then the contractor shall submit to the Contracting Officer, shop drawings or catalog cuts for all splicing materials, tools, and dies. The contractor shall splice no cables before he has received the Contracting Officer's approval of these items.

16F.7 CONTROL (TELEPHONE) CABLE TERMINATIONS.

a. Cable Routing and Support.

(1) Cable jackets shall be removed within terminating enclosures such that no more than 2 inches of jacket material is visible within the enclosures. Ground shielding and armor as specified below.

(2) Exposed cable conductor bundles shall be lock-stitched laced together with nylon lacing twine spaced at approximate 5/8- inch intervals. Each bundle shall contain maximum 25 pairs of conductors which shall be neatly routed and secured to backing panels with nylon clamps.

b. Cable Pair Terminations.

(1) Terminated pairs shall have the same sequence on each terminal strip. (For terminal block specifications, see Paragraph 16A.19, above.) The color code termination sequence on the terminal strips shall be in accordance with the following schedule. The white

mates shall start at the top or left-hand side of the terminal block with color continuing down or across the block according to the following schedule:

MATE COLORS	PRIMARY WIRE COLORS
WHITE	BLUE
"	ORANGE
"	GREEN
"	BROWN
"	SLATE
RED	BLUE
"	ORANGE
"	GREEN
"	BROWN
"	SLATE
BLACK	BLUE
"	ORANGE
"	GREEN
"	BROWN
"	SLATE
YELLOW	BLUE
"	ORANGE
"	GREEN
"	BROWN
"	SLATE
VIOLET	BLUE
"	ORANGE
"	GREEN
"	BROWN
"	SLATE

(2) When cables do not have the preceding color code, like pairs shall be terminated in the same sequence at both ends of the cable.

16F.8 CABLE ARMOR AND SHIELD GROUNDING.

a. Grounding Locations.

(1) Control cable armor and/or shielding shall be grounded at one end of each cable run only.

(2) Power cable armor shall be grounded at both ends of each cable run.

(3) Shielding and armor of control and power cables shall not be grounded at splice locations.

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b. Grounding Procedures.

(1) Use #14 AWG stranded copper grounding conductors for grounding shielding and armor. Secure grounding conductors to shielding and armor by using UL-approved grounding connectors specifically designed for this purpose. Neatly tape ends of butted cable to conceal the connections.

(2) Attach crimp-type lugs of proper size to free ends of grounding conductors, and secure lugs to enclosure interior wall with a machine screw and nut.

16F.9 CABLE TESTING.

a. General Requirements.

(1) Both before and after installation, all contractor-furnished and Government-furnished power and control (telephone) cables shall be tested as required herein. Testing after installation shall be accomplished across splices.

(2) All testing shall be accomplished in the presence of the Resident Engineer. Furnish two signed and dated copies of all test results, clearly tabulated for all segments of cable tested, to the Resident Engineer.

(3) The contractor shall use his own test equipment, which shall bear current calibration certification from a certified instrument calibration laboratory.

(4) Any measured values not conforming to specified values shall be cause for rejection of the defective cable installation. After repair or replacement, if so required by the Resident Engineer, cable shall be retested and additional remedial work performed until satisfactory test results are obtained. All repair and replacement work shall be accomplished at no additional cost to the Government.

b. 600-Volt Power Cable Testing.

(1) Conductor continuity shall test positive.

(2) Armor continuity shall test positive.

(3) Dielectric strength/insulation resistance shall test 50 megohms minimum at 500 volts D.C. between the following:

(a) Conductor and ground for single-conductor cable.

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(b) Individual conductors for multi-conductor armored cable.

(c) Individual conductors and grounded armor.

c. Control (Telephone) Cable Testing.

(1) Conductor continuity shall test positive.

(2) Shield continuity shall test positive.

(3) Armor continuity shall test positive.

(4) Dielectric strength/insulation resistance shall test 50 megohms minimum at 500 volts D.C. between paired conductors and between individual conductors and grounded shield.

(5) After installing control cable, the minimum number of acceptable paired conductors shall comply with the following:

(a) For 11 pair or less cable, all pairs shall test acceptable.

(b) For 12 to 25 pair cable, all pairs except one shall test acceptable.

SPECIFICATIONS SUPPLEMENTAL TO
SPECIFICATIONS FAA-GL-840b AND FAA-GL-918C

8/01/2006

1. Contractor-Furnished Frangible Couplings. The following specifications supersede Paragraph 16A.20 of Specification FAA-GL-918C. The Contractor shall furnish all the frangible couplings to be applied under this contract. All frangible couplings shall be 2"-diameter cast aluminum couplings having hexagonal clamping ring. The coupling shall accommodate 2"-diameter EMT conduit. The frangible couplings shall meet the requirements of either Military Specification MS-17814-1, or of FAA Drawing C-6046. The straight-thread Multi-Electric Cat. No. 961-A frangible coupling is among couplings meeting MS-17814-1. The tapered-thread Multi-Electric Cat. No. 961-AT frangible coupling is among couplings conforming to FAA Drawing C-6046. If the Contractor intends to furnish substitute frangible couplings, the Contractor shall submit to the Contracting Officer, catalog cuts demonstrating that the substitute couplings meet the above specifications. The Contractor shall furnish at least 110 each of the frangible couplings. The Contractor shall turn all spare frangible couplings over to the Resident Engineer, who will deliver them to FAA maintenance personnel.

2. TACAN ANTENNA REMOVAL:

A. Before removing the antenna shelter to survey for the Doppler antenna pedestals, it will be necessary to remove and store the TACAN antenna. This can be accomplished by following the procedure described below:

1) Connect a sling (diagrammed in Fig. 2) to the antenna.

2) Lift the antenna vertically and make sure that the sling will not press against the antenna shelter during the lifting operation.

3) The antenna shall be stored in such a manner as to prohibit damage from dirt, wind and moisture. A suggested method for storing is outlined in Fig. 1. Alternate storage methods shall be approved by the resident engineer.

3. TACAN ANTENNA REINSTALLATION:

A. Connect sling as described in paragraph 2 above.

B. Rotate antenna assembly so that the NORTH name plate is aligned with the north/south baseline scribed on the antenna shelter. This baseline shall be established before antenna shelter removal.

There should be a north scribe mark on the existing antenna mounting plate.

C. Remove access doors on antenna in order to view mounting holes on base plate. Note that the access doors have captive chains which permit doors to hang clear of antenna.

D. Lower the antenna on the cover plate of the top mounting fixture, rotating slightly, so that the mounting holes in the antenna base align with the holes in the cover plate and the NORTH name plate is aligned as closely as possible with the magnetic north mark previously placed on the cover plate. Use a new neoprene rubber gasket between the antenna base and the top cover plate.

E. Secure antenna to the cover plate of the top mounting fixture using the existing nuts and bolts removed in paragraph 2.

3. CONTROL CABLE SHIELD GROUNDING. Control cable shield shall be grounded at each end of each cable run. This requirement overrides Specification FAA-GL-918C, Paragraph 16F.8a(1) and Specification FAA-GL-840B, Paragraph 16F.8a(1).
4. NO ASBESTOS. No material containing asbestos shall be installed under this contract.
5. GROUNDING ELECTRODE. The following specifications supersede Paragraph 16A.4c of Specification FAA-GL-918C.

   c. Grounding Electrode. Grounding electrodes (rods) shall be copper clad steel, 3/4-inch by 10 feet, except where otherwise specified. The top of the grounding electrode shall be a minimum of 12 inches below finished grade. Conductors shall be attached to electrodes with exothermic welds only, except where fire or explosion hazards exist, as near existing fuel tanks. Where such hazards exist, hydraulically crimped connections will be permitted as specified below.

6. ELECTRODE GROUND TESTING. The following specifications supersede Paragraph 16A.4h of Specification FAA-GL-918C.

   h. Testing. Electrode grounds shall be tested for resistance at each location. Resistance to ground for each grounding location shall be 10 ohms or less. If this value is not achieved with the grounding electrodes as shown on the drawings, additional grounding electrodes spaced at least 6 feet apart, or electrode extensions of the same construction and diameter, shall be installed until the resistance value does not exceed the maximum of 10 ohms. A tabulated report of the final resistance value at each location shall be provided to the Resident Engineer.

7. GROUND ROD CLAMPS. Paragraph 16A.18k, Ground Rod Clamps, of Specification FAA-GL-918C, is deleted.

8. CONTROL CABLE. The following specifications supplement Paragraph 16E of Specification FAA-GL-918C.

Specification. Control cable shall be either:

- REA Specification PE-39 cable meeting all the requirements of Section 16E, or
- REA Specification PE-89 cable (having foamed polyethylene or propylene conductor insulation with a solid skin of the same material), meeting all requirements of Specification FAA-GL-918C Section 16E except the REA Specification PE-39 requirements.

9. BURIED GUARD WIRE.

The following paragraph supplements and supersedes Paragraph 16A.4e of Specification FAA-GL-918C.

e. Buried Guard Wire. Buried cables (including armored cables) not completely enclosed in ferrous conduit, shall be protected by a bare copper guard wire. Unless specified otherwise, or shown otherwise on the drawings, the guard wire shall be #1/0 AWG. Embed the guard wire in the soil at least 10 inches directly above and parallel to the cables being protected. Where the width of the run of cables or ducts does not exceed 3 feet, install one guard wire centered over the cable or duct run. Where the cable or duct run is more than 3 feet wide, install two guard wires. Space the two guard wires at least 12 inches apart, and 12 to 18 inches inside the outermost wires or outermost edges of the duct. Weld the guard wire exothermically to a grounding electrode at each end, and to grounding electrodes at approximately 90-foot intervals. The spacing between the grounding electrodes shall vary by 10 to 20 percent, to prevent resonance.

The following paragraph supplements and supersedes Paragraph 16F.3f of Specification FAA-GL-918C.

f. Buried Guard Wire. Unless specified otherwise, all direct-earth burial power, control, and coaxial cables shall include the installation of #1/0 bare copper ground wire per Paragraph 16A.4e above.

10. SURVEY OF ANTENNA PEDESTALS

Installation of a Doppler VOR requires precise antenna location relative to true north. The existing antennas and cone are removed from the VOR. A transit is set directly over the center of the VOR and rotated to maintain antenna separation. Fifty antennas are surveyed at 7.2-degree intervals and placed 22 feet from the center of the VOR. A wood jig is used to mark the initial location of each antenna base. A

swivel bracket is bolted to the center of the VOR and the wood jig is rotated, maintaining the distance from the center of the VOR.

The antenna bases are constructed of 12"X12"X1/2" steel plates with four ¾" bolts to support a leveling plate. The steel plate is installed at each antenna location. Each base is surveyed at 7.2 degrees and squared with the center of the VOR.

A 12"X12"X1/2" steel leveling plate is installed on each of the lower plates. A laser level is used to maintain the elevation of the leveling plates. The plates are leveled at approximately 3" above the base plates. Antenna pedestals are mounted on the leveling plates and leveled. Precise leveling of the antenna pedestals greatly simplifies the antenna installation. Antennas are installed on each pedestal, surveyed at 7.2 degrees and squared to the center of the VOR. Shims are placed under the antenna for final leveling.

A monitoring antenna is installed approximately 200' from the VOR. The monitoring antenna is surveyed and installed at the same elevation as the VOR antennas. The angle of the monitoring antenna and distance is documented and used for equipment setup.

11. ANTENNA SHELTER

Removal of the antenna shelter shall be accomplished prior to installation of the Doppler Antennas. While the shelter is removed it shall be secured in such a manner as to prevent it from being damaged by wind. Re-installation of the shelter shall require the installation of new gaskets, and recaulking of the shelter joints as damage may have occurred in the removal process..

a.) At each antenna shelter gasket location, apply four beads of Tremco Curtain-wall sealant. Such gaskets are between the antenna shelter and roof, and between the antenna shelter and top mounting fixture. Sealant shall be applied as close as possible to the bolt lines to minimize the amount of sealant that will extrude out onto exposed surfaces. Remove any sealant that is extruded onto exposed surfaces with mineral spirits or xylol. Do not use gasoline or any cleaner that will dissolve the gasket material. The six vertical joints may be raked, and caulked using the sealant listed below.

b.) Sealant shall be Tremco Curtainwall Sealant- a non-drying, non-skinning synthetic rubber sealant. Sealant shall only be applied at temperatures above 40 degrees.

16A.19 CONTROL CABLE TERMINAL STRIPS. Unless specified otherwise, contractor-furnished control (telephone) cable terminal strips shall be units assembled from compatible components all from the same manufacturer. The individual blocks of the strips shall be miniature style (6mm O.C.) nylon blocks with screw-activated tubular conductor clamps. The blocks shall be rated for a maximum voltage of at least 300 volts and a maximum current of at least 30 amperes. The conductor clamps shall accept wire sizes of at least from #22 to #14. Stab-in wire connection blocks shall not be used. The blocks shall be mounted in a standard 35mm DIN rail mounting channel. The assembled strip of blocks shall have a marking strip and holding plugs or end barriers. For terminating control cables on these strips, see Paragraph 16F.7 below. The following terminal strip components are among components which meet these specifications:

16A.19a

a. Square D: Block No. 9080GM6, with mounting channel and marking strip No. 9080GH60, with end barrier No. 9080GM6B.

b. Square D: Block No. AB1W435U, with mounting channel and marking strips of the AB1B6XX series, with end barrier No. AB1AC24 and end clamp No. AB1AB8P35.

c. Wieland: Block series WK4/U, type 57.504.0055.0 with mounting channel and marking tags of the WK4/U series, type No. 04.846.0153.0, 04.846.0253.0, 04.856.1153.0 with end plate No. 07.311.0155.0 and end clamp No. Z5.522.7453.0 or Z5.522.8553.0.

d. Allen-Bradley: Block No. 1492-J4, with mounting channel and marking strips of the 1492-M6X12 series, with end barrier 1492-EBJ3 and end clamp No. 1492-EAJ35.

e. Weidmüller: Block series WDU 4, type No. 1020100000, with mounting channel and marking strips of the Dekafix marking tags series, with end plate series WAP 2.5-10, type No. 1050000000 and end bracket WEW 35/2, type No. 1061200000.